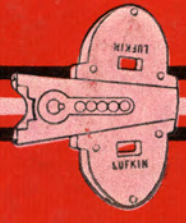
LUFKIN OIL FIELD EQUIPMENT



CATALOG 58

Featuring the

LUFKIN *Universal* PUMPING UNIT

PUMPING UNIT INDEX ON PAGE 3103

LUFKIN FOUNDRY & MACHINE COMPANY • LUFKIN, TEXAS

LUFKIN EQUIPMENT OF ADVANCED DESIGN

FIGURE 1

Lufkin C-160D-54-17 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 HC-333 Horizontal Gas Engine.

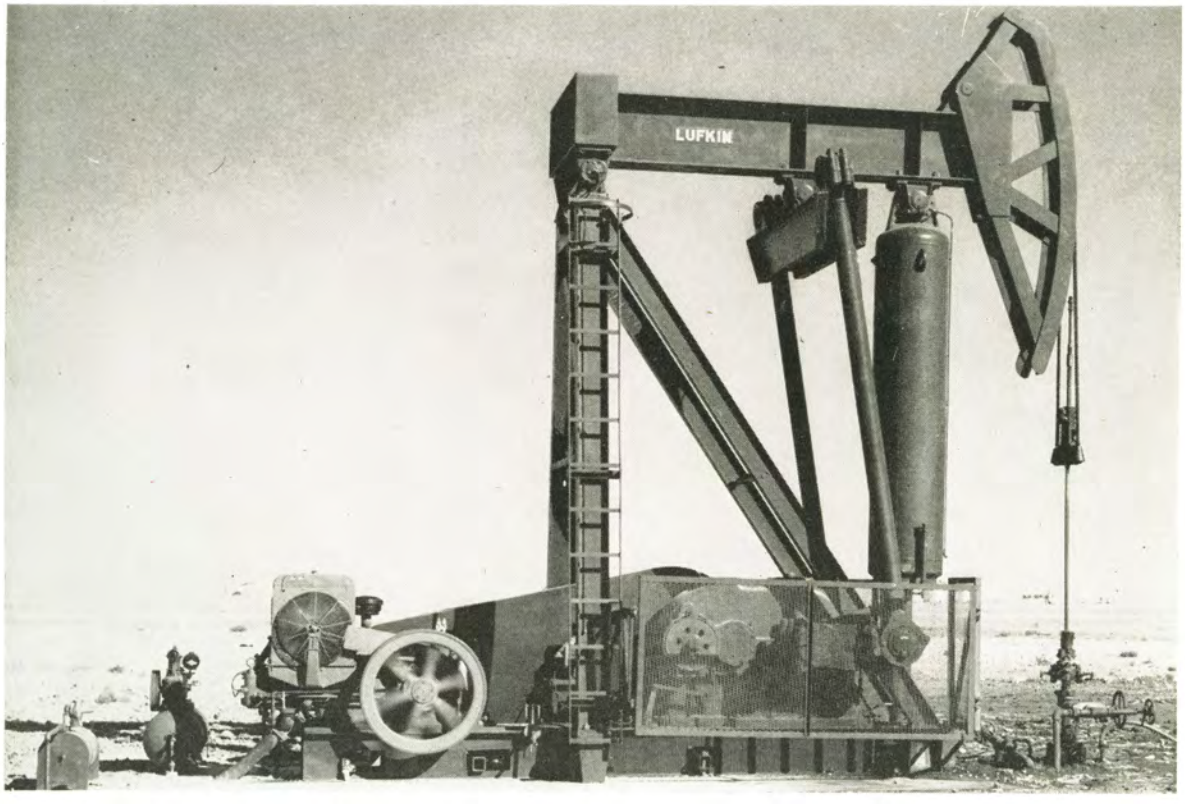


FIGURE 2

Lufkin A-456DB-120-36 Air Balanced Pumping Unit driven by Lufkin H-795 Engine.

LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

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STANDARD CRANK BALANCED PUMPING UNIT ASSEMBLIES

See Page 3125 for Beam Balanced Assemblies and Page 3131 for Air Balanced Assemblies

API Size	Pumping Unit Assembly †	Old Lufkin Designation	Polished Rod Load Capacity, Lbs.	Walking Beam Centers		Counterbalance At Max. Stroke, Lbs.	Maximum Counterbalance With Aux. Weights	Crank No.	Counterweight No.	Maximum Stroke, Inches	Page No.
				Well End	Unit End						
912	C-912DA-168-35	.....	35,000	19′-7″	10′-11¼″	13,800	17,670	94100R	00R	168	3110
	C-912DA-144-30A	TC-OLCBR-912D	30,000	16′-9″	10′-11¼″	17,975	22,485	94100R	00R	144	3111
640	C-640DB-168-35	.....	35,000	19′-7″	10′-11¼″	13,800	17,670	94100R	00R	168	
	C-640DB-144-30	TC-OLCBR-640DB	30,000	16′-9″	10′-11¼″	17,975	22,485	94100R	00R	144	3110
	C-640DB-120100-30	TC-OLCR-640DB	30,000	16′-0″	10′-11¼″	22,030	27,445	82100R	00R	120	3111
	C-640DB-120-30	TC-OLBR-640DB	30,000	16′-0″	10′-11¼″	18,660	23,470	8292R	00R	120	
	C-640DB-108-30	TC-OLR-640DB	30,000	14′-0¾″	10′-11¼″	15,300	19,240	8478R	0R	108.4	
*456	C-456DB-144-30	TC-OLCBR-456DB	30,000	16′-9″	10′-11¼″	17,975	22,485	94100R	00R	144	
	C-456DB-120100-30	TC-OLCR-456DB	30,000	16′-0″	10′-11¼″	22,030	27,445	82100R	00R	120	3112
	C-456DB-120-30	TC-OLBR-456DB	30,000	16′-0″	10′-11¼″	18,660	23,470	8292R	00R	120	3113
	C-456DB-108-30	TC-OLR-456DB	30,000	14′-0¾″	10′-11¼″	15,300	19,240	8478R	0R	108.4	
*320	C-320D-120-25	TC-ILBR-41D	25,000	14′-3½″	10′-0″	14,075	17,940	8482R	0R	120	
	C-320D-84-30	TC-OALR-41D	30,000	12′-6″	12′-6″	21,645	27,170	8482R	0R	84	3114
	C-320D-84-27	TC-IBR-41D	27,000	11′-4¼″	10′-0″	13,590	16,630	7475R	1R	84	3115
	C-320D-74-27	TC-IR-41D	27,000	10′-0″	10′-0″	15,855	19,305	7475R	1R	74	
	C-320D-74-25	TC-IAR-41D	25,000	12′-6″	12′-6″	15,885	19,335	7475R	1R	74	
*228	C-228D-74-27	TC-IR-35B	27,000	10′-0″	10′-0″	15,710	19,165	7475R	1R	74	
	C-228D-74-23	TC-2LTR-35B	23,000	8′-0″	8′-0″	11,735	14,780	7469R	2R	74	3116
	C-228D-74-20	TC-2BTR-35B	20,000	9′-3″	8′-0″	9,715	12,345	6463R	2R	74	3117
	C-228D-64-23	TC-2TR-35B	23,000	8′-0″	8′-0″	11,530	14,570	6463R	2R	64	
	C-228D-64-20	TC-2ATR-35B	20,000	10′-0″	10′-0″	11,550	14,590	6463R	2R	64	
*160	C-160D-74-20	TC-2BTR-22G	20,000	9′-3″	8′-0″	8,750	11,145	6460R	2R	74	
	C-160D-64-23	TC-2TR-22G	23,000	8′-0″	8′-0″	10,440	13,210	6460R	2R	64	3118
	C-160D-64-18.8A	.....	18,800	7′-8″	5′-3¼″	10 055	12,825	4460R	2R	64	3119
	C-160D-64-15A	TC-33BTR-22G	15,000	8′-3″	5′-3¼″	6,710	8,955	4152R	3CR	64	
	C-160D-54-18	TC-33ATR-22G	18,000	8′-0″	8′-0″	8,600	11,250	5452R	3CR	54	
	C-160D-54-17	TC-33TR-22G	17,000	7′-0″	5′-3¼″	8,140	10,760	4152R	3CR	54.4	
	C-160D-54-16A	.....	16,000	7′-0″	7′-0″	8,600	11,250	5452R	3CR	54	
*114	C-114DA-64-15A	TC-44ALTR-15B	15,000	8′-0″	8′-0″	10,155	12,925	6460R	2R	64	
	C-114DA-54-17	TC-44DTR-15B	17,000	6′-0″	6′-0″	8,600	11,250	5452R	3CR	54	
	C-114DA-54-16A	.....	16,000	7′-0″	7′-0″	8,600	11,250	5452R	3CR	54	3120
	C-114DA-54-15	TC-44ATR-15B	15,000	8′-0″	8′-0″	7,910	10,570	5452R	3CR	54	3121
	C-114DA-54-14	TC-44CTR-15B	14,000	6′-0″	6′-0″	8,065	10,725	5452R	3CR	54	
	C-114DA-54-13.5	TC-44STR-15B	13,500	6′-4⅜″	5′-7⅝″	5,570	7,200	4846R	5AR	54.2	
	C-114DA-48-14	TC-44TR-15B	14,000	6′-0″	6′-0″	6,375	8,220	4846R	5AR	48	
	C-114DA-42-11.6	T5D-15B	11,600	5′-0″	5′-0″	5,645	7,575	4246CR	5CR	42	
80	C-80DB-54-14	TC-44CTR-80DB	14,000	6′-0″	6′-0″	8,065	10,725	5452R	3CR	54	
	C-80DB-54-13.5	TC-44STR-80DB	13,500	6′-4⅜″	5′-7⅝″	5,570	7,200	4846R	5AR	54.2	3120
	C-80DB-48-14	TC-44TR-80DB	14,000	6′-0″	6′-0″	6,375	8,220	4846R	5AR	48	3121
	C-80DB-42-11.6	T5D-80DB	11,600	5′-0″	5′-0″	5,645	7,575	4246CR	5CR	42	
*57	C-57DA-48-10	T5DB-7C	10,000	5′-8½″	5′-0″	4,910	6,595	4246CR	5CR	48	3122
	C-57DA-42-11.6	T5D-7C	11,600	5′-0″	5′-0″	5,645	7,575	4246CR	5CR	42	3123
40	C-40DA-40-7.4	T6EB-9B	7,400	4′-8½″	4′-0″	3,985	5,030	3441	6	40	3122
	C-40DA-34-8.7	T6E-9B	8,700	4′-0″	4′-0″	4,785	6,015	3441	6	34	3123
25	C-25DA-28-7.5	T7AB-3B	7,500	4′-1″	3′-6″	2,725	3,585	2433	7	28	3122
	C-25DA-24-6	T7A-3B	6,000	3′-6″	3′-6″	3,250	4,255	2433	7	24	3123

† See top of next page for explanation of designations.
* These units also furnished with single reduction gear reducers.

EXPLANATION OF PUMPING UNIT DESIGNATIONS

The designations of Lufkin Pumping Units have been revised in order that they might be significant as to size and capacity.

The first letter in the new designation system indicates type of counterbalance:

A means Air Counterbalance

B means Beam Counterbalance

C means Trout Crank Counterbalance

The second group of figures is the API size of the gear reducer and indicates the peak torque rating in thousands of inch pounds. The reducer size is followed by "T," "D" or "S" to indicate whether it has triple, double or single reduction gears. When some detail of a reducer has been revised in design so as to be not interchangeable with the previous design, a revision letter is added at the end of the reducer designation. For instance, the 912D reducer has been revised by a design change to become 912DA.

The third group of figures indicates maximum polished rod stroke in inches.

The last group of figures indicates polished rod load rating in thousands of pounds. When a change is made in the design of some part of the structure, revision letters A, B, C, etc., will be added at the end of the load rating designation.

For instance, C-912DA-144-30A means a crank counterbalanced unit assembly using a double reduction reducer having 912,000 inch pounds peak torque rating, with 144" maximum stroke and 30,000 pounds polished rod load rating.

All catalog crank balanced units are furnished with a sub-base under the gear reducer as standard. In most cases, these sub-bases are of sufficient height to permit the cranks to clear the floor, making it unnecessary to pour a high foundation block. The exceptions to this are the 144" and 120" stroke units using the 912DA, 640DB, 456DB and 456S reducers. These units are not furnished floor-clearing as a standard, but they can be furnished floor-clearing by adding material to the structural base as shown in Figure 24. When this is done, an F is added after the stroke figures in the unit designation; for example, C-640DB-120F-30A.

It is sometimes necessary to show a double set of figures in the designation where the polished rod stroke is indicated because of different cranks that can be used to effect the same stroke. When this is necessary, the unit with the non-standard cranks has the crank sweep radius added to the polished rod stroke in the unit designation. For example, the C-160D-6466-23 unit has 66" radius cranks instead of the standard 60".

Units whose designation begin with CB have both crank and beam counterbalance (Figure 24).

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 Straight Mineral 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 Straight Mineral 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; CENTER BEARING; 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.

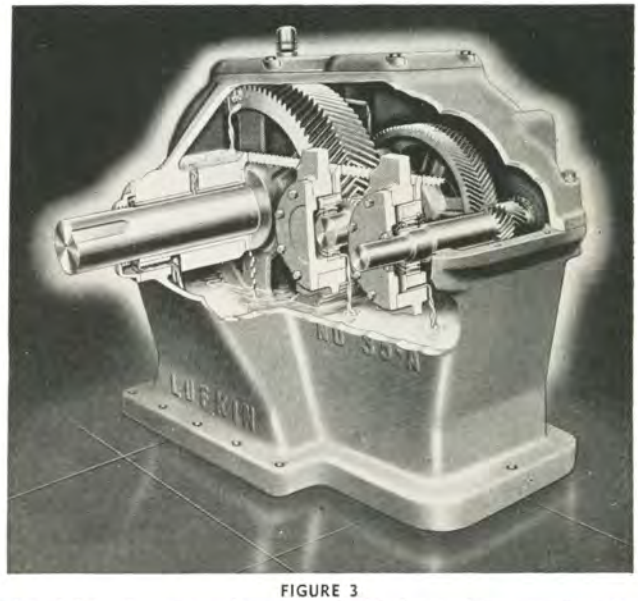


FIGURE 3

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

THE IMPROVED TROUT COUNTERBALANCED CRANK

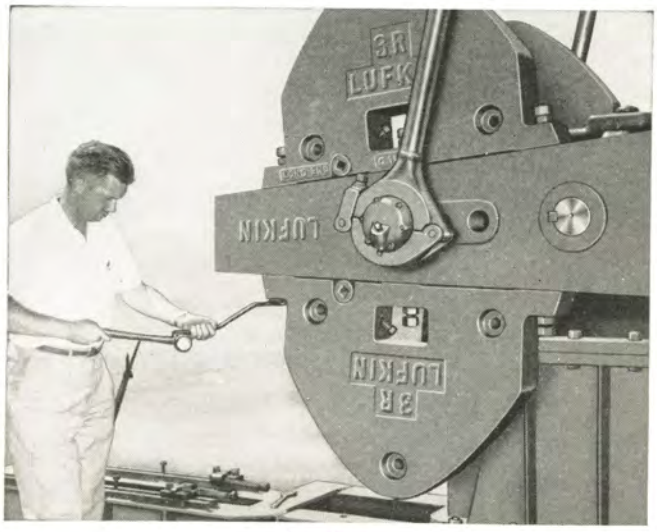


FIGURE 4

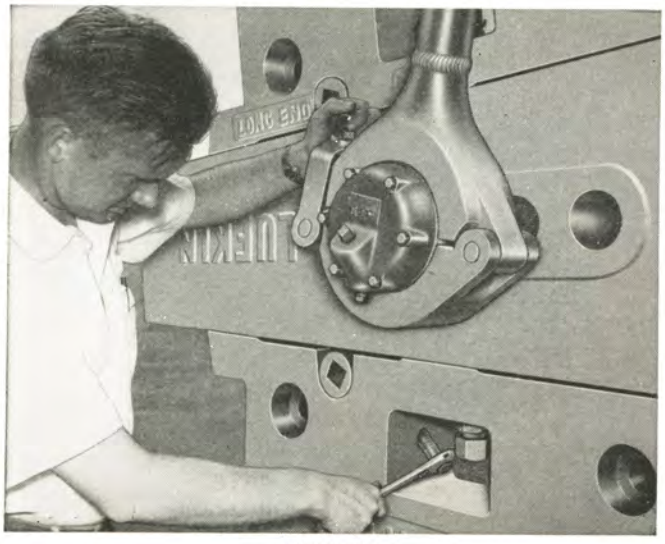


FIGURE 5

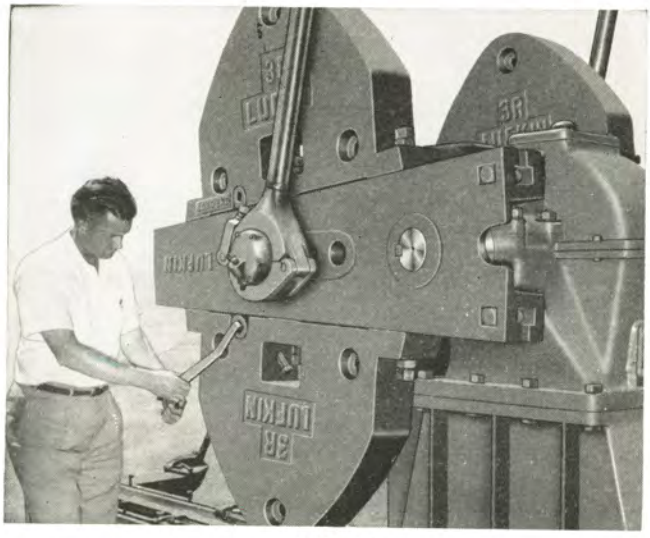


FIGURE 6

FIGURE 8

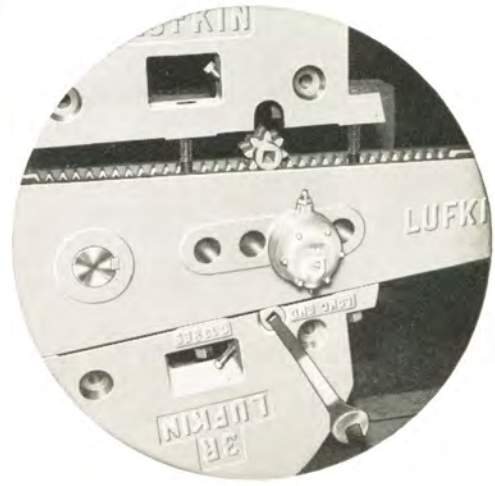


FIGURE 7

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

Rack and pinion type cranks are regularly furnished on the C-57 assemblies and larger. The C-40D and C-25D units are furnished with the regular sliding weight type Trout Cranks.

With the Trout Counterbalanced Crank there is no hazard to the operator or equipment as it is impossible 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 SIXTY THOUSAND LUFKIN PUMPING UNITS.

LUFKIN UNIVERSAL CENTER-LINE PITMAN EQUALIZER

Typical for C-114 and Larger Assemblies

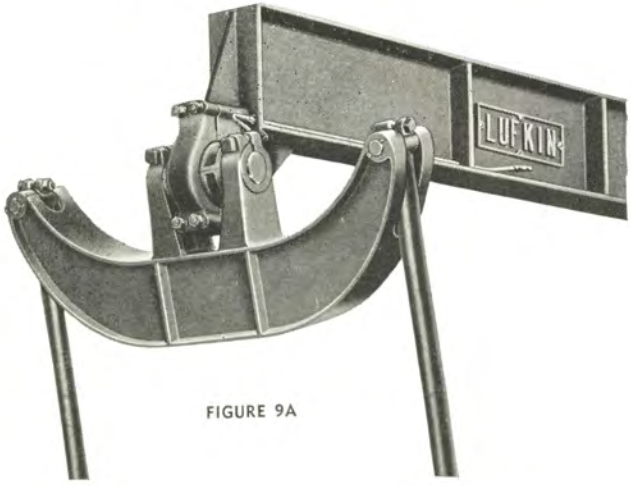
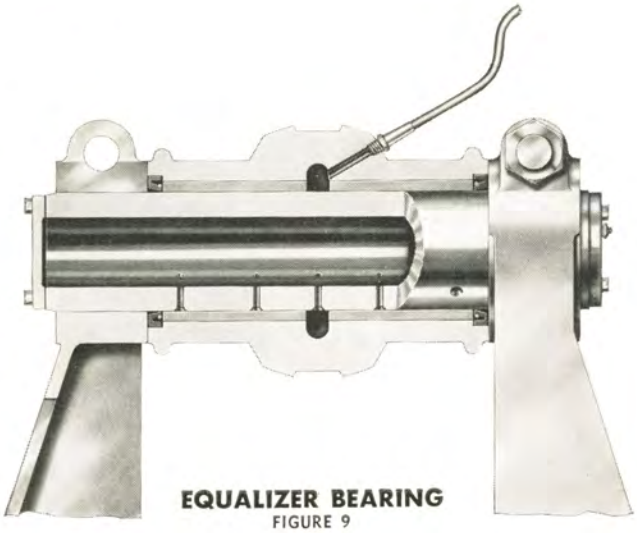
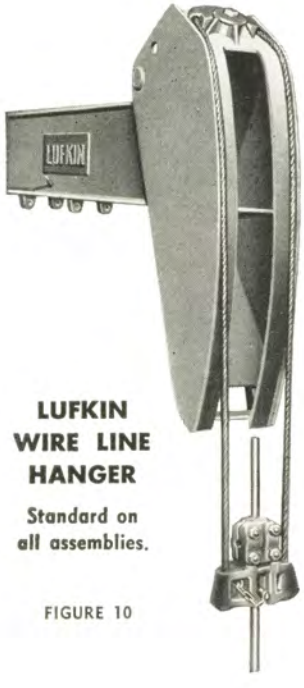


FIGURE 9A



EQUALIZER BEARING

FIGURE 9



LUFKIN WIRE LINE HANGER

Standard on all assemblies.

FIGURE 10

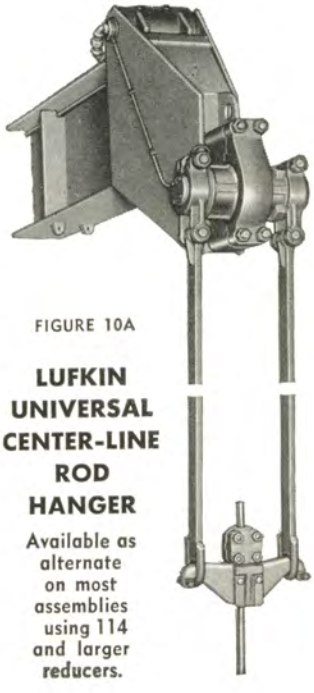


FIGURE 10A

LUFKIN UNIVERSAL CENTER-LINE ROD HANGER

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

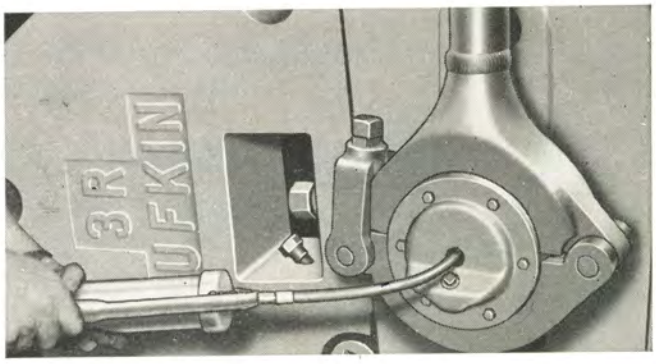


FIGURE 11

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

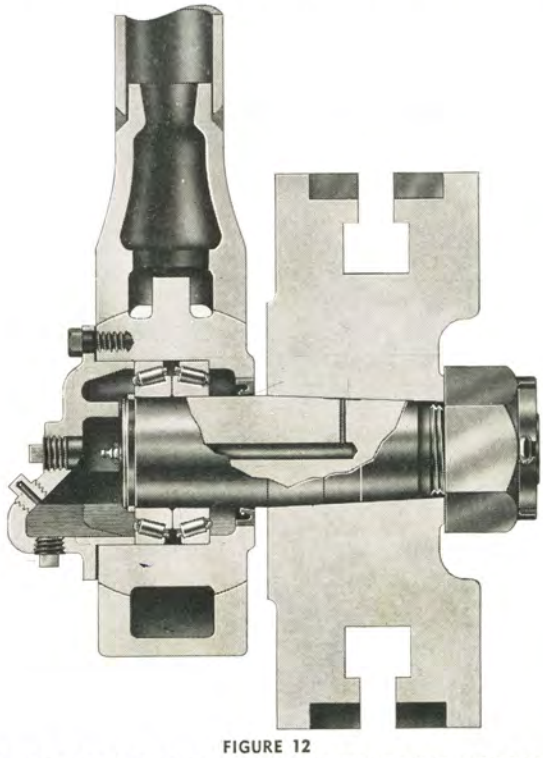


FIGURE 12

TAPERED ROLLER BEARING PITMAN BOX ASSEMBLY

Standard on C-114 and larger assemblies

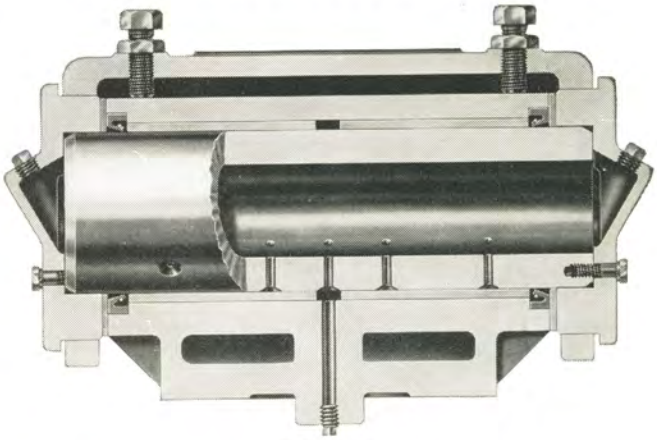


FIGURE 13

OIL TIGHT—BRONZE BUSHED CENTER BEARING

Used on C-114 and larger

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 15. Since the beam is a rolled structural member, not machined, all beams have a slight twist. When loaded as shown in Figure 15, 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 14, 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.

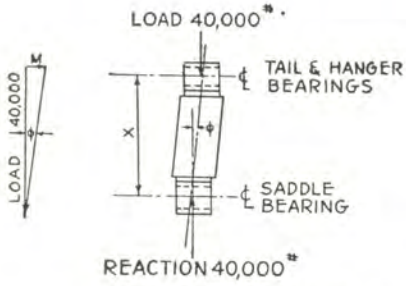


FIGURE 14

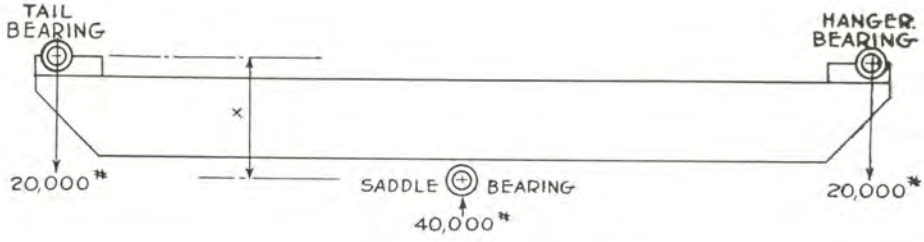


FIGURE 15

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.

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.

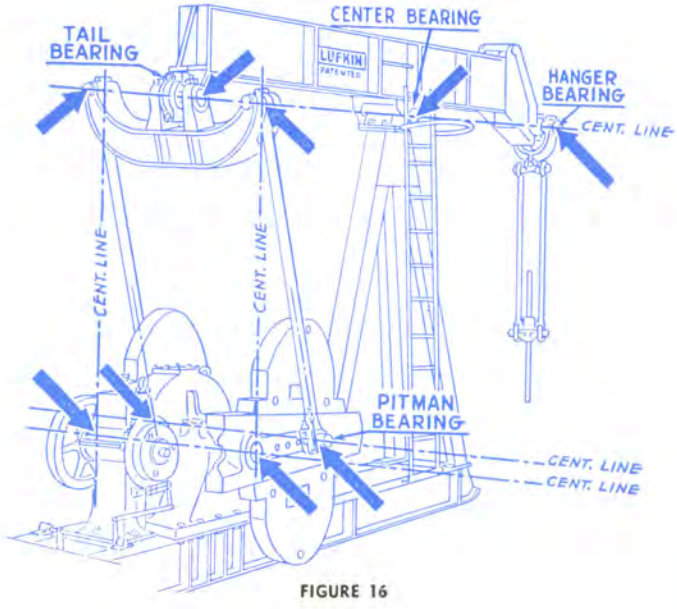


FIGURE 16

PORTABLE TYPE TESTING UNITS MADE IN ALL SIZES

FIGURE 17

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.

