E.H. Bourne

LUFKIN OIL FIELD EQUIPMENT

CATALOG 53

Featuring the

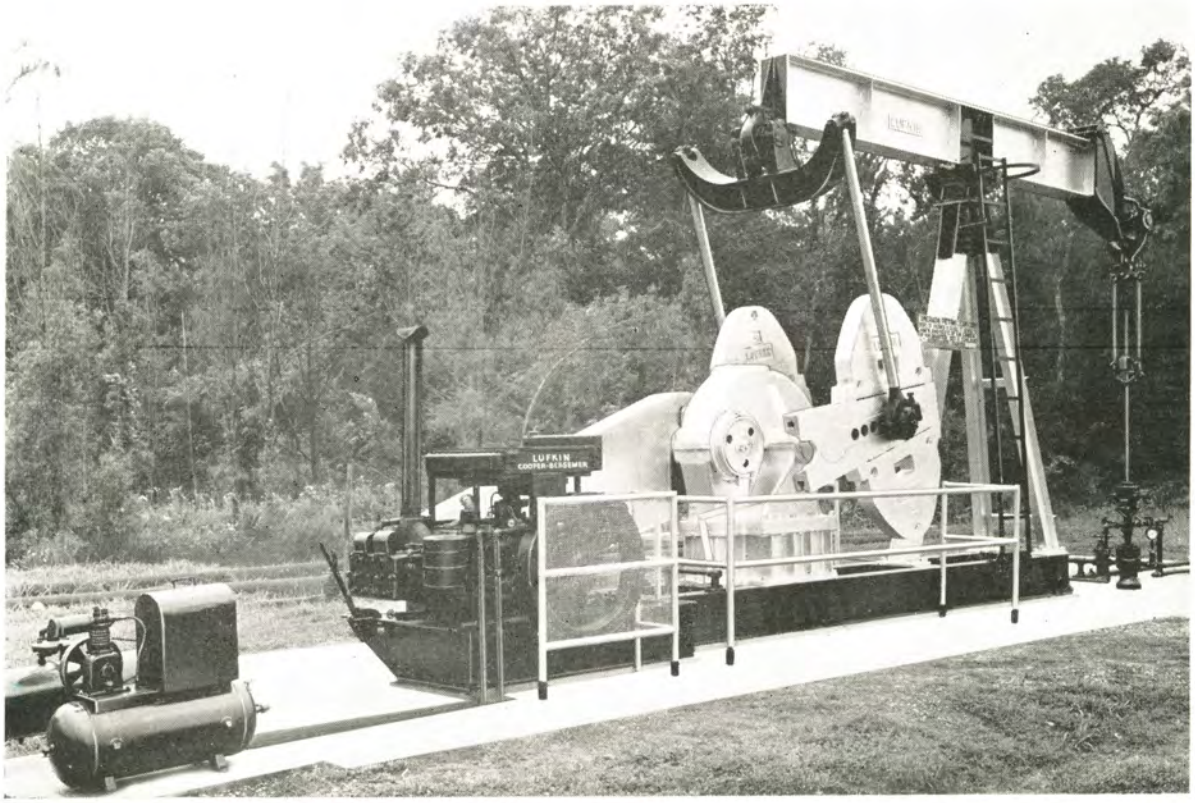
LUFKIN *Universal* PUMPING UNIT

PUMPING UNIT INDEX ON PAGE 3111

LUFKIN FOUNDRY & MACHINE COMPANY • LUFKIN, TEXAS

LUFKIN EQUIPMENT OF ADVANCED DESIGN

Lufkin TC-33T-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-2AT-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.

LUFKIN FOUNDRY & MACHINE CO.

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LUFKIN, TEXAS

Oilfield Sales and Service Only—Offices and Warehouses of The Lufkin Foundry & Machine Company

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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-OLC-61B		30,000	16′-0″	10′-11¼″	22,100	27,000	82100	00	120	
	TC-OLB-61B		30,000	16′-0″	10′-11¼″	19,750	24,300	8292	00	120	3116
	TC-OL-61B		30,000	14′-0¾″	10′-11¼″	15,110	19,080	8478	0	108.4	3117
	TC-OAL-61B		30,000	12′-6″	12′-6″	19,480	24,600	8478	* 0	84	
	TC-OA-61B		30,000	12′-6″	12′-6″	14,700	18,325	7472	1	74	
456	TC-OLB-456DA	TC-OLB-456S	30,000	16′-0″	10′-11¼″	19,750	24,300	8292	00	120	
	TC-OL-456DA	TC-OL-456S	30,000	14′-0¾″	10′-11¼″	15,110	19,080	8478	0	108.4	3118
	TC-OAL-456DA	TC-OAL-456S	30,000	12′-6″	12′-6″	19,480	24,600	8478	* 0	84	3119
	TC-OA-456DA	TC-OA-456S	30,000	12′-6″	12′-6″	14,700	18,325	7472	1	74	
320	TC-1LB-41D	TC-1LB-54C	25,000	14′-3½″	10′-0″	13,600	17,230	8478	0	120	
	TC-OAL-41D	TC-OAL-54C	30,000	12′-6″	12′-6″	19,480	24,600	8478	* 0	84	3120
	TC-1B-41D	TC-1B-54C	25,000	11′-4¼″	10′-0″	12,940	16,130	7472	1	84	3121
	TC-1A-41D	TC-1A-54C	25,000	12′-6″	12′-6″	14,700	18,325	7472	* 1	74	
	TC-1-41D	TC-1-54C	25,000	10′-0″	10′-0″	14,700	18,325	7472	* 1	74	
228	TC-1-35B	TC-1-36B	25,000	10′-0″	10′-0″	14,700	18,325	7472	* 1	74	
	TC-2BT-35B	TC-2BT-36B	20,000	9′-3″	8′-0″	9,340	11,670	6460	* 2	74	3122
	TC-2AT-35B	TC-2AT-36B	20,000	10′-0″	10′-0″	10,800	13,500	6460	* 2	64	3123
	TC-2T-35B	TC-2T-36B	20,000	8′-0″	8′-0″	10,800	13,500	6460	* 2	64	
160	TC-2T-22G	TC-2T-18B	20,000	8′-0″	8′-0″	10,800	13,500	6460	* 2	64	
	TC-33BT-22G	TC-33BT-18B	15,000	8′-3″	5′-3¼″	6,720	9,540	4152	3	64	3124
	TC-33AT-22G	TC-33AT-18B	17,000	8′-0″	8′-0″	7,975	11,075	5452	3	54	3125
	TC-33T-22G	TC-33T-18B	17,000	7′-0″	5′-3¼″	8,140	11,220	4152	3	54.4	
114	TC-33T-15A	TC-33T-24A	17,000	7′-0″	7′-0″	7,975	11,075	5452	3	54	
	TC-44A-15A	TC-44A-24A	15,000	8′-0″	8′-0″	7,975	11,075	5452	3	54	
	TC-44S-15A	TC-44S-24A	13,500	6′-4⅜″	5′-7⅝″	5,550	7,160	4846	5A	54.2	3128
	TC-44-15A	TC-44-24A	13,500	6′-0″	6′-0″	6,230	8,030	4846	5A	48	3129
	T5A-15A	T5A-24A	10,000	5′-0″	5′-0″	4,830	6,400	4242C	5C	42	3128–31
80	TC-44-80DA	.....	13,500	6′-0″	6′-0″	6,230	8,030	4846	5A	48	3128–9
	T5A-80DA	.....	10,000	5′-0″	5′-0″	4,830	6,400	4242C	5C	42	3128–31
57	T5A-7C	T5A-16A	10,000	5′-0″	5′-0″	4,830	6,400	4242C	5C	42	3130–1
40	T6D-9B	.....	8,000	4′-0″	4′-0″	4,700	5,930	3440A	6	34	3130–1
25	T7-3B	.....	6,000	3′-6″	3′-6″	2,920	3,860	2432	7	24	3130–1
16	T8B-16D	.....	3,660	3′-9″	2′-9″	2,800	.....	2214	Beam Wts.	30	3132
	T8-16D	.....	5,000	2′-9″	2′-9″	3,400	.....	2214	Beam Wts.	22	3132

* See General Specifications for Alternate.

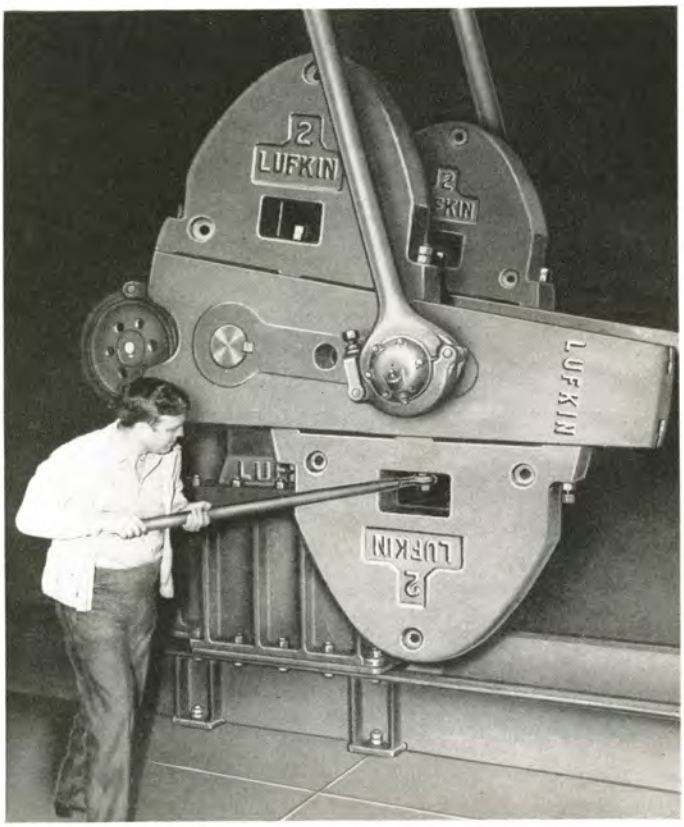


FIGURE 1

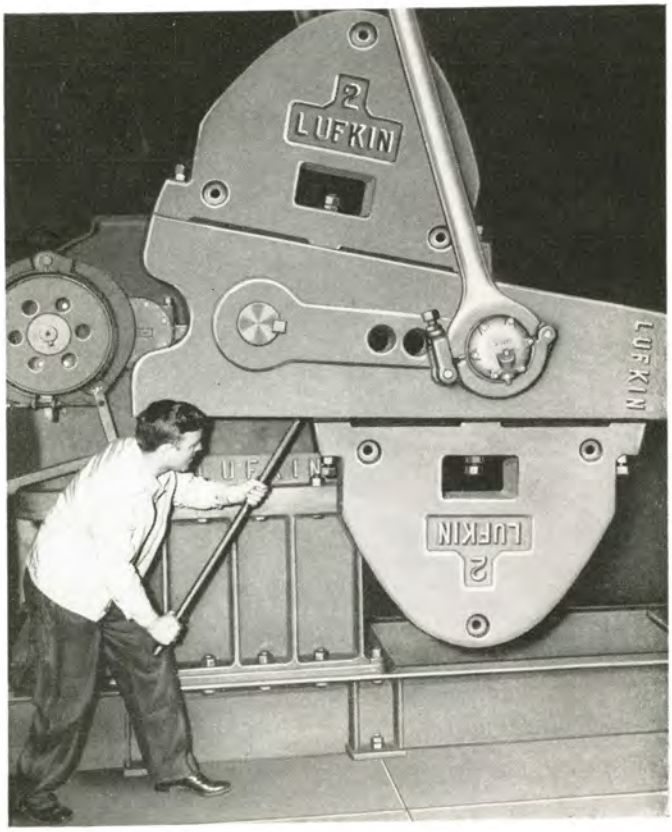


FIGURE 2

EXCLUSIVE FEATURES OF LUFKIN PUMPING UNITS

TROUT COUNTERBALANCED CRANK

The Trout Counterbalanced Crank, using sliding weights to change the counterbalance effect, is an Original Lufkin Feature. Moving the counterweights is Simple, Easy, Positive and Fool-proof.

To move the counterweights:

1. Personnel required: ONE MAN ONLY.
2. Tools: Wrench (as furnished) and pinch bar.
3. Move cranks to approximately horizontal position with cranks slanted slightly (3° to 5°) in direction weights are to be moved. Hold cranks in position with brake.
4. Loosen nuts which hold lower counterweight, using pipe extension on wrench (Fig. 1) or sledge hammer against wrench. Allow ⅛" to ¼" space between counterweight and crank.
5. With point of pinch bar inserted in teeth cast at bottom of slot in crank, pry bottom counterweight along crank to desired position (Fig. 2).
6. Tighten nuts using pipe extension on wrench or sledge hammer against wrench.
7. With cranks remaining in same position, move bottom counterweight on opposite crank.
8. Rotate cranks 180° and move the two remaining counterweights in the same manner.

This Simple and Easy method of counterbalance adjustment does not require a crew of men nor auxiliary lifting equipment. ONE MAN ALONE, with a wrench and pinch bar, can, in a very few minutes, move all four weights from one end of the crank to the other end with no more work involved than loosening and tightening 8 or 12 bolts. (Smaller units, TC-44 and smaller, have a total of 8 bolts and larger units have 12 bolts.)

The adjustment of weights is accomplished by the OPERATOR STANDING SAFELY ON THE GROUND. It is not necessary for him to climb up on the gear box or the crank. On smaller units, where the operator can easily reach the top counterweight bolts from the ground, he can easily and safely move all four counterweights from the same horizontal crank position.

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 the unit supplier.

There is no hazard to the operator or equipment as it is impossible for the Trout counterweight to slide off the crank, even when the bolts are loosened, so long as the nuts are not completely removed from the 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 THIRTY-FIVE 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 3. Since the beam is a rolled structural member, not machined, all beams have a slight twist. When loaded as shown in Figure 3, 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 4, 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.

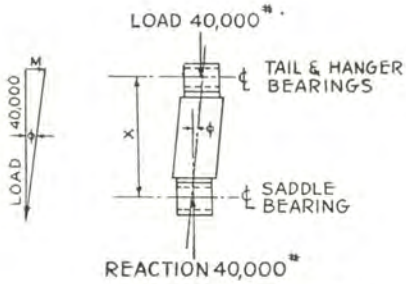


FIGURE 4

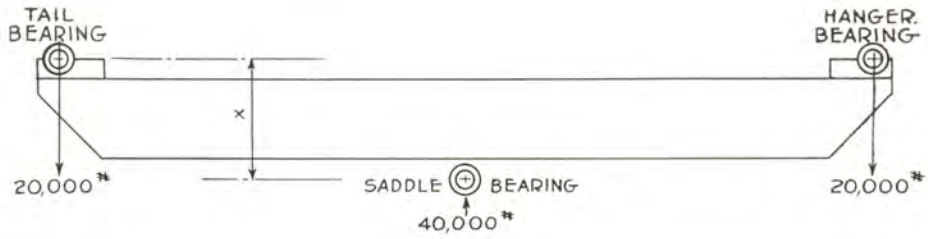


FIGURE 3

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 manufacture, 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.

