

*Alteen Model 114-143CF-64,  
T-Base, Crank Balanced Unit*

***QUALITY PUMPING UNITS,  
SINCE 1919***

***A DIVISION OF THE WESTERMAN COMPANIES***

***245 N. Broad St., PO Box 125***

***Bremen, OH 43107***

***(740) 569-4143 (800) 338-8265***

---





Altem has been manufacturing pumping units since 1919, when the first Altem pumping unit was manufactured with open gearing and a cast samson post, walking beam, and horsehead. Prior to World War II, Altem was building smaller units and using Brad Foote helical gear reducers. During World War II, Altem began to furnish castings for the Brad Foote reducer, and soon started to build its own gear reducers, making the Altem pumping unit a complete in-house product.

In 1953, Altem purchased the International Derrick and Equipment Company (IDECO) line of pumping units. This gave them their start into larger pumping units with herringbone gearing and broadened their line to include sizes from 4,000 inch lbs. of torque (D-4) up through 456,000 inch lbs. of torque (D-456). These units were sold through oilfield distributors throughout the United States and Canada.

When the oil industry slowed down dramatically in 1966, Altem turned their attention to the industrial speed reducer market. This was done with great success, and today Altem industrial speed reducers are in service in rubber mills, mixer drives, material handling systems, pulverizing systems, and dry docking facilities worldwide. Many of these speed reducers have been in service for over 40 years. The industrial reducers are the same herringbone geared reducers as those used on the Altem pumping unit.

The Westerman Companies and Altem reached an agreement in 1977 in which Altem would again manufacture pumping units for Westerman to market. This agreement led to Westerman purchasing certain assets of Altem in September, 1983, and establishing the Altem Engineering Division of the Westerman Companies. Since then, Westerman has added new vertical and horizontal omni mills and numerous other state-of-the-art CNC machines and equipment. This marriage of Westerman's financial, organizational, and market strength affords the entire industry the best in pumping unit quality, design, and service across the entire United States and Canada.





## Installation of Unit

### *Before Placing Unit in Operation the Following Precautions Should Be Taken:*

- 1) Make certain unit is level.
- 2) Fill gear reducer with oil to oil level indicated on gauge.
- 3) Lubricate all bearings.
- 4) Tighten all bolts. This should include foundation bolts and wrist pin nuts.
- 5) Adjust brake.
- 6) Check clearance of cranks and weights with foundation and v-belt guard.
- 7) Adjust v-belts to proper tightness.
- 8) Adjust counterbalance weights to estimated counterbalance.

Locate frame level, firmly supported on top of timbers or concrete. Center frame with well spaced away from the well distance shown on the positioning drawing (shipped with the unit). Attach the ladder, if equipped, to the samson post and install samson post to frame, also connecting the ladder to the frame. When tightening the "U" bolts (used in attaching various assemblies) both ends of the "U" bolt should be drawn tight at the same time. Do not tighten one side fully tight before tightening the other. Attach the saddle bearing to the samson post, then walking beam to saddle bearing. The equalizer bearing can be attached to the walking beam at this time.

The installation of the equalizer beam, if equipped, and equalizer bearing on the walking beam is very simple, but must be done properly to avoid uneven stresses and twisting of the walking beam. The bottom surface of the equalizer bearing is convex in order to allow the equalizer, pitmans and walking beam to properly align themselves, allowing good load distribution and operation of components at the stress levels for which they were designed.

The actual assembly of the equalizer and equalizer bearing on the walking beam may be accomplished at any time during the assembly of the unit and should be left up to the rig builder. However, it is most important that the U-bolts connecting the equalizer bearing to the beam be merely "snugged up" until the unit is completely assembled.





Attach wire line to horsehead after stringing it through the polished rod. Loop cable around the wedge, place wedge in horsehead or polished rod. Make sure it is firmly in place. On larger units, a plate is unbolted from the horsehead and a wire line is looped around the horsehead top, then the plate should be bolted back in place. Attach the horsehead on to the walking beam. Align the horsehead with the well center by using a plum bob hanging from top of the horsehead (allow for half of wire line). Adjust the saddle and horsehead adjusting bolts to center the unit with the well. Center the polished rod hanger on wire line so that equal load applies to wire lines. When the unit is properly aligned with the well, the frame should again be checked to make sure it is level and the pitmans should be checked with a level to make certain they are vertical. For long, trouble-free service, it is most important that the unit be properly aligned with the well and is level on the foundation. Attach the bell crank, horizontal brake rod and brake handle (or brake cable, if applicable). Adjust the brake so it is not dragging on brake drum and functions properly. Attach the prime mover to the slide rails, and "V" belts to the sheaves. Using the rail adjuster, adjust the slide rails so belts are tight.

