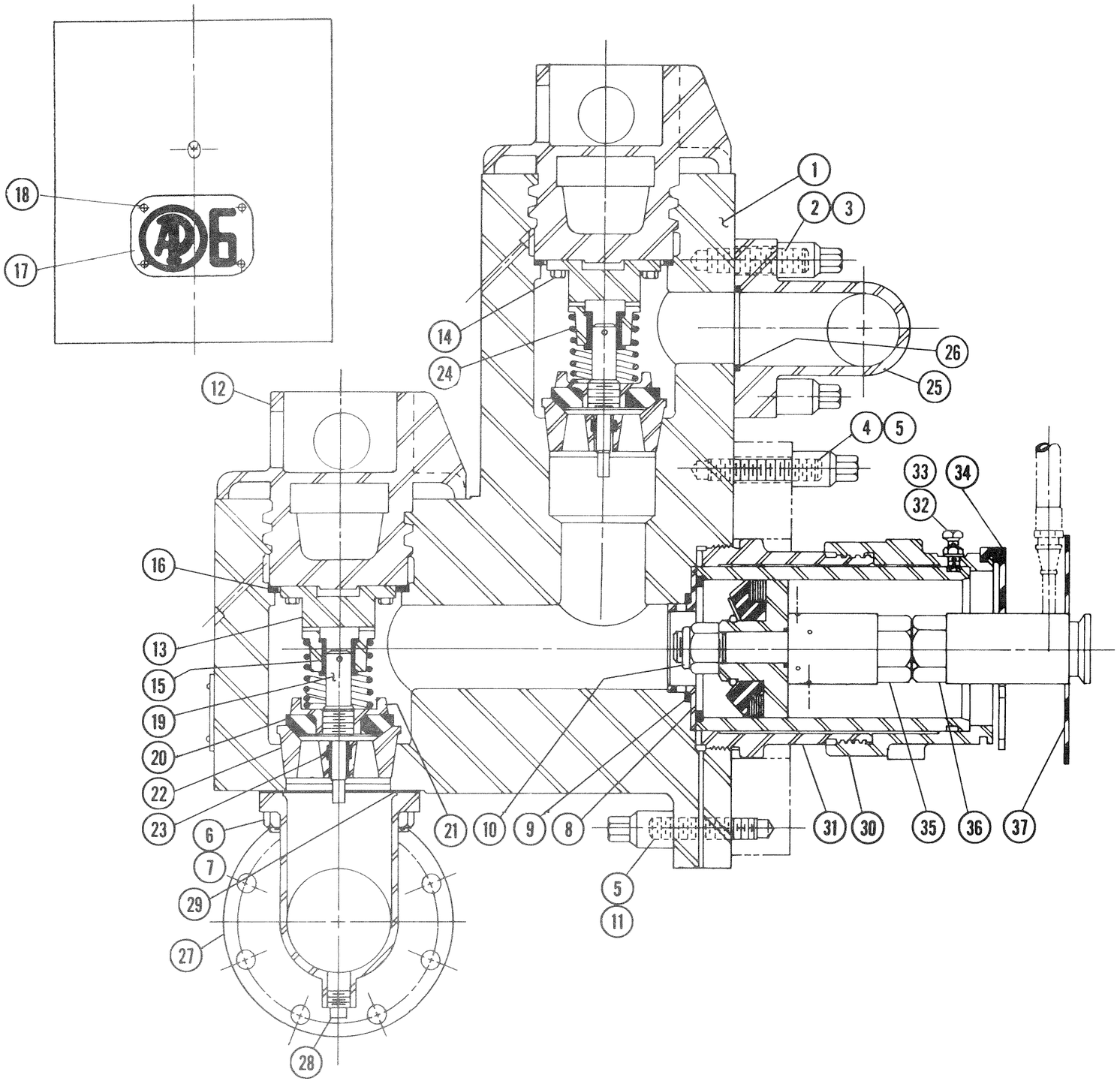


BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1*	3	10-304-052	FLUID END, STUDDED*
2	12	45-810-063	1-1/4–8 X 4-1/2 STUD
3	12	16-700-025	1-1/4–8 ACORN NUT
4	6	45-810-020	1-1/8–8 X 5-1/4 STUD
5	12	10-200-004	1-1/8–8 ACORN NUT
6	12	45-810-018	7/8–9 X 3" STUD
7	12	75-510-314	7/8–9 HEAVY HEX NUT
8	3	10-305-110	PLATE, LINER WEAR
9	3	20-100-014	GASKET, LINER WEAR PLATE
10	3	20-150-142	1-1/2–8 PISTON RETAINING NUT
11	6	49-002-277	1-1/8–8 X 5" STUD
12	6	10-305-097	COVER, VALVE
13	6	10-305-054	GUIDE , VALVE
14	24	75-632-135	1/2–13 X 1" SELF-LOCKING CAPSCREW
15	6	20-200-004	BUSHING, VALVE GUIDE
16	6	10-268-004	GASKET, VALVE COVER
17	3	10-305-126	PLATE, SPECIFICATION
18	12	75-632-022	No. 10 X 3/8 CAD. PLTD. DRIVE SCREW
19	6	20-160-171	VALVE COMPLETE (INCLS. ITEMS 20 & 21)
20	6	20-180-024	DISC, POLYURETHANE
21	6	20-860-029	NUT, VALVE
22	6	20-220-099	SEAT, VALVE (INCLS. ITEM 23)
23	6	20-101-767	BUSHING, VALVE SEAT
24	6	20-160-225	SPRING, VALVE
25	1	10-304-053	MANIFOLD, DISCHARGE
26	3	08-568-023	GASKET, DISCHARGE MANIFOLD
27	1	10-305-087	MANIFOLD, SUCTION (INCLS. ITEM 28)
28	1	86-486-108	1" CI SOLID SQ HD PIPE PLUG
29	3	10-305-103	GASKET, SUCTION MANIFOLD
30	3	10-305-037	NUT, LINER
31	3	10-305-020	ADAPTER, LINER
32	9	75-632-735	5/8–11 X 1-1/4 DOG POINT SQ HD SET SCREW
33	9	75-510-508	5/8–11 HEX JAM NUT
34	3	20-460-666	SHIELD, LINER FLUSHING
35	3	20-150-123	PISTON ROD
36	3	20-150-124	EXTENSION, PISTON ROD
37	3	10-304-115	BAFFLE, FLUID

* FLUID END STUDDED INCLUDES ITEMS 2 THRU 9.

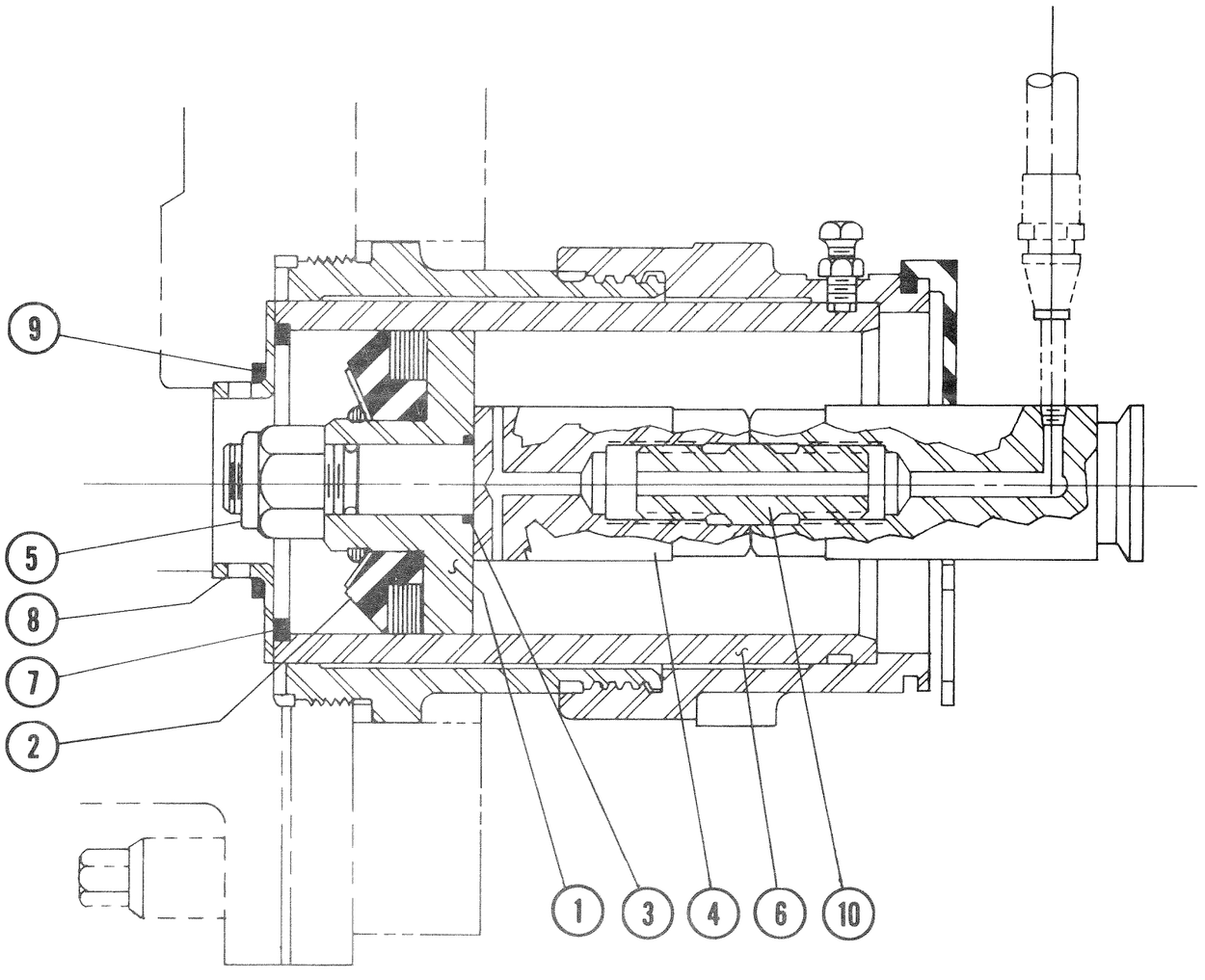
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NATIONAL - OILWELL

FLUID END
A400-PT TRIPLEX PISTON PUMP

		DRAWING NO.	SIZE
		P210-AF1	C



BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1*	3	20-020-500	4" PISTON COMPLETE*
	3	20-020-501	4-1/2 PISTON COMPLETE*
	3	20-020-502	5" PISTON COMPLETE*
	3	20-020-503	5-1/2 PISTON COMPLETE*
	3	20-020-504	5-3/4 PISTON COMPLETE*
	3	20-020-505	6" PISTON COMPLETE*
	3	20-020-507	6-1/2 PISTON COMPLETE*
	3	20-020-509	7" PISTON COMPLETE*
2**	3	20-040-051	4" PISTON RUBBERS**
	3	20-040-001	4-1/2 PISTON RUBBERS**
	3	20-040-005	5" PISTON RUBBERS**
	3	20-040-009	5-1/2 PISTON RUBBERS**
	3	20-040-011	5-3/4 PISTON RUBBERS**
	3	20-040-013	6" PISTON RUBBERS**
	3	20-040-037	6-1/2 PISTON RUBBERS**
	3	20-040-041	7" PISTON RUBBERS**
3†	3	99-607-325	"O"–RING (1-1/2 X 1-7/8 X 3/16) †
4	3	20-150-123	PISTON ROD
5	3	20-150-142	1-1/2–8 PISTON RETAINING NUT
6	3	05-329-400	4" SUPER DI–HARD LINER
	3	05-329-450	4-1/2 SUPER DI–HARD LINER
	3	05-329-500	5" SUPER DI–HARD LINER
	3	05-329-550	5-1/2 SUPER DI–HARD LINER
	3	05-329-575	5-3/4 SUPER DI–HARD LINER
	3	05-329-600	6" SUPER DI–HARD LINER
	3	05-329-650	6-1/2 SUPER DI–HARD LINER
	3	05-329-700	7" SUPER DI–HARD LINER
7	3	20-100-008	4" LINER GASKET
	3	20-100-008	4-1/2 LINER GASKET
	3	20-100-008	5" LINER GASKET
	3	20-100-009	5-1/2 LINER GASKET
	3	20-100-010	5-3/4 LINER GASKET
	3	20-100-011	6" LINER GASKET
	3	20-100-012	6-1/2 LINER GASKET
	3	20-100-017	7" LINER GASKET
8	3	10-305-110	LINER WEAR PLATE
9	3	20-100-014	LINER WEAR PLATE GASKET
10	3	10-305-203	PISTON ROD STUD

