LUFKIN OIL FIELD EQUIPMENT

CATALOG 54

Featuring the

LUFKIN *Universal* PUMPING UNIT

PUMPING UNIT INDEX ON PAGE 2941

LUFKIN FOUNDRY & MACHINE COMPANY • LUFKIN, TEXAS

LUFKIN EQUIPMENT OF ADVANCED DESIGN

Lufkin TC-33TR-22G Twin Crank Pumping Unit with sub base to clear sweep of cranks, standard multi-cylinder gas engine base with cross rails designed to accommodate Lufkin Type H-333 Horizontal Gas Engine.

LUFKIN TC-2ATR-36B Twin Crank Pumping Unit with Sub base to clear sweep of cranks, bolted extension base to accommodate Lufkin Cooper-Bessemer GSDH 2 Cylinder Horizontal Gas Engine mounted on "T" Slots with pusher screws for tightening V-Belts, centerline type polished rod beam hanger.

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STANDARD LUFKIN PUMPING UNIT ASSEMBLIES

API Size	Pumping Unit Assemblies with Double Reduction Herringbone Gears	Pumping Unit Assemblies with Single Reduction Herringbone Gears	Polished Rod Load Capacity, Lbs.	Walking Beam Centers		Standard Counterbalance At Maximum Stroke, Lbs.	Maximum Counterbalance With Auxiliary Weights, Lbs.	Crank No.	Counterweight No.	Maximum Stroke, Inches	Page No.
				Well End	Unit End						
640	TC-OLCBR-640DB	.....	30,000	16′-9″	10′-11¼″	19,095	23,610	94100R	00R	144	
	TC-OLCR-640DB	.....	30,000	16′-0″	10′-11¼″	22,965	28,380	82100R	00R	120	2946
	TC-OLBR-640DB	.....	30,000	16′-0″	10′-11¼″	19,595	24,405	8292R	00R	120	2947
	TC-OLR-640DB	.....	30,000	14′-0¾″	10′-11¼″	14,590	18,530	8478R	0R	108.4	
	TC-OALR-640DB	.....	30,000	12′-6″	12′-6″	18,825	23,915	8478R	* 0R	84	
456	TC-OLCBR-456DB	TC-OLCBR-456S	30,000	16′-9″	10′-11¼″	19,095	23,610	94100R	00R	144	
	TC-OLCR-456DB	TC-OLCR-456S	30,000	16′-0″	10′-11¼″	22,965	28,380	82100R	00R	120	2948
	TC-OLBR-456DB	TC-OLBR-456S	30,000	16′-0″	10′-11¼″	19,595	24,405	8292R	00R	120	2949
	TC-OLR-456DB	TC-OLR-456S	30,000	14′-0¾″	10′-11¼″	14,590	18,530	8478R	0R	108.4	
	TC-OALR-456DB	TC-OALR-456S	30,000	12′-6″	12′-6″	18,825	23,915	8478R	* 0R	84	
320	TC-1LBR-41D	TC-1LBR-54C	25,000	14′-3½″	10′-0″	13,180	16,740	8478R	0R	120	
	TC-OALR-41D	TC-OALR-54C	30,000	12′-6″	12′-6″	18,825	23,915	8478R	* 0R	84	2950
	TC-1BR-41D	TC-1BR-54C	25,000	11′-4¼″	10′-0″	11,910	14,735	7472R	1R	84	2951
	TC-1AR-41D	TC-1AR-54C	25,000	12′-6″	12′-6″	13,520	16,725	7472R	* 1R	74	
	TC-1R-41D	TC-1R-54C	25,000	10′-0″	10′-0″	13,520	16,725	7472R	* 1R	74	
228	TC-1R-35B	TC-1R-36B	25,000	10′-0″	10′-0″	13,520	16,725	7472R	* 1R	74	
	TC-2BTR-35B	TC-2BTR-36B	20,000	9′-3″	8′-0″	8,450	10,845	6460R	* 2R	74	2952
	TC-2ATR-35B	TC-2ATR-36B	20,000	10′-0″	10′-0″	9,770	12,540	6460R	* 2R	64	2953
	TC-2TR-35B	TC-2TR-36B	20,000	8′-0″	8′-0″	9,770	12,540	6460R	* 2R	64	
160	TC-2TR-22G	TC-2TR-18B	20,000	8′-0″	8′-0″	9,770	12,540	6460R	* 2R	64	
	TC-33BTR-22G	TC-33BTR-18B	15,000	8′-3″	5′-3¼″	5,860	7,880	4152R	3R	64	2954
	TC-33ATR-22G	TC-33ATR-18B	17,000	8′-0″	8′-0″	6,860	9,255	5452R	3R	54	2955
	TC-33TR-22G	TC-33TR-18B	17,000	7′-0″	5′-3¼″	6,895	9,270	4152R	3R	54.4	
114	TC-44DTR-15B	TC-44DTR-24B	17,000	6′-0″	6′-0″	6,860	9,255	5452R	3R	54	
	TC-44AR-15B	TC-44AR-24B	15,000	8′-0″	8′-0″	6,860	9,255	5452R	3R	54	2956–7
	TC-44SR-15B	TC-44SR-24B	13,500	6′-4⅜″	5′-7⅝″	5,145	6,775	4846R	5AR	54.2	2961
	TC-44R-15B	TC-44R-24B	13,500	6′-0″	6′-0″	5,810	7,655	4846R	5AR	48	
	T5D-15B	T5D-24B	10,000	5′-0″	5′-0″	4,575	6,245	4242C	* 5C	42	
80	TC-44R-80DB	.....	13,500	6′-0″	6′-0″	5,810	7,655	4846R	5AR	48	2956–7
	T5D-80DB	.....	10,000	5′-0″	5′-0″	4,575	6,245	4242C	* 5C	42	2961
57	T5D-7C	T5D-16B	10,000	5′-0″	5′-0″	4,575	6,245	4242C	* 5C	42	2960–1
40	T6E-9B	.....	8,000	4′-0″	4′-0″	4,325	5,510	3440A	6	34	2960–1
	B-40D-34-8	.....	8,000	4′-0″	4′-0″	5,620	.....	.....	Beam Wts.	34	2960 & 2
25	T7A-3B	.....	6,000	3′-6″	3′-6″	2,930	3,885	2432	7	24	2960–1
	B-25D-30-6B	.....	6,000	3′-9″	3′-0″	3,750	.....	.....	Beam Wts.	30	2962
	B-25D-24-6B	.....	6,000	3′-0″	3′-0″	4,200	.....	.....	Beam Wts.	24	2962
16	B-16DA-30-4	.....	4,000	3′-9″	2′-9″	2,800	.....	2214	Beam Wts.	30	2962
	B-16DA-22-5	.....	5,000	2′-9″	2′-9″	3,400	.....	2214	Beam Wts.	22	2962

*See General Specifications for Alternate.

THE IMPROVED TROUT COUNTERBALANCED CRANK

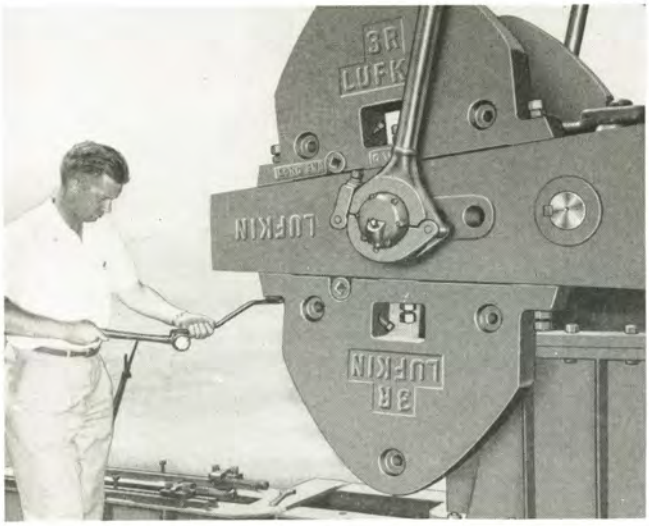


FIGURE 1

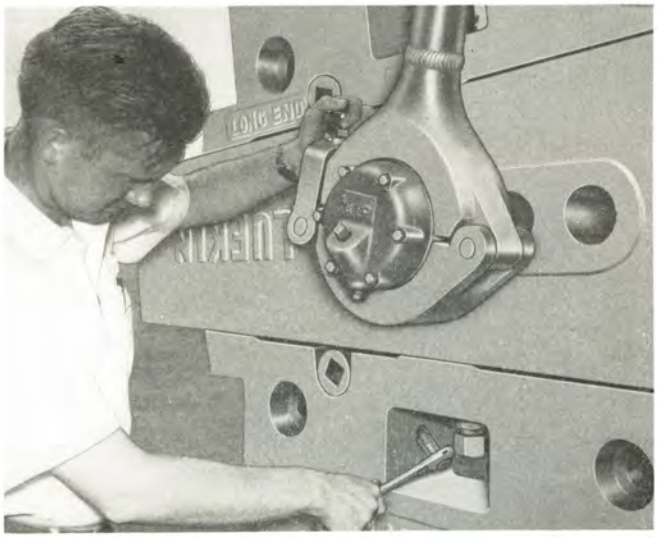


FIGURE 2

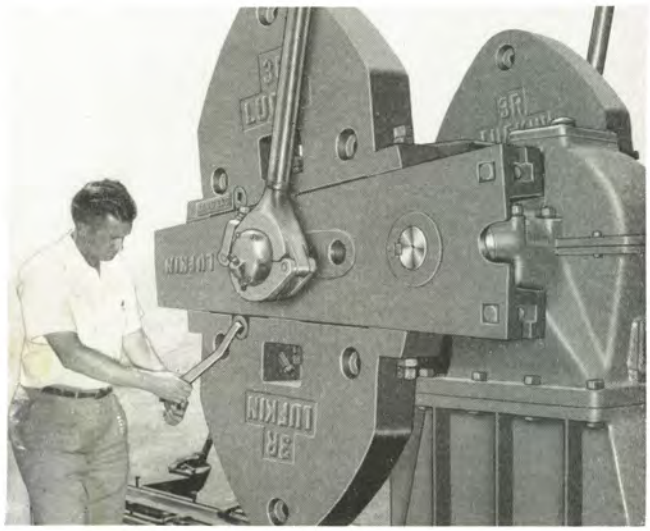


FIGURE 3

FIGURE 5

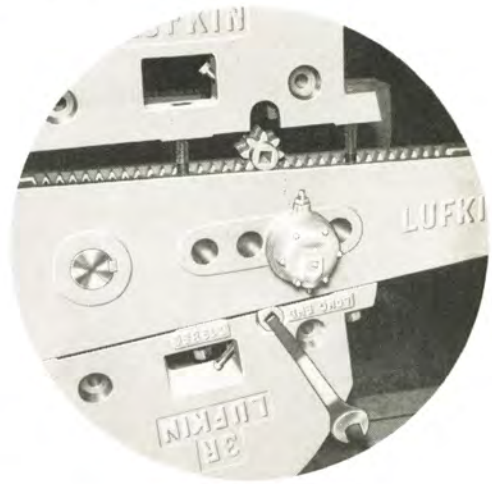


FIGURE 4

The Trout Counterbalanced Crank, using sliding weights to change the counterbalance effect, is an Original Lufkin Feature. Moving the counterweights has been made even safer and easier by the addition of a rack and pinion.

One Man Alone, using the special combination wrench and crank shown in Figure 5, can make the adjustment in a matter of minutes. All four weights can be adjusted without changing the position of the cranks.

To move the counterweights:

1. Move cranks to horizontal position and set brake.
2. Loosen nuts holding counterweight (Fig. 1) using wrench as furnished and sledge hammer.
3. Loosen set screw (Fig. 2) with ordinary crescent wrench.
4. Insert square into socket in end of pinion (Fig. 3) and rotate, moving counterweight to desired position.
5. Tighten nuts on counterweight bolts, using wrench and sledge.
6. Tighten set screw (Fig. 2).

Rack and pinion type cranks are now regularly furnished on the TC-44R assemblies and larger. The T5D-7C, T6E-9B, and T7A-3B units will be furnished with the regular sliding weight type Trout Cranks.

With the Trout Counterbalanced Crank it is not necessary to add or remove weight elements requiring a crew of several men or auxiliary lifting equipment to handle. There is no waiting while needed weight elements are obtained from supplier.

There is no hazard to the operator or equipment as it is imposible for Trout counterweights to slide off the crank even when bolts are loosened, so long as nuts are not completely removed from bolts.

This same Safe, Simple and Easy Trout Counterbalance has been in use over a period of many years and has been installed on over FORTY THOUSAND LUFKIN PUMPING UNITS.

THE LUFKIN UNIVERSAL CENTER-LINE WALKING BEAM

The Lufkin Beam Construction is a patented feature that accounts for much of the success of Lufkin Units even when employed on loads exceeding the ratings of the component parts of the assembly. In addition to strength, this construction gives increased polished rod stroke and decreased lifting costs, as compared to types of construction formerly used.

All pumping units employ an arrangement of beam loading based on variations of the method used by the original standard rig, illustrated in Figure 7. Since the beam is a rolled structural member, not machined, all beams have a slight twist. When loaded as shown in Figure 7, with the load applied on TOP of the beam, it twists the beam still further since the line of the load and the line of the reaction do not coincide. The resultant horizontal force, as in Figure 6, acts about the lever arm X to twist the beam. This constant twisting under load causes this beam to fail under a fraction of the load that could be safely applied to the same beam using Lufkin Universal Centerline Beam Construction.

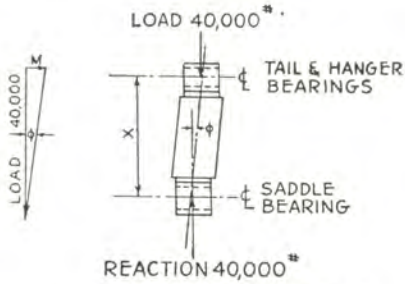


FIGURE 6

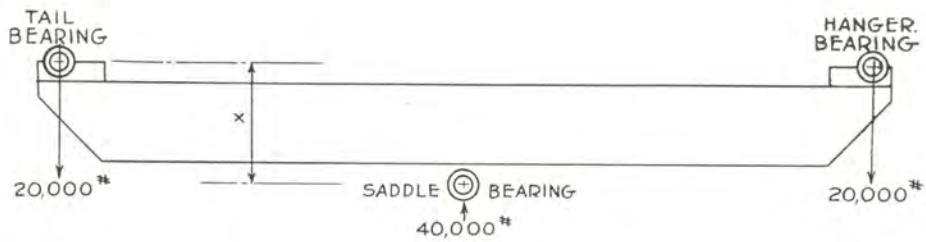


FIGURE 7

The load of 40,000 lbs. at center of beam does not coincide with line of reaction due to twist in beam (exaggerated here). The difference between the two lines is angle ϕ. The twisting load M is 40,000 $\times$ tan. ϕ. The twisting moment on the beam is 40,000 $\times$ tan. ϕ $\times$ lever arm X, in inch-pounds. With Lufkin Universal Center-Line construction, no twisting moment exists since the load is applied in line with the reaction; hence lever arm X is zero and, therefore, twisting moment is zero.

THE LUFKIN UNIVERSAL CENTER-LINE UNITS

WORKING "POINTS" THAT INSURE FULL STROKE ON POLISH RODS AND HIGHEST COUNTERBALANCE EFFICIENCY

The universal center line design, patented by LUFKIN, has many advantages over the other types of construction and no disadvantages that we know of.

Field tests have been made on pumping wells, comparing this design with that of the tail bearing mounted on top of the beam both with the gear box set directly under the tail bearing, and also with it set in back of it. The results show considerably more production due to better pump plunger action, and less power consumed per barrel of fluid pumped. Peak loads were less per barrel of fluid pumped with the LUFKIN design than with the others tested.

Placing the tail bearing under the beam eliminates vibration in the walking beam which is caused by the leverage which is necessarily imposed by the bearing when placed on top of the beam. No beam is made perfectly and beams break more easily due to twisting action when the load is applied to the top of the beam. Actual experience shows that in some cases LUFKIN walking beams are successfully carrying over double the A.P.I. rating and have been doing so for years.

The universal spherical bearing on the front and back of the walking beam is considerably more expensive to mainufacture, as is the arch type equalizer. We are convinced, however, that this additional quality is justified in that it accounts for trouble free, long life operation.

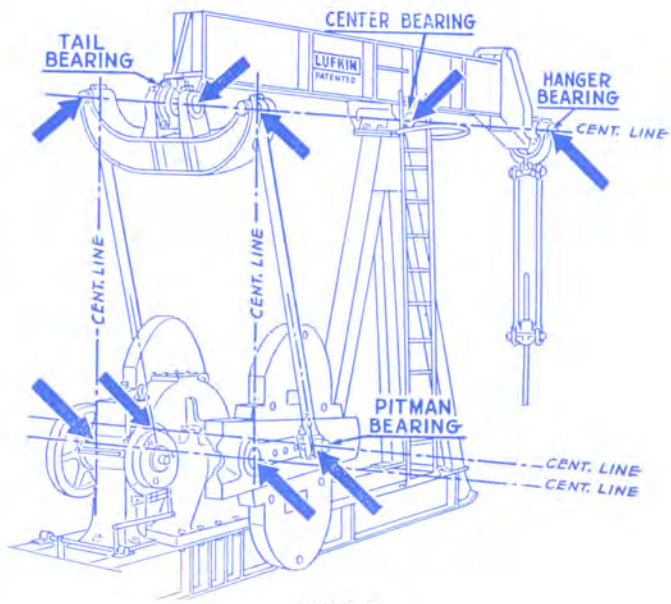


FIGURE 8

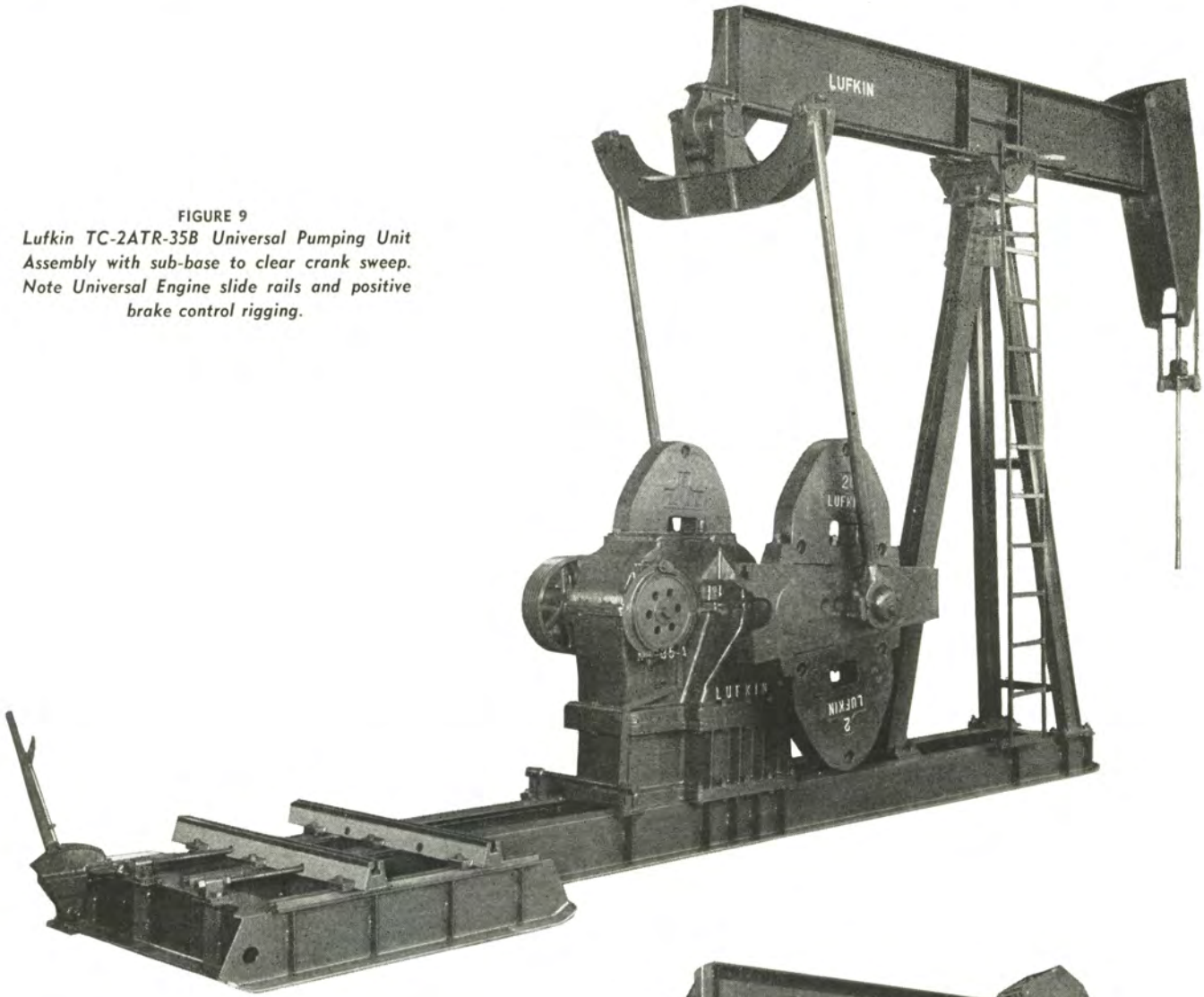


FIGURE 9
Lufkin TC-2ATR-35B Universal Pumping Unit Assembly with sub-base to clear crank sweep. Note Universal Engine slide rails and positive brake control rigging.

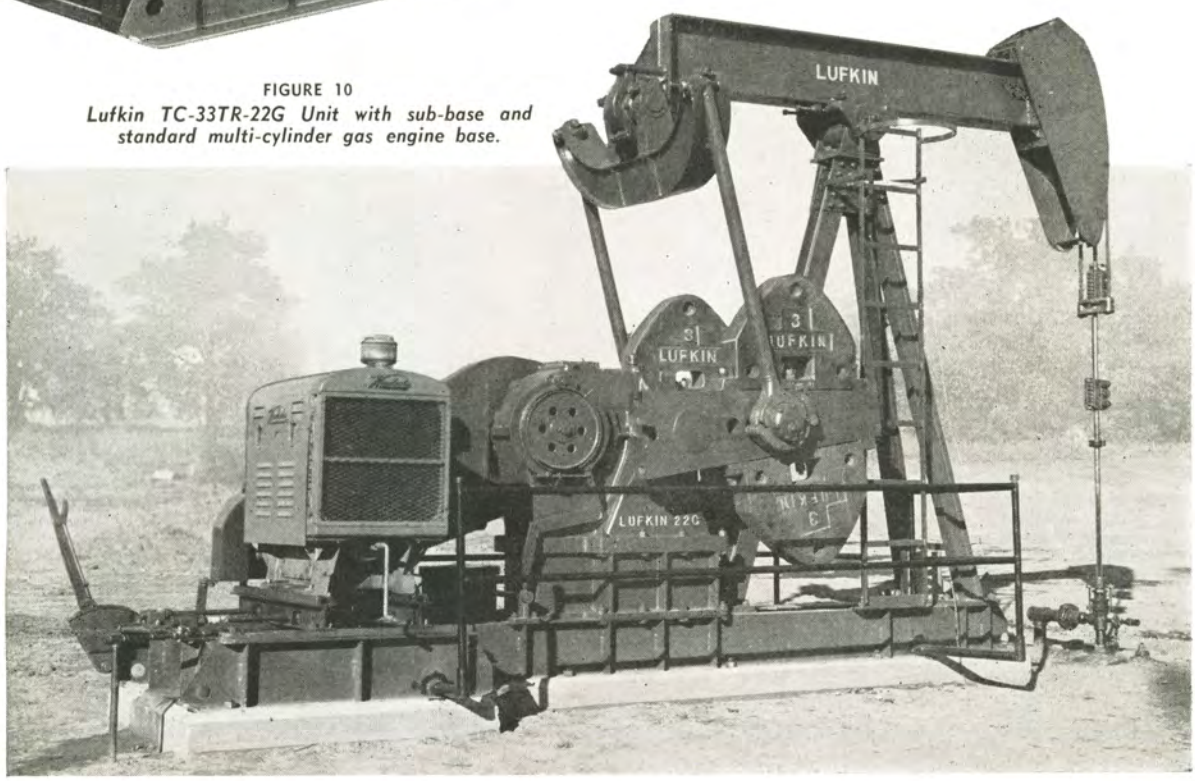


FIGURE 10
Lufkin TC-33TR-22G Unit with sub-base and standard multi-cylinder gas engine base.

SINGLE REDUCTION GEAR UNITS

Single reduction gear units are preferred with slow speed and medium speed engines (up to 600 r.p.m.) where over-all ratio can be accommodated. They are built in six sizes.

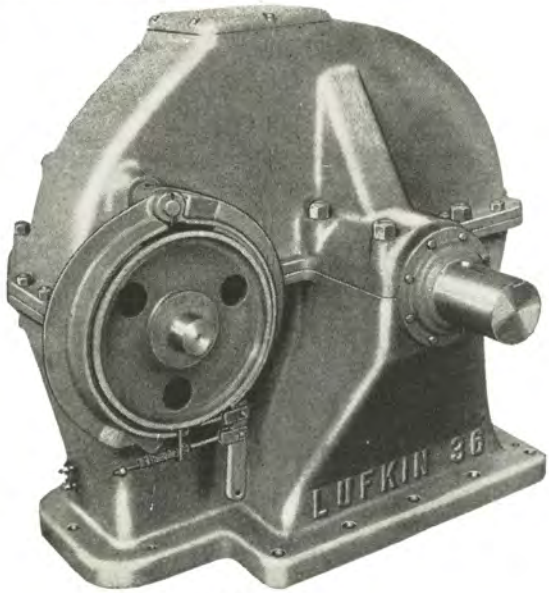


FIGURE 11

DOUBLE REDUCTION GEAR UNITS

Double reduction gear units are used with electric motors and multi-cylinder gas engines. They are made in twelve sizes.

