Serial Number

Model: ***WH1612***

Serial Number: ***369***

Ordering Information

When ordering parts for a machine, be sure to furnish both the model and serial number of the pump.

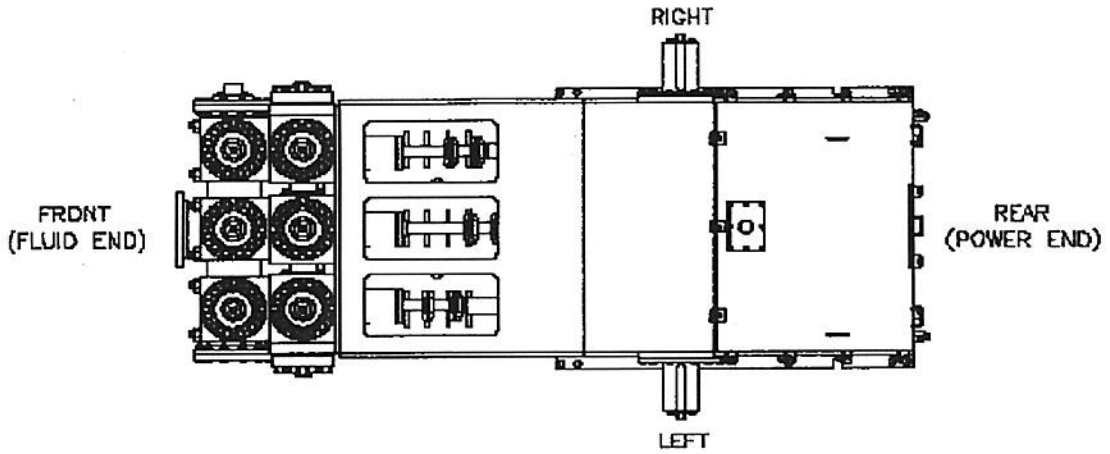
Please provide the following information:

- the name and number of the part,
- the number of the assembly drawing where the part is listed,
- the quantity of parts required,
- complete shipping instructions including destination and carriers.

We strive to give the best possible service to you, our customer. Should you encounter some difficulty, a clear statement of facts will enable us to analyze the problem and make a helpful recommendation about parts and servicing.

Contact: parts@letourneautechnologies.com

To clarify terminology for service work or parts ordering, use the diagram provided below to differentiate between RIGHT, LEFT, FRONT, and REAR of the pump.



6401 W. Sam Houston Parkway North, Houston, Texas 77041
832-872-6500 713-983-4700 FAX: 713-983-4849
www.letourneau-inc.com/drilling parts@letourneautechnologies.com

WH1612 Unitized Mud Pump 2-Piece LTI Style Fluid Ends 5000 PSI

Crankshaft		Part No.	Qty. Per Unit	1 Year	2 Year
	Eccentric Bearing	EB184	3		3
	Main Bearing	EB182	2		2
	Main Bearing Shims	B167204	2		2
	Eccentric Bearing Shims	A162259	3		3
Pinion Shaft	Pinion Bearing	EB129	2		2
	Oil Seal	EO122	2	2	2
	Gasket	A167305	2	2	2
	Gasket	A167306	2	2	2
Crosshead Assembly					
	Wrist Pin Bearing	EB185	3		3
	Baffle Disc	A162203	3	3	3
	Rod Clamp	B162180	6	6	12
	Diaphragm Plate Gasket	B150327	3	3	6
	Stuffing Box Seal	ES200	3	6	12
	Stuffing Box Gasket	A186408	3	3	6
	Wrist Pin Shim Set	ES167	6	6	6
Fluid End Assembly					
	Ring Gasket (R44S)	EG108	2	2	4
	Suction Manifold Gasket	108-0234	3	3	6
	Valve Cover Seal	A164705	6	6	12
	Valve Guide Bushing	A167708	6	6	12
	Wear Plate Seal	A164707	6	6	12
	Wear Plate 1078373	108-0964	3	3	6
	Piston Rod Nut	EN101	3	3	6
	Discharge Packing	108-0861	4	4	8
	Discharge Packing	108-0860	2	2	4
	Valve Spring 1078541	EV116	6	6	12
	Valve Seat	EV190	6	12	24
	Valve	EV178	6	12	24
	Liner (4-1/2")	EL219	3	12	24
	Liner (5")	EL202	3	12	24
	Liner (5-1/2")	EL203	3	12	24
	Liner (6")	EL204	3	12	24
	Liner (6-1/2"	EL186	3	12	24
	Liner (7")	EL205	3	12	24
	Liner (7-1/4")	EL260	3	12	24
	Liner (7-1/2")	EL303	3	12	24
	Piston (4-1/2")	EP158	3	12	24
	Piston (5")	EP159	3	12	24
	Piston (5-1/2")	EP160	3	12	24
	Piston (6")	EP117	3	12	24
	Piston (6-1/2")	EP118	3	12	24
	Piston (7")	EP150	3	12	24
	Piston (7-1/4")	EP212	3	12	24
	Piston (7-1/2")	EP151	3	12	24
	Piston Rubber (4-1/2")	EP164	3	12	24

	Piston Rubber (5")	EP165	3	12	24
	Piston Rubber (5-1/2")	EP114	3	12	24
	Piston Rubber (6")	EP115	3	12	24
	Piston Rubber (6-1/2")	EP116	3	12	24
	Piston Rubber (7")	EP147	3	12	24
	Piston Rubber (7-1/4")	EP213	3	12	24
	Piston Rubber (7-1/2")	EP148	3	12	24
	Liner Gasket (4-1/2")	108-1226	3	12	24
	Liner Gasket (5")	EG132	3	12	24
	Liner Gasket (5-1/2")	EG138	3	12	24
	Liner Gasket (6")	EG139	3	12	24
	Liner Gasket (6-1/2")	EG140	3	12	24
	Liner Gasket (7")	EG136	3	12	24
	Liner Gasket (7-1/4")	EG191	3	12	24
	Liner Gasket (7-1/2")	EG238	3	12	24
Frame					
	Crankcase Cover Gasket	EG170	252"	252	504
	Inspection Cover Gasket	A162209	1	1	2
	Main Bearing Cover	B186123	2	2	4
	X-Head Cover Gasket	B162170	2	2	4
	Inspection Cover Gasket	A164185	1	1	2
	Breather Cap	108-1095	1	1	2
Lubrication Assembly					
	Relief Valve, 15 PSI	108-0054	1	1	1
	Lube Pump	EP194	1	1	2
	Relief Valve, 65 PSI	108-1088	1	1	1
	Check Valve	108-0135	3	1	1
	Flow Switch	108-1257	1	2	4
	Pressure Gauge, 0-60 PSI	EG105	2	2	4
Unitization					
	Liner wash pump packing	ES331	1	6	12
Double Life brand	Liner wash pump motor (460 VOLT)	EM176	1	1	2
	API Ring Gasket (R44S)	EG108	3	3	6
	API Ring Gasket (BX169S)	108-0100	2	2	4
	API Ring Gasket (BX152S)	108-0066	1	1	2
	Suction Manifold Gasket	EG162	2	2	4
	Lube Pump Motor (460 VOLT)	108-1275	1	1	2
Suction Dampener					
	Valve	108-0048	1	1	1
	Pressue Gauge	108-0051	1	2	2
	Neddle Valve	108-0052	1	1	1
	Hose Clamp	108-0034	4	4	4
	Hose	EH119	60.5	60.5	121
	Gasket	A105219	1	2	2
Pulsation Dampener					
	Pressure Gauge	EG145	1	2	2
	Charging Valve	EV215	1	2	2
	Stud 2.25 8UN 8.50 B7	ES175	12	12	12
	Heavy Hex Nut 1.125 7 NC A194-2H	EN132	12	12	12