2

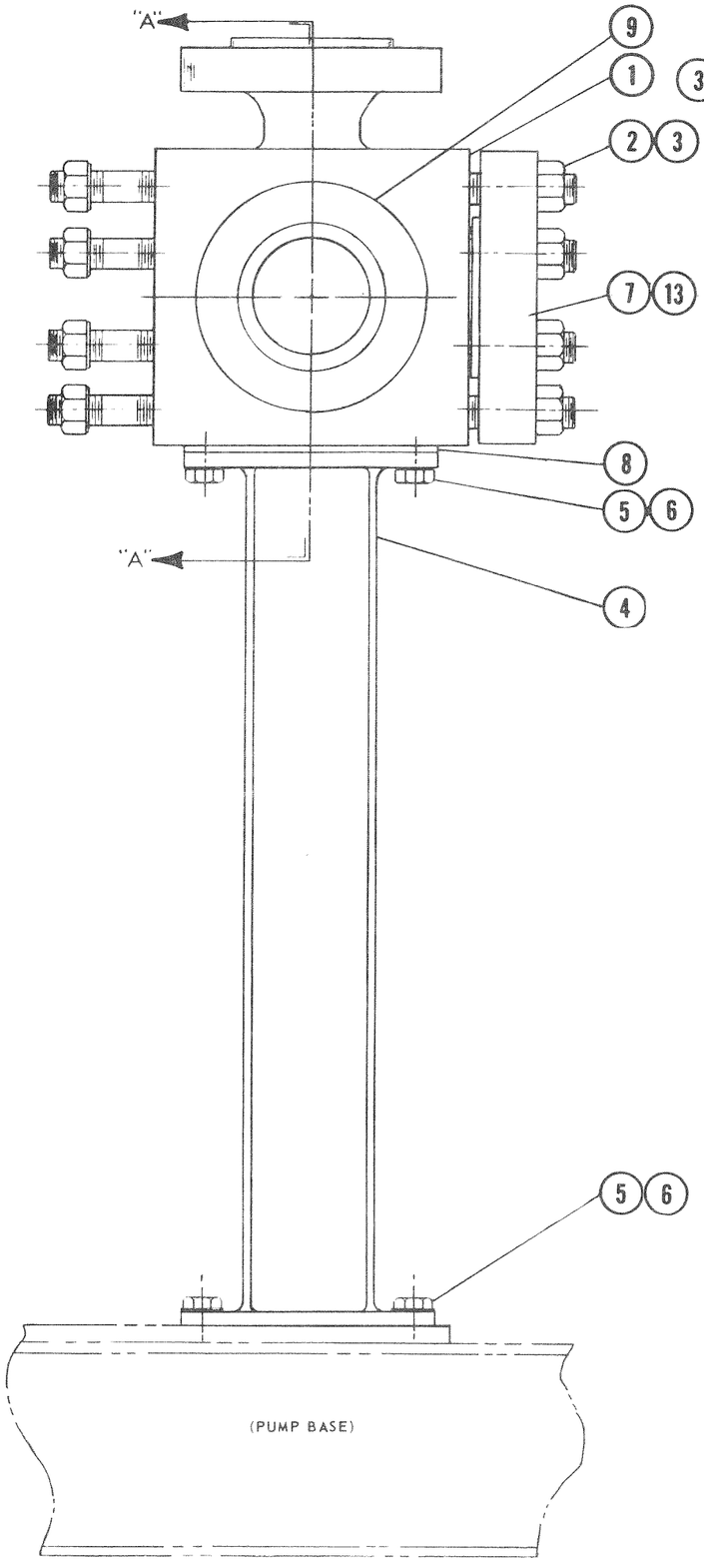
* PISTON BODY HAS 1-1/2 BORE (FITS 1-1/2 DIAMETER ROD).
** PISTON RUBBERS ARE PACKAGED IN "PAIRS". A PAIR OF PISTON RUBBERS CONSISTS OF TWO EACH, PISTON RUBBERS, PLATES AND SNAP RINGS. ONE PAIR OF RUBBERS WILL DRESS TWO SINGLE ACTING PISTONS.
† "O"–RINGS ARE PACKAGED SIX PIECES PER PACKAGE AND ARE IDENTIFIED AS COMMODITY NUMBER 20-680-020.

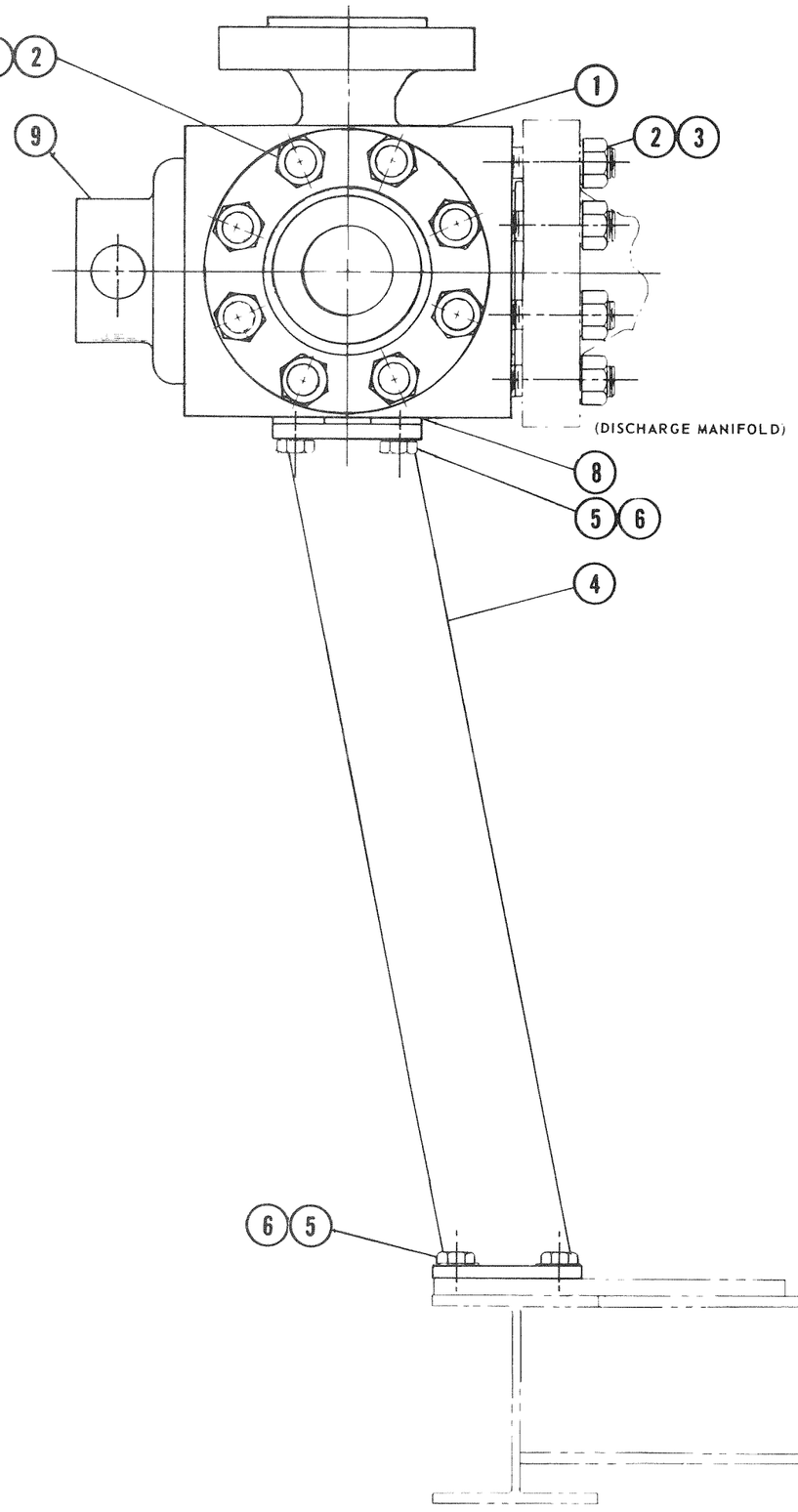
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NATIONAL - OILWELL

LINER & PISTON ASSEMBLY
A400-PT TRIPLEX PISTON PUMP

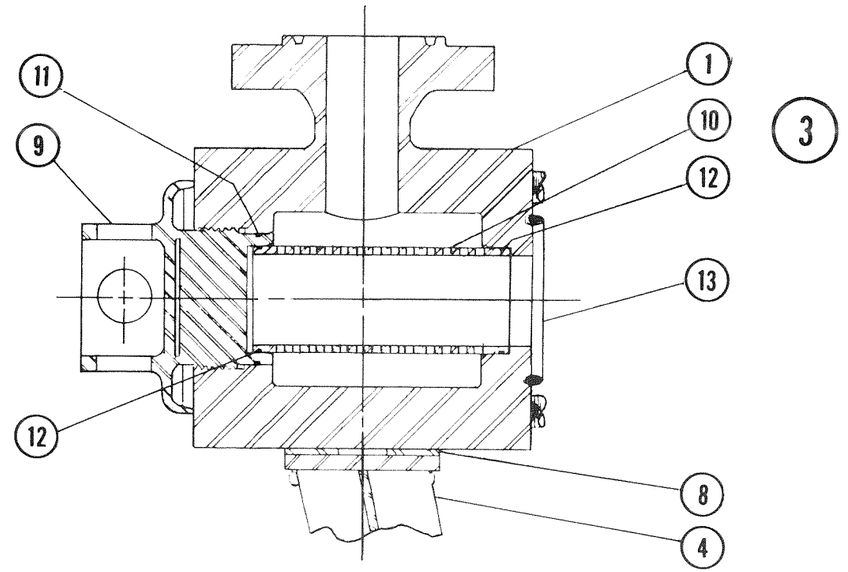
		DRAWING NO.	SIZE
		P500-H1	C





BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	10-304-066	STRAINER BLOCK, STUDDED (INCLS. ITEMS 2 & 3)
2	24	11-060-464	1-1/4 – 8 X 5-1/4 STUD
3	24	75-510-121	1-1/4 –8 HEAVY HEX NUT
4	1	10-304-068	SUPPORT, STRAINER BLOCK
5	4	75-635-091	1"– 8 X 2" HEX HD HT CAPSCREW
6	8	75-770-478	1" EXT. SHAKEPROOF LOCKWASHER
7*	2	98-032-117	4" A.P.I. 5000# R.T. J. BLIND FLANGE*
8		10-307-064	SHIM SET (2 REQ'D) CONSISTS OF THE FOLLOWING
	12	10-307-065	SHIM (16 GAUGE)
	4	10-307-066	SHIM (11 GAUGE)
9	1	10-307-009	COVER, STRAINER
10	1	10-307-010	STRAINER, DISCHARGE
11	1	99-609-258	"O"–RING (6" X 6-1/4 X 1/8)
12	2	99-609-249	"O"–RING (4-7/8 X 5-1/8 X 1/8)
13	3	78-206-539	OVAL RING GASKET (R–39)
14**	8	45-803-503	1-1/4–8 X 7-1/2 STUD W/2 NUTS **
15	4	75-635-429	1"–8 X 1-1/4 HEX HD HT CAPSCREW

* ONE (1) REQ'D FOR OPPOSITE END OF DISCHARGE MANIFOLD.
** USE WITH ITEM 7 AT OPPOSITE END OF DISCHARGE MANIFOLD.



SECTION "A – A"