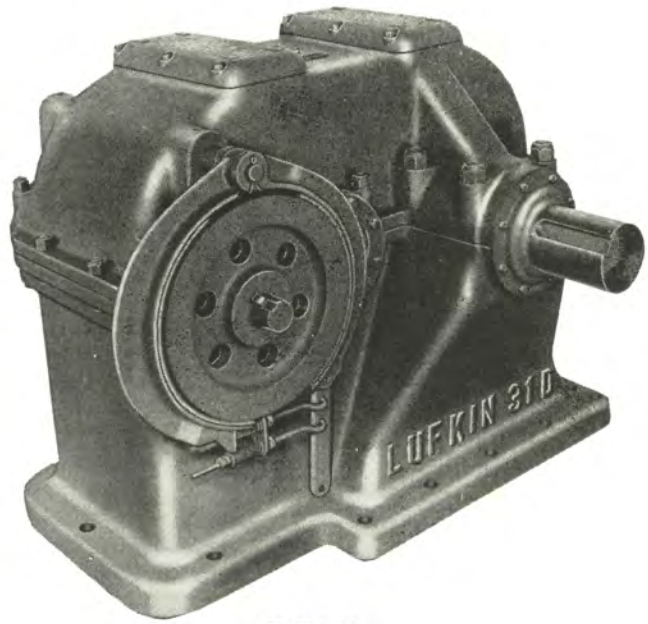


FIGURE 13

LUFKIN ENGINEERS HAVE A RICH BACKGROUND of practical experience in unit operation, and behind their designs is a plant using modern production methods and up-to-date tools where absolute duplicate precision work is maintained.

Our entire product is made in jigs or by template, even to posts and walking beams, to secure correct alignment and absolute duplication of parts.

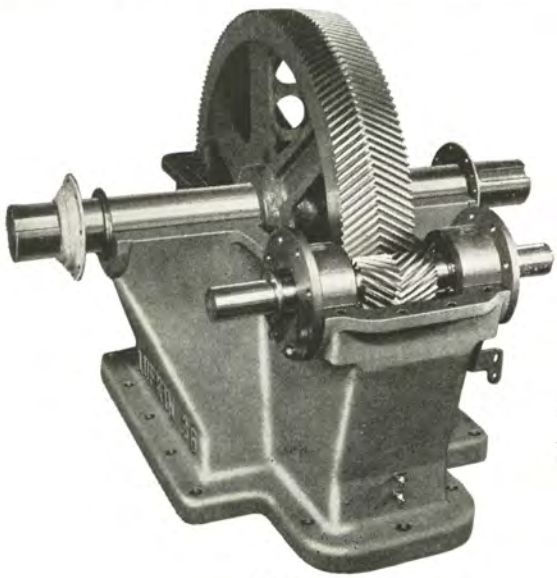


FIGURE 12

Single Reduction Gear Unit, cover removed.

Lufkin Gear Reducers are rated in accordance with the latest edition of A.P.I. Standard 11-E and carry the A.P.I. monogram.

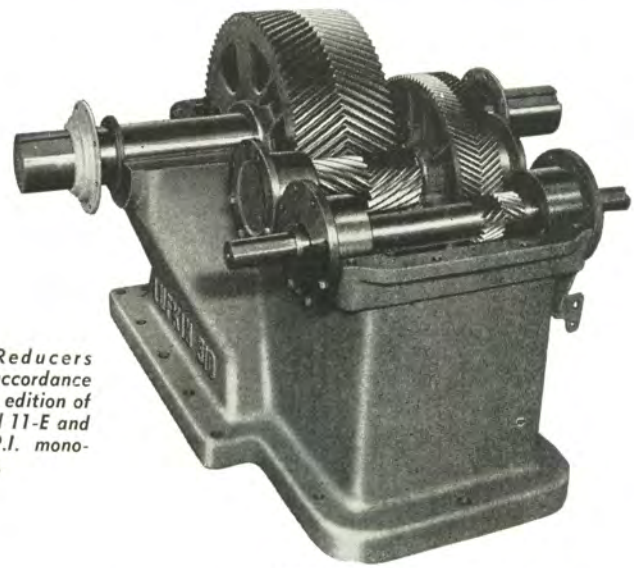


FIGURE 14

Double Reduction Gear Unit, cover removed.

1. Housing especially built for oil well service, of rugged construction with large factors of safety.
2. Lufkin-Sykes Herringbone Gears, precision cut on our machines, are used exclusively in Lufkin units.
3. Gear Cases are jig bored to same accuracy as gears.
4. All shafts forged from alloy steel, heat treated and precision ground.
5. Oversize Bronzoid Bearings on crankshafts. Easily renewable.
6. Crankshaft held rigid by Bronzoid hub plates. All pinions float on Hy-Load Hyatt Roller Bearings.
7. No Oil Leaks. Pinion shaft bearings equipped with patented oil seals; main crankshaft with collar oil slinger and drain cover.
8. No Oil Pumps. Lufkin gears operate in oil bath with gear wipers to flood bearings.
9. Clam Shell Brake. No grabbing. Improved ratchet lever and stand, locomotive type.

GENERAL SPECIFICATIONS

Lufkin 640,000 In. Lbs. Peak Torque Pumping Units

640 API Size

GEAR DATA

GEAR REDUCER: Double Reduction
Designation: 640DB API Size.
Gears: Main Gear 41.6" Diam., 12¾" Face.
Rating: 640,000 In. Lbs. Peak Torque.
Ratio of Gears: 28.6.

Crank Shaft Diam.: 7".
Sheave: 34" P.D.—7D Std., 56" P.D. Max., 3-7/16" Bore.
Distance Centerline Unit to Centerline Drive: 21½".
Gear Box Oil Capacity: 70 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL TC-OLCBR-640DB PUMPING UNIT ASSEMBLY—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-9" & 10'-11¼" working centers. API Walking Beam Rating: 30.370 lbs.
HANGER: Hinged Horsehead with 1" Double Wire Lines 30'-2⅛" and 31'-4¼" Long on Load Equalizer
PITMAN: Universal Equalizer with Bearings in Line, 5" Extra Heavy Pipe.
SAMSON POST: Tripod, 17'-4" High.
CRANKS: No. 94100R, 100" Radius.
BASE: 16" Deep, 46¾" Wide at Gear Box.
SUB-BASE: 36" High, Cast Iron.

CENTER BEARING — No. 1AS Bronze Bushed 7" x 20"
CRANK PINS — No. OCT, Timken Bearings
TAIL BEARING — 5 15/16" x 13½" Bronze Bushed
WEIGHT — 57,460 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 94100R Crank No. 00R Wts.	Aux. Wts.
52.1"	51,655	64,130
70.4"	37,935	47,170
88.8"	29,845	37,165
107.2"	24,530	30,590
125.6"	20,770	25,945
144"	17,975	22,485

LUFKIN UNIVERSAL TC-OLCR-640DB PUMPING UNIT ASSEMBLY—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-0" and 10'-11¼" working centers API Walking Beam Rating: 31,700 lbs.
HANGER: Hinged Horsehead with Double 1" Wire Lines, 26'-4¼" and 25'-2⅛" Long, on Load Equalizer
PITMAN: Universal Equalizer with Bearings "in line", 5" Extra Heavy Pipe.
SAMSON POST: Tripod, 17'-4" high.
CRANKS: No. 82100R, 100" Radius.
BASE: 16" Deep, 46¾" Wide at Gear Box.
SUB-BASE: 36" High, Cast Iron.

CENTER BEARING — No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS — No. OCT, Timken Bearings
TAIL BEARING — 5 15/16" x 13½", Bronze Bushed
WEIGHT — 57,380 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 82100R Crank No. 00R Wts.	Aux. Wts.
50.0"	54,175	67,175
67.6"	39,830	49,445
85.3"	31,370	38,990
103.0"	25,820	32,130
120.0"	22,030	27,445

LUFKIN UNIVERSAL TC-OLBR-640DB PUMPING UNIT ASSEMBLY—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-0" and 10'-11¼" working centers API Walking Beam Rating: 31,700 lbs.
HANGER: Hinged Horsehead with Double 1" Wire Lines, 26'-4¼" and 25'-2⅛" Long, on Load Equalizer
PITMAN: Universal Equalizer with Bearings "in line", 5" Extra Heavy Pipe.
SAMSON POST: Tripod, 17'-4" high.
CRANKS: No. 8292R, 92" Radius.
BASE: 16" Deep, 46¾" Wide at Gear Box.
SUB-BASE: 36" High, Cast Iron.

CENTER BEARING — No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS — No. OCT, Timken Bearings
TAIL BEARING — 5 15/16" x 13½", Bronze Bushed
WEIGHT — 56,780 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 8292R Crank No. 00R Wts.	Aux. Wts.
50.0"	46,085	57,635
67.6"	33,845	42,385
85.3"	26,630	33,395
103.0"	21,890	27,495
120.0"	18,660	23,470

LUFKIN UNIVERSAL* TC-OLR-640DB PUMPING UNIT ASSEMBLY—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 30" x 15" x 172 lbs., 14'-0¾" and 10'-11¼" working centers. API Walking Beam Rating: 28,800 lbs.
HANGER: Hinged Horsehead with 1¼" Wire Line, 28'-0" Long
PITMAN: Universal Equalizer with Bearings "in line", 5" Extra Heavy Pipe.
SAMSON POST: Tripod, 17'-4" high.
CRANKS: No. 8478R, 78" Radius.
BASE: 16" Deep, 46¾" Wide at Gear Box
SUB-BASE: 36" High, Cast Iron.

CENTER BEARING — No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS — No. OCT, Timken Bearings
TAIL BEARING — 5 15/16" x 13½", Bronze Bushed
WEIGHT — 53,030 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 8478R Crank No. 0R Wts.	Aux. Wts.
46.4"	34,795	44,005
61.9"	26,260	33,165
77.4"	21,140	26,665
92.9"	17,735	22,335
108.4"	15,300	19,240

LFKIN UNIVERSAL TC-OALR-640DB PUMPING UNIT ASSEMBLY—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 30" x 15" x 172 lbs., 12'-6" and 12'-6" working centers. API Walking Beam Rating: 32,400 lbs.
HANGER: Hinged Horsehead with 1¼" Wire Line, 25'-0" Long
PITMAN: Universal Equalizer with Bearings "in line", 4" Extra Heavy Pipe.
SAMSON POST: Tripod, 15'-9" high.
CRANKS: No. 8478R, 78" Radius.
BASE: 16" Deep, 46¾" Wide at Gear Box.
SUB-BASE: 34" High, Cast Iron.

CENTER BEARING — No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS — No. 1, Bronze Bushed, 5½" x 5½"
TAIL BEARING — 4 15/16" x 12", Bronze Bushed
WEIGHT — 51,550 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 8478R Crank No. 0R Wts. (Std.)	Aux. Wts.	No. 8478R Crank No. 1R Wts.	Aux. Wts.
36"	45,125	56,995	33,725	41,240
48"	34,140	43,045	25,590	31,225
60"	27,550	34,675	20,710	25,220
72"	23,160	29,095	17,460	21,215
84"	20,020	25,110	15,135	18,355

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

Lufkin 640,000 In. Lbs. Peak Torque Pumping Units

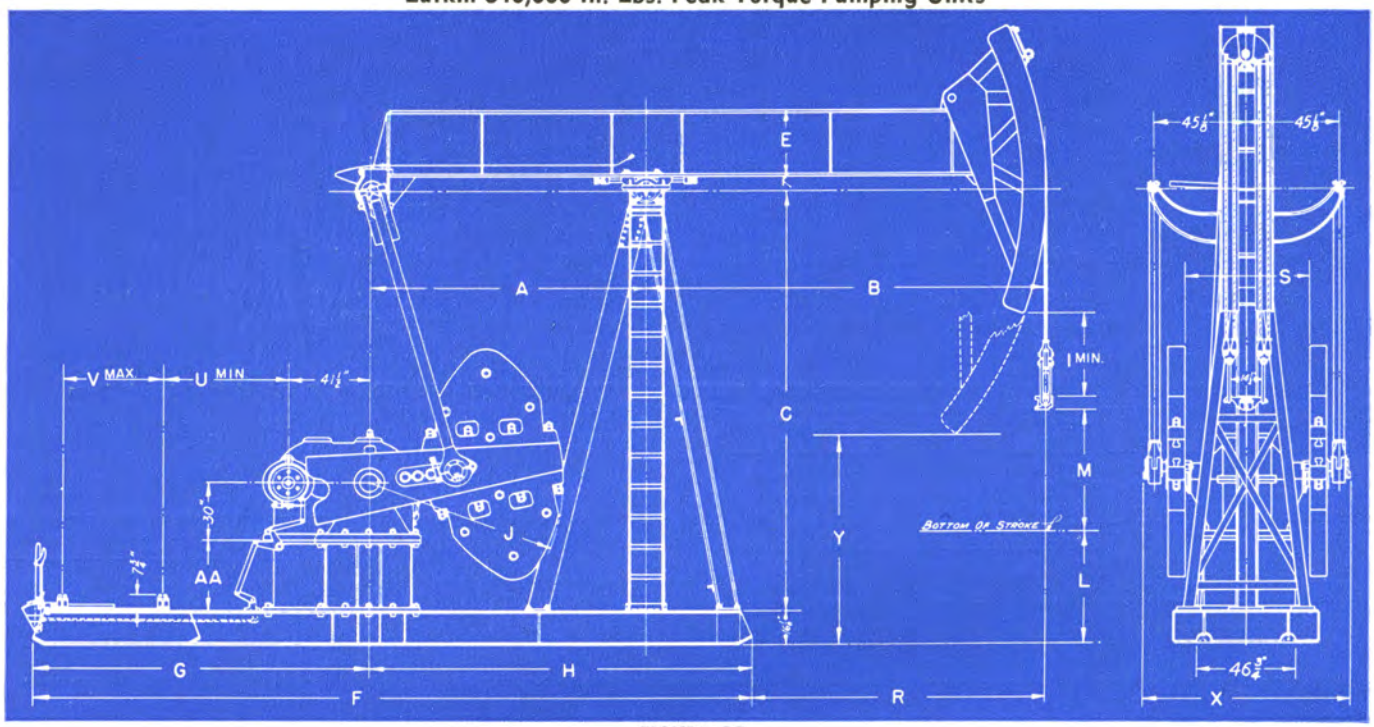


FIGURE 15

UNIT	A	B	C	E	F	G	H	I	J	L	M	R	S	U	V	X	Y	AA
*TC-OLCBR-640DB...	10′-11¼″	16′-9″	17′-4″	33″	30′-5″	15′-4″	15′-1″	31″	100″	38¼″	72″	12′-7¼″	65¼″	6′-10″	46″	8′-2⅝″	6′-9⅜″	36″†
*TC-OLCR-640DB.....	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	27¾″	100″	5′-4″	60″	11′-10¼″	65¼″	6′-10″	46″	8′-2⅝″	8′-10⅝″	36″†
*TC-OLBR-640DB.....	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	27¾″	92″	5′-4″	60″	11′-10¼″	65¼″	6′-10″	46″	8′-2⅝″	8′-10⅝″	36″‡
TC-OLR-640DB.....	10′-11¼″	14′-0¾″	17′-4″	29⅞″	30′-5″	15′-4″	15′-1″	28½″	78″	6′-4⅝″	54.2″	9′-11″	67½″	6′-10″	46″	8′-2⅝″	10′-0⅛″	36″
TC-OALR-640DB.....	12′-6″	12′-6″	15′-9″	29⅞″	30′-0″	13′-2″	16′-10″	36¼″	78″	6′-2⅝″	42″	8′-2″	67½″	56″	41″	8′-7¾″	10′-2¾″	36″

* TC-OLCR-640DB, TC-OLBR-640DB and TC-OLCBR-640DB have double wire lines as shown, all other units shown in this table have single wire line shown in Fig. 39.
† Requires foundation projecting 23″ above grade line, to provide crank clearance.
‡ Requires foundation projecting 15″ above grade line, to provide crank clearance.
Full length, one piece, Base is standard; Jointed Bases available.

FIGURE 16

GENERAL SPECIFICATIONS

Lufkin 456,000 In. Lbs. Peak Torque Pumping Units

456 API Size

GEAR DATA

GEAR REDUCER: Double Reduction

Designation: 456DB.
Gears: Main Gear 38" Diam., 11" Face.
Rating: 456,000 In. Lbs. Peak Torque.
Ratio of Gears: 29.04.
Crank Shaft Diam.: 7".
Sheave: 34" P.D.—10C or 7D Std., 51" P.D. Max., 3-7/16" Bore.
Distance Centerline Unit to Centerline Drive: 21½".
Gear Box Oil Capacity: 55 Gallons.

GEAR REDUCER: Single Reduction

Designation: 456S.
Gears: Main Gear 60" Diam., 11" Face.
Rating: 456,000 In. Lbs. Peak Torque.
Ratio of Gears: 10.71.
Crank Shaft Diam.: 7".
Sheave: 48" P.D.—10D or 15C Std., 48" P.D. Max., 3-15/16" Bore.
Distance Centerline Unit to Centerline Drive: 18".
Gear Box Oil Capacity: 34 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL TC-OLCBR-456DB, TC-OLCBR-456S PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 33" x15¾" x 200 lbs., 16'-9" and 10'-11¼" working ctrs API Walking Beam Rating: 30,370 lbs.

HANGER: Hinged Horsehead with 1" Double Wire Lines, 30'-2⅛" and 31'-4¼" Long on Load Equalizer.

PITMAN: Universal Equalizer with Bearings in Line 5" Extra Heavy Pipe.

SAMSON POST: Tripod, 17'-4" High.

CRANKS: No. 94100R, 100" Radius.

BASE: 16" Deep, 46¾" Wide at Gear Box.

SUB-BASE: 36" High, Cast Iron.

CENTER BEARING: No. 1AS Bronze Bushed 7" x 20"
CRANK PINS: No. OCT, Timken Bearings
TAIL BEARING: 5 15/16" x 13½" Bronze Bushed
WEIGHT: TC-OLCBR-456DB 55,560 lbs., TC-OLCBR-456S 56,180 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 94100R Crank	
Stroke	No. 00R Wts.	Aux. Wts.
52.1"	51,655	64,130
70.4"	37,935	47,170
88.8"	29,845	37,165
107.2"	24,530	30,590
125.6"	20,770	25,945
144"	17,975	22,485

LUFKIN UNIVERSAL TC-OLCR-456DB, TC-OLCR-456S PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-0" and 10'-11¼" working ctrs. API Walking Beam Rating, 31,700 lbs.

HANGER: Hinged Horsehead with Double 1" Wire Lines, 26'-4¼" and 25'-2⅛" Long on Load Equalizer.

PITMAN: Universal Equalizer with Bearings in Line 5" Extra Heavy Pipe.

SAMSON POST: Tripod, 17'-4" High.

CRANKS: No. 82100R, 100" Radius.

BASE: 16" Deep, 46¾" Wide at Gear Box.

SUB-BASE: 36" High, Cast Iron.

CENTER BEARING: No. 1AS Bronze Bushed, 7" x 20"
CRANK PINS: No. OCT, Timken Bearings
TAIL BEARING: 5 15/16" x 13½" Bronze Bushed
WEIGHT: TC-OLCR-456DB 55,580 lbs., TC-OLCR-456S 56,200 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 82100R Crank	
Stroke	No. 00R Wts.	Aux. Wts.
50.0"	54,175	67,175
67.6"	39,830	49,445
85.3"	31,370	38,990
103.0"	25,820	32,130
120.0"	22,030	27,445

LUFKIN UNIVERSAL TC-OLBR-456DB, TC-OLBR-456S PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-0" and 10'-11¼" working ctrs. API Walking Beam Rating: 31,700lbs.

HANGER: Hinged Horsehead with Double 1" Wire Lines, 26'-4¼" and 25'-2⅛" Long. on Load Equalizer

PITMAN: Universal Equalizer with Bearings "in line", 5" Extra Heavy Pipe.

SAMSON POST: Tripod, 17'-4" high.

CRANKS: No. 8292R 92" Radius.

BASE: 16" Deep, 46¾" Wide at Gear Box.

SUB-BASE: 36" High, Cast Iron.

CENTER BEARING: No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS: No. OCT, Timken Bearings
TAIL BEARING: 5 15/16" x 13½", Bronze Bushed
WEIGHT: TC-OLBR-456DB 54,980 lbs., TC-OLBR-456S 55,600 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 8292R Crank	
Stroke	No. 00R Wts.	Aux. Wts.
50.0"	46,085	57,635
67.6"	33,845	42,385
85.3"	26,630	33,395
103.0"	21,890	27,495
120.0"	18,660	23,470

LUFKIN UNIVERSAL TC-OLR-456DB, TC-OLR-456S PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 30" x 15" x 172 lbs., 14'-0¾" and 10'-11¼" working ctrs. API Walking Beam Rating: 28,800 lbs.

HANGER: Hinged Horsehead with 1¼" Wire Line, 28'-0" Long.

PITMAN: Universal Equalizer with Bearings "in line", 5" Extra Heavy Pipe.

SAMSON POST: Tripod, 17'-4" high.

CRANKS: No. 8478R 78" Radius.

BASE: 16" Deep, 46¾" Wide at Gear Box.

SUB-BASE: 36" High, Cast Iron.

CENTER BEARING: No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS: No. OCT, Timken Bearings
TAIL BEARING: 5 15/16" x 13½", Bronze Bushed
WEIGHT: TC-OLR-456DB 51,230 lbs., TC-OLR-456S 51,850 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 8478R Crank	
Stroke	No. 0R Wts.	Aux. Wts.
46.4"	34,795	44,005
61.9"	26,260	33,165
77.4"	21,140	26,665
92.9"	17,735	22,335
108.4"	15,300	19,240

LUFKIN UNIVERSAL TC-OALR-456DB, TC-OALR-456S PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 30" x 15" x 172 lbs., 12'-6" and 12'-6" working centers. API Walking Beam Rating: 32,400 lbs.

HANGER: Hinged Horsehead with 1¼" Wire Line, 25'-0" Long.

PITMAN: Universal Equalizer with Bearings "in line", 4" Extra Heavy Pipe.

SAMSON POST: Tripod, 15'-9" high.

CRANKS: No. 8478R, 78" Radius.

BASE: 16" Deep, 46¾" Wide at Gear Box.

SUB-BASE: 36" High, Cast Iron.

CENTER BEARING: No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS: No. 1, Bronze Bushed, 5½" x 5½"
TAIL BEARING: 4 15/16" x 12", Bronze Bushed
WEIGHT: TC-OALR-456DB 49,975 lbs., TC-OALR-456S 50,600 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 8478R Crank		No. 8478R Crank	
Stroke	No. 0R Wts. (Std.)	Aux. Wts.	No. 1R Wts.	Aux. Wts.
36"	45,125	56,995	33,725	41,240
48"	34,140	43,045	25,590	31,225
60"	27,550	34,675	20,710	25,220
72"	23,160	29,095	17,460	21,215
84"	20,020	25,110	15,135	18,355

GENERAL DIMENSIONS

Lufkin 456,000 In. Lbs. Peak Torque Pumping Units

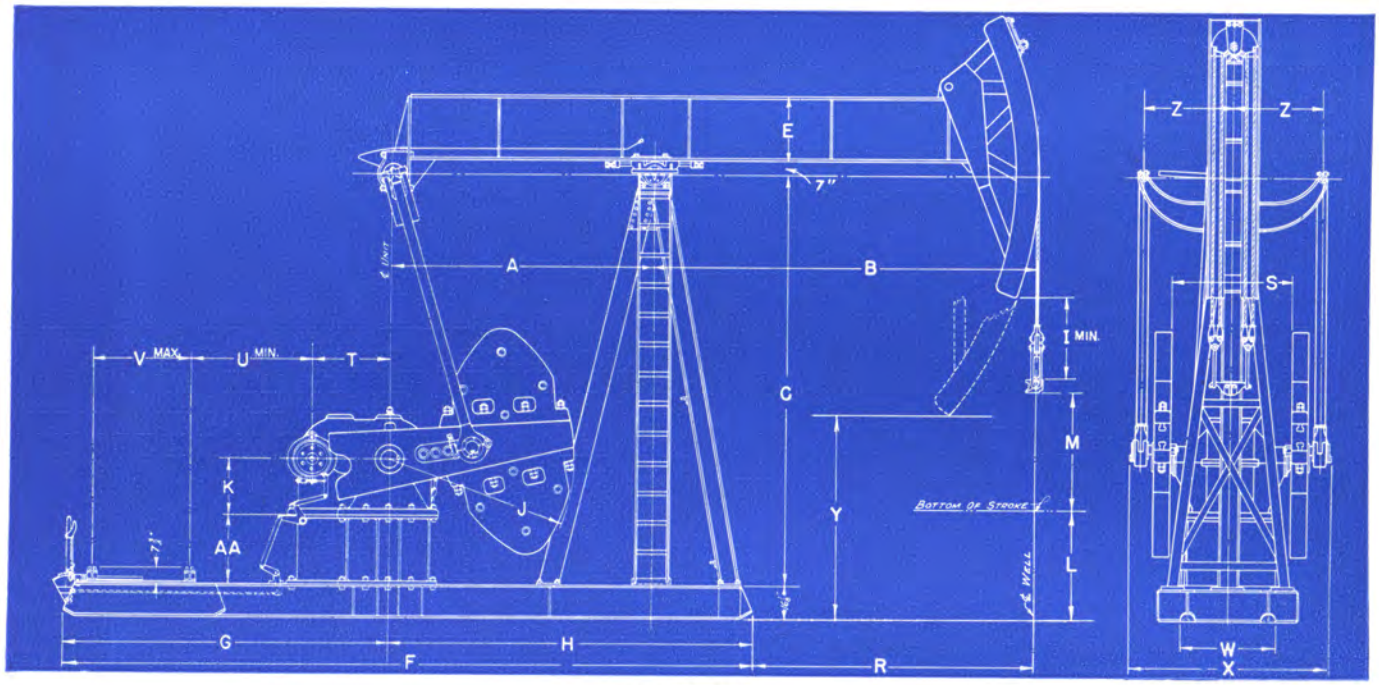


FIGURE 17

UNIT	A	B	C	E	F	G	H	I	J	K	L	M	R	S	T	U	V	W	X	Y	Z	AA
*TC-OLCBR-456DB.	10′-11¼″	16′-9″	17′-4″	33″	30′-5″	15′-4″	15′-1″	31″	100″	28″	38¼″	72″	12′-7¼″	65¼″	38⅜″	7′-1⅛″	46″	46¾″	8′-2⅝″	6′-9⅜″	45⅛″	36″#
*TC-OLCBR-456S...	10′-11¼″	16′-9″	17′-4″	33″	30′-5″	15′-4″	15′-1″	31″	100″	34″	38¼″	72″	12′-7¼″	65¼″	32.8″	90.7″	46″	46¾″	8′-2⅝″	6′-9⅜″	45⅛″	36″†
*TC-OLCR-456DB..	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	27¾″	100″	28″	5′-4″	60″	11′-10¼″	65¼″	38⅜″	7′-1⅛″	46″	46¾″	8′-2⅝″	8′-10⅝″	45⅛″	36″#
*TC-OLCR-456S....	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	27¾″	100″	34″	5′-4″	60″	11′-10¼″	65¼″	32.8″	90.7″	46″	46¾″	8′-2⅝″	8′-10⅝″	45⅛″	36″†
*TC-OLBR-456DB..	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	27¾″	92″	28″	5′-4″	60″	11′-10¼″	65¼″	38⅜″	7′-1⅛″	46″	46¾″	8′-2⅝″	8′-10⅝″	45⅛″	36″‡
*TC-OLBR-456S....	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	27¾″	92″	34″	5′-4″	60″	11′-10¼″	65¼″	32.8″	90.7″	46″	46¾″	8′-2⅝″	8′-10⅝″	45⅛″	36″§
TC-OLR-456DB....	10′-11¼″	14′-0¾″	17′-4″	29⅞″	30′-5″	15′-4″	15′-1″	28½″	78″	28″	6′-4⅝″	54.2″	9′-11″	67½″	38⅜″	7′-1⅛″	46″	46¾″	8′-2⅝″	10′-0⅛″	45⅛″	36″
TC-OLR-456S.....	10′-11¼″	14′-0¾″	17′-4″	29⅞″	30′-5″	15′-4″	15′-1″	28½″	78″	34″	6′-4⅝″	54.2″	9′-11″	67½″	32.8″	90.7″	46″	46¾″	8′-2⅝″	10′-0⅛″	45⅛″	36″
TC-OALR-456DB..	12′-6″	12′-6″	15′-9″	29⅞″	30′-0″	13′-3″	16′-9″	36¼″	78″	28″	6′-2⅝″	42″	8′-3″	67½″	38⅜″	62⅝″	45½″	46¾″	8′-7¾″	10′-2¾″	45⅛″	36″
TC-OALR-456S....	12′-6″	12′-6″	15′-9″	29⅞″	30′-0″	13′-3″	16′-9″	36¼″	78″	34″	6′-2⅝″	42″	8′-3″	67½″	32.8″	67.95″	45½″	46¾″	8′-7¾″	10′-2¾″	45⅛″	36″

*These units have double wire lines as shown, all other units shown in this table have single wire line as shown in Fig. 39.

