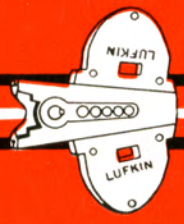
LUFKIN OIL FIELD EQUIPMENT

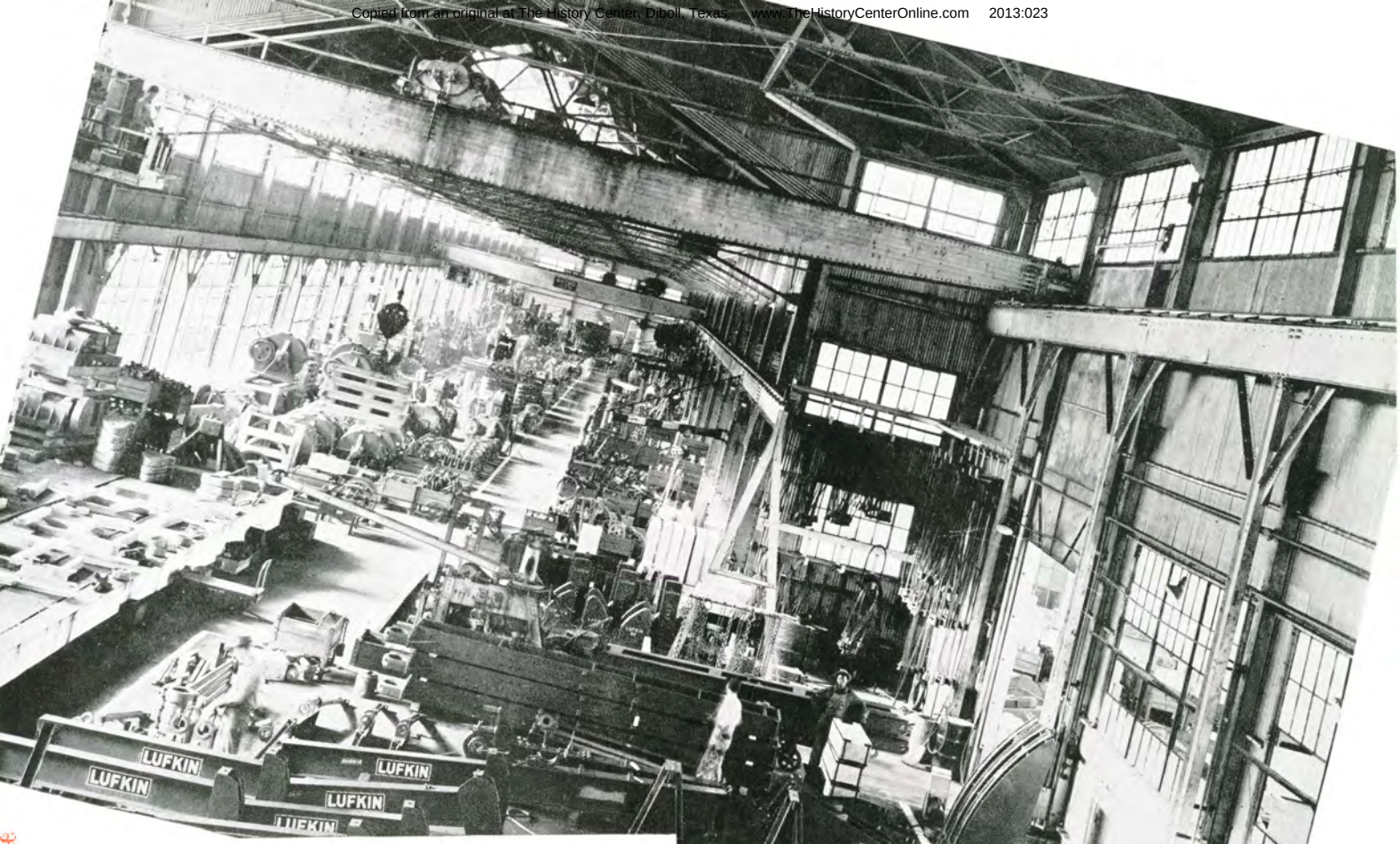


CATALOG 44

Featuring the

LUFKIN *Universal* PUMPING UNIT

LUFKIN FOUNDRY & MACHINE COMPANY • LUFKIN, TEXAS



Upper, view of main bay machine shop looking from assembly floor end.

Lower, view taken from casting entrance end. High speed production tools located in side bays.

LUFKIN FOUNDRY & MACHINE CO.

FACTORY AND GENERAL OFFICES

LUFKIN, TEXAS

BRANCH OFFICES AND WAREHOUSES

GULF COAST DIVISION
Houston, Texas
706 2nd Nat'l Bank Bldg.
Phone Preston 8610

WAREHOUSE
Alice, Texas
Phone 395

EXPORT DIVISION
New York, N. Y.
149 Broadway
Cable address "LUFFO"
Phone Barclay 70562

CALIFORNIA DIVISION
Los Angeles, California
5959 South Alameda
Phone Lafayette 1201
Bakersfield Warehouse,
30th and M Streets,
Bakersfield, California

EAST TEXAS DIVISION
Kilgore, Texas
Phone 875
P. O. Box 871

MID-CONTINENT DIVISION
Tulsa, Oklahoma
719 Thompson Bldg.
Phone 30204

WAREHOUSE
Seminole, Oklahoma
Phone 8435

KANSAS DIVISION
Great Bend, Kansas
Phone 1044

DALLAS OFFICE
1317 Magnolia Bldg.
Phone 2-5834

WAREHOUSE
Odessa, Texas
Phone216

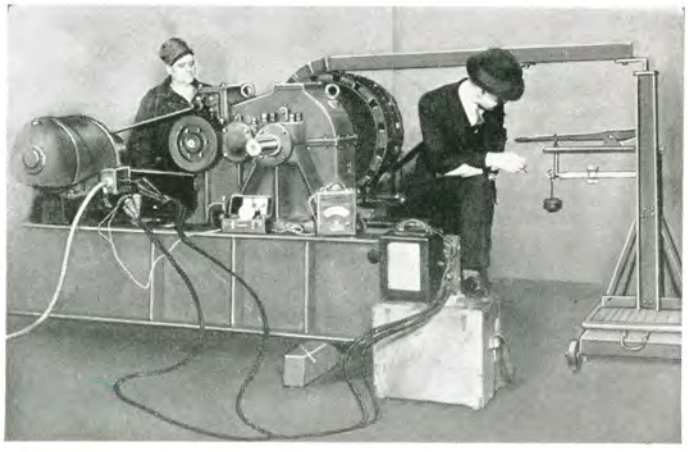
ILLINOIS
Salem
Box 306
Phone 5571

INTRODUCTION

Twenty-one years ago LUFKIN manufactured and installed the first geared pumping unit ever to pump a deep well. Today thousands of LUFKIN units are operating successfully in oil fields all over the world. LUFKIN has pioneered a large majority of the steady improvements in pumping equipment during this time. LUFKIN introduced the first rotary counterbalanced crank and furnished the first unit with a brake, also was the first to develop an oil bath, dust-proof pitman bearing, head and tail bearing, and center iron bearing. LUFKIN introduced the first one hundred per cent center line bearing walking beam and equalizer, and, because of patents, are the only concern able to furnish them today.

Being located close to many producing areas has enabled our engineers to keep in close touch with the performance of our equipment. It has been possible to continually watch details, which many times result in success or failure in practical operation.

Our plant is completely equipped with the finest machine tools obtainable anywhere. We invite you to visit our plant and see for yourself why LUFKIN is still leading after all these years.



Testing Lufkin Units.