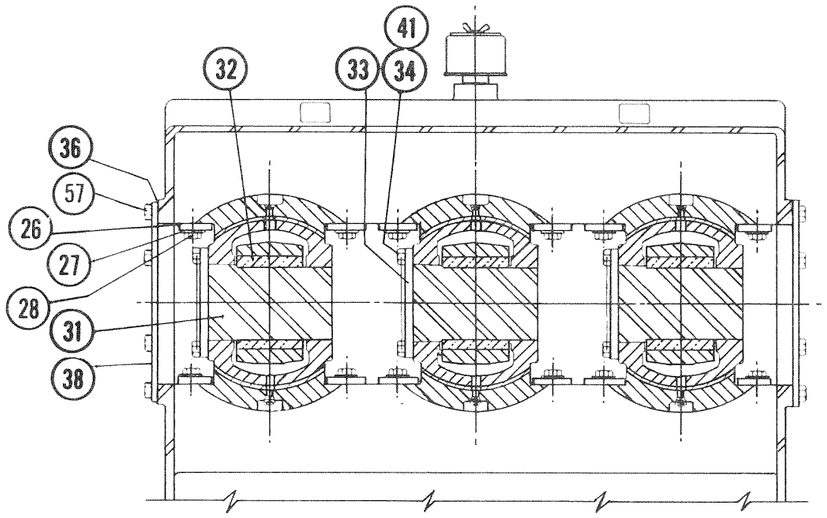
ISSUE DATE: 3–1–88

NATIONAL - OILWELL

STRAINER BLOCK
A400-PT TRIPLEX PISTON PUMP

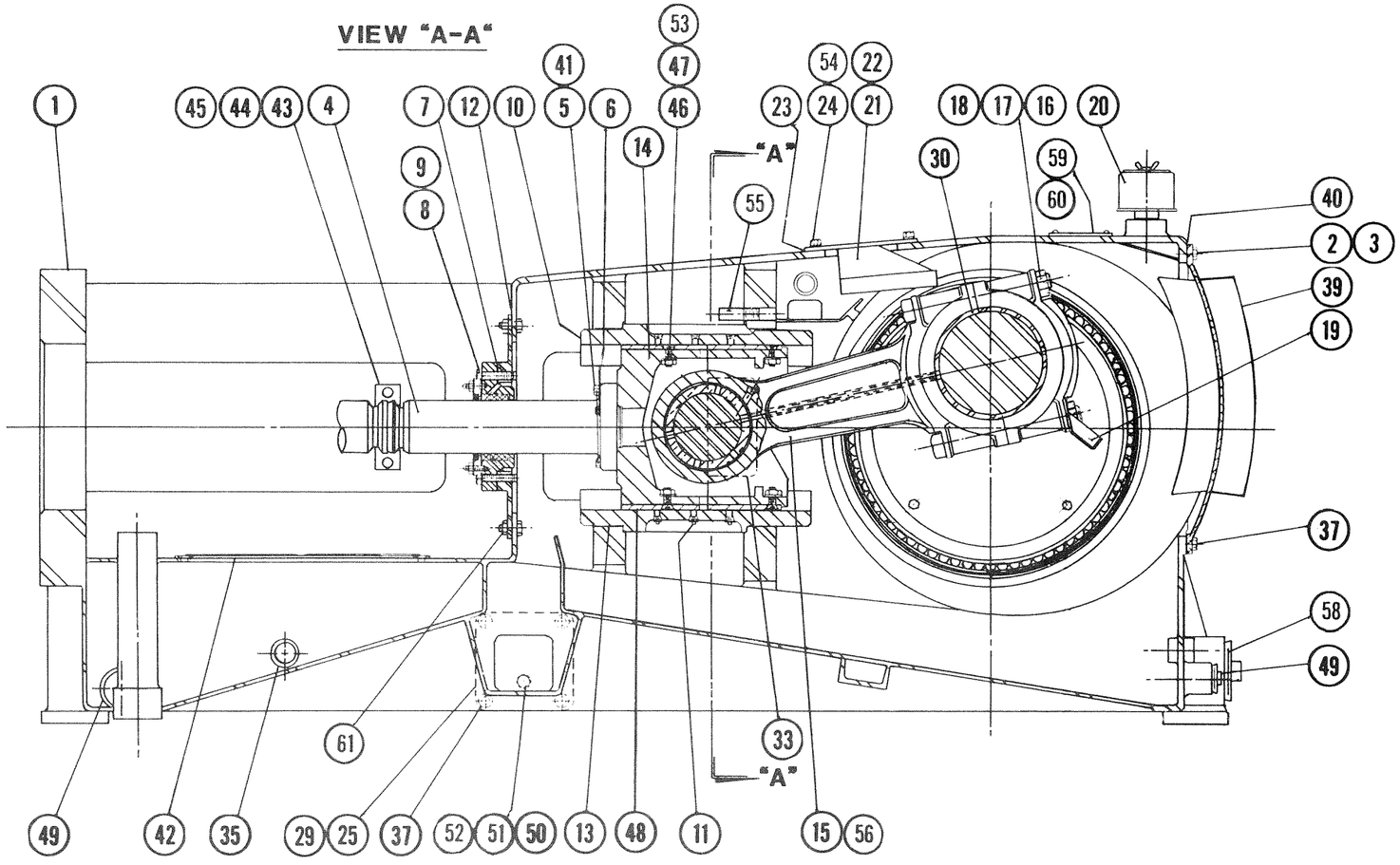
DRAWING NO. P210-AK1

SIZE D



ASSEMBLY OF CROSSHEAD AND CROSSHEAD PINS AS SHOWN FOR LEFT HAND DRIVE. FOR RIGHT HAND DRIVE ASSEMBLE OPPOSITE OF THAT SHOWN.

VIEW "A-A"



BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	10-305-001	POWER END– LESS CRADLE STUDS (INCLS. ITEMS 2 & 3)
2	2	29-000-281	1/2–13 X 1-1/2 STUD
3	2	75-510-308	1/2–13 HEAVY HEX NUT
4	3	16-484-101	ROD, CROSSHEAD EXTENSION
5	18	45-143-007	1/2–13 X 1-3/4 DRLD HEX HD HT CAPSCREW
6	3	16-341-002	BAFFLE, CROSSHEAD EXTENSION
7	3	16-486-660	GASKET, DIAPHRAGM
8	12	75-634-365	5/8–11 X 1-3/4 HEX HD HT CAPSCREW
9	12	75-770-475	5/8 EXT. SHAKEPROOF LOCKWASHER
10	6	10-305-034	GUIDE, CROSSHEAD
11	9	86-485-502	1/4 CI SOLID SQ HD PIPE PLUG
12	3	10-305-010	GASKET, DIAPHRAGM SUPPORT
13	12	10-305-071	SHIM SET (.030" THK EACH SET), CROSSHEAD GUIDE
14	3	16-335-004	CROSSHEAD
15	3	16-547-006	CONNECTING ROD W/CAP (INCLS. ITEMS 16, 17 & 56)
16	12	16-247-001	7/8–9 X 8-3/4 SQ HD MACHINE BOLT
17	12	75-513-112	7/8–9 SLOTTED HEAVY HEX NUT
18	12	75-103-008	5/32 X 2" COTTER PIN
19	3	10-305-015	SLINGER, OIL
20	1	64-229-100	BREATHER, 1-1/2 AIR
21*	1	10-305-196	OIL SCRAPER F/ L.H. DRIVE*
22	1	10-305-140	COVER, FRAME
23	2	10-305-058	GASKET , OIL SCRAPER
24	8	75-634-313	3/8–16 X 3/4 HEX HD HT CAPSCREW
25	2	10-305-011	COVER, SLUDGE TRAP
26	24	10-305-102	CLAMP, CROSSHEAD GUIDE
27	24	75-770-100	5/8 SPHERICAL WASHER
28	24	34-012-005	5/8–11 X 1-3/4 DRLD HEX HD HT CAPSCREW
29	2	10-305-054	GASKET, SLUDGE TRAP COVER
30	3	16-347-002	BEARING (TWO HALVES), CRANK PIN
31	3	16-139-000	PIN, CROSSHEAD
32	3	16-484-020	BUSHING, CROSSHEAD PIN
33	3	10-305-135	PLATE, CROSSHEAD PIN RETAINER
34	6	45-143-802	5/8–11 X 1-1/4 DRLD HEX HD HT CAPSCREW
35	1	86-485-508	1" CI SOLID SQ HD PIPE PLUG
36	2	45-803-856	GASKET, SIDE PLATE
37	24	75-634-417	1/2–13 X 7/8 HEX HD HT CAPSCREW
38	2	10-305-125	PLATE, SIDE
39	1	10-305-106	PLATE, FRAME END
40	1	45-803-857	GASKET, FRAME END PLATE
41		59-800-016	16 GA ANNEALED STL WIRE
42	3	10-305-028	COVER, FLUSHING SUMP STRAINER
43	3	20-150-132	EXTENSION ROD CLAMP (INCLS. ITEMS 44 & 45)
44	6	75-074-694	5/8–11 X 6" CAD PLTD HEX HD BOLT
45	12	75-510-438	5/8–11 S.S. HEX NUT
46	12	75-633-195	1/2–13 X 1-1/4 FLAT HD MACHINE SCREW
47	12	75-510-506	1/2–13 HEX JAM NUT
48	6	16-483-629	SHOE, CROSSHEAD
49	3	86-485-512	1-1/2 CI SOLID SQ HD PIPE PLUG
50	1	86-485-504	1/2 CI SOLID SQ HD PIPE PLUG
51	1	86-424-001	1/2 X CLOSE SCH 40 BW STL PIPE NIPPLE
52	1	78-101-132	1/2 BRASS STOP COCK
53	12	75-770-474	1/2 EXT SHAKEPROOF LOCKWASHER
54	8	75-770-203	3/8 PLATEWASHER
55	3	86-424-403	1/2 X 1-1/2 BW STL PIPE NIPPLE (THREADED ONE END)
56	6	75-555-770	1/2 X 2 DOWEL PIN
57	20	75-634-415	1/2–13 X 3/4 HEX HD HT CAPSCREW
58	2	78-558-124	3" F.S. SQ HD PIPE PLUG
59	1	10-305-193	PLATE, INSTRUCTION
60	4	75-632-012	No. 2 X 1/4 DRIVE SCREW
61	18	75-514-117	1/2–13 HEX STL LOCKNUT

*** FOR RIGHT HAND DRIVE USE OIL SCRAPER 10-305-195.**

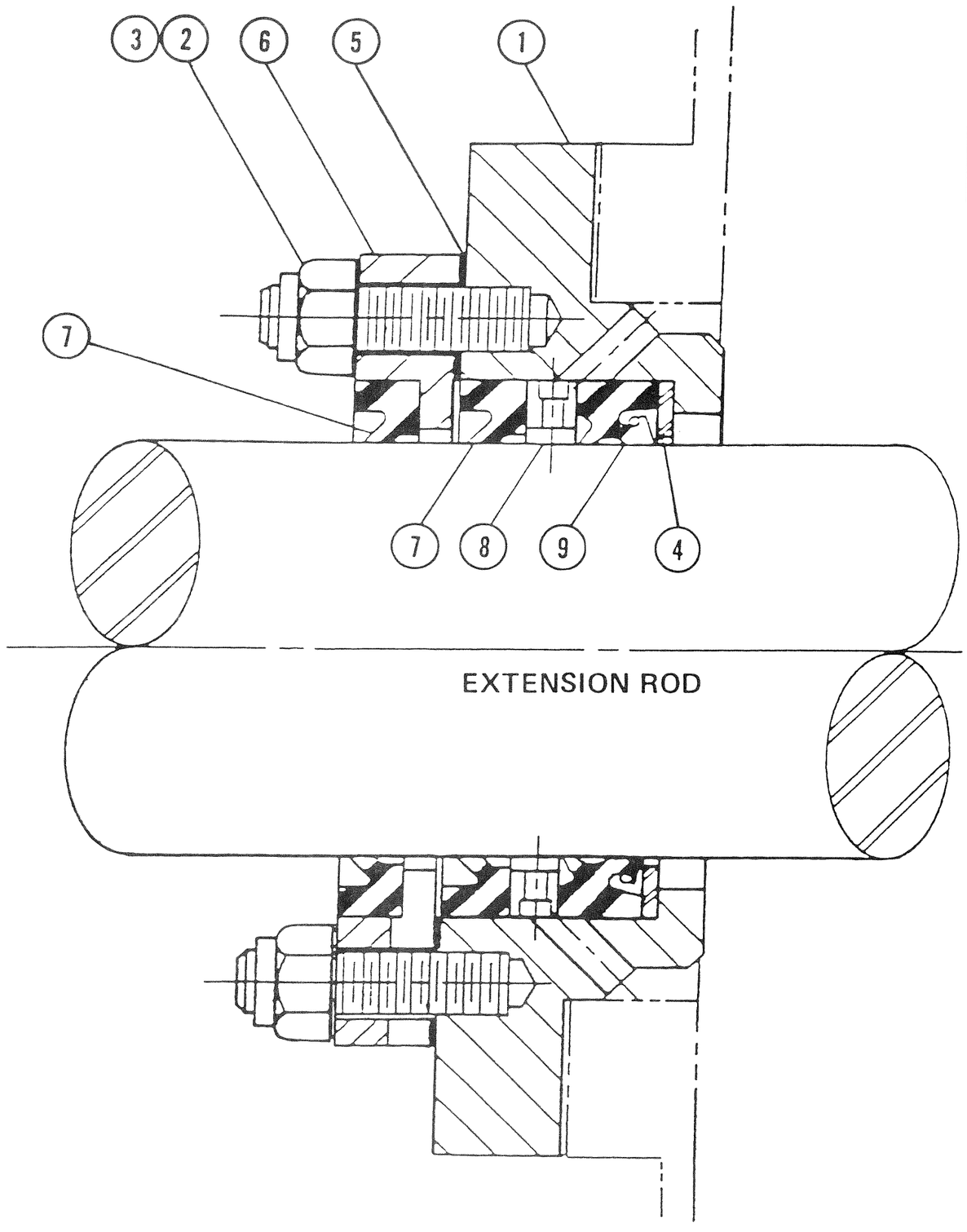
4

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NATIONAL - OILWELL

POWER END
A400-PT TRIPLEX PISTON PUMP

DRAWING NO. **P190-AW1** SIZE **D**



BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	3	16-566-005	HOUSING, DIAPHRAGM (INCLS. ITEMS 2&3)
2	12	49-002-925	STUD, 1/2–13 X 2
3	12	75-509-994	1/2–13 HEAVY HEX NUT
4	3	16-566-010	WASHER, DIAPHRAGM
5	3	16-566-008	SHIM SET
6	3	16-566-009	GLAND, DIAPHRAGM
7	6	16-566-002	RING, WIPER
8	3	16-566-012	RING, LANTERN
9	3	68-630-409	OIL SEAL

