

NATIONAL OILWELL
Drilling Technologies

PARTS LIST

HD1700-PT
TRIPLEX PISTON PUMP

EPL-942

(Supersedes Issue: 6-28-83)

NATIONAL-OILWELL
P.O. BOX 4638
HOUSTON, TEXAS 77210-4638

As used herein, any references to OILWELL
shall be deemed to mean NATIONAL-OILWELL

ISSUE DATE: 8-25-92

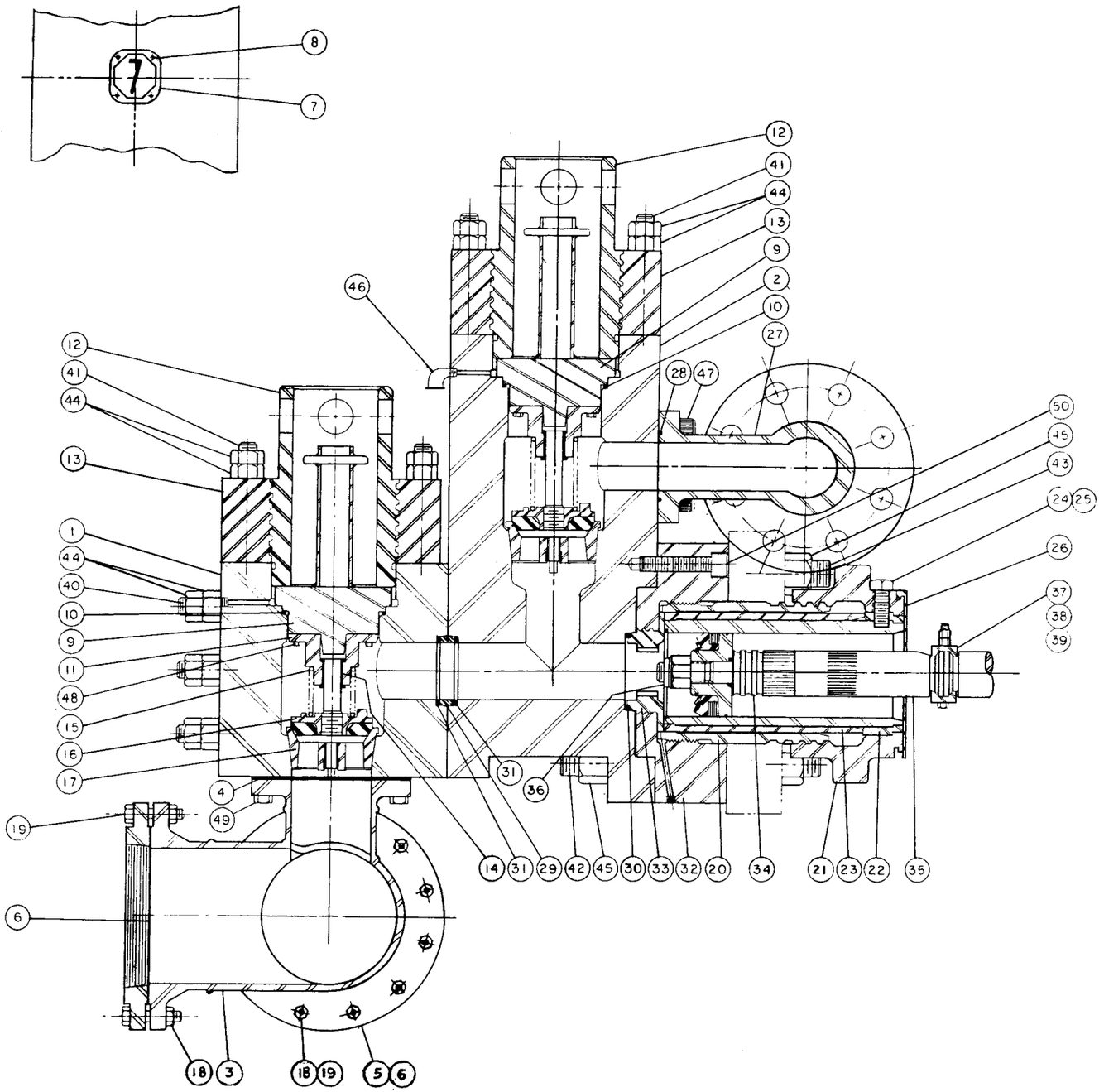
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PARTS LIST
INDEX AND CHECK LIST

HD1700-PT
TRIPLEX PISTON PUMP

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12	P403-AP1	HYDRAULIC BOLT TENSIONER	FIRST	8-25-92
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SUPERSEDES ISSUE: 6-28-83



BILL OF MATERIAL			
ITEM	REQ'D	PART NO.	DESCRIPTION
1	3	10-300-368	CYLINDER, SUCTION FLUID
2	3	10-300-369	CYLINDER, DISCHARGE FLUID
3	1	10-300-193	MANIFOLD, SUCTION
4	3	10-300-201	GASKET, SUCTION MANIFOLD
5	2	98-031-039	FLANGE, 10" 150# RAISED FACE BLIND
6	3	45-804-096	GASKET, 10" BLIND FLANGE
7	3	10-300-202	PLATE, A.P.I. 7 NAME
8	12	75-632-022	SCREW, NO. 10 X 3/8" TYPE "U" STEEL DRIVE
9	6	10-300-323	PLUG, VALVE
10	6	10-300-329	GASKET, VALVE PLUG
11	6	10-300-004	SLEEVE, VALVE COVER
12	6	10-300-322	RETAINER, VALVE PLUG
13	6	10-300-321	RING, VALVE COVER THREAD
14	6	20-200-004	BUSHING, VALVE PLUG SLEEVE
15	6	20-160-225	SPRING, VALVE
16	6	20-160-163	VALVE COMPLETE
17	6	20-220-105	SEAT COMPLETE, VALVE
18	36	75-510-314	NUT, 7/8" - 9 S.F. HEAVY HEX
19	36	75-634-405	CAPSCREW, 7/8" - 9 X 3-1/2" HEX HEAD H.T.
20	3	10-300-326	ADAPTER, LINER
21	3	10-300-327	NUT, LINER
22*	3	10-300-342	SPACER, RING *
23*	3	10-300-186	SLEEVE, LINER CENTERING *
24**	12	75-632-758	SCREW, 3/4" - 10 X 1-3/4" SQUARE HEAD DOG POINT SET **
25*	12	75-632-760	SCREW, 3/4" - 10 X 2-1/4" SQUARE HEAD DOG POINT SET *
26	3	20-460-668	SHIELD, LINER FLUSHING
27	1	10-307-092	MANIFOLD, DISCHARGE
28	3	99-609-345	"O"-RING, 4-3/8" O.D. X 4" I.D. X 3/16" THICK
29	3	10-300-328	RING, ALIGNMENT
30	3	20-100-008	RING, 5-1/2" O.D. X 5-1/16" I.D. SEAL
31	6	20-100-028	RING, 4-5/8" O.D. X 4-3/16" I.D. SEAL
32	3	10-300-324	ADAPTER, FLUID END
33	3	10-300-325	PLATE, LINER WEAR
34	3	1551706	ROD, PISTON
35	3	1551707	EXTENSION, PISTON ROD
36	3	20-150-142	NUT, 1-1/2" - 8 PISTON RETAINING
37	3	20-150-132	CLAMP COMPLETE (INCLUDES ITEMS 38 AND 39)
38	6	75-074-694	BOLT, 5/8" - 11 X 6" LG. HEX HEAD
39	12	75-510-438	NUT, 5/8" - 11 STAINLESS STEEL HEX
40	18	45-810-074	STUD, 1-1/4" - 8 X 20" LG.
41	72	45-810-096	STUD, 1-1/4" - 8 X 9-3/4" LG.
42	6	45-810-076	STUD, 1-3/4" - 8 X 18" LG.
43	6	45-810-077	STUD, 1-3/4" - 8 X 14" LG.
44	180	75-510-121	NUT, 1-1/4" - 8 HEAVY STEEL HEX
45	18	75-510-126	NUT, 1-3/4" - 8 HEAVY STEEL HEX
46	6	86-342-103	ELBOW, 3/8" STD. B.M. STREET
47	12	75-635-370	CAPSCREW, 1-3/8" - 8 X 3" SPLINE HEAD
48	24	75-632-234	CAPSCREW, 5/8" - 11 X 1-1/4" SELF-LOCKING
49	24	75-634-382	CAPSCREW, 3/4" - 10 X 2" HEX HEAD H.T.
50	24	75-635-765	CAPSCREW, 1" - 8 X 5" SOCKET HEAD

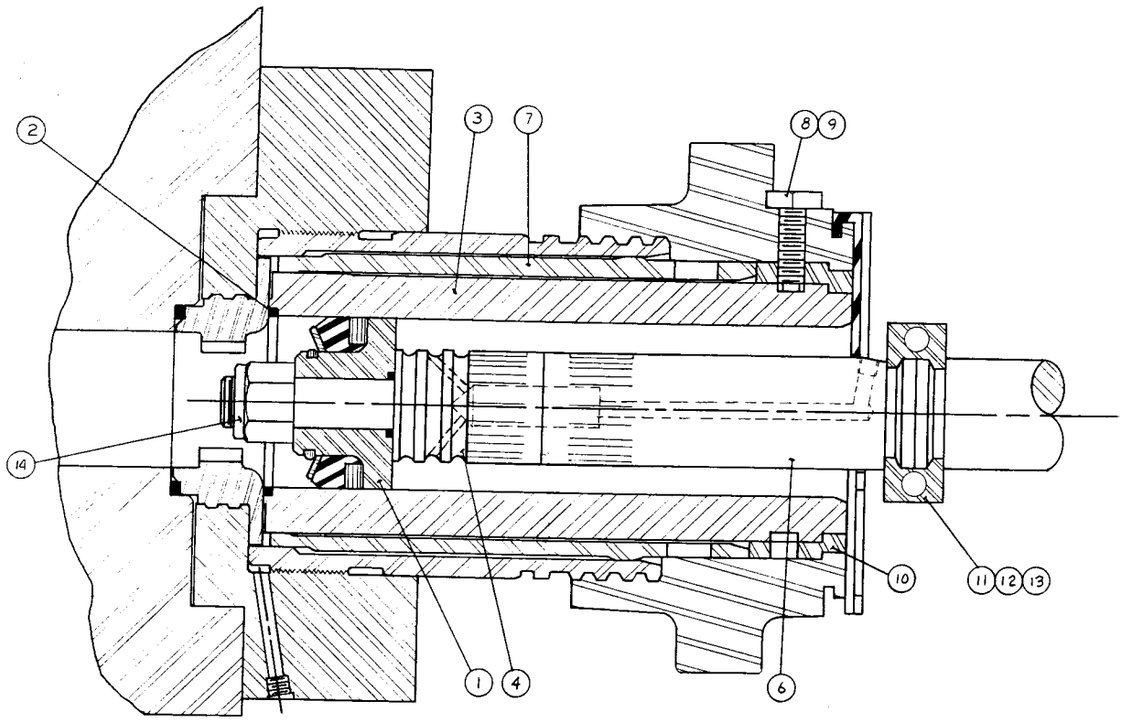
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* TO BE USED WITH 5" TO 6" DIAMETER LINERS.
** USED WITH 6-1/2" AND LARGER DIAMETER LINERS.

NATIONAL-OILWELL

FLUID END
HD1400-PT & HD1700-PT
TRIPLEX PISTON PUMP

	SIZE	DRAWING NO.	REV.
	D	P184-BL1	B



	BILL OF MATERIAL			
	ITEM	REQ'D	PART NO.	DESCRIPTION
1. 2. 3.	1	3	20-020-502	PISTON COMPLETE, 5" SERIES "B"
		3	20-020-503	PISTON COMPLETE, 5-1/2" SERIES "B"
		3	20-020-504	PISTON COMPLETE, 5-3/4" SERIES "B"
		3	20-020-505	PISTON COMPLETE, 6" SERIES "B"
		3	20-020-507	PISTON COMPLETE, 6-1/2" SERIES "L"
		3	20-020-508	PISTON COMPLETE, 6-3/4" SERIES "L"
		3	20-020-509	PISTON COMPLETE, 7" SERIES "L"
		3	20-020-510	PISTON COMPLETE, 7-1/4" SERIES "L"
	2	3	20-100-008	GASKET, 5" LINER
		3	20-100-009	GASKET, 5-1/2" LINER
		3	20-100-010	GASKET, 5-3/4" LINER
		3	20-100-011	GASKET, 6" LINER
		3	20-100-012	GASKET, 6-1/2" LINER
		3	20-100-016	GASKET, 6-3/4" LINER
		3	20-100-017	GASKET, 7" LINER
		3	20-100-018	GASKET, 7-1/4" LINER
		3	20-100-019	GASKET, 7-1/2" LINER
	3	3	05-326-500	LINER, 5" SUPER DI-HARD
		3	05-326-550	LINER, 5-1/2" SUPER DI-HARD
		3	05-326-575	LINER, 5-3/4" SUPER DI-HARD
		3	05-326-600	LINER, 6" SUPER DI-HARD
		3	05-326-651	LINER, 6-1/2" SUPER DI-HARD
		3	05-326-675	LINER, 6-3/4" SUPER DI-HARD
		3	05-326-700	LINER, 7" SUPER DI-HARD
		3	05-326-725	LINER, 7-1/4" SUPER DI-HARD
		3	05-326-750	LINER, 7-1/2" SUPER DI-HARD
	4	3	1551706	ROD, PISTON
	6	3	1551707	EXTENSION, PISTON ROD
6.	7	3	10-300-186	SLEEVE, LINER CENTERING
6.	8	12	75-632-760	SCREW, 3/4" - 10 X 2-1/4" SQ. HEAD DOG POINT SET
4.	9	12	75-632-758	SCREW, 3/4" - 10 X 1-3/4" SQ. HEAD DOG POINT SET
	10	3	10-300-342	RING, SPACER
	11	3	20-150-132	CLAMP, PISTON ROD (INCLUDES ITEMS 12 AND 13)
5.	12	6	75-074-694	BOLT, 5/8" - 11 X 6" HEX HEAD
5.	13	12	75-510-438	NUT, 5/8" - 11 STAINLESS STEEL HEX
	14	3	20-150-142	NUT, PISTON RETAINING

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NOTES:

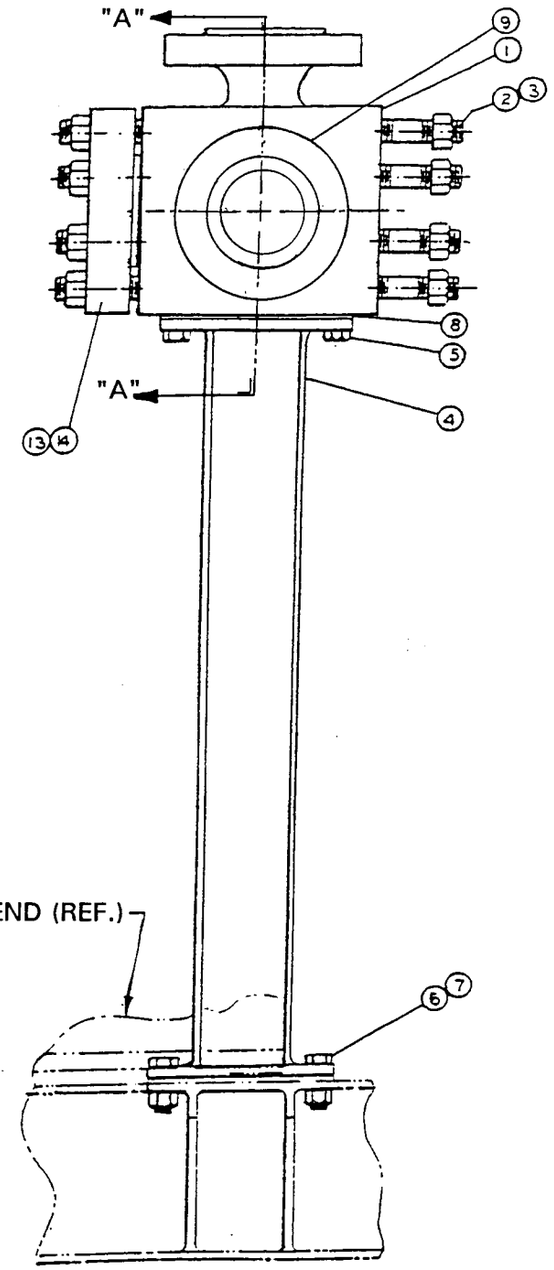
1. PISTON BODY HAS 1-1/2" BORE (FITS 1-1/2" DIAMETER ROD).
2. PISTON RUBBERS ARE PACKAGED IN "PAIRS". A PAIR OF PISTON RUBBERS CONSISTS OF TWO EACH, PISTON RUBBERS, PLATES AND SNAP RINGS. ONE PAIR OF RUBBERS WILL DRESS TWO SINGLE ACTING PISTONS.
3. "O"-RINGS ARE PACKAGED SIX PIECES PER PACKAGE AND ARE IDENTIFIED AS PART NUMBER 20-680-020.
4. USED WITH 6-1/2" AND LARGER DIAMETER LINERS.
5. NOT ILLUSTRATED.
6. TO BE USED WITH 5" THRU 6" DIAMETER LINERS.
7. THIS DRAWING IS APPLICABLE TO HD1400-PT AND HD1700-PT TRIPLEX PISTON PUMPS.

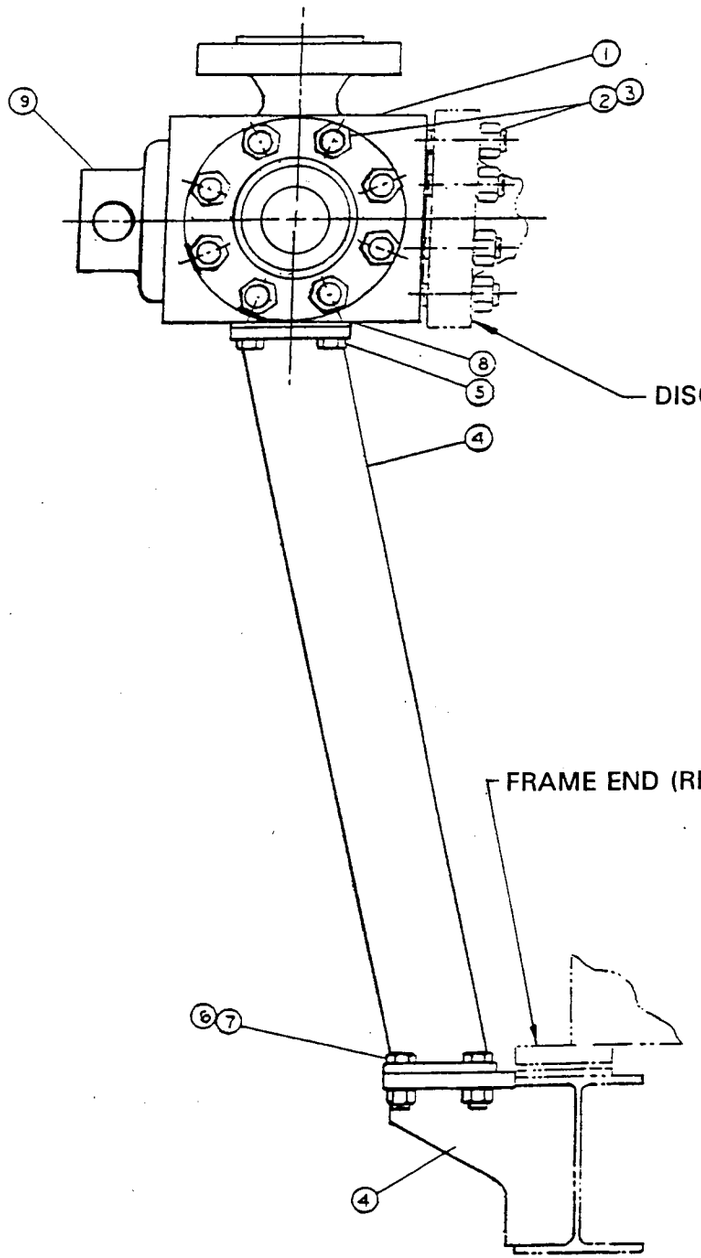
NATIONAL-OILWELL

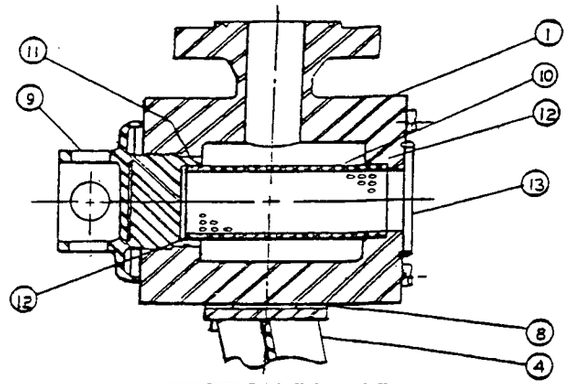
LINER & PISTON ASSEMBLY HD1400-PT & HD1700-PT TRIPLEX PISTON PUMP

	SIZE	DRAWING NO.	REV.
	C	P405-AL1	A

BILL OF MATERIAL			
ITEM	REQ'D	PART NO.	DESCRIPTION
1	1	10-307-005	STRAINER BLOCK (INCLUDES ITEMS 2 AND 3)
2	24	45-810-062	STUD, 1-1/2" - 8 X 6-1/2" LG.
3	24	75-510-323	NUT, 1-1/2" - 8 HEAVY STEEL HEX
4	1	10-307-006	SUPPORT, STRAINER BLOCK
5	4	75-635-091	CAPSCREW, 1" - 8 X 2" HEX HEAD HT
6	4	75-634-408	CAPSCREW, 1" - 8 X 3" HEX HEAD HT
7	4	75-510-316	NUT, 1" - 8 HEAVY STEEL HEX
8	1	10-307-064	SHIM, BLOCK SUPPORT
9	1	10-307-009	COVER, STRAINER
10	1	10-307-010	STRAINER, DISCHARGE
11	1	99-609-258	"O"-RING (6-1/8" X 6" X 1/16")
12	2	99-609-249	"O"-RING (5-1/8" X 4-7/8" X 1/8")
13	2	78-206-544	GASKET, OVAL RING
14	1	98-032-122	FLANGE, 5" 5000# RAISED FACE BLIND







SECTION "A - A"

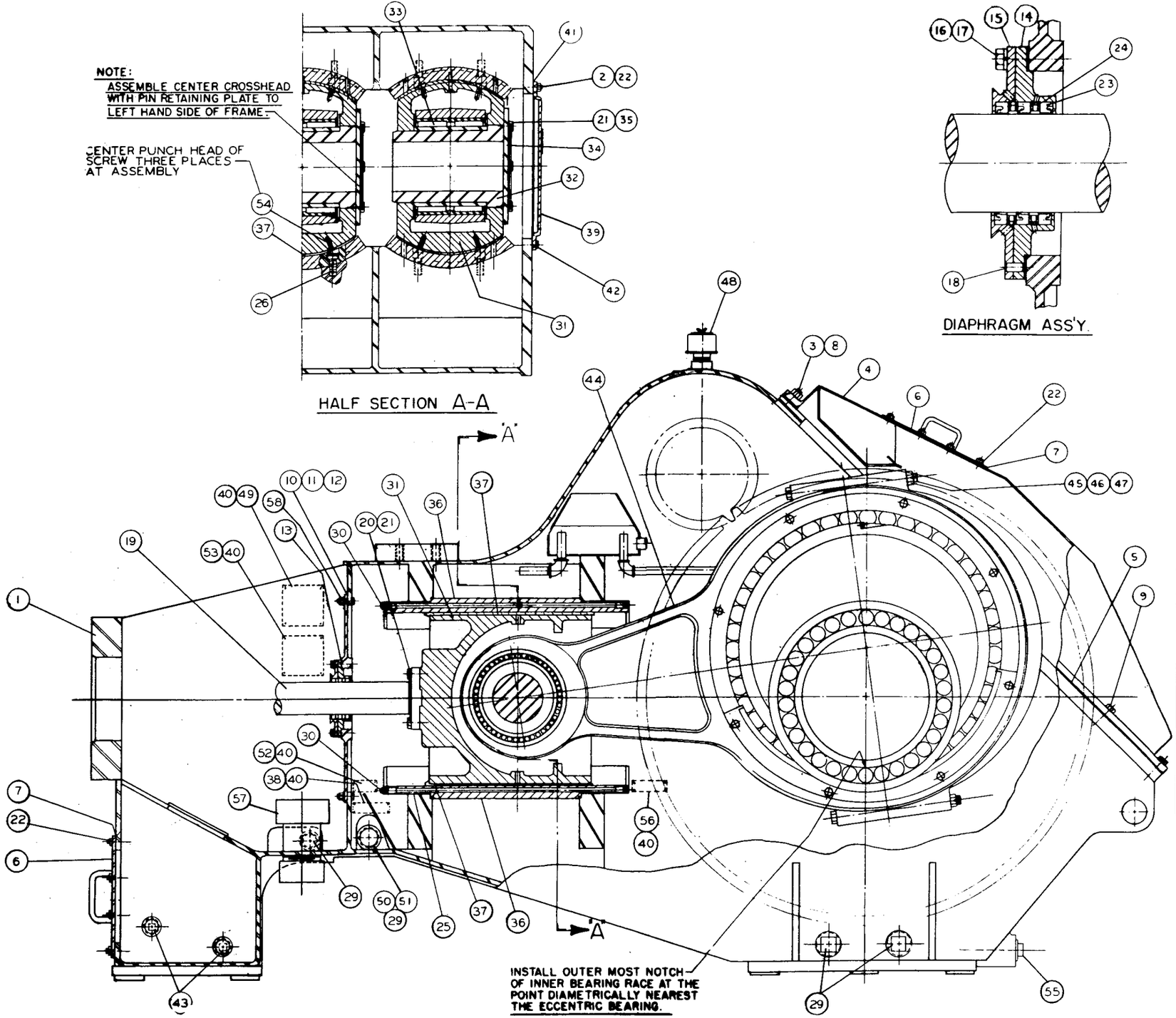
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THIS DRAWING IS APPLICABLE TO:
B1700-PT
HD1400-PT
HD1700-PT

NATIONAL-OILWELL

STRAINER BLOCK ASSEMBLY
HD1400-PT & HD1700-PT
TRIPLEX PISTON PUMP

	SIZE	DRAWING NO.	REV.
	D	P405-AC1	--



BILL OF MATERIAL			
ITEM	REQ'D	COMM. NO.	DESCRIPTION
1	1	10-307-091	FRAME END, STUDDED (INCLS ITEMS 2, 3 & ONE OF ITEM 6)
2	4	29-000-777	1/2 - 13 X 1-3/4 STUD
3	3	29-000-700	3/4 - 10 X 2-1/2 STUD
4	1	10-300-274	COVER, CRANKCASE (INCLS ONE OF ITEM 6)
5	1	10-300-272	GASKET, CRANKCASE COVER
6	2	10-300-254	COVER, INSPECTION
7	2	06-506-869	GASKET, INSPECTION COVER
8	3	75-510-410	3/4 - 10 STL HEX NUT
9	21	75-634-373	3/4 - 10 X 1-1/2 HEX HD HT CAPSCREW
10	1	10-300-065	GASKET, DIAPHRAGM SUPPORT - RH
11	1	10-300-064	GASKET, DIAPHRAGM SUPPORT - LH
12	1	10-300-066	GASKET, DIAPHRAGM SUPPORT - CENTER
13	3	10-300-062	GASKET, DIAPHRAGM
14	3	10-300-020	DIAPHRAGM
15	3	10-300-021	CAP, DIAPHRAGM
16	18	75-634-352	1/2 - 13 X 1-1/2 HEX HD HT CAPSCREW
17	18	75-770-474	1/2 SHAKEPROOF LOCKWASHER
18	6	45-127-305	3/8 X 3/4 DOWEL PIN
19	3	10-300-142	ROD, EXTENSION
20	12	45-142-703	3/4 - 10 X 1-3/4 HEX DRLD HD HT CAPSCREW
21		59-800-016	16 GAUGE ANNEALED STL WIRE
22	62	75-510-406	1/2 - 13 STL HEX NUT
23	9	68-630-518	OIL SEAL
24	6	10-300-022	RING, LANTERN
25		10-307-012	SHIM SET (6REQ'D)(EACH SET CONSIST OF THE FOLLOWING)
	6	10-307-013	SHIM (.005 THICK)
	5	10-307-014	SHIM (.007 THICK)
	2	10-307-015	SHIM (.020 THICK)
26	24	75-635-714	3/4 - 10 X 2-1/4 SELF LOCK SKT HD HT CAPSCREW
29	7	86-486-116	2 CI SOLID SQ HD PIPE PLUG
30	6	86-486-104	1/2 CI SOLID SQ HD PIPE PLUG
31	3	10-300-132	CROSSHEAD
32	3	10-300-131	PIN, CROSSHEAD
33	3	65-725-957	BEARING, CROSSHEAD PIN
34	3	10-300-054	RETAINER PLATE, CROSSHEAD PIN
35	18	45-142-701	3/4 - 10 X 1-1/2 HEX DRLD HD HT CAPSCREW
36	6	10-307-002	GUIDE, CROSSHEAD
37	6	10-300-232	SHOE, CROSSHEAD
38	2	10-300-125	PLATE, INSTRUCTION MUD TRAP
39	2	10-307-003	COVER, FRAME
40	20	75-632-012	NO. 2 X 1/4 DRIVE SCREW
41	2	45-804-492	GASKET, FRAME COVER
42	28	75-634-351	1/2 - 13 X 1-1/4 HEX HD HT CAPSCREW
43	4	86-486-112	1-1/2 3000# FS SQ HD PIPE PLUG
44	3	10-306-034	CONNECTING ROD COMPLETE(INCLS ITEMS 45 & 46)
45	6	10-306-035	BOLT, CONNECTING ROD
46	6	75-513-114	1" - 8 HVY STL SLOTTED HEX NUT
47	6	75-104-007	3/16 X 2 STL COTTER PIN
48	1	64-229-100	BREATHER
49	1	10-307-086	PLATE, NAME - STANDARD
50	2	86-429-001	2 X CLOSE SCH 40 BW STL PIPE NIPPLE
51	2	83-802-512	2 DRAIN COCK
52	1	10-300-203	PLATE, INSTRUCTION
53	1	10-300-240	PLATE, LUBRICATION INSTRUCTION
54	24	75-633-119	1/2 - 13 X 1-1/4 FLAT HD MACHINE SCREW
55	1	86-486-120	2-1/2 CI SQ HD PIPE PLUG
56	1	10-300-317	PLATE, CAUTION
57	1	10-300-258	COVER, OVERFLOW
58	33	75-514-117	1/2 - 13 LOCKNUT