Proper belt tension and sheave alignment is necessary for long belt life. A string stretched tightly across the outside finished faces of the sheaves should lightly contact all surfaces to assure sheave alignment.

After the engine or motor is set on the frame, the belts should be drawn sufficiently tight so that when struck with the hand, they will have a live, springy vibration. They must not be too tight. If too loose, they will slip when the engine is engaged. When the unit is operating they should sag slightly on the slack side and be tight on the drive side. Should slippage occur, the belt tension should be increased until the slippage is eliminated.

After setting the brake, attach polished rod gate to the well polished rod and tighten clamps securely around the polished rod. Then add the estimated counterbalance weight (keeping the weights toward the back of the beam) and lock them in place. On crank balanced units, add the estimated counterweight to the cranks.

After the unit is completely assembled, the U-bolts should be slightly loosened in order to remove any strain from the mating parts and to allow them to properly align. Rotate the unit once or twice to make certain all members are free of any strain. Then the U-bolts should be tightened. In tightening the U-bolts, move from one side of the beam to the other, tightening only a little at a time. This will keep an equal load on both sides of the beam and prevent it from twisting.



---

## *Maintenance and Lubrication*

With the unit now completely assembled and the estimated counterbalance in place, it is extremely important to make a final adjustment to the counterbalance to assure smooth, long lasting operation and to avoid premature wear of any component. We recommend that a polished rod dynamometer be used to record accurate well load measurements followed by finite adjustment of the counterbalance to attain an evenly loaded cycle of operation for each revolution of the unit. If a dynamometer is unavailable, a good alternative would be to use an ammeter to compare the amperage required for both the up and down stroke. The peak reading taken from the ammeter should be equal on both the up and down strokes approximating a unit in balance. Of course, the ammeter method is only applicable to electrically powered units. For gas powered units, a vacuum gauge can be used with the same methodology as the ammeter.

### *Lubrication of your Alten Speed Reducer*

Lubricating oils for use with Alten Speed Reducers should be high grade, first quality, well refined petroleum oils. Oil should be changed to the proper viscosity if temperatures in your area vary greatly between summer and winter. The first filling of oil should be drained at the end of two weeks of operation, and the reducer thoroughly rinsed with a light flushing oil. The original oil may be filtered to remove foreign matter or abrasive material and reused, adding necessary new make-up oil. After this initial treatment, the lubricant should be changed after every 2,500 hours of operation, or every six months, whichever occurs first. If, however, the operating conditions are severe, such as rapid rise and fall in temperature of the gear case with accompanying condensation on the inside walls, resulting in the formation of sludge; or where operation is in moist or dusty atmospheres; or used in the presence of chemical fumes, it may be necessary to change the oil at more frequent intervals.

Use a high quality EP gear lubricant, automotive or industrial.

<u>Operating Temperature</u>	<u>SAE Viscosity</u>	<u>AGMA</u>
-30 deg. F to 110 deg. F	80W	4 EP
0 deg. F to 140 deg. F	90W	5 EP
-30 deg. F to 140 deg. F	80W-90 and other multigrades	

### *Lubrication of Other Parts*

For lubrication of saddle, equalizer, and wrist pin bearings, use a premium lithium soap-base grease with extreme pressure additive. For temperatures down to -30 deg. F, use a NLGI No. 1 grease. During hot weather, an NGLI No. 2 or 3 may be used. Bearings should be greased once a week during 24 hour operation. The interval may be increased up to once a month for infrequent or part-time operation.

### *After 24 hours of operation the following should be checked...*

- 1) Tightness of all bolts.
  - 2) Tightness of wrist pin nuts.
  - 3) Reducer oil level.
  - 4) Adjust counterbalance, if required.
-



## Alten Engineering Pumping Unit Counterbalance Data Crank Balanced Units - Effective Counterbalance at the Polished Rod