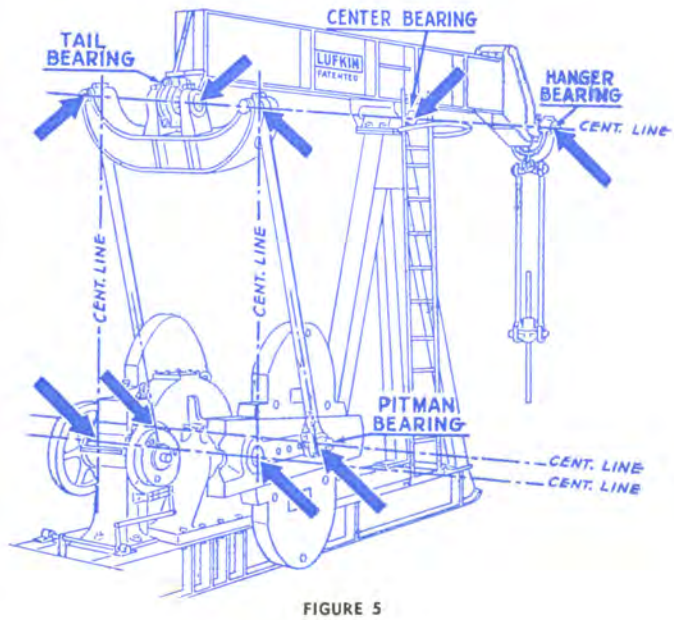


FIGURE 5

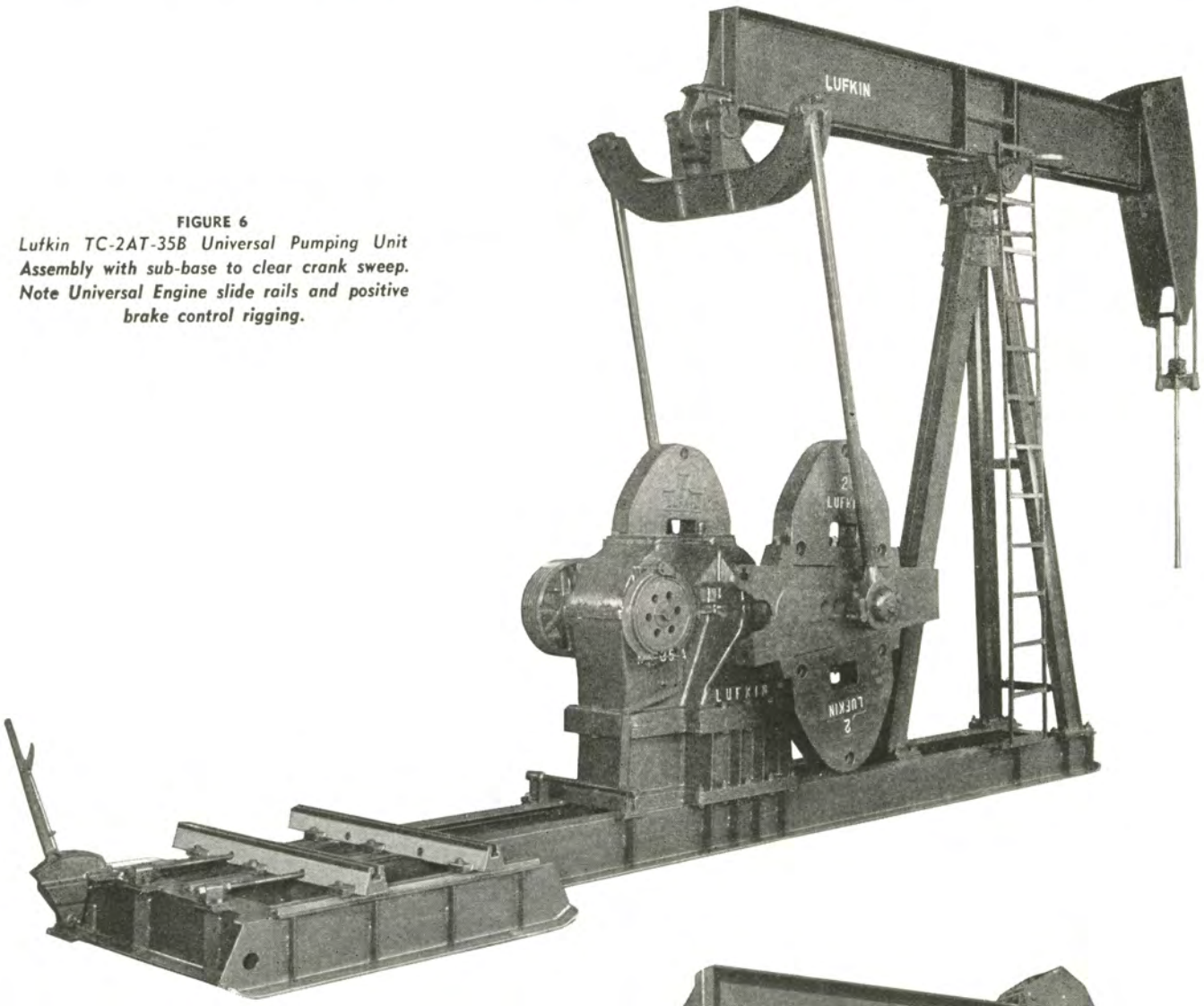


FIGURE 6
Lufkin TC-2AT-35B Universal Pumping Unit Assembly with sub-base to clear crank sweep. Note Universal Engine slide rails and positive brake control rigging.

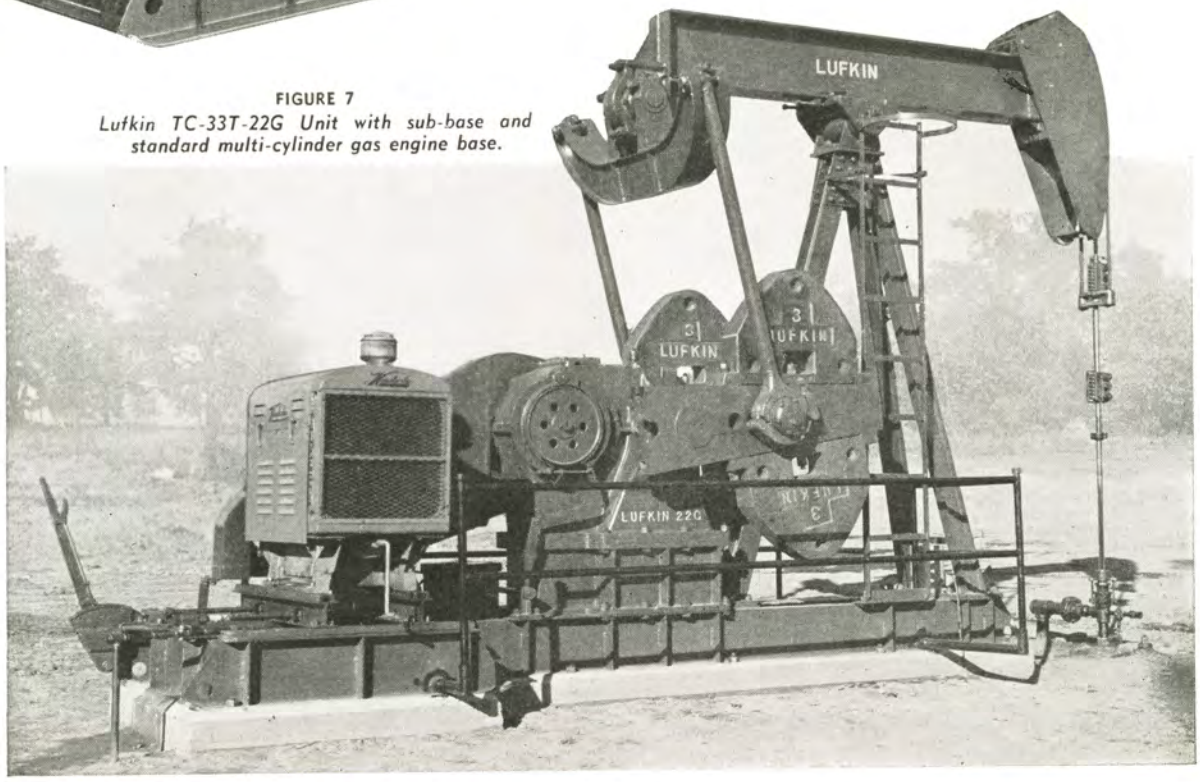


FIGURE 7
Lufkin TC-33T-22G Unit with sub-base and standard multi-cylinder gas engine base.

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.

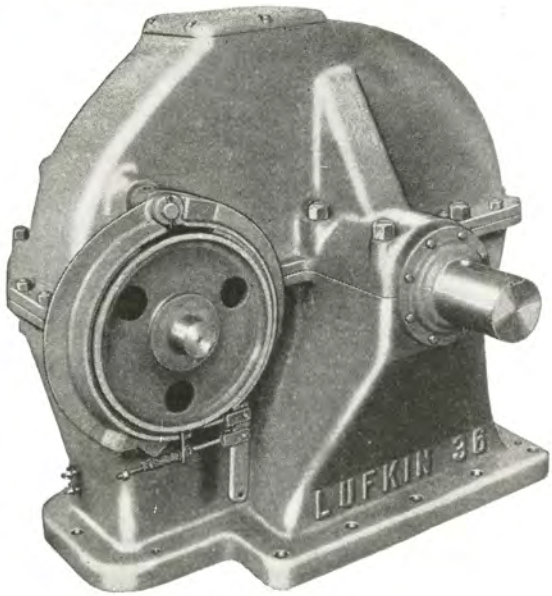


FIGURE 8

DOUBLE REDUCTION GEAR UNITS

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

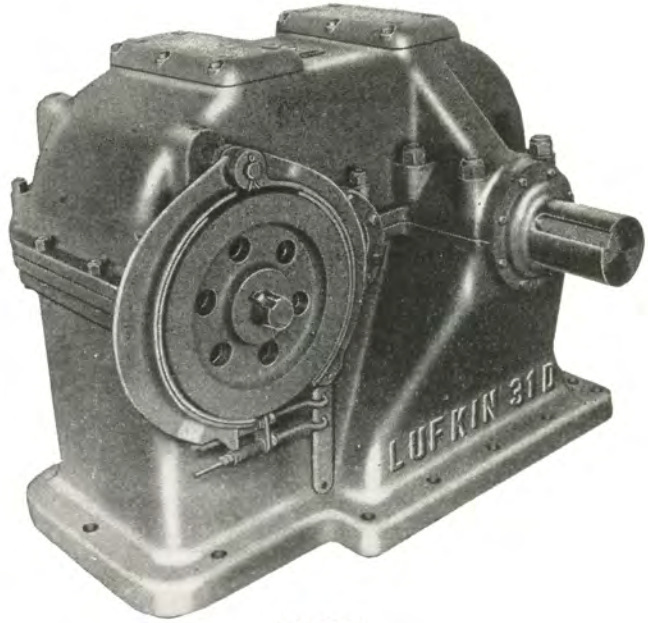


FIGURE 10

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.

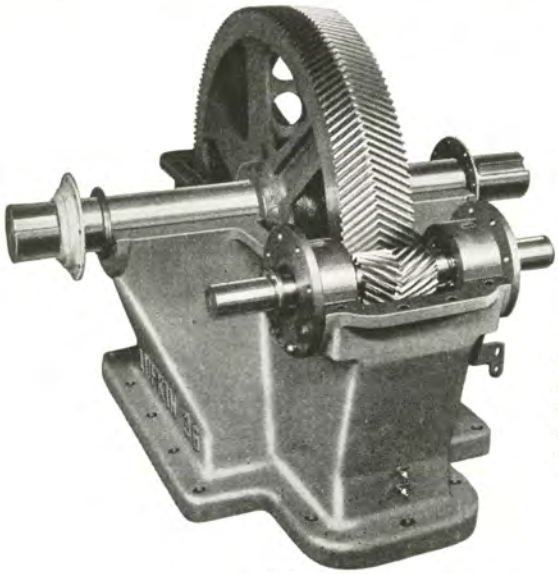


FIGURE 9

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.

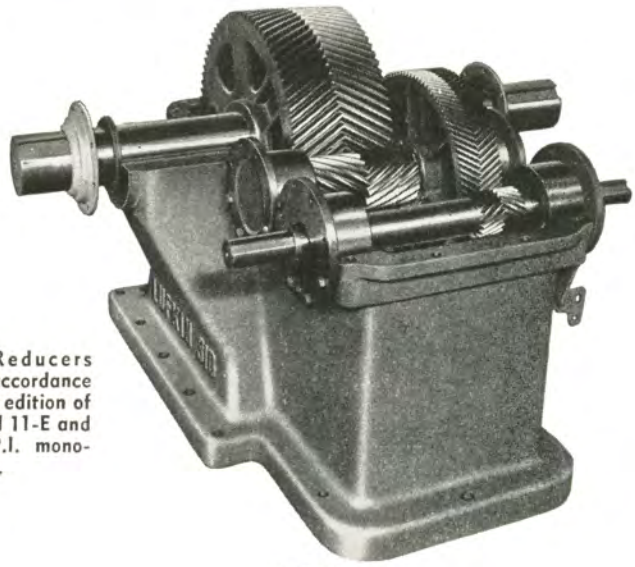


FIGURE 11

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: 61B or 640DA API Size.
Gears: Main Gear 41.6" Diam., 12¾" Face.
Rating: 640,000 In. Lbs. Peak Torque, 129 HP at 20 S.P.M.
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: 22¼".
Gear Box Oil Capacity: 75 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL TC-OLC-61B 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: 32,600 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. 82100, 100" Radius.
BASE: 16" Deep, 50" Wide at Gear Box.
SUB-BASE: 34" 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 COUNTERBALABCE, LBS.

	No. 82100 Crank	
Stroke	No. 00 Wts.	Aux. Wts.
50.0"	52,700	66,100
67.6"	39,000	47,900
85.3"	30,950	38,000
103.0"	25,660	31,420
120.0"	22,100	27,000

LUFKIN UNIVERSAL TC-OLB-61B 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: 32,600 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. 8292, 92" Radius.
BASE: 16" Deep, 50" Wide at Gear Box.
SUB-BASE: 34" 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.

	No. 8292 Crank	
Stroke	No. 00 Wts.	Aux. Wts.
50.0"	47,400	58,300
67.6"	35,000	43,000
85.3"	27,800	34,200
103.0"	23,000	28,300
120.0"	19,750	24,300

LUFKIN UNIVERSAL* TC-OL-61B 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: 30,945 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. 8478, 78" Radius.
BASE: 16" Deep, 50" Wide at Gear Box
SUB-BASE: 34" 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.

	No. 8478 Crank	
Stroke	No. 0 Wts.	Aux. Wts.
46.4"	35,250	44,530
61.9"	26,440	33,390
77.4"	21,150	26,720
92.9"	17,620	22,260
108.4"	15,110	19,080

LUFKIN UNIVERSAL TC-OAL-61B 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. 8478, 78" Radius.
BASE: 16" Deep, 50" 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.

	No. 8478 Crank		No. 8478 Crank	
Stroke	No.0 Wts. (Std.)	Aux. Wts.	No. 1 Wts.	Aux. Wts.
36"	45,440	57,400	34,600	43,000
48"	34,080	43,040	26,000	32,210
60"	27,260	34,440	20,800	25,800
72"	22,710	28,700	17,200	21,500
84"	19,480	24,600	14,800	18,400

LUFKIN UNIVERSAL TC-OA-61B 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. 7472, 71½" Radius.
BASE: 16" Deep, 50" 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	45,320 lbs.

STATIC COUNTERBALANCE, LBS.

	No. 7472 Crank	
Stroke	No. 1 Wts.	Aux. Wts.
34"	32,000	39,900
44"	24,750	30,850
54"	20,150	25,100
64"	17,000	21,200
74"	14,700	18,325

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

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

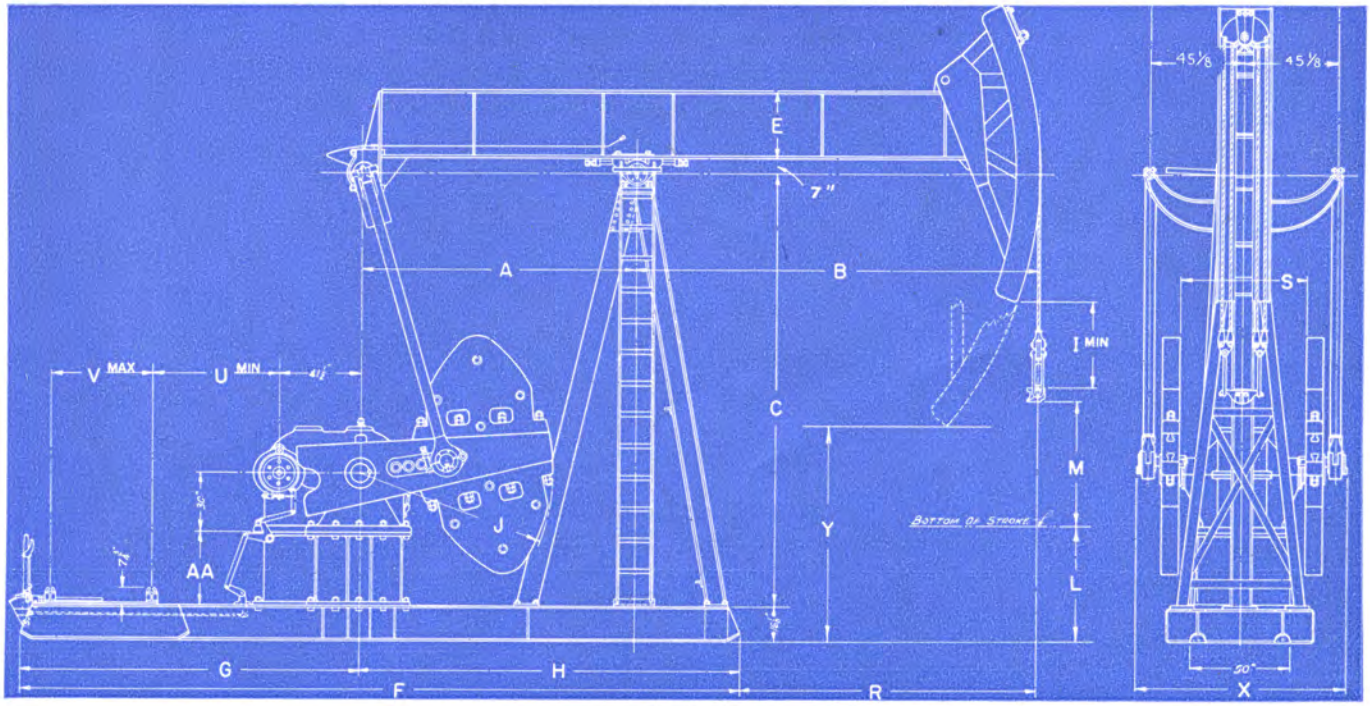


FIGURE 12

UNIT	A	B	C	E	F	G	H	I	J	L	M	R	S	U	V	X	Y	AA
*TC-OLC-61B..	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″	34″†
*TC-OLB-61B...	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″	34″‡
TC-OL-61B.....	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″	34″
TC-OAL-61B...	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″	34″
TC-OA-61B....	12′-6″	12′-6″	15′-9″	29⅞″	30′-0″	13′-2″	16′-10″	36¼″	71½″	6′-7⅝″	37″	8′-2″	67½″	56″	41″	8′-7¾″	10′-7⅛″	34″

* TC-OLC-61B and TC-OLB-61B have double wire lines as shown, all other units shown in this table have single wire line shown in Fig. 36.
† Requires foundation projecting 23″ above grade line, to provide crank clearance
‡ Requires foundation projecting 15″ above grade line, to provide crank clearance.

FIGURE 13

GENERAL SPECIFICATIONS

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

456 API Size

GEAR DATA

GEAR REDUCER: Double Reduction

Designation: 456DA
Gears: Main Gear 38" Diam., 11" Face.
Rating: 469,000 In. Lbs. Peak Torque; 95 HP at 20 S.P.M.
Ratio of Gears: 29.04.
Crank Shaft Diam.: 7".
Sheave: 34" P.D.—7D Std., 51" P.D. Max., 3-7/16" Bore.
Distance Centerline Unit to Centerline Drive: 21½".
Gear Box Oil Capacity: 75 Gallons.