	Hex Bolt 1.000 8NC 2.00 G8	002-1666	1	1	1
	Lockwasher, 1.000"	002-1544	1	1	1
	Stabilizer Plate L-20	108-0620	1	1	1
	Stabilizer L-20	108-0619	1	1	1
	Heavy Hex Nut 1.125 7 NC A194-2H	EN137	8	8	8
	Bottom Flange Capscrew	EC181	8	8	8
	Seal -429 BUNA 70	108-0656	1	1	1
	Stud 1.125 7NC 6.50 B7	ES174	8	8	8
	Charging Valve O-Ring	EO190	1	2	2
	Ring Gasket,BX-155S	108-0065	1	1	1
	Charging Valve Hose Assembly	B310066	1	1	1
	Bladder Options				
	Nitrile Bladder	108-0618	1	2	4
	Hydrogenated Nitrile Bladder	108-1194	1	2	4

Parts list for:

WH1612-369

LeTourneau TECHNOLOGIES™

PUMP-MUD, WH1612 CECA

SEQ #	PART	QUANTITY	DESCRIPTION
101	B105102	1.00	DAMPENER-SUCTION, W-2200
102	B105062	1.00	FLANGE-SUCTION DAMPENER, 10"
103	A105745	1.00	FLANGE-BLIND, 10" 150 LB 2"NPT
104	EG162	2.00	GASKET 150# RF FLANGE 10"
105	002-1664	24.00	BOLT HX .875 9NC 4.00 G8
106	002-1543	24.00	WASHER-LOCK, 0.875"
107	002-1529	56.00	NUT-HEX, .875 9 NC G8
108	108-1242	1.00	KIT-TOOL, # 7
109	B106024	2.00	BRACKET-LUBE OIL PUMP

Parts list for:

WH1612-369

LeTourneau TECHNOLOGIES™

PUMP-MUD, WH1612 CECA

SEQ #	PART	QUANTITY	DESCRIPTION
81	A183509	2.00	COVER-CHAIN CASE
82	A186414	2.00	GASKET-COVER, PUMP ROTATION
83	A186415	2.00	GASKET-PINION COVER FLANGE
84	A186416	2.00	GASKET-MOTOR PLATE FLANGE
85	075-3123	260.00	WASHER-LOCK, 0.375"
86	EN125	260.00	NUT-HEX, .375 16 NC G8
87	B105658	1.00	PLATE-STRAINER CROSS SUPPORT
88	400-9523	4.00	BOLT HX .750 10NC 1.50 G8
89	002-1542	12.00	WASHER-LOCK, 0.750" ZINC
90	D106082	1.00	KIT-CHAINCASE LUBE SYS. WH1612
91	ES363	16.00	STUD .875 9NC 6.00 1.50 B7
92	EG140	3.00	SEAL-LINER, 6.5 W2200/14P200
93	EL186	3.00	LINER 6.5 SLEEVED 12P160
94	B106099	2.00	ASSEMBLY-LUBE PUMP, #3S
95	EP261	1.00	PUMP-LINER WASH, 1X1-1/2C 3HP
96	B105673	1.00	ELBOW-FLANGED, 5-1/8 X 2-1/16
97	ES427	8.00	STUD .750 10NC 5.25 B7
98	EN110	16.00	NUT-HEX,HVY .750 10 NC A194-2H
99	108-0066	1.00	GASKET-RING,BX-152S
100	EG209	1.00	GAUGE 2" 6K FLNG'D M #7 OTECO

Parts list for:

WH1612-369

LeTourneau TECHNOLOGIES™

PUMP-MUD, WH1612 CECA

SEQ #	PART	QUANTITY	DESCRIPTION
61	108-1041	1.00	TROLLEY, ½TON F/6" WIDE BEAM
62	108-1196	2.00	NAMEPLATE, HIGH VOLTAGE WARN
63	108-1197	2.00	NAMEPLATE, DISCONNECT SERVICE
64	108-0089	1.00	NAMEPLATE, "LTI" 3" X 5"
65	108-0083	1.00	NAMEPLATE, ROTATION CW 2¼X6
66	108-0084	1.00	NAMEPLATE, ROTATION CCW 2¼X6
67	108-0776	1.00	NAMEPLATE, OP/SERVICE WARNING
68	108-0764	1.00	SWITCH-LOW PRESSURE
69	EW109	.00	SAFETY WIRE .047 SS
70	B105507	4.00	BOSS-CHAINCASE
71	002-1630	8.00	BOLT HX .625 11NC 2.00 G8
72	002-1541	8.00	WASHER-LOCK, 0.625"
73	108-1029	1.00	VALVE-SUCTION RELIEF, 120 PSI
74	A186509	8.00	COVER-CHAIN CASE
75	A186411	8.00	GASKET-CHAIN CASE ACCESS COVER
76	EB107	2.00	CAP-BREATHER, 10 MICRON
77	A186510	2.00	COVER-CHAIN CASE
78	A186412	2.00	GASKET-PINION SPROCKET COVER
79	A186511	2.00	COVER-CHAIN CASE
80	A186413	2.00	GASKET-MOTOR SPROCKET COVER

Parts list for:

WH1612-369

LeTourneau TECHNOLOGIES™

PUMP-MUD, WH1612 CECA

SEQ #	PART	QUANTITY	DESCRIPTION
41	108-0103	1.00	FLANGE-BLIND, 5-1/8" 10000 PSI
42	EF617	1.00	FLANGE-W/N, 2-1/16 2XXH 5K
43	EV400	1.00	VALVE-GATE, 2" FLNGD 5000 PSI
44	A105811	1.00	PAD-TAPPED
45	A105812	1.00	PAD-TAPPED
46	B105680	1.00	MOUNT-PRESSURE SWITCH
47	B105744	1.00	TEE-FLNGD, 5-1/8 X 2-1/16 5K
48	C105679	1.00	MOUNT-PRESSURE SWITCH
49	ES452	1.00	SWITCH-LOW PRESSURE
50	108-0760	2.00	NIPPLE-HOSE, 1-1/2" NPT KING
51	108-0080	1.00	FLANGE-THREADED, 1-1/2" 150 LB
52	EG130	1.00	GAUGE 2.5 LIQ 0-60 SS BTM MNT
53	108-0081	1.00	FLANGE-THREADED, 1" 150 LB
54	EG109	2.00	GASKET-RING,R-24
55	EP118	3.00	PISTON ASSEMBLY 6.5
56	C305014	1.00	DAMPENER-PULSATION, L20 5K
57	A305015	1.00	NAMEPLATE, DAMPENER SERIAL NO.
58	108-0618	1.00	BLADDER L-20 DIAPHRAGM 20 GAL
59	D105481	1.00	CRANE-JIB, WH1612
60	108-1040	1.00	HOIST-CHAIN, 1/2 TON 12' LIFT

Parts list for:

WH1612-369

LeTourneau TECHNOLOGIES™

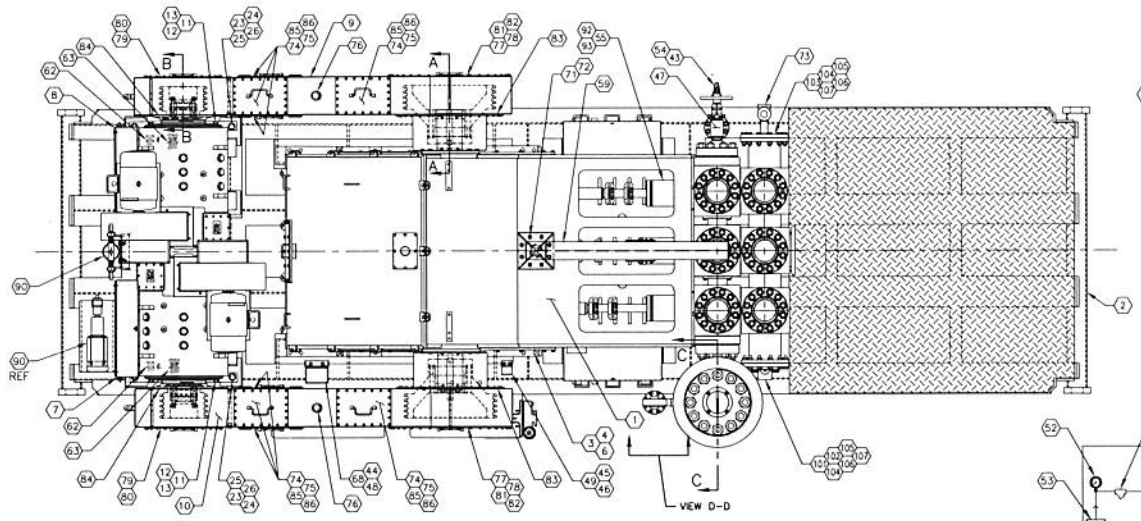
REV 07

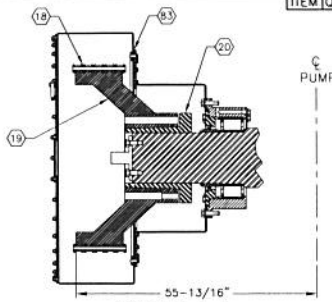
PUMP-MUD, WH1612 CECA

SEQ #	PART	QUANTITY	DESCRIPTION
21	B107035	2.00	SPROCKET 32T 1½P 5 STRAND
22	EC208	24.00	CSCR SK 1-14 UNS 2.50 G8
23	A105325	4.00	LUG-TAPPED
24	A105324	4.00	LUG-TAPPED
25	EB458	8.00	CSCR HEX 1.500 6NC 3.50 G8
26	002-5776	8.00	WASHER-LOCK, 1.500"
27	B164716	1.00	TANK-LINER WASH, W-2200 TALL
28	B164717	2.00	LID-LINER WASH TANK, W-2200
29	B105369	1.00	PLATE-STRAINER CROSS SUPPORT
30	B167545	1.00	STRAINER-CAGE,SS 5K & 10K 1700
31	C105007	1.00	CROSS-STRAINER,5K 5 1/8"
32	ES407	24.00	STUD 1.125 12UNF 6.00 1.50 B7
33	ES178	24.00	STUD 1.500 12NF 7.00 B7
34	050-8321	24.00	NUT-HEX,HVY 1.500 12NF A194-2H
35	EN143	24.00	NUT-HEX,HVY 1.125 12 NF A194-2
36	EG108	3.00	GASKET-RING,R-44 S
37	108-0100	2.00	GASKET-RING,BX-169S
38	B105363	1.00	SPOOL 5K PSI 5 X 5 12P
39	B105002	1.00	SPOOL 5K PSI 5 1/8X4 1/16
40	EF360	1.00	FLANGE-W/N, 5-1/8 4XXH 5K

WH1612-369

ITEM	QTY	PART NO.	DESCRIPTION

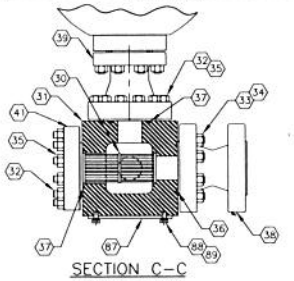




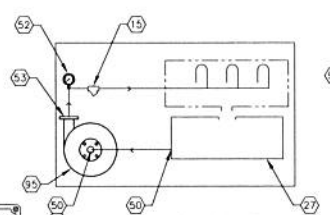
SECTION A-A
CHAINCASE SECTION
PINION SPROCKET

SCALE: 2X
(SHOWN ROTATED 90° C.C.W.)

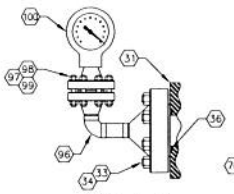
SET PUMP SPROCKETS AT 111-5/8" FACE TO FACE. USE DRIVE CHAIN TO SET CENTER DISTANCE AND LINE UP MOTOR SPROCKET WITH PUMP SPROCKET



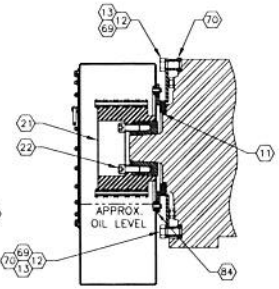
SECTION C-C
DISCHARGE FLANGE
SCALE: 2X



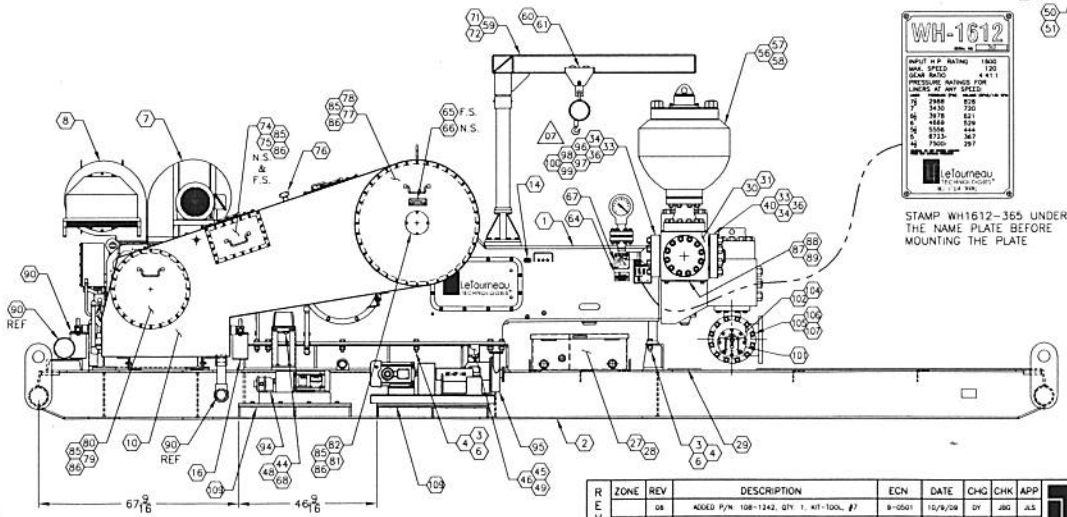
LINER WASH PUMP



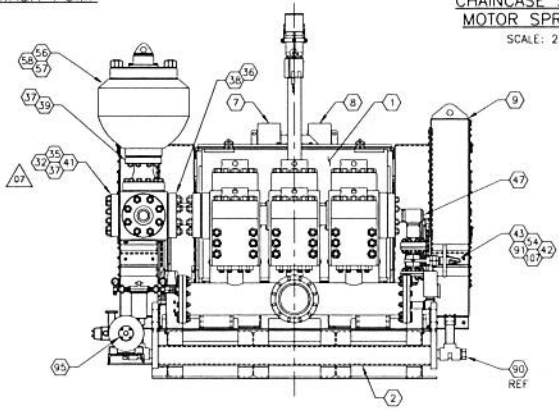
VIEW D-D
SCALE: 2X



SECTION B-B
CHAINCASE SECTION
MOTOR SPROCKET
SCALE: 2X



STAMP WH1612-365 UNDER THE NAME PLATE BEFORE MOUNTING THE PLATE



NOTES:
ITEM 5 (HOSE-CHARGING, PULSATION DAMPENER) NOT SHOWN
ITEM 17 (VALVE, RELIEF, 7.5 KSI RRV) NOT SHOWN
ITEM 108 (VALVE SEAT PULLER KIT #7) NOT SHOWN