#Requires foundation projecting 24″ above grade line to provide for crank sweep.

†Requires foundation projecting 18″ above grade line to provide for crank sweep.

‡Requires foundation projecting 15″ above grade line to provide for crank sweep.

§Requires foundation projecting 9″ above grade line to provide for crank sweep.

Full length, one piece, base is standard; jointed bases available.

FIGURE 18

GENERAL SPECIFICATIONS

Lufkin 320,000 In. Lbs. Peak Torque Pumping Units

320 API Size

GEAR DATA

GEAR REDUCER: Double Reduction
Designation: 41D or 320D API Size.
Gears: Main Gear 33.6" Diam., 10" Face.
Rating: 320,000 In. Lbs. Peak Torque.
Ratio of Gears: 30.12.
Crank Shaft Diam.: 6-7/16".
Sheave: 25" P.D.—8C Std., 30" P.D. Alternate, 47¼" P.D. Max., 2-15/16" Bore.
Distance Centerline Unit to Centerline Drive: 19½".
Gear Box Oil Capacity: 50 Gallons.

GEAR REDUCER: Single Reduction
Designation: 54C or 320S API Size.
Gears: Main Gear 47" Diam., 10" Face.
Rating: 320,000 In. Lbs. Peak Torque.
Ratio of Gears: 9.4.
Crank Shaft Diam.: 6-7/16".
Sheave: 34" P.D.—12C or 7D Std., 34" P.D. Max., 3-7/16" Bore.
Distance Centerline Unit to Centerline Drive: 16⅜".
Gear Box Oil Capacity: 25 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL TC-1LBR-41D, TC-1LBR-54C PUMPING UNIT ASSEMBLIES—25,000 Lb. Polished Rod Load Class

WALKING BEAM: 30" x 15" x 172 lbs., 14'-3½" and 10'-0" working centers. API Walking Beam Rating: 28,500 lbs.
HANGER: Hinged Horsehead with 1¼" Wire Line, 28'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 4" Extra Heavy Pipe.
SAMSON POST: Tripod, 15'-9" high.
CRANKS: No. 8478R, 78" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 39" High, Cast Iron.

CENTER BEARING... No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS..... No. 1, Bronze Bushed, 5½" x 5½"
TAIL BEARING..... 4 15/16" x 12", Bronze Bushed
WEIGHT..... TC-1LBR-41D 45,400 lbs., TC-1LBR-54C 45,300 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 8478R Crank	
Stroke	No. 0R Wts.	Aux. Wts.
51.5"	30,465	38,760
68.5"	22,845	29,080
85.5"	18,250	23,250
103.0"	15,110	19,260
120.0"	12,935	16,495

LUFKIN UNIVERSAL TC-OALR-41D, TC-OALR-54C PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

WALKING BEAM: 30" x 15" x 172 lbs., with 12'-6" and 12'-6" working centers. API Walking Beam Rating: 32,400 lbs.
HANGER: Hinged Horsehead with 1¼" Wire Line, 25'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 4" Extra Heavy Pipe.
SAMSON POST: Tripod, 15'-9" high.
CRANKS: No. 8478R, 78" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 39" High, Cast Iron.

CENTER BEARING... No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS..... No. 1, Bronze Bushed, 5½" x 5½"
TAIL BEARING..... 4 15/16" x 12", Bronze Bushed
WEIGHT..... TC-OALR-41D 46,580 lbs. TC-OALR-54C 46,480 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 8478R Crank		No. 8478R Crank	
Stroke	No. 0R Wts. (Std.)	Aux. Wts.	No. 1R Wts.	Aux. Wts.
36"	45,125	56,995	33,725	41,240
48"	34,140	43,045	25,590	31,225
60"	27,550	34,675	20,710	25,220
72"	23,160	29,095	17,460	21,215
84"	20,020	25,110	15,135	18,355

LUFKIN UNIVERSAL *TC-1BR-41D, TC-1BR-54C PUMPING UNIT ASSEMBLIES—25,000 Lb. Polished Rod Load Class

WALKING BEAM: 24¾" x 14⅛" x 160 lbs., 11'-4¼" and 10'-0" working ctrs. API Walking Beam Rating: 28,840 lbs.
HANGER: Hinged Horsehead with 1¼" Wire Line, 25'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 4" Extra Heavy Pipe.
SAMSON POST: Tripod, 15'-9" high.
CRANKS: No. 7472R, 71½" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 32" High, Cast Iron.

CENTER BEARING... No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS..... No. 1, Bronze Bushed, 5½" x 5½"
TAIL BEARING..... 4 15/16" x 12", Bronze Bushed
WEIGHT..... TC-1BR-41D 38,500 lbs., TC-1BR-54C 38,400 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 7472R Crank	
Stroke	No. 1R Wts.	Aux. Wts.
38.5"	26,730	32,890
50.0"	20,750	25,495
61.0"	17,140	21,030
72.5"	14,540	17,810
84"	12,650	15,475

LUFKIN UNIVERSAL TC-1AR-41D, TC-1AR-54C PUMPING UNIT ASSEMBLIES—25,000 Lb. Polished Rod Load Class

WALKING BEAM: 24¾" x 14⅛" x 160 lbs., 12'-6" and 12'-6" working centers. API Walking Beam Rating: 24,750 lbs.
HANGER: Hinged Horsehead with 1¼" Wire Line, 25'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 4" Extra Heavy Pipe.
SAMSON POST: Tripod, 15'-9" high.
CRANKS: No. 7472R, 71½" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 32" High, Cast Iron.

CENTER BEARING... No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS..... No. 1, Bronze Bushed, 5½" x 5½"
TAIL BEARING..... 4 15/16" x 12", Bronze Bushed
WEIGHT..... TC-1AR-41D 39,850 lbs., TC-1AR-54C 39,750 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 7472R Crank		No. 7472R Crank	
Stroke	No. 2R Wts.	Aux. Wts.	No. 1R Wts. (Std.)	Aux. Wts.
34"	27,635	34,605	30,725	37,700
44"	21,650	27,035	24,035	29,425
54"	17,880	22,265	19,825	24,220
64"	15,290	18,990	16,930	20,635
74"	13,395	16,600	14,815	18,020

LUFKIN UNIVERSAL *TC-1R-41D, TC-1R-54C PUMPING UNIT ASSEMBLIES—25,000 Lb. Polished Rod Load Class

WALKING BEAM: 24" x 14" x 130 lbs., 10'-0" and 10'-0" working centers. API Walking Beam Rating: 26,650 lbs.
HANGER: Hinged Horsehead with 1¼" Wire Line, 25'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 4" Extra Heavy Pipe.
SAMSON POST: Tripod, 15'-9" high.
CRANKS: No. 7472R, 71½" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 32" High, Cast Iron.

CENTER BEARING.... No. 1AS, Bronze Bushed, 7" x 20"
CRANK PINS..... No. 1, Bronze Bushed, 5½" x 5½"
TAIL BEARING..... 4 15/16" x 12", Bronze Bushed
WEIGHT..... TC-1R-41D 38,250 lbs. TC-1R-54C 38,150 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 7472R Crank		No. 7472R Crank	
Stroke	No. 2R Wts.	Aux. Wts.	No. 1R Wts. (Std.)	Aux. Wts.
34"	27,605	34,575	30,695	37,675
44"	21,620	27,000	24,000	29,400
54"	17,850	22,235	19,795	24,200
64"	15,260	18,960	16,900	20,600
74"	13,370	16,570	14,790	17,995

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

Lufkin 320,000 In. Lbs. Peak Torque Pumping Units

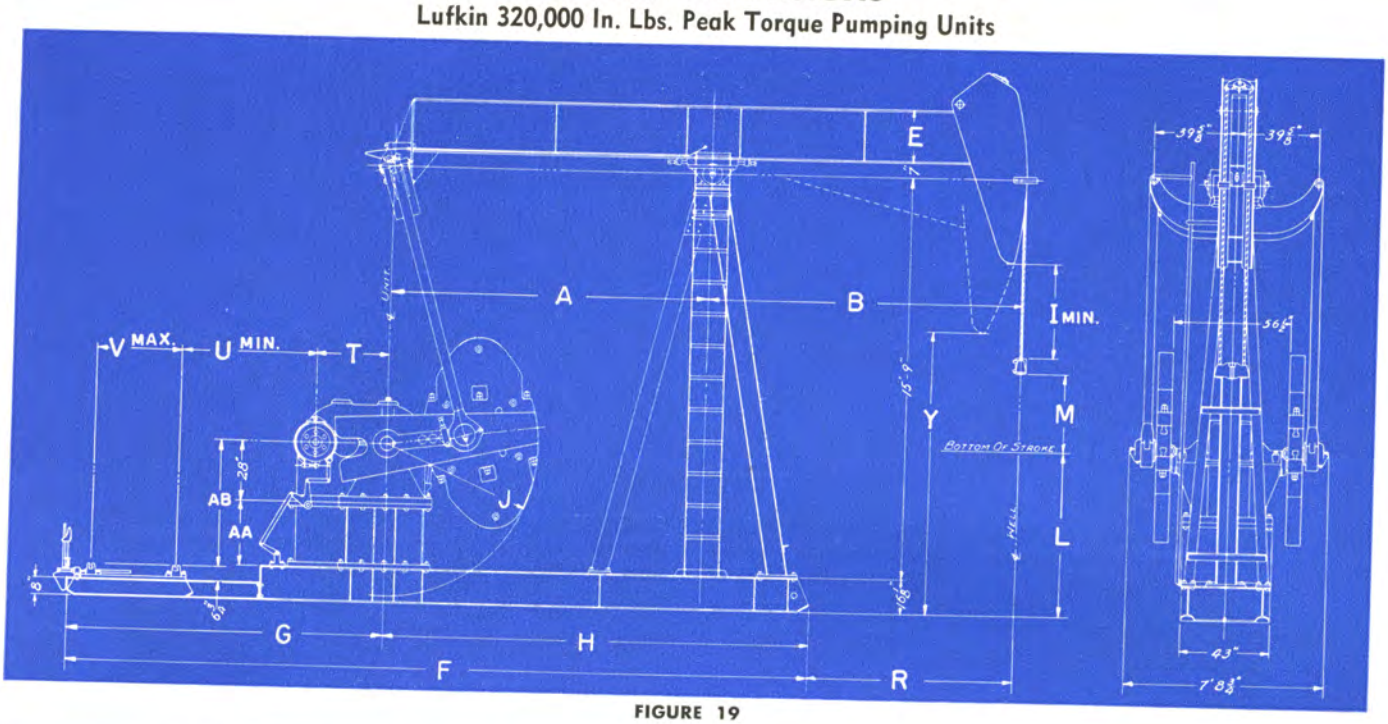


FIGURE 19

UNIT	A	B	E	F	G	H	I	J	L	M	R	T	U	V	Y	AA	AB
*TC-1LBR-41D	10'-0"	14'-3½"	29⅞"	27'-4½"	13'-1½"	14'-3"	17¼"	78"	58½"	60"	10'-0½"	34"	65"	45¾"	7'-7¼"	39"	60¼"
*TC-1LBR-54C	10'-0"	14'-3½"	29⅞"	27'-4½"	13'-1½"	14'-3"	17¼"	78"	58½"	60"	10'-0½"	26"	73"	45¾"	7'-7¼"	39"	60¼"
TC-0ALR-41D	12'-6"	12'-6"	29⅞"	29'-4¾"	12'-6"	16'-10¾"	36¼"	78"	74⅝"	42"	8'-1¼"	34"	63½"	41"	10'-2¾"	39"	68⅜"
TC-0ALR-54C	12'-6"	12'-6"	29⅞"	29'-4¾"	12'-6"	16'-10¾"	36¼"	78"	74⅝"	42"	8'-1¼"	26"	71½"	41"	10'-2¾"	39"	68⅜"
*TC-1BR-41D	10'-0"	11'-4¼"	24¾"	25'-10"	11'-7"	14'-3"	36⅞"	71½"	73⅞"	42"	7'-1¼"	34"	48¼"	41½"	10'-3½"	32"	53¼"
*TC-1BR-54C	10'-0"	11'-4¼"	24¾"	25'-10"	11'-7"	14'-3"	36⅞"	71½"	73⅞"	42"	7'-1¼"	26"	56¼"	41½"	10'-3½"	32"	53¼"
TC-1AR-41D	12'-6"	12'-6"	24¾"	29'-4¾"	12'-6"	16'-10¾"	44⅝"	71½"	76⅜"	37"	8'-1¼"	34"	63½"	41"	10'-11⅝"	32"	61⅜"
TC-1AR-54C	12'-6"	12'-6"	24¾"	29'-4¾"	12'-6"	16'-10¾"	44⅝"	71½"	76⅜"	37"	8'-1¼"	26"	71½"	41"	10'-11⅝"	32"	61⅜"
*TC-1R-41D	10'-0"	10'-0"	24¼"	25'-10"	11'-7"	14'-3"	46½"	71½"	75"	37"	5'-9"	34"	48¼"	41½"	11'-1 1/16"	32"	53¼"
*TC-1R-54C	10'-0"	10'-0"	24¼"	25'-10"	11'-7"	14'-3"	46½"	71½"	75"	37"	5'-9"	26"	56¼"	41½"	11'-1 1/16"	32"	53¼"

*Full length, one piece, Base is standard; for others, Jointed Base illustrated is standard.

FIGURE 20

GENERAL SPECIFICATIONS

Lufkin 228,000 In. Lbs. Peak Torque Pumping Units

228 API Size

GEAR DATA

GEAR REDUCER: Double Reduction

Designation: 35B or 228D API Size.
Gears: Main Gear 30.3" Diam., 9" Face.
Rating: 228,000 In. Lbs. Peak Torque.
Ratio of Gears: 28.45.
Crank Shaft Diam.: 6".
Sheave: 24¼" P.D.—6C Std., 30" P.D. Alt., 41¼" P.D. Max., 2-7/16" Bore.
Distance Centerline Unit to Centerline Drive: 16⅜".
Gear Box Oil Capacity: 50 Gallons.

GEAR REDUCER: Single Reduction

Designation: 36B or 228S API Size.
Gears: Main Gear 45.4" Diam., 8" Face.
Rating: 228,000 In. Lbs. Peak Torque.
Ratio of Gears: 9.94.
Crank Shaft Diam.: 6".
Sheave: 34" P.D.—9C or 6D Std., 34" P.D., Max., 3-3/16" Bore.
Distance Centerline Unit to Centerline Drive: 15¼".
Gear Box Oil Capacity: 18 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL TC-1R-35B, TC-1R-36B PUMPING UNIT ASSEMBLIES—25,000 Lb. Polished Rod Load Class

WALKING BEAM: 24" x 14" x 130 lbs., with 10'-0" and 10'-0" working ctrs. API Walking Beam Rating: 26,650 lbs.
HANGER: Hinged Horsehead with 1¼" Wire Line, 25'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 4" Extra Heavy Pipe.
SAMSON POST: Tripod, 14'-7" high.
CRANKS: No. 7472R, 71½" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 33" High, Cast Iron, for No. 7472R Cranks. 27" High, Cast Iron, for No. 7466R Cranks.

CENTER BEARING.... No. 2AS, Bronze Bushed, 6" x 17"
CRANK PINS..... No. 1, Bronze Bushed, 5½" x 5½"
TAIL BEARING..... 4 15/16" x 12", Bronze Bushed
WEIGHT..... TC-1R-35B 30,285 lbs., TC-1R-36B 30,185 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 7466R Crank		No. 7472R Crank (Std.)	
Stroke	No. 2R Wts.	Aux. Wts.	No. 1R Wts.	Aux. Wts.
34".....	23,215	29,325	30,550	37,530
44".....	18,195	22,915	23,865	29,255
54".....	15,030	18,880	19,650	24,045
64".....	12,860	16,100	16,755	20,465
74".....	11,280	14,080	14,645	17,850

LUFKIN UNIVERSAL *TC-2BTR-35B, TC-2BTR-36B PUMPING UNIT ASSEMBLIES—20,000 Lb. Polished Rod Load Class

WALKING BEAM: 27" x 10" x 102 lbs., 9'-3" and 8'-0" working centers. API Walking Beam Rating: 21,820 lbs.
HANGER: Hinged Horsehead with 1⅛" Wire Line, 23'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 14'-7" high.
CRANKS: No. 6460R, 59½" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING.... No. 2AS, Bronze Bushed, 6" x 17"
CRANK PINS..... No. 2T Timken Bearings
TAIL BEARING..... 4 15/16" x 9¼", Bronze Bushed
WEIGHT..... TC-2BTR-35B 28,280 lbs., TC-2BTR-36B 28,180 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 6460R Crank		No. 6460R Crank	
Stroke	No. 2AR Wts.	Aux. Wts.	No. 2R Wts. (Std.)	Aux. Wts.
27.5".....	20,720	26,310	23,140	29,585
39.0".....	14,725	18,670	16,435	20,980
51.0".....	11,355	14,370	12,660	16,135
62.5".....	9,340	11,800	10,405	13,240
74.0".....	7,950	10,030	8,850	11,245

LUFKIN UNIVERSAL TC-2ATR-35B, TC-2ATR-36B PUMPING UNIT ASSEMBLIES—20,000 Lb. Polished Rod Load Class

WALKING BEAM: 27" x 10" x 102 lbs., 10'-0" and 10'-0" working centers. API Walking Beam Rating: 19,000 lbs.
HANGER: Hinged Horsehead with 1⅛" Wire Line, 23'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 14'-7" high.
CRANKS: No. 6460R, 59½" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING.... No. 2AS, Bronze Bushed, 6" x 17"
CRANK PINS..... No. 2T Timken Bearings
TAIL BEARING..... 4 15/16" x 9¼", Bronze Bushed
WEIGHT..... TC-2ATR-35B 28,960 lbs., TC-2ATR-36B 28,860 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 6460R Crank		No. 6460R Crank	
Stroke	No. 2AR Wts.	Aux. Wts.	No. 2R Wts. (Std.)	Aux. Wts.
24".....	24,040	30,450	26,815	34,200
34".....	17,195	21,715	19,150	24,365
44".....	13,460	16,950	14,970	19,000
54".....	11,110	13,955	12,340	15,620
64".....	9,490	11,890	10,530	13,300

LUFKIN UNIVERSAL *TC-2TR-35B, TC-2TR-36B PUMPING UNIT ASSEMBLIES—20,000 Lb. Polished Rod Load Class

WALKING BEAM: 24" x 12" x 100 lbs., 8'-0" and 8'-0" working centers. API Walking Beam Rating: 25,550 lbs.
HANGER: Hinged Horsehead with 1⅛" Wire Line, 23'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 14'-7" high.
CRANKS: No. 6460R, 59½" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING.... No. 2AS, Bronze Bushed, 6" x 17"
CRANK PINS..... No. 2T Timken Bearings
TAIL BEARING..... 4 15/16" x 9¼". Bronze Bushed
WEIGHT..... TC-2TR-35B 28,010 lbs., TC-2TR-36B 28,190 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 6460R Crank		No. 6460R Crank	
Stroke	No. 2AR Wts.	Aux. Wts.	No. 2R Wts. (Std.)	Aux. Wts.
24".....	24,065	30,470	26,840	34,220
34".....	17,215	21,740	19,175	24,385
44".....	13,480	16,975	14,995	19,020
54".....	11,130	13,980	12,365	15,645
64".....	9,515	11,915	10,555	13,325

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

Lufkin 228,000 In. Lbs. Peak Torque Pumping Units

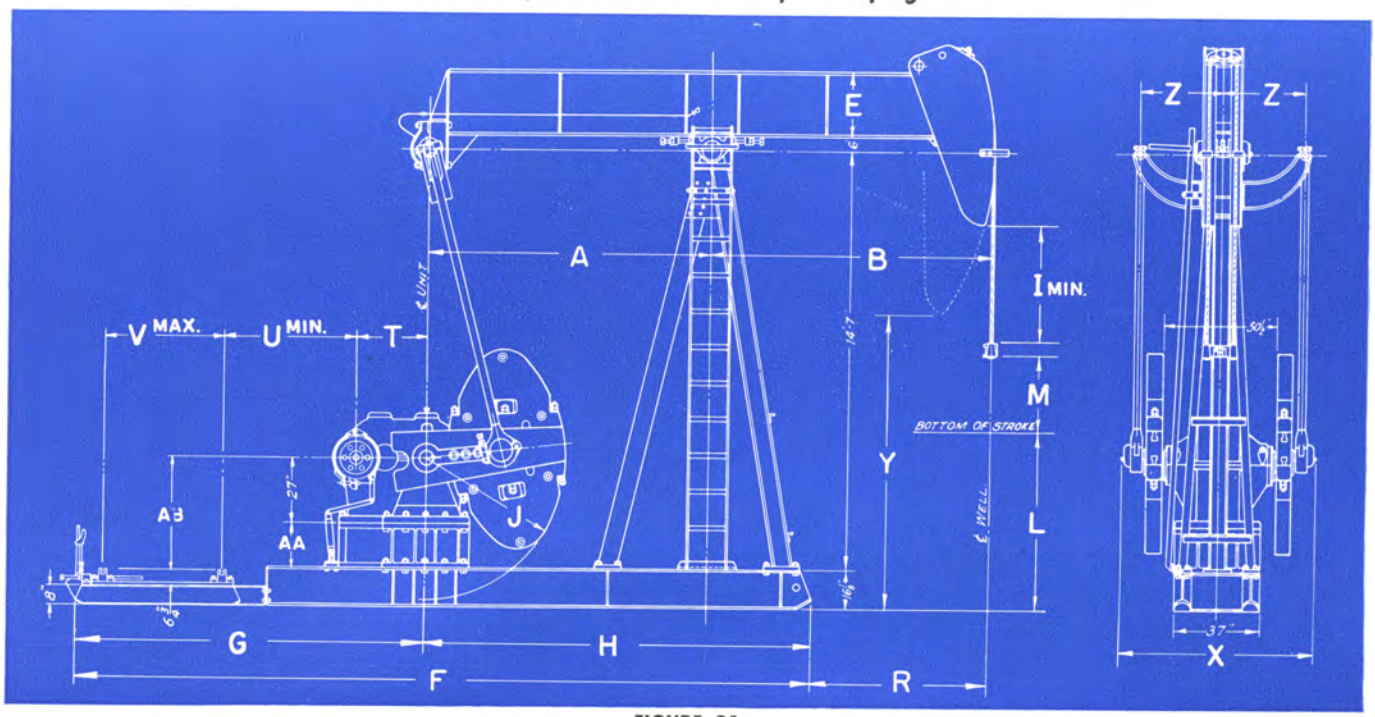


FIGURE 21

UNIT	A	B	E	F	G	H	I	J	L	M	R	T	U	V	X	Y	Z	AA	AB
TC-1R-35B	10'-0"	10'-0"	24¼"	26'-2"	12'-5"	13'-9"	46"	71½"	5'-01⅛"	37"	6'-3"	30"	56¾"	50½"	7'-1¾"	9'-10"	35⅞"	33"	61⅜"
TC-1R-36B	10'-0"	10'-0"	24¼"	26'-2"	12'-5"	13'-9"	46"	71½"	5'-01⅛"	37"	6'-3"	25"	61¾"	50½"	7'-1¾"	9'-10"	35⅞"	33"	61⅜"
*TC-2BTR-35B	8'-0"	9'-3"	27⅛"	23'-7"	11'-10"	11'-9"	40"	59½"	5'-6¾"	37"	5'-6"	30"	51¼"	48"	6'-8⅜"	9'-10½"	35⅞"	21"	41¼"
*TC-2BTR-36B	8'-0"	9'-3"	27⅛"	23'-7"	11'-10"	11'-9"	40"	59½"	5'-6¾"	37"	5'-6"	25"	56¼"	48"	6'-8⅜"	9'-10½"	35⅞"	21"	41¼"
TC-2ATR-35B	10'-0"	10'-0"	27⅛"	26'-2"	12'-5"	13'-9"	42⅛"	59½"	6'-1½"	32"	6'-3"	30"	56¾"	50½"	6'-8⅜"	10'-6"	35⅞"	21"	49⅜"
TC-2ATR-36B	10'-0"	10'-0"	27⅛"	26'-2"	12'-5"	13'-9"	42⅛"	59½"	6'-1½"	32"	6'-3"	25"	61¾"	50½"	6'-8⅜"	10'-6"	35⅞"	21"	49⅜"
*TC-2TR-35B	8'-0"	8'-0"	24"	23'-7"	11'-10"	11'-9"	43⅞"	59½"	6'-1¼"	32"	4'-3"	30"	51¼"	48"	6'-8⅜"	10'-10"	35⅞"	21"	41¼"
*TC-2TR-36B	8'-0"	8'-0"	24"	23'-7"	11'-10"	11'-9"	43⅞"	59½"	6'-1¼"	32"	4'-3"	25"	56¼"	48"	6'-8⅜"	10'-10"	35⅞"	21"	41¼"

* Full length, one piece, Base is standard; for others, Jointed Base illustrated is standard.