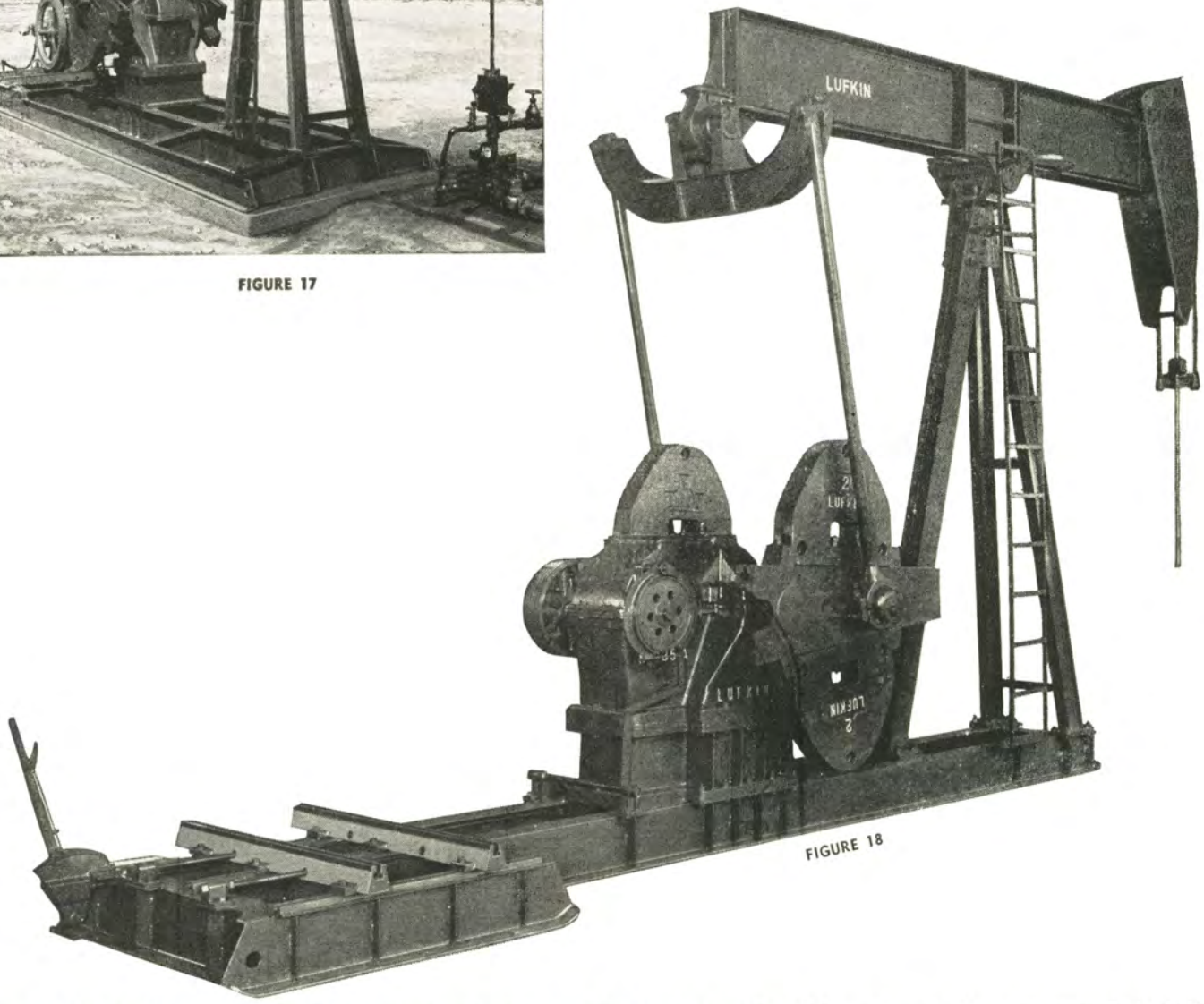


FIGURE 18

Lufkin C-228D-64-20 Universal Pumping Unit Assembly with sub-base to clear crank sweep. Note Universal mounting for prime mover. Engine Rails are of sturdy cast iron construction with long T-slot at top, and are mounted on T-slots welded to top flange of base. Two long adjusting screws are provided for sliding engine. Note simple, positive and trouble-free brake control rigging.

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.

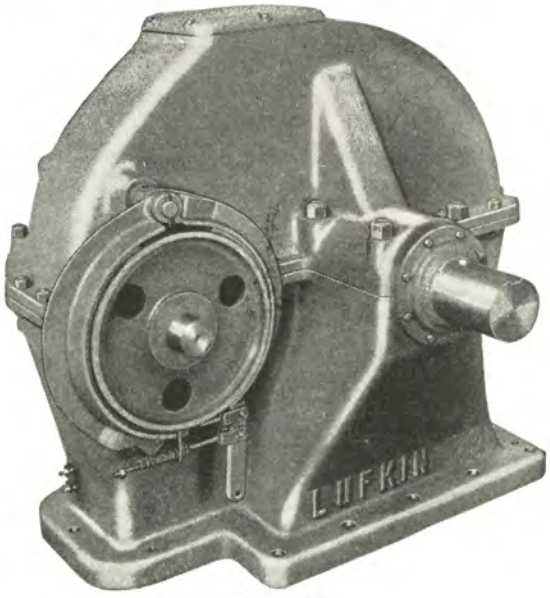


FIGURE 19

DOUBLE REDUCTION GEAR UNITS

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

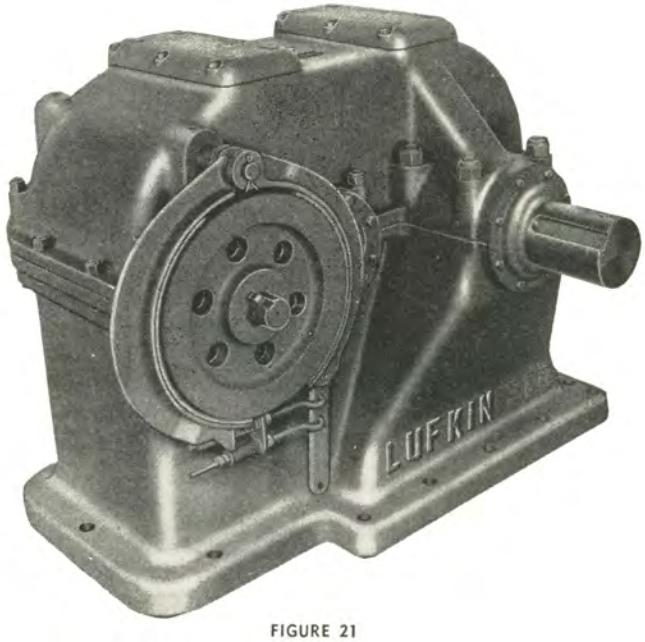


FIGURE 21

LUFKIN ENGINEERS HAVE A RICH BACKGROUND of practical experience in unit operation, and behind their design 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.

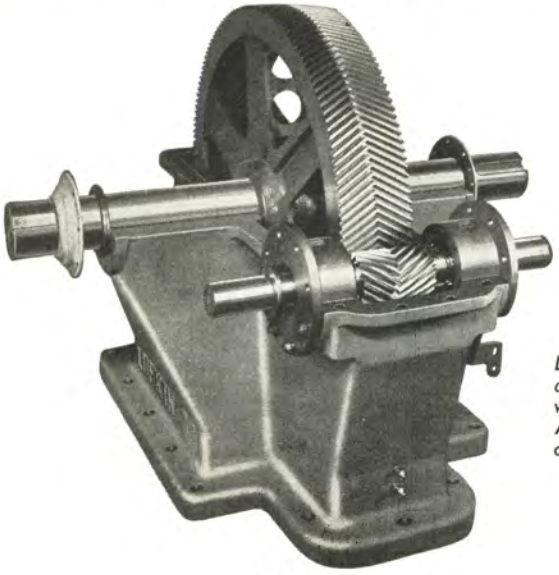


FIGURE 20

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.

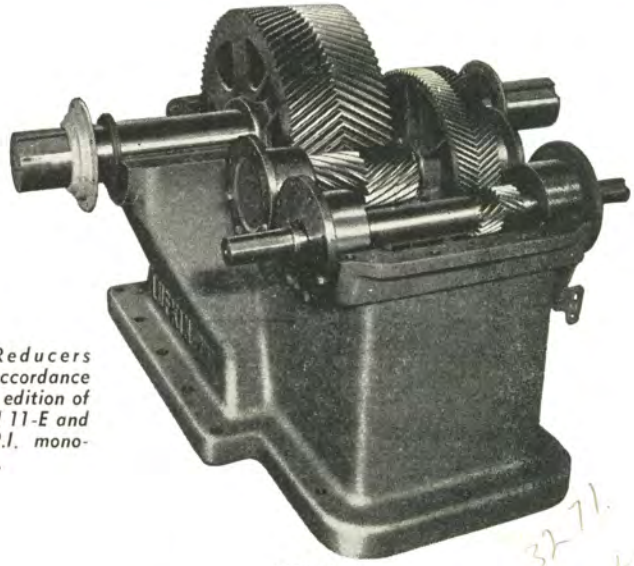


FIGURE 22

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 but seldom requiring replacement.
6. Crankshaft held rigid by Bronzoid hub plates. All pinions float on Straight 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. Claim Shell Brake. No grabbing. Improved ratchet lever and stand, locomotive type.

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

GENERAL SPECIFICATIONS

Lufkin 912,000 and 640,000 In. Lbs. Peak Torque Pumping Units

912 and 640 API Sizes

GEAR DATA

GEAR REDUCER: Double Reduction
Designation: 912DA.
Gears: Main Gear 50.4" Diam., 13½" Face.
Rating: 912,000 In. Lbs. Peak Torque.
Ratio of Gears: 28.72.
Crank Shaft Diam.: 7".
Sheave: 47⅜ P.D.—8D Std.
55 P.D.—8D Max.
Distance Centerline Unit to Centerline Drive: 22½".
Gear Box Oil Capacity: 107 Gallons.

GEAR REDUCER: Double Reduction
Designation: 640DB.
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., 51" P.D. Max. Without Sub-base, 55" Max. With Sub-base, 3-7/16" Bore.
Distance Centerline Unit to Centerline Drive: 21½".
Gear Box Oil Capacity: 70 Gallons.

STRUCTURAL DATA

C-912DA-168-35 and C-640DB-168-35 PUMPING UNIT ASSEMBLIES—35,000 Lb. Polished Rod Load Class

WALKING BEAM: 36" x 16½" x 260 lbs. 19'-7" & 10'-11¼" working centers.
HANGER: Hinged Horsehead with Double 1" Wire Lines 35'-5¼" & 34'-3⅛" Long on Load Equalizer
PITMAN: Universal Cross Pin Type Equalizer 5" Extra Heavy Pipe.
SAMSON POST: Tripod, 19'-4" High.
CRANKS: No. 94100R, 100" Radius.
BASE: 16" Deep, 46¾" Wide at Gear Box.
SUB BASE: C-640DB-168-35, 36" Deep Cast Iron on 24" Steel Beams.
C-912DA-168-35, 34" Deep Cast Iron on 24" Steel Beams.

CENTER BEARING 7½" x 22½" Bronze Bushed
CRANK PINS No. OT, Tapered Roller Bearings
TAIL BEARING 7" x 15¾" Bronze Bushed
WEIGHT C-640DB-168-35 69,335 lbs.
C-912DA-168-35 70,035 lbs.

†STATIC COUNTERBALANCE, LBS.

Stroke	No. 94100R Crank	
	No. 00R Wts.	Aux. Wts.
60.9"	42,585	53,260
82.4"	30,805	38,695
103.8"	23,925	30,185
125.3"	19,380	24,565
146.8"	16,165	20,595
168.0"	13,800	17,670

C-912DA-144-30A and C-640DB-144-30 PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class
Formerly TC-OLCBR-640DB

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-9" & 10'-11¼" working centers.
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: C-912DA-144-30A: 34" High, Cast Iron
C-640DB-144-30: 36" High, Cast Iron

CENTER BEARING No. 1AD, Bronze Bushed 7" x 20"
CRANK PINS No. OT, Tapered Roller Bearings
TAIL BEARING 5 15/16" x 13½" Bronze Bushed
WEIGHT C-912DA-144-30A: 58,330 lbs.
C-640DB-144-30: 57,380 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

C-640DB-120100-30 PUMPING UNIT ASSEMBLY—30,000 Lb. Polished Rod Load Class
Formerly TC-OLCR-640DB

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-0" and 10'-11¼" working centers.
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. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS No. OT, Tapered Roller 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

*C-640DB-120-30 PUMPING UNIT ASSEMBLY—30,000 Lb. Polished Rod Load Class
Formerly TC-OLBR-640DB

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-0" and 10'-11¼" working centers.
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. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS No. OT, Tapered Roller 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

*C-640DB-108-30 PUMPING UNIT ASSEMBLY—30,000 Lb. Polished Rod Load Class
Formerly TC-OLR-640DB

WALKING BEAM: 30" x 15" x 172 lbs., 14'-0¾" and 10'-11¼" working centers.
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. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS No. OT, Tapered Roller Bearings
TAIL BEARING 5 1/16" 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

* This unit also in stock at Los Angeles.
† If additional counterbalance required, beam can be extended for beam weights.

GENERAL DIMENSIONS

Lufkin 912,000 and 640,000 In. Lbs. Peak Torque Pumping Units

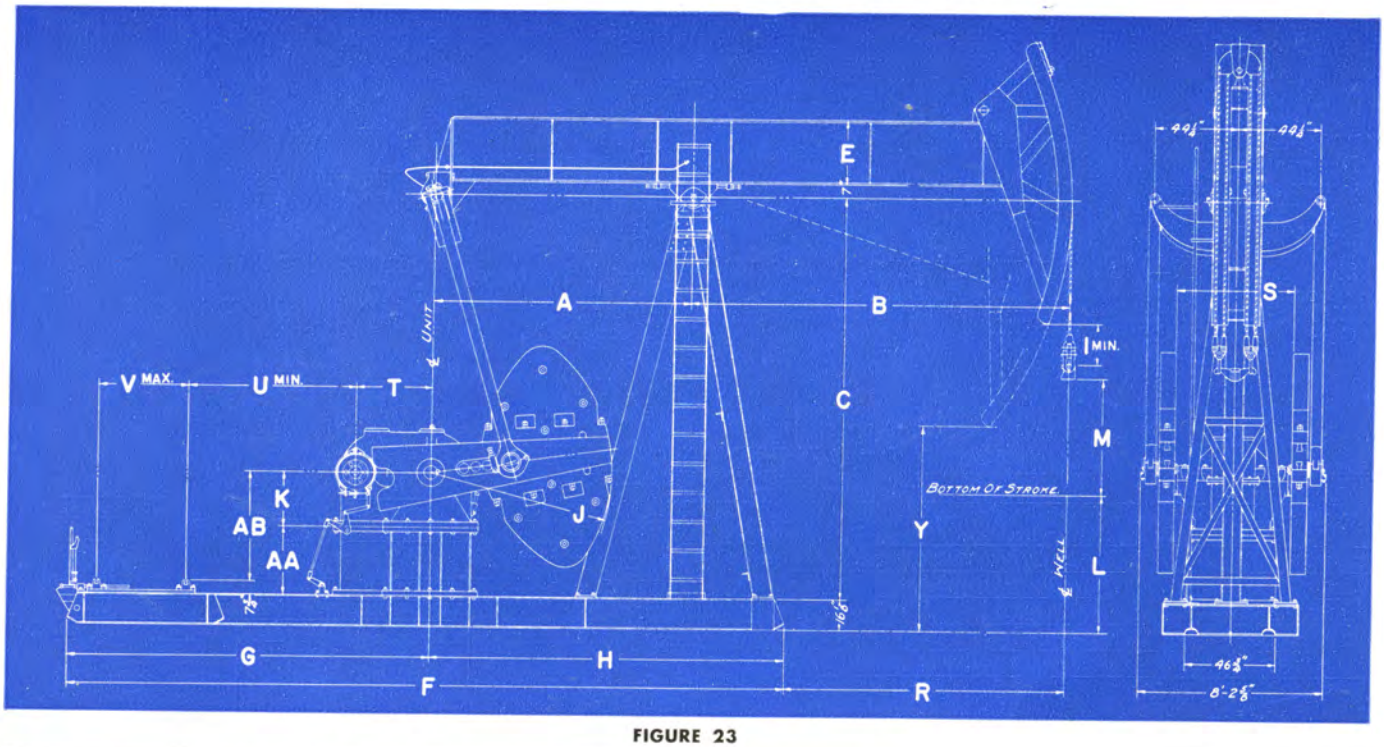


FIGURE 23

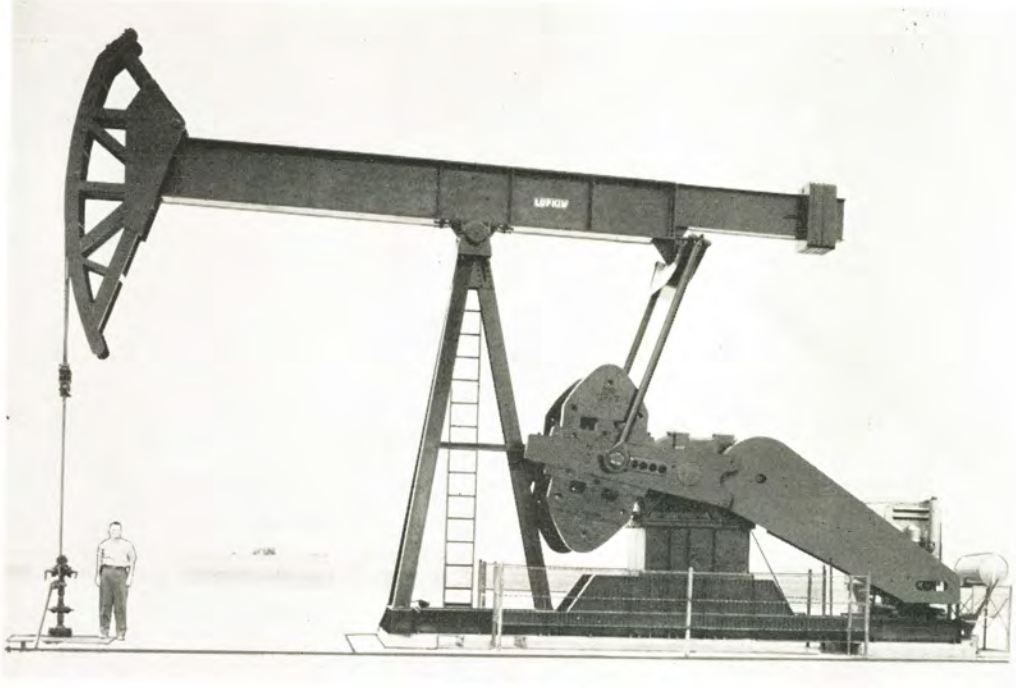
UNIT	A	B	C	E	F	G	H	I	J	K	L	M	R	S	T	U	V	Y	AA	AB
C-912DA-168-35	10'-11¼"	19'-7"	19'-4"	36¼"	31'-5"	16'-4"	15'-1"	16½"	100"	30"	49"	84"	15'-5¼"	65¼"	48½"	7'-3"	46"	7'-4"	58⅛"	80⅜"
C-640DB-168-35	10'-11¼"	19'-7"	19'-4"	36¼"	31'-5"	16'-4"	15'-1"	16½"	100"	28"	49"	84"	15'-5¼"	65¼"	41½"	7'-10"	46"	7'-4"	60⅛"	80⅜"
†C-912DA-144-30A	10'-11¼"	16'-9"	17'-4"	33"	30'-5"	15'-4"	15'-1"	23⅝"	100"	30"	44"	72"	12'-7¼"	65¼"	48½"	6'-3"	46"	7'-4"	34"	56¼
†C-640DB-144-30	10'-11¼"	16'-9"	17'-4"	33"	30'-5"	15'-4"	15'-1"	23⅝"	100"	28"	44"	72"	12'-7¼"	65¼"	41½"	6'-10"	46"	7'-4"	36"	56¼"
†C-640DB-120100-30	10'-11¼"	16'-0"	17'-4"	33"	30'-5"	15'-4"	15'-1"	18¼"	100"	28"	6'-1½"	60"	11'-10¼"	65¼"	41½"	6'-10"	46"	8'-10⅝"	36"	56¼"
‡C-640DB-120-30	10'-11¼"	16'-0"	17'-4"	33"	30'-5"	15'-4"	15'-1"	18¼"	92"	28"	6'-1½"	60"	11'-10¼"	65¼"	41½"	6'-10"	46"	8'-10⅝"	36"	56¼"
*C-640DB-108-30	10'-11¼"	14'-0¾"	17'-4"	29⅞"	30'-5"	15'-4"	15'-1"	28½"	78"	28"	6'-4⅝"	54.2"	9'-11"	67½"	41½"	6'-10"	46"	10'-0⅛"	36"	56¼"

† Requires foundation projecting 23" above grade line to provide crank clearance.
C-912DA-144F-30B
C-640DB-144F-30A
C-640DB-120100F-30
Can be furnished with cranks floor-clearing similar to unit shown in Fig. 24.

‡ Requires foundation projecting 15" above grade line to provide crank clearance.
C-640DB-120F-30 can be furnished with cranks floor-clearing similar to unit shown in Fig. 24.

* C-640DB-108-30 has single wire line as shown in Fig. 10, all others have double wire lines as shown in Fig. 23.

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



Lufkin CB-912DA-168-35

FIGURE 24

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

C-456DB-144-30 and C-456S-144-30 PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

Formerly TC-OLCBR-456DB and TC-OLCBR-456S

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-9" and 10'-11¼" working centers.
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. 1AD, Bronze Bushed 7" x 20"
CRANK PINS ..... No. OT, Tapered Roller Bearings
TAIL BEARING ..... 5 11/16" x 13½" Bronze Bushed
WEIGHT ..... C-456DB-144-30 55,980 lbs. C-456S-144-30 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

C-456DB-120100-30 and C-456S-120100-30 PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

Formerly TC-OLCR-456DB and TC-OLCR-456S

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-0" and 10'-11¼" working centers.
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. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS ..... No. OT, Tapered Roller Bearings
TAIL BEARING ..... 5 15/16" x 13½" Bronze Bushed
WEIGHT ..... C-456DB-120-30 55,730 lbs. C-456S-120-30 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

*C-456DB-120-30 and C-456S-120-30, PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

Formerly TC-OLBR-456DB and TC-OLBR-456S

WALKING BEAM: 33" x 15¾" x 200 lbs., 16'-0" and 10'-11¼" working centers.
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. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS ..... No. OT, Tapered Roller Bearings
TAIL BEARING ..... 5 15/16" x 13½", Bronze Bushed
WEIGHT ..... C-456DB-120-30 55,230 lbs. C-456S-120-30 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

*C-456DB-108-30 and C-456S-108-30 PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

Formerly TC-OLR-456DB and TC-OLR-456S

WALKING BEAM: 30" x 15" x 172 lbs., 14'-0¾" and 10'-11¼" working centers.
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. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS ..... No. OT, Tapered Roller Bearings
TAIL BEARING ..... 5 15/16" x 13½", Bronze Bushed
WEIGHT ..... C-456DB-108-30 51,480 lbs. C-456S-108-30 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

* This unit also in stock at Los Angeles.

GENERAL DIMENSIONS

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

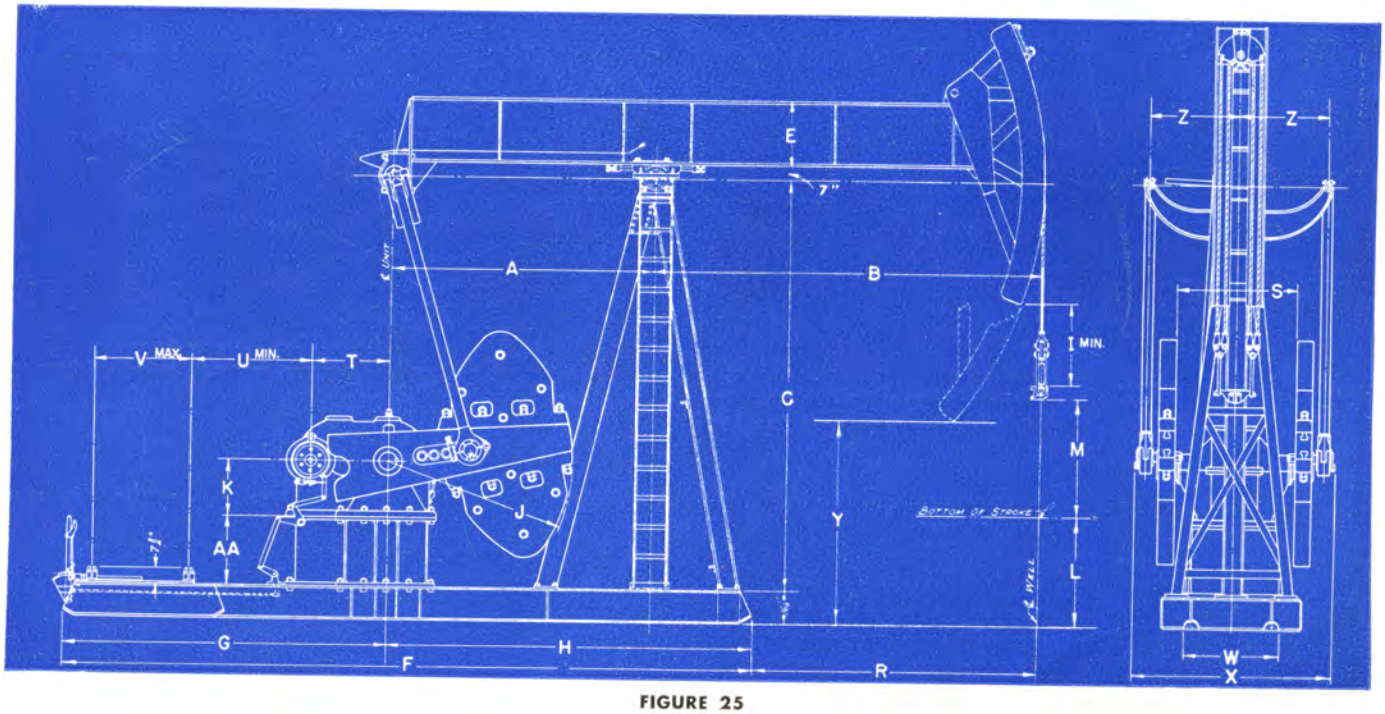


FIGURE 25

UNIT	A	B	C	E	F	G	H	I	J	K	L	M	R	S	T	U	V	W	X	Y	Z	AA
#C-456DB-144-30....	10′-11¼″	16′-9″	17′-4″	33″	30′-5″	15′-4″	15′-1″	23⅝″	100″	28″	44″	72″	12′-7¼″	65¼″	38⅜″	7′-11⅛″	46″	46¾″	8′-2⅝″	6′-9⅜″	45⅛″	36″#
†C-456S-144-30.....	10′-11¼″	16′-9″	17′-4″	33″	30′-5″	15′-4″	15′-1″	23½″	100″	34″	44″	72″	12′-7¼″	65¼″	32.8″	90.7″	46″	46¾″	8′-2⅝″	6′-9⅜″	45⅛″	36″†
#C-456DB-120100-30.	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	18¼″	100″	28″	6′-1½″	60″	11′-10¼″	65¼″	38⅜″	7′-11⅛″	46″	46¾″	8′2⅝″	8′-10⅝″	45⅛″	36″#
†C-456S-120100-30...	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	18¼″	100″	34″	6′-1½″	60″	11′-10¼″	65¼″	32.8″	90.7″	46″	46¾″	8′2⅝″	8′-10⅝″	45⅛″	36″†
‡C-456DB-120-30....	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	18¼″	92″	28″	6′-1½″	60″	11′-10¼″	65¼″	38⅜″	7′-11⅛″	46″	46¾″	8′-2⅝″	8′-10⅝″	45⅛″	36″‡
§C-456S-120-30.....	10′-11¼″	16′-0″	17′-4″	33″	30′-5″	15′-4″	15′-1″	18¼″	92″	34″	6′-1½″	60″	11′-10¼″	65¼″	32.8″	90.7″	46″	46¾″	8′-2⅝″	8′-10⅝″	45⅛″	36″§
*C-456DB-108-30....	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′-11⅛″	46″	46¾″	8′-2⅝″	10′-0⅛″	45⅛″	36″
*C-456S-108-30.....	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″

Requires foundation projecting 23″ above grade line to provide for crank clearance. C-456DB-144F-30A and C-456DB-120100F-30 can be furnished with cranks floor-clearing similar to the unit shown in Fig. 24.

† Requires foundation projecting 18″ above grade line to provide for crank clearance. C-456S-144F-30A and C-456S-120100F-30 can be furnished with cranks floor-clearing similar to the unit shown in Fig. 24.

‡ Requires foundation projecting 15″ above grade line to provide for crank clearance. C-456DB-120F-30 can be furnished with cranks floor-clearing similar to the unit shown in Fig. 24.

§ Requires foundation projecting 9″ above grade line to provide for crank clearance. C-456S-120F-30 can be furnished with cranks floor-clearing similar to the unit shown in Fig. 24.

* These units have single wire lines as shown in Fig. 10, all other units shown in this table have double wire line as shown above.