EVERY LUFKIN GEAR IS RUN UNDER PRONY BRAKE LOAD

THE TROUT CRANK

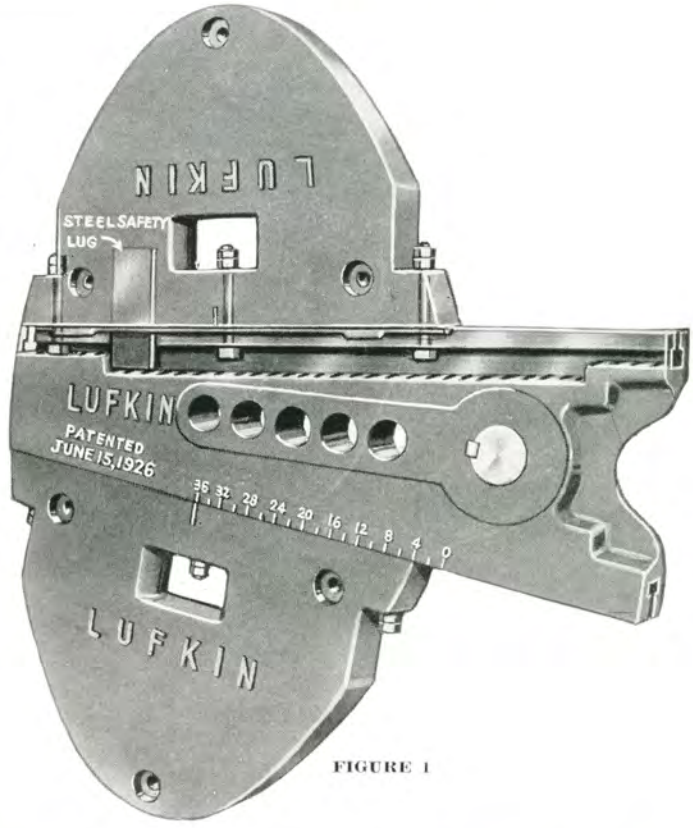
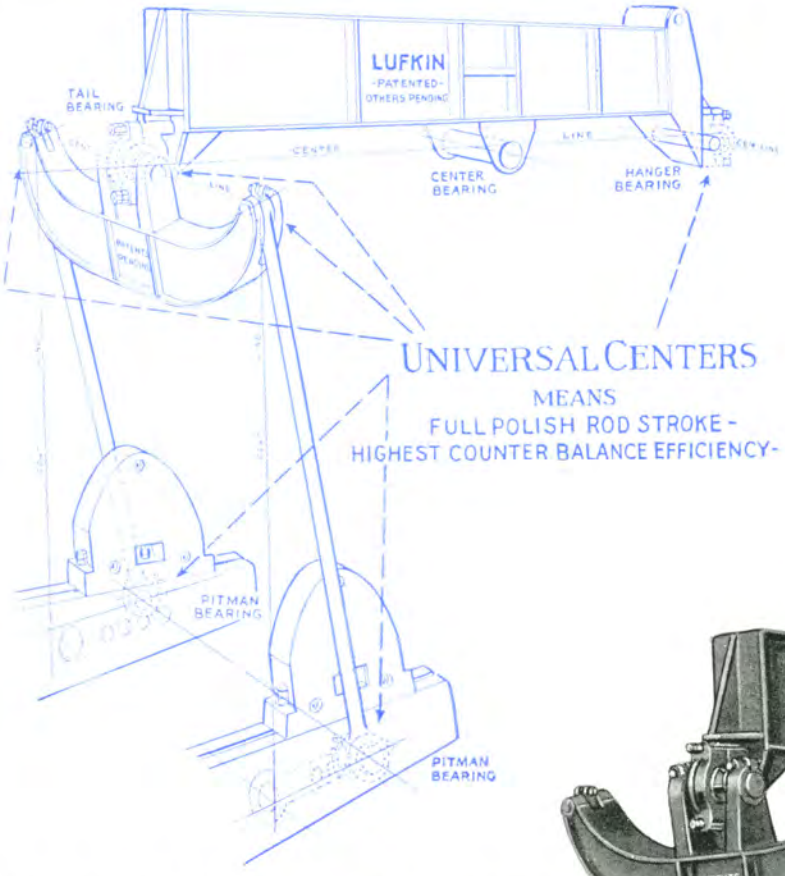


FIGURE 1

The Trout crank is widely recognized as the finest counterbalance for pumping oil wells. The outstanding features are as follows:

1. It is simple and easy to adjust to any point between zero and maximum counterbalance.
2. Lead or lag is readily obtainable.
3. Safety. It is impossible for weights to slide off on account of steel lug cast in the weights.
4. The short radius of gyration reduces bearing pressure at the crank shaft.
5. It is not necessary to send a truck to the tool house or supply store for additional counterweights every time a well load increases.
6. One man can balance the well with a LUFKIN unit and a Trout crank.



THE LUFKIN UNIVERSAL CENTER LINE UNITS

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

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

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

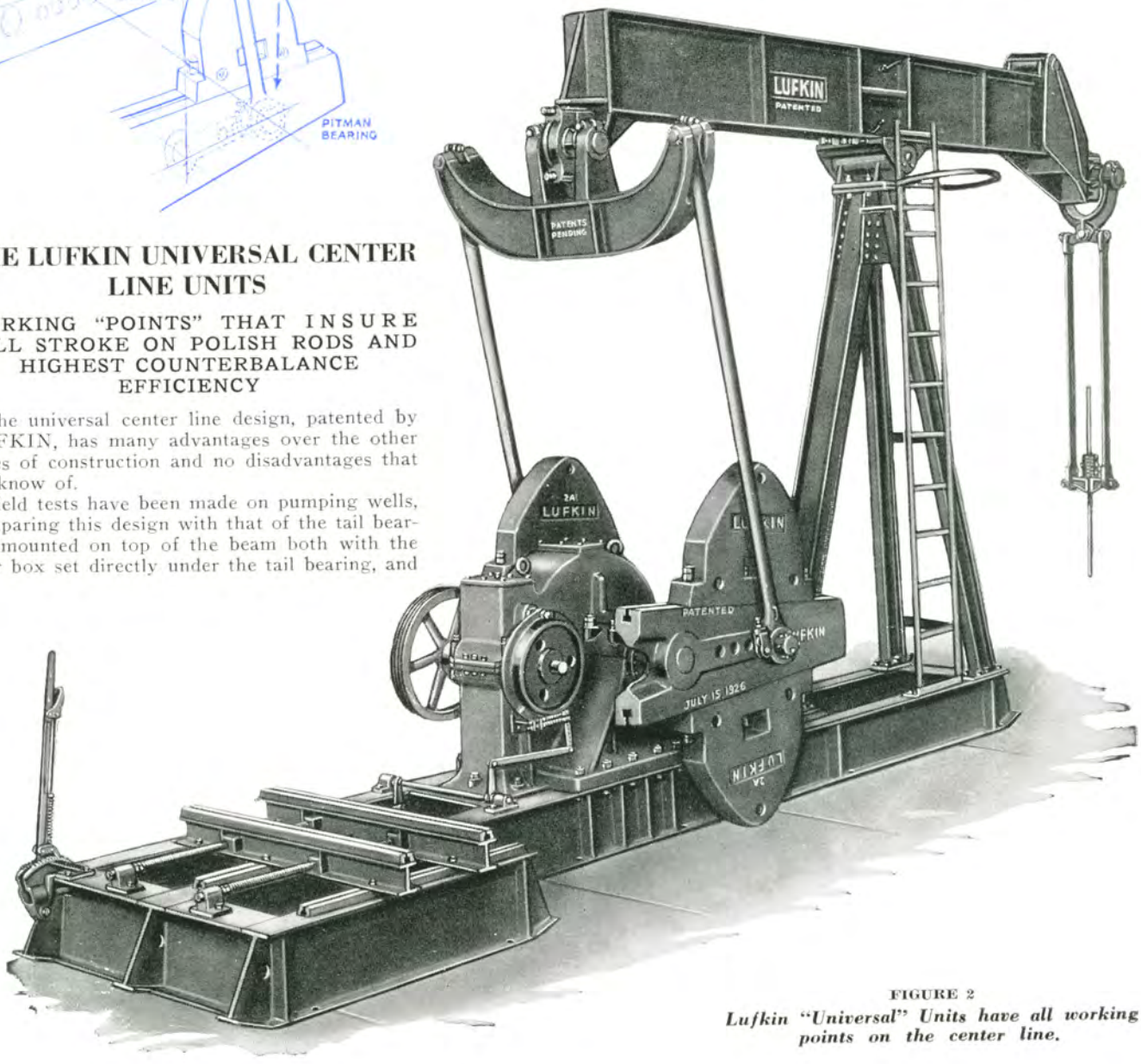


FIGURE 2

Lufkin "Universal" Units have all working points on the center line.

LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

LUFKIN UNIVERSAL TC-0A UNIT ASSEMBLIES—30,000 Lb. Polish Rod Load

WALKING BEAM: 24″ x 14″ x 130 lbs., 12′-6″ and 12′-6″ working centers, or 14′-0″ and 14′-0″ working centers.
HANGER: Centerline type, Universal, bronze bushed.
PITMAN: Universal Equalizer with bearings "in line", 4″ Heavy pipe connections, Universal lower bearings.
CENTER BEARING: No. 1AS bronze bushed, 7″ x 20″ oil bath, dust proof.
SAMSON POST: No. 13 Tripod, 13′-3″ high.
BASE: 16″ deep, 49¾″ wide at gear box.
CRANKS: No. 7472, 71½″ radius.
CRANK PINS: 5½″ x 5½″, bronze bushed, oil bath.
TAIL AND HANGER BEARINGS: 4 11/16″ x 12″ Bronze Bushed.

	TC-0A-61	TC-0A-60
GEARS	Double Reduction Main Gear, 41.6″ x 11″	Single Reduction Main Gear, 50″ x 12″
RATING	103.3H.P. at 20 S.P.M. 511,600 lb. ins. Peak Torque	85.5 H.P. at 20 S.P.M. 423,230 lb. ins. Peak Torque
RATIO	28.6	9.54
CRANKSHAFT	7″	6 15/16″
SHEAVE	34″-12C Std. 59¾″ Maximum 3 7/16″ Bore	37″-7D Std. 37″ Maximum 3 11/16″ Bore
WEIGHT	41,500 lbs.	39,735 lbs.