FIGURE 22

GENERAL SPECIFICATIONS

Lufkin 160,000 In. Lbs. Peak Torque Pumping Units

160 API Size

GEAR DATA

GEAR REDUCER: Double Reduction

Designation: 22G or 160D API Size.
Gears: Main Gear 24.5" Diam. 7⅝" Face.
Rating: 160,000 In. Lbs. Peak Torque.
Ratio of Gears: 28.67.
Crank Shaft Diam.: 5-7/16".
Sheave: 24¼" P.D.—5C Std., 29¼" P.D. or 33¼" P.D. Alt., 38" P.D. Max., 2-3/16" Bore.
Distance Centerline Unit to Centerline Drive: 14⅜".
Gear Box Oil Capacity: 22 Gallons.

GEAR REDUCER: Single Reduction

Designation: 18B or 160S API Size.
Gears: Main Gear 42" Diam. 6" Face.
Rating: 160,000 In. Lbs. Peak Torque.
Ratio of Gears: 10.5.
Crank Shaft Diam.: 5-7/16".
Sheave: 31¼" P.D.—6C or 31⅛" P.D. 4D Std., 28" P.D. 4D Alt., 31¼" P.D. Max., 2 15/16" Bore.
Distance Centerline Unit to Centerline Drive: 11⅞".
Gear Box Oil Capacity: 18 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL *TC-2TR-22G, TC-2TR-18B PUMPING UNIT ASSEMBLIES—20,000 Lb. Polished Rod Load Class

WALKING BEAM: 24" x 12" x 100 lbs., 8'-0" and 8'-0" working centers. API Walking Beam Rating: 25,550 lbs.
HANGER: Hinged Horsehead with 1⅛" Wire Line, 20'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 12'-1" high.
CRANKS: No. 6460R, 59½" Radius.
BASE: 10" Deep, 32" Wide at Gear Box.
SUB-BASE: 24" High, Cast Iron.

CENTER BEARING	No. 3AS, Bronze Bushed, 6" x 14"
CRANK PINS	No. 2T Timken Bearings
TAIL BEARING	4 15/16" x 9¼", Bronze Bushed
WEIGHT	22,600 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 6460R Crank		No. 6460R Crank	
Stroke	**No. 2AR Wts.**	**Aux. Wts.**	**No. 2R Wts. (Std.)**	**Aux. Wts.**
24"	23,955	30,360	26,727	34,110
34"	17,105	21,625	19,065	24,275
44"	13,370	16,865	14,885	18,910
54"	11,020	13,865	12,250	15,535
64"	9,400	11,805	10,440	13,210

LUFKIN UNIVERSAL TC-33BTR-22G, TC-33BTR-18B PUMPING UNIT ASSEMBLIES—15,000 Lb. Polished Rod Load Class

WALKING BEAM: 21" x 9" x 82 lbs., 8'-3" and 5'-3¼" working centers. API Walking Beam Rating: 16,160 lbs.
HANGER: Hinged Horsehead with 1" Wire Line, 19'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 12'-1" high.
CRANKS: No. 4152R, 51½" Radius.
BASE: 10" Deep, 32" Wide at Gear Box.
SUB-BASE: 16" High, Cast Iron

CENTER BEARING	No. 3AS, Bronze Bushed, 6" x 14"
CRANK PINS	No. 2T Timken Bearings
TAIL BEARING	4 15/16" x 9¼", Bronze Bushed
WEIGHT	21,200 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 4152R Crank	
Stroke	**No. 3R Wts.**	**Aux. Wts.**
32.9"	11,680	15,615
48.5"	8,015	10,680
64.0"	6,140	8,165

LUFKIN UNIVERSAL TC-33ATR-22G, TC-33ATR-18B PUMPING UNIT ASSEMBLIES—17,000 Lb. Polished Rod Load Class

WALKING BEAM: 24" x 9" x 84 lbs., 8'-0" and 8'-0" working centers. API Walking Beam Rating: 18,360 lbs.
HANGER: Hinged Horsehead with 1" Wire Line, 19'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 12'-1" high.
CRANKS: No. 5452R, 51½" Radius.
BASE: 10" Deep, 32" Wide at Gear Box.
SUB-BASE: 16" High, Cast Iron.

CENTER BEARING	No. 3AS, Bronze Bushed, 6" x 14"
CRANK PINS	No. 2T Timken Bearings
TAIL BEARING	4 15/16" x 9¼", Bronze Bushed
WEIGHT	21,780 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 5452R Crank	
Stroke	**No. 3R Wts.**	**Aux. Wts.**
24"	16,475	21,865
34"	11,935	15,740
44"	9,455	12,400
54"	7,900	10,295

LUFKIN UNIVERSAL *TC-33TR-22G, TC-33TR-18B PUMPING UNIT ASSEMBLIES—17,000 Lb. Polished Rod Load Class

WALKING BEAM: 18" x 8¾" x 77 lbs., 7'-0" and 5'-3¼" working centers. API Walking Beam Rating: 16,400 lbs.
HANGER: Hinged Horsehead with 1" Wire Line, 19'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 12'-1" high.
CRANKS: No. 4152R, 51½" Radius.
BASE: 10" Deep, 32" Wide at Gear Box.
SUB-BASE: 16" High, Cast Iron.

CENTER BEARING	No. 3AS, Bronze Bushed, 6" x 14"
CRANK PINS	No. 2T Timken Bearings
TAIL BEARING	4 15/16" x 9¼", Bronze Bushed
WEIGHT	21,060 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 4152R Crank	
Stroke	**No. 3R Wts.**	**Aux. Wts.**
27.9"	14,025	18,665
41.2"	9,685	12,825
54.4"	7,480	9,855

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

Lufkin 160,000 In. Lbs. Peak Torque Pumping Units

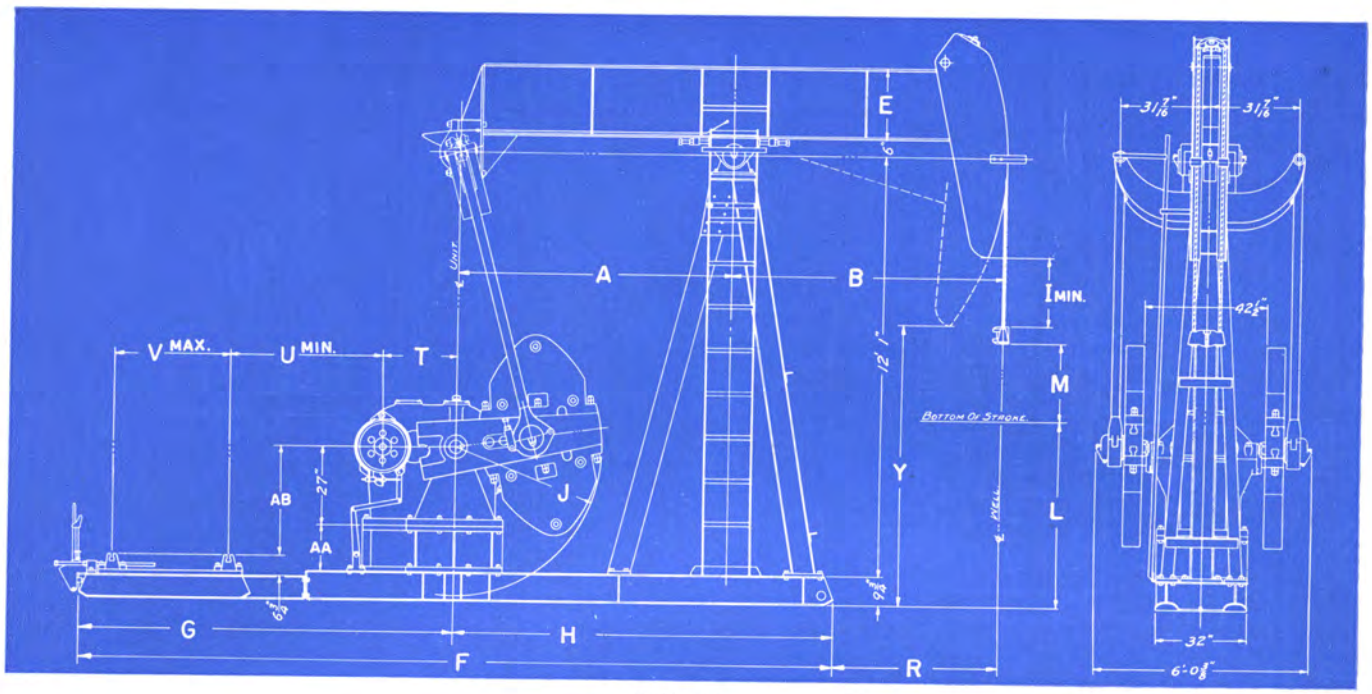


FIGURE 23

UNIT	A	B	E	F	G	H	I	J	L	M	R	T	U	V	Y	AA	AB
TC-2TR-22G	8'-0"	8'-0"	24"	22'-2"	11'-0"	11'-2"	25 3/4"	59 1/2"	55 3/8"	32	58"	26"	53 3/4"	40 1/2"	7'-9 1/2"	24"	46"
TC-2TR-18B	8'-0"	8'-0"	24"	22'-2"	11'-0"	11'-2"	25 3/4"	59 1/2"	55 3/8"	32"	58"	23"	56 3/8"	40 1/2"	7'-9 1/2"	24"	46"
*TC-33BTR-22G	5'-3 1/4"	8'-3"	20 7/8"	18'-6"	9'-7 1/4"	8'-10 3/4"	30 1/8"	51 1/2"	52 5/8"	32"	55 1/2"	26"	36 1/8"	41"	7'-7 3/4"	16"	36 1/4"
*TC-33BTR-18B	5'-3 1/4"	8'-3"	20 7/8"	18'-6"	9'-7 1/4"	8'-10 3/4"	30 1/8"	51 1/2"	52 5/8"	32"	55 1/2"	23"	39 1/8"	41"	7'-7 3/4"	16"	36 1/4"
TC-33ATR-22G	8'-0"	8'-0"	24 1/8"	22'-2"	11'-0"	11'-2"	23 3/4"	51 1/2"	64"	27"	58"	26"	53 3/4"	40 1/2"	8'-1"	16"	38"
TC-33ATR-18B	8'-0"	8'-0"	24 1/8"	22'-2"	11'-0"	11'-2"	23 3/4"	51 1/2"	64"	27"	58"	23"	56 3/4"	40 1/2"	8'-1"	16"	38"
*TC-33TR-22G	5'-3 1/4"	7'-0"	18 1/8"	18'-6"	9'-7 1/4"	8'-10 3/4"	34 7/8"	51 1/2"	58 3/4"	27.2	40 1/2"	26"	36 1/8"	41"	8'-7"	16"	36 1/4"
*TC-33TR-18B	5'-3 1/4"	7'-0"	18 1/8"	18'-6"	9'-7 1/4"	8'-10 3/4"	34 7/8"	51 1/2"	58 3/4"	27.2	40 1/2"	23"	39 1/8"	41"	8'-7"	16"	36 1/4"

* Full length, one piece, Base is standard; for others, Jointed Base illustrated is standard.

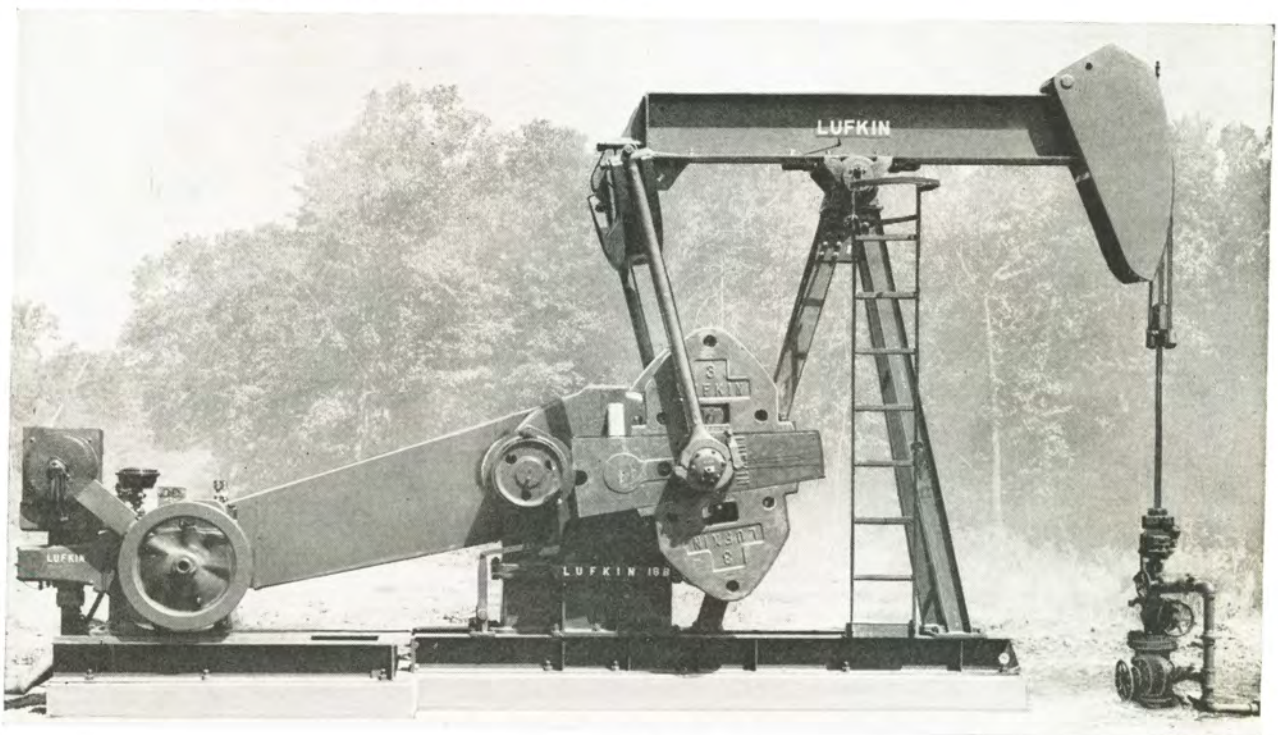


FIGURE 24

GENERAL SPECIFICATIONS

Lufkin 114,000 and 80,000 In. Lbs. Peak Torque Pumping Units

114 and 80 API Sizes

GEAR DATA

GEAR REDUCER: Double Reduction

Designation: 15B or 114DA API Size.
Gears: Main Gear 23.7" Diam., 6¼" Face.
Rating: 114,000 In. Lbs. Peak Torque
Ratio of Gears: 29.4
Crank Shaft Dia.: 4-7/16"
Sheave: 19¼" P.D.—4C Std., 33¼" P.D., Max., 1-15/16" Bore
Distance Centerline Unit to Centerline Drive: 12¼"
Gear Box Oil Capacity: 17 Gallons

GEAR REDUCER: Single Reduction

Designation: 24B or 114S API Size.
Gears: Main Gear 36.2" Diam., 5½" Face
Rating: 114,000 In. Lbs. Peak Torque
Ratio of Gears: 9.67
Crank Shaft Diam.: 4-7/16"
Sheave: 27" P.D.—6C Std. and Max., 2-11/16" Bore
Distance Centerline Unit to Centerline Drive: 10¾"
Gear Box Oil Capacity: 5½ Gallons

GEAR REDUCER: Double Reduction

Designation: 80DB
Gears: Main Gear 22.2" Diam., 5½" Face
Rating: 80,000 In. Lbs. Peak Torque
Ratio of Gears: 29.15
Crank Shaft Diam.: 4-7/16"
Sheave: 19¼" P.D.—4C Std., 29¼" P.D., Max., 1-15/16" Bore
Distance Centerline Unit to Centerline Drive: 12⅛"
Gear Box Oil Capacity: 17 Gallons

STRUCTURAL DATA

LUFKIN UNIVERSAL *TC-44DTR-15B, TC-44DTR-24B PUMPING UNIT ASSEMBLIES—17,000 Lb. Polished Rod Load Class

WALKING BEAM: 18" x 8¾" x 77 lbs., 6'-0" and 6-0" working centers. API Walking Beam Rating: 19,245 lbs.
HANGER: Hinged Horsehead with 1" Wire Line 16'-0" Long.
PITMAN: Universal Equalizer with Bearings in Line, 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 10'-6½" High.
CRANKS: No. 5452R, 51½" Radius.
BASE: 8" Deep, 25" Wide at Gear Box.
SUB-BASE: 27" High, Cast Iron.

CENTER BEARING	No. 3AS, Bronze Bushed, 6" x 14"
CRANK PINS	No. 2T Timken Bearings
TAIL BEARING	4 15/16" x 9¼" Bronze Bushed
WEIGHT	16,900 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 5452R Cranks	
Stroke	No. 3R Wts.	Aux. Wts.
24"	16,505	21,895
34"	11,965	15,770
44"	9,490	12,430
54"	7,930	10,325

LUFKIN UNIVERSAL *TC-44AR-15B, TC-44AR-24B PUMPING UNIT ASSEMBLIES—15,000 Lb. Polished Rod Load Class

WALKING BEAM: 21" x 9" x 82 lbs., 8'-0" and 8'-0" working centers. API Walking Beam Rating: 15,800 lbs.
HANGER: Hinged Horsehead with 1" Wire Line, 19'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 2½" Extra Heavy Pipe.
SAMSON POST: Tripod, 12'-1" high.
CRANKS: No. 5452R, 51½" Radius.
BASE: 8" Deep, 25" Wide at Gear Box.
SUB-BASE: 27" High, Cast Iron.

CENTER BEARING	No. 3AS, Bronze Bushed, 6" x 14"
CRANK PINS	No. 3, Bronze Bushed, 3¾" x 3½"
TAIL BEARING	3 15/16" x 7¼", Bronze Bushed
WEIGHT	17,810 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 5452R Crank	
Stroke	No. 3R Wts.	Aux. Wts.
24"	15,820	21,210
34"	11,280	15,085
44"	8,805	11,745
54"	7,245	9,640

LUFKIN UNIVERSAL TC-44SR-15B, TC-44SR-24B PUMPING UNIT ASSEMBLIES—13,500 Lb. Polished Rod Load Class

WALKING BEAM: 16" x 8½" x 64 lbs., 6'-4⅜" and 5'-7⅝" working centers. API Walking Beam Rating: 13,500 lbs.
HANGER: Hinged Horsehead with 1" Wire Line, 16'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 2½" Extra Heavy Pipe
SAMSON POST: Tripod, 10'-4" high.
CRANKS: No. 4846R, 46" Radius.
BASE: 8" Deep, 25" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING	No. 4AS, Bronze Bushed, 5" x 10½"
CRANK PINS	No. 3, Bronze Bushed, 3¾" x 3½"
TAIL BEARING	3 15/16" x 7¼", Bronze Bushed
WEIGHT	14,760 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 4846R Crank	
Stroke	No. 5AR Wts.	Aux. Wts.
27.1"	10,715	13,975
36.1"	8,150	10,595
45.2"	6,595	8,550
54.2"	5,570	7,200

LUFKIN UNIVERSAL *TC-44R-15B, *TC-44R-80DB, TC-44R-24B PUMPING UNIT ASSEMBLIES—13,500 Lb. Polished Rod Load Class

WALKING BEAM: 16" x 8½" x 64 lbs., 6'-0" and 6'-0" working centers. API Walking Beam Rating: 14,060 lbs.
HANGER: Hinged Horsehead with 1" Wire Line, 16'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 2½" Extra Heavy Pipe.
SAMSON POST: Tripod, 10'-4" high.
CRANKS: No. 4846R, 46" Radius.
BASE: 8" Deep, 25" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING	No. 4AS, Bronze Bushed, 5" x 10½"
CRANK PINS	No. 3, Bronze Bushed, 3¾" x 3½"
TAIL BEARING	3 15/16" x 7¼", Bronze Bushed
WEIGHT	TC-44R-15B & 24B 14,760 lbs., TC-44R-80DB 14,490 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 4846R Crank	
Stroke	No. 5AR Wts.	Aux. Wts.
24"	12,190	15,870
32"	9,285	12,045
40"	7,540	9,750
48"	6,375	8,220

LUFKIN UNIVERSAL *T5D-15B, *T5D-80DB, T5D-24B PUMPING UNIT ASSEMBLIES—10,000 Lb. Polished Rod Load Class

For General Dimensions see page 2961.

WALKING BEAM: 14" x 8" x 43 lbs., 5'-0" and 5'-0" working centers. API Walking Beam Rating: 10,450 lbs.
HANGER: Hinged Horsehead with ⅞" Wire, Line, 12'-0" Long.
PITMAN: Universal Cross Pin Type Equalizer, 4" I-Beam Side Members.
SAMSON POST: Tripod, 9'-9" high.
CRANKS: No. 4242C, 42" Radius.
BASE: 8" Deep, 25½" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING	No. 5AS Bronze Bushed, 4 7/16" x 9"
CRANK PINS	No. 5, Bronze Bushed, 3¾" x 3½"
TAIL BEARING	3 7/16" x 6½", Bronze Bushed
WEIGHT	T5D-15B & 24B 10,345 lbs., T5D-80DB 10,065 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 4242C Crank (Std.)		No. 4242 Crank	
Stroke	No. 5C Wts.	Aux. Wts.	No. 5 Wts.	Aux. Wts.
22"	9,140	12,335	11,530	15,610
32"	6,410	8,610	8,110	10,810
42"	4,980	6,655	6,290	8,410