GEAR REDUCER: Single Reduction

Designation: 456S.
Gears: Main Gear 60" Diam., 11" Face.
Rating: 468,000 In. Lbs. Peak Torque; 94.5 HP at 20 S.P.M.
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: 40 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL TC-OLB-456DA, TC-OLB-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: 32,600 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. 8292, 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-OLB-456DA 54,980 lbs., TC-OLB-456S 55,600 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 8292 Crank	
Stroke	No. 00 Wts.	Aux. Wts.
50.0"	47,400	58,300
67.6"	35,000	43,000
85.3"	27,800	34,200
103.0"	23,000	28,300
120.0"	19,750	24,300

LUFKIN UNIVERSAL *TC-OL-456DA, TC-OL-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: 30,945 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. 8478, 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-OL-456DA 51,230 lbs., TC-OL-456S 51,850 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 8478 Crank	
Stroke	No. 0 Wts.	Aux. Wts.
46.4"	35,250	44,530
61.9"	26,440	33,390
77.4"	21,150	26,720
92.9"	17,620	22,260
108.4"	15,110	19,080

LUFKIN UNIVERSAL TC-OAL-456DA, TC-OAL-456S PUMPING UNIT ASSEMBLIES—30,000 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. 8478, 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-OAL-456DA 49,975 lbs., TC-OAL-456S 50,600 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 8478 Crank		No. 8478 Crank	
Stroke	No. 0 Wts. (Std.)	Aux. Wts.	No. 1 Wts.	Aux. Wts.
36"	45,440	57,400	34,600	43,000
48"	34,080	43,040	26,000	32,210
60"	27,260	34,440	20,800	25,800
72"	22,710	28,700	17,200	21,500
84"	19,480	24,600	14,800	18,400

LUFKIN UNIVERSAL TC-OA-456DA, TC-OA-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. 7472, 71½" 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-OA-456DA 43,800 lbs., TC-OA-456S 44,400 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 7472 Crank	
Stroke	No. 1 Wts.	Aux. Wts.
34"	32,000	39,900
44"	24,750	30,850
54"	20,150	25,100
64"	17,000	21,200
74"	14,700	18,325

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

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

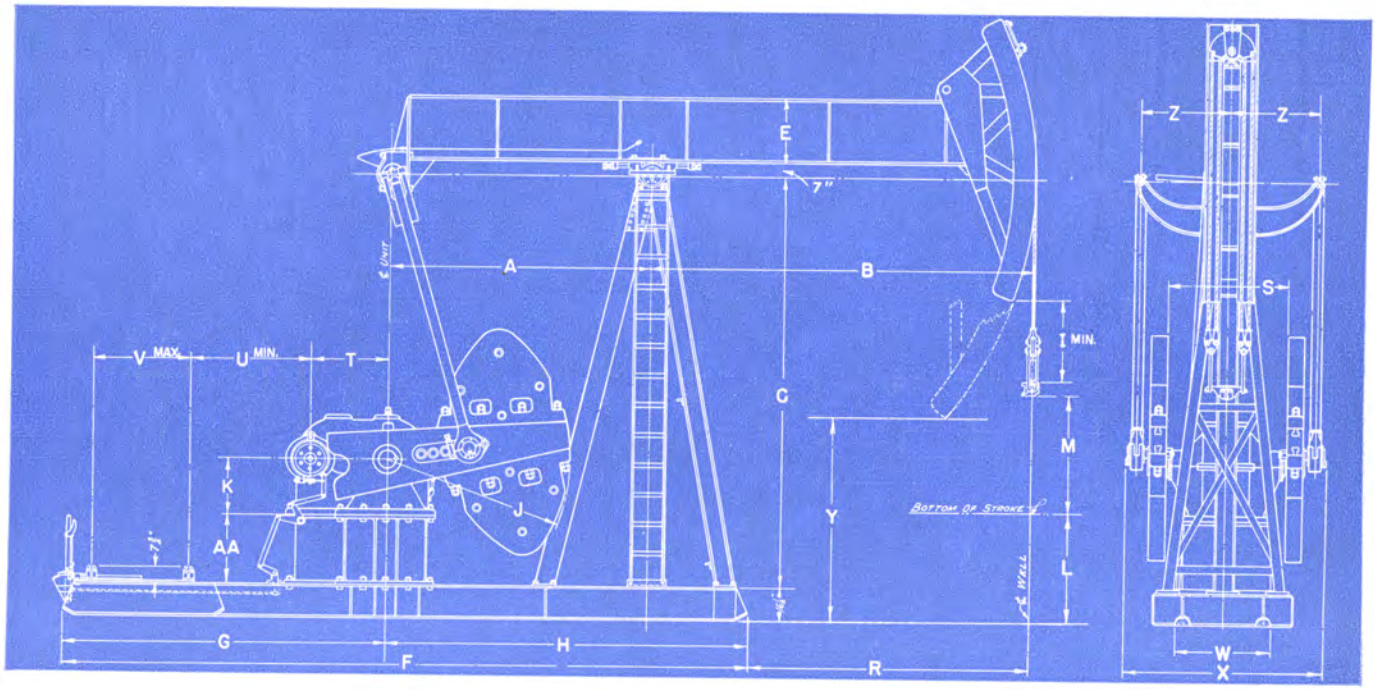


FIGURE 14

UNIT	A	B	C	E	F	G	H	I	J	K	L	M	R	S	T	U	V	W	X	Y	Z	AA
*TC-OLB-456DA	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	27¾″	92″	28″	5′-4″	60″	11′-10¼″	59¾″	38⅜″	7′-1⅜″	46″	46¾″	7′-9⅛″	8′-10⅝″	42⅜″	36‡
*TC-OLB-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-OL-456DA.	10′-11¼″	14′-0¾″	17′-4″	29⅞″	30′-5″	15′-4″	15′-1″	28½″	78″	28″	6′-4⅝″	54.2″	9′-11″	62″	38⅜″	7′-1⅜″	46″	46¾″	7′-9⅛″	10′-0⅛″	42⅜″	36″
TC-OL-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-OAL-456DA	12′-6″	12′-6″	15′-9″	29⅞″	30′-0″	13′-3″	16′-9″	36¼″	78″	28″	6′-2⅝″	42″	8′-3″	62″	38⅜″	62⅜″	45½″	46¾″	8′-2¼″	10′-2¾″	42⅜″	36″
TC-OAL-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″
TC-OA-456DA.	12′-6″	12′-6″	15′-9″	29⅞″	30′-0″	13′-3″	16′-9″	36¼″	71½″	28″	6′-7⅝″	37″	8′-3″	62″	38⅜″	62⅜″	45½″	46¾″	8′-2¼″	10′-7⅛″	42⅜″	36″
TC-OA-456S...	12′-6″	12′-6″	15′-9″	29⅞″	30′-0″	13′-3″	16′-9″	36¼″	71½″	34″	6′-7⅝″	37″	8′-3″	67½″	32.8″	67.95″	45½″	46¾″	8′-7¾″	10′-7⅛″	45⅛″	36″

* TC-OLB-456DA and TC-OLB-456S have double wire lines as shown, all other units shown in this table have single wire line like shown in Fig. 36.
‡ Requires foundation projecting 15″ above grade line, to provide for crank sweep.
I Requires foundation projecting 9″ above grade line, to provide for crank sweep.

FIGURE 15

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

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: 324,000 In. Lbs. Peak Torque; 65.5 HP at 20 S.P.M.
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: 55 Gallons.

GEAR REDUCER: Single Reduction

Designation: 54C or 320S API Size.
Gears: Main Gear 47" Diam., 10" Face.
Rating: 352,000 In. Lbs. Peak Torque; 71.0 HP at 20 S.P.M.
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: 29 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL TC-1LB-41D, TC-1LB-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. 8478, 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-1LB-41D 45,400 lbs., TC-1LB-54C 45,300 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 8478 Crank	
Stroke	No. 0 Wts.	Aux. Wts.
51.5"	31,830	40,210
68.5"	23,880	30,150
85.5"	19,100	24,130
103.0"	15,910	20,100
120.0"	13,640	17,230

LUFKIN UNIVERSAL TC-OAL-41D, TC-OAL-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. 8478, 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-OAL-41D 46,580 lbs. TC-OAL-54C 46,480 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 8478 Crank		No. 8478 Crank	
Stroke	No. 0 Wts. (Std.)	Aux. Wts.	No. 1 Wts.	Aux. Wts.
36"	45,440	57,400	34,600	43,000
48"	34,080	43,040	26,000	32,210
60"	27,260	34,440	20,800	25,800
72"	22,710	28,700	17,200	21,500
84"	19,480	24,600	14,800	18,400

LUFKIN UNIVERSAL *TC-1B-41D, TC-1B-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. 7472, 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-1B-41D 38,500 lbs., TC-1B-54C 38,400 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 7472 Crank	
Stroke	No. 1 Wts.	Aux. Wts.
38.5"	28,160	35,110
50.0"	21,780	27,150
61.0"	17,730	22,090
72.5"	14,960	18,670
84"	12,940	16,130

LUFKIN UNIVERSAL TC-1A-41D, TC-1A-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. 7472, 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-1A-41D 39,850 lbs., TC-1A-54C 39,750 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 7472 Crank		No. 7472 Crank	
Stroke	No. 2 Wts.	Aux. Wts.	No. 1 Wts. (Std.)	Aux. Wts.
34"	28,800	35,600	32,000	39,900
44"	22,200	27,500	24,750	30,850
54"	18,200	22,400	20,150	25,100
64"	15,300	19,000	17,000	21,200
74"	13,040	16,250	14,700	18,325

LUFKIN UNIVERSAL *TC-1-41D, TC-1-54C 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. 7472, 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-1-41D 38,250 lbs., TC-1-54C 38,150 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 7472 Crank		No. 7472 Crank	
Stroke	No. 2 Wts.	Aux. Wts.	No. 1 Wts. (Std.)	Aux. Wts.
34"	28,800	35,600	32,000	39,900
44"	22,200	27,500	24,750	30,850
54"	18,200	22,400	20,150	25,100
64"	15,300	19,000	17,000	21,200
74"	13,040	16,250	14,700	18,325

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

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

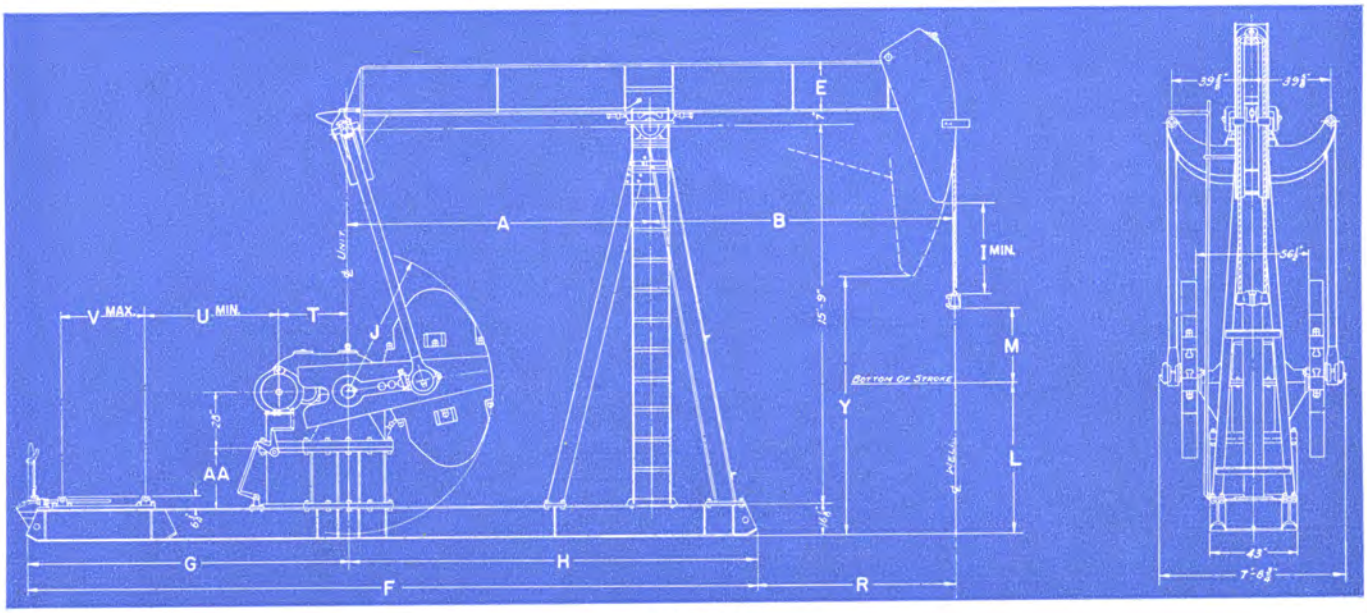


FIGURE 16

UNIT.....	A	B	E	F	G	H	I	J	L	M	R	T	U	V	Y	AA
TC-1LB-41D...	10′-0″	14′-3½″	29⅞″	27′-4½″	13′-1½″	14′-3″	17¼″	78″	58½″	60″	10′-0½″	34″	65″	45¾″	7′-7¼″	39″
TC-1LB-54C...	10′-0″	14′-3½″	29⅞″	27′-4½″	13′-1½″	14′-3″	17¼″	78″	58½″	60″	10′-0½″	26″	73″	45¾″	7′-7¼″	39″
TC-OAL-41D..	12′-6″	12′-6″	29⅞″	30′-1½″	13′-3″	16′-10½″	36¼″	78″	74⅝″	42″	8′-1½″	34″	65″	41″	10′-2¾″	39″
TC-OAL-54C...	12′-6″	12′-6″	29⅞″	30′-1½″	13′-3″	16′-10½″	36¼″	78″	74⅝″	42″	8′-1½″	26″	73″	41″	10′-2¾″	39″
TC-1B-41D....	10′-0″	11′-4¼″	24¾″	25′-10″	11′-7″	14′-3″	36⅞″	71½″	73⅞″	42″	7′-1¼″	34″	48¼″	41½″	10′-3½″	32″
TC-1B-54C....	10′-0″	11′-4¼″	24¾″	25′-10″	11′-7″	14′-3″	36⅞″	71½″	73⅞″	42″	7′-1¼″	26″	56¼″	41½″	10′-3½″	32″
TC-1A-41D....	12′-6″	12′-6″	24¾″	30′-1½″	13′-3″	16′-10½″	44⅝″	71½″	76⅜″	37″	8′-1½″	34″	65″	41″	10′-11⅝″	32″
TC-1A-54C....	12′-6″	12′-6″	24¾″	30′-1½″	13′-3″	16′-10½″	44⅝″	71½″	76⅜″	37″	8′-1½″	26″	73″	41″	10′-11⅝″	32″
TC-1-41D.....	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″
TC-1-54C.....	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″

FIGURE 17

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

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; 46.1 HP at 20 S.P.M.
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: 55 Gallons.

GEAR REDUCER: Single Reduction

Designation: 36B or 228S API Size.
Gears: Main Gear 45.4" Diam., 8" Face.
Rating: 264,000 In. Lbs. Peak Torque; 53.3 HP at 20 S.P.M.
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: 20 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL TC-1-35B, TC-1-36B 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: 25,400 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, 14'-7" high.
CRANKS: No. 7472, 71½" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 33" High, Cast Iron, for No. 7472 Cranks. 27" High, Cast Iron, for No. 7466 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-1-35B 30,285 lbs., TC-1-36B 30,185 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 7466 Crank		No. 7472 Crank (Std.)	
Stroke	No. 2 Wts.	Aux. Wts.	No. 1 Wts.	Aux. Wts.
34"	24,200	30,100	32,000	39,900
44"	18,700	23,250	24,750	30,850
54"	15,250	18,950	20,150	25,100
64"	12,850	16,000	17,000	21,200
74"	11,150	13,850	14,700	18,325

LUFKIN UNIVERSAL *TC-2BT-35B, TC-2BT-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. 6460, 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-2BT-35B 28,280 lbs., TC-2BT-36B 28,180 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 6460 Crank		No. 6460 Crank	
Stroke	No. 2A Wts.	Aux. Wts.	No. 2 Wts. (Std.)	Aux. Wts.
27.5"	22,450	27,640	27,910	31,100
39.0"	15,830	19,500	17,600	21,950
51.0"	12,240	15,050	13,580	16,950
62.5"	9,990	12,290	11,070	13,800
74.0"	8,430	10,380	9,340	11,670

LUFKIN UNIVERSAL TC-2AT-35B, TC-2AT-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. 6460, 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-2AT-35B 28,960 lbs., TC-2AT-36B 28,860 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 6460 Crank		No. 6460 Crank	
Stroke	No. 2A Wts.	Aux. Wts.	No. 2 Wts. (Std.)	Aux. Wts.
24"	25,950	31,950	28,800	35,950
34"	18,300	22,550	20,350	25,350
44"	14,150	17,400	15,700	19,600
54"	11,550	14,200	12,800	15,950
64"	9,750	12,000	10,800	13,500

LUFKIN UNIVERSAL *TC-2T-35B, TC-2T-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. 6460, 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-2T-35B 28,010 lbs., TC-2T-36B 28,190 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 6460 Crank		No. 6460 Crank	
Stroke	No. 2A Wts.	Aux. Wts.	No. 2 Wts. (Std.)	Aux. Wts.
24"	25,950	31,950	28,800	35,950
34"	18,300	22,550	20,350	25,350
44"	14,150	17,400	15,700	19,600
54"	11,550	14,200	12,800	15,950
64"	9,750	12,000	10,800	13,500

