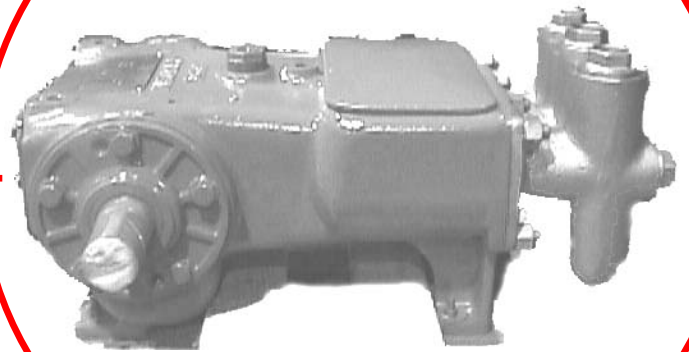
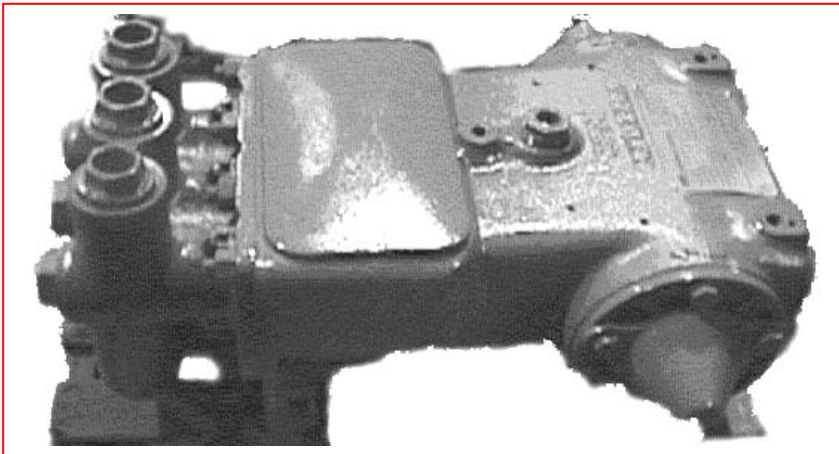


22T-2 & 32T-2 Multiplex Plunger Pumps

Parts List



32T-2

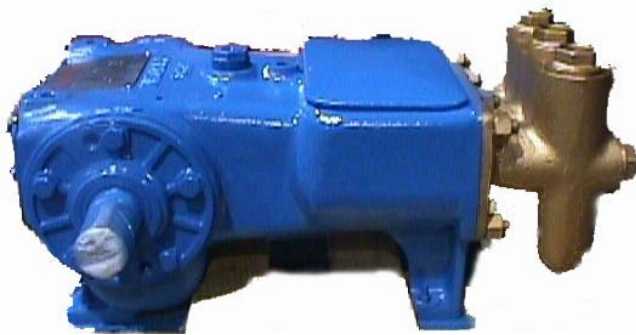
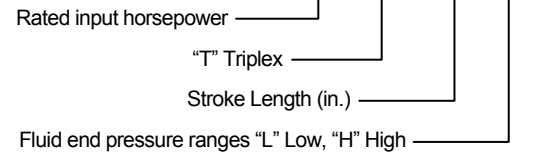


22T-2

Types:
22T-2
32T-2

Sales / Technical Information

USA Tollfree: 1 (800) 324-4706
Phone: 1 (918) 447-4600
Fax: 1 (918) 447-4677
Internet: <http://www.nov.com>



32T-2



22T-2

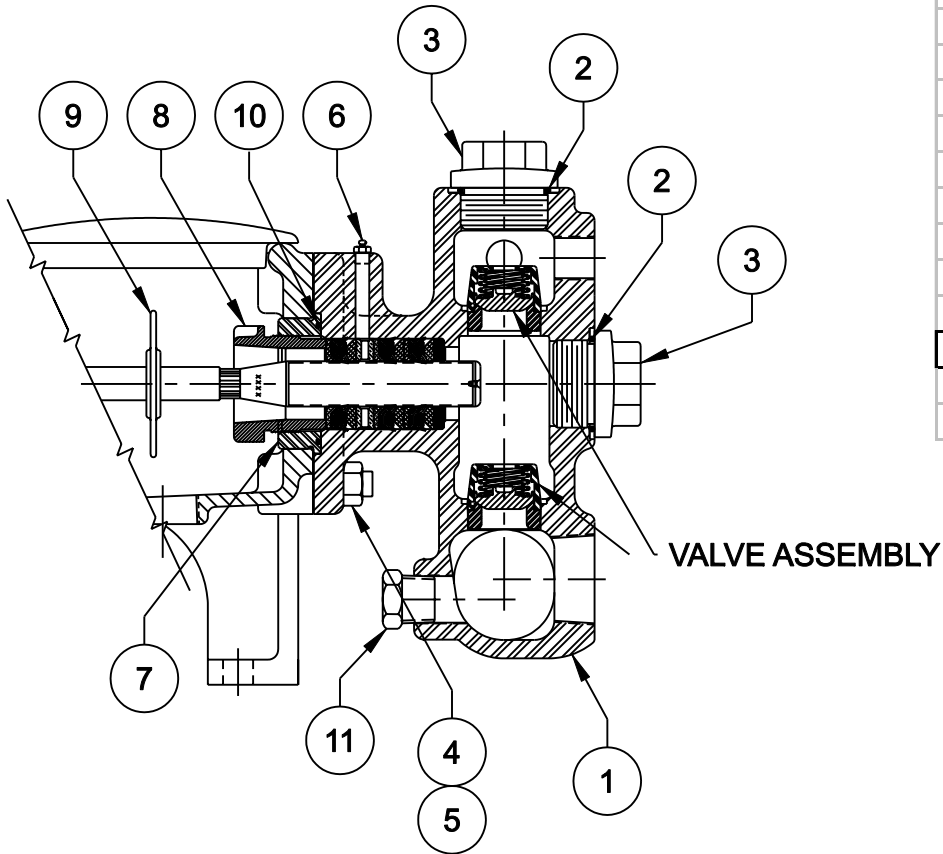
Index and Check List:

PAGE	DWG. NUMBER	DESCRIPTION	SERIES OF ISSUE	DATE OF ISSUE
1	117638	ASSY, CAST FLUID END, DUCTILE IRON	FIRST	8-27-04
2	117637	ASSY, CAST FLUID END, BRONZE – FRONT CONN.	FIRST	8-27-04
3	117639	ASSY, CAST FLUID END, STAINLESS STEEL – FRONT CONN.	FIRST	8-27-04
4	117659	ASSY, CAST FLUID END, STAINLESS STEEL – SIDE CONN.	FIRST	8-27-04
5	117661	ASSY, BILLET FLUID END, STEEL – SIDE CONN.	FIRST	8-27-04
6	117663	ASSY, CAST FLUID END, DUCTILE IRON – FRONT CONN.	FIRST	8-27-04
7	117662	ASSY, CAST FLUID END, BRONZE – FRONT CONN.	FIRST	8-27-04
8	117664	ASSY, CAST FLUID END, STAINLESS STEEL – FRONT CONN.	FIRST	8-27-04
9	117767	ASSY, CAST FLUID END, STAINLESS STEEL – SIDE CONN.	FIRST	8-27-04
10	117668	ASSY, FORGED FLUID END, STAINLESS STEEL	FIRST	8-27-04
11	117665	ASSY, BILLET FLUID END, PLATE STEEL	FIRST	8-27-04
12	117660	ASSEMBLY, POWER END	FIRST	8-27-04
13	117669	ASSEMBLY, CRANKSHAFT POWER END	FIRST	8-27-04
14	117689	ASSEMBLY, DISC VALVE	FIRST	8-27-04
15	117690	ASSEMBLY, SPHERICAL VALVE	FIRST	8-27-04
16	117691	ASSEMBLY, SEVERE DUTY	FIRST	8-27-04
17	117692	ASSEMBLY, VALVE	FIRST	8-27-04
18	117636	TOOL KIT	FIRST	8-27-04
19	117693 P.1	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" J-STYLE PACKING	FIRST	8-27-04
20	117693 P.2	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" J-STYLE PACKING	FIRST	8-27-04
21	117693 P.3	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" J-STYLE PACKING	FIRST	8-27-04
22	117693 P.4	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" J-STYLE PACKING	FIRST	8-27-04
23	117693 P.5	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" J-STYLE PACKING	FIRST	8-27-04
24	117693 P.6	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" J-STYLE PACKING	FIRST	8-27-04
25	117694 P.1	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" BRAID STYLE PACKING	FIRST	8-27-04
26	117694 P.2	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" BRAID STYLE PACKING	FIRST	8-27-04

Index and Check List Multiplex Plunger Pump (Continued)



PAGE	DWG. NUMBER	DESCRIPTION	SERIES OF ISSUE	DATE OF ISSUE
27	117694 P.3	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" BRAID STYLE PACKING	FIRST	8-27-04
28	117694 P.4	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" BRAID STYLE PACKING	FIRST	8-27-04
29	117694 P.5	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" BRAID STYLE PACKING	FIRST	8-27-04
30	117694 P.6	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" BRAID STYLE PACKING	FIRST	8-27-04
31	117695 P.1	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" 1068-4 STYLE PACKING	FIRST	8-27-04
32	117695 P.2	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" 1068-4 STYLE PACKING	FIRST	8-27-04
33	117695 P.3	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" 1068-4 STYLE PACKING	FIRST	8-27-04
34	117695 P.4	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" 1068-4 STYLE PACKING	FIRST	8-27-04
35	117695 P.5	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" 1068-4 STYLE PACKING	FIRST	8-27-04
36	117695 P.6	ASSY, PLUNGER KIT 1-1/8 - 1-3/4" 1068-4 STYLE PACKING	FIRST	8-27-04
37	117699 P.1	ASSY, PLUNGER KIT 1-1/2 - 2" J-STYLE PACKING	FIRST	8-27-04
38	117699 P.2	ASSY, PLUNGER KIT 1-1/2 - 2" J-STYLE PACKING	FIRST	8-27-04
39	117699 P.3	ASSY, PLUNGER KIT 1-1/2 - 2" J-STYLE PACKING	FIRST	8-27-04
40	117699 P.4	ASSY, PLUNGER KIT 1-1/2 - 2" J-STYLE PACKING	FIRST	8-27-04
41	117699 P.5	ASSY, PLUNGER KIT 1-1/2 - 2" J-STYLE PACKING	FIRST	8-27-04
42	117700 P.1	ASSY, PLUNGER KIT 1-1/2 - 2" BRAID STYLE PACKING	FIRST	8-27-04
43	117700 P.2	ASSY, PLUNGER KIT 1-1/2 - 2" BRAID STYLE PACKING	FIRST	8-27-04
44	117700 P.3	ASSY, PLUNGER KIT 1-1/2 - 2" BRAID STYLE PACKING	FIRST	8-27-04
45	117700 P.4	ASSY, PLUNGER KIT 1-1/2 - 2" BRAID STYLE PACKING	FIRST	8-27-04
46	117700 P.5	ASSY, PLUNGER KIT 1-1/2 - 2" BRAID STYLE PACKING	FIRST	8-27-04
47	117701 P.1	ASSY, PLUNGER KIT 1-1/2 - 2" 1068-4 STYLE PACKING	FIRST	8-27-04
48	117701 P.2	ASSY, PLUNGER KIT 1-1/2 - 2" 1068-4 STYLE PACKING	FIRST	8-27-04
49	117701 P.3	ASSY, PLUNGER KIT 1-1/2 - 2" 1068-4 STYLE PACKING	FIRST	8-27-04
50	117701 P.4	ASSY, PLUNGER KIT 1-1/2 - 2" 1068-4 STYLE PACKING	FIRST	8-27-04
51	117701 P.5	ASSY, PLUNGER KIT 1-1/2 - 2" 1068-4 STYLE PACKING	FIRST	8-27-04
52	117696	PLUNGERS, 1-1/8" THRU 2" HARD SURFACE	FIRST	8-27-04
53	117697	PLUNGERS, 1-1/8" THRU 2" CERAMIC	FIRST	8-27-04
54	117698	PLUNGERS, 3/4" TO 1" HARD SURFACE	FIRST	8-27-04
55	117673	ASSEMBLY, PACKING LUBRICATOR	FIRST	8-27-04
56	117687	ASSEMBLY, D.O.H. LUBRICATOR	FIRST	8-27-04
57	117670	GENERAL DIMENSION, RHD, FLUID END, LOW PRESSURE	FIRST	8-27-04
58	117671	GENERAL DIMENSION, RHD, FLUID END, MEDIUM PRESSURE	FIRST	8-27-04
59	117672	GENERAL DIMENSION, RHD, BILLET FLUID END, HIGH PRESSURE	FIRST	8-27-04



	117691	SEVERE DUTY VALVE	
	117690	SPHERICAL VALVE	
	117689	DISC VALVE	
	<u>DRAWING No:</u>	<u>VALVE ASSEMBLY:</u>	
3	110-000234-201	O-RING (ADAPTER)	11
1	170-100002-405	PLUG	10
3	001-008910-201	BAFFLE DISC	9
3	001-000497-310	GLAND NUT 2"	
3	001-011242-310	GLAND NUT 1-7/8"	
3	001-011241-310	GLAND NUT 1-3/4"	
3	001-011240-310	GLAND NUT 1-5/8"	
3	001-011239-310	GLAND NUT 1-1/2"	8
3	001-028512-236	POWER END / FLUID END ADAPTER	7
3	180-165000-220	LUBRICATION FITTING	6
8	133-034010-286	NUT	5
8	102-034212-286	STUD	4
6	002-028954-351	CYLINDER HEAD / VALVE COVER	3
6	110-000036-201	SEAL	2
1	004-028507-351	FLUID END, DUCTILE IRON CAST	1
REQ'D	Part No.	DESCRIPTION	ITEM

BILL OF MATERIAL



HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

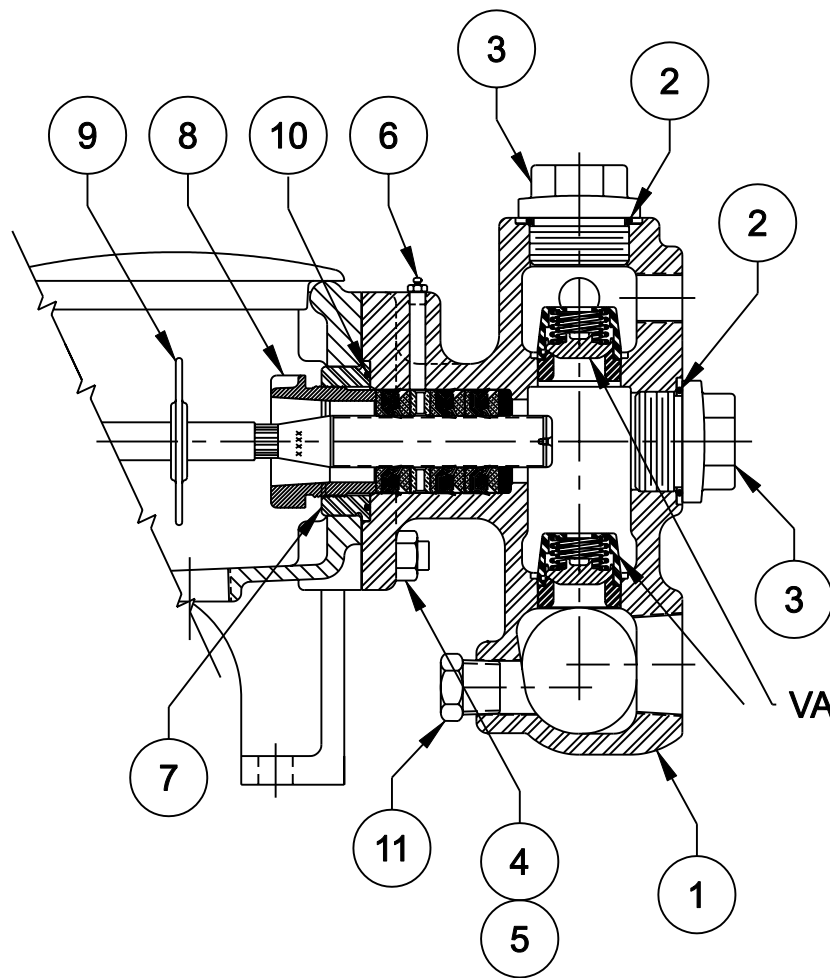
**ASSEMBLY, CAST FLUID END
DUCTILE IRON
22T-2L, 32T-2L (T225LS)**

DWG No.: **117638**

SCALE: **NONE**

REV **A**

SHT: **1** OF **1**



	117691	SEVERE DUTY VALVE	
	117690	SPHERICAL VALVE	
	117689	DISC VALVE	
	<u>DRAWING No:</u>	<u>VALVE ASSEMBLY:</u>	
3	110-000234-201	O-RING (ADAPTER)	11
1	170-100002-405	PLUG	10
3	001-008910-201	BAFFLE DISC	9
3	001-000497-310	GLAND NUT 2"	
3	001-011242-310	GLAND NUT 1-7/8"	
3	001-011241-310	GLAND NUT 1-3/4"	
3	001-011240-310	GLAND NUT 1-5/8"	
3	001-011239-310	GLAND NUT 1-1/2"	8
3	001-028512-313	POWER END / FLUID END ADAPTER	7
3	180-165000-220	LUBRICATION FITTING	6
8	133-034010-286	NUT	5
8	102-034212-286	STUD	4
6	002-028954-351	CYLINDER HEAD / VALVE COVER	3
6	110-000036-201	SEAL	2
1	004-028507-316	FLUID END, BRONZE CAST	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

VALVE ASSEMBLY



HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

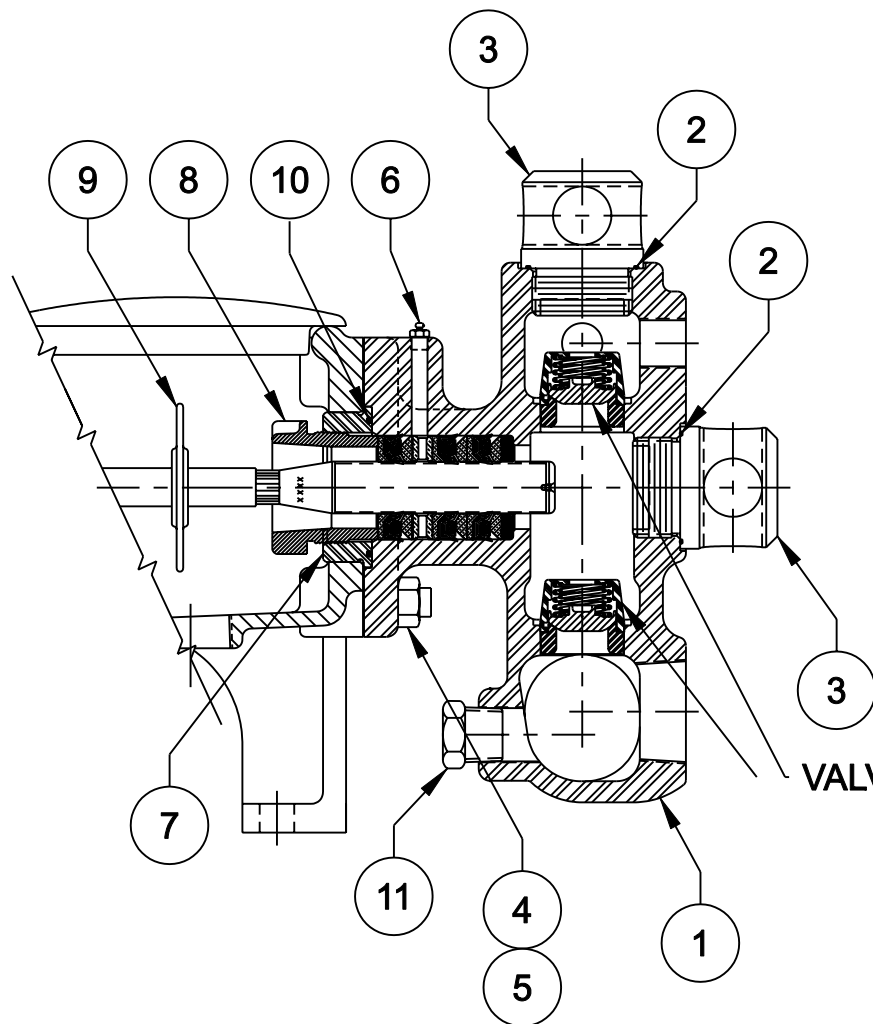
ASSEMBLY, CAST FLUID END
BRONZE, FRNT. CONN.
22T-2L, 32T-2L (T 225LS)

DWG No.: 117637

SCALE: NONE

REV A

SHT.: 1 OF 1



VALVE ASSEMBLY

REQ'D	Part No.	DESCRIPTION	ITEM
	117691	SEVERE DUTY VALVE	
	117690	SPHERICAL VALVE	
	117689	DISC VALVE	
	<u>DRAWING No:</u>	<u>VALVE ASSEMBLY:</u>	
1	170-100002-405	PLUG	11
3	110-000234-201	O-RING (ADAPTER)	10
3	001-008910-201	BAFFLE DISC	9
3	AAC-115784-E16	GLAND NUT 2"	
3	ABC-115784-E16	GLAND NUT 1-7/8"	
3	ACC-115784-E16	GLAND NUT 1-3/4"	
3	ADC-115784-E16	GLAND NUT 1-5/8"	
3	AEC-115784-E16	GLAND NUT 1-1/2"	8
3	001-028512-278	POWER END / FLUID END ADAPTER	7
3	180-165000-220	LUBRICATION FITTING	6
8	133-034010-287	NUT	5
8	102-034212-287	STUD	4
6	AAB-030911-E16	CYLINDER HEAD / VALVE COVER	3
6	110-000036-201	SEAL	2
1	004-028507-261	FLUID END, CAST ST. STEEL	1
REQ'D	Part No.	DESCRIPTION	ITEM

BILL OF MATERIAL



HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, CAST FLUID END
STAINLESS STEEL, FRONT CONN.,
22T-2L / 32T-2L (T225LS)

DWG No.: 117639

SCALE: NONE

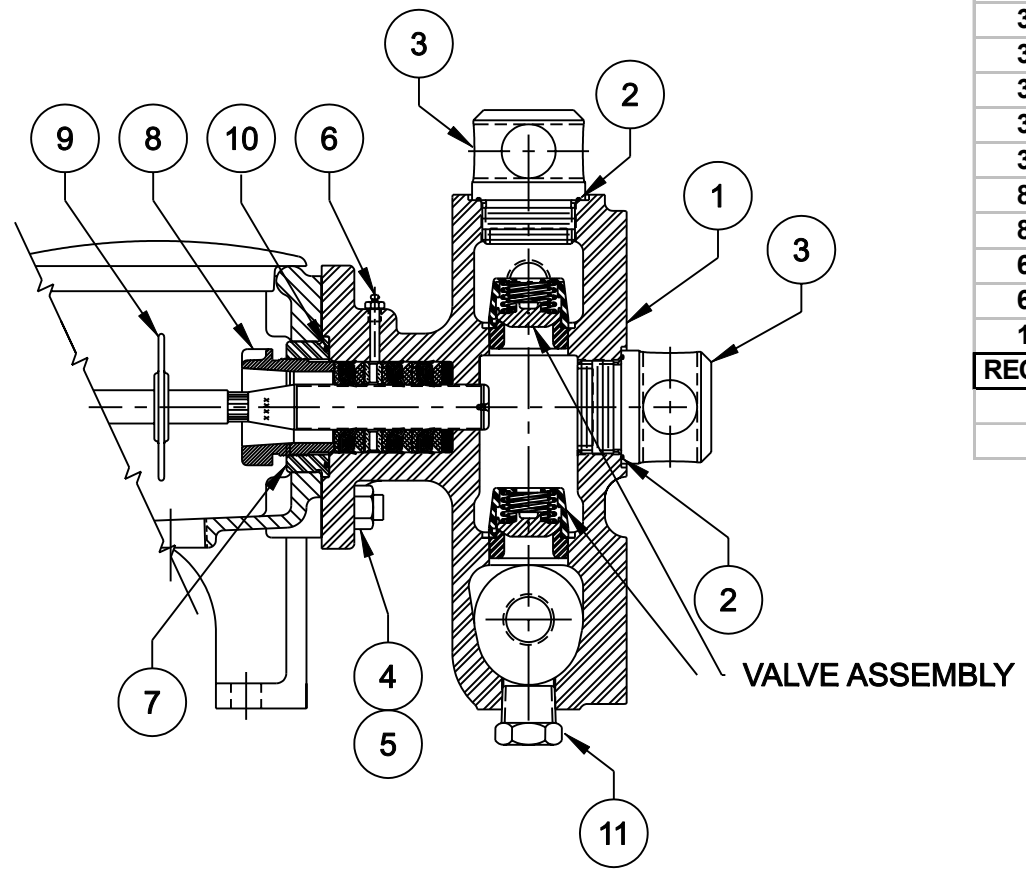
REV A

SHT.: 1 OF 1

117691	SEVERE DUTY VALVE	
117690	SPHERICAL VALVE	
117689	DISC VALVE	
DRAWING No:	VALVE ASSEMBLY:	

1	170-100002-405	PLUG	11
3	110-000234-201	O-RING (ADAPTER)	10
3	001-008910-201	BAFFLE DISC	9
3	AAC-115784-E16	GLAND NUT 2"	
3	ABC-115784-E16	GLAND NUT 1-7/8"	
3	ACC-115784-E16	GLAND NUT 1-3/4"	
3	ADC-115784-E16	GLAND NUT 1-5/8"	
3	AEC-115784-E16	GLAND NUT 1-1/2"	8
3	001-028512-278	POWER END / FLUID END ADAPTER	7
3	180-165000-220	LUBRICATION FITTING	6
8	133-034010-287	NUT	5
8	102-034212-287	STUD	4
6	AAB-030911-E16	CYLINDER HEAD / VALVE COVER	3
6	110-000036-201	SEAL (VALVE / CYLINDER COVER)	2
1	008-029561-261	FLUID END, CAST ST. STEEL	1
REQ'D	Part No.	DESCRIPTION	ITEM

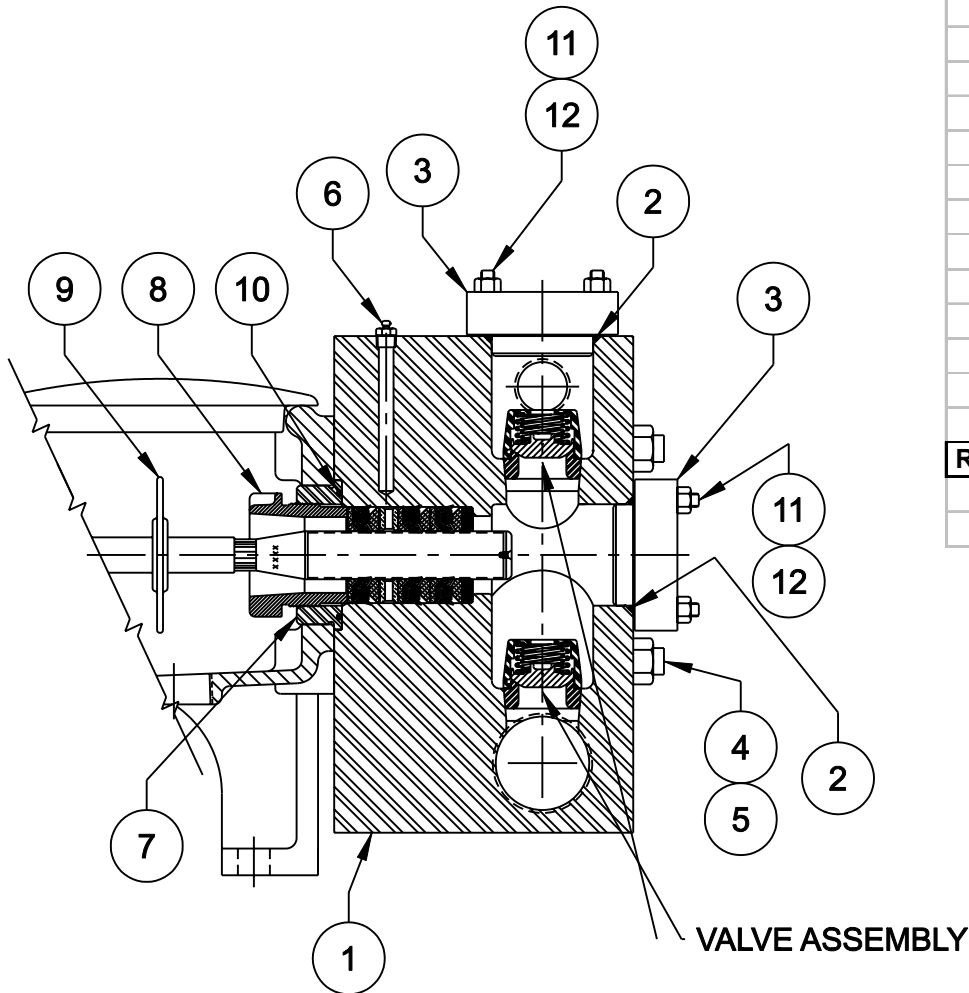
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4

