SOUTHWEST OILFIELD PRODUCTS, INC.

MUD PUMP EXPENDABLE PARTS LIST

SOUTHWEST 8477-25A FLUID END FOR GARDNER DENVER PZ-11/PZ-10

®

MUD PUMP PERFORMANCE CHART

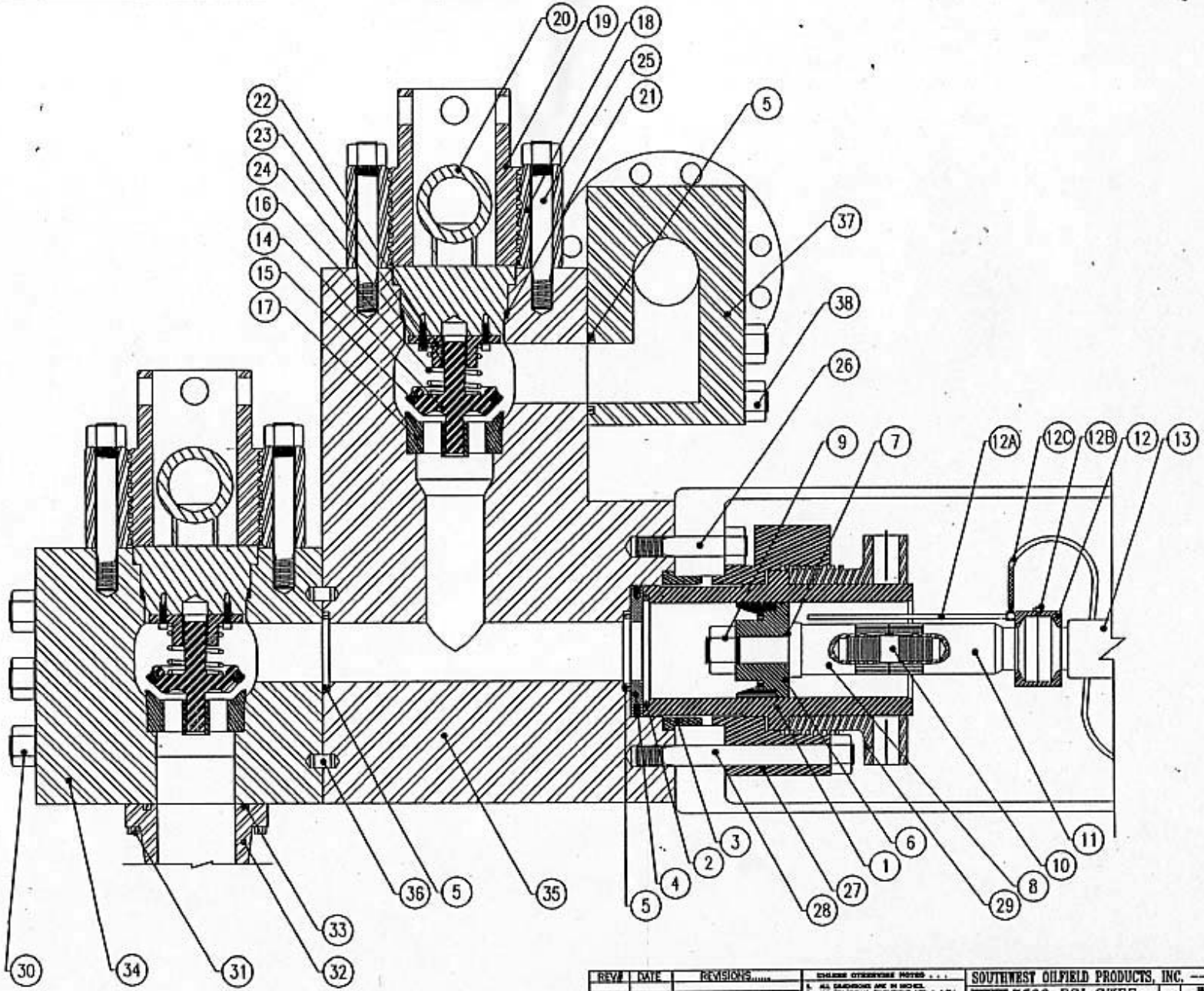
PUMP MODEL	MAX I.H.P.	MAX S.P.M.	STROKE LENGTH		LINER SIZE IN INCHES										
					4	4 ½	5	5 ¼	5 ½	5 ¾	6	6 ¼	6 ½	6 ¾	
PZ-11 / PZ10	1600 H.P.	115	11”	MAX-P.S.I.	7500	7500	7500	6942	6326	5787	5317	4899	4530	4200	
				G.P.R.	1.79	2.27	2.81	3.09	3.39	3.71	4.04	4.38	4.74	5.11	
			G.P.M. @ 115 R.P.M		206.3	261.2	322.7	355.7	390.3	426.7	464.4	504.0	545.1	587.7	

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 1600 INPUT H.P. X 90% MECH. EFF=1440 WHP

8477-25A



REV#	DATE	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 ± 0.5 DEGREES.
5. ALL FILLETS AND RADII ARE 1/16 MAX.
6. BEVELS ARE 1/16 * 45 DEG MAX.
7. SURFACE FINISH IS 125" RMS MAX.
8. CONCENTRICITY NOT TO EXCEED .005 T.I.R.
9. BREAK CORNERS AT 1/32 * 45 DEG MAX.