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

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

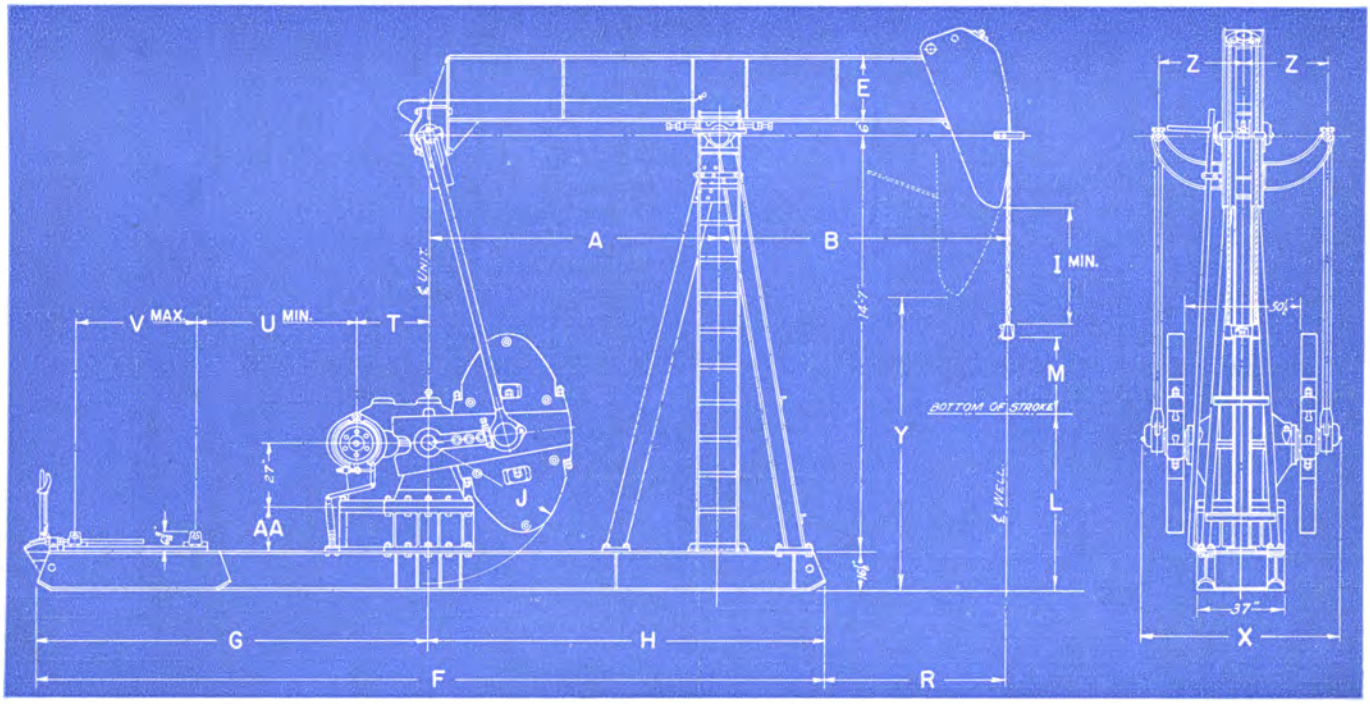


FIGURE 18

UNIT	A	B	E	F	G	H	I	J	L	M	R	T	U	V	X	Y	Z	AA
TC-1-35B	10′-0″	10′-0″	24¼″	27′-3″	13′-6″	13′-9″	46″	71½″	5′-0⅛″	37″	6′-3″	30″	66¾″	50½″	7′-1¾″	9′-10″	35⅞″	33″
TC-1-36B	10′-0″	10′-0″	24¼″	27′-3″	13′-6″	13′-9″	46″	71½″	5′-0⅛″	37″	6′-3″	25″	71¾″	50½″	7′-1¾″	9′-10″	35⅞″	33″
TC-2BT-35B	8′-0″	9′-3″	27⅛″	22′-1″	10′-4″	11′-9″	40″	59½″	5′-6¾″	37″	5′-6″	30″	35½″	41″	6′-11⅛″	9′-10½″	35⅛″	21″
TC-2BT-36B	8′-0″	9′-3″	27⅛″	22′-1″	10′-4″	11′-9″	40″	59½″	5′-6¾″	37″	5′-6″	25″	40½″	41″	6′-11⅛″	9′-10½″	35⅛″	21″
TC-2AT-35B	10′-0″	10′-0″	27⅛″	27′-3″	13′-6″	13′-9″	42⅛″	59½″	6′-1½″	32″	6′-3″	30″	66¾″	50½″	6′-11⅛″	10′-6″	35⅛″	21″
TC-2AT-36B	10′-0″	10′-0″	27⅛″	27′-3″	13′-6″	13′-9″	42⅛″	59½″	6′-1½″	32″	6′-3″	25″	71¾″	50½″	6′-11⅛″	10′-6″	35⅛″	21″
TC-2T-35B	8′-0″	8′-0″	24″	22′-1″	10′-4″	11′-9″	43⅞″	59½″	6′-1¼″	32″	4′-3″	30″	35½″	41″	6′-11⅛″	10′-10″	35⅛″	21″
TC-2T-36B	8′-0″	8′-0″	24″	22′-1″	10′-4″	11′-9″	43⅞″	59½″	6′-1¼″	32″	4′-3″	25″	40½″	41″	6′-11⅛″	10′-10″	35⅛″	21″

FIGURE 19

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

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: 164,000 In. Lbs. Peak Torque; 33.2 HP at 20 S.P.M.
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: 173,000 In. Lbs. Peak Torque; 35 HP at 20 S.P.M.
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: 20 Gallons.

STRUCTURAL DATA

LUFKIN UNIVERSAL *TC-2T-22G, TC-2T-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. 6460, 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.

Stroke	No. 6460 Crank		No. 6460 Crank	
	No. 2A Wts.	Aux. Wts.	No. 2 Wts. (Std.)	Aux. Wts.
24"	25,950	31,950	28,800	35,950
34"	18,300	22,550	20,350	25,350
44"	14,150	17,400	15,700	19,600
54"	11,550	14,200	12,800	15,950
64"	9,250	12,000	10,800	13,500

LUFKIN UNIVERSAL TC-33BT-22G, TC-33BT-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. 4152, 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.

Stroke	No. 4152 Crank	
	No. 3 Wts.	Aux. Wts.
32.9"	13,460	18,600
48.5"	9,130	12,580
64.0"	6,720	9,540

LUFKIN UNIVERSAL TC-33AT-22G, TC-33AT-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. 5452, 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.

Stroke	No. 5452 Crank	
	No. 3 Wts.	Aux. Wts.
24"	17,950	24,950
34"	12,650	17,500
44"	9,750	13,575
54"	7,975	11,075

LUFKIN UNIVERSAL *TC-33T-22G, TC-33T-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. 4152, 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.

Stroke	No. 4152 Crank	
	No. 3 Wts.	Aux. Wts.
27.9"	15,840	21,850
41.2"	10,720	14,800
54.4"	8,140	11,220

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

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

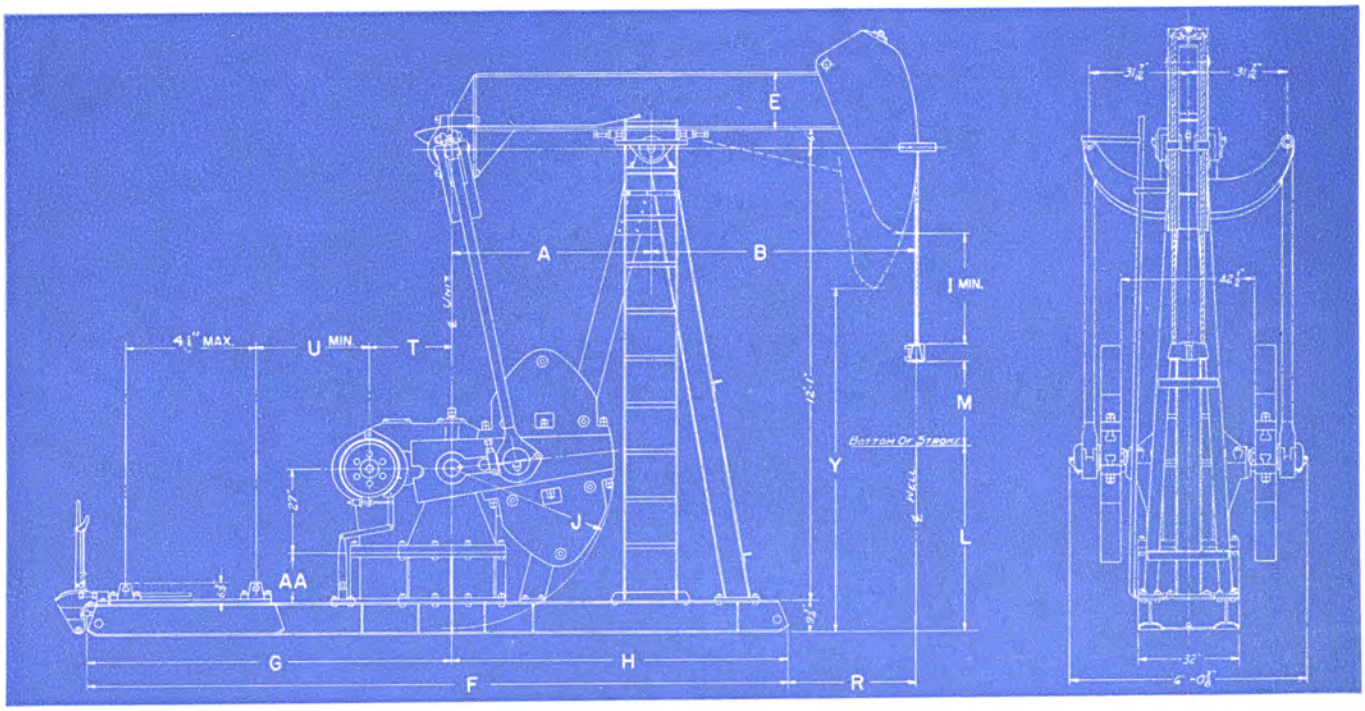
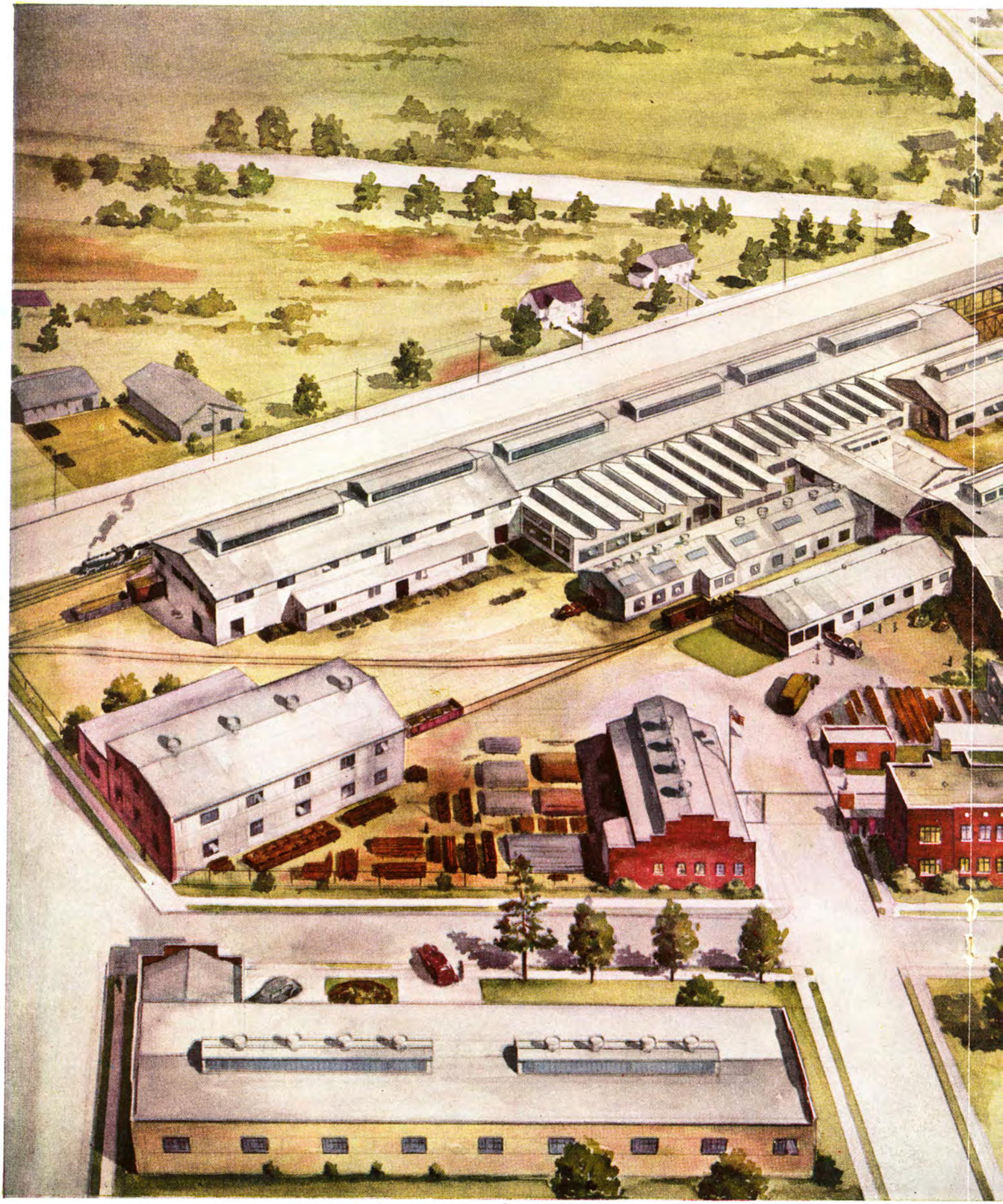


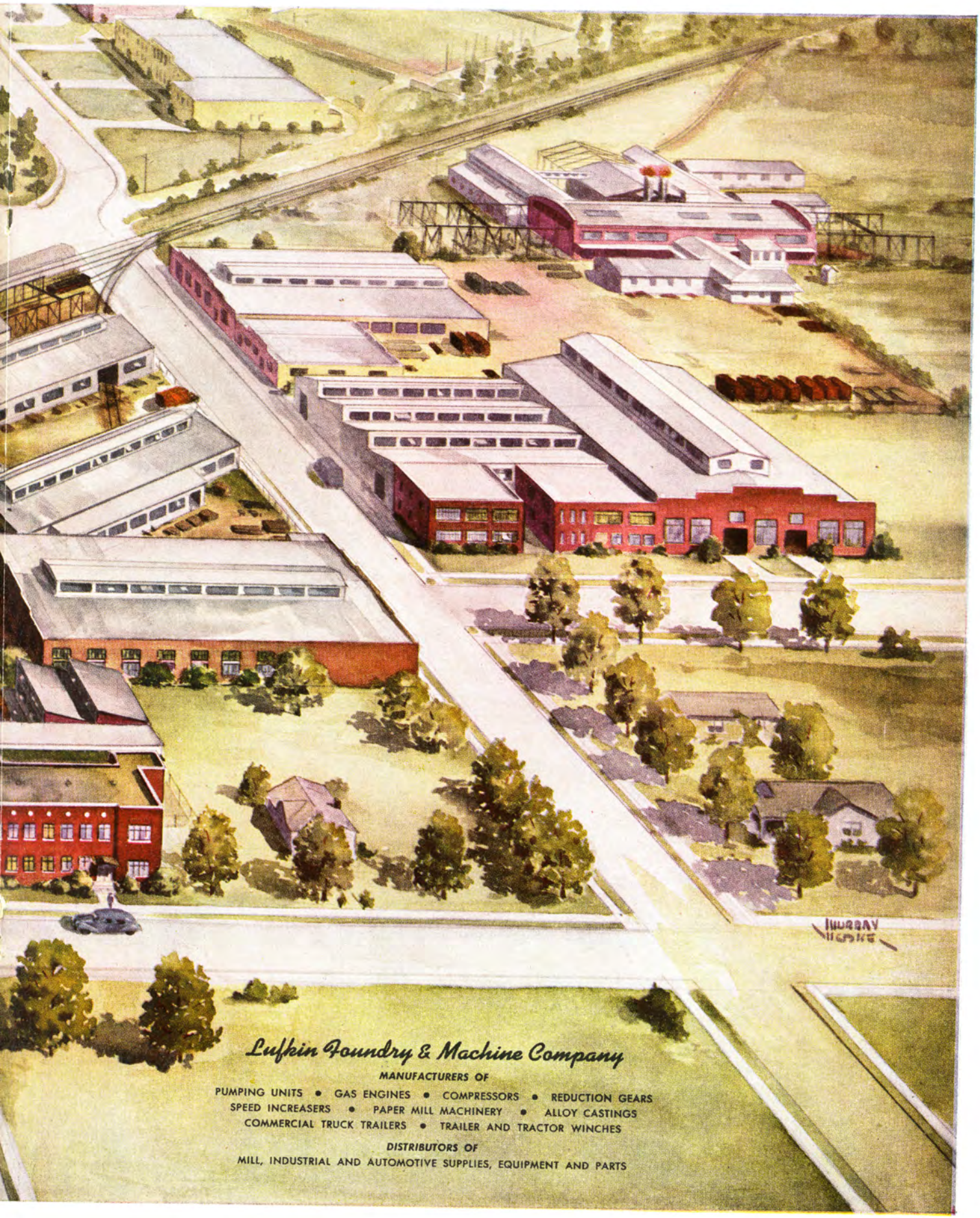
FIGURE 20

UNIT	A	B	E	F	G	H	I	J	L	M	R	T	U	Y	AA
TC-2T-22G	8′-0″	8′-0″	24″	20′-9″	9′-7″	11′-2″	25¾″	59½″	55⅜″	32″	58″	26″	35⅞″	7′-9½″	24″
TC-2T-18B	8′-0″	8′-0″	24″	20′-9″	9′-7″	11′-2″	25¾″	59½″	55⅜″	32″	58″	23″	38⅞″	7′-9½″	24″
TC-33BT-22G	5′-3¼″	8′-3″	20⅞″	18′-6″	9′-7¼″	8′-10¾″	30⅛″	51½″	52⅝″	32″	55½″	26″	36⅛″	7′-7¾″	16″
TC-33BT-18B	5′-3¼″	8′-3″	20⅞″	18′-6″	9′-7¼″	8′-10¾″	30⅛″	51½″	52⅝″	32″	55½″	23″	39⅛″	7′-7¾″	16″
TC-33AT-22G	8′-0″	8′-0″	24⅛″	20′-9″	9′-7″	11′-2″	23¾″	51½″	64″	27″	58″	26″	35⅞″	8′-1″	16″
TC-33AT-18B	8′-0″	8′-0″	24⅛″	20′-9″	9′-7″	11′-2″	23¾″	51½″	64″	27″	58″	23″	38⅞″	8′-1″	16″
TC-33T-22G	5′-3¼″	7′-0″	18⅛″	18′-6″	9′-7¼″	8′-10¾″	34⅞″	51½″	58¾″	27.2″	40½″	26″	36⅛″	8′-7″	16″
TC-33T-18B	5′-3¼″	7′-0″	18⅛″	18′-6″	9′-7¼″	8′-10¾″	34⅞″	51½″	58¾″	27.2″	40½″	23″	39⅛″	8′-7″	16″