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

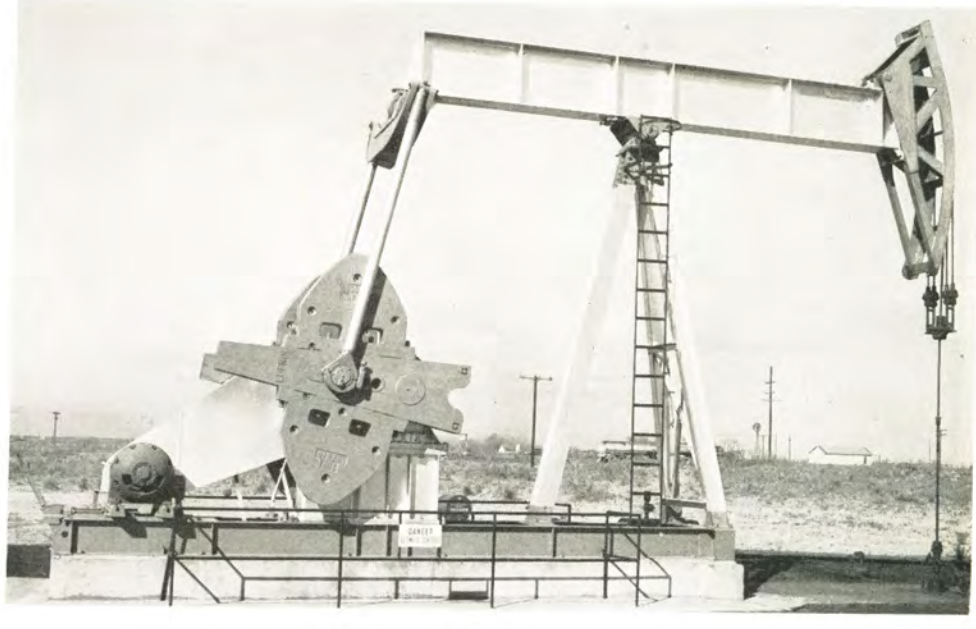


FIGURE 26

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: 320D (Formerly 41D)
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: 320S (Formerly 54C).
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

*C-320D-120-25 and C-320S-120-25 PUMPING UNIT ASSEMBLIES—25,000 Lb. Polished Rod Load Class

Formerly TC-ILBTR-41D and TC-ILBTR-54C

WALKING BEAM: 30" x 15" x 172 lbs., 14'-3½" and 10'-0" working centers.
HANGER: Hinged Horsehead with 1¼" Wire Line, 28'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 4" Exrra Heavy Pipe.
SAMSON POST: Tripod, 15'-9" high.
CRANKS: No. 8482R, 82" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 39" High, Cast Iron.

CENTER BEARING ..... No. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS ..... No. 1T, Tapered Roller Bearings
TAIL BEARING ..... 4 15/16" x 12", Bronze Bushed
WEIGHT ..... C-320D-120-25 46,175 lbs. C-320S-120-25 46,075 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 8482R Crank	
	No. OR Cwts.	Aux. Wts.
51.5"	33,115	42,125
68.5"	24,835	31,610
85.5"	19,850	25,275
103.0"	16,435	20,940
120.0"	14,075	17,940

*C-320D-84-30 and C-320S-84-30 PUMPING UNIT ASSEMBLIES—30,000 Lb. Polished Rod Load Class

Formerly TC-OALTR-41D and TC-OALTR-54C

WALKING BEAM: 30" x 15" x 172 lbs., with 12'-6" and 12'-6" working centers.
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. 8482R, 82" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 39" High, Cast Iron.

CENTER BEARING ..... No. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS ..... No. 1T, Tapered Roller Bearings
TAIL BEARING ..... 4 15/16" x 12", Bronze Bushed
WEIGHT ..... C-320D-84-30 46,975 lbs. C-320S-84-30 46,675 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 8482R Crank		No. 8482R Crank	
	OR Cwts. (Std.)	Aux. Wts.	1R Cwts.	Aux. Wts.
36"	48,920	61,805	36,330	44,410
48"	36,985	46,650	27,545	33,610
60"	29,830	37,560	22,275	27,125
72"	25,055	31,500	18,760	22,805
84"	21,645	27,170	16,250	19,715

*C-320D-84-27 and C-320S-84-27 PUMPING UNIT ASSEMBLIES—27,000 Lb. Polished Rod Load Class

Formerly TC-IBTR-41D and TC-IBTR-54C

WALKING BEAM: 24¾" x 14⅛" x 160 lbs., 11'-4¼" and 10'-0" working centers.
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. 7475R, 75" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 32" High, Cast Iron.

CENTER BEARING ..... No. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS ..... No. 1T, Tapered Roller Bearings
TAIL BEARING ..... 4 15/16" x 12", Bronze Bushed
WEIGHT ..... C-320D-84-27 39,000 lbs. C-320S-84-27 38,055 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 7475R Crank	
	No. 1R Cwts.	Aux. Wts.
38.5"	28,785	35,415
50.0"	22,330	27,440
61.0"	18,440	22,625
72.5"	15,630	19,155
84"	13,590	16,630

*C-320D-74-27 and C-320S-74-27 PUMPING UNIT ASSEMBLIES—27,000 Lb. Polished Rod Load Class

Formerly TC-ITR-41D and TC-ITR-54C

WALKING BEAM: 24" x 14" x 130 lbs., 10'-0" and 10'-0" working centers.
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. 7475R, 75" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 32" High, Cast Iron.

CENTER BEARING ..... No. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS ..... No. 1T, Tapered Roller Bearings
TAIL BEARING ..... 4 15/16" x 12", Bronze Bushed
WEIGHT ..... C-320D-74-27 38,845 lbs. C-320S-74-27 37,895 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 7475R Crank		No. 7475R Crank	
	2R Cwts.	Aux. Wts.	1R Cwts. (Std.)	Aux. Wts.
34"	29,640	37,120	33,020	40,535
44"	23,190	28,970	25,805	31,610
54"	19,130	23,840	21,260	25,990
64"	16,340	20,315	18,135	22,125
74"	14,300	17,740	15,855	19,305

C-320D-74-25 and C-320S-74-25 PUMPING UNIT ASSEMBLIES—25,000 Lb. Polished Rod Load Class

Formerly TC-1ATR-41D and TC-1ATR-54C

WALKING BEAM: 24¾" x 14⅛" x 160 lbs., 12'-6" and 12'-6" working centers.
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. 7475R, 75" Radius.
BASE: 16" Deep, 43" Wide at Gear Box.
SUB-BASE: 32" High, Cast Iron.

CENTER BEARING ..... No. 1AD, Bronze Bushed, 7" x 20"
CRANK PINS ..... No. 1T, Tapered Roller Bearings
TAIL BEARING ..... 4 15/16" x 12", Bronze Bushed
WEIGHT ..... C-320D-74-25 40,445 lbs. C-320S-74-25 39,995 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 7475R Crank		No. 7475R Crank	
	2R Cwts.	Aux. Wts.	1R Cwts. (Std.)	Aux. Wts.
34"	29,665	37,145	33,050	40,560
44"	23,220	29,000	25,835	31,640
54"	19,160	23,870	21,290	26,020
64"	16,370	20,340	18,165	22,155
74"	14,330	17,765	15,885	19,335

* This unit also in stock at Los Angeles.

GENERAL DIMENSIONS

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

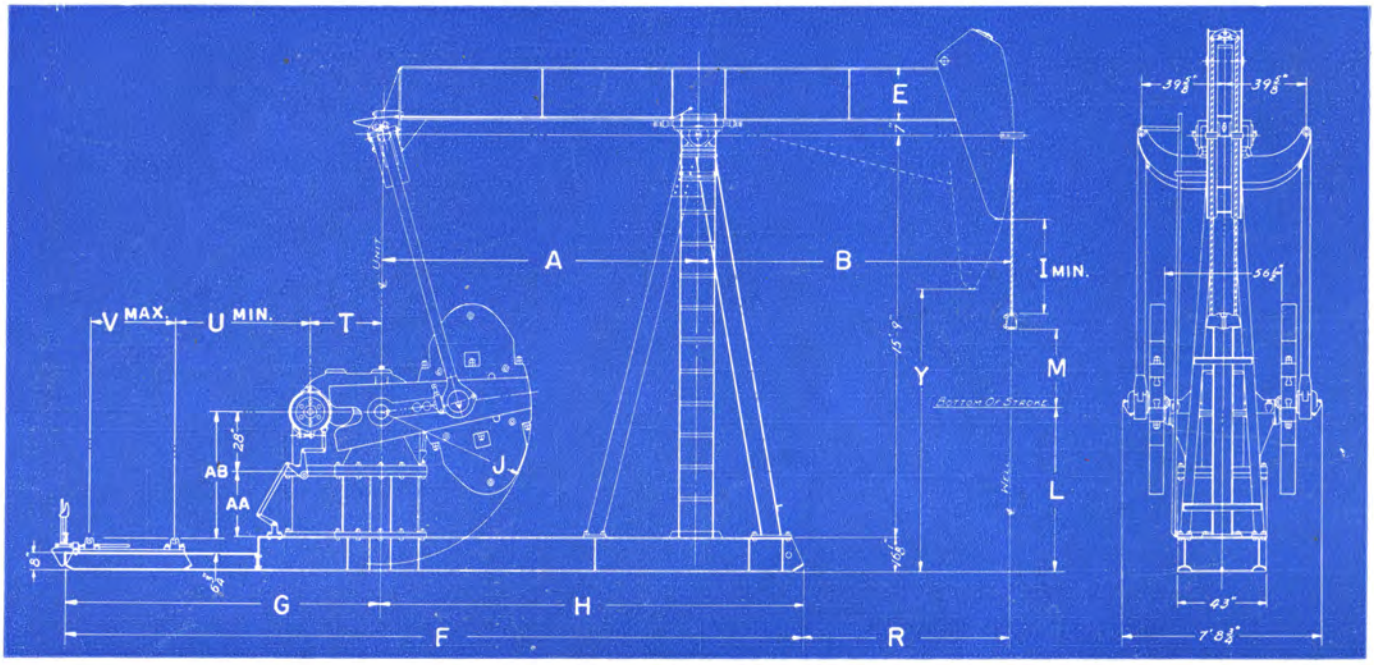


FIGURE 27

UNIT	A	B	E	F	G	H	I	J	L	M	R	T	U	V	Y	AA	AB
*C-320D-120-25	10′-0″	14′-3½″	29⅞″	27′-4½″	13′-1½″	14′-3″	17¼″	82″	58½″	60″	10′-0½″	34″	65″	45¾″	7′-7¼″	39″	60¼″
*C-320S-120-25	10′-0″	14′-3½″	29⅞″	27′-4½″	13′-1½″	14′-3″	17¼″	82″	58½″	60″	10′-0½″	26″	73″	45¾″	7′-7¼″	39″	60¼″
C-320D-84-30	12′-6″	12′-6″	29⅞″	29′-4¾″	12′-6″	16′-10¾″	36¼″	82″	74⅝″	42″	8′-11¼″	34″	63½″	41″	10′-2¾″	39″	68⅜″
C-320S-84-30	12′-6″	12′-6″	29⅞″	29′-4¾″	12′-6″	16′-10¾″	36¼″	82″	74⅝″	42″	8′-11¼″	26″	71½″	41″	10′-2¾″	39″	68⅜″
*C-320D-84-27	10′-0″	11′-4¼″	24¾″	25′-10″	11′-7″	14′-3″	36⅞″	75″	73⅞″	42″	7′-11¼″	34″	48¼″	41½″	10′-3½″	32″	53¼″
*C-320S-84-27	10′-0″	11′-4¼″	24¾″	25′-10″	11′-7″	14′-3″	36⅞″	75″	73⅞″	42″	7′-11¼″	26″	56¼″	41½″	10′-3½″	32″	53¼″
*C-320D-74-27	10′-0″	10′-0″	24¼″	25′-10″	11′-7″	14′-3″	46½″	75″	75″	37″	5′-9″	34″	48¼″	41½″	11′-1 1/16″	32″	53¼″
*C-320S-74-27	10′-0″	10′-0″	24¼″	25′-10″	11′-7″	14′-3″	46½″	75″	75″	37″	5′-9″	26″	56¼″	41½″	11′-1 1/16″	32″	53¼″
C-320D-74-25	12′-6″	12′-6″	24¾″	29′-4¾″	12′-6″	16′-10¾″	44⅝″	75″	76⅜″	37″	8′-11¼″	34″	63½″	41″	10′-11⅝″	32″	61⅜″
C-320S-74-25	12′-6″	12′-6″	24¾″	29′-4¾″	12′-6″	16′-10¾″	44⅝″	75″	76⅜″	37″	8′-11¼″	26″	71½″	41″	10′-11⅝″	32″	61⅜″

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

FIGURE 28

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: 228D (Formerly 35B)
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: 228S (Formerly 36B)
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

C-228D-74-27 and C-228S-74-27 PUMPING UNIT ASSEMBLIES—27,000 Lb. Polished Rod Load Class

Formerly TC-1TR-35B and TC-1TR-36B

WALKING BEAM: 24" x 14" x 130 lbs., with 10'-0" and 10'-0" working centers.
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. 7475R, 75" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 33" High, Cast Iron, for No. 7475R Cranks.
27" High, Cast Iron, for No. 7469R Cranks.

CENTER BEARING.. No. 2AD, Bronze Bushed, 6" x 17"
CRANK PINS..... No. 1T, Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 12", Bronze Bushed
WEIGHT..... C-228D-74-27 33,680 lbs. C-228S-74-27 33,580 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	7475R Crank (Std.) No.1R Cwts.	7475R Crank (Std.) Aux. Wts.	C-228D-7469-27 No. 7469R Crank No. 2R Cwts.	C-228D-7469-27 No. 7469R Crank Aux. Wts.
34".....	32,880	40,390	25,145	31,770
44".....	25,660	31,465	19,685	24,805
54".....	21,115	25,845	16,245	20,420
64".....	17,995	21,985	13,885	17,405
74".....	15,710	19,165	12,160	15,205

*C-228D-74-23 and C-228S-74-23 PUMPING UNIT ASSEMBLIES—23,000 Lb. Polished Rod Load Class

Formerly TC-2LTR-35B and TC-2LTR-36B

WALKING BEAM: 24" x 12" x 100 lbs., 8'-0" and 8'-0" working centers.
HANGER: Hinged Horsehead with 1⅜" Wire Line, 23'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod 14'-7" High.
CRANKS: No. 7469R, 69" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 27" High, Cast Iron.

CENTER BEARING.. No. 2AD Bronze Bushed, 6" x 17"
CRANK PINS..... No. 2T, Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 9¼" Bronze Bushed
WEIGHT..... C-228D-74-23 29,330 lbs. C-228S-74-23 29,230 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 7469R Crank No. 2R Cwts.	No. 7469R Crank Aux. Wts.
34".....	24,720	31,345
44".....	19,265	24,380
54".....	15,825	19,995
64".....	13,460	16,980
74".....	11,735	14,780

*C-228D-74-20 and C-228S-74-20 PUMPING UNIT ASSEMBLIES—20,000 Lb. Polished Rod Load Class

Formerly TC-2BTR-35B and TC-2BTR-36B

WALKING BEAM: 27" x 10" x 102 lbs., 9'-3" and 8'-0" working centers.
HANGER: Hinged Horsehead with 1⅜" Wire Line, 23'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 14'-7" High.
CRANKS: No. 6463R, 63" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING.. No. 2AD, Bronze Bushed, 6" x 17"
CRANK PINS..... No. 2T Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 9¼" Bronze Bushed
WEIGHT..... C-228D-74-20 28,235 lbs. C-228S-74-20 28,210 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 6463R Crank 3CR Cwts.	No. 6463R Crank Aux. Wts.	No. 6463R Crank 2R Cwts. (Std.)	No. 6463R Crank Aux. Wts.
27.5".....	22,605	29,855	25,460	32,540
39.0".....	16,055	21,170	18,070	23,060
51.0".....	12,370	16,285	13,915	17,770
62.5".....	10,170	13,360	11,425	14,540
74.0".....	8,650	11,345	9,715	12,345

*C-228D-64-23 and C-228S-64-23 PUMPING UNIT ASSEMBLIES—23,000 Lb. Polished Rod Load Class

Formerly TC-2TR-35B and TC-2TR-36B

WALKING BEAM: 24" x 12" x 100 lbs., 8'-0" and 8'-0" working centers.
HANGER: Hinged Horsehead with 1⅜" Wire Line, 23'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 14'-7" High.
CRANKS: No. 6463R, 63" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING.. No. 2AD, Bronze Bushed, 6" x 17"
CRANK PINS..... No. 2T Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 9¼" Bronze Bushed
WEIGHT..... C-228D-64-23 28,195 lbs. C-228S-64-23 28,175 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 6463R Crank 3CR Cwts.	No. 6463R Crank Aux. Wts.	No. 6463R Crank 2R Cwts. (Std.)	No. 6463R Crank Aux. Wts.
24".....	26,200	34,510	29,475	37,585
34".....	18,715	24,585	21,030	26,755
44".....	14,635	19,170	16,420	20,845
54".....	12,065	15,760	13,520	17,125
64".....	10,300	13,415	11,530	14,570

C-228D-64-20 and C-228S-64-20 PUMPING UNIT ASSEMBLIES—20,000 Lb. Polished Rod Load Class

Formerly TC-2ATR-35B and TC-2ATR-36B

WALKING BEAM: 27" x 10" x 102 lbs., 10'-0" and 10'-0" working centers.
HANGER: Hinged Horsehead with 1⅜" Wire Line, 23'-0" Long.
PITMAN: Universal Equalizer with Bearings "in line", 3" Extra Heavy Pipe.
SAMSON POST: Tripod, 14'-7" High.
CRANKS: No. 6463R, 63" Radius.
BASE: 16" Deep, 37" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING.. No. 2AD, Bronze Bushed, 6" x 17"
CRANK PINS..... No. 2T Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 9¼" Bronze Bushed
WEIGHT..... C-228D-64-20 28,910 lbs. C-228S-64-20 28,710 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 6463R Crank 3CR Cwts.	No. 6463R Crank Aux. Wts.	No. 6463R Crank (Std.) 2R Cwts.	No. 6463R Crank (Std.) Aux. Wts.
24".....	26,225	34,535	29,500	37,610
34".....	18,740	24,610	21,055	26,775
44".....	14,660	19,195	16,455	20,870
54".....	12,090	15,785	13,545	17,150
64".....	10,325	13,440	11,550	14,590

* This unit also in stock at Los Angeles.

GENERAL DIMENSIONS

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

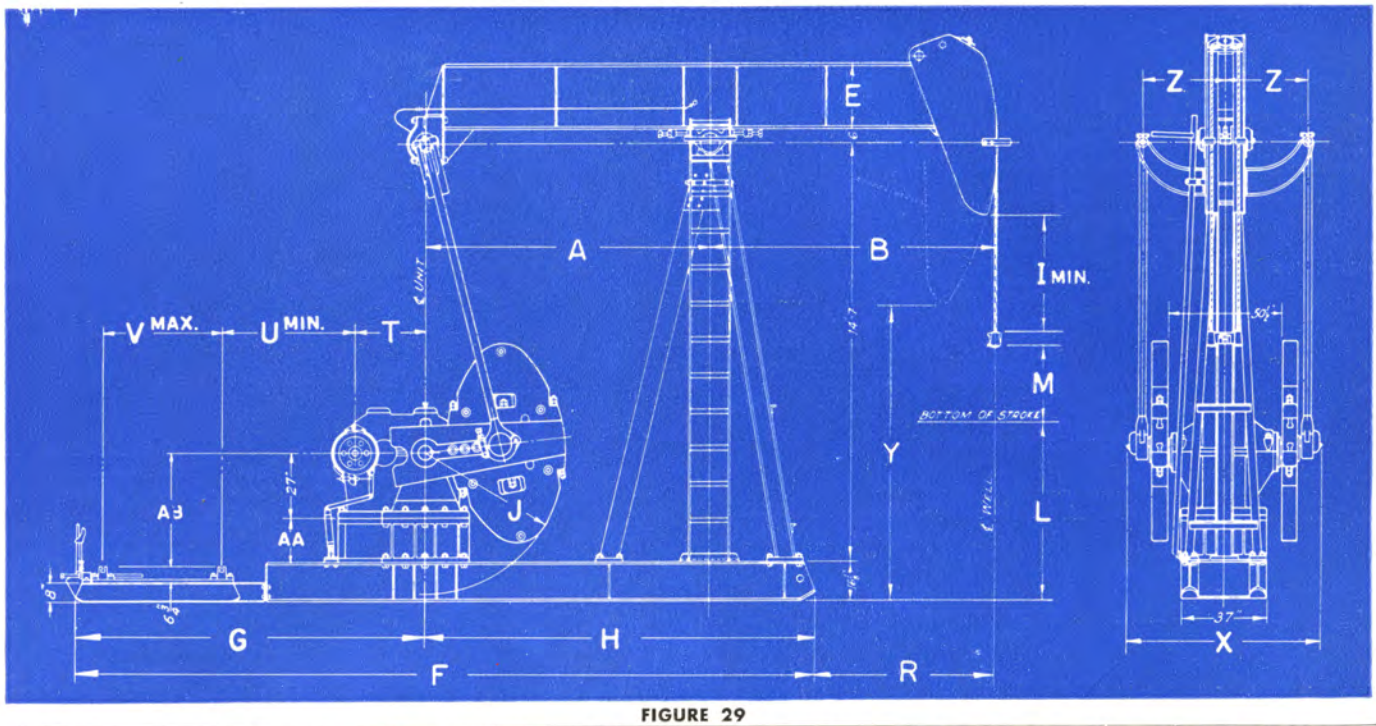


FIGURE 29

UNIT	A	B	E	F	G	H	I	J	L	M	R	T	U	V	X	Y	Z	AA	AB
C-228D-74-27	10′-0″	10′-0″	24¼″	26′-2″	12′-5″	13′-9″	46″	75″	5′-01⅛″	37″	6′-3″	30″	56¾″	50½″	7′-1¾″	9′-10″	35⅞″	33″	61⅜″
C-228S-74-27	10′-0″	10′-0″	24¼″	26′-2″	12′-5″	13′-9″	46″	75″	5′-01⅛″	37″	6′-3″	25″	61¾″	50½″	7′-1¾″	9′-10″	35⅞″	33″	61⅜″
*C-228D-74-23	8′-0″	8′-0″	24″	23′-7″	11′-10″	11′-9″	33⅞″	69″	6′-1⅜″	37″	4′-3″	30″	51¼″	48″	6′-8⅛″	10′-2″	35 7/16″	27″	47¼″
*C-228S-74-23	8′-0″	8′-0″	24″	23′-7″	11′-10″	11′-9″	33⅞″	69″	6′-1⅜″	37″	4′-3″	25″	56¼″	48″	6′-8⅜″	10′-2″	35 7/16″	27″	47¼″
*C-228D-74-20	8′-0″	9′-3″	27⅛″	23′-7″	11′-10″	11′-9″	40″	63″	5′-6¾″	37″	5′-6″	30″	51¼″	48″	6′-8⅜″	9′-10½″	35 7/16″	21″	41¼″
*C-228S-74-20	8′-0″	9′-3″	27⅛″	23′-7″	11′-10″	11′-9″	40″	63″	5′-6¾″	37″	5′-6″	25″	56¼″	48″	6′-8⅜″	9′-10½″	35 7/16″	21″	41¼″
*C-228D-64-23	8′-0″	8′-0″	24″	23′-7″	11′-10″	11′-9″	43⅞″	63″	6′-1¼″	32″	4′-3″	30″	51¼″	48″	6′-8⅜″	10′-10″	35 7/16″	21″	41¼″
*C-228S-64-23	8′-0″	8′-0″	24″	23′-7″	11′-10″	11′-9″	43⅞″	63″	6′-1¼″	32″	4′-3″	25″	56¼″	48″	6′-8⅜″	10′-10″	35 7/16″	21″	41¼″
C-228D-64-20	10′-0″	10′-0″	27⅛″	26′-2″	12′-5″	13′-9″	42⅛″	63″	6′-1½″	32″	6′-3″	30″	56¾″	50½″	6′-8⅜″	10′-6″	35 7/16″	21″	49⅜″
C-228S-64-20	10′-0″	10′-0″	27⅛″	26′-2″	12′-5″	13′-9″	42⅛″	63″	6′-1½″	32″	6′-3″	25″	61¾″	50½″	6′-8⅜″	10′-6″	35 7/16″	21″	49⅜″

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

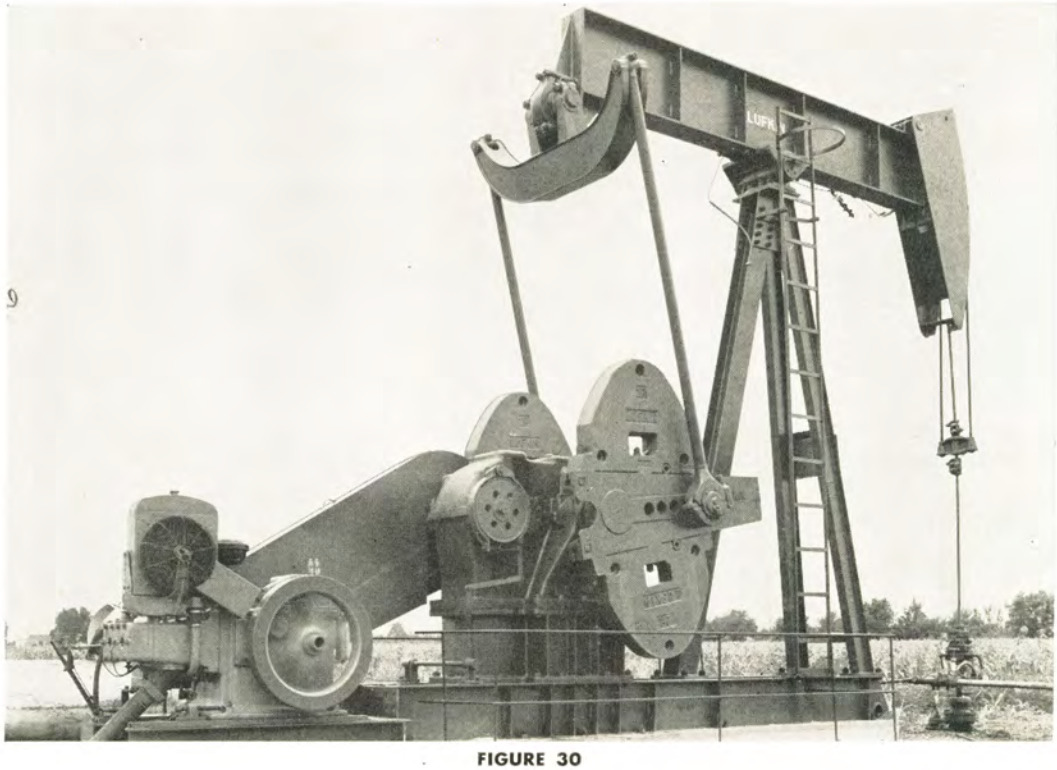


FIGURE 30

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: 160D (Formerly 22G).
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.—5 C Std., 29¼" P.D. or 33¼" P.D. Alt., 38" P.D. Max., 2-3/16" Bore.
Distance Centerline Unit to Centerline Drive: 14⅝".
Gear Box Oil Capacity: 22 Gallons

GEAR REDUCER: Single Reduction
Designation: 160S (Formerly 18B).
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

*C-160D-74-20 and C-160S-74-20 PUMPING UNIT ASSEMBLIES—20,000 Lb. Polished Rod Load Class
Formerly TC-2BTR-22G and TC-2BTR-18B

WALKING BEAM: 27" x 10" x 102 lbs., 9'-3" and 8'-0" working centers.
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. 3AD Bronze Bushed, 6" x 14"
CRANK PINS..... No. 2T, Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 9¼" Bronze Bushed
WEIGHT..... 22,690 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	6460R Crank 3CR Cwts.	6460R Crank Aux. Wts.	6460R Crank (Std.) 2R Cwts.	6460R Crank (Std.) Aux. Wts.
27.5"	20,210	26,720	23,040	29,485
39.0"	14,340	18,930	16,335	20,880
51.0"	11,035	14,545	12,560	16,035
62.5"	9,060	11,925	10,305	13,140
74.0"	7,700	10,115	8,750	11,145

*C-160D-64-23 and C-160S-64-23 PUMPING UNIT ASSEMBLIES—23,000 Lb. Polished Rod Load Class
Formerly TC-2TR-22G and TC-2TR-18B

WALKING BEAM: 24" x 12" x 100 lbs., 8'-0" and 8'-0" working centers.
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: C-160D-64-23: 24" High Cast Iron.
C-160D-6466-23: 16" High Cast Iron on 14" High Steel Beams.

CENTER BEARING.. No. 3AD, Bronze Bushed, 6" x 14"
CRANK PINS..... No. 2T Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 9¼", Bronze Bushed
WEIGHT..... 23,750 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 6460R Crank (Std.) 2R Cwts.	No. 6460R Crank (Std.) Aux. Wts.	C-160D-6466-23 No. 6466R Crank 2R Cwts.	C-160D-6466-23 No. 6466R Crank Aux. Wts.
24"	26,725	34,110	.....	.....
34"	19,065	24,275	22,765	28,875
44"	14,885	18,910	17,745	22,465
54"	12,250	15,535	14,580	18,430
64"	10,440	13,210	12,410	15,650

C-160D-64-18.8A and C-160S-64-18.8A PUMPING UNIT ASSEMBLIES—18,800 Lb. Polished Rod Load Class

WALKING BEAM: 24" x 9" x 84 lbs. 7'-8" and 5' 3¼" working centers.
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. 4460R, 59½" Radius.
BASE: 10" Deep, 32" Wide at Gear Box.
SUB-BASE: 24" High, Cast Iron.