Unit	57-95-48 80-95-48	57-89-54	80-119-54 80-133-54	80-119-54 80-114-143-54 A16-14	114-119-86	114-119-100	160-173-74	160-173-86	160-173-100 228-173-100	160-200-74	228-213-86	228-213-100	228-213-120	320-256-100	320-256-120	320-256-144
Crank Number	A10-216	A10-216	A12-123	A12-123 A16-14	A16-230	A21-172	A21-172	A21-174	A21-174	A21-172	A24-17A	A24-17A	A24-179	A246-23	A246-23	A246-64
Structural Unbalance	50	0	330	0	175	-105	275	225	-160	375	440	-160	-570	100	-550	-975
Counterbalance Cranks only	2530	2245	3280	2845	2290	1715	3760	2890	2175	3535	4995	3760	2700	7000	5320	4065
Two #1 weights	3380	3090	4190	3605	2900	2240	4535	3540	2695	4245	5795	4390	3220	8560	5965	4620
Two #2 weights	4175	3710	5050	4330	3480	2735	5275	4120	3190	4920	6595	4990	3725	9365	6595	5155
Four #1 weights	4235	3750	5100	4370	3510	2760	5315	4150	3215	4950	6600	5015	3745	9415	6615	5170
Two #3 weights	4885	4340	5840	5000	4025	3205	5960	4665	3660	5555	7350	5570	4210	10175	7210	5680
Two #1 & Two #2	4980	4420	5955	5095	4090	3260	6050	4725	3715	5625	7395	5620	4250	10225	7245	5710
Two #1 & Two #3	5760	5125	6745	5765	4635	3730	6735	5270	4180	6260	8150	6200	4730	11035	7860	6235
Four #2	5820	5175	6815	5815	4670	3760	6785	5305	4210	6300	8195	6225	4755	11075	7875	6250
Two #2 & Two #3	6530	5805	7605	6485	5215	4230	7475	5850	4680	6935	8950	6805	5235	11835	8490	6775
Four #3	7240	6435	8395	7155	5760	4700	8160	6395	5145	7570	9700	7380	5720	12645	9100	7300
Two #2 & Two #4	7310	6495	8505	7230	5950	4865	8272	6585	5310	7795	9825	7595	5895	12945	9335	7500
Two #3 & Two #4	8020	7130	9295	7905	6500	5335	8960	7130	5780	8430	10575	8175	6380	13400	9950	8025
Two #3 & Two #5	8645	7680	10005	8495	7105	5855	9585	7735	6300	9135	11315	8865	6955	14765	10725	8690
Four #4	8800	7820	10185	8650	7235	5970	9755	7865	6415	9295	11450	8970	7040	14860	10800	8750
Two #4 & Two #5			11345	8630	7845	6490	10840	8470	6935	9990	12675	9660	7615	15885	11575	9415
Two #3 & Two #6			11540	9810	8310	6895	11075	8935	7335	10535	13000	10200	8065	16680	12190	9940
Four #5			12495	10610	8450	7015	11925	9075	7455	10700	13905	10350	8190	16885	12355	10080
Two #5 & Two #6				11540		8050	12960	10275	8490	12100	15105	11680	9300	18800	13815	11335
Four #3 & Four #5				11875		8620		10935	9055	12870	16300	12590	10060	20300	14985	12335
Four #6				12470		9090		11480	9525	13500	16900	13010	10410	20715	15280	12585
Four #4 & Four #5								11600	9625	13645	17785	13475	10800	21800	16105	13290
Four #3 & Four #6								13005	10840	15285		14965	12040	23870	17675	14630
Four #4 & Four #6								13505	11265			15710	12660		18670	15485
Four #5 & Four #6								12340	10265			14450	11610		17315	14325
Eight #5									11755			16530	13350		19760	16415
Four #5 & Four #6									12290			17655	14265			17825
Eight #6																

### Crank Weight Data

Crank Weight Number	Number of Weights	Number of Sections	Total Weight in pounds	RH Section Number	LH Section Number
1	2	4	464	A133-25	A133-26
	4	8	928	A133-25	A133-26
2	2	4	900	A10-68	A10-69
	4	8	1800	A10-68	A10-69
3	2	4	1412	A12-19	A12-20
	4	8	2824	A12-19	A12-20

Crank Weight Number	Number of Weights	Number of Sections	Total Weight in pounds	RH Section Number	LH Section Number
4	2	4	2128	A16-21	A16-22
	4	8	4256	A16-21	A16-22
5	2	4	2880	A24-27	A24-28
	4	8	5760	A24-27	A24-28
6	2	4	3956	A24-49	A24-50
	4	8	7912	A24-49	A24-50