FIGURE 21

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





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

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: 15A or 114D API Size.
Gears: Main Gear 23.7" Diam., 6¼" Face.
Rating: 124,000 In. Lbs. Peak Torque
25.1 HP at 20 S.P.M.
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: 12⅛"
Gear Box Oil Capacity: 17 Gallons

GEAR REDUCER: Single Reduction
Designation: 24A or 114S API Size.
Gears: Main Gear 36.2" Diam., 5½" Face
Rating: 128,000 In. Lbs. Peak Torque
25.9 HP at 20 S.P.M.
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: 80DA
Gears: Main Gear 22.2" Diam., 5½" Face
Rating: 80,000 In. Lbs. Peak Torque
16.2 HP at 20 S.P.M.
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-33T-15A, TC-33T-24A PUMPING UNIT ASSEMBLIES—17,000 Lb. Polished Rod Load Class

WALKING BEAM: 21" x 9" x 82 lbs., 7'-0" and 7'-0" working centers. API Walking Beam Rating: 18,850 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. 5452, 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..... 17,780 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 5452 Crank	
	No. 3 Wts.	Aux. Wts.
24"	17,950	24,950
34"	12,650	17,500
44"	9,750	13,575
54"	7,975	11,075

LUFKIN UNIVERSAL *TC-44A-15A, TC-44A-24A 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. 5452, 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.

Stroke	No. 5452 Crank	
	No. 3 Wts.	Aux. Wts.
24"	17,950	24,950
34"	12,650	17,500
44"	9,750	13,575
54"	7,975	11,075

LUFKIN UNIVERSAL TC-44S-15A, TC-44S-24A 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. 4846, 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.

Stroke	No. 4846 Crank	
	No. 5A Wts.	Aux. Wts.
27.1"	11,150	14,300
36.1"	8,320	10,750
45.2"	6,680	8,600
54.2"	5,550	7,160

LUFKIN UNIVERSAL *TC-44-15A, *TC-44-80DA, TC-44-24A 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. 4846, 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-44-15A & 24A 14,760 lbs., TC-44-80DA 14,490 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 4846 Crank	
	No. 5A Wts.	Aux. Wts.
24"	12,465	16,060
32"	9,350	12,050
40"	7,480	9,640
48"	6,230	8,030

LUFKIN UNIVERSAL *T5A-15A, *T5A-80DA, T5A-24A PUMPING UNIT ASSEMBLIES—10,000 Lb. Polished Rod Load Class

For General Dimensions see page 3131.

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..... T5A-15A & 24A 10,345 lbs. T5A-80DA 10,065 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 4242C Crank	
	No. 5C Wts.	Aux. Wts.
22"	9,225	12,230
32"	6,340	8,400
42"	4,830	6,400

*This unit in stock at Los Angeles.

LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

LUFKIN

GENERAL DIMENSIONS

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

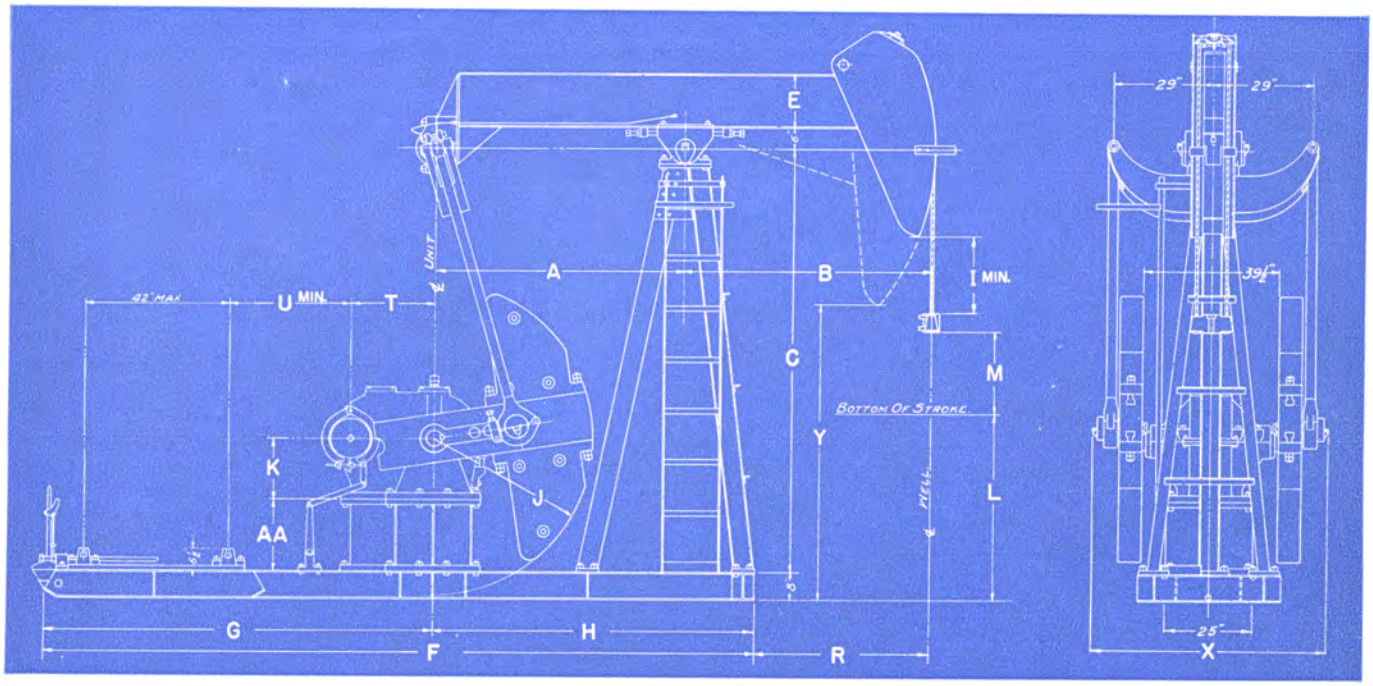


FIGURE 22

UNIT	A	B	C	E	F	G	H	I	J	K	L	M	R	T	U	X	Y	AA
TC-33T-15A	7′-0″	7′-0″	12′-1″	20⅞″	19′-7½″	9′-4″	10′-3½″	34⅝″	51½″	18″	55¾″	27″	44½″	24″	34¾″	69¾″	8′-4¼″	27″
TC-33T-24A	7′-0″	7′-0″	12′-1″	20⅞″	19′-7½″	9′-4″	10′-3½″	34⅝″	51½″	21″	55¾″	27″	44½″	20″	38¾″	69¾″	8′-4¼″	27″
TC-44A-15A	8′-0″	8′-0″	12′-1″	20⅞″	20′-7½″	9′-4″	11′-3½″	30⅛″	51½″	18″	55¾″	27″	56½″	24″	34¾″	68½″	7′-11⅝″	27″
TC-44A-24A	8′-0″	8′-0″	12′-1″	20⅞″	20′-7½″	9′-4″	11′-3½″	30⅛″	51½″	21″	55¾″	27″	56½″	20″	38¾″	68½″	7′-11⅝″	27″
TC-44S-15A	5′-7⅝″	6′-4⅜″	10′-4″	16″	17′-1¼″	9′-4″	7′-9¼″	18⅞″	46″	18″	51⅝″	27″	55⅛″	24″	34¾″	68½″	6′-8⅞″	21″
TC-44S-24A	5′-7⅝″	6′-4⅜″	10′-4″	16″	17′-1¼″	9′-4″	7′-9¼″	18⅞″	46″	21″	51⅝″	27″	55⅛″	20″	38¾″	68½″	6′-8⅞″	21″
TC-44-15A	6′-0″	6′-0″	10′-4″	16″	17′-1¼″	9′-4″	7′-9¼″	22⅛″	46″	18″	54½″	24″	50¾″	24″	34¾″	68½″	7′-2⅛″	21″
TC-44-24A	6′-0″	6′-0″	10′-4″	16″	17′-1¼″	9′-4″	7′-9¼″	22⅛″	46″	21″	54½″	24″	50¾″	20″	38¾″	68½″	7′-2⅛″	21″
TC-44-80DA	6′-0″	6′-0″	10′-4″	16″	17′-1¼″	9′-4″	7′-9¼″	22⅛″	46″	18″	54½″	24″	50¾″	22″	36¾″	68½″	7′-2⅛″	21″

FIGURE 23

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 *T5A-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: 12.5 Gallons.

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

RATING..... 11.8 H.P. at 20 S.P.M. 58,000 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. 5C Wts.	Aux. Wts.
22″	9,225	12,230
32″	6,340	8,400
42″	4,830	6,400

LUFKIN UNIVERSAL T5A-16A 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..... 15.5 H.P. at 20 S.P.M. 77,000 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. 5C Wts.	Aux. Wts.
22″	9,225	12,230
32″	6,340	8,400
42″	4,830	6,400

LUFKIN UNIVERSAL *T6D-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..... 8.1 H.P. at 20 S.P.M. 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. 6 Wts.	Aux. Wts.
18″	8,940	11,260
26″	6,165	7,770
34″	4,700	5,930

LUFKIN UNIVERSAL *T7-3B 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: 4 Gallons.

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

RATING..... 5.2 H.P. at 20 S.P.M. 26,000 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. 7 Wts.	Aux. Wts.
12″	5,850	7,720
18″	3,900	5,150
24″	2,920	3,860

*This unit in stock at Los Angeles.

GENERAL DIMENSIONS

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

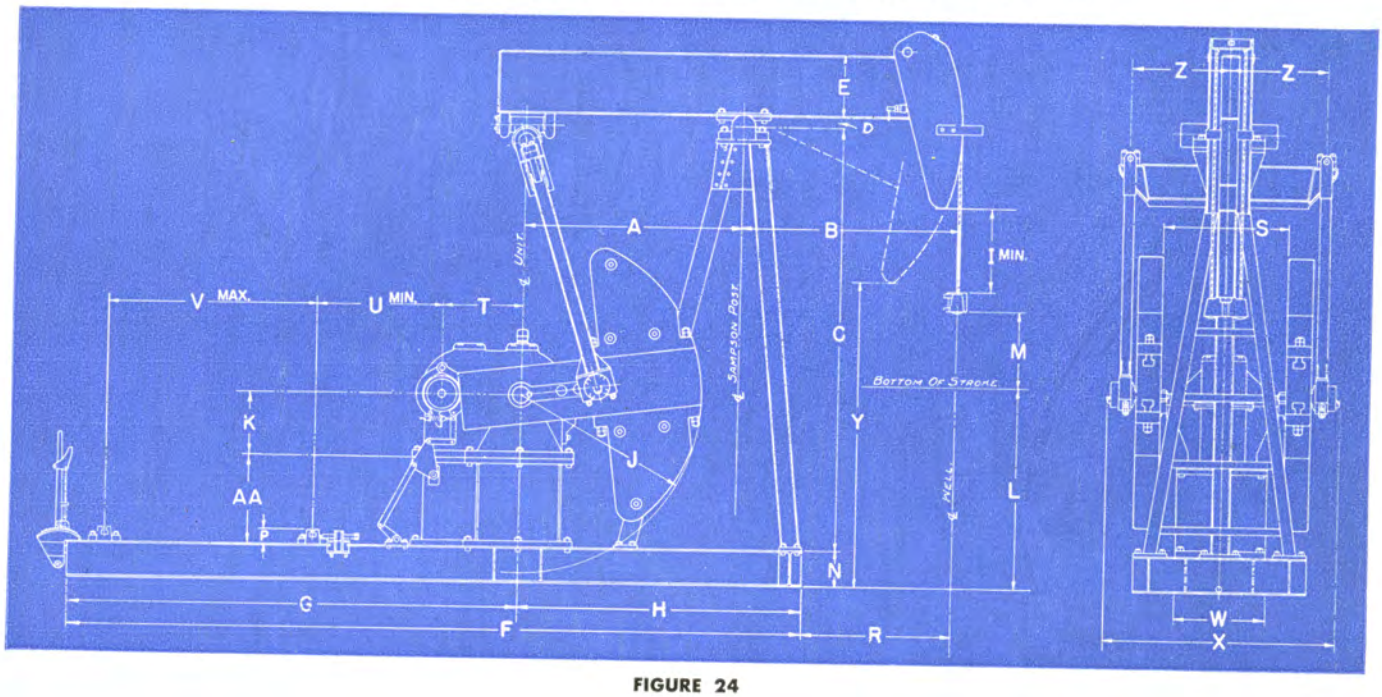


FIGURE 24

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
T5A-15A	60″	60″	9′-9″	43¼″	13 11/16″	15′-6″	8′-6¾″	6′-11¼″	14⅝″	42″	18″	61⅛″	21″	8″	47⅛″	36¾″	41½″	24″	30½″	39⅞″	25½″	67¼″	7′-01⅛″	29″	21″
T5A-80DA	60″	60″	9′-9″	43¼″	13 11/16″	15′-6″	8′-6¾″	6′-11¼″	14⅝″	42″	18″	61⅛″	21″	8″	47⅛″	36¾″	41½″	22″	32½″	39⅞″	25½″	67¼″	7′-01⅛″	29″	21″
T5A-24A	60″	60″	9′-9″	43¼″	13¼″	15′-6″	8′-6¾″	6′-11¼″	14⅝″	42″	21″	61⅛″	21″	8″	47⅛″	36¾″	41½″	20″	34½″	39⅞″	25½″	67¼″	7′-01⅛″	29″	21″
T5A-7C	60″	60″	9′-9″	43¼″	13¼″	15′-6″	8′-6¾″	6′-11¼″	14⅝″	42″	18″	61⅛″	21″	8″	47⅛″	36¾″	34½″	20″	34½″	39⅞″	25½″	60¼″	7′-01⅛″	25½″	21″
T5A-16A	60″	60″	9′-9″	43¼″	13¼″	15′-6″	8′-6¾″	6′-11¼″	14⅝″	42″	18″	61⅛″	21″	8″	47⅛″	36¾″	34½″	17⅞″	36⅝″	39⅞″	25½″	60¼″	7′-01⅛″	25½″	21″
T6D-9B	48″	48″	7′-10⅞″	21¼″	13⅞″	13′-6″	8′-3″	5′-3″	17¾″	40″	14″	42½″	17″	8″	33⅜″	33″	27¾″	17½″	37″	36¼″	20″	52¼″	5′-95⅛″	21¾″	20″
T7-3B	42″	42″	6′-3⅝″	21¼″	10⅛″	11′-0″	6′-4″	4′-8″	10⅜″	32″	14″	41 1/16″	12″	6¼″	33⅜″	28″	25½″	13 9/16″	29 9/16″	23⅜″	17″	47½″	4′-91½″	19⅝″	14″

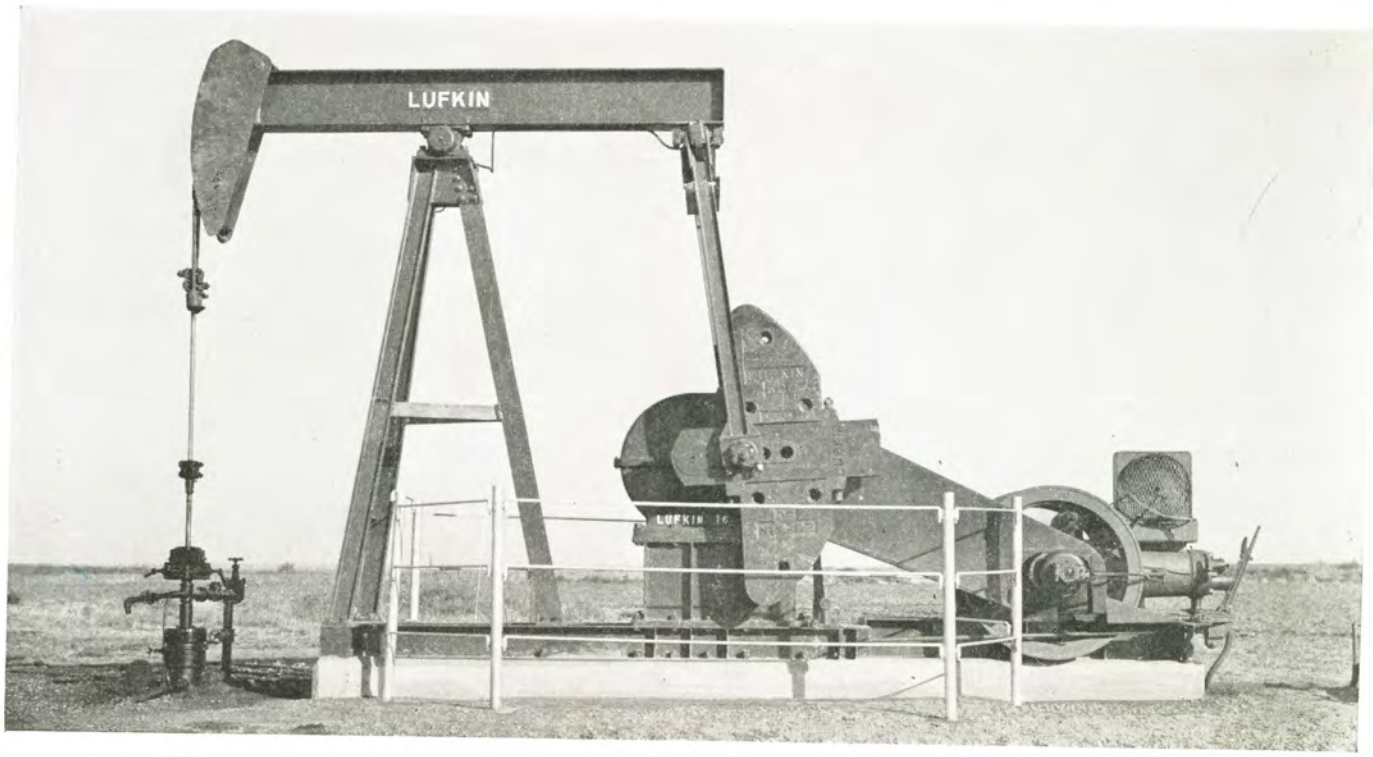


FIGURE 25

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

GENERAL SPECIFICATIONS AND DIMENSIONS

Lufkin 16,000 In. Lbs. Peak Torque Pumping Units

16 API Size

T8B-16D AND T8-16D

GEAR REDUCER: Double Reduction

Designation: 16D

Gears: Main Gear 13¼" Diam., 3⅛" Face

Rating: 16,000 In. Lbs. Peak Torque
3.2 HP at 20 S.P.M.