SOUTHWEST OILFIELD PRODUCTS, INC. — HOUSTON, TX.

DESCRIPTION: 7500 PSI SWFE ASSEMBLY FOR CD PZ-11

DATE: 3-11-97
DRAWN: B.DAMEK
SCALE: NONE
FILE #: 8477-25A
DRAWING #: 8477-25A

FLUID END TYPE	MODEL OF PUMP	SIZE OF PUMP
SOUTHWEST 7500 P.S.I.	**GARDNER DENVER PZ11/10**	**6 ¾" X 11"**

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D
	8477-25A	FLUID END ASSEMBLY: (CONSISTS OF ITEMS: 3,4,18,19,20,21,22,23,24,25,26,27,28,29,30,31,34,35,36,38,39)	
1	1367Y-XX 1367AY-XX	LINER (REFER TO GUIDE FOR ORDERING CHART FOR TYPE (Y); AND FOR BORE SIZE (XX) LINER 6 ¼" THRU 6 ¾"	3
2	2930-XXU** 2974-XXU**	LINER SEAL LINER SEAL FOR LINERS 6 ¼" THRU 6 ¾"	3
3	8477-29	ALIGNMENT RING	3
4	8477-30	WEARPLATE (REPLACES WEARPLATE NO. 8477-28)	3
5	2988U**	WEARPLATE, MODULE, AND DISCHARGE MANIFOLD SEAL	9
6	XX-BYY	PISTON (REFER TO GUIDE FOR ORDERING CHART FOR SIZE (XX) AND FOR TYPE (YY))	3
7	568-225	PISTON O-RING	3
8	6278-25	PISTON ROD (WITH 1 ½-8-UN ELASTIC STOP NUT)	3
9	API-4ESN	PISTON ROD ELASTIC STOP NUT	3
10	1290-2	PISTON ROD CONNECTING STUD	3
11	6279-1	SUB ROD (CLAMP TYPE; SCREW TYPE SUB ROD IS PART NO. 6280-1)	3
12	1277CW	ROD CLAMP (WITH WATER JACKET) (CONSIST OF 12A, 12B, 12C)	3
12A	1200120	SPRAY PIPE (3/8" x 12" GALVANIZED AND THREADED ON ONE END)	3
12B	4018-96	BOLT (5/8"-11UN GRADE 8 BOLT WITH LOCK NUT AND WASHER)	6
12C	1200H30	HOSE (1/2" x 30" WITH 1/2" MALE AND 3/8" MALE CONNECTIONS)	3
13	1200G77	PONY ROD (CLAMP TYPE; SCREW TYPE PONY ROD IS PART NO. 1200G88)	3
14	SEE PAGE	VALVE	6
15	SEE PAGE	VALVE INSERT	6
16	SEE PAGE	VALVE SPRING	6
17	SEE PAGE	VALVE SEAT	6
	SWTM1700	HYDRAULIC SEAT PULLER KIT COMPLETE (REFER TO TOOLS PAGE OF CATALOG FOR DETAILS)	1
18	4488-25	VALVE COVER FLANGE	6
19	4588-25	SCREW GLAND	6
20	4688-25	PLUG (COMPLETE WITH VALVE GUIDE, BUSHING, AND SCREWS; INCLUDES ITEMS 22, 23, & 24)	6
21	P115	HP VALVE COVER PLUG NITRILE SEAL (P115U URETHANE SEAL AVAILABLE)	6
22	4788-25R	VALVE GUIDE (COMPLETE WITH BUSHING #4700I)	6
23	4700I	VALVE GUIDE BUSHING	6
24	4018-18	VALVE GUIDE SCREW	12

