



LeTourneau Ellis Williams Company, Inc.

**PARTS CATALOGUE FOR
W-446 TRIPLEX PUMP**

The Balance of PowerSM



**READ THIS MANUAL COMPLETELY BEFORE
ORDERING SPARE PARTS FOR THIS PUMP**

**CAUTION: PUMPS ARE SHIPPED DRY. FILL WITH
PROPER LUBRICANT BEFORE OPERATING.**

SEE MAINTENANCE MANUAL

LEWCO 440-446-SK250

NOTE: some fluid end items are interchangeable with the SK250-ST250 style pump

PN Dupagro SK250/ EW44/446	Original PN Ellis Williams EWCO	PN Sitetec ST250/ EW440/446	Description	REQUEST
5000061	B155336		EW 446LP Bare Fluid End 6"	info@dupagro.com
5000072	C155326		EW 446LP Suction MANIFOLD	info@dupagro.com
5000073	EO169		EW 446LP Suction Manifold O-RING	info@dupagro.com
5000084	C155441		EW 446LP Discharge MANIFOLD with weld ends	info@dupagro.com
5000085	EO148		EW 446LP Discharge Manifold O-RING	info@dupagro.com
5000086	B155342		EW 446LP Valve & Cylinder Head Cover Lock FLANGE	info@dupagro.com
5000087	B155343	201063	Valve & Cylinder Head Cover LOCK	info@dupagro.com
5000105	EL149		EW 446LP Premium Chromed LINER 5"	info@dupagro.com
5000106	EL193		EW 446LP Premium Chromed LINER 6"	info@dupagro.com
5000110	A156183		EW 446LP Liner O-RING	info@dupagro.com
5000112	EC160		EW 446LP SHCS 1" x 3 1/2"	info@dupagro.com
5000113	B155342		EW 446LP Liner RETAINER 6"	info@dupagro.com
5000114	ES404/943-3576		EW 446LP SHCS 1" x 6"	info@dupagro.com
5000125	A155332		EW 446LP Stud 7/8" x 4.1/2"	info@dupagro.com
5000126	EN112		EW 446LP Nut 7/8" HEX	info@dupagro.com
5000127	EC154		EW 446LP Stud 3/4" x 5 7/5"	info@dupagro.com
5000128			EW 446LP Nut 3/4" HEX	info@dupagro.com
5000131			EW 446LP Ferry Head Bolt 3/4" x 1 3/4"	info@dupagro.com
5000150	EV149	201068	VALVE NF-4-V02, EW446LP/SK250TLP	info@dupagro.com
5000160		201051	Valve INSERT	info@dupagro.com
5000170	EV150	201017	SEAT NF-4-S05, EW446LP/SK250TLP	info@dupagro.com
5000180	C155617	201019	Lower Valve GUIDE, EW446LP/SK250TLP	info@dupagro.com
5000221	B155323	201060	Valve COVER, EW446LP/SK250TLP	info@dupagro.com
5000222	B155309	201061	Cylinder Head COVER EW446/SK250TLP	info@dupagro.com
5000231	B155344	201012	Valve Cover GASKET B155344	info@dupagro.com
5000232	B155345	201013	Cylinder Head Cover GASKET B155345	info@dupagro.com
5000240	EV151	201018	Valve SPRING SS, EW446LP/SK250TLP	info@dupagro.com
5000245	B155372		EW 446LP Piston ROD	info@dupagro.com
5000246		250124	Piston Rod NUT 1 1/2"	info@dupagro.com
5000247			EW 446LP Piston Rod CLAMP	info@dupagro.com
5000248			EW 446LP Piston Rod Clamp BOLT & NUT	info@dupagro.com
5000249			EW 446LP Push/Pony ROD	info@dupagro.com
5000250			EW 446LP Pushrod OIL SEAL /w messing scraper	info@dupagro.com
5000255			EW 446LP Pushrod PUR OIL SEAL	info@dupagro.com
5000339			EW 446LP Pinion OIL SEAL EO101	info@dupagro.com
5300061		250001	SK250T-LP Fluid End	info@dupagro.com
5300072		250003	SK250T-LP Suction MANIFOLD	info@dupagro.com
5300073		250142	SK250T-LP O-RING Suction Manifold	info@dupagro.com
5300084		250002	SK250T-LP Discharge MANIFOLD	info@dupagro.com
5300085		250144	SK250T-LP O-RING Discharge Manifold	info@dupagro.com
5300086		201062	SK250T-LP Valve Cover Lock FLANGE	info@dupagro.com
5300088		250004	SK250T-LP Fluid End RETAINER & Cover Lock PLATE	info@dupagro.com
5300100			SK250T-LP Triplex pump	info@dupagro.com
5300106		250106	SK250T-LP Premium Chromed LINER 6"	info@dupagro.com
5300110		250108	SK250T-LP Liner O-RING	info@dupagro.com
5300112		250111	SK250T-LP Liner Retainer STUD	info@dupagro.com

LEWCO 440-446-SK250

NOTE: some fluid end items are interchangeable with the SK250-ST250 style pump

PN Dupagro SK250/EW44/446	Original PN Ellis Williams EWCO	PN Sitetec ST250/EW440/446	Description	REQUEST
5300113		250109	SK250T-LP Liner RETAINER	info@dupagro.com
5300114		250110	SK250T-LP Liner Retainer NUT	info@dupagro.com
5300125		201172	SK250T-LP HHCS BOLT Lock Flange	info@dupagro.com
5300128		201119	SK250T-LP SHCS Discharge Manifold	info@dupagro.com
5300130		250133	SK250T-LP SHCS Lock Plate & Fluid End	info@dupagro.com
5300132	400-1908	250134	SK250T-LP HHCS Suction Manifold	info@dupagro.com
5300245		250122	SK250T-LP Piston ROD	info@dupagro.com
5300247		250126	SK250T-LP Piston Rod CLAMP	info@dupagro.com
5300248		250126	SK250T-LP SHCS Piston Rod Clamp	info@dupagro.com
5300249			SK250T-LP Push/Pony ROD	info@dupagro.com
6016450	EP159		PISTON Complete 5" Series B-1 1/2"	info@dupagro.com
6016455	EP160		PISTON Complete 5 1/2" Series B-1 1/2"	info@dupagro.com
6016460	EP117	205106	PISTON Complete 6" Series B-1 1/2"	info@dupagro.com
6026455	EP165		Piston RUBBER Kit 5 1/2" Series B	info@dupagro.com
6026460	EP114	205114	Piston RUBBER Kit 6" Series B	info@dupagro.com
	A105032		Nameplate	info@dupagro.com
	D155015		Lubrication assembly	info@dupagro.com
	D155300		Fluid end assembly, small bore	info@dupagro.com
	D155400		Crosshead assembly	info@dupagro.com
	D155001		Pinion shaft assembly	info@dupagro.com
	D155200		Crankshaft assembly	info@dupagro.com
	D155110		Frame assembly	info@dupagro.com
	D155530		Crankshaft machined 446	info@dupagro.com
	D155010		Gear-main 446 DBL HLX	info@dupagro.com
	D155620		Rod connecting	info@dupagro.com
	EB166		Bearing eccentric	info@dupagro.com
	C155528		Carrier main bearing LH	info@dupagro.com
	C155527		Carrier main bearing RH	info@dupagro.com
	EB170		Bearing Spherical roller	info@dupagro.com
	B155223		Retainer outer ecc bearing	info@dupagro.com
	A155224		Retainer inner ecc bearing	info@dupagro.com
	A155526		Retainer main bearing inner	info@dupagro.com
	B155525		Retainer main bearing outer	info@dupagro.com
	A155525		Shim set main bearing	info@dupagro.com
	B155141		Cover main bearing	info@dupagro.com
	B155144		Gasket main bearing cover	info@dupagro.com
	B155252		Gasket main bearing carrier	info@dupagro.com
	002-1646		Bolt HX ,750 10NC 2,50 G8	info@dupagro.com
	411-6072		CSCR 12pt ,500 13NC 1,25 G8 DH	info@dupagro.com
	EB401		Bolt HX ,500 13NC 1,25 G8 DH	info@dupagro.com
	413-8276		Bolt HX ,625 11NC 2,00 G8 DH	info@dupagro.com
	002-1631		Bolt HX ,625 11NC 2,25 G8	info@dupagro.com
	400-9752		Bolt HX ,500 13NC 1,25 G8	info@dupagro.com
	401-6018		Nut-lock, nyl HX ,750 NC G8	info@dupagro.com
	EW109		Safety wire ,047 SS	info@dupagro.com
	EW106		Washer stato seal ,500"	info@dupagro.com
	002-1541		Washer -lock ,625"	info@dupagro.com
	D155007		Xhead pressurized	info@dupagro.com
	C155006		Guide xhead pressurized	info@dupagro.com

LEWCO 440-446-SK250

NOTE: some fluid end items are interchangeable with the SK250-ST250 style pump

PN Dupagro SK250/EW44/446	Original PN Ellis Williams EWCO	PN Sitetec ST250/EW440/446	Description	REQUEST
	B155219		Wrist pin	info@dupagro.com
	B155222		Retainer wrist pin	info@dupagro.com
	EB103		Wrist pin bearing	info@dupagro.com
	B155226		Pony rod	info@dupagro.com
	B155460		Stuffing box new	info@dupagro.com
	B155235		Pony rod seal retainer	info@dupagro.com
	EW110		Washer lock int ,500	info@dupagro.com
	A155234		Nut plate xhead guide	info@dupagro.com
	ES209		Seal stuffing box	info@dupagro.com
	B155253		Gasket diaphragm plate	info@dupagro.com
	B155243		Gasket stuffing box old	info@dupagro.com
	B155227		Piston rod clamp	info@dupagro.com
	B155244		Baffle disk	info@dupagro.com
	A155238		CSCR 12PT ,625 11NC 1,50 G8 DH	info@dupagro.com
	A155249		CSCR 12PT ,625 11NC 2,00 G8 DH	info@dupagro.com
	415-1056		CSCR 12PT ,625 11NC 1,75 G8 DH	info@dupagro.com
	400-1870		CSCR 12PT ,500 13NC 1,50 G8	info@dupagro.com
	400-1834		CSCR 12PT ,375 16NC 1,00 G8	info@dupagro.com
	075-3123		Washer Llock 0,375"	info@dupagro.com
	EW109		Safety wire 0,47SS	info@dupagro.com
	EG131		Relief grease 1/8" NPT	info@dupagro.com
	018-4186		Fitting grease 0,125 NPT 45degrees	info@dupagro.com
	EW106		Washer stato seal 0,500"	info@dupagro.com
	400-1869		CSCR 12PT ,500 13NC 1,25 G8 FT	info@dupagro.com
	EW166		Shim set wrist pin	info@dupagro.com
	D155011		Pinion shaft DBL HLX	info@dupagro.com
	C155229		Carrier pinion bearing	info@dupagro.com
	EB104		Bearing cylindrical roller	info@dupagro.com
	B155232		Race pinion oil seal	info@dupagro.com
	ES108		Retainer ring	info@dupagro.com
	EO101		Oil seal	info@dupagro.com
	B155242		Gasket pinion bearing carrier	info@dupagro.com
	A155236		Key 5/8x7/8x6	info@dupagro.com
	002-1631		Bolt HX ,625 11NC 2,25 G8	info@dupagro.com
	002-1541		Washer lock 0,625"	info@dupagro.com
	002-1543		Washer lock 0,875"	info@dupagro.com
	002-1660		Bolt HX ,875 9NC 2,25 G8	info@dupagro.com
	D155370		Frame Machined	info@dupagro.com
	C155136		Cover Crankcase	info@dupagro.com
	400-9752		Bolt HX ,500 13NC 1,25 G8	info@dupagro.com
	B155165		Cover inspection	info@dupagro.com
	B155166		Gasket inspection cover	info@dupagro.com
	B155119		Cover lube pump housing	info@dupagro.com
	B155167		Gasket lube pump housing	info@dupagro.com

LEWCO 440-446-SK250

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PN Dupagro SK250/EW44/446	Original PN Ellis Williams EWCO	PN Sitetec ST250/EW440/446	Description	REQUEST
	C155129		Cover Xhead	info@dupagro.com
	B155142		Gasket Xhead cover	info@dupagro.com
	027-5204		Nipple pime, 1 1/2 close sch 40BL	info@dupagro.com
	A155146		Dipstick	info@dupagro.com
	201-3592		Tee pipe 1 1/2"STD black	info@dupagro.com
	401-3783		Bushing pipe 1 1/2" x 3/4"STD	info@dupagro.com
	EB107		Cap breather 10 micron	info@dupagro.com
	EG104		Gasket crankcase	info@dupagro.com
	EP403		Plug magnetic 1" NPT	info@dupagro.com
	400-9753		Bolt HX ,500 13NC 1,50 G8	info@dupagro.com
	078-8967		Bolt HX ,500 13NC 3,50 G8	info@dupagro.com
	0800-8489		Nut HEX ,500 13NC G8	info@dupagro.com
	EW106		Washer stato seal ,500"	info@dupagro.com
	A155463		Pipe 3/4 NPT x 6-13/16 long	info@dupagro.com
	080-1181		Washer lock 0,500"	info@dupagro.com
	027-5210		Bushing pipe 1 1/2"x 1" STD	info@dupagro.com
	C155475		Structure baffle liner wash	info@dupagro.com
	082-4790		Bolt HX ,500 13NC 1,75 G8	info@dupagro.com
	A150607		Plug pipe, 2" T-handle oil fil	info@dupagro.com

If our PN does not appear on the list, email us, we surely can deliver!



LeTourneau Ellis Williams Company, Inc.

**PARTS CATALOGUE FOR
W-446 TRIPLEX PUMP**

The Balance of PowerSM



**READ THIS MANUAL COMPLETELY BEFORE
ORDERING SPARE PARTS FOR THIS PUMP**

**CAUTION: PUMPS ARE SHIPPED DRY. FILL WITH
PROPER LUBRICANT BEFORE OPERATING.
SEE MAINTENANCE MANUAL**



LeTourneau Ellis Williams Company, Inc.

A large, multi-pointed starburst graphic with a textured, grey fill, centered behind the title text.

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BOLT TORQUE CHART	



LeTourneau Ellis Williams Company, Inc.

A large, dark, multi-pointed starburst graphic with a textured, stippled appearance. The word 'INTRODUCTION' is centered within the starburst in a bold, black, sans-serif font.

INTRODUCTION

This manual has been prepared with the intention of supplying the user with a valuable service tool. Before placing the mud pump in service, study this manual thoroughly. Your familiarity with the contents will prove a great aid in performing any service work on the pump correctly the first time and as quickly as possible.

A general check of all equipment shipped should be made immediately upon delivery by qualified personnel. Pay particular attention to those parts which were unprotected in shipment and susceptible to damage. Take into consideration any unsatisfactory conditions that are not immediately apparent from surface inspections and immediately correct any damage prior to installing the equipment. Small, separately packed items, should be inspected for damage and missing parts. Safely repack these items, after inspecting them, until proper installations procedures are taken.



LeTourneau Ellis Williams Company, Inc.

 A large, multi-pointed starburst graphic with a textured, stippled appearance, centered behind the main title.

SERIAL NUMBER AND ORDERING INFORMATION

MODEL: W-446 SERIAL NO:

When ordering parts for a machine, be sure to furnish both the model number and serial number. Give the quantity of parts required, part number, assembly number and name where parts are found.

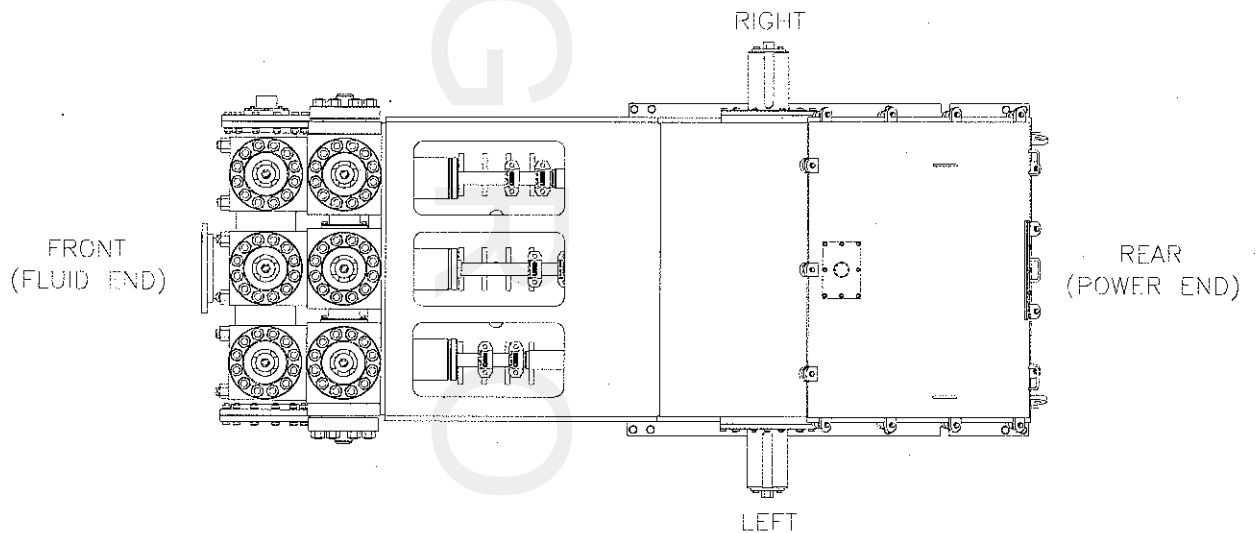
Furnish complete shipping instructions as to destination and carriers.

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.



LeTourneau Ellis Williams Company, Inc.

For the sake of clarification of terminology in service work or parts ordering, use the diagram provided below to differentiate between RIGHT, LEFT, FRONT, and REAR of the pump.



D155014

DWG NO.

Dupagro B.V.
 Ooststeeg 102
 6708 AX Wageningen
 The Netherlands
 11/22

Phone +31 (0) 317 840 197
info@dupagro.com
www.dupagro.com

ZONE	REV	DESCRIPTION	ECN	DATE	CHG	CHK	APP
	00	RELEASE	4-0039RL	2/25/04	RJP	JBP	JLS

REV-S-OZS

7	2	A105032	NAMEPLATE
6	1	D155015	LUBRICATION ASSEMBLY
5	1	D155300	FLUID END ASSEMBLY, SMALL BORE
4	1	D155400	CROSSHEAD ASSEMBLY
3	1	D155001	PINION SHAFT ASSEMBLY
2	1	D155200	CRANKSHAFT ASSEMBLY
1	1	D155110	FRAME ASSEMBLY
ITEM	QTY	PART NO.	DESCRIPTION

LEWCO
HOUSTON, TEXAS

THIS DRAWING AND ALL DATA THEREIN IS THE PROPERTY OF THE LITOURNEAU ELLIS WILLIAMS COMPANY. IT IS CONFIDENTIAL AND NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF LEWCO. LEWCO ASSUMES NO LIABILITY FOR ANY ERRORS OR OMISSIONS. LEWCO IS NOT TO BE USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF LEWCO.

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 UNLESS OTHERWISE NOTED

USED ON

DRAWN	DATE
RJP	1/25/04
JBP	2/25/04
JBP	2/25/04

THIRD ANGLE PROJECTION

W-446SF BARESHAFT PUMP ASSEMBLY

SMALL BORE, FLUID ENDS

DO NOT SCALE

SCALE N.T.S. EST WT SHEET 1 OF 1

Parts list for :
D155200

ASSEMBLY-CRANKSHAFT, W446SF

SEQ	PART	QUANTITY	DESCRIPTION
1	D155530	1.00	CRANKSHAFT-MACHINED, W446
2	D155010	1.00	GEAR-MAIN, W-446 DBL HLX
3	D155620	3.00	ROD-CONNECTING, W446SF
4	EB166	3.00	BEARING-ECCENTRIC, W-446-SF
5	C155528	1.00	CARRIER-MAIN BEARING, LH
6	C155527	1.00	CARRIER-MAIN BEARING, RH
7	EB170	2.00	BEARING-SPHERICAL ROLLER
8	B155223	12.00	RETAINER-OUTER ECC BEARING
9	A155224	12.00	RETAINER-INNER ECC BEARING
10	A155526	2.00	RETAINER-MAIN BEARING INNER
11	B155428	1.00	RETAINER-MAIN BEARING, OUTER
12	A155525	2.00	SHIM SET-MAIN BEARING
13	B155141	2.00	COVER-MAIN BEARING, W446
14	B155144	2.00	GASKET-MAIN BEARING COVER
15	B155252	2.00	GASKET-MAIN BEARING CARRIER
16	002-1646	12.00	BOLT HX .750 10NC 2.50 G8
17	411-6072	96.00	CSCR 12PT .500 13NC 1.25 G8 DH
18	EB401	6.00	BOLT HX .500 13NC 1.25 G8 DH
19	413-8276	12.00	BOLT HX .625 11NC 2.00 G8 DH
20	002-1631	16.00	BOLT HX .625 11NC 2.25 G8
21	400-9752	12.00	BOLT HX .500 13NC 1.25 G8
22	401-6018	12.00	NUT-LOCK, NYL HX .750 NC G8
23	EW109	0.00	SAFETY WIRE .047 SS
24	EW106	12.00	WASHER-STATO SEAL, .500"
25	002-1541	16.00	WASHER-LOCK, 0.625"

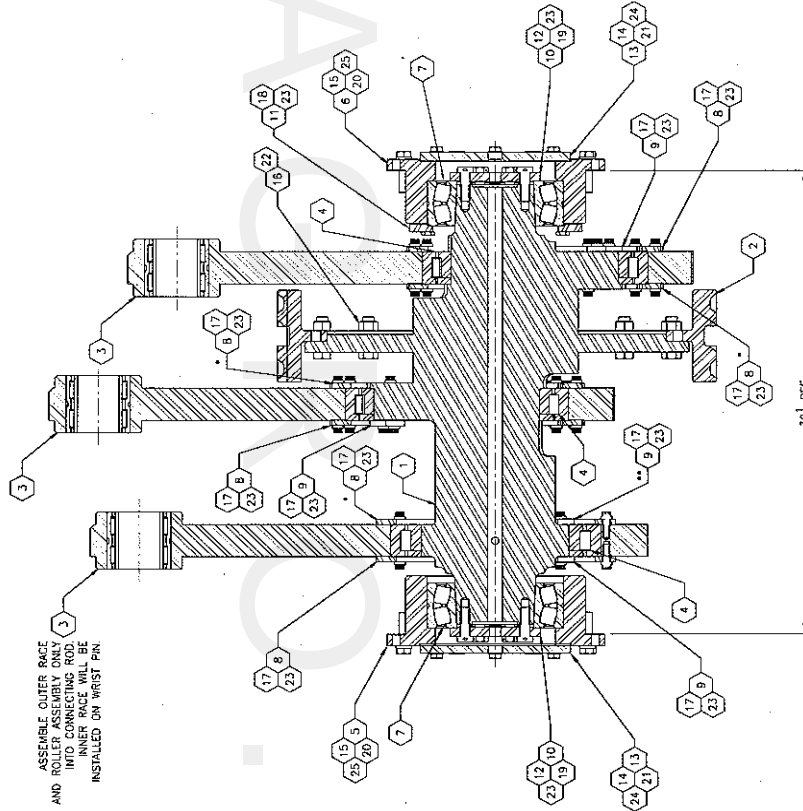
0025951D

BEARING FITS AND BEARING ASSEMBLY TEMPERATURE DIFFERENTIALS

ITEM NO.	BEARING DESC. & TYPE	RACE	MATING PART	FIT*	NOMINAL FIT DIAMETER	MINIMUM AT REQD FOR SUP-FIT ASSY	REQUIRED RADIAL BRG CLEARANCE AFTER INSTALLATION
4	ECCENTRIC ROLLER (CYLINDRICAL ROLLER)	INNER OUTER	SHAFT ECCENTRIC CONNECTING ROD	.00281-.00541 .00007-.00321	11.500 15.250	55F 45F	.0010 .0078
7	WHRST PIN (NEEDLE ROLLER)	INNER OUTER	WHRST PIN CONNECTING ROD	.00007-.00097 .00037-.00197	2.750 4.250	50F 70F	.0020 .0060
	MAIN (SPHERICAL ROLLER)	INNER OUTER	CRANKSHAFT BEARING CARRIER	N/A .0013L-.0041L	N/A 9.055	N/A 0F	.0022 .0056

* FIT ON SHAFTS IS SHOWN TIGHT. LOOSE BEARINGS MAY BE HEATED ON BY INDUCTION HEATER, BUT NOT WITH TORCH. NEVER ALLOW BEARING TEMPERATURE TO EXCEED 250F.

ASSEMBLE OUTER RACE AND ROLLER ASSEMBLY ONLY INTO CONNECTING ROD. INNER RACE SHALL BE INSTALLED ON WHIST PIN.



323 REF.

ITEM	QTY	PART NO.	DESCRIPTION
1	1	D155530	CRANKSHAFT MACHINED
2	1	D155010	GEAR MAIN DOUBLE HELIX
3	3	D155620	CONNECTING ROD
4	3	EB165	BRG RL ASSY 1.1500 15.250 2.250
5	1	C155528	CARRIER BRG LH
6	1	C155527	CARRIER BRG RH
7	2	EB170	BRG SP ASSY 5.118 9.021 3.150
8	12	B155223	RETAINER BRG OUTER ECC
9	12	A155224	RETAINER BRG INNER ECC
10	2	A155228	RETAINER BRG MAIN
11	2	A155229	RETAINER BRG
12	2	A155230	SHAFT
13	2	B155141	COVER MAIN BRG
14	2	B155144	BASKET COVER MAIN BRG
15	2	B155252	BASKET BRG CARRIER CRANKSHAFT
16	12	002-1646	BOLT HK .750 2.500 NC GR CR
17	96	411-6072	OSCR FH .500 1.250 NC GR DHFT
18	16	EB401	BOLT HK .500 1.250 NC GR DH
19	12	413-8276	BOLT HK .625 2.000 NC GR DH
20	16	002-1631	BOLT HK .625 2.250 NC GR
21	12	400-9792	BOLT HK .500 1.250 NC GR FT
22	12	401-6018	NUT LOCK NYL .750 NC
23	48	EW109	SAFETY WIRE .041 SS 2117/LB
24	12	EW105	WASHER FLAT 500 SEAL
25	16	002-1541	WASHER LOCK SPR .625 1.08 .16

MAIN BEARING INSTALLATION PROCEDURE:
 1. PLACE WASHERS ON BEARING WITH HAND-TIGHT FIT
 2. MEASURE DISTANCE FROM END OF SHAFT TO FACE OF BEARING.
 3. SUBTRACT .033 & DEPTH OF BOSS ON ITEM 10 FROM MEASUREMENT FOR SHIMPACK THICKNESS.
 4. INSTALL SHIMPACK (ITEM 17) TO THICKNESS DETERMINED
 5. INSTALL BEARER (ITEM 18) AND BOLTS (ITEM 19). TIGHTEN BOLTS TO ADVANCE BEARING ONTO SHAFT. FINAL DIAMETRAL CLEARANCE OF BEARING MUST BE .0022 TO .0055

<p>W-446 SF</p> <p>DATE: 8/7/01</p> <p>BY: JDR</p> <p>REV: 0/0</p> <p>SCALE: 1/4</p> <p>DO NOT SCALE</p> <p>REV: D</p> <p>REV: D155200</p> <p>REV: 1 OF 1</p>	<p>CRANKSHAFT ASSEMBLY</p> <p>W-446 SF</p>
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REVISIONS:

ZONE	REV	DESCRIPTION	ENR	DATE	CHK	APP
E	1	REV 20 105 2 12 1000		1/7/00		

DESCRIPTION: BRG

DATE: 8/7/01

BY: JDR

REV: 0/0

SCALE: 1/4

DO NOT SCALE

REV: D

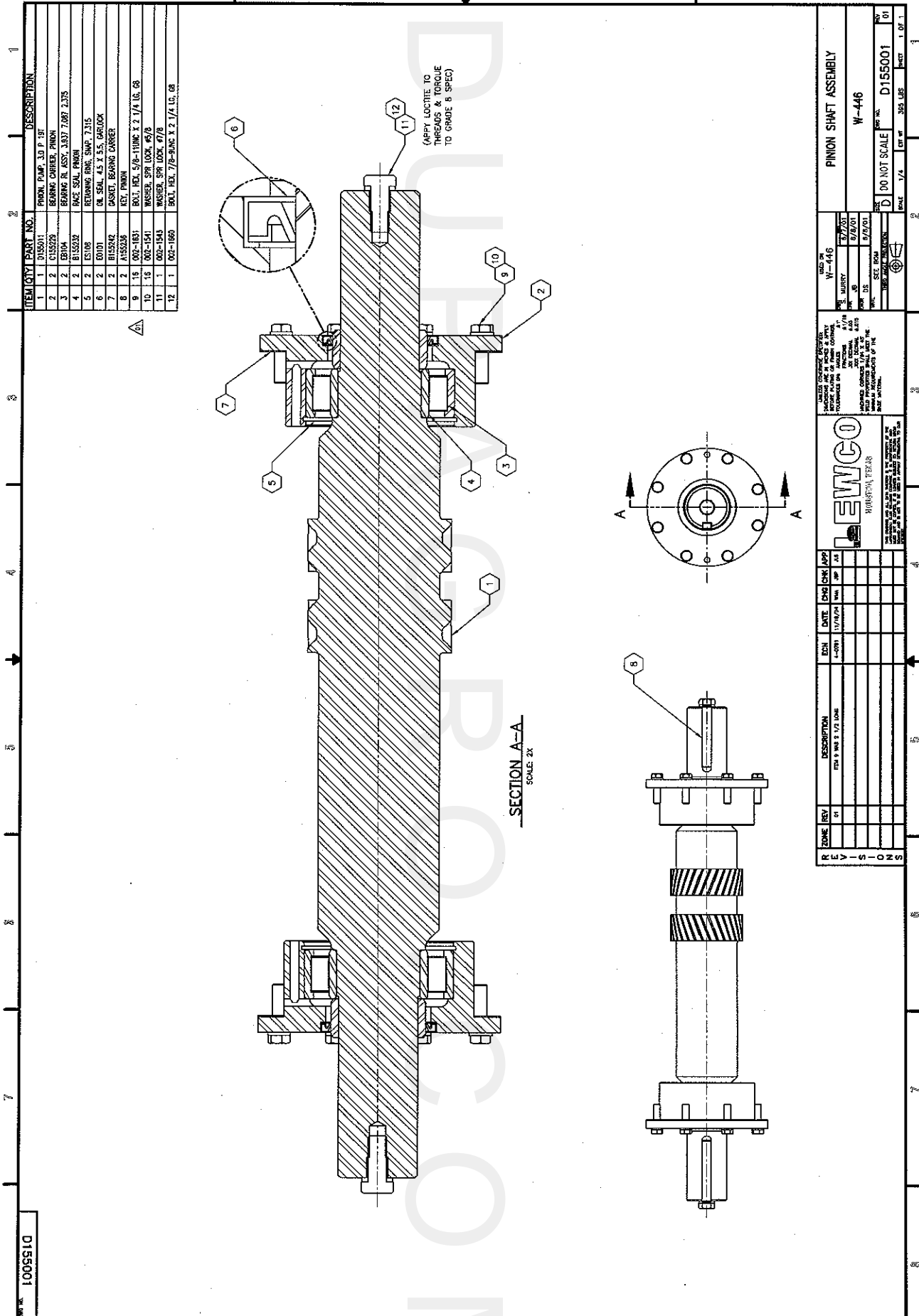
REV: D155200

REV: 1 OF 1

Parts list for :

D155001**GROUP-PINION, W-446**

SEQ	PART	QUANTITY	DESCRIPTION
1	D155011	1.00	SHAFT-PINION, W-446 DBL HLX
2	C155229	2.00	CARRIER-PINION BEARING
3	EB104	2.00	BEARING-CYLINDRICAL ROLLER
4	B155232	2.00	RACE-PINION OIL SEAL, W446/440
5	ES108	2.00	RING-RETAINING, W-440
6	EO101	2.00	SEAL-OIL
7	B155242	2.00	GASKET-PINION BEARING CARRIER
8	A155236	2.00	KEY, 5/8 X 7/8 X 6
9	002-1631	16.00	BOLT HX .625 11NC 2.25 G8
10	002-1541	16.00	WASHER-LOCK, 0.625"
11	002-1543	1.00	WASHER-LOCK, 0.875"
12	002-1660	1.00	BOLT HX .875 9NC 2.25 G8



10055010

ITEM QTY	PART NO.	DESCRIPTION
1	0150011	PINION PUMP, 3.0 P. 19T
2	0150229	BEARING IN ASSY, 3.0 P. 19T
3	01004	FACE SEAL PINION
4	0150339	RETURNS PIN, SHIP 7.315
5	01008	RETURNS PIN, SHIP 7.315
6	01001	IN SEAL, 4.5 X 5.5 CARBON
7	0150342	CASSET BEARING CARRIER
8	0150228	RET. PINION
9	002-1631	SKT. RET. 5/8-TUNING X 7/16 LG. GR
10	002-1501	WASHER, SPR. LOCK, 47/8
11	002-1543	WASHER, SPR. LOCK, 47/8
12	002-1660	SKT. RET. 7/8-SHNC X 2 1/4 LG. GR

LEWIS & CLARK HOUSTON, TEXAS <small>INCORPORATED IN TEXAS 11000 WEST 17TH STREET, HOUSTON, TEXAS 77058 TEL: 281-261-1100 FAX: 281-261-1101</small>		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES & DECIMALS THEREOF OR AS NOTED OTHERWISE ON THIS DRAWING. FINISHES ARE AS NOTED OTHERWISE ON THIS DRAWING. MATERIALS SHALL BE AS NOTED OTHERWISE ON THIS DRAWING. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE TO BE TAKEN TO THE CENTER OF THE HOLE OR TO THE CENTER OF THE PIN. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE TO BE TAKEN TO THE CENTER OF THE HOLE OR TO THE CENTER OF THE PIN.	W-446 PINION SHAFT ASSEMBLY W-446 DO NOT SCALE D155001 SCALE: 1/4" = 1.00" SHEET: 1 OF 1
REV 01 DESCRIPTION PINION SHAFT ASSEMBLY	EBN DATE 17/03/2004	ENG CHK APP 17/03/2004 17/03/2004 17/03/2004	W-446 PINION SHAFT ASSEMBLY W-446 DO NOT SCALE D155001 SCALE: 1/4" = 1.00" SHEET: 1 OF 1

Parts list for :
D155400

GROUP-CROSSHEAD, W446

SEQ	PART	QUANTITY	DESCRIPTION
1	D155007	3.00	XHEAD, W-446 PRESSURIZED
2	C155006	6.00	GUIDE-XHEAD, PRESSURIZED W-446
3	B155219	3.00	PIN-WRIST, W446
4	B155222	3.00	RETAINER-WRIST PIN
5	EB103	3.00	BEARING-WRIST PIN,W250/440/446
6	B155226	3.00	ROD-PONY, W446/440
7	B155460	3.00	BOX-STUFFING, W446 NEW
8	B155235	3.00	RETAINER-PONY ROD SEAL, W446
10	EW110	12.00	WASHER-LOCK, INT .500
11	A155234	24.00	NUT-PLATE, XHEAD GUIDE
12	ES209	3.00	SEAL-STUFFING BOX, W446
13	B155253	3.00	GASKET-DIAPHRAM PLATE,W440/446
14	B155243	3.00	GASKET-STUFFING BX 440/446 OLD
15	B155227	3.00	CLAMP-PISTON ROD, W440/446
16	B155244	3.00	DISC-BAFFLE
17	A155238	6.00	CSCR 12PT .625 11NC 1.50 G8 DH
18	A155249	12.00	CSCR 12PT .625 11NC 2.00 G8 DH
21	415-1056	12.00	CSCR 12PT .625 11NC 1.75 G8 DH
22	400-1870	24.00	CSCR 12PT .500 13NC 1.50 G8
23	400-1834	18.00	CSCR 12PT .375 16NC 1.00 G8
25	075-3123	18.00	WASHER-LOCK, 0.375"
26	EW109	0.00	SAFETY WIRE .047 SS
27	EG131	3.00	RELIEF-GREASE, 1/8" NPT
28	018-4186	3.00	FITTING-GREASE, .125 NPT 45°
29	EW106	36.00	WASHER-STATO SEAL, .500"
30	400-1869	12.00	CSCR 12PT .500 13NC 1.25 G8 FT
31	ES166	6.00	SHIM SET-WRIST PIN, W446

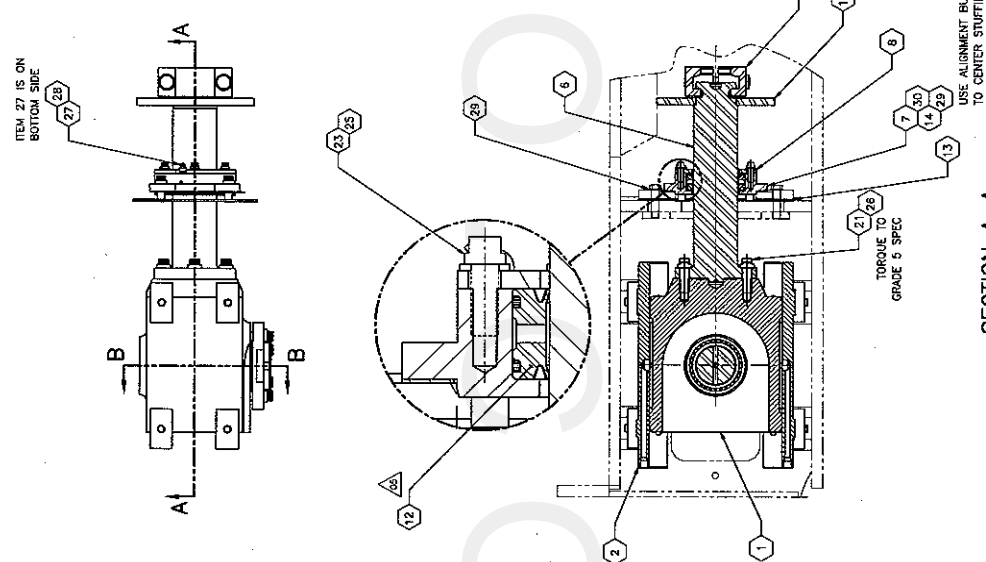
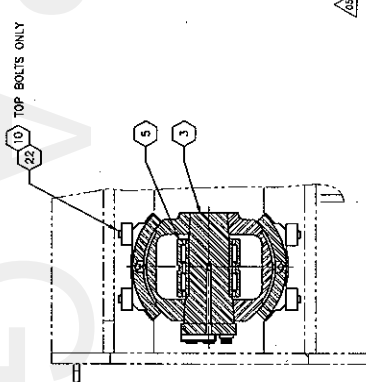
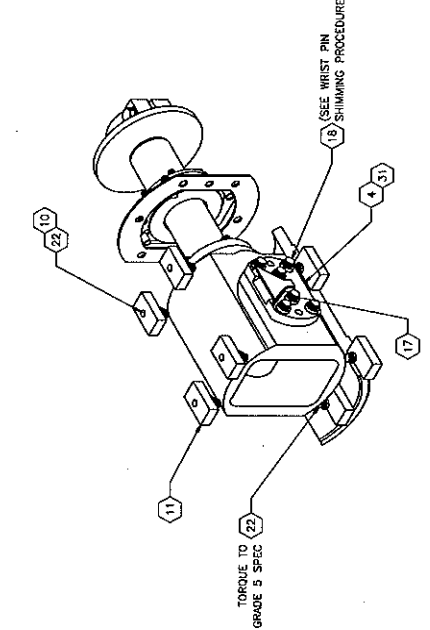
ITEM QTY PART NO. DESCRIPTION

- WRIST PIN SHIMMING PROCEDURE**
1. INSERT WRIST PIN (ITEM 3) INTO TAPERED BORE OF CROSS-HEAD (ITEM 1)
 2. INSTALL WRIST PIN RETAINER PLATE (ITEM 4) ONTO WRIST PIN USING CAPSCREWS (ITEM 17). TORQUE CAPSCREWS TO GRADE 5 SPEC. TORQUE ONLY THE CAPSCREWS THAT ARE ON THE WRIST PIN.
 3. INSTALL CAPSCREWS (ITEM 18) THROUGH RETAINER PLATE INTO CROSS-HEAD. TORQUE THE CAPSCREWS 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 CROSS-HEAD. THE CLEARANCE SHOULD BE APPROXIMATELY .125 INCH. ASSEMBLE SHIMS FROM SHIMPACK (ITEM 31) TO THE THICKNESS MEASURED IN STEP 4. +.005/- .000. INSTALL SHIMS BETWEEN RETAINER PLATE AND CROSS-HEAD. TORQUE CAPSCREWS HOLDING RETAINER PLATE TO CROSS-HEAD TO GRADE 5 SPEC.
 7. SAFETY WIRE ALL CAPSCREWS.

NOTE:
1. TORQUE ALL FASTENERS TO GRADE 8 SPEC UNLESS OTHERWISE NOTED

BOM QUANTITY REFLECTS (3) CROSS-HEAD ASSEMBLIES

31	EST.66	6	SHIM SET WRIST PIN
30	400-1869	12	CSSCR FH 500 1.250 NC GB
28	EW108	36	WASHER FLAT .500 SEAL
28	D18-1185	3	GREASE FITTING .125 NPT 45°
27	EB131	3	GREASE FITTING RELIEF VALVE
26	EW109	36	AIR SAFETY WIRE .043 SS 22.7/16
24	D18-1123	18	WASHER LOCK SPR .375 .88-.98
23	400-1834	18	CSSCR 12 PT. .375 1.000 NC GB FT
22	400-1870	24	CSSCR 12 PT. .500 1.500 NC GB DR
21	415-1036	12	CSSCR 12 PT. .625 NC 1.75 GB DR
20			
19			
18	A155249	12	CSSR 12 PT. .625 NC 2.00 GB DR
17	A155238	6	CSSR 12 PT. .625 NC 1.50 GB DR
16	B155244	3	BAFFLE DISC
15	B155227	3	CLAMP PISTON ROD
14	B155243	3	GASKET STUFFING BOX X-HEAD
13	B155253	3	GASKET STUFFING BOX PLATE
12	B155246	3	STUFFING BOX W/46
11	A155234	2	NUT PLATE CROSS-HEAD
10	EW110	12	NUT PLATE CROSS-HEAD
9			DELETED
8	B155235	3	COVER PLATE STUFFING BOX
7	B155460	3	STUFFING BOX X-HEAD
6	B155226	3	PONY ROD
5	EB103	3	BRG IND ASSY
4	B155222	3	WRIST PIN RETAINER
3	B155219	3	WRIST PIN
2	C155006	6	CROSS-HEAD GUIDE PRESSURIZED
1	C155007	3	CROSS-HEAD PRESSURIZED



W-446 SF

REV	DATE	CHK	APP
01	12/07/04	000	000
02	05/01/05		
03	05/01/05		

DO NOT SCALE

ITEM NO. D155400

REV. NO. 05

LEWCO
REPAIRS, INC.

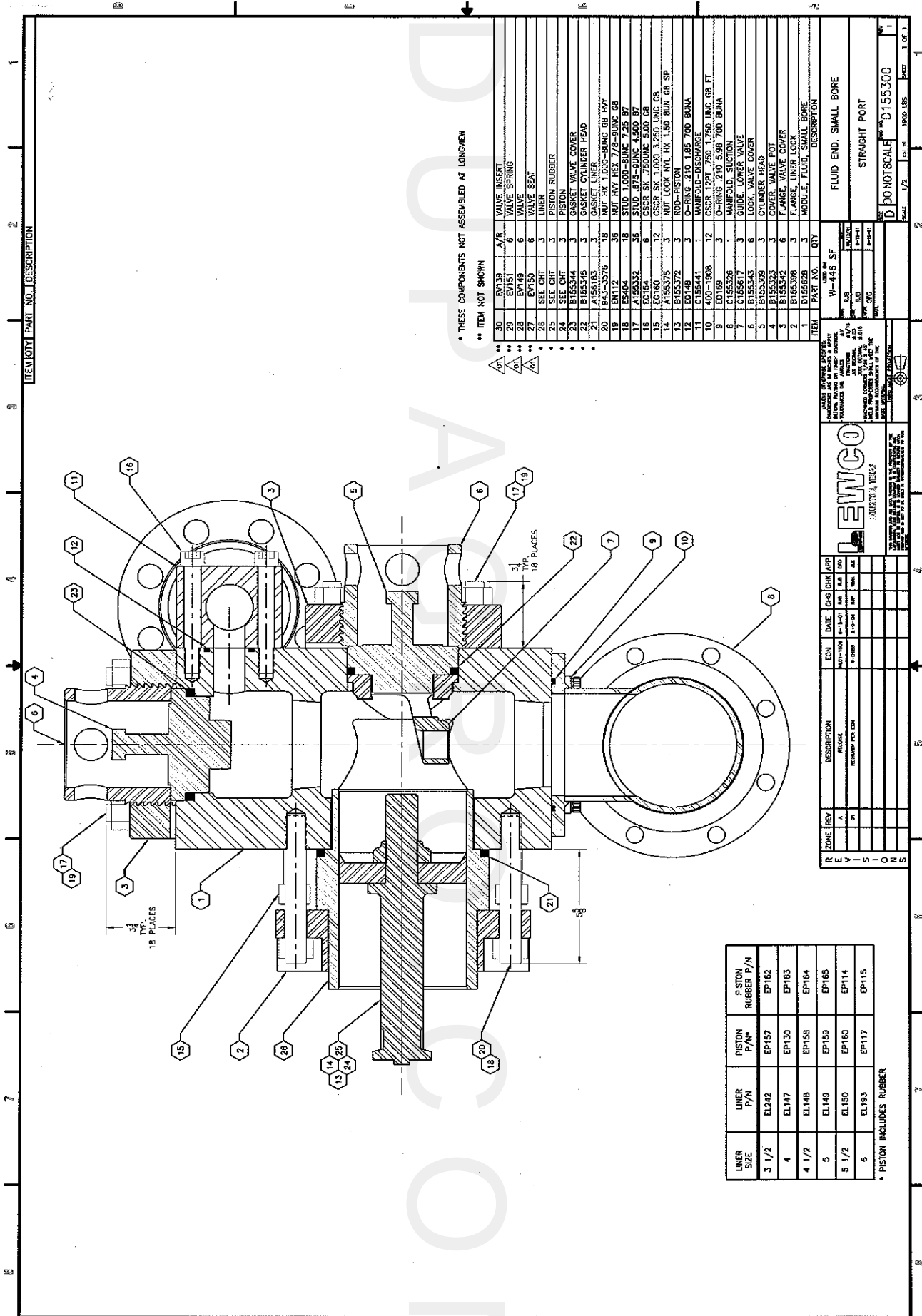
10000 TORQUE SPECIFICATIONS
APPLICABLE TO ALL TORQUE SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED
TORQUE TO GRADE 8 SPEC UNLESS OTHERWISE NOTED
TORQUE TO GRADE 5 SPEC UNLESS OTHERWISE NOTED
TORQUE TO GRADE 8 SPEC UNLESS OTHERWISE NOTED
TORQUE TO GRADE 5 SPEC UNLESS OTHERWISE NOTED

REV	DATE	CHK	APP
01	12/07/04	000	000
02	05/01/05		
03	05/01/05		

Parts list for :
D155300

GROUP-FLUID END, W446 SM BORE

SEQ	PART	QUANTITY	DESCRIPTION
1	D155628	3.00	MODULE-FLUID, SMALL BORE W-446
2	B155398	3.00	FLANGE-LINER LOCK, W-446
3	B155342	6.00	FLANGE-VALVE COVER
4	B155323	3.00	COVER-VALVE POT
5	B155309	3.00	COVER-VALVE POT, LOWER
6	B155343	6.00	LOCK-VALVE COVER
7	C155617	3.00	GUIDE-LOWER VALVE, W446
8	C155326	1.00	MANIFOLD-SUCTION, W446
9	EO169	3.00	O-RING .210 5.975 70D BU N
10	400-1908	12.00	CSCR 12PT .750 10NC 1.75 G8
11	C155441	1.00	MANIFOLD-DISCHARGE, W446 SBORE
12	EO148	3.00	O-RING .210 1.850 70D BU N
13	B155372	3.00	ROD-PISTON, W446
14	A155375	3.00	NUT-LOCK, NYL HX 1.50 8UN G8
15	EC160	12.00	CSCR SK 1-8 NC 3.25 G8
16	EC154	6.00	CSCR SK .750-10 NC 5.00 G8
17	A155332	36.00	STUD .875 9NC 4.50 1.50 B7
18	ES404	18.00	STUD 1.000 8NC 7.25 1.75 B7
19	EN112	36.00	NUT-HEX,HVY .875 9 NC A194-2H
20	943-3576	18.00	NUT-HEX,HVY 1.000 8 NC A194-2H
21	A156183	3.00	SEAL-LINER, W446/WH440
22	B155345	3.00	GASKET CYLINDER HEAD W440/446
23	B155344	3.00	SEAL-VALVE COVER, W440/446
27	EV150	6.00	VALVE SEAT 4
28	EV149	6.00	VALVE 4
29	EV151	6.00	VALVE SPRING 4



LEWCO
PUMPS & VALVES

MAKES RUBBER PARTS
FOR ALL TYPES OF PUMPS
AND VALVES. WE CAN
REPRODUCE ANY PART
FROM AN OLD DRAWING
OR PHOTOGRAPH. WE
CAN ALSO REPRODUCE
PARTS FROM A
PHOTOGRAPH OF THE
ORIGINAL PART.

ZONE	REV	DESCRIPTION	EN	DATE	CHK	APP
1	A	RELEASE		1-10-01		
2	B	REWORK FOR EN		1-10-01		
3	C					
4	D					
5	E					

W-446 SF
FLUID END, SMALL BORE
STRAIGHT PORT

DO NOT SCALE #D155300

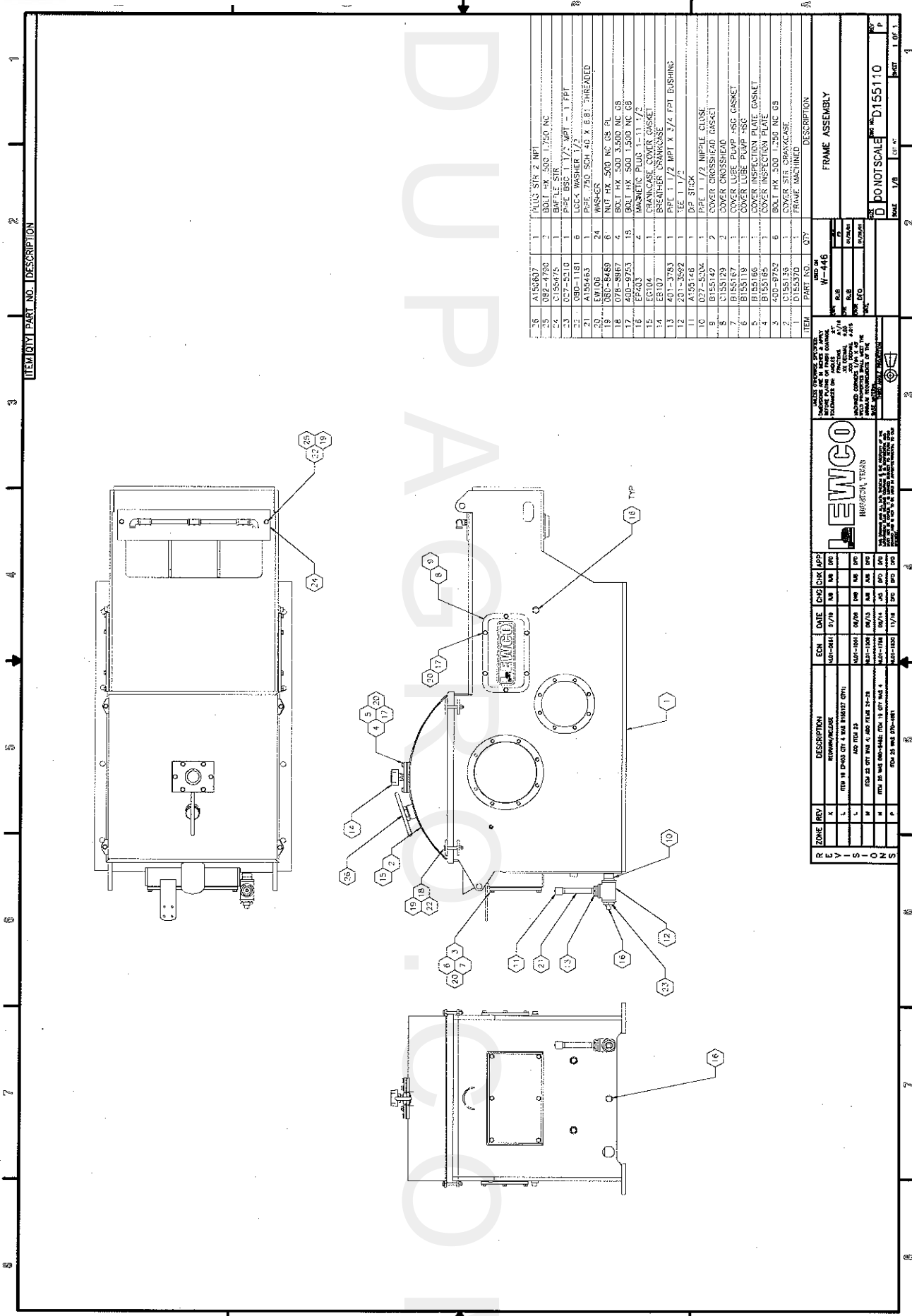
LINE	LINE SIZE	LINE P/N	PISTON P/N	PISTON RUBBER P/N
1	3 1/2	EL242	EP157	EP162
2	4	EL117	EP130	EP163
3	4 1/2	EL148	EP156	EP164
4	5	EL148	EP159	EP165
5	5 1/2	EL150	EP160	EP114
6	6	EL193	EP117	EP115

* PISTON INCLUDES RUBBER

Parts list for :
D155110

GROUP-FRAME, W446

SEQ	PART	QUANTITY	DESCRIPTION
1	D155370	1.00	FRAME-MACHINED, W-446
2	C155136	1.00	COVER-CRANKCASE, W446
3	400-9752	6.00	BOLT HX .500 13NC 1.25 G8
4	B155165	1.00	COVER-INSPECTION
5	B155166	1.00	GASKET-INSPECTION COVER
6	B155119	1.00	COVER-LUBE PUMP HOUSING
7	B155167	1.00	GASKET-LUBE PUMP HOUSING
8	C155129	2.00	COVER-XHEAD
9	B155142	2.00	GASKET-XHEAD COVER
10	027-5204	1.00	NIPPLE-PIPE, 1½ CLOSE SCH 40BL
11	A155146	1.00	DIPSTICK
12	201-3592	1.00	TEE-PIPE, 1-1/2" STD. BLACK
13	401-3783	1.00	BUSHING-PIPE, 1-1/2" X 3/4"STD
14	EB107	1.00	CAP-BREATHER, 10 MICRON
15	EG104	1.00	GASKET-CRANKCASE, W-446
16	EP403	4.00	PLUG-MAGNETIC, 1" NPT
17	400-9753	18.00	BOLT HX .500 13NC 1.50 G8
18	078-8967	4.00	BOLT HX .500 13NC 3.50 G8
19	080-8489	6.00	NUT-HEX, .500 13 NC G8
20	EW106	24.00	WASHER-STATO SEAL, .500"
21	A155463	1.00	PIPE, 3/4 NPT X 6-13/16 LONG
22	080-1181	6.00	WASHER-LOCK, 0.500"
23	027-5210	1.00	BUSHING-PIPE, 1-1/2" X 1" STD
24	C155475	1.00	STRUCTURE-BAFFLE, LINER WASH
25	082-4790	2.00	BOLT HX .500 13NC 1.75 G8
26	A150607	1.00	PLUG-PIPE, 2" T-HANDLE,OIL FIL






ITEM	PART	QTY	DESCRIPTION
16	A155837	1	NUTS 1/2" X 1 1/2"
17	082-4750	3	BOLT HX 500 1 1/2" NC
18	C155075	1	BRACE STR
19	027-5210	1	PIPE BR3 1 1/2" MPT - 1 FPT
20	090-1181	6	LOCK WASHER 1/2"
21	A155463	1	PIPE 750 SCH 40 X 6.81 THREADED
22	EW108	24	WASHER
23	080-8469	6	NUT HX 500 NC US PL
24	078-8967	4	BOLT HX 500 3/500 NC US
25	400-9753	18	BOLT HX 500 1/500 NC US
1	EW203	2	MAGNETIC PLUS 1/2" X 1 1/2"
2	EW203	2	BRACE STR
3	EW203	2	BRACE STR
4	401-1783	1	PIPE 1 1/2" MPT X 2 1/2" FPT BUSHING
5	201-3592	1	TEE 1 1/2"
6	A155248	1	DP STICK
7	027-5104	1	PIPE 1 1/2" NIPPLE SLUSH
8	B155147	2	COVER CROSSHEAD CASSET
9	C155129	2	COVER CROSSHEAD
10	B155187	1	COVER LUBE PUMP MISC CASNET
11	B155119	1	COVER LUBE PUMP MISC
12	B155166	1	COVER INSPECTION PLATE CASNET
13	B155165	1	COVER INSPECTION PLATE
14	400-9752	6	BOLT HX 500 1/500 NC US
15	C155135	1	COVER STR. CRAYCASC.
16	B155170	1	FRAME MACHINED

REV	DATE	DESCRIPTION
1	01/19	REVISED
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REV	DATE	DESCRIPTION	CHK	DRK	APP
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STEEL FASTENER TORQUE SPECIFICATIONS (LUBED)								
FASTENER SIZE fractional (decimal)	THREAD SERIES		SAE GRADE 5 FASTENERS		SAE GRADE 8 FASTENERS		ASTM A193 GRADE B7 FASTENERS	
			USA UNITS (ft-lb)	METRIC UNITS (N-m)	USA UNITS (ft-lb)	METRIC UNITS (N-m)	USA UNITS (ft-lb)	METRIC UNITS (N-m)
1/4	20	UNC	6	9	9	12	7	10
0.250	28	UNF	7	10	10	14	8	11
5/16	18	UNC	13	18	18	25	15	20
0.3125	24	UNF	14	20	20	28	16	22
3/8	16	UNC	23	31	33	44	26	36
.375	24	UNF	26	35	37	50	30	40
7/16	14	UNC	37	50	52	71	42	57
0.4375	20	UNF	41	56	58	79	47	64
1/2	13	UNC	56	76	80	108	64	87
0.500	20	UNF	63	86	90	122	72	98
9/16	12	UNC	81	110	115	156	93	126
0.5625	18	UNF	91	123	128	174	103	140
5/8	11	UNC	112	152	158	215	128	173
0.625	18	UNF	127	172	179	243	145	196
3/4	10	UNC	199	270	281	381	227	308
0.750	16	UNF	222	301	314	425	253	343
7/8	9	UNC	321	435	453	614	366	496
0.875	14	UNF	354	480	500	678	404	547
1	8	UNC	481	652	679	921	549	744
1.000	14	UNF	539	731	762	1034	616	835
1-1/8	7	UNC	600	813	963	1305	778	1054
1.125	8	UN	621	842	997	1352	805	1092
	12	UNF	673	912	1079	1463	872	1182
1-1/4	7	UNC	846	1147	1358	1842	1097	1487
1.250	8	UN	873	1184	1401	1900	1132	1534
	12	UNF	937	1270	1504	2039	1215	1647
1-3/8	6	UNC	1109	1504	1781	2414	1438	1950
1.375	8	UN	1185	1607	1902	2578	1536	2083
	12	UNF	1263	1712	2027	2748	1637	2220
1-1/2	6	UNC	1473	1997	2363	3204	1909	2588
1.500	8	UN	1563	2120	2509	3402	2027	2748
	12	UNF	1657	2246	2659	3605	2148	2912
1-3/4								
1.750	8	UN					3300	4474
2								
2.000	8	UN					5018	6804
BOLT AND CAPSCREW  MARKINGS ON HEAD							B7 Studs	

- 1) ALL TORQUE VALUES GIVEN ARE FOR LUBRICATED FASTENERS.
- 2) ALL STUDS USED ON LEWCO PUMPS ARE GRADE B7. NUTS ON STUDS SHOULD BE TORQUED TO GRADE B7 SPEC EVEN IF THE NUT ITSELF IS GRADE 8.