STATIC COUNTERBALANCE—LBS.:

Stroke	No. 1 Weights	C.I. Auxiliary Weights
34″	32,000	39,900
44″	24,750	30,850
54″	20,150	25,100
64″	17,000	21,200
74″	15,100	18,850

LUFKIN UNIVERSAL TC-1A UNIT ASSEMBLIES—25,000 Lb. Polish Rod Load

WALKING BEAM: 24″ x 14″ x 130 lbs., 12′-6″ and 12′-6″ working centers, or 14′-0″ and 14′-0″ working centers.
HANGER: Centerline type, Universal, bronze bushed.
PITMAN: Universal Equalizer with bearings "in line", 4″ Heavy pipe connections, Universal lower bearings.
CENTER BEARING: No. 1AS bronze bushed, 7″ x 20″, oil bath, dust proof.
SAMSON POST: No. 13 Tripod, 13′-3″ high.
BASE: 16″ deep, 43″ wide at gear box.
CRANKS: No. 7466, 65½″ radius.
CRANK PINS: 5½″ x 5½″, bronze bushed, oil bath.
TAIL AND HANGER BEARINGS: 4 13/16″ x 12″ Bronze Bushed.

	TC-1A-41B	TC-1A-54B
GEARS	Double Reduction Main Gear, 34″ x 10″	Single Reduction Main Gear, 47″ x 10″
RATING	57.7 H.P. at 20 S.P.M. 285,620 lb. ins. Peak Torque	67.8 H.P. at 20 S.P.M. 335,610 lb. ins. Peak Torque
RATIO	30.12	9.4
CRANKSHAFT	6 15/16″	6 15/16″
SHEAVE	24¼″-8C Std. 47¼″ Maximum 2 11/16″ Bore	34¼″-12C Std. 34¼″ Maximum 3 7/16″ Bore
WEIGHT	33,700 lbs.	33,600 lbs.

STATIC COUNTERBALANCE—LBS.:

Stroke	No. 2 Weights	C.I. Auxiliary Weights
34″	24,200	30,100
44″	18,700	23,250
54″	15,250	18,950
64″	12,850	16,000
74″	11,150	13,850

LUFKIN UNIVERSAL TC-2A UNIT ASSEMBLIES—20,000 Lb. Polish Rod Load

WALKING BEAM: 24″ x 12″ x 100 lbs., 10′-0″ and 10′-0″ working centers.
HANGER: Centerline type, Universal bronze bushed.
PITMAN: Universal Equalizer with bearings "in line", 3″ Heavy pipe connections, Universal lower bearings.
CENTER BEARING: No. 2AS, bronze bushed, 6″ x 17″, oil bath, dust proof.
SAMSON POST: No. 12 Tripod, 12′-1″, high.
BASE: 16″ Deep, 37″ wide at gear box.
CRANKS: No. 6460, 59½″ radius.
CRANK PINS: 4¾″ x 4⅝″, bronze bushed, oil bath.
TAIL AND HANGER BEARINGS: 4 1/16″ x 9¼″ Bronze Bushed.

	TC-2A-35	TC-2A-36
GEARS	Double Reduction Main Gear: 30.3″ P.D. 9″ Face	Single Reduction Main Gear: 45.4″ P.D. 8″ Face
RATING	43.2 H.P. at 20 S.P.M. 214,000 lb. ins. Peak Torque	50.4 H.P. at 20 S.P.M. 249,480 lb. ins. Peak Torque
RATIO	28.45	9.94
CRANKSHAFT	6″	6″
SHEAVE	24¼″-6″C″ Std. 41¼″ Maximum 2 7/16″ Bore	34¼″ P.D.—9″C″ Std 34¼″ P.D. Maximum 3 3/16″ Bore
WEIGHT	26,000 lbs.	25,900 lbs.

STATIC COUNTERBALANCE—LBS.:

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

LUFKIN UNIVERSAL TC-3A UNIT ASSEMBLIES—17,000 Lb. Polish Rod Load

WALKING BEAM: 21″ x 9″ x 82 lbs., 8′-0″ and 8′-0″ working centers
HANGER: Universal center line type, bronze bushed.
PITMAN: Universal Equalizer with bearings "in line", 3″ Heavy pipe connections, Universal lower bearings.
CENTER BEARING: No. 3AS bronze bushed, 6″ x 14″, oil bath, dust proof.
SAMSON POST: Tripod, 12′-0″ high.
BASE: 10″ deep, 32″ wide at gear box.
CRANKS: No. 5446, 45½″ Radius.
CRANK PINS: 4¾″ x 4⅝″, bronze bushed, oil bath.
TAIL AND HANGER BEARINGS: 4 11/16″ x 9¼″ bronze bushed.

	TC-3A-22E	TC-3A-18B
GEARS	Double Reduction Main Gear 25″ x 7⅝″	Single Reduction Main Gear 42″ x 6″
RATING	29.2 H.P. at 20 S.P.M. 144,540 lb. ins. Peak Torque	33.0 H.P. at 20 S.P.M. 163,350 lb. ins. Peak Torque
RATIO	28.67	10.5
CRANKSHAFT	5 15/16″	5 15/16″
SHEAVE	24¼″-5C Std. 38″ Maximum 2 3/16″ Bore	32¼″-6C Std. 32¼″ Maximum 2 11/16″ Bore
WEIGHT	20,700 lbs.	20,700 lbs.

STATIC COUNTERBALANCE—LBS.:

Stroke	No. 3 Regular Weights	Aux. Weights
24″	14,500	20,900
34″	10,250	14,750
44″	7,925	10,400
54″	6,450	9,300