FLUID END TYPE	MODEL OF PUMP	SIZE OF PUMP
SOUTHWEST 7500 P.S.I.	**GARDNER DENVER PZ11/10**	**6 ¾" X 11"**

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D
25	4015-2	VALVE COVER STUD (WITH SW PART# HHN1250-7 1 ¼-7 HEAVY HEX NUT)	72
26	4019-46	POWER END STUD (WITH SW PART# HHN1250-7 1 ¼-7 HEAVY HEX NUT)	24
27	6477-25	LINER RETAINER FLANGE	3
28	4019-45	LINER RETAINER STUD (WITH SW PART# HHN1250-7 1 ¼-7 HEAVY HEX NUT)	24
29	6577-25	LINER RETAINER NUT	3
30	4019-44	SUCTION MODULE STUD (WITH SW PART# HHN1750-8 1 ¾-8 HEAVY HEX NUT)	18
31	4017-77	SUCTION MANIFOLD CAP SCREW	24
32	8577-25	SUCTION MANIFOLD	1
33	AJO245	SUCTION MANIFOLD SEAL	3
34	8477-26	SUCTION MODULE	3
35	8477-27	DISCHARGE MODULE	3
36	8488-5	DOWEL PIN	6
37	8377-27	DISCHARGE MANIFOLD (For serial numbers 9222 & below, use 8377-25 to keep from relocating discharge piping)	1
38	4019-45	DISCHARGE MANIFOLD STUD (WITH SW PART# HHN1250-7 1 ¼-7 HEAVY HEX NUT)	12
39	LW500	LOCKWASHER 1/2	12
		** POLYURETHANE SEAL AVAILABLE **	

SOUTHWEST 7500 P.S.I. PZ-11 (PZL) / PZ-10 (PZK) GUIDE TO ORDERING

PISTONS				LINERS			LINER SEALS	
SIZE	FAIL-SAFE	DUAL-DURO®		GRAYLOY®	ZIRCONIA		RUBBER	URETHANE
4"	76BFS	76BDD		1367G06			2930-06	2930-06U
4 1/4"	77BFS	77BDD		1367G07			2930-07	2930-07U
4 1/2"	78BFS	78BDD		1367G08			2930-08	2930-08U
4 3/4"	79BFS	79BDD		1367G09			2930-09	2930-09U
5"	81BFS	81BDD		1367G1	1367ZIR1		2930-1	2930-1U
5 1/4"	82BFS	82BDD		1367G2			2930-2	2930-2U
5 1/2"	83BFS	83BDD		1367G3	1367ZIR3		2930-3	2930-3U
5 3/4"	84BFS	84BDD		1367G4			2930-4	2930-4U
6"	85BFS	85BDD		1367G5	1367ZIR5		2930-5	2930-5U
6 1/4"	86BFS	86BDD		1367G6			2974-6	2974-6U
6 1/2"	87BFS	87BDD		1367G7			2974-7	2974-7U
6 3/4"	88BFS	88BDD					2974-8	2974-8U

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

VALVES & SEATS (GARDNER DENVER PZ-11 7500 PSI)

TYPE	VALVE	INSERT	SPRING	STAINLESS SPRING	SEAT	PULLER HEAD	PULLER HEAD STYLE
SOUTHWEST (Full Open)	773-1B	N/A	941	N/A	873-1	SWTM3750	SPLIT JAW
FULL OPEN-ROUGHNECK (BONDED VALVE INSERT)	SWND-6V2	N/A	SW5710-115	N/A	SWND-6S4	SWTM27SXN SWND-6PH	PANCAKE SPLIT JAW
FULL OPEN-ROUGHNECK (High Temp)	SWND-6V2H	N/A	SW5710-115	N/A	SWND-6S4	SWTM27SXN SWND-6PH	
FULL OPEN-ROUGHNECK (w/Replaceable Urethane Insert)	SWND-6V1	SWND-6I	SW5710-115	N/A	SWND-6S4	SWTM27SXN SWND-6PH	
3 WEB DOUBLE ANGLE O-RING	SWR0500119	SWR0515845	SWR0513744	SWR0514790	SWR0512436	SWTM3-7D	3 J HOOK
3 WEB (High Temp)	SWR0520586	SWR052085	SWR0513744	SWR0514790	SWR0512436	SWTM3-7D	
3 WEB STANDARD PLATE	SWR0505038	SWR0504890	SWR0515575	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



SOUTHWEST OILFIELD PRODUCTS, INC.

MANUFACTURERS OF SOUTHWEST FLUID ENDS & EXPENDABLES
10340 WALLISVILLE RD. – HOUSTON, TEXAS 77013
DOMESTIC SALES FAX 713 675-3491 INTERNATIONAL SALES FAX 713 675-5206
PHONE 713 675-7541 WATS 1-800 392-4600
P. O. BOX 24068 – HOUSTON, TEXAS 77229

INSTALLATION INSTRUCTIONS

DRAWING #8477-25A

SOUTHWEST 7500 P.S.I. TWO PIECE "L" SHAPED FORGED STEEL FLUID END MODULE FOR GARDNER DENVER PZ11/PZ10 TRIPLEX PUMP

1. ASSEMBLE BUSHING (ITEM #3) PART #8477-29, INTO FRAME OF PUMP.

2. MOUNT MODULE (ITEM #35) PART #8477-27D, ON PUMP FRAME STABBING STUDS ON THE MODULE INTO THE PUMP FRAME HOLES - AT THE SAME TIME INSURE GUIDE BUSHING (ITEM #3) PART #8477-29 IS IN PLACE IN MODULE AND PUMP FRAME. TIGHTEN PUMP FRAME STUDS TO 1350 FT. LBS. TORQUE.