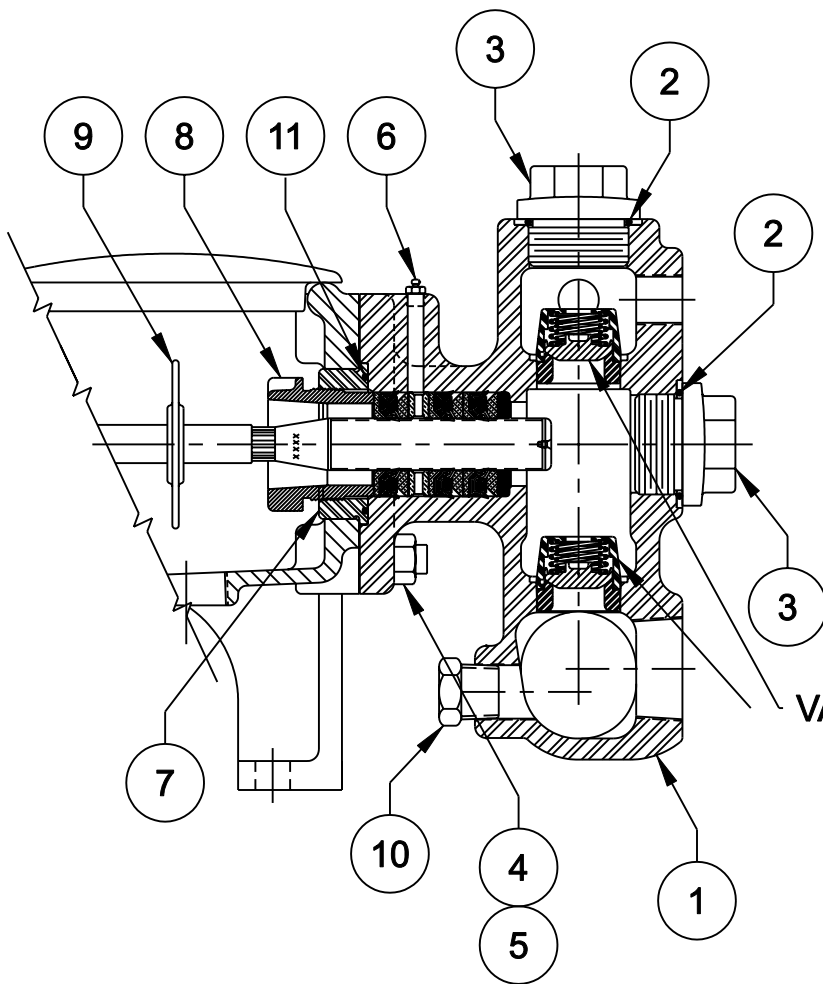
 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, CAST FLUID END STAINLESS STEEL, SIDE CONN., 22T-2L / 32T-2L (T225LS)			
DWG No.:	117659	SCALE:	NONE
REV:	A	SHT.:	1 OF 1

	117691	SEVERE DUTY VALVE	
	117690	SPHERICAL VALVE	
	117689	DISC VALVE	
	DRAWING No:	VALVE ASSEMBLY:	
24	133-058011-286	NUT (CYLINDER / VALVE COVER)	12
24	102-058212-286	STUD (CYLINDER / VALVE COVER)	11
3	110-000234-201	O-RING (ADAPTER)	10
3	001-008910-201	BAFFLE DISC	9
3	001-000497-310	GLAND NUT 2"	
3	001-011242-310	GLAND NUT 1-7/8"	
3	001-011241-310	GLAND NUT 1-3/4"	
3	001-011240-310	GLAND NUT 1-5/8"	
3	001-011239-310	GLAND NUT 1-1/2"	8
3	001-028512-236	POWER END / FLUID END ADAPTER	7
3	180-165000-220	LUBRICATION FITTING	6
8	133-034010-286	NUT	5
8	102-034834-286	STUD	4
6	AAB-030923-231	CYLINDER HEAD / VALVE COVER	3
6	110-000229-201	SEAL (CYLINDER / VALVE COVER)	2
1	AAC-030928-C06	FLUID END, STEEL	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			



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NO NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.	ENGINEERING, TULSA, OKLAHOMA
TITLE: ASSEMBLY, BILLET FLUID END STEEL, SIDE CONN., 22T-2L / 32T-2L (T225AL)	
DWG No.: 117661	SCALE: NONE REV A SHT.: 1 OF 1



	117691	SEVERE DUTY VALVE	
	117690	SPHERICAL VALVE	
	117689	DISC VALVE	
	<u>DRAWING No:</u>	<u>VALVE ASSEMBLY:</u>	
3	110-000232-201	O-RING (ADAPTER)	11
1	170-100002-405	PLUG	10
3	001-008910-201	BAFFLE DISC	9
3	001-008909-304	GLAND NUT 1-3/4"	
3	001-011231-304	GLAND NUT 1-5/8"	
3	001-011230-304	GLAND NUT 1-1/2"	
3	001-011229-304	GLAND NUT 1-3/8"	
3	001-011228-304	GLAND NUT 1-1/4"	
3	001-011227-304	GLAND NUT 1-1/8"	8
3	001-003948-236	POWER END / FLUID END ADAPTER	7
3	180-165000-220	LUBRICATION FITTING	6
8	133-034010-286	NUT	5
8	102-034212-286	STUD	4
6	002-028954-351	CYLINDER HEAD / VALVE COVER	3
6	110-000036-201	SEAL (VALVE / CYLINDER COVER)	2
1	AAC-030004-351	FLUID END, CAST DUCTILE IRON	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			



NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, CAST FLUID END
DUCTILE IRON, FRNT CONN
22T-2M / 32T-2M (T225M)

DWG No.: 117663

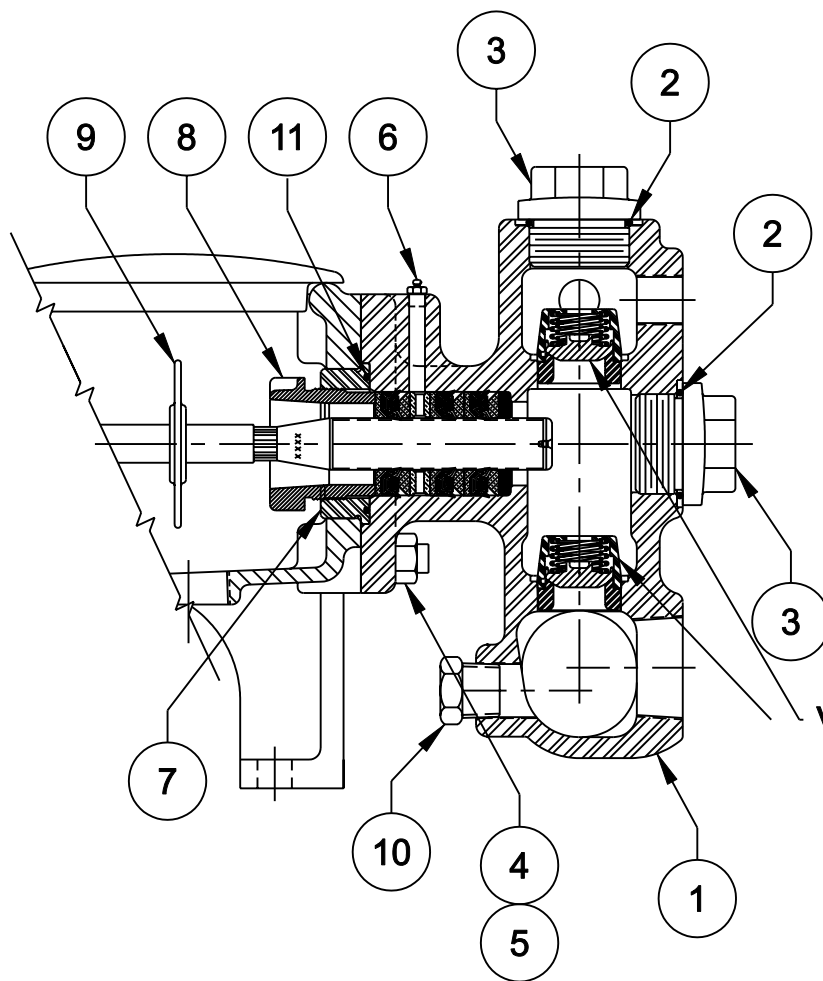
SCALE: NONE

REV A

SHT.: 1 OF 1

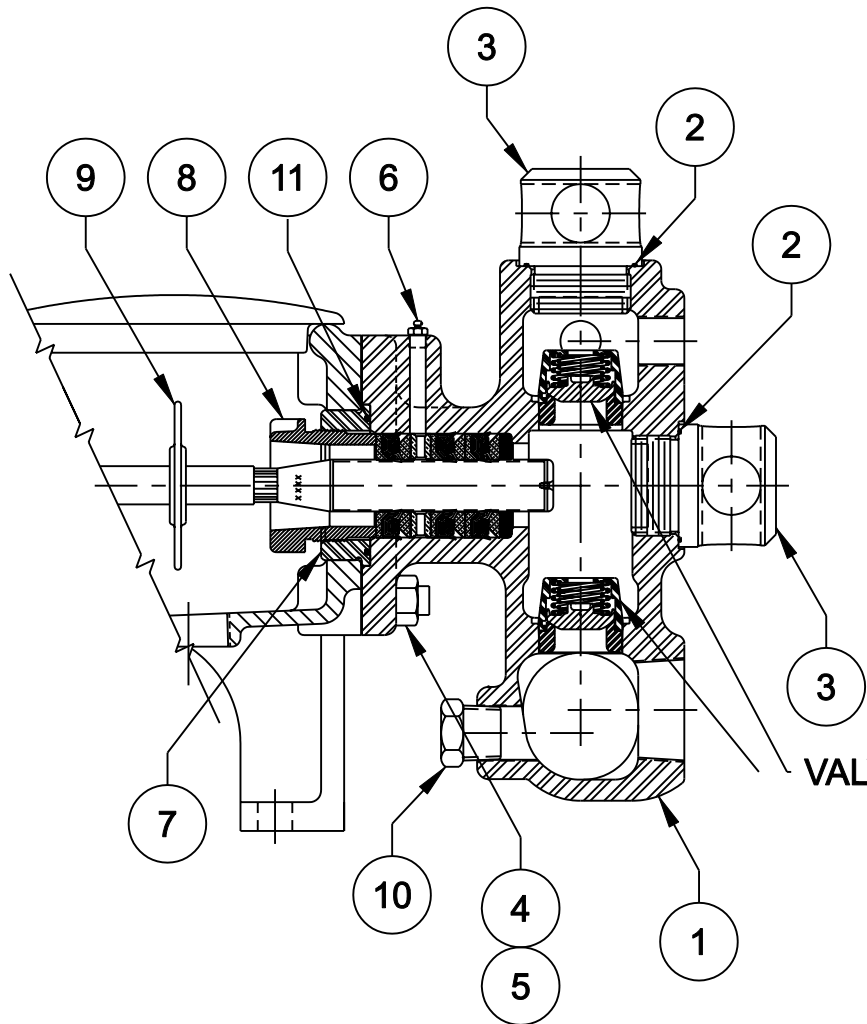
6

	117691	SEVERE DUTY VALVE	
	117690	SPHERICAL VALVE	
	117689	DISC VALVE	
	<u>DRAWING No:</u>	<u>VALVE ASSEMBLY:</u>	
	<u>3</u>	110-000232-201 O-RING (ADAPTER)	11
	<u>1</u>	170-100002-405 PLUG	10
	<u>3</u>	001-008910-201 BAFFLE DISC	9
	<u>3</u>	001-008909-304 GLAND NUT 1-3/4"	
	<u>3</u>	001-011231-304 GLAND NUT 1-5/8"	
	<u>3</u>	001-011230-304 GLAND NUT 1-1/2"	
	<u>3</u>	001-011229-304 GLAND NUT 1-3/8"	
	<u>3</u>	001-011228-304 GLAND NUT 1-1/4"	
	<u>3</u>	001-011227-304 GLAND NUT 1-1/8"	8
	<u>3</u>	001-003948-316 POWER END / FLUID END ADAPTER	7
	<u>3</u>	180-165000-220 LUBRICATION FITTING	6
	<u>8</u>	133-034010-286 NUT	5
	<u>8</u>	102-034212-286 STUD	4
	<u>6</u>	002-028954-316 CYLINDER HEAD / VALVE COVER	3
	<u>6</u>	110-000036-201 SEAL (VALVE/ CYLINDER COVER)	2
	<u>1</u>	AAC-030004-316 FLUID END, CAST BRONZE	1
	REQ'D	Part No.	DESCRIPTION
			ITEM
BILL OF MATERIAL			



VALVE ASSEMBLY

NO NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.	ENGINEERING, TULSA, OKLAHOMA
TITLE: ASSEMBLY, CAST FLUID END BRONZE, FRONT CONN. 22T-2M / 32T-2M (T225M)	
DWG No.: 117662	SCALE: NONE
REV A	SHT.: 1 OF 1

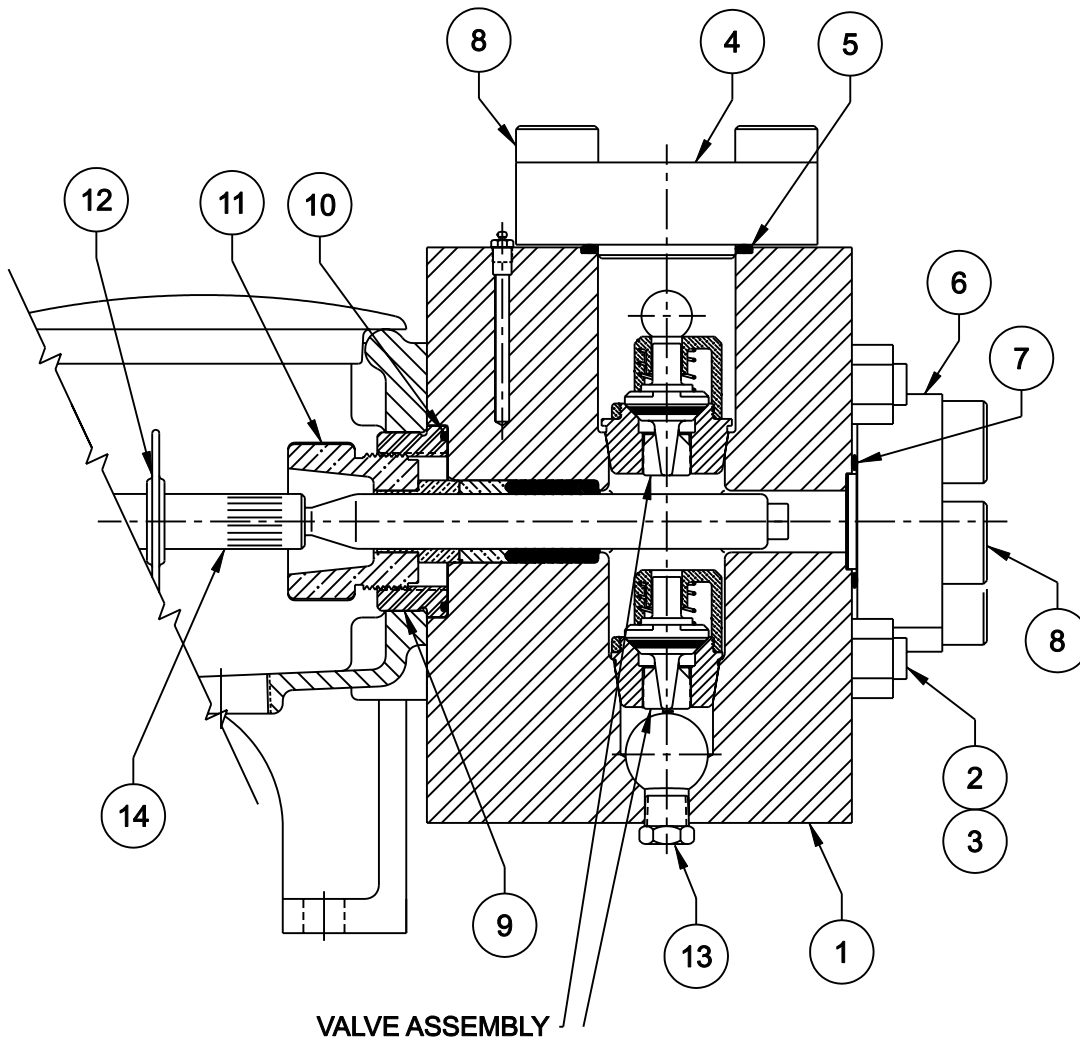


VALVE ASSEMBLY

REQ'D	Part No.	DESCRIPTION	ITEM
	117691	SEVERE DUTY VALVE	
	117690	SPHERICAL VALVE	
	117689	DISC VALVE	
	<u>DRAWING No:</u>	<u>VALVE ASSEMBLY:</u>	
3	110-000232-201	O-RING (ADAPTER)	11
1	170-100002-405	PLUG	10
3	001-008910-201	BAFFLE DISC	9
3	AAC-013800-E16	GLAND NUT 1-3/4"	
3	ABC-013800-E16	GLAND NUT 1-5/8"	
3	ACC-013800-E16	GLAND NUT 1-1/2"	
3	ADC-013800-E16	GLAND NUT 1-3/8"	
3	AEC-013800-E16	GLAND NUT 1-1/4"	
3	AFC-013800-E16	GLAND NUT 1-1/8"	8
3	001-003948-278	POWER END / FLUID END ADAPTER	7
3	180-165000-220	LUBRICATION FITTING	6
8	133-034010-286	NUT	5
8	102-034212-286	STUD	4
6	AAB-030911-E16	CYLINDER HEAD / VALVE COVER	3
6	110-000036-201	SEAL (VALVE / CYLINDER COVER)	2
1	AAC-030004-261	FLUID END, CAST STAINLESS STEEL	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

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NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE: ASSEMBLY, CAST FLUID END STAINLESS STEEL, FRONT CONN. 22T-2M / 32T-2M (T225M)			
DWG No:	117664	SCALE:	NONE
REV	A	SHT:	1 OF 1



117692		POLYURETHANE SEAL	
DRAWING No:		VALVE ASSEMBLY:	
3	001-014266-402	ADAPTER ROD	14
1	170-012002-405	DRAIN PLUG	13
3	001-008910-201	BAFFLE DISC	12
3	001-014278-304	GLAND NUT (3/4" THRU 1")	11
3	110-000234-504	O-RING (ADAPTER)	10
3	AAA-030462-278	ADAPTER	9
21	271-100212-290	CAP SCREW	8
3	110-000218-504	O-RING (CYLINDER HEAD)	7
3	AAA-115895-278	CYLINDER HEAD	6
3	110-000231-504	O-RING (VALVE COVER)	5
3	AAB-115896-278	VALVE COVER	4
8	133-034010-286	NUT	3
8	102-034934-286	STUD	2
1	004-014270-276	FLUID END, ST. STEEL	1
REQ'D	Part No.	DESCRIPTION	ITEM

BILL OF MATERIAL

10



HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

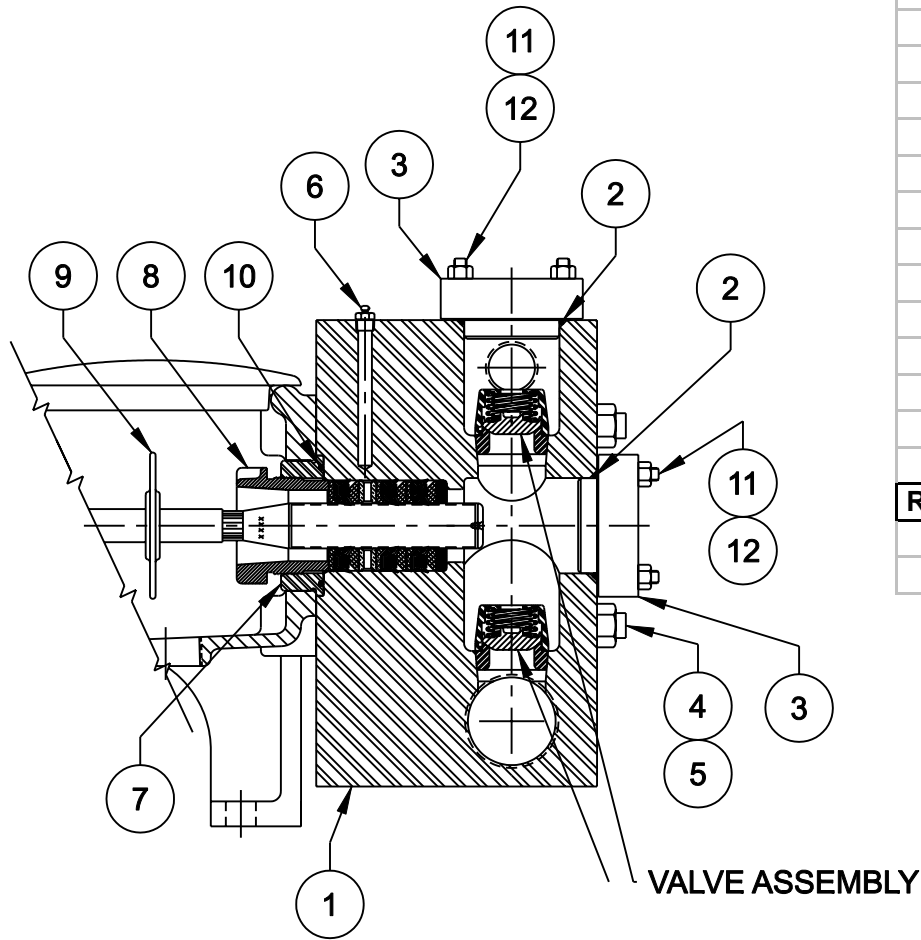
**ASSEMBLY, FORGED FLUID END
ST. STEEL
22T-2H / 32T-2H (T225H)**

DWG No.: 117668

SCALE: NONE

REV A

SHT.: 1 OF 1



117691	SEVERE DUTY VALVE		
117690	SPHERICAL VALVE		
117689	DISC VALVE		
<u>DRAWING No:</u>	<u>VALVE ASSEMBLY:</u>		
24	133-058011-286	NUT (VALVE / CYLINDER COVER)	12
24	102-058212-286	STUD (VALVE / CYLINDER COVER)	11
3	110-000232-200	O-RING (ADAPTER)	10
3	001-008910-201	BAFFLE DISC	9
3	001-008909-304	GLAND NUT 1-3/4"	
3	001-011231-304	GLAND NUT 1-5/8"	
3	001-011230-304	GLAND NUT 1-1/2"	
3	001-011229-304	GLAND NUT 1-3/8"	
3	001-011228-304	GLAND NUT 1-1/4"	
3	001-011227-304	GLAND NUT 1-1/8"	8
3	001-003948-236	POWER END / FLUID END ADAPTER	7
3	180-165000-220	LUBRICATION FITTING	6
8	133-034010-286	NUT	5
8	102-034834-286	STUD	4
6	AAB-030923-231	CYLINDER HEAD / VALVE COVER	3
6	110-000229-201	SEAL (VALVE / CYLINDER COVER)	2
1	AAC-030929-C06	FLUID END, STEEL BILLET	1
REQ'D	Part No.	DESCRIPTION	ITEM

BILL OF MATERIAL

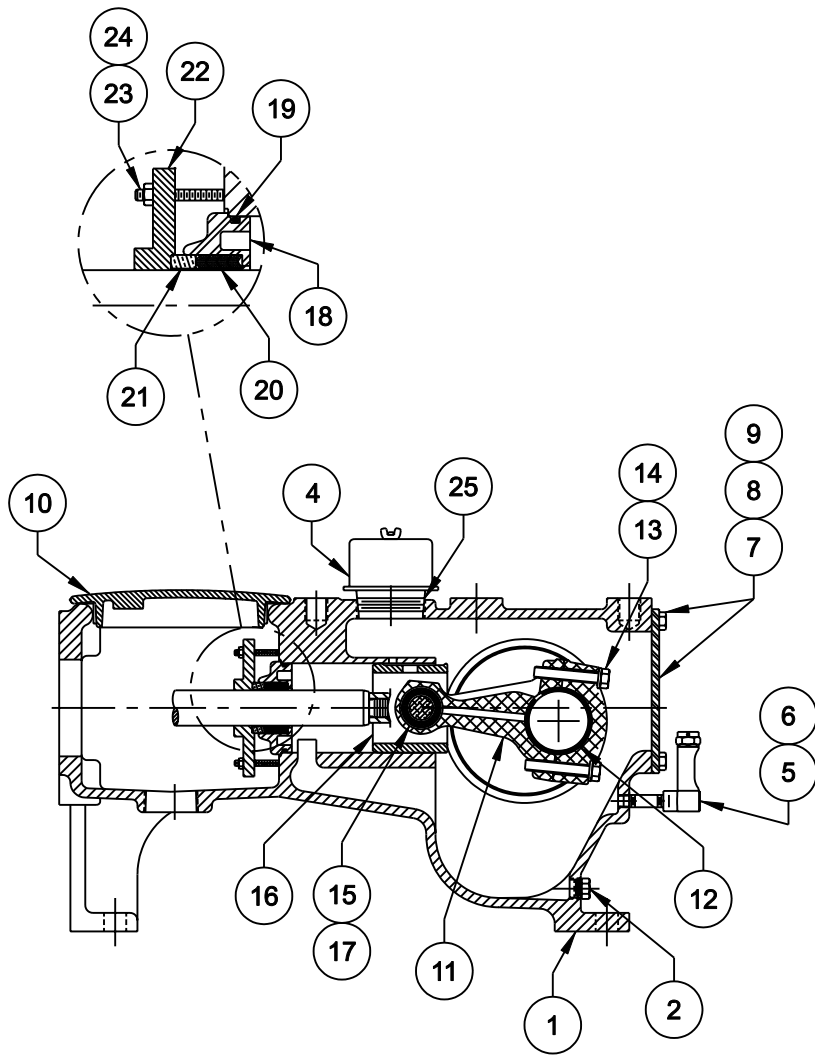


HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA

TITLE:
**ASSEMBLY, BILLET FLUID END
 PLATE STEEL
 22T-2M / 32T-2M (T225AM)**

DWG No.: 117665	SCALE: NONE	REV A	SHT: 1 OF 1
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11




< * > NOT SHOWN ON PARTS DRAWING

1	161-112034-353	BUSHING	25
6	150-038016-306	NUT	24
6	102-038214-286	STUD	23
3	001-008906-283	GLAND	22
3	001-008916-302	FOLLOWER	21
3	001-011616-381	PACKING	20
3	110-000232-201	O-RING	19
3	002-008907-283	WIPER BOX	18
3	001-008920-236	WRIST PIN	17
3	002-008905-350	CROSSHEAD	16
3	001-008921-302	BUSHING	15
6	100-038214-290	CAP SCREW	14
6	154-038068-220	LOCK WASHER	13
3	001-001699-999	SHELL BEARING	12
3	004-026866-350	CONN. ROD & CAP	11
1	004-008924-350	BARREL COVER	10
8	100-038012-290	CAP SCREW (CRANKCASE COVER)	9
1	001-008919-204	GASKET (CRANKCASE COVER)	8
1	001-008917-231	CRANKCASE COVER	7
1	157-018112-220	PIPE NIPPLE	6
1	001-011409-999	OIL GAUGE	5
1	AAA-030436-999	AIR BREATHER	4
2	170-018003-220	PLUG < * >	3
1	170-038005-353	DRAIN PLUG	2
1	AAC-029604-350	POWER FRAME	1

REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

12

(SEE DWG. No.: 117636 FOR OPTIONAL KITS & PARTS)

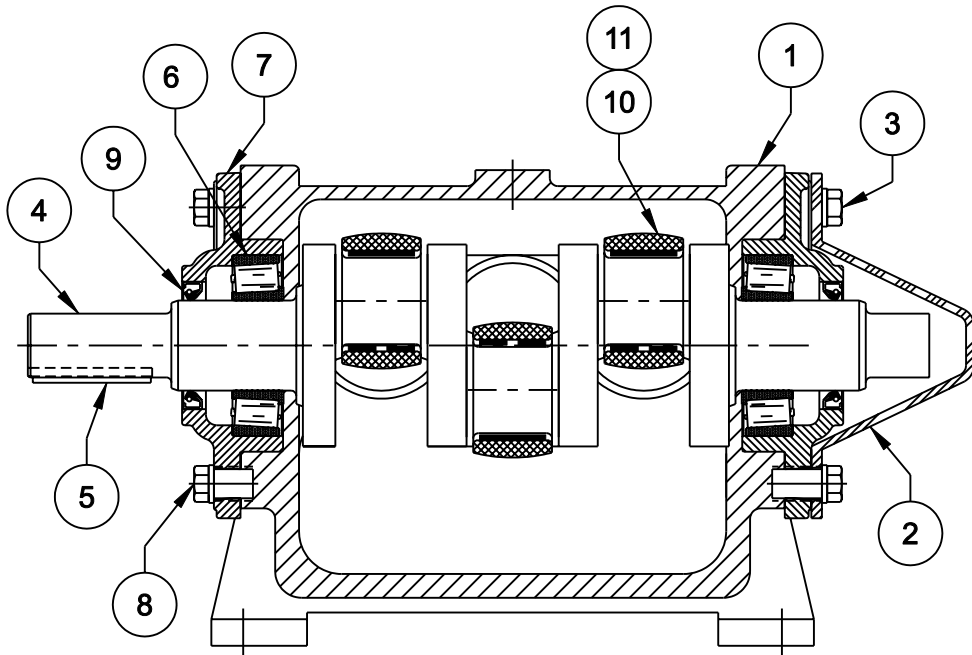


NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA

TITLE: ASSEMBLY, POWER END
22T-2 / 32T-2 (T225)

DWG No.: 117660	SCALE: NONE	REV: A	SHT.: 1 OF 1
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< ** > OMIT WHEN LUBRICATOR IS USED

< * > NOT SHOWN ON PARTS DRAWING

(WRIST PIN BUSHING INCLUDED)

1	998-016200-012	CONNECTING ROD KIT (*)	CC
1	998-016200-013	WIPER BOX GLAND NUT KIT (*)	BB
1	998-016200-015	POWER END GASKET KIT (*)	AA
REQ'D	Part No.	DESCRIPTION	OPTION

OPTIONAL PARTS AND KITS

3	001-01699-999	SHELL BEARING	11
3	004-026866-350	CONN. ROD & CAP	10
2	145-218300-999	OIL SEAL	9
8	100-058114-290	CAP SCREW	8
2	004-000085-571	BEARING HOUSING	7
2	120-218042-999	END BEARING	6
1	146-012258-236	KEY	5
1	008-028506-220	CRANKSHAFT	4
2	100-058112-290	CAP SCREW (**)	3
1	001-001982-350	EXTENSION GUARD (**)	2
1	AAC-029604-350	POWER FRAME	1
REQ'D	Part No.	DESCRIPTION	ITEM

BILL OF MATERIAL

13



HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

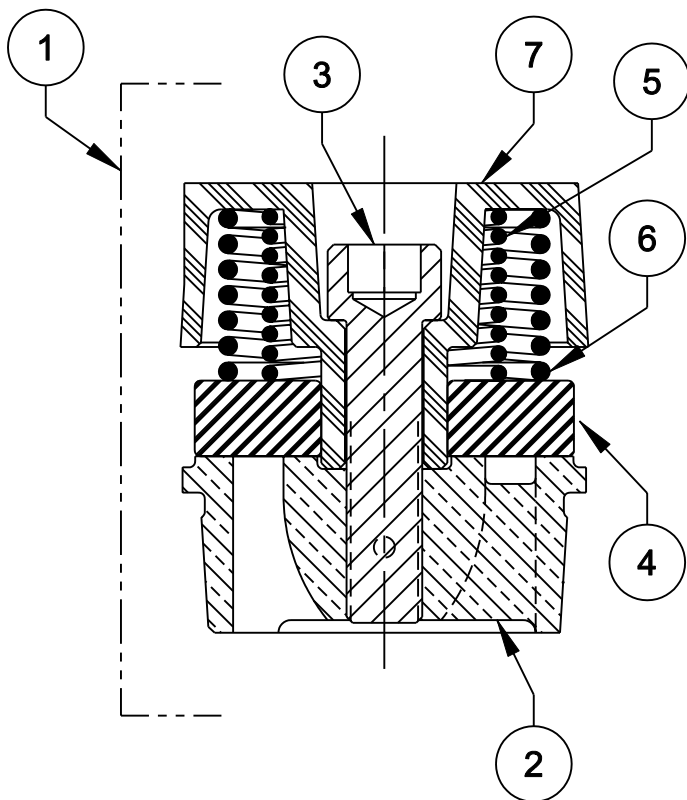
**ASSEMBLY, CRANKSHAFT
POWER END
22T-2 / 32T-2 (T225)**

DWG No.: **117669**

SCALE: **NONE**

REV **A**

SHT.: **1** OF **1**




1	SR015	RETAINER	7
1	IS011	SPRING, OUTER	6
1	IS022	SPRING, INNER	5
1	TP03	DISC (TITANIUM)	4
1	38178M	FASTENER	3
1	0010304	SEAT	2
		(TITANIUM)	
1	001TP0304	ASSEMBLY, TI/CF8M DISC VALVE	1

REQ'D	Part No.	DESCRIPTION	ITEM
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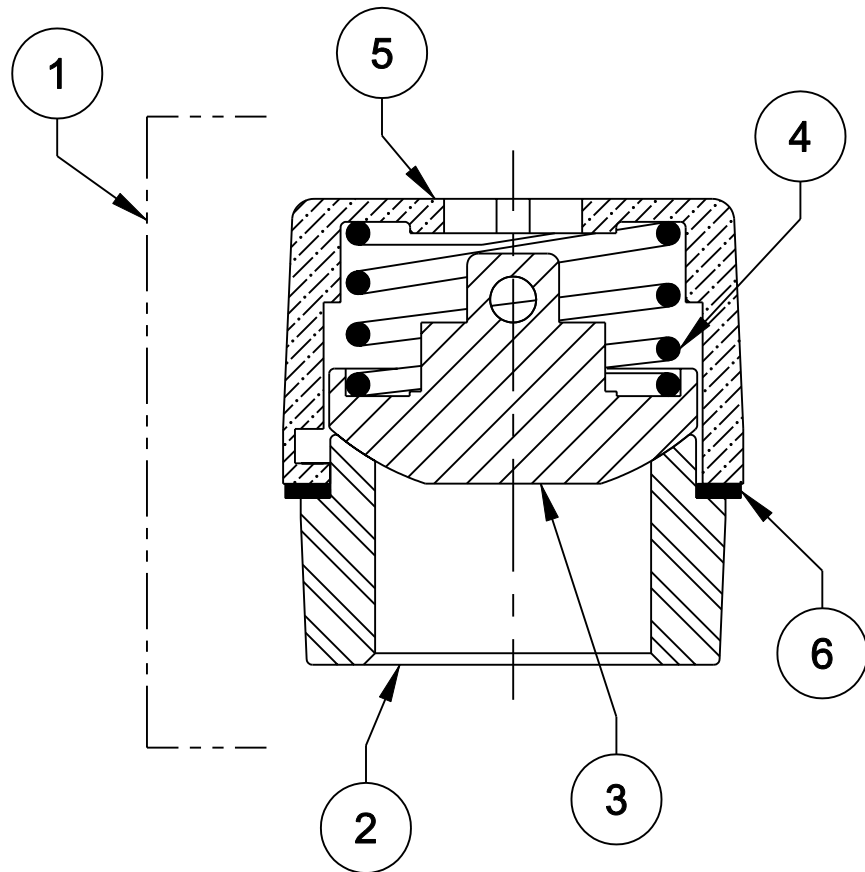
1	SR015	RETAINER	7
1	IS011	SPRING, OUTER	6
1	IS022	SPRING, INNER	5
1	DP03	DISC (DELRIN)	4
1	38178M	FASTENER	3
1	0010304	SEAT	2
		(DELRIN)	
1	001DP0304	ASSEMBLY, DEL/CF8M DISC VALVE	1

REQ'D	Part No.	DESCRIPTION	ITEM
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BILL OF MATERIAL

 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, DISC VALVE 22T-2M & L / 32T-2M & L (T225L & M)			
DWG No.:	SCALE:	REV	SHT.:
117689	NONE	A	1 OF 1

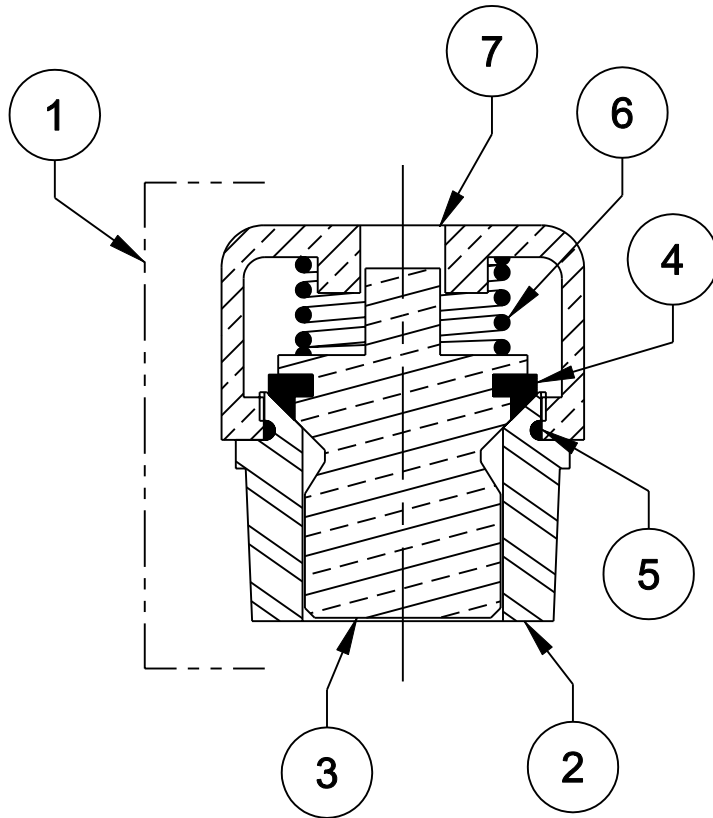
1	9707074	WAVE RING	6
1	17915036W	RETAINER	5
1	1791504	SPRING	4
1	179150225	BODY (VALVE)	3
1	179150125	SEAT	2
1	179150025W	ASSEMBLY, SPHERICAL VALVE	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			



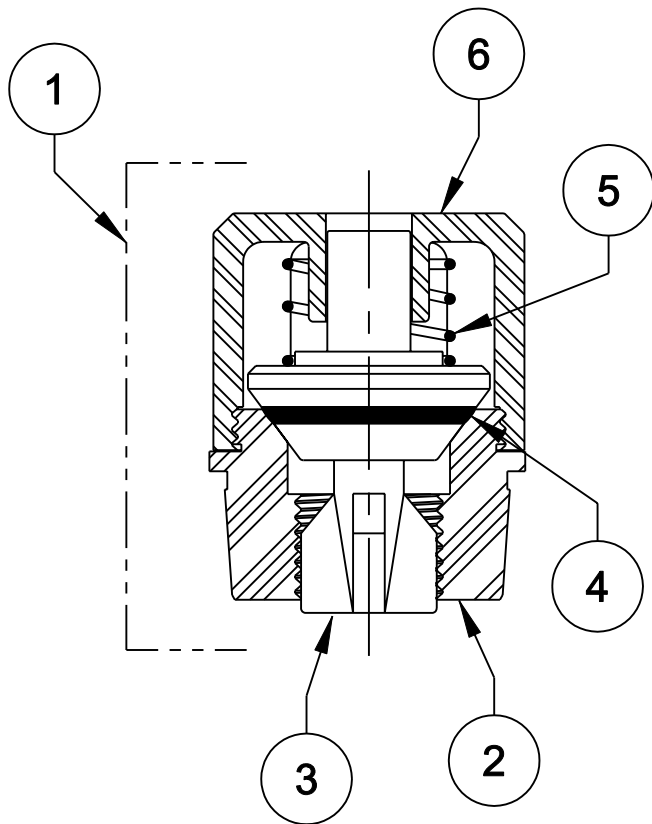
15

 NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.	ENGINEERING, TULSA, OKLAHOMA
TITLE: ASSEMBLY, SPHERICAL VALVE 22T-2M & L/32T-2M & L (T225M & L)	
DWG No.: 117690	SCALE: NONE
REV A	SHT.: 1 OF 1

1	SDR03	RETAINER	7
1	SDS031	SPRING	6
1	SDL03	THREAD LOCK	5
1	SDI03	INSERT	4
1	SD03	VALVE L/INSERT	3
1	1000304	SEAT	2
1	100SD0304	ASSEMBLY, SEVERE DUTY	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			



NO NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.	ENGINEERING, TULSA, OKLAHOMA
TITLE: ASSEMBLY, SEVERE DUTY 22T-2M & L / 32T-2M & L (T225M & L)	
DWG No.: 117691	SCALE: NONE
REV A	SHT.: 1 OF 1



1	001-021273-402	RETAINER	6
1	001-006389-362	SPRING	5
1	110-000214-503	O-RING	4
1	002-021274-402	BODY	3
1	001-011747-402	SEAT	2
1	998-016313-028	ASSEMBLY, VALVE	1

(DISCHARGE)

REQ'D	Part No.	DESCRIPTION	ITEM
1	001-021273-402	RETAINER	6
1	001-006389-362	SPRING	5
1	110-000214-503	O-RING	4
1	002-021274-402	BODY	3
1	001-011744-402	SEAT	2
1	998-016313-027	ASSEMBLY, VALVE	1

(SUCTION)

REQ'D	Part No.	DESCRIPTION	ITEM

BILL OF MATERIAL

17



HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

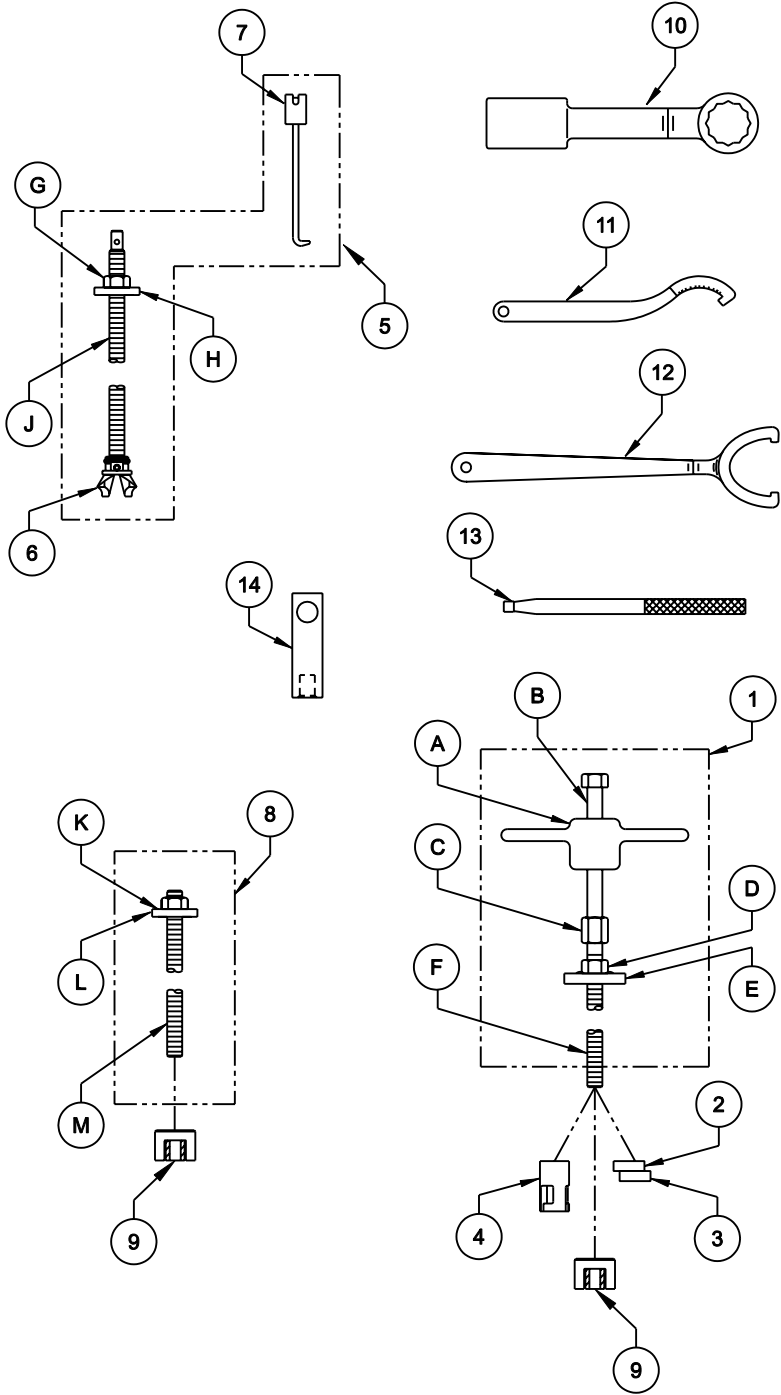
ASSEMBLY, VALVE
(POLYURETHANE SEAL)
22T-2H / 32T-2H (T225H)

DWG No.: 117692

SCALE: NONE

REV A

SHT.: 1 OF 1



1	002-014417-400	PLUNGER WRENCH - (22T-2H / 32T-2H)	14
1	AAB-030420-274	WRENCH, GLAND NUT (STAINLESS STEEL)	13
1	002-009388-351	WRENCH, GLAND NUT (DUCTILE IRON NUT)	12
1	002-014098-352	WRENCH, GLAND NUT (BRONZE NUT)	11
1	001-027568-999	WRENCH, VALVE COVER (HAMMER WRENCH)	10
1	002-021268-400	CAGE WRENCH - (F/22T-2H, 32T-2H)	OPTIONAL
1	008-028546-043	CAGE WRENCH - (F/22T-2, SEVER DUTY)	OPTIONAL
1	001-022028-271	PULLER STEM	M
1	001-022029-231	STRONG BACK	L
1	133-100008-243	HOLD DOWN NUT	K
1	002-010359-220	ASSEMBLY, VALVE SEAT PULLER - (11D-2 / P100)	8
1	1790034	RETRIEVER	7
1	181259200	PULLER HEAD	6
1	20-220-329	PULLER STEM	J
1	20-220-330	STRONG BACK	H
1	75510308	HOLD DOWN NUT	G
1	181259201	ASSEMBLY, VALVE SEAT PULLER - (SPHERICAL)	5
1	001-011954-274	PULLER HEAD	4
1	008-028546-004	PULLER STEM	F
1	008-028546-034	STRONG BACK	E
1	008-028546-012	HOLD DOWN NUT	D
1	008-028546-015	ADAPTER NUT	C
1	008-028546-002	BUMPER STEM	B
1	008-028546-001	BUMPER	A
1	998-016202-092	ASSEMBLY, VALVE SEAT PULLER - (DISC VALVE)	1
1	008-028546-026	PULLER GUIDE	3
1	008-028546-018	ECCENTRIC, PULLER	2
1	008-028546-003	PULLER STEM	F
1	008-028546-034	STRONG BACK	E
1	008-028546-011	HOLD DOWN NUT	D
1	008-028546-014	ADAPTER NUT	C
1	008-028546-002	BUMPER STEM	B
1	008-028546-001	BUMPER	A
1	998-016202-091	ASSEMBLY, VALVE SEAT PULLER - (SEVERE DUTY)	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

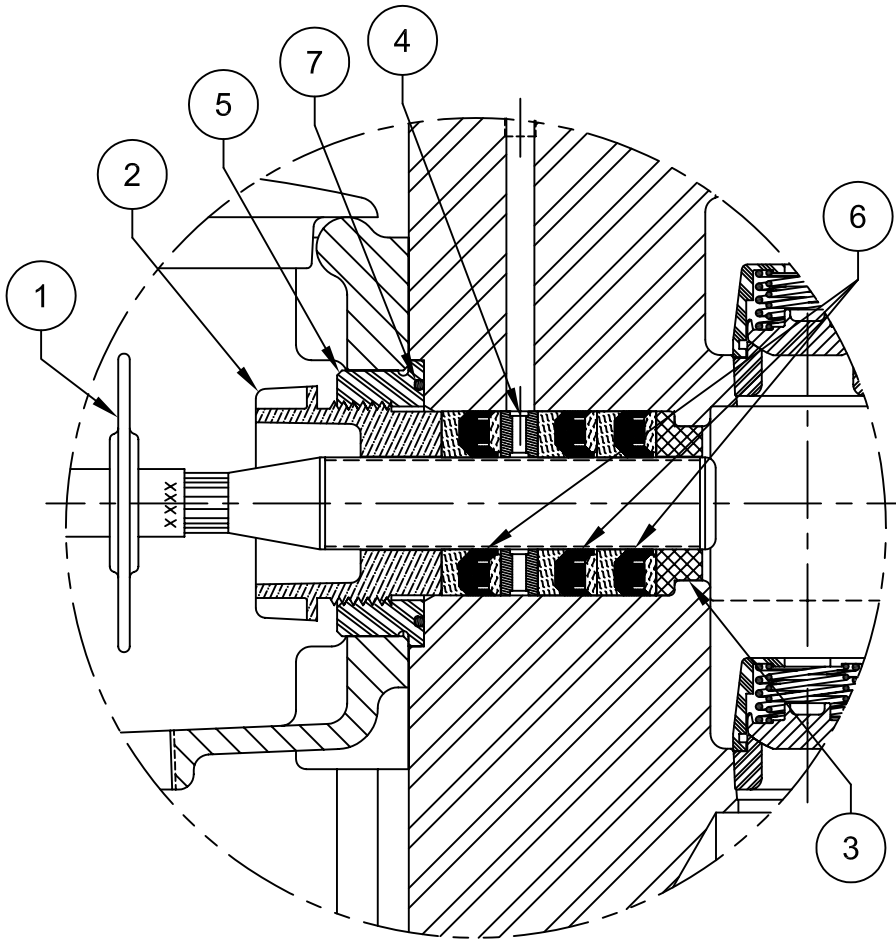
NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA

TITLE: TOOL KIT

22T-2 & 32T-2, (T225)


DWG No.: 117636	SCALE: NONE	REV A	SHT.: 1 OF 1
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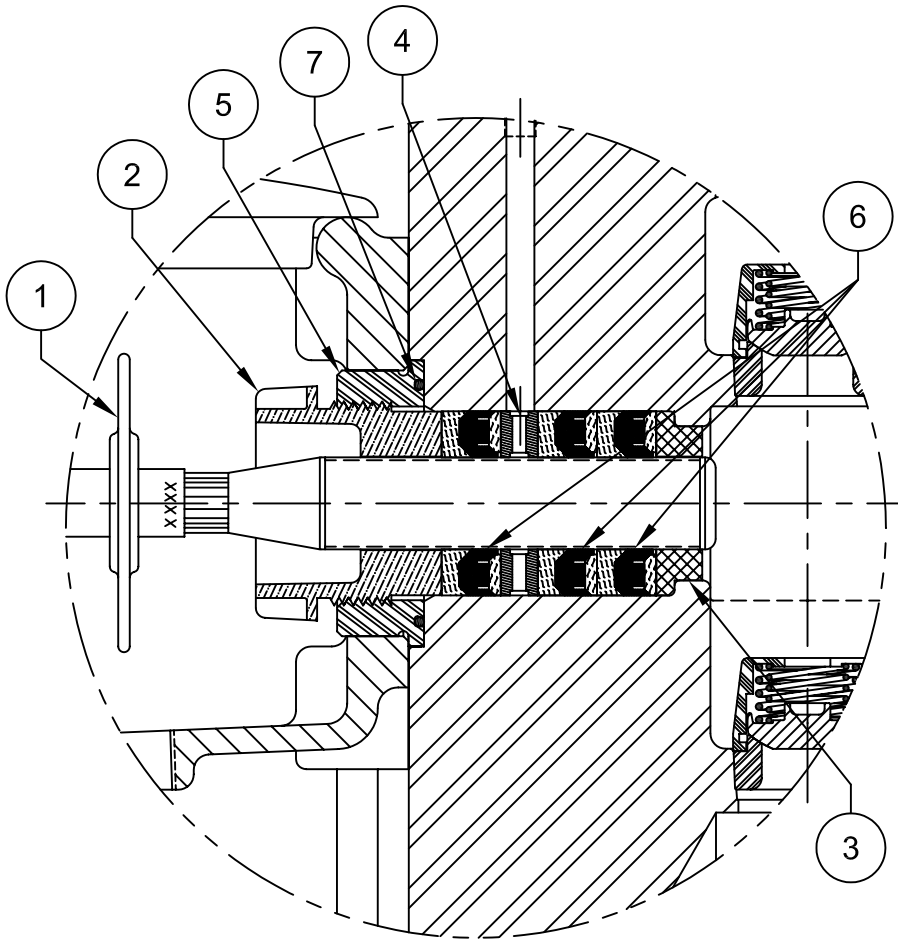


3	110-000232-200	O-RING		7
	182-118214-477		858	
	182-118214-374		845	
3	182-118214-370	PACKING	838	6
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	5
	001-011211-278		(SS)	
	001-011211-235		(STL)	
3	001-011211-302	LANTERN RING	(BRZ)	4
	001-010961-278		(SS)	
	001-010961-235		(STL)	
3	001-010961-302	THROAT BUSHING	(BRZ)	3
	AFC-013800-E16		(SS)	
	001-011227-351		(DI)	
3	001-011227-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-1/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117693, SHEETS 1 THRU 6.

 NATIONAL OILWELL	
<small>HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA</small>	
TITLE: ASSEMBLY, PLUNGER KIT J-STYLE PKG, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)	
<small>DWG No.:</small> 117693	<small>SCALE:</small> NONE
<small>REV</small> A	<small>SHT.:</small> 1 OF 6



3	110-000232-200	O-RING		7
	182-114214-477		858	
	182-114214-374		845	
3	182-114214-370	PACKING	838	6
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	5
	001-011212-278		(SS)	
	001-011212-235		(STL)	
3	001-011212-302	LANTERN RING	(BRZ)	4
	001-010950-278		(SS)	
	001-010950-235		(STL)	
3	001-010950-302	THROAT BUSHING	(BRZ)	3
	AEC-013800-E16		(SS)	
	001-011228-351		(DI)	
3	001-011228-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-1/4" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117693, SHEETS 1 THRU 6.



NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, PLUNGER KIT
J-STYLE PKG, 1-1/8 - 1-3/4 PLG
22T-2M / 32T-2M (T225M)

DWG No.:

117693

SCALE:

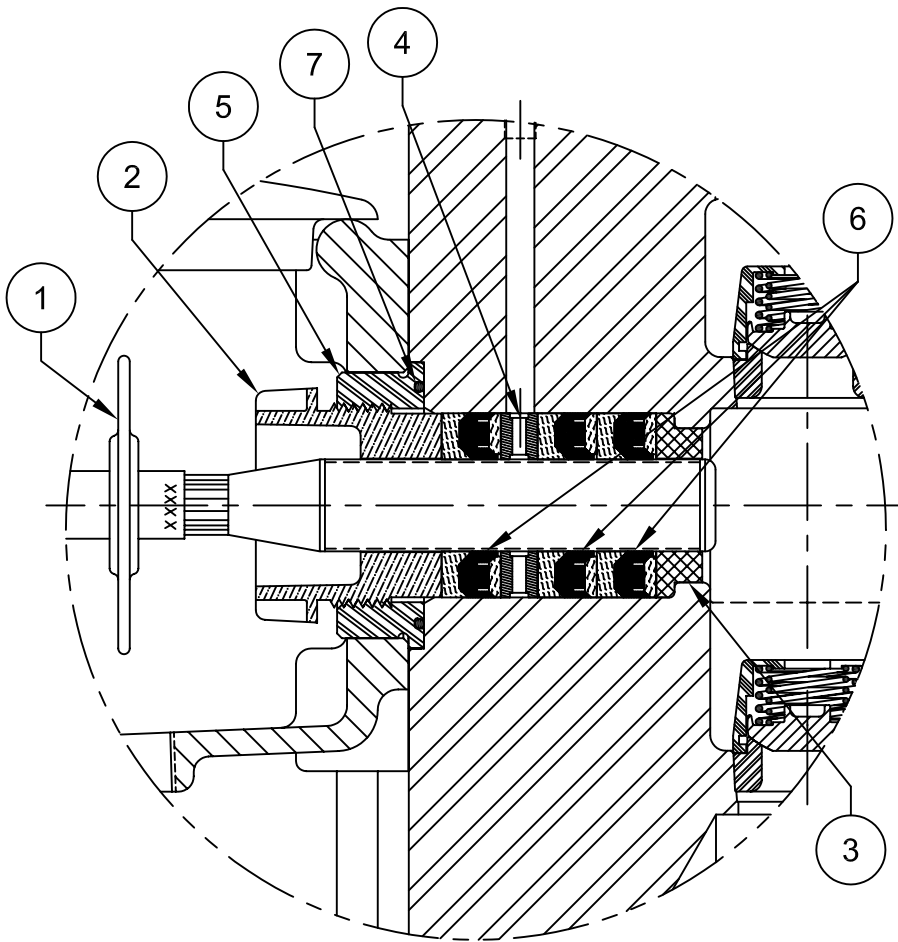
NONE

REV

A

SHT.:

2 OF 6



3	110-000232-200	O-RING		7
	182-138214-477		858	
	182-138214-374		845	
3	182-138214-370	PACKING	838	6
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	5
	001-011221-278		(SS)	
	001-011221-235		(STL)	
3	001-011221-302	LANTERN RING	(BRZ)	4
	001-008913-278		(SS)	
	001-008913-235		(STL)	
3	001-008913-302	THROAT BUSHING	(BRZ)	3
	ADC-013800-E16		(SS)	
	001-011229-351		(DI)	
3	001-011229-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-3/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117693, SHEETS 1 THRU 6.



NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, PLUNGER KIT
J-STYLE PKG, 1-1/8 - 1-3/4 PLG
22T-2M / 32T-2M (T225M)

DWG No.:

117693

SCALE:

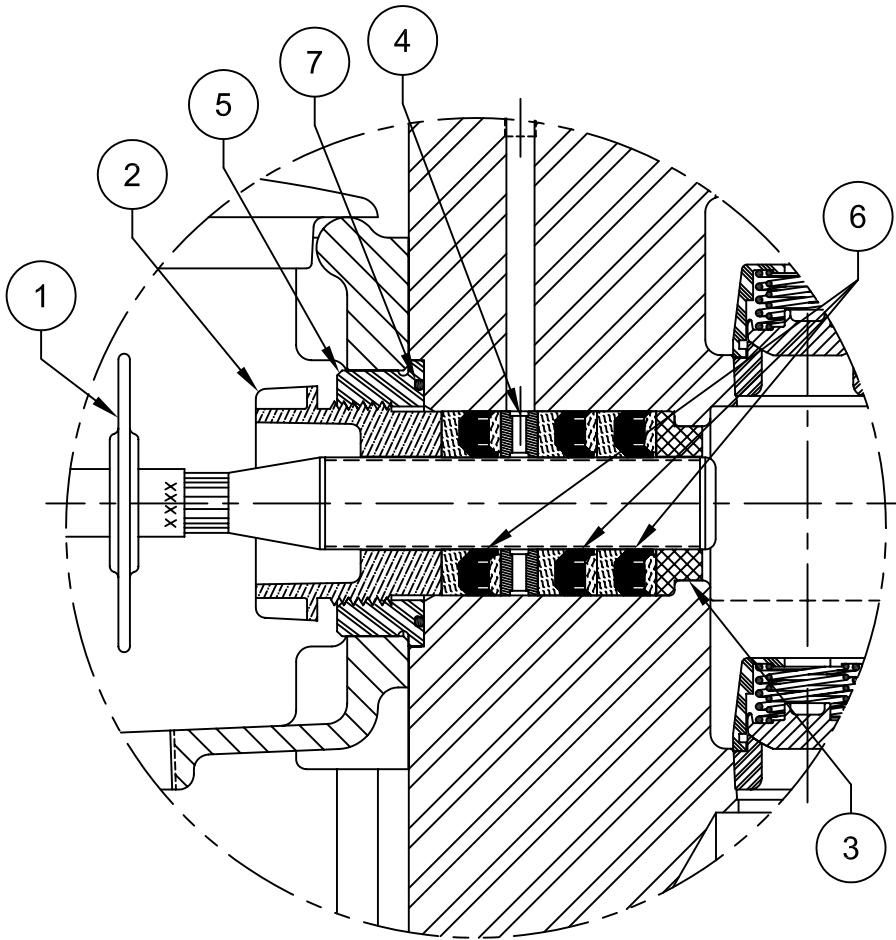
NONE

REV

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SHT.:


3 OF 6

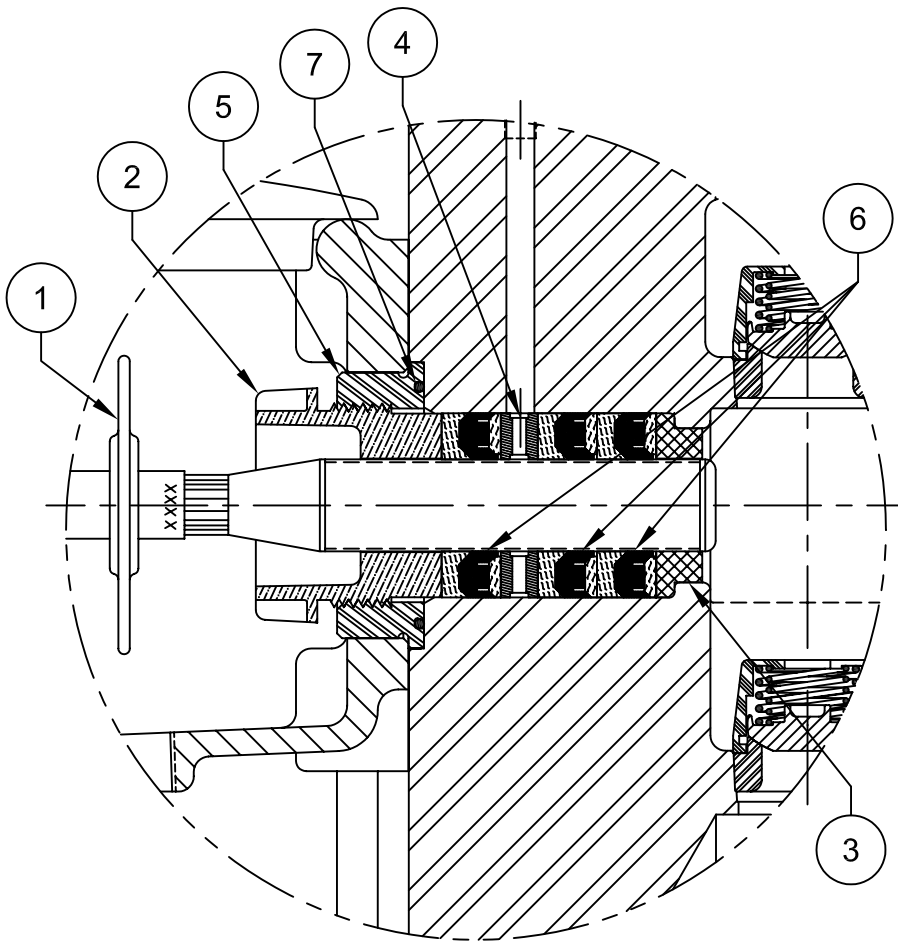


3	110-000232-200	O-RING		7
	182-112214-477		858	
	182-112214-374		845	
3	182-112214-370	PACKING	838	6
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	5
	001-011218-278		(SS)	
	001-011218235		(STL)	
3	001-011218-302	LANTERN RING	(BRZ)	4
	001-010949-278		(SS)	
	001-010949-235		(STL)	
3	001-010949-302	THROAT BUSHING	(BRZ)	3
	ACC-013800-E16		(SS)	
	001-011230-351		(DI)	
3	001-011230-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-1/2" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117693, SHEETS 1 THRU 6.

 NATIONAL OILWELL	
<small>HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA</small>	
TITLE: ASSEMBLY, PLUNGER KIT J-STYLE PKG, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)	
<small>DWG No.:</small> 117693	<small>SCALE:</small> NONE
<small>REV</small> A	<small>SHT.:</small> 4 OF 6



3	110-000232-200	O-RING		7
	182-158214-477		858	
	182-158214-374		845	
3	182-158214-370	PACKING	838	6
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	5
	001-005305-278		(SS)	
	001-005305-235		(STL)	
3	001-005305-302	LANTERN RING	(BRZ)	4
	001-010962-278		(SS)	
	001-010962-235		(STL)	
3	001-010962-302	THROAT BUSHING	(BRZ)	3
	ABC-013800-E16		(SS)	
	001-011231-351		(DI)	
3	001-011231-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-5/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117693, SHEETS 1 THRU 6.

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NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, PLUNGER KIT
J-STYLE PKG, 1-1/8 - 1-3/4 PLG
22T-2M / 32T-2M (T225M)

DWG No.:

117693

SCALE:

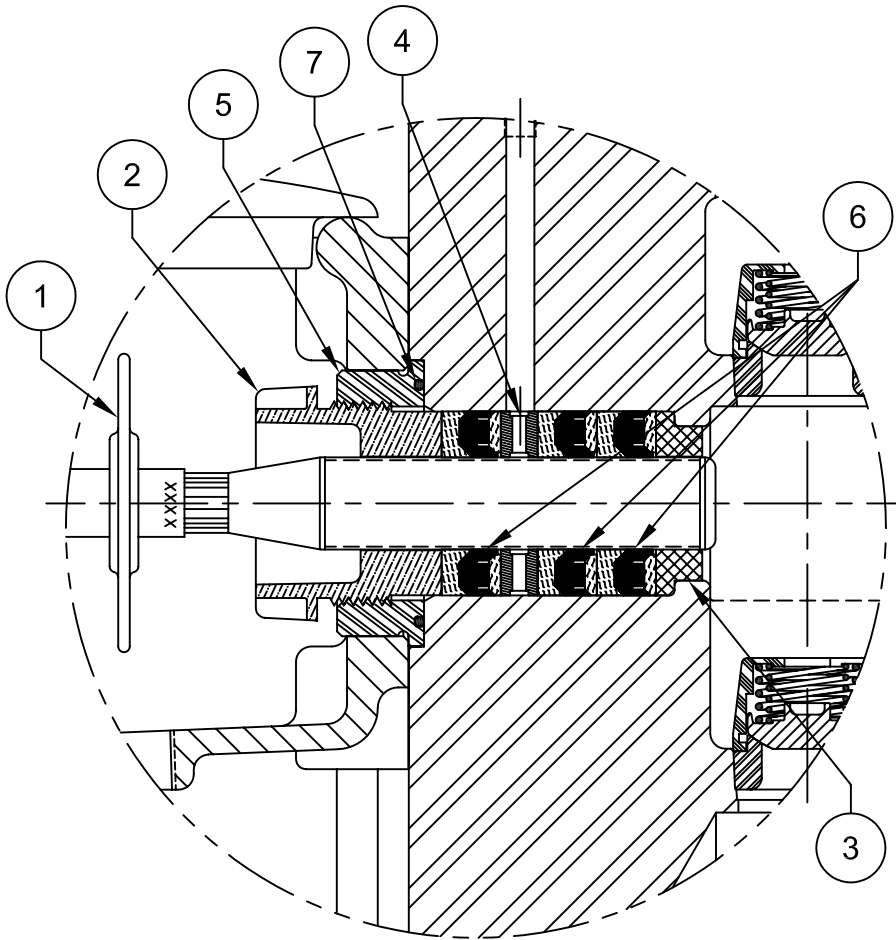
NONE

REV

A

SHT.:

5 OF 6




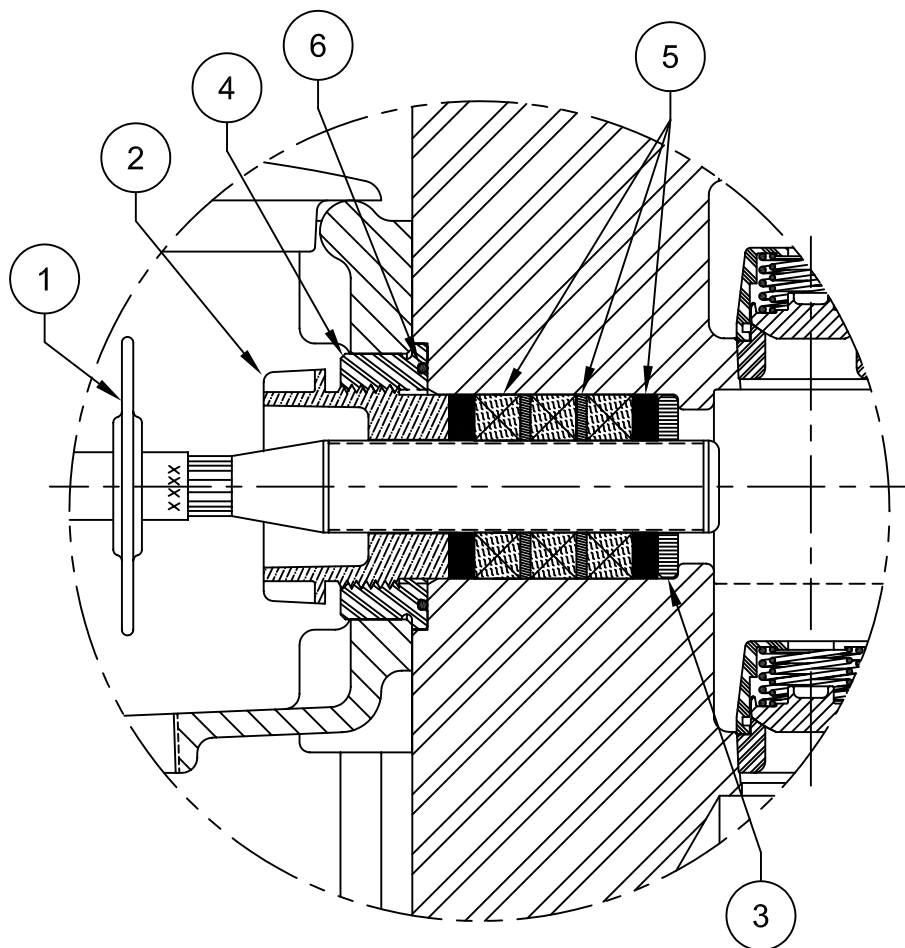
3	110-000232-200	O-RING		7
	182-134178-477		858	
	182-134178-374		845	
3	182-134178-370	PACKING	838	6
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	5
	001-011220-278		(SS)	
	001-011220-235		(STL)	
3	001-011220-302	LANTERN RING	(BRZ)	4
	001-010894-278		(SS)	
	001-010894-235		(STL)	
3	001-010894-302	THROAT BUSHING	(BRZ)	3
	AAC-013800-E16		(SS)	
	001-008909-351		(DI)	
3	001-008909-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-3/4" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117693, SHEETS 1 THRU 6.

24

 NATIONAL OILWELL	
<small>HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA</small>	
TITLE: ASSEMBLY, PLUNGER KIT J-STYLE PKG, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)	
<small>DWG No.:</small> 117693	<small>SCALE:</small> NONE
<small>REV</small> A	<small>SHT.:</small> 6 OF 6



3	110-000232-200	O-RING		6
	287-118212-458		8921-k	
	287-118212-339		249	
	287-118212-337		241	
3	287-118212-395	PACKING	238	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-010961-278		(SS)	
	001-010961-235		(STL)	
3	001-010961-302	THROAT BUSHING	(BRZ)	3
	AFC-013800-E16		(SS)	
	001-011227-351		(DI)	
3	001-011227-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1

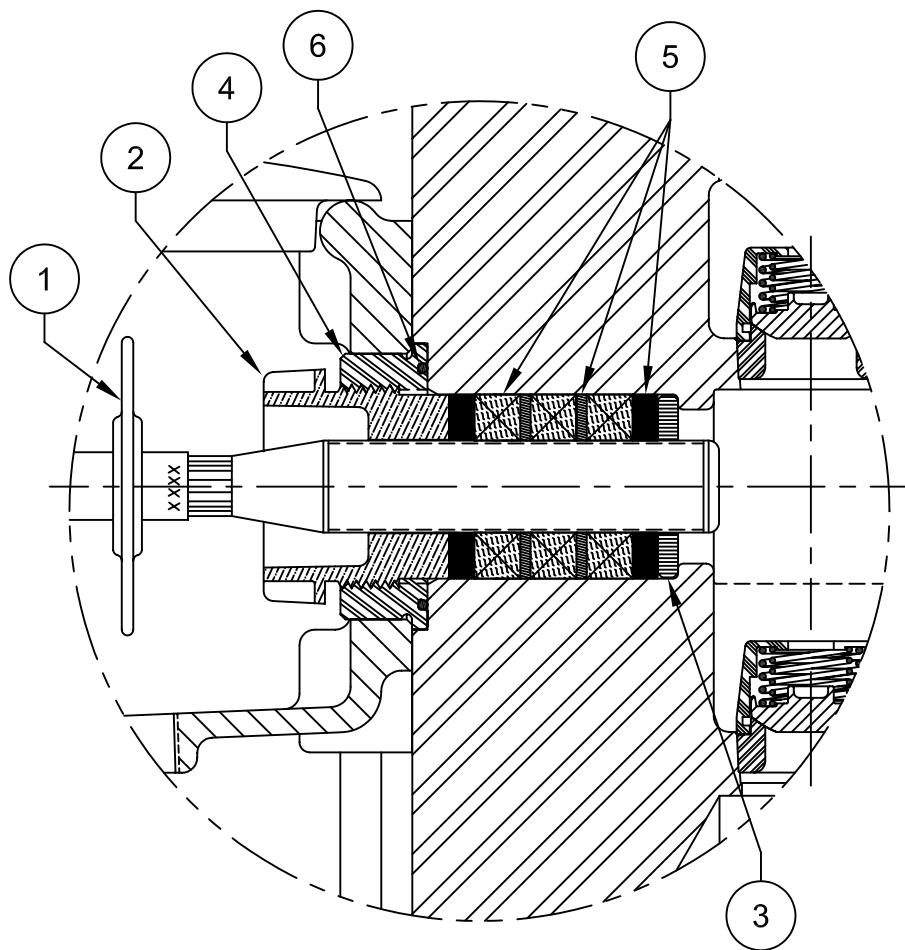
(1-1/8" PLUNGER)

REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117694, SHEETS 1 THRU 6.


 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE: ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)			
DWG No.:	117694	SCALE:	NONE
REV	A	SHT.:	1 OF 6

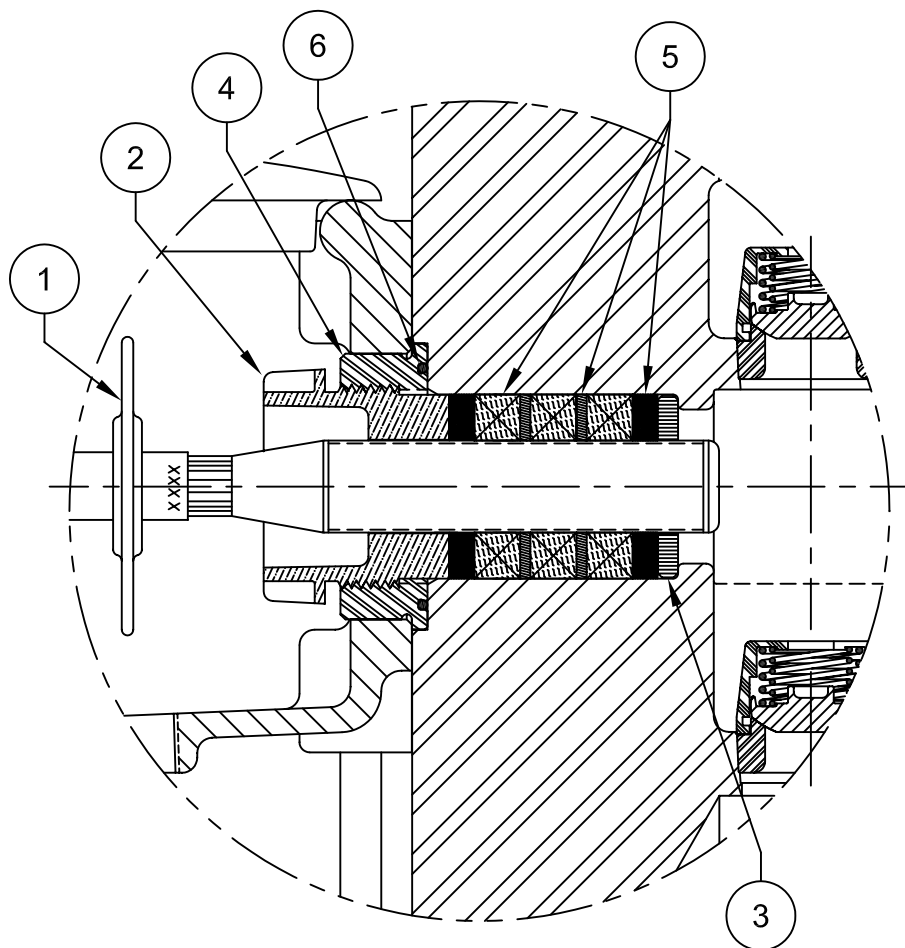


3	110-000232-200	O-RING		6
	287-114212-458		8921-K	
	287-114212-339		249	
	287-114212-337		241	
3	287-114212-395	PACKING	238	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-010950-278		(SS)	
	001-010950-235		(STL)	
3	001-010950-302	THROAT BUSHING	(BRZ)	3
	AEC-013800-E16		(SS)	
	001-011228-351		(DI)	
3	001-011228-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-1/4" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117694, SHEETS 1 THRU 6.

 NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.	ENGINEERING, TULSA, OKLAHOMA
TITLE: ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)	
DWG No.: 117694	SCALE: NONE
REV A	SHT.: 2 OF 6

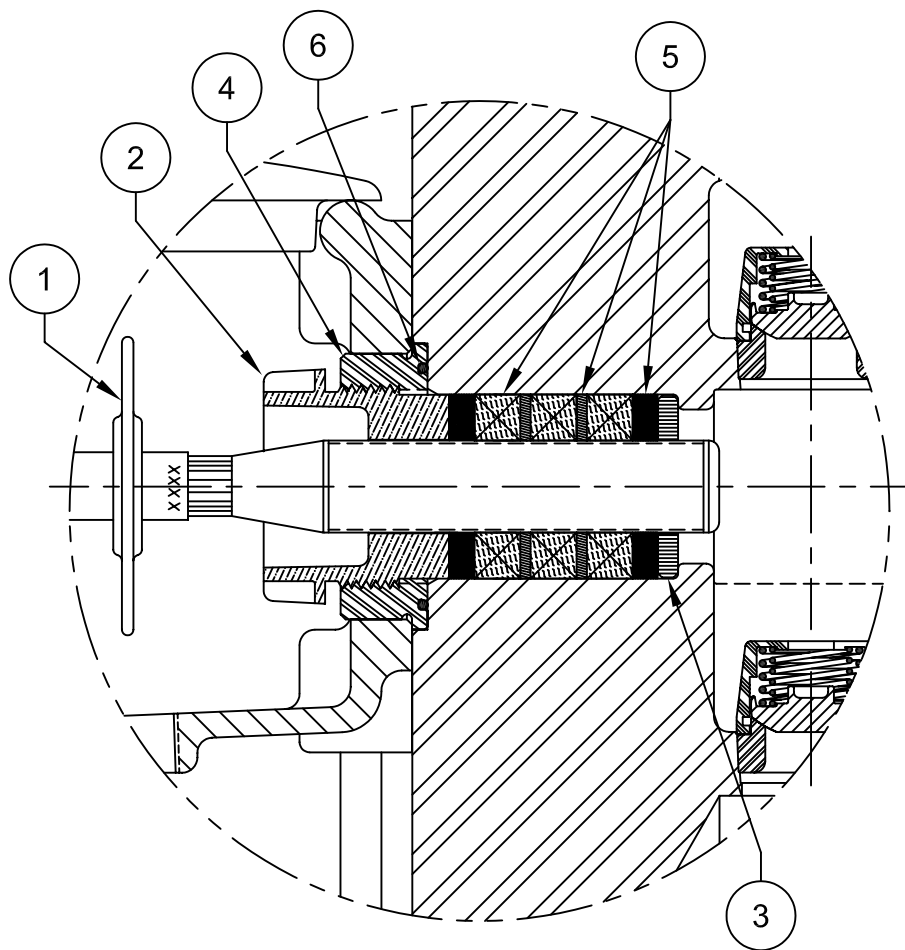


3	110-000232-200	O-RING	6
	287-138212-458		8921-K
	287-138212-339		249
	287-138212-337		241
3	287-138212-395	PACKING	238
	001-003948-278		(SS)
	001-003948-236		(STL)
3	001-003948-316	ADAPTER	(BRZ)
	001-008913-278		(SS)
	001-008913-235		(STL)
3	001-008913-302	THROAT BUSHING	(BRZ)
	ADC-013800-E16		(SS)
	001-011229-351		(DI)
3	001-011229-304	GLAND NUT	(BRZ)
3	001-008910-201	BAFFLE DISC	1
(1-3/8" PLUNGER)			
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117694, SHEETS 1 THRU 6.