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

FIGURE 26

STRUCTURAL DATA

	T8B	T8
Peak Polished Rod Load Rating	3,660 lbs.	5,000 lbs.
Structural Capacity Walking Beam, API	5,000 lbs.	5,000 lbs.
Size Walking Beam	10" x 5¾" x 25 lbs.	10" x 5¾" x 25 lbs.
Walking Beam Centers, Well End	45"	33"
Walking Beam Centers, Unit End, at Maximum Stroke	33"	33"
Maximum Length of Stroke	30"	22"
Minimum Length of Stroke (Obtained by Moving Tail Bearing on Beam)	25"	18"
Beam Weight, Each	100 lbs.	100 lbs.
Ratio of Beam Weight to Effective Counterbalance at Median	1.4	1.7
No. of Beam Weights, Capacity	20	20
Maximum Available Counterbalance	2,800 lbs.	3,400 lbs.
Polished Rod Hanger Wire Line	⅝" x 8'-4"	⅝" x 8'-4"
Unit Base 6" Channel Straight Type	Yes	Yes
Outrigger and Structural Steel Rails for Multi-Cylinder Engine	Yes	Yes
Total Weight, Less Beam Weights	1,740 lbs.	1,700 lbs.

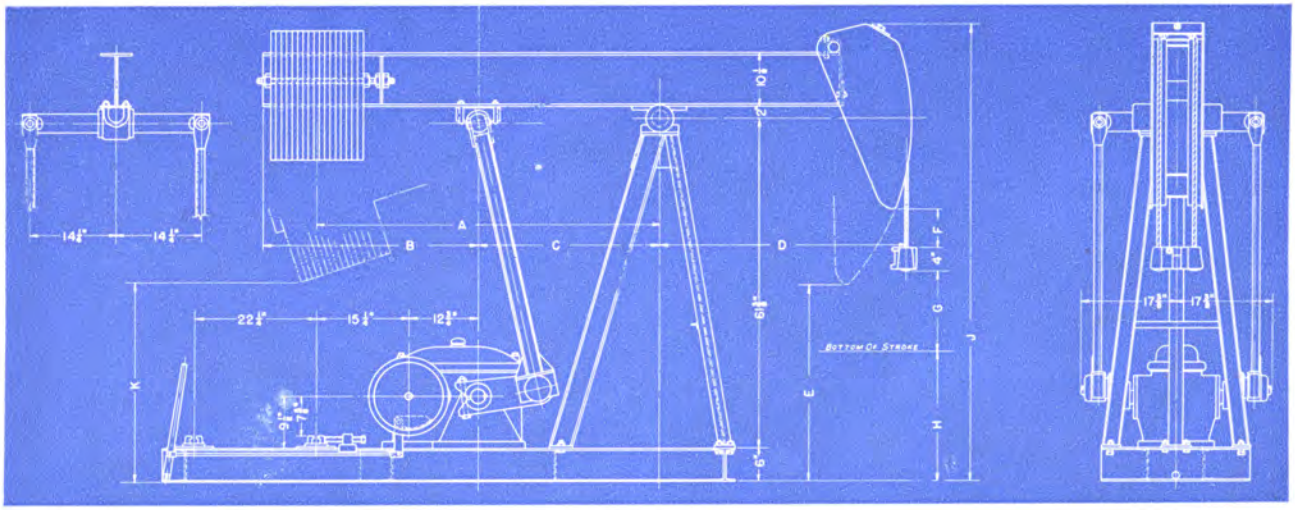


FIGURE 27

GENERAL DIMENSIONS

UNIT	A	B	C	D	E	F	G	H	J	K	L
*T8B-16D	63"	40"	33"	45"	36⅜"	6¾"	15"	25⅝"	7'-3⅛"	36"	30"
*T8 16D	56¼"	33¼"	33"	33"	44⅜"	14⅛"	11"	26¼"	7'-0⅝"	38"	18"

*This unit in stock at Los Angeles.

UNIVERSAL RAILS—FOR MOTORS OR GAS ENGINES

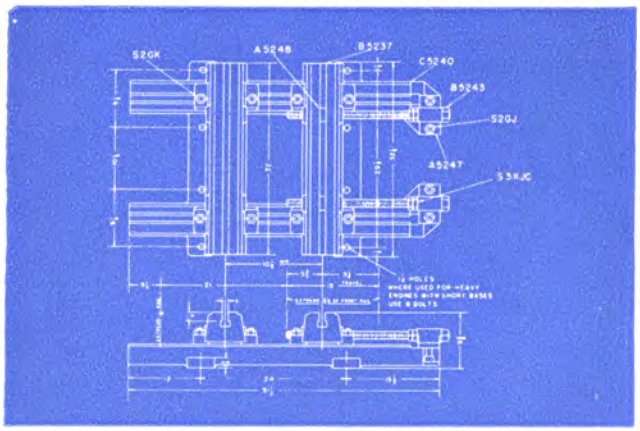


FIGURE 28

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 assist in the elimination of vibration of all types of prime movers.

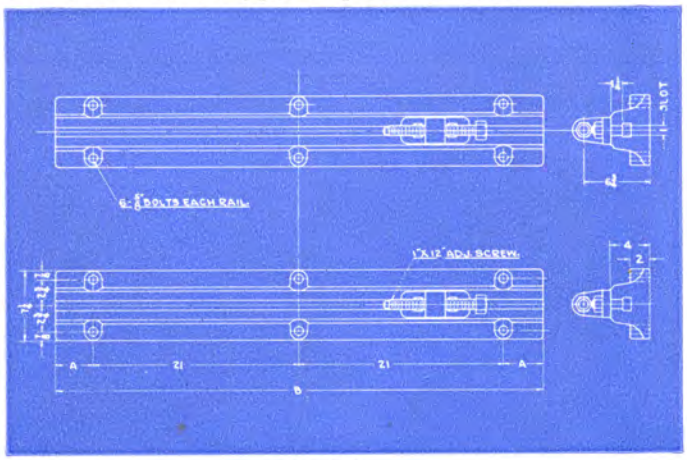


FIGURE 29

	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.

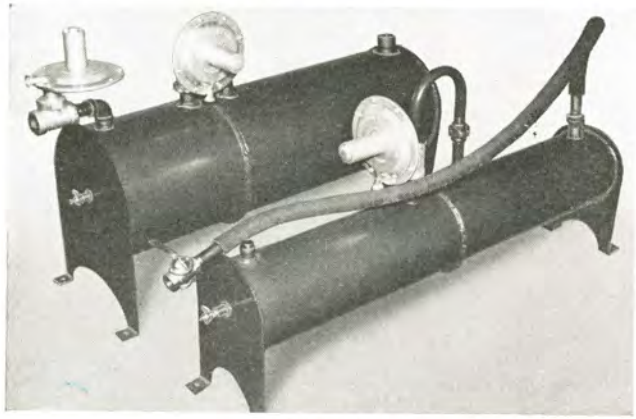


FIGURE 32

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.

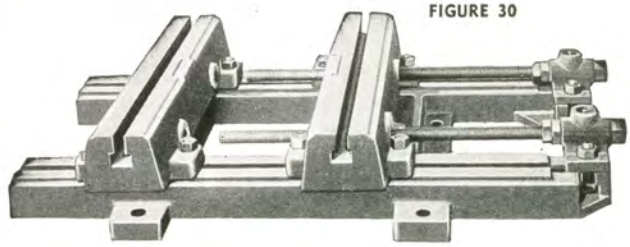


FIGURE 30

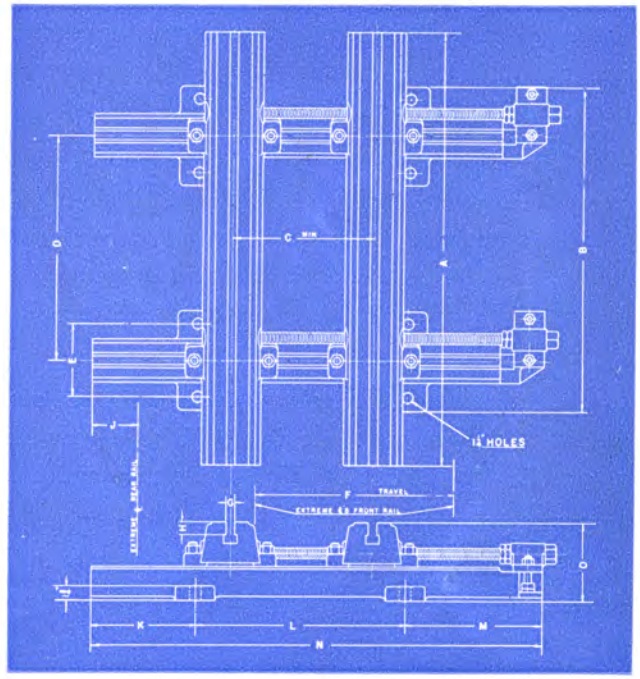


FIGURE 31

UNIVERSAL GAS ENGINE RAILS														
DESCRIPTION	A	B	C	D	E	F	G	H	J	K	L	M	N	O
50" ENG. RAILS	50"	37½"	10½"	26"	8½"	23½"	1"	1½"	5¼"	12"	24"	15½"	51½"	9⅛"
69" ENG. RAILS	69"	47½"	10½"	36"	8½"	38½"	1"	1½"	5¼"	12"	36"	15½"	63½"	9⅛"

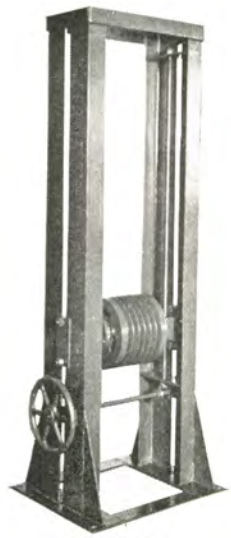


FIGURE 33

Lufkin Universal Belt Tightener is of all welded rigid construction. The sheave is raised or lowered by a hand wheel through machined miter gears to screws which turn in floating bronze nuts. The idler sheave is equipped with Timken Anti-friction bearings. One man can adjust this tightener easily and quickly by simply turning the hand wheel.

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.

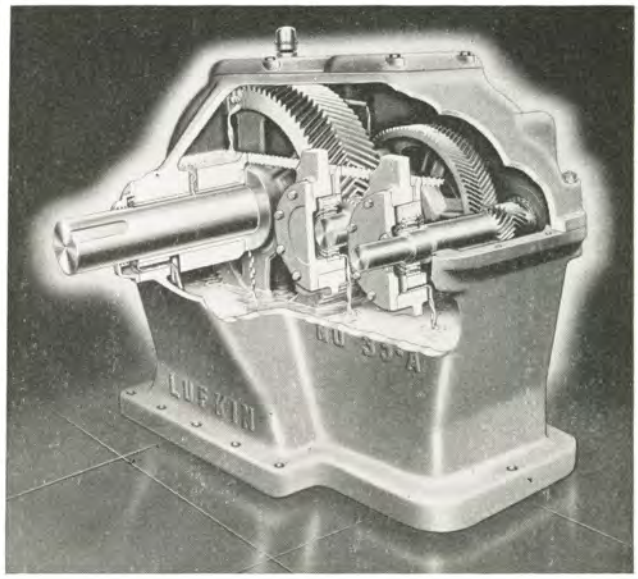
CENTER BEARING: Use an SAE 140 Extreme Pressure Lubricant having a pour point of 5° F. or lower.

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.



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

PORTABLE TYPE TESTING UNITS MADE IN ALL SIZES

FIGURE 34

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-44 and all larger assemblies

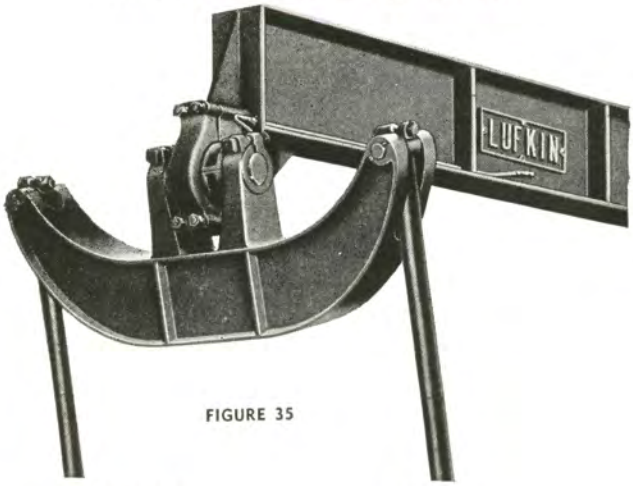


FIGURE 35

LUFKIN WIRE LINE HANGER

Standard on all assemblies.

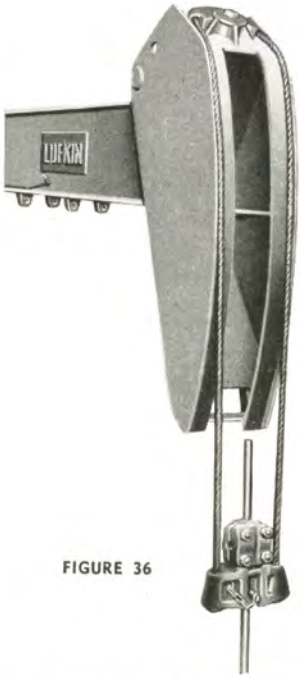


FIGURE 36

OIL TIGHT—BRONZE BUSHED CENTER BEARING

FIGURE 37

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. We believe this is a superior bearing in every respect, being dust proof, oil tight with renewable Bronzoid bushing. They have ample bearing surface.

LUFKIN UNIVERSAL CENTER-LINE ROD HANGER

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

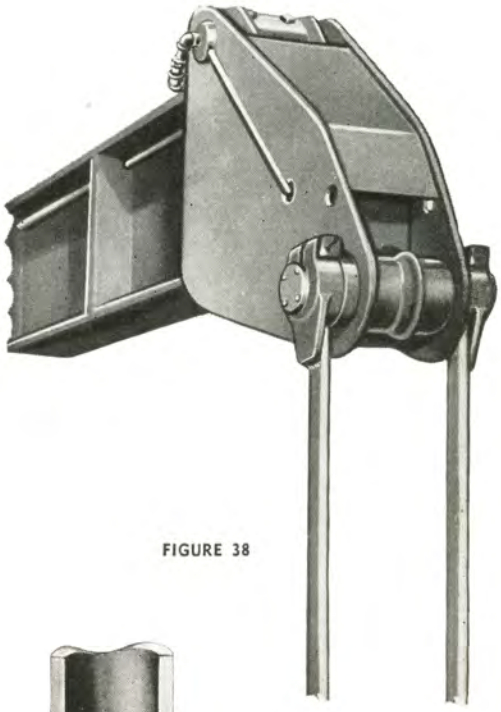


FIGURE 38

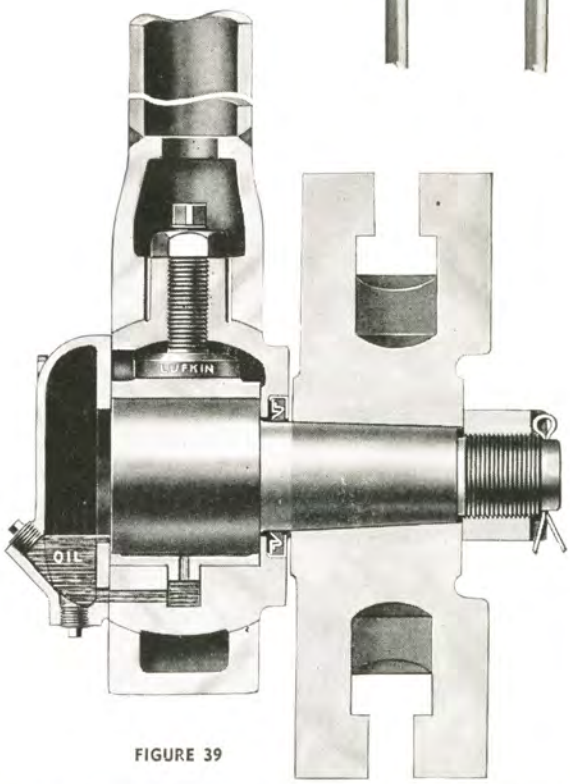


FIGURE 39

General characteristics of the new "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.