5

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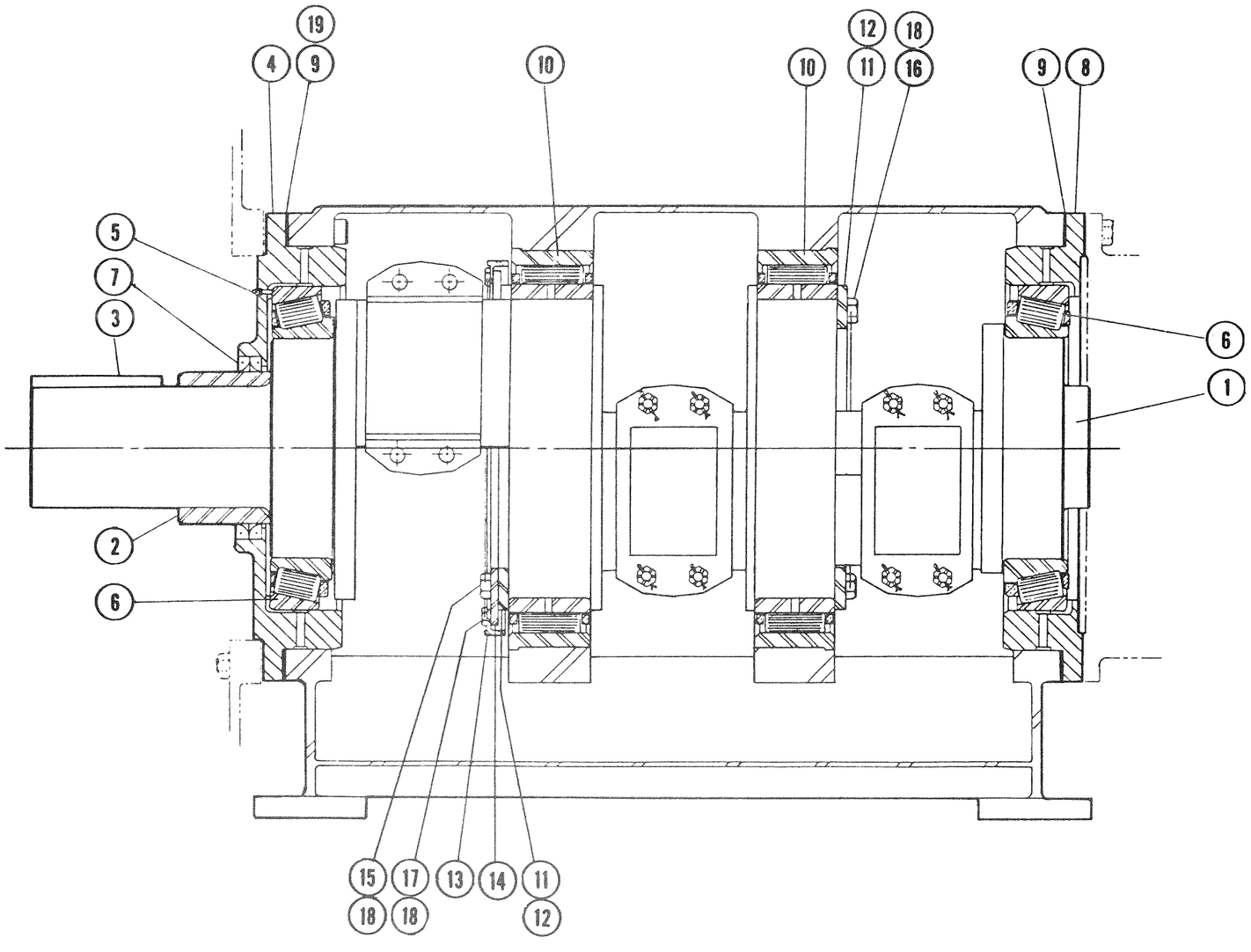
NATIONAL - OILWELL

DIAPHRAGM ASSEMBLY
A400-PT TRIPLEX PISTON PUMP

DRAWING NO. P124-AD1

SIZE B

BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	10-305-035	CRANKSHAFT
2	1	10-305-043	SPACER, CRANKSHAFT
3	1	34-134-052	KEY (1-1/2 X 1" X 6-13/16)
4	1	10-305-134	HOUSING (GEAR SIDE), MAIN BEARING
5	6	86-486-102	1/4 CI SOLID SQ HD PIPE PLUG
6	2	65-725-955	BEARING (OUTER), MAIN
7	2	68-630-925	OIL SEAL (GEAR SIDE)
8	1	10-305-052	HOUSING (OIL PUMP SIDE), MAIN BEARING
9		10-305-073	SHIM SET (2 REQ'D) CONSISTS OF THE FOLLOWING
	12	16-251-000	SHIM (.005" THK)
	10	16-251-001	SHIM (.007" THK)
	6	10-305-074	SHIM (.020" THK)
	2	10-305-075	SHIM (16 GAUGE)
10	2	65-101-980	BEARING, INTERMEDIATE
11	2	10-242-005	RETAINER, INTERMEDIATE BEARING
12	2	10-242-006	SHIM (.005" THK)
13	1	10-305-030	RING, LUBRICATION
14	1	10-305-095	RING, LUBRICATION RETAINER
15	5	45-142-703	3/4--10 X 1-3/4 DRLD HEX HD HT CAPSCREW
16	5	21-032-041	3/4--10 X 1-1/4 DRLD HEX HD HT CAPSCREW
17	8	45-143-100	3/8--16 X 1/2 DRLD HEX HD HT CAPSCREW
18		59-800-016	16 GA ANNEALED STL WIRE
19	1	10-305-136	GASKET, MAIN BEARING



6

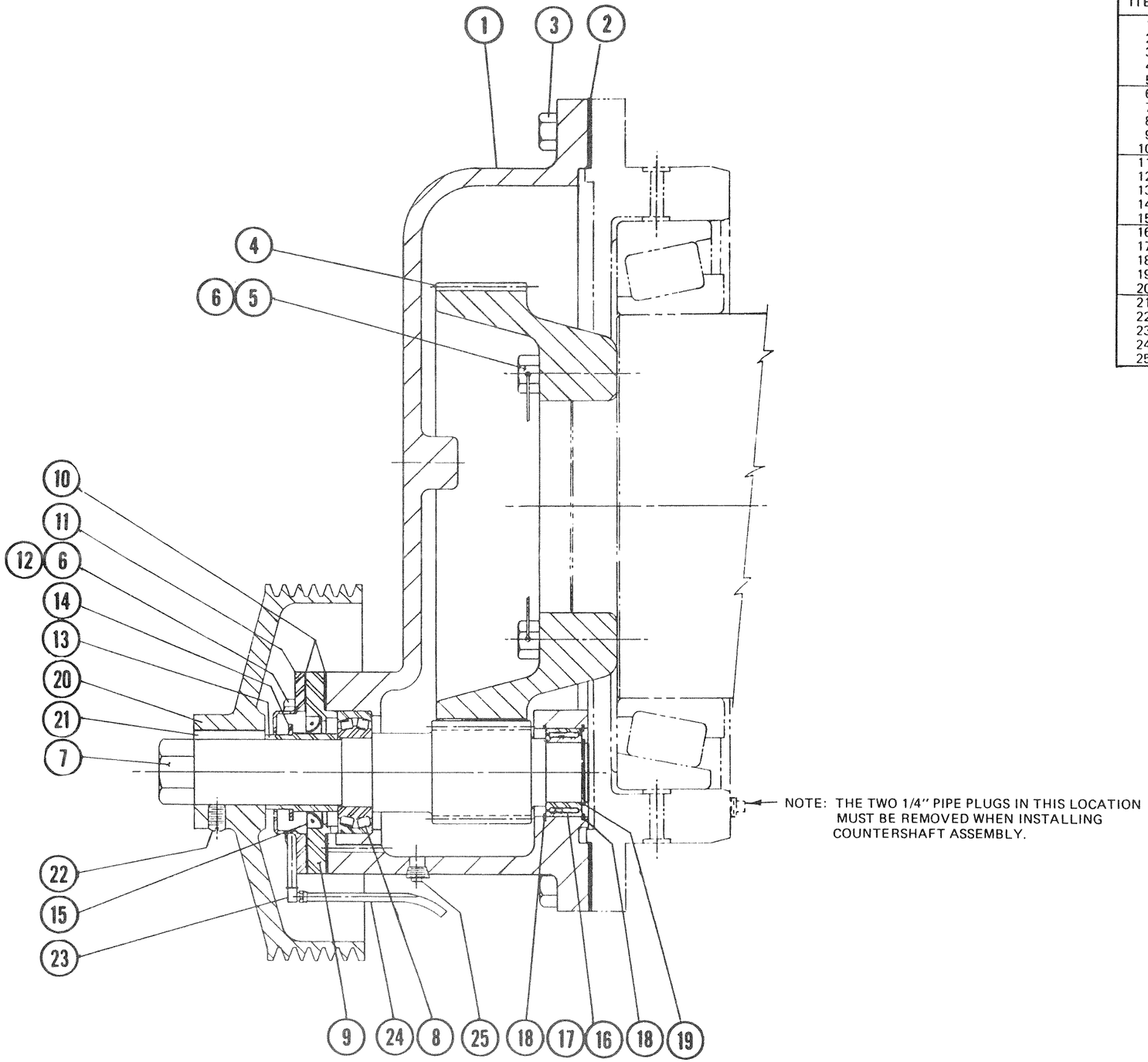
ISSUE DATE: 3-1-88

NATIONAL - OILWELL

CRANKSHAFT ASSEMBLY
A400-PT TRIPLEX PISTON PUMP

DRAWING NO. P190-AX1

SIZE C



NOTE: THE TWO 1/4" PIPE PLUGS IN THIS LOCATION MUST BE REMOVED WHEN INSTALLING COUNTERSHAFT ASSEMBLY.

BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	10-305-053	CASE, CRANKSHAFT DRIVE GEAR
2	1	45-803-854	GASKET, GEAR CASE
3	16	75-634-379	3/4–10 X 1-3/4 HEX HD HT CAPSCREW
4	1	10-305-060	SPUR GEAR (122 TEETH)
5	6	45-803-868	5/8–11 X 3" DRLD HEX HD HT CAPSCREW
6		59-800-016	16 GA ANNEALED STL WIRE
7	1	10-305-059	SHAFT, COUNTER
8	1	65-725-031	BEARING
9	1	10-300-032	RETAINER, BEARING
10	2	45-803-797	GASKET, BEARING RETAINER
11	1	10-300-098	CATCHER, OIL
12	4	45-143-003	1/2–13 X 1-1/4 DRLD HEX HD HT CAPSCREW
13	1	10-300-034	SPACER, JACKSHAFT BEARING
14	1	10-300-099	SLINGER, OIL
15	1	68-630-235	OIL SEAL
16	1	65-725-751	BEARING, OUTER
17	1	65-725-785	BEARING, INNER
18	2	75-660-038	RING, OUTER RETAINING
19	1	75-660-135	RING, INNER RETAINING
20	1	10-305-062	10.6 O.D. 3–V 6–GROOVE DRIVE SHEAVE
21	1	45-802-800	KEY (1/2 X 1/2 X 2)
22	1	75-634-105	1/2–13 X 3/4 SOCKET HEAD CUP POINT SETSCREW
23	1	64-227-072	1/4 T. X 1/8 P.T. FEMALE COMPRESSION ELBOW
24		64-699-084	1/4 OD COPPER TUBING (.030" THK WALL)
25	1	86-486-102	1/4 CI SOL ID SQ HD PIPE PLUG