 NATIONAL OILWELL	
<small>HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA</small>	
TITLE: ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)	
<small>DWG No.:</small> 117694	<small>SCALE:</small> NONE
<small>REV</small> A	<small>SHT.:</small> 3 OF 6

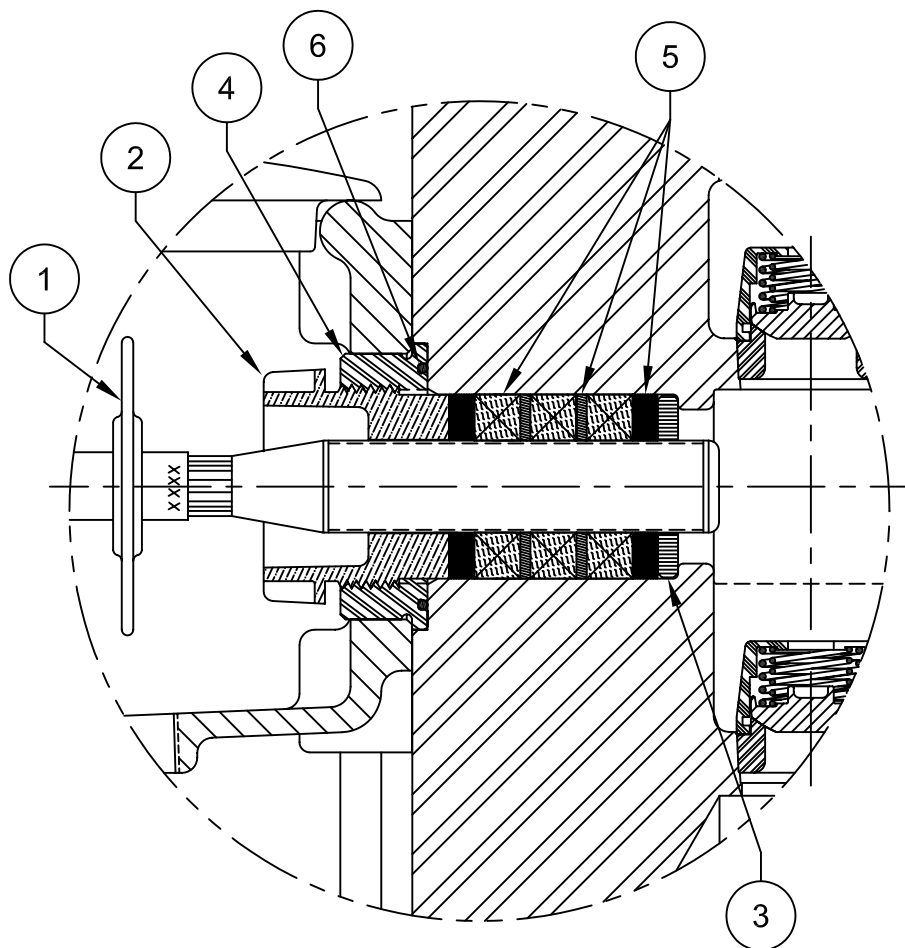


3	110-000232-200	O-RING		6
	287-112212-458		8921-K	
	287-112212-339		249	
	287-112212-337		241	
3	287-112212-395	PACKING	238	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-010949-278		(SS)	
	001-010949-235		(STL)	
3	001-010949-302	THROAT BUSHING	(BRZ)	3
	ACC-013800-E16		(SS)	
	001-011230-351		(DI)	
3	001-011230-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-1/2" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117694, SHEETS 1 THRU 6.


		NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)			
DWG No.:	SCALE:	REV	SHT.:
117694	NONE	A	4 OF 6

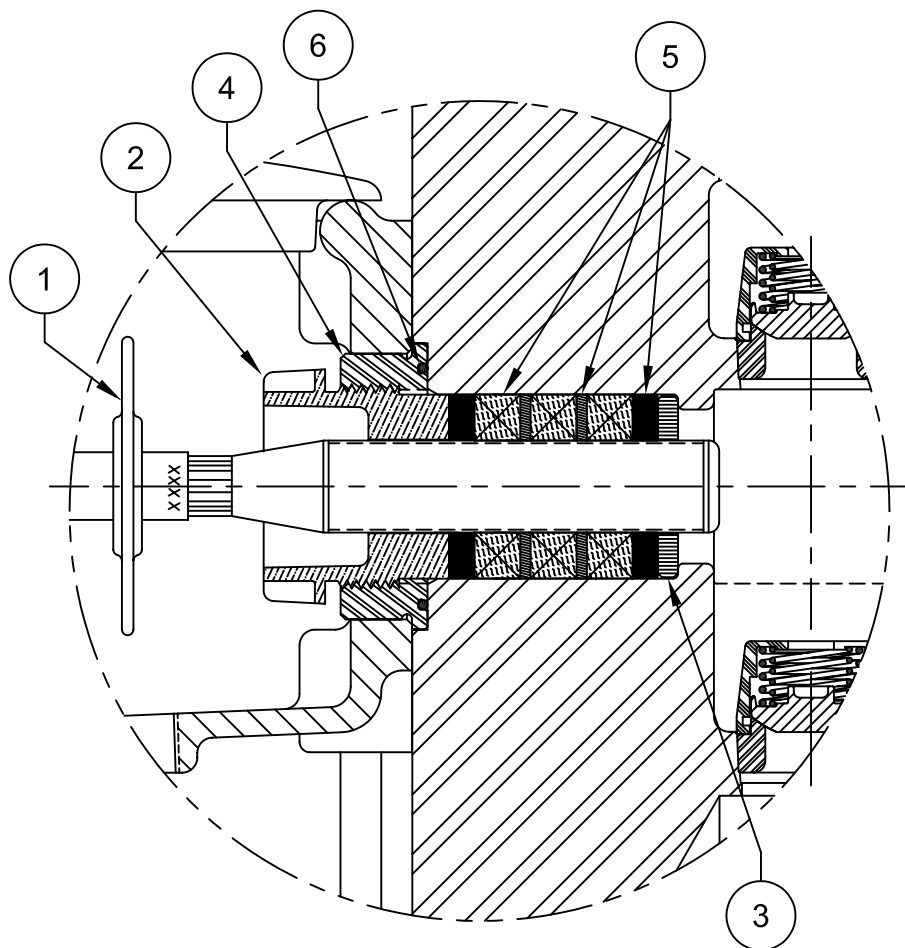


3	110-000232-200	O-RING		6
	287-158212-458		8921-K	
	287-158212-339		249	
	287-158212-337		241	
3	287-158212-395	PACKING	238	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-010962-278		(SS)	
	001-010962-235		(STL)	
3	001-010962-302	THROAT BUSHING	(BRZ)	3
	ABC-013800-E16		(SS)	
	001-011231-351		(DI)	
3	001-011231-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-5/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117694, SHEETS 1 THRU 6.

 NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA	
TITLE: ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)	
DWG No.: 117694	SCALE: NONE
REV A	SHT.: 5 OF 6

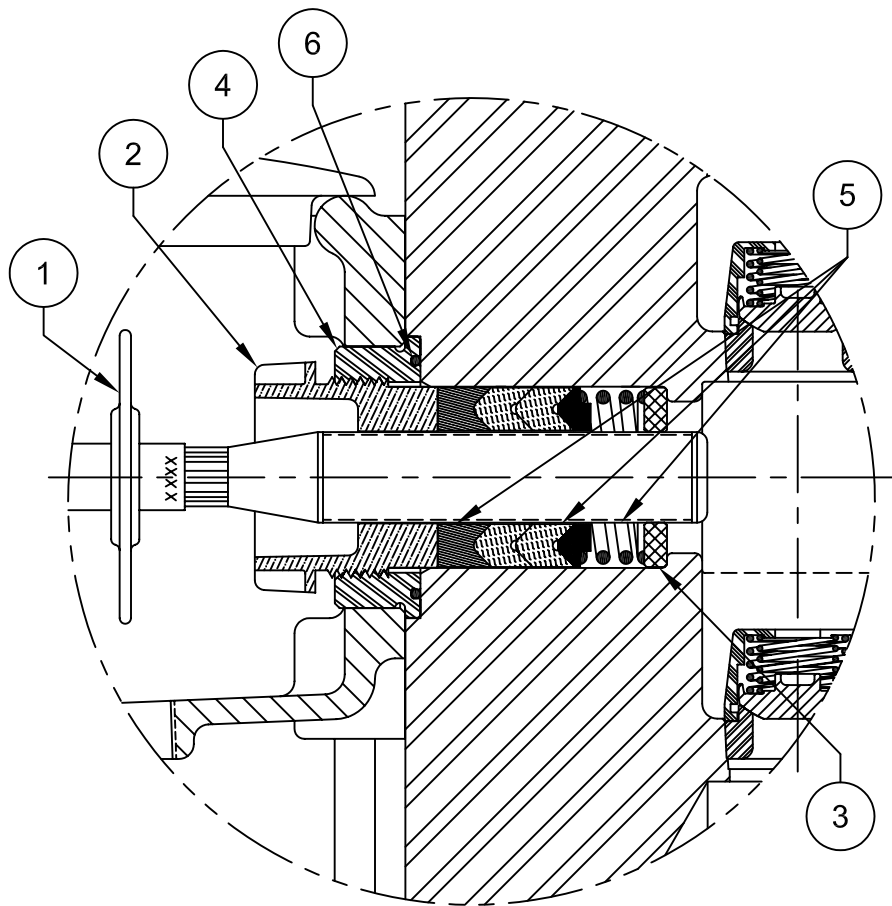


3	110-000232-200	O-RING		6
	287-134212-458		8921-K	
	287-134212-339		249	
	287-134212-337		241	
3	287-134212-395	PACKING	238	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-024096-278		(SS)	
	001-024096-235		(STL)	
3	001-024096-302	THROAT BUSHING	(BRZ)	3
	AAC-013800-E16		(SS)	
	001-008909-351		(DI)	
3	001-008909-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-3/4" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117694, SHEETS 1 THRU 6.

 NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA	
TITLE: ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)	
DWG No.: 117694	SCALE: NONE
REV A	SHT.: 6 OF 6



3	110-000232-200	O-RING		6
3	432-118238-340	PACKING	1068-4	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-010961-278		(SS)	
	001-010961-235		(STL)	
3	001-010961-302	THROAT BUSHING	(BRZ)	3
	AFC-013800-E16		(SS)	
	001-011227-351		(DI)	
3	001-011227-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1

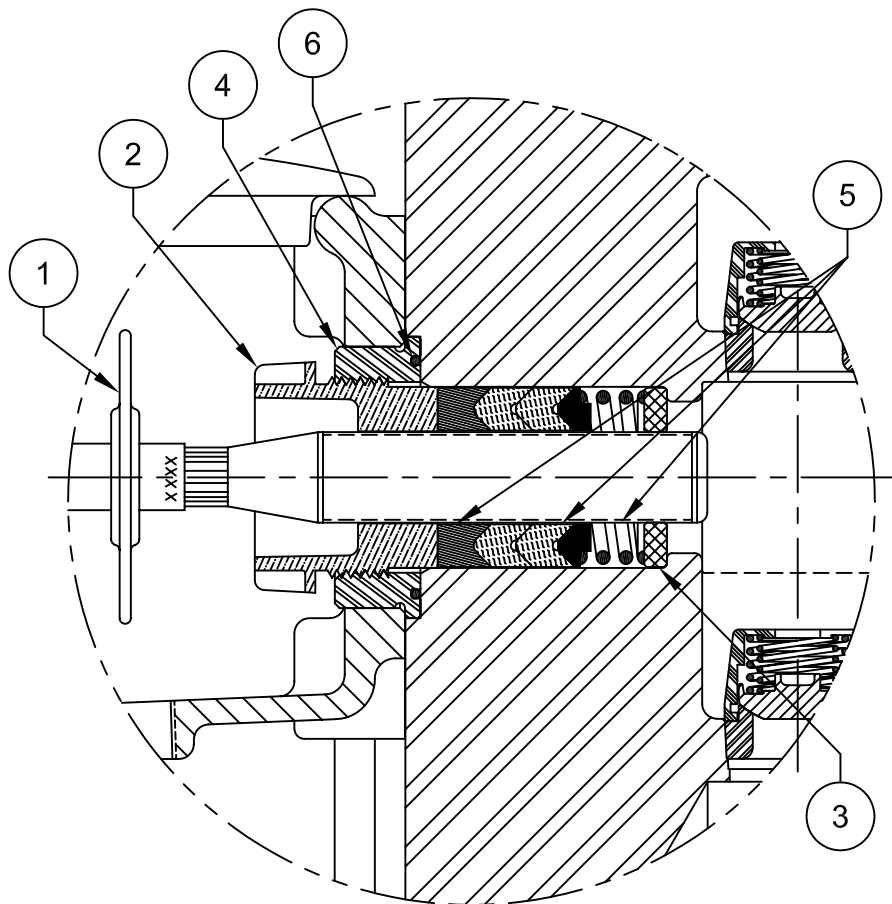
(1-1/8" PLUNGER)

REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117695, SHEETS 1 THRU 6.

 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, PLUNGER KIT 1068-4 PACKING, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)			
DWG No.:	SCALE:	REV	SHT.:
117695	NONE	A	1 OF 6



3	110-000232-200	O-RING		6
3	432-114238-340	PACKING	1068-4	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-010950-278		(SS)	
	001-010950-235		(STL)	
3	001-010950-302	THROAT BUSHING	(BRZ)	3
	AEC-013800-E16		(SS)	
	001-011228-351		(DI)	
3	001-011228-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1

(1-1/4" PLUNGER)

REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

32

NOTE

1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117695, SHEETS 1 THRU 6.



NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, PLUNGER KIT
1068-4 PACKING, 1-1/8 - 1-3/4 PLG
22T-2M / 32T-2M (T225M)

DWG No.:

117695

SCALE:

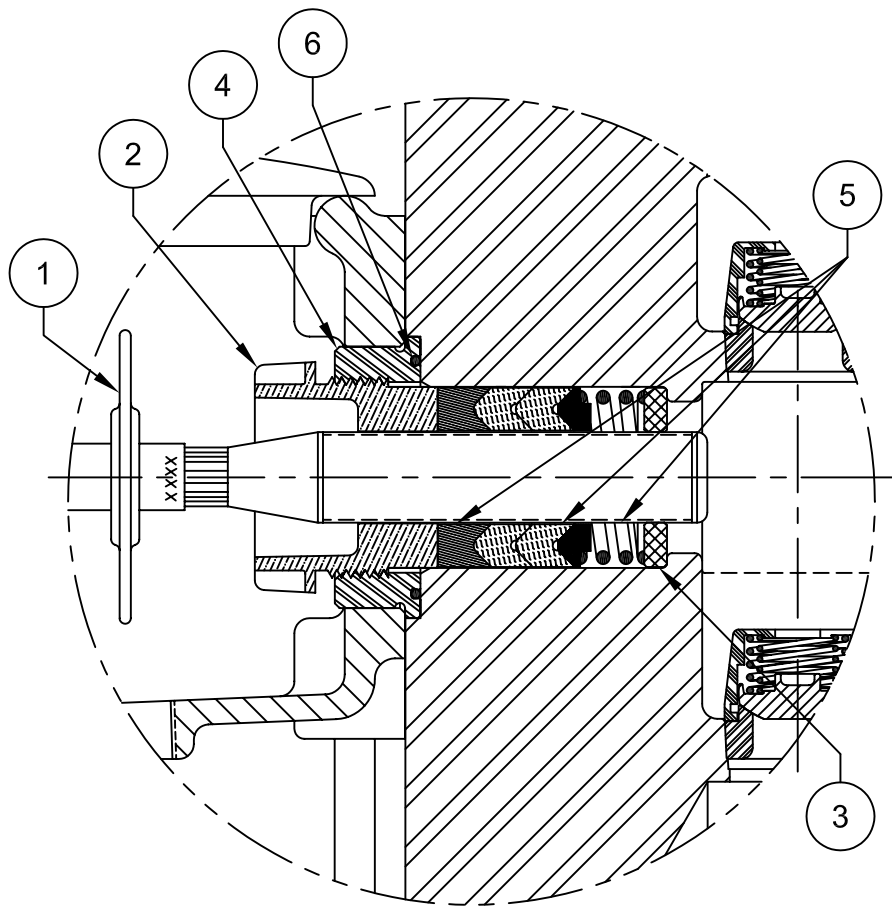
NONE

REV

A

SHT.:

2 OF 6




3	110-000232-200	O-RING		6
3	432-138238-340	PACKING	1068-4	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-008913-278		(SS)	
	001-008913-235		(STL)	
3	001-008913-302	THROAT BUSHING	(BRZ)	3
	ADC-013800-E16		(SS)	
	001-011229-351		(DI)	
3	001-011229-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1

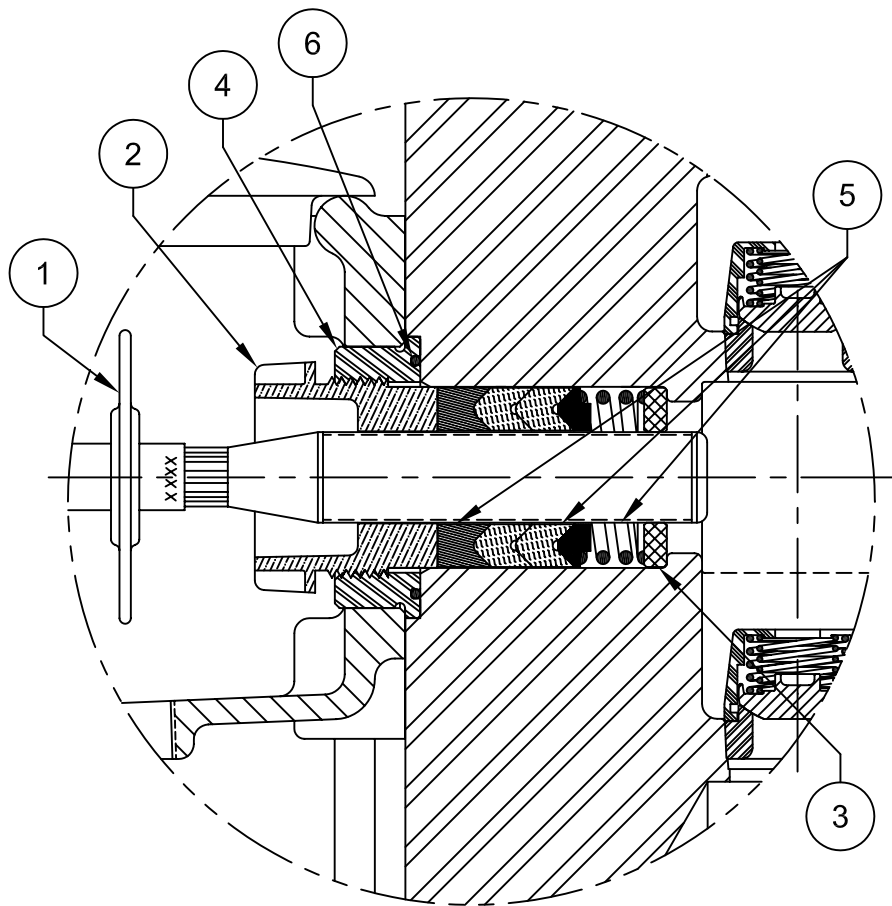
(1-3/8" PLUNGER)

REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

NOTE

1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117695, SHEETS 1 THRU 6.

 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE: ASSEMBLY, PLUNGER KIT 1068-4 PACKING, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)			
DWG No.:	117695	SCALE:	NONE
REV	A	SHT.:	3 OF 6



3	110-000232-200	O-RING		6
3	432-112238-340	PACKING	1068-4	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-010949-278		(SS)	
	001-010949-235		(STL)	
3	001-010949-302	THROAT BUSHING	(BRZ)	3
	ACC-013800-E16		(SS)	
	001-011230-351		(DI)	
3	001-011230-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1

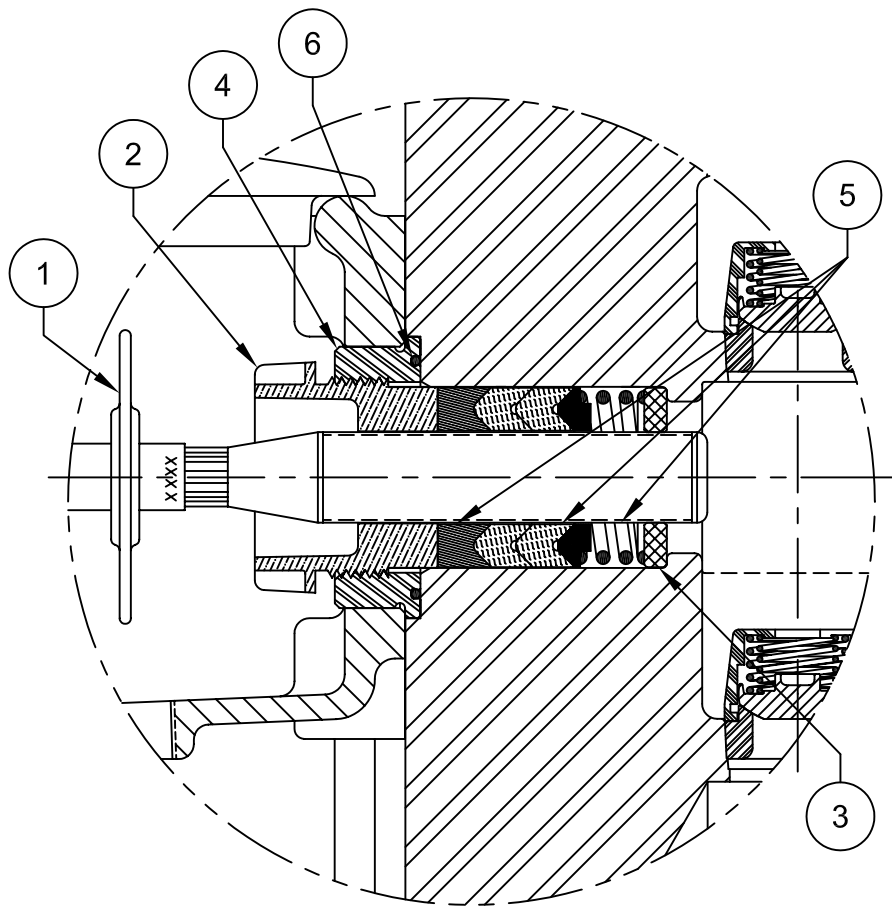
(1-1/2" PLUNGER)

REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

NOTE

- 1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117695, SHEETS 1 THRU 6.

 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, PLUNGER KIT 1068-4 PACKING, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)			
DWG No.:	SCALE:	REV	SHT.:
117695	NONE	A	4 OF 6



3	110-000232-200	O-RING		6
3	438-158238-340	PACKING	1068-4	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-010962-278		(SS)	
	001-010962-235		(STL)	
3	001-010962-302	THROAT BUSHING	(BRZ)	3
	ABC-013800-E16		(SS)	
	001-011231-351		(DI)	
3	001-011231-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1

(1-5/8" PLUNGER)

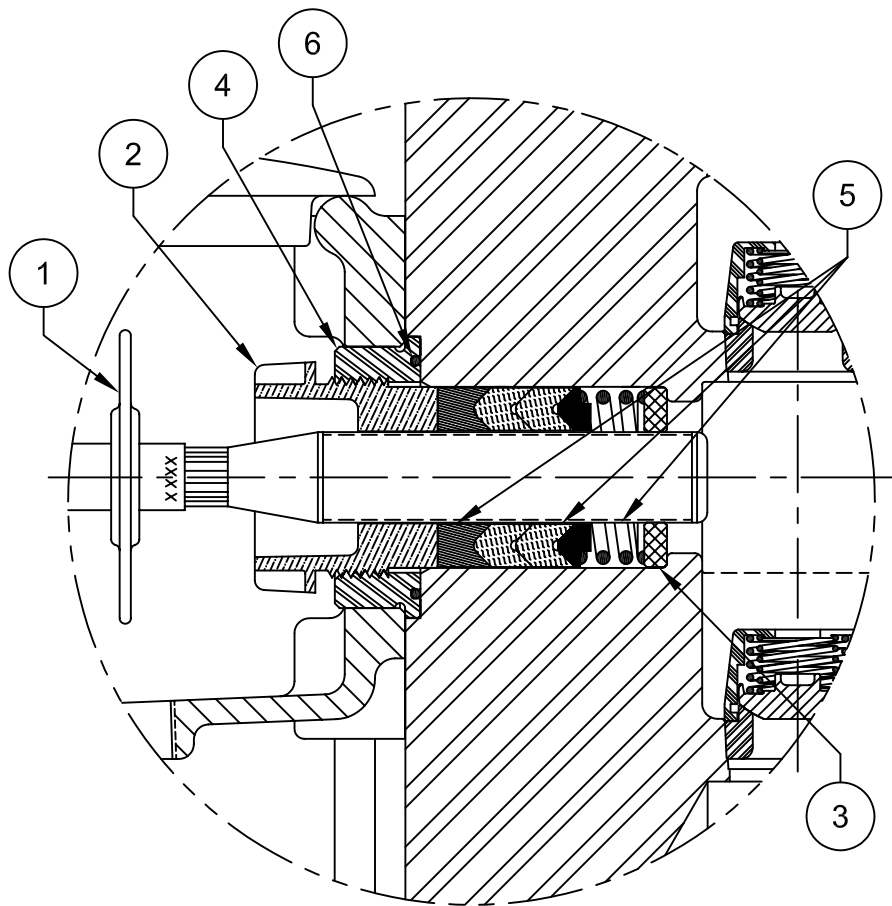
REQ'D	Part No.	DESCRIPTION	ITEM
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BILL OF MATERIAL

NOTE

1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117695, SHEETS 1 THRU 6.

 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, PLUNGER KIT 1068-4 PACKING, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)			
DWG No.:	SCALE:	REV	SHT.:
117695	NONE	A	5 OF 6



3	110-000232-200	O-RING		6
3	432-134238-340	PACKING	1068-4	5
	001-003948-278		(SS)	
	001-003948-236		(STL)	
3	001-003948-316	ADAPTER	(BRZ)	4
	001-024096-278		(SS)	
	001-024096-235		(STL)	
3	001-024096-302	THROAT BUSHING	(BRZ)	3
	AAC-013800-E16		(SS)	
	001-008909-351		(DI)	
3	001-008909-304	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1

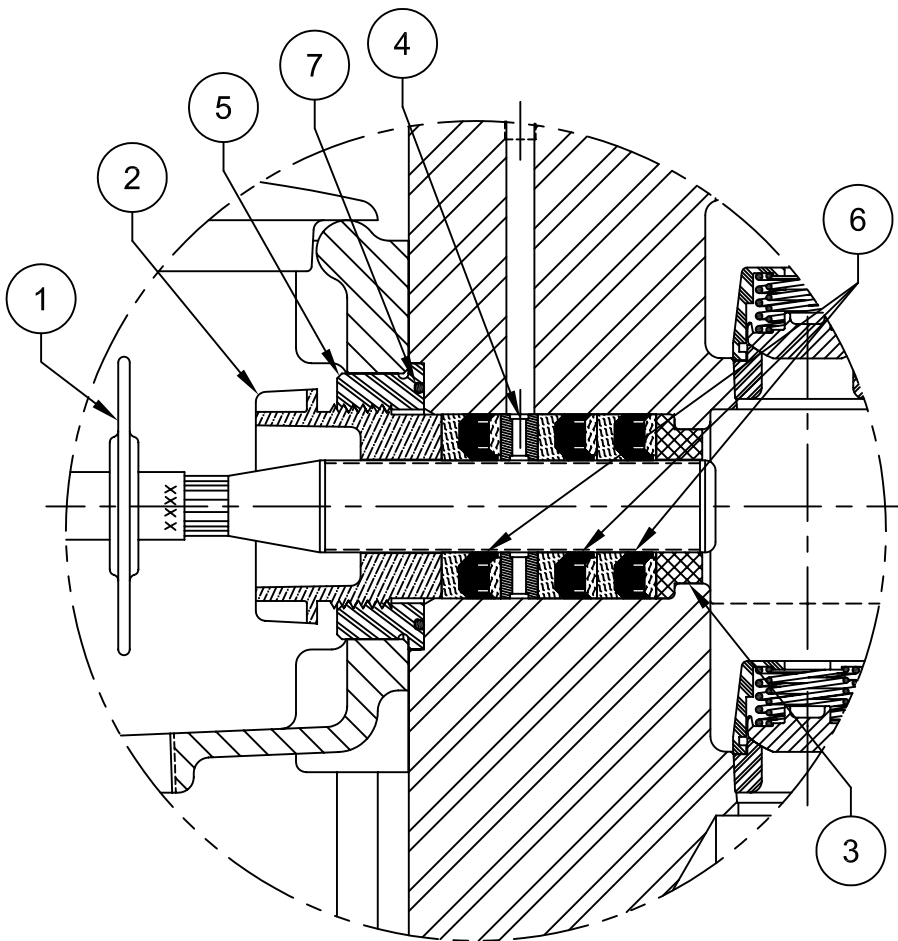
(1-3/4" PLUNGER)

REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

NOTE

1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117695, SHEETS 1 THRU 6.