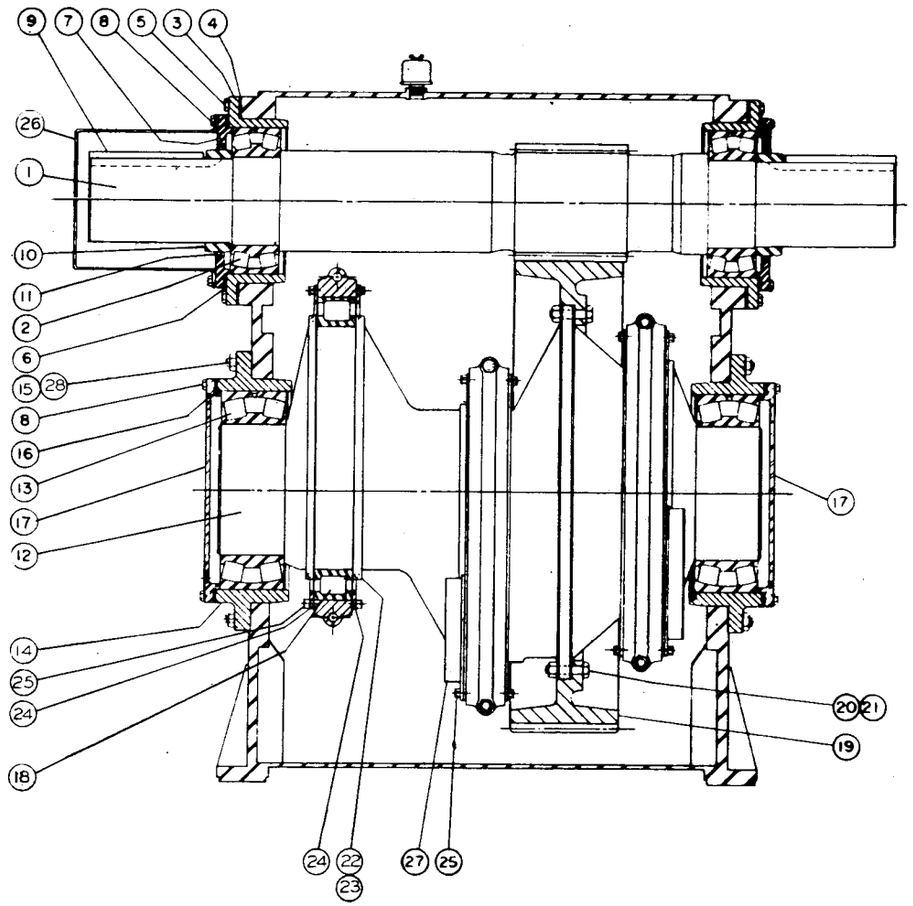
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NATIONAL-OILWELL

POWER END

HD1700-PT TRIPLEX PISTON PUMP

	SIZE	DRAWING NO.	REV.
	D	P405-AJ1	B



BILL OF MATERIAL			
ITEM	REQ'D	PART NO.	DESCRIPTION
1	1	10-301-004	SHAFT WITH INTERGAL PINION (24 TEETH), PINION
2	2	65-725-032	BEARING, PINION SHAFT
3	2	10-306-027	HOUSING, PINION SHAFT
4	2	45-803-730	GASKET, PINION SHAFT BEARING HOUSING
5	16	75-634-402	CAPSCREW, 7/8" - 9 X 2-1/2" HEX HEAD HT
6	-- 5 4 1 1	45-803-732 45-803-733 45-803-734 45-803-735 45-803-736	SHIM SET (2 REQ'D.) CONSISTS OF THE FOLLOWING SHIM (.005" THICK) SHIM (.007" THICK) SHIM (.020" THICK) SHIM (16 GAUGE)
7	2	10-300-027	RETAINER, PINION SHAFT BEARING
8	32	75-634-383	CAPSCREW, 3/4" - 10 X 2-1/4" HEX HEAD HT
9	2	10-300-088	KEY (1-3/4" X 2-1/2" X 13-1/2" LG.)
10	2	10-300-028	SLEEVE, PINION SHAFT
11	2	68-631-025	SEAL, 12" I.D. X 14" O.D. X 1-3/8" THICK OIL
12	1	10-307-083	CRANKSHAFT
13	2	65-725-038	BEARING, MAIN
14	2	10-306-036	HOUSING, MAIN BEARING
15	24	10-300-246	STUD, 1-1/4" - 8 X 6" LG. STEEL
16	-- 6 8 4 4	45-804-343 45-804-344 45-804-345 45-804-346 45-804-347	SHIM SET (2 REQ'D.) CONSISTS OF THE FOLLOWING SHIM (.005" THICK) SHIM (.007" THICK) SHIM (.020" THICK) SHIM (16 GAUGE)
17	2	10-307-085	RETAINER, MAIN BEARING
18	3	65-725-984	BEARING, CRANKSHAFT
19	1	10-300-060	GEAR (108 TEETH), CRANKSHAFT
20	8	75-634-409	CAPSCREW, 1" - 8 X 4" HEX HEAD HT
21	8	75-514-120	NUT, 1"- 8 UNI-TORQUE LOCK
22	4	10-306-037	RING, CONNECTING ROD BEARING RETAINING (INCLS. TWO OF ITEM 23)
23	8	75-632-445	CAPSCREW, 1/2" - 13 X 2-1/4" SELF-LOCKING SOCKET HEAD
24	6	10-306-038	RETAINER (OUTER RACE), CONNECTING ROD BEARING
25	48	75-635-656	CAPSCREW, 5/8" - 11 X 1-1/2" SELF-LOCKING HEX HEAD
26	1	10-301-012	COVER, PINION SHAFT EXTENSION
27	3	10-306-040	THROUGH, CONNECTING ROD OIL
28	24	75-510-121	NUT, 1-1/4" - 8 HEAVY STEEL HEX

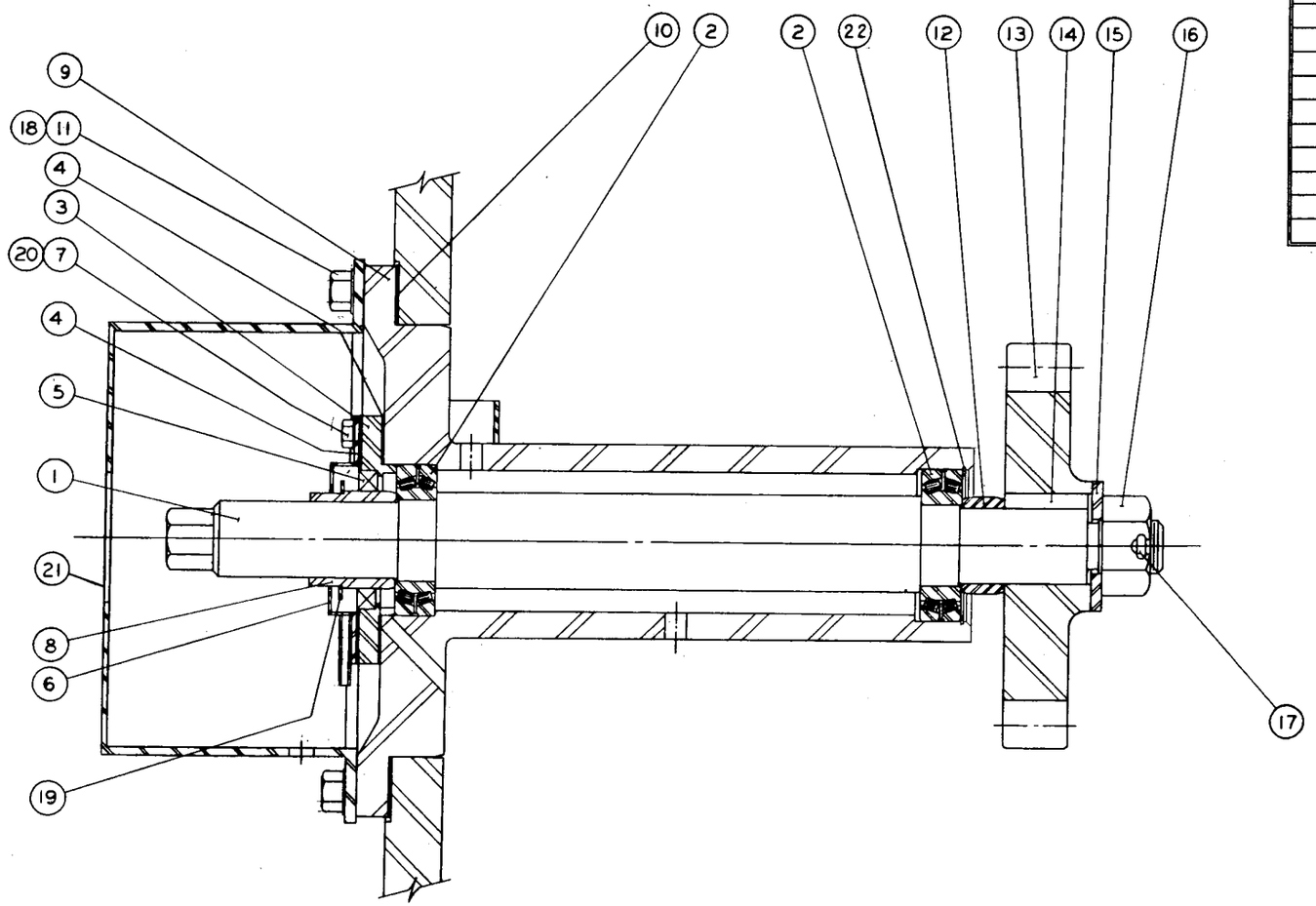
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NATIONAL-OILWELL

SHAFT ASSEMBLIES
HD1700-PT TRIPLEX PISTON PUMP

	SIZE	DRAWING NO.	REV.
	C	P405-AG1	B

BILL OF MATERIAL			
ITEM	REQ'D	PART NO.	DESCRIPTION
1	1	10-300-030	JACKSHAFT
2	2	65-725-031	BEARING, JACKSHAFT
3	1	10-300-032	RETAINER, BEARING
4	2	45-803-797	GASKET, RETAINER
5	1	68-630-235	SEAL, OIL
6	1	10-300-098	CATCHER, OIL
7	4	75-634-352	CAPSCREW, 1/2" - 13 X 1-1/2" HEX HEAD HT.
8	1	10-300-034	SPACER, BEARING
9	1	10-300-031	BRACKET, JACKSHAFT
10	1	45-803-729	GASKET, BRACKET
11	6	75-634-359	CAPSCREW, 5/8" - 11 X 1-1/2" HEX HEAD HT.
12	1	10-300-033	SPACER, BEARING
13	1	10-300-068	PINION (16 TEETH), JACKSHAFT
14	1	45-803-362	KEY, 1/2" X 1/2" X 3/4" LONG
15	1	10-300-035	WASHER, JACKSHAFT
16	1	75-513-018	NUT, 1-1/4" - 7 SLOTTED HEX
17	1	75-104-013	COTTER
18	6	75-770-475	WASHER, 5/8" EXTERNAL SHAKEPROOF LOCK
19	1	10-300-099	SLINGER, OIL
20	4	75-770-474	WASHER, 1/2" EXTERNAL SHAKEPROOF LOCK
21	1	10-300-165	COVER, JACKSHAFT
22	1	75-660-073	RING, RETAINING