REVISIONS	ZONE	REV	DESCRIPTION	ECN	DATE	CHG	CHK	APP
		08	ADDED P/N 108-1242, QTY 1, KIT-TOOL, #7	9-0501	10/9/09	DY	JBG	JLS
		07	CHG ITEM 41 FROM 108-0111 TO 108-0103, MOVED GAUGE	9-0601	11/14/08	DY	CRS	JLS

LeTourneau TECHNOLOGIES
HOUSTON, TEXAS

THIS DRAWING AND ALL DATA THEREIN IS THE PROPERTY OF THE LETOURNEAU TECHNOLOGIES COMPANY IT IS CONFIDENTIAL AND MUST NOT BE COPIED IT IS LOANED SUBJECT TO RETURN UPON DEMAND AND IS NOT TO BE USED IN ANYWAY DETRIMENTAL TO OUR INTEREST

UNLESS OTHERWISE SPECIFIED:
- DIMENSIONS ARE IN INCHES & APPLY BEFORE PLATING OR FINISH COATINGS
- TOLERANCES ON: ANGLES ±.25°, FRACTIONS ±1/16, .XX DECIMAL ±.03, .XXX DECIMAL ±.015
- MACHINED CORNERS 1/64 X 45°
- WELD PROPERTIES SHALL MEET THE MINIMUM REQUIREMENTS OF THE BASE MATERIAL

USED ON	
DRAWN DBJ	4-21-09
CHK CRS	4-29-09
ENGR JBG	4-29-09
MATL SEE BOM	
THIRD ANGLE PROJECTION	

WH-1612 UNITIZATION, DUAL GE572

CECA

SIZE D | DO NOT SCALE | DWG NO WH1612-369 | REV 07

SCALE 1:20 | EST WT | SHEET 1 OF 2

Parts list for:

WH1612-369

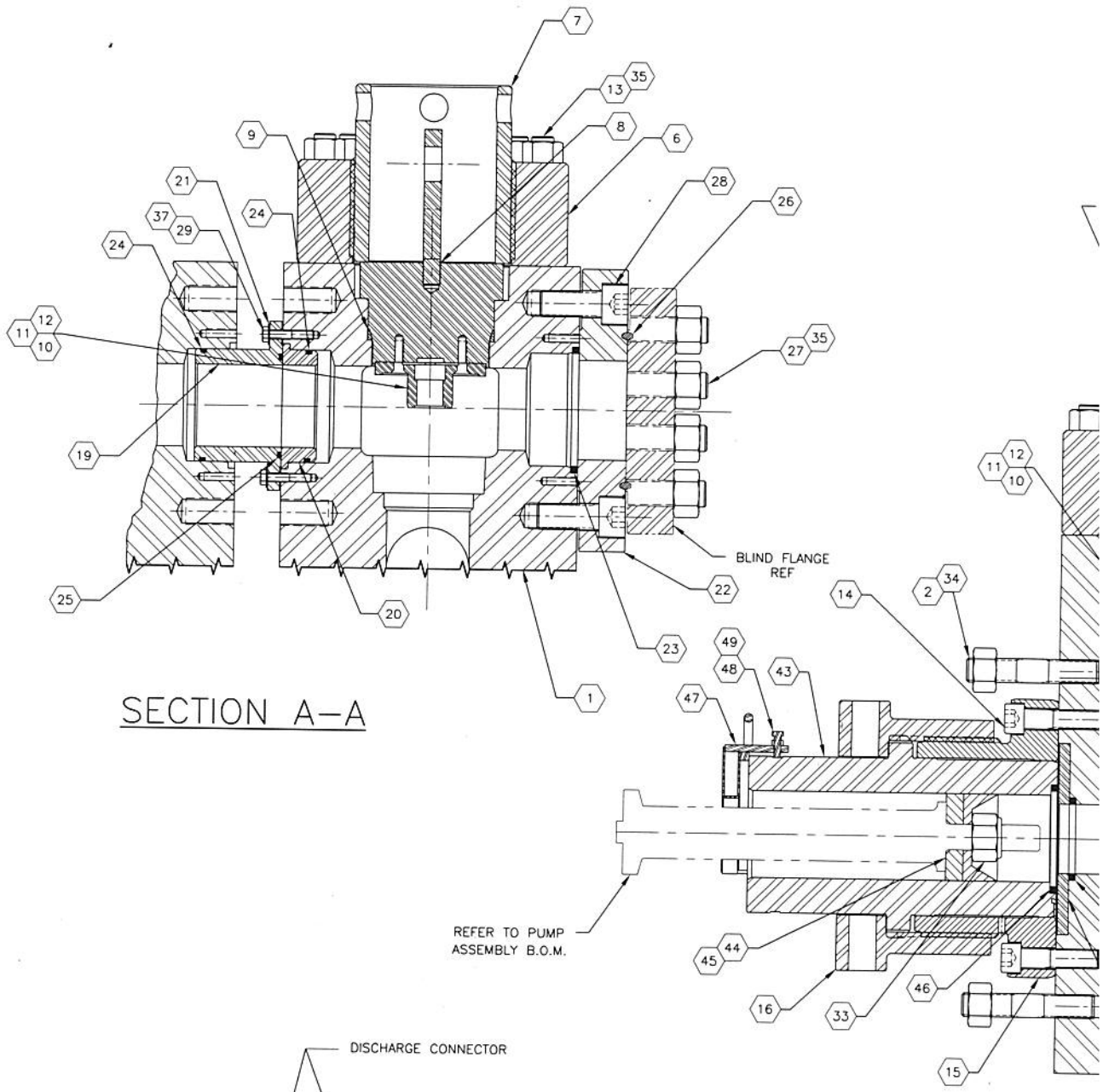
LeTourneau TECHNOLOGIES™

REV 07

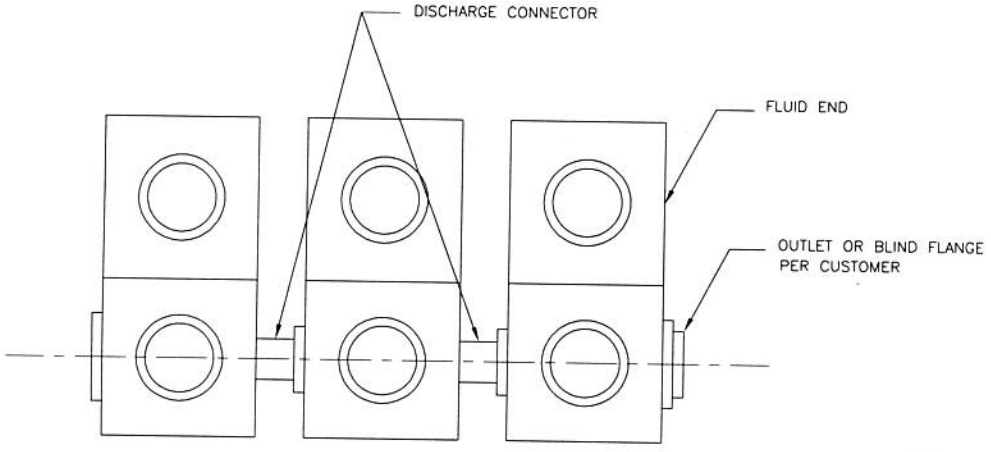
PUMP-MUD, WH1612 CECA

SEQ #	PART	QUANTITY	DESCRIPTION
1	D186006	1.00	PUMP-BARESHAFT, WH1612 12P SW
2	D186596	1.00	SKID-MASTER, WH1612 REAR MOUNT
3	002-1669	16.00	BOLT HX 1.000 8NC 3.50 G8
4	943-3576	16.00	NUT-HEX,HVY 1.000 8 NC A194-2H
5	B310066	1.00	HOSE-CHARGING, PULSATION DAMP
6	002-1544	16.00	WASHER-LOCK, 1.000"
7	108-9036	1.00	MOTOR-ELEC., GE752ARB3
8	108-9037	1.00	MOTOR-ELEC., GE752ARB3
9	D186582	1.00	CASE-CHAIN, LEFT SIDE WH1600
10	D186583	1.00	CASE-CHAIN, RIGHT SIDE WH1600
11	E0141	2.00	O-RING 2-451 BUNA 90 D
12	EB455	4.00	BOLT HX 1.250 7NC 2.50 G8 DH
13	002-1554	4.00	WASHER-FLAT, 1.250" WIDE
14	500-1247	1.00	NAMEPLATE, GREASE ARROW
15	EF124	1.00	STRAINER-Y, 1-1/4" WATTS
16	B105204	1.00	STRAINER-INLINE MESH ASSEMBLY
17	EV444	1.00	VALVE-RELIEF, 7.5 KSI RRV
18	EC221	2.00	CHAIN-ROLLER
19	B107034	2.00	SPROCKET 64T 1½P 5 STRAND
20	B107028	2.00	BUSHING-QD, 8.5 W

DWG NO. D105410

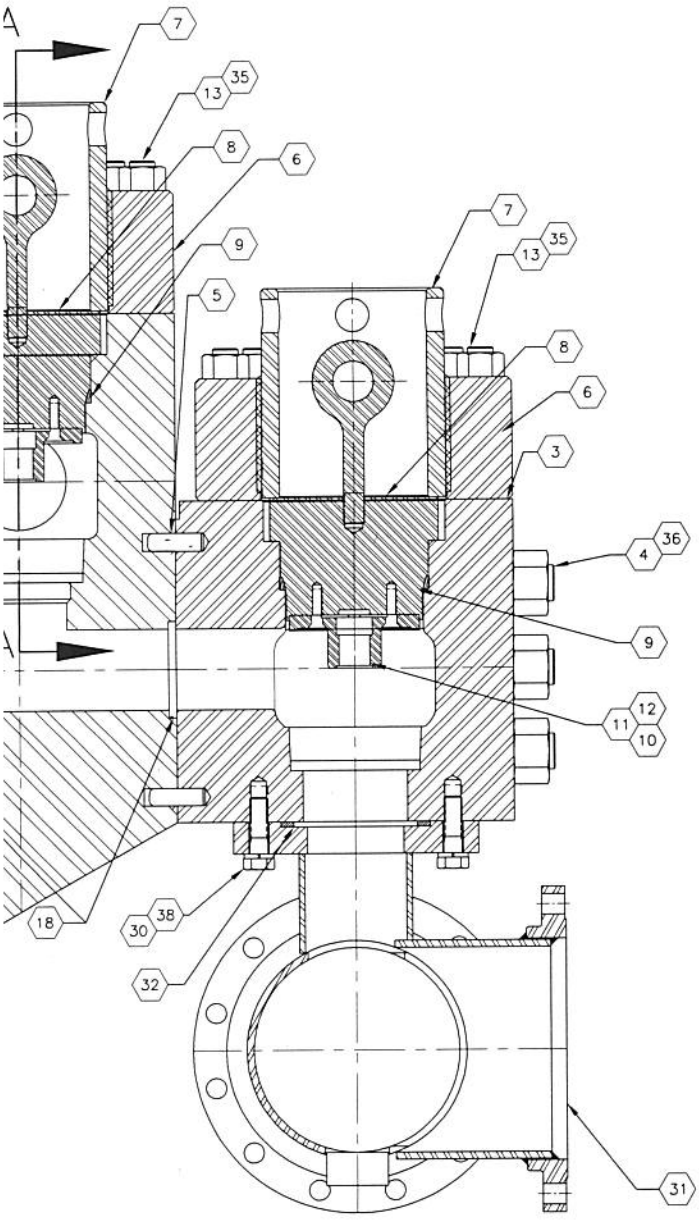


SECTION A–A



TOP VIEW

REVISIONS	ZONE	REV	DESCRIPTION
		00	RELEASE
		01	REVISED PER ECN
		02	ITEM-11 PART-# WAS EBJ20
		03	ASSED ITEMS 47, 48 & 49



ITEM	QTY	PART NO.	DESCRIPTION
1	3	D105364	DISCHARGE MODULE
2	30	ES222	STUD, 1.375 6NC V TPR LCK
3	3	D105365	SUCTION MODULE
4	18	ES223	STUD 1.750 8UN 21.00 V TPR LCK
5	6	A105409	PIN, .875 DIA X 2.75
6	6	C164435	FLANGE-VALVE COVER
7	6	B164436	LOCK-VALVE COVER
8	6	C164704	VALVE COVER
9	6	A164705	SEAL-VALVE COVER
10	6	C164718	VALVE GUIDE
11	6	A167708	BUSHING-VALVE GUIDE
12	12	EC220	VALVE GUIDE SCREW
13	72	108-0959	VALVE COVER STUD
14	18	EC199	LINER RETAINER SOCKET HEAD CAP SCREW
15	3	D167729	LINER LOCK FLANGE
16	3	C105368	LINER LOCK
17	3	108-0964	LINER WEAR PLATE
18	6	A164707	WEARPLATE AND MODULE GASKET
19	2	B105389	DISCHARGE CONNECTOR
20	2	B105390	DISCHARGE ADAPTER
21	4	B105388	BACK-UP RING
22	2	108-0531	DISCHARGE SPACER FLANGE
23	2	108-0674	DISCHARGE SPACER FLANGE SEAL
24	4	108-0861	DISCHARGE CONNECTOR / ADAPTER PACKING
25	2	108-0860	DISCHARGE CONNECTOR / ADAPTER PACKING
26	2	EG108	RING GASKET
27	16	108-0530	STUD, 1.500 6NC 7.500 V TPR LCK
28	16	108-1228	DISCHARGE SPACER FLANGE SOCKET HEAD CAP SCREW
29	16	400-1871	DISCHARGE CONNECTOR CAP SCREW
30	24	002-7583	BOLT HX .875 9NC 3.00 G8
31	1	D105036	SUCTION MANIFOLD, FRONT OR SIDE INLET
32	3	108-0234	SUCTION MANIFOLD GASKET
33	3	EN101	PISTON ROD, NUT
34	30	EN118	1.375 6NC HVY HX NUT
35	88	002-5784	1.500 6NC HVY HX NUT
36	18	EN111	1.750 8UN HVY HX NUT
37	16	080-1181	.500 LOCK WASHER
38	24	002-1543	.875 LOCK WASHER
* 39	6	EV116	VALVE SPRING
* 40	REF	EV142	VALVE INSERT
* 41	6	EV190	VALVE SEAT
* 42	6	EV178	VALVE COMPLETE
43	3	SEE CHART	LINER
44	3	SEE CHART	PISTON ASSEMBLIES
45	3	SEE CHART	PISTON RUBBER KITS
46	3	SEE CHART	LINER GASKETS
47	3	C167638	BAFFLE STRUCTURE
48	9	080-8476	BOLT HEX 3/8-16 NC x 1-1/4 GR. 8
49	9	EN125	NUT HEX 3/8-16 NC GR. 8

* THIS ITEMS NOT SHOWN

SIZE	LINER P/N	PISTON P/N	PISTON RUBBER	LINER GASKET
5 1/2	EL203	EP160	EP114	EG138
6	EL204	EP117	EP115	EG139
6 1/2	EL186	EP118	EP116	EG140
7	EL205	EP150	EP147	EG136
7 1/4	EL260	EP212	EP213	EG191