 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, PLUNGER KIT 1068-4 PACKING, 1-1/8 - 1-3/4 PLG 22T-2M / 32T-2M (T225M)			
DWG No.:	SCALE:	REV	SHT.:
117695	NONE	A	6 OF 6




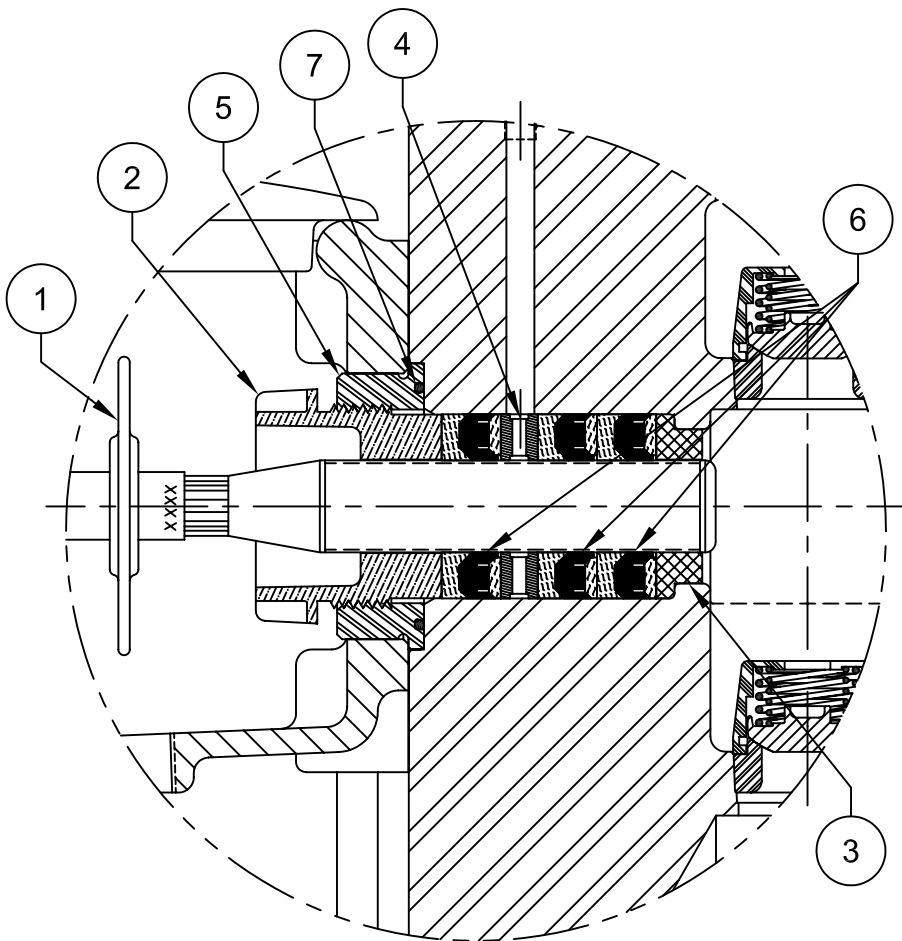
3	100-000234-200	O-RING		7
	223-112214-477		858	
	223-112214-374		845	
3	223-112214-370	PACKING	838	6
	011-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	5
	001-011264-278		(SS)	
	001-011264-235		(STL)	
3	001-011264-302	LANTERN RING	(BRZ)	4
	001-011175-278		(SS)	
	001-011175-235		(STL)	
3	001-011175-302	THROAT BUSHING	(BRZ)	3
	AEC-115784-E16		(SS)	
	001-011239-351		(DI)	
3	001-011239-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-1/2" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117699, SHEETS 1 THRU 5.

37

 NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA	
TITLE: ASSEMBLY, PLUNGER KIT J-STYLE PKG, 1-1/2 - 2 PLG 22T-2L / 32T-2L (T225LS)	
DWG No.:	117699
SCALE:	NONE
REV	A
SHT.:	1 OF 5



3	110-000234-200	O-RING		7
	223-158214-477		858	
	223-158214-374		845	
3	223-158214-370	PACKING	838	6
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	5
	001-011265-278		(SS)	
	001-011265-235		(STL)	
3	001-011265-302	LANTERN RING	(BRZ)	4
	001-011178-278		(SS)	
	001-011178-235		(STL)	
3	001-011178-302	THROAT BUSHING	(BRZ)	3
	ADC-115784-E16		(SS)	
	001-011240-351		(DI)	
3	001-011240-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-5/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117699, SHEETS 1 THRU 5.



NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, PLUNGER KIT
J-STYLE PKG, 1-1/2 - 2 PLG
22T-2L / 32T-2L (T225LS)

DWG No.:

117699

SCALE:

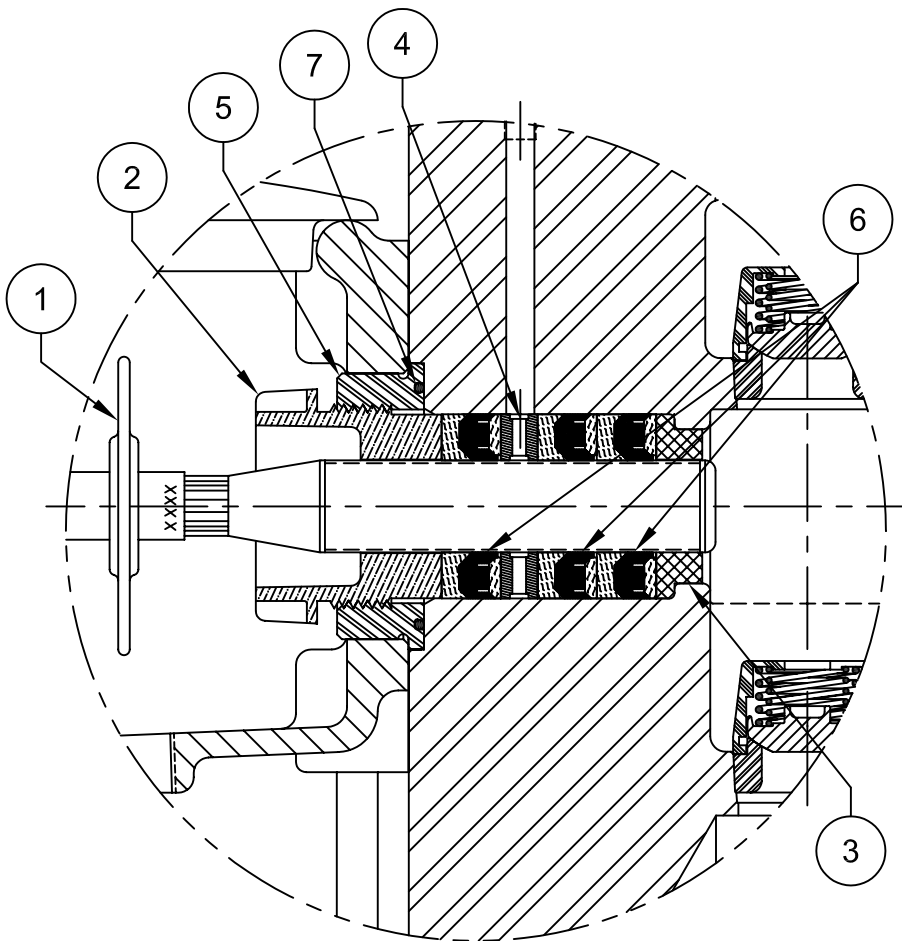
NONE

REV

A

SHT.:


2 OF 5

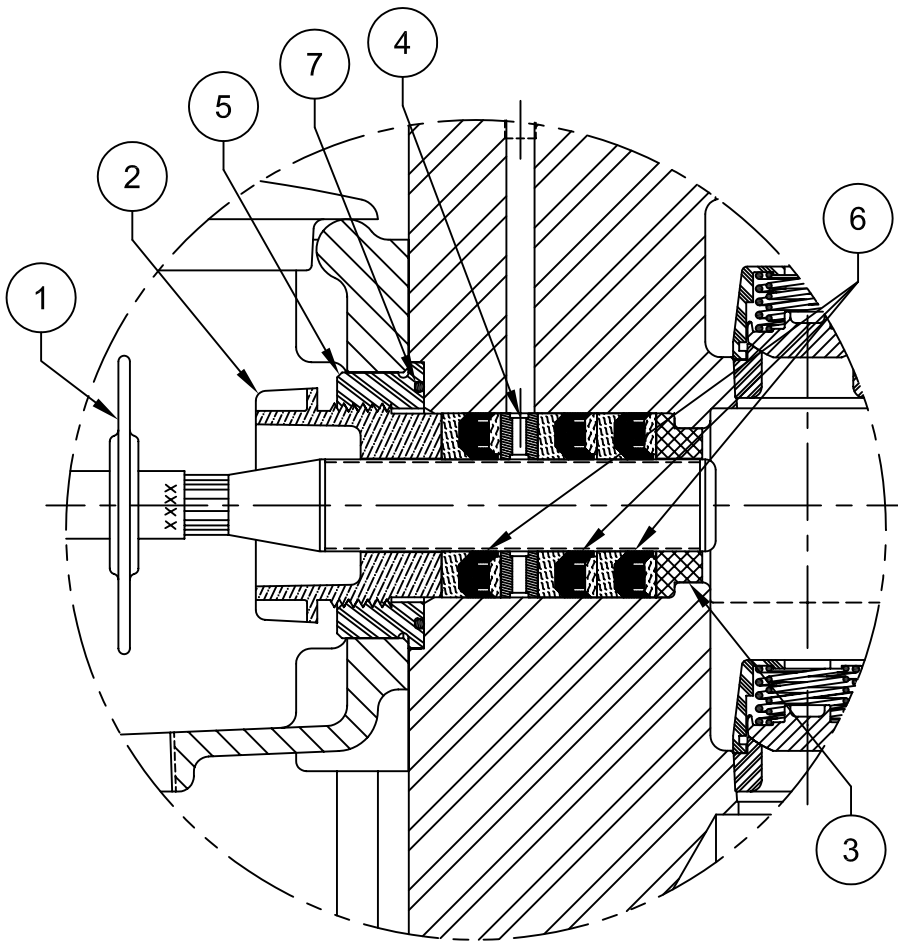


3	110-000234-200	O-RING		7
	223-134178-477		858	
	223-134178-374		845	
3	223-134178-370	PACKING	838	6
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	5
	001-011266-278		(SS)	
	011-011266-235		(STL)	
3	011-011266-302	LANTERN RING	(BRZ)	4
	011-011180-278		(SS)	
	011-011180-235		(STL)	
3	001-011180-302	THROAT BUSHING	(BRZ)	3
	ACC-115784-E16		(SS)	
	001-011241-351		(DI)	
3	001-011241-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-3/4" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117699, SHEETS 1 THRU 5.

 NATIONAL OILWELL	
<small>HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA</small>	
TITLE: ASSEMBLY, PLUNGER KIT J-STYLE PKG, 1-1/2 - 2 PLG 22T-2L / 32T-2L (T225LS)	
<small>DWG No.:</small> 117699	<small>SCALE:</small> NONE
<small>REV</small> A	<small>SHT.:</small> 3 OF 5



3	110-000234-200	O-RING		7
	223-178214-477		858	
	223-178214-374		845	
3	223-178214-370	PACKING	838	6
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	5
	001-011267-278		(SS)	
	001-011267-235		(STL)	
3	001-011267-302	LANTERN RING	(BRZ)	4
	001-011181-278		(SS)	
	001-011181-235		(STL)	
3	001-011181-302	THROAT BUSHING	(BRZ)	3
	ABC-115784-E16		(SS)	
	001-011242-351		(DI)	
3	001-011242-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-7/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117699, SHEETS 1 THRU 5.



NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

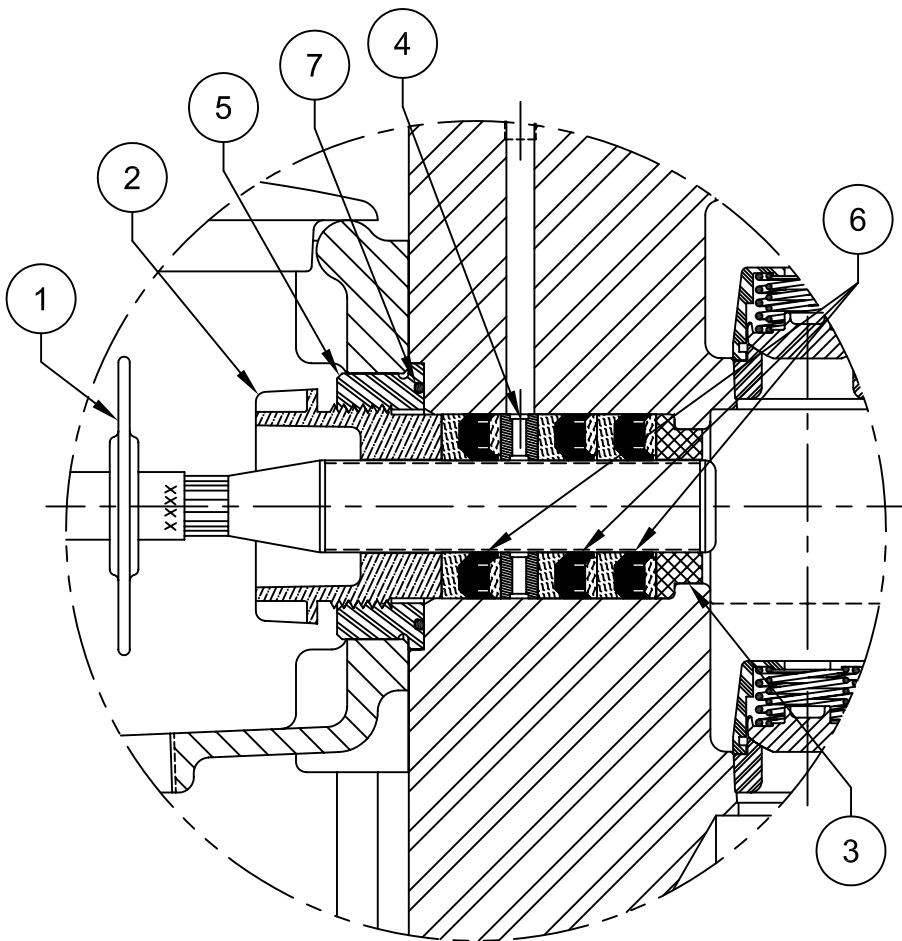
ASSEMBLY, PLUNGER KIT
J-STYLE PKG, 1-1/2 - 1-7/8 PLG
22T-2L / 32T-2L (T225LS)

DWG No.: 117699

SCALE: NONE

REV A

SHT.: 4 OF 5



3	110-000234-200	O-RING		7
	223-200214-477		858	
	223-200214-374		845	
3	223-200214-370	PACKING	838	6
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	5
	001-028668-278		(SS)	
	001-028668-235		(STL)	
3	001-028668-302	LANTERN RING	(BRZ)	4
	001-028510-278		(SS)	
	001-028510-235		(STL)	
3	001-028510-302	THROAT BUSHING	(BRZ)	3
	AAC-115784-E16		(SS)	
	001-000497-351		(DI)	
3	001-000497-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(2" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " J " STYLE PACKING SEE DRAWING 117699, SHEETS 1 THRU 5.



NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, PLUNGER KIT
J-STYLE PKG, 1-1/2 - 2 PLG
22T-2L / 32T-2L (T225LS)

DWG No.:

117699

SCALE:

NONE

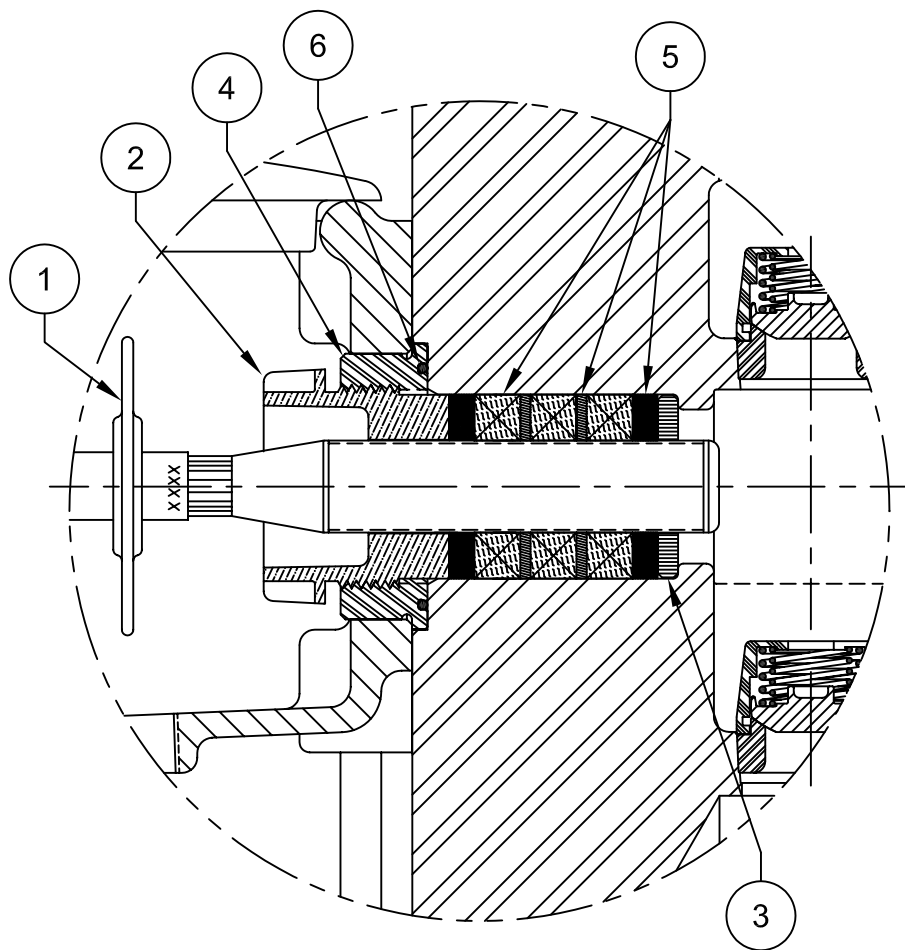
REV

A

SHT.:

5


OF 5

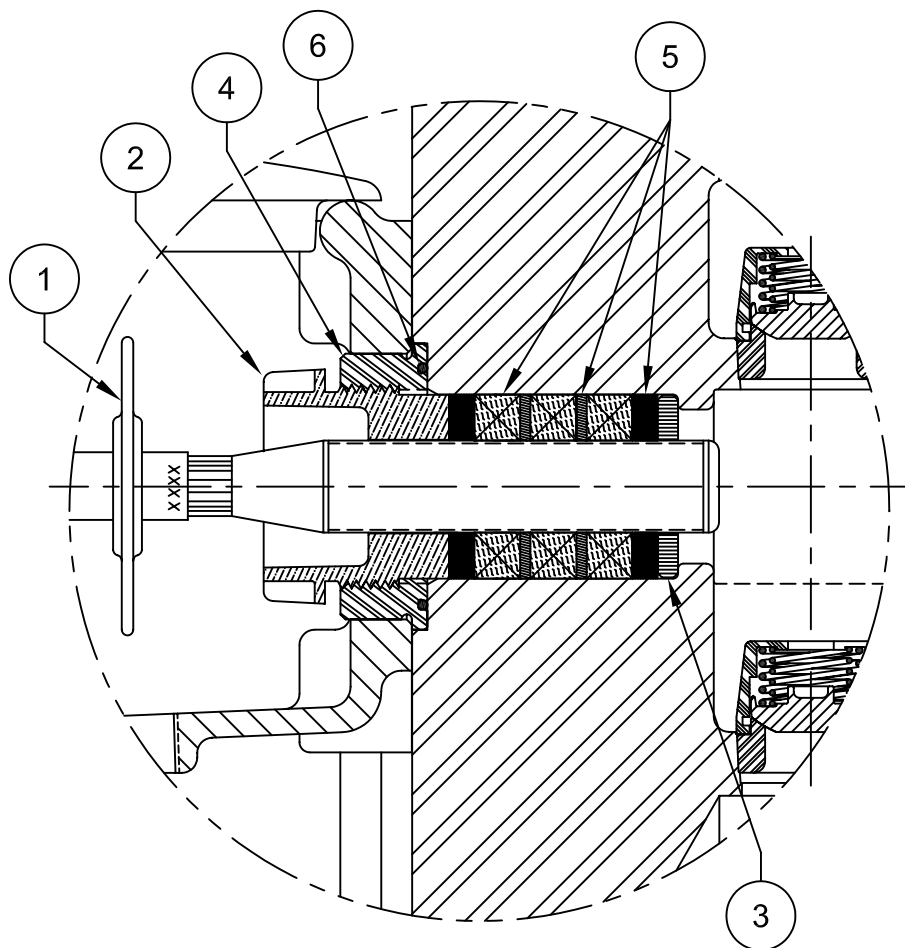


3	110-000234-200	O-RING		6
	453-112300-458		8921-k	
	453-112300-339		249	
	453-112300-337		241	
3	453-112300-395	PACKING	238	5
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	4
	001-011175-278		(SS)	
	001-011175-235		(STL)	
3	001-011175-302	THROAT BUSHING	(BRZ)	3
	AEC-115784-E16		(SS)	
	001-011239-351		(DI)	
3	001-011239-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-1/2" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117700, SHEETS 1 THRU 5.


 NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA	
TITLE: ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/2 - 2 PLG 22T-2L / 32T-2L (T225LS)	
DWG No.: 117700	SCALE: NONE
REV A	SHT.: 1 OF 5

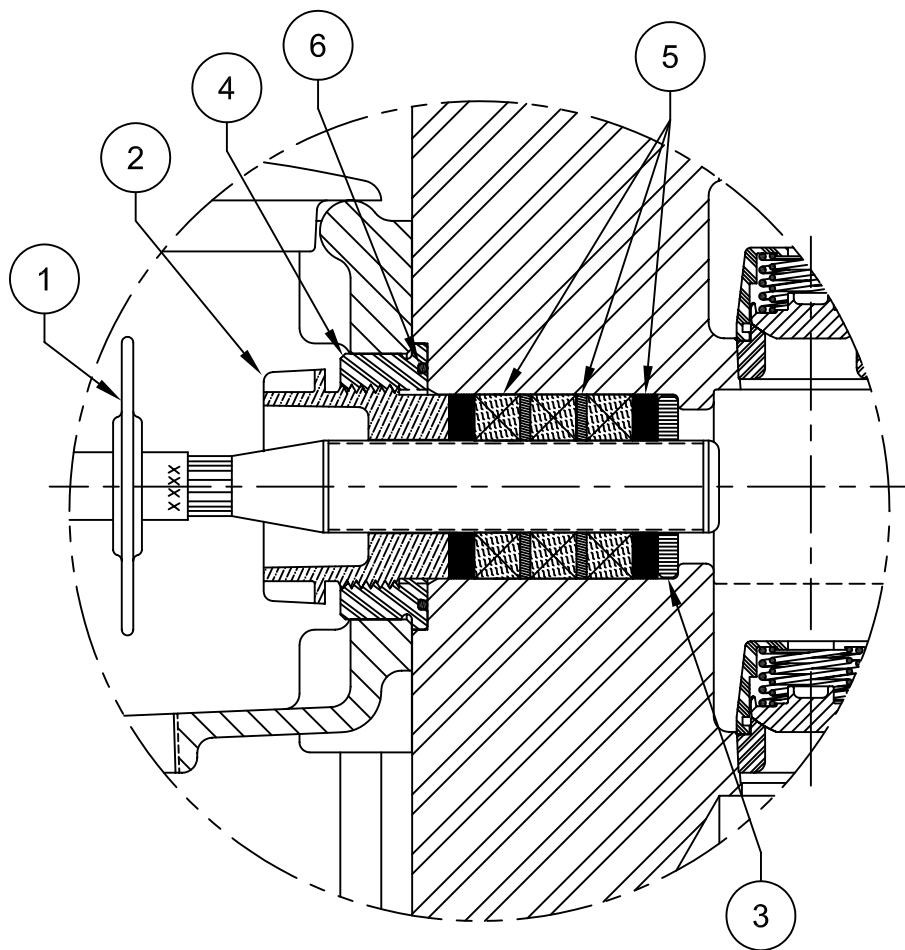


3	110-000234-200	O-RING		6
	453-158293-458		8921-K	
	453-158293-339		249	
	453-158293-337		241	
3	453-158293-395	PACKING	238	5
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	4
	011-011178-278		(SS)	
	011-011178-235		(STL)	
3	011-011178-302	THROAT BUSHING	(BRZ)	3
	ADC-115784-E16		(SS)	
	001-011240-351		(DI)	
3	001-011240-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-5/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117700, SHEETS 1 THRU 5.

		NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/2 - 2 PLG 22T-2L / 32T-2L (T225LS)			
DWG No.:	117700	SCALE:	NONE
REV	A	SHT.:	2 OF 5




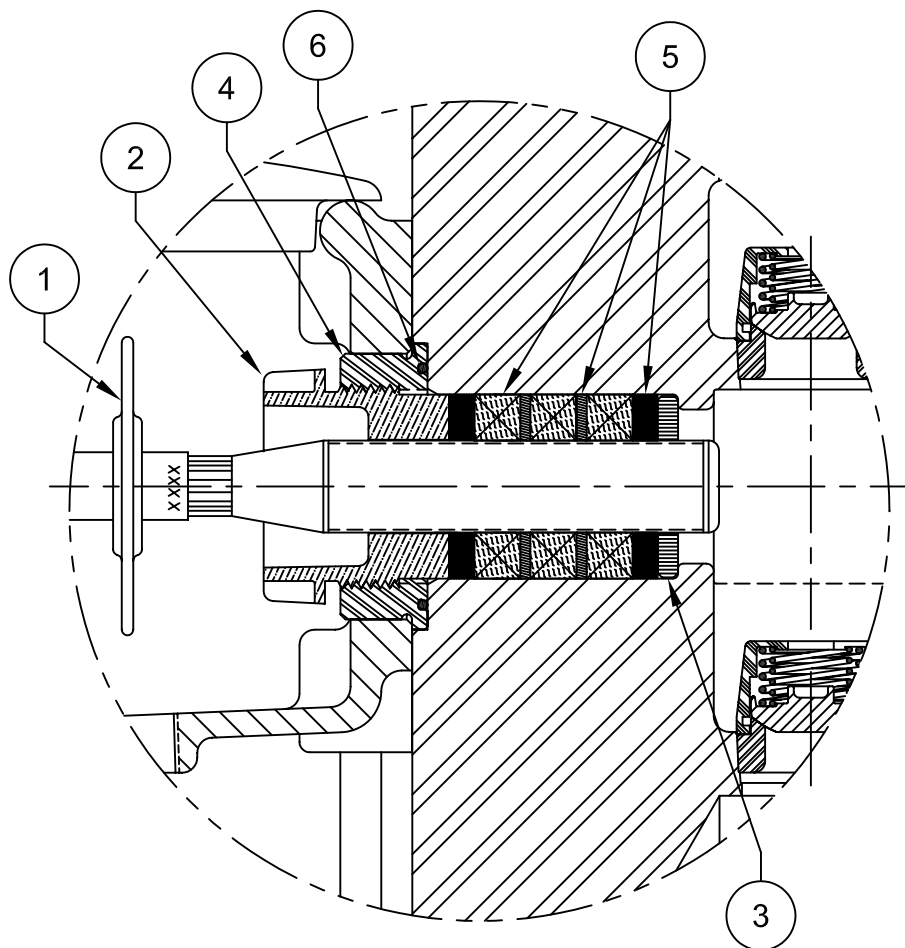
3	110-000234-200	O-RING		6
	453-134300-458		8921-K	
	453-134300-339		249	
	453-134300-337		241	
3	453-134300-395	PACKING	238	5
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	4
	001-011180-278		(SS)	
	001-011180-235		(STL)	
3	001-011180-302	THROAT BUSHING	(BRZ)	3
	ACC-115784-E16		(SS)	
	001-011241-351		(DI)	
3	001-011241-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-3/4" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117700, SHEETS 1 THRU 5.