3. MOUNT WEAR PLATE SEAL (ITEM #5) PART #2988U, IN DISCHARGE MODULE HOUSING AS SHOWN.

4. PUSH LINER RETAINER FLANGE (ITEM #27) PART #6477-25, IN PLACE - USING STUDS (ITEM #28) PART #4019-45, AS GUIDES - INSURE THAT GUIDE ON SMALL END GOES INTO PUMP CRADLE SNUGLY. WITH LINER RETAINER FLANGE IN PLACE, TORQUE STUDS (ITEM #28) PART #4019-45, TO 1350 FT. LBS.

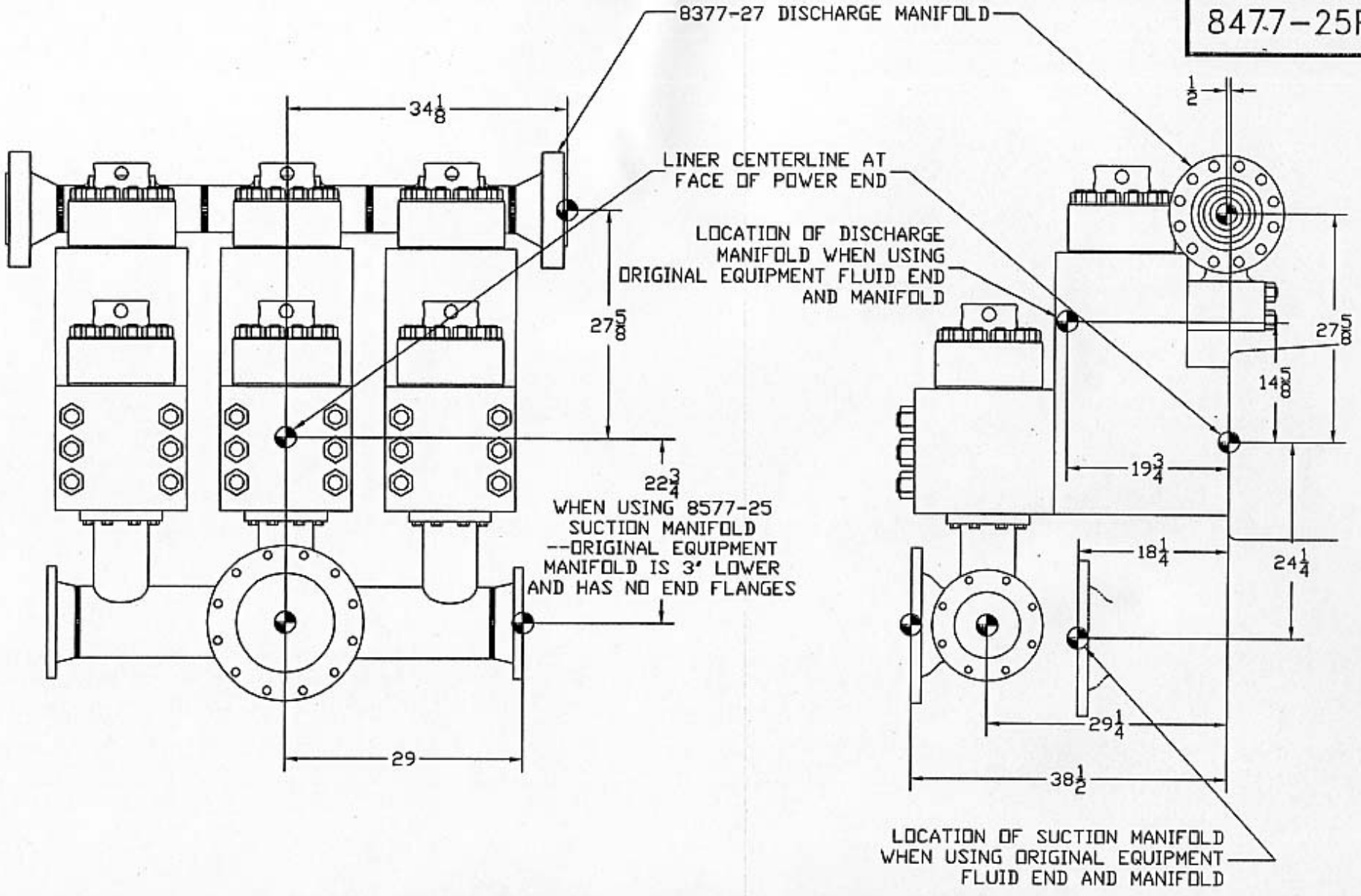
5. INSTALL LINER WEAR PLATE (ITEM #4) PART #8477-30, PUSHING FIRMLY AGAINST WEAR PLATE SEAL (ITEM #5) PART #2988U. DOUBLE CHECK TO BE SURE WEAR PLATE SEAL (ITEM #5) PART #2988U, IS FIRMLY IN PLACE BEFORE MOUNTING WEAR PLATE.