CENTER BEARING.. No. 3AD Bronze Bushed, 6" x 14"
CRANK PINS..... No. 2T, Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 9¼" Bronze Bushed
WEIGHT..... 21,950 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 4460R Crank (Std.) 2R Cwts.	No. 4460R Crank (Std.) Aux. Wts.	No. 4460R Crank 3CR Cwts.	No. 4460R Crank Aux. Wts.
34.9"	18,200	23,280	15,975	21,100
49.5"	12,915	16,495	11,345	14,960
64.0"	10,055	12,825	8,840	11,635

C-160D-64-15A and C-160S-64-15A PUMPING UNIT ASSEMBLIES—15,000 Lb. Polished Rod Load Class
Formerly TC-33BTR-22G and TC-33BTR-18B

WALKING BEAM: 21" x 9" x 82 lbs., 8'-3" and 5'-3¼" working centers.
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. 3AD, Bronze Bushed, 6" x 14"
CRANK PINS..... No. 2T Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 9¼", Bronze Bushed
WEIGHT..... 19,700 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 4152R Crank 3CR Cwts.	No. 4152R Crank Aux. Wts.
32.9"	12,845	17,180
48.5"	8,805	11,745
64.0"	6,710	8,955

C-160D-54-18 and C-160S-54-18 PUMPING UNIT ASSEMBLIES—18,000 Lb. Polished Rod Load Class
Formerly TC-33ATR-22G and TC-33ATR-18B

WALKING BEAM: 24" x 9" x 84 lbs., 8'-0" and 8'-0" working centers.
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. 3AD, Bronze Bushed, 6" x 14"
CRANK PINS..... No. 2T Tapered Roller Bearings
TAIL BEARING..... $4^{15}/_{16}$" x 9¼", Bronze Bushed
WEIGHT..... 20,900 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 5452R Crank 3CR Cwts.	No. 5452R Crank Aux. Wts.
24"	18,090	24,000
34"	13,080	17,250
44"	10,345	13,570
54"	8,600	11,250

* This unit also in stock in Los Angeles.

LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

LUFKIN

GENERAL DIMENSIONS

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

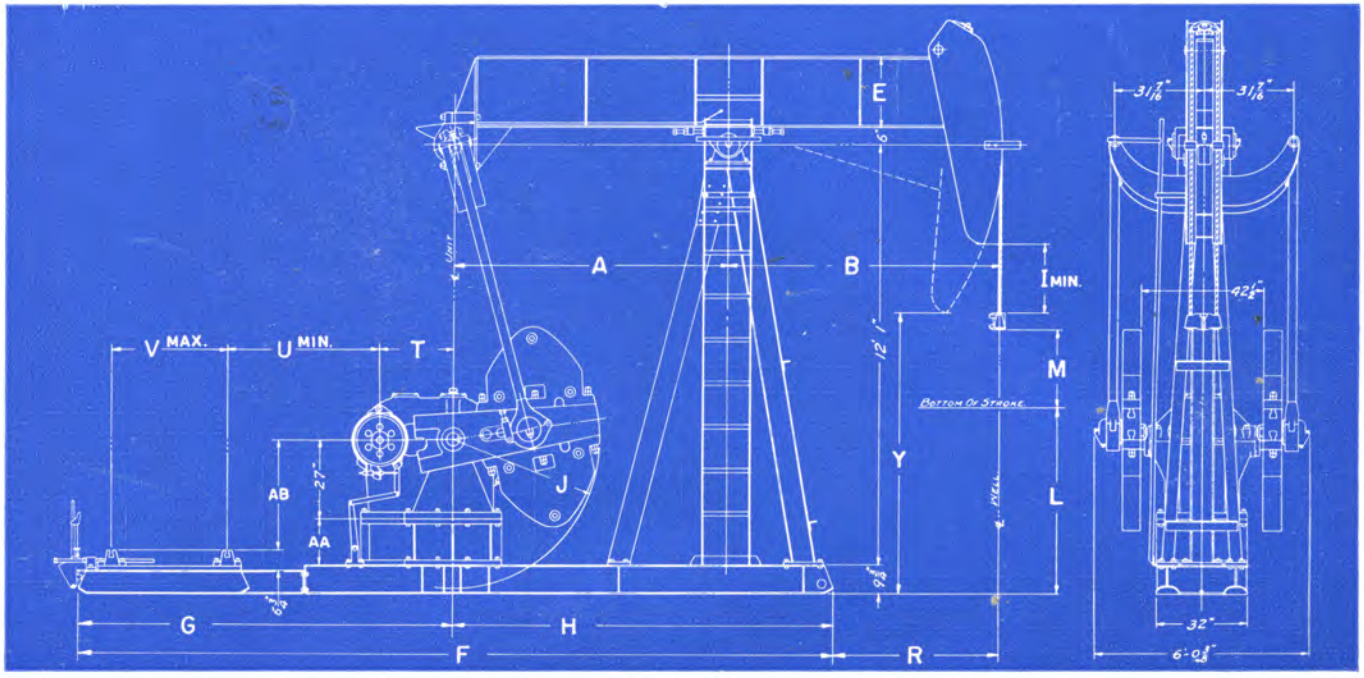


FIGURE 31

UNIT	A	B	E	F	G	H	I	J	L	M	R	T	U	V	Y	AA	AB
C-160D-74-20	8'-0"	9'-3"	27⅛"	22'-2"	11'-0"	11'-2"	22"	59½"	48⅜"	37"	73"	26"	53¾"	40½"	6'-10⅛"	24"	46"
C-160S-74-20	8'-0"	9'-3"	27⅛"	22'-2"	11'-0"	11'-2"	22"	59½"	48⅜"	37"	73"	23"	56¾"	40½"	6'-10⅛"	24"	46"
C-160D-64-23	8'-0"	8'-0"	24"	22'-2"	11'-0"	11'-2"	25¾"	59½"	55⅜"	32"	58"	26"	53¾"	40½"	7'- 9½"	24"	46"
C-160S-64-23	8'-0"	8'-0"	24"	22'-2"	11'-0"	11'-2"	25¾"	59½"	55⅜"	32"	58"	23"	56¾"	40½"	7'- 9½"	24"	46"
*C-160D-64-18.8A	5'-3¼"	7'-8"	24⅛"	20'-0"	11'-1¼"	8'-10¾"	26½"	59½"	55¼"	32"	48½"	26"	54⅛"	41"	7'- 9"	24"	44¼"
*C-160S-64-18.8A	5'-3¼"	7'-8"	24⅛"	20'-0"	11'-1¼"	8'-10¾"	26½"	59½"	55¼"	32"	48½"	23"	57⅛"	41"	7'- 9"	24"	44¼"
*C-160D-64-15A	5'-3¼"	8'-3"	20⅞"	18'-6"	9'-7¼"	8'-10¾"	26½"	51½"	55¼"	32"	55½"	26"	36⅛"	41"	7'- 7¾"	16"	36¼"
*C-160S-64-15A	5'-3¼"	8'-3"	20⅞"	18'-6"	9'-7¼"	8'-10¾"	26½"	51½"	55¼"	32"	55½"	23"	39⅛"	41"	7'- 7¾"	16"	36¼"
C-160D-54-18	8'-0"	8'-0"	24⅛"	22'-2"	11'-0"	11'-2"	36⅛"	51½"	57"	27"	58"	26"	53¾"	40½"	8'- 5¾"	16"	38"
C-160S-54-18	8'-0"	8'-0"	24⅛"	22'-2"	11'-0"	11'-2"	36⅛"	51½"	57"	27"	58"	23"	56¾"	40½"	8'- 5¾"	16"	38"
*C-160D-54-17	5'-3¼"	7'-0"	18⅛"	18'-6"	9'-7¼"	8'-10¾"	34⅞"	51½"	58¾"	27.2"	40½"	26"	36⅛"	41"	8'- 7"	16"	36¼"
*C-160S-54-17	5'-3¼"	7'-0"	18⅛"	18'-6"	9'-7¼"	8'-10¾"	34⅞"	51½"	58¾"	27.2"	40½"	23"	39⅛"	41"	8'- 7"	16"	36¼"
C-160D-54-16A	7'-0"	7'-0"	18⅛"	19'-10"	11'-0"	8'-10"	16⅞"	51½"	56"	27"	62"	26"	53¾"	40½"	6'-10¼"	16"	38"
C-160S-54-16A	7'-0"	7'-0"	18⅛"	19'-10"	11'-0"	8'-10"	16⅞"	51½"	56"	27"	62"	23"	56¾"	40½"	6'-10¼"	16"	38"

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

STRUCTURAL DATA

†C-160D-54-17 and C-160S-54-17 PUMPING UNIT ASSEMBLIES— 17,000 Lb. Polished Rod Load Class

Formerly TC-33TR-22G and TC-33TR-18B

WALKING BEAM: 18" x 8¾" x 77 lbs., 7'-0" and 5'-3¼" working centers.
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. 3AD, Bronze Bushed, 6" x 14"
CRANK PINS..... No. 2T Tapered Roller Bearings
TAIL BEARING..... 4 15/16" x 9¼" Bronze Bushed
WEIGHT..... 19,600 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 4152R Crank 3CR Cwts.	Aux. Wts.
27.9"	15,400	20,510
41.2"	10,620	14,075
54.4"	8,140	10,760

C-160D-54-16A and C-160S-54-16A PUMPING UNIT ASSEMBLIES— 16,000 Lb. Polished Rod Load Class

WALKING BEAM: 18" x 8¾" x 77 lbs., 7'-0" and 7'-0" working centers.
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'-4" High.
CRANKS: No. 5452R, 51½" Radius.
BASE: 10" Deep, 32" Wide at Gear Box.
SUB-BASE: 16" High Cast Iron.

CENTER BEARING.. No. 4AD, Bronze Bushed, 5" x 10½"
CRANK PINS..... No. 2T, Tapered Roller Bearings
TAIL BEARING..... 4 15/16" x 9¼" Bronze Bushed
WEIGHT..... 19,560 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 5452R CRANKS No. 3CR Cwts.	Aux. Wts.
24"	18,090	24,000
34"	13,080	17,250
44"	10,345	13,570
54"	8,600	11,250

† This unit also in stock in Los Angeles.

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: 114DA (Formerly 15B).
Gears: Main Gear 23.7" Diam., 6¼" Face.
Rating: 114,000 In. Lbs. Peak Torque.
Ratio of Gears: 29.4
Crank Shaft Diam.: 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: 114SA (Formerly 24B).
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

C-114DA-64-15 and C-114SA-64-15 PUMPING UNIT ASSEMBLIES—15,000 Lb. Polished Rod Load Class

Formerly TC-44ALTR-15B and TC-44ALTR-24B

WALKING BEAM: 21" x 9" x 82 lbs., 8'-0" and 8'-0" working centers.
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. 6460R, 59½" Radius.
BASE: 8" Deep, 25" Wide at Gear Box.
SUB-BASE: 21" High Cast Iron on 14" Deep Steel Beams.

CENTER BEARING.. No. 3AD, Bronze Bushed, 6" x 14"
CRANK PINS..... No. 3TC, Tapered Roller Bearings
TAIL BEARING..... 3 15/16" x 7¼", Bronze Bushed
WEIGHT..... 21,270 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 6460R Crank		No. 6460R Crank (Std.)	
	3CR Cwts.	Aux. Wts.	2R Cwts.	Aux. Wts.
24"	23,200	30,655	26,440	33,825
34"	16,490	21,755	18,780	23,990
44"	12,830	16,900	14,600	18,625
54"	10,525	13,840	11,965	15,250
64"	8,940	11,740	10,155	12,925

*C-114DA-54-17 and C-114SA-54-17 PUMPING UNIT ASSEMBLIES—17,000 Lb. Polished Rod Load Class

Formerly TC-44DTR-15B and TC-44DTR-24B

WALKING BEAM: 18" x 8¾" x 77 lbs., 6'-0" and 6'-0" working centers.
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. 3AD, Bronze Bushed, 6" x 14"
CRANK PINS..... No. 2T, Tapered Roller Bearings
TAIL BEARING..... 4 15/16" x 9¼", Bronze Bushed
WEIGHT..... 16,850 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 5452R Crank	
	3CR Cwts.	Aux. Wts.
24"	18,090	24,000
34"	13,080	17,250
44"	10,345	13,570
54"	8,600	11,250

C-114DA-54-16A and C-114SA-54-16A PUMPING UNIT ASSEMBLY—16,000 Lb. Polished Rod Load Class

WALKING BEAM: 18" x 8¾" x 77 lbs., 7'-0" and 7'-0" working centers.
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'-4" High.
CRANKS: No. 5452R, 51½" Radius.
BASE: 8" Deep, 25" Wide at Gear Box.
SUB-BASE: 27" High, Cast Iron.

CENTER BEARING.. No. 4AD, Bronze Bushed, 5" x 10½"
CRANK PINS..... No. 3TC, Tapered Roller Bearings
TAIL BEARING..... 4 15/16" x 9¼", Bronze Bushed
WEIGHT..... 17,850 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 5452R Crank	
	3CR Cwts.	Aux. Wts.
24"	18,090	24,000
34"	13,080	17,250
44"	10,345	13,570
54"	8,600	11,250

*C-114DA-54-15 and C-114SA-54-15 PUMPING UNIT ASSEMBLIES—15,000 Lb. Polished Rod Load Class

Formerly TC-44ATR-15B and TC-44ATR-24B

WALKING BEAM: 21" x 9" x 82 lbs., 8'-0" and 8'-0" working centers.
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. 3AD, Bronze Bushed, 6" x 14"
CRANK PINS..... No. 3TC, Tapered Roller Bearings
TAIL BEARING..... 3 15/16" x 7¼", Bronze Bushed
WEIGHT..... 17,810 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 5452R Crank	
	3CR Cwts.	Aux. Wts.
24"	17,420	23,295
34"	12,410	16,555
44"	9,675	12,880
54"	7,910	10,570

C-114DA-54-14, C-114SA-54-14 and C-80DB-54-14 PUMPING UNIT ASSEMBLIES—14,000 Lb. Polished Rod Load Class

Formerly TC-44CTR-15B, TC-44CTR-24B and TC-44CTR-80DB

WALKING BEAM: 16" x 8½" x 64 lbs., 6'-0" and 6'-0" working centers.
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. 5452R, 51½" Radius.
BASE: 8" Deep, 25" Wide at Gear Box.
SUB-BASE: 27" High, Cast Iron.

CENTER BEARING.. No. 4AD, Bronze Bushed, 5" x 10½"
CRANK PINS..... No. 3TC, Tapered Roller Bearings
TAIL BEARING..... 3 15/16" x 7¼", Bronze Bushed
WEIGHT..... 16,350 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 5452R Crank	
	3CR Cwts.	Aux. Wts.
24"	17,555	23,465
34"	12,545	16,715
44"	9,810	13,035
54"	8,065	10,725

* This unit also in stock at Los Angeles.

GENERAL DIMENSIONS

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

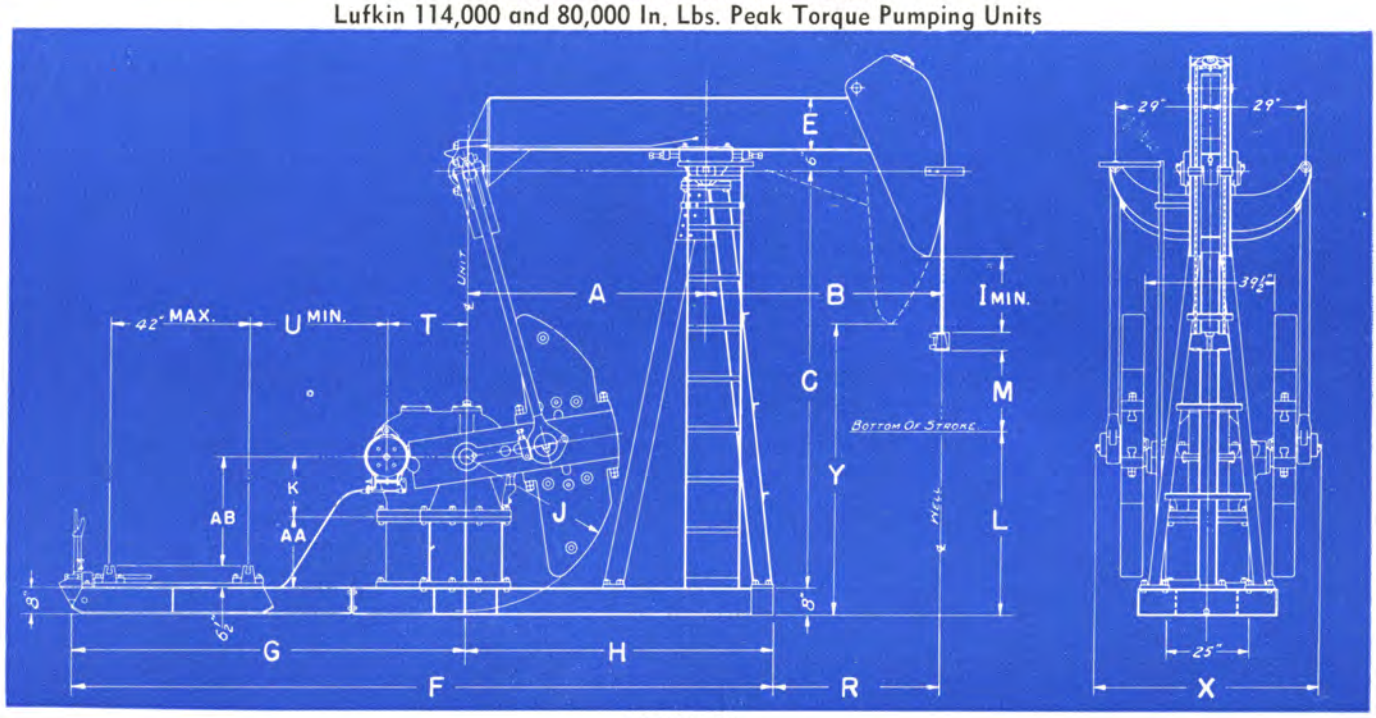


FIGURE 32

UNIT	A	B	C	E	F	G	H	I	J	K	L	M	R	T	U	X	Y	AA	AB
C-114DA-64-15A	8'-0"	8'-0"	12'-1"	20 7/8"	22'- 5 3/4"	11'- 2 1/4"	11'- 3 1/2"	26 1/2"	59 1/2"	18"	53 1/2"	32"	56 1/2"	24"	57"	66 3/4"	7'- 7 5/8"	34 7/8"	46 3/8"
C-114SA-64-15A	8'-0"	8'-0"	12'-1"	20 7/8"	22'- 5 3/4"	11'- 2 1/4"	11'- 3 1/2"	26 1/2"	59 1/2"	21"	53 1/2"	32"	56 1/2"	20"	61"	66 3/4"	7'- 7 5/8"	34 7/8"	49 3/8"
C-114DA-54-17	6'-0"	6'-0"	10'-6 1/2"	18 1/8"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	17 1/2"	51 1/2"	18"	56 1/4"	27"	50 1/4"	24"	41"	69 3/8"	6'- 8 1/4"	27"	38 1/2"
C-114SA-54-17	6'-0"	6'-0"	10'-6 1/2"	18 1/8"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	17 1/2"	51 1/2"	21"	56 1/4"	27"	50 3/4"	20"	45"	69 3/8"	6'- 8 1/4"	27"	41 1/2"
C-114DA-54-16A	7'-0"	7'-0"	10'-4"	18 1/8"	19'-11 1/2"	11'- 2 1/4"	8'- 9 1/4"	16 7/8"	51 1/2"	18"	54 1/4"	27"	62 3/4"	24"	57"	66 3/4"	6'- 8 1/2"	27"	38 1/2"
C-114SA-54-16A	7'-0"	7'-0"	10'-4"	18 1/8"	19'-11 1/2"	11'- 2 1/4"	8'- 9 1/4"	16 7/8"	51 1/2"	21"	54 1/4"	27"	62 3/4"	20"	61"	66 3/4"	6'- 8 1/2"	27"	41 1/2"
C-114DA-54-15	8'-0"	8'-0"	12'-1"	20 7/8"	22'- 5 3/4"	11'- 2 1/4"	11'- 3 1/2"	36 1/8"	51 1/2"	18"	55 1/4"	27"	56 1/2"	24"	57"	66 3/4"	8'- 4"	27"	38 1/2"
C-114SA-54-15	8'-0"	8'-0"	12'-1"	20 7/8"	22'- 5 3/4"	11'- 2 1/4"	11'- 3 1/2"	36 1/8"	51 1/2"	21"	55 1/4"	27"	56 1/2"	20"	61"	66 3/4"	8'- 4"	27"	41 1/2"
C-114DA-54-14	6'-0"	6'-0"	10'-4"	16"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	19 1/8"	51 1/2"	18"	51 5/8"	27"	50 3/4"	24"	41"	66 3/4"	6'- 9 3/8"	27"	38 1/2"
C-114SA-54-14	6'-0"	6'-0"	10'-4"	16"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	19 1/8"	51 1/2"	21"	51 5/8"	27"	50 3/4"	20"	45"	66 3/4"	6'- 9 3/8"	27"	41 1/2"
C-80DB-54-14	6'-0"	6'-0"	10'-4"	16"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	19 1/2"	51 1/2"	18"	51 5/8"	27"	50 3/4"	22"	43"	66 3/4"	6'- 9 3/8"	27"	38 1/2"
C-114DA-54-13.5	5'-7 5/8"	6'-4 3/8"	10'-4"	16"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	18 7/8"	46"	18"	51 5/8"	27"	55 1/8"	24"	41"	66 3/4"	6'- 8 7/8"	21"	32 1/2"
C-114SA-54-13.5	5'-7 5/8"	6'-4 3/8"	10'-4"	16"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	18 7/8"	46"	21"	51 5/8"	27"	55 1/8"	20"	45"	66 3/4"	6'- 8 7/8"	21"	35 1/4"
C-80DB-54-13.5	5'-7 5/8"	6'-4 3/8"	10'-4"	16"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	18 7/8"	46"	18"	51 5/8"	27"	55 1/8"	22"	43"	66 3/4"	6'- 8 7/8"	21"	32 1/2"
C-114DA-48-14	6'-0"	6'-0"	10'-4"	16"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	22 1/8"	46"	18"	54 1/2"	24"	50 3/4"	24"	41"	66 3/4"	7'- 2 1/8"	21"	32 1/2"
C-114SA-48-14	6'-0"	6'-0"	10'-4"	16"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	22 1/8"	46"	21"	54 1/2"	24"	50 3/4"	20"	45"	66 3/4"	7'- 2 1/8"	21"	35 1/4"
C-80DB-48-14	6'-0"	6'-0"	10'-4"	16"	17'- 7 1/2"	9'-10 1/4"	7'- 9 1/4"	22 1/8"	46"	18"	54 1/2"	24"	50 3/4"	22"	43"	66 3/4"	7'- 2 1/8"	21"	32 1/2"

Jointed Base is standard on all Sizes.

STRUCTURAL DATA

C-114DA-54-13.5, C-114SA-54-13.5 and C-80DB-54-13.5 PUMPING UNIT ASSEMBLIES—13,500 Lb. Polished Rod Load Class

Formerly TC-44STR-15B, TC-44STR-24B and TC-44STR-80DB

WALKING BEAM: 16" x 8½" x 64 lbs., 6'-4⅜" and 5'-7⅝" working centers.
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. 4AD, Bronze Bushed, 5" x 10½"
CRANK PINS: No. 3TC, Tapered Roller Bearings
TAIL BEARING: 3 15/16" x 7¼", Bronze Bushed
WEIGHT: 14,600 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 4846R Crank 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

*C-114DA-48-14, C-114SA-48-14 and *C-80DB-48-14 PUMPING UNIT ASSEMBLIES— 14,000 Lb. Polished Rod Load Class

Formerly TC-44TR-15B, TC-44TR-24B and TC-44TR-80DB

WALKING BEAM: 16" x 8½" x 64 lbs., 6'-0" and 6'-0" working centers.
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. 4AD, Bronze Bushed, 5" x 10½"
CRANK PINS: No. 3TC, Tapered Roller Bearings
TAIL BEARING: 3 15/16" x 7¼", Bronze Bushed
WEIGHT: C-114DA-48-14 14,600 lbs. C-80DB-48-14 14,490 lbs.
STATIC COUNTERBALANCE, LBS.

Stroke	No. 4846R Crank 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

C-114DA-42-11.6, C-114SA-42-11.6 and *C-80DB-42-11.6 PUMPING UNIT ASSEMBLIES—11,600 Lb. Polished Rod Load Class

Formerly T5D-15B, T5D-24B and T5D-80DB

WALKING BEAM: 16⅛" x 7" x 45 lbs., 5'-0" and 5'-0" working centers.
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'-10⅛" High. **BASE:** 8" Deep, 25½" Wide.
CRAN S: No. 4246C, 46" Radius. **SUB-BASE:** 21" High, Cast Iron.

STATIC COUNTERBALANCE, LBS.

Stroke	No. 4246CR Crank (Std.) 5CR Cwts.	Aux. Wts.	No. 4246R Crank 5R Cwts.	Aux. Wts.
22"	10,410	14,085	11,785	15,215
32"	7,285	9,810	8,230	10,590
42"	5,645	7,575	6,365	8,165

WEIGHT: C-114DA & C-114SA-42-11.6 10,745 lbs., C-80DB-42-11.6 10,645 lbs.

CENTER BEARING: 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

* This unit also in stock at Los Angeles.

For General Dimensions see page 3123.

STRUCTURAL DATA

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

For Gear Specifications See Page 3124

C-57DA-48-10 and C-57SA-48-10 PUMPING UNIT ASSEMBLIES—10,000 Lbs. Polished Rod Load Class

Formerly T5DB-7C and T5DB-16A

WALKING BEAM: 16" x 7" x 45 lbs., 5'-8½" and 5'-0" working centers.
HANGER: Hinged Horsehead with ⅞" Wire Line, 13'-0" Long.
PITMAN: Universal Cross Pin Type Equalizer, 4" I-Beam Side Members.
SAMSON POST: Tripod, 9'-10⅛" High.
CRANKS: No. 4246CR, 46" Radius.
BASE: 8" Deep, 25½" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING.. 4 7/16" x 9", Bronze Bushed
CRANK PINS..... No. 5 Bronze Bushed, 3¾" x 3½"
TAIL BEARING..... 3 7/16" x 6½" Bronze Bushed
WEIGHT..... 10,775 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 4246CR Crank (Std.)		No. 4246R Crank	
Stroke	5CR Cwts.	Aux. Wts.	5R Cwts.	Aux. Wts.
25.1".....	9,090	12,310	10,295	Insufficient
36.5".....	6,355	8,570	7,180	Clearance for
48.0".....	4,910	6,595	5,540	Aux. Wts.

*C-57DA-42-11.6 and C-57SA-42-11.6 PUMPING UNIT ASSEMBLIES—11,600 Lbs. Polished Rod Load Class

Formerly T5D-7C and T5D-16A

WALKING BEAM: 16⅛" x 7" x 45 lbs., 5'-0" and 5'-0" working centers.
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'-10⅛" High.
CRANKS: No. 4246CR, 46" Radius.
BASE: 8" Deep, 25½" Wide at Gear Box.
SUB-BASE: 21" High, Cast Iron.

CENTER BEARING.. 4 7/16" x 9", Bronze Bushed
CRANK PINS..... No. 5, Bronze Bushed, 3¾" x 3½"
TAIL BEARING..... 3 7/16" x 6½", Bronze Bushed
WEIGHT..... 10,725 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 4246CR Crank (Std.)		No. 4246R Crank	
Stroke	5CR Cwts.	Aux. Wts.	5R Cwts.	Aux. Wts.
22".....	10,410	14,085	11,785	Insufficient
32".....	7,285	9,810	8,230	Clearance for
42".....	5,645	7,575	6,365	Aux. Wts.

C-40DA-40-7.4 PUMPING UNIT ASSEMBLY—7,400 Lbs. Polished Rod Load Class

Formerly T6EB-9B

WALKING BEAM: 14" x 6¾" x 30 lbs., 4'-8½" and 4'-0" working centers.
HANGER: Hinged Horsehead with ¾" Wire Line, 11'-0" Long.
PITMAN: Universal Cross Pin Type Equalizer, 3" I-Beam Side Members.
SAMSON POST: Tripod 7'-11⅛" High.
CRANKS: No. 3441, 41" Radius.
BASE: 8" Deep, 20" Wide at Gear Box.
SUB-BASE: 20" High, Cast Iron.

CENTER BEARING.. 2 15/16" x 10½" Bronze Bushed
CRANK PINS..... No. 6, Bronze Bushed, 3¼" x 3"
TAIL BEARING..... 3 7/16" x 6½", Bronze Bushed
WEIGHT..... 7,595 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 3441 Crank	
Stroke	No. 6 Cwts.	Aux. Wts.
21.2".....	7,395	9,365
30.6".....	5,165	6,530
40.0".....	3,985	5,030

*C-40DA-34-8.7 PUMPING UNIT ASSEMBLY—8,700 Lbs. Polished Rod Load Class

Formerly T6E-9B

WALKING BEAM: 14" x 6¾" x 30 lbs., 4'-0" and 4'-0" working centers.
HANGER: Hinged Horsehead with ¾" Wire Line, 11'-0" Long.
PITMAN: Universal Cross Pin Type Equalizer, 3" I-Beam Side Members.
SAMSON POST: Tripod 7'-11⅛" High.
CRANKS: No. 3441, 41" Radius.
BASE: 8" Deep, 20" Wide at Gear Box.
SUB-BASE: 20" High, Cast Iron.

