Level: L3 - Instruction Tier: GLB - Global
Document Type: Instruction
Sub Element: Product Development and Management
Doc Number: GPS-GLB-En-100539
Rev: A
Effective Date: 29 September 2015

Pacemaker II and V Pump Parts List

(Standard)

Purpose

The purpose of the document is to provide parts list for the operation and maintenance of the Pacemaker II & V Pump.

Scope

This manual focuses on providing end user with an accurate list of parts and part numbers for the pump power end assembly and fluid end assembly components of the Pacemaker II and V pump.

The drawings and procedures are to be followed to put together certain assemblies. The tightening torques for bolts and nuts are also listed.

Responsibility and Authority

The end user including Baker Hughes mechanics, equipment operators, and maintenance supervisors are responsible for securing the correct part numbers prior to ordering replacement parts for the Pacemaker pump.

Governance Documents

- BHI Quality Policy Manual
- Control of Records

Terms and Definitions

Baker Hughes Enterprise Glossary

Revision History

Rev.	RDR	Amendment Detail	Reviewer	Approver	Effective Date
Current Revision					
A	--	Initial Release	Sarno, Jerry C	Kehe, James W	29 September 2015
Three Previous Revisions					

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Introduction

The Pacemaker Triplex Pump design has evolved over the years since it was first designed and manufactured. Significant changes were made towards a continuous design improvement. Listed below is a summary of the different types of design and corresponding features of each type.

- Type I—this was the original design of the complete pump assembly. This is now obsolete.
  - Original design power end frame (a welded frame was utilized in the past)
  - Power end utilized a cast steel crankshaft
  - Original design of fluid end cylinder utilized line pipe threads on the gauge ports
  - Fluid End utilized a horizontal suction valve design
  - Original style packing utilized springs
- Type II—this is an improved design that incorporates stronger components
  - Power end frame is made from high strength cast alloy steel
  - Power end utilizes a forged steel crankshaft
  - Fluid end cylinder utilizes ACME threads on the gauge ports
  - Fluid End utilizes a horizontal suction valve design
  - Packing assembly utilizes a header ring and pressure rings
  - The same (STD) fluid end cylinder is utilized for fluid end assemblies with 3.5-in., 4.0-in., 4.5-in., and 5.0-in. plunger and packing assemblies
  - Fluid end assembly utilized hollow plungers
  - Type II will become Type V when the hollow plungers are replaced with solid plungers
- Type III—this type was never released (top level drawings not made). This may have been reserved for a pump assembly with small (2.0-in., 2.5-in., and 3.0-in.) fluid ends.
- Type IV—this is a pump assembly with large, valve-over-valve fluid ends
  - Power end assembly is the same as a Type II power end
  - Fluid end assembly utilizes a large (5.0-in., 5.5-in., and 6.0-in.) valve-over-valve fluid ends
- Type V—this is a new (improved) design of a standard Pacemaker Pump Assembly
  - Pump assembly is not certified by any third party
  - Power end utilizes a forged steel crankshaft and is the same as a Type II power end
  - Fluid end cylinder utilizes ACME threads on the gauge ports
  - Fluid end utilizes a horizontal suction valve design
  - Packing assembly utilizes a header ring and pressure rings
  - Fluid end assembly utilizes solid plungers
- Type VI—this is a new (improved) design of a Third Party Certified Pacemaker Pump Assembly
  - Pump assembly is ABS/DNV/CE certified
  - Power end utilizes a forged steel crankshaft
  - Fluid end cylinder utilizes ACME threads on the gauge ports
  - Fluid end utilizes a horizontal suction valve design

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- Packing assembly utilizes a header ring and pressure rings
- The same (STD) fluid end cylinder is utilized for fluid end assemblies with 3.5-in., 4.0-in., 4.5-in., and 5.0-in. plunger and packing assemblies
- Fluid end assembly utilizes solid plungers
- Pressure retaining and load bearing parts utilize material certified to PED

Note	Below drawing list may/may not refer to latest releases. Always make sure the latest revisions of the drawings are referred to and obtained through Teamcenter.

Table 1: Drawing List

Drawing	Revision	Sheets	Description	Page Number
86839	F	2	Pacemaker 3.5 RH/CW Pump Assembly	5
86840	D	1	Pacemaker 4.5 LH/CW Pump Assembly	7
120270	L	2	3.5-5.0 Standard Pacemaker Pump Fluid End Assembly	8
112814	H	3	Pacemaker Pump RAM Wash & packing Lube Cover Assembly	10
36627BJ	A	1	Pacemaker Pump Discharge Valve Assembly	13
36585BJ	E	1	Pacemaker Pump Suction Valve Assembly	14
112821	T	3	Suction Manifold Standard Fluid End Pacemaker Pump	15
21715	C	1	Assembly Fluid End Adapter 2"-1502 Thread Half Pacemaker Pump	18
112820	W	2	Pacemaker Pump Discharge Connection Assembly	19
136542	F	1	Pacemaker Pump Plunger Packing Assembly 3-1/2" Header Ring-Cylindrical Seal	21
136543	E	1	Pacemaker Pump Plunger Packing Assembly 4.0 Header Ring-Cylindrical Seal	22
136544	F	1	Pacemaker Pump Plunger Packing Assembly 4.5 Header Ring-Cylindrical Seal	23
136545	G	1	Pacemaker Pump Plunger Packing Assembly 5.0 Header Ring-Cylindrical Seal	24
114501	P	4	Pacemaker II Pump Power End Assembly	25
118223	T	2	Cast Machine Drawing Pacemaker Pump Power End Frame	29

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Table 1: Drawing List

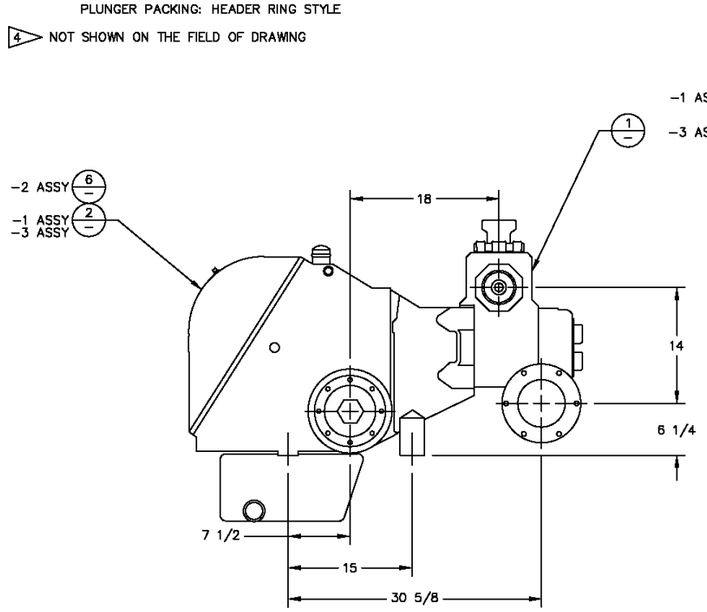
Drawing	Revision	Sheets	Description	Page Number
112846	D	1	Stroke Counter Drive Assembly Pacemaker Pump	31
112557	D	1	Crankshaft Assembly Pacemaker Pump	32
112583	AA	2	Counter Shaft Pacemaker Pump	33
118229	D	2	Lube Lines Power End Pacemaker Pump Tubing Installation/Assembly	35
112580	H	1	Pacemaker Pump Connecting Rod and Crosshead Assembly	37
114520	J	2	Cover Installation/Assembly Power End Pacemaker Pump (Standard/CE Certified)	38

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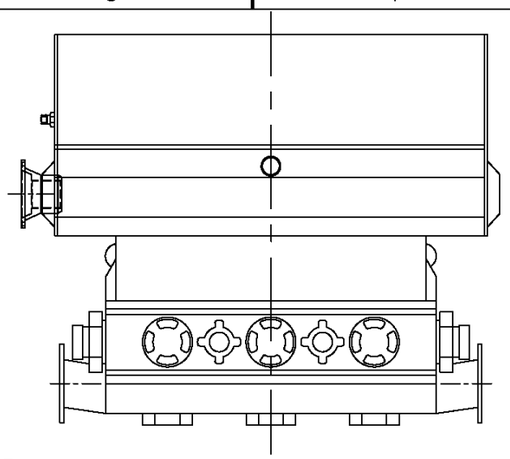
NOTES:

1. TRIPLEX PUMP
   MAKE: BAKER HUGHES
   MODEL: PACEMAKER
   RATED MAXIMUM INPUT POWER: 700 BHP
   GALLONS/REV: 0.48 (95% V.E.)
2. POWER END ASSEMBLY
   MAXIMUM CRANK SPEED: 450 RPM
   GEAR RATIO: 4.06:1
   MAXIMUM ROD LOAD: 160,000 LB_f
   STROKE LENGTH: 4"
   INPUT DRIVE: 1810(FOR –1 & –3)/ 1880/1910(FOR –2)
   CRANKSHAFT: COUNTER BALANCED ASSEMBLY
   LUBE OIL SUMP: STANDARD 16 GALLON
3. FLUID END ASSEMBLY
   PLUNGERS: 3.5" DIA., HARD METAL COATED,
   MAXIMUM WORKING PRESSURE: 15,000 PSI
   PLUNGER PACKING: HEADER RING STYLE

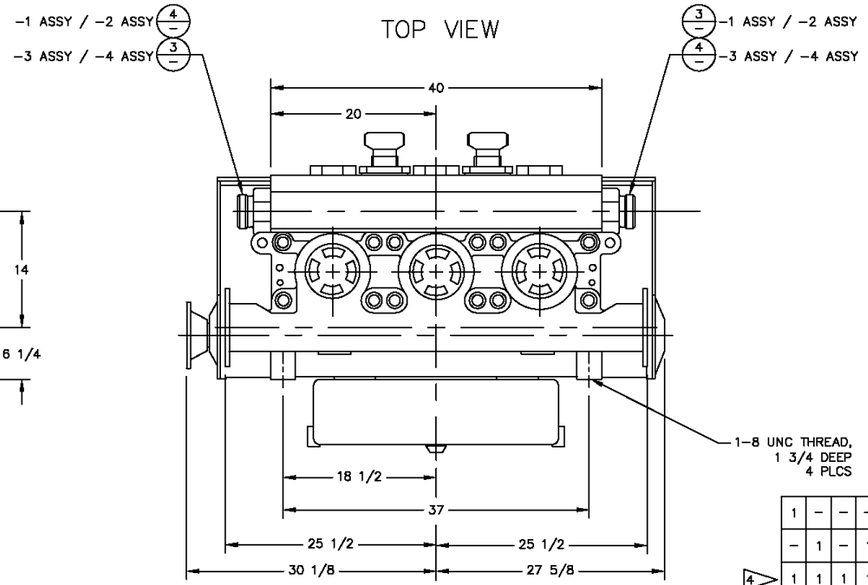
4 NOT SHOWN ON THE FIELD OF DRAWING



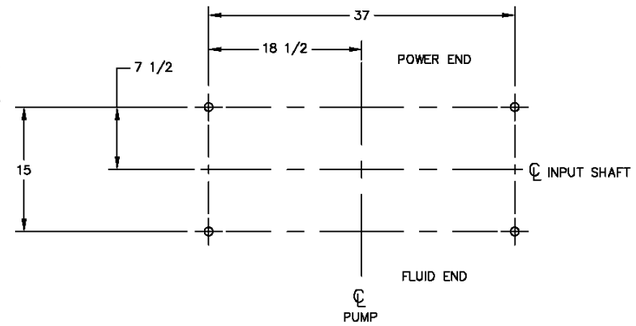
SIDE VIEW



TOP VIEW



FRONT VIEW



MOUNTING FOOT PRINT

–1 THRU –4 ASSY

ITEM NO.	DESCRIPTION	PART OR IDENTIFYING NO.	U.M.	–1 QTY. REQ.	–2 QTY. REQ.	–3 QTY. REQ.	–4 QTY. REQ.	–5 QTY. REQ.
7	SWVL,2.0–1502F S–50 FXPMP	L18–0007	EA	1	–	–	–	–
6	PMP,PWR END RIGHT HAND 4.06 CW 1880	L114501RH–3	EA	–	1	–	1	–
5	PMP,SHIPPING SKID	L600180–1	EA	1	1	1	1	1
4	CONN ASSY,DISCH 2.0–1502 OPEN BORE	L11282014	EA	–	1	1	1	1
3	PMP,DISCH CONN 2.0–1502 W/ BUSHING	L11282012	EA	1	1	1	1	1
2	PMP,PWR END RIGHT HAND 4.06 CW 1810	L114501RH–1	EA	1	–	1	–	1
1	PMP,FLUID END ASSY 3.5 LESS DISCH CONN	L120270–5	EA	1	1	1	1	1

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

DASH NO.	DESCRIPTION
–5	BLEED DISCHARGE W/ SWIVEL W/ 1810 INPUT FLG.
–4	W/ 1880/1910 INPUT FLG.
–3	W/ 1810 INPUT FLG.
–2	W/ 1880/1910 INPUT FLG.
–1	W/ 1810 INPUT FLG.

LTR	DESCRIPTION	DATE	APPR.
F	PRC–150–892 FC	11/5/2015	WC
E	PRC–147–018 JNR	6/9/2012	SAB
D	PRC–146–454 JLH	6/4/2012	WC
C	PRC–145–179 PBF	11/6/2011	WC
B	PRC–137–900 PF	6/26/2009	WC
A	PRC–075–304 SJC	11/6/2015	JRB

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.03 .XX = ±.010 .XXX = ±.005
FRACTIONAL ANGULAR = ±1/16 = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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DRAWN	SJC	MM/DD/YY 10/13/2005
CHECKED		MM/DD/YY 10/31/2013
DESIGN	ML	MM/DD/YY 10/20/2005
APPROVED	WC	MM/DD/YY 03/26/2009

TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. 4700 LBS
EST. VOL. N/A
SCALE 1/8=1 SIZE D

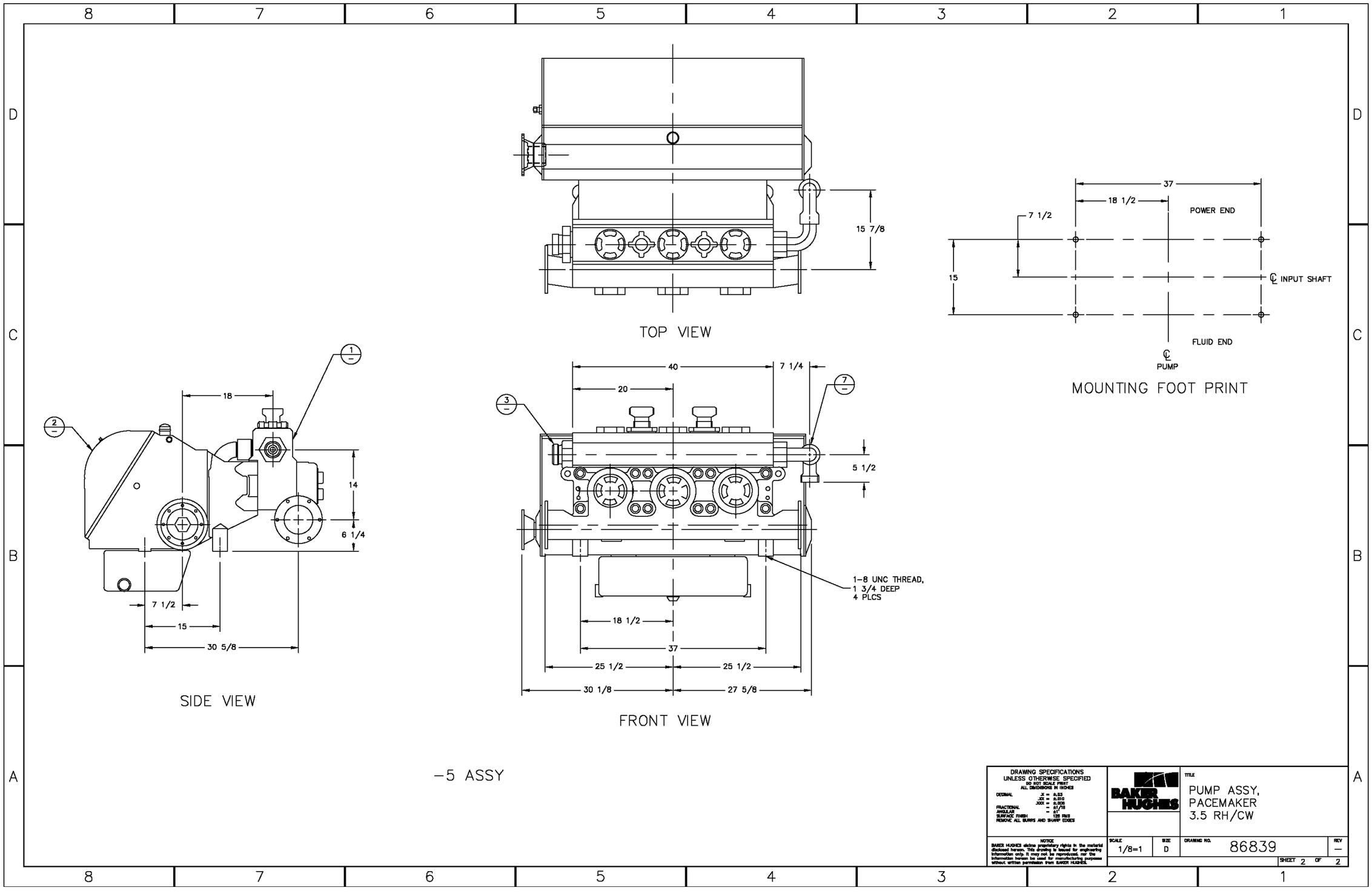
TITLE
PUMP ASSY, PACEMAKER 3.5 RH/CW

DRAWING NO. 86839 REV F
SHEET 1 OF 2

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Pacemaker II and V Pump Parts List



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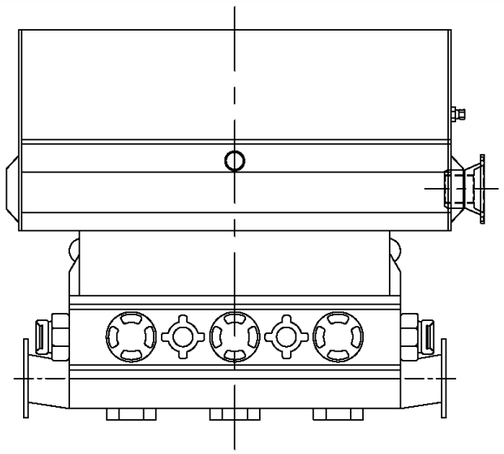
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Pacemaker II and V Pump Parts List

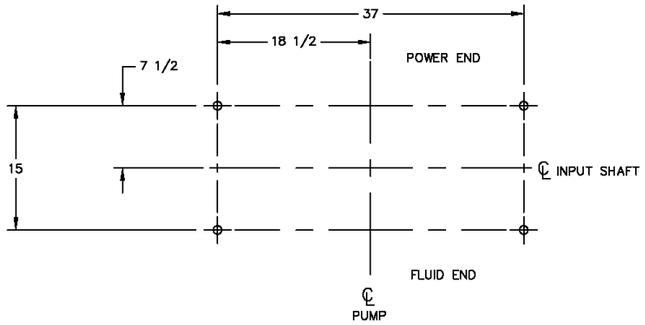
NOTES:

1. TRIPLEX PUMP
   MAKE: BJ SERVICES
   MODEL: PACEMAKER
   RATED MAXIMUM INPUT POWER: 575 BHP
   GALLONS/REV: .785 (95% V.E.)
2. POWER END ASSEMBLY
   MAXIMUM CRANK SPEED: 450 RPM
   GEAR RATIO: 4.06:1
   MAXIMUM ROD LOAD: 160,000 LB_f
   STROKE LENGTH: 4"
   INPUT DRIVE: 1810(FOR-1)/ 1880/1910(FOR-2)
   CRANKSHAFT: COUNTER BALANCED ASSEMBLY
   LUBE OIL SUMP: STANDARD 16 GALLON
3. FLUID END ASSEMBLY
   PLUNGERS: 4.5" DIA., HARD METAL COATED,
   MAXIMUM WORKING PRESSURE: 10,000 PSI
   PLUNGER PACKING: HEADER RING STYLE

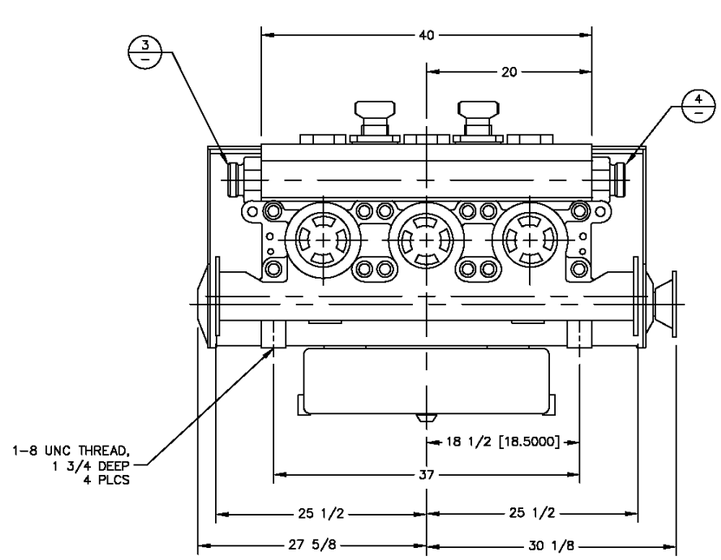
4 NOT SHOWN ON THE FIELD OF DRAWING



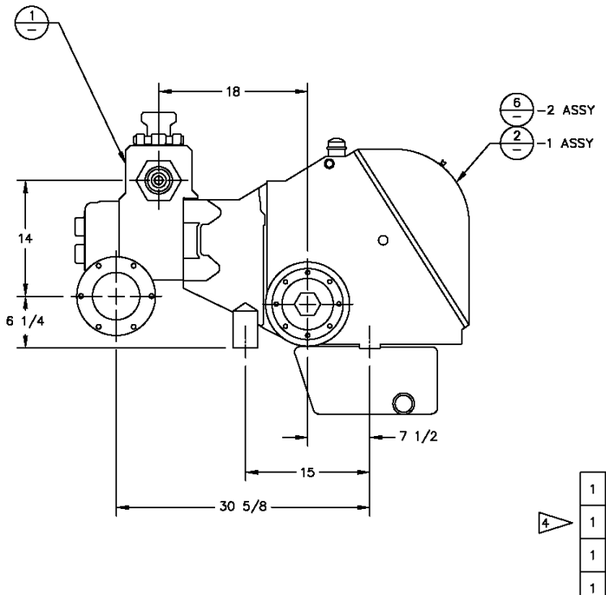
TOP VIEW



MOUNTING FOOT PRINT



FRONT VIEW



SIDE VIEW

-1 ASSY

ITEM NO.	DESCRIPTION	PART OR IDENTIFYING NO.	U.M.	QTY. REQ. -2	QTY. REQ. -1
6	PMP,POWER END LEFT HAND 4.06 CW 1880	114501LH-4	EA	1	–
5	PMP,SHIPPING SKID	600180-1	EA	1	1
4	CONNECTION ASSY,DISCH 2.0-1502 OPEN BORE	11282014	EA	1	1
3	PMP,DISCHARGE CONN 2.0-1502 W/ BUSHING	11282012	EA	1	1
2	PMP,POWER END LEFT HAND 4.06 CW 1810	114501LH-2	EA	–	1
1	PMP,FLUID END ASSY 4.500 STD FRAC & ACID	120270-7	EA	1	1

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

DASH NO.	DESCRIPTION
-2	W/ 1880/1910 INPUT FLG.
-1	W/ 1810 INPUT FLG.