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

Lufkin 114,000 and 80,000 In. Lbs. Peak Torque Pumping Units

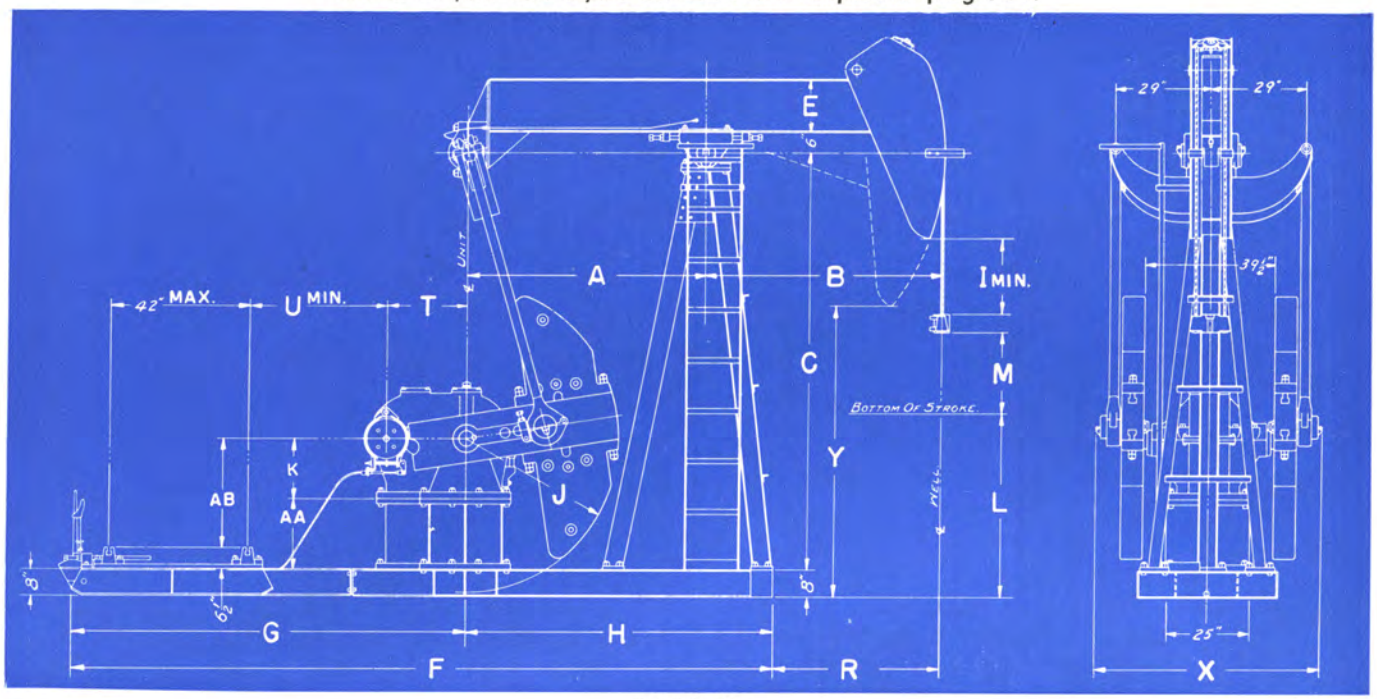


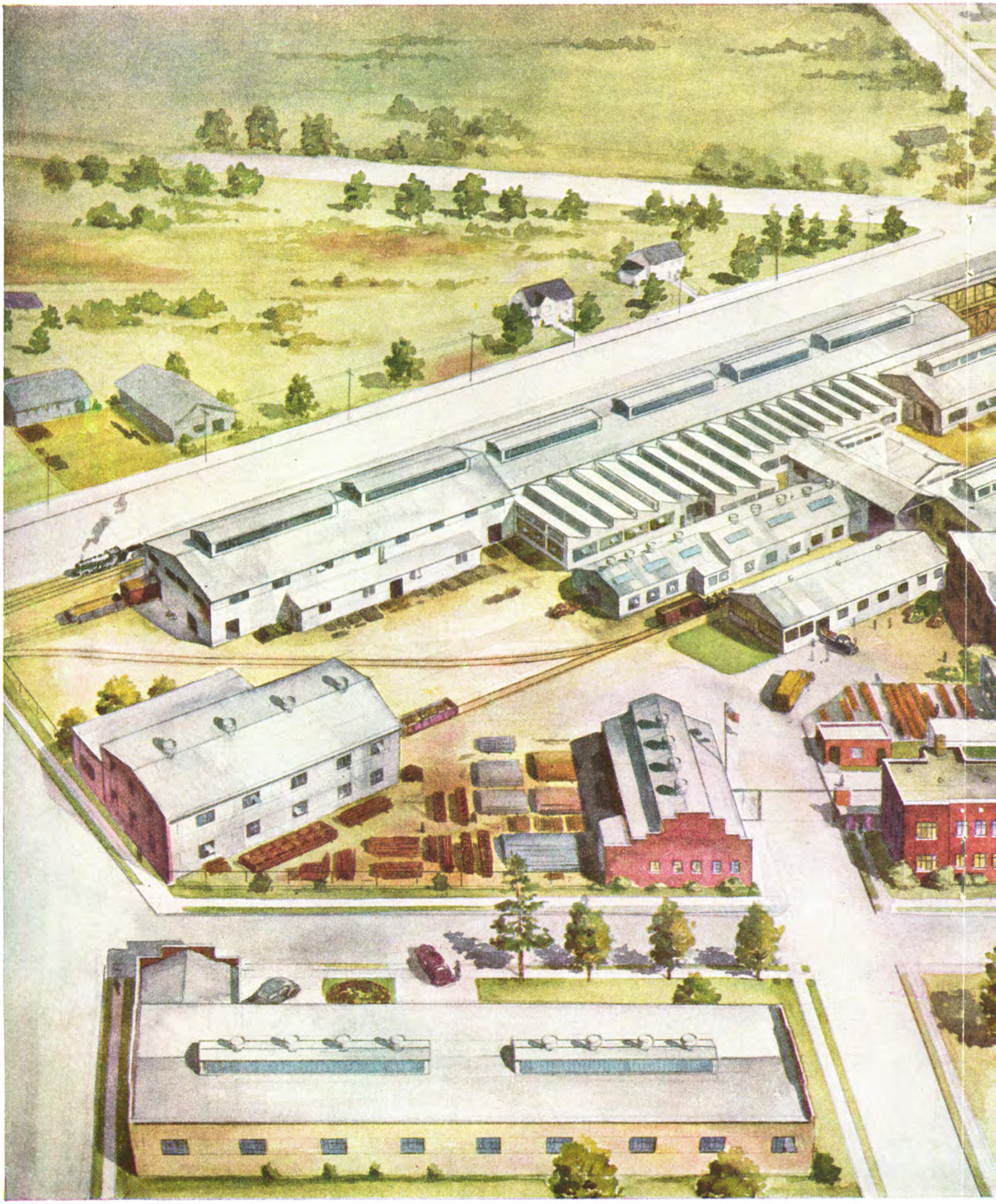
FIGURE 25

UNIT	A	B	C	E	F	G	H	I	J	K	L	M	R	T	U	X	Y	AA
TC-44DTR-15B	6′-0″	6′-0″	10′-6½″	18⅛″	17′-7½″	9′-10¼″	7′-9¼″	17⅛″	51½″	18″	56¼″	27″	50¾″	24″	41″	69⅜″	6′- 8¼″	27″
TC-44DTR-24B	6′-0″	6′-0″	10′-6½″	18⅛″	17′-7½″	9′-10¼″	7′-9¼″	17⅛″	51½″	21″	56¼″	27″	50¾″	20″	45″	69⅜″	6′- 8¼″	27″
TC-44AR-15B	8′-0″	8′-0″	12′-1″	20⅞″	22′-5¾″	11′-2¼″	11′-3½″	30⅛″	51½″	18″	55⅞″	27″	56½″	24″	57″	68½″	7′-11⅝″	27″
TC-44AR-24B	8′-0″	8′-0″	12′-1″	20⅞″	22′-5¾″	11′-2¼″	11′-3½″	30⅛″	51½″	21″	55⅞″	27″	56½″	20″	61″	68½″	7′-11⅝″	27″
TC-44SR-15B	5′-7⅝″	6′-4⅜″	10′-4″	16″	17′-7½″	9′-10¼″	7′-9¼″	18⅞″	46″	18″	51⅝″	27″	55½″	24″	41″	68½″	6′- 8⅞″	21″
TC-44SR-24B	5′-7⅝″	6′-4⅜″	10′-4″	16″	17′-7½″	9′-10¼″	7′-9¼″	18⅞″	46″	21″	51⅝″	27″	55½″	20″	45″	68½″	6′- 8⅞″	21″
TC-44R-15B	6′-0″	6′-0″	10′-4″	16″	17′-7½″	9′-10¼″	7′-9¼″	22⅛″	46″	18″	54½″	24″	50¾″	24″	41″	68½″	7′- 2⅛″	21″
TC-44R-24B	6′-0″	6′-0″	10′-4″	16″	17′-7½″	9′-10¼″	7′-9¼″	22⅛″	46″	21″	54½″	24″	50¾″	20″	45″	68½″	7′- 2⅛″	21″
TC-44R-80DB	6′-0″	6′-0″	10′-4″	16″	17′-7½″	9′-10¼″	7′-9¼″	22⅛″	46″	18″	54½″	24″	50¾″	22″	43″	68½″	7′- 2⅛″	21″

Jeinted Base is standard on all Sizes.

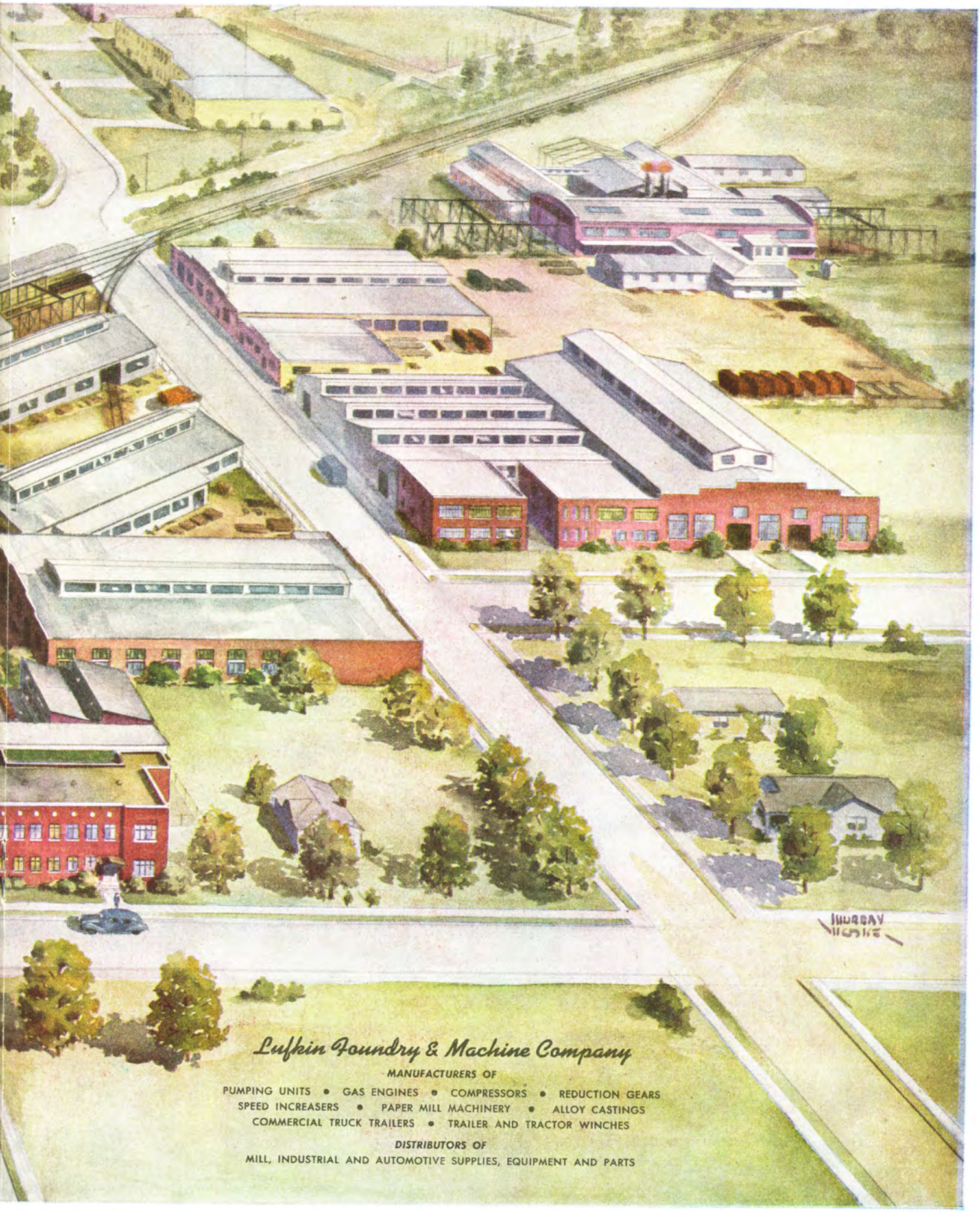
FIGURE 26

LUFKIN **LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS**



LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

LUFKIN



Lufkin Foundry & Machine Company

MANUFACTURERS OF

PUMPING UNITS • GAS ENGINES • COMPRESSORS • REDUCTION GEARS
SPEED INCREASERS • PAPER MILL MACHINERY • ALLOY CASTINGS
COMMERCIAL TRUCK TRAILERS • TRAILER AND TRACTOR WINCHES

DISTRIBUTORS OF

MILL, INDUSTRIAL AND AUTOMOTIVE SUPPLIES, EQUIPMENT AND PARTS

LUFKIN **LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS**

GENERAL SPECIFICATIONS

Lufkin 57,000, 40,000 and 25,000 In. Lbs. Peak Torque Pumping Units

57, 40 and 25 API Sizes

LUFKIN UNIVERSAL *T5D-7C DOUBLE REDUCTION UNIT ASSEMBLY OR 57D API SIZE—10,000 Lb. Polish Rod Load Class

WALKING BEAM: 14″ x 8″ x 43 lbs., 5′-0″ and 5′-0″ working centers. API Walking Beam: 10,450 lbs.

HANGER: Hinged Horsehead with 7/8″ Wire Line. 12′-0″ Long.

PITMAN: Universal Cross Pin Type Equalizer. Side members 4″ I Beam.

CENTER BEARING: Bronze Bushed 4 7/16″ x 9″.

SAMSON POST: Tripod. 9′-9″ high.

BASE: 8″ Deep, 25 1/2″ Wide at Gear Box. 15′-6″ Long.

CRANKS: No. 4242C, 42″ Radius.

CRANK PINS: No. 5, Bronze Bushed, 3 3/4″ x 3 1/2″.

TAIL BEARING: 3 7/16″ x 6 1/2″. Bronze Bushed.

SUB-BASE—21″ High, Cast Iron

GEAR BOX OIL CAPACITY: 13 Gallons.

GEARS..... Double Reduction. Main Gear: 19 1/2″ P.D. x 5″ Face

RATING..... 57,000 in. lbs. Peak Torque

RATIO..... 29.32

CRANKSHAFT..... 4″

SHEAVE..... 19 1/4″ P.D.,-3C Std. 24 1/4″ P.D. Alt., 27 1/4″ P.D. Max. 1 11/16″ Bore

DISTANCE—Center Line Unit to Center Line Drive: 11″

WEIGHT..... 9,735 lbs.

STATIC COUNTERBALANCE, LBS.

Stroke	No. 4242C Crank (Std.)		No. 4242 Crank	
	No. 5C Wts.	Aux. Wts.	No. 5 Wts.	Aux. Wts.
22″	9,140	12,335	11,530	15,610
32″	6,410	8,610	8,110	10,810
42″	4,980	6,655	6,290	8,410

LUFKIN UNIVERSAL T5D-16B SINGLE REDUCTION UNIT ASSEMBLY OR 57S API SIZE—10,000 Lb. Polish Rod Load Class

WALKING BEAM: 14″ x 8″ x 43 lbs., 5′-0″ and 5′-0″ working centers. API Walking Beam Rating: 10,450 lbs.

HANGER: Hinged Horsehead with 7/8″ Wire Line, 12′-0″ Long.

PITMAN: Universal Cross Pin Type Equalizer. Side Members 4″ I Beam.

CENTER BEARING: Bronze Bushed. 4 7/16″ x 9″.

SAMSON POST: Tripod. 9′-9″ high.

BASE: 8″ Deep, 25 1/2″ Wide at Gear Box, 15′-6″ Long.

CRANKS: No. 4242C, 42″ Radius.

CRANK PINS: No. 5, Bronze Bushed, 3 3/4″ x 3 1/2″.

TAIL BEARING: 3 7/16″ x 6 1/2″ Bronze Bushed.

SUB-BASE—21″ High, Cast Iron

GEAR BOX OIL CAPACITY: 7.5 Gallons.

GEARS..... Single Reduction. Main Gear: 32 1/2″ P.D. x 4″ Face

RATING..... 57,000 in. lbs. Peak Torque

RATIO..... 10

CRANKSHAFT..... 4″

SHEAVE..... 23 1/2″ P.D.-5C Std. 23 1/2″ P.D. Maximum 2 7/16″ Bore

DISTANCE—Center Line Unit to Center Line Drive: 9 3/8″.

WEIGHT..... 9,735 lbs.

STATIC COUNTERBALANCE, LBS.

Stroke	No. 4242C Crank (Std.)		No. 4242 Crank	
	No. 5C Wts.	Aux. Wts.	No. 5 Wts.	Aux. Wts.
22″	9,140	12,335	11,530	15,610
32″	6,410	8,610	8,110	10,810
42″	4,980	6,655	6,290	8,410

LUFKIN UNIVERSAL *T6E-9B DOUBLE REDUCTION UNIT ASSEMBLY OR 40D API SIZE—8,000 Lb. Polish Rod Load Class

WALKING BEAM: 14″ x 6 3/4″ x 30 lbs., 4′-0″ and 4′-0″ working centers. API Walking Beam Rating: 8,708 lbs.

HANGER: Hinged Horsehead with 3/4″ Wire Line, 11′-0″ Long.

PITMAN: Universal Cross Pin Type Equalizer. Side Members 3″ I Beam.

CENTER BEARING: Bronze Bushed, 2 15/16″ x 10 1/2″.

SAMSON POST: Tripod, 7′-10 7/8″ high.

BASE: 8″ Deep, 13′-6″ Long, 20″ Wide at Gear Box.

CRANK: No. 3440A, 40″ Radius.

CRANK PINS: No. 6, Bronze Bushed, 3 1/4″ x 3″.

TAIL BEARING: 3 7/16″ x 6 1/2″, Bronze Bushed.

SUB-BASE—20″ High, Cast Iron

GEAR BOX OIL CAPACITY: 7 Gallons.

GEARS..... Double Reduction. Main Gear: 16.8″ P.D. x 4 3/8″ Face

RATING..... 40,000 in. lbs. Peak Torque

RATIO..... 29.2

CRANKSHAFT..... 4″

SHEAVE..... 21″ P.D.-2C or 4B Std. 23″ P.D. Maximum 1 11/16″ Bore

DISTANCE—Center Line Unit to Center Line Drive: 9 3/8″

WEIGHT..... 7,475 lbs.

STATIC COUNTERBALANCE, LBS.

Stroke	No. 3440A Crank	
	No. 6 Wts.	Aux. Wts.
18″	8,435	10,670
26″	5,920	7,470
34″	4,590	5,770

LUFKIN UNIVERSAL *T7A-3B DOUBLE REDUCTION UNIT ASSEMBLY OR 25D API SIZE—6,000 Lb. Polish Rod Load Class

WALKING BEAM: 10″ x 5 3/4″ x 25 lbs., 3′-6″ and 3′-6″ working centers. API Walking Beam Rating: 6,285 lbs.

HANGER: Hinged Horsehead with 5/8″ Wire Line, 8′-4″ Long.

PITMAN: Universal Cross Pin Type Equalizer. Side Members 3″ I Beam.

CENTER BEARING: Bronze Bushed, 2 15/16″ x 10 1/2″.

SAMSON POST: Tripod, 6′-3 5/8″ high.

BASE: 6 1/4″ Deep, 11′-0″ Long, 17″ Wide at Gear Box.

CRANK: No. 2432, 32″ Radius.

CRANK PINS: No. 7, Bronze Bushed, 2 3/4″ x 3″.

TAIL BEARING: 2 15/16″ x 6 1/2″, Bronze Bushed.

SUB-BASE—14″ High, Cast Iron.

GEAR BOX OIL CAPACITY: 6 Gallons.

GEARS..... Double Reduction. Main Gear: 13.5″ P.D. x 4″ Face

RATING..... 25,000 in. lbs. Peak Torque

RATIO..... 28.9

CRANKSHAFT..... 3″

SHEAVE..... 17 7/8″ P.D.-2B or 18″ P.D. 3A Std. 18″ P.D. Max. 1 3/8″ Bore

DISTANCE—Center Line Unit to Center Line Drive: 8″.

WEIGHT..... 5,270 lbs.

STATIC COUNTERBALANCE, LBS.

Stroke	No. 2432 Crank	
	No. 7 Wts.	Aux. Wts.
12″	6,010	7,925
18″	4,060	5,335
24″	3,080	4,040

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

Lufkin 57,000, 40,000 and 25,000 In. Lbs. Peak Torque Pumping Units

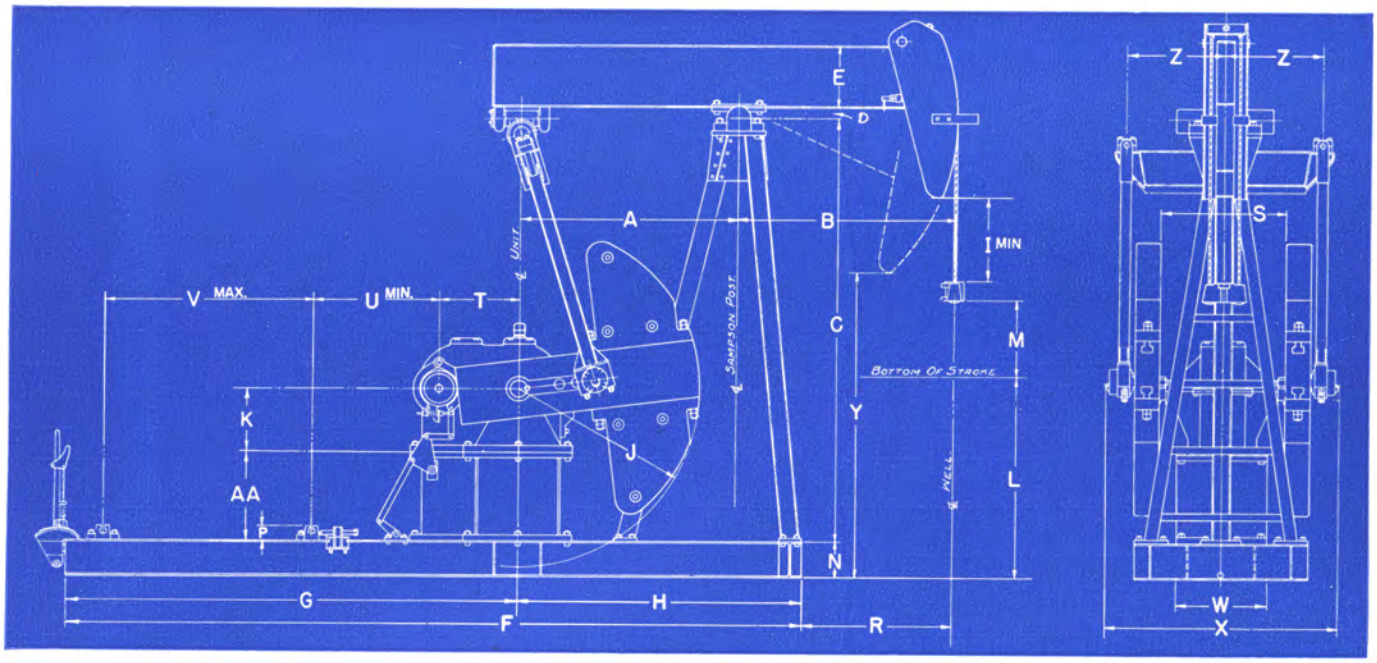


FIGURE 27

UNITS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z	AA
*T5D-15B	60″	60″	9′-9″	4¾″	13¹¹⁄₁₆″	15′-6″	8′-6¾″	6′-11¼″	145⁄₈″	42″	18″	61⅛″	21″	8″	4⅞″	36¾″	41¼″	24″	30½″	39⅞″	25½″	67¼″	7′-01⁄₈″	29″	21″
*T5D-80DB	60″	60′	9′-9″	4¾″	13¹¹⁄₁₆″	15′-6″	8′-6¾″	6′-11¼″	145⁄₈″	42″	18″	61⅛″	21″	8″	4⅞″	36¾″	41½″	22″	32½″	39⅞″	25½″	67¼″	7′-01⁄₈″	29″	21″
*T5D-24B	60″	60″	9′-9″	4¾″	13¹¹⁄₁₆″	15′-6″	8′-6¾″	6′-11¼″	145⁄₈″	42″	21″	61⅛″	21″	8″	4⅞″	36¾″	41½″	20″	34½″	39⅞″	25½″	67¼″	7′-01⁄₈″	29″	21″
T5D-7C	60″	60″	9′-9″	4¾″	13¹¹⁄₁₆″	15′-6″	8′-6¾″	6′-11¼″	145⁄₈″	42″	18″	61⅛″	21″	8″	4⅞″	36¾″	34½″	20″	34½″	39⅞″	25½″	60¼″	7′-01⁄₈″	25½″	21″
T5D-16B	60″	60″	9′-9″	4¾″	13¹¹⁄₁₆″	15′-6″	8′-6¾″	6′-11¼″	145⁄₈″	42″	18″	61⅛″	21″	8″	4⅞″	36¾″	34½″	17⅞″	36⅜″	39⅞″	25½″	60¼″	7′ 01⁄₈″	25½″	21″
T6E-9B	48″	48″	7′-10⅞″	2¼″	13⅞″	13′-6″	8′-3″	5′-3″	17¾″	40″	14″	42½″	17″	8″	3⅜″	33″	27¾″	17½″	37″	36¼″	20″	52¼″	5′-95⁄₈″	21¾″	20″
T7A-3B	42″	42″	6′-3⅝″	2¼″	10⅛″	11′-0″	6′-4″	4′-8″	10⅜″	32″	14″	41 1⁄₁₆″	12″	6¼″	3⅜″	28″	25½″	13 9⁄₁₆″	29 5⁄₁₆″	23⅜″	17″	47½″	4′-9½″	19⅝″	14″

* For Gear Specifications See Page 2956.
Electric motor Bases are full length, one piece; separate out-rigger furnished when required for engines.

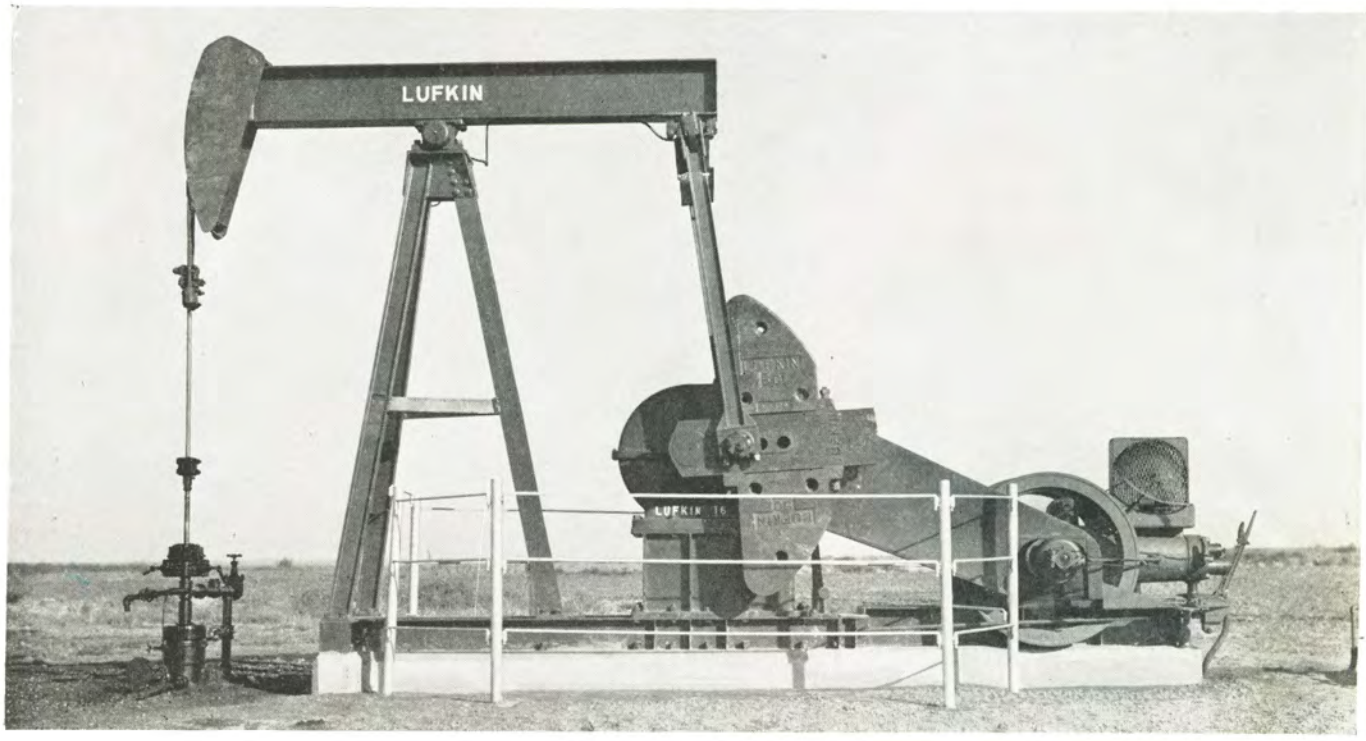


FIGURE 28

LUFKIN **LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS**

GENERAL SPECIFICATIONS AND DIMENSIONS

Lufkin Beam Balanced Units

GEAR REDUCER: Double Reduction
Designation: 16DA
Gears: Main Gear 13¼" Diam., 3⅛" Face
Rating: 16,000 In. Lbs. Peak Torque

Ratio of Gears: 35.7
Crank Shaft Diam.: 2½"
Sheave: 15" P.D.—3A or 2B or 1C
Distance Centerline Unit to Centerline Drive: 7⅛"
Gear Box Oil Capacity: 5 Gallons

For 25D and 40D Gear Data See Page 2960.