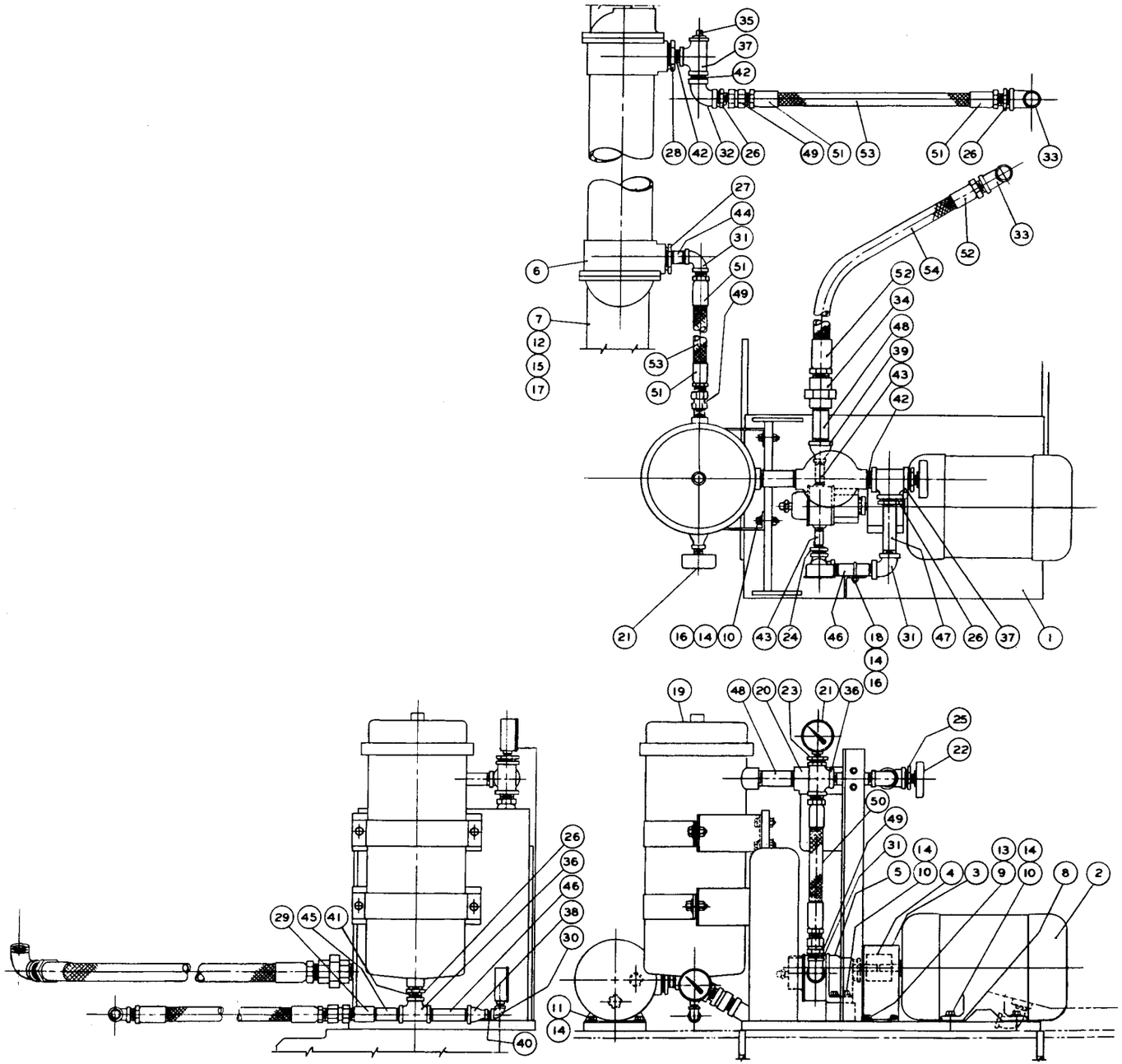


6

NATIONAL-OILWELL

JACKSHAFT ASSEMBLY
HD1400-PT & HD1700-PT
TRIPLEX PISTON PUMP

	SIZE	DRAWING NO.	REV.
	C	P214-AC1	C



BILL OF MATERIAL			
ITEM	REQ'D	COMM. NO.	DESCRIPTION
1	1	10-300-310	BASE, PUMP MOTOR & FILTER
2*	1	74-450-830	ELECTRIC MOTOR*
3	1	06-510-607	GUARD, COUPLING
4	1	68-103-991	FLEX COUPLING
5	1	64-182-010	OIL PUMP
6	1	16-385-012	HEAT EXCHANGER
7	1	10-303-148	BASE, HEAT EXCHANGER
8		45-194-207	SHIM SET (1 REQ'D.)(CONSIST OF THE FOLLOWING)
	3	45-194-208	SHIM (.020 THICK)
	3	06-015-462	SHIM (16 GAUGE)
9	4	75-634-300	1/4 - 20 X 5/8 HEX HD. HT. CAPSCREW
10	16	75-634-340	3/8 - 16 X 1-1/4 HEX HD. HT. CAPSCREW
11	4	75-634-335	3/8 - 16 X 5/8 HEX HD. HT. CAPSCREW
12	4	75-634-354	1/2 - 13 X 1-3/4 HEX HD. HT. CAPSCREW
13	4	75-770-470	1/4 SHAKEPROOF LOCKWASHER
14	22	75-770-472	3/8 SHAKEPROOF LOCKWASHER
15	4	75-770-474	1/2 SHAKEPROOF LOCKWASHER
16	10	75-510-404	3/8 - 16 STL. HEX NUT
17	4	75-510-308	1/2 - 13 HVY. STL. HEX NUT
18	1	45-804-150	3/8 U-BOLT
19	1	64-212-832	OIL FILTER - CARTRIDGE TYPE
20	1	64-212-003	MAGNETIC FILTER
21	2	78-256-532	2-1/2 PRESSURE GAUGE
22	1	78-684-250	THERMOMETER
23	1	86-061-008	3/4 X 1/4 CI. BLK. HEX. PIPE BUSHING
24	1	86-061-010	3/4 X 1/2 CI. BLK. HEX PIPE BUSHING
25	1	86-061-014	1" X 1/2 CI. BLK. HEX PIPE BUSHING
26	4	86-061-015	1" X 3/4 CI. BLK. HEX PIPE BUSHING
27	1	86-061-026	1-1/2 X 3/4 CI. BLK. HEX PIPE BUSHING
28	1	86-061-027	1-1/2 X 1" CI. BLK. HEX PIPE BUSHING
29	1	57-000-006	3/4 150# BLK. STL. STRAIGHT TAPPED PIPE COUPLING
30	1	78-176-002	1/4 X 90° 2000# F.S. ELBOW
31	3	86-336-106	3/4 X 90° 150# BLK. MI. ELBOW
32	1	86-336-108	1" X 90° 150# BLK. MI. ELBOW
33	2	86-342-108	1" X 90° 150# BLK. MI. STREET ELBOW
34	1	86-641-108	1" 150# M.I. FEMALE GR. JT. UNION
35	1	86-485-508	1" C.I. SOLID SQ. HD. PIPE PLUG
36	2	86-543-106	3/4 150# M.I. TEE
37	2	86-543-108	1" 150# M.I. TEE
38	1	86-600-008	3/4 X 1/4 150# M.I. REDUCING COUPLING
39	1	86-600-014	1" X 1/2 150# M.I. REDUCING COUPLING
40	1	78-420-001	1/4 X CLOSE SCH. 80 SEAMLESS STL. PIPE NIPPLE
41	1	86-425-001	3/4 X CLOSE SCH. 40 BW. STL. PIPE NIPPLE
42	3	86-426-001	1" X CLOSE SCH. 40 BW. STL. PIPE NIPPLE
43	2	86-424-007	1/2 X 2-1/2 SCH. 40 BW. STL. PIPE NIPPLE
44	1	86-425-005	3/4 X 2 SCH. 40 BW. STL. PIPE NIPPLE
45	1	86-425-009	3/4 X 3 SCH. 40 BW. STL. PIPE NIPPLE
46	2	86-425-013	3/4 X 4 SCH. 40 BW. STL. PIPE NIPPLE
47	1	86-425-017	3/4 X 5 SCH. 40 BW. STL. PIPE NIPPLE
48	2	86-426-013	1" X 4 SCH. 40 BW. STL. PIPE NIPPLE
49	3	64-289-324	3/4 MALE TO FEMALE SWIVEL ADAPTER
50	1	45-804-717	3/4 HOSE ASSEMBLY
51	4	64-271-012	3/4 MALE COUPLING
52	2	64-271-226	1" MALE COUPLING
53		64-270-012	3/4" FLEX HOSE
54		64-270-016	1" FLEX HOSE

7

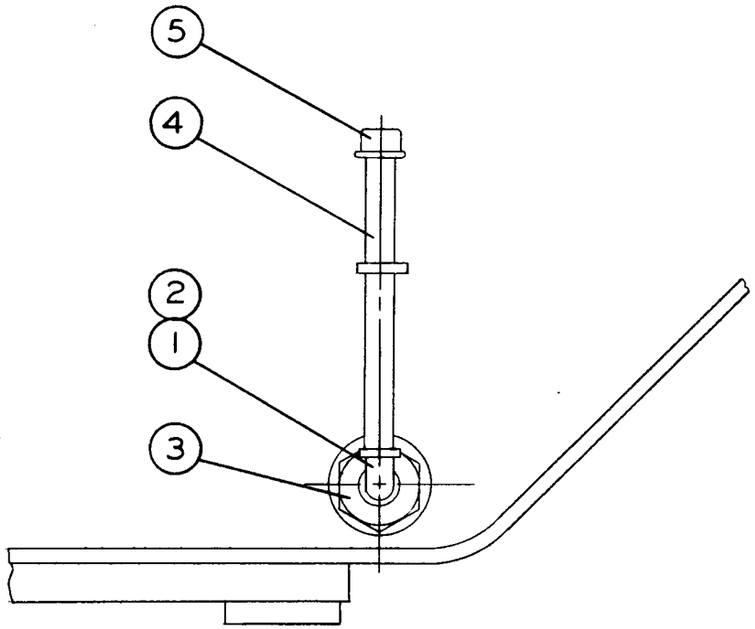
* ELECTRIC MOTOR IS: 1-1/2 H.P., 900 R.P.M., 230/460 VAC, 3 PHASE, 60 HERTZ, EXPLOSION PROOF ELECTRIC MOTOR WITH 184-T FRAME.

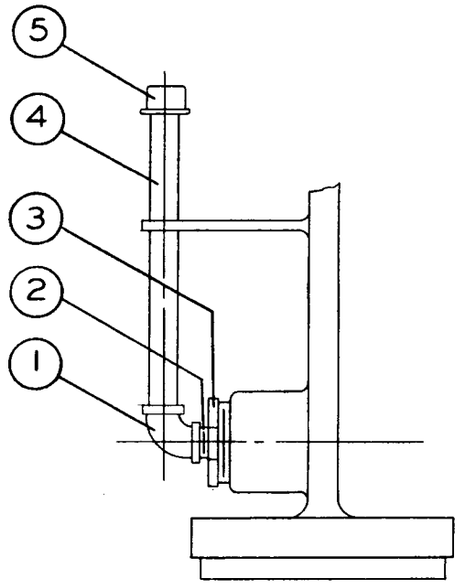
NATIONAL-OILWELL

EXTERNAL LUBRICATION HD1400-PT & HD1700-PT TRIPLEX PISTON PUMP

	SIZE	DRAWING NO.	REV.
	D	P206-AF1	A

BILL OF MATERIAL			
ITEM	REQ'D	PART NO.	DESCRIPTION
1	1	86-336-104	ELBOW, 1/2" X 90 DEG. STD. PIPE
2	1	86-424-001	NIPPLE, 1/2" X CLOSE SCH. 40 PIPE
3	1	86-061-032	BUSHING, 2" X 1/2" HEX PIPE
4	1	86-424-029	NIPPLE, 1/2" X 10" SCH. 40 PIPE
5	1	06-109-007	STICK, OIL LEVEL DIP