LTR	DESCRIPTION	DATE	APPR.
D	PRC-145-180 PBF	11/04/2011	WC
C	PRC-137-901 PF	03/31/2008	WC
B	PRC-075-306 SJC	01/17/2007	MRL
A	PRC-075-305 SJC	10/20/2005	JRB

REVISIONS

PART NUMBER ASSIGNMENT

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DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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DRAWN	SJC	MM/DD/YY 10/1/2005
CHECKED	KWA	MM/DD/YY 10/19/2005
DESIGN	SJC	MM/DD/YY 10/20/2005
APPROVED	WC	MM/DD/YY 01/24/2008

TOMBALL, TX.
MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. 4700 LBS
EST. VOL. N/A
SCALE 1/8=1
SIZE D

TITLE
PUMP ASSY,
PACEMAKER
4.5 LH/CW

DRAWING NO. 86840
REV D
SHEET 1 OF 1

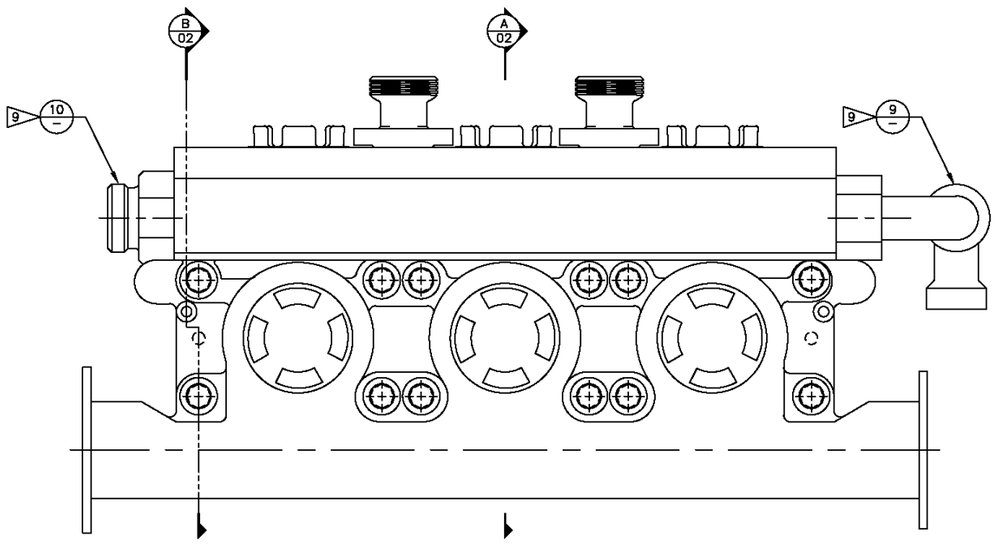
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Pacemaker II and V Pump Parts List

NOTES:

1. TORQUE BOLTS TO 2000–2200 FT/LBS.
2. USE HEAVY GREASE ON ACME SCREW THREADS & SUCTION VALVE O–RINGS.
3. USE DISCHARGE VALVE SEAT PULLER ASSEMBLY 122866–(DASH NO.).
4. USE PLUNGER PACKING DRIVER ASSEMBLY 114536.
5. USE WRENCH NO. 112838.
6. SUCTION VALVE PULLER ASSEMBLY.
   (A) 123496–1 LARGE SPRING RETAINER
   (B) 123496–2 SMALL SPRING RETAINER
   (C) OPTINAL 131334 (SCREW TYPE)
7. USE SPANNER WRENCH 120329
8. USE TEE WRENCH 112830
9. THIS ITEM APPLIES TO ASSEMBLIES –1 THROUGH –4 ONLY.
10. DELETED
11. LESS DISCHARGE CONNECTION.



FRONT VIEW

–8	–7	–6	–5	–4	–3	–2	–1	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
						QTY. REQ.					
3	3	3	3	3	3	3	3	EA	120531–50	PMP,BKUP RING 5.505 X 5.020 TF LN	24
3	3	3	3	3	3	3	3	EA	32027	O–RING,435 NITRILE 70 DURO	23
3	3	3	3	3	3	3	3	EA	XAS–433–01	O–RING,433 NITRILE 70 DURO	22
3	3	3	3	3	3	3	3	EA	32022	O–RING,439 NITRILE 70 DURO	21
2	2	2	2	2	2	2	2	EA	943631–70	PIN,DOWEL .750DIA X 2.000 ASA B5.20	20
2	2	2	2	2	2	2	2	EA	939349–3	WASHER,LOCK H/S .375 REG S ZINC	19
2	2	2	2	2	2	2	2	EA	X24380	SCREW,CP HEX .375–16NC X .500 S CAD G5	18
2	2	2	2	2	2	2	2	EA	940584–59	SCREW,SHOULDER SOC .625X.500NC X1.25 S	17
12	12	12	12	12	12	12	12	EA	118408	SCREW,CP 12PT 1.500–6NC X 12.000 8Z	16
3	3	3	3	3	3	3	3	EA	XAS–429–02	O–RING,429 NITRILE 90 DURO	15
3	–	–	–	3	–	–	–	EA	136545–1	PMP,PLUNGER PACKING ASSY 5.0 HEADER RING CYLINDRICAL	14
–	3	–	–	–	3	–	–	EA	136544–1	PMP,PLUNGER PACKING ASSY 4.5 HEADER RING CYLINDRICAL	13
–	–	3	–	–	–	3	–	EA	136543–1	PMP,PLUNGER PACKING ASSY 4.0 HEADER RING CYLINDRICAL	12
–	–	–	3	–	–	–	3	EA	136542–1	PMP,PLUNGER PACKING ASSY 3.5 HEADER RING CYLINDRICAL	11
9 –	–	–	–	1	1	1	1	EA	11282012	PMP,DISCHARGE CONN 2.0–1502 W/ BUSHING	10
9 –	–	–	–	1	1	1	1	EA	18–0007	SWIVEL,2.0–1502F S–50 FXPMP	9
2	2	2	2	2	2	2	2	EA	21715	PMP,FLUID END ADAPTER ASSY 2.0 1502F	8
1	1	1	1	1	1	1	1	EA	120269–1	PMP,FLUID END MACHINED 3.5–4.0 –4.5–5.0"	7
3	3	3	3	3	3	3	3	EA	36585BJ–1	PMP,SUCTION VALVE ASSY FOR CEMENT 60# SPRING	6
3	3	3	3	3	3	3	3	EA	112505–1	PMP,SUCTION COVER CASTING F/STD FE SUCT CVR	5
1	1	1	1	1	1	1	1	EA	112821–1	MANIFOLD,SUCTION PMP STANDARD FLUID END	4
3	3	3	3	3	3	3	3	EA	36627BJ–1	VALVE ASSY,DISCH PACEMAKER PMP	3
3	3	3	3	3	3	3	3	EA	112519	PMP,DISCHARGE COVER STANDARD FLUID END	2
1	1	1	1	1	1	1	1	EA	112814	PMP,RAM WASH & PKG LUBE CVR ASSY	1

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

DASH NO.	PLUNGER SIZE
–8	5 11
–7	4 1/2 11
–6	4 11
–5	3 1/2 11
–4	5 9
–3	4 1/2 9
–2	4 9
–1	3 1/2 9

LTR	DESCRIPTION	DATE	APPR.
	REVISIONS		
L	PRC–145–326 RD	11/04/2011	WC
K	PRC–018–016 CDA	09/19/2007	SAB
J	PRC–018–017 SDO	12/02/2005	JRB

PART NUMBER ASSIGNMENT

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TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.02, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/64
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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DRAWN	EGJ	MM/DD/YY 09/29/1995
CHECKED	DRW	MM/DD/YY 11/11/1996
DESIGN	DRW	MM/DD/YY 11/11/1996
APPROVED	WC	MM/DD/YY 11/04/2011

TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT.
EST. VOL.
SCALE 1/4=1 SIZE D

TITLE: FLUID END ASSEMBLY, 3.5–5.0 STANDARD PACEMAKER PUMP

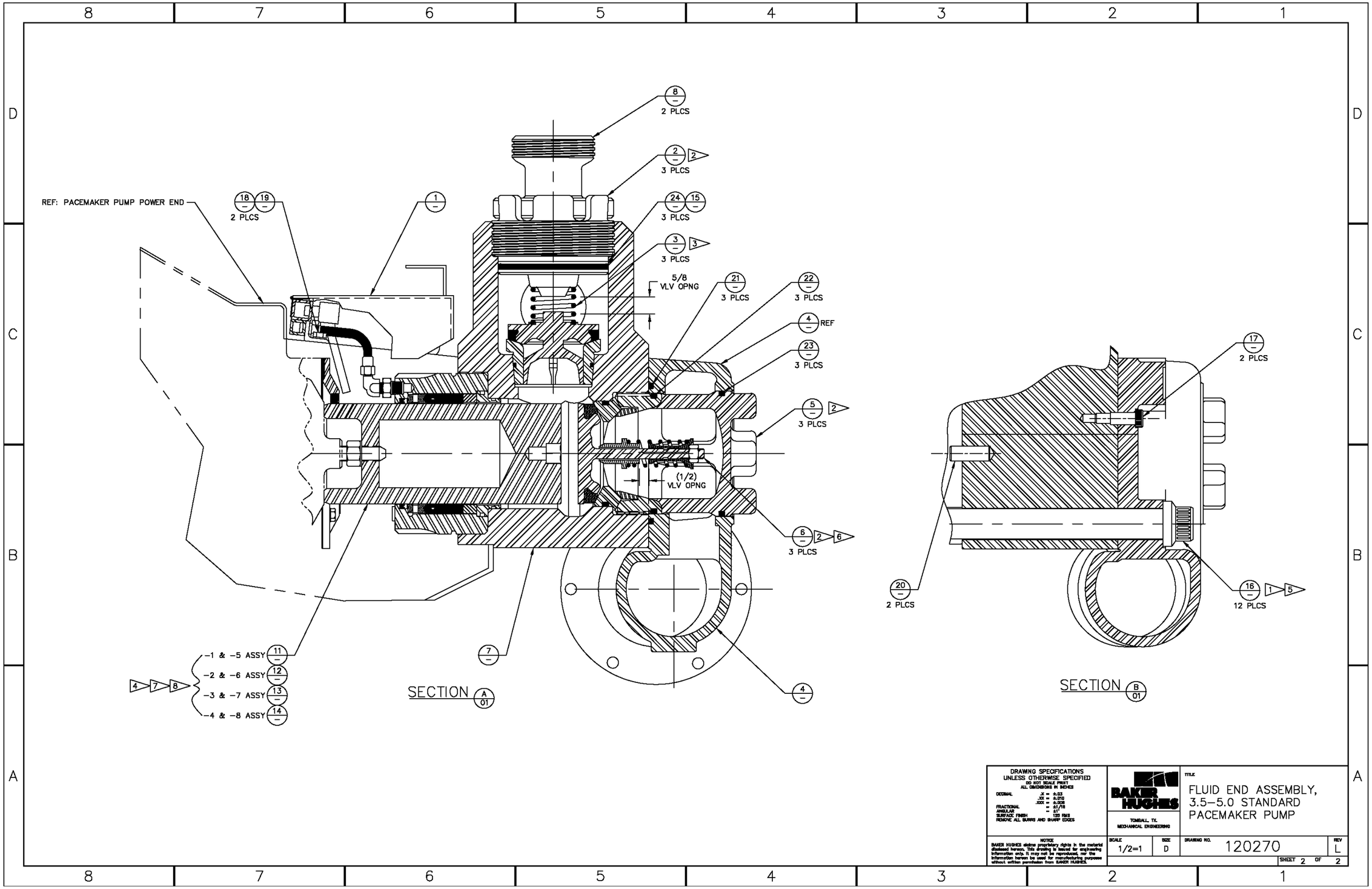
DRAWING NO. 120270 REV L

SHEET 1 OF 2

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Pacemaker II and V Pump Parts List



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NOTES:

1. UNLESS OTHERWISE INDICATED ALL WELDING TO BE DONE IN ACCORDANCE WITH BJ SERVICES SPEC. 48422.

2. * USED ON PACEMAKER PUMP NO. I (HIGH DRIVE, STD. FLUID END)

3. PERMANENTLY MARK BJ SERVICE P/N "112814" IN AREA SHOWN, USE 1/4 HIGH CHARACTERS (COLOR WHITE)

4. WELDING NOTES FOR SECTION A–A ASSEMBLY:
   - A. BUTT COVER TO HINGE
   - B. WELD HINGE TO COVER
   - C. POSITION HINGE ON SQUARE TUBE AS SHOWN
   - D. WELD HINGE TO TUBE
   - E. WELD BRACKET TO SQUARE TUBES

5. PRIME ONLY PER SPEC. 36936 SECTION II

MATERIAL CUT LIST

ITEM NO.	PIECE MARKING	CUT LENGTH	QTY.
2	2–1	38 1/2	1
3	3–1	1 1/2 POE + TOE	2
4	4–1	42 1/8	1
5	5–1	3 1/4 X 3 1/2	2
	5–2	9 7/8 X 44	1
6	6–1	1 1/4	2
8	8–1	14 CUT TO FIT	3
13	13–1	36	1
16	16–1	3 1/2	3

	QTY. REQ.		DWG SIZE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL/SPECIFICATION	ITEM NO.
	3		57610	FERRULE	3/8 O.D. ARQP FF9605–6 OR EQUIVALENT		21
	3		57611	NUT, TUBING	3/8 O.D. ARQP FC2875–6 OR EQUIVALENT		20
	1		118328	VALVE, GLOBE	3/4 WALWORTH W58		19
	1		42909	ELL, 90° ST	3/4 NPT 150# MI–BLK		18
	3		31187	ELL, 90°	06MJ X 04MP		17
	.88 F		26060601	TUBING, COPPER	1/4" (3/8" O.D.) X .035W TYPE K		16
2.	1		118324	BOLT, SNAP	NORTH & JUDD 229 1/4		15
2.	2		118323	LINKS, CHAIN CAMBELL	COIL LINK CHAIN #2/0 3/16 STRAIGHT		14
	3.0 F		118322	HINGE, CONT.	1/8 X 2 W X 1/8 PIN S/S		13
	2		118321	PLUG, PIPE SQ. HD	1/4 NPT MI STD		12
	1		X3803	CAP, PIPE	3/4 NPT STD		11
	3		118318	ELBOW, 90°	04MS–04FP BRASS		10
	3		118317	FTG, HOSE BARB	1/4 FJS STRATOFLEX		9
	3.5 F		31090	HOSE, AIR	1/4 ARQP #2556–4		8
	3		118316	FTG, HOSE BARB	1/8 MPS STRATOFLEX		7
	.20 F		001018	ANGLE	1 1/4 X 1 1/4 X 3/16 A36		6
	3.22 SF		X10022	STEEL, SHEET	10 GA. H/R 1020		5
	3.5 F		X10021	TUBING, SQUARE	1 X .120 WALL 1018		4
	.25 F		002107	PIPE	3/4 SCH 40 A53		3
	3.2 F		X10020	TUBING, SQUARE	3/4 X .120 WALL STEEL TUBING		2
	2		57720	ELL, 90°	1/4 NPT 150# MI		1

LIST OF MATERIALS

LTR	DESCRIPTION	DATE	APPR.
H	ECN #4658 (SO)	10/2/97	JB
G	ECN #4572 (J. LONERGAN)	5/15/97	J.B.
F	ECN #3345 (REDRAWN) (SO)	5/1/96	JB

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
MACHINED SURFACES 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

NOTICE
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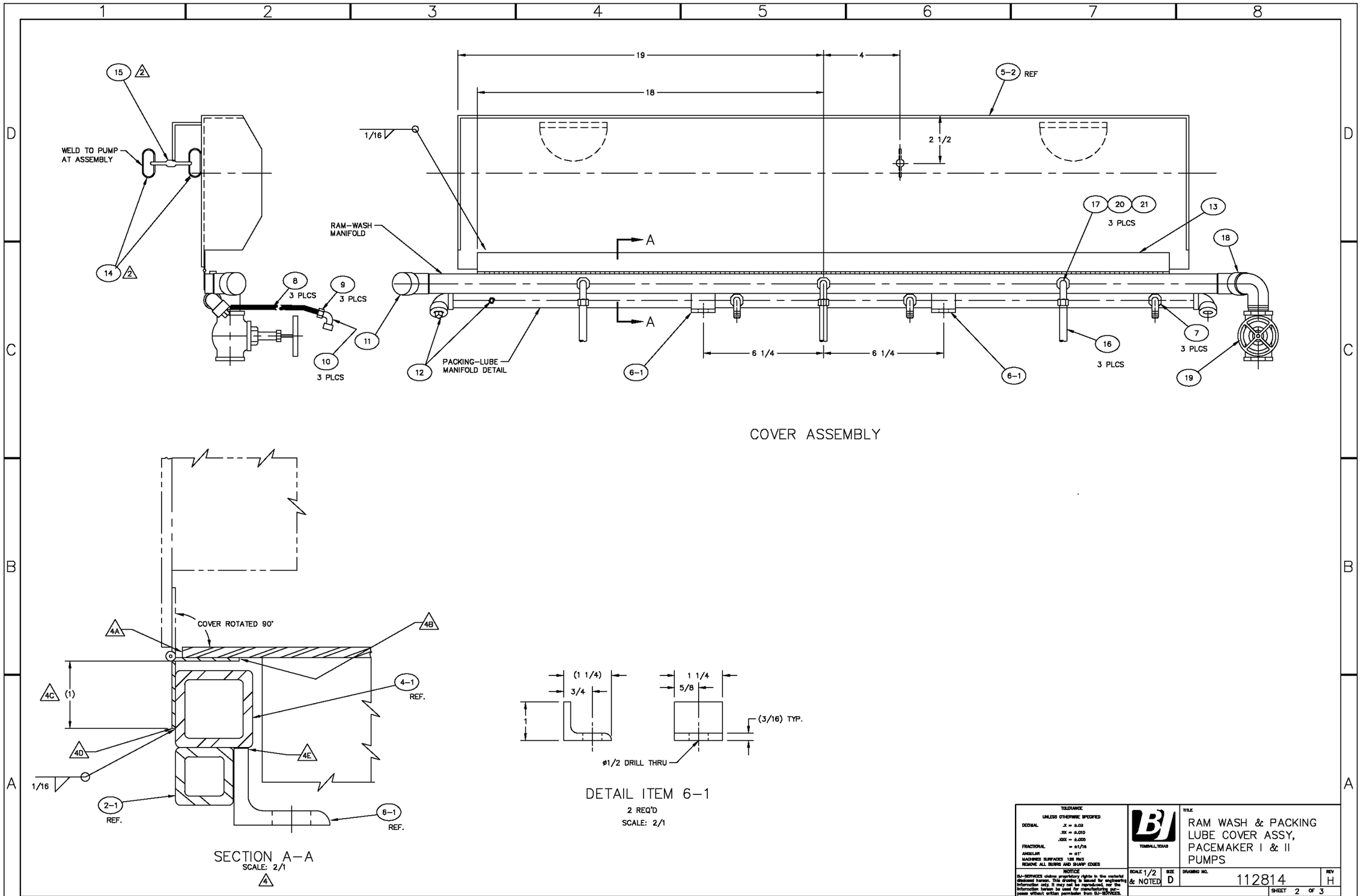
THIRD ANGLE PROJECTION

DRAWN LB/SO 6/28/96
CHECKED D. WADE 11/11/96
DESIGN J. BARRINGTON 11/11/96
APPROVED J. BARRINGTON 11/11/96
EST. WT. 38 LBS

TOMBALL, TEXAS

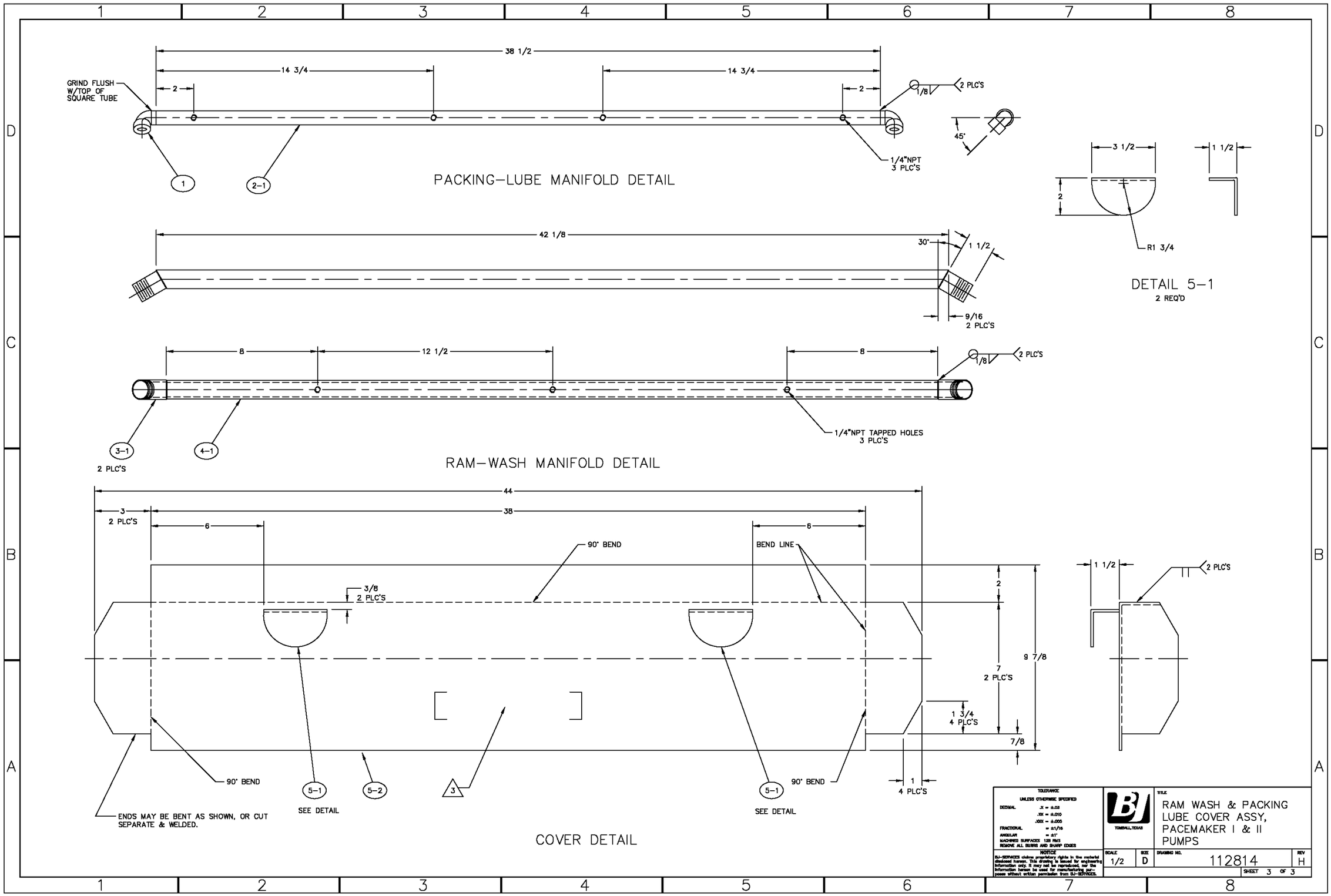
TITLE: RAM WASH & PACKING LUBE COVER ASSY, PACEMAKER I & II PUMPS

SCALE 1/1 | SIZE D | DRAWING NO. 112814 | REV H | SHEET 1 OF 3



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Baker Hughes—Company Confidential

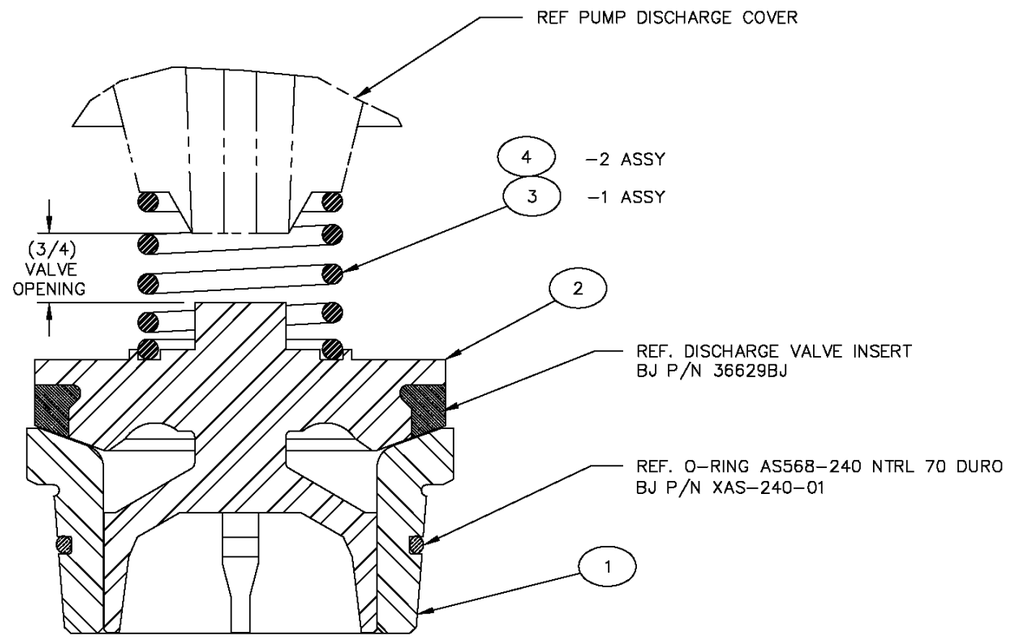


Uncontrolled when printed—confirm the correct revision is used

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NOTE:

1. PERMANENTLY MARK BJ P/N 36627 WITH SUFFIX –1 OR –2 AS SHOWN BELOW.



FULL SECTION

–1 ASSY
–2 ASSY

–2	–1	DWG SIZE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL/SPECIFICATION	ITEM NO.
QTY. REQ.						
1		A	120004	SPRING, COMPRESSION (125 LB / INCH SPRING RATE)		4
	1	A	112818	SPRING, COMPRESSION (75 LB / INCH SPRING RATE)		3
1	1		40497	DISCHARGE VALVE WITH INSERT		2
1	1		40496	DISCHARGE VALVE SEAT WITH O–RING		1

LIST OF MATERIALS

DASH NO.	TYPE OF OPERATION	PART
–2	FRACTURING & ACIDIZING	125 LBS. SPRING
–1	CEMENTING	75 LBS. SPRING

LTR	DESCRIPTION	DATE	APPR.
A	ECN #3336 (REDRAWN) (SO)	11/11/96	JB

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

TOLERANCE
UNLESS OTHERWISE SPECIFIED
DECIMAL .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
MACHINED SURFACES 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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THIRD ANGLE PROJECTION

DRAWN	LB/SO 6/24/96
CHECKED	D. WADE 11/11/96
DESIGN	J. BARRINGTON 11/11/96
APPROVED	J. BARRINGTON 11/11/96
EST. WT.	12 LBS
EST. VOL.	