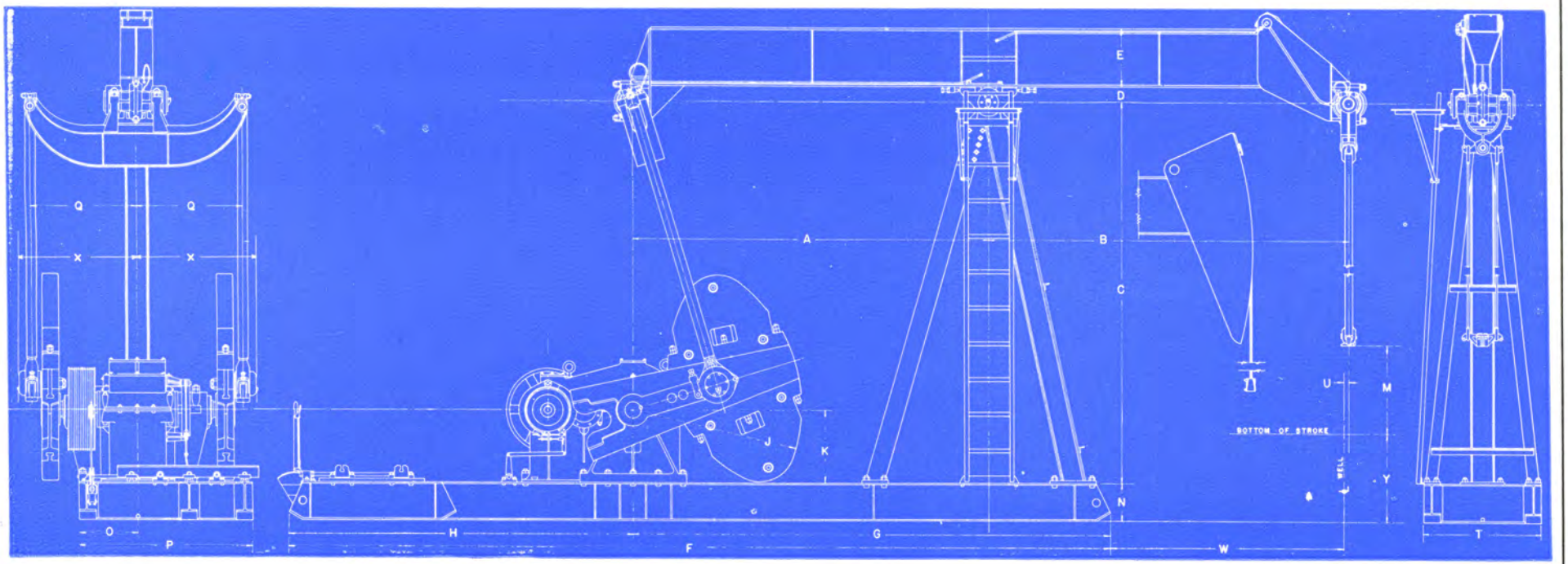


FIGURE 3

DIMENSION SHEET—LUFKIN UNITS TC-0A, 1A, 2A AND 3A

UNIT	A	B	C	D	E	F	G	H	J	K	M	N	O	P	Q	T	U	W	X	Y
TC-0A-1328-C	14′-0″	14′-2″	13′-3″	7″	24¼″	31′-6″	18′-4″	13′-2″	5′-11½″	2′-6″	3′-1″	16″	2′-1″	6′- 2″	*	4′-2″	2″	9′-8″	†	2′-9″
TC-0A-1325-C	12′-6″	12′-8¼″	13′-3″	7″	24¼″	30′-0″	16′-10″	13′-2″	5′-11½″	2′-6″	3′-1″	16″	2′-1″	6′- 2″	*	4′-2″	2¼″	8′-4¼″	†	2′-9″
TC-1A-1328-C	14′-0″	14′-2″	13′-3″	7″	24¼″	29′-6″	18′-3½″	11′-2½″	5′- 5½″	2′-4″	3′-1″	16″	21½″	5′-11″	3′- 3⅜″	3′-7″	2″	9′-8½″	3′-9¾″	2′-9″
TC-1A-1325-C	12′-6″	12′-8¼″	13′-3″	7″	24¼″	28′-0″	16′-9½″	11′-2½″	5′- 5½″	2′-4″	3′-1″	16″	21½″	5′-11″	3′- 3⅜″	3′-7″	2¼″	8′-4¾″	3′-9¾″	2′-9″
TC-2A-1020-C	10′-0″	10′-2¼″	12′-1″	6″	24″	27′-3″	13′-9″	13′-6″	4′-11½″	2′-3″	2′-8″	16″	18½″	5′-5″	2′-11 7/16″	3′-1″	2¼″	6′-5¼″	3′-5 7/16″	2′-0″
TC-3A-8216-C	8′-0″	8′-2¼″	12′-0″	6″	20⅞″	19′-4¾″	11′-2″	8′-2¾″	3′- 9½″	2′-3″	2′-3″	9⅞″	16″	4′-8½″	2′- 7 7/16″	2′-8″	2¼″	4′-10″	3′-1 7/16″	1′-10″

* For dimension "Q"—TC-0A-61—3′-8⅞″, TC-0A-60—3′4⅞″.
† For dimension "X"—TC-0A-61—4′-3¼″, TC-0A-60—3′-11¼″.

Dimensions not guaranteed for settings—request certified prints.

ALTERNATIVE SETTINGS—LUFKIN UNIT ASSEMBLIES TC-0A, 1A, 2A AND 3A

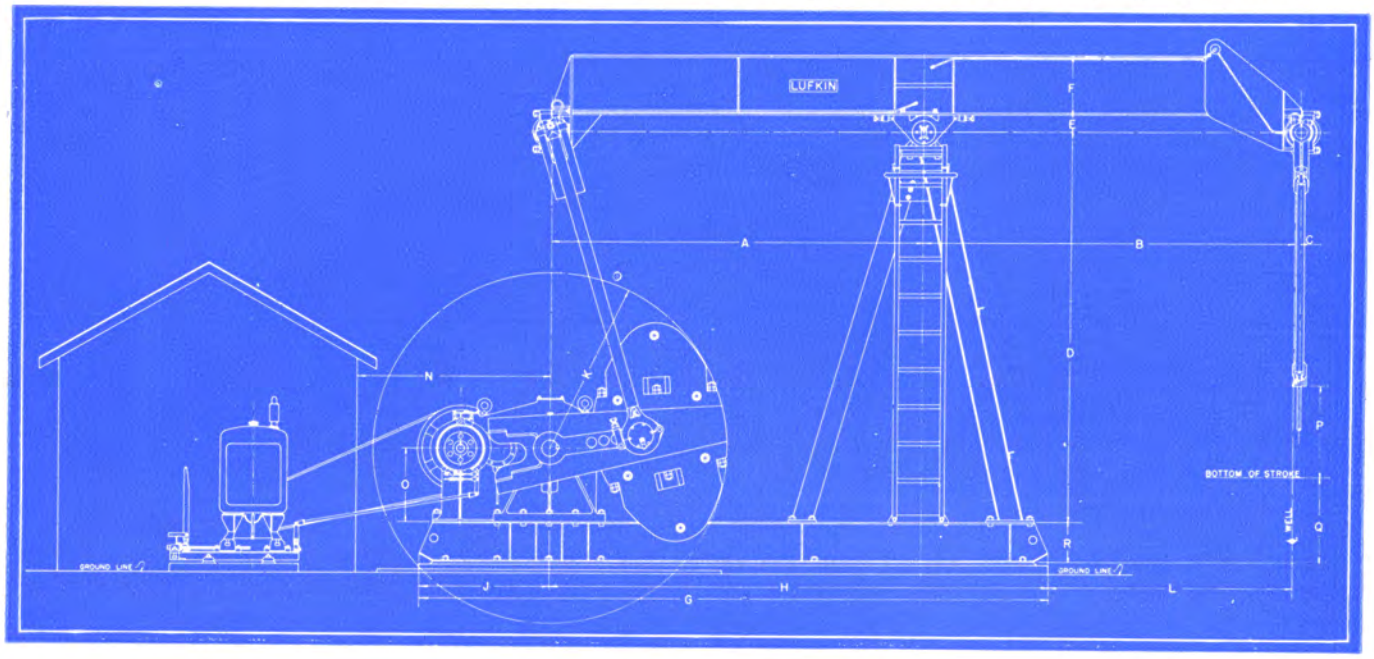


FIGURE 4

0A, 1A, 2A and 3A with Stub Base and House for Multi-Cylinder Gas Engine

LUFKIN UNIT ALTERNATIVES TC-0A, 1A, 2A AND 3A
GENERAL DIMENSIONS

Unit	A	B	C	D	E	F	G	H	J	K	L	N	O	P	Q	R
TC-0A-1328C	14′-0″	14′-0″	2″	13′-3″	7″	24″	22′-9″	18′-4″	4′-5″	5′-11½″	9′-8″	6′-6″	2′-6″	3′-1″	2′-9″	16″
TC-0A-1325C	12′-6″	12′-6″	2¼″	13′-3″	7″	24″	21′-3″	16′-10″	4′-5″	5′-11½″	8′-4¼″	6′-6″	2′-6″	3′-1″	2′-9″	16″
TC-1A-1328C....	14′-0″	14′-0″	2″	13′-3″	7″	24″	23′-7″	18′-3½″	5′-3½″	5′-5½″	9′-8½″	6′-3″	2′-4″	3′-1″	2′-9″	16″
TC-1A-1325C....	12′-6″	12′-6″	2¼″	13′-3″	7″	24″	22′-1″	16′-9½″	5′-3½″	5′-5½″	8′-4¾″	6′-3″	2′-4″	3′-1″	2′-9″	16″
TC-2A-1020C....	10′-0″	10′-0″	2¼″	12′-1″	6″	24″	18′-0″	13′-9″	4′-3″	4′-11½″	6′-5¼″	5′-6″	2′-3″	2′-8″	2′-0″	16″
TC-3A-8216C....	8′-0″	8′-0″	2¼″	12′-0″	6″	20⅞″	14′-7½″	11′-2″	3′-5½″	3′-9½″	4′-10″	4′-4″	2′-3″	2′-3″	1′-10″	9⅞″

Ask for Certified Print before making foundations.