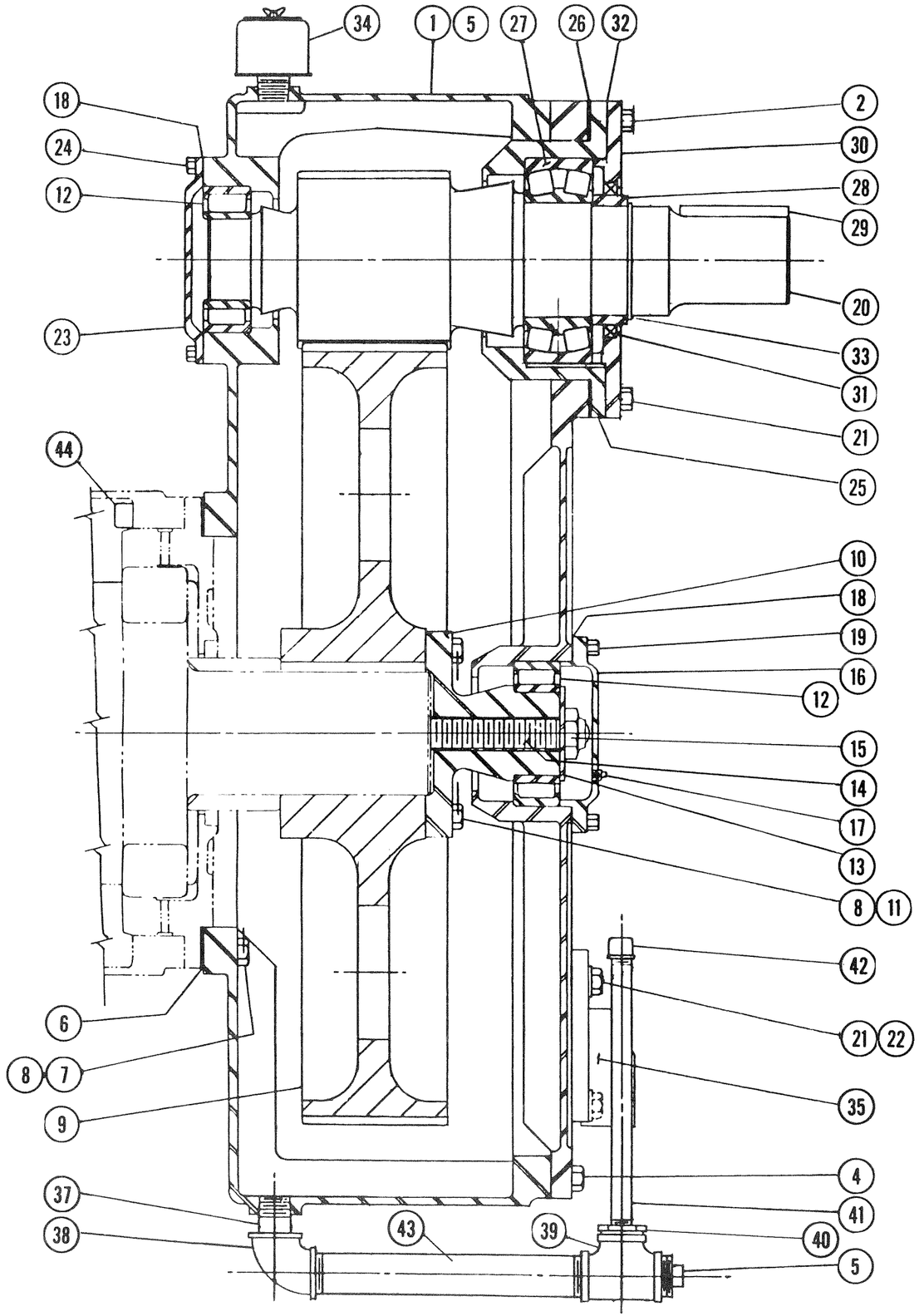
ISSUE DATE: 3–1–88

NATIONAL-OILWELL

COUNTERSHAFT ASSEMBLY
A400-PT TRIPLEX PISTON PUMP

DRAWING NO. P190-AD1

SIZE C



BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	10-305-005	GEAR CASE (INCL. ITEM 4 & SIX OF ITEM 5)
2	6	75-634-393	3/4–10 X 4-1/2 HEX HD HT CAPSCREW
3	–	–	–
4	14	75-634-379	3/4–10 X 1-3/4 HEX HD HT CAPSCREW
5	7	86-486-412	1-1/2 CI GALV CORED SQ HD PIPE PLUG
6		45-804-670	SHIM SET (1 REQ'D) CONSISTS OF THE FOLLOWING
	6	45-804-671	SHIM (.005" THK)
	5	45-804-672	SHIM (.007" THK)
	3	45-804-673	SHIM (.020" THK)
	2	45-804-674	SHIM (16 GAUGE)
7	16	21-032-031	3/4–10 X 2-1/2 DRLD HEX HD HT CAPSCREW
8		59-800-016	16 GA ANNEALED STL WIRE
9	1	10-305-118	CRANKSHAFT GEAR (221 TEETH)
10	1	10-305-025	EXTENSION, CRANKSHAFT
11	8	21-032-042	3/4–10 X 2" DRLD HEX HD HT CAPSCREW
12	2	65-725-730	BEARING, INNER
13	1	10-305-009	RETAINER, BEARING
14	1	45-810-044	1-1/2 – 6 X 9 STUD
15	1	75-514-026	1-1/2 –6 SELF–LOCKING NUT
16	1	10-305-019	RETAINER, BEARING
17	1	86-486-402	1/4 CI GALV SOLID SQ HD PIPE PLUG
18	2	45-803-853	GASKET, BEARING COVER
19	6	75-634-351	1/2–13 X 1-1/4 HEX HD HT CAPSCREW
20	1	10-305-117	PINION SHAFT W/INTERGAL PINION (48 TEETH)
21	6	75-634-384	3/4–10 X 2-1/2 HEX HD HT CAPSCREW
22	2	75-770-206	3/4 PLATE WASHER
23	1	10-305-008	COVER, BEARING
24	6	75-634-349	1/2–13 X 1" HEX HD HT CAPSCREW
25	1	10-305-120	HOUSING, BEARING
26		45-803-991	SHIM SET (1 REQ'D) CONSISTS OF THE FOLLOWING
	6	45-803-992	SHIM (.005" THK)
	5	45-803-993	SHIM (.007" THK)
	3	45-803-994	SHIM (.020" THK)
	1	45-803-995	SHIM (16 GAUGE)
27	1	65-724-102	PINION SHAFT BEARING (OUTER)
28	1	10-305-121	SPACER, PINION SHAFT
29	1	45-803-867	KEY (1" X 1" X 5-1/4)
30	1	10-305-119	RETAINER, BEARING
31	1	68-630-825	OIL SEAL
32	1	10-305-122	GASKET, BEARING RETAINER
33	1	75-660-208	SNAP RING
34	1	64-229-100	1-1/2 AIR BREATHER
35	1	10-304-067	SUPPORT, GEAR REDUCER
36	–	–	–
37	1	86-428-005	1-1/2 X 2 SCH 40 BW STL PIPE NIPPLE
38	1	86-336-112	1-1/2 STD B.M. PIPE ELBOW
39	1	86-543-112	1-1/2 STD B.M. PIPE TEE
40	1	86-061-025	1-1/2 X 1/2 CI BLK HEX PIPE BUSHING
41	1		1/2 X 14-3/8 SCH40 BW STL PIPE
42	1	06-009-375	GAUGE, OIL LEVEL
43	1		1-1/2 X 13-3/4 SCH 40 BW STL PIPE
44	8	75-634-394	3/4–10 X 4 HEX HD HT CAPSCREW
45	8	75-770-476	3/4 EXT SHAKEPROOF LOCKWASHER

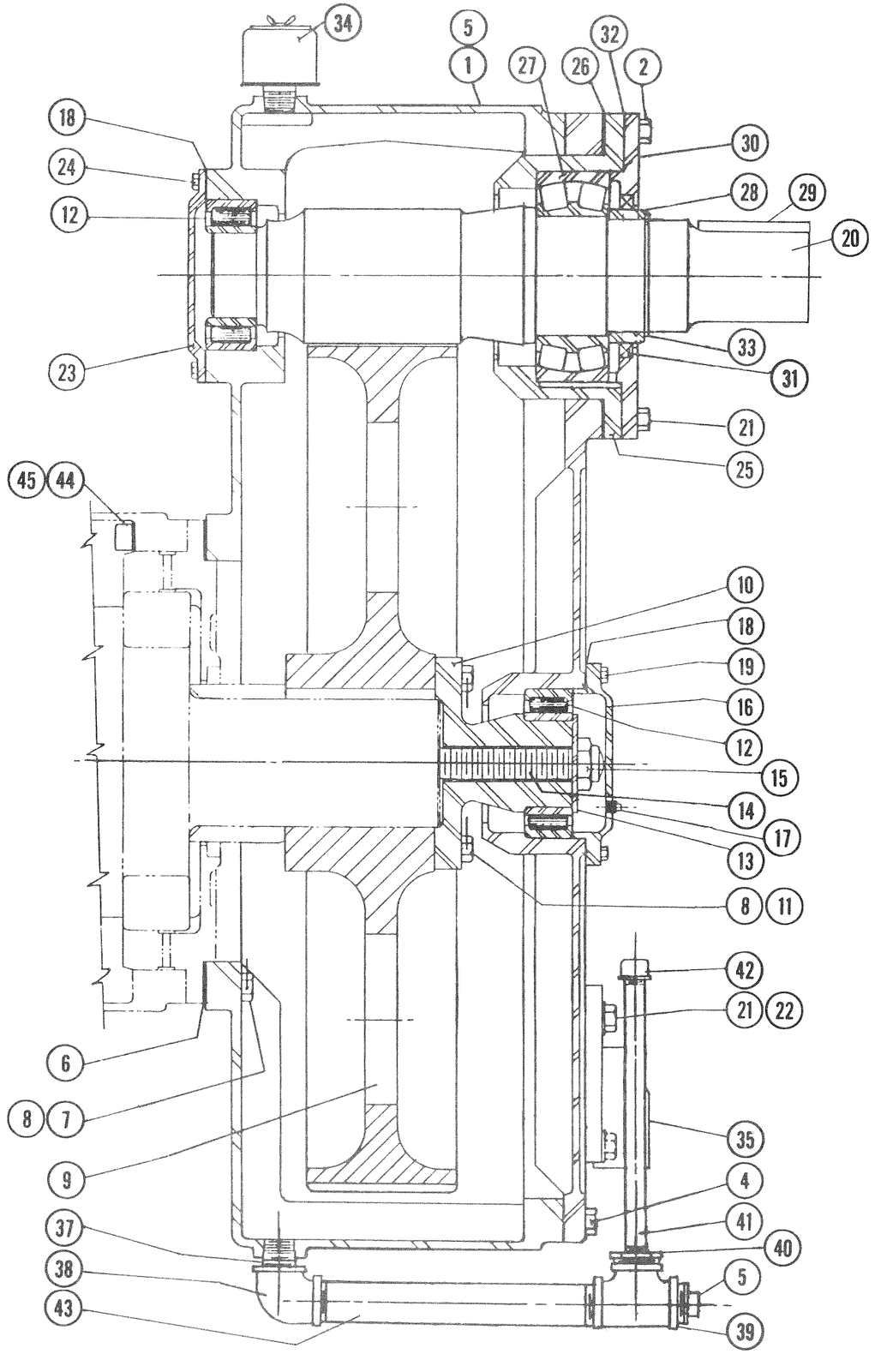
4.604:1 GEAR REDUCTION RATIO

ISSUE DATE: 3–1–88

NATIONAL - OILWELL

GEAR REDUCTION UNIT
A400-PT TRIPLEX PISTON PUMP

DRAWING NO. **P190-AT1** SIZE **C**



BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	10-305-005	GEAR CASE (INCL. ITEM 4 & SIX OF ITEM 5)
2	6	75-634-393	3/4–10 X 4-1/2 HEX HD HT CAPSCREW
3	–	–	–
4	14	75-634-379	3/4–10 X 1-3/4 HEX HD HT CAPSCREW
5	7	86-486-412	1-1/2 CI GALV CORED SQ HD PIPE PLUG
6		45-804-670	SHIM SET (1 REQ'D) CONSISTS OF THE FOLLOWING
	6	45-804-671	SHIM (.005" THK)
	5	45-804-672	SHIM (.007" THK)
	3	45-804-673	SHIM (.020" THK)
	2	45-804-674	SHIM (16 GAUGE)
7	16	21-032-031	3/4–10 X 2-1/2 DRLD HEX HD HT CAPSCREW
8		59-800-016	16 GA ANNEALED STL WIRE
9	1	10-305-032	CRANKSHAFT GEAR (240 TEETH)
10	1	10-305-025	EXTENSION, CRANKSHAFT
11	8	21-032-042	3/4–10 X 2" DRLD HEX HD HT CAPSCREW
12	2	65-725-730	BEARING, INNER
13	1	10-305-009	RETAINER, BEARING
14	1	45-810-044	1-1/2 – 6 X 9 STUD
15	1	75-514-026	1-1/2 –6 SELF–LOCKING NUT
16	1	10-305-019	RETAINER, BEARING
17	1	86-486-402	1/4 CI GALV SOLID SQ HD PIPE PLUG
18	2	45-803-853	GASKET, BEARING COVER
19	6	75-634-351	1/2–13 X 1-1/4 HEX HD HT CAPSCREW
20	1	10-305-116	PINION SHAFT W/INTERGAL PINION (35 TEETH)
21	6	75-634-384	3/4–10 X 2-1/2 HEX HD HT CAPSCREW
22	2	75-770-206	3/4 PLATE WASHER
23	1	10-305-008	COVER, BEARING
24	6	75-634-349	1/2–13 X 1" HEX HD HT CAPSCREW
25	1	10-305-120	HOUSING, BEARING
26		45-803-991	SHIM SET (1 REQ'D) CONSISTS OF THE FOLLOWING
	6	45-803-992	SHIM (.005" THK)
	5	45-803-993	SHIM (.007" THK)
	3	45-803-994	SHIM (.020" THK)
	1	45-803-995	SHIM (16 GAUGE)
27	1	65-724-102	PINION SHAFT BEARING (OUTER)
28	1	10-305-121	SPACER, PINION SHAFT
29	1	45-803-867	KEY (1" X 1" X 5-1/4)
30	1	10-305-119	RETAINER, BEARING
31	1	68-630-825	OIL SEAL
32	1	10-305-122	GASKET, BEARING RETAINER
33	1	75-660-208	SNAP RING
34	1	64-229-100	1-1/2 AIR BREATHER
35	1	10-304-067	SUPPORT, GEAR REDUCER
36	–	–	–
37	1	86-428-005	1-1/2 X 2 SCH 40 BW STL PIPE NIPPLE
38	1	86-336-112	1-1/2 STD B.M. PIPE ELBOW
39	1	86-543-112	1-1/2 STD B.M. PIPE TEE
40	1	86-061-025	1-1/2 X 1/2 CI BLK HEX PIPE BUSHING
41	1		1/2 X 14-3/8 SCH40 BW STL PIPE
42	1	06-009-375	GAUGE, OIL LEVEL
43	1		1-1/2 X 13-3/4 SCH 40 BW STL PIPE
44	8	75-634-394	3/4–10 X 4 HEX HD HT CAPSCREW
45	8	75-770-476	3/4 EXT SHAKEPROOF LOCKWASHER