CENTER BEARING.. 2 15/16" x 10½" Bronze Bushed
CRANK PINS..... No.6, Bronze Bushed, 3¼" x 3"
TAIL BEARING..... 3 7/16" x 6½", Bronze Bushed
WEIGHT..... 7,510 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 3441 Crank	
Stroke	No. 6 Cwts.	Aux. Wts.
18".....	8,805	11,125
26".....	6,175	7,785
34".....	4,785	6,015

*C-25DA-28-7.5 PUMPING UNIT ASSEMBLY—7,500 Lbs. Polished Rod Load Class

Formerly T7AB-3B

WALKING BEAM: 14" x 6¾" x 30 lbs., 4'-1" and 3'-6" working centers.
HANGER: Hinged Horsehead with ⅝" Wire Line, 10'-0" Long.
PITMAN: Universal Cross Pin Type Equalizer, 3" I-Beam Side Members.
SAMSON POST: Tripod, 7'-1⅞" High.
CRANKS: No. 2433, 33" Radius.
BASE: 6¼" Deep, 17" Wide at Gear Box.
SUB-BASE: 14" High, Cast Iron.

CENTER BEARING.. 2 15/16" x 10½", Bronze Bushed
CRANK PINS..... No. 7, Bronze Bushed, 2¾" x 3"
TAIL BEARING..... 2 15/16" x 6½", Bronze Bushed
WEIGHT..... 5,395 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 2433 Crank	
Stroke	No. 7 Cwts.	Aux. Wts.
14".....	5,380	7,105
21".....	3,610	4,760
28".....	2,725	3,585

C-25DA-24-6 PUMPING UNIT ASSEMBLY—6,000 Lbs. Polished Rod Load Class

Formerly T7A-3B

WALKING BEAM: 10" x 5¾" x 25 lbs., 3'-6" and 3'-6" working centers.
HANGER: Hinged Horsehead with ⅝" Wire Line, 8'-4" Long.
PITMAN: Universal Cross Pin Type Equalizer 3" I-Beam Side Members.
SAMSON POST: Tripod, 6'-3⅞" High.
CRANKS: No. 2433, 33" Radius.
BASE: 6¼" Deep, 17" Wide at Gear Box.
SUB-BASE: 14" High, Cast Iron.

CENTER BEARING.. 2 15/16" x 10½", Bronze Bushed
CRANK PINS..... No. 7, Bronze Bushed, 2¾" x 3"
TAIL BEARINGS..... 2 15/16" x 6½", Bronze Bushed
WEIGHT..... 5,295 lbs.
STATIC COUNTERBALANCE, LBS.

	No. 2433 Crank	
Stroke	No. 7 Cwts.	Aux. Wts.
12".....	6,350	8,360
18".....	4,285	5,625
24".....	3,250	4,255

* This Unit also in stock at Los Angeles.

GENERAL DIMENSIONS

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

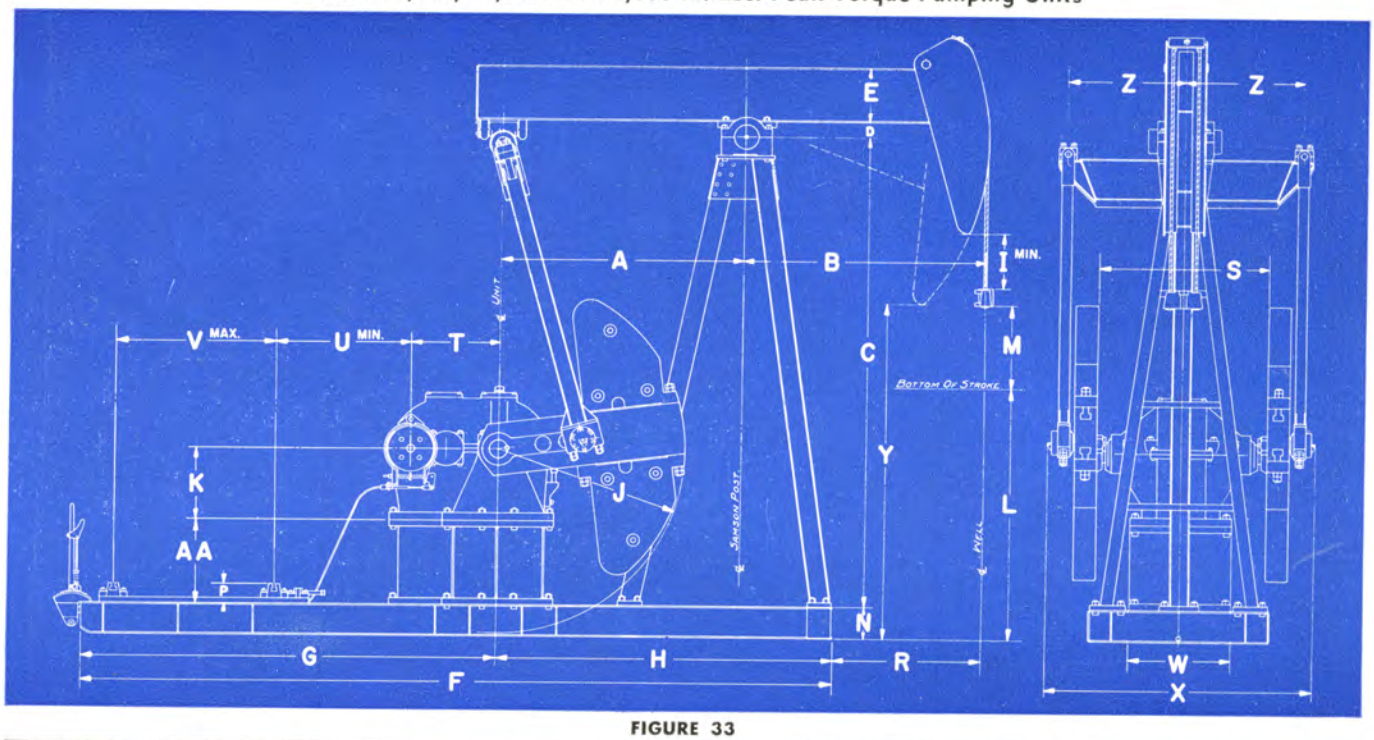


FIGURE 33

UNIT	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
*C-114DA-42-11.6	66″	60″	9′-10 1/4″	3 5/8″	16 1/4″	15′-6″	8′-6 3/4″	6′-11 1/4″	14 5/8″	46″	18″	61 1/8″	21″	8″	4 7/8″	36 3/4″	41 1/2″	24″	30 1/2″	39 7/8″	25 1/2″	67 1/4″	7′-0 1/8″	29″	21″
*C-114SA-42-11.6	60″	60″	9′-10 1/8″	3 5/8″	16 1/8″	15′-6″	8′-6 3/4″	6′-11 1/4″	14 5/8″	46″	21″	61 1/8″	21″	8″	4 7/8″	36 3/4″	41 1/2″	20″	34 1/2″	39 7/8″	25 1/2″	67 1/4″	7′-0 1/8″	29″	21″
*C-80DB-42-11.6	60″	60″	9′-10 1/8″	3 3/8″	16 1/8″	15′-6″	8′-6 3/4″	6′-11 1/4″	14 5/8″	46″	18″	61 1/8″	21″	8″	4 7/8″	36 3/4″	41 1/2″	22″	32 1/2″	39 7/8″	25 1/2″	67 1/4″	7′-0 1/8″	29″	21″
C-57DA-48-10	60″	68 1/2″	9′-10 1/8″	3 5/8″	16 1/8″	15′-6″	8′-6 3/4″	6′-11 1/4″	13″	46″	18″	55 1/2″	24″	8″	4 7/8″	45 1/4″	34 1/2″	20″	34 1/2″	39 7/8″	25 1/2″	60 1/4″	6′-5 5/8″	25 1/2″	21″
C-57SA-48-10	60″	68 1/2″	9′-10 1/8″	3 5/8″	16 1/8″	15′-6″	8′-6 3/4″	6′-11 1/4″	13″	46″	18″	55 1/2″	24″	8″	4 7/8″	45 1/4″	34 1/2″	17 7/8″	36 5/8″	39 7/8″	25 1/2″	60 1/4″	6′-5 5/8″	25 1/2″	21″
C-57DA-42-11.6	60″	60″	9′-10 1/8″	3 5/8″	16 1/8″	15′-6″	8′-6 3/4″	6′-11 1/4″	14 5/8″	46″	18″	62 7/8″	21″	8″	4 7/8″	36 3/4″	34 1/2″	20″	34 1/2″	39 7/8″	25 1/2″	60 1/4″	7′-1 7/8″	25 1/2″	21″
C-57SA-42-11.6	60″	60″	9′-10 1/8″	3 5/8″	16 1/8″	15′-6″	8′-6 3/4″	6′-11 1/4″	14 5/8″	46″	18″	62 7/8″	21″	8″	4 7/8″	36 3/4″	34 1/2″	17 7/8″	36 5/8″	39 7/8″	25 1/2″	60 1/4″	7′-1 7/8″	25 1/2″	21″
C-40DA-40-7.4	48″	56 1/2″	7′-11 1/8″	2″	13 7/8″	13′-6″	8′-3″	5′-3″	8 5/8″	41″	14″	46″	20″	8″	3 3/8″	41 1/2″	27 3/4″	17 1/2″	37″	36 1/4″	20″	52 1/4″	63″	21 3/4″	20″
C-40DA-34-8.7	48″	48″	7′-11 1/8″	2″	13 7/8″	13′-6″	8′-3″	5′-3″	17 7/8″	41″	14″	42 1/2″	17″	8″	3 3/8″	33″	27 3/4″	17 1/2″	37″	36 1/4″	20″	52 1/4″	5′-9 5/8″	21 3/4″	20″
C-25DA-28-7.5	42″	49″	7′-1 1/8″	2″	13 7/8″	11′-0″	6′-4″	4′-8″	12 3/4″	33″	14″	43 1/8″	14″	6 1/4″	3 3/8″	35″	25 1/2″	13 3/16″	24 3/8″	28 1/2″	17″	47 1/2″	61 7/8″	19 5/8″	14″
C-25DA-24-6	42″	42″	6′-3 7/8″	2″	10 1/8″	11′-0″	6′-4″	4′-8″	10 3/8″	33″	14″	41 1/16″	12″	6 1/4″	3 3/8″	28″	25 1/2″	13 3/16″	29 3/16″	23 3/8″	17″	47 1/2″	4′-9 1/2″	19 5/8″	14″

* For Gear Specifications, See Page 3120. Electric motor Bases are full length, one piece; separate out-riggers furnished when required for engines.

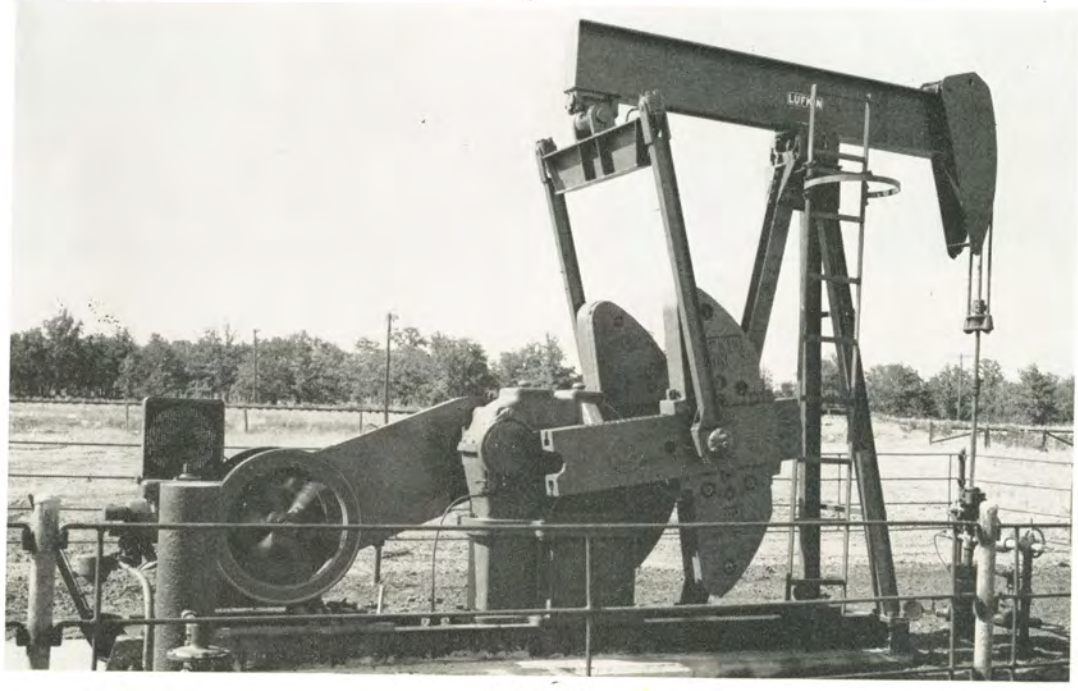


FIGURE 34

GEAR REDUCER SPECIFICATIONS

57DA, 57SA, 40DA, 25DA, 16DB and 10DA

57DA GEAR REDUCER (Formerly 7C)

Double Reduction
Gears: Main Gear 19½" P.D. x 5" Face

Rating: 57,000 in. lbs. Peak Torque

Ratio of Gears: 29.32

Crank Shaft Dia. 4"

Sheave: 19¼" P.D.—3C Std., 24¼" P.D. Alt., 27¼" P.D. Max., 1-11/16" Bore.

Distance, Centerline Unit to Centerline Drive: 11"

Gear Box Oil Capacity: 13 Gallons

57SA GEAR REDUCER (Formerly 16A)

Single Reduction
Gears: Main Gear 32½" P.D. x 4" Face

Rating: 57,000 in. lbs. Peak Torque

Ratio of Gears: 10.0

Crank Shaft Dia. 4"

Sheave: 23½" P.D.—5C Std., 23½" P.D. Max., 2-7/16" Bore

Distance, Centerline Unit to Centerline Drive: 9⅜"

Gear Box Oil Capacity: 7.5 Gallons

40DA GEAR REDUCER (Formerly 9B)

Double Reduction
Gears: Main Gear 16.8" P.D. x 4⅜" Face

Rating: 40,000 in. lbs. Peak Torque

Ratio of Gears: 29.2

Crank Shaft Dia. 4"

Sheave: 21" P.D.—2C or 4B Std., 23" P.D. Max., 1-11/16" Bore

Distance, Centerline Unit to Centerline Drive: 9⅜"

Gear Box Oil Capacity: 7 Gallons

25DA GEAR REDUCER (Formerly 3B)

Double Reduction
Gears: Main Gear 13.5" P.D. x 4" Face

Rating: 25,000 in. lbs. Peak Torque

Ratio of Gears: 28.9

Crank Shaft Dia. 3"

Sheave 17⅞" P.D.—2B or 18" P.D. 3A Std., 18" P. D. Max., 1⅜" Bore

Distance, Centerline Unit to Centerline Drive: 8"

Gear Box Oil Capacity: 6 Gallons

The four reducers above are available on Type C Crank Balance Pumping Unit Assemblies (pages 3122 and 3123) and also Type B Beam Balance Units (pages 3125 and 3126).

The two reducers below are available on Type B Assemblies only (pages 3125 and 3126).

16DB GEAR REDUCER

Double Reduction
Gears: Main Gear 13¼" Dia., 3⅛" Face

Rating: 16,000 in. lbs. Peak Torque

Ratio of Gears: 35.7

Crank Shaft Dia. 2½"

Sheave: 15" P.D.—3A or 2B or 1C

Distance, Centerline Unit to Centerline Drive: 7⅛"

Gear Box Oil Capacity: 5 Gallons

10DA GEAR REDUCER

Double Reduction
Gears: Main Gear 11⅞" Dia., 2⅞" Face

Rating: 10,000 in. lbs. Peak Torque

Ratio of Gears: 36.02

Crank Shaft Dia. 2-3/16"

Sheave: 14" P.D.—3A or 2B

Distance, Centerline Unit to Centerline Drive: 6¾"

Gear Box Oil Capacity: 4 Gallons

LUFKIN TYPE B BEAM BALANCED PUMPING UNIT ASSEMBLIES

STRUCTURAL SPECIFICATIONS AND DIMENSIONS

See preceding page for GEAR Specifications

UNIT	B-57DA-42-11.6	B-40DA-34-8.7C	B-25DA-28-7.5B	B-25DA-24-7.3	B-16DB-30-5A	B-16DB-22-5B	B-10DA-30-3	B-10DA-20-4
Peak Polish Rod Load Ratings, lbs.	11,600	8,700	7,500	7,340	5,000	5,000	3,000	4,000
Walking Beam Size	16½"x7" @ 45 lb.	14"x6¾" @ 30 lb.	14"x6¾" @ 30 lb.	10"x5¾" @ 25 lb.	10"x5¾" @ 25 lb.	10"x5¾" @ 25 lb.	8"x5¼" @ 17 lb.	8"x5¼" @ 17 lb.
Walking Beam Working Centers at Maximum Stroke	60" & 60"	48" & 48"	42" & 36"	36" & 36"	45" & 33"	33" & 33"	45" & 30"	30" & 30"
Center Bearing, Bronzed Bushed	4 7/16"x9"	2 15/16"x10½"	2 15/16"x10½"	2 15/16"x10½"	2 15/16"x6½"	2 15/16"x6½"	2 7/16"x5¼"	2 7/16"x5¼"
Tail Bearing, Bronzed Bushed	4 7/16"x4½"	3 15/16"x3⅝"	3 15/16"x3⅝"	3 15/16"x3⅝"	3 7/16"x3 1/16"	3 7/16"x3 1/16"	2 15/16"x2¾"	2 15/16"x2¾"
Crank Pin Bearing, Bronze Bushed	2 7/16"x2¾"	2 7/16"x2¾"	2 7/16"x2¾"	2 7/16"x2¾"	2"x2½"	2"x2½"	2"x2½"	2"x2½"
†Stroke Length	42"–34"–26"	34"—26"-18"	28"—18.7"	24"—16"	30"—25"	22"—18"	30"—25"	20"—16.6"
Counterbalance Effect from structural unbalance with no Beam Wts., Lbs.	890	525	400	470	155	265	80	220
*1" Thick Beam Weights Each, Lbs.	150	125	125	100	100	100	90	90
Ratio of Beam Weights to Effective Counterbalacne at Polish Rod	1.82	1.8	1.76	1.91	1.4	1.7	1.24	1.85
Max. No. of 1" Thick Beam Weights	26	25	24	22	20	20	18	18
Maximum Counterbalance, Lbs.	8,000	6,145	5,680	4,670	2,955	3,675	2,080	3,220
Polish Rod Hanger Wire Line	⅞"x12'-0"	¾"x11'-0"	¾"x9'-9"	⅝"x8'-4"	⅝"x8'-4"	⅝"x8'-4"	⅝"x8'-4"	⅝"x6 -9"
Total Weight, Less Beam Weights, Lbs.	6,340	3,800	2,890	2,790	1,740	1,700	1,470	1,400

* Note: 3" Thick Beam weight Optional for all Beam Balanced Units.
† On B-16DB and B-10DA, Stroke Length Changes are Obtained by Moving Tail Bearings on Beam.

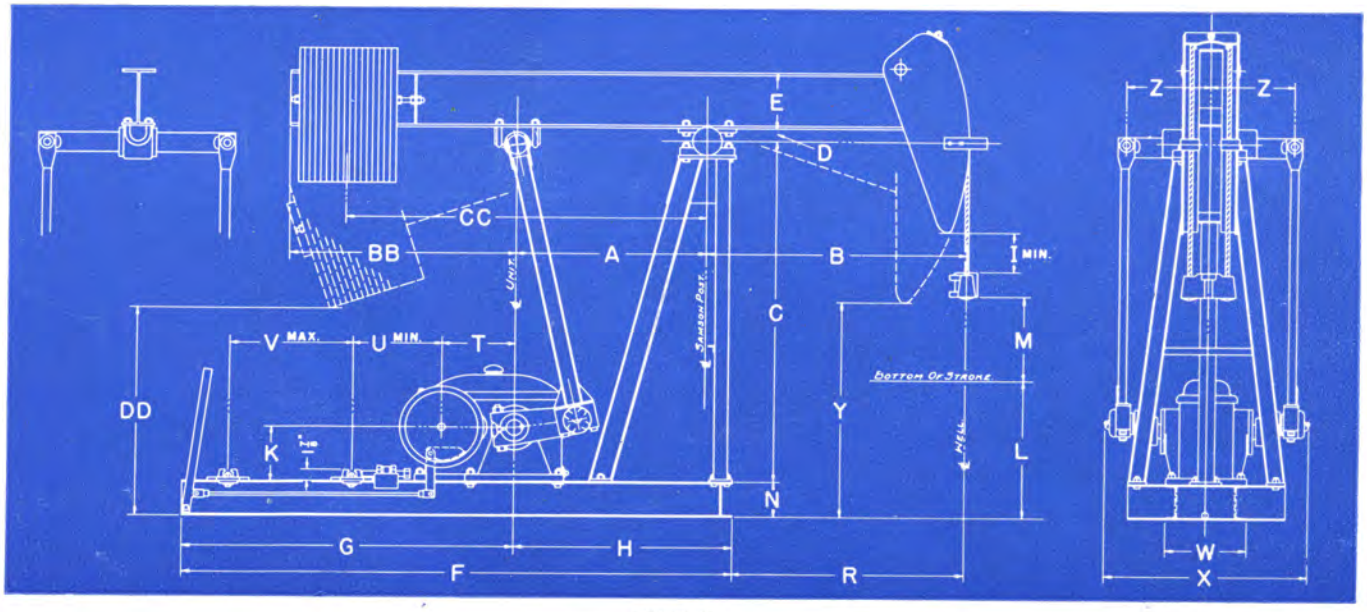


FIGURE 35

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-57DA-42-11.6	60"	60"	9'-10⅛"	3⅝"	16⅛"	15 -6"	8 -6¾"	6 -11¼"	14⅝"	18"	62⅞"	21"	8"	36¾"	20"	29⅛"	44"	24¾"	56¾"	7 -1⅞"	25⅛"	62½"	9-1"	6'4⅞"
†B-40DA-34-8.7C	48"	48"	7'-11⅜"	2"	13⅞"	13'-6	8'-3"	63"	18⅜"	14"	45½"	17"	8"	33"	17½"	24"	52⅛"	19¾"	50⅜"	70¾"	21¾"	51"	7'-2¼"	63½"
†B-25DA-28-7.5B	36"	42"	7'-0¼"	2"	13⅞"	9'-10¼"	6'-4"	42¼"	12⅝"	14"	42⅞"	14"	6¼"	35¾"	13 3/16"	28½"	28½"	16⅝"	46⅛"	60¾"	19⅝"	50"	6'-2"	55½"
B-25DA-24-7.3	36"	36"	7'-0¼"	2"	10⅛"	9'-10¼"	6'-4"	42¼"	11⅜"	14"	49⅜"	12"	6¼"	29¾"	13 3/16"	28½"	28½"	16⅝"	46⅛"	64¼"	19⅝"	43⅞"	68⅞"	57⅞"
†B-16DB-30-5A	33"	45"	69½"	1⅞"	10⅛"	7'-11¼"	57½"	37¾"	6⅛"	9½"	33⅝"	15"	6¼"	40¼"	12¾"	16⅜"	22⅝"	13¾"	35¼"	46½"	14¼"	40"	63"	44½"
†B-16DB-22-5B	33"	33"	69½"	1⅞"	10⅛"	7'-11¼"	57½"	37¾"	13½"	9½"	34¼"	11"	6¼"	28¼"	12¾"	16⅜"	22⅝"	13¾"	35¼"	54⅛"	14¼"	33¼"	56¼"	46¾"
B-10DA-30-3	30"	45"	54"	1¾"	8"	7'-7¼"	56"	35¼"	5¾"	8½"	17½"	15"	6¼"	39¾"	11⅜"	15¼"	23⅝"	13"	33½"	29⅝"	13⅜"	35"	55½"	32⅛"
B-10DA-20-4	30"	30"	54"	1¾"	8"	7'-7¼"	56"	35¼"	6⅝"	8½"	27⅞"	10"	6¼"	24¾"	11⅜"	15¼"	23⅝"	13"	33½"	40½"	13⅜"	35"	55½"	32⅛"

† This Unit also in stock at Los Angeles.

LUFKIN TYPE B BEAM BALANCE PUMPING UNITS

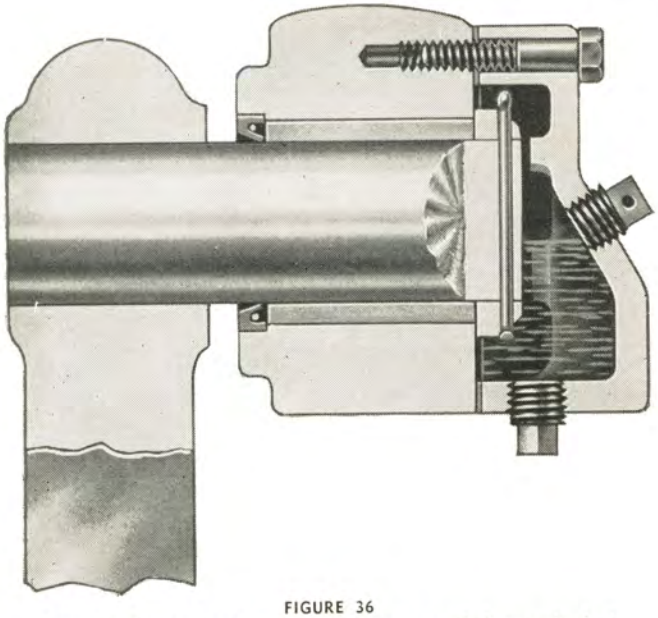


FIGURE 36
Type B Pitman Bearing. Oil bath, dust proof, bronze bushed.

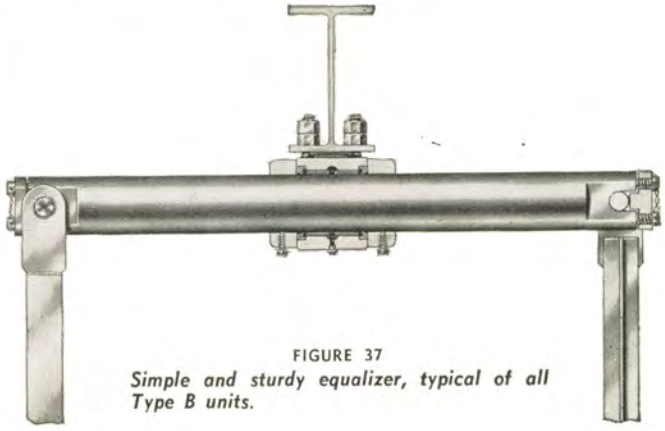


FIGURE 37
Simple and sturdy equalizer, typical of all Type B units.

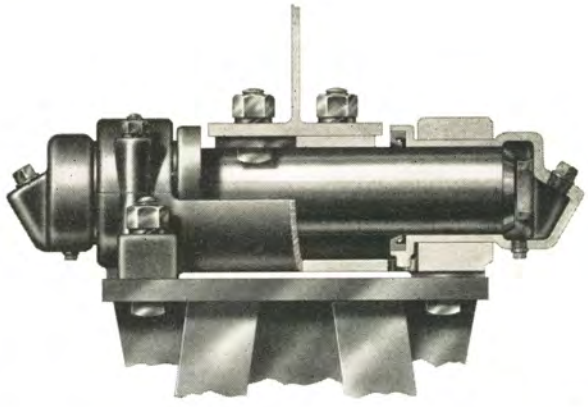


FIGURE 38
New One-Piece Center Bearing insures alignment of the two bushings standard on all Beam Balance Assemblies and Type C Units C-57 and smaller.

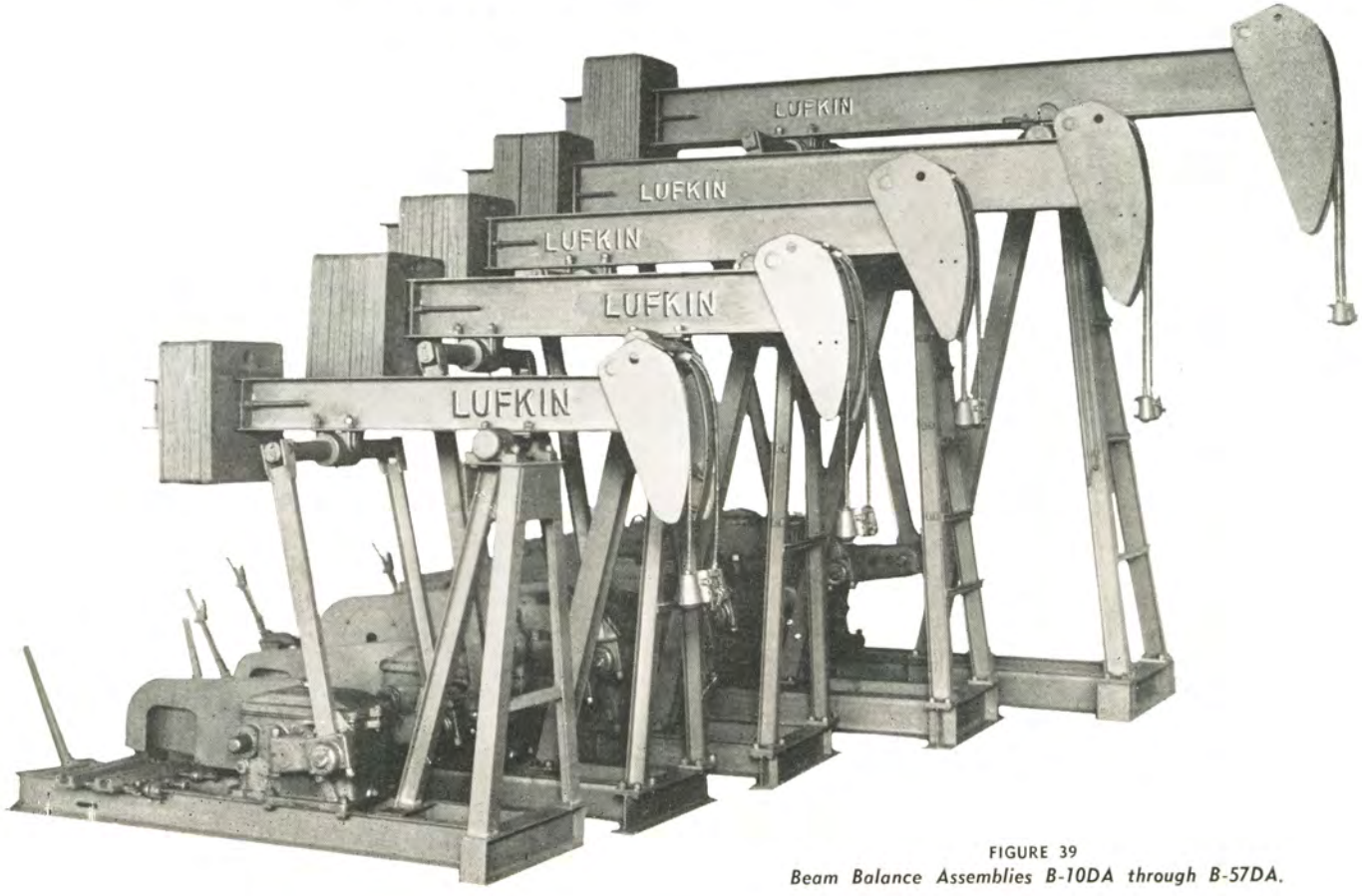


FIGURE 39
Beam Balance Assemblies B-10DA through B-57DA.