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		NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE: ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/2 - 2 PLG 22T-2L / 32T-2L (T225LS)			
DWG No.:	117700	SCALE:	NONE
REV	A	SHT.:	3 OF 5

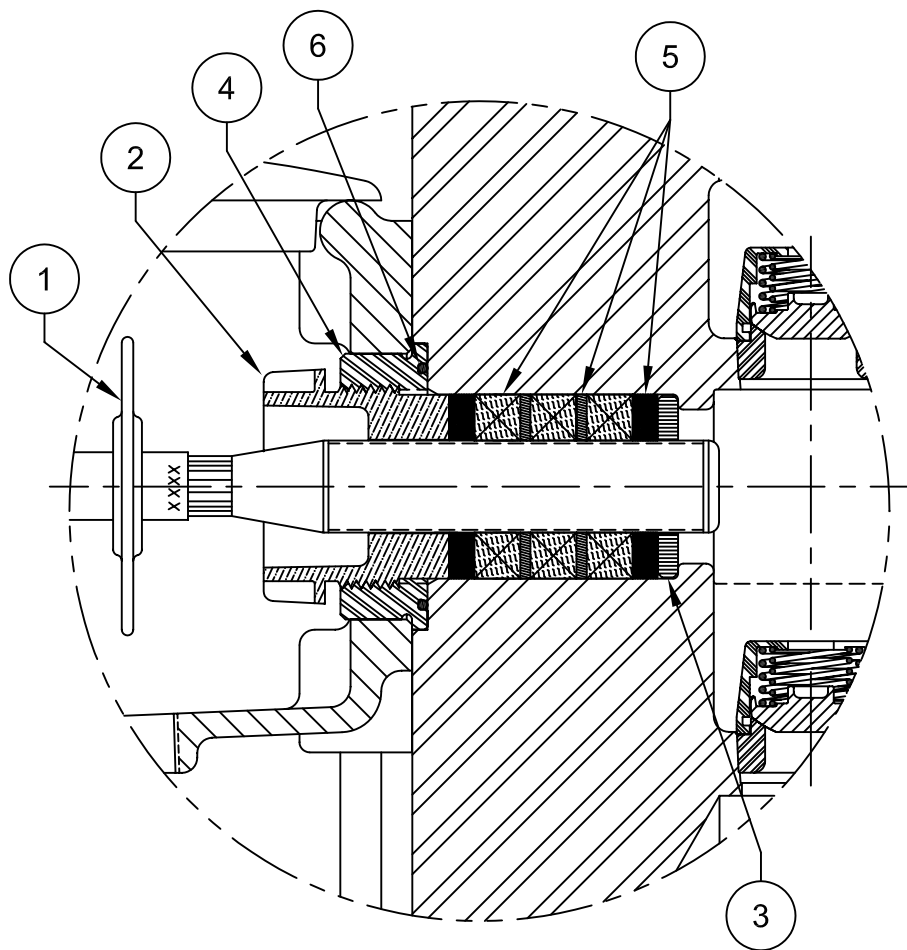


3	110-000234-200	O-RING		6
	453-178293-458		8921-K	
	453-178293-339		249	
	453-178293-337		241	
3	453-178293-395	PACKING	238	5
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	4
	001-011181-278		(SS)	
	001-011181-235		(STL)	
3	001-011181-302	THROAT BUSHING	(BRZ)	3
	ABC-115784-E16		(SS)	
	001-011242-351		(DI)	
3	001-011242-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-7/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117700, SHEETS 1 THRU 5.


 NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.	ENGINEERING, TULSA, OKLAHOMA
TITLE: ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/2 - 2 PLG 22T-2L / 32T-2L (T225LS)	
DWG No.: 117700	SCALE: NONE
REV A	SHT.: 4 OF 5

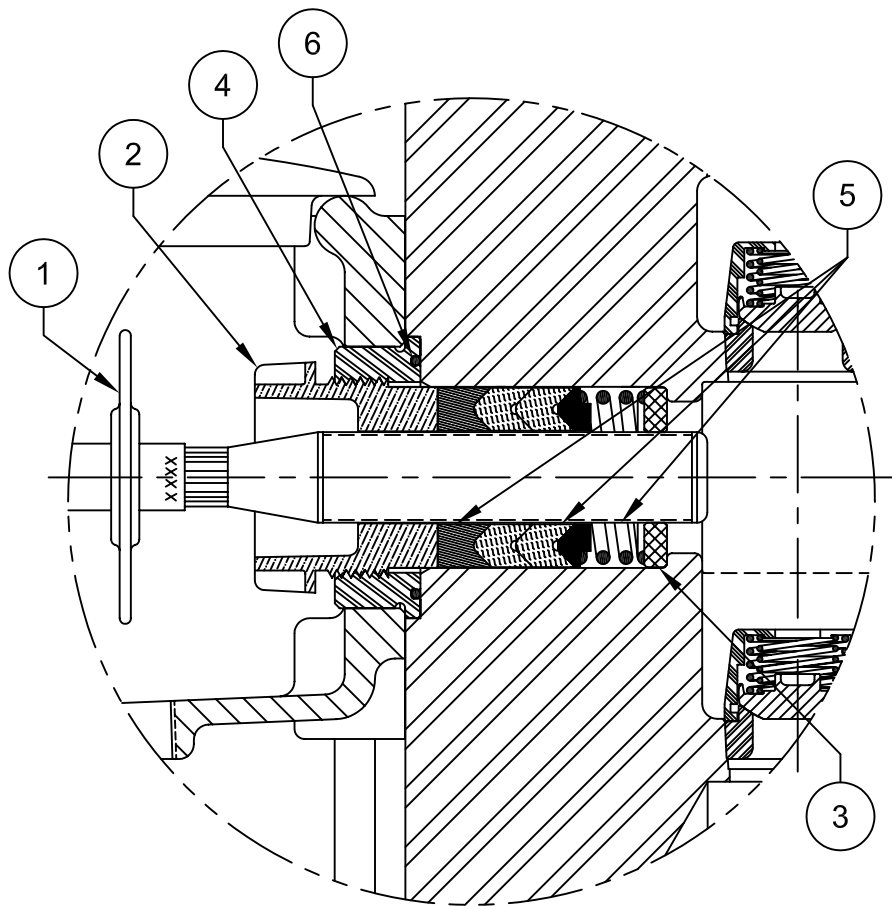


3	110-000234-200	O-RING		6
	453-200258-458		8921-K	
	453-200258-339		249	
	453-200258-337		241	
3	453-200258-370	PACKING	238	5
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	4
	001-028510-278		(SS)	
	001-028510-235		(STL)	
3	001-028510-302	THROAT BUSHING	(BRZ)	3
	AAC-115784-E16		(SS)	
	001-000497-351		(DI)	
3	001-000497-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(2" PLUNGER)				
REQ'D	Part No.	DESCRIPTION	ITEM	
BILL OF MATERIAL				

NOTE

1) FOR ALL " BRAID STYLE " PACKING SEE DRAWING 117700, SHEETS 1 THRU 5.

 NATIONAL OILWELL	
<small>HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA</small>	
TITLE: ASSEMBLY, PLUNGER KIT BRAID STYLE PKG, 1-1/2 - 2 PLG 22T-2L / 32T-2L (T225LS)	
<small>DWG No.:</small> 117700	<small>SCALE:</small> NONE
<small>REV</small> A	<small>SHT.:</small> 5 OF 5



3	110-000234-200	O-RING		6
3	222-112231-340	PACKING	1068-4	5
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	4
	001-011175-278		(SS)	
	001-011175-235		(STL)	
3	001-011175-302	THROAT BUSHING	(BRZ)	3
	AEC-115784-E16		(SS)	
	001-011239-351		(DI)	
3	001-011239-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-1/2" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM

BILL OF MATERIAL

NOTE

1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117701, SHEETS 1 THRU 5.

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NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

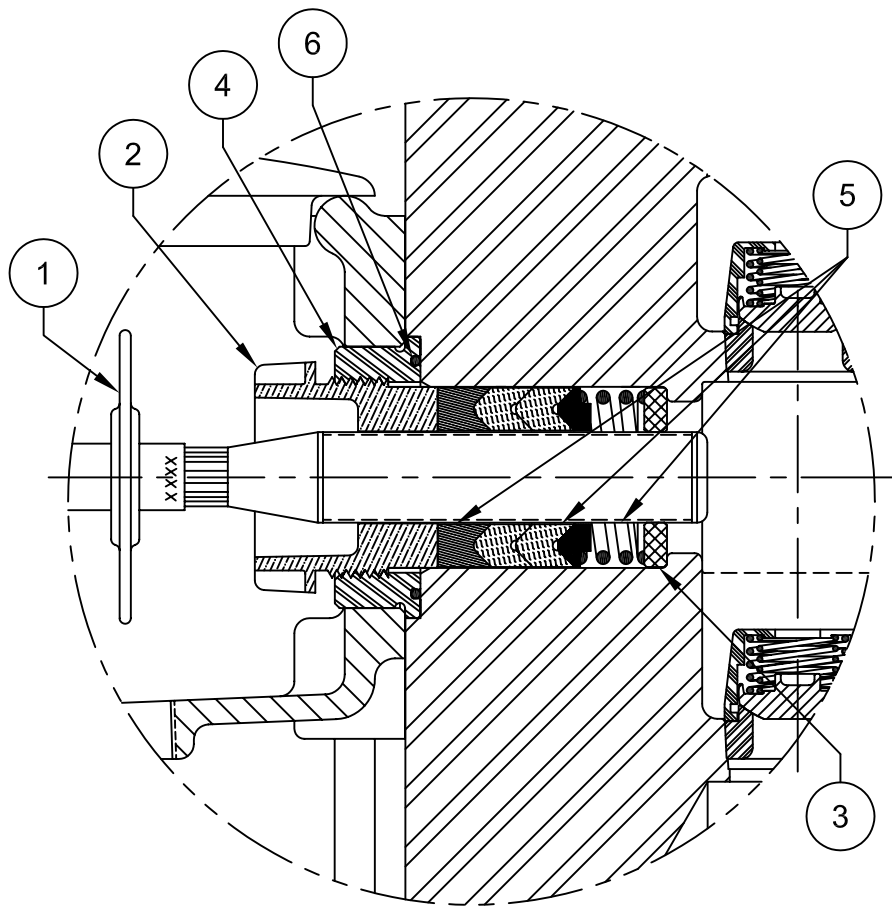
ASSEMBLY, PLUNGER KIT
1068-4 PACKING, 1-1/2 - 2 PLG
22T-2L / 32T-2L (T225LS)

DWG No.: 117701

SCALE: NONE

REV A

SHT.: 1 OF 5



3	110-000234-200	O-RING		6
3	222-158231-340	PACKING	1068-4	5
	001-028512		(SS)	
	001-028512		(STL)	
3	001-028512	ADAPTER	(BRZ)	4
	001-011178-		(SS)	
	001-011178-		(STL)	
3	001-011178-	THROAT BUSHING	(BRZ)	3
	ADC-115784-E16		(SS)	
	001-011240-351		(DI)	
3	011-011240-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-5/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117701, SHEETS 1 THRU 5.

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NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, PLUNGER KIT
1068-4 PACKING, 1-1/2 - 2 PLG
22T-2L / 32T-2L (T225LS)

DWG No.:

117701

SCALE:

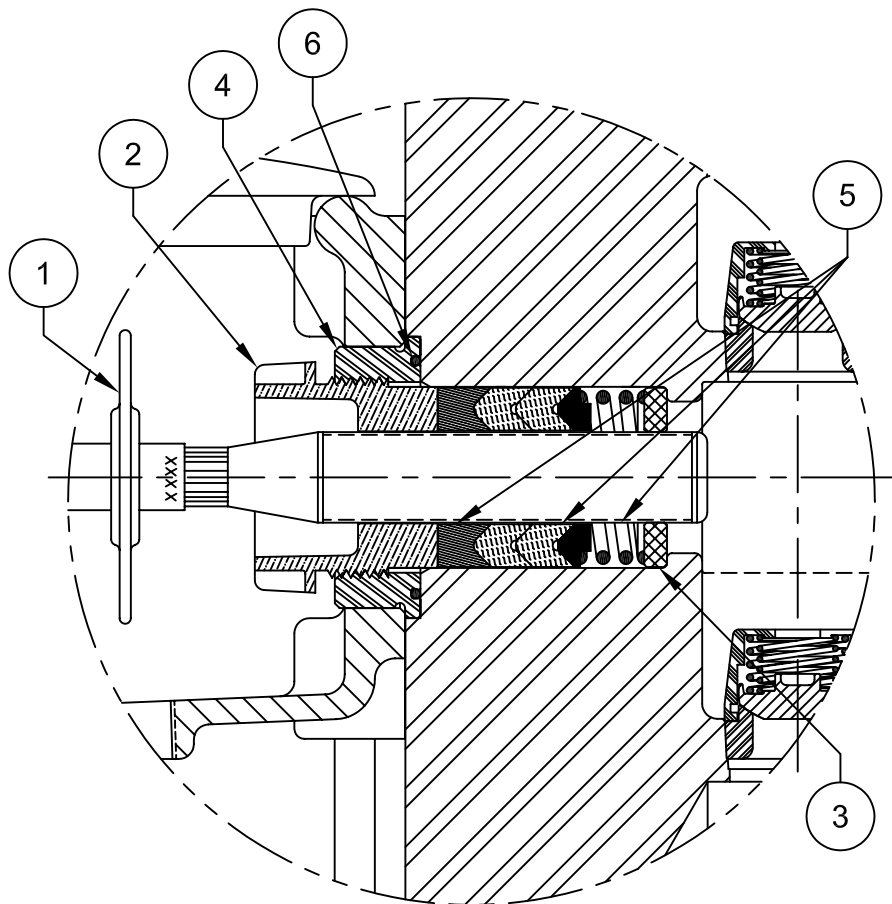
NONE

REV

A

SHT.:


2 OF 5

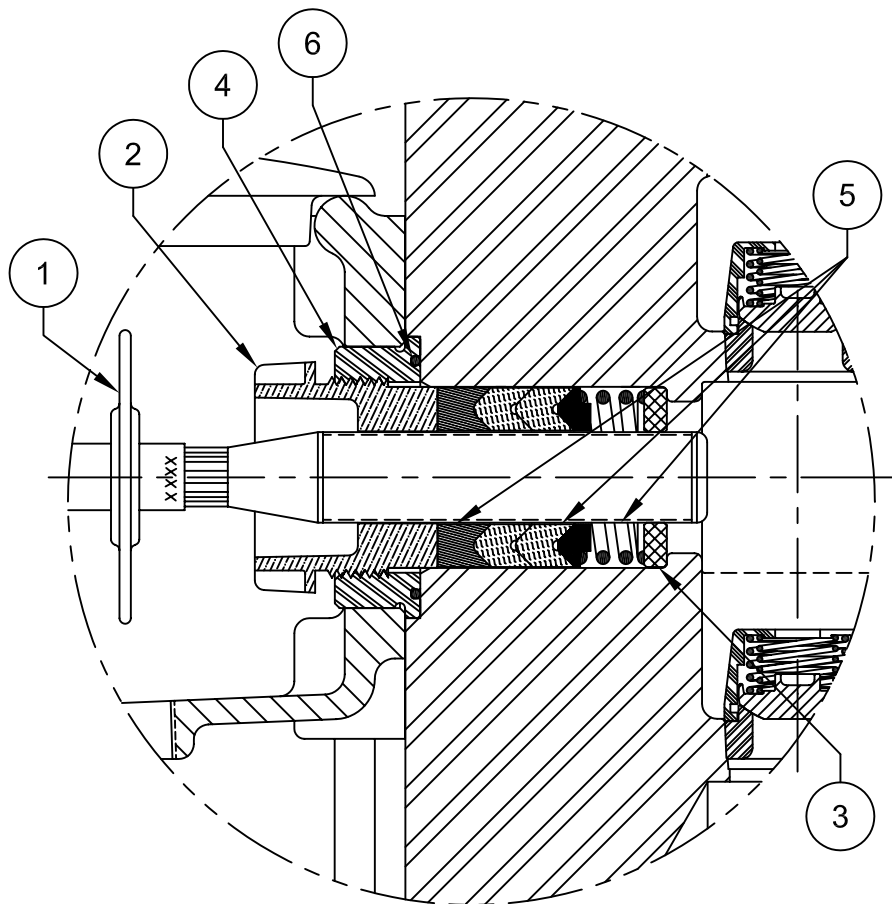


3	110-000234-200	O-RING		6
3	222-134231-340	PACKING	1068-4	5
	011-028512-278		(SS)	
	011-028512-236		(STL)	
3	011-028512-313	ADAPTER	(BRZ)	4
	001-011180-278		(SS)	
	001-011180-235		(STL)	
3	001-011180-302	THROAT BUSHING	(BRZ)	3
	ACC-115784-E16		(SS)	
	001-011241-351		(DI)	
3	001-011241-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-3/4" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

- 1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117701, SHEETS 1 THRU 5.

 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, PLUNGER KIT 1068-4 PACKING, 1-1/2 - 2 PLG 22T-2L / 32T-2L (T225LS)			
DWG No.:	117701	SCALE:	NONE
REV	A	SHT.:	3 OF 5

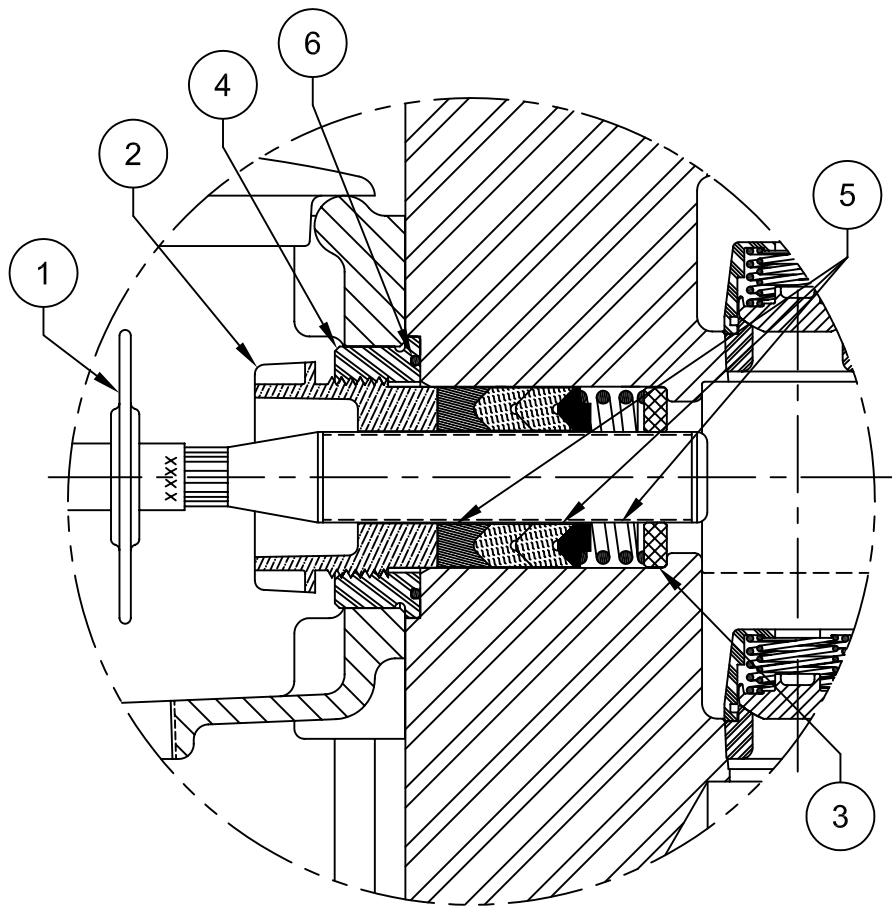


3	110-000234-200	O-RING		6
3	222-178231-340	PACKING	1068-4	5
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	4
	001-011181-278		(SS)	
	001-011181-235		(STL)	
3	001-011181-302	THROAT BUSHING	(BRZ)	3
	ABC-115784-E16		(SS)	
	001-011242-351		(DI)	
3	001-011242-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1
(1-7/8" PLUNGER)				
REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117701, SHEETS 1 THRU 5.

 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE:			
ASSEMBLY, PLUNGER KIT 1068-4 PACKING, 1-1/2 - 2 PLG 22T-2L / 32T-2L (T225LS)			
DWG No.:	117701	SCALE:	NONE
REV	A	SHT.:	4 OF 5



3	110-000234-200	O-RING		6
3	222-200231-340	PACKING	1068-4	5
	001-028512-278		(SS)	
	001-028512-236		(STL)	
3	001-028512-313	ADAPTER	(BRZ)	4
	001-028510-278		(SS)	
	001-028510-235		(STL)	
3	001-028510-302	THROAT BUSHING	(BRZ)	3
	AAC-115784-E16		(SS)	
	001-000497-351		(DI)	
3	001-000497-310	GLAND NUT	(BRZ)	2
3	001-008910-201	BAFFLE DISC		1

(2" PLUNGER)

REQ'D	Part No.	DESCRIPTION		ITEM
BILL OF MATERIAL				

NOTE

1) FOR ALL " 1068-4 STYLE " PACKING SEE DRAWING 117701, SHEETS 1 THRU 5.



NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, PLUNGER KIT
1068-4 PACKING, 1-1/2 - 2 PLG
22T-2L / 32T-2L (T225LS)

DWG No.:

117701

SCALE:

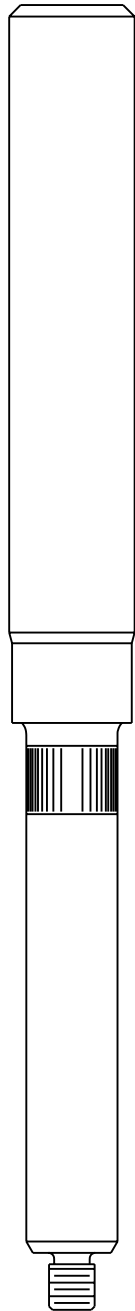
NONE

REV

A


SHT.:

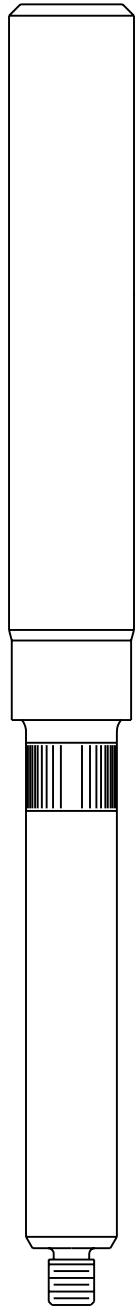
5 OF 5



PLUNGER DIA.
(REF.)

3	002-011349-E26	PLUNGER, HARD COAT (CHROME OXIDE)	
3	002-011349-E22	PLUNGER, HARD COAT (COLMONOY)	
3	002-011349-E23	PLUNGER, HARD COAT (STELLITE 157)	
3	002-011349-E24	PLUNGER, HARD COAT (PREMIUM TUNGSTEN / S157)	
2" DIA. PLUNGERS			
3	002-011348-E26	PLUNGER, HARD COAT (CHROME OXIDE)	
3	002-011348-E22	PLUNGER, HARD COAT (COLMONOY)	
3	002-011348-E23	PLUNGER, HARD COAT (STELLITE 157)	
3	002-011348-E24	PLUNGER, HARD COAT (PREMIUM TUNGSTEN / S157)	
1-7/8" DIA. PLUNGERS			
3	002-025838-999	PLUNGER, HARD COAT (CHROME OXIDE)	
3	002-011347-E23	PLUNGER, HARD COAT (STELLITE 157)	
3	002-011347-999	PLUNGER, HARD COAT (COLMONOY)	
3	002-011347-E26	PLUNGER, HARD COAT (PREMIUM TUNGSTEN / S157)	1
1-3/4" DIA. PLUNGERS			
3	002-025372-999	PLUNGER, HARD COAT (CHROME OXIDE)	
3	002-011346-E23	PLUNGER, HARD COAT (STELLITE 157)	
3	002-011346-999	PLUNGER, HARD COAT (COLMONOY)	
3	002-011346-E26	PLUNGER, HARD COAT (PREMIUM TUNGSTEN / S157)	1
1-5/8" DIA. PLUNGERS			
3	002-025694-999	PLUNGER, HARD COAT (CHROME OXIDE)	
3	002-009539-E23	PLUNGER, HARD COAT (STELLITE 157)	
3	002-009539-999	PLUNGER, HARD COAT (COLMONOY)	
3	002-009539-E26	PLUNGER, HARD COAT (PREMIUM TUNGSTEN / S157)	1
1-1/2" DIA. PLUNGERS			
3	002-025373-999	PLUNGER, HARD COAT (CHROME OXIDE)	
3	002-011638-E23	PLUNGER, HARD COAT (STELLITE 157)	
3	002-011638-999	PLUNGER, HARD COAT (COLMONOY)	
3	002-011638-E26	PLUNGER, HARD COAT (PREMIUM TUNGSTEN / S157)	1
1-3/8" DIA. PLUNGERS			
3	002-025847-999	PLUNGER, HARD COAT (CHROME OXIDE)	
3	002-011637-E23	PLUNGER, HARD COAT (STELLITE 157)	
3	002-011637-999	PLUNGER, HARD COAT (COLMONOY)	
3	002-011637-E26	PLUNGER, HARD COAT (PREMIUM TUNGSTEN / S157)	1
1-1/4" DIA. PLUNGERS			
3	002-025831-999	PLUNGER, HARD COAT (CHROME OXIDE)	
3	002-011636-E23	PLUNGER, HARD COAT (STELLITE 157)	
3	002-011636-999	PLUNGER, HARD COAT (COLMONOY)	
3	002-011636-E26	PLUNGER, HARD COAT (PREMIUM TUNGSTEN / S157)	1
1-1/8" DIA. PLUNGERS			
REQ'D	Part No.	DESCRIPTION	ITEM

 NATIONAL OILWELL			
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE: PLUNGERS 1-1/8" THRU 2", HARD SURFACE 22T-2 / 32T-2 (T225)			
DWG No.:	117696	SCALE:	NONE
REV:	A	SHT.:	1 OF 1

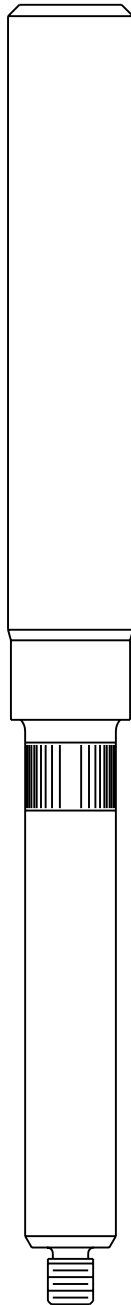


← PLUNGER DIA.
(REF.)

3	002-011368-999	PLUNGER, CERAMIC (2" DIA. PLUNGERS)	1
3	002-011367-999	PLUNGER, CERAMIC (1-7/8" DIA. PLUNGERS)	1
3	002-011365-999	PLUNGER, CERAMIC (1-3/4" DIA. PLUNGERS)	1
3	002-011364-999	PLUNGER, CERAMIC (1-5/8" DIA. PLUNGERS)	1
3	002-011363-999	PLUNGER, CERAMIC (1-1/2" DIA. PLUNGERS)	1
3	002-011366-999	PLUNGER, CERAMIC (1-3/8" DIA. PLUNGERS)	1
3	002-011362-999	PLUNGER, CERAMIC (1-1/4" DIA. PLUNGERS)	1
3	002-001753-999	PLUNGER, CERAMIC (1-1/8" DIA. PLUNGERS)	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

53

NO		NATIONAL OILWELL	
HOUSTON, TEXAS, U.S.A.		ENGINEERING, TULSA, OKLAHOMA	
TITLE: PLUNGERS 1-1/8 TO 2 CERAMIC 22T-2 / 32T-2 (T225)			
DWG No.:	117697	SCALE:	NONE
REV	A	SHT.:	1 OF 1



← PLUNGER DIA.
(REF.)