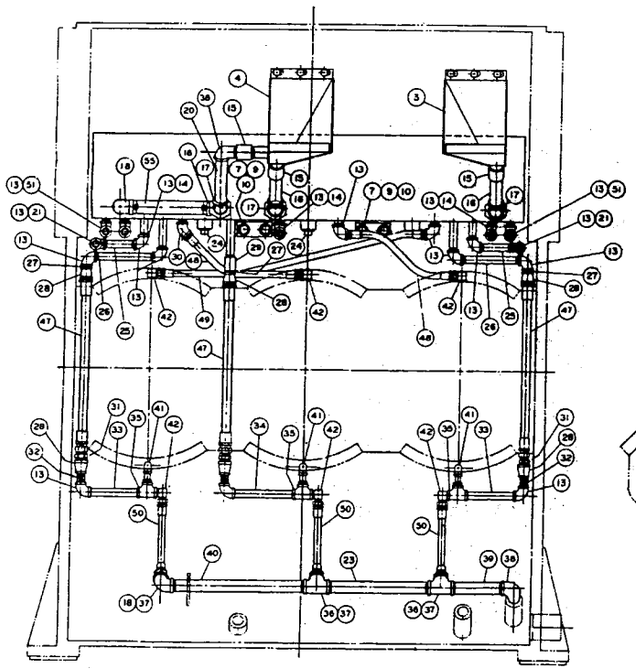


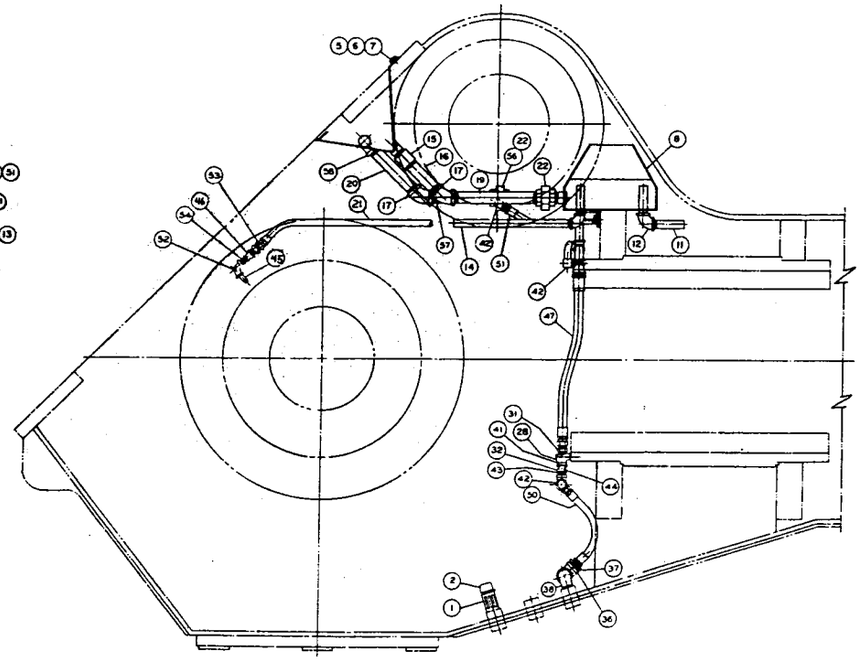
8

NATIONAL-OILWELL

OIL LEVEL & DRAIN PIPING
HD1400-PT & HD1700-PT
TRIPLEX PISTON PUMP

	SIZE	DRAWING NO.	REV.
	B	P185-AK1	--





BILL OF MATERIAL

ITEM	REQ'D	COMM. NO.	DESCRIPTION
1	1	10-300-037	STRAINER, NIPPLE
2	1	86-132-008	1" 150# BLK MI PIPE CAP
3	1	10-306-041	THROUGH, OIL-RIGHT HAND
4	1	10-306-042	THROUGH, OIL-LEFT HAND
5	6	45-143-001	1/2-13 X 3/4 DRLD HEX HD HT CAPSCREW
6	6	75-770-204	1/2 HVY PLATEWASHER
7		59-800-016	16 GA. ANNEALED STL WIRE
8	1	10-300-260	THROUGH, OIL DISTRIBUTING
9	4	33-007-010	5/8-11 X 1" DRLD HEX HD HT CAPSCREW
10	4	75-772-305	5/8 PLATEWASHER
11	3	86-425-013	3/4 X 4 SCH 40 BW STL PIPE NIPPLE
12	3	86-336-106	3/4 X 90° 150# BLK MI ELBOW
13	18	86-336-104	1/2 X 90° 150# BLK MI ELBOW
14	3	45-001-585	1/2 X 14 SCH 40 BW STL PIPE
15	2	78-104-108	1" 3000# FS TAPER TAPPED PIPE CPLG
16	2	86-426-027	1" X 9 SCH 40 BW STL PIPE NIPPLE
17	3	86-339-108	1" X 45° 150# BLK MI ELBOW
18	3	86-336-108	1" X 90° 150# BLK MI ELBOW
19	2		1" X 8-1/4 SCH 40 BW STL PIPE NIPPLE
20	1		1" X 11-1/2 SCH 40 BW STL PIPE NIPPLE
21	2	45-804-371	1/2 HOSE ASSEMBLY
22	3	86-641-108	1" 150# MI FEMALE GROUND JT UNION
23	3		1" X 13 SCH 40 BW STL PIPE
24	3	86-486-108	1" CI SOLID SQ HD PIPE PLUG
25	2		1/2 X 4-3/8 SCH 40 BW STL PIPE NIPPLE
26	2		1/2 X 7-5/8 SCH 40 BW STL PIPE NIPPLE
27	3	86-424-001	1/2 CLOSE SCH 40 BW STL PIPE NIPPLE
28	6	86-600-010	3/4 X 1/2 150# MI REDUCING ELBOW
29	1	78-104-104	1/2 3000# FS TAPER TAPPED PIPE CPLG
30	1	86-339-104	1/2 X 45° 150# BLK MI ELBOW
31	3	64-271-212	3/4 MALE HOSE ADAPTER
32	3	86-424-013	1/2 X 4 SCH 40 BW STL PIPE NIPPLE
33	2		1/2 X 6-1/2 SCH 40 BW STL PIPE NIPPLE
34	1	86-424-025	1/2 X 8 SCH 40 BW STL PIPE NIPPLE
35	3	86-543-104	1/2 150# MI TEE
36	2	86-543-108	1" 150# MI TEE
37	3	86-061-014	1" X 1/2 STD CI BUSHING
38	2	86-342-108	1" X 90° 150# BLK MI STREET ELBOW
39	1	86-426-021	1" X 6 SCH 40 BW STL PIPE NIPPLE
40	1		1" X 17 SCH 40 BW STL PIPE
41	3	86-342-103	3/8 X 90° 150# BLK MI ELBOW
42	8	64-271-214	1/2 MPT X 3/4-37 JIC MALE ELBOW
43	3	86-061-006	1/2 X 3/8 STD CI BUSHING
44	3	86-423-003	3/8 X 1/2 SCH 40 BW STL PIPE NIPPLE
45	2	86-422-005	1/4 X 2 SCH 40 BW STL PIPE NIPPLE
46	2	86-600-005	1/2 X 1/4 150# MI REDUCING COUPLING
47	3	45-804-366	3/4 HOSE ASSEMBLY
48	2	45-804-374	1/2 HOSE ASSEMBLY
49	1	45-804-370	1/2 HOSE ASSEMBLY
50	3	45-804-369	1/2 HOSE ASSEMBLY
51	2	45-804-373	1/2 HOSE ASSEMBLY
52	2	86-336-102	1/4 X 90° 150# BLK MI ELBOW
53	2	64-271-208	1/2 ADAPTER
54	2	86-424-001	1/4 CLOSE SCH 40 BW STL PIPE NIPPLE
55	1		1" X 9-1/2 SCH 40 BW STL PIPE NIPPLE
56	1	86-426-009	1" X 3 SCH 40 BW STL PIPE NIPPLE
57	1	86-426-017	1" X 5 SCH 40 BW STL PIPE NIPPLE

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NATIONAL-OILWELL

INTERNAL LUBRICATION
HD1700-PT TRIPLEX PISTON PUMP

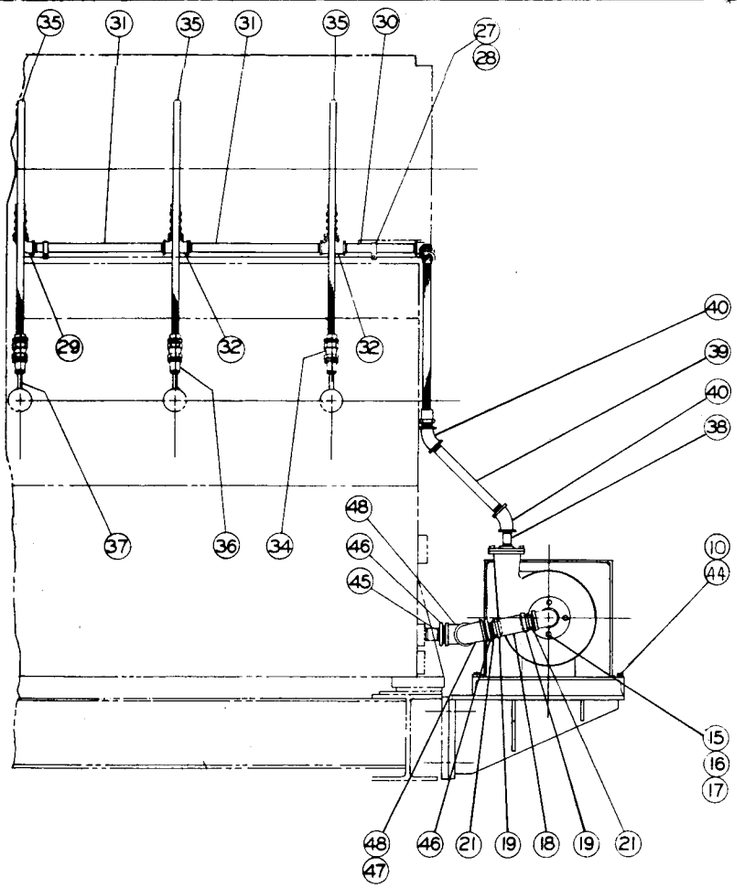
	SIZE	DRAWING NO.	REV.
	F	P405-AK1	--

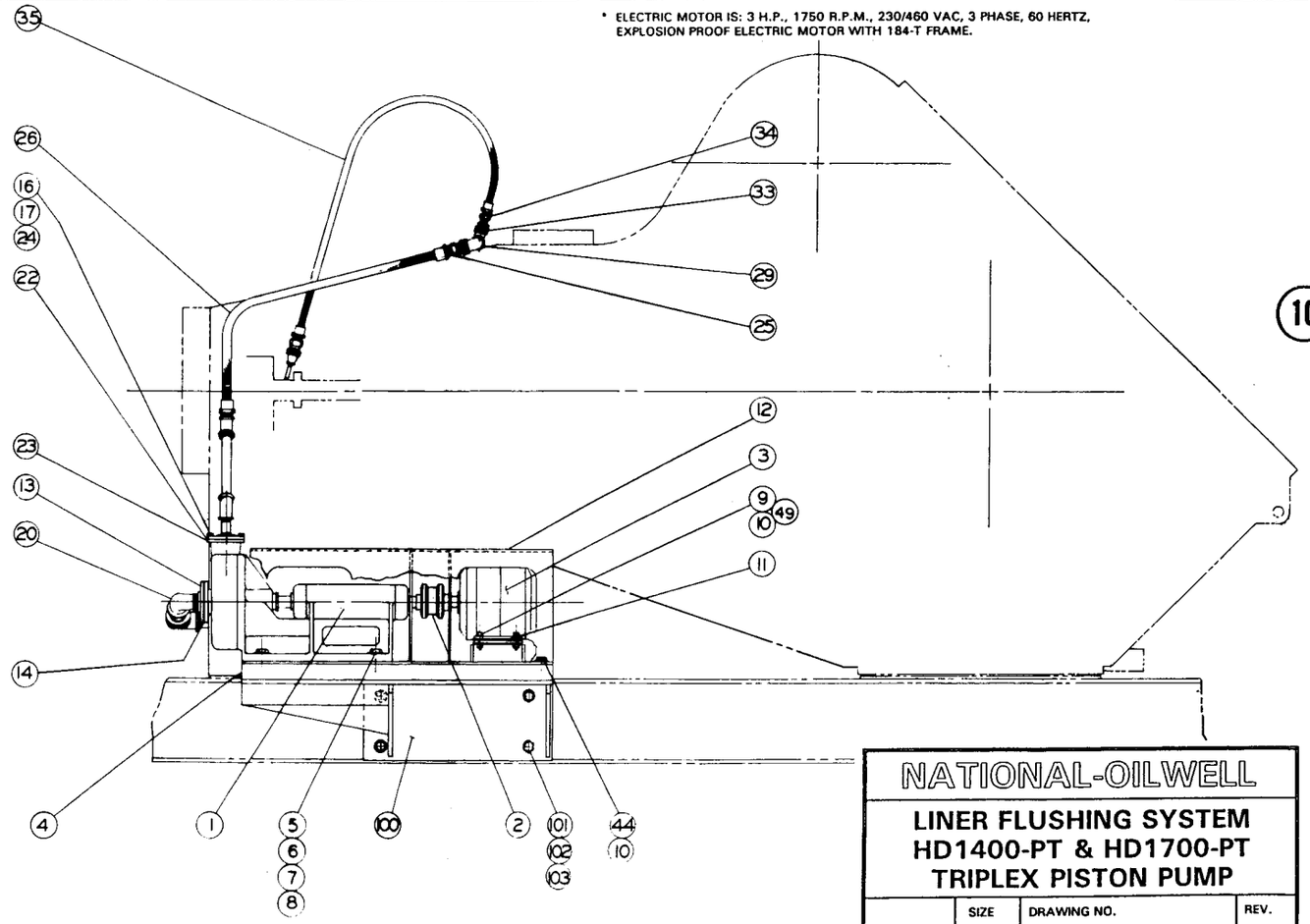
BILL OF MATERIAL			
ITEM	REQ'D	PART NO.	DESCRIPTION
1	1	95-999-050	PUMP, 2 X 3-R CENTRIFUGAL
2	1	68-103-964	COUPLING, SHAFT
3*	1	74-450-826	MOTOR, ELECTRIC *
4	1	10-300-343	BASE, PUMP AND MOTOR
5	4	75-634-361	CAPSCREW, 5/8" - 11 X 2" HEX HEAD HT.
6	4	75-510-408	NUT, 5/8" - 11 HEX
7	4	75-770-205	WASHER, 5/8" PLATE
8	4	75-770-475	WASHER, 5/8" EXTERNAL SHAKEPROOF LOCK
9	4	75-634-343	CAPSCREW, 3/8" - 16 X 1-3/4" HEX HEAD HT.
10	10	75-770-472	WASHER, 3/8" EXTERNAL SHAKEPROOF LOCK
11	4	29-001-153	SHIM SET PACK
12	1	10-300-344	GUARD, PUMP
13	1	98-029-012	FLANGE, 1-1/2" 150# FORGED STEEL RAISED FACE THREADED
14	1	78-208-036	GASKET, FLANGE
15	4	75-634-353	CAPSCREW, 1/2" - 13 X 2" HEX HEAD HT.
16	8	75-510-406	NUT, 1/2" - 13 STEEL HEX
17	10	75-770-474	WASHER, 1/2" EXTERNAL SHAKEPROOF LOCK

BILL OF MATERIAL			
ITEM	REQ'D	PART NO.	DESCRIPTION
18	1	99-287-819	HOSE, 2" I.D. RADIATOR
19	2	99-094-086	CLAMP, HOSE
20	1	86-342-112	ELBOW, 1-1/2" X 90 DEG. 150# M.I. STREET
21	2	45-003-181	NIPPLE (THREADED ONE END), 1-1/2" X 3" SCH. 40 B.W. STEEL PIPE
22	1	98-029-006	FLANGE, 1" 150# THREADED FORGED STEEL RAISED FACE
23	1	78-208-012	GASKET, FLANGE
24	4	75-635-043	CAPSCREW, 1/2" - 13 X 2-1/4" HEX HEAD HT.
25	1	64-289-326	UNION, 1" N.P.T. FEMALE TO MALE HYDRAULIC ADAPTER
26	1	45-805-141	HOSE ASSEMBLY, 1" X 42-1/4" LONG
27	2	64-228-103	STRAP, PIPE
28	2	75-634-317	CAPSCREW, 5/16" - 18 X 1/2" HEX HEAD HT.
29	2	86-336-108	ELBOW, 1" X 90 DEG. 150# BLK. M.I. PIPE
30	2	86-426-029	NIPPLE, 1" X 10" SCH. 40 B.W. STEEL PIPE
31	2	--	PIPE, 1" X 15" SCH. 40 B.W. STEEL
32	2	86-543-108	TEE, 1" 150# M.I. PIPE
33	3	86-061-041	BUSHING, 1" X 1/2" C.I. STD. BLK. HEX PIPE
34	6	64-289-320	UNION, 1/2" N.P.T. FEMALE TO MALE HYDRAULIC ADAPTER

BILL OF MATERIAL			
ITEM	REQ'D	PART NO.	DESCRIPTION
35	3	06-510-761	HOSE ASSEMBLY, 1/2" X 48" LONG
36	3	86-600-005	REDUCER, 1/2" X 1/4" STD. B.M. PIPE
37	3	86-422-007	NIPPLE, 1/4" X 2-1/2" SCH 40 B.W. STEEL PIPE
38	1	86-426-009	NIPPLE, 1" X 3" SCH. 40 B.W. STEEL PIPE
39	1	86-426-025	NIPPLE, 1" X 8" SCH. 40 B.W. STEEL PIPE
40	2	86-339-108	ELBOW, 1" X 45 DEG. 150# B.M. PIPE
44	6	75-634-313	CAPSCREW, 3/8" - 16 X 3/4" HEX HEAD HT.
45	1	86-428-001	NIPPLE, 1-1/2" X CLOSE SCH. 40 B.W. STL. PIPE
46	2	86-061-036	BUSHING, 2" X 1-1/2" C.I. STD. BLK. HEX PIPE
47	1	86-429-017	NIPPLE, 2" X 5" SCH. 40 B.W. STEEL PIPE
48	2	86-336-116	ELBOW, 2" X 90 DEG. 150# B.M. PIPE
49	6	75-510-404	NUT, 3/8" - 16 STEEL HEX
THE FOLLOWING ITEMS ARE REQUIRED WHEN USING A STANDARD PUMP BASE			
100	1	10-300-313	SUPPORT, PUMP
101	4	75-634-384	CAPSCREW, 3/4" - 10 X 2-1/2" HEX HEAD HT.
102	4	75-770-476	WASHER, 3/4" EXTERNAL SHAKEPROOF LOCK
103	4	75-510-410	NUT, 3/4" - 10 STEEL HEX

* ELECTRIC MOTOR IS: 3 H.P., 1750 R.P.M., 230/460 VAC, 3 PHASE, 60 HERTZ, EXPLOSION PROOF ELECTRIC MOTOR WITH 184-T FRAME.