FIGURE 29

STRUCTURAL DATA

UNIT	B-40D-34-8	B-25D-30-6B	B-25D-24-6B	B-16DA-30-4	B-16DA-22-5
Peak Polished Rod Load Rating	8,000 lbs.	6,000 lbs.	6,000 lbs.	4,000 lbs.	5,000 lbs.
API Walking Beam Rating	8,708 lbs.	6,000 lbs.	7,340 lbs.	5,000 lbs.	5,000 lbs.
Walking Beam Size	14"x6¾ @ 30 lbs.	10x5¾ @ 25 lbs.	10x5¾ @ 25 lbs.	10x5¾ @ 25 lbs.	10x5¾ @ 25 lbs.
Walking Beam Working Centers at Maximum Stroke	48" & 48"	45" & 36"	36" & 36"	45" & 33"	33" & 33"
Center Bearing	2 15/16" x 10½" Bronze Bushed	2 15/16" x 10½" Bronze Bushed	2 15/16" x 10½" Bronze Bushed	2 15/16" x 6½" Bronze Bushed	2 15/16" x 6½" Bronze Bushed
Tail Bearing	3 15/16" x 3⅝" Bronze Bushed	3 15/16" x 3⅝" Bronze Bushed	3 15/16" x 3⅝" Bronze Bushed	3 7/16" x 3 1/16" Bronze Bushed	3 7/16" x 3 1/16" Bronze Bushed
Crank Pin Bearing	2 7/16" x 2¾" Bronze Bushed	2 7/16" x 2¾" Bronze Bushed	2 7/16" x 2¾" Bronze Bushed	2" x 2½" Bronze Bushed	2" x 2½" Bronze Bushed
Maximum Stroke Length	34"	30"	24"	30"	22"
Minimum Stroke Length Obtained by Moving Tail Bearing Back on Beam	29½"	25"	20⅛"	25"	18"
Beam Weight, Each	125 lbs.	100 lbs.	100 lbs.	100 lbs.	100 lbs.
Ratio of Beam Weights to Effective Counterbalance at Polished Rod	1.8	1.5	1.9	1.4	1.7
Maximum No. Beam Weights	25	25	22	20	20
Maximum Counterbalance	5,620 lbs.	3,750 lbs.	4,200 lbs.	2,800 lbs.	3,400 lbs.
Polish Rod Hanger Wire Line	¾" x 11'-0"	⅝" x 8'-4"	⅝" x 8'-4"	⅝" x 8'-4"	⅝" x 8'-4"
Total Weight, Less Beam Weights	3,600 lbs. –	2,820 lbs.	2,790 lbs.	1,740 lbs.	1,700 lbs.

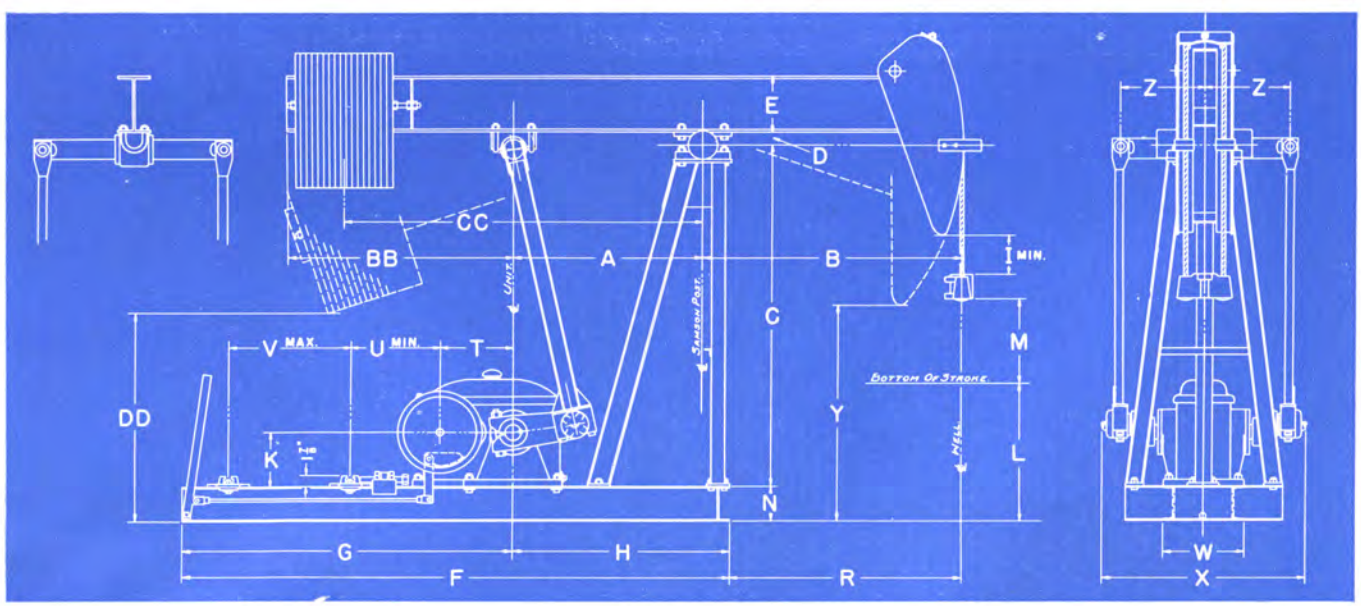


FIGURE 30

GENERAL DIMENSIONS

UNIT	A	B	C	D	E	F	G	H	I	K	L	M	N	R	T	U	V	W	X	Y	Z	BB	CC	DD
B-40D-34-8	48"	48"	7'-0"	2¼"	13⅞"	13'-6"	8'-3"	63	17¾"	14"	35½"	17"	8"	33"	17½"	24"	54⅞"	19¾"	50⅜"	58¾"	21¾"	51"	85½"	54¼"
B-25D-30-6B	36"	45"	7'-0"	2¼"	10⅛"	9'-10¼"	6'-4"	42¼"	6¾"	14"	48⅝"	15"	6¼"	38¾"	13 3/16"	28½"	28⅞"	16⅝"	46⅛"	62¼"	19⅝"	43⅞"	67⅜"	48¾"
B-25D-24-6B	36"	36"	7'-0"	2¼"	10⅛"	9'-10¼"	6'-4"	42¼"	14⅛"	14"	48¼"	12"	6¼"	29¾"	13⅜"	28½"	28⅞"	16⅝"	46⅛"	68"	19⅝"	43⅞"	68⅞"	48¾"
*B-16DA-30-4	33"	45"	6 13/16"	2"	10⅛"	7'-11¼"	57½"	37¾"	6¾"	9½"	25⅝"	15"	6¼"	40¼"	12¾"	16⅜"	21¼"	13⅞"	34¾"	36⅜"	14¼"	40"	63"	36"
*B-16DA-22-5	33"	33"	6 13/16"	2"	10⅛"	7'-11¼"	57½"	37¾"	14⅛"	9½"	26¼"	11"	6¼"	28¼"	12¾"	16⅜"	21¼"	13⅞"	34¾"	44⅜"	14¼"	33¼"	56¼"	38"

* This unit in stock at Los Angeles.

UNIVERSAL RAILS—FOR MOTORS OR GAS ENGINES

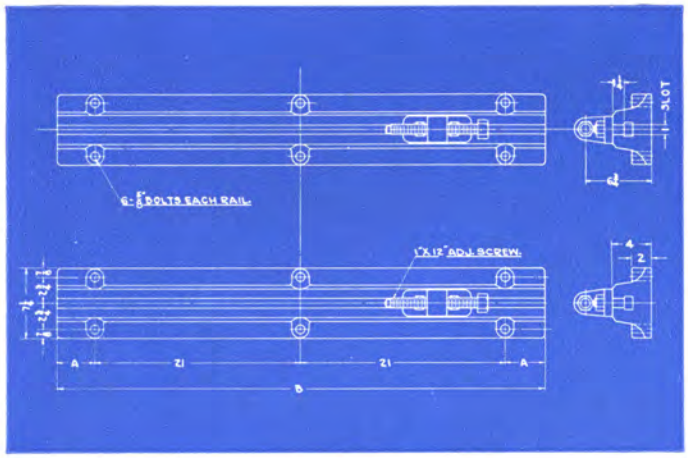


FIGURE 31

	A	B
50" Rails	4"	50"
60" Rails	9"	60" (Required for GSDH Engine)

Dimensions of plain engine rail with adjusting screws for two cyclinder vertical engines and horizontal engines.

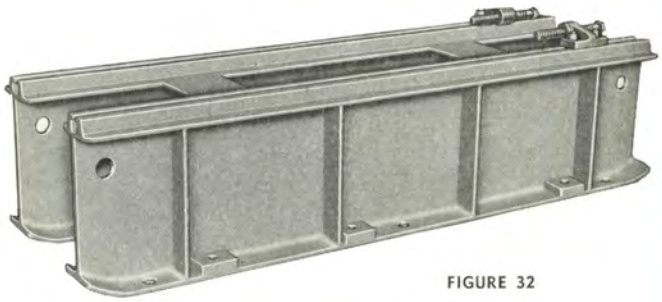


FIGURE 32

Structural sub-base for horizontal engines. Height to clear flywheel. Engine sits on T-slots fitted with adjusting screws. To be used when engine is mounted separately from stub-base pumping unit assembly.

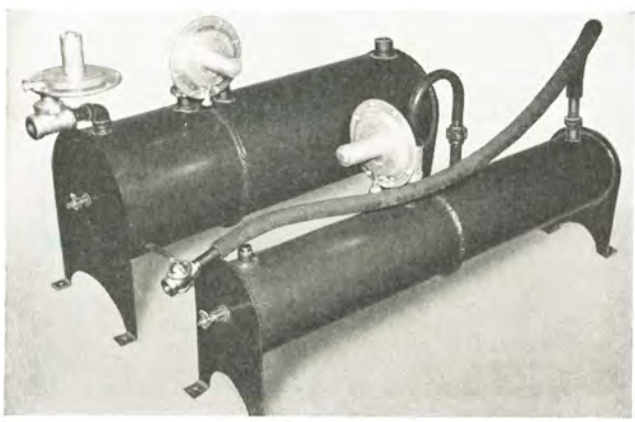
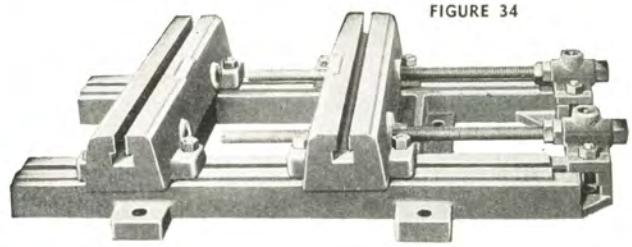


FIGURE 33

FIGURE 34



Universal rails are of heavy cast iron with machined tongue and groove fits, which with double adjusting screws assure perfect alignment. The substantial design of these rails assists in the elimination of vibration of all types of prime movers.

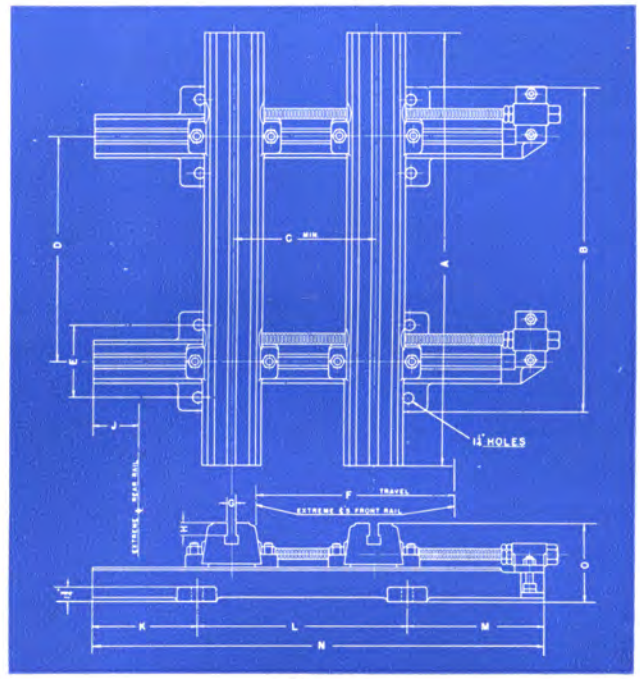


FIGURE 35

UNIVERSAL GAS ENGINE RAILS

Description	A	B	C	D	E	F	G	H	J	K	L	M	N	O
32" Engine Rails..	32	32½	10½	20	9½	23½	1	1½	5¼	12	24	15½	51½	9⅜
50" Engine Rails..	50	37½	10½	26	8½	23½	1	1½	5¼	12	24	15½	51½	9⅛
69" Engine Rails..	69	47½	10½	36	8½	38½	1	1½	5¼	12	36	15½	63½	9⅛

VOLUME TANK AND REGULATOR FOR GAS ENGINES

Double chamber volume tanks for gas engines are furnished in two sizes. Both are equipped with regulators and dial cocks. The smaller size is for multi-cylinder gas engines and is 8" diameter by 48" long with partition in center. It has hose connection to engine. The larger size is recommended for Lufkin Cooper-Bessemer engines and is 14" diameter by 42" long with a volume chamber of 2.5 cu. ft. A high pressure regulator can be furnished at inlet if necessary.

LUBRICATION INSTRUCTIONS
LUFKIN PUMPING UNITS

It is very important to the successful and satisfactory operation of a pumping unit that careful attention be given to proper lubrication.

The Gear Box and all bearings are shipped dry and must be lubricated before starting.

GEAR BOX: For temperatures between 10° F. and 100° F. use an SAE 90 **Transmission Oil** having a pour point of 0° F. or lower. (This is a straight mineral gear oil and is not a motor oil or extreme pressure lubricant. It has a viscosity comparable to SAE 40 or SAE 50 motor oil.)

In the event the SAE 90 Transmission Oil is not accessible a good quality SAE 40 or SAE 50 Motor Oil may be used as a substitute; however, care must be taken to use an oil having a pour point at least 10° F. below the minimum outside temperature.

Maintain the oil level above the bottom pet cock or low mark on gage but do not fill the gear box above the top pet cock or high mark on gage.

PITMAN BEARING: Use an SAE 140 Extreme Pressure Lubricant having a pour point of 5° F. or lower.

CENTER BEARING: Use an SAE 140 Extreme Pressure Lubricant having a pour point of 5° F. or lower.

HANGER and EQUALIZER BEARINGS: Use an SAE 140 Extreme Pressure Lubricant having a pour point of 5° F. or lower. Do not use grease.

Care must always be taken to use a lubricant having a pour point at least 10° F. lower than the outside temperature.

The several points requiring lubrication should be checked at regular intervals to insure that proper oil levels are maintained. For 24 hour service change oil semi-annually; for intermittent service change annually.

The above instructions are for average operating conditions. For unusual conditions of exceptionally heavy well loads and extremely cold weather lubrication should be watched more closely and one of our field men should be consulted for individual recommendations.

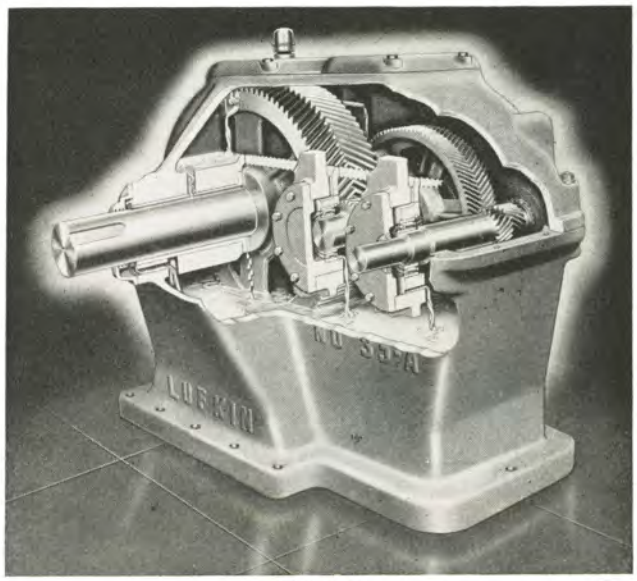


FIGURE 36
Splash lubrication system insures ample lubricant at gear mesh and all bearings.

PORTABLE TYPE TESTING UNITS MADE IN ALL SIZES

FIGURE 37
A typical Portable Pumping Unit Assembly. Mounted on sub-base to permit cranks to clear the floor. This type of assembly is available for every size of Lufkin Unit. It requires practically no foundation and may be skidded from one location to another without down-time for dismantling. Most sizes are furnished with volume tank built in the base. This type of unit is standard in every respect except for the base which has an additional beam on the outside of the cranks.

LUFKIN UNIVERSAL CENTER-LINE PITMAN EQUALIZER

Typical for TC-44R and All Larger Assemblies

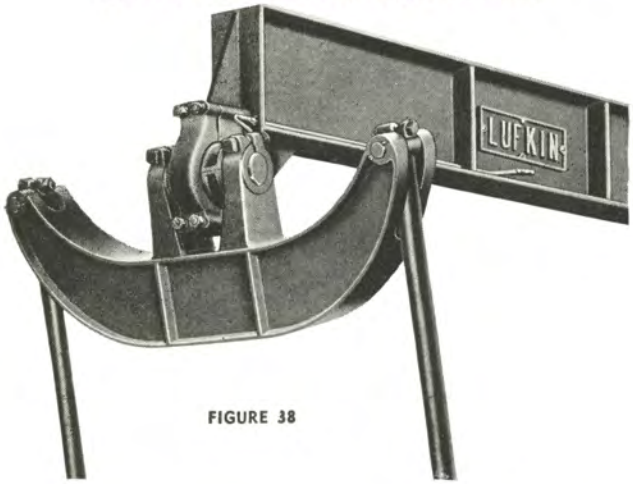


FIGURE 38

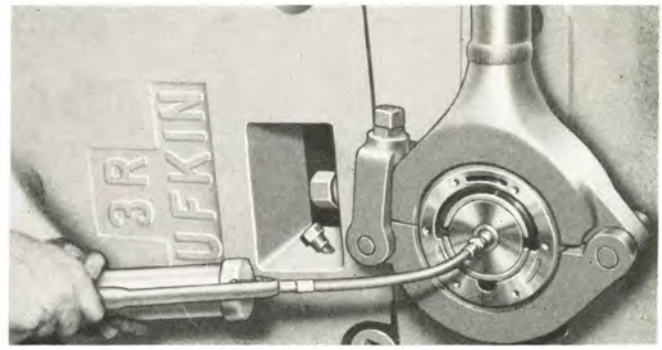
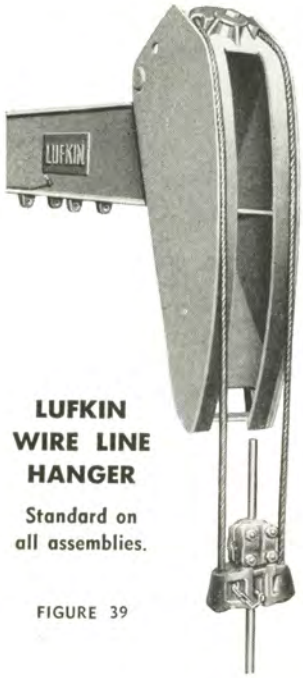


FIGURE 42

All Lufkin Crank Pins are now furnished with grease fittings and drilled holes to facilitate removal of pins by grease pressure using standard grease gun on fitting under cover.



LUFKIN WIRE LINE HANGER

Standard on all assemblies.

FIGURE 39

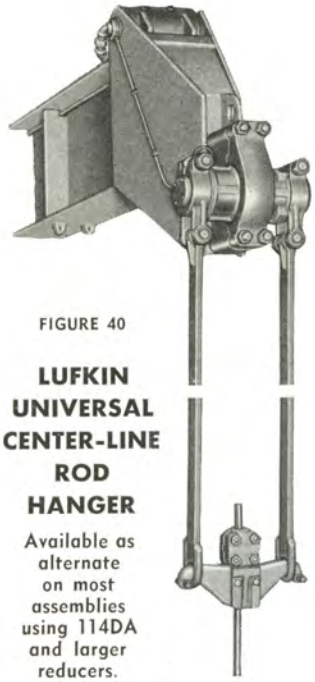


FIGURE 40

LUFKIN UNIVERSAL CENTER-LINE ROD HANGER

Available as alternate on most assemblies using 114DA and larger reducers.

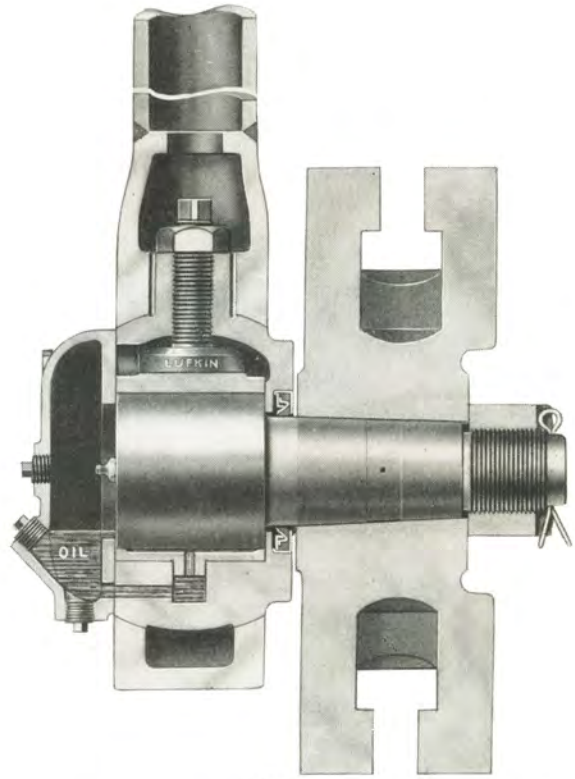


FIGURE 43

OIL TIGHT—BRONZE BUSHED CENTER BEARING

FIGURE 41

Series "AS" Center Bearings are full Bronzoid bushed, with patent oil seals and are designed to allow beam to headache to about 40° either front or back and, as usual with Lufkin center bearings, beams can be swung sideways about 25° from center line. This is a superior bearing in every respect, being dust proof, oil tight with renewable Bronzoid bushing and ample bearing surface.

General characteristics of the "Universal" pitman are:

1. **One-third more bearing surface.**
2. **Bronzoid Bearings top and bottom, with adjustable top bearing.**
3. **Patented oil seal—no leaks. No head of oil against seal.**
4. **Both the interior of the strap and the exterior of the pitman box are machined, and thus insure alignment without possibility of binding.**
5. **The pitman bearing is adjustable when strap or shackle is removed, and may be tested by hand before shackle is re-applied.**
6. **Lufkin Universal pitmans are designed to pull or push—no lost motion.**
7. **Journal box is semi-steel; straps and shackles are of cast steel welded to extra heavy tubing.**
8. **Crank pins are forged alloy steel turned and ground.**
9. **Pins easily removed by grease-gun pressure.**

LUFKIN AIR BALANCED PUMPING UNITS

FIGURE 44

GENERAL SPECIFICATIONS

Designation:

First Number—Gear Box Size (A.P.I. Peak Torque Rating, Thousands of Inch Lbs.)

Second Number—Maximum Stroke (Inches)

Third Number—Structural Rating (Thousands of Lbs.)

(EXAMPLE: A-456DB-100-30 Designates an Air Balanced Unit with a Gear Box of 456,000 Inch Pounds A.P.I. Peak Torque Rating, Equipped with Cranks for a 100 Inch Stroke and a Structural Rating of 30,000 Lbs.)

Gear Reducer Data: See Crank Balanced Unit Specifications

Crank Pin Bearings: Tapered Roller

Samson Post Bearings: Spherical Roller

Equalizer Bearing: Spherical Roller

Air Cylinder Bearing: Spherical Roller

Hanger: Hinged Horsehead, Wire Line

Air Counterbalance Pressure: 450 P.S.I. (Max.)

