



# SOUTHWEST OILFIELD PRODUCTS, INC. MUD PUMP EXPANDABLE PARTS LIST

## SOUTHWEST 8476-9A FLUID END FOR NATIONAL HP 12-P-160

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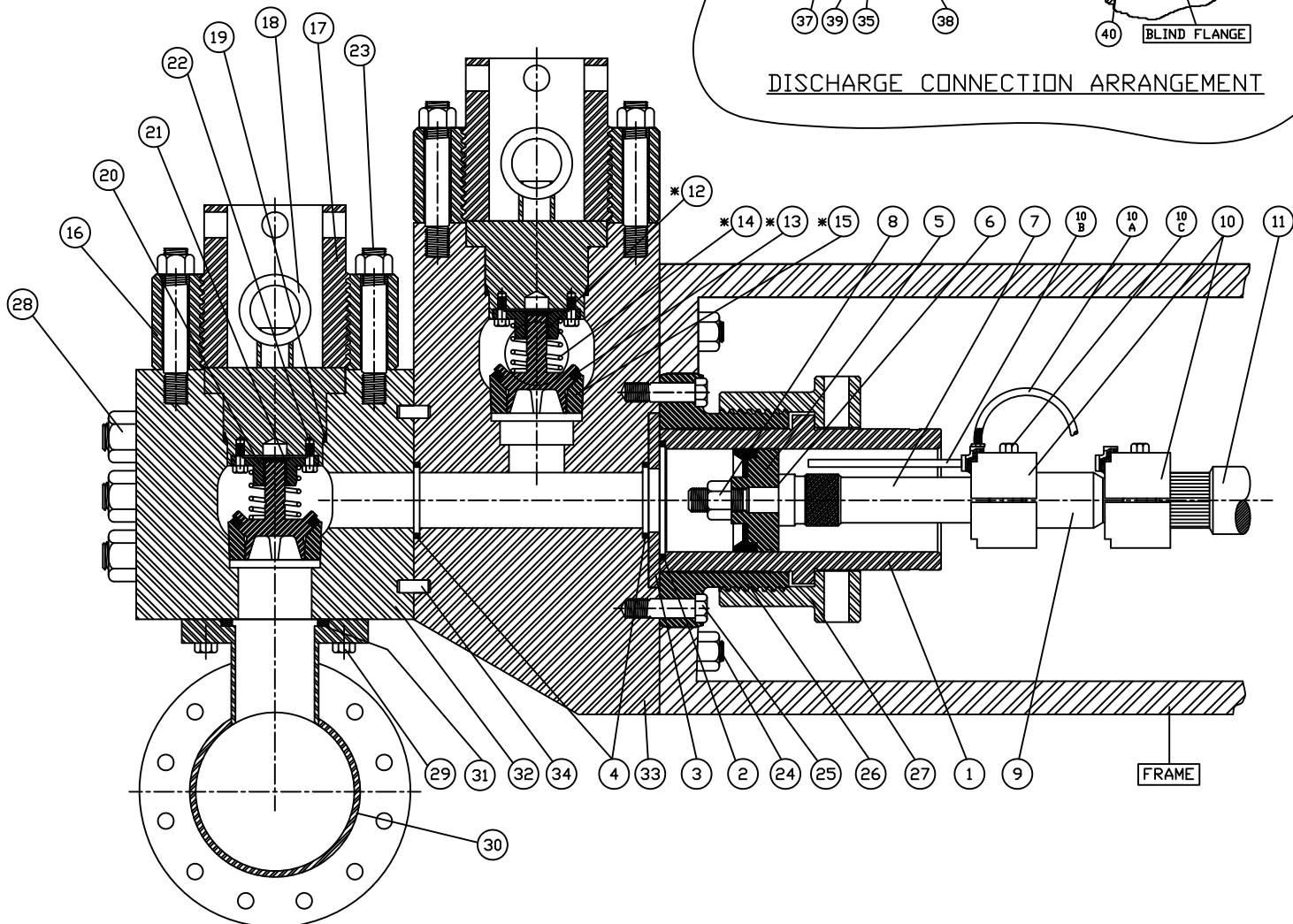
### MUD PUMP PERFORMANCE CHART