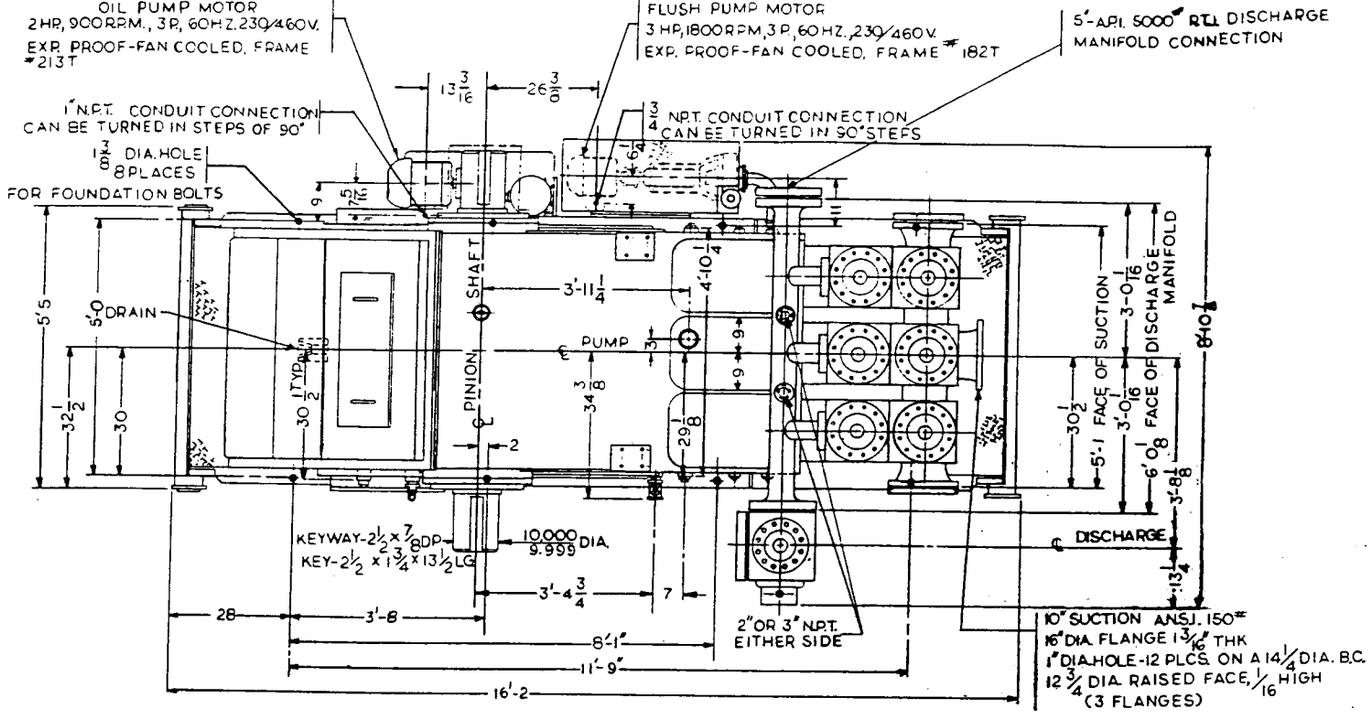


10

NATIONAL-OILWELL

LINER FLUSHING SYSTEM HD1400-PT & HD1700-PT TRIPLEX PISTON PUMP

	SIZE	DRAWING NO.	REV.
	D	P185-AN1	D

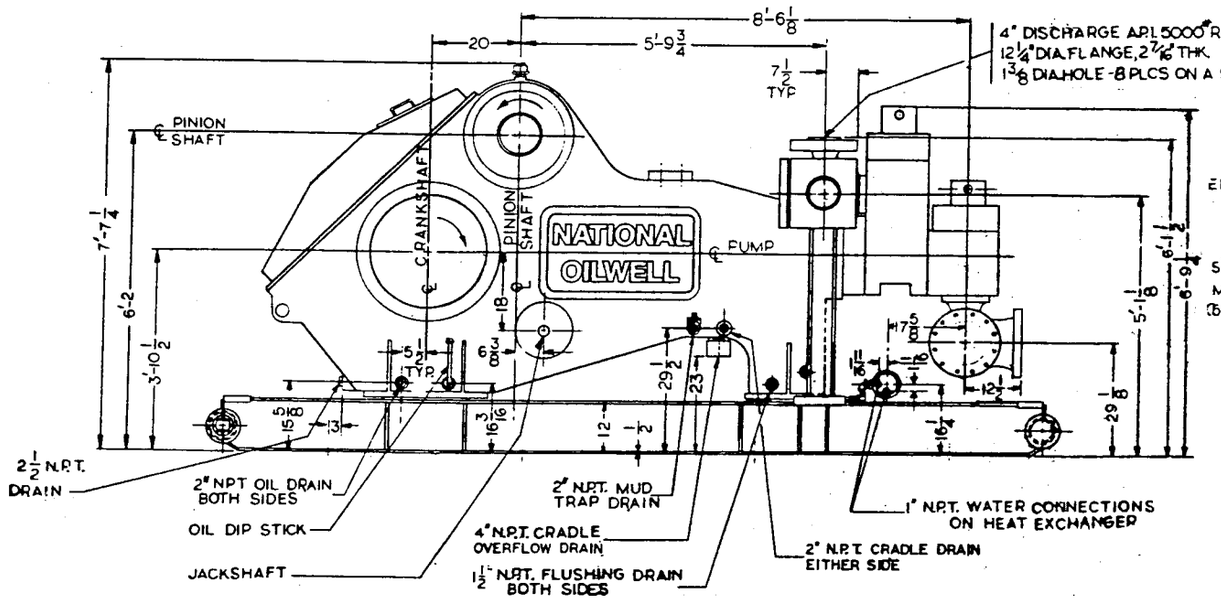


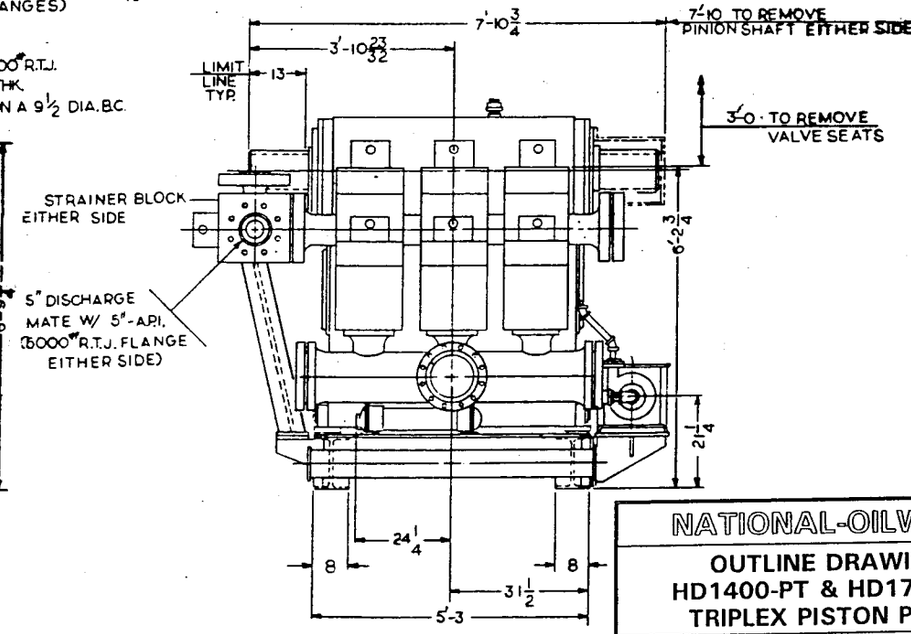
NOTES:

PUMP, AS SHOWN, IS FOR RIGHT HAND DRIVE.
LEFT HAND DRIVE WOULD BE OPPOSITE THAT SHOWN.
PUMP CAN BE DRIVEN FROM EITHER OR BOTH SIDES.

THESE DIMENSIONS ARE ACCURATE
BUT SHOULD NOT BE USED FOR
INSTALLATION UNLESS CERTIFIED.

APPROXIMATE WEIGHTS IN POUNDS (#)	HD1400-PT	HD1700-PT
PUMP, MAIN	43,290#	44,540#
BASE, PUMP	2,330#	2,330#
PUMP, LINER FLUSHING	510#	510#
PUMP, OIL	450#	450#
STRAINER BLOCK AND SUPPORT	1,200#	1,200#
TOTAL WEIGHT IN POUNDS (#)	47,780#	49,030#



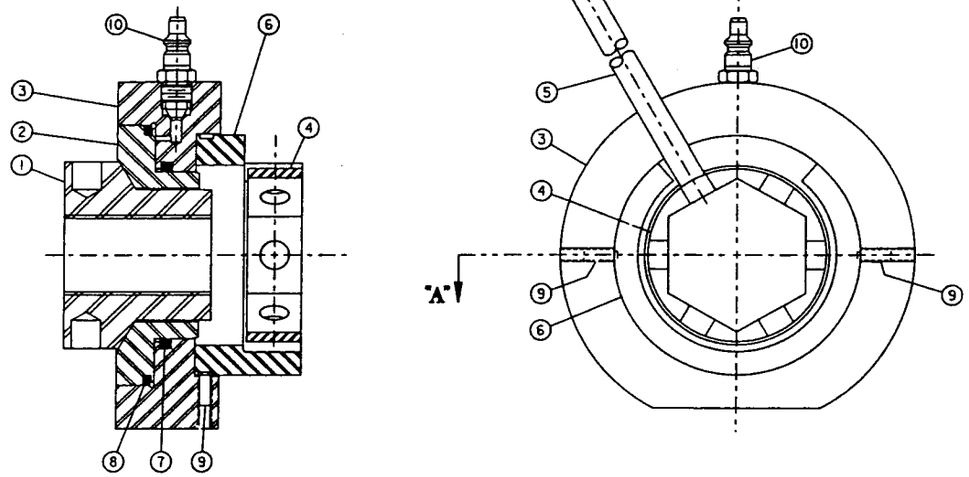


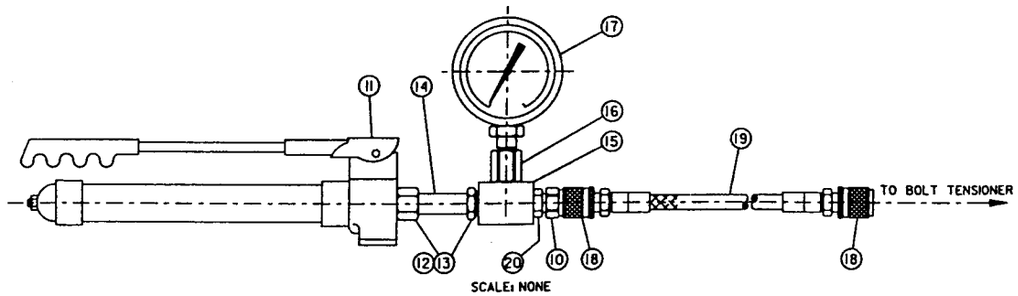
11

NATIONAL-OILWELL			
OUTLINE DRAWING HD1400-PT & HD1700-PT TRIPLEX PISTON PUMP			
	SIZE	DRAWING NO.	REV.
	D	P405-B2	A

BILL OF MATERIAL					
ITEM	REQ'D	PART NO.	PART NO.	PART NO.	DESCRIPTION
--	--	10-300-355 (1-1/4")	10-300-412 (1-1/2")	10-300-355 (1-3/4")	BOLT TENSIONER ASSEMBLY (CONSISTS OF THE FOLLOWING)
1	1	10-300-352	10-300-411	10-300-345	PULLER
2	1	10-300-346	10-300-346	10-300-346	RAM
3	1	10-300-347	10-300-347	10-300-347	BODY
4	1	10-300-353	10-300-409	10-300-348	RING, NUT
5	1	10-300-349	10-300-414	10-300-349	BAR
6	1	10-300-351	10-300-410	10-300-350	BRIDGE
7	1	68-631-132	68-631-132	68-631-132	SEAL, OIL
8	1	68-631-139	68-631-139	68-631-139	SEAL, OIL
9	2	75-632-499	75-632-499	75-632-499	SCREW, 1/4" - 20 X 5/8" SKT. SET
10	2	64-245-162	64-245-162	64-245-162	NIPPLE, MALE QUICK DISCONNECT
11	1	64-572-224	64-572-224	64-572-224	PUMP, HYDRAULIC HAND
12	2	64-245-175	64-245-175	64-245-175	GLAND, 3/8" HIGH PRESSURE
13	2	64-245-176	64-245-176	64-245-176	COLLAR, 3/8" HIGH PRESSURE
14	1	64-245-177	64-245-177	64-245-177	TUBING, 3/8" X 1/8" X 3 LG.
15	1	64-245-178	64-245-178	64-245-178	TEE, 3/8" HIGH PRESSURE
16	1	64-245-179	64-245-179	64-245-179	ADAPTER, 1/2" X 3/8" MALE
17	1	78-255-688	78-255-688	78-255-688	GAUGE, 4-1/2" (0 - 2000 P.S.I.)
18	2	64-245-160	64-245-160	64-245-160	CPLG.,FEMALE QUICK DISCONNECT
19	1	64-245-174	64-245-174	64-245-174	HOSE, 1/4" X 10 FT. LONG
20	1	64-245-180	64-245-180	64-245-180	ADAPTER, 3/8" X 3/8" MALE