### Beam Balance - Effective Counterbalance at the Polished Rod

Unit	16-43-30	25-67-30	25-56-36	25-67-36	40-89-36	40-76-42	40-76-48	57-95-48	57-109-48	57-76-54
Beam Weight #	A4-9	A5-6	A5-6	A5-6	A8-65	A8-65	A8-65	A8-338A	A8-338A	A8-338A
Unbalance	45	240	140	140	460	370	225	385	385	300
# of Beam Weights										
1	220	480	340	340	720	595	421	619	619	511
2	400	715	535	535	970	805	616	850	850	720
3	575	945	730	730	1220	1025	810	1080	1080	928
4	745	1175	920	920	1470	1240	1001	1308	1308	1133
5	915	1405	1110	1110	1720	1450	1190	1534	1534	1337
6	1080	1630	1300	1300	1965	1660	1378	1758	1758	1540
7	1245	1850	1485	1485	2210	1870	1563	1980	1980	1740
8	1405	2070	1665	1665	2450	2075	1747	2200	2200	1939
9	1565	2285	1845	1845	2685	2280	1929	2419	2419	2136
10	1720	2495	2025	2025	2920	2480	2109	2635	2635	2331
11	1875	2705	2200	2200	3155	2680	2287	2849	2849	2525
12	2025	2915	2375	2375	3385	2880	2463	3062	3062	2717
13	2175	3120	2545	2545	3610	3070	2638	3273	3273	2907
14	2320	3320	2715	2715	3835	3265	2810	3481	3481	3095
15	2465	3520	2880	2880	4060	3455	2981	3688	3688	3282
16	2605	3715	3040	3040	4280	3645	3150	3893	3893	3467
17	2740	3910	3205	3205	4495	3830	3316	4096	4096	3650
18	2875	4100	3365	3365	4710	4015	3481	4297	4297	3831
19	3010	4290	3520	3520	4925	4200	3645	4496	4496	4011
20	3140	4470	3675	3675	5135	4380	3806	4693	4693	4189
21	3265	4655	3825	3825	5340	4555	3965	4888	4888	4365
22	3390	4835	3975	3975	5545	4730	4123	5081	5081	4540
23		5010	4125	4125	5750	4905	4278	5273	5273	4712
24		5185	4270	4270	5950	5075	4432	5462	5462	4883
25		5355	4410	4410	6145	5245	4584	5649	5649	5053
26				4564		5524	4734	5835	5835	5220
27				4809		5692	4882	6019	6019	5388
28				4950		5745	5029	6200	6200	5550
29				5085			5173	6380	6380	5712
30							5315	6558	6558	
31							5456	6734	6734	
32							5595	6908	6908	
33							5732	7080	7080	
34							5867	7250	7250	
35								7419		
36								7585		
37								7749		
38								7912		
39								8073		
40								8231		



## Alten Engineering Pumping Unit Data Beam Balanced Units

	D16		D25			D40			D57	
	16-53-24	16-43-30	25-67-30	25-56-36	25-67-36	40-89-36	40-76-42	40-76-48	57-95-48	57-76-54
Unit Structure Rating, API, lbs.	5300	4300	6700	5600	6700	8900	7600	7600	9500	7600
Range of Strokes, in.	20,22,24	25.5,27.5,30	23,26,30	27,31,36	27,31,36	30,33,36	33,37,42	39,43,48	42,48	46.5,54
Well Working Center	32"	40"	39"	46.75"	46.75"	48"	56"	64"	65"	72"
Well Clearance	7"	15"	12"	19.75"	19.75"	10"	18"	17.5"	16.5"	16.5"
Walking Beam Section, in. & lbs.	8@21	8@21	10@26	10@26	10@30	12@30	12@30	12@35	14@43	14@38
Height of walking beam above foundation	6'-5.12"	6'-5.12"	7'-6"	7'-6"	7'-6"	8'-7.37"	8'-7.37"	9'-5.5"	10'-9.62"	10'-7.62"
Height of saddle above foundation	5'-6"	5'-6"	6'-5"	6'-5"	6'-5"	7'-4"	7'-4"	8'-2"	9'-4.25"	9'-4.25"
Overall length w/ "T" base	8'-4"	8'-4"	9'-10"	9'-10"	9'-10"	15'-2"	15'-2"	15'-11"	17'-8"	17'-8"
Overall length w/ "P" base			9'-10"	9'-10"	9'-10"	15'-2"	15'-2"	15'-11"	17'-8"	17'-8"
Width of base at Samson base w/ "T" base	2'-2"	2'-2"	2'-9.37"	2'-9.37"	2'-9.37"	3'-2.5"	3'-2.5"	3'-4"	6'-6"	6'-6"
Width of base at Samson base w/ "P" base			3'-10"	3'-10"	3'-10"	5'-6"	5'-6"	5'-4"	6'-6"	6'-6"
Base beam section	5"	5"	6"	6"	6"	8"	8"	8"	10"	10"
Section of Pitman, in. (channel)	2x2x1/4 (tee)	2x2x1/4 (tee)	3@4.1	3@4.1	3@4.1	4@5.4	4@5.4	4@5.4	5@6.7	5@6.7
Wrist pin bearings	Spherical Roller									
Saddle & Equalizer	Bronze Bushed									
Beam counterweights, lbs. ea.	100	100	110	110	110	120	120	120	125	125
Polish rod hanger cable	0.5"	0.5"	0.62"	0.62"	0.62"	0.75"	0.75"	0.75"	0.75"	0.75"
Hanger to foundation at bottom of stroke	2'-2"	1'-8"	2'-3"	1'-9"	1'-9"	2'-7"	2'-1"	2'-4"	2'-2"	2'-4"
Weight of unit less counterbalance, lbs.	1090	1120	1970	2000	2050	3075T 3500P	3105T 3500P	3135T 3500P	4000	3900
Counterbalance at max. stroke, lbs.	4265	3390	5250	4410	5085	6145	5745	5732	9143	5710