PUMP MODEL	MAX I.H.P.	MAX S.P.M.	STROKE LENGHT	LINER SIZE IN INCHES												
				4	4 ½	5	5 ¼	5 ½	5 ¾	6	6 ¼	6 ½	6 ¾	7	7 ¼	
HP 12-P-160	1600	120	12	MAX-P.S.I.	6000	6000	6000	6000	5556	5083	4669	4303	3978	3689	3430	3197
				G.P.R.	1.96	2.48	3.06	3.37	3.70	4.05	4.41	4.78	5.17	5.58	6.00	6.43
				G.P.M. @ 120 R.P.M.	235	297	367	405	444	486	529	574	621	669	720	772

NOTE: I.H.P.= INPUT HORSE POWER    S.P.M.= STROKE PER MINUTE    P.S.I.= POUNDS PER SQUARE INCH    G.P.R.= GALLONS PER REVOLUTION

\*MAX – P.S.I. CALCULATIONS DO NOT EXCEED MAXIMUM FLUID END PRESSURE RATINGS

BASED ON 100% VOLUMETRIC EFFICIENCY AND 90% MECHANICAL EFFICIENCY



REV#	DATE	REVISED BY	REVISIONS . . .

UNLESS OTHERWISE NOTED . . .	
1.	ALL DIMENSIONS ARE IN INCHES.
2.	ALL FRACTIONAL DIMENSIONS ARE ±1/64.
3.	ALL DECIMAL DIMENSIONS ARE +.005/- .000.
4.	ALL ANGLES ARE 45°.
5.	ALL FILLETS AND RADII ARE 1/16 MAX.
6.	BEVELS ARE 1/16 x 45° MAX.
7.	SURFACE FINISH IS 125.7 RMS MAX.
8.	CONCENTRICITY NOT TO EXCEED .005 T.I.R.
9.	BREAK CORNERS AT 1/32 x 45° MAX.

SOUTHWEST OILFIELD PRODUCTS, INC. -- HOUSTON, TX.			
DESCRIPTION	DRAWN	APPROVED	SCALE
ASSEMBLY FOR HP 12P-160	DATE 1-12-98	1-12-98	NONE
NATIONAL SWFE	NAME BANY G.	T. LEMAN	REVISION #
FILE # H:\NAT\8476-9A	SHEET OF	MATERIAL	DRAWING # 8476-9A