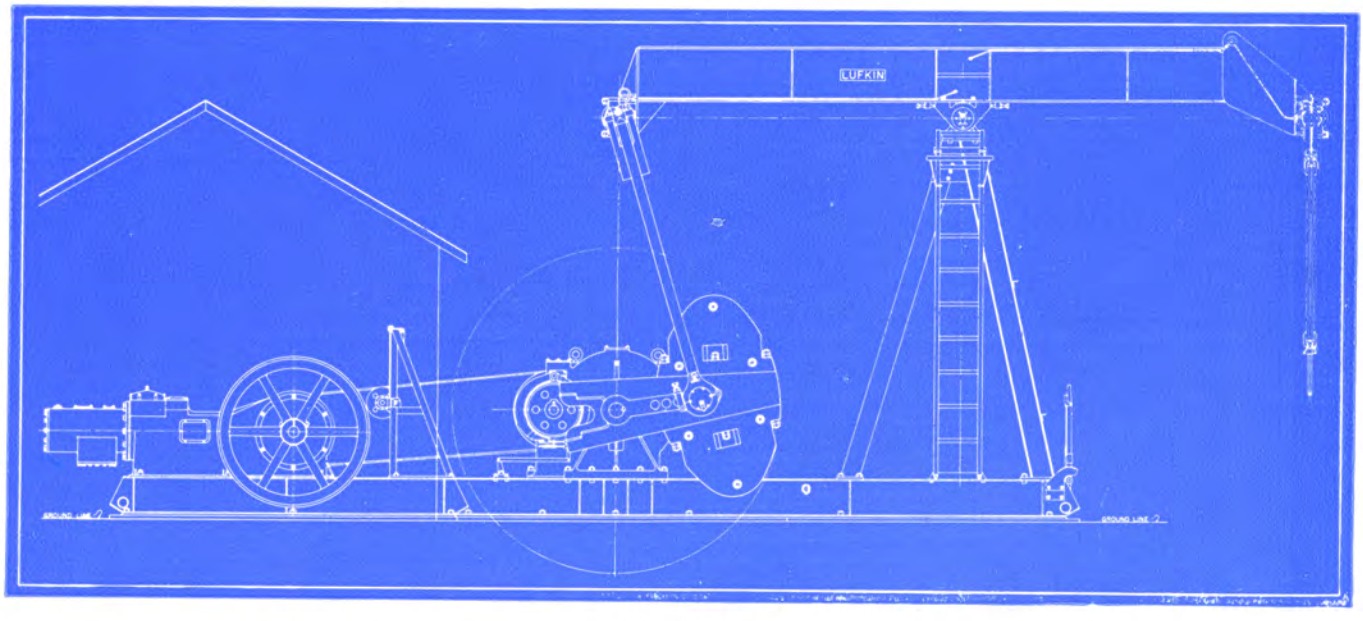


FIGURE 5

0A Unit with Long Bed Plate in Two Sections to Take Single Cylinder Engines. Also Furnished with 1A, 2A and 3A Assemblies.

LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

GENERAL SPECIFICATIONS—LUFKIN UNIT ASSEMBLIES TC2, 3, 44, AND 5C

LUFKIN UNIVERSAL TC-2 UNIT ASSEMBLIES—20,000 Lbs. Polish Rod Load (California page 1732)

WALKING BEAM: 21″ x 9″ x 82 lbs., 8′-0″ and 8′-0″ working centers.

HANGER: Hinged Horsehead with 1″ wire rope on equalizing sheave.

PITMAN: Universal Equalizer with bearings "in line", 3″ heavy pipe connections, Universal lower bearings.

CENTER BEARING: No. 2AS, bronze bushed 6″ x 17″, oil bath, dust proof.

SAMSON POST: No. 12 Tripod, 12′-1″ high.

BASE: 16″ deep, 37″ wide at gear box, 22′-1″ long.

CRANKS: No. 6456, 55½″ radius.

CRANK PINS: 4¾″ x 4⅝″ bronze bushed, oil bath.

TAIL BEARING: 4 11/16″ x 9¼″, bronze bushed.

	TC-2-35	TC-2-36
GEARS	Double Reduction Main Gear: 30.3″ P.D. 9″ Face	Single Reduction Main Gear: 45.4″ P.D. 8″ Face
RATING	43.2 H.P. at 20 S.P.M. 214,000 lb. ins. Peak Torque	50.4 H.P. at 20 S.P.M. 249,480 lb. ins. Peak Torque
RATIO	28.45	9.94
CRANKSHAFT	6″	6″
SHEAVE	24¼″-6″C″ Std. 41¼″ Maximum 2 7/16″ Bore	34¼″ P.D. 9″C″ Std. 34¼″ Maximum 3 7/16″ Bore
WEIGHT	26,000 lbs.	25,900 lbs.

STATIC COUNTERBALANCE—LBS.:

Stroke	No. 2A Wts.	Aux. Wts.	No. 2 Wts.	Aux. Wts.
24″	22,950	28,350	25,420	31,840
34″	16,200	20,000	17,950	22,470
44″	12,500	15,460	13,870	17,360
54″	10,200	12,600	11,300	14,150
64″	8,600	10,630	9,530	11,940

LUFKIN UNIVERSAL TC-3 UNIT ASSEMBLIES—17,000 Lbs. Polish Rod Load

WALKING BEAM: 18″ x 8¾″ x 64 lbs., 7′-0″ and 5′-3¼″ working centers.

HANGER: Hinged Horsehead with 1″ wire line on equalizing sheave.

PITMAN: Universal Equalizer with bearings "in line", 3″ heavy pipe connections, Universal lower bearings.

CENTER BEARING: No. 3AS bronze bushed, 6″ x 14″, oil bath, dust proof.

SAMSON POST: Tripod, 10′-4″ high.

BASE: 10″ deep, 32″ wide at gear box, 17′-1½″ long.

CRANKS: No. 4146, 45½″ radius.

CRANK PINS: 4¾″ x 4⅝″, bronze bushed, oil bath.

TAIL BEARING: 4 11/16″ x 9¼″, bronze bushed.

	TC-3-22E	TC-3-18B
GEARS	Double Reduction Main Gear 25″ x 7⅝″	Single Reduction Main Gear 42″ x 6″
RATING	29.2 H.P. at 20 S.P.M. 144,540 lb. ins. Peak Torque	33.0 H.P. at 20 S.P.M. 163,350 lb. ins. Peak Torque
RATIO	28.67	10.5
CRANKSHAFT	5 7/16″	5 7/16″
SHEAVE	24¼″-5C Std. 38″ Maximum 2 7/16″ Bore	32¼″-6C Std. 32¼″ Maximum 2 11/16″ Bore
WEIGHT	19,300 lbs.	19,300 lbs.

STATIC COUNTERBALANCE—LBS.:

Stroke	No. 3 Reg. Wts.	C.I. Kidney Aux. Wts.
27.9″	12,550	18,050
41.2″	8,500	12,250
54″	6,450	9,300

LUFKIN UNIVERSAL TC-44 UNIT ASSEMBLIES—13,500 Lbs. Polish Rod Load

WALKING BEAM: 16″ x 8½″ x 58 lbs., 6′-0″ and 6′-0″ working centers.

HANGER: Hinged Horsehead with ⅞″ wire line on equalizing sheave.

PITMAN: Universal Equalizer with bearings "in line", 2½″ heavy pipe connections, Universal lower bearings.

CENTER BEARING: No. 4AS, bronze bushed, 5″ x 10½″, oil bath, dust proof.

SAMSON POST: Tripod, 8′-9½″ high.

BASE: 8″ deep, 25″ wide at gear box, 16′-1¼″ long.

CRANKS: No. 4846, 46″ radius.

CRANK PINS: 3¾″ x 3½″, bronze bushed, oil bath.

TAIL BEARING: 3 11/16″ x 7¼″, bronze bushed.

	TC-44-15	TC-44-24
GEARS	Double Reduction Main Gear: 24″ P.D. 6¼″ Face	Single Reduction Main Gear: 36¼″ P.D. 5½″ Face
RATING	19.8 H.P. at 20 S.P.M. 98,000 lb. ins. Peak Torque	24.6 H.P. at 20 S.P.M. 121,750 lb. ins. Peak Torque
RATIO	29.4	9.67
CRANKSHAFT	4 7/16″ Diameter	4 7/16″ Diameter
SHEAVE	19¼″-4C Std. 33¼″ Maximum 1 15/16″ Bore	28″-6C Std. 28″ Maximum 2 11/16″ Bore
WEIGHT	13,940 lbs.	13,940 lbs.

STATIC COUNTERBALANCE—LBS.:

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

LUFKIN UNIVERSAL TC-5C UNIT ASSEMBLIES—10,000 Lbs. Polish Rod Load

WALKING BEAM: 14″ x 8″ x 43 lbs., 5′-0″ and 5′-0″ working centers.

HANGER: Removable Horsehead with ¾″ wire line.

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

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

SAMSON POST: Tripod, 8′-0″ high.

BASE: 6″ deep, 25″ wide at gear box, 14′-5″ long.

CRANKS: No. 4242C, 42″ radius.

CRANK PINS: 3¾″ x 3½″, bronze bushed, oil bath.

TAIL BEARING: 3 7/16″ x6½″, bronze bushed.

	TC-5C-7B	TC-5C-16
GEARS	Double Reduction Main Gear 19½″ x 5″	Single Reduction Main Gear 32½″ x 4″
RATING	11.1 H.P. at 20 S.P.M. 54,945 lb. ins. Peak Torque	14.7 H.P. at 20 S.P.M. 72,685 lb. ins. Peak Torque
RATIO	29.32	10
CRANKSHAFT	4″	4″
SHEAVE	19¼″ 3-C Std. 27¼″ Maximum 1 11/16″ Bore	24″ 5-C Std. 24″ Maximum 2 7/16″ Bore
WEIGHT	8,500	8,170

STATIC COUNTERBALANCE—LBS.