## Crank Balanced Units

	D57		D80			D114			D160	
	57-95-48 57-109-48	57-76-54	80-119-54	80-133-54	80-119-64	114-143-64	114-119-86	114-119-100	160-173-74	160-173-86
Unit Structure Rating, API, lbs.	9,500	7,600	11,900	13,300	11,900	14,300	11,900	11,900	17,300	17,300
Range of Strokes, in.	28,38,48	34,44,54	34,44,54	34,44,54	44,54,64	44,54,64	66,76,86	72,86,100	54,64,74	62,74,86
Well Working Center	65"	72"	72"	72"	85.5"	81"	111"	129"	96"	111"
Well Clearance	16.5"	16.5"	18"	18"	22.75"	17"	26"	33"	24"	26"
Walking Beam Section, in. & lbs.	14@43	14@43	18@50	18@55	18@55	21@62	24@84	24@94	24@84	24@94
Height of walking beam above foundation	10'-7.62"T 10'-9.62"P	10'-7.62"T 10'-9.62"P	13'-3.87"T 13'-6"P	13'-4"T 13'-6.12"P	13'-4"	13'-7"T 13'-9.12"P	14'-3"	14'-3"	15'-10.5T 16'-0.5"P	15'-10"
Height of saddle above foundation	9'-2.25"T 9'-4.25"P	9'-2.25"T 9'-4.25"P	11'-6.12"T 11'-8.25"P	11'-6.12"T 11'-8.25"P	11'-6.12"	11'-6.25"T 11'-8.25"P	13'-11"	13'-11"	13'-6.25T 13'-8.25"P	15'-6"
Overall length w/ "T" base	9'-10"	9'-10"	12'-3.31"	12'-3.31"	12'-3.31"	12'-3.31	14'-3"	14'-3"	13'-2.25"	14'-10.75"
Overall length w/ "P" base	17'-8"	17'-8"	20'-0.5"	20'-0.5"	20'-0.5"	20'-0.5"			22'-4.5"	
Width of base at Samson base w/ "T" base	3'-2.5"	3'-5"	4'-8"	4'-8"	4'-8"	4'-8"	5'-9.12"	5'-9"	5'-9.12"	6'-0"
Width of base at Samson base w/ "P" base	6'-6"	6'-6"	6'-6"	6'-6"		6'-6"			7'-8"	
Base beam section	8"T 10"P	10"T 10"P	10"T 12"P	10"T 12"P	10"T 12"P	10"T 12"P	12"	12"	12"T 14"P	14"
Section of Pitman (pipe)	2.5"	2.5"	3"	3"	3"	3"	3"	3"	3"	3"
Wrist pin bearings	Spherical Roller									
Saddle & Equalizer	Bronze Bushed									
Crank counterweights, lbs.	See crank balanced unit counterbalance table									
Polish rod hanger cable	0.75"	0.75"	0.87"	0.87"	0.87"	1"	1"	1"	1"	1"
Hanger to foundation at bottom of stroke	4'-5"T 3'-11"P	2'-4"T 2'-4"P	4'-4"	4'-4"	4'-1"	3'-10"	4'-2"	1'-11"	3'-9.5"	5'-6"
Weight of unit less counterbalance, lbs.	8,320T 9,020P	8,320T 9,020P	9,675T 10,175P	9,775T 10,275P	10,025	10,275T 11,475P	11,000	11,620	12,100T 13,300P	12,300
Counterbalance at max. stroke, lbs.	7,125	5,710	8,925	9,975	8,925	10,725	8,925	8,925	12,975	12,975