ECN	DATE	CHG	CHK	APP
.6318-01	8/23/04	MGD	WMA	JLS
5-0313	4/12/05	DY	JBP	JLS
6-0156	3.07.06	JKA	WMA	JLS
6-0300	5-15-06	RMR	JS	JLS

LeTourneau TECHNOLOGIES™
HOUSTON, TEXAS

THIS DRAWING AND ALL DATA THEREIN IS THE PROPERTY OF THE LETOURNEAU TECHNOLOGIES COMPANY. IT IS CONFIDENTIAL AND MUST NOT BE COPIED. IT IS LOANED SUBJECT TO RETURN UPON DEMAND AND IS NOT TO BE USED IN ANYWAY DETRIMENTAL TO OUR INTEREST

UNLESS OTHERWISE SPECIFIED:
- DIMENSIONS ARE IN INCHES & APPLY BEFORE PLATING OR FINISH COATINGS.
- TOLERANCES ON: ANGLES ±1°, FRACTIONS ±1/16, .XX DECIMAL ±.03, .XXX DECIMAL ±.015
- MACHINED CORNERS 1/64 X 45°
- WELD PROPERTIES SHALL MEET THE MINIMUM REQUIREMENTS OF THE BASE MATERIAL.

USED ON: D186006

		DATE
DWN	MGD	3/9/04
CHK	WMA	8/20/04
ENGR	JBP	8/20/04
MATL	SEE BOM	

THIRD ANGLE PROJECTION

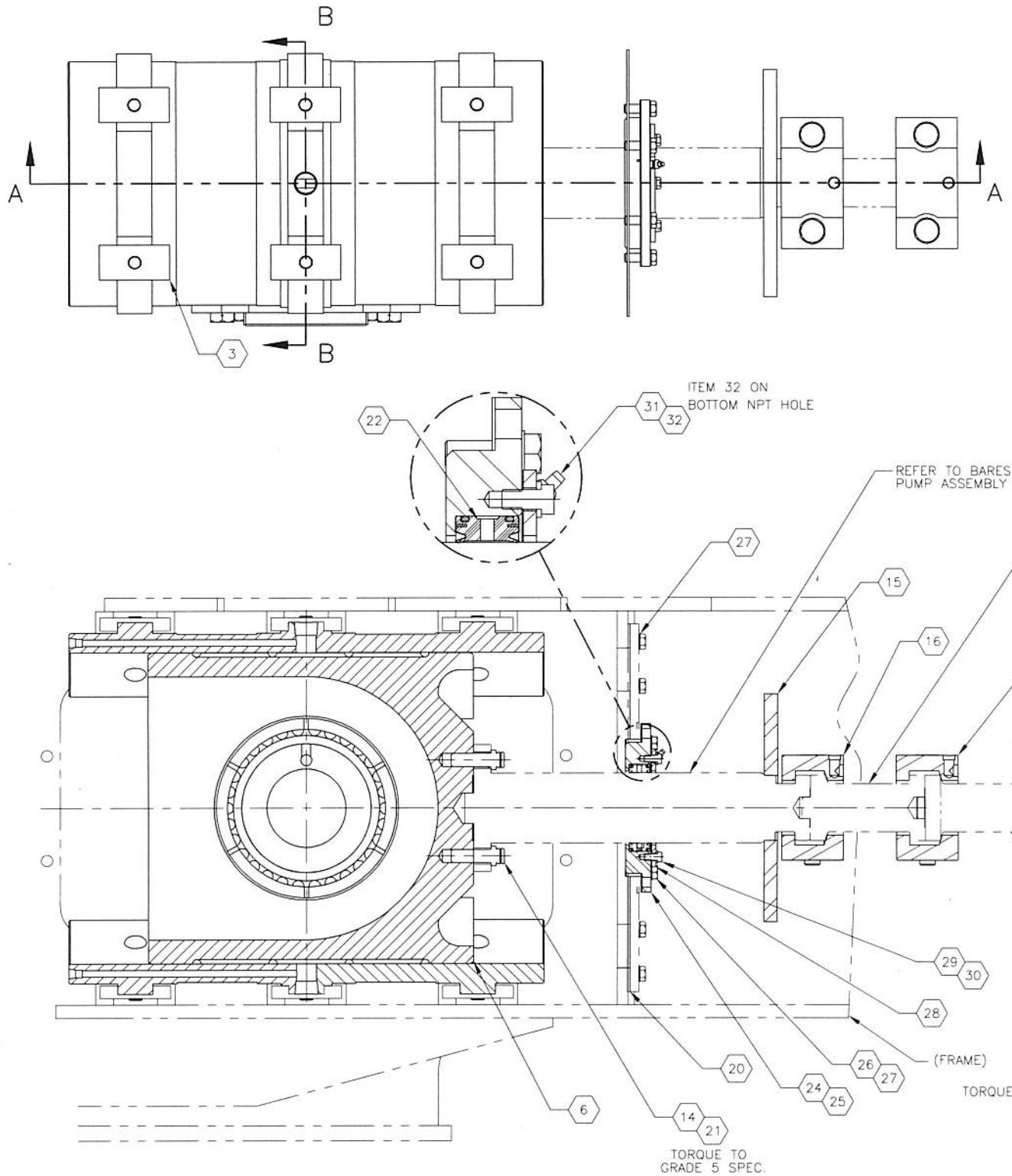
FLUID END ASSEMBLY

SW 12-P, 5000 PSI

SIZE D | DO NOT SCALE | DWG NO. D105410 | REV 03

SCALE 1:4.5 | EST WT | SHEET 1 OF 1

DWG NO. D186400

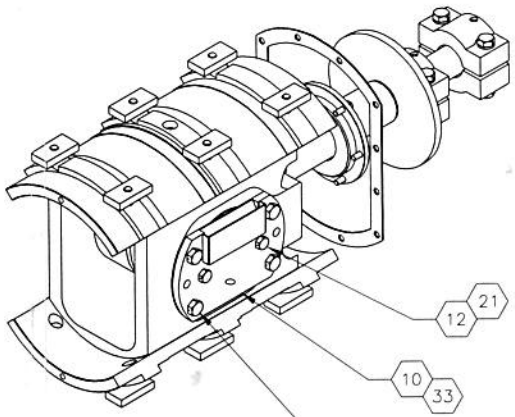


SECTION A–A

REVISIONS	ZONE	REV	DESCRIPTION
		06	CHG ITEM 5 FROM: 400-1911 TO: 400-
		07	ITEM 3 QTY WAS 24; ITEM 4 QTY WAS 12; ITEM 5 C
		08	CHANGE ITEM 2 TO QTY 3; ADD ITEM