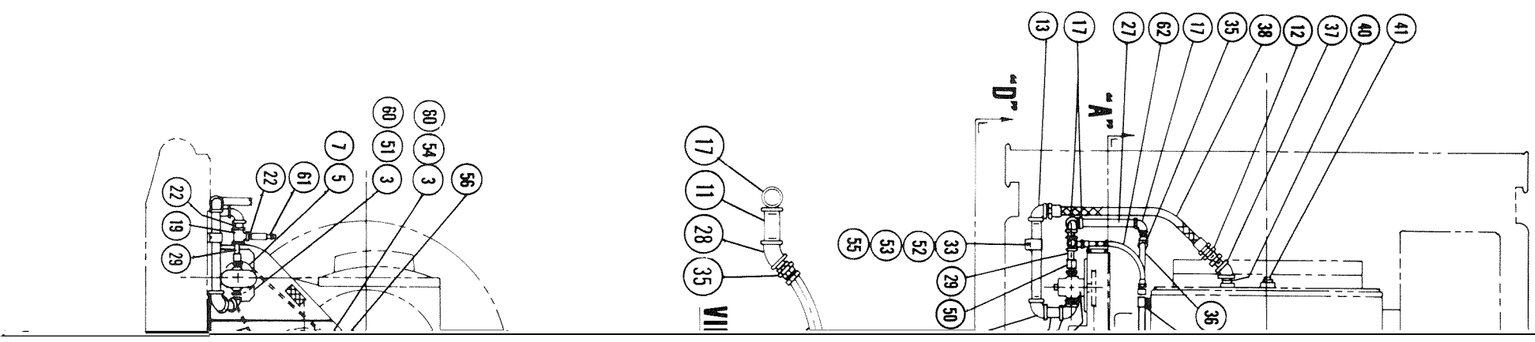
6.857:1 GEAR REDUCTION RATIO

ISSUE DATE: 3–1–88

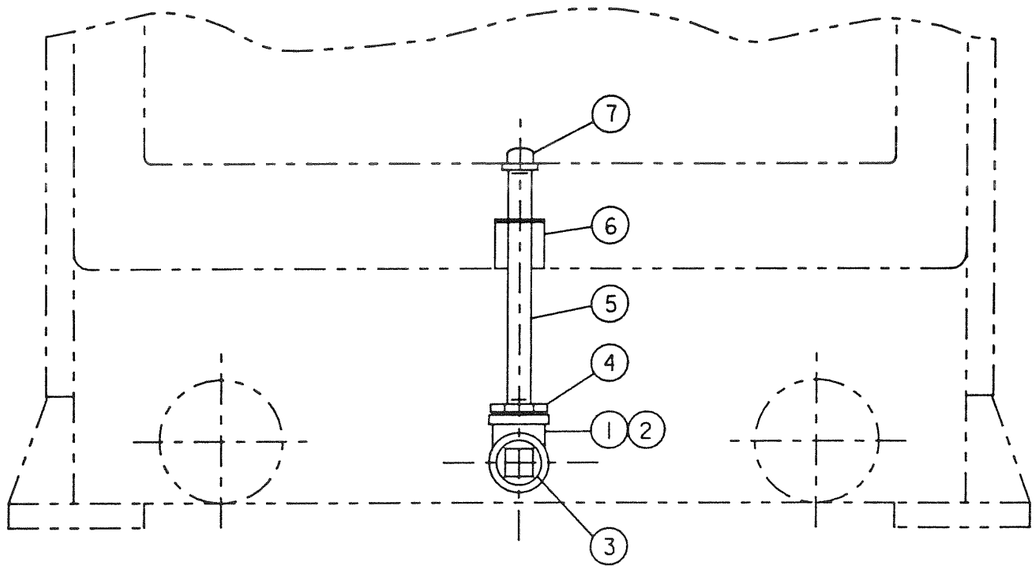
NATIONAL - OILWELL

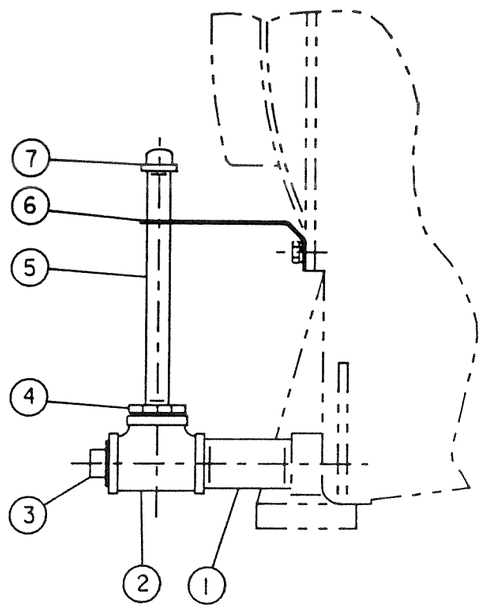
GEAR REDUCTION UNIT
A400-PT TRIPLEX PISTON PUMP

DRAWING NO. P190-AV1 | SIZE C


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BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	86-428-017	1-1/2 X 5" SCH 40 BW STL PIPE NIPPLE
2	1	86-543-112	1-1/2 150# BLK MI PIPE TEE
3	1	86-485-412	1-1/2 CI CORED SQ HD PIPE PLUG
4	1	86-061-025	1-1/2 X 1/2 CI STD BLK HEX PIPE BUSHING
5	1		1/2 X 10-1/2 SCH 40 BW STL PIPE NIPPLE
6	1	06-514-555	BRACKET, OIL LEVEL GAUGE
7	1	06-009-375	GAUGE, OIL LEVEL





11

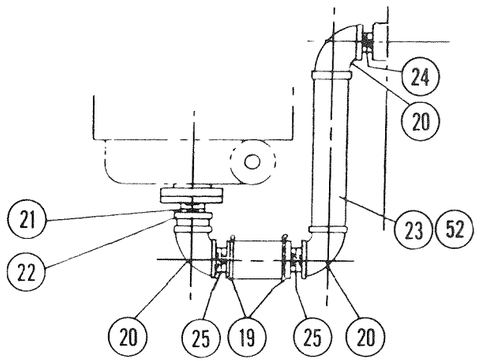
NOTE: OIL LEVEL GAUGE ASSEMBLY IS USED ONLY IF THE PUMP HAS NO GEAR REDUCER.

ISSUE DATE: 3–1–88

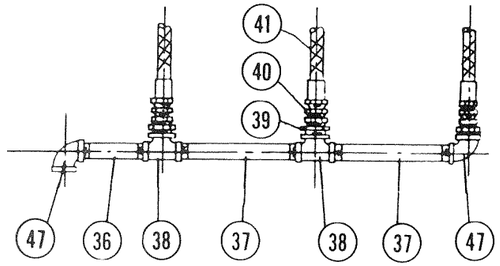
NATIONAL - OILWELL

OIL LEVEL GAUGE ASSEMBLY
A400-PT TRIPLEX PISTON PUMP

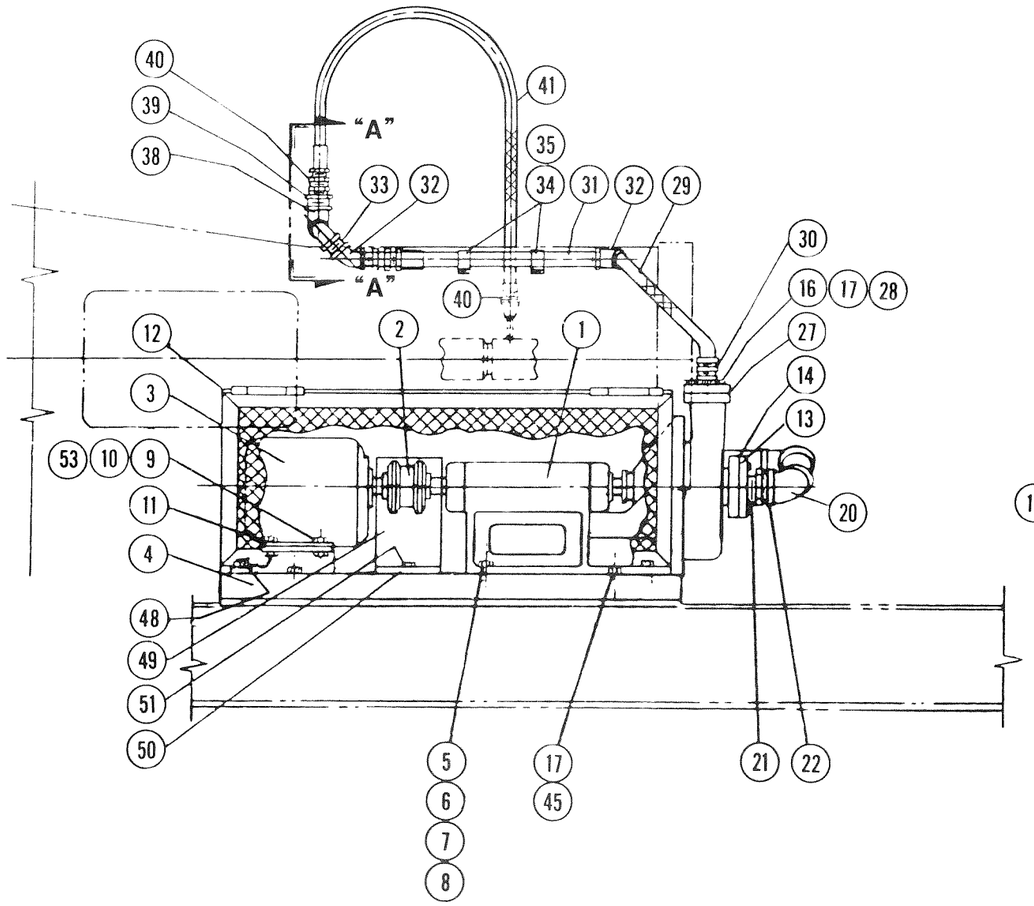
		DRAWING NO.	SIZE
		P190-BN1	B

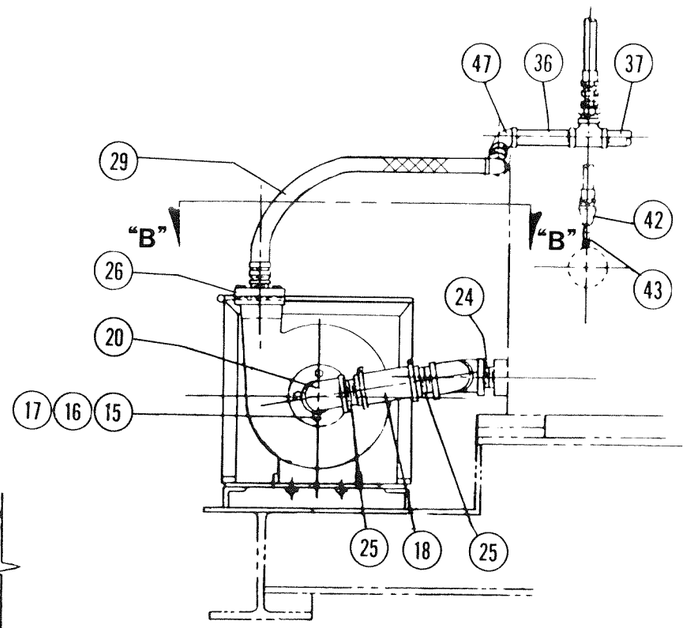


VIEW "B-B"



VIEW "A-A"





BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	95 999 050	CENTRIFUGAL PUMP
2	1	68 103 964	FLEX COUPLING
3*	1	74 450 826	ELECTRIC MOTOR*
4	1	10 300 305	BASE, FLUSHING PUMP
5	4	75 634 365	5/8–11 X 1 3/4 HEX HD HT CAPSCREW
6	4	75 510 408	5/8–11 STL HEX NUT
7	4	75 770 475	5/8 EXT SHAKEPROOF LOCKWASHER
8	4	75 770 205	5/8 HEAVY PLATE WASHER
9	4	75 634 344	3/8–16 X 2 HEX HD HT CAPSCREW
10	4	75 770 472	3/8 EXT SHAKEPROOF LOCKWASHER
11	4	29 001 153	SHIM SET
12	1	10 304 044	GUARD, FLUSHING PUMP
13	1	98 029 012	1 1/2 150# F.S. RAISED FACE THREADED FLANGE
14	1	78 208 036	GASKET, FLANGE
15	4	75 634 353	1/2–13 X 2 HEX HD HT CAPSCREW
16	8	75 510 406	1/2–13 STL HEX NUT
17	12	75 770 474	1/2 EXT. SHAKEPROOF LOCKWASHER
18	1	99 287 819	2 3/8 X 6 3/4 HOSE
19	2	99 094 044	HOSE CLAMP
20	3	86 336 116	2 X 90° 150# BLK MI PIPE ELBOW
21	1	86 428 001	1 1/2 X CLOSE SCH 40 BW STL PIPE NIPPLE
22	1	86 061 036	2 X 1 1/2 CI STD BLK HEX PIPE BUSHING
23**	1		2 X 13 1/4 SCH 40 BW STL PIPE**
24	1	86 429 001	2 X CLOSE SCH 40 BW STL PIPE NIPPLE
25	2	45 002 642	2 X 2 1/2 SCH 40 BW STL PIPE NIPPLE (THREADED ONE END)
26	1	98 029 006	1" 150# F.S. RAISED FACE THREADED FLANGE
27	1	78 208 012	GASKET, FLANGE
28	4	75 634 354	1/2–13 X 1 3/4 HEX HD HT CAPSCREW
29	1	45 805 141	1" X 42 1/4 HOSE ASSEMBLY
30	1	64 289 326	1" MALE ADAPTER UNION
31	1		1" X 19 1/2 SCH 40 BW STL PIPE
32	2	86 341 006	1" X 45° 150# BLK MI PIPE ELBOW
33	1	86 426 001	1" X CLOSE SCH 40 BW STL PIPE NIPPLE
34	2	64 228 165	PIPE CLAMP
35	2	75 632 956	1/4 –20 X 1/2 TYPE "F" RD HD SELF–TAPPING SCREW
36	1	86 426 017	1" X 5 SCH 40 BW STL PIPE NIPPLE
37	2	86 426 029	1" X 10 SCH 40 BW STL PIPE NIPPLE
38	2	86 543 108	1" 150# MI PIPE TEE
39	3	86 061 014	1" X 1/2 CI STD BLK HEX PIPE BUSHING
40	6	64 289 320	1/2 MALE ADAPTER UNION
41	3	06 510 985	1/2 X 42 HOSE ASSEMBLY
42	3	86 600 005	1/2 X 1/4 150# MI REDUCING PIPE COUPLING
43	3	86 422 007	1/4 X 2 1/2 SCH 40 BW STL PIPE NIPPLE
44	–	–	–
45	4	75 634 350	1/2–13 X 3 HEX HD HT CAPSCREW
46	–	–	–
47	3	86 336 108	1" X 90° 150# BLK MI PIPE ELBOW
48	6	75 634 335	3/8–16 X 5/8 HEX HD HT CAPSCREW
49	1	10 300 299	GUARD, COUPLING
50	2	10 300 300	BAR, TAPPED
51	2	75 634 415	1/2–13 X 3/4 HEX HD HT CAPSCREW
52†	1		2 X 9 3/4 SCH 40 BW STL PIPE NIPPLE†
53	4	75 510 404	3/8–16 STL HEX NUT

12

* ELECTRIC MOTOR IS: 3 HP, 1750 RPM, 230/460V, 3 PHASE, 60 CYC, EXPLOSION PROOF ELECTRIC MOTOR WITH 184 T FRAME.
** FOR USE ON A600–PT PUMP FLUSHING PIPING.
† FOR USE ON A400–PT PUMP FLUSHING PIPING.