Upper Pitman Connection: Rubber Cushioned

GENERAL DIMENSIONS

Lufkin Air Balanced Pumping Units

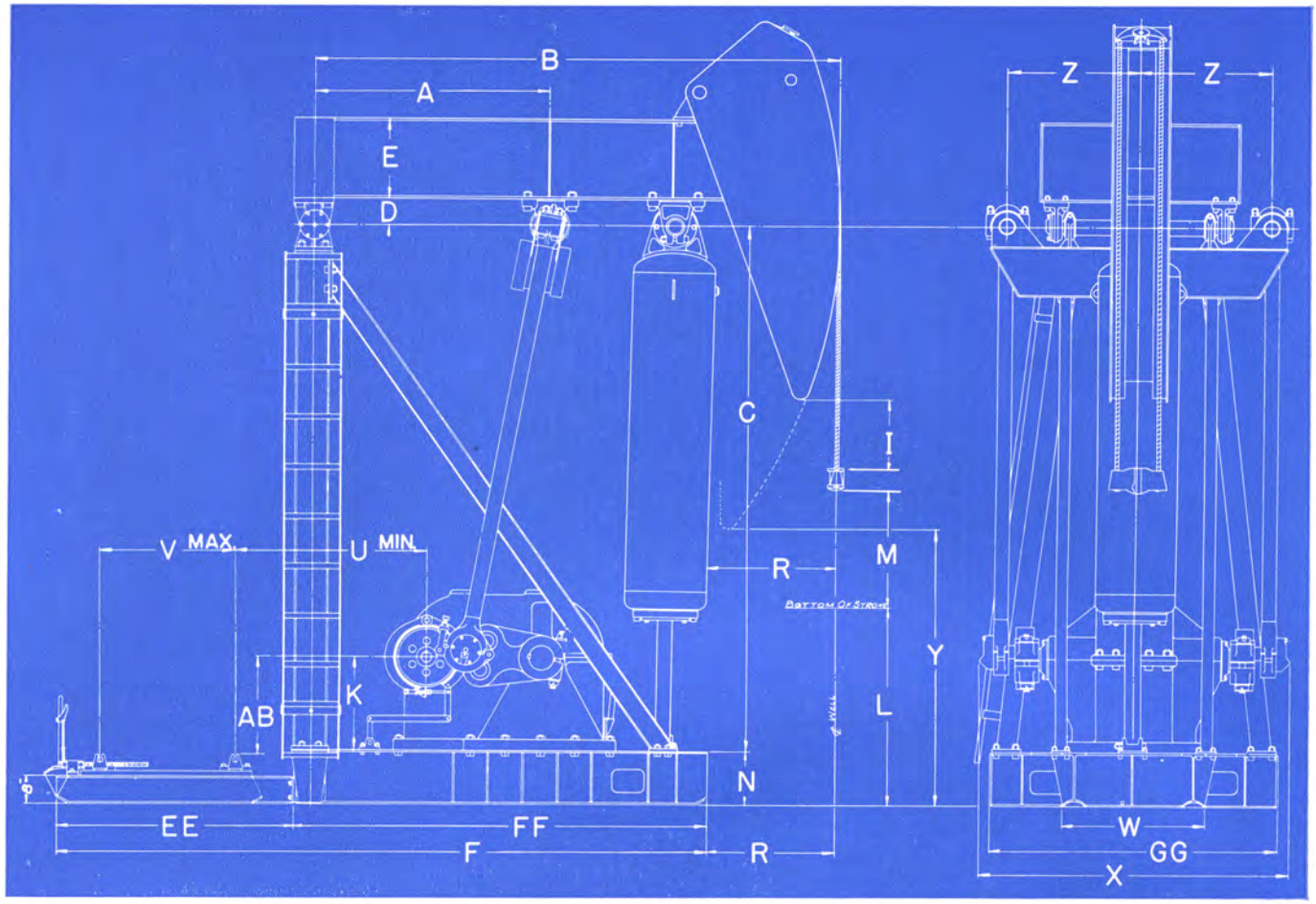


FIGURE 45

TABLE OF DIMENSIONS

UNIT	A	B	C	D	E	F*	I	K	L	M	N	R	U*	V*	W	X	Y	Z	AB	EE*	FF	GG
*A-114DA-54-16	48″	9′-7″	11′-0″	6″	16″	13′-2″	35″	18″	44″	27″	9¾″	36″	49″	41″	25¼″	68″	7′-3″	29½″	13¼″	6′-3⅝″	6′-10⅜″	60″
*A-114DA-64-16	48″	9′-7″	11′-0″	6″	16″	13′-2″	24″	18″	45″	32″	9¾″	36″	49″	41″	25¼″	68″	6′-7″	29½″	13¼″	6′-3⅝″	6′-10⅜″	60″
*A-160D-64-20	50″	10′-0″	11′-9″	6″	18⅛″	13′-8″	32″	27″	50″	32″	9¾″	36″	49″	41″	32¼″	71″	7′-3″	31″	25¾″	6′-3⅞″	7′-4⅛″	66″
*A-160D-74-20	50″	10′-0″	11′-9″	6″	18⅛″	13′-8″	21″	27″	51″	37″	9¾″	36″	49″	41″	32¼″	71″	6′-7″	31″	25¾″	6′-3⅞″	7′-4⅛″	66″
A-228D-74-23	56″	10′-11″	12′-5″	6¾″	20⅞″	15′-6″	33⅞″	27″	46⅜″	37″	16⅛″	36″	59″	41″	37¼″	6′-8⅜″	7′-5″	35½″	28⅜″	7′-2⅞″	8′-3⅛″	6′-11½″
A-228D-86-23	56″	10′-11″	12′-5″	6¾″	20⅞″	15′-6″	21⅜″	27″	46⅝″	43″	16⅛″	36″	59″	41″	37¼″	6′-8⅜″	6′-7″	35½″	28⅜″	7′-2⅞″	8′-3⅛″	6′-11½″
A-320D-86-27	70″	12′-11″	13′-4″	7⅞″	24″	17′-3″	36½″	28″	44⅝″	43″	16½″	39″	69″	41″	43¼″	7′-3⅜″	7′-7″	39″	29⅜″	7′-2¾″	10′-0¼″	7′-1½″
A-320D-100-27	70″	12′-11″	13′-4″	7⅞″	24″	17′-3″	18⅞″	28″	46⅛″	50″	16⅛″	39″	69″	41″	43¼″	7′-3⅜″	6′-7″	39″	29⅜″	7′-2¾″	10′-0¼″	7′-1½″
A-456DB-100-30	6′-5″	14′-7″	15′-7″	7⅞″	24″	18′-10″	42¾″	28″	49⅜″	50″	16⅛″	47½″	6′-1″	46″	46¾″	8′-2⅝″	8′-6″	44¼″	29⅜″	7′-10¼″	10′-11¾″	7′-6″
A-456DB-120-30	6′-5″	14′-7″	15′-7″	7⅞″	24″	18′-10″	19⅛″	28″	51⅜″	60″	16⅛″	47½″	6′-1″	46″	46¾″	8′-2⅝″	7′-4″	44¼″	29⅜″	7′-10¼″	10′-11¾″	7′-6″
A-640DB-120-30	6′-5″	14′-7″	15′-7″	7⅞″	24″	18′-10″	19⅛″	28″	51⅜″	60″	16⅛″	47½″	6′-1″	46″	46¾″	8′-2⅝″	7′-4″	44¼″	29⅜″	7′-10¼″	10′-11¾″	7′-6″
A-640DB-120-35	7′-4″	16′-8″	17′-10″	9⅛″	24¾″	19′-11″	45″	28″	54¼″	60″	16⅛″	59″	6′-8″	46″	46¾″	8′-2⅝″	9′-5″	44¼″	29⅜″	7′-7½″	12′-3½″	7′-11″
A-640DB-144-35	7′-4″	16′-8″	17′-10″	9⅛″	24¾″	19′-11″	19½″	28″	55″	72″	16⅛″	59″	6′-8″	46″	46¾″	8′-2⅝″	7′-10″	44¼″	29⅜″	7′-7½″	12′-3½″	7′-11″
*A-912D-144-35	7′-4″	16′-8″	17′-10″	9⅛″	24¾″	20′-6″	19½″	30″	55″	72″	16⅛″	59″	6′-4″	50″	50″	8′-2⅝″	7′-10″	44¼″	31⅜″	8′-2½″	12′-3½″	7′-11″

* Dimensions for these Units (or Columns)Approximate.
Jointed Base on all Sizes.

RATING CHART

UNIT	Peak Torque Rating-In. Lbs.	Stroke Inches	Polished Rod Load Class-Lbs.	Max. Effective* C'Balance-Lbs.	Gear Ratio	Weight,* Lbs.
A-114DA-54-16	114,000	54–44	16,000	11,000	29.4	8,000
A-114DA-64-16	114,000	64–54	16,000	11,000	29.4	8,000
A-160D-64-20	160,000	64–54	20,000	16,000	28.67	11,000
A-160D-74-20	160,000	74–64	20,000	16,000	28.67	11,000
A-228D-74-23	228,000	74–64–54	23,000	18,300	28.45	16,000
A-228D-86-23	228,000	86–74–64	23,000	18,300	28.45	16,000
A-320D-86-27	320,000	86–74–64	27,000	21,200	30.12	23,000
A-320D-100-27	320,000	100–86–74	27,000	21,200	30.12	24,000
A-456DB-100-30	456,000	100–86–74	30,000	23,900	29.04	28,000
A-456DB-120-30	456,000	120–100–86	30,000	23,900	29.04	29,000
A-640DB-120-30	640,000	120–100–86	30,000	23,900	28.6	31,000
A-640DB-120-35	640,000	120–100–86	35,000	25,000	28.6	34,000
A-640DB-144-35	640,000	144–120–100	35,000	25,000	28.6	34,000
A-912D-144-35	912,000	144–120–100	35,000	25,000	28.72	37,000

* Approximate.

LUFKIN 3520 LONG STROKE HYDRAULIC PUMPING UNIT

Flow Diagrams

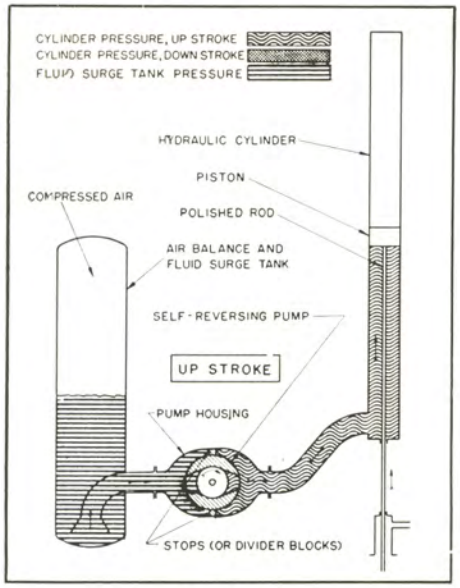


FIGURE 46

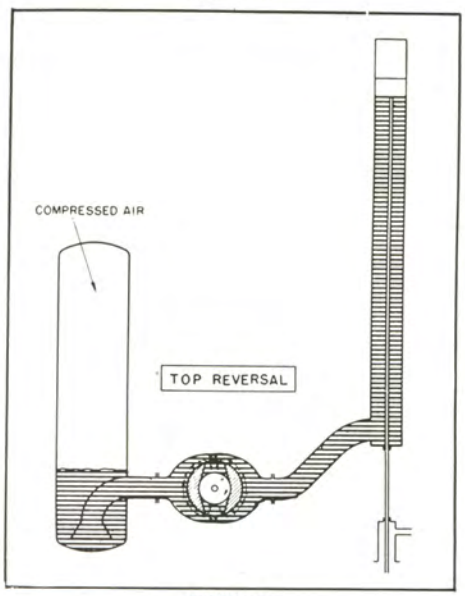


FIGURE 47

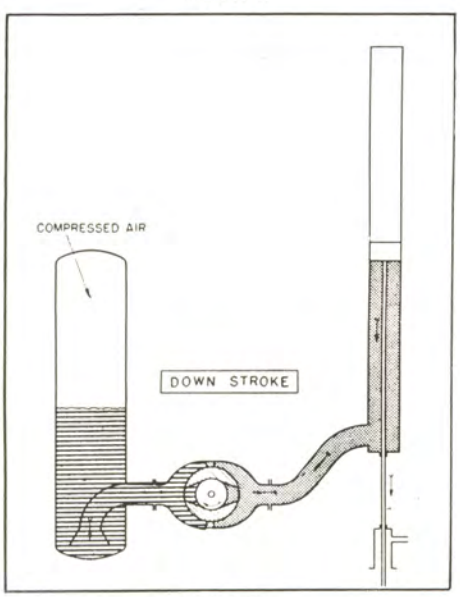


FIGURE 48

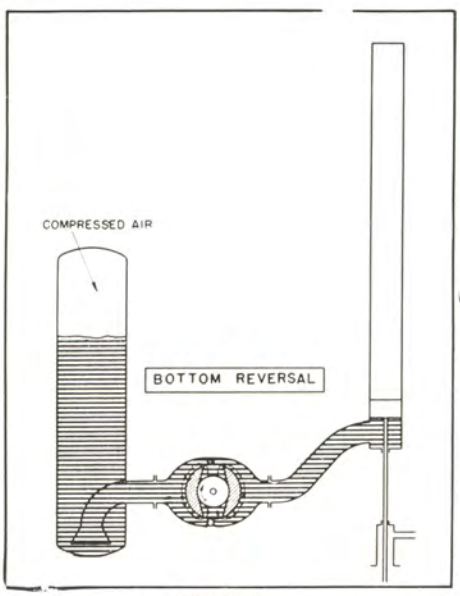


FIGURE 49

FIGURE 50

Explanation of Reversing Principle

(See Figs, 46, 47, 48 and 49)

Lufkin's No. 3520 Hydraulic Pumping Unit incorporates a new and unique method of polished rod reversing. A reversing valve is not used. Instead, flow to and from the hydraulic cylinder is controlled by a patented self-reversing pump.

The self-reversing pump consists essentially of a rotor housing and three screws, or rotors. The rotative speed of the rotor housing is geared down to a fraction of the speed of the rotors. (Speed of rotor housing ranges from 2 to 7 RPM, whereas speed of rotors range from 500-1200 RPM, both depending on desired pumping conditions.) The rotor housing, with its suction and discharge ports 180° apart, slowly rotates within the main pump housing. The pump housing has two "stops" or divider blocks, also 180° apart, located at the top and bottom of the housing between which the self-reversing pump rotates. (See Fig. 46.) These stops effectively seal off one side of the pump housing from the other. Thus, as the self-reversing pump rotates, its discharge port is on one side of the pump housing half the time and on the other side of the pump housing the other half of the time. This condition of course causes an intermittent change of direction of flow through the pump housing. On the up stroke of the polished rod, flow is from the collector tank (or surge tank) into the hydraulic cylinder. On the down stroke flow is from the hydraulic cylinder back into the surge tank. (See Figs. 46 and 48.)

When the suction and discharge ports of the rotor housing line up or "straddle" the stops on the pump housing, fluid is discharged into both sides of the pump housing, and likewise, at the suction port of the rotor housing, fluid is sucked in from both sides of the pump housing. When this condition occurs, a change in the direction of flow is effected, and a polished rod reversal takes place. (See Figs. 47 and 49.)

As the size of the ports on the rotor housing are considerably wider than the stops on the pump housing, the polished rod gradually decreases in velocity, stops, and then uniformly increases to a constant velocity in the opposite direction. This makes for smooth polished rod reversals at both the top and bottom of the stroke.

AUTOMATIC COUNTERBALANCE

The Lufkin hydraulic unit employs an automatically controlled pneumatic counterbalance system which maintains perfect counterbalance air pressure under all operating conditions. Not only does this unique device compensate for air loss and pressure fluctuations due to changes in ambient temperatures but actually regulates the air pressure to suit varying well loads due to gas heads, fluid level fluctuations, or any condition that might bring about such change.

"Slip" past the pump due to difference in pressure on the up and down strokes brought about by any unbalanced condition is harnessed to operate a simple spool type valve which starts and stops the air compressor, or releases air from the receiver tank. Once the unit is in operation this completely automatic system requires no attention or adjustment.

Specifications

PEAK POLISHED ROD LOAD—35,000#

MAXIMUM COUNTERBALANCE—26,200#

MAXIMUM LOAD RANGE—28,000#

MAXIMUM OPERATING PRESSURE—
Hydraulic Fluid—270 P.S.I.
Counterbalance Air—200 P.S.I.

STROKE LENTHS—16, 20 and 25 Ft.

PUMPING SPEED RANGE—2 to 7 - 20 Ft. Strokes Per Minute

HYDRAULIC CYLINDER—13" Dia. x 30 Ft. Nickel Alloy Cast Iron

POLISHED ROD—1½" Dia. Alloy Steel or Monel as Ordered

STROKE CHANGE—Length of Stroke May be Changed in a Matter of Minutes by Replacing Two Small Spur Gears in Pump Housing

HYDRAULIC FLUID—SAE 20 Hydraulic Oil, 490 Gal. Req'd. (Consult our Engineering Dept.)

HYDRAULIC REVERSING PUMP DATA—

Type—Triple Screw "IMO" With Gear Driven Reversing Mechanism

Material—Pump Housing and Other Critical Parts Nickel-Moly Cast Iron

Capacity—1,900 GPM at 1,000 RPM

Input Speed—1,000 RPM for 6-20 Ft. Strokes Per Minute

Sheave—20" P.D.—7 "D" Standard

AIR TANKS—2-30" Dia. x 22 Ft. Long. ASME—200 Lb. Safe Working Pressure

AIR COMPRESSOR—Gardner-Denver "ADD" Duplex, Two Stage

SCAVENGING TANK—Built into Base With Capacity for All Fluid in the System

SCAVENGING PUMP—Gerotor No. 0-30 Gear Driven. Mounted Inside Pump Housing

WEIGHT—38,540 Lbs.

LUFKIN MODEL H-795 HORIZONTAL

45 BHP—400 RPM TO 65 BHP—600 RPM CONTINUOUS SERVICE

The NEW Lufkin Model H-795 Horizontal Two Cylinder Two Cycle Gas Engine has been designed and proven for heavy duty oil field service. ONLY in the Lufkin Engine will you find two cylinder, two cycle design for smoother flow of power and less shock and wear to your equipment. Easily maintained, dependable, long life and low upkeep are assured by such typical Lufkin Features as:

Thermosyphon Cooling maintains even temperatures at all loads and speeds. Eliminates the use of water pumps.

Positive Full Pressure Lubrication. Oil is forced under pressure to all moving parts for better lubrication.

Precision Connecting Rod Inserts.

Crosshead Shoes and Bushings. Field renewable, Long wearing Bronze.

Saddle Type Crosshead Pin gives 50% greater bearing area and less wear.

Rugged Two Cycle Crosshead Design. Metallic Piston Rod packing seals combustion gases from crankcase preventing frequent oil changes.

Starting System—Built in (Optional). 12 Volt Electric Starter, Air-Gas Motor Starter, Regular Air Starter.

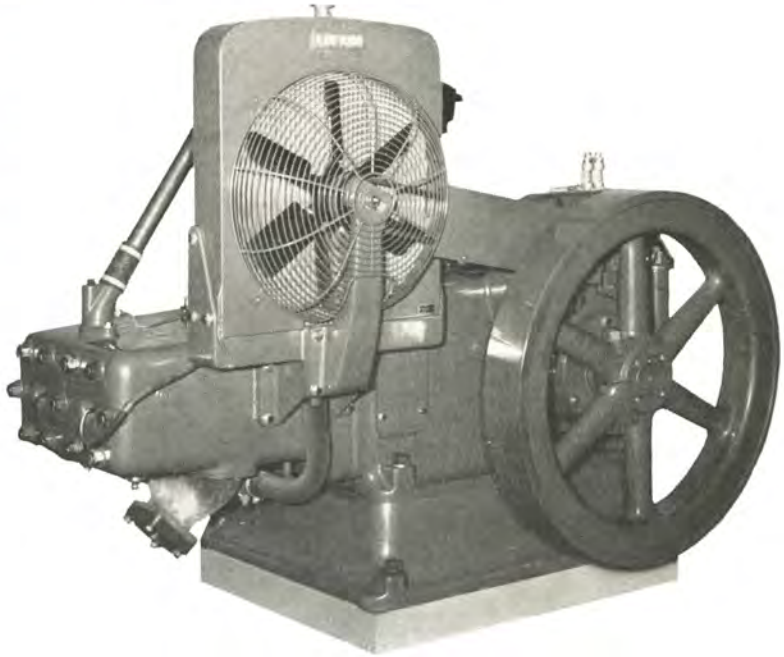


FIGURE 51

Front View—Lufkin H-795 Engine

Safety Control for low oil pressure and high water temperatures.

Oil Cooled Pistons for longer ring and cylinder life. Recommended for heavy loads. (Optional)

Hydraulic Governor for close regulation work such as generators. (Optional)

Sub-Base to raise engine base so engine Flywheel will clear when mounted on crossrails. (Optional)

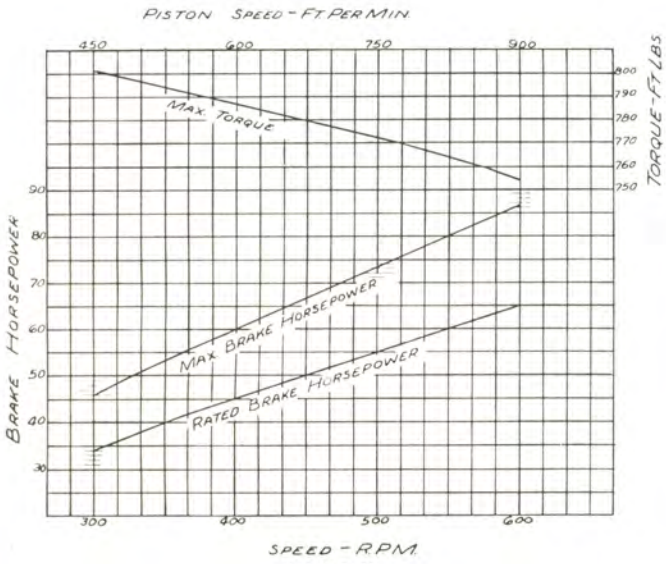


FIGURE 52

Performance Curve—Lufkin H-795 Engine

SPECIFICATIONS

Bore x Stroke	7½ x 9
Displacement, Cu. in.	795
Speed Range, RPM	300—600
Maximum Speed, RPM	600
Rated BHP—400 RPM	45
Rated BHP—600 RPM	65
Diameter Flywheel, in.	40
Flywheel WR^2 (Ft^2 lbs)	1580
Dia. Power take off shaft	3"
Size Exhaust pipe	4"
Size Gas Inlet	1"
Oil Capacity (Gallons)	5
Water Capacity (Gallons)	12
Foundation Bolts	(4) 1"
Weight	4250#

TWO CYLINDER TWO CYCLE GAS ENGINE

HEAVY DUTY, MEDIUM SPEED, CROSSHEAD TYPE DESIGN

The Lufkin Model H-795 Gas Engine is offered as a complete power unit suitable for all classes of service for the Oil Fields. Lufkin offers engineered skid mounted engine driven assemblies which are flexible to suit individual requirements. Suitable drives with or without engine clutch can be made direct, through "V" belts or with Lufkin speed increaser and reducers. A Few Typical Unit assemblies are:

Generator Units either single or in parallel for power for oil well pumping, plant service etc. Usually 40 KW 3-phase 60-cycle units are used.

Gas Compressor Units either single or two stage built in as a part of engine assembly. Compressor cylinders to meet your requirements.

Hydraulic Pump Units. Triplex pumps engine driven for hydraulic production or salt water disposal.

Duplex Pump Units for pipelines and water systems.

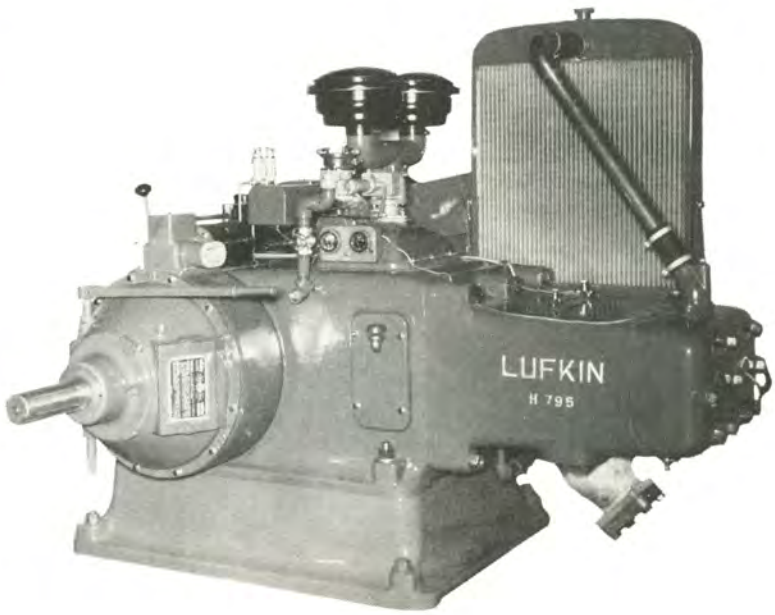


FIGURE 53

Drive Side (Clutch) Lufkin H-795 Engine

Centrifugal Water Pumps for water towers.

Refinery Hot and Lean Oil Pump Units. Direct through speed increasers or with V belt drives.