PIN SHIMMING PROCEDURE

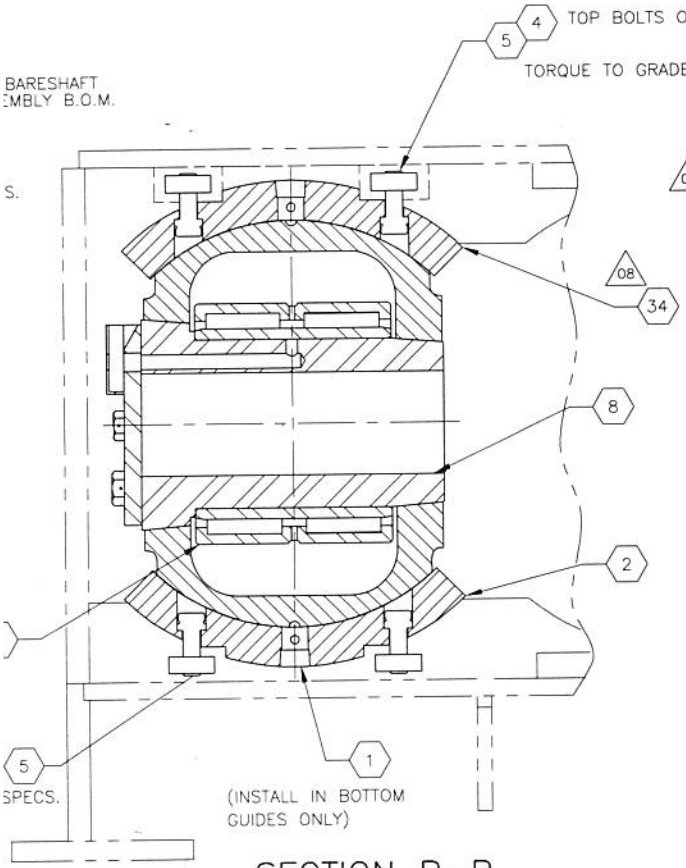
NSERT WRIST PIN (ITEM 8 OR 9) INTO TAPERED BORE OF CROSSHEAD (ITEM 6)
NSTALL WRIST PIN RETAINER PLATE (ITEM 10) ONTO WRIST PIN USING BOLTS (ITEM 12). TORQUE BOLTS TO GRADE 8 SPEC (TORQUE ONLY THE BOLTS THAT THREAD INTO THE WRIST PIN).
NSTALL BOLTS (ITEM 11) THROUGH RETAINER PLATE INTO CROSSHEAD. TORQUE THE BOLTS TO 50 FT-LBS.
BUMP THE WRIST PIN WITH A BRASS BAR TO SEAL IT AGAINST THE TAPER AND RE-TORQUE TO 50 FT-LBS.
WITH A FEELER GAUGE, MEASURE CLEARANCE BETWEEN WRIST PIN RETAINER PLATE AND FACE OF CROSSHEAD. THE CLEARANCE SHOULD BE APPROXIMATELY .125 INCH.
ASSEMBLE SHIMS FROM SHIMPACK (ITEM 33) TO THE THICKNESS MEASURED IN STEP 4, +.005/-.000. INSTALL SHIMS BETWEEN RETAINER PLATE AND CROSSHEAD.
TORQUE BOLTS HOLDING RETAINER PLATE TO CROSSHEAD TO GRADE 5 SPEC.
SAFETY WIRE ALL BOLTS.



(SEE WRIST PIN SHIMMING PROCEDURE)
TORQUE TO GRADE 5 SPECS.

BARESHAFT
EMBLY B.O.M.

S.



SECTION B-B

ROTATE 90° CW

** USE ITEM 9 ON CENTER CROSSHEAD AND ITEM 8 ON TWO OUTSIDE CROSSHEADS.

BOM QUANTITY REFLECTS (3) CROSSHEAD ASSEMBLIES

ITEM	PART NO.	QTY	DESCRIPTION
08 34	D150329	3	CROSSHEAD GUIDE-UPPER
33	ES167	6	SHIM SET WRIST PIN
32	EG131	3	VALVE GREASE RELIEF 15 PSI
31	018-4186	3	GREASE FITTING
30	075-3123	18	.375 LOCK WASHER
29	081-0970	18	BOLT HEX .375 .750 NC G8
28	A150317	3	RETAINER PACKING SEAL
27	EW107	54	.625 SEAL WASHER
26	002-5762	18	BOLT HEX .625 1.500 NC G8
25	A186408	3	STUFFING BOX GASKET
24	B186405	3	STUFFING BOX
23			
22	ES200	3	STUFFING BOX SEAL
21	EW109	AR	SAFETY WIRE
20	B150327	3	GASKET DIAPHRAM PLATE
19			
18			
17			
16	B162180	6	CLAMP PISTON ROD
15	A162203	3	BAFFLE
14	A150134	18	CSCR 12 PT .875 2.250 NC G8 DH
13			
12	415-6799	6	BOLT HEX .750 2.000 NC G8 DH
11	A150135	12	BOLT HEX .875 2.000 NC G8 DH
10	B150307	3	WRIST PIN RETAINER
** 9	D150326	1	WRIST PIN CENTER
** 8	D150322	2	WRIST PIN
7	EB185	3	WRIST PIN BRG
6	D150323	3	CROSSHEAD
5	400-1909	36	CSCR 12 PT .750 2.00 NC G8
4	EW111	18	3/4 LOCK WASHER INTERNAL
3	A160233	36	NUT PLATE CROSSHEAD
08 2	D150319	3	CROSSHEAD GUIDE-LOWER
1	008-6881	3	PIPE PLUG 1

ECN	DATE	CHG	CHK	APP
5-0506	7/19/06	DY	WMA	JLS
7-0997	10/5/07	WMA	CRS	JLS
8-0848	11/5/08	SWN	WMA	JLS

LeTourneau TECHNOLOGIES™
HOUSTON, TEXAS

THIS DRAWING AND ALL DATA THEREIN IS THE PROPERTY OF THE LETOURNEAU TECHNOLOGIES COMPANY. IT IS CONFIDENTIAL AND MUST NOT BE COPIED. IT IS LOANED SUBJECT TO RETURN UPON DEMAND AND IS NOT TO BE USED IN ANYWAY DETRIMENTAL TO OUR INTEREST

UNLESS OTHERWISE SPECIFIED:
- DIMENSIONS ARE IN INCHES & APPLY BEFORE PLATING OR FINISH COATINGS.
- TOLERANCES ON: ANGLES ±1° FRACTIONS ±1/16 .XX DECIMAL ±.03 .XXX DECIMAL ±.015
- MACHINED CORNERS 1/64 X 45°
- WELD PROPERTIES SHALL MEET THE MINIMUM REQUIREMENTS OF THE BASE MATERIAL.