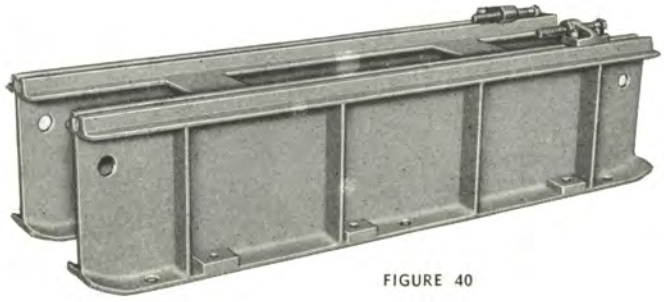


FIGURE 40

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.

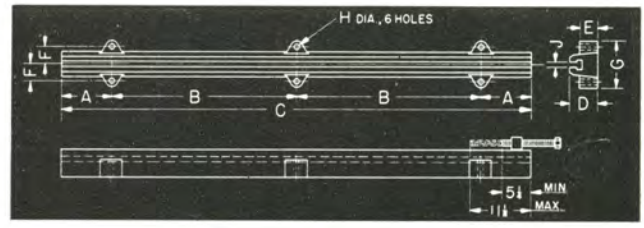


FIGURE 43

LUFKIN TYPE "A" ENGINE RAILS

Designed especially with minimum edge distance for flywheel clearance.

SIZE	A	B	C	D	E	F	G	H	J
A57 Rail	3″	25½″	57″	4″	2½″	2⅜″	6¼″	1″	1″
A69 Rail	3″	31½″	69″	4″	2½″	2⅜″	6¼″	1″	1″
A84 Rail	9″	33″	84″	5″	3¼″	3⅛″	8½″	1″	1⅛″

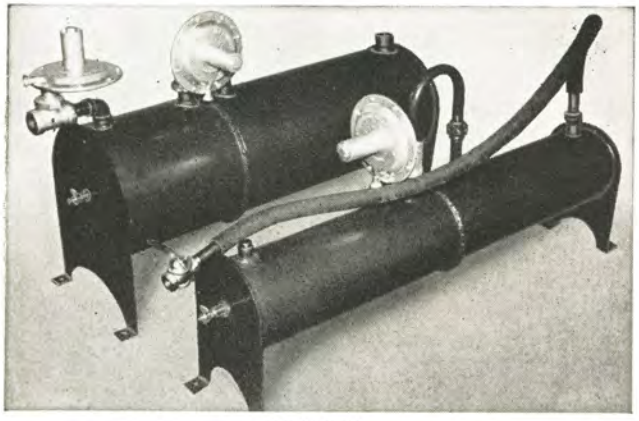


FIGURE 41

VOLUME TANK AND REGULATOR FOR GAS ENGINES.

Double chamber volume tanks for gas engines are furnished in two sizes. Both are equipped with regulators. 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 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.

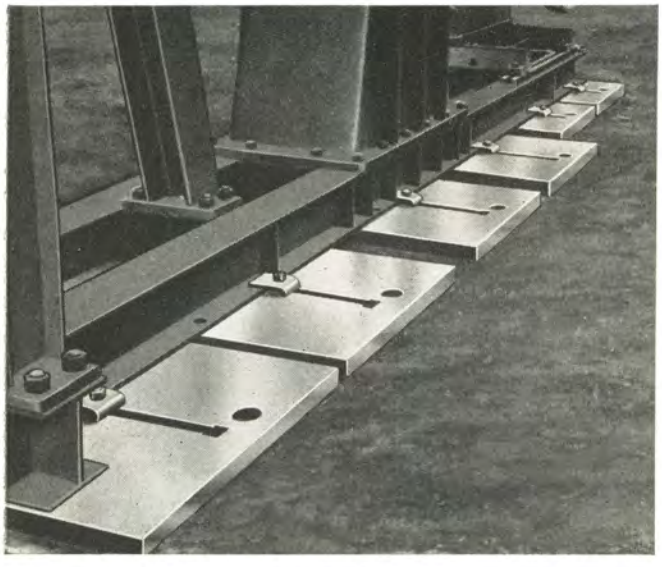


FIGURE 42

ANNEALED DUCTILE IRON FOUNDATION SLABS

Available for medium and smaller size units. With proper soil conditions, affords great saving over concrete and is 100% salvageable.

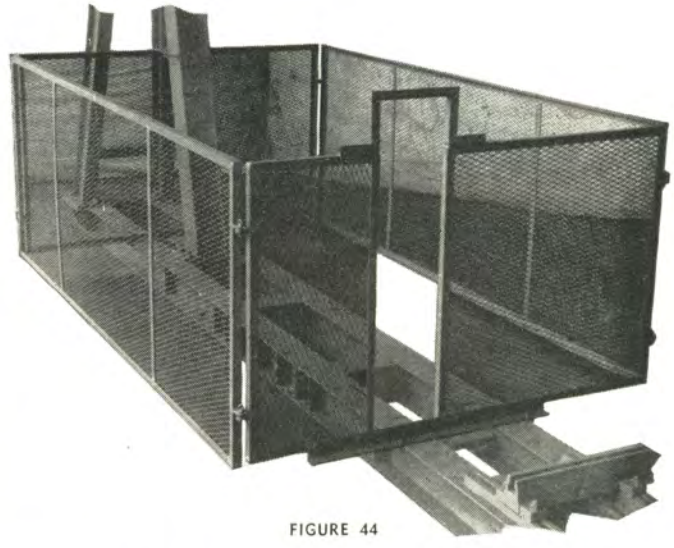


FIGURE 44

TYPE W (WIRE MESH) CRANK GUARDS

A new standard design available in stock for all Lufkin Units. No holes required in Base or Post—clamps to top flanges of Base and to Post—and can be fitted to any unit already installed. Sides are hinged and can be easily removed.

FIGURE 45

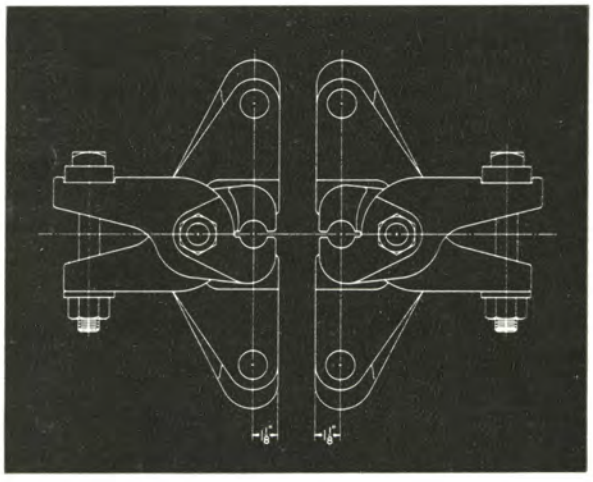


FIGURE 46

Fig. 45—Two zones produced independently in one well by the use of two pumps with separate strings of tubing and rods.

Fig. 46—Lufkin "flush type" carrier bar and polished rod clamp designed for dual-completed wells to give maximum clearance between carrier bars.

Fig. 47—Typical installation of ground oiling system—standard on the C-57 and larger sizes.

FIGURE 47

LUFKIN *Air Balanced* PUMPING UNITS

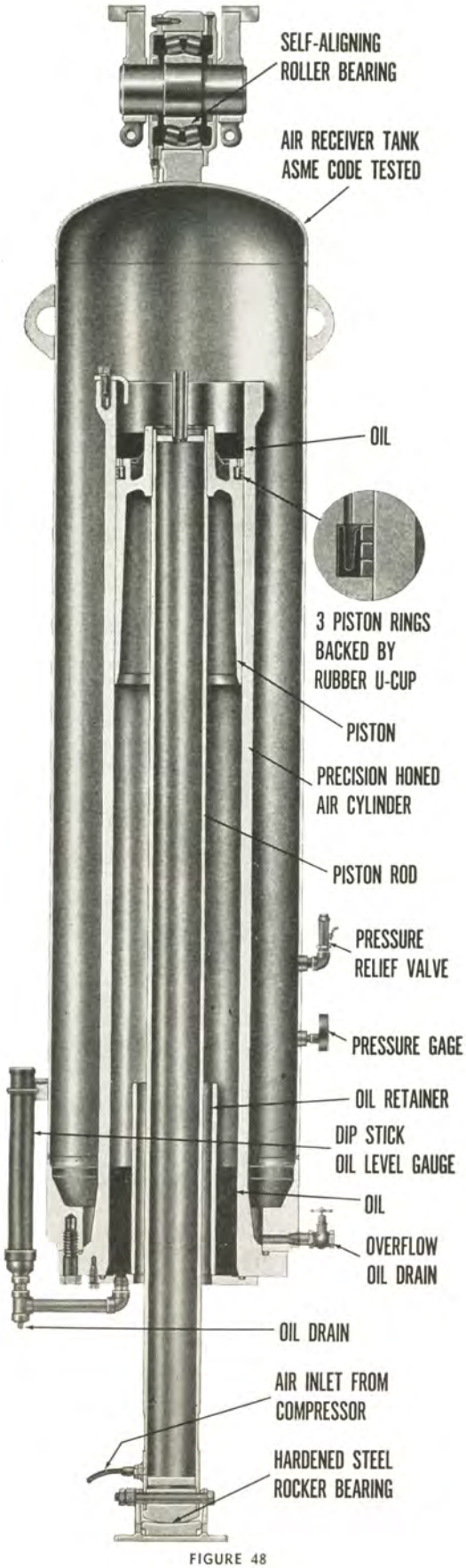


FIGURE 48

1. Perfect counterbalance with finger-tip control.
2. Lower installation costs.
3. Compact-portable-ideal for well testing.
4. Automatic counterbalancer available.

These are some of the outstanding advantages of the latest addition to the line of LUFKIN PUMPING UNITS. These units employ compressed air to counterbalance the well load, rather than beam weights or crank weights. The air system has been so simplified that the only continuously operating parts are the balance cylinder and piston. The reservoir capacity of the cylinder is enlarged by a steel receiver which moves with the cylinder as a unit.

On engine-driven units, when the system is in need of air, an automatic regulator engages an air operated clutch (driven by one belt from the unit sheave) and replaces any lost air. The operator sets regulator, initially, at a pressure sufficient to counterbalance well load, and this pressure is maintained automatically. Should the load change appreciably, a slight adjustment of this regulator will restore perfect counterbalance.

A safety shut-off switch is available, which will ground out engine, or shut off motor, if pressure should exceed a pre-set figure or fall below a minimum pre-set figure.

For units pumping with electricity, a separate motor-driven compressor assembly is standard equipment.

Since the Lufkin Air Balanced Units are approximately 35% shorter and 40% lighter than crank-type units, they are ideal for use as portable or test units, and for installation on piling or superstructures. Since changing counterbalance effect is a matter of opening a valve, the air balanced unit is ideal for use in testing wells.

All the ruggedness and simplicity of the conventional Lufkin Pumping Units are incorporated in the design of the Lufkin Air Balanced Pumping Unit.

LUFKIN AIR BALANCED PUMPING UNITS

FIGURE 49

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-100-36 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 36,000 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

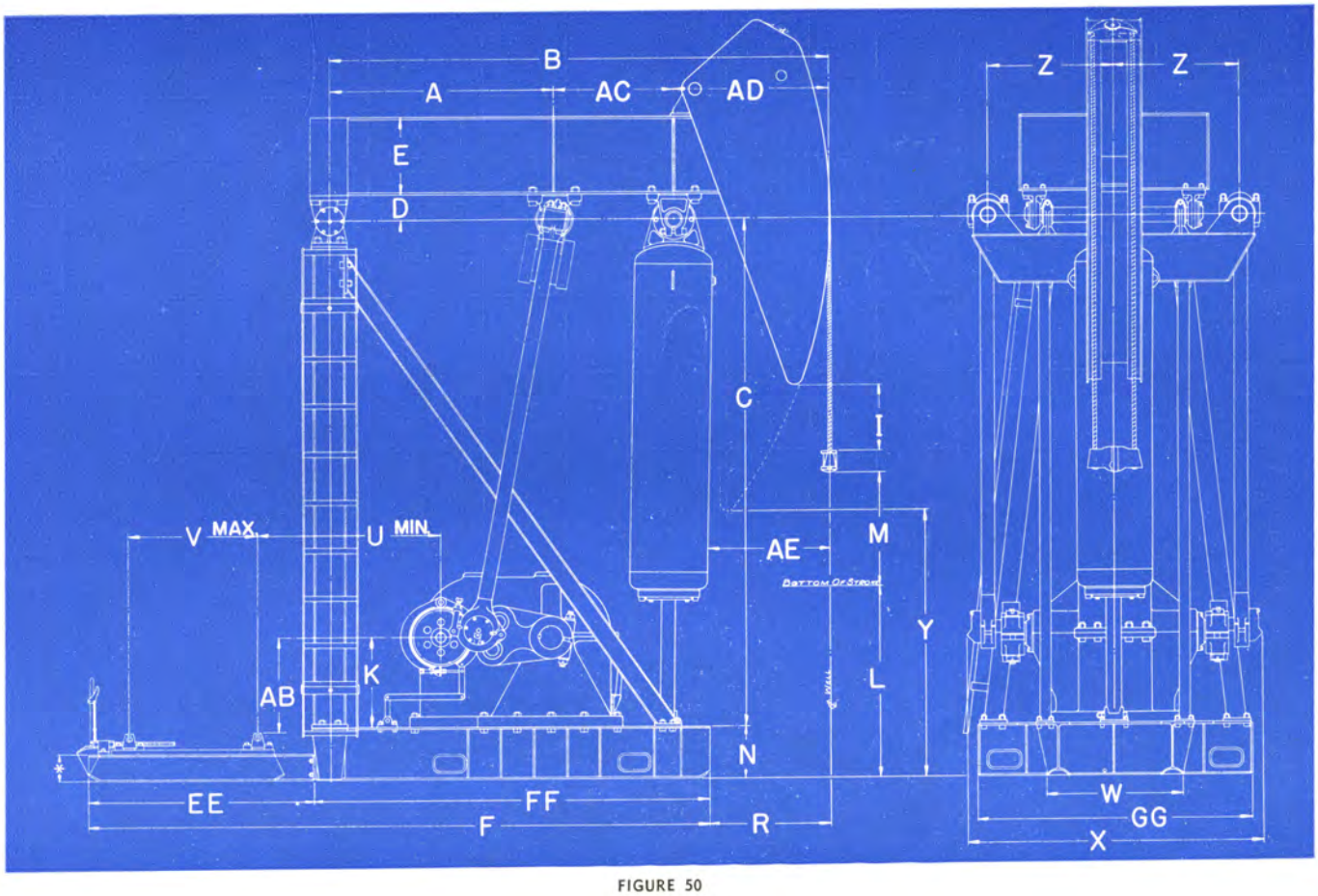


FIGURE 50

TABLE OF DIMENSIONS

UNIT	A	B	C	D	E	F	I	K	L	M	N	R	U	V	W	X	Y	Z	AB	AC	AD	AE	EE	FF	GG
A-80DB-54-19	48"	9'-7"	11'-0"	6¼"	16"	14'-5⅜"	7⅞"	18"	67½"	27"	9¾"	36"	66"	42"	25¼"	66¾"	7'-0"	29"	13¼"	24½"	42½"	36"	7'-0¼"	7'-5½"	61¾"
A-114DA-54-19	48"	9'-7"	11'-0"	6¼"	16"	14'-5⅜"	7⅞"	18"	67½"	27"	9¾"	36"	64"	42"	25¼"	66¾"	7'-0"	29"	13¼"	24½"	42½"	36"	7'-0¼"	7'-5½"	61¾"
A-114DA-64-19	48"	9'-7"	11'-0"	6¼"	16"	14'-5⅜"	7⅞"	18"	62½"	32"	9¾"	36"	64"	42"	25¼"	66¾"	6'-7"	29"	13¼"	24½"	42½"	36"	7'-0¼"	7'-5½"	61¾"
A-160D-64-25	50"	10'-0"	11'-9"	6¼"	18⅛"	14'-6¾"	8⅝"	27"	62¾"	32"	9¾"	35½"	60"	40"	32"	69¾"	6'-11"	30½"	22"	27½"	42½"	35½"	6'-7¾"	7'-10½"	68¾"
A-160D-74-25	50"	10'-0"	11'-9"	6¼"	18⅛"	14'-6¾"	8⅝"	27"	57¾"	37"	9¾"	35½"	60"	40"	32"	69¾"	6'-7"	30½"	22"	27½"	42½"	35½"	6'-7¾"	7'-10½"	68¾"
A-228D-74-28	56"	10'-11"	12'-5"	6¾"	20⅞"	15'-0¼"	15⅞"	27"	64⅜"	37"	16⅛"	36"	47"	50"	37¼"	6'-8⅜"	7'-8"	35½"	28⅜"	31½"	43½"	36"	6'-9"	8'-3¼"	6'-1½"
A-228D-86-28	56"	10'-11"	12'-5"	6¾"	20⅞"	15'-0¼"	9⅜"	27"	58⅜"	43"	16⅛"	36"	47"	50"	37¼"	6'-8⅜"	6'-10"	35½"	28⅜"	31½"	43½"	36"	6'-9"	8'-3¼"	6'-1½"
A-320D-86-32	70"	12'-11"	13'-4"	7⅞"	24"	17'-8¼"	18⅛"	28"	62⅝"	43"	16⅛"	39"	6'-6"	41"	43¼"	7'-3⅜"	7'-7"	39"	29⅜"	37"	48"	39"	7'-8"	10'-0¼"	7'-1½"
A-320D-100-32	70"	12'-11"	13'-4"	7⅞"	24"	17'-8¼"	9⅞"	28"	55⅛"	50"	16⅛"	39"	6'-6"	41"	43¼"	7'-3⅜"	6'-7"	39"	29⅜"	37"	48"	39"	7'-8"	10'-0¼"	7'-1½"
A-456DB-100-36	6'-5"	14'-7"	15'-7"	7⅞"	24¼"	18'-1¾"	18¾"	28"	73¾"	50"	16⅛"	47½"	6'-2"	41"	46¾"	8'-4⅛"	8'-10"	45"	29⅜"	41"	57"	47½"	7'-2"	10'-11¾"	7'-6"
A-456DB-120-36	6'-5"	14'-7"	15'-7"	7⅞"	24¼"	18'-1¾"	13⅛"	28"	57⅜"	60"	16⅛"	47½"	6'-2"	41"	46¾"	8'-4⅛"	7'-5"	45"	29⅜"	41"	57"	47½"	7'-2"	10'-11¾"	7'-6"
A-640DB-120-36	6'-5"	14'-7"	15'-7"	7⅞"	24¼"	18'-1¾"	13⅛"	28"	57⅜"	60"	16⅛"	47½"	71"	41"	46¾"	8'-4⅛"	7'-5"	45"	29⅜"	41"	57"	47½"	7'-2"	10'-11¾"	7'-6"
A-912DA-120-36	6'-5"	14'-7"	15'-7"	7⅞"	24¼"	19'-5"	13⅛"	30"	57⅜"	60"	16⅛"	47½"	6'-6"	41"	50"	8'-4⅛"	7'-5"	45"	31⅜"	41"	57"	45½"	7'-2"	12'-3"	7'-6"
A-640DB-120-40	7'-4"	16'-8"	17'-10"	9⅛"	24¾"	19'-5½"	21"	28"	78¼"	60"	16⅛"	59"	7'-0"	41"	46¾"	8'-4⅛"	9'-5"	45"	29⅜"	43½"	68½"	59"	7'-2"	12'-3½"	7'-11½"
A-912DA-120-40	7'-4"	16'-8"	17'-10"	9⅛"	24¾"	19'-5½"	21"	30"	78¼"	60"	16⅛"	59"	6'-4"	41"	50"	8'-4⅛"	9'-5"	45"	31⅜"	43½"	68½"	58"	7'-2"	12'-3½"	7'-11½"
A-640DB-144-40	7'-4"	16'-8"	17'-10"	9⅛"	24¾"	19'-5½"	19½"	28"	55"	72"	16⅛"	59"	7'-0"	41"	46¾"	8'-4⅛"	7'-10"	45"	29⅜"	43½"	68½"	59"	7'-2"	12'-3½"	7'-11½"
A-912DA-144-40	7'-4"	16'-8"	17'-10"	9⅛"	24¾"	19'-5½"	19½"	30"	55"	72"	16⅛"	59"	6'-4"	41"	50"	8'-4⅛"	7'-10"	45"	31⅜"	43½"	68½"	58"	7'-2"	12'-3½"	7'-11½"
A-640DB-192-42	10'-1½"	23'-0"	21'-0"	9⅛"	33"	27'-1⅞"	12¼"	30"	55"	96"	21"	48"	9'-9"	41"	46¾"	8'-6⅝"	7'-8"	45"	36⅛"	50"	104½"	94"	7'-2"	19'-4⅝"	7'-11½"
A-912DA-192-42	10'-1½"	23'-0"	21'-0"	9⅛"	33"	27'-1⅞"	12¼"	30"	55"	96"	21"	48"	9'-2"	41"	50"	8'-6⅝"	7'-8"	45"	36⅛"	50"	104½"	94"	7'-2"	19'-4⅝"	7'-11½"
A-1500D-192-42	10'-1½"	23'-0"	21'-0"	9⅛"	33"	27'-1⅞"	12¼"	36"	55"	96"	21"	48"	8'-1"	41"	50"	9'-7⅝"	7'-8"	51½"	42⅛"	50"	104½"	91½"	7'-2"	19'-4⅝"	7'-11½"
A-1500T-192-42	10'-1½"	23'-0"	21'-0"	9⅛"	33"	27 -1⅞"	12¼"	25"	55"	96"	21"	48"	7 -5"	41"	50"	9 -7⅝"	7 -8"	51½"	31⅛"	50"	104½"	91½"	7 -2"	19'-4⅝"	7 11½"

* 16⅛" deep engine base beam used on 192" stroke units, all others use 8" deep engine base beams.
Jointed base is standard on all sizes; one-piece and portable bases available.

RATING CHART

UNIT	Peak Torque Rating, Inch Lbs.	Stroke, Inches	Polish Rod Load Class, Lbs.	Piston Dia., Inches	Effective Counter-Balance, Lbs.	Walking Beam Size	Pitman Side Member Size, Ex-Hvy. Pipe	Wire Line Hangers	*Standard Sheave Sizes, P. D. Inches	Gear Ratio	Weight, Lbs.
A-80DB-54-19	80,000	54- 44	19,000	8	10,685	16 x 8½ @ 64 lb	3½	1 x 16'-0"	19¼, 24, 29¼ (4C)	29.15	10,730
A-114DA-54-19	114,000	54- 44	19,000	8	10,685	16 x 8½ @ 64 lb	3½	1 x 16'-0"	19¼, 24, 29¼, 33¼ (4C)	29.4	11,000
A-114DA-64-19	114,000	64- 54	19,000	8	10,685	16 x 8½ @ 64 lb	3½	1 x 16'-0"	19¼, 24, 29¼, 33¼ (4C)	29.4	11,000
A-160D-64-25	160,000	64- 54	25,000	10	17,085	18 x 8¾ @ 77 lb	3½	1⅜ x 18'-6"	24¼, 29¼, 33¼, 38 (5C)	28.67	13,100
A-160D-74-25	160,000	74- 64- 54	25,000	10	17,085	18 x 8¾ @ 77 lb	3½	1⅜ x 18'-6"	24¼, 29¼, 33¼, 38 (5C)	28.67	13,100
A-228D-74-28	228,000	74- 64- 54	28,000	10	17,170	21 x 9 @ 82 lb	4	1⅜ x 20'-0"	24¼, 30, 36, 41¼ (6C)	28.45	18,000
A-228D-86-28	228,000	86- 74- 64	28,000	10	17,170	21 x 9 @ 82 lb	4	1⅜ x 21'-0"	24¼, 30, 36, 41¼ (6C)	28.45	18,500
A-320D-86-32	320,000	86- 74- 64	32,000	11	21,255	24 x 12 @ 100 lb	4	1¼ x 22'-0"	25, 30, 36, 42, 47¼ (8C)	30.12	24,500
A-320D-100-32	320,000	100- 86- 74	32,000	11	21,255	24 x 12 @ 100 lb	4	1¼ x 23'-6"	25, 30, 36, 42, 47¼ (8C)	30.12	24,800
A-456DB-100-36	456,000	100- 86- 74	36,000	12	23,775	24 x 14 @ 130 lb	6	1¼ x 25'-0"	28, 34, 40, 46, 51 (10C or 7D)	29.04	28,500
A-456DB-120-36	456,000	120-100- 86	36,000	12	23,775	24 x 14 @ 130 lb	6	1¼ x 28'-0"	28, 34, 40, 46, 51 (10C or 7D)	29.04	29,500
A-640DB-120-36	640,000	120-100- 86	36,000	12	23,775	24 x 14 @ 130 lb	6	1¼ x 28'-0"	28, 34, 40, 46, 51 (10C or 7D)	28.6	31,500
A-912DA-120-36	912,000	120-100- 86	36,000	12	23,775	24 x 14 @ 130 lb	6	1¼ x 28'-0"	28, 34, 40, 46, 51 (10C or 7D)	28.72	33,300
A-640DB-120-40	640,000	120-100- 86	40,000	13	27,065	24 x 14 @ 160 lb	6	1⅜ x 28'-0"	28, 34, 40, 46, 51 (10C or 7D)	28.6	36,900
A-912DA-120-40	912,000	120-100- 86	40,000	13	27,065	24 x 14 @ 160 lb	6	1⅜ x 28'-0"	28, 34, 40, 46, 51 (10C or 7D)	28.72	38,700
A-640DB-144-40	640,000	144-120-100	40,000	13	27,065	24 x 14 @ 160 lb	6	1⅜ x 32'-0"	28, 34, 40, 46, 51 (10C or 7D)	28.6	37,900
A-912DA-144-40	912,000	144-120-100	40,000	13	27,065	24 x 14 @ 160 lb	6	1⅜ x 32'-0"	28, 34, 40, 46, 51 (10C or 7D)	28.72	39,700
A-640DB-192-42	640,000	192-168-144	42,000	14½	31,600	33 x 15¾ @ 200 lb	8	1⅜ x 39'-2"	28, 34, 40, 46, 51 (10C or 7D)	28.6	48,200
A-912DA-192-42	912,000	192-168-144	42,000	14½	31,600	33 x 15¾ @ 200 lb	8	1⅜ x 39'-2"	28, 34, 40, 46, 51 (10C or 7D)	28.72	49,000
A-1500D-192-42	1,500,000	192-168-144	42,000	14½	31,600	33 x 15¾ @ 200 lb	8	1⅜ x 39'-2"	40, 46, 51, 55, 68 (11D)	28.33	56,800
A-1500T-192-42	1,500,000	192-168-144	42,000	14½	31,600	33 x 15¾ @ 200 lb	8	1⅜ x 39'-2"	28, 30, 40, 46 (11D)	58.12	57,300

* Standard Sheave Sizes Shown are Floating Type Sheaves for Clutch Driven Compressor. Largest Size Shown is Maximum Available. When Compressor is driven by Electric Motor, Reducer Sheave is regular solid type as shown in Crank Balance Unit Specifications.