6. WITH WEAR PLATE IN PLACE, MOUNT LINER (ITEM #1) PART #1367GXX AS SHOWN. DOUBLE CHECK LINER GASKET (ITEM #2) PART #2930-XXU, TO BE SURE IT IS IN PLACE.

7. TIGHTEN LINER RETAINER NUT (ITEM #29) PART #6577-25, AS TIGHT AS CAN BE OBTAINED TO KEEP LINER FROM MOVING IN THE HOUSING.

8. INSTALL BALANCE OF COMPONENTS AS USUAL FOR A TYPICAL PUMP.

8477-25P



REV#	DATE	REVISIONS . . .

UNLESS OTHERWISE NOTED . . .

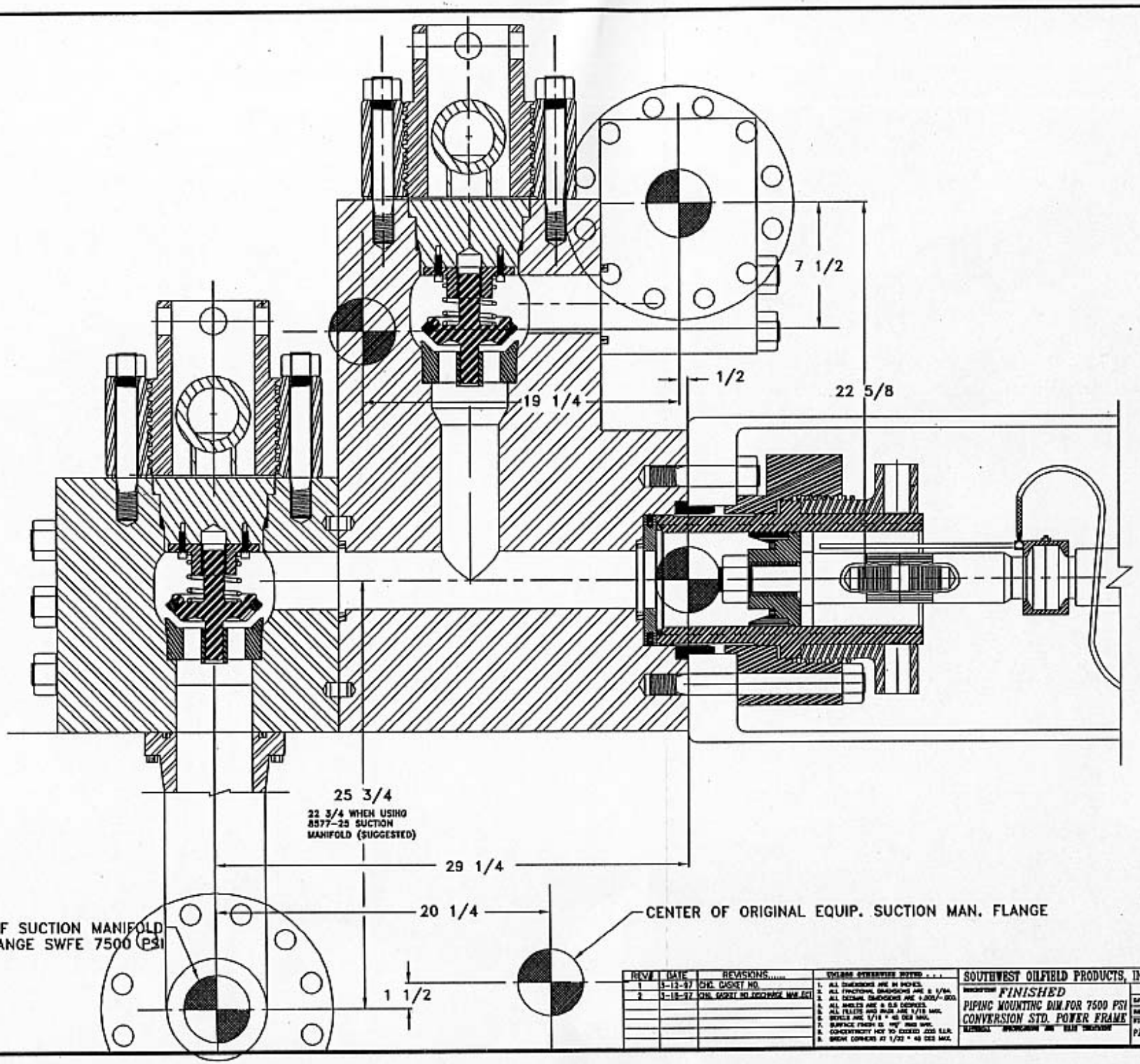
1. ALL DIMENSIONS ARE IN INCHES.
2. ALL FRACTIONAL DIMENSIONS ARE ±1/64.
3. ALL DECIMAL DIMENSIONS ARE +.005/-.000.
4. ALL ANGLES ARE ±0.5°.
5. ALL FILLETS AND RADII ARE 1/16 MAX.
6. BEVELS ARE 1/16 x 45° MAX.
7. SURFACE FINISH IS 125 RMS MAX.
8. CONCENTRICITY NOT TO EXCEED .005 T.I.R.
9. BREAK CORNERS AT 1/32 x 45° MAX.