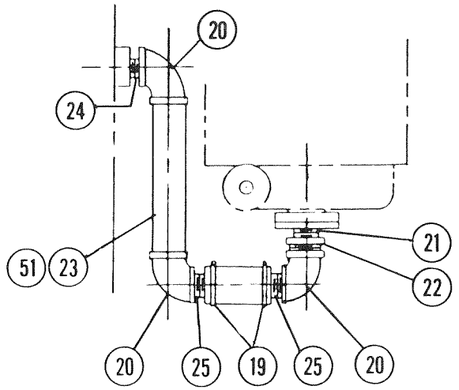
ISSUE DATE: 3–1–88

NATIONAL - OILWELL

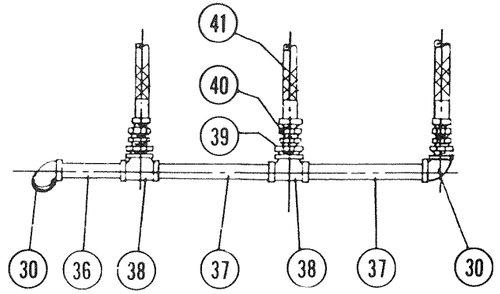
LINER FLUSHING PIPING (L.H.) A400-PT TRIPLEX PISTON PUMP

DRAWING NO. P210-AH1

SIZE C



VIEW "B-B"

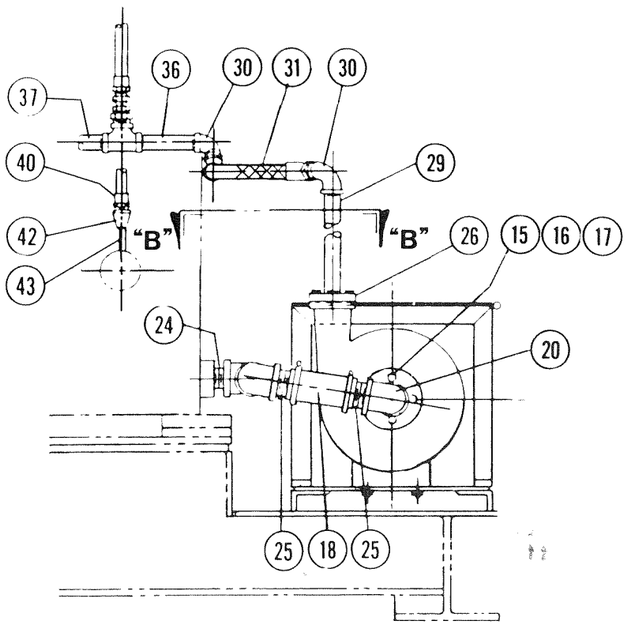


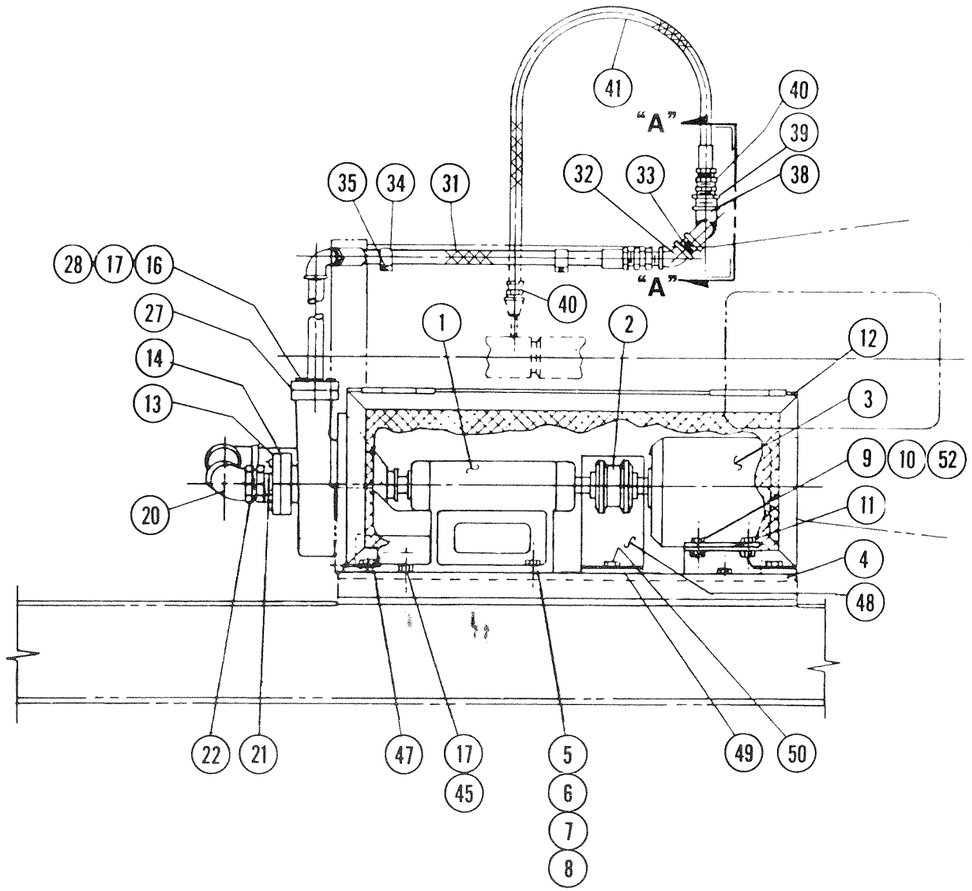
VIEW "A-A"

BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	95-999-050	CENTRIFUGAL PUMP
2	1	68-103-964	FLEX COUPLING
3*	1	74-450-826	ELECTRIC MOTOR*
4	1	10-300-305	BASE, FLUSHING PUMP
5	4	75-634-365	5/8–11 X 1-3/4 HEX HD HT CAPSCREW
6	4	75-510-408	5/8–11 STL HEX NUT
7	4	75-770-475	5/8 EXT SHAKEPROOF LOCKWASHER
8	4	75-770-205	5/8 HEAVY PLATE WASHER
9	4	75-634-344	3/8–16 X 2 HEX HD HT CAPSCREW
10	4	75-770-472	3/8 EXT SHAKEPROOF LOCKWASHER
11	4	29-001-153	SHIM SET
12	1	10-304-044	GUARD, FLUSHING PUMP
13	1	98-029-012	1-1/2 150# F.S. RAISED FACE THREADED FLANGE
14	1	78-208-036	GASKET, FLANGE
15	4	75-634-353	1/2–13 X 2 HEX HD HT CAPSCREW
16	8	75-510-406	1/2–13 STL HEX NUT
17	12	75-770-474	1/2 EXT. SHAKEPROOF LOCKWASHER
18	1	99-287-819	2-3/8 X 6-3/4 HOSE
19	2	99-094-044	HOSE CLAMP
20	3	86-336-116	2 X 90° 150# BLK MI PIPE ELBOW
21	1	86-428-001	1-1/2 X CLOSE SCH 40 BW STL PIPE NIPPLE
22	1	86-061-036	2 X 1-1/2 CI STD BLK HEX PIPE BUSHING
23**	1		2 X 13-1/4 SCH 40 BW STL PIPE**
24	1	86-429-001	2 X CLOSE SCH 40 BW STL PIPE NIPPLE
25	2	45-002-642	2 X 2 1/2 SCH 40 BW STL PIPE NIPPLE (THREADED ONE END)
26	1	98-029-006	1" 150# F.S. RAISED FACE THREADED FLANGE
27	1	78-208-012	GASKET, FLANGE
28	4	75-634-354	1/2–13 X 1-3/4 HEX HD HT CAPSCREW
29	1		1" X 9-1/2 SCH 40 BW STL PIPE NIPPLE
30	3	86-342-108	1" X 90° 150# BLK MI PIPE NIPPLE
31	1	45-805-141	1" X 42-1/4 HOSE ASSEMBLY
32	2	86-341-006	1" X 45° 150# BLK MI PIPE ELBOW
33	1	86-426-001	1" X CLOSE SCH 40 BW STL PIPE NIPPLE
34	2	64-228-165	PIPE CLAMP
35	2	75-632-956	1/4–20 X 1/2 TYPE "F" RD HD SELF TAPPING SCREW
36	1	86-426-017	1" X 5 SCH 40 BW STL PIPE NIPPLE
37	2	86-426-029	1" X 10 SCH 40 BW STL PIPE NIPPLE
38	2	86-543-108	1" 150# MI PIPE TEE
39	3	86-061-014	1" X 1/2 CI STD BLK HEX PIPE BUSHING
40	6	64-289-320	1/2 MALE ADAPTER UNION
41	3	06-510-985	1/2 X 42 HOSE ASSEMBLY
42	3	86-600-005	1/2 X 1/4 150# MI REDUCING COUPLING
43	3	86-422-007	1/4 X 2 1/2 SCH 40 BW STL PIPE NIPPLE
44	–	–	–
45	4	75-634-350	1/2–13 X 3" HEX HD HT CAPSCREW
46	–	–	–
47	6	75-634-335	3/8–16 X 5/8 HEX HD HT CAPSCREW
48	1	10-300-299	GUARD, COUPLING
49	2	10-300-300	BARR, TAPPED
50	2	75-634-415	1/2–13 X 3/4 HEX HD HT CAPSCREW
51†	1		2 X 9-3/4 SCH 40 BW STL PIPE NIPPLE
52	4	75-510-404	3/8–16 STL HEX NUT

13

* ELECTRIC MOTOR IS: 3 HP, 1750 RPM, 230/460 V, 3 PHASE, 60 CYC., EXPLOSION PROOF ELECTRIC MOTOR WITH 184–T FRAME.
** FOR USE ON A600–PT PUMP FLUSHING PIPING.
† FOR USE ON A400–PT PUMP FLUSHING PIPING.