TOMBALL, TEXAS

TITLE: VALVE ASSY, DISCHARGE PACEMAKER PUMP

SCALE	SIZE	DRAWING NO.	REV
1/1	C	36627BJ	A

SHEET 1 OF 1

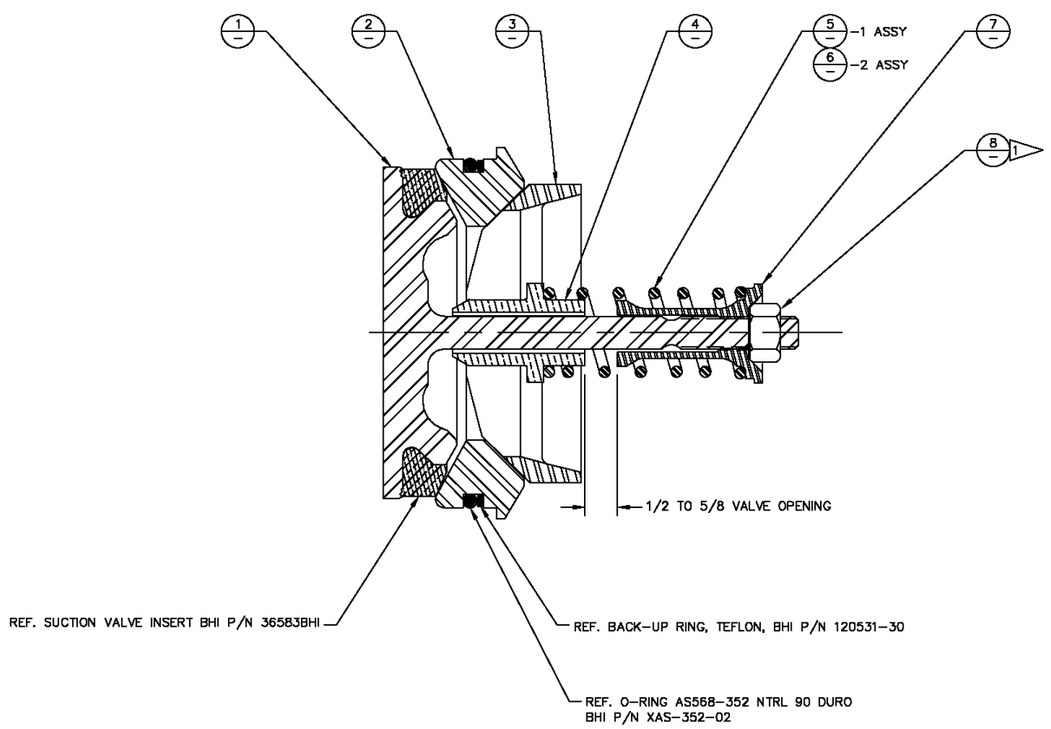
Uncontrolled when printed—confirm the correct revision is used

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Pacemaker II and V Pump Parts List

NOTES:

1. TORQUE TO 50 FOOT LBS.
2. PERMANENTLY MARK BHI P/N 36585BHI WITH SUFFIX –1 OR –2 AS SHOWN BELOW.
3. TOOL REQUIRED FOR REMOVAL FROM FLUID END SUCTION VALVE PULLER BHI P/N: 123496–2.



–1 ASSY
–2 ASSY
FULL SECTION

QTY. REQ. –2	QTY. REQ. –1	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
1	1	EA	118488	NUT, HEX LOCK 1/2–20NF S 22UTB1220	8
1	1	EA	115823	SUCTION VALVE SPRING RETAINER	7
1		EA	112512	SPRING, COMPRESSION (120 LB / INCH SPRING RATE)	6
	1	EA	112856	SPRING, COMPRESSION (60 LB / INCH SPRING RATE)	5
1	1	EA	115376	SUCTION VALVE GUIDE INSERT	4
1	1	EA	120145	SUCTION VALVE GUIDE	3
1	1	EA	40110	SEAT, SUCTION VALVE WITH O–RING AND BACK–UP RING	2
1	1	EA	40111	VALVE, SUCTION WITH INSERT	1

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

DASH NO.	OPERATION
–2	FRACTURING & ACIDIZING
–1	CEMENTING

LTR	DESCRIPTION	DATE	APPR.
	REVISIONS		
E	PRC–153–822 KLC	11/24/2014	WC
D	PRC–057–429 MDM	02/24/2006	MRL
C	PRC–113–108 TMF	02/24/2006	TMF
B	SDO	01/17/1997	JRB
A	MM	01/17/1997	GRD
–	MM	01/17/1997	GRD

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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BAKER HUGHES

DRAWN	RDS	01/17/1973
CHECKED	RD	11/24/2014
ISSUED	GEH	01/17/1973
APPROVED	WC	11/24/2014

TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. 4.5 LBS
EST. VOL. N/A
SCALE 1=1 SIZE C

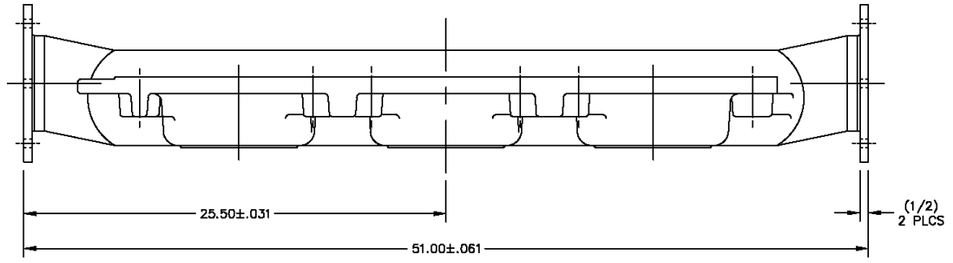
TITLE
VALVE ASSY, SUCTION
PACEMAKER PUMP

DRAWING NO. 36585BJ REV E
SHEET 1 OF 1

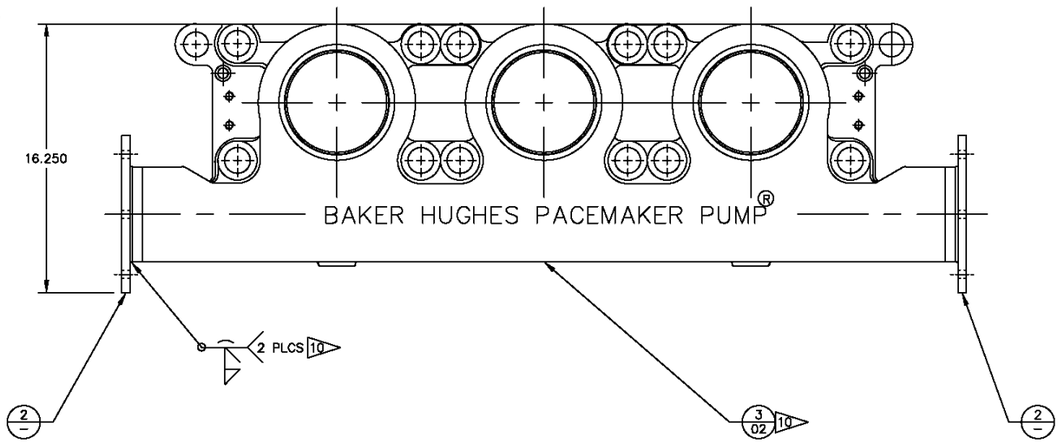
Uncontrolled when printed—confirm the correct revision is used
Baker Hughes—Company Confidential

NOTES:

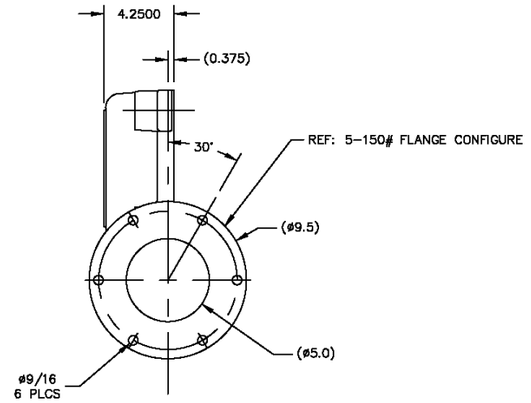
1. INSIDE RADII 1/2" EXCEPT AS NOTED.
2. OUTSIDE RADII 7/8" EXCEPT AS NOTED.
3. WALL THICKNESS 3/8±1/16 EXCEPT AS NOTED.
4. DRAFT ANGLE 4°.
5. FILLET RADII 1/8".
6. DIAS TO BE CONCENTRIC WITHIN .003 T.I.R.
7. SURFACES TO BE PERPENDICULAR & PARALLEL WITHIN .003 T.I.R.
8. HEAT TREAT FOR ATLAS ALLOY #820–4 120–95
   a. NORMALIZE (HOMOGENIZE)
   b. QUENCH & TEMPER TO 255–302 BRINELL (Rc25–32)
   CERT. TO BE PROVIDED TO BAKER HUGHES.
9. HEAT TREAT FOR BHI MATERIAL 20A27
   a. NORMALIZE (HOMOGENIZE) PER BHI SPEC. A–120428.
   b. QUENCH & TEMPER PER BHI SPEC. A–120421 (Rc28–34)
   CERT. TO BE PROVIDED TO BAKER HUGHES.
10. MPI PER BHI SPEC. QP100–001.
11. UNLESS OTHERWISE INDICATED ALL WELDING TO BE DONE IN ACCORDANCE WITH BAKER HUGHES SPEC. 48422.
12. PLACE BAKER HUGHES P/N "112821–1" OR "112821–2" AS APPLICABLE IN AREA SHOWN WITH 1/2" HIGH X 1/8" RAISED CHARACTERS.
13. CASTING DIMENSIONS ARE FRACTIONS.
14. CHARPY IMPACT TESTING PER BHI SPEC 20A27 REQUIRED. CHARPY TEST CERTIFICATE TO BE PROVIDED TO BAKER HUGHES.
15. ASSEMBLY IS OBSOLETE. DO NOT USE.



TOP VIEW



FRONT VIEW



SIDE VIEW

ITEM NO.	QTY. REQ.	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	
3	1	EA	112821–2C	CASTING, STEEL PER BHI MATERIAL SPEC. 20A27	14
2	2	EA	43628–4	FLANGE, BUTTERFLY VALVE 5" BJ	
1	–	EA	DELETED		

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

DASH NO.	FLUID END
–2	W/ CHARPY'S
–1	W/O CHARPY'S

15

LTR	DESCRIPTION	DATE	APPR.
	REVISIONS		
T	PRC–152–375 RD	04/17/2014	WC
S	PRC–152–375 RD	04/17/2014	WC
R	PRC–130–019 EGJ	08/08/2013	MRL
Q	PRC–013–490 JCV	04/08/2013	JRB
P	SDO	03/03/1999	JRB
N	LM	03/03/1995	JRB
M	EGJ	12/12/1997	JRB

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL: .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH = 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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BAKER HUGHES

DRAWN	SDO	MM/DD/YY 03/03/1995
CHECKED	WC	MM/DD/YY 05/15/2014
DESIGN	RMC	MM/DD/YY 03/03/1995
APPROVED	WC	MM/DD/YY 05/15/2014

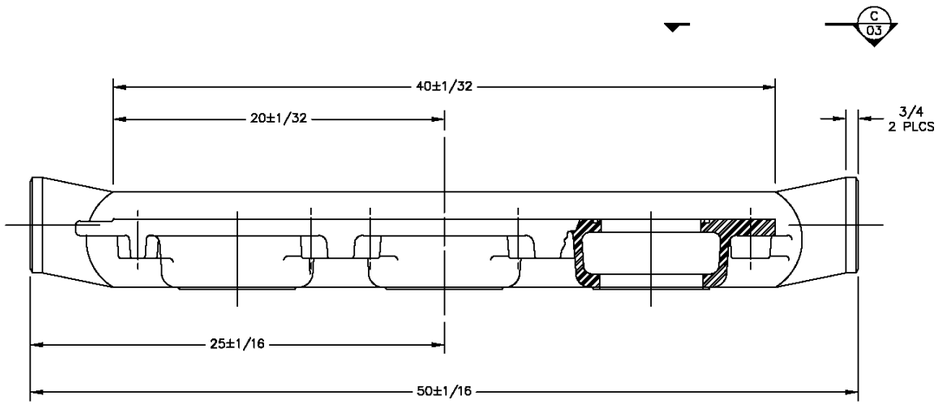
TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. 236 LBS
EST. VOL. N/A
SCALE 1/4=1 SIZE D

TITLE: MANIFOLD, SUCTION STANDARD FLUID END PACEMAKER PUMP

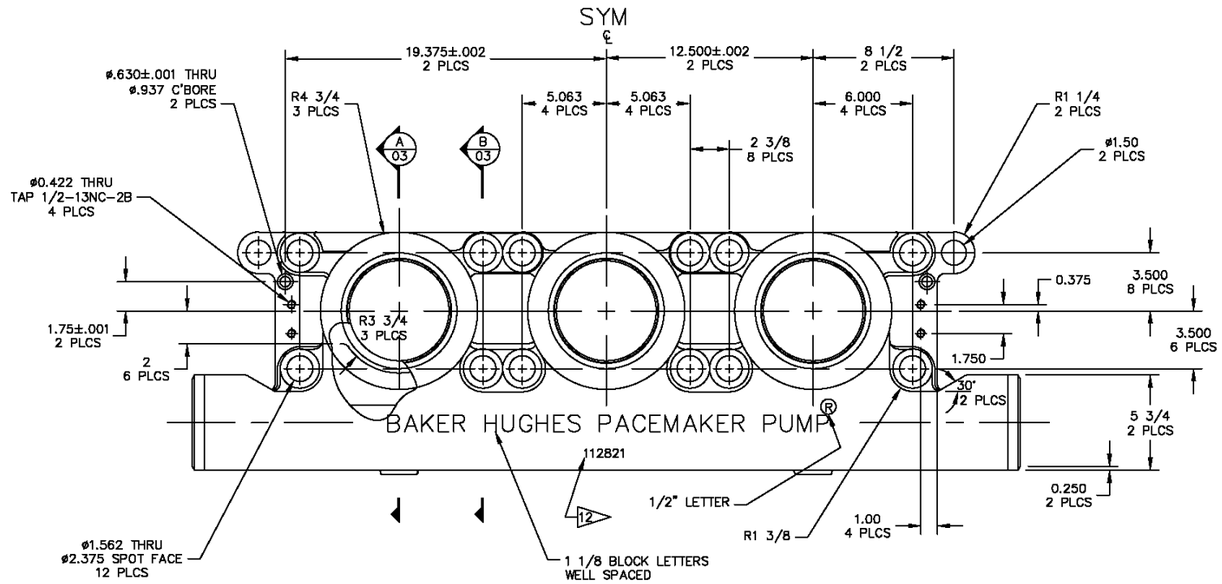
DRAWING NO. 112821 REV T
SHEET 1 OF 3

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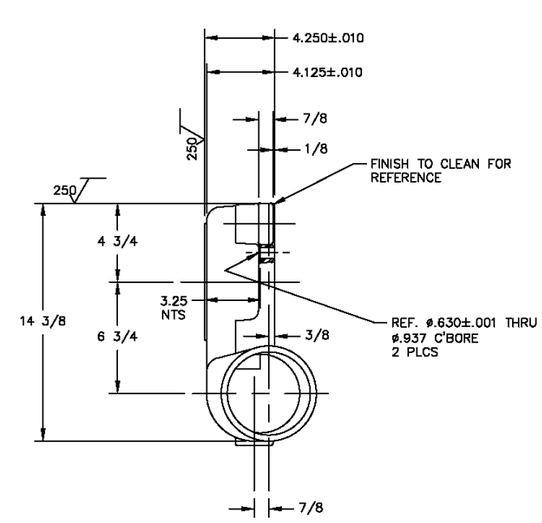


TOP VIEW



DETAIL ITEM 3/01

FRONT VIEW



SIDE VIEW

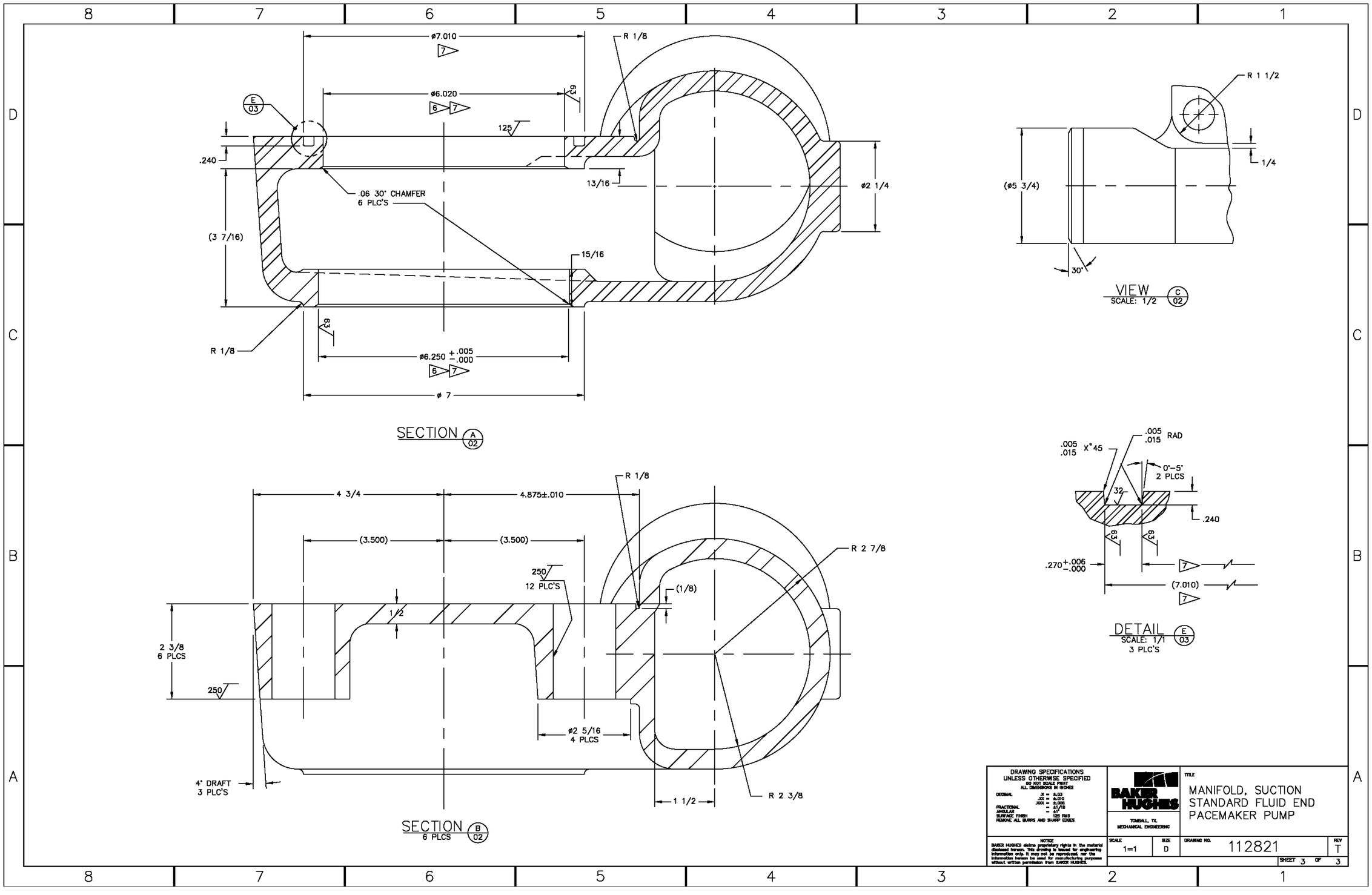
DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.03
.XX = ±.010
.XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

BAKER HUGHES
TOMBALL, TX.
MECHANICAL ENGINEERING

TITLE
MANIFOLD, SUCTION
STANDARD FLUID END
PACEMAKER PUMP

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SCALE 1/4=1 | SIZE D | DRAWING NO. 112821 | REV T
SHEET 2 OF 3



DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES

DECIMAL	.X =	±.03
	.XX =	±.010
	.XXX =	±.005
FRACTIONAL	=	±1/16
ANGULAR	=	±1°
SURFACE FINISH		125 RMS

REMOVE ALL BURRS AND SHARP EDGES

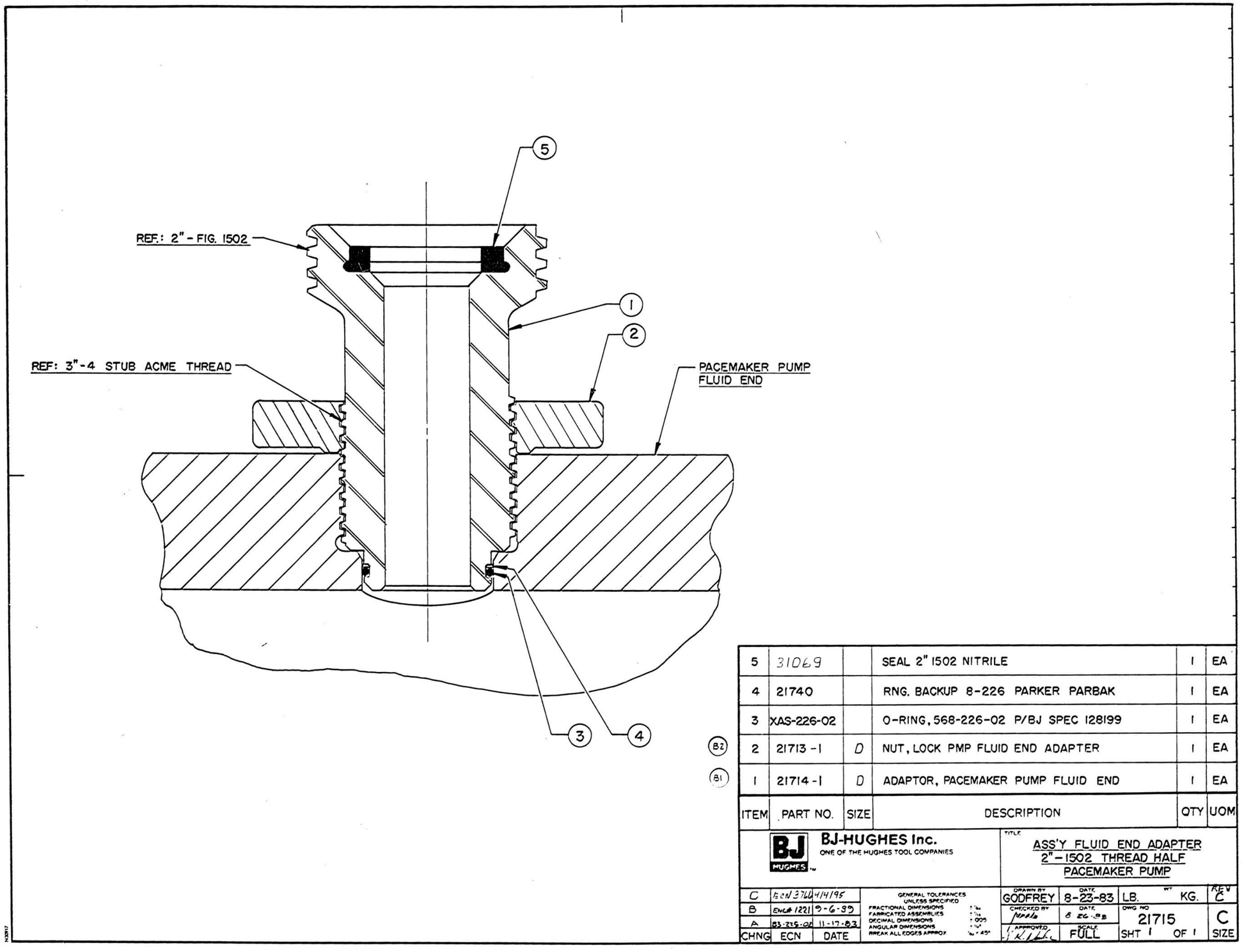
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BAKER HUGHES
TOMBALL, TX.
MECHANICAL ENGINEERING

TITLE
MANIFOLD, SUCTION
STANDARD FLUID END
PACEMAKER PUMP

SCALE	SIZE	DRAWING NO.	REV
1=1	D	112821	T

SHEET 3 OF 3



ITEM	PART NO.	SIZE	DESCRIPTION	QTY	UOM
5	31069		SEAL 2" 1502 NITRILE	1	EA
4	21740		RNG. BACKUP 8-226 PARKER PARBAK	1	EA
3	XAS-226-02		O-RING, 568-226-02 P/BJ SPEC 128199	1	EA
B2 2	21713 -1	D	NUT, LOCK PMP FLUID END ADAPTER	1	EA
B1 1	21714 -1	D	ADAPTOR, PACEMAKER PUMP FLUID END	1	EA

BJ-HUGHES Inc.
ONE OF THE HUGHES TOOL COMPANIES

TITLE: ASS'Y FLUID END ADAPTER 2"-1502 THREAD HALF PACEMAKER PUMP

CHNG	ECN	DATE
C	ECN 3764	4/14/95
B	ENG# 1221	9-6-89
A	83-225-02	11-17-83

GENERAL TOLERANCES UNLESS SPECIFIED
FRACTIONAL DIMENSIONS ± 1/64
FABRICATED ASSEMBLIES ± 1/32
DECIMAL DIMENSIONS ± .005
ANGULAR DIMENSIONS ± 1°
BREAK ALL EDGES APPROX 1/64 × 45°

DRAWN BY: GODFREY | DATE: 8-23-83 | WT: LB. KG. | REV: C
CHECKED BY: [illegible] | DATE: 8 26 83 | DWG NO: 21715
APPROVED: [illegible] | SCALE: FULL | SHT 1 OF 1 | SIZE: C

Uncontrolled when printed—confirm the correct revision is used

Baker Hughes—Company Confidential

Pacemaker II and V Pump Parts List

NOTES:

1. PUMP FLUID END TYPICAL BOTH ENDS
2. DELETED
3. DELETED
4. ALL 2 PIECE DISCHARGE CONNECTIONS 11282001, 02, 04, 05, 06, 08, 11, 13 ARE OBSOLETE AND ARE NOT TO BE REORDERED.
5. PACEMAKER PUMP SWIVEL ASSEMBLIES HAVE BEEN SUPERCEEDED BY A PURCHASED PART NUMBER. THEIR GEOMETRY IS NO HAS BEEN KEPT ON SHEET 2 FOR REFERENCE ONLY.