1,500,000 IN. LBS. GEAR REDUCER SPECIFICATIONS

1500D GEAR REDUCER: Double Reduction

Gears: Main Gear 60" P.D. x 20" Face
Rating: 1,500,000 In. Lbs. Peak Torque
Ratio of Gears: 28.33
Crank Shaft Dia. 9"
Sheave: 46" P.D.—11 D Std.
68" P.D.—11 D Max.
Distance Centerline Unit to Centerline of Drive: 28⅛"

1500T GEAR REDUCER: Triple Reduction

Gears: Main Gear 60" P.D. x 20" Face
Rating: 1,500,000 In. Lbs. Peak Torque
Ratio of Gears: 58.12
Crank Shaft Dia. 9"
Sheave: 46" P.D.—11 D Std.
46" P.D.—11 D Max.
Distance Centerline Unit to Centerline of Drive: 28⅛"

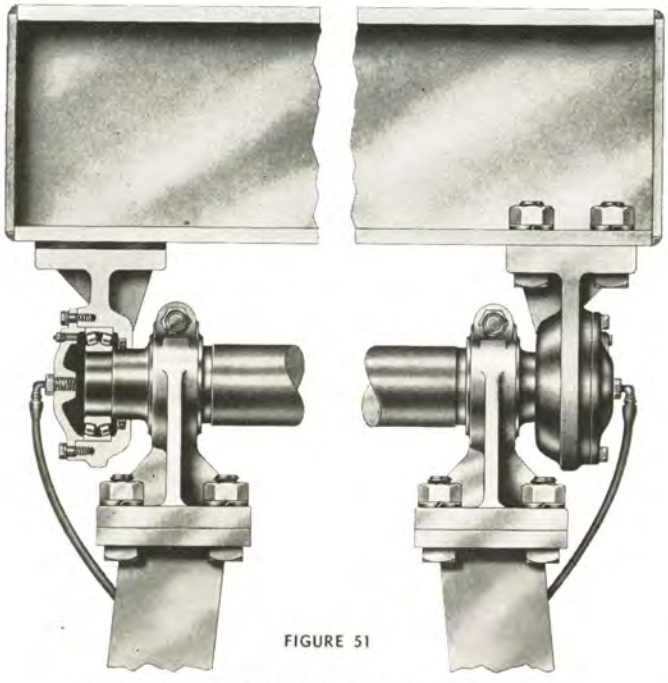


FIGURE 51

SAMSON POST BEARING ASSEMBLY

Bearings lubricated from ground level.

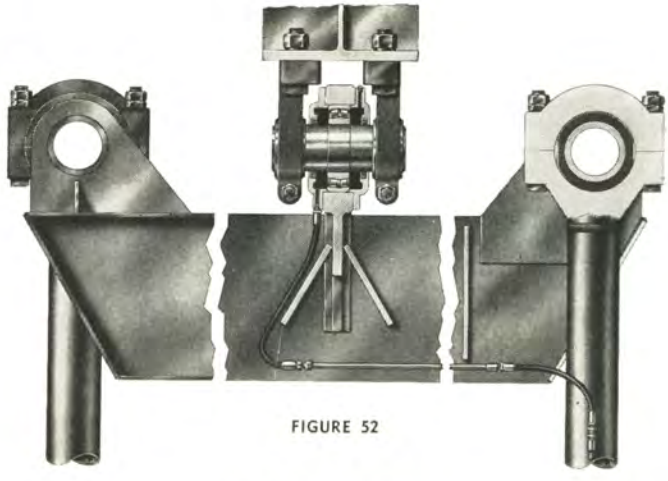


FIGURE 52

PITMAN EQUALIZER

Showing self-aligning roller bearing at center and rubber cushions at upper Pitman connections. Bearing is lubricated through flexible oil line at lower end of Pitman.

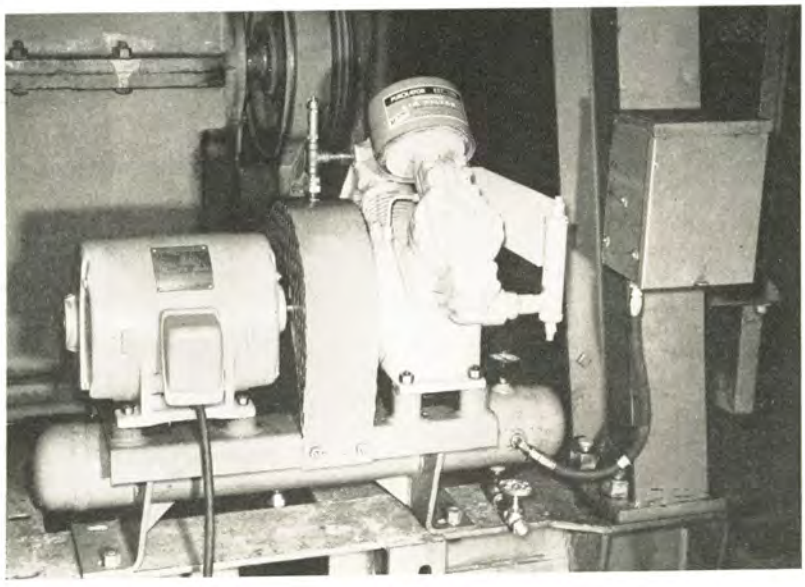


FIGURE 53

MOTOR DRIVEN COMPRESSOR

furnished on units where electric power is available; compressor operates at optimum speed for maximum air output.

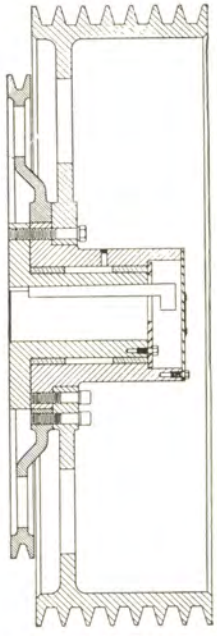


FIGURE 54

FLOATING SHEAVE ASSEMBLY

for Gear Reducer which permits running air compressor at initial starting without operating gear reducer. Note 1-C groove compressor drive rim bolted to floating hub. Select proper size to effect optimum compressor speed; 17¼", 23½", 28", 34" and 47¼" P.D. rims are available.

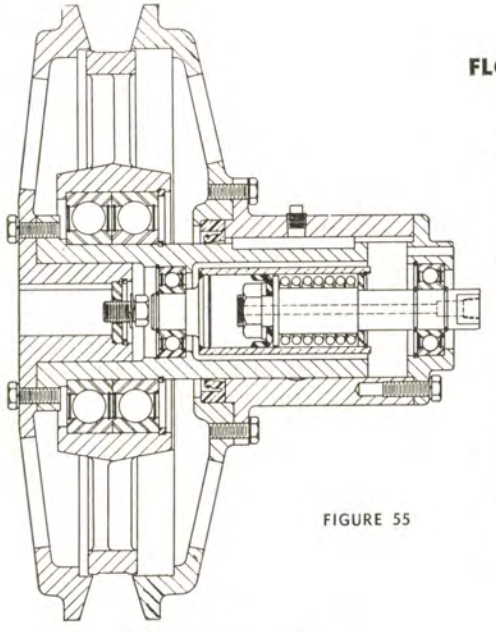


FIGURE 55

CLUTCH, 11½" P.D.

for air compressor—engages by spring pressure at initial starting and also when air pressure drops too low for proper counterbalance; disengages automatically when air pressure builds up to predetermined setting.

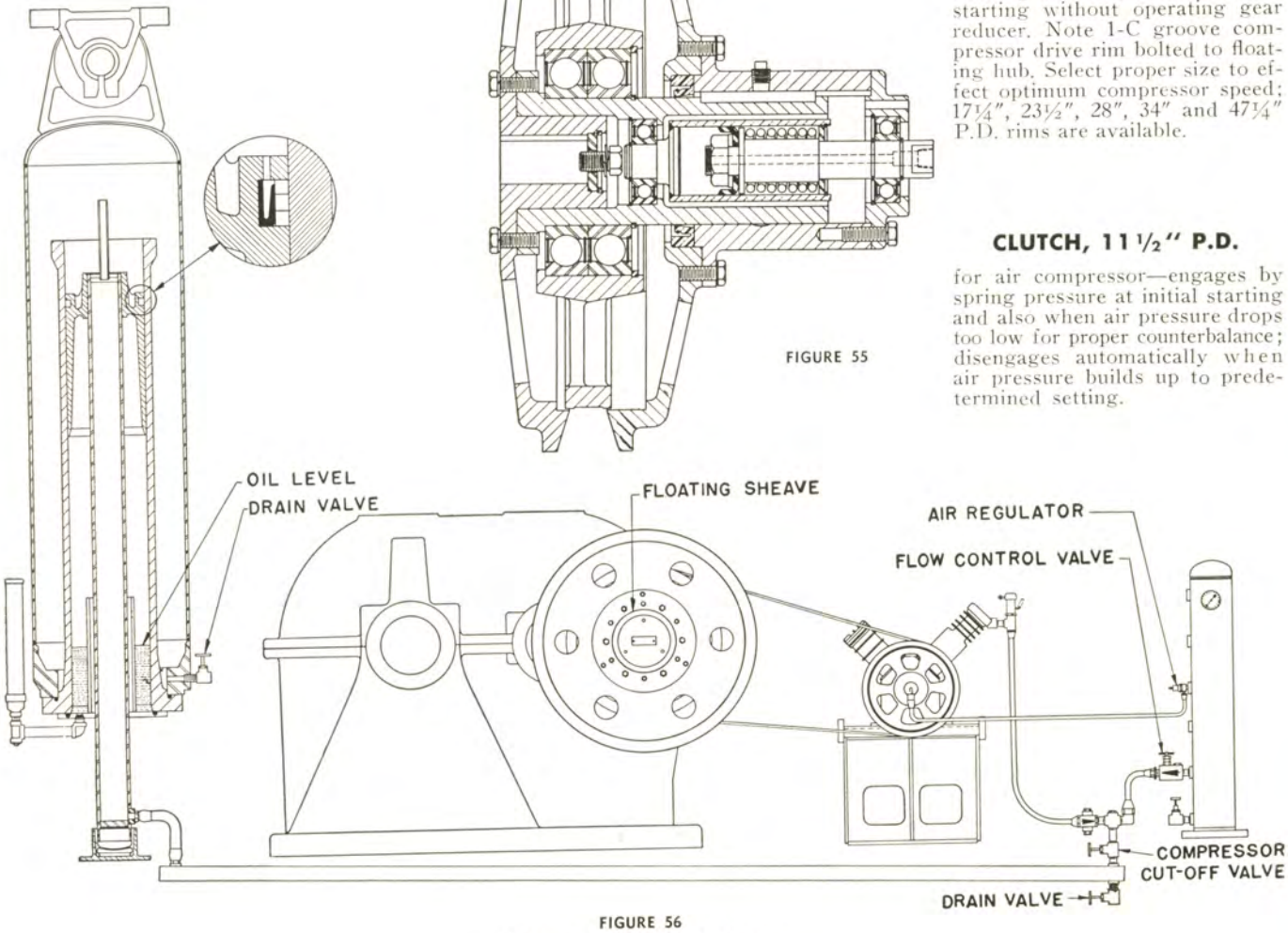


FIGURE 56

Schematic Outline of Air System

LUFKIN LONG STROKE HYDRAULIC PUMPING UNIT

Flow Diagrams

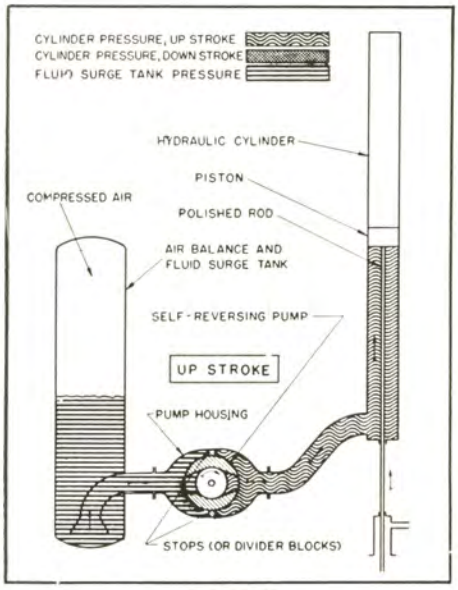


FIGURE 57

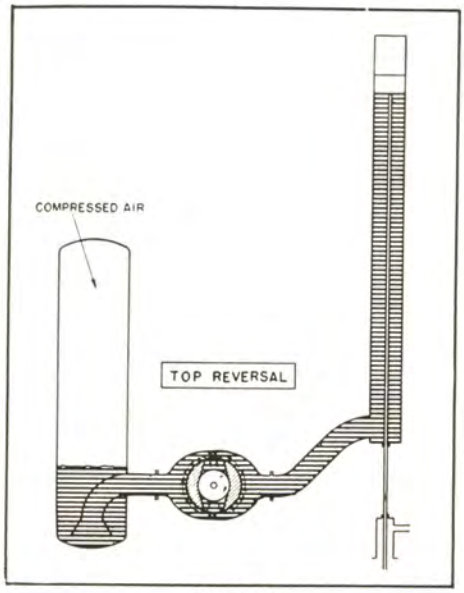


FIGURE 58

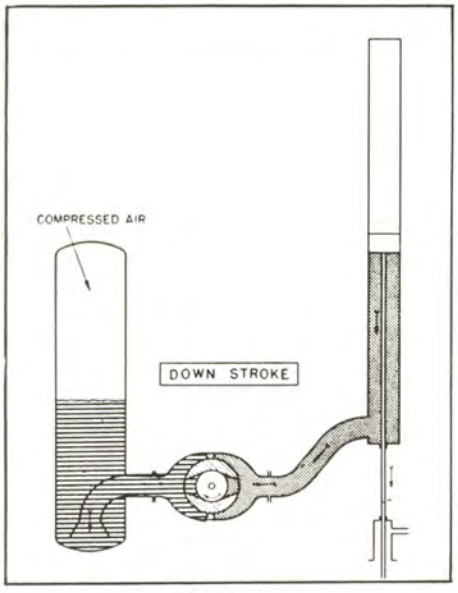


FIGURE 59

FIGURE 60

THREE SIZES

No. 3520
No. 3525
No. 3530
35,000 Lb. Polished Rod Load Rating
20′, 25′ and 30′ Strokes

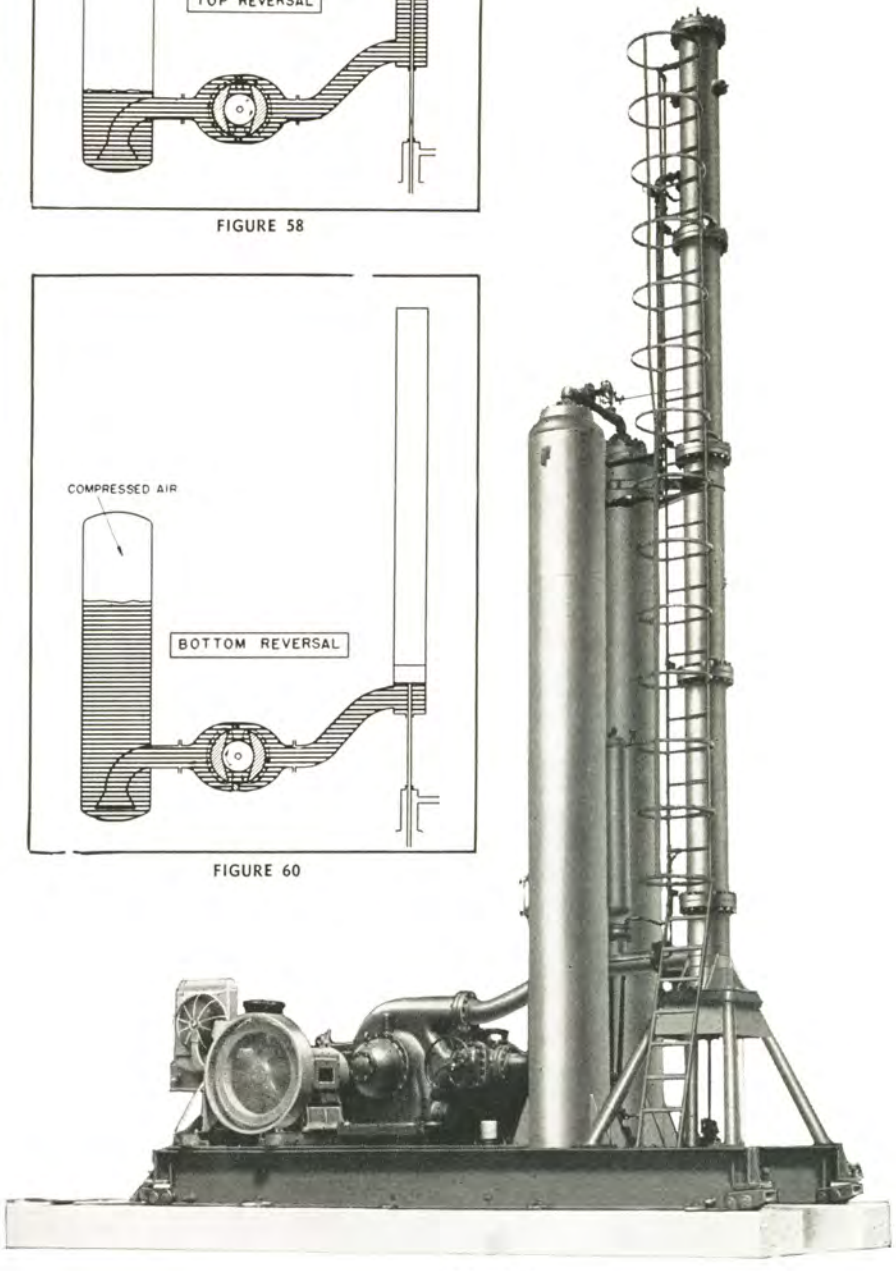


FIGURE 61

Explanation of Reversing Principle

(See Figs. 57, 58, 59 and 60)

Lufkin's Hydraulic Pumping Units incorporate 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. 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. 57.) 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. 57 and 59.)

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. 58 and 60.)

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 units employ 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—26,200#

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

STROKE LENGTHS—20, 25 and 30 Ft.

PUMPING SPEED RANGE—Dependent upon stroke length and load range. Consult your Lufkin Representative.

HYDRAULIC CYLINDER—13" Dia. Nickel Alloy Cast Iron

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

POWER FLUID:

GENERAL SPECIFICATIONS: Use a straight mineral oil containing rust and oxidation inhibitors only. Do not use detergent type oils.

VISCOSITY: Use an oil that will approximate the following viscosity:

100° F	300 SUS
130° F	140 SUS
210° F	48.5 SUS

This viscosity approximates that of SAE 20 motor oil.

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—976 RPM for six 20 foot Strokes Per Minute

Sheave—14½", 16", 20" and 24" P.D.—7 "D"

AIR TANKS—Two 30" Dia. x 22 Ft. Long for 20' and 25' Strokes, 28' Long for 30' Stroke. 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. for No. 3520
39,800 Lbs. for No. 3525
41,700 Lbs. for No. 3530

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.

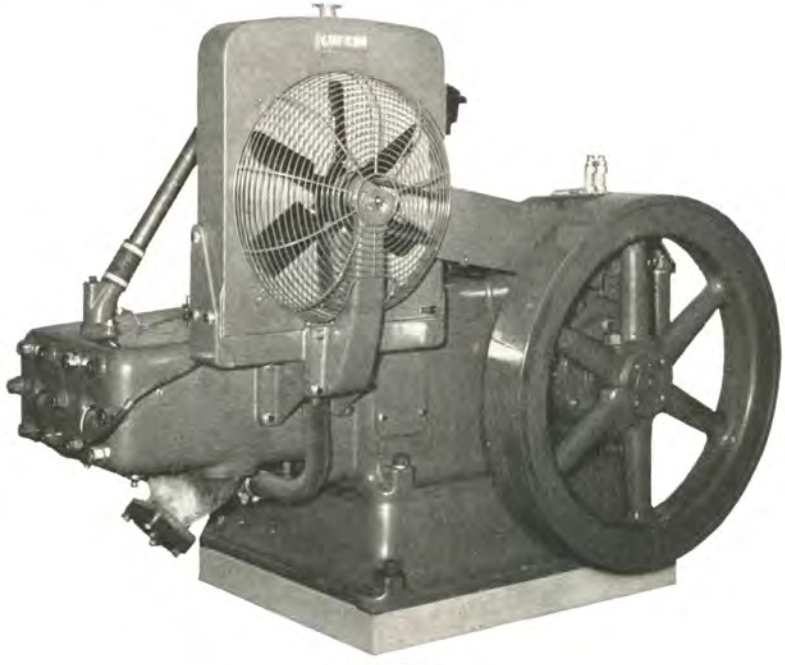


FIGURE 62

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)

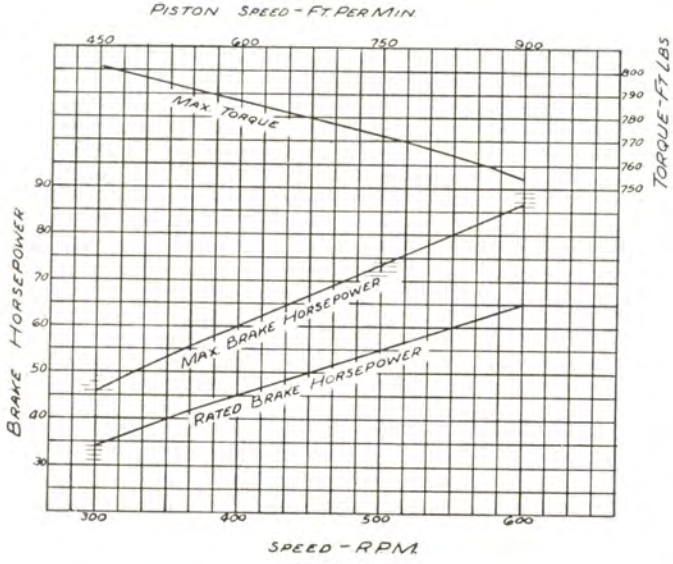


FIGURE 63

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 WR² (Ft² 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#

TWIN 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.

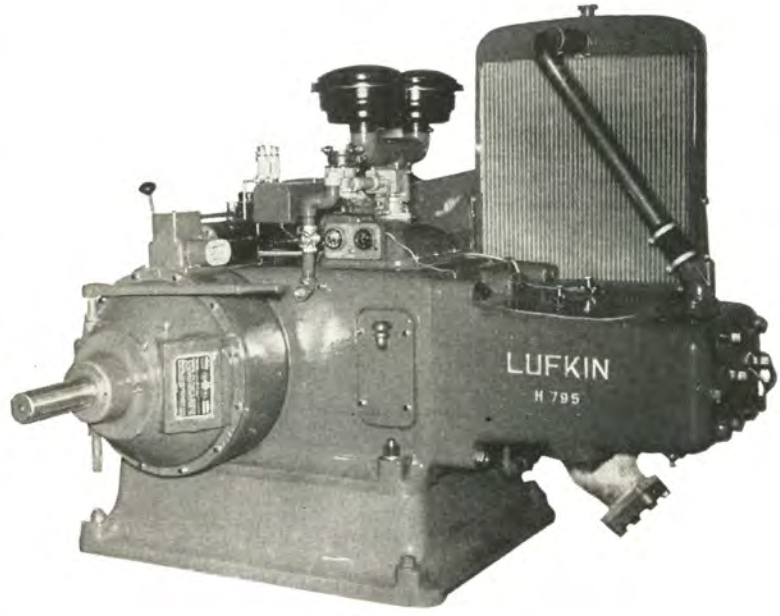


FIGURE 64

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.

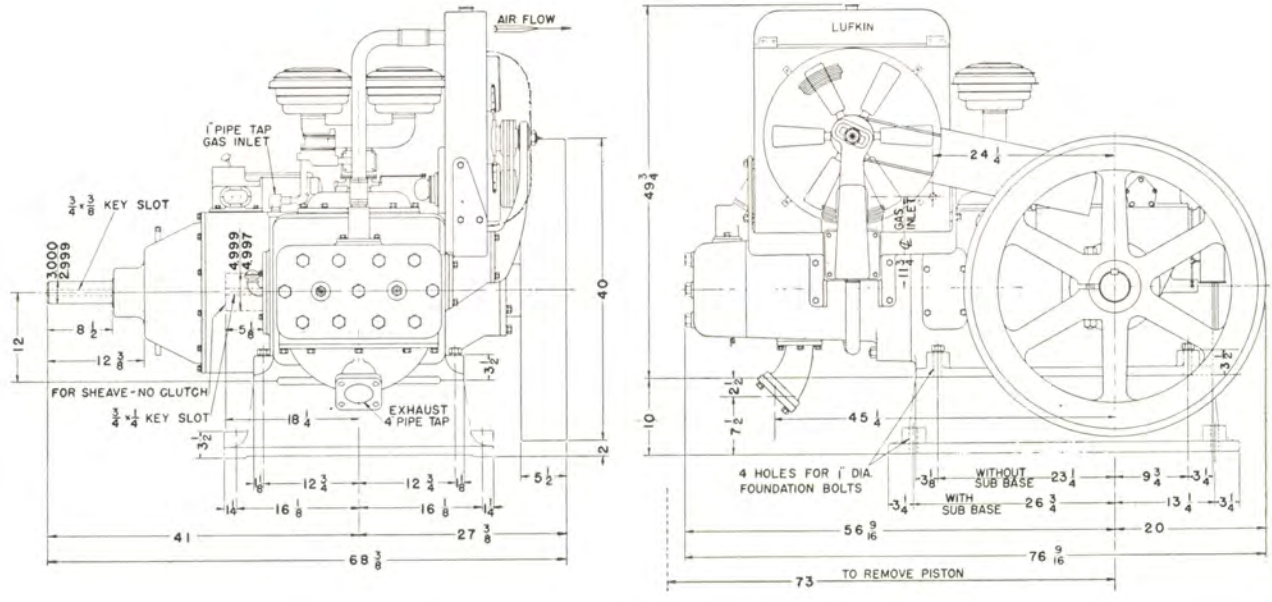


FIGURE 65

Space Plan Lufkin H-795 Engine

LUFKIN MODEL HC-333 AND HT-333 HORIZONTAL

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

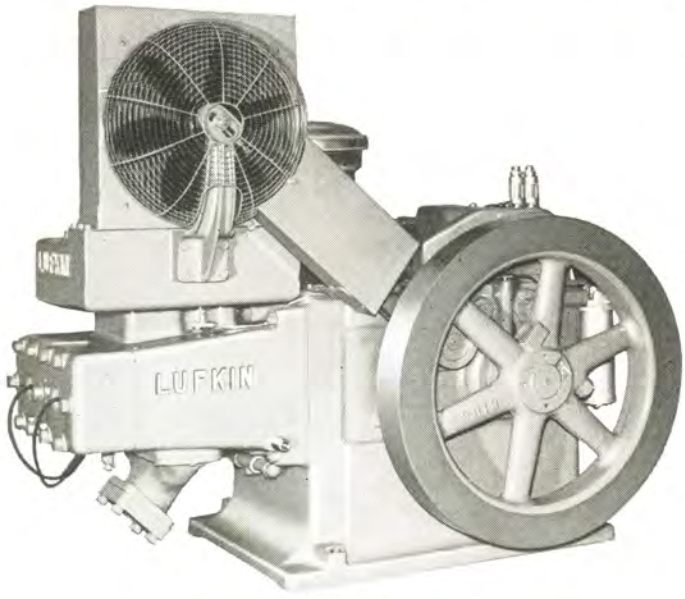


FIGURE 66
Flywheel Side Lufkin HC-333 Engine

Model HC-333 is Condenser cooled.
Model HT-333 is Thermosyphon cooled.

The Model HC-333 Engine is condenser cooled. Water around the cylinders remains constant at 212° F. regardless of load and temperature. No water pump is used. Steam generated in the engine is condensed by the condenser and fan, then the water returns by gravity to the cylinders.

Lufkin twin cylinder, 2 cycle gas engines are built as medium speed, heavy duty, crosshead type natural gas engines, resulting in long life, dependable power, and low upkeep.

Two cylinders result in less shock on equipment, as there are two power impulses each revolution of the crankshaft. This gives a smoother flow of power.

Lufkin series 333 engines are built with a single large flywheel that does not extend below the base. This makes mounting of the engine easy for standard pumping unit bases. A broad base allows rigid mounting and less vibration.

Lufkin engines are built for natural gas, butane or propane operation. A dual fuel attachment (optional) allows either fuel to feed to engine automatically.

FEATURES

Twin Cylinders give two power impulses for each revolution of the crankshaft, assuring smoother performance and less shock to engine and equipment.

Two Cycle Design is rugged and simple. Pistons move over ports cast in cylinder walls. No valves to burn or stick. No excessive oil consumption when rings are worn.

Crosshead Construction with full metallic piston rod packing prevents crankcase contamination; moving parts in crankcase run in clean oil, therefore wear on these parts is less. Oil changes are less frequent than with trunk piston engines.

Water Cooled Exhaust Ports. Water circulates through the port bridges and causes them to run cooler, resulting in less wear on cylinders and rings.

Positive Full Pressure Lubrication. Oil is forced under pressure to all moving parts, giving better lubrication and less wear.

Oil Filter. These engines are equipped with a bypass type filter, which combined with absence of crankcase contamination, assures clean oil for all parts. This makes Lufkin engines particularly suited to use of automatic oil level tanks.

Automatically Filled Lubricator. Cylinder force feed lubricator is constantly filled from base through the oil filter, which assures only clean oil being fed cylinders.

Built In Starting Systems mount directly on engine. A starter built for the engine. Three types are offered:

1. 12-Volt Electric
2. Gas Motor, requiring 30# gas
3. High Pressure (150#) Air

Safety Control is standard equipment for low oil pressure and low water level.