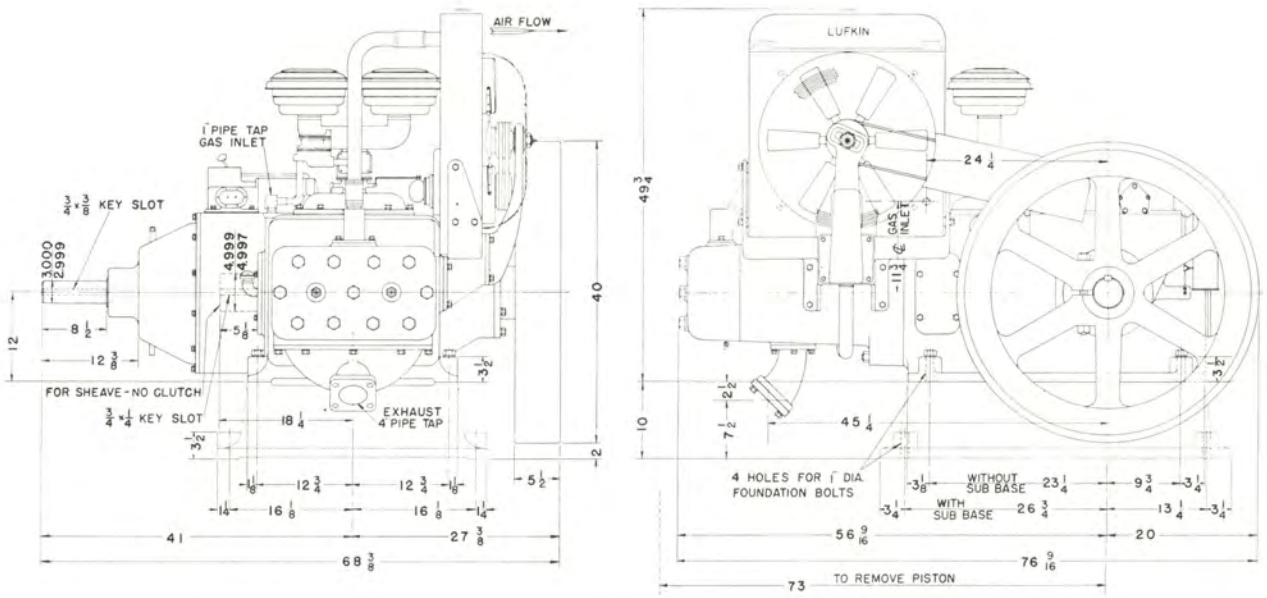


FIGURE 54

Space Plan Lufkin H-795 Engine

LUFKIN MODEL H-333 HORIZONTAL

20 HP—425 RPM — 30 HP—650 RPM CONTINUOUS SERVICE

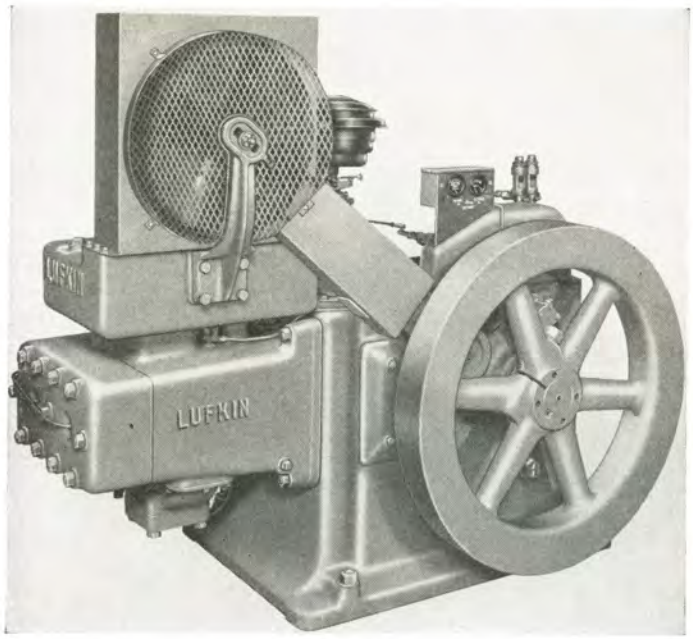


FIGURE 55

The Lufkin Model H-333 horizontal 2 cylinder, 2 cycle gas engine has been developed after a careful study of the rigid requirements of the oil fields. Its medium speed, heavy duty, simple, long life construction, and smoothness of operation assures a dependable power unit.

The Lufkin H-333 engine offers the operator a rugged engine with a large heavy flywheel that does not extend below the engine base. This makes the engine easily mounted on standard pumping unit structural bases and slide rails.

The engine is furnished as a complete power unit. Standard equipment includes full pressure lubrication, magneto, magneto weather cover, Pierce centrifugal governor, Ensign natural gas mixer and regulator, safety control for oil and temperature, cylinder lubricator. Thermosyphon cooling with fan and guards, and Twin Disc power take-off. Optional equipment is electric starter, air-gas motor type starter, regular air starting equipment, hand starting wheel, Ensign combination type "CG" gas-gasoline mixer, condenser cooling, oil filter.

THE LUFKIN H-333 ENGINE IS A TOUGH DEPENDABLE ENGINE BECAUSE OF THESE DESIRABLE FEATURES

Two Cylinder, Two Cycle Design with two power impulses for each revolution of the crankshaft assures smooth performance.

Thermosyphon Cooling provides the proper degree of coling at all engine speeds and loads.

Condenser Cooling is available as optional equipment.

Crosshead Construction with full metallic packing prevents crank case contamination, giving longer life to lubricating oil and bearings. Results in lower maintenance with no valves to stick or replace.

Positive, Full Pressure Lubrication to crank pins and crossheads. Guarantees longer life and less maintenance.

Counterbalanced Heavy Duty Crank Shaft is mounted on taper roller bearings for long life and trouble-free service.

Precision Thin Wall Connecting Rod Bearings require no fitting. Easy to replace after long service.

Saddle Type Crosshead Pin Bearing gives 50% more bearing area. Pressure lubricated.

Easy Starting by Hand. Electric or air-gas or regular air starting systems optional.

All Weather Operation Assured by dust tight construction, magneto cover, and deeply recessed spark plugs.

No Crank Case Oil Contamination from fuel. Frequent oil changes unnecessary. Lower operating costs in sweet and sour gases.

Auxiliary Assembly, Pressure Lubricated, gear driven—magneto, governor and lubricator in one easily serviced assembly.

FIGURE 56

TWO CYLINDER, TWO CYCLE GAS ENGINE

HEAVY DUTY, MEDIUM SPEED CROSSHEAD TYPE DESIGN

BRIEF ENGINE SPECIFICATIONS

No. of Cylinders	2
Size (Bore X Stroke)	5½" x 7"
Displacement—Cu. In.	333
Recommended Speed Range, R.P.M.	350-750
Rated B.H.P. 425 R.P.M.	20
Rated B.H.P. 650 R.P.M.	30
Type Main Bearings	Roller
Diam. Main Bearing Journal	3⅞"
Type Crank Pin Bearing (Thin Wall)	Insert
Diam. Crank Pin Bearing	3¾"
Length Crank Pin Bearing	2⅞"
Type Crosshead (Bronze)	(2 Shoe)
Diam. Crosshead Pin	2½"
Proj. Area Crosshead Pin (Sq. In.)	11.6
Piston Rod Packing	Metallic
Auxiliary Drive	Gear
Diam. Flywheel	32"
Flywheel WR^2 (FT^2 Lbs.)	510
Type Cooling System Optional	Thermosyphon Condenser
Oil Capacity	20 Qts.
Oil Capacity Lubricator	1½ Qts.
Water Capacity Thermosyphon	40 Qts.
Water Capacity Condenser	28 Qts.
Diam. Exhaust Pipe	4"
Diam. Gas Inlet	1"
Foundation Bolts	(4) ⅞"
Weight	2900 Lbs.

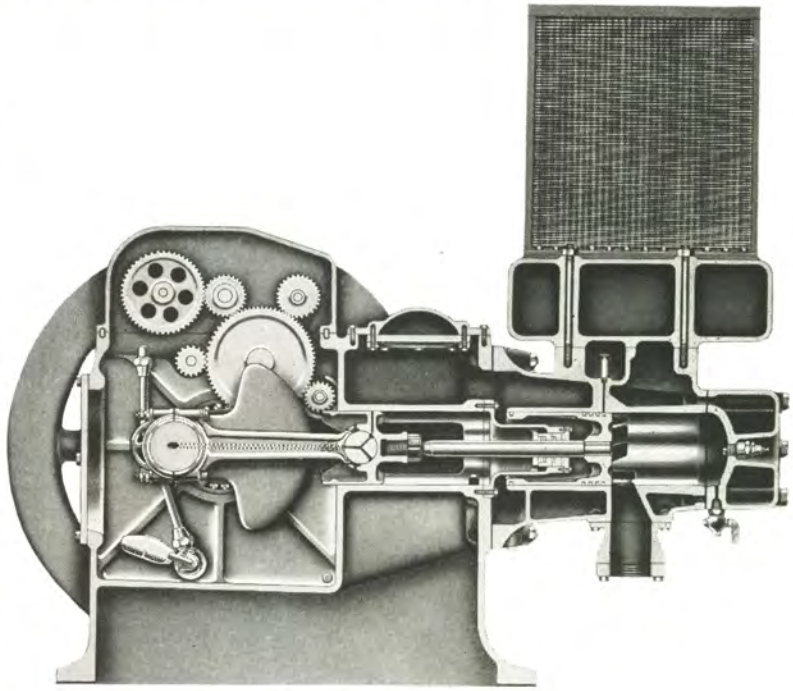


FIGURE 58
Cross-Section H-333 Engine
Condenser Cooling

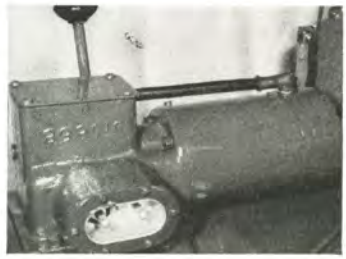


FIGURE 59
12 Volt Electric Starter

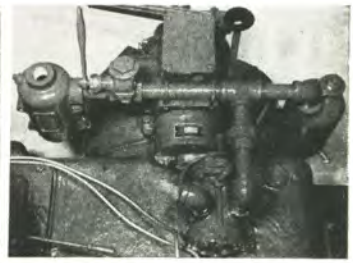


FIGURE 60
Air or Gas Motor Starter

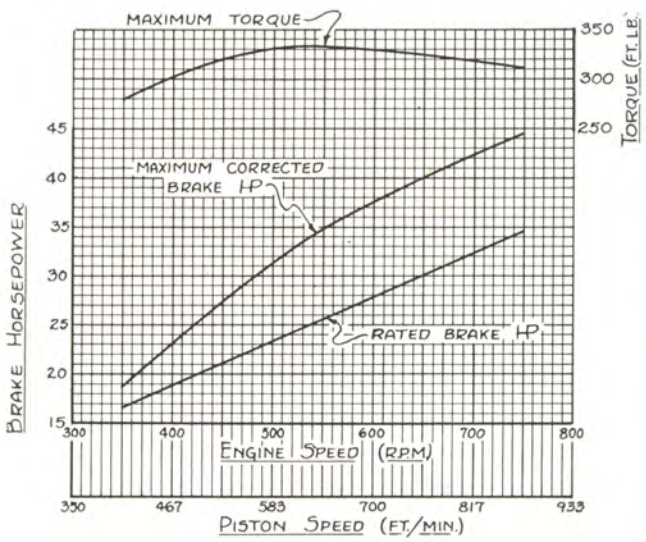


FIGURE 57
Performance Curves H-333 Gas Engine

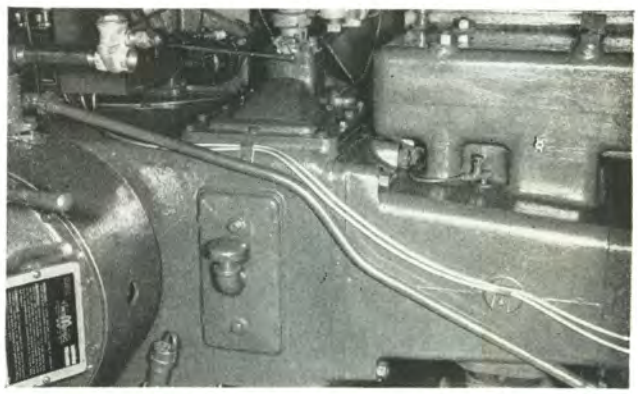


FIGURE 61
Air Starter Valve and Piping

LUFKIN TRAILERS SALES OFFICES

LUFKIN
Phone 3-4425
C. W. (Lefty) Alexander
Floyd S. Rogers

SWEETWATER
711 West Broadway
Phone 2892
4460
Sam L. Jones, Mgr.

WACO
Bill F. Mayfield
Phone 2-4031

HOUSTON
2815 Navigation Blvd.
Phone ATwood 6407
ATwood 6408
J. C. Lowe, Mgr.
Bruce Bates
Marshall Dailey
R. L. Hamilton

SAN ANTONIO
900 Nogalitos St.
Phone FAnnin 5216
FAnnin 5217
Otis K. McCauley, Mgr.
Nelson Henze
R. P. Weaver
Kermitt Gammill

DALLAS
635 Fort Worth Ave.
Phone RAndolf 2471
RAndolf 2472
C. V. Wilkinson, Mgr.
Glenn A. Foy
Leroy Greene
Morelle Hicks
Bill Richards

ODESSA
Carl J. Couser
Phone 6-5662

SHREVEPORT, LA.
Neill Morris
Phone 6-9521

OKLAHOMA
Modern Motors, Inc.
201 North Broadway
Shawnee Oklahoma
Phone 241
242
George Diddle, Mgr.

16 South Blackwelder
Oklahoma City, Okla.
Phone REgent 63687
REgent 63688
REgent 63689
Pete Coleman

1632 South Quannah
Tulsa, Oklahoma
Phone 4-4385
Bob Phillips

FIGURE 62
Self Loading Oilfield Float

FIGURE 65
Standard Pipe Hauling Trailer

FIGURE 63
Open Top Grain and Produce

FIGURE 66
Low Bed Machinery (Custom Built)

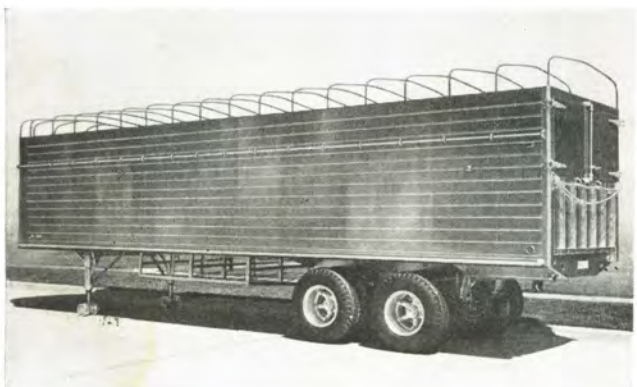


FIGURE 64
Open Top Aluminum Van

FIGURE 67
Special Oil Well Service Van

LUFKIN TRAILERS

FIGURE 68
Aluminum All-Purpose Van

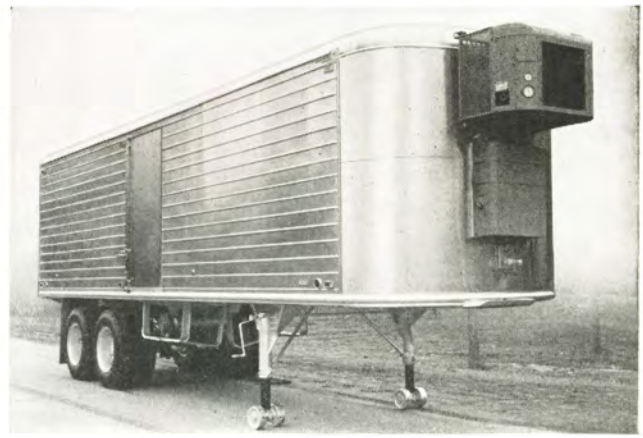


FIGURE 70
Aluminum Refrigerated Van

FIGURE 69
Standard Freight Van

FIGURE 71
Drop Frame Moving Van (All Steel)

LUFKIN TRACTOR WINCHES

Lufkin heavy duty worm drive tractor winches are being used by operators who have the most severe type of winching service. They are particularly in demand for oil field and pipe line service or any other similar heavy construction work. Rugged construction and reserve capacity make it possible to transmit the full torque of the tractor engine into the winch! High gear reduction through the worm drive develops tremendous pulling power for heavy moving jobs. Special heavy duty herringbone gear transmissions give a wide range of operating speeds in forward and reverse. Designed and manufactured for service on International Harvester Crawler Tractors—the Model 60 winch for TD18A and TD14A Tractors—Model 125A winch for TD18A and TD24 Tractors.

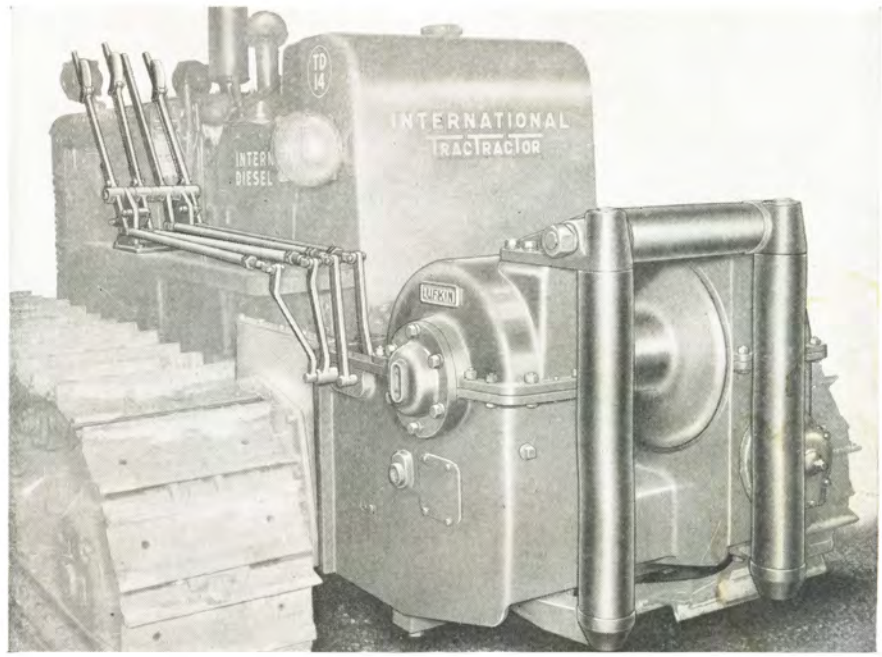


FIGURE 72

LUFKIN GEAR REDUCERS AND SPEED INCREASERS

A complete standard line of single and double reduction herringbone gear reducers and single reduction speed increasers are available. Write for Gear Catalog G-1.

Spiral bevel gear reducers are also available for such service as cooling tower fan drives. Bulletin G-2 available on request.

70VB Spiral Bevel Gear Reducer for Cooling Tower Fan Drive.

FIGURE 74

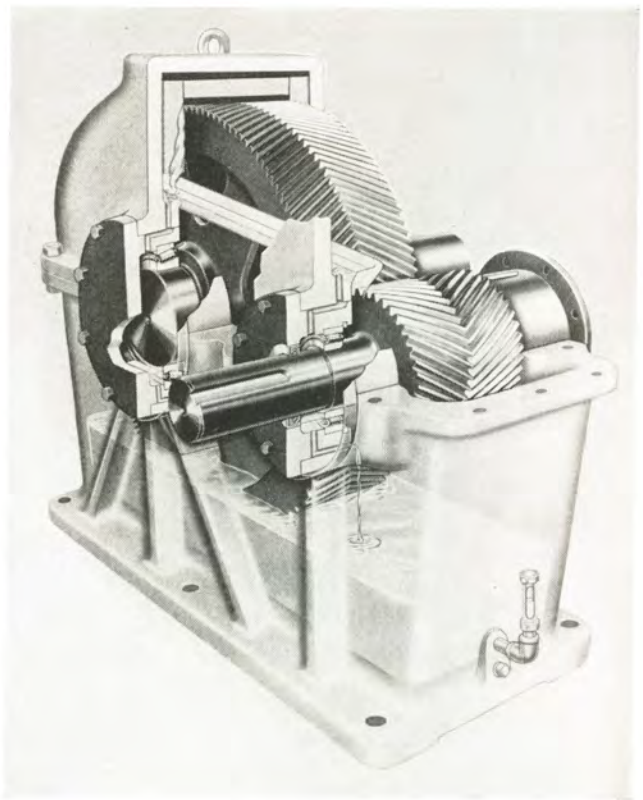


FIGURE 73

Typical Type S Single Reduction Herringbone Gear Reducer. Note simple but positive and fool-proof Lubrication System.

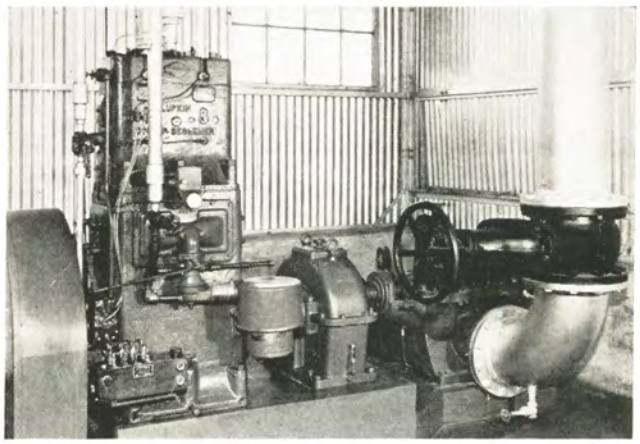


FIGURE 75

Lufkin S105 Reducer driving centrifugal pump in salt water disposal plant. Driven by Lufkin Engine.

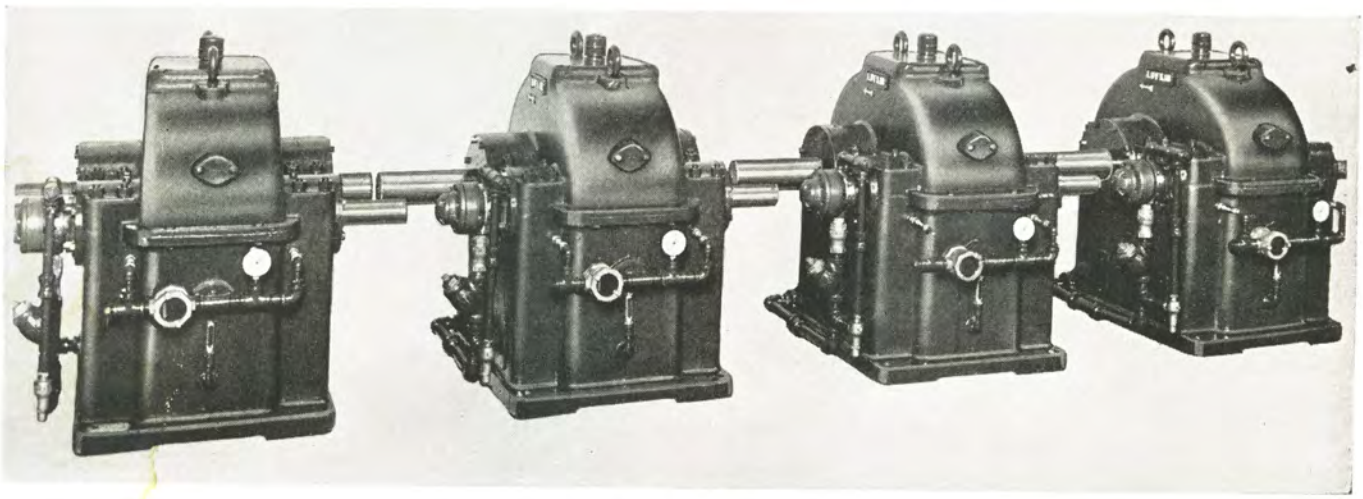


FIGURE 76

Four of a group of twelve identical N128 Speed Increasers, 850 Hp., for pump station service, going to major pipe line company.

LUFKIN ALLOY IRON CASTINGS

Controlled Specification Iron

New gray iron foundry No. 2, having a three cupola operation with capacity of 180 tons per day. Modern in every respect with emphasis on metallurgically controlled cupola charging for high strength, fine grain iron. Your casting requirements on all sizes from a fraction of a pound up to fifty thousand pounds each can be shipped with unusual promptness.

FIGURE 77
Die castings made of special alloy for presses up to 5000 tons capacity.

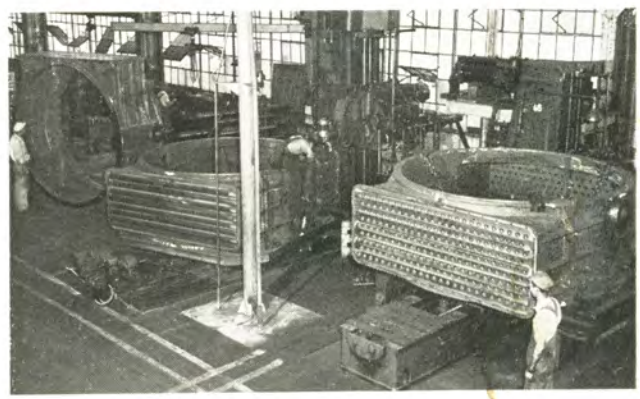


FIGURE 78
Chemical tower for a southern alkali plant. Sections are 9-foot diameter weighing 16,000 lbs. each.

LUFKIN INSTALLATIONS

TYPICAL OF THE MORE THAN FORTY THOUSAND LUFKIN PUMPING UNITS NOW GIVING SATISFACTORY SERVICE

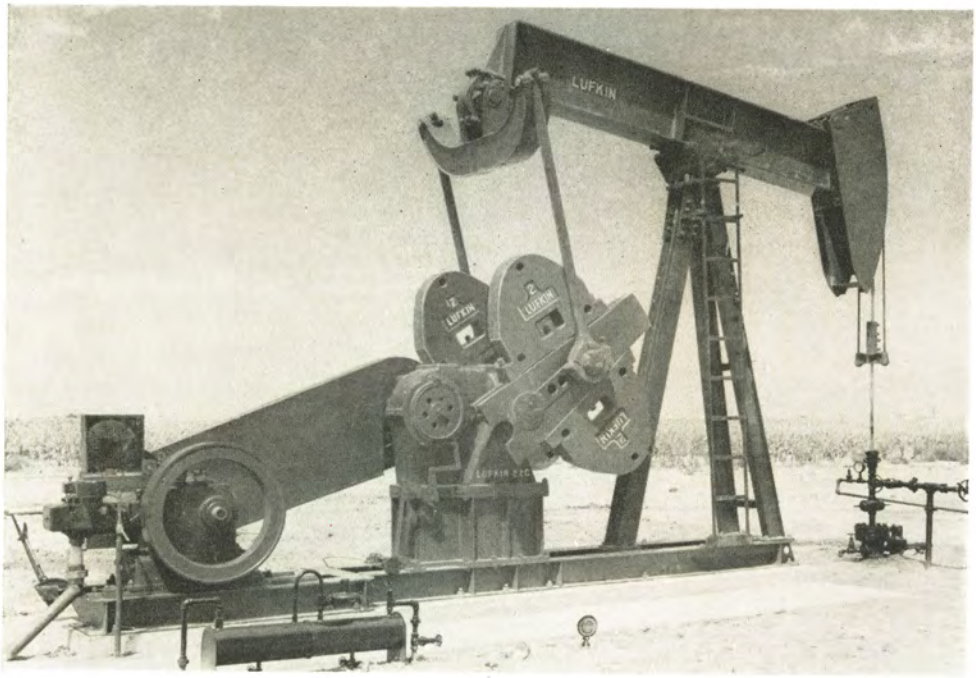


FIGURE 79
Lufkin TC-2TR-22G Twin Crank Pumping Unit with sub-base and single cylinder engine set on jointed base.

FIGURE 80
Lufkin TC-44R-15B Twin Crank Pumping Unit, stub base, type, driven by single cylinder gas engine mounted separately on slide rails.

Printed in U.S.A.

LUFKIN

UIPMENT OF ADVANCED DESIGN