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NATIONAL-OILWELL

BOLT TENSIONER ASSEMBLIES PARTS DRAWING

	SIZE	DRAWING NO.	REV.
	D	P403-AP1	B

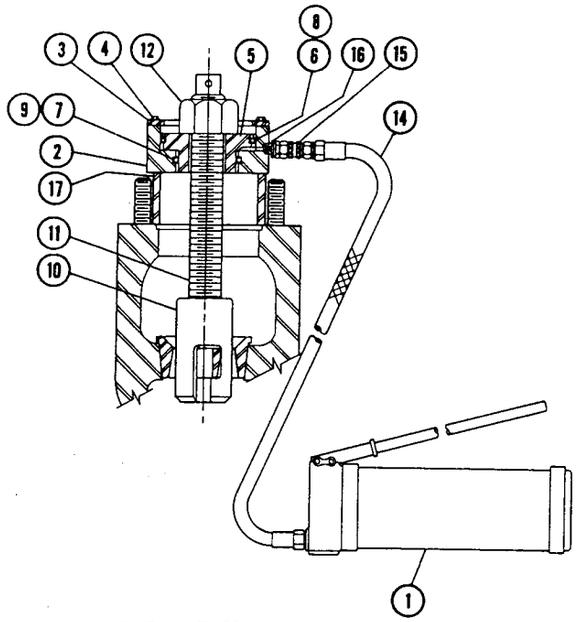


FIGURE No. 1

LEGEND: ⟷ (SAME AS PREVIOUS COMMODITY NUMBER)

BILL OF MATERIAL

ITEM	REQ'D	DESCRIPTION	FIGURE No. 1								FIGURE No. 2			FIGURE No. 3	FIGURE No. 4
			212–P 712–P	812–P	14P–HD 214–P	816–P	18 18–P 218–P	20–P 220 220–P 818–P	700–P 850–P 1000–P	8368D–ST	A700–P A850–P A1000–P	1400–P 1700–P	214–P (W/MATTCO F.E.) 850–PT 1100–PT 1400–PT 1700–PT A850–PT A1100–PT A1400–PT A1700–PT B850–PT B1100–PT	350–PT 400–PT 560–PT 600–PT A400–PT A560–PT A600–PT	HD1400–PT HD1700–PT 81700–PT
		HYDRAULIC VALVE SEAT PULLER ASSEMBLY (COMPLETE)	20-220-044	20-220-033	20-220-045	20-220-048	20-220-046	20-220-047	20-220-049	20-220-240	20-220-136	20-220-139	20-220-123	20-220-018	20-220-232
		HYDRAULIC VALVE SEAT PULLER ASSEMBLY*	20-220-043	20-220-036	20-220-043	⟷	⟷	⟷	⟷	20-220-242	20-220-137	20-220-140	20-220-124	20-220-011	20-220-233
		HYDRAULIC BODY ASSEMBLY (INCLS. ITEMS 2 THRU 9)	20-220-094	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
1	1	PUMP, HAND	20-220-015	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
2	1	BODY, HYDRAULIC JACK	20-220-016	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
3	1	RING, HYDRAULIC JACK BODY	20-220-017	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
4	8	3/8–16 X 3/4 HEX HD HT CAPSCREW	75-834-313	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
5	1	RAM, HYDRAULIC JACK	20-220-018	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
6	1	"O"–RING (7-1/2 X 8 X 1/4)	99-607-443	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
7	1	"O"–RING (4-5/8 X 5-1/8 X 1/4)	99-607-426	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
8	1	RING, No. 443 BACK-UP	99-606-401	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
9	1	RING, No. 426 BACK-UP	99-606-402	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
10	1	HEAD, PULLER	20-220-093	20-220-035	20-220-093	⟷	⟷	⟷	⟷	20-220-120	20-220-115	20-220-114	20-220-120	16-522-049	20-220-120
11	1	BOLT, PULLER	20-220-020	⟷	⟷	⟷	⟷	⟷	⟷	20-220-237	20-220-181	⟷	⟷	20-220-160	20-220-237
12	1	NUT, STL HEAVY HEX	75-511-534	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	75-510-126	75-511-534
13	1	HOSE ASSEMBLY (INCLS. ITEMS 14 & 15)	45-804-098	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
14	1	HOSE	45-804-097	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
15	1	COUPLER, 3/8 QUICK CONNECT	64-226-200	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
16	1	1/2 X 3/8 F.S. HEX PIPE BUSHING	78-069-006	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷	⟷
17	1	SPACER	20-220-010	20-220-034	20-220-011	20-220-014	20-220-012	20-220-013	20-220-037	20-220-236	20-220-134		20-220-121		20-220-244
18	1	PLATE, PULLER												16-522-051	
19	1	1-3/4 PLATE WASHER												75-770-214	
20	1	BUSHING, WASHER												20-220-158	
21	1	STOP									20-220-122	20-220-135	20-220-122		20-220-245

* FIGURE No. 1: HYDRAULIC VALVE SEAT PULLER ASSEMBLY INCLUDES ITEMS 1 THRU 16.

* FIGURE No. 2: HYDRAULIC VALVE SEAT PULLER ASSEMBLY INCLUDES ITEMS 1 THRU 16 AND ITEM 21.

* FIGURE No. 3: HYDRAULIC VALVE SEAT PULLER ASSEMBLY INCLUDES ITEMS 10, 11, 12, 18, 19 & 20.

* FIGURE No. 4: HYDRAULIC VALVE SEAT PULLER ASSEMBLY INCLUDES ITEMS 1 THRU 16 AND ITEM 21.

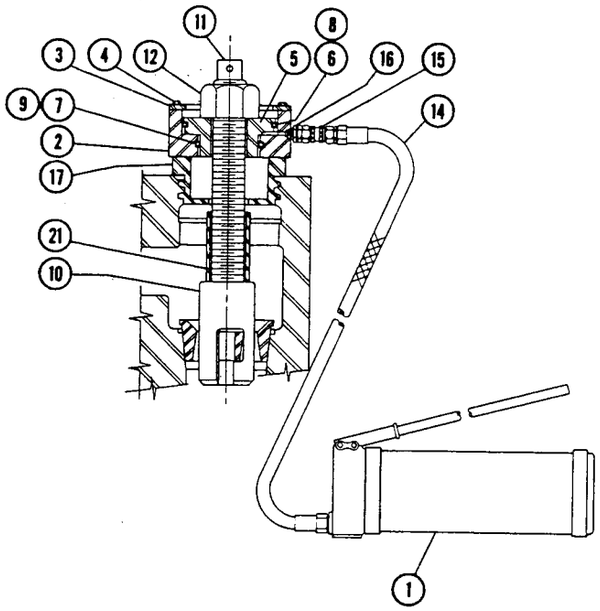


FIGURE No. 2

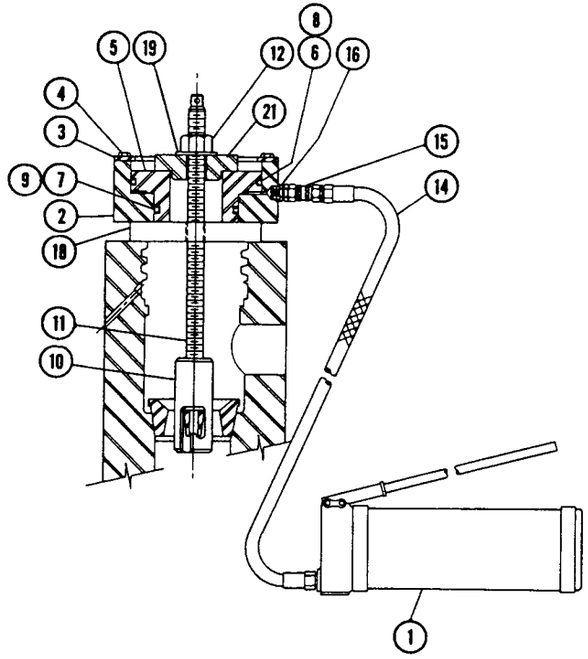


FIGURE No. 3

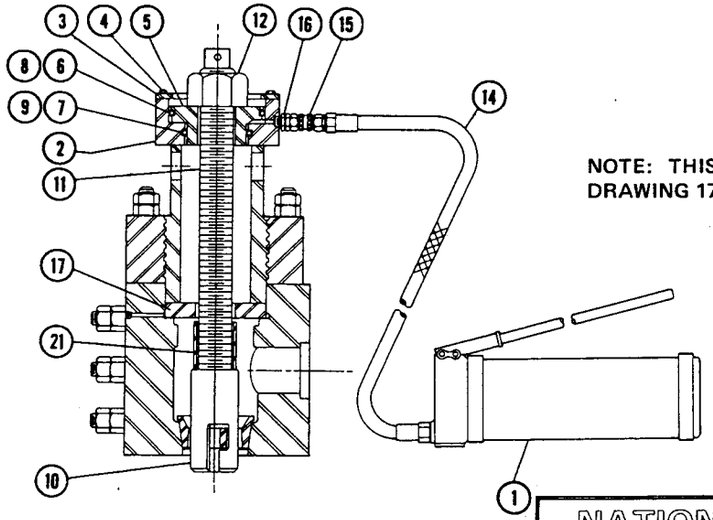


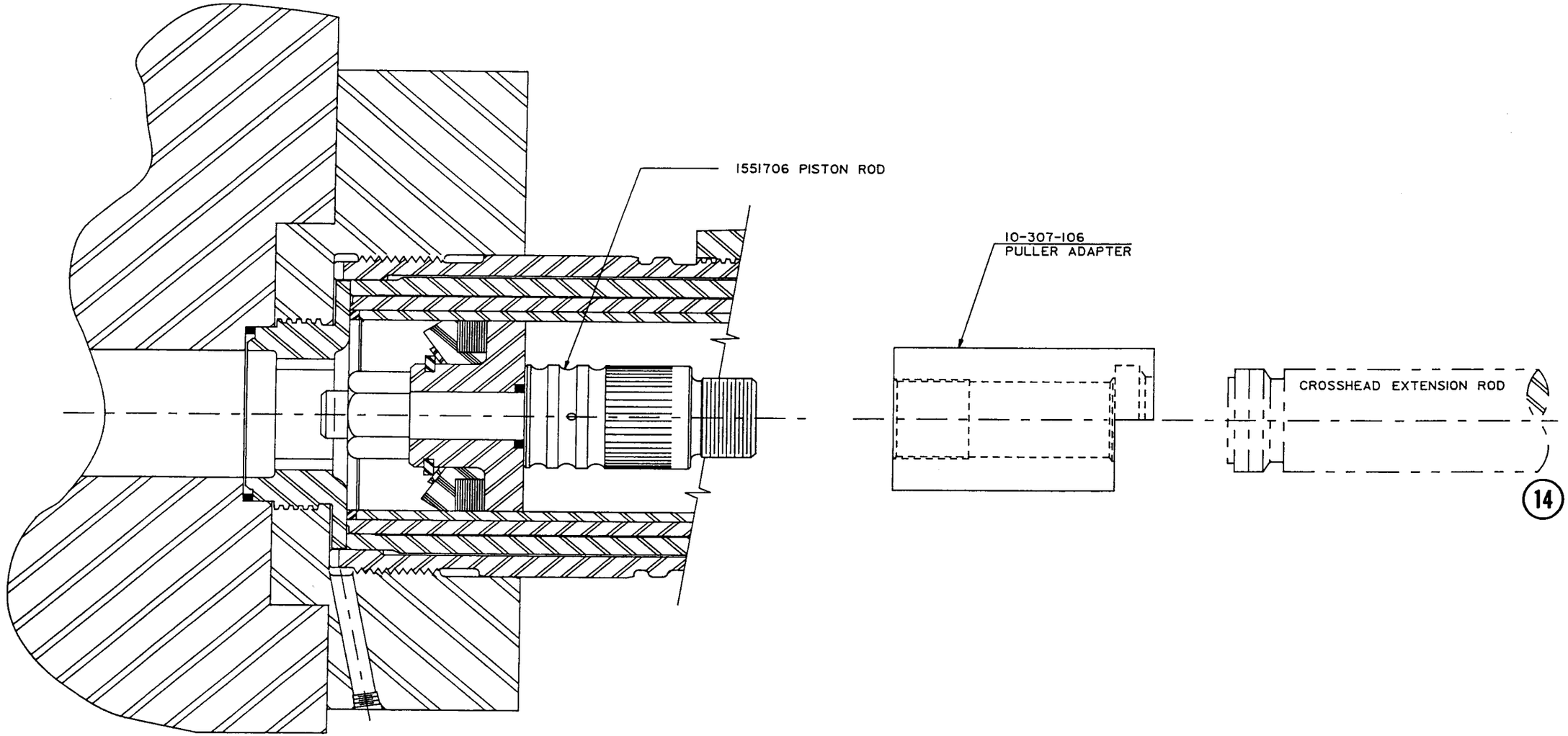
FIGURE No. 4

NOTE: THIS DRAWING SUPERSEDES DRAWING 17-298-018 (C).