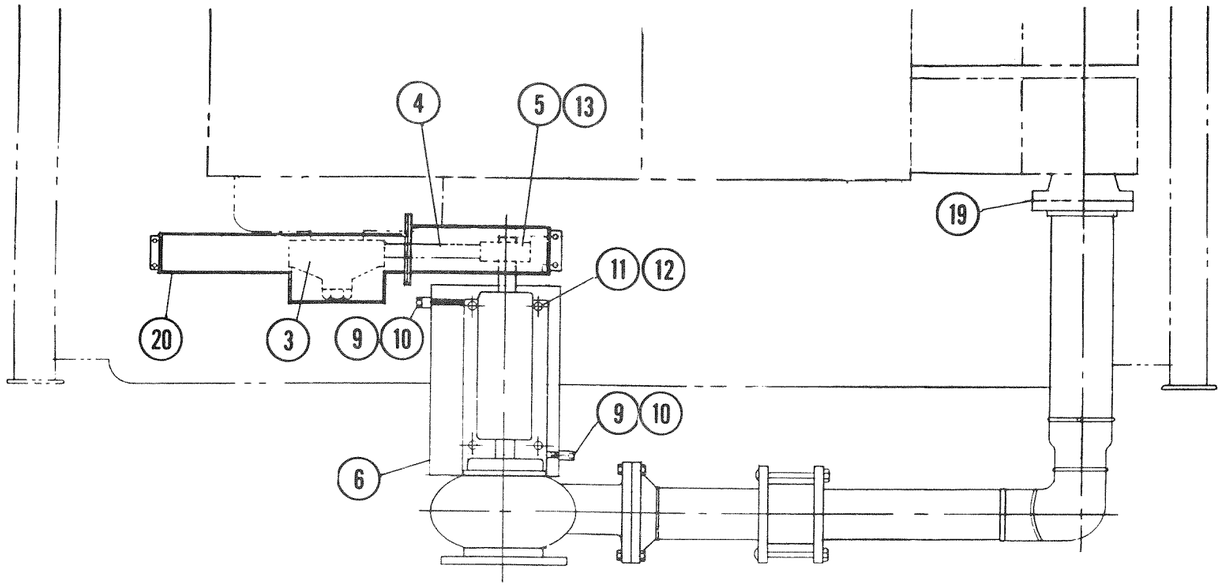


ISSUE DATE: 3–1–88

NATIONAL - OILWELL

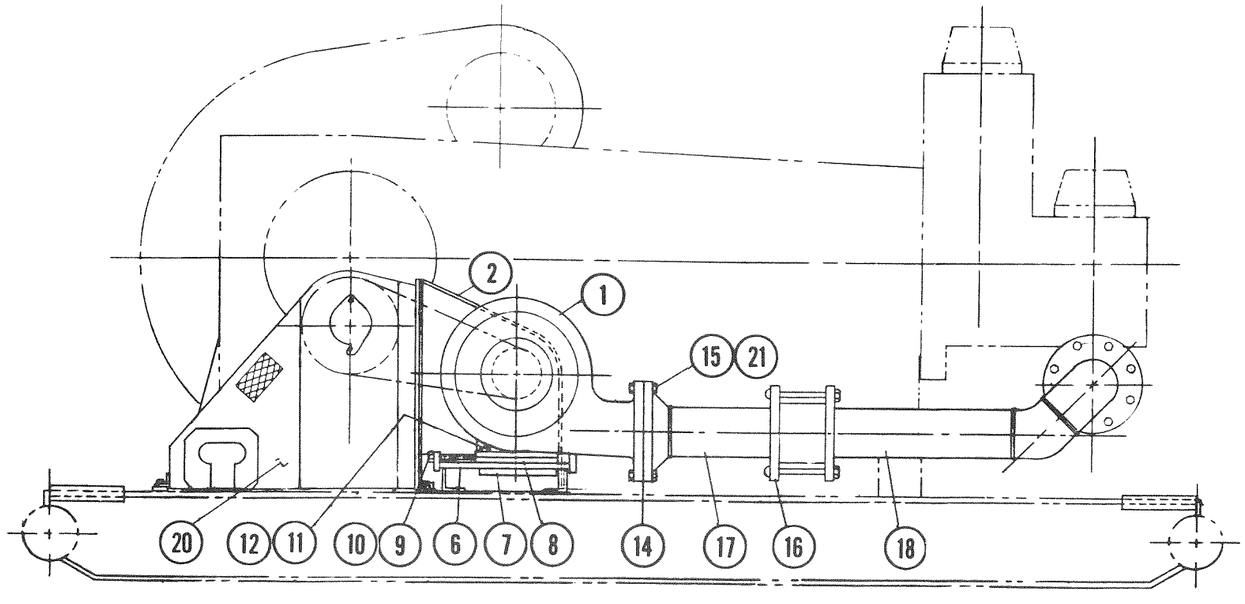
LINER FLUSHING PIPING (R.H.)
A400-PT TRIPLEX PISTON PUMP

		DRAWING NO.	SIZE
		P210-AD1	C



BILL OF MATERIAL			
ITEM	REQ'D	COMM NO	DESCRIPTION
1	1	95-999-057	CHARGING PUMP (5 X 6R) F/ L.H. DRIVE
	1	95-999-058	CHARGING PUMP (5 X 6C) F/ R.H. DRIVE
2	1	10-304-074	GUARD F/L.H. DRIVE, CHARGING PUMP
	1	10-304-075	GUARD F/R.H. DRIVE, CHARGING PUMP
3	1	10-305-062	10.6 O.D. 3-V 6-GROOVE DRIVE SHEAVE
4	4	68-028-600	3V-600 V-BELT
5	1	68-097-463	5 O.D. 3-V 4-GROOVE DRIVEN SHEAVE
6	1	10-304-076	BASE F/L.H. DRIVE, CHARGING PUMP
	1	10-304-086	BASE F/R.H. DRIVE, CHARGING PUMP
7	1	10-300-093	RETAINER, CHARGING PUMP BASE
8	1	10-300-094	BLOCK, SHIM
9	2	75-634-536	1/2-13 X 4" SQ HD CUP POINT SET SCREW
10	2	75-510-506	1/2-13 JAM NUT
11	4	75-634-366	5/8-11 X 2-1/2 HEX HD HT CAPSCREW
12	4	75-770-475	5/8 EXT. SHAKEPROOF LOCKWASHER
13	1	45-803-362	KEY (1/2 X 1/2 X 1 3/4)
14	1	45-148-404	GASKET
15	16	45-810-010	3/4-10 X 3 3/4 STUD
16	1	78-106-062	5" STYLE 38 DRESSER SLEEVE (OR EQUAL)
17	1	10-304-077	PIPING, SUCTION
18	1	10-304-088	PIPING, SUCTION
19	1	45-802-038	GASKET
20	1	10-304-071	GUARD F/L.H. DRIVE, OIL PUMP
	1	10-304-072	GUARD F/R.H. DRIVE, OIL PUMP
21	16	75-510-312	3/4-10 HEAVY HEX NUT

NOTE: THE CHARGING PUMP ASSEMBLY IS OPTIONAL.



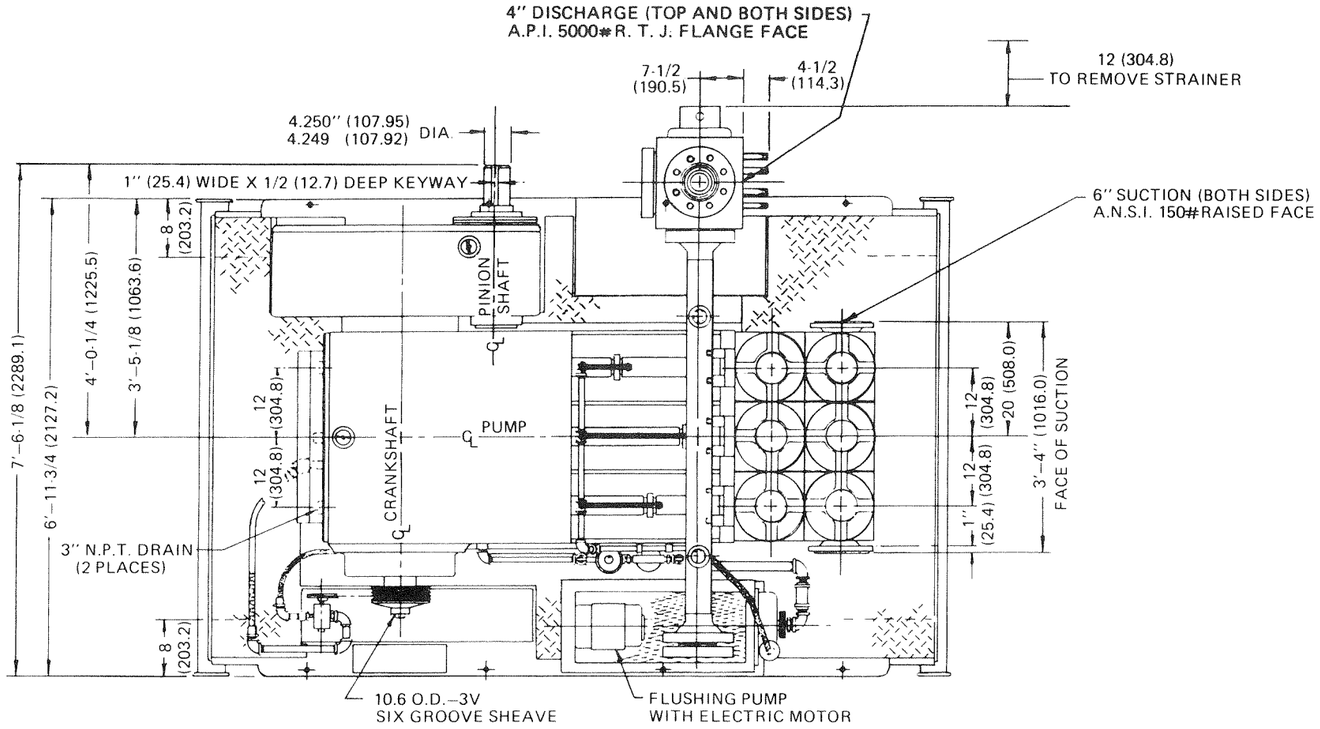
ISSUE DATE: 3-1-88

NATIONAL - OILWELL

CHARGING PUMP ASSEMBLY
A400-PT TRIPLEX PISTON PUMP

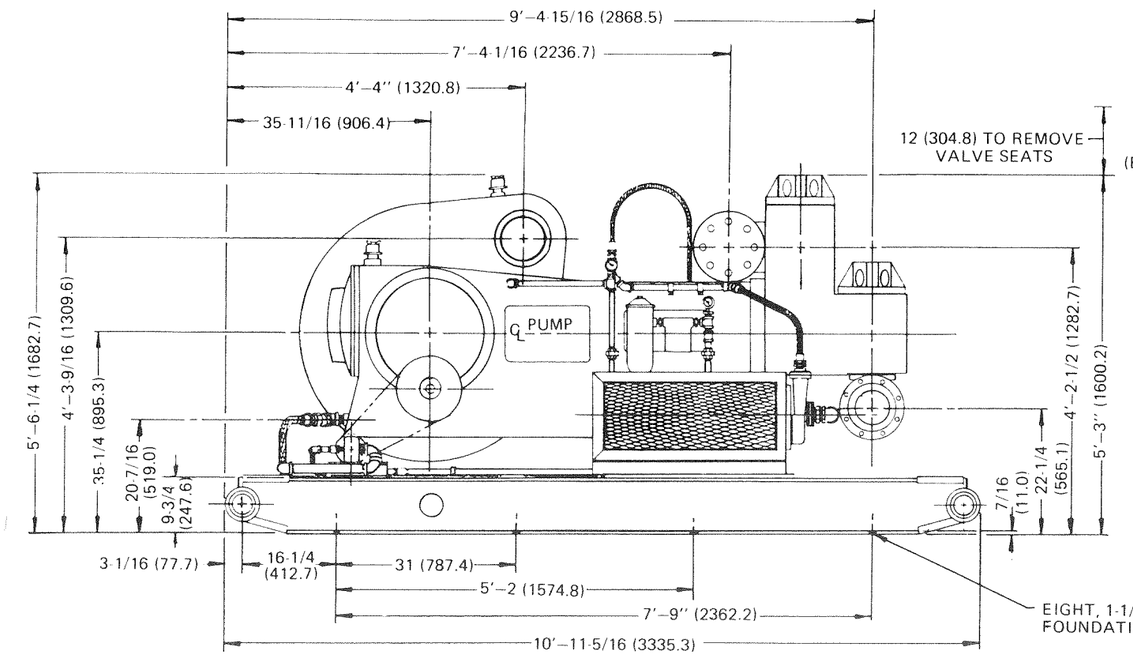
DRAWING NO. P210-AJ1

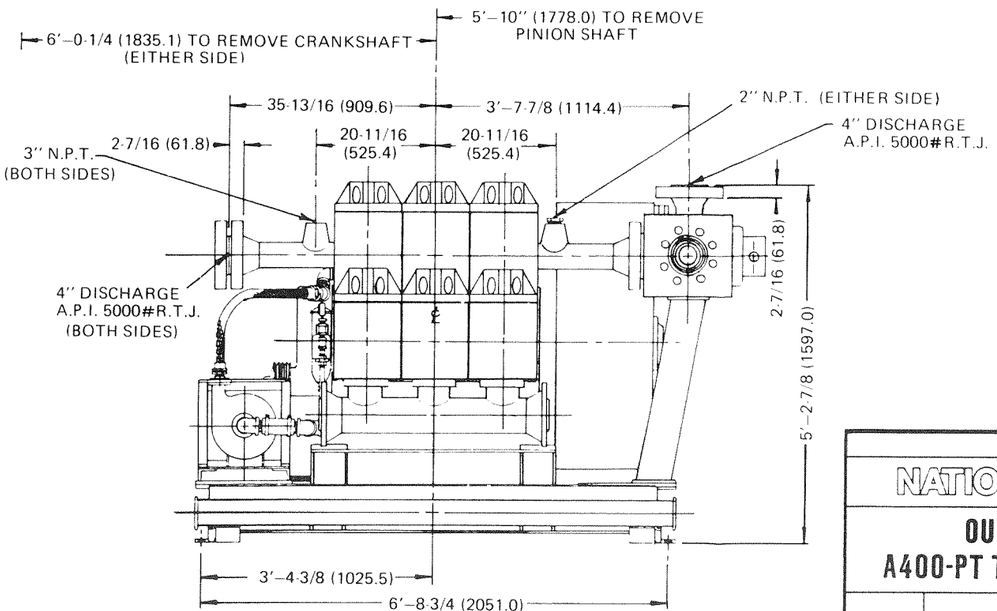
SIZE D



NOTE: THESE DIMENSIONS ARE ACCURATE BUT SHOULD NOT BE USED FOR INSTALLATION UNLESS CERTIFIED. DIMENSIONS IN BRACKETS ARE MEASURED IN MILLIMETERS.

PUMP, AS SHOWN, IS FOR LEFT HAND DRIVE. RIGHT HAND DRIVE IS OPPOSITE THAT SHOWN.





ISSUE DATE: 3-1-88

NATIONAL - OILWELL

OUTLINE DRAWING
A400-PT TRIPLEX PISTON PUMP

		DRAWING NO.	SIZE
		P216-A2	D