SOUTHWEST OILFIELD PRODUCTS, INC. -- HOUSTON, TX.

DESCRIPTION		DRAWN	APPROVED	SCALE
PIPING LAYOUT FOR 7500 PSI	DATE	12-31-98	[illegible]	NONE
SOUTHWEST FLUID END FOR GD PZ-11	NAME	T. LEMAN	T. LEMAN	

FILE #	SHEET OF	MATERIAL	HEAT TREATMENT	DRAWING #	REVISION #
7500PSI\8477-25P		XXXX	XXXX	8477-25P	

8477-25A



REV#	DATE	REVISIONS.....
1	5-12-97	CHG. GASKET NO.
2	5-18-97	CHG. GASKET NO. DISCHARGE MANIFOLD

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 ± 0.5 DEGREES.
5. ALL FILLETS AND RUNS ARE 1/16 MAX.
6. EDGES ARE 1/16 * 45 DEG MAX.
7. SURFACE FINISH IS 125 RMS MAX.
8. CONCENTRICITY NOT TO EXCEED .005 T.I.R.
9. BREAK CORNERS AT 1/32 * 45 DEG MAX.

SOUTHWEST OILFIELD PRODUCTS, INC. -- HOUSTON, TX.

DESCRIPTION: *FINISHED PIPING MOUNTING DIM. FOR 7500 PSI CONVERSION STD. POWER FRAME*

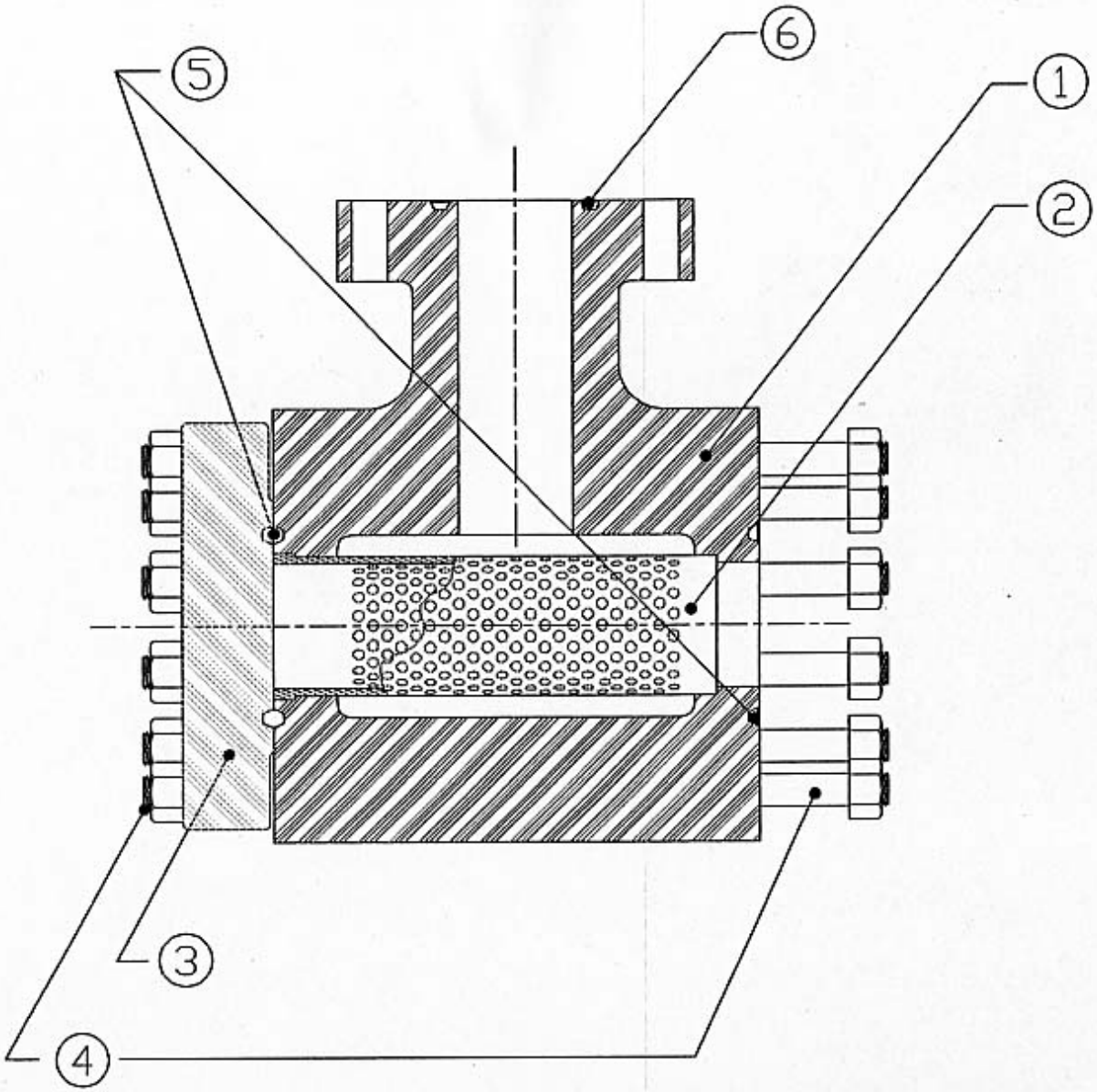
	DRAWN	APPROVED
DATE	5-11-97	
NAME	B. DANEK	