FLUID END TYPE	MODEL OF PUMP	SIZE OF PUMP
<b>SOUTHWEST 6000 P.S.I.</b>	<b>NATIONAL HP 12-P-160</b>	<b>7-1/2" X 12"</b>

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D
	8476-9A	FLUID END ASSEMBLY: (CONSISTS OF ITEMS: 3,4,16,17,18,19,20,21,22,23,24,25,26,27,28,29,32,33,34)	3
1	1376YXX	LINER REFER TO GUIDE FOR ORDERING CHART FOR TYPE (G); (Y); AND FOR BORE SIZE (XX)	3
2	2930-XX	LINER SEAL (REFER TO GUIDE TO ORDERING CHART FOR TYPE AND SIZE(XX))	3
3	8476-3	WEARPLATE	3
4	2988	WEARPLATE AND MODULE SEAL (ALSO AVAILABLE IN URETHANE – PART# 2988U)	6
5	XX-BYY	PISTON (REFER TO GUIDE FOR ORDERING CHART FOR SIZE (XX) AND FOR TYPE (YY))	3
6	568-225	PISTON O-RING	3
7	1286-32	PISTON ROD (WITH ELASTIC STOP NUT)	3
8	API-4ESN	PISTON ROD ELASTIC STOP NUT	3
9	1286-1	SUB ROD	3
10	1286CWY	ROD CLAMP (CONSIST OF 10A, 10B, 10C) (FOR CLAMP ONLY, USE 1286C)	6
10A	1200H30	HOSE (1/2" X 30" WITH 1/2" MALE X 3/8" MALE CONNECTIONS)	3
10B	1286CWYFP14	PIPE (3/8" X 14" GALVANIZED AND THREADED ON ONE END)	3
10C	4020-29	ROD CLAMP BOLT(7/8-9 GRADE 8 BOLT WITH LOCK NUT AND WASHER)	12
11	1200G86	PONY ROD	3
12	SEE PAGE	VALVE	6
13	SEE PAGE	VALVE INSERT (IF REQUIRED)	6
14	SEE PAGE	VALVE SPRING	6
15	SEE PAGE	VALVE SEAT	6
	SWTM1700	HYDRAULIC SEAT PULLER KIT COMPLETE (REFER TO TOOLS SECTION OF CATALOG FOR DETAILS)	1
16	4476	THREADED FLANGE	6
17	4597	SCREW GLAND	6
18	4676-9A	PLUG (COMPLETE WITH VALVE GUIDE; BUSHING; AND SCREWS) INCLUDES ITEMS 21, 22 & 23	6
19	P115	HP VALVE COVER PLUG NITRILE SEAL (ALSO AVAILABLE IN URETHANE – PART# P115U)	6
20	4788-25R	VALVE GUIDE (COMPLETE WITH BUSHING #4700-I)	6
21	4700I	VALVE GUIDE BUSHING (ALSO AVAILABLE IN URETHANE – PART# 4700IU)	6
22	4018-18	VALVE GUIDE SCREW	12
23	4015-54	VALVE COVER STUD (WITH SW PART# HHN1500-6 1 1/2-6 HEAVY HEX NUT)	72
24	4015-95	POWER END STUD (WITH SW PART# HHN1375-6 1 3/8-6 HEAVY HEX NUT)	30

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ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D
25	4017-65	LINER RETAINER FERRY HEAD CAP SCREW	18
26	6476	LINER RETAINER FLANGE	3
27	6576	LINER RETAINER NUT	3
28	4019-61	SUCTION MODULE STUD (WITH SW PART# HHN1750-8 1 3/4-8 HEAVY HEX NUT)	18
29	4018-19	SUCTION MANIFOLD CAP SCREW (WITH LOCKWASHER)	24
30	8576-50	SUCTION MANIFOLD (FRONT OR SIDE INLET)	1
31	AJO419R	SUCTION MANIFOLD GASKET	3
32	8476-8S	SUCTION MODULE (STUDED ONLY)	3
33	8476-7D	DISCHARGE MODULE (STUDED ONLY)	3
34	8488-5	DOWEL PIN	6
35	4018-18	DISCHARGE CONNECTOR CAP SCREW (WITH LOCK WASHER)	24
36	4018-39	DISCHARGE SPACER FLANGE SOCKET HEAD CAP SCREW	16
37	8376-7	DISCHARGE CONNECTOR	2
38	8376-8	DISCHARGE ADAPTER	2
39	8376-9	BACK-UP RING	2
40	8376-10	DISCHARGE SPACER FLANGE	2
41	2976-3	DISCHARGE SPACER FLANGE SEAL	2
42	2976-1	DISCHARGE CONNECTOR /ADAPTER PACKING	2
43	2976-2	DISCHARGE CONNECTOR /ADAPTER PACKING	4
44	BX155	RING GASKET	2
45	4019-58	DISCHARGE SPACER FLANGE STUD (WITH SW PART# HHN1125-7 1 1/8-7HEAVY HEX NUT)	16
46	9070012	PONY ROD SEAL	
47	80491292	BAFFLE	
		** POLYURETHANE SEAL AVAILABLE **	