USED ON: WH-1600/1312

		DATE
DWN	RJP	11-12-03
CHK	WMA	11-12-03
ENGR	JBP	11-12-03
MATL	SEE BOM	

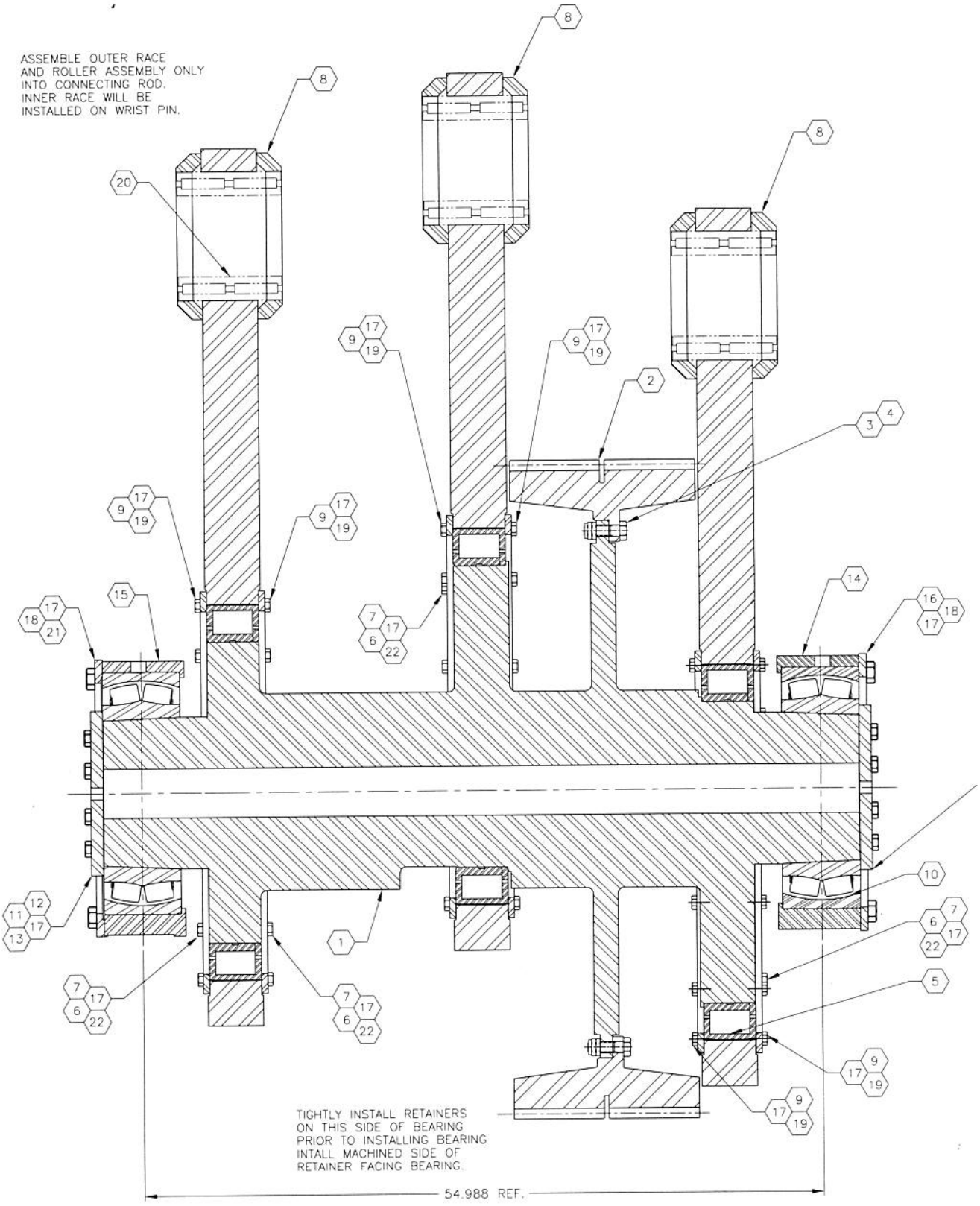
THIRD ANGLE PROJECTION

CROSSHEAD ASSEMBLY

W-1100, WH-1600/1312

SIZE	DO NOT SCALE	DWG NO.	REV
D		D186400	08
SCALE 1/4	EST WT 1100 LBS.	SHEET 1 OF 1	

DWG NO. D186200



REVISIONS	ZONE	REV	DESCRIPTION
		00	RELEASE
		01	CHANGED QTY TO ITEM 22 FRO
		.	

ITEM	QTY	PART NO.	DESCRIPTION
1	1	D186201	CRANCKSHAFT-MACHINED
2	1	C186207	GEAR
3	12	002-7583	BOLT HX .875 9NC 3.00 G8
4	12	A150227	NUT LOCK NYL INS .875 NC
5	3	EB184	BRG ECCENTRIC
6	16	A162224	RETAINER INNER BRG ECCENTRIC
7	32	EB403	BOLT HX .750 10NC 1.50 G8 DH
8	3	B186209	CONNECTING ROD
9	12	C150297	RETAINER OUTER BRG ECCENTRIC
10	2	EB182	BRG MAIN
11	2	B167204	SHIM SET BRG MAIN
12	2	B167203	INNER RACE RETAINER MAIN BEARING
13	16	A300212	BOLT HX 1.000 8NC 2.50 G8 DH
14	1	B167206	MAIN BEARING CARRIER, LH
15	1	B167205	MAIN BEARING CARRIER, RH
16	1	B167202	MAIN BEARING OUTER RACE RETAINER RH
17	AR	EW109	WIRE SAFETY .047
18	16	A167233	BOLT HX .750 10NC 1.75 G8 DH
19	72	413-8337	BOLT HX .625 11NC 1.50 G8 DH
20	REF	EB185	BRG WRIST PIN
21	1	B167240	MAIN BEARING OUTER RACE RETAINER LH
01 22	AR	A162259	SHIM SET ECCENTRIC INNER

(ITEM 9) MUST BE INSTALLED
D ON THIS SIDE OF ROD PRIOR
G BEARING IN ROD

MAIN BEARING INSTALLATION PROCEDURE:

1.) PLACE MAIN BEARING ON SHAFT WITH HAND-TIGHT FIT (NO LOOSENESS AND NO PRESS)
2.) MEASURE DISTANCE FROM END OF SHAFT TO FACE OF BEARING.
3.) SUBTRACT .085 FROM MEASUREMENT FOR SHIMPACK THICKNESS.
4.) INSTALL SHIMPACK (ITEM 11) TO THICKNESS DETERMINED ABOVE +/- .005.
5.) PRESS BEARING ONTO SHAFT UNTIL END OF BEARING IS FLUSH WITH SHIMPACK.
FINAL DIAMETRAL CLEARANCE OF BEARING MUST BE .0024 TO .0080.

FITS AND BEARING ASSEMBLY TEMPERATURE DIFFERENTIALS

BEARING DESC & TYPE	RACE	MATING PART	FIT*	NOMINAL FIT DIAMETER	MINIMUM ΔT REQD FOR SLIP FIT ASSY	REQD RADIAL BRG CLEARANCE AFTER INSTALLATION
ECCENTRIC (CYLINDRICAL ROLLER)	INNER OUTER	SHAFT ECCENTRIC CONNECTING ROD	.0040T-.0070T .0020T-.0060T	24.500 30.500	45°F 25°F	.002 .009
WRIST PIN (NEEDLE ROLLER)	INNER OUTER	WRIST PIN CONNECTING ROD	.0020T-.0040T .0007T-.0025T	7.375 10.500	85°F 40°F	.0010 .0069
MAIN (SPHERICAL ROLLER)	INNER OUTER	CRANKSHAFT BEARING CARRIER	N/A .0000L-.0043L	N/A 19.687	N/A 0°F	.0024 .0080

N DIAMETER IS SHOWN. T=TIGHT, L=LOOSE
S MAY BE HEATED IN OIL BATH, OVEN, OR WITH INDUCTION HEATER, BUT NOT WITH TORCH.
ALLOW BEARING TEMPERATURE TO EXCEED 250°F.

ECN	DATE	CHG	CHK	APP
5616-01	10/22/03	DY	WMA	JLS
I-0838	11/30/05	DY	WMA	JLS

LEWCO
HOUSTON, TEXAS

THIS DRAWING AND ALL DATA THEREIN IS THE PROPERTY OF THE LaTOURNEAU ELLIS WILLIAMS COMPANY. IT IS CONFIDENTIAL AND MUST NOT BE COPIED. IT IS LOANED SUBJECT TO RETURN UPON DEMAND AND IS NOT TO BE USED IN ANYWAY DETRIMENTAL TO OUR INTEREST

UNLESS OTHERWISE SPECIFIED:
- DIMENSIONS ARE IN INCHES & APPLY BEFORE PLATING OR FINISH COATINGS.
- TOLERANCES ON: ANGLES ±1°
  FRACTIONS ±1/16
  .XX DECIMAL ±.03
  .XXX DECIMAL ±.015
- MACHINED CORNERS 1/64 X 45°.
- WELD PROPERTIES SHALL MEET THE MINIMUM REQUIREMENTS OF THE BASE MATERIAL.
- ALL MACHINED SURFACES TO HAVE A FINISH OF ⁶³ UNLESS OTHERWISE NOTED

USED ON D186000

		DAT
DWN	DY	10/22/03
CHK	WMA	10/28/03
ENGR	JEP	10/28/03
MATL	SEE BOM	

THIRD ANGLE PROJECTION

CRANKSHAFT ASSEMBLY

WH-1600

SIZE	DO NOT SCALE	DWG NO.	REV
D		D186200	01

SCALE	EST WT	SHEET
NTS	17,750 LBS	1 OF 1