APPLICATIONS

DISCH. CONN. ASSY.	ITEM STATUS	DESCRIPTION	FLUID END USAGE	
11282001	OBSOLETE	DISCH. CONN. 2" LPT (LG) PRESSURE: 20,000 PSI	SMALL & STD ALL PLUNGER SIZES	4
11282002	OBSOLETE	DISCH. CONN. 3" NPT PRESSURE: NOT AVAILABLE	STD & LARGE ALL PLUNGER SIZES	4
11282003	SUPERCEDED BY 18-0007	2" CHIKSAN #3144061 PRESSURE: 15,000 PSI	STD W/4,4 1/2 & 5" PLUNGER SIZES	5
11282004	OBSOLETE	2" CHIKSAN #6102638 PRESSURE: 10,000 PSI	STD W/4,4 1/2 & 5" LARGE & ALL PLUNGER SIZES	4
11282005	OBSOLETE	2" CHIKSAN #3106815 PRESSURE: 15,000 PSI	STD W/4,4 1/2 & 5" PLUNGER SIZES	4
11282006	OBSOLETE	2" CHIKSAN #3145553 PRESSURE: 20,000 PSI	SMALL & STD ALL PLUNGER SIZES	4
11282008	OBSOLETE	DISCH. CONN. B-20 GRAYLOC HUB 15,000 PSI	STD W/4,4 1/2 & 5" LARGE & ALL PLUNGER SIZES	4
11282010	SUPERCEDED BY 126794	3" CHIKSAN # PRESSURE: 15,000 PSI	STD W/4,4 1/2 & 5" LARGE & ALL PLUNGER SIZES	5
11282011	OBSOLETE	DISCH. CONN. 2" WECO 3002 FEMALE-20,000 PSI	SMALL & STD ALL PLUNGER SIZES	4
11282012	SEE SHEET 2	DISCH. CONN. 2" WECO 1502 FEMALE-15,000 PSI	SMALL & STD ALL PLUNGER SIZES	
11282013	OBSOLETE	2" CHIKSAN #610011 PRESSURE: 15,000 PSI	STD W/4,4 1/2 & 5" PLUNGER SIZES	4
11282014	SEE SHEET 2	DISCH. CONN. 2" 1502 FEMALE-15,000 PSI	SMALL & STANDARD PLUNGER SIZES	

QTY. REQ.		U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
14	12				
1	1	EA	LXAS-342-02	ORING,342 NITRILE 90 DURO	1
1	1	EA	L49418	UNION SEAL,2.0 602/1002/1502 NTRL	8
	1	EA	LX309769BJ	BUSH,WELCH H-6448 .5X1X3.0	7
			DELETED		6
			DELETED		5
		EA	DELETED		4
			DELETED		3
			DELETED		2
		EA	DELETED		9
			DELETED		10
			DELETED		11
			DELETED		12
1		EA	L45841-1	PMP,ADPT,DISCH 2.0-1502 FEM X PMP INTEG	13
	1	EA	L136443	PMP,DISCH CONN INTEG NUT X 2.0 -1502 FEM	14
		EA	DELETED		15

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

LTR	DESCRIPTION	DATE	APPR.
W	PRC-151-482	RD 04/25/2014	WC
V	PRC-013-488	CDA 04/11/2007	SAB
–	PRC-013-487	BMS 04/11/2006	BMS

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES

DECIMAL .X = ±.02 .XX = ±.010 .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

NOTICE
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BAKER HUGHES

DRAWN	CDA	MM/DD/YY 02/14/2007
CHECKED	WC	MM/DD/YY 04/25/2014
DESIGN	MRL	MM/DD/YY 04/15/2007
APPROVED	SAB	MM/DD/YY 04/13/2007

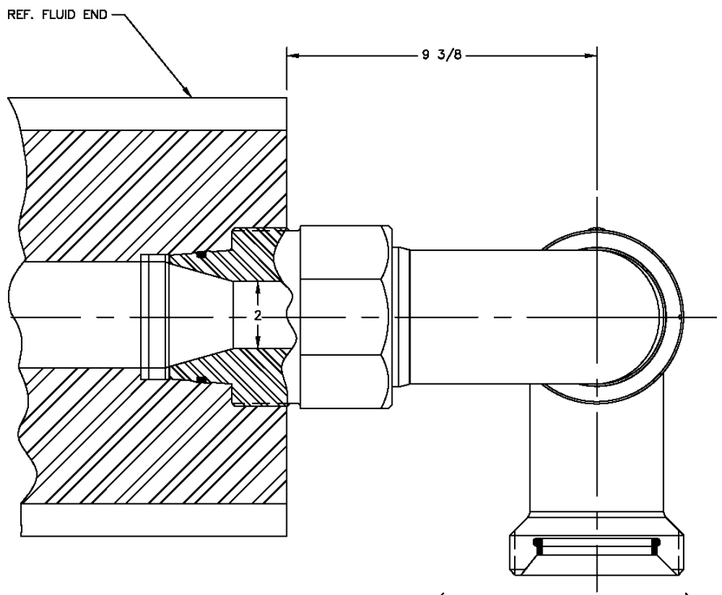
TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. TBD
EST. VOL. N/A
SCALE NTS SIZE D

TITLE
CONNECTION ASSY, DISCHARGE PACEMAKER PUMP

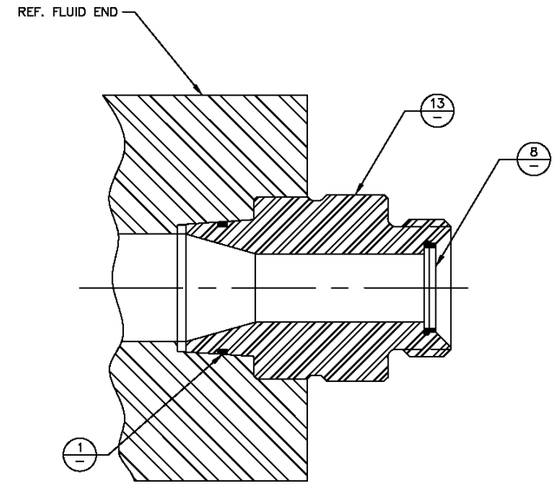
DRAWING NO. 112820 REV W
SHEET 1 OF 2

Uncontrolled when printed—confirm the correct revision is used

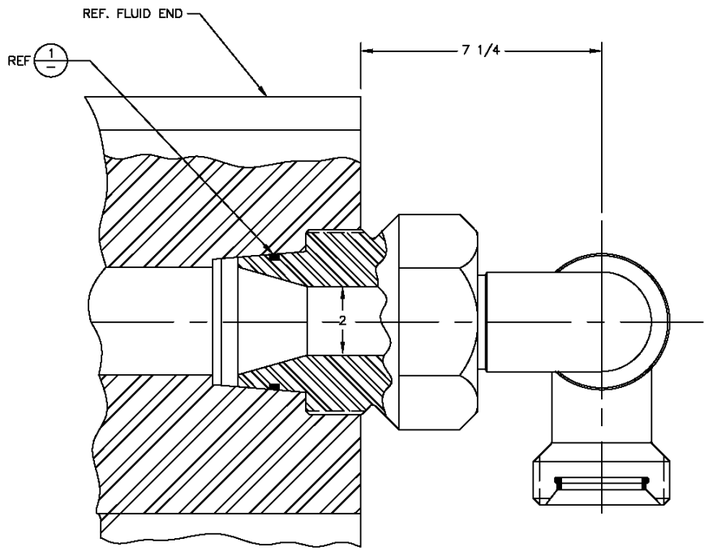
Baker Hughes—Company Confidential



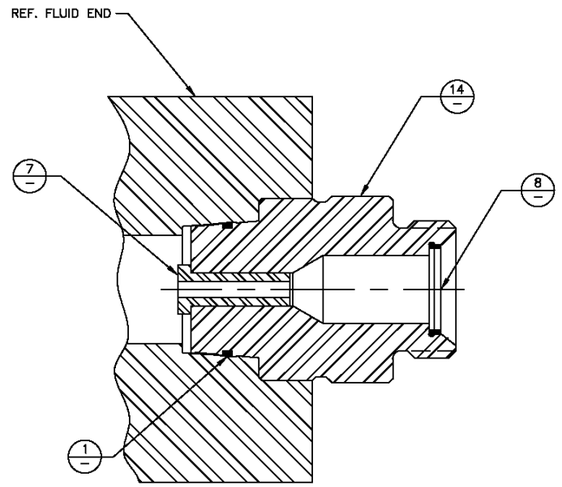
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ASSY 11282014



REFERENCE – 18–0007 (OLD NO. 11282003)



ASSY 11282012

DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL X = ±.03 .XX = ±.010 .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH = 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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BAKER HUGHES
TOMBALL, TX.
MECHANICAL ENGINEERING

TITLE
CONNECTION ASSY,
DISCHARGE
PACEMAKER PUMP

SCALE 1/2=1 | SIZE D | DRAWING NO. 112820 | REV W
SHEET 2 OF 2

Uncontrolled when printed—confirm the correct revision is used

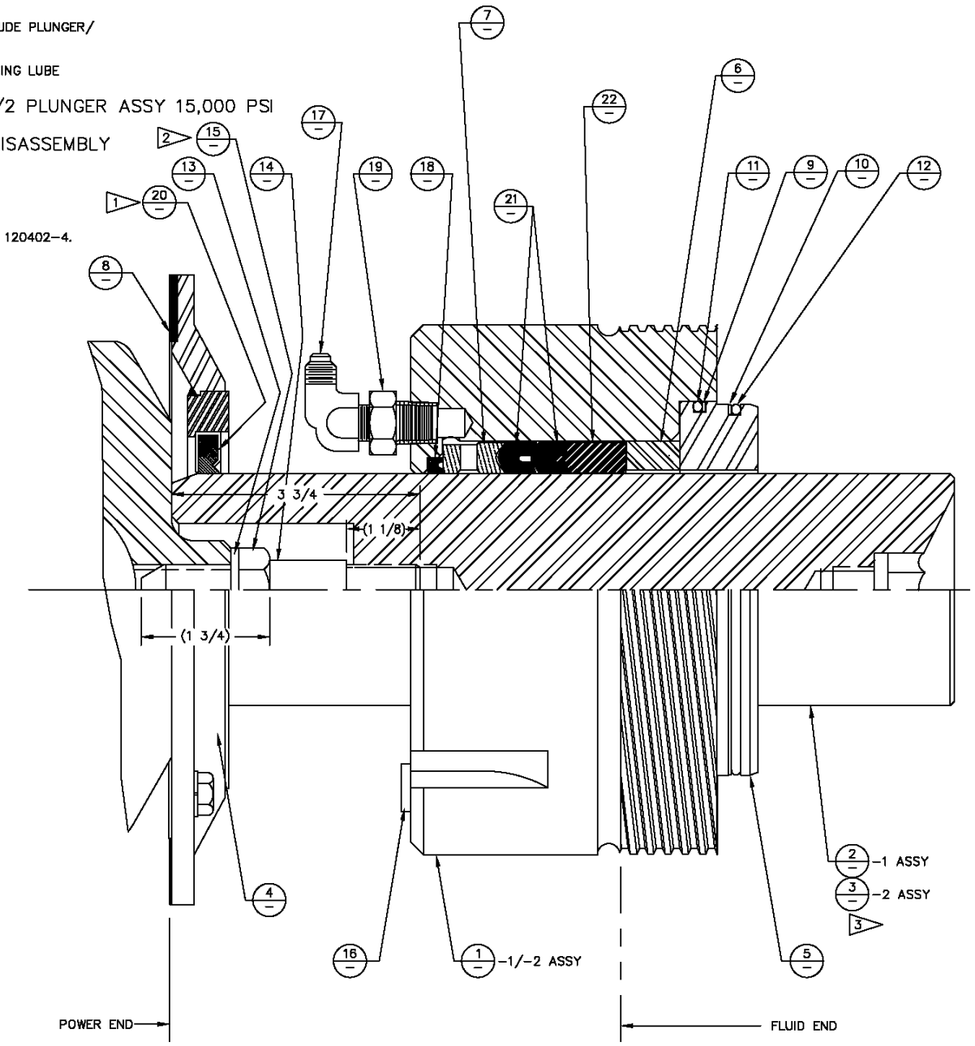
Baker Hughes—Company Confidential

NOTES:

1. COAT OIL SEAL WITH PERMATEX NO. 2 OR EQUIVALENT (BJ PART NO. 118409)
2. TORQUE TO 250 FT. LBS.
3. TORQUE TO 320 – 350 FT. LBS.
4. HEADER RING COMPRESSION: .010–.020 (DOES NOT INCLUDE PLUNGER/ GLAND SQUEEZE OR PACKING STACK HEIGHT TOL.)
5. USE ROCK BIT OIL AND 25–50 PSI PRESSURE FOR PACKING LUBE
6. MAXIMUM WORKING PRESSURE FOR 3 1/2 PLUNGER ASSY 15,000 PSI

TOOLS REQUIRED FOR ASSEMBLY AND DISASSEMBLY

* PLUNGER PACKING DRIVER ASSY 114536–13.
* PLUNGER PACKING LOADING AND REMOVAL TOOL ASSY 120402–4.
* TEE WRENCH 112830.
* SPANNER WRENCH 120329.



-1 ASSY / -2 ASSY

ITEM NO.	DESCRIPTION	PART OR IDENTIFYING NO.	DWG SIZE	U.M.	-1 QTY. REQ.	-2 QTY. REQ.
23	DELETED					
22	RING,HEADER 3.500 X 4.500 PL P KG UTEX IND 0783–01–0082–00	13654803		EA	1	1
21	SEAL,PRES RG 3.50 X 4.50 UTEX 1067–01–0082–19	13654903		ST	2	2
20	SEAL,OIL NATIONAL 415437	118469		EA	1	1
19	VALVE,CHECK ASSY W/CAP W/O SINTERED FILTER & STRAINER	X304374		EA	1	1
18	SEAL,ROD 3.50 PRKR 25003500– 375	12949503		EA	1	1
17	ELL,90 04MS–04FP BRASS	118318		EA	1	1
16	PLUG,PIPE 0.250NPT SOC HD FS	31564		EA	1	1
15	NUT,HEX 0.750–10NC S ZINC G8	939207–7		EA	1	1
14	STUD,0.750NC X 4.000 B7 A193 TAP END	118376		EA	3	3
13	WASHER,LOCK STAR .750 INT S	939657–12		EA	1	1
12	O–RING,252 NITRILE 90 DURO	XAS–252–02		EA	1	1
11	O–RING,356 NITRILE 90 DURO	XAS–356–02		EA	1	1
10	PMP,BKUP RING 5.500 X 5.283 TF LN	120531–46	A	EA	1	1
9	PMP,BKUP RING 5.688 X 5.353 TF LN	120531–55	A	EA	1	1
8	PMP,GASKET CROSSHEAD SEAL COVE R	112595	B	EA	1	1
7	PMP,RING BACK 3.5" SLC PACK	120251	B	EA	1	1
6	RING,SPACER 3.50" PL PKG	13654103	B	EA	1	1
5	PMP,SEAL RING 3.5" F/5"FLUID END	128692	B	EA	1	1
4	PMP,CROSSHEAD SEAL COVER ASSY 3.5"	120002	C	EA	1	1
3	PMP, PLUNGER 3.5" STN STL HRD MTL	112880	C	EA	–	1
2	PLUNGER,PUMP 3.500 PMP SOLID HARDMETAL COATED	88998–1	C	EA	1	–
1	PMP,GLAND PKG 3.5" CHEVRON	129508	D	EA	1	1

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

DASH NO.	DESCRIPTION	WT. (LBS.)
-3	OBSOLETE SEE 322654	
-2	PLUNGER, SS HARD METAL	76
-1	PLUNGER, HARD METAL COATED	78

LTR	DESCRIPTION	DATE	APPR.
F	PRC–141–703 PBF	6/15/2011	WC
E	PRC–139–926 FN	12/9/2010	WC
D	PRC–039–871 SJC	6/23/2006	JRB
C	SO	9/03/1997	JRB

REVISIONS

PART NUMBER ASSIGNMENT

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ALL DIMENSIONS IN INCHES
DECIMAL: .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

NOTICE
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THIRD ANGLE PROJECTION

DRAWN	SO 9/03/1997
CHECKED	ML 01/29/2010
DESIGN	ML 9/03/1997
APPROVED	WC 01/29/2010
EST. WT.	SEE TABLE
EST. VOL.	N/A

BJ MECHANICAL ENGINEERING TOMBALL, TX.

TITLE: PLUNGER PACKING ASSY 3 1/2" HEADER RING – CYLINDRICAL SEAL, PACEMAKER PUMP

SCALE 1=1 | SIZE D | DRAWING NO. 136542 | REV F | SHEET 1 OF 1

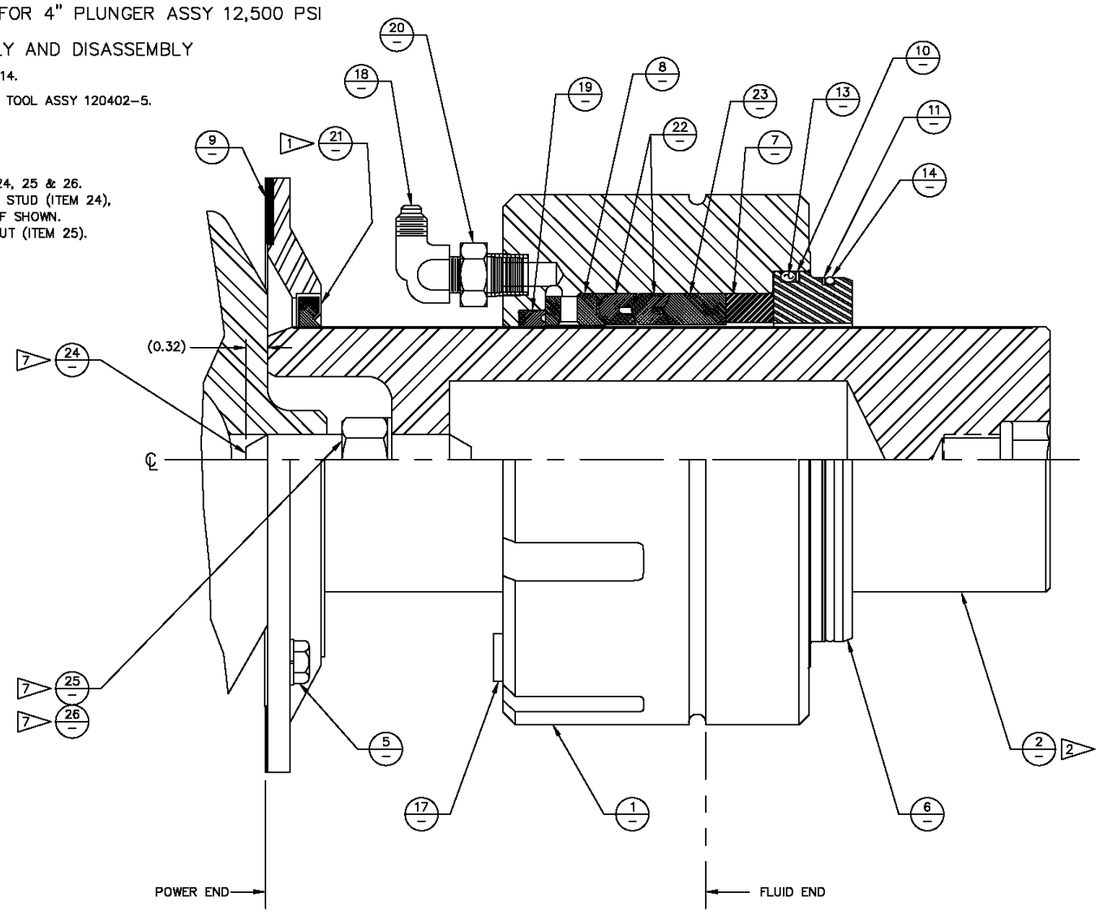
Uncontrolled when printed—confirm the correct revision is used

Baker Hughes—Company Confidential

Pacemaker II and V Pump Parts List

NOTES:

1. COAT OIL SEAL WITH PERMATEX NO. 2 OR EQUIVALENT (BJ PART NO. L118409)
2. TORQUE TO 320 – 350 FT. LBS.
3. HEADER RING COMPRESSION: .010–.020 (DOES NOT INCLUDE PLUNGER/ GLAND SQUEEZE OR PACKING STACK HEIGHT TOL.)
4. USE ROCK BIT OIL AND 25–50 PSI PRESSURE FOR PACKING LUBE
5. MAXIMUM WORKING PRESSURE FOR 4" PLUNGER ASSY 12,500 PSI
6. TOOLS REQUIRED FOR ASSEMBLY AND DISASSEMBLY
   * PLUNGER PACKING DRIVER ASSY L114536–14.
   * PLUNGER PACKING LOADING AND REMOVAL TOOL ASSY 120402–5.
   * TEE WRENCH L112830.
   * SPANNER WRENCH 120329.
7. ITEM 2 (PLUNGER) IS SUPPLIED WITH ITEMS 24, 25 & 26. WHEN REPLACING A DAMAGED, OR DEFECTIVE STUD (ITEM 24), INSTALL STUD INTO PLUNGER PER STAND–OFF SHOWN. INSTALL LOCK WASHER (ITEM26), AND HEX NUT (ITEM 25). TIGHTEN NUT TO A TORQUE OF 250 FT–LBS.