SCALE: NONE

FILM # PZ-11-7500

DRAWING # 8477-25A SHEET 2 OF 2

REVISION # 2



8377-26A

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 ±0.5°.
5. ALL FILLETS AND RADII ARE 1/16 MAX.
6. BEVELS ARE 1/16 x 45° MAX.
7. SURFACE FINISH IS 125" 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.

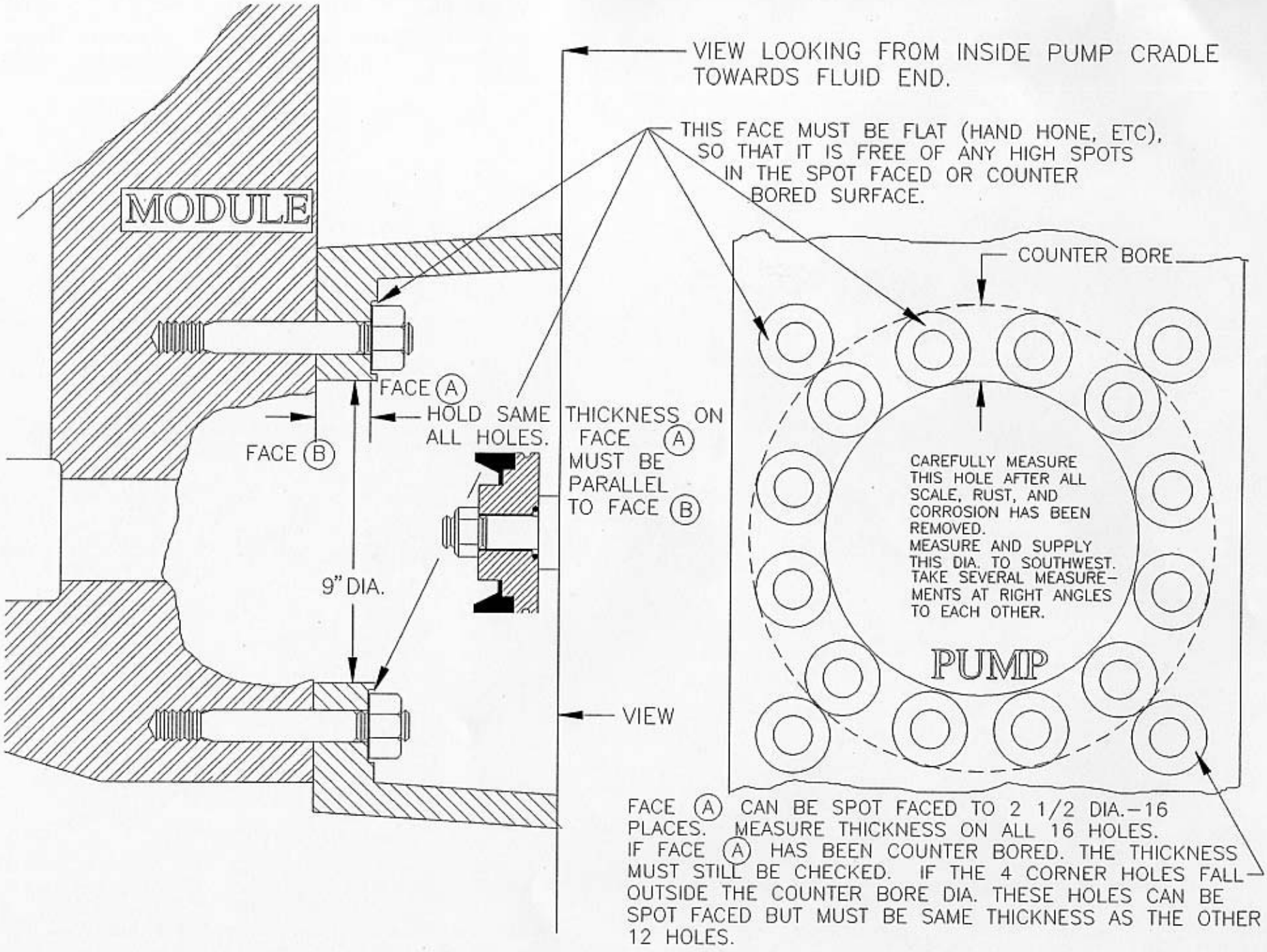
DESCRIPTION: DISCHARGE CROSS ASSEMBLY FOR 7500psi PZ-11 SOUTHWEST FLUID ENDS