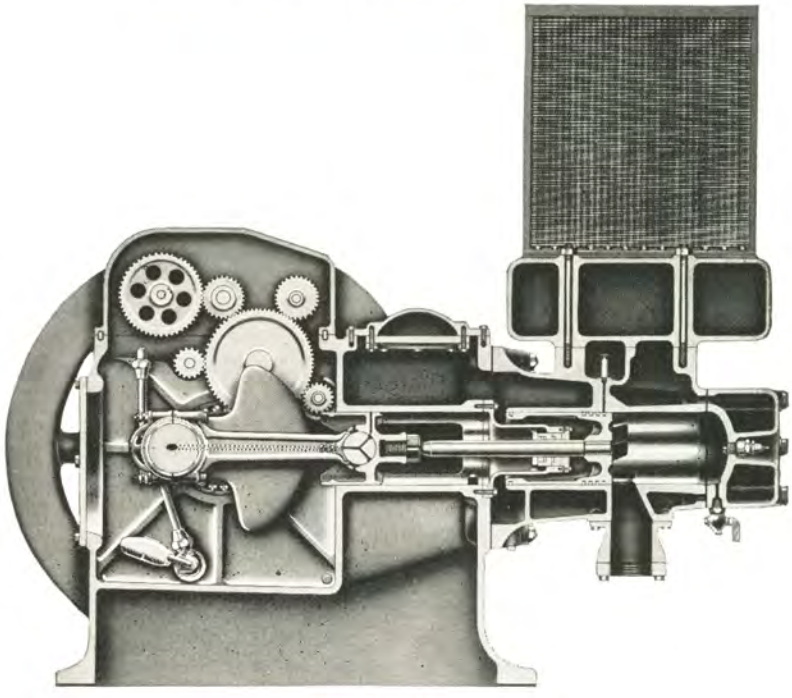


FIGURE 67
Cross Section HC-333 Engine

TWIN CYLINDER, TWO CYCLE GAS ENGINE

HEAVY DUTY, MEDIUM SPEED CROSSHEAD TYPE DESIGN

The Lufkin Model HT-333 engine is cooled by pressure thermosyphon method. A difference in water temperature at top and bottom of radiator results in a difference of specific gravity of the water which causes the water to circulate. Circulation is automatically adjusted to the temperature so that proper uniform temperatures are maintained in the engine regardless of load conditions.

Lufkin engines are furnished as a complete power unit. Standard equipment is full pressure lubrication, 2-feed force feed cylinder lubricator, oil filter, automatically filled lubricator from engine base, rotary magneto, magneto cover, Pierce centrifugal governor, Ensign natural gas mixer and regulator, oil bath air filter, cooling system, condenser or thermosyphon, optional, fan, fan and belt guards, safety control for low oil pressure and water, Twin Disc power take off.

Optional equipment (at extra cost) is 12-Volt electric starter, gas motor starter, High pressure (150#) air starting, dual fuel (gas-butane) system.

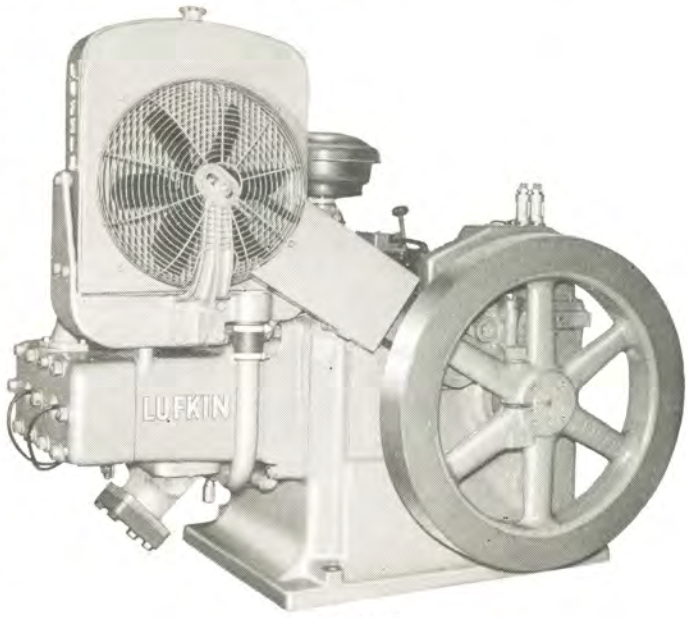


FIGURE 68
Flywheel Side Lufkin HT-333 Engine

Lufkin HC-333 and HT-333 Engine Specifications

No. of Cylinders	2
Bore	5½"
Stroke	7"
Displacement—Cu. In.	333
Speed Range, R.P.M.	350-750
Normal Pumping Speed Range, R.P.M.	400-650
Rated B.H.P. Continuous 425 R.P.M.	20
Rated B.H.P. Continuous 650 R.P.M.	30
Rated B.M.E.P. Lbs.	55
Piston Speed Ft. Per Min. at 650 R.P.M.	758
Flywheel WR^2 (FT^2 Lbs.)	1200
Diameter Flywheel	35½"
Type Cooling System (Optional)	
HC-333	Condenser
HT-333	Thermosyphon
Ignition	Rotary Magneto
Lubrication	Full Pressure
Oil Filter	Bypass Type (Filtered Oil Fills Cylinder Lubricator)
Clutch	Twin Disc B-111
Size Clutch Shaft	2¼" Diam.—⅝" Keyway
Crankshaft Main Bearings	Taper-Roller
Connecting Rod Bearings	Precision Thin Wall
Air Filter	Oil Bath
Oil Capacity	20 Qts.
Water Capacity	
HC-333	28 Qts.
HT-333	32 Qts.
Diam. Gas Inlet	1"
Diam. Exhaust Pipe	4"
Foundation Bolts	(4)-⅞"
Weight (Shipping)	3250 Lbs.

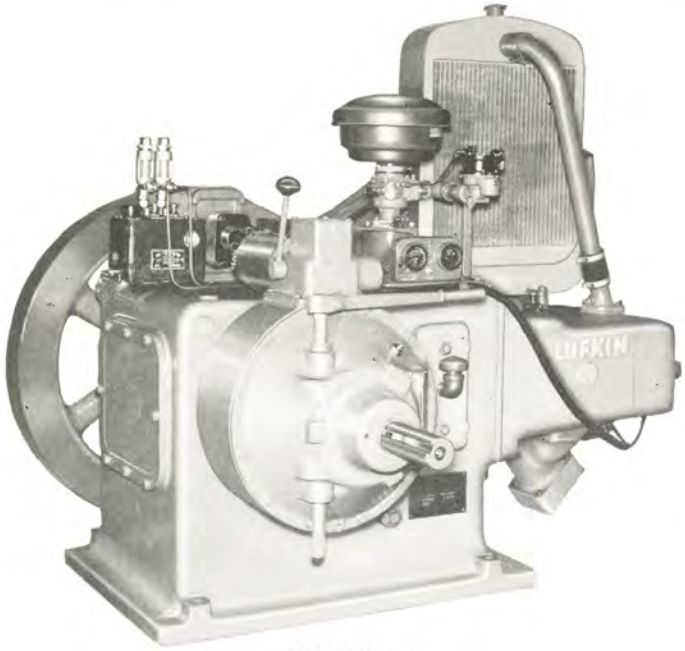


FIGURE 69
Clutch Side HT-333 Lufkin Engine

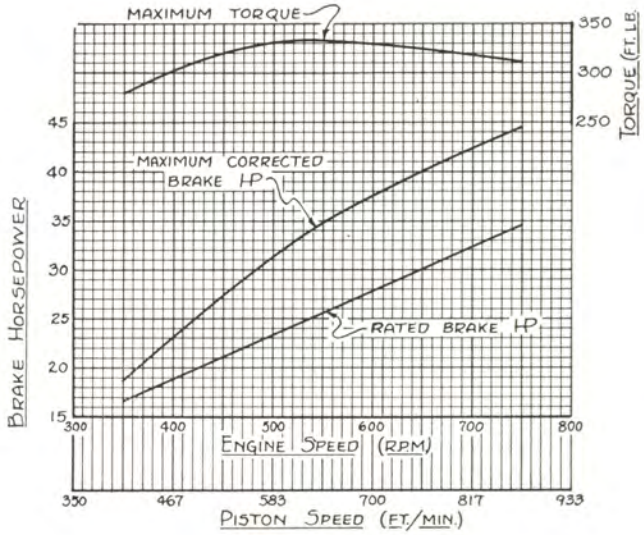


FIGURE 70
Performance Curves H-333 Gas Engine

LUFKIN TRAILERS OFFERS A "MODEL" TO MANY VARIATIONS OF BASIC MODELS SHOWN LUFKIN—MANUFACTURES A TRAILER FOR EVERY PURPOSE ALL LUFKIN MODELS OFFERED

FIGURE 71

Model THD—Lufkin's new Hydraulic Tandem Dump Trailer.

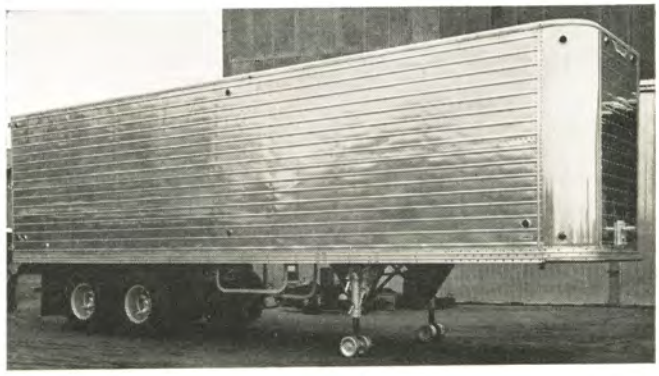


FIGURE 72

Model ALV

All Aluminum Light Weight Van for Common Freight & Other General Freight (also offered insulated).

FIGURE 73

Model IFVLA

Aluminum Van—Insulated & Refrigerated for hauling all types of fresh & frozen foods & meats.

FIGURE 74

Model OVA

Open Top Van (Light Weight) Aluminum for hauling all types farm & industrial products.

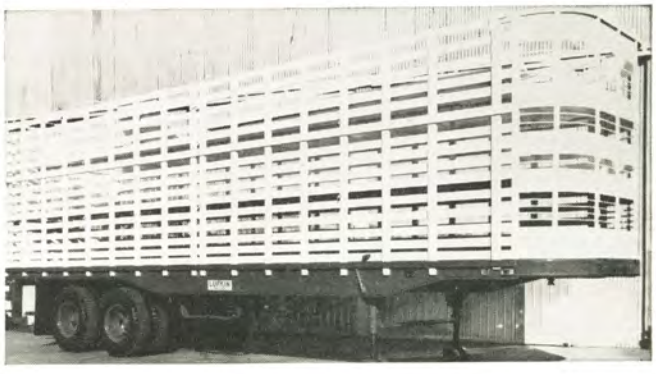


FIGURE 75

Model BF

For hauling all types livestock (has three deck levels for hauling calves, hogs & sheep, sides can be removed for flat-bed operation).

COMPLY WITH YOUR EVERY HAULING NEED
BELOW CAN BE QUOTED UPON REQUEST
CALL YOUR NEAREST "LUFKIN MAN FOR DETAILS"
IN TANDEM AND SINGLE

FIGURE 76
Model TOF-H
For the big oil field jobs—rated capacity 80,000 to 160,000 pounds.

FIGURE 77
Model TOF-C
A Combination Float & Pipe Trailer (float can be easily attached or detached. TOF-C can be used for pipe or machinery hauls.)

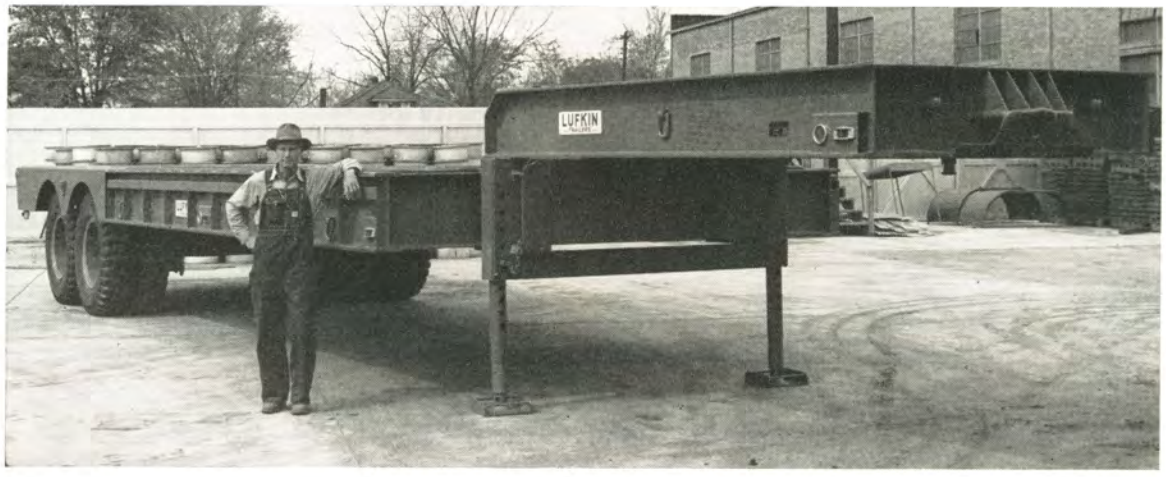


FIGURE 78
Custom Built Low-Bed
All Low-Bed Models offered custom made to every need

FIGURE 79
Model TOP
For hauling pipe, poles & other oilfield supplies

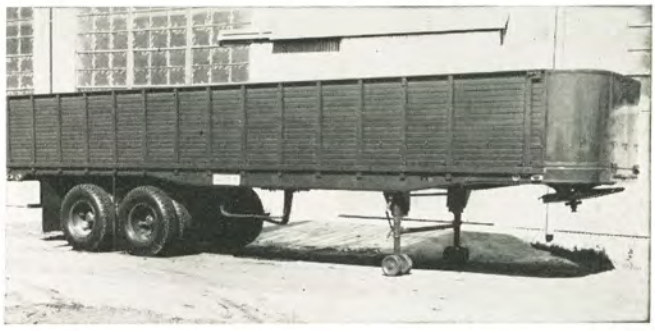


FIGURE 80
Model TBF-G
Light weight grain trailer (used for all farm & allied products)

LUFKIN GEAR REDUCERS

A complete standard line of single and double reduction herringbone gear reducers and single reduction speed increasers are available. Write for Gear Catalog G-4.

Spiral bevel gear reducers are also available for such service as cooling tower fan drives. Bulletin G-5 available on request.

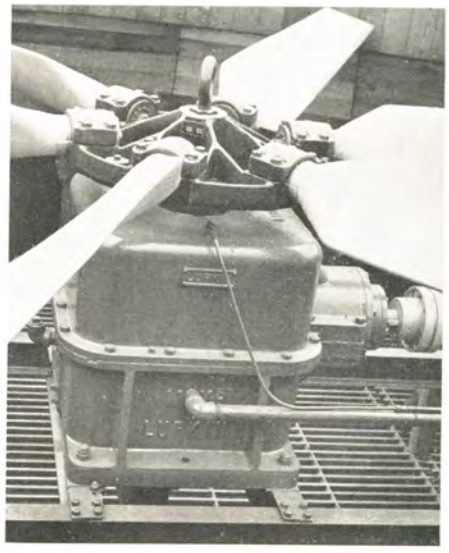


FIGURE 83

115VB Spiral Bevel Gear Reducer for Cooling Tower Fan Drive. A complete range of sizes available.

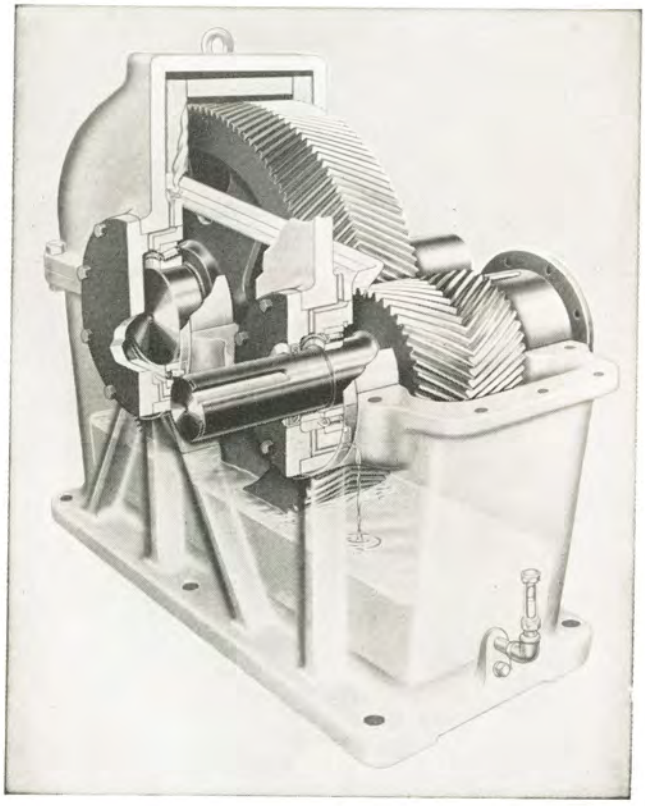


FIGURE 81

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

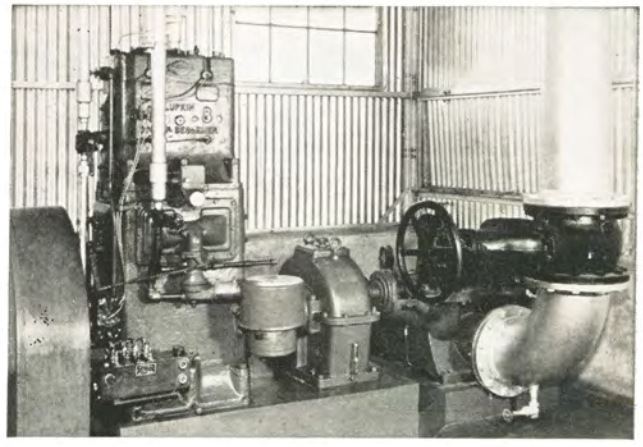


FIGURE 84

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

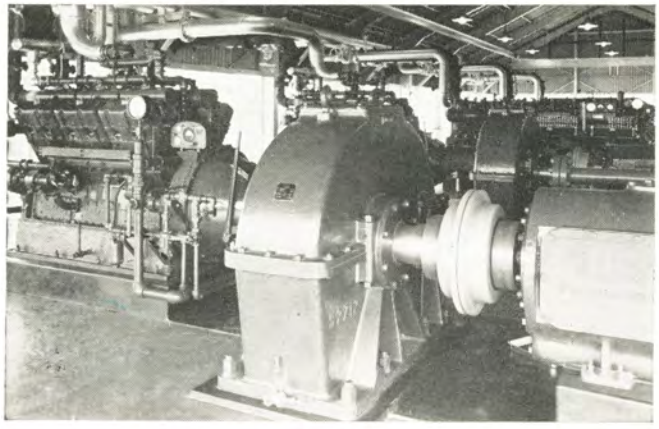


FIGURE 82

Two S2712 Reducers delivering 345 h.p. at 7.22 ratio.

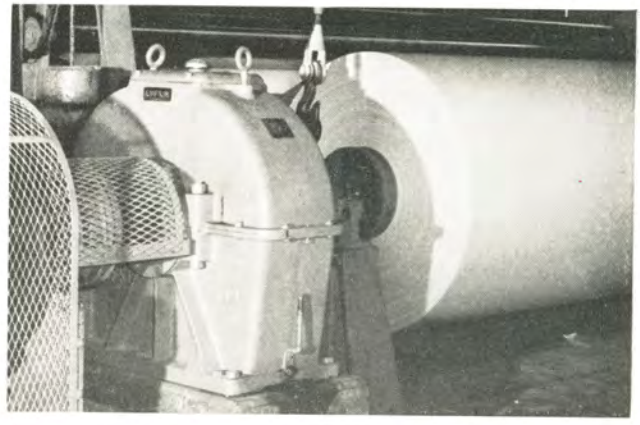


FIGURE 85

Lufkin S189 Single Reduction Herringbone Reducer Driving Rewind Machine at Newsprint Mill.

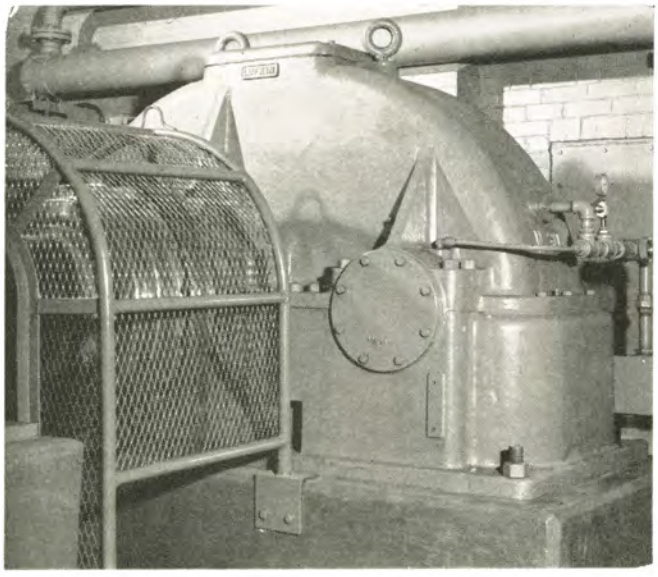


FIGURE 86

Lufkin's Big N3012 Pipe Line Pump Speed Increaser, 1060 h.p. Capacity at 3600 r.p.m. pump speed and 7:1 ratio.

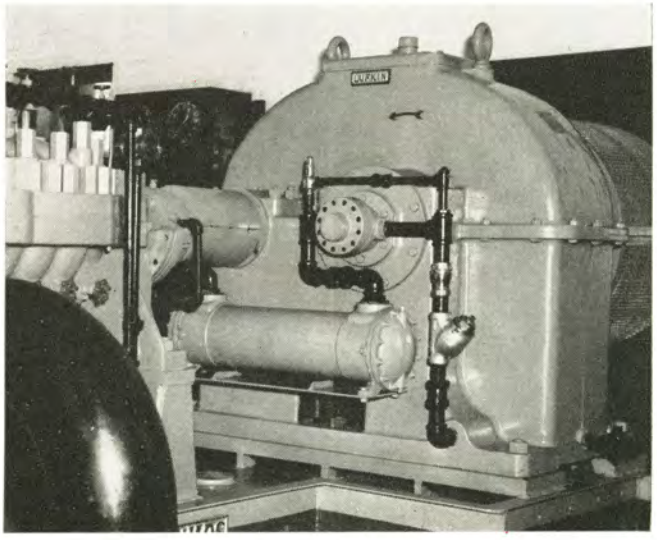


FIGURE 87

Lufkin N2110 High Speed Increaser, delivering 540 h.p. to pipe line pump going 3750 r.p.m.

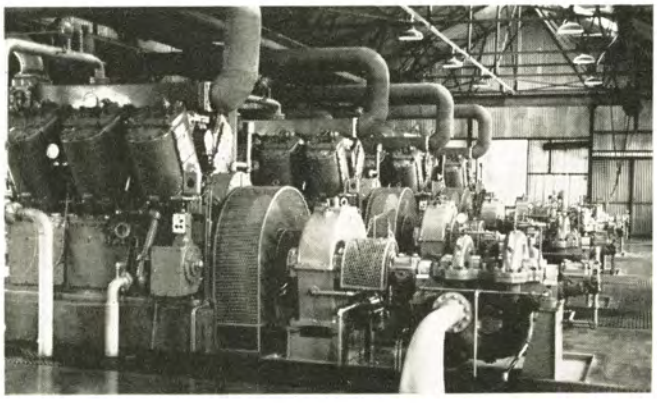


FIGURE 88

Four Lufkin M189 Speed Increasers, ratio 4:1, installed in water station, delivering 360 h.p. to centrifugal pumps at 1710 r.p.m.

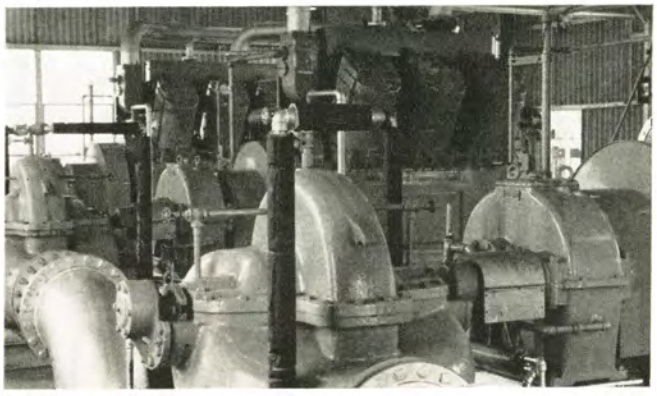


FIGURE 89

Three Lufkin S168 Units being used as Speed Increasers, delivering 400 h.p. to slow speed high volume centrifugal pumps.

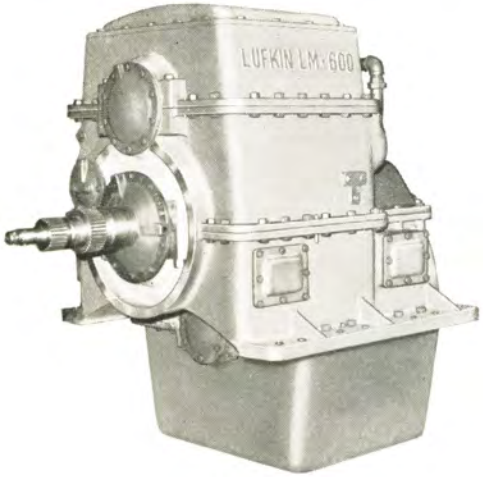


FIGURE 90

Lufkin LM600 Marine Reduction Gear; forward and reverse, 600 h.p. at 900 r.p.m.

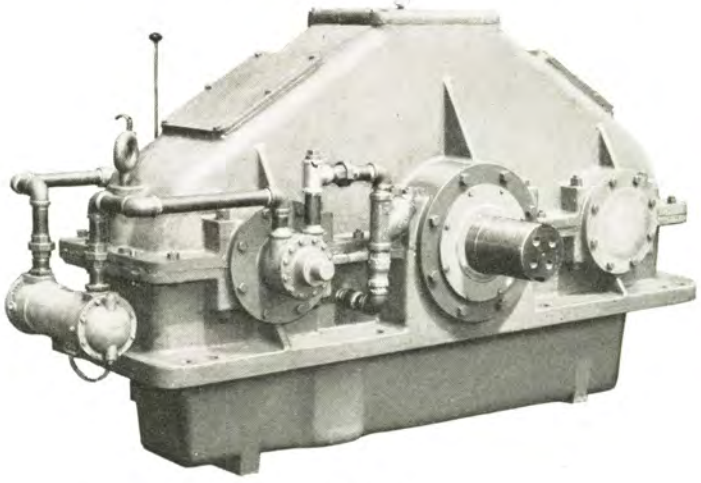


FIGURE 91

Lufkin LM698C Compound Marine Gear delivering 1100 h.p.

LUFKIN INSTALLATIONS

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

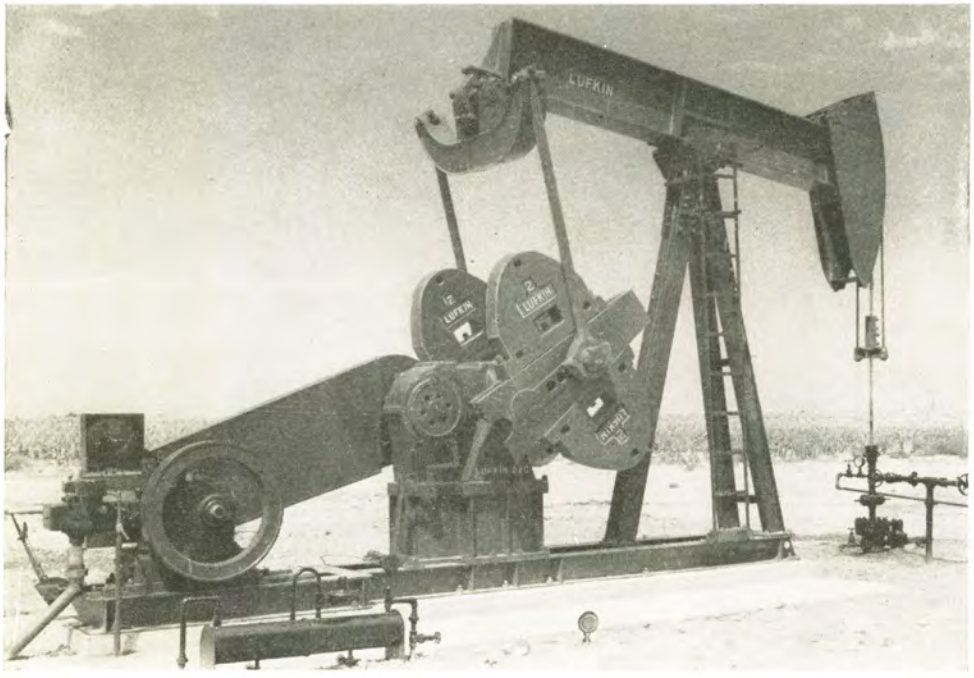


FIGURE 92

Lufkin C-160D-64-23 Twin Crank Pumping Unit with sub-base and single cylinder engine set on jointed base. Custom built engine extension bases available for all prime movers.

FIGURE 93

Lufkin A-320D-100-32 Air Balanced Pumping Unit with electric motor drive and motor driven compressor.

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LUFKIN

EQUIPMENT OF ADVANCED DESIGN