–1 ASSY

QTY. REQ.	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
	REF	EA	L939657–12	WASHER,LOCK STAR .750 INT S	26
	REF	EA	L939207–7	NUT,HEX 0.750–10NC S ZINC G8	25
	REF	EA	10312288	ROD,ALL–THD 0.750–10NCx3.50 A193 B7	24
	1	EA	L13654804	RING,HDER 4.0 X 5.0 PL PKG	23
	2	SET	13654904	RING, PRESSURE UTEX P/N 1067–01–0103–81 (HARD)	22
	1	EA	L118465	SEAL,OIL NATL 417509	21
	1	EA	LX304374	VLV,CHK ASY CAP W/O SINTERED FLTR&STRNR	20
	1	EA	L12949504	SEAL,ROD 4.00 PRKR 25004000–375	19
	1	EA	L118318	ELL,90 04MS–04FP BRASS	18
	1	EA	L31564	PLUG,PIPE 0.250NPT SOC HD FS	17
					16
					15
	1	EA	LXAS–252–02	ORING,252 NITRILE 90 DURO	14
	1	EA	LXAS–356–02	ORING,356 NITRILE 90 DURO	13
					12
	1	EA	L120531–46	PMP,BKUP RING 5.500 X 5.283 TF LN	11
	1	EA	L120531–55	PMP,BKUP RING 5.688 X 5.353 TF LN	10
	1	EA	L112595	PMP,GASKET CROSSHD SEAL COVER	9
	1	EA	L120262	PMP,RING BACK 4.0" SLC PACK	8
	1	EA	L13654104	RING,SPCR 4.00" PL PKG	7
	1	EA	L128429	PMP,RING SEAL 4.0" F/5.0" FE	6
	1	EA	L112588	PMP,CROSSHD SEAL CVR	5
					4
					3
	1	EA	L88998–2	PLNGR,PUMP 4.0 PMP SOLID HARDMETAL COATED	2
	1	EA	L129509	PMP,GLND PKG 4.0" CHEVRON	1

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

LTR	DESCRIPTION	DATE	APPR.
E	PRC–145–307	FA	11/4/2011	ML
D	PRC–039–872	SJC	01/03/1997	JRB
C		SO	01/03/1997	JRB

REVISIONS

PART NUMBER ASSIGNMENT

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TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

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DECIMAL .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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DRAWN	SO	MM/DD/YY 01/03/1997
CHECKED	ML	MM/DD/YY 11/14/2011
DESIGN	ML	MM/DD/YY 01/03/1997
APPROVED	ML	MM/DD/YY 11/14/2011

TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. 163 LBS
EST. VOL. N/A
SCALE 1=1 SIZE D

TITLE
PLUNGER PACKING ASSY, 4.0 HEADER RING–CYLINDRICAL SEAL, PACEMAKER PUMP

DRAWING NO. 136543 REV E
SHEET 1 OF 1

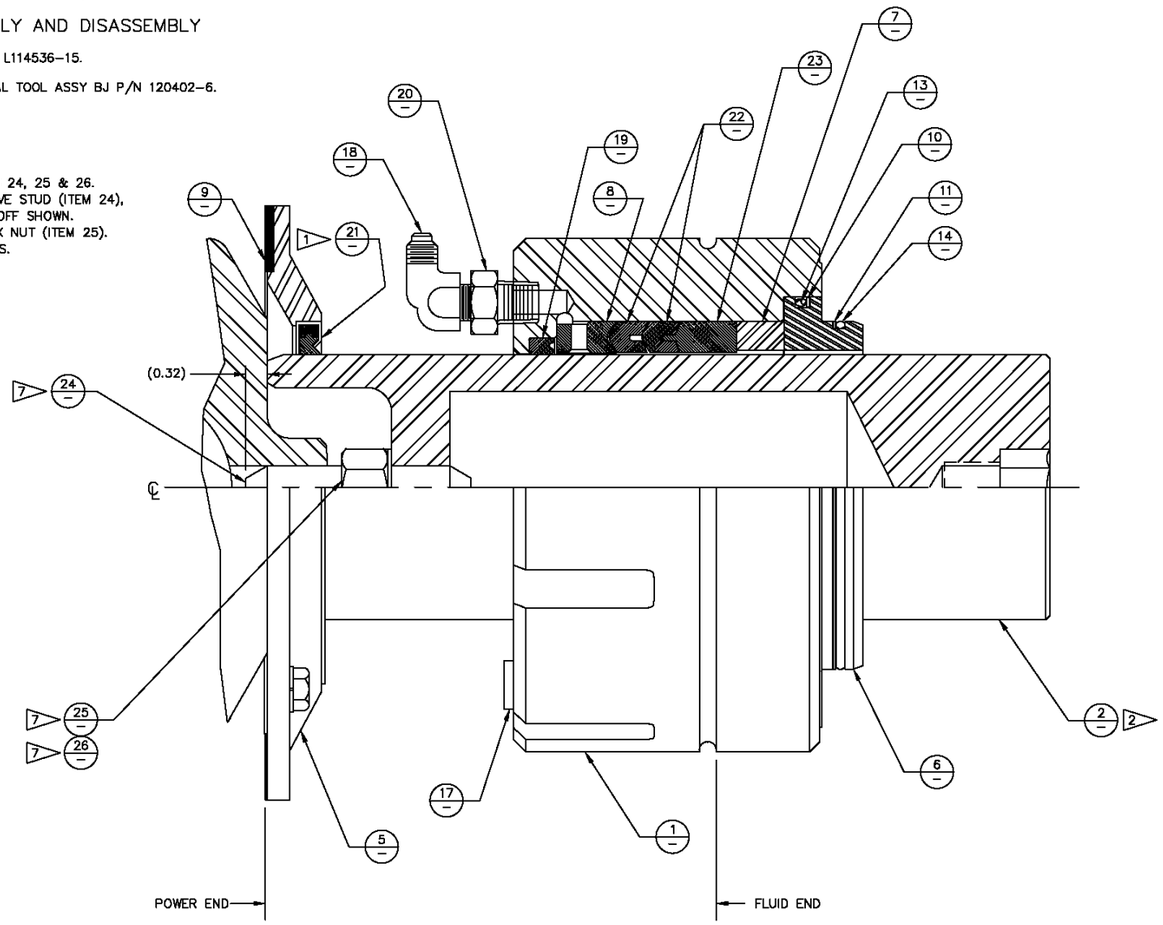
Uncontrolled when printed—confirm the correct revision is used

Baker Hughes—Company Confidential

Pacemaker II and V Pump Parts List

NOTES:

1. COAT OIL SEAL WITH PERMATEX NO. 2 OR EQUIVALENT (BJ PART NO. L118409).
2. TORQUE TO 320 – 350 FT. LBS.
3. HEADER RING COMPRESSION: .010–.020 (DOES NOT INCLUDE PLUNGER/ GLAND SQUEEZE OR PACKING STACK HEIGHT TOL).
4. USE ROCK BIT OIL AND 25–50 PSI PRESSURE FOR PACKING LUBE.
5. MAXIMUM WORKING PRESSURE FOR 4 1/2" PLUNGER ASSY 10,000 PSI
6. TOOLS REQUIRED FOR ASSEMBLY AND DISASSEMBLY
   * PLUNGER PACKING DRIVER ASSY BJ P/N L114536–15.
   * PLUNGER PACKING LOADING AND REMOVAL TOOL ASSY BJ P/N 120402–6.
   * TEE WRENCH BJ P/N L112830.
   * SPANNER WRENCH BJ P/N 120329.
7. ITEM 2 (PLUNGER) IS SUPPLIED WITH ITEMS 24, 25 & 26. WHEN REPLACING A DAMAGED, OR DEFECTIVE STUD (ITEM 24), INSTALL STUD INTO PLUNGER PER STAND–OFF SHOWN. INSTALL LOCK WASHER (ITEM 26), AND HEX NUT (ITEM 25). TIGHTEN NUT TO A TORQUE OF 250 FT–LBS.



–1 ASSY

QTY. REQ.	–1	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
	1	EA	L129510	PMP,GLND PKG 4.5" CHEVRON	1
	1	EA	L88998–3	PLNGR,PUMP 4.5 PMP SOLID HARDMETAL COATD	2
			DELETED		3
			DELETED		4
	1	EA	L112588	PMP,CROSSHD SEAL CVR	5
	1	EA	L120420	PMP,RING SEAL 4.5" SLC CS	6
	1	EA	L13654105	RING,SPCR 4.50" PL PKG	7
	1	EA	L120298	PMP,RING BACK 4.5" SLC	8
	1	EA	L120531–45	PMP,BKUP RING 6.250 X 5.915 TF LN	10
	1	EA	L120531–46	PMP,BKUP RING 5.500 X 5.283 TF LN	11
			DELETED		12
	1	EA	LXAS–360–02	ORING,360 NITRILE 90 DURO	13
	1	EA	LXAS–252–02	ORING,252 NITRILE 90 DURO	14
			DELETED		15
			DELETED		16
	1	EA	L31564	PLUG,PIPE 0.250NPT SOC HD FS	17
	1	EA	L118318	ELL,90 04MS–04FP BRASS	18
	1	EA	L12949505	SEAL,ROD 4.50 PRKR 25004500– 375	19
	1	EA	LX304374	VLV,CHK ASY CAP W/O SINTERED FLTR&STRNR	20
	1	EA	L118461	SEAL,OIL NATL 416154	21
	2	SET	L13654905	RING,PRESS 4.500 X 5.500	22
	1	EA	L13654805	RING,HDER 4.500 X 5.500 PL PKG	23
	REF	EA	10312288	ROD,ALL–THD 0.750–10NCx3.50 A193 B7	24
	REF	EA	L939207–7	NUT,HEX 0.750–10NC S ZINC G8	25
	REF	EA	L939657–12	WASHER,LOCK STAR .750 INT S	26

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

LTR	DESCRIPTION	DATE	APPR.
F	PRC–145–308 FA	11/21/2011	WC
C		12/04/1996	JRB
D		06/27/1995	JRB
E	PRC–039–873 SJC	06/29/2011	JRB

REVISIONS

PART NUMBER ASSIGNMENT

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DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL ANGULAR = ±1/16, = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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		MM/DD/YY
DRAWN	SO	05/27/1995
CHECKED	ML	11/21/2011
DESIGN	ML	12/04/1996
APPROVED	WC	11/21/2011

TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. 163 LBS
EST. VOL. N/A
SCALE 1=1 SIZE D

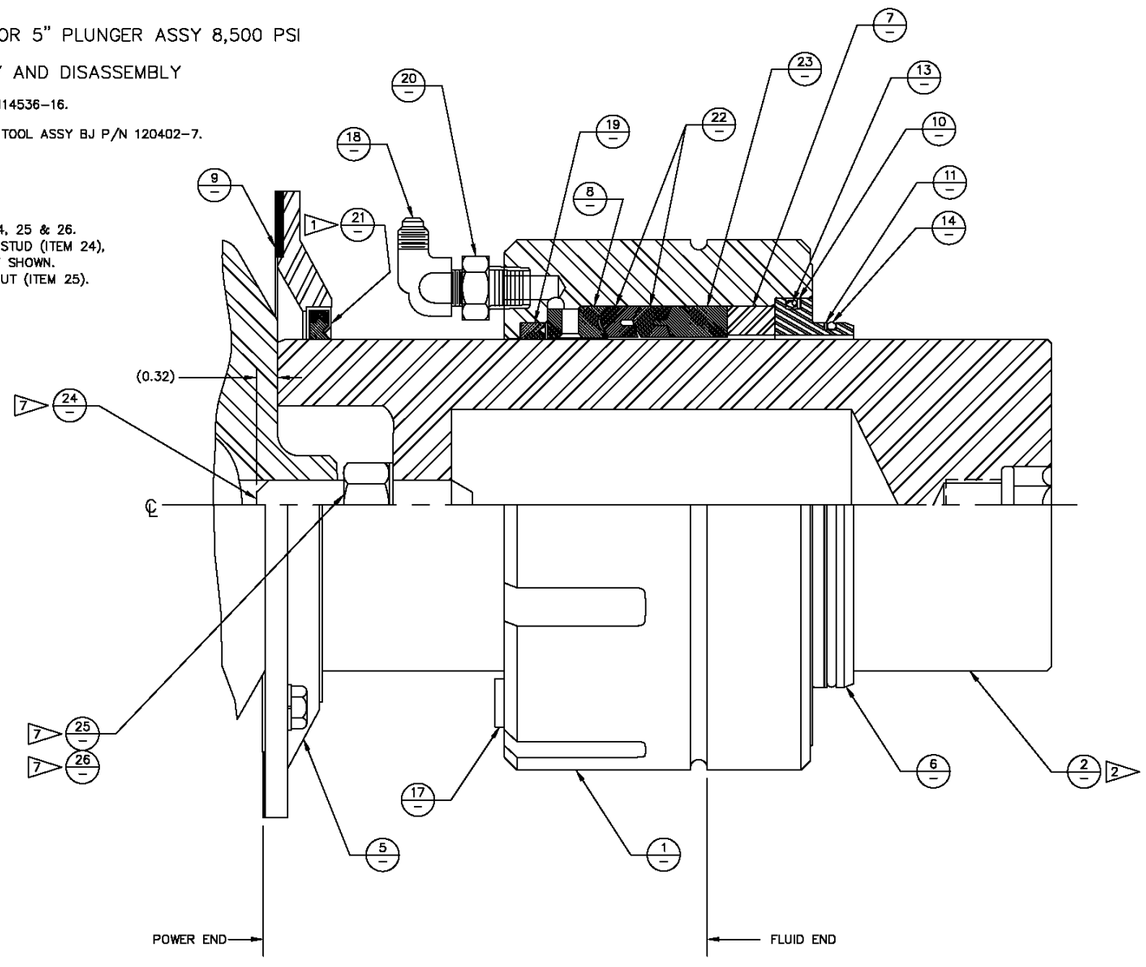
TITLE
PLUNGER PACKING ASSY, 4.5 HEADER RING–CYLINDRICAL SEAL, PACEMAKER PUMP

DRAWING NO. 136544 REV F
SHEET 1 OF 1

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NOTES:

1. COAT OIL SEAL WITH PERMATEX NO. 2 OR EQUIVALENT (BJ PART NO. L118409).
2. TORQUE TO 320 – 350 FT. LBS.
3. HEADER RING COMPRESSION: .010–.020 (DOES NOT INCLUDE PLUNGER/ GLAND SQUEEZE OR PACKING STACK HEIGHT TOL).
4. USE ROCK BIT OIL AND 25–50 PSI PRESSURE FOR PACKING LUBE.
5. MAXIMUM WORKING PRESSURE FOR 5" PLUNGER ASSY 8,500 PSI
6. TOOLS REQUIRED FOR ASSEMBLY AND DISASSEMBLY
   - * PLUNGER PACKING DRIVER ASSY BJ P/N L114536–16.
   - * PLUNGER PACKING LOADING AND REMOVAL TOOL ASSY BJ P/N 120402–7.
   - * TEE WRENCH BJ P/N L112830.
   - * SPANNER WRENCH BJ P/N 120329.
7. ITEM 2 (PLUNGER) IS SUPPLIED WITH ITEMS 24, 25 & 26. WHEN REPLACING A DAMAGED, OR DEFECTIVE STUD (ITEM 24), INSTALL STUD INTO PLUNGER PER STAND–OFF SHOWN. INSTALL LOCK WASHER (ITEM 26), AND HEX NUT (ITEM 25). TIGHTEN NUT TO A TORQUE OF 250 FT–LBS.



QTY. REQ.	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
	REF	EA	L939657–12	WASHER,LOCK STAR .750 INT S	26
	REF	EA	L939207–7	NUT,HEX 0.750–10NC S ZINC G8	25
	REF	EA	10312288	ROD,ALL–THD 0.750–10NCx3.50 A193 B7	24
	1	EA	L13654806	RING,HDER 5.0 X 6.0 PL P KG	23
	2	SET	L13654906	RING,PRESS 5.0 X 6.0	22
	1	EA	L118468	SEAL,OIL NATL 415725	21
	1	EA	LX304374	VLV,CHK ASY CAP W/O SINTERED FLTR&STRNR	20
	1	EA	L12949506	SEAL,ROD 5.00 PRKR 25005000– 375	19
	1	EA	L118318	ELL,90 04MS–04FP BRASS	18
	1	EA	L31564	PLUG,PIPE 0.250NPT SOC HD FS	17
			DELETED		16
			DELETED		15
	1	EA	LXAS–252–02	ORING,252 NITRILE 90 DURO	14
	1	EA	LXAS–360–02	ORING,360 NITRILE 90 DURO	13
			DELETED		12
	1	EA	120531–46	PMP,BKUP RING 5.500 X 5.283 TF LN	11
	1	EA	L120531–45	PMP,BKUP RING 6.250 X 5.915 TF LN	10
	1	EA	L112595	PMP,GASKET CROSSHD SEAL COVER	9
	1	EA	L120376	PMP,RING BACK 5.0" SLC PACK SS	8
	1	EA	L13654106	RING,SPCR 5.00" PL PKG	7
	1	EA	L120312	PMP,RING SEAL 5.0" SFE	6
	1	EA	L112588	PMP,CROSSHD SEAL CVR	5
			DELETED		4
			DELETED		3
	1	EA	L88998–4	PLNGR,PUMP 5.0 PMP SOLID HARDMETAL COATD	2
	1	EA	L129511	PMP,GLND PKG 5.0" CHEVRON	1

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–1 ASSY

LTR	DESCRIPTION	DATE	APPR.
G	PRC–145–309 FA	11/21/2011	WC
F	PRC–039–875 SJC	06/27/2011	JRB
E	PRC–039–874 SJC	06/27/2011	JRB
D	SO	06/27/2000	JRB
C	SO	06/27/1995	JRB

REVISIONS

PART NUMBER ASSIGNMENT

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DECIMAL: .X = ±.01, .XX = ±.010, .XXX = ±.005
FRACTIONAL: ± 1/16
ANGULAR: ± 1°
SURFACE FINISH: 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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DRAWN	SO	MM/DD/YY 06/27/2000
CHECKED	ML	MM/DD/YY 11/21/2011
DESIGN	ML	MM/DD/YY 06/27/1995
APPROVED	WC	MM/DD/YY 11/21/2011

TOMBALL, TX.
MECHANICAL ENGINEERING

THIRD ANGLE PROJECTION

EST. WT. 163 LBS
EST. VOL. N/A
SCALE 1=1
SIZE D

TITLE
PLUNGER PACKING ASSY, 5.0 HEADER RING–CYLINDRICAL SEAL, PACEMAKER PUMP

DRAWING NO. 136545
REV G
SHEET 1 OF 1

Pacemaker II and V Pump Parts List

NOTES:

1. FOR CLOCKWISE ROTATION ASSEMBLY, INSTALL WITH RIGHT HAND PINION GEAR ON DRIVE END, ALIGN LETTER TIMING MARKS ON RIGHT HAND AND LEFT HAND GEAR PINIONS WITH LETTER TIMING MARKS INSIDE.

   FOR COUNTER CLOCKWISE ROTATION ASSEMBLY, INSTALL WITH LEFT HAND PINION GEAR ON DRIVE END, ALIGN LETTER TIMING MARKS ON LEFT HAND AND RIGHT HAND PINIONS WITH TIMING MARKS INSIDE, ASSEMBLE AS SHOWN.

2. FOR STROKE COUNTER ASSEMBLY, DRILL 1 1/6 DIA. HOLE ON CRANKSHAFT CENTERLINE ±1/32 BOTH ENDS.
3. ALIGN SCRIBED LINE ON TOP SIDE OF SLEEVE WITH CENTER PUNCHED MARK AT TOP OF CYLINDER ON PUMP FRAME.
4. TORQUE IN A CROSS PATTERN FROM THE CENTER OUTWARD TO APPROX. 1000 FT/LBS. TIGHTEN TO FINAL TORQUE REPEATING THE CROSS PATTERN TO 2000–2200 FT/LBS.
5. TORQUE TO 220–250 FT/LBS (RODS). AFTER TIGHTENING MAIN CRANKSHAFT BEARING CAPS.
6. ADJUST SHIMS AT ASSEMBLY TO HAVE .010–.020 COUNTER SHAFT END PLAY.
7. AFTER INSTALLATION OF CROSSHEAD SLEEVE, HONE TO 7.511–7.513 DIA FOLLOWING PROCEDURE LISTED IN PACEMAKER PUMP SERVICE MANUAL.
8. LEFT HAND PUMP ASSEMBLY AS SHOWN, RIGHT HAND PUMP COUNTER SHAFT DRIVE FROM OPPOSITE END.
9. GEAR BACKLASH .008–.010. MEASURE FOLLOWING PROCEDURE LISTED IN PACEMAKER PUMP SERVICE MANUAL.
10. POWER END TOOL KIT BHI P/N: L116399.
11. LUBE OIL RESERVOIR CAPACITY: 21 GALLONS MAXIMUM.
12. USE LOCTITE #271 OR #277 AT FINAL ASSEMBLY, BOTH ENDS.
13. USE COUNTER SHAFT LOCK NUT WRENCH BHI P/N: L112844.
14. INSTALL IN UNUSED SIDE OR BOTTOM.
15. CROSSHEAD COVER PLATE GASKET, BHI P/N: L112595.
16. WELD AFTER PAN IS MOUNTED ON PUMP. GROUND PLACEMENT FOR WELDING SHOULD BE AS CLOSE TO WELDED AREA AS POSSIBLE TO MINIMIZE CURRENT FROM TRAVELING THROUGH THE REST OF THE PUMP.

OPTIONAL ITEMS

PINION GEARS

1. PINION GEAR "B" RATIO 3.55 : 1 LEFT HAND AND RIGHT HAND, SEE BHI DWG: L112571.
2. PINION GEAR "D" RATIO 2.64 : 1 LEFT HAND AND RIGHT HAND, SEE BHI DWG L112571.
3. PINION GEAR "E" RATIO 2.13 : 1 LEFT HAND AND RIGHT HAND, SEE BHI DWG: 112572.

PART NO.	DASH NO.	RATIO	ORIENTATION	DRIVE LINE ADAPTER SERIES	ROTATION
114501	LH–6	3.13	LH	1880	CW
114501	RH–5	3.13	RH	1880	CW
114501	LH–4	4.06	LH	1880	CW
114501	RH–3	4.06	RH	1880	CW
114501	LH–2	4.06	LH	1800	CW
114501	RH–1	4.06	RH	1800	CW

COUNTERSHAFT

4. COUNTERSHAFT DRIVE ASSY : WITH AIR CLUTCH , SEE BHI DWG: L114598
5. COUNTERSHAFT DRIVE ASSY : WITH SAE INVOLUTE 13T SPINE, SEE BHI DWG: L112867
6. COUNTERSHAFT DOUBLE END ASSY, SEE BHI DWG: L114597.

CRANKSHAFT

7. CRANKSHAFT ASSY WITH RATIO 3.55 : 1, RATIO 2.64 :1, RATIO 2.13 : 1, SEE BHI DWG: L112557.

RAM OIL COVER

8. COVER ASSY: (STEEL) SEE BHI DWG: L120219

LUBRICATION ASSY

9. LUBRICATION ASSY FOR WELDED POWER FRAME SEE BHI DWG: L116305

DRIVE LINE ADAPTERS

10. DRIVE LINE ADAPTER FOR SERIES 1700, SEE BHI DWG: L112803
11. DRIVE LINE ADAPTER FOR SERIES 1900, SEE BHI DWG L118075.