	DRAWN	APPROVED	SCALE
DATE	1-22-98		NONE
NAME	T. LEMAN		

FILE # 7500psi\8377-26A | SHEET OF | MATERIAL | HEAT TREATMENT | DRAWING # 8377-26A | REVISION #

8377-26A: PZ-11 SWFE CROSS/STRAINER-7500 psi W.P.
5 1/8"-10,000 #API FLANGES- FOR HYDRIL STUDDED DAMPENER #K20-7500

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ.
1	8376-26	DISCHARGE CROSS	1
2	8290-26RD	STRAINER	1
3	XXXX	5 1/8 10,000# API BLIND FLANGE	1
4	4019-66	STUD	48
5	BX-169	RING JOINT	4
6	BX-155	RING JOINT	1


VIEW LOOKING FROM INSIDE PUMP CRADLE TOWARDS FLUID END.
THIS FACE MUST BE FLAT (HAND HONE, ETC), SO THAT IT IS FREE OF ANY HIGH SPOTS IN THE SPOT FACED OR COUNTER BORED SURFACE.
MODULE
COUNTER BORE
FACE (A)
HOLD SAME THICKNESS ON ALL HOLES.
FACE (A) MUST BE PARALLEL TO FACE (B)
FACE (B)
9" DIA.
CAREFULLY MEASURE THIS HOLE AFTER ALL SCALE, RUST, AND CORROSION HAS BEEN REMOVED. MEASURE AND SUPPLY THIS DIA. TO SOUTHWEST. TAKE SEVERAL MEASURE-MENTS AT RIGHT ANGLES TO EACH OTHER.
PUMP
VIEW
FACE (A) CAN BE SPOT FACED TO 2 1/2 DIA.-16 PLACES. MEASURE THICKNESS ON ALL 16 HOLES. IF FACE (A) HAS BEEN COUNTER BORED. THE THICKNESS MUST STILL BE CHECKED. IF THE 4 CORNER HOLES FALL OUTSIDE THE COUNTER BORE DIA. THESE HOLES CAN BE SPOT FACED BUT MUST BE SAME THICKNESS AS THE OTHER 12 HOLES.

TORQUE SPECIFICATIONS FOR 8477-25A SOUTHWEST FLUID END ASSEMBLY
FOR GARDNER-DENVER PZ-11/PZ-10 7500 P.S.I.

		TORQUE TYPE (EXPRESSED IN FOOT-POUNDS)		
PART NUMBER	**DESCRIPTION**	**COPPERCOTE**	**MOLY GREASE**	**DRY (NOT RECOMMENDED)**
API-4 ESN	PISTON NUT	NO MORE FORCE THAN ONE MAN ON 3' WRENCH/CHEATER COMBINATION		
4018-96	BOLT		150 MAXIMUM	
4018-18	VALVE GUIDE SCREW	53	80	107
4015-2	VALVE COVER STUD	669	970	1338
4019-46	POWER END STUD	669	970	1338
4019-45	LINER RETAINER STUD	669	940	1338
4019-44	SUCTION MODULE STUD	2275	3299	4550
4017-77	SUCTION MANIFOLD CAP SCREW	188	282	376
4019-45	DISCHARGE MANIFOLD STUD	669	940	1338