Stroke	No. 5C Wts.	With Aux. Wts.
22″	8,860	12,950
32″	6,090	8,925
42″	4,640	6,800

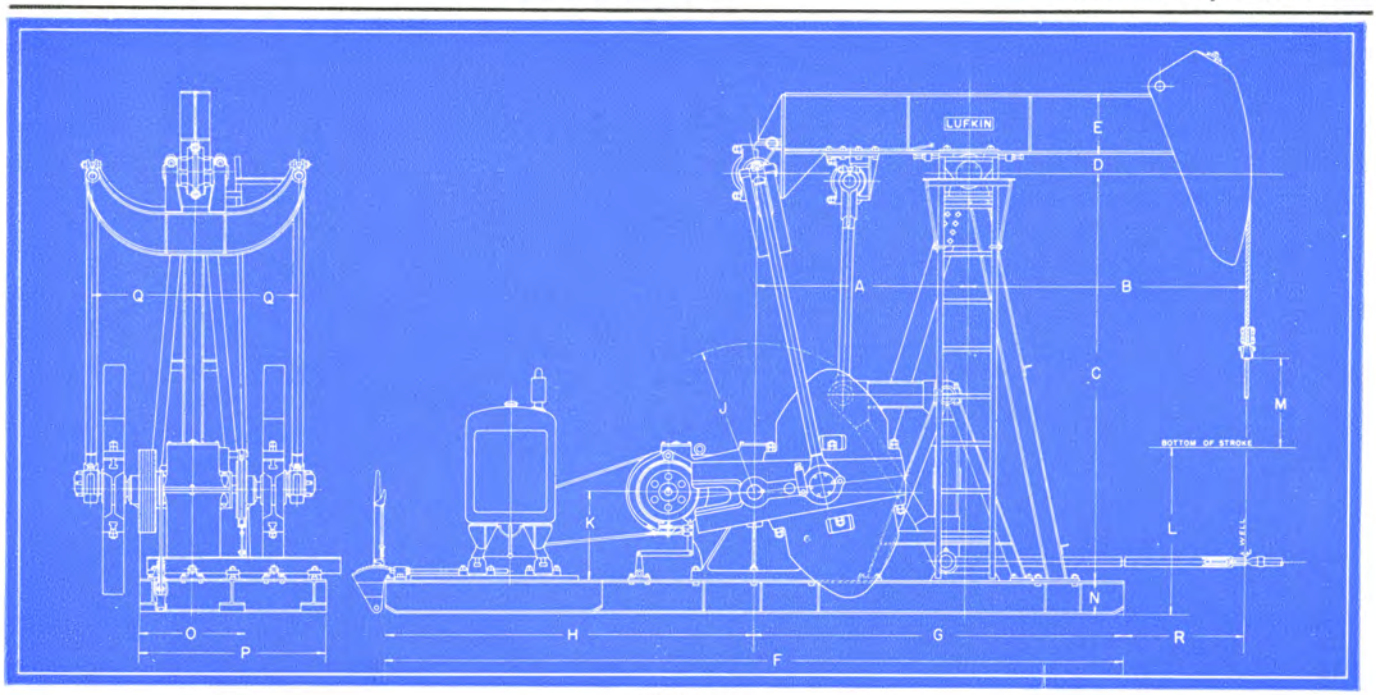


FIGURE 6

Standard Assembly illustrating bell-crank connection for one additional well, applicable to the TC-2, 3, 44 and 5C assemblies. Furnished at Extra Cost.

LUFKIN UNIT ASSEMBLIES TC-2, 3 AND 44

GENERAL DIMENSIONS

UNIT	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R
TC-2	8′-0″	8′-0″	12′-1″	6″	21″	22′-1″	11′-9″	10′-4″	4′-7½″	2′-3″	5′-0½″	2′-8″	16″	3′-1″	5′-5″	2′-11 7/16″	4′-3″
TC-3	5′-3¼″	7′-0″	10′-4″	6″	18″	17′-1½″	8′-10¾″	8′-2¾″	3′-9½″	2′-3″	5′-2½″	2′-3″	10″	2′-8″	4′-8½″	2′-7 7/16″	3′-4½″
TC-44	6′-0″	6′-0″	8′-9½″	6″	15⅞″	16′-1¼″	7′-9¼″	8′-4″	3′-10″	18″	3′-5½″	24″	8″	2′-1″	4′-1″	2′-4 1/16″	4′-2¾″

Ask for certified print before making foundation. Note: TC-44 has Trout Simplified Cranks.

ALTERNATIVE FEATURES

Lufkin TC-2, 3 and 44 assemblies with Stub Base and Gas Engine Drive.

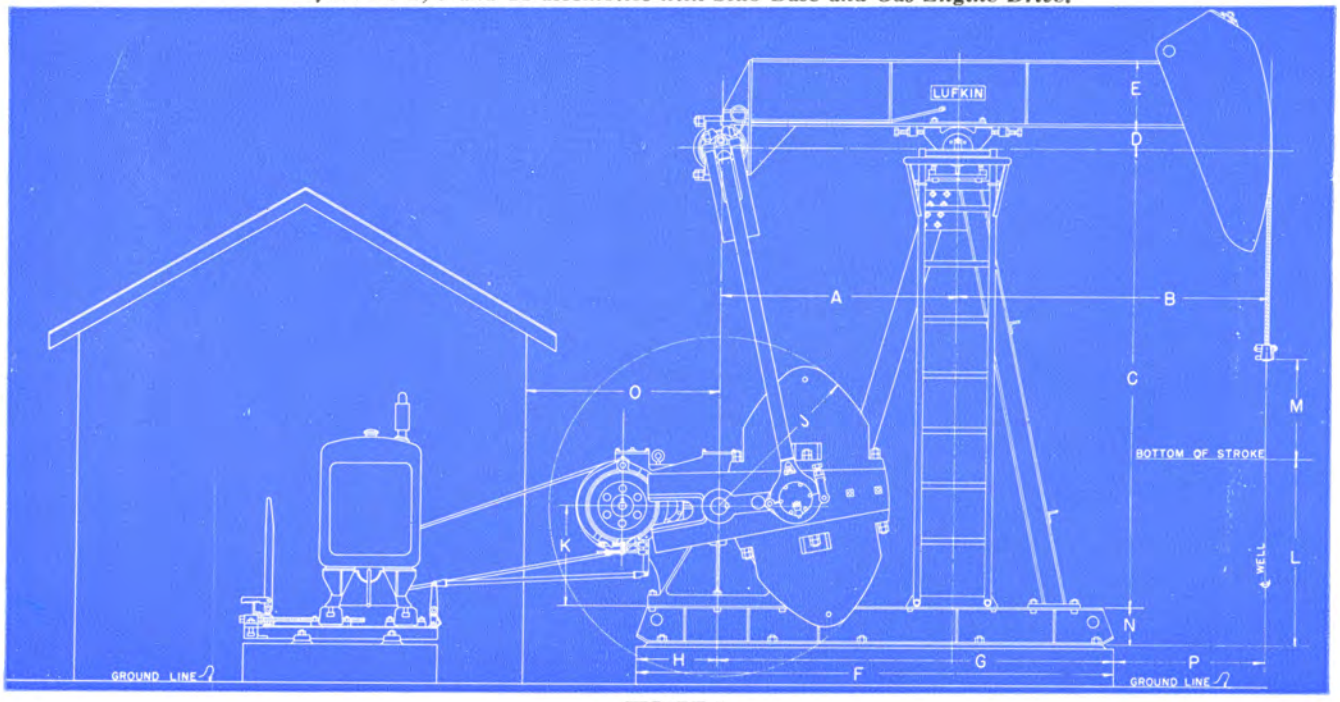
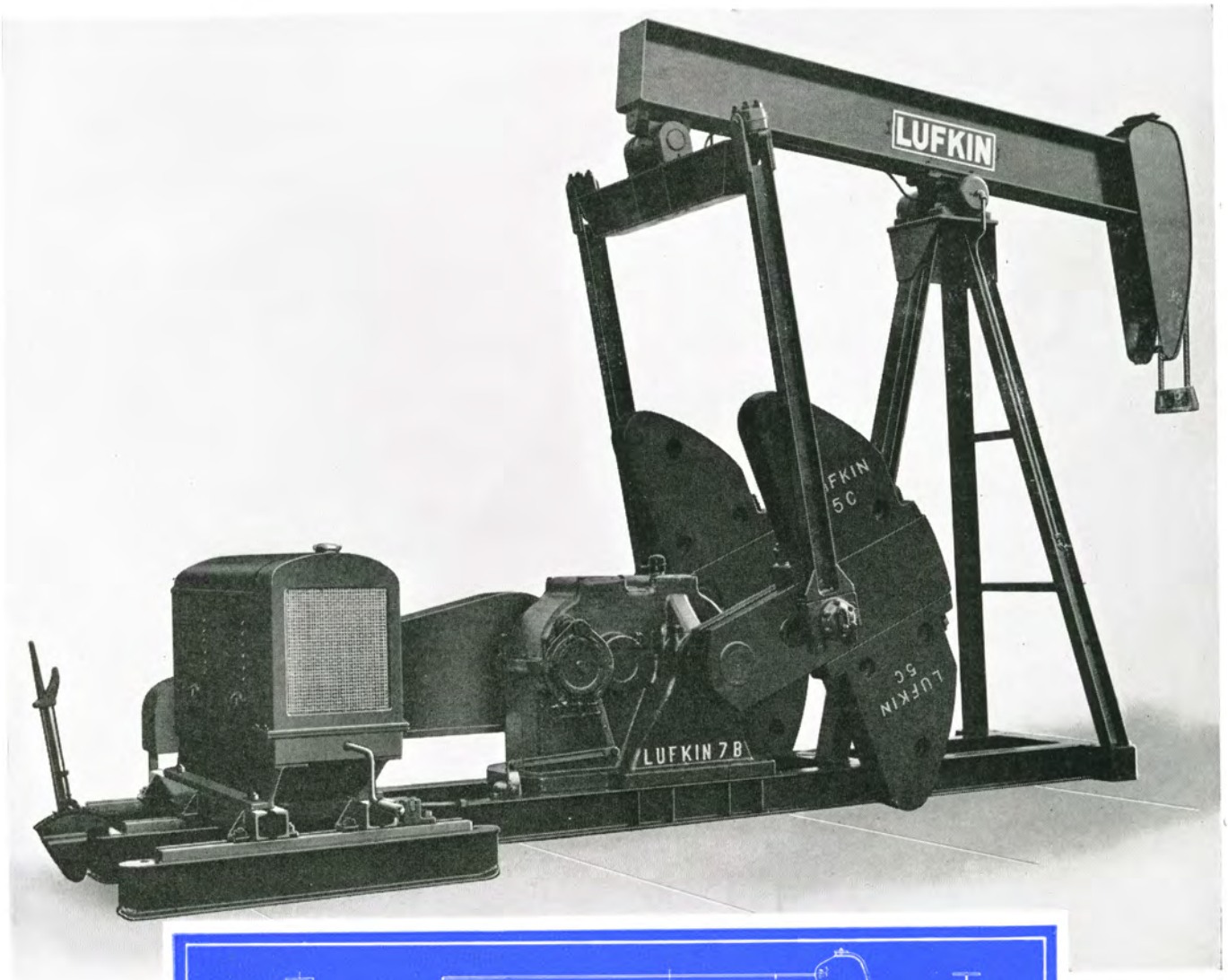