–6	–5	–4	–3	–2	–1	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
QTY. REQ.									
1	1	1	1	1	1	EA	L940237–8	CAP,SCRD 1.50 150# MI BLK	57
1	1	1	1	1	1	EA	L118339	RING,QUAD MINN–RBR Q4338 CO MP	56
2	2	2	2	2	2	EA	L118184	PMP,DRAIN SCREENMTG PLT	55
2	2	2	2	2	2	EA	LX307069	NUT,HEX LOCK BEAR HUG BH–16	54
1	1	1	1	1	1	EA	L118333	BRTHR,AIR LHA DPS–40N06 .375	53
12	12	12	12	12	12	EA	L118352	PMP,SCR CAP 12PT 11/2–6C–2AX5	52
2	2	2	2	2	2	EA	LX23859	PLUG,DRUM 2.0 MMC 8983T11	51
1	1	1	1	1	1	EA	L56835	PLUG,PIPE 1.0NPT SQ HD CI	50
1	1	1	1	1	1	EA	L57371	NUT,HEX LOCK 10–32 S ZINC G5	49
1	1	1	1	1	1	EA	LX14835	SEAL,HOLE HFMN A–S075	48
4	4	4	4	4	4	EA	LX14305	WASHER,FNDR .312 ID X 1.50 OD S ZINC	47
20	20	20	20	20	20	EA	L939370–8	WASHER,FLAT .312 STD S ZINC	46
24	24	24	24	24	24	EA	L939282–2	SCR,CP HEX .312–24NF X .750 S ZINC G5	45
4	4	4	4	4	4	EA	L118334	SCREEN,DRAIN PAUL MONROE FB–S– C16	44
2	2	2	2	2	2	EA	L939349–61	WASHER,LOCK H/S .437 REG S ZIN C	43
2	2	2	2	2	2	EA	L939369–11	WASHER,FLAT .500 STD S ZINC	42
2	2	2	2	2	2	EA	L939282–4	SCR,CP HEX .437–20NFX0.75 S ZINC G5	41
8	8	8	8	8	8	EA	L939349–3	WASHER,LOCK H/S .375 REG S ZINC	40
4	4	4	4	4	4	EA	L26028506	SCR,CP HEX .375–16NCX0.75 S ZINC G5	39
2	2	2	2	2	2	EA	LX22049	PIN,ROLL .250 DIA X .625	38
1	1	1	1	1	1	EA	L940251–5	PLUG,PIPE 0.750NPT SQ HD CI	37
16	16	16	16	16	16	EA	L941288–49	SCR,CP SOC .375–16NC X .750 NYLOK	36

LIST OF MATERIALS

–6	–5	–4	–3	–2	–1	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
QTY. REQ.									
2	2	2	2	2	2	EA	LX5051	NIP,0.125NPT X 3.0 SCH40 S	35
2	2	2	2	2	2	EA	L940251–4	PLUG,PIPE 0.500NPT SQ HD FS CI	34
1	1	1	1	1	1	EA	L114595	PMP,CNTRSHAFT SEAL WASHER	33
1	1	1	1	1	1	EA	L118331	SEAL,OIL GARLOCK 53X2798	32
2	2	2	2	2	2	EA	L50758–1	IND,SIGHT GLASS LUBE	31
2	2	2	2	2	2	EA	L112587	PMP,CNTRSHAFT THRUST PLT	30
2	2	2	2	2	2	EA	L112576	PMP,PINION GEAR CVR GASKET	29
1	1					EA	L112570–2	PMP,PINION GEAR "C" RATIO 3.13 :1 RIGHT	28
1	1					EA	L112570–1	PMP,PINION GEAR "C" RATIO 3.13 :1 LEFT	27
		1	1	1	1	EA	L112568–2	PMP,PINION GEAR–A 4.06:1,RIGHT	26
		1	1	1	1	EA	L112568–1	PMP,PINION GEAR–A 4.06:1,LEFT	25
1	1	1	1	1	1	EA	L112594	PMP,CNTRSHAFT WASHER	24
1	1	1	1	1	1	EA	L112584	PMP,PINION GEAR CVR	23
2	2	2	2	2	2	EA	L112575	PMP,BRG OUTER MAIN	22
2	2	2	2	2	2	EA	L112573	PMP,BRG INSERT CTR MAIN	21
4	4	4	4	4	4	EA	L112801	PMP,BRG RTNR PIN	20
3	3	3	3	3	3	EA	L112574	PMP,BRG CONNECTING ROD	19
2	2	2	2	2	2	EA	L112854	PMP,GASKET OIL PAN	18
2	2	2	2	2	2	EA	L112596	PMP,BOLT LOCKING FLUID END	17
1	1	1	1	1	1	EA	L120061	PMP,OIL PAN II & IV	16
2	2	2	2	2	2	EA	L112566	PMP,CNTRSHAFT BRG	15
2	2	2	2	2	2	EA	L112586	PMP,CNTRSHAFT BRG	14
2	2	2	2	2	2	EA	L112593	PMP,SPCR SET,CNTRSHAFT	13
1	1	1	1	1	1	EA	L114520–1	CVR INSTL/ASSY,PWR END PMP (STD)	12
3	3	3	3	3	3	EA	L112580	PMP,CONROD & CROSSHD ASSY	11
1	1	1	1	1	1	EA	L118229	PMP,LUBE ASSY PWR END	10
1	1	1	1	1	1	EA	L112583	PMP,CNTR SHAFT–SNGL END	9
		1	1	1	1	EA	L112557–1	PMP,CRANKSHAFT ASSY "A" 4.06:1 RATIO	8
1	1					EA	L112557–3	PMP,CRANKSHAFT ASSY "A" 3.13 1 RATIO	7
1	1	1	1	1	1	EA	L112585	PMP,PINION GEAR CVR	6
3	3	3	3	3	3	EA	L112592	PMP,CROSSHD SLV	5
1	1	1	1			EA	L118074	PMP,DRVLNE ADPT SPICER 1880 1910 FLG	4
				1	1	EA	L112802	PMP,DRVLNE ADPT SPICER 1800 FLG	3
1	1	1	1	1	1	EA	L112846	PMP,STROKE CNTR DRV ASSY	2
1	1	1	1	1	1	EA	L118223	PMP,PWR FRAME CASTING–MACH	1

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LTR	DESCRIPTION	DATE	APPR.
P	PRC–152–381 RD	6/5/2014	WC
N	PRC–150–151 PLB	6/17/2013	WC
M	PRC–014–441 CDA	6/5/2013	SAB
L	PRC–014–442 TMF	6/5/2013	TMF

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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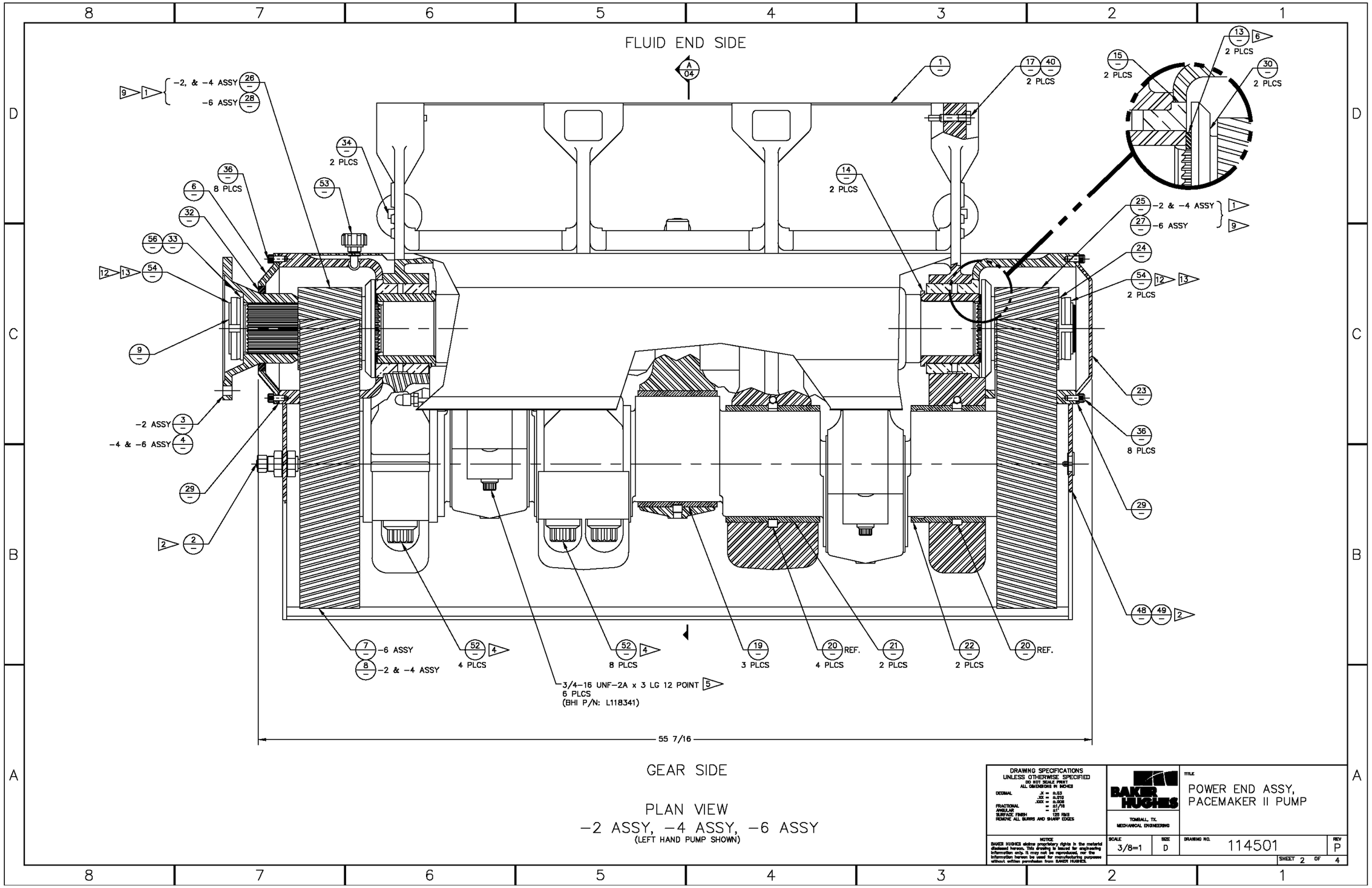
BAKER HUGHES

DRAWN	SDO	MM/DD/YY 05/26/1995
CHECKED	DRW	MM/DD/YY 11/25/1995
DESIGN	JRB	MM/DD/YY 11/25/1995
APPROVED	WC	MM/DD/YY 07/11/2013

TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. TBD
CAT. NO. N/A
SCALE 1=1 SIZE D

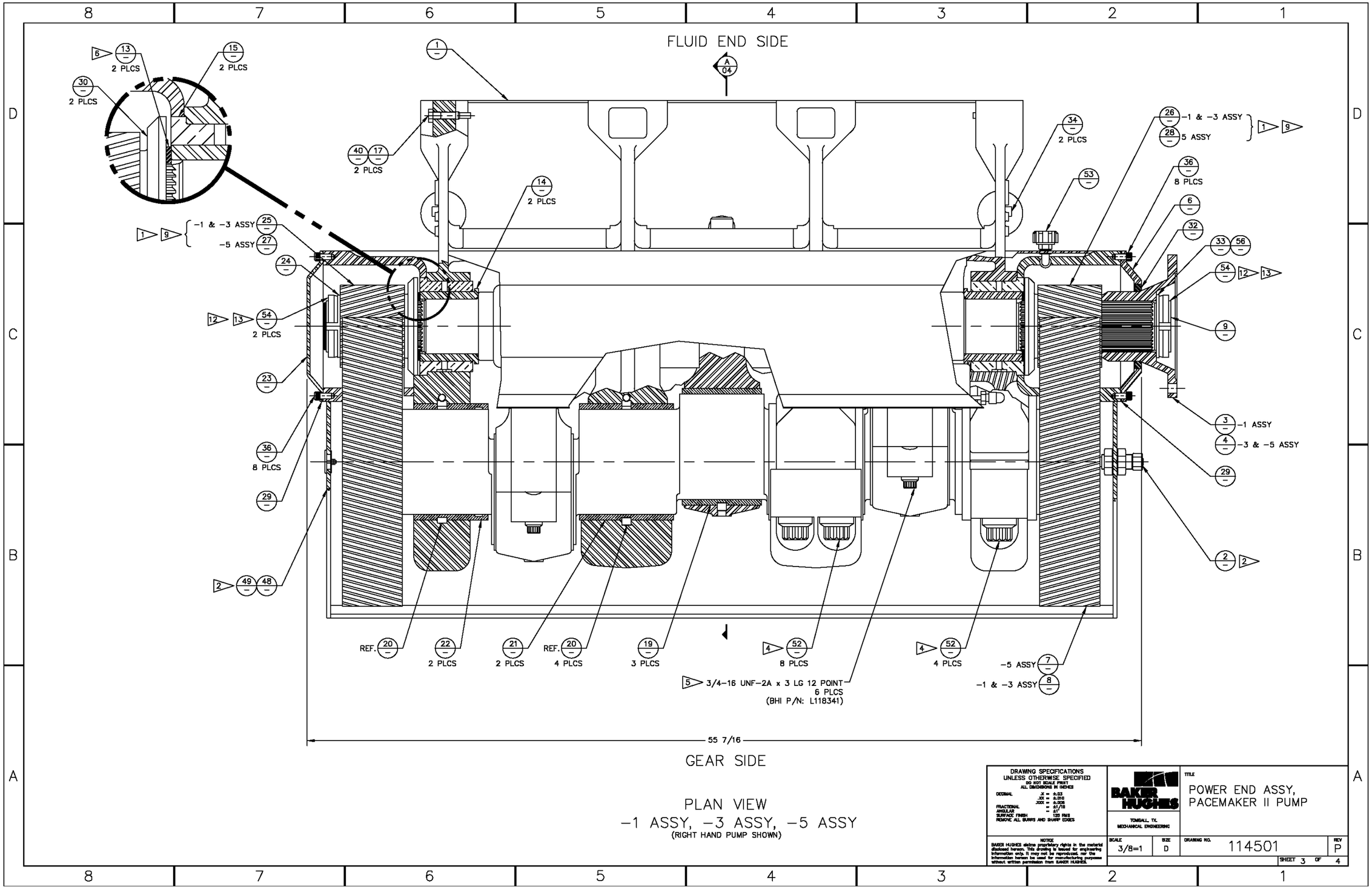
TITLE: POWER END ASSY, PACEMAKER II PUMP
DRAWING NO. 114501 REV P
SHEET 1 OF 4

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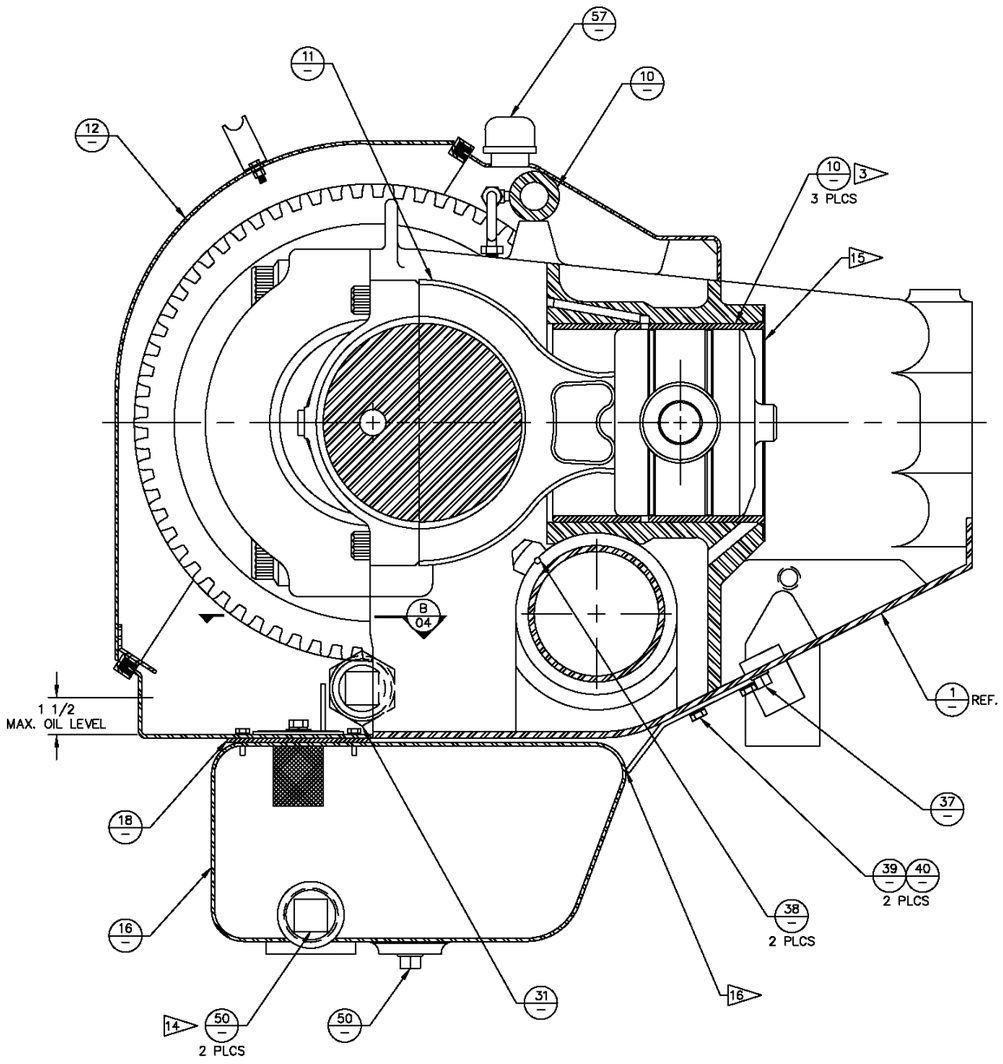
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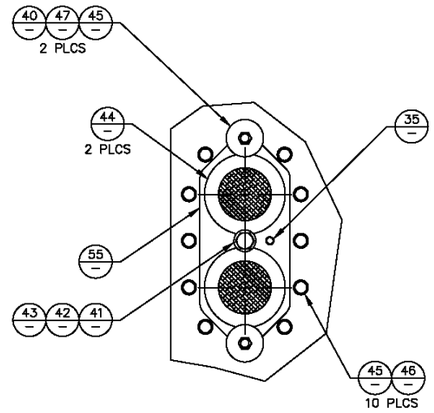


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SECTION A 02 A 03
SCALE: 3/8=1



VIEW B 04
SCALE: 3/8=1
2 PLCS

DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.03 .XX = ±.010 .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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TOMBALL, TX.
MECHANICAL ENGINEERING

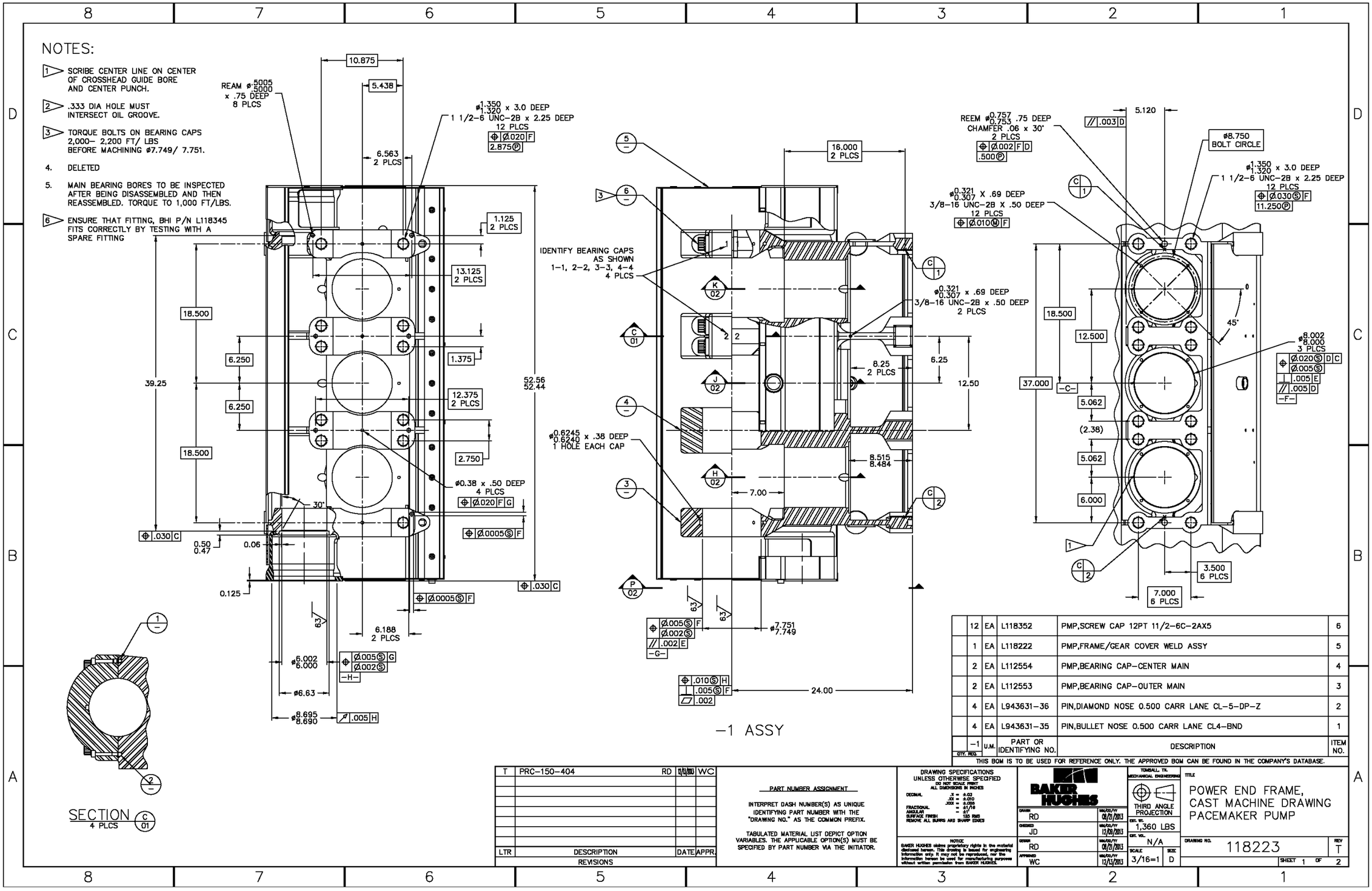
TITLE
POWER END ASSY,
PACEMAKER II PUMP

SCALE 3/8=1 | SIZE D | DRAWING NO. 114501 | REV P
SHEET 4 OF 4

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Pacemaker II and V Pump Parts List



	12	EA	L118352	PMP,SCREW CAP 12PT 11/2–6C–2AX5	6
	1	EA	L118222	PMP,FRAME/GEAR COVER WELD ASSY	5
	2	EA	L112554	PMP,BEARING CAP–CENTER MAIN	4
	2	EA	L112553	PMP,BEARING CAP–OUTER MAIN	3
	4	EA	L943631–36	PIN,DIAMOND NOSE 0.500 CARR LANE CL–5–DP–Z	2
	4	EA	L943631–35	PIN,BULLET NOSE 0.500 CARR LANE CL4–BND	1
QTY. REQ.	–1	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.