ROLLER BEARING PITMANS ARE FURNISHED WHEN DESIRED AT SLIGHT EXTRA COST.

LUFKIN COOPER-BESSEMER HORIZONTAL

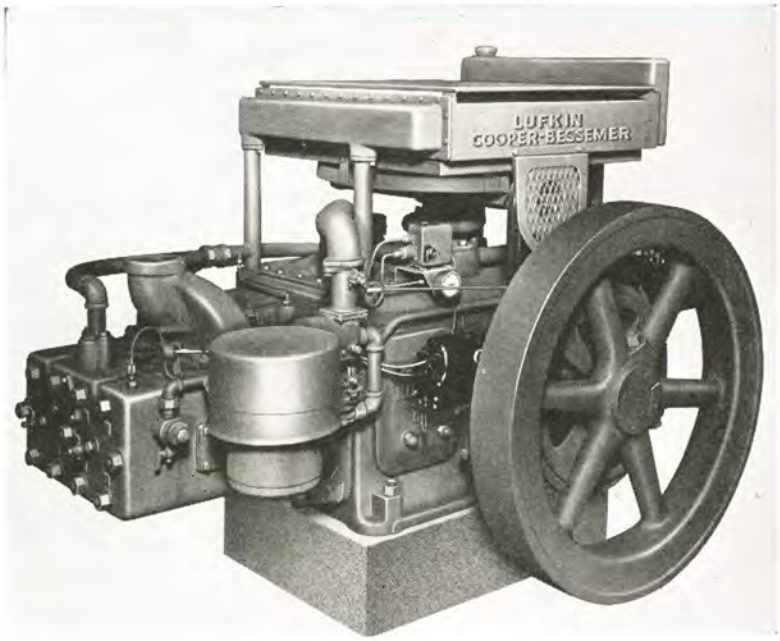


FIGURE 40

60 HP — 600 RPM CONTINUOUS SERVICE

The Model GSDH engine is a 7½" bore by 9" stroke and is furnished as standard for natural gas.

This engine was developed to meet the needs of the oil field for a medium speed, heavy duty, long life engine which is easy to maintain and service in the hands of the average operator.

The GSDH engine is designed to operate at speeds of 300 to 600 RPM and up to 60 HP continuous duty. Its conservative rating, dependability, and smooth steady flow of power make it ideally adapted for pumping, pipe line pumps, generators and other oil field power requirements.

THESE FEATURES GUARANTEE RELIABLE SERVICE

Two Cylinder, Two Cycle Design gives two power impulses per revolution of the crank shaft and assures smoother performance and low maintenance.

Oil Cooled Pistons and Built-in Oil Cooler—Optional.

Horizontally Mounted Radiator gives non-directional cooling.

Cylinder Block and Head is designed to give positive water circulation completely around cylinders and through water cooled exhaust port bridges—thermostatically controlled.

Full Pressure, Filtered Lubrication to crank pins, crossheads and auxiliary accessories.

Die Forged Counterbalanced Crank Shaft carried on taper roller main bearings for long life and trouble-free service.

Die Forged Connecting Rods fitted with precision type thin wall crank pin bearings which require no fitting.

Saddle Type Crosshead Pin provides 50% more bearing area. Crossheads fitted with bronze shoes and pin bearing which can be renewed without fitting or requiring special tools.

Twin Disc Clutch especially adapted for slow speed operation. Special sheaves not required.

Ensign Natural Gas Mixers—Self regulating.

Compactness makes the engine easily installed on pumping unit bases. All parts are ruggedly made and readily accessible for maintenance.

No Crankcase Oil Contamination from fuel. Frequent oil changes not necessary.

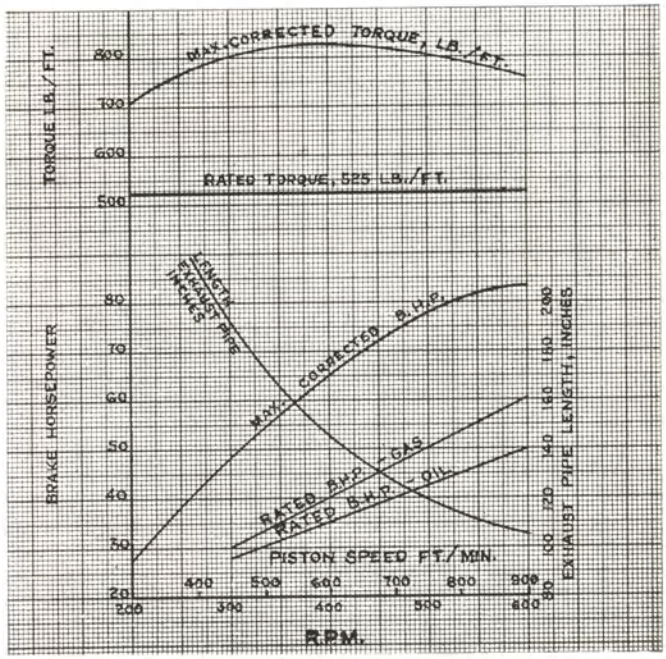


FIGURE 41
Performance Curve GSDH Gas & Oil Engines

GSDH 2-CYLINDER 2-CYCLE GAS AND OIL ENGINES

ENGINE GENERATOR UNITS

The Lufkin engine generator units due to their smooth steady output will operate in parallel with similar power units or with existing power facilities, making them adapted to generating plants for oil well pumping, main plant auxiliaries, pipe line stations, and all uses of electric power. This unit is recommended where a heavy duty, dependable, long life generating unit is desired.

The Lufkin engine-generator unit consists of the GSDH engine, a packaged type AC generator, a 5 "D" section V-belt drive and belt cover, all mounted on a steel base with a built-in gas volume tank and regulator.

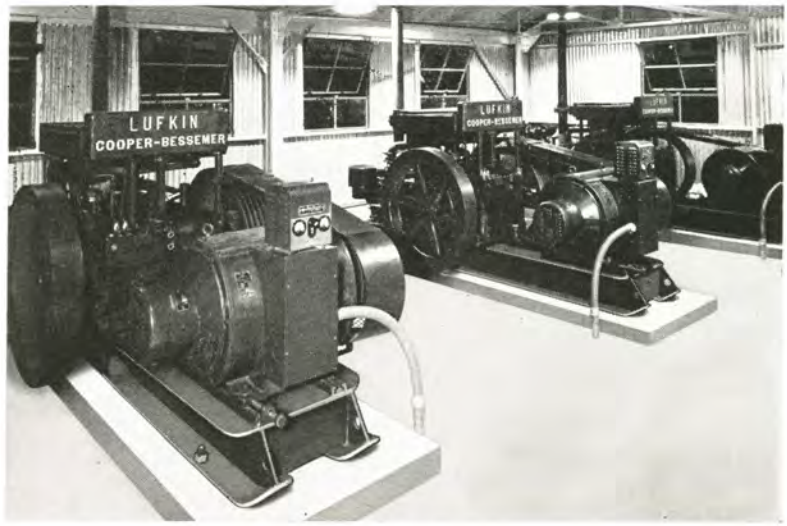


FIGURE 42
3 Engine Generator Units Operating in Parallel

On engine generator units the GSDH engine is furnished with oil cooled pistons, built-in oil cooler, Woodward hydraulic governor, overspeed stop, and oil and water safety controls. The clutch is omitted from the engine and the V-belt drive is mounted directly on the crank shaft. The engine operates at approximately 575 RPM for synchronous speed.

The Lufkin engine generator unit is normally supplied with a 40 KW, 3 phase, 60 cycle, 240/480 volt, AC packaged type generator with direct connector exciter. An automatic voltage regulator with volt, ammeter, and field rheostat is built in. A wall line disconnect switch and automatic synchronizer for parallel operation completes the unit assembly, no switch panel or other equipment being necessary; however, switchboard equipment may be used.

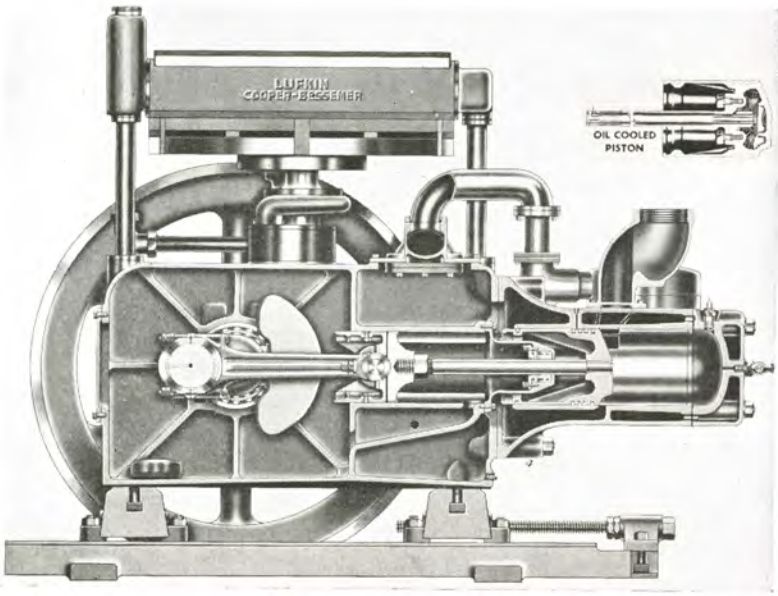


FIGURE 43
Cross Section GSDH Gas Engines

BRIEF ENGINE SPECIFICATIONS

No. Cylinders	2
Size (Bore X Stroke)	7½" x 9"
Recommended Speed Range, R.P.M.	300-600
Rated B.H.P. Gas	30-60
Max. Piston Speed (Ft./Min.)	900
Type Main Bearings	Roller
Diam. Main Bearing Journal	4½"
Type Crankpin Bearing (Thin Wall)	Insert
Diam. Crankpin Bearing	4½"
Length Crankpin Bearing	3½"
Type Crosshead Bearing (Bronze)	Insert
Type Crosshead Shoes (Bronze)	Insert
Diam. Crosshead Pin	2¾"
Proj. Area Crosshead Pin Bearing (Sq. In.)	13.75
Piston Rod Packing	Metallic
Auxiliary Drive	Gear
Diameter Flywheel	40"
Flywheel WR^2 (FT^2 Lbs.)	1580
Diam. Exhaust Pipe	4"
Diam. Gas Inlet	1"
Capacity Cooling System (Gal.)	13
Overall Length	69"
Overall Width	68½"
Overall Height Above Foundations	50¾"
Foundation Bolts	4—1"
Weight	4500 Lbs.

LUFKIN MODEL H-333 HORIZONTAL

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

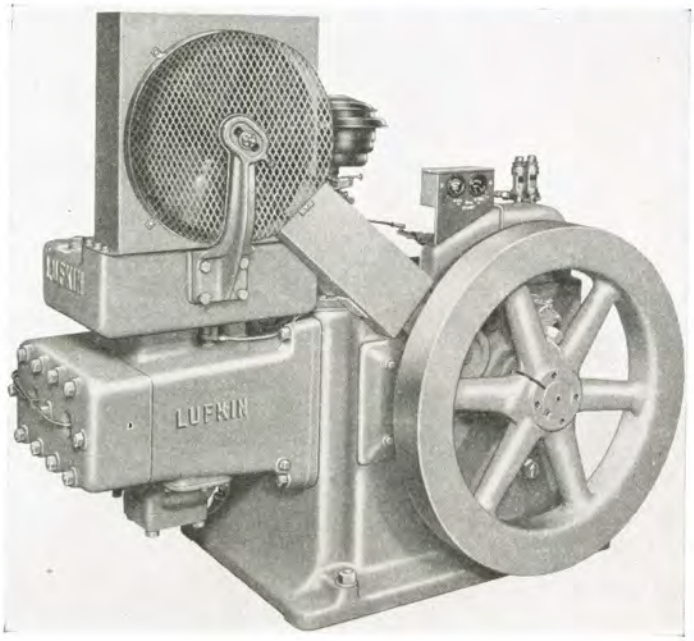


FIGURE 44

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, condenser type cooler 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, and Ensign combination type "CG" gas-gasoline mixer.

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

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

Condenser Cooling provides uniform efficient cooling, longer life to cylinders because of better lubrication, freedom of corrosion in sour gases and eliminates water pump.

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 45

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	Condenser
Oil Capacity	20 Qts.
Oil Capacity Lubricator	1½ Qts.
Water Capacity	28 Qts.
Weight	2900 Lbs.
Diam. Exhaust Pipe	4"
Diam. Gas Inlet	1"
Foundation Bolts	(4) ⅞"

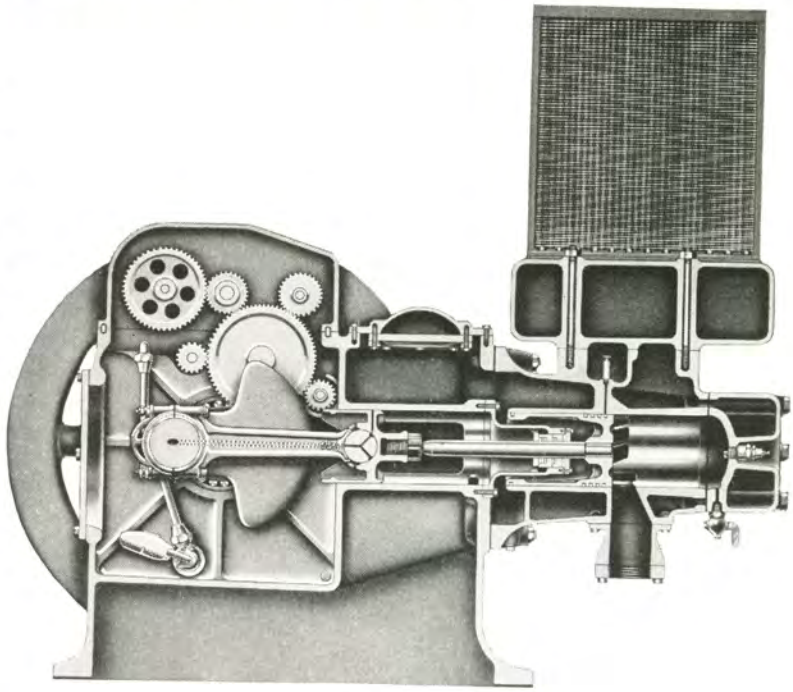


FIGURE 47
Cross-Section H-333 Engine

FIGURE 48
12 Volt Electric Starter

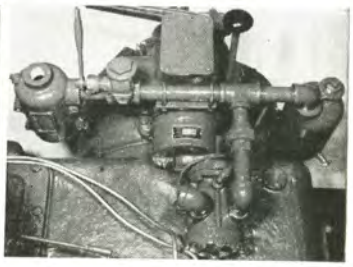


FIGURE 49
Air or Gas Motor Starter

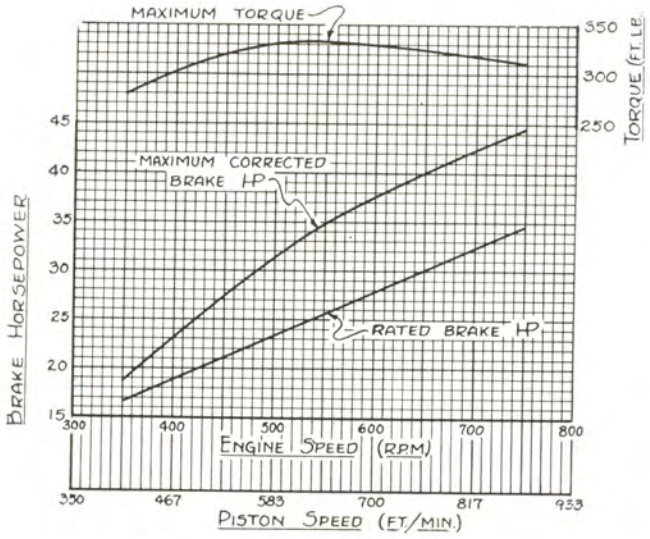


FIGURE 46
Performance Curves H-333 Gas Engine

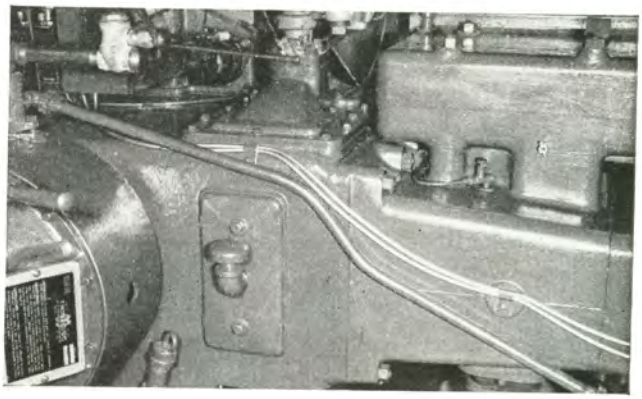


FIGURE 50
Air Starter Valve and Piping

LUFKIN TRAILERS—*offer the most complete line to the Transportation Industry.*

LUFKIN TRAILERS—*manufactures these various models to meet your every hauling requirement.*

LUFKIN TRAILERS—*has for your convenience a representative in your area to assist you with your transportation problems.*