FIGURE 7

UNIT	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
TC-2	8′-0″	8′-0″	12′-1″	6″	21″	14′- 0″	11′-9″	2′- 3″	4′- 7½″	2′-3″	5′-0½″	2′-8″	16″	5′-6″	4′- 3″
TC-3	5′-3¼″	7′-0″	10′-4″	6″	18″	11′-10¾″	8′-5¼″	3′- 5½″	3′- 9½″	2′-3″	5′-2½″	2′-3″	10″	4′-4″	3′-10″
TC-44	6′-0″	6′-0″	8′-9½″	6″	15⅞″	10′- 7¼″	7′-9¼″	2′-10″	3′-10″	18″	3′-6½″	24″	8″	4′-4″	4′- 2¾″

LUFKIN TC-5-C ASSEMBLY



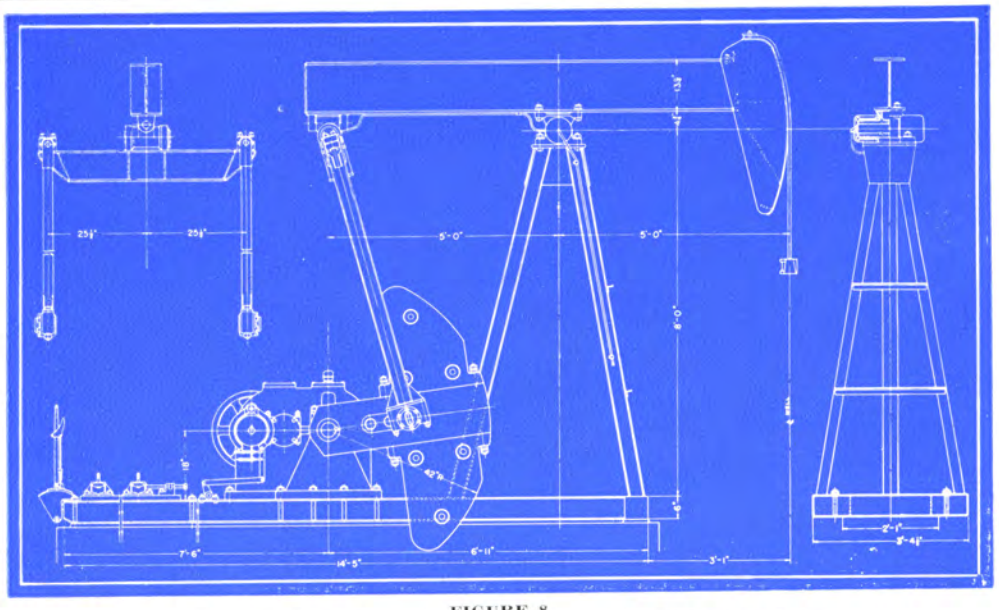
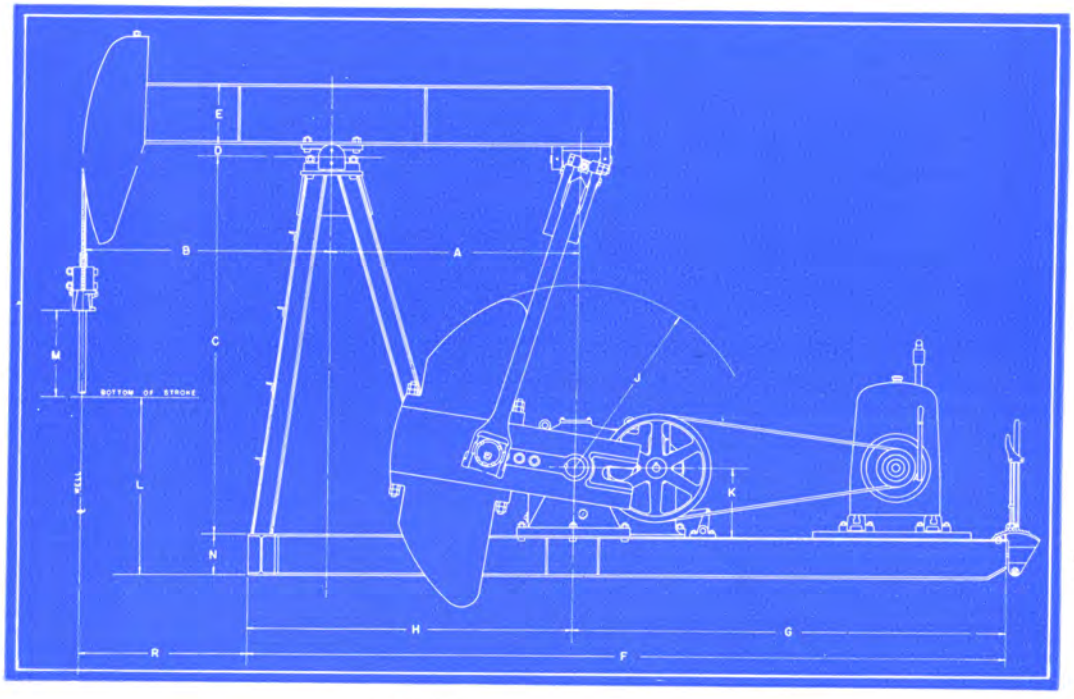
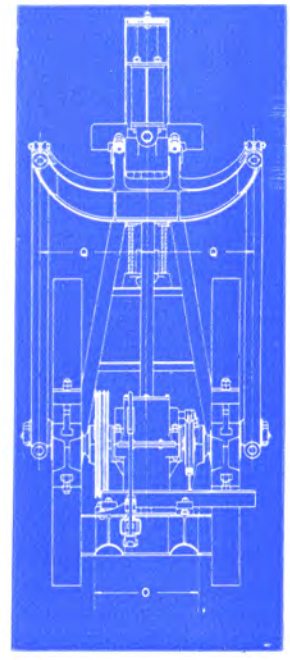


FIGURE 8
The Lufkin TC-5-C Assembly Dimension Drawing.