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LTR	DESCRIPTION	DATE	APPR.
T	PRC–150–404 RD	12/13/2013	WC

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.03 .XX = ±.010 .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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DRAWN	RD	08/21/2013
CHECKED	JD	12/09/2013
DESIGN	RD	08/21/2013
APPROVED	WC	12/13/2013

TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. 1,360 LBS
EST. VOL. N/A
SCALE 3/16=1 SIZE D

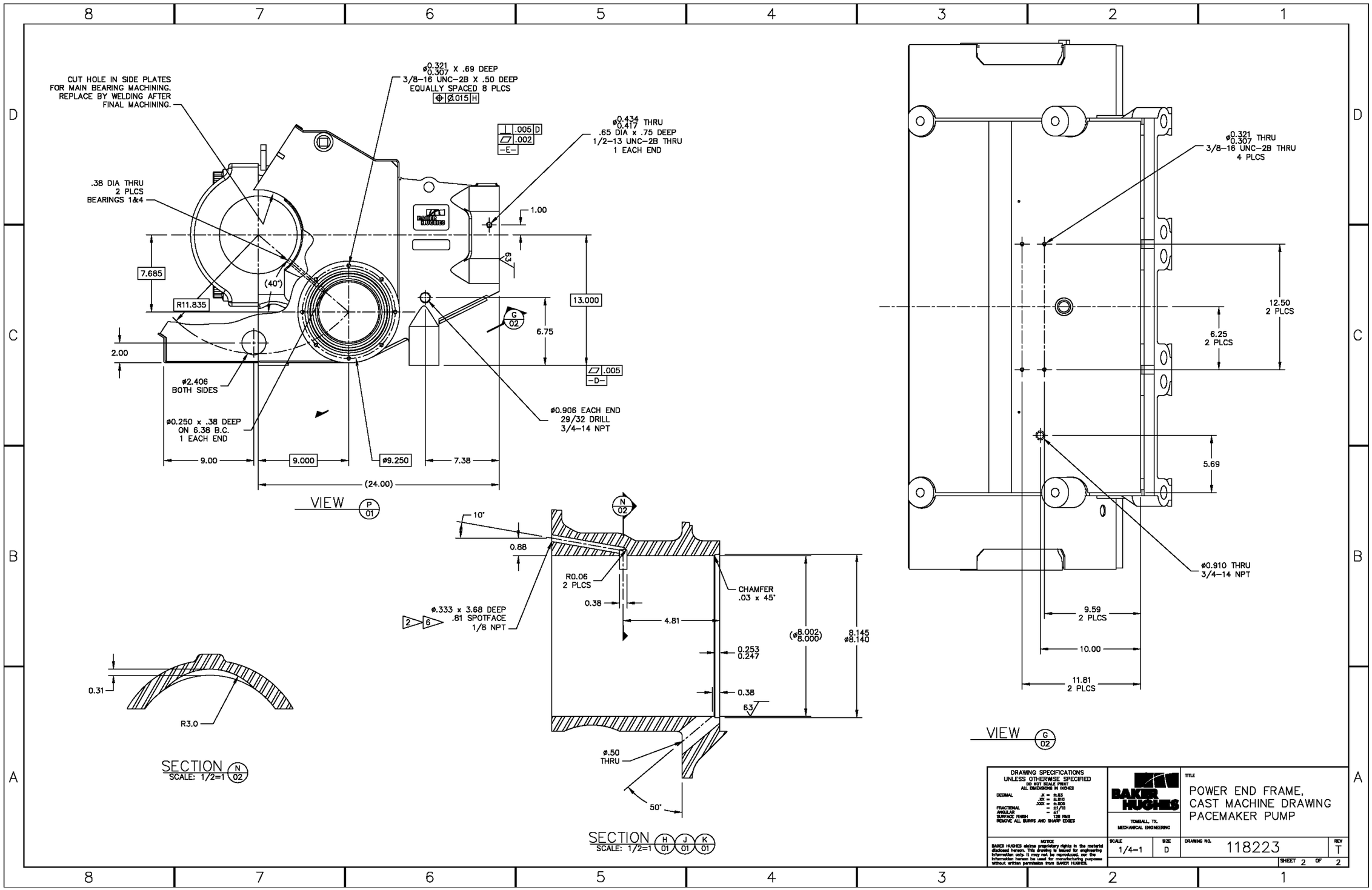
TITLE
POWER END FRAME, CAST MACHINE DRAWING PACEMAKER PUMP

DRAWING NO. 118223 REV T
SHEET 1 OF 2

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Pacemaker II and V Pump Parts List



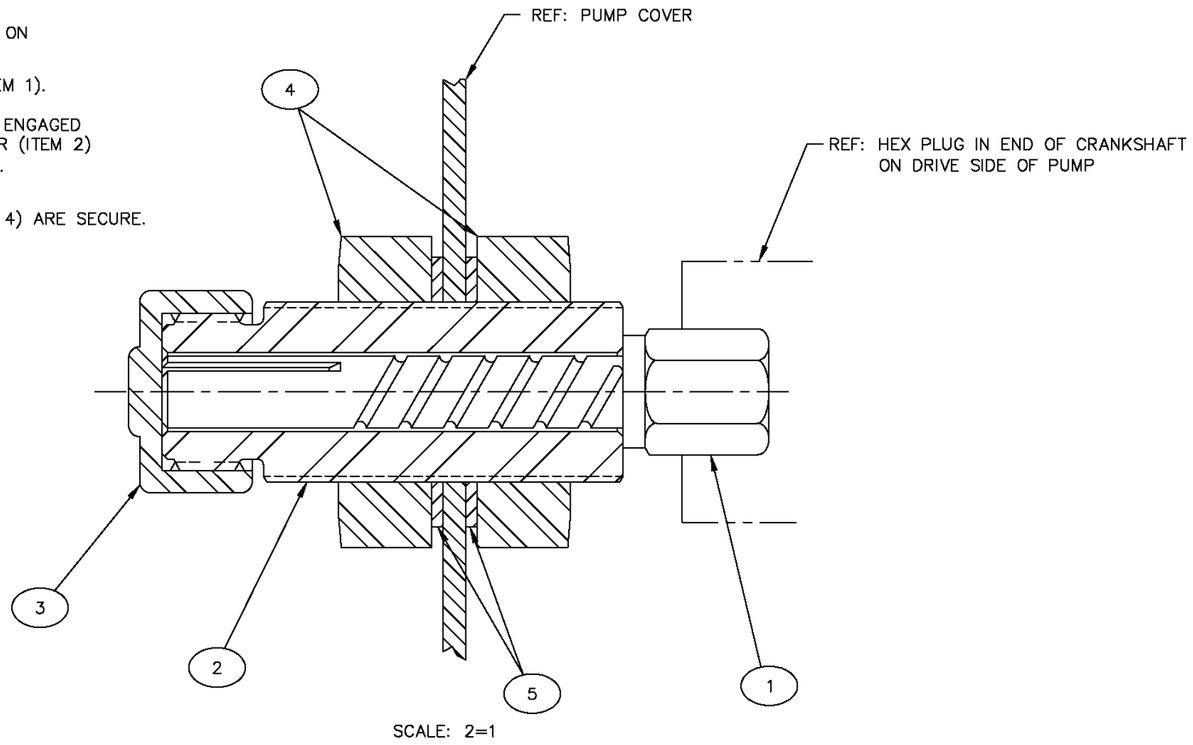
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NOTES:

INSTALLATION PROCEDURE:

1. DRILL EXISTING ø 3/8 HOLE TO ø 1 1/16 HOLE ON DRIVE SIDE OF PUMP.
2. LUBRIPLATE STROKE COUNTER DRIVE SHAFT (ITEM 1).
3. INSTALL HAND TIGHT SO THAT ITEM 1 IS FULLY ENGAGED INTO SOCKET IN CRANKSHAFT. BACK CONNECTOR (ITEM 2) OUT 1 1/2 TURNS, TIGHTEN JAM NUTS (ITEM 4).
4. ONCE ASSEMBLED ITEM 1 SHOULD SLIDE FREELY ALONG AXIS OF ITEM 2 AFTER JAM NUTS (ITEM 4) ARE SECURE.



SCALE: 2=1

QTY. REQ.		DWG SIZE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL/SPECIFICATION	ITEM NO.
	2		118301	SEAL, FASTENER	1" PARKER STAT-O-SEAL	5
	2		939259-9	NUT, HEX JAM	1-14NF S G2	4
	1		X11150	CAP	SPEEDOMETER CONNECTOR S-W 63121	3
	1	B	112847-1	CONNECTOR, STROKE COUNTER, PACEMAKER PUMP		2
	1	B	112848-1	DRIVE SHAFT, STROKE COUNTER, PACEMAKER PUMP		1

LIST OF MATERIALS

LTR	DESCRIPTION	DATE	APPR.
D	ECN #3346 (REDRAWN) (SO)	11/11/96	JB

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

TOLERANCE
UNLESS OTHERWISE SPECIFIED
DECIMAL .X = ±.03
.XX = ±.010
.XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
MACHINED SURFACES 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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THIRD ANGLE PROJECTION

DRAWN	EG/SO	DATE 6/29/96
CHECKED	D. WADE	DATE 11/11/96
DESIGN	J. BARRINGTON	DATE 11/11/96
APPROVED	J. BARRINGTON	DATE 11/11/96
EST. WT.	1.5 LBS	EST. VOL.

BJ TOMBALL, TEXAS

TITLE: STROKE COUNTER DRIVE ASSY PACEMAKER PUMP

SCALE	SIZE	DRAWING NO.	REV
1/1	C	112846	D

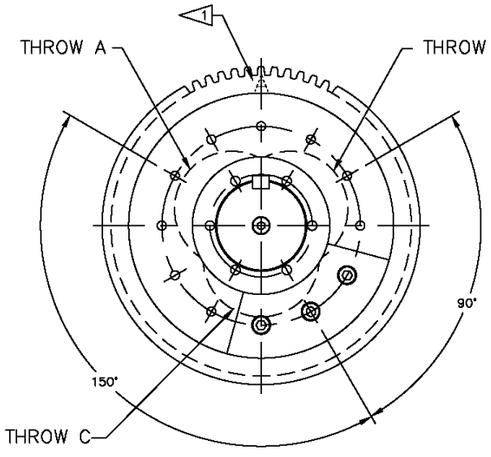
SHEET 1 OF 1

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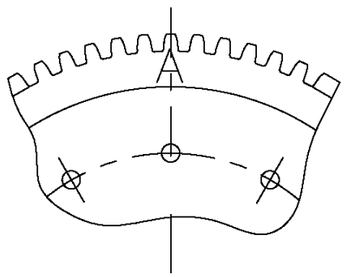
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NOTES:

1. INDEX MARKS MUST FACE INWARD.
2. THROW "A" ON RIGHT HAND HELIX FOR CRANKSHAFT ASSEMBLY
3. SECURE WITH LOCTITE
4. −2 THRU −5 ASSEMBLIES ARE NO LONGER REQUIRED. INFORMATION IS KEPT FOR HISTORY ONLY

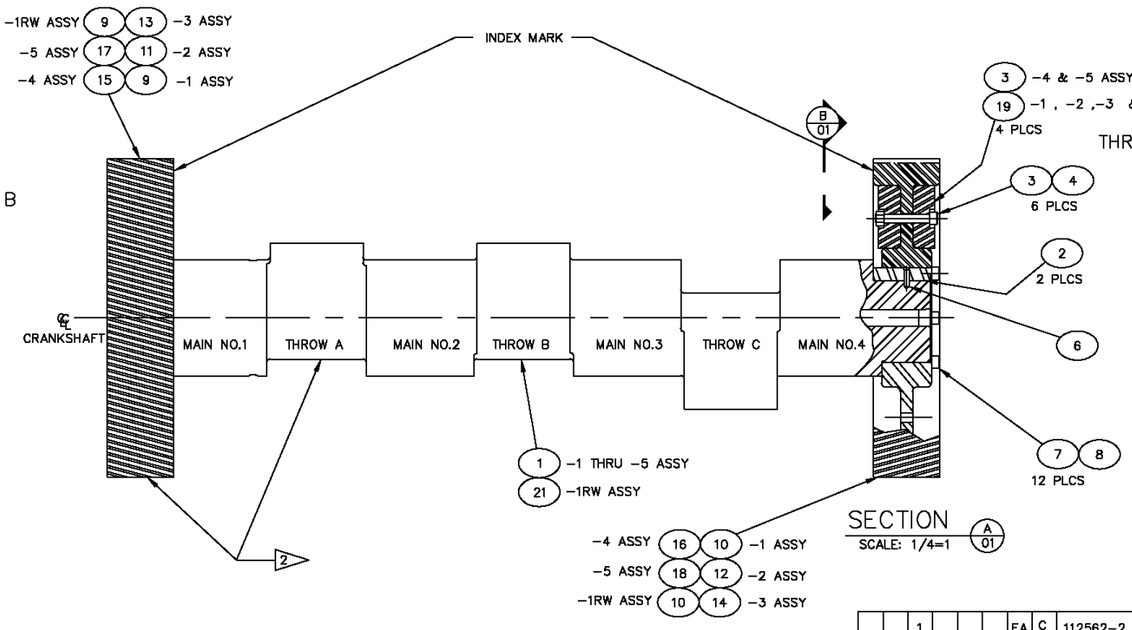


(RIGHT HAND HELIX)

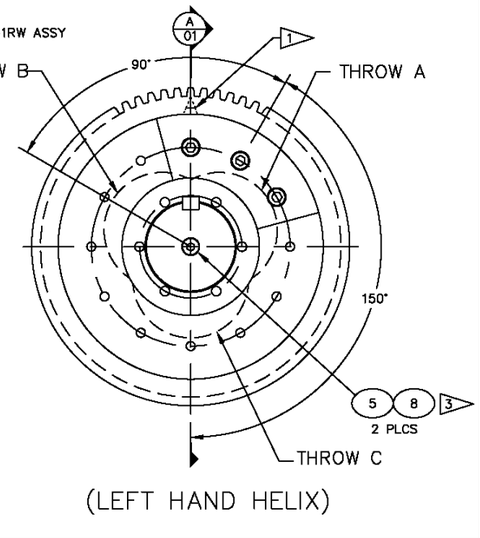


SECTION B/01
SCALE: 1/2=1
2 PLC'S

4.06 : 1 RATIO SHOWN



SECTION A/01
SCALE: 1/4=1



(LEFT HAND HELIX)

−1RW	−5	−4	−3	−2	−1	U.M.	DWG SIZE	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
				QTY. REQ.						
1						EA	A	112558RW	CRANKSHAFT, POWER END, PACEMAKER PUMP (REWORKED)	21
	4	4					B	112813	WEIGHT, BALANCE PACEMAKER PUMP	20
4			4	4	4		B	112812	WEIGHT, BALANCE PACEMAKER PUMP	19
	1						C	112563−2	GEAR, BULL LEFT HAND RATIO 2.13 : 1	18
	1						C	112563−1	GEAR, BULL RIGHT HAND RATIO 2.13 : 1	17
1						EA	C	112562−2	GEAR, BULL LEFT HAND RATIO 2.64 : 1	16
		1				EA	C	112562−1	GEAR, BULL RIGHT HAND RATIO 2.64 : 1	15
			1			EA	C	112561−2	GEAR, BULL LEFT HAND RATIO 3.13 : 1	14
			1			EA	C	112561−1	GEAR, BULL RIGHT HAND RATIO 3.13 : 1	13
				1		EA	C	112560−2	GEAR, BULL LEFT HAND RATIO 3.55 : 1	12
				1		EA	C	112560−1	GEAR, BULL RIGHT HAND RATIO 3.55 : 1	11
1					1	EA	C	112559−2	GEAR, BULL LEFT HAND RATIO 4.06 : 1	10
1					1	EA	C	112559−1	GEAR, BULL RIGHT HAND RATIO 4.06 : 1	9
1	1	1	1	1	1	EA		118416	THREAD−LOC	LOCTITE #242 50ML OR EQUIVALENT 8
12	12	12	12	12	12	EA		941309−183	SCREW, CAP SOCKET HD	1/2−20NF x 3 1/2 LG 7
2	2	2	2	2	2	EA		943732−74	PIN, ROLL	1/4 DIA x 1 LG 6
2	2	2	2	2	2	EA		X3779	PLUG, PIPE SOC HD	1 NPT FS 5
6	6	6	6	6	6	EA		118488	NUT, HEX LOCK	1/2−20NF S 22UTB1220 4
6	6	6	6	6	6	EA		939291−125	SCREW, CAP HEX HD	1/2−20NF x 3 1/4 S G8 3
2	2	2	2	2	2	EA	A	112811	KEY, CRANKSHAFT, PACEMAKER PUMP	2
	1	1	1	1	1	EA	D	112558	CRANKSHAFT, POWER END, PACEMAKER PUMP	1
−1RW	−5	−4	−3	−2	−1	U.M.	DWG SIZE	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
				QTY. REQ.					LIST OF MATERIALS	

DASH NO.	GEAR RATIO	RIGHT HAND BULL GEAR	LEFT HAND BULL GEAR	BALANCE WIEGHT
−1RW	4.06 : 1	112559−1	112559−2	112812 (A, B, C)
−5	2.13 : 1	112563−1	112563−2	112813 (D, E)
−4	2.64 : 1	112562−1	112562−2	112813 (D, E)
−3	3.13 : 1	112561−1	112561−2	112812 (A, B, C)
−2	3.55 : 1	112560−1	112560−2	112812 (A, B, C)
−1	4.06 : 1	112559−1	112559−2	112812 (A, B, C)

LTR	DESCRIPTION	DATE	APPR.
	REVISIONS		
D	SEE ECN SJC	9/25/2006	M L
C	INITIAL RELEASE TMF	2/13/2006	TMF

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .x = ±.03 .xx = ±.010 .xxx = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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THIRD ANGLE PROJECTION

DRAWN	LB/SO	DATE 8/25/1998
CHECKED	M LATAQUIN	DATE 9/25/2006
DESIGN	BARRINGTON	DATE 11/11/98
APPROVED	BARRINGTON	DATE 11/11/98
EST. WT.	802 lbs	EST. VOL. N/A

TOMBALL, TEXAS

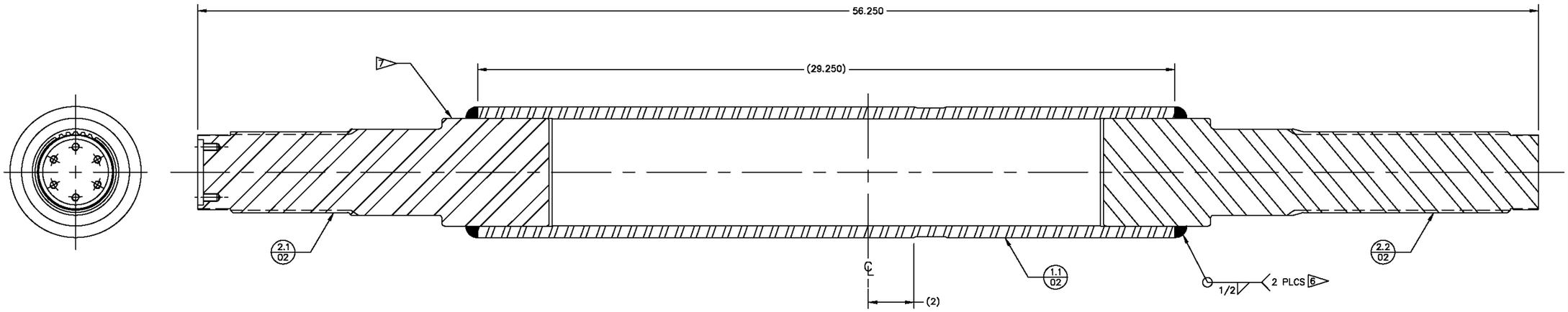
TITLE: CRANKSHAFT ASSY PACEMAKER PUMP

SCALE	SIZE	DRAWING NO.	REV
1/4=1	D	112557	D

SHEET 1 OF 1

NOTES:

1. MATERIAL CERT. TO BE PROVIDED TO BAKER HUGHES.
2. HEAT TREAT ITEMS #2.1 & #2.2, Rc28–32 BEFORE ASSEMBLING. CERT TO BE PROVIDED TO BAKER HUGHES.
3. STRESS RELIEVE, 900°F MAX, 1 HOUR. CERT. TO BE PROVIDED TO BAKER HUGHES.
4. TURN STEADY REST SPOT FOR CLEAN UP ONLY, NO GROOVES OR SHARP CORNERS PERMISSIBLE.
5. APPLY CENTER PUNCH MARK TO SPLINE TOOTH, TYP. BOTH ENDS, & INLINE WITH EACH OTHER. CENTER PUNCH TO BE HEAVY BUT DO NOT UPSET SPLINE TOOTH SIDES.
6. AWS 9018, ROD, 300° F MIN. PRE–HEAT INTER PASS TEMP. TYP. MAGNETIC PARTICLE EXAMINE PER BAKER HUGHES SPEC. #S35380BJ (DRY PARTICLE) OR S35409BJ (WET PARTICLE). MAG. CERT. TO BE PROVIDED TO BAKER HUGHES.
7. STAMP BAKER HUGHES P/N "112583 IN AREA SHOWN. USE 3/16–14 HIGH CHARACTER STAMP
8. FINAL DIMENSION AFTER WELDING.
9. UNLESS OTHERWISE INDICATED ALL WELDING TO BE DONE IN ACCORDANCE WITH BAKER HUGHES WELDING SPEC. 48422.



–1 ASSY

ITEM NO.	QTY. REQ.	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION
2	2.8	FT	LX25721	4 3/4 O.D. 4130 ANNEALED
1	2.5	FT	L50854	5 1/2 O.D. X 1/2 WALL 1020 SMLS

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

LTR	DESCRIPTION	DATE	APPR.
AA	PRC–151–372	8/1/2014	WC
Z	PRC–013–345	8/13/2006	TMF

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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BAKER HUGHES

DRAWN	LB/SO	11/18/1996
CHECKED	RD	02/11/2014
DESIGN	JB	11/25/1996
APPROVED	WC	02/11/2014

TOMBALL, TX. MECHANICAL ENGINEERING
THIRD ANGLE PROJECTION
EST. WT. 197 LBS
EST. VOL. N/A
SCALE 1/2=1 SIZE D

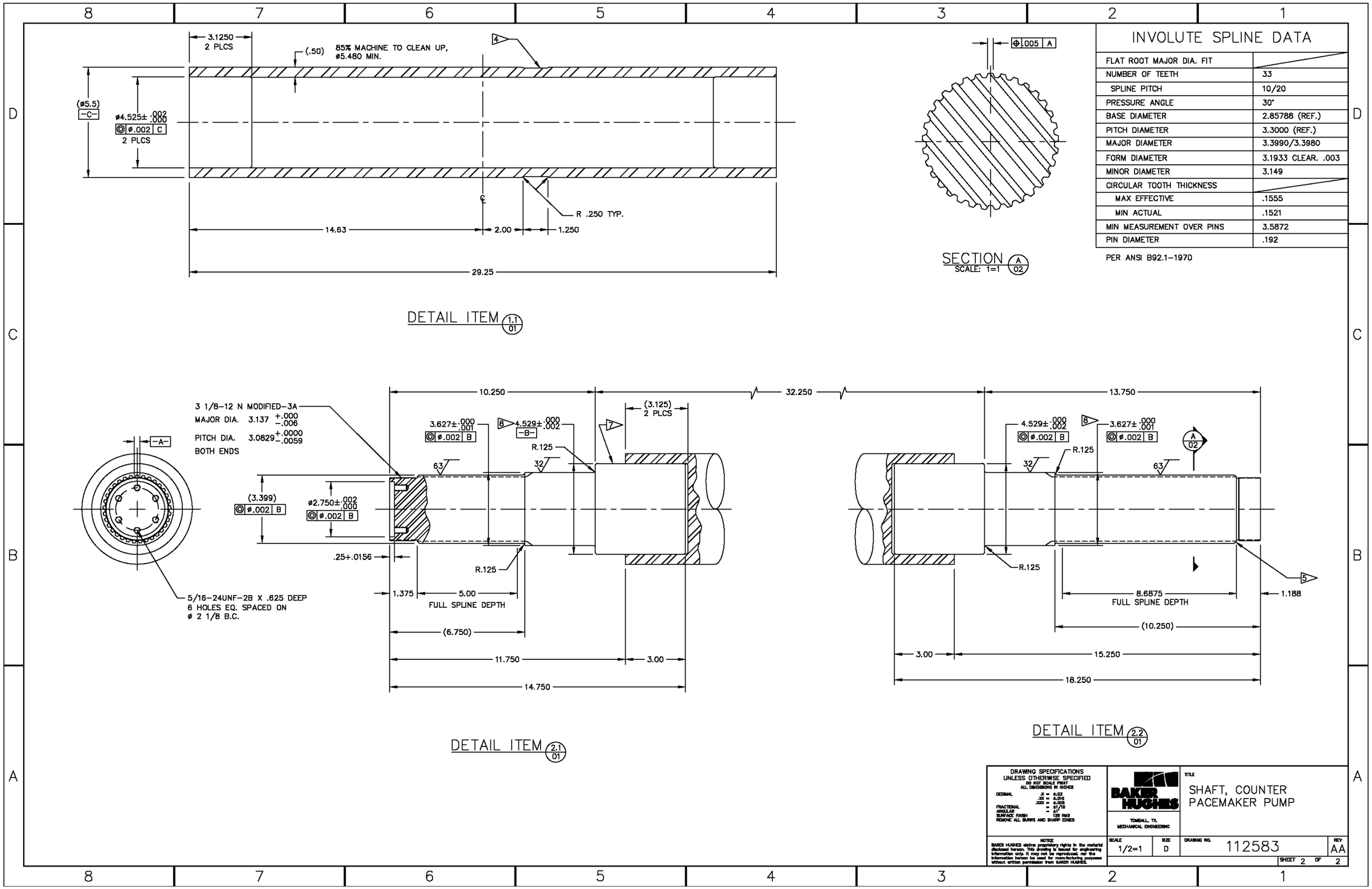
TITLE
SHAFT, COUNTER
PACEMAKER PUMP

DRAWING NO. 112583 REV AA
SHEET 1 OF 2

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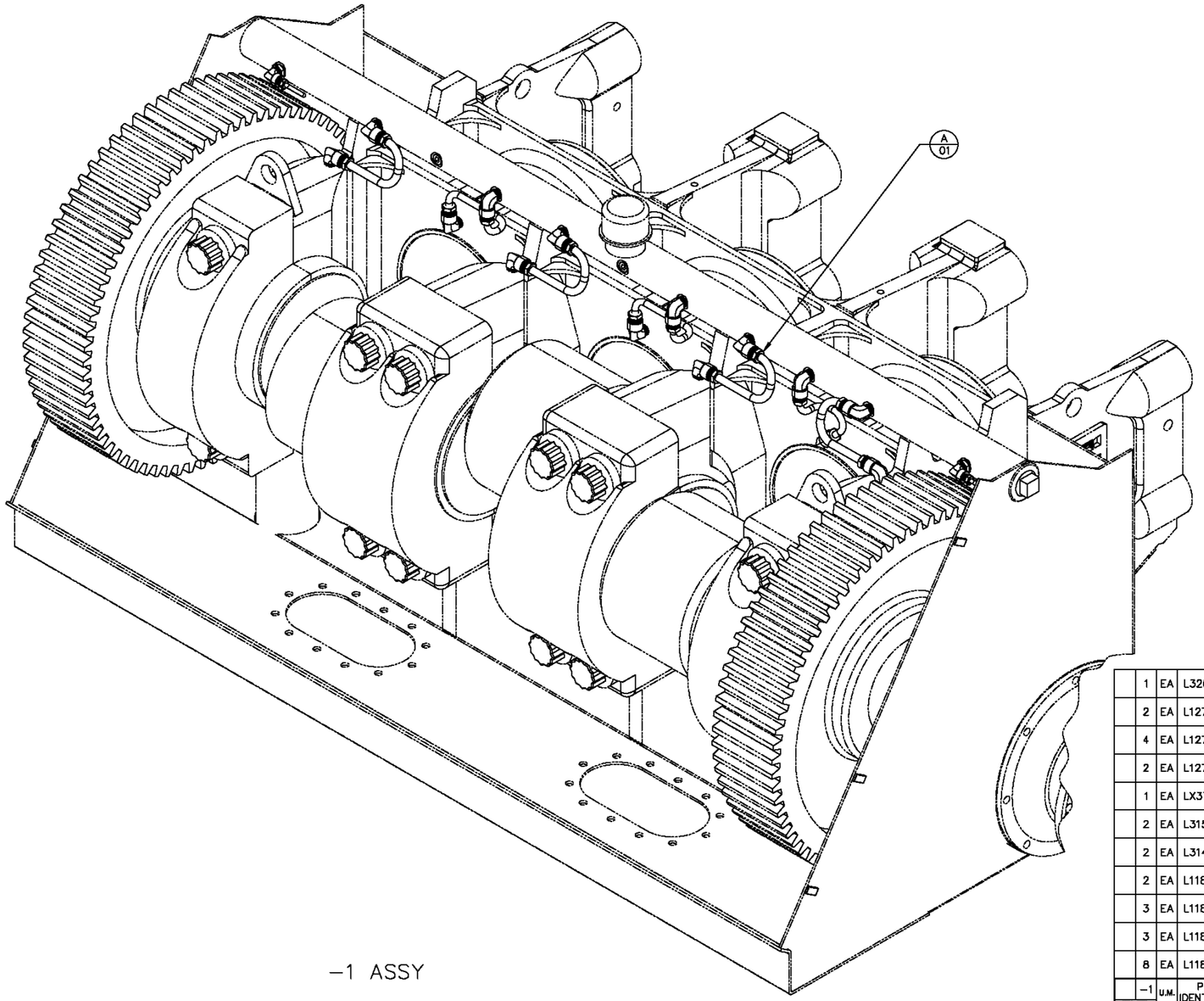
Pacemaker II and V Pump Parts List