## SOUTHWEST 6000 PSI HP 12-P-160 GUIDE TO ORDERING

PISTONS				LINERS		LINER SEALS	
SIZE	FAIL-SAFE	DUAL-DURO®	GRAYLOY®	ZIRCONIA		RUBBER	URETHANE
4"	76BFS	76BDD	1376G06			2930-06	2930-06U
4 1/2"	78BFS	78BDD	1376G08	1376ZIR08		2930-08	2930-08U
4 3/4"	79BFS	79BDD	1376G09			2930-09	2930-09U
5"	81BFS	81BDD	1376G1	1376ZIR1		2930-1	2930-1U
5 1/4"	82BFS	82BDD	1376G2			2930-2	2930-2U
5 1/2"	83BFS	83BDD	1376G3	1376ZIR3		2930-3	2930-3U
5 3/4"	84BFS	84BDD	1376G4			2930-4	2930-4U
6"	85BFS	85BDD	1376G5	1376ZIR5		2930-5	2930-5U
6 1/4"	86BFS	86BDD	1376G6			2930-6	2930-6U
6 1/2"	87BFS	87BDD	1376G7	1376ZIR7		2930-7	2930-7U

NOTE: DUAL-DURO® AND GRAYLOY® ARE REGISTERED TRADEMARKS OF SOUTHWEST® OILFIELD PRODUCTS.

## VALVES & SEATS ( NATIONAL HP 12-P-160 )

TYPE	VALVE	INSERT	SPRING	STAINLESS SPRING	SEAT	PULLER HEAD	PULLER HEAD STYLE
SOUTHWEST (Full Open)	773-1B	N/A	SW5710-110L	N/A	873-1	SWTM3750	SPLIT JAW
FULL OPEN-ROUGHNECK (Cast N Place Insert)	SWND-6V2	N/A	SW5710-115	N/A	SWND-6S4	SWND-6PH SWTM27SXN	PANCAKE SPLIT JAW
FULL OPEN-ROUGHNECK (High Temp)	SWND-6V2HC	NA	SW5710-115	N/A	SWND-6S4	SWND-6PH SWTM27SXN	PANCAKE SPLIT JAW
FULL OPEN-ROUGHNECK (w/Replaceable Urethane Insert)	SWND-6V1	SWND-6I	SW5710-115	N/A	SWND-6S4	SWND-6PH SWTM27SXN	PANCAKE SPLIT JAW
3 WEB DOUBLE ANGLE O-RING	SWR0500119	SWR0515845	SWR0513744	SWR0514790	SWR0512436	SWTM3-7D	3 J HOOK
3 WEB (High Temp)	SWR0520586	SWR0520585	SWR0513744	SWR0514790	SWR0512436	SWTM3-7D	
3 WEB STANDARD PLATE	SWR0505038	SWR0504890	SWR0513744	SWR0515576	SWR0512436	SWTM3-7D	
4 WEB	SWU5B-EH	SWUDD-6AB	SW5710-115	N/A	SW6ADD-B4	SWTM4-6	4 J HOOK
4 WEB (High Temp)	SWU5B-EHHT	SWUDD-6ABHT	SW5710-115	N/A	SW6ADD-B4	SWTM4-6	

PANCAKE



SPLIT JAW



3 J HOOK



4 J HOOK



**TORQUE SPECIFICATIONS FOR 8476-9A SOUTHWEST FLUID END ASSEMBLY  
FOR NATIONAL HP 12-P-160 6000 P.S.I.**

<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>TORQUE TYPE (EXPRESSED IN FOOT-POUNDS)</u>		
		<u>COPPERCOTE</u>	<u>MOLY GREASE</u>	<u>DRY (NOT RECOMMENDED)</u>
API-4 ESN	PISTON ROD NUT	NO MORE FORCE THAN ONE MAN ON 3' WRENCH/CHEATER COMBINATION		
4020-29	ROD CLAMP BOLT	150 MAXIMUM		
4018-18	VALVE GUIDE SCREW	53	80	107
4015-54	VALVE COVER STUD	1208	1752	2417
4015-95	POWER END STUD	877	1272	1754
4019-61	SUCTION MODULE STUD	2275	3299	4550
4018-19	SUCTION MANIFOLD CAP SCREW	215	322	430
4018-39	DISCHARGE SPACER FLANGE SOCKET HEAD CAP SCREW	1586	2379	3173
4019-58	DISCHARGE SPACER FLANGE STUD	536	778	1073