	002-002252-999	PLUNGER, HARD COAT (COLMONOY)	
3	002-002252-E26	PLUNGER, HARD COAT (TUNGSTEN)	1
(1" DIA. PLUNGERS)			
3	002-011068-999	PLUNGER, HARD COAT (COLMONOY)	
3	002-011068-E26	PLUNGER, HARD COAT (TUNGSTEN)	1
(7/8" DIA. PLUNGERS)			
3	002-011067-999	PLUNGER, HARD COAT (COLMONOY)	
3	002-011067-E26	PLUNGER, HARD COAT (TUNGSTEN)	1
(3/4" DIA. PLUNGERS)			
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

54



HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

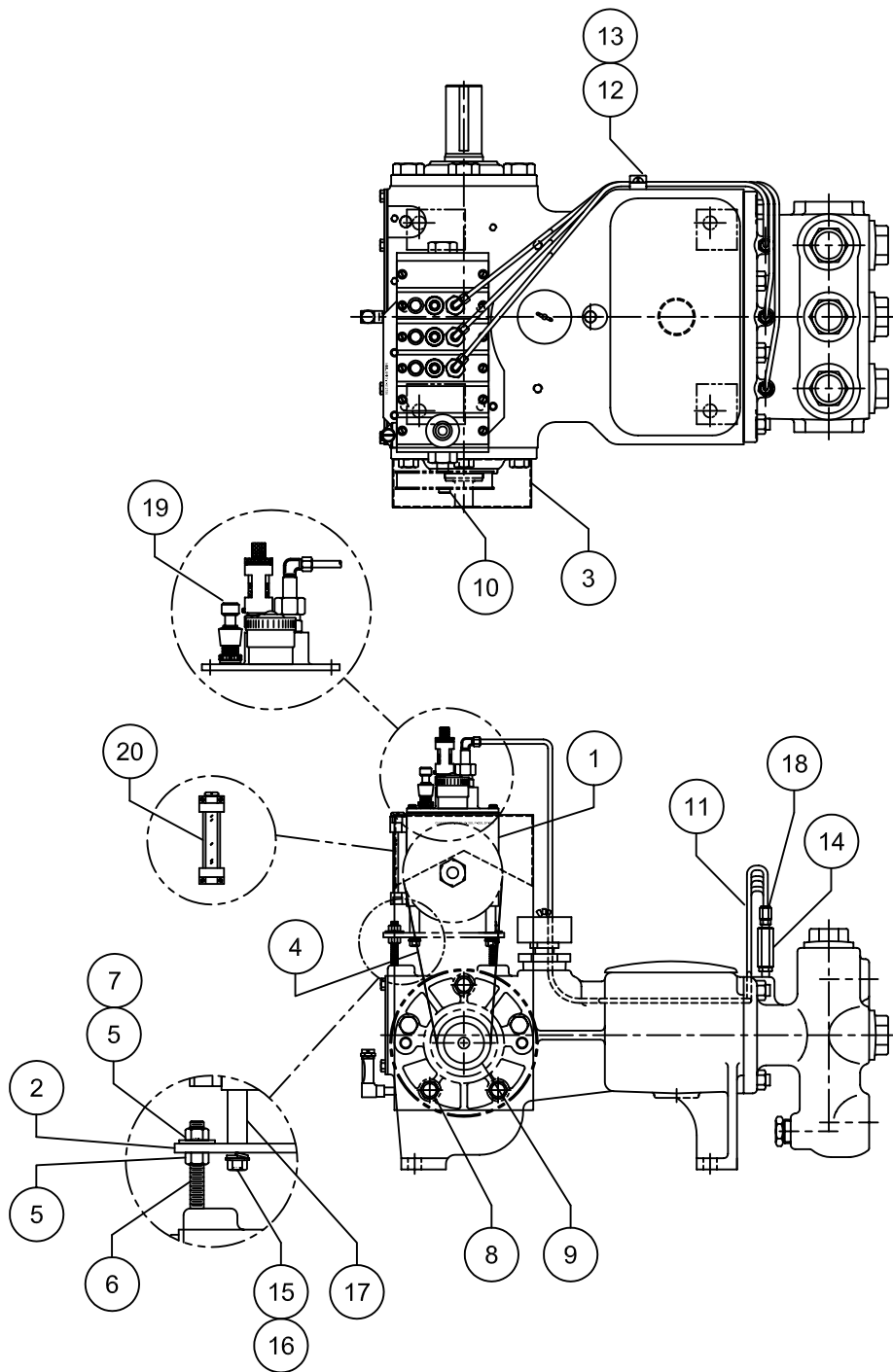
PLUNGERS 3/4 TO 1
HARD SURFACE
22T-2H / 32T-2H (T225H)

DWG No.: 117698

SCALE: NONE

REV A

SHT.: 1 OF 1



1	GAS-105265-000	SIGHT GLASS	20
1	GAS-105264-000	PUMP ASSEMBLY w/ GASKET	19
REPLACEMENT PARTS			
3	001-011635-220	MALE CONN. 1/4" TUBE x 1/8" NPT	18
4	186-130112-365	SPACER	17
4	100-516212-273	CAP SCREW 5/16" x 2-1/2" LG.	16
4	154-516059-286	LOCK WASHER, 5/16"	15
3	GAS-105240-000	CHECK VALVE, 1/8" NPT	14
2	113-010038-286	MACHINE SCREW, RND HD	13
1	001-008783-405	LINE CLAMP	12
60"	330-002003-365	TUBING, 1/4"	11
1	001-011513-999	SHEAVE, LUBRICATOR DRIVER 5/8" BORE	10
1	001-011632-999	SHEAVE, PUMP DRIVER 1" BORE	9
3	100-058412-290	CAP SCREW, 5/8" x 4-1/2" LG.	8
3	154-038068-286	LOCK WASHER 3/8"	7
3	104-038300-286	STUD, 3/8" x 3" LG	6
6	133-038016-286	NUT, ZINC PLATED 3/8"	5
1	001-011617-999	V-BELT	4
1	004-001977-231	BELT GUARD	3
1	001-012756-231	LUBRICATOR BRACKET LH/RH	2
1	GAS-105227-000	LUBRICATOR LHD, (3) FEED	
1	GAS-105228-000	LUBRICATOR RHD, (3) FEED	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

LEFT HAND DRIVE POWER PUMP (SHOWN) REQUIRES RIGHT HAND DRIVE LUBRICATOR.

SAME PLUMBING FOR CASTINGS AND BILLETS (CASTING SHOWN).



NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A.

ENGINEERING, TULSA, OKLAHOMA

TITLE:

ASSEMBLY, PACKING LUBRICATOR
(RHD or LHD) LHD SHOWN
22T-2 / 32T-2 (T225)

DWG No.:

117673

SCALE:

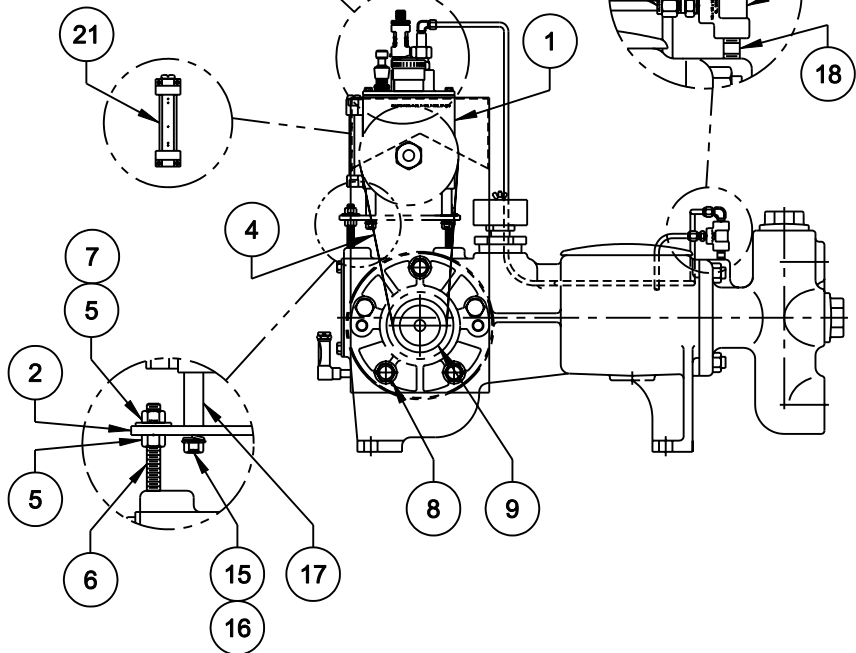
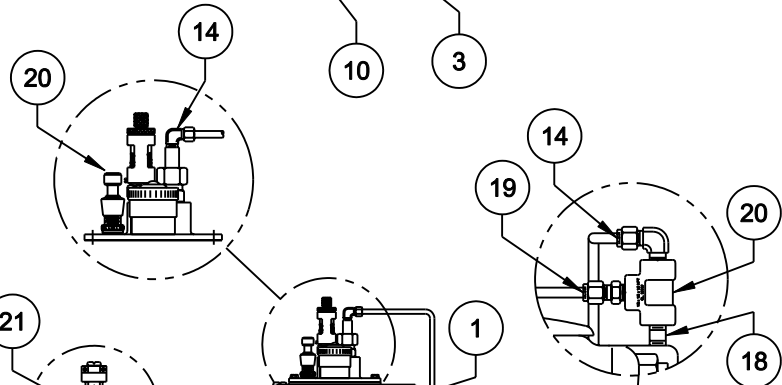
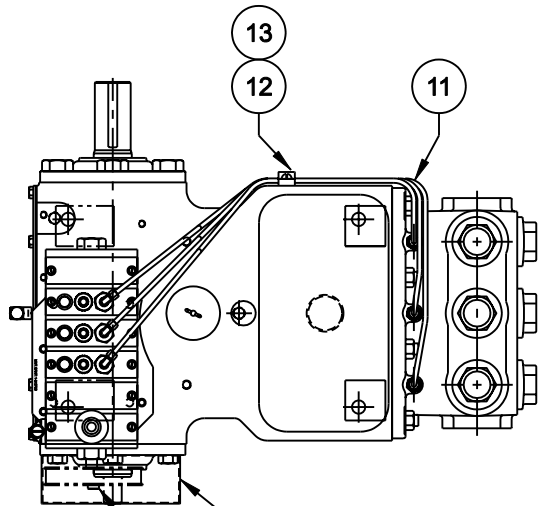
NONE

REV

A

SHT.:

1 OF 1



SAME PLUMBING FOR CASTINGS AND BILLETS (CASTING SHOWN).

1	GAS-105265-000	SIGHT GLASS	21
1	GAS-105264-000	PUMP ASSEMBLY w/ GASKET	20
REPLACEMENT PARTS			
3	469-020002-278	TEE, 1/8" NPT	20
3	462-040012-278	MALE CONNECTOR, 1/4" TUBE x 1/8" NPT	19
3	157-018112-278	PIPE NIPPLE	18
4	186-130112-365	SPACER	17
4	100-516212-273	CAP SCREW 5/16" x 2-1/2" LG.	16
4	154-516059-286	LOCK WASHER, 5/16"	15
6	462-040012-278	TUBE FITTING, 90 DEG ELBOW 1/4" TUBE x 1/8" NPT	14
2	113-010038-286	MACHINE SCREW, RND HD	13
1	001-008783-405	LINE CLAMP	12
60"	330-002003-365	TUBING, 1/4"	11
1	001-011513-999	SHEAVE, LUBRICATOR DRIVER 5/8" BORE	10
1	001-011632-999	SHEAVE, PUMP DRIVER 1" BORE	9
3	100-058412-290	CAP SCREW, 5/8" x 4-1/2" LG.	8
3	154-038068-286	LOCK WASHER 3/8"	7
3	104-038300-286	STUD, 3/8" x 3" LG	6
6	133-038016-286	NUT, ZINC PLATED 3/8"	5
1	001-011617-999	V-BELT	4
1	004-001977-231	BELT GUARD	3
1	001-012756-231	LUBRICATOR BRACKET LH/RH	2
1	GAS-105227-000	LUBRICATOR LHD, (3) FEED	
1	GAS-105228-000	LUBRICATOR RHD, (3) FEED	1
REQ'D	Part No.	DESCRIPTION	ITEM
BILL OF MATERIAL			

LEFT HAND DRIVE POWER PUMP (SHOWN) REQUIRES RIGHT HAND DRIVE LUBRICATOR.

NATIONAL OILWELL

HOUSTON, TEXAS, U.S.A. ENGINEERING, TULSA, OKLAHOMA

TITLE:

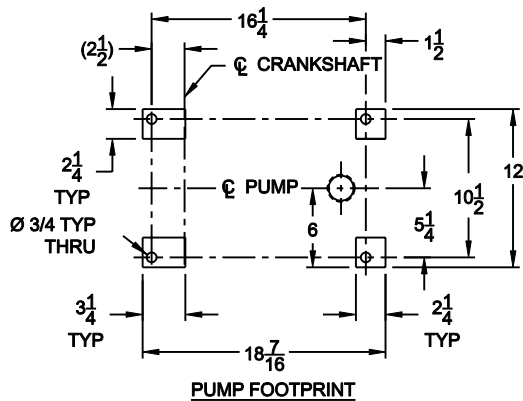
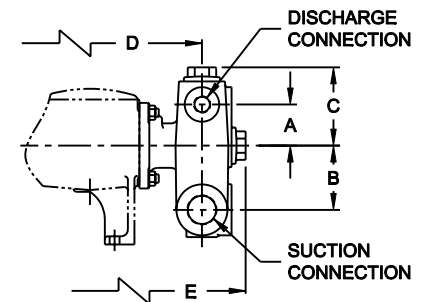
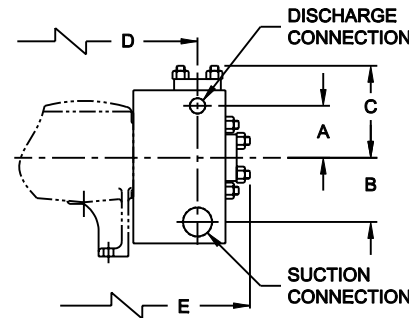
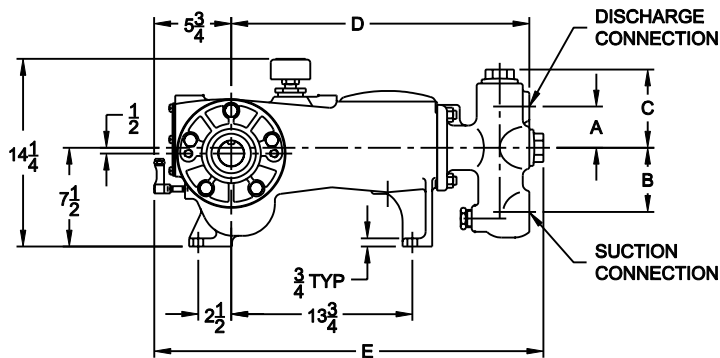
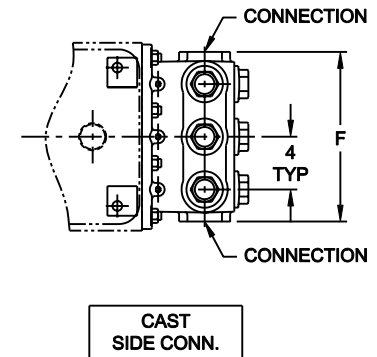
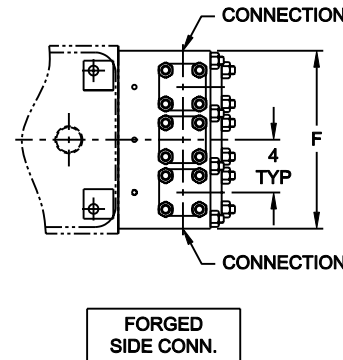
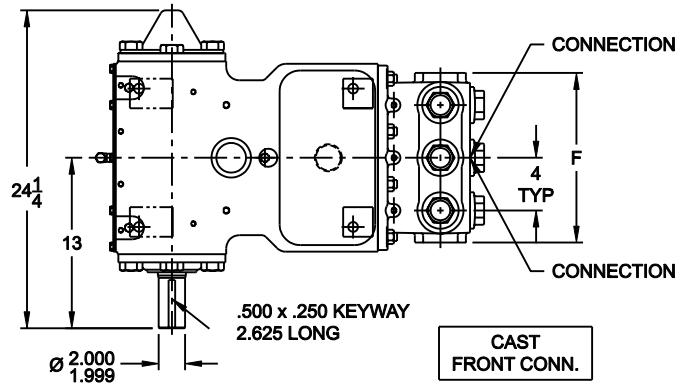
**ASSEMBLY, D.O.H. LUBRICATOR
(DRIP ON THE HEEL) - (RHD or LHD)
LHD SHOWN, 22T-2 / 32T-2 (T225)**

DWG No.:	SCALE:	REV	SHT:
117687	NONE	A	1 of 1

FIELD CONNECTIONS

PUMP TYPE	DIMENSIONS IN INCHES (MM)	
	DISCHARGE CONNECTION SIZE	SUCTION CONNECTION SIZE
22T-2L	1 (25.4)-11 1/2 FNPT	2 (50.8)-11 1/2 FNPT

PUMP TYPE	DIMENSIONS IN INCHES					
	A	B	C	D	E	F
22T-2L, CAST SIDE CONN.	3-1/8	4-7/8	5-15/16	20-1/2	29-1/2	12-7/8
22T-2L, CAST FRONT CONN.	3-1/8	4-7/8	5-15/16	22-5/8	29-1/2	11-1/2
22T-2L, BILLET SIDE CONN.	3-5/16	4-7/8	6-13/16	20-1/2	30	13-1/2



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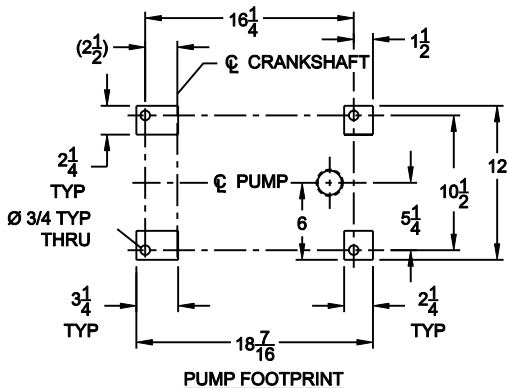
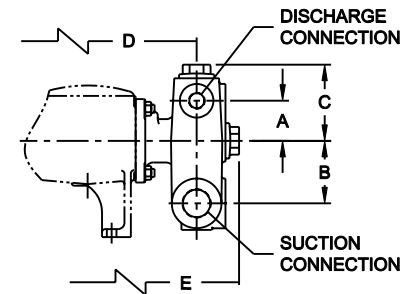
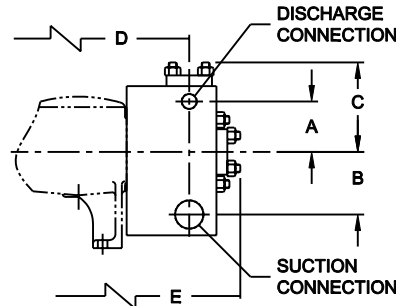
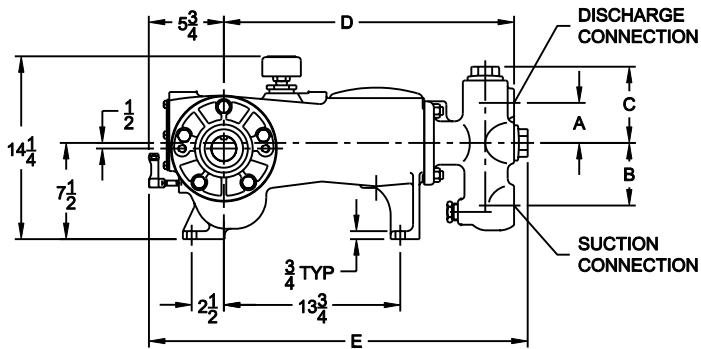
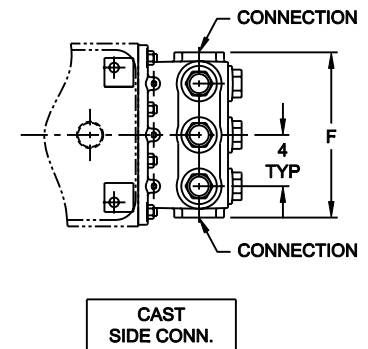
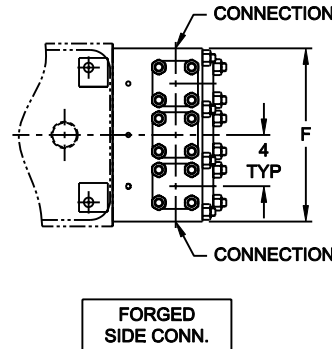
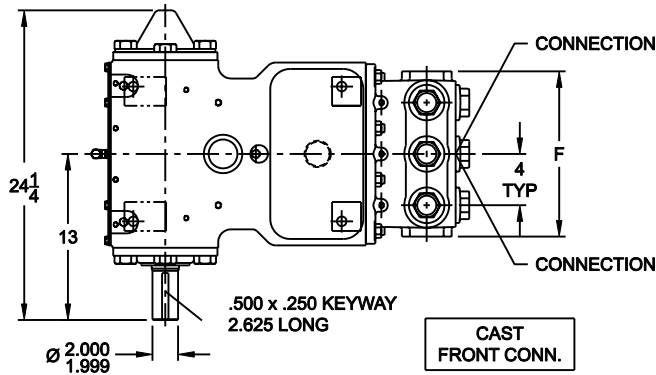
TITLE: GENERAL DIMENSION, RHD
FLUID END, LOW PRESSURE
22T-2L / 32T-2L (T225LS)

DWG No.: 117670	SCALE: NONE	REV: A	SHT.: 1 OF 1
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FIELD CONNECTIONS

PUMP TYPE	DIMENSIONS IN INCHES (MM)	
	DISCHARGE CONNECTION SIZE	SUCTION CONNECTION SIZE
22T-2M	1 (25.4)-11 1/2 FNPT	2 (50.8)-11 1/2 FNPT

PUMP TYPE	DIMENSIONS IN INCHES					
	A	B	C	D	E	F
22T-2M, CAST SIDE CONN.	3-1/8	4-7/8	5-15/16	20-1/2	29-1/2	12-7/8
22T-2M, CAST FRONT CONN.	3-1/8	4-7/8	5-15/16	22-5/8	29-1/2	11-1/2
22T-2M, BILLET SIDE CONN.	3-15/16	4-7/8	6-13/16	20-1/2	30	13 1/2



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TITLE:

GENERAL DIMENSION, RHD
FLUID END, MED PRESSURE
22T-2M / 32T-2M (T225M)

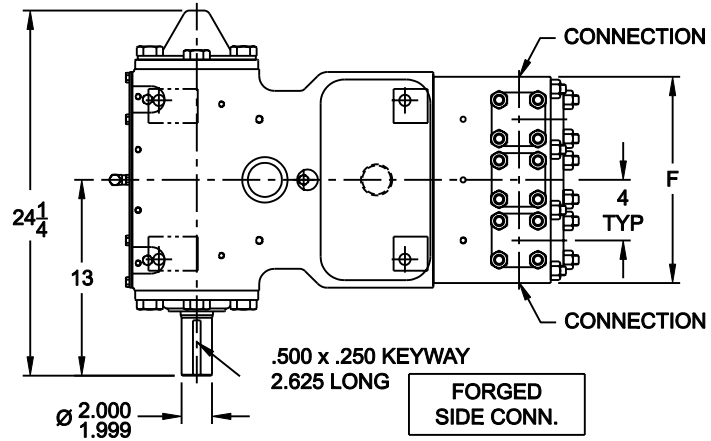
DWG No.: 117671

SCALE: NONE

REV A

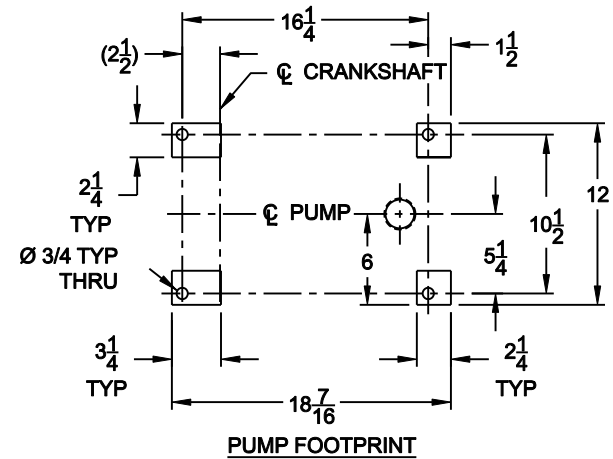
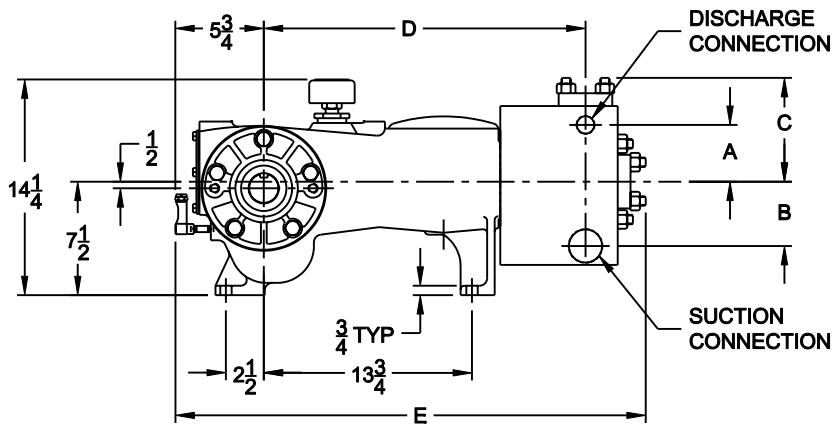
SHT: 1 of 1

FIELD CONNECTIONS



PUMP TYPE	DIMENSIONS IN INCHES (MM)	
	DISCHARGE CONNECTION SIZE	SUCTION CONNECTION SIZE
22T-2M	.75 (19.05) - 14 NPT	1.25 (31.75) -11 1/2 NPT

PUMP TYPE	DIMENSIONS IN INCHES					
	A	B	C	D	E	F
22T-2L, BILLET SIDE CONN.	3-3/4	4-1/4	6-7/8	20	32-1/8	13-1/2



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TITLE:

**GENERAL DIMENSION, RHD
BILLET FLUID END, HIGH PRESSURE
22T-2H / 32T-2H (T225H)**

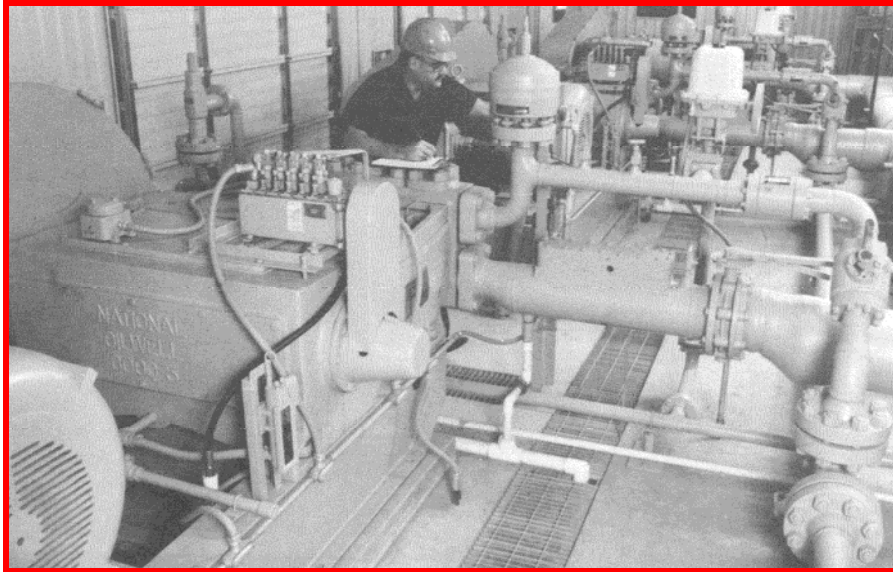
DWG No.: **117672**

SCALE: **NONE**

REV **A**

SHT: **1** OF **1**

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