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Pacemaker II and V Pump Parts List



–1 ASSY

QTY. REQ.	U.M.	PART OR IDENTIFYING NO.	DESCRIPTION	ITEM NO.
1	EA	L326448–1	PMP,LUBE LINE "E"	11
2	EA	L127929	PMP,LUBE LINE "D"	10
4	EA	L127924	PMP,LUBE LINE "C"	9
2	EA	L127922	PMP,LUBE LINE "A"	8
1	EA	LX3779	PLUG,PIPE 1.000NPT SOC HD FS	7
2	EA	L31564	PLUG,PIPE 0.250NPT SOC HD FS	6
2	EA	L31466	ADAPTER,HEX NIPPLE 04MP–02MP STEEL	5
2	EA	L118348	ELL,90 TBG PARKER 169HD–3–2	4
3	EA	L118470	ELL,90 TBG PARKER 169HD–5–2	3
3	EA	L118345	ELL,90 TBG PARKER 169HD–5–4	2
8	EA	L118343	ELL,90 TBG PARKER 169HD–6–4	1

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

LTR	DESCRIPTION	DATE	APPR.
D	PRC–150–248	07/29/2013	WC

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH: 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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BAKER HUGHES — TOMBALL, TX. MECHANICAL ENGINEERING

DRAWN	RD	MM/DD/YY 07/18/2013
CHECKED		MM/DD/YY 07/29/2013
DESIGN	RD	MM/DD/YY 07/18/2013
APPROVED	WC	MM/DD/YY 07/29/2013

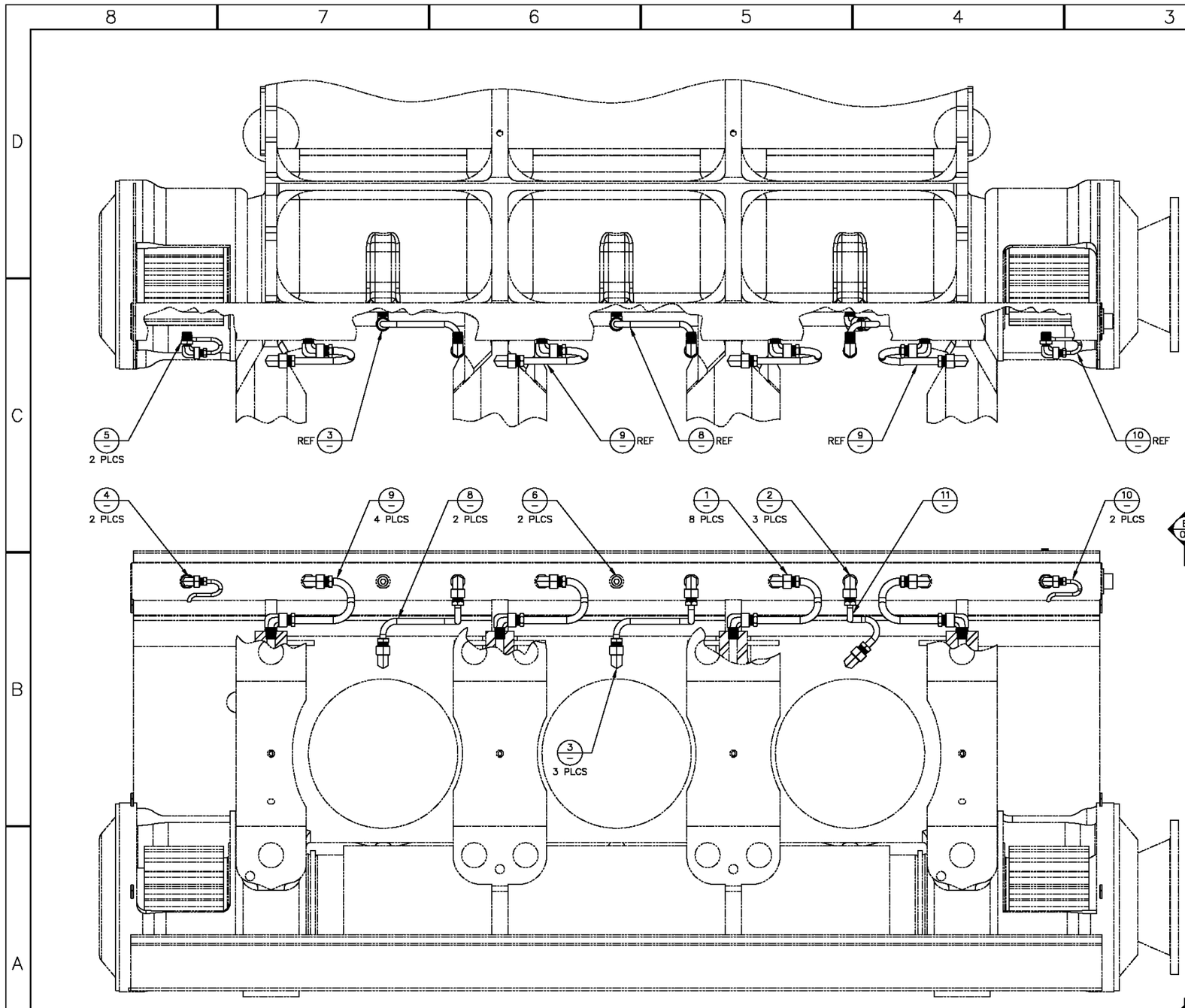
THIRD ANGLE PROJECTION
EST. WT. 5 LBS
EST. VOL. N/A
SCALE 3/8=1
SIZE D

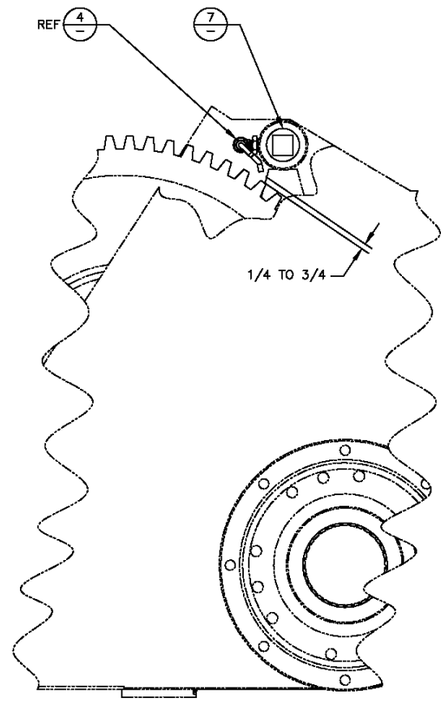
TITLE
TUBING INSTL/ASSY, LUBE LINES POWER END PACEMAKER PUMP

DRAWING NO. 118229
REV D
SHEET 1 OF 2

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DRAWING SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES
DECIMAL
X = ±.03
.XX = ±.010
.XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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BAKER HUGHES
TOMBALL, TX.
MECHANICAL ENGINEERING

TITLE
TUBING INSTL/ASSY,
LUBE LINES
POWER END
PACEMAKER PUMP

SCALE	SIZE	DRAWING NO.	REV
3/8=1	D	118229	D

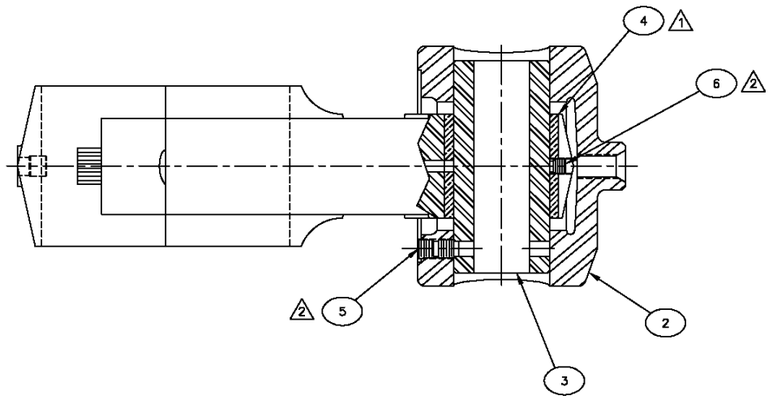
SHEET 2 OF 2

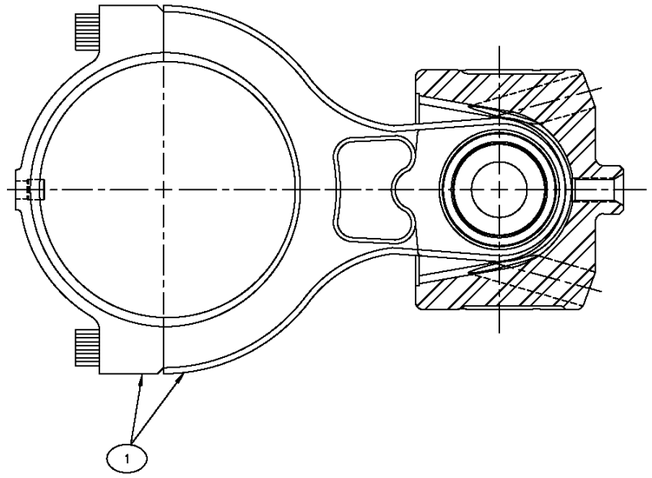
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NOTES:

1. HONE WRIST PIN BEARING (ITEM 4) AFTER ASSEMBLY, TO .0025/.0030 CLEARANCE.
2. COAT SET SCREW THREAD WITH LOCQUIC "T" PRIMER #74756 (BJ PART #118417) AT ASSEMBLY.
3. COAT SET SCREW THREAD WITH LOCTITE THREAD-LOC #242 (BJ PART #118416) OR EQUIV. AT ASSEMBLY.





QTY. REQ.		DWG SIZE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL/SPECIFICATION	ITEM NO.
	1		939560-65	SCREW, SET SOCKET	1/2-13NC x 1/2 LG HFDP	6
	1		945251-98	SCREW, SET SOCKET	5/8-18NF x 5/8 LG HFDP	5
	1	A	114538	BEARING, INSERT WRIST PIN , PACEMAKER PUMP		4
	1	C	112579	PIN, WRIST PACEMAKER PUMP		3
	1	D	112578	CROSSHEAD, PACEMAKER PUMP		2
	1	D	112599	CONNECTING ROD ASSY, PACEMAKER PUMP		1

LIST OF MATERIALS

LTR	DESCRIPTION (REVISIONS)	DATE	APPR.
H	ECN #3443 (REDRAWN) (SO)	11/11/96	J.B.

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

TABULATED MATERIAL LIST DEPICT OPTION VARIABLES. THE APPLICABLE OPTION(S) MUST BE SPECIFIED BY PART NUMBER VIA THE INITIATOR.

TOLERANCE UNLESS OTHERWISE SPECIFIED
DECIMAL .X = ±.03, .XX = ±.010, .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
MACHINED SURFACES 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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THIRD ANGLE PROJECTION

DRAWN	EG/SO	9/29/96
CHECKED	D. WADE	11/11/96
DESIGN	J. BARRINGTON	11/11/96
APPROVED	J. BARRINGTON	11/11/96
EST. WT.	98.8 LBS	EST. WT.

BJ TOMBALL, TEXAS

TITLE: CONNECTING ROD & CROSSHEAD ASSY, PACEMAKER PUMP

SCALE	SIZE	DRAWING NO.	REV
2/1	D	112580	H

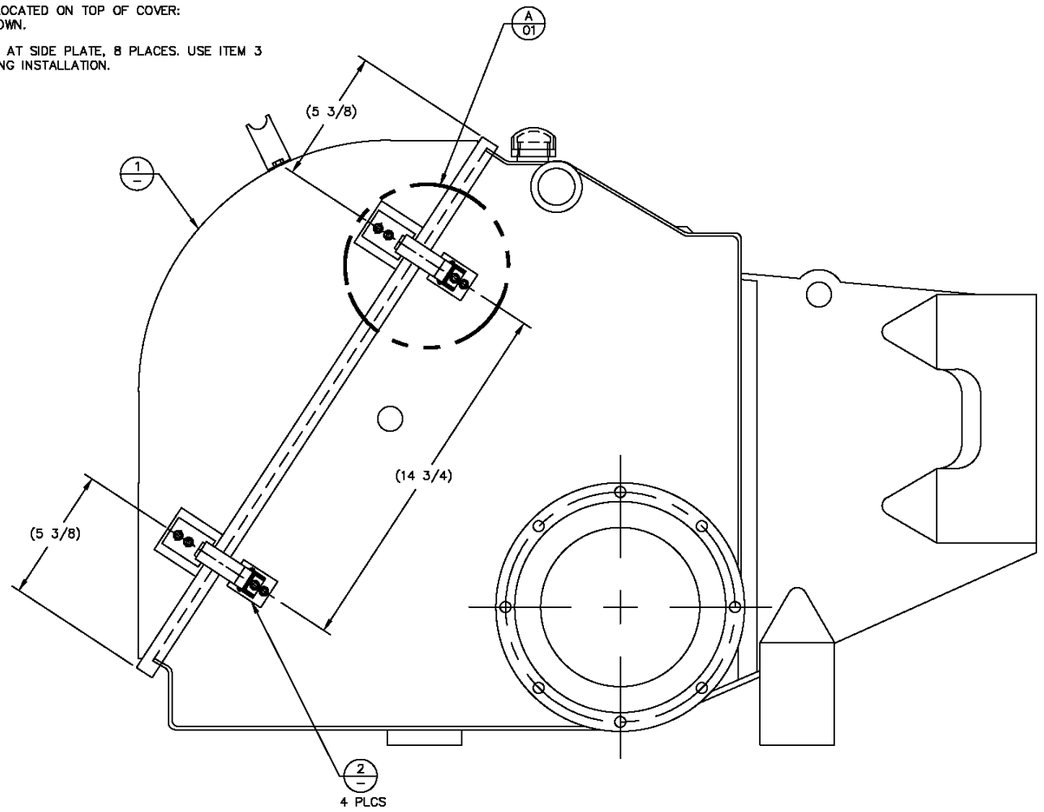
SHEET 1 OF 1

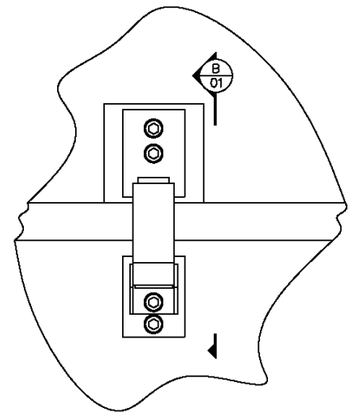
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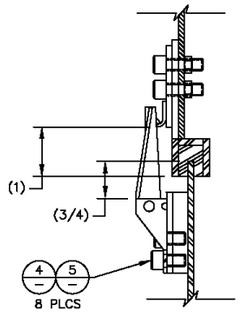
NOTES:

1. CE HATCH TO BE LOCATED ON TOP OF COVER: BOTH ENDS AS SHOWN.
2. DRILL ø5/16" HOLE AT SIDE PLATE, 8 PLACES. USE ITEM 3 AS TEMPLATE DURING INSTALLATION.





DETAIL (A 01)
SCALE: 3/4=1



SECTION (B 01)
SCALE: 3/4=1

–1 ASSY
STANDARD PACEMAKER

ITEM NO.	QTY. REQ. –2	QTY. REQ. –1	U.M.	DWG SIZE	PART OR IDENTIFYING NO.	DESCRIPTION
5	8	8	EA		26007201	WASHER,LOCK H/S .250 REG S ZINC
4	8	8	EA		194627	CAPSCREW,HEX SOC HD,1/4–28 UNF X 3/8 IN
3	2	–	EA	D	321817–1	RETAINER, COVER LATCH PACEMAKER PUMP
2	4	4	EA	D	134080	LATCH ASSY,COVER PACEMAKER PUMP WELDED STANDARD
1	1	1	EA	D	135805	COVER ASSY, POWER END PMP

THIS BOM IS TO BE USED FOR REFERENCE ONLY. THE APPROVED BOM CAN BE FOUND IN THE COMPANY'S DATABASE.

DASH NO.	PACEMAKER PUMP
–2	CE CERTIFIED
–1	STANDARD

LTR	DESCRIPTION	DATE	APPR.
J	PRC–142–814 PBF	11/9/2010	M L
H	PRC–142–238 PBF	10/15/2010	M L

REVISIONS

PART NUMBER ASSIGNMENT

INTERPRET DASH NUMBER(S) AS UNIQUE IDENTIFYING PART NUMBER WITH THE "DRAWING NO." AS THE COMMON PREFIX.

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DRAWING SPECIFICATIONS
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DO NOT SCALE PRINT
ALL DIMENSIONS IN INCHES

DECIMAL .X = ±.03 .XX = ±.010 .XXX = ±.005
FRACTIONAL = ±1/16
ANGULAR = ±1°
SURFACE FINISH 125 RMS
REMOVE ALL BURRS AND SHARP EDGES

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THIRD ANGLE PROJECTION

DRAWN	PBF	MM/DD/YY 09/02/2010
CHECKED	ML	MM/DD/YY 10/15/2010
DESIGN	ML	MM/DD/YY 09/02/2010
APPROVED	ML	MM/DD/YY 10/15/2010
EST. WT.	SEE TABLE	EST. WT. N/A

TOMBALL, TX.
MECHANICAL ENGINEERING

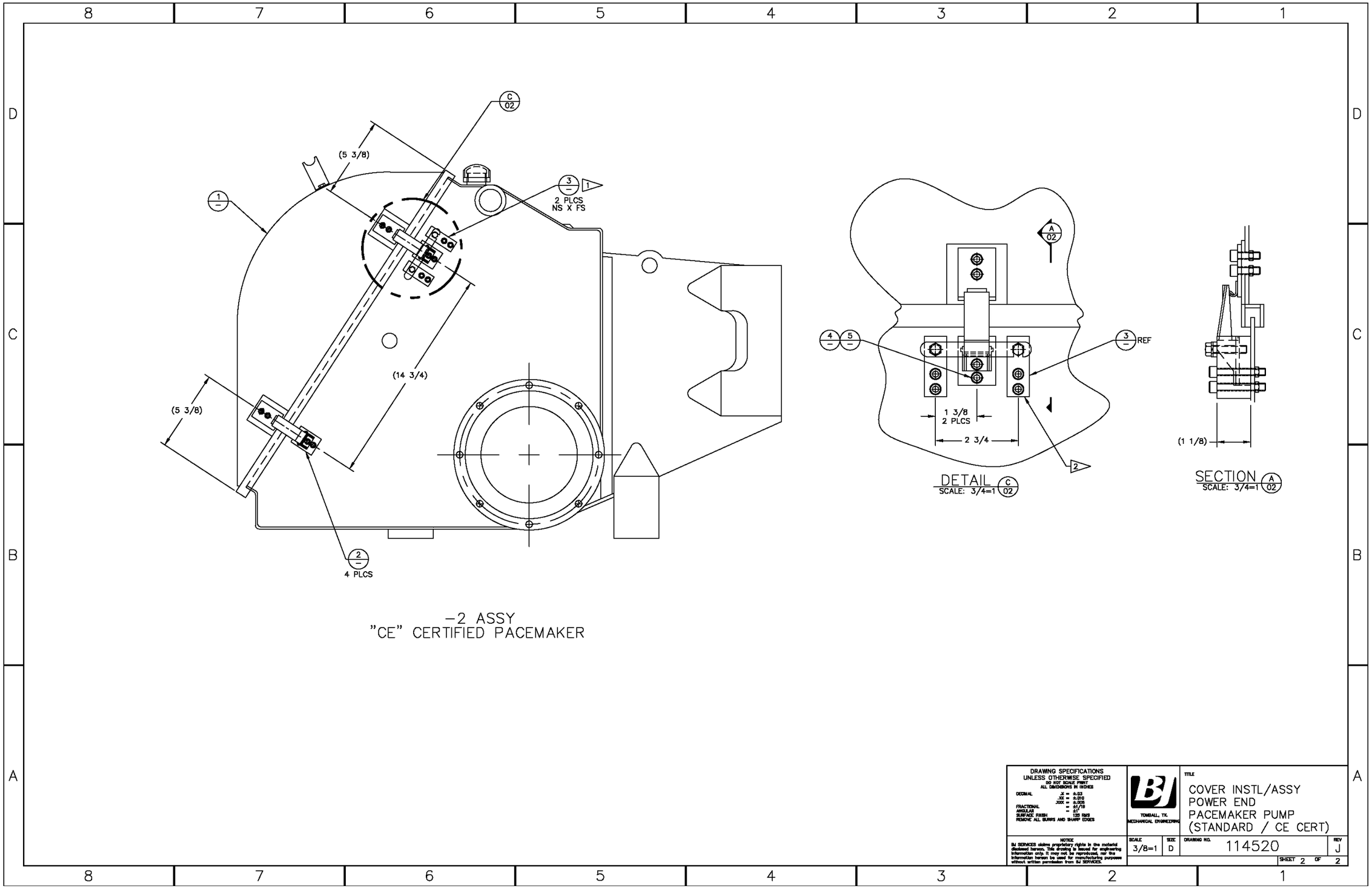
TITLE
COVER INSTL/ASSY, POWER END PACEMAKER PUMP (STANDARD / CE CERT)

SCALE	SIZE	DRAWING NO.	REV
3/8=1	D	114520	J

SHEET 1 OF 2

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Records

Not applicable

References

- GPS-GLB-En-100512, Pacemaker V Triplex Pump Service Manual