For specifications see page 1728

GENERAL DATA CONCERNING THE LUFKIN TC-66-5A AND TC-77-3 UNIT ASSEMBLIES





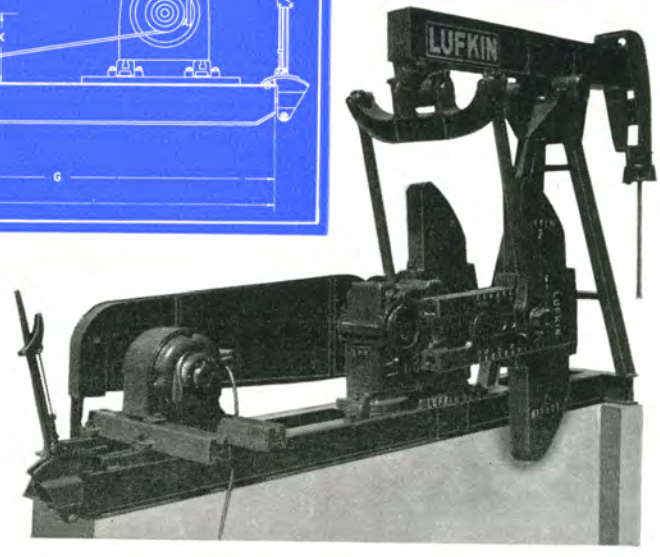


FIGURE 9

Detail Drawing Lufkin TC-66-5A and 77-3

SCHEDULE OF TABULATED DIMENSIONS

Unit	A	B	C	D	E	F	G	H	J	K	L	M	N	O	Q	R
TC-77-3 Unit	3′-6″	3′-6″	5′-3″	2¼″	9⅞″	11′-0″	6′-4″	4′-8″	32″	14″	3′-0¼″	12″	6¼″	17″	17⅛″	2′-4″
TC-66-5A Unit	4′-0″	4′-0″	6′-2⅞″	2¼″	12″	12′-3″	7′-0″	5′-3″	36″	14″	2′-9¾″	17″	8″	20″	20¾″	2′-9″

SPECIFICATIONS—Lufkin Universal TC-66-5A and TC-77-3 Unit Assemblies

HANGER: Removable Horsehead with ¾″ Wire Line.

PITMAN: Universal Equalizer with Bearings "in line", Malleable Iron Side Members of "I" Section, Universal Lower Bearing.

CENTER BEARING: Bronze Bushed, Oil Bath, 2 13/16″ x 10½″

BRAKE: Double Shoe with Locomotive Type Control Lever.

STATIC COUNTERBALANCE—LBS.

	TC-66-5A		TC-77-3	
Stroke	With No. 6 Weights	With Aux. Weights	Stroke	With No. 7 Weights
16	8,480	10,700	12	6,200
22	6,160	7,780	18	4,125
28	4,850	6,115	24	3,100
34	3,985	5,040		

	TC-66-5A	TC-77-3
GEARS	Double Reduction Main Gear 15″ x 4″	Double Reduction Main Gear 13″ x 3⅜″
RATING	6.5 Nominal H.P. at 20 S.P.M. 32,140 lb. ins. Peak Torque	4.1 Nominal H.P. at 20 S.P.M. 20,400 lb. ins. Peak Torque
RATIO	24.97	29.46
CRANKSHAFT	3 7/16″	3″
CRANKS	3436-36″ Radius	2432-32″ Radius
POLISH ROD CAP.	8,000 lbs.	6,000 lbs.
SHEAVE	21″ P.D.—3-B Grooves	17½″ P.D.—3A Grooves
BELTS	136 B	128 A
WALKING BEAM	12″ x 6½″ x 28 lbs.; 4′-0″ and 4′-0″ Working Centers	9⅞″ x 5¾″ x 21 lbs. 42″ x 42″ Working Centers
SAMSON POST	Tripod: 6′-2⅞″ High	Tripod: 5′-3″ High
BASE	8″ Deep, 20″ Wide at Gear Box, 12′-3″ long	6″ Deep, 17″ Wide at Gear Box, 11′-0″ long
FOUNDATION BOLTS	14—⅞″	12—¾″
WEIGHT	6,875 lbs.	4,600 lbs.

STANDARD CALIFORNIA STOCK ASSEMBLIES
GENERAL SPECIFICATIONS — LUFKIN UNIT ASSEMBLIES TC-1, 2, 3 AND 44

LUFKIN UNIVERSAL TC-1-41B UNIT ASSEMBLIES—25,000 Lbs. Polish Rod Load

WALKING BEAM: 24″ x 14″ x 130 lbs., 10′-0″ and 10′-0″ working centers.
HANGER: Hinged Horsehead with 1″ wire rope on equalizing sheave.
PITMAN: Universal Equalizer with bearings "in line", 4″ heavy pipe connections, Universal lower bearings.
CENTER BEARING: No. 1AS bronze bushed, 7″ x 20″, oil bath, dust proof.
SAMSON POST: No. 13 Tripod, 13′-3″ high.
BASE: 16″ deep, 43″ wide at gear box.
CRANKS: No. 7472, 71½″ radius.
CRANK PINS: 5½″ x 5½″, bronze bushed, oil bath.
TAIL AND HANGER BEARINGS: 4 13/16″ x 12″ bronze bushed.

	TC-1-41B
GEARS	Double Reduction Main Gear: 34″ x 10″
RATING	57.7 H.P. at 20 S.P.M. 285,620 lb. ins. Peak Torque
RATIO	30.12
CRANKSHAFT	6 7/16″
SHEAVE	19¼″ P.D.-8C Std. 47¼″ P.D. Maximum 2 13/16″ Bore
WEIGHT	#2 Wts., 34,350 lbs.; #1 Wts., 35,800 lbs.

STATIC COUNTERBALANCE—LBS.

Stroke	No. 2 Wts.	Aux. Wts.	No. 1 Wts.	Aux. Wts.
34″	28,960	35,660	32,000	39,900
44″	22,400	27,560	24,750	30,850
54″	18,240	22,420	20,150	25,100
64″	15,400	18,950	17,000	21,200
74″	13,320	16,400	15,100	18,850

LUFKIN UNIVERSAL TC-2-35 UNIT ASSEMBLIES—20,000 Lbs. Polish Rod Load

WALKING BEAM: 21″ x 9″ x 82 lbs., 8′-0″ and 8′-0″ working centers.
HANGER: Hinged Horsehead with 1″ wire rope on equalizing sheave.
PITMAN: Universal Equalizer with bearings "in line", 3″ heavy pipe connections, Universal lower bearings.
CENTER BEARING: No. 2AS, bronze bushed, 6″ x 17″, oil bath, dust proof.
SAMSON POST: No. 12 Tripod, 12′-1″ high.
BASE: 16″ deep, 37″ wide at gear box, 22′-1″ long.
CRANKS: No. 6460, 59½″ radius.
CRANK PINS: 4¾″ x 4⅝″ bronze bushed, oil bath.
TAIL BEARING: 4 13/16″ x 9¼″, bronze bushed.

	TC-2-35
GEARS	Double Reduction Main Gear: 30.3″ P.D. 9″ Face
RATING	43.2 H.P. at 20 S.P.M. 214,000 lb. ins. Peak Torque
RATIO	28.45
CRANKSHAFT	6″
SHEAVE	19¼″ P.D.-6 C Std. 41¼″ P.D. Maximum 2 7/16″ Bore
WEIGHT	27,450 lbs.

STATIC COUNTERBALANCE—LBS.

Stroke	No. 2 Wts.	Aux. Wts.
24″	28,800	35,950
34″	20,350	25,350
44″	15,700	19,600
54″	12,800	15,950
64″	10,800	13,500

LUFKIN UNIVERSAL TC-3-22E UNIT ASSEMBLIES—17,000 Lbs. Polish Rod Load

WALKING BEAM: 18″ x 8¾″ x 64 lbs., 7′-0″ and 5′-3¾″ working centers.
HANGER: Hinged Horsehead with 1″ wire line on equalizing sheave.
PITMAN: Universal Equalizer with bearings "in line", 3″ heavy pipe connections, Universal lower bearings.
CENTER BEARING: No. 3AS bronze bushed, 6″ x 14″, oil bath, dust proof.
SAMSON POST: Tripod, 10′-4″ high.
BASE: 10″ deep, 32″ wide at gear box, 17′-1½″ long.
CRANKS: No. 4152, 41½″ radius.
CRANK PINS: 4¾″ x 4⅝″, bronze bushed, oil bath.
TAIL BEARING: 4 13/16″ x 9¼″, bronze bushed.

	TC-3-22E
GEARS	Double Reduction Main Gear: 25″ x 7⅝″
RATING	29.2 H.P. at 20 S.P.M. 144,540 lb. ins. Peak Torque
RATIO	28.67
CRANKSHAFT	5 7/16″
SHEAVE	19¼″ P.D.-5C Std. 38″ P.D. Maximum 2 7/16″ Bore
WEIGHT	19,300 lbs.

STATIC COUNTERBALANCE—LBS.

Stroke	No. 3 Wts.	Aux. Wts.	Crank End Wts.
27.9″	15,820	19,600	20,450
41.2″	10,720	13,300	13,875
54″	8,200	10,150	10,600

LUFKIN UNIVERSAL TC-44-15 UNIT ASSEMBLIES—13,500 Lbs. Polish Rod Load

WALKING BEAM: 16″ x 8½″ x 58 lbs., 6′-0″ and 6′-0″ working centers.
HANGER: Hinged Horsehead with ⅞″ wire line on equalizing sheave.
PITMAN: Universal Equalizer with bearings "in line", 2½″ heavy pipe connections, Universal lower bearings.
CENTER BEARING