FIGURE 51
Self Loading Oilfield Float

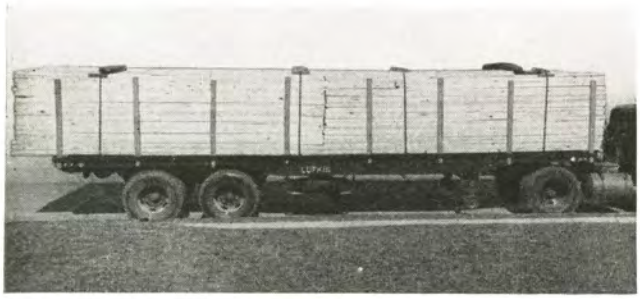


FIGURE 52
General Purpose Float

FIGURE 53
Open Top Aluminum Van

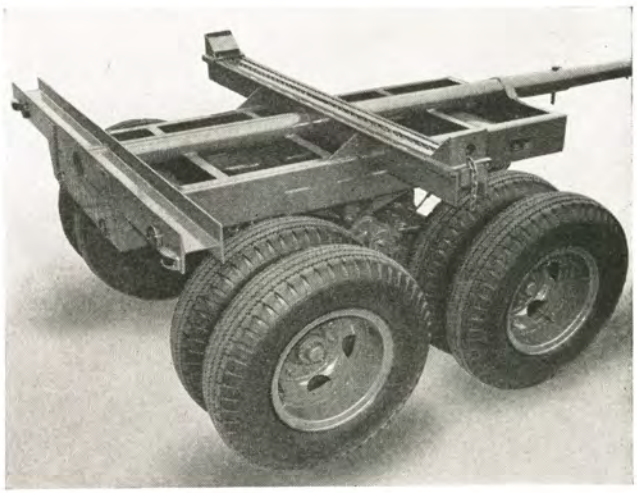


FIGURE 54
Pipe and Pole Trailer

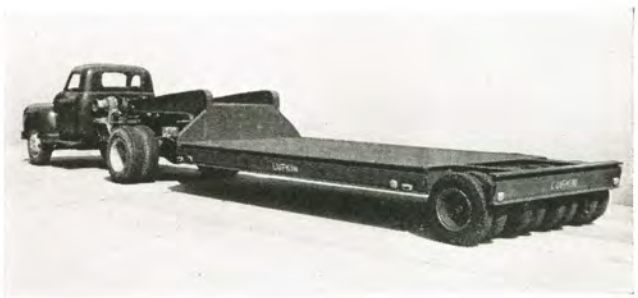


FIGURE 55
Low Bed Machinery (Custom Built)

FIGURE 56
Aluminum Freight Van (Painted)

LUFKIN TRAILERS

FIGURE 57
Aluminum All-Purpose Van

FIGURE 58
Aluminum Refrigerated Van

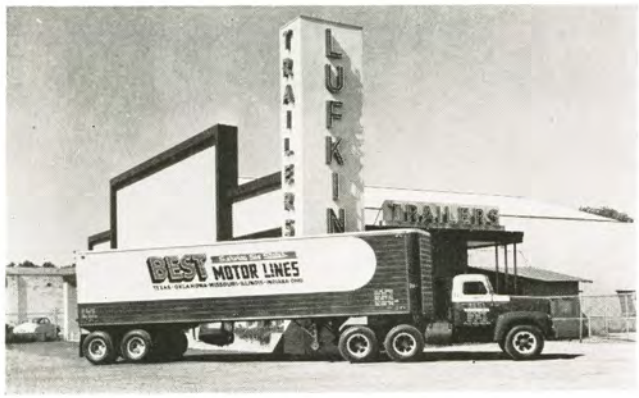


FIGURE 59
Special Oil Well Service Van

FIGURE 60
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.

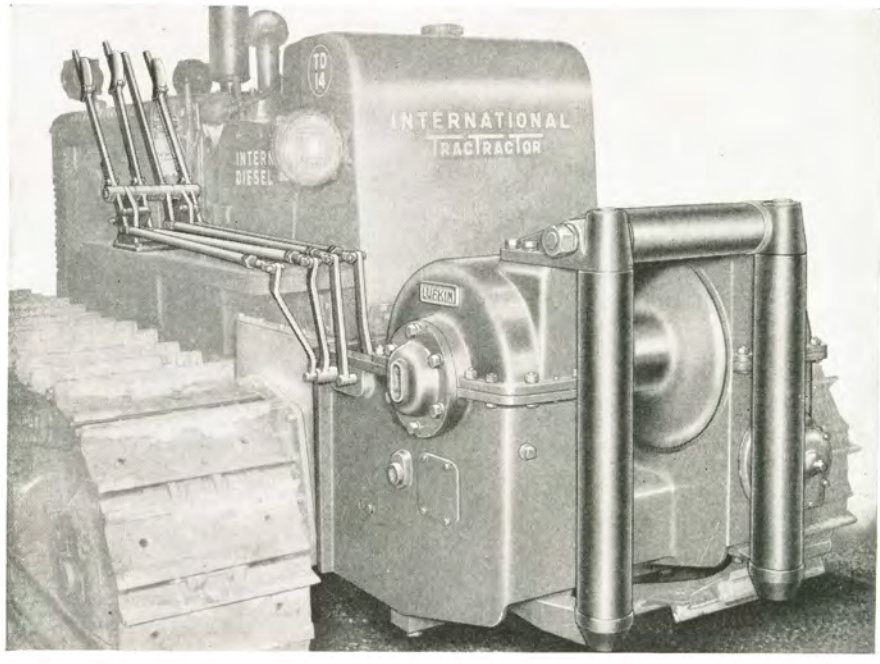


FIGURE 61

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 available on request.

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

FIGURE 63

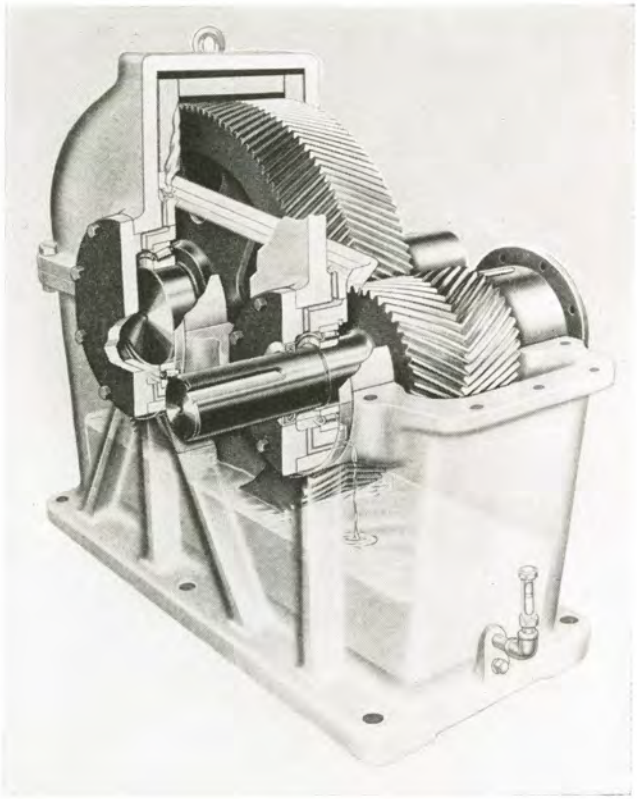


FIGURE 62

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

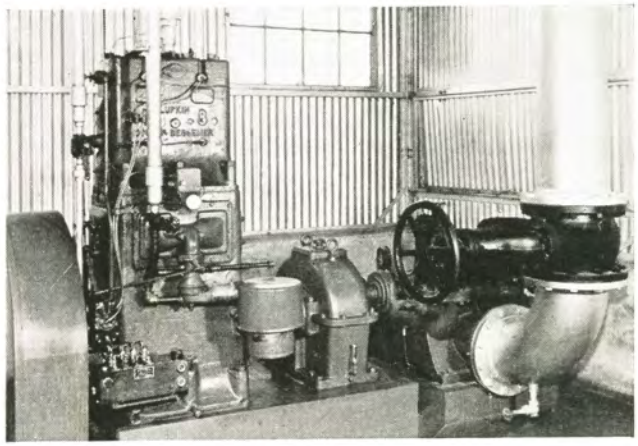


FIGURE 64

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

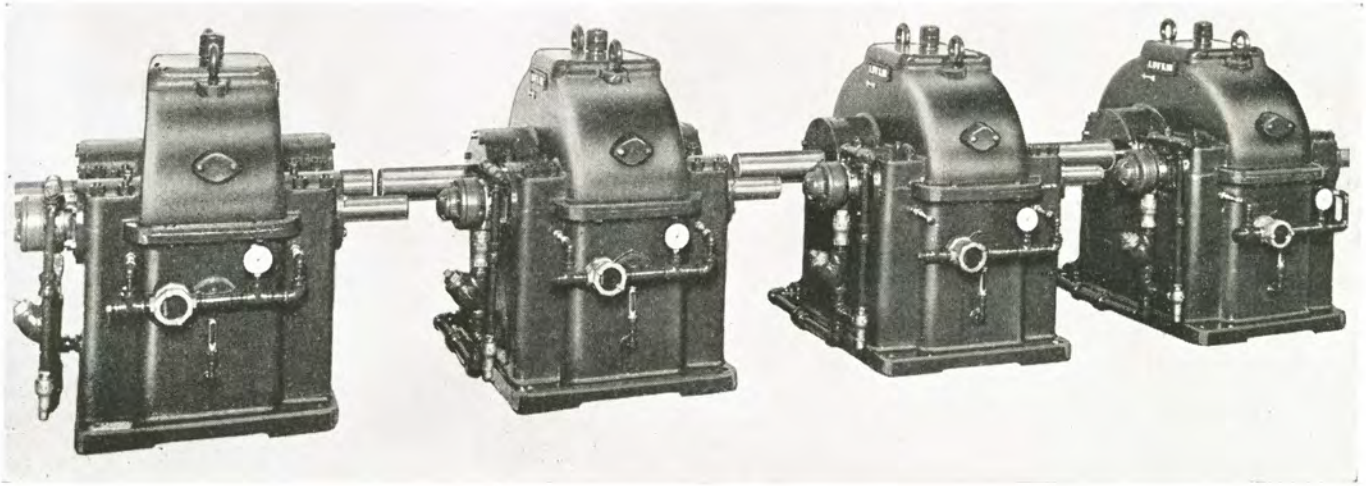
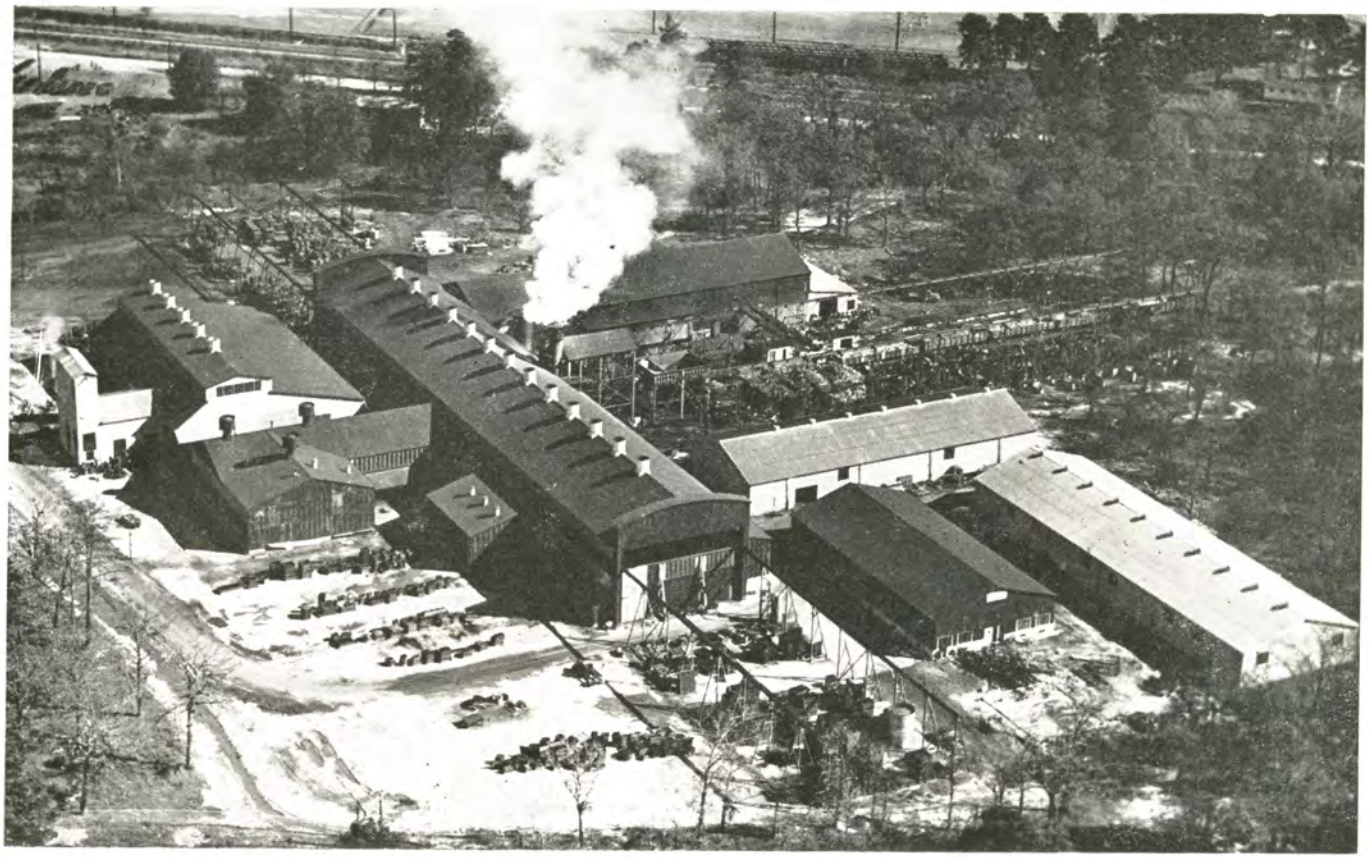


FIGURE 65

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 66
Die castings made of special alloy for presses up to 5000 tons capacity.

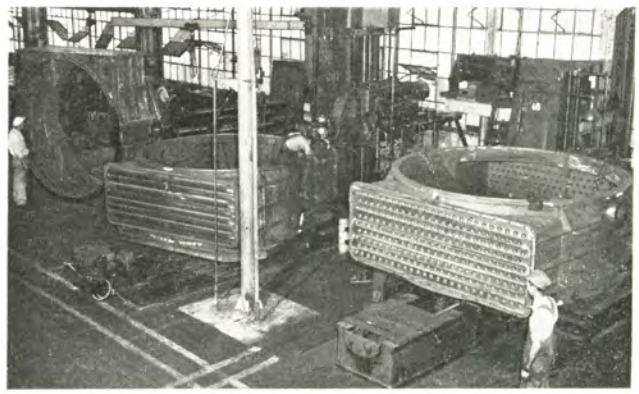


FIGURE 67
Chemical tower for a southern alkali plant. Sections are 9-foot diameter weighing 16,000 lbs. each.

LUFKIN INSTALLATIONS

TYPICAL OF THE MORE THAN THIRTY-FIVE THOUSAND LUFKIN PUMPING UNITS NOW GIVING SATISFACTORY SERVICE

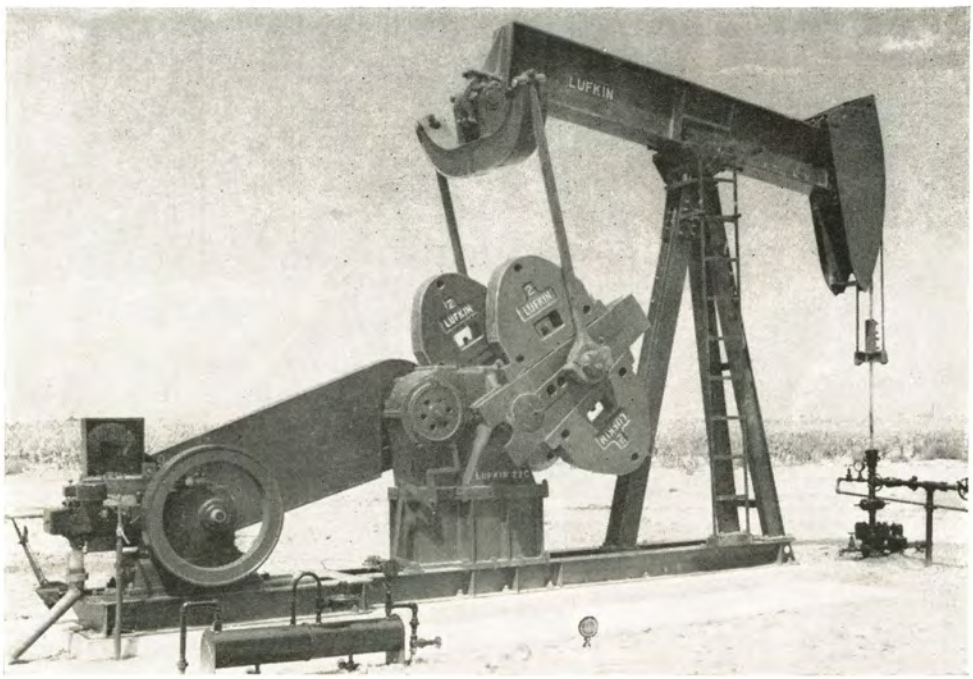


FIGURE 68
Lufkin TC-2T-22G Twin Crank Pumping Unit with sub-base and single cylinder engine set on jointed base.

FIGURE 69
Lufkin TC-44-15A Twin Crank Pumping Unit, stub base, type, driven by single cylinder gas engine mounted separately on slide rails.

Printed in U.S.A.

LUFKIN

EQUIPMENT OF ADVANCED DESIGN