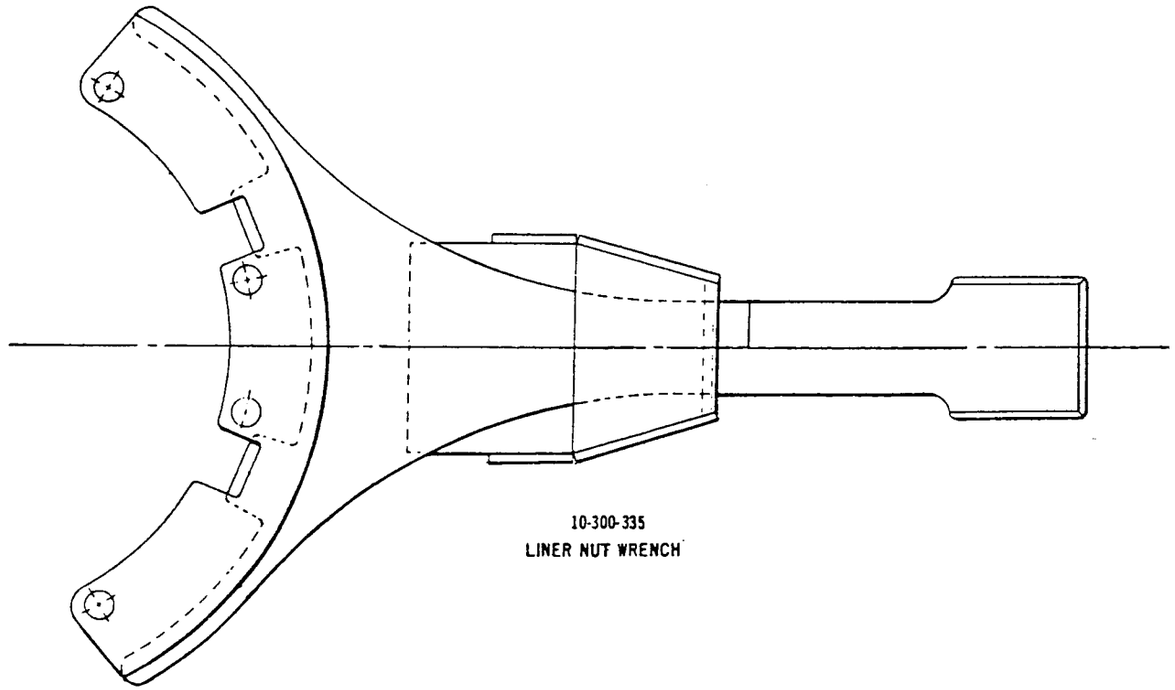
NATIONAL-OILWELL

HYD. VALVE SEAT PULLERS FOR FK-1 VALVE SEATS

	SIZE	DRAWING NO.	REV.
	B	P206-AV1	--

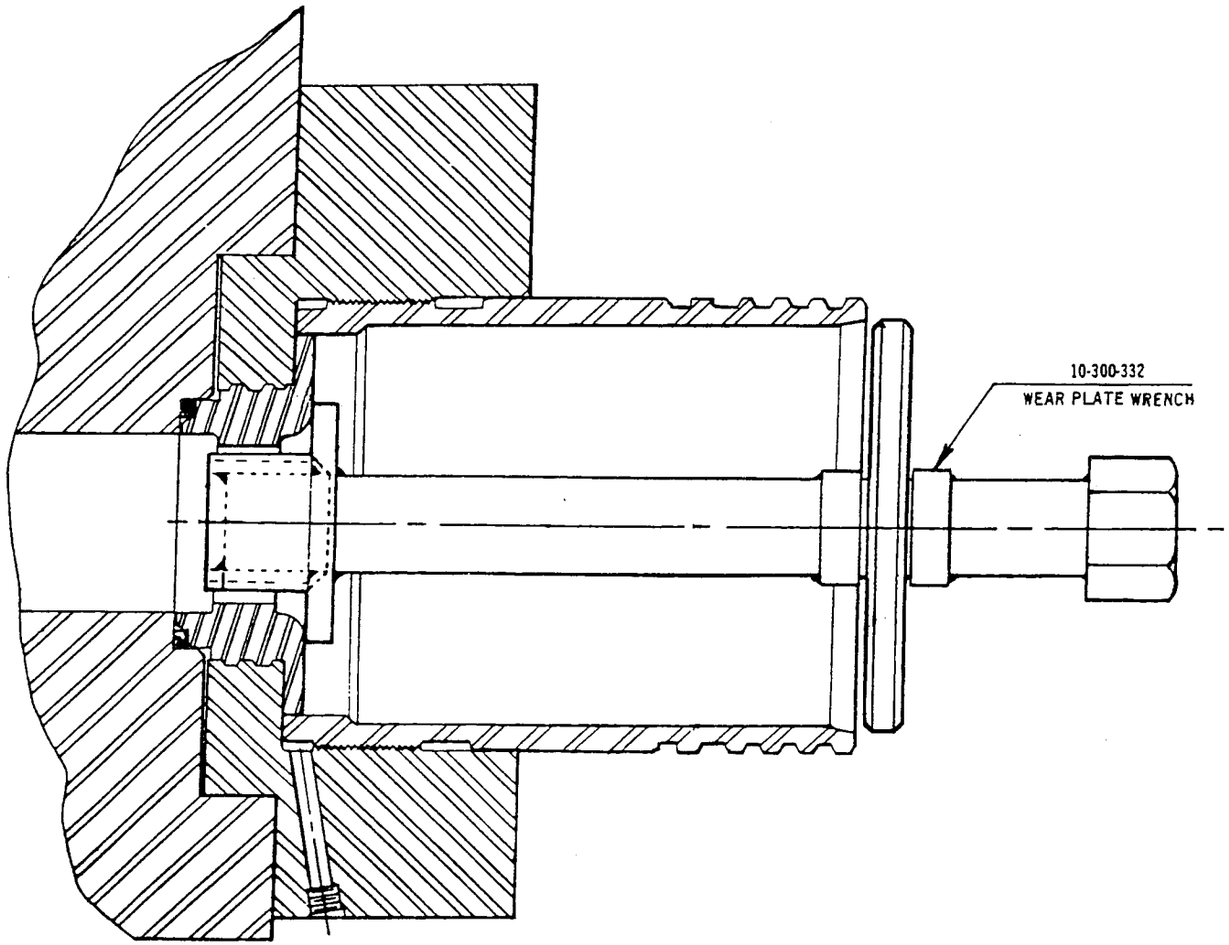


NATIONAL-OILWELL			
REMOVAL OF PISTON HD1400-PT & HD1700-PT TRIPLEX PISTON PUMP			
	SIZE	DRAWING NO.	REV.
	C	GSK-6976P	--



10-300-335
LINER NUT WRENCH

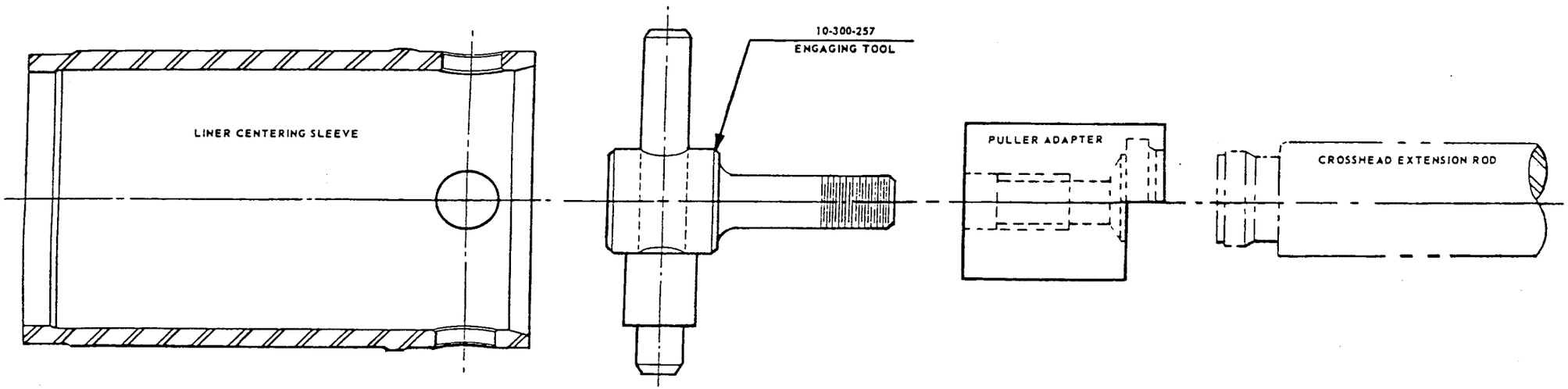
NATIONAL-OILWELL			
LINER NUT WRENCH HD1400-PT & HD1700-PT TRIPLEX PISTON PUMP			
	SIZE	DRAWING NO.	REV.
	B	GSK-6298P	--



NATIONAL-OILWELL

REMOVAL OF LINER WEAR PLATE
HD1400-PT & HD1700-PT TRIPLEX PISTON PUMP

SIZE	DRAWING NO.	REV.
B	GSK-6300P	--

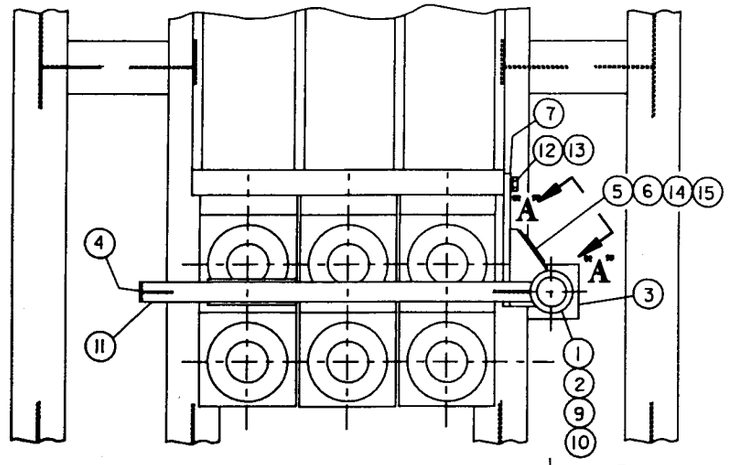


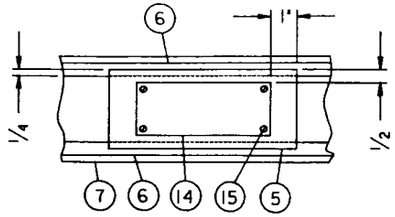
17

NATIONAL-OILWELL

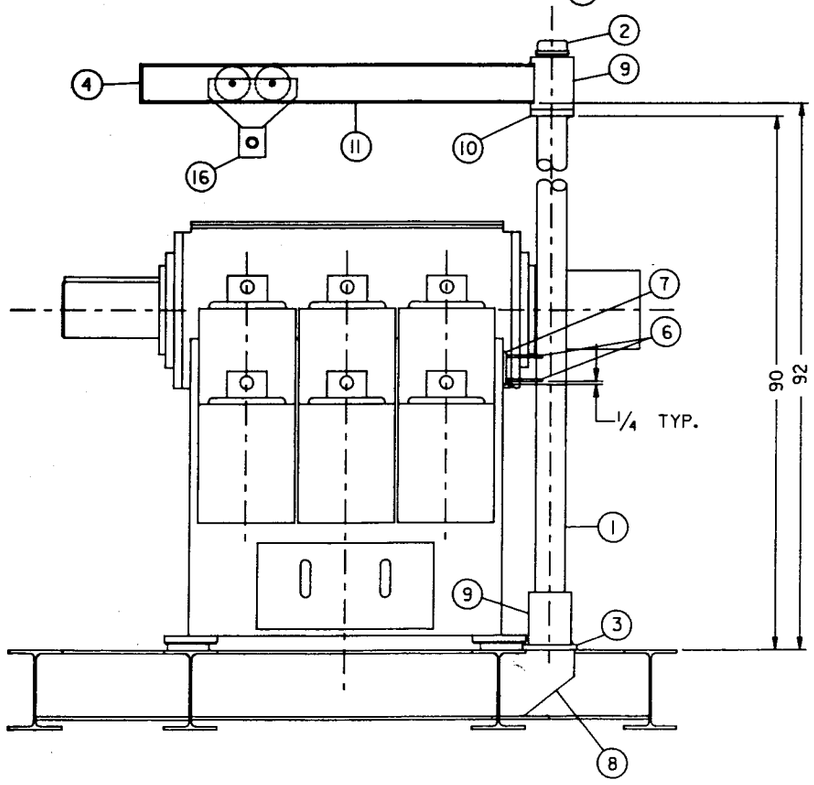
REMOVAL OF
LINER CENTERING SLEEVE
HD1400-PT & HD1700-PT
TRIPLEX PISTON PUMP

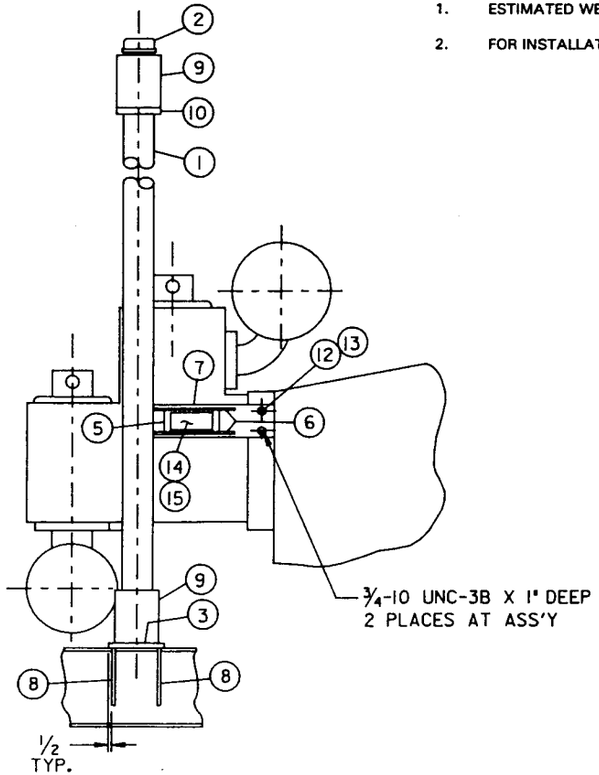
	SIZE	DRAWING NO.	REV.
	B	GSK-6301P	--





VIEW "A-A"





3/4-10 UNC-3B X 1" DEEP
2 PLACES AT ASS'Y

BILL OF MATERIAL			
ITEM	REQ'D	PART NO.	DESCRIPTION
---	---	10-300-375	JIB CRANE ASSEMBLY (CONSISTS OF THE FOLLOWING)
1	1		PIPE, 4" X 101" LG. SCH. 80 BOOM
2	1	86-132-032	CAP, 4" 150# BLK. M.I. PIPE
3	1		PLATE, 3/4" X 8" X 8" LG. STEEL BASE
4	1		PLATE, 1/4" X 3-3/8" X 6" LG. BEAM END
5	1		PLATE, 3/16" X 4" X 7" LG. MOUNTING
6	2		BRACKET, CRANE SUPPORT
7	1		PLATE, CRANE SUPPORT BRACKET
8	2		BRACKET, PIPE SUPPORT
9	2		TUBE, 4-9/16" I.D. STEEL
10	1		PLATE, SPACER
11	1		BEAM, 6" X 3-3/8" @ 12.5#
12	2	75-634-374	CAPSCREW, 3/4" - 10 X 1-1/4" LG. HEX HEAD H.T.
13	2	75-770-476	WASHER, 3/4" LOCK
14	1	45-805-149	PLATE, NAME
15	4	75-632-012	SCREW, NO. 2 X 1/4" LG. CAD. PLTD. TYPE "U" DRIVE
16	1	75-694-020	TROLLEY

NOTES:

1. ESTIMATED WEIGHT 450 LBS.
2. FOR INSTALLATION SEE DRAWING AP72-BC2 (C).

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NATIONAL-OILWELL

JIB CRANE ASSEMBLY FOR TYPE "PT" PUMPS

SIZE	DRAWING NO.	REV.
D	PL 10-300-375	