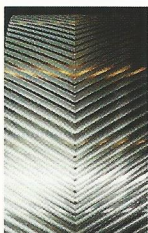
	D160		D228				D320			
	160-200-74	160-173-100	228-213-86	228-173-100	228-213-100	228-213-120	320-256-100	320-256-120	320-213-144	320-256-144
Unit Structure Rating, API, lbs.	20,000	17,300	21,200	17,300	21,300	21,300	25,600	25,600	21,300	25,600
Range of Strokes, in.	54,64,74	72,86,100	66,76,86	72,86,100	72,86,100	85,102,120	76,88,100	85,102,120	106,124,144	106,124,144
Well Working Center	96"	129"	111"	129"	129"	155"	129"	155"	180"	180"
Well Clearance	24"	33"	26"	33"	33"	27"	33"	27"	35"	35"
Walking Beam Section, in. & lbs.	24@94	24@104	24@103	24@104	24@117	24@131	27@146	27@146	27@146	27@161
Height of walking beam above foundation	15'-10"	15'-10"	15'-10"	15'-10"	15'-10.75"	18'-4.75"	20'-8"T 20'-10"P	18'-4.75"	18'-4.75"	18'-4.75"
Height of saddle above foundation	15'-6"	15'-6"	15'-6"	15'-6"	15'-6"	18'-0"	18'-0"T 18'-2"P	18'-0"	18'-0"	18'-0"
Overall length w/ "T" base	14'-10.75"	14'-10.75"	14'-10.75"	14'-10.75"	14'-10.75"	18'-11.375"	18'-10.87"	18'-11.375"	18'-11.375"	18'-11.375"
Overall length w/ "P" base							33'-0.5"			
Width of base at Samson base w/ "T" base	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"
Width of base at Samson base w/ "P" base							7'-11"			
Base beam section	14"	14"	14"	14"	14"	14"	14"	14"	14"	14"
Section of Pitman (pipe)	3"	3"	3"	3"	3"	3"	4"	4"	4"	4"
Wrist pin bearings	Spherical Roller									
Saddle & Equalizer	Bronze Bushed									
Crank counterweights, lbs.	See crank balanced unit counterbalance table									
Polish rod hanger cable	1"	1"	1.12"	1"	1.12"	1.12"	1.12"	1.12"	1.12"	1.12"
Hanger to foundation at bottom of stroke	6'-10"	4'-6"	5'-9.12"	4'-6"	4'-6"	5'-6"	7'-1"	5'-6"	6'-1"	6'-1"
Weight of unit less counterbalance, lbs.	12,500	12,700	16,940	13,650	18,350	21,710	24,100T 25,600P	26,900	27,600	28,200
Counterbalance at max. stroke, lbs.	15,000	12,975	15,900	12,975	16,000	16,000	19,200	19,200	16,000	19,200

---

*Some Alten features include:*



*Alten Gear Reducer* has a heavy, solid cast iron housing; heavy, heat-treated ductile iron herringbone gears; and heat-treated, alloy steel herringbone pinions and an automotive-type drum brake. The gear box has an A.P.I. peak torque rating of 57,000 in. lbs.



*Herringbone Gearing* - All sizes of Alten pumping units 25,000 in.-lb. and greater utilize herringbone gearing. The gears operate in an oil bath and larger models utilize a positive wiper system that furnishes oil to all bearings. Herringbone gearing eliminates side thrust and unnecessary bearing loads, and offers very low tooth deflection due to archlike construction and the large number of teeth in contact. This results in a maximum load carrying capacity with smooth and quiet operation.



*Samson Post* - A four-legged design, rigidly braced to carry maximum loads in addition to loads induced by minor installation errors. Front legs are wide spread for stability.



*Horsehead* - Designed to roll back out of the way. A horizontal adjustment feature allows the horsehead to be lined up over the well after the unit is set.

***Alten Engineering/A Division of The Westerman Companies***

***245 N. Broad St., PO Box 125***

***Bremen, OH 43107***

***(740) 569-4143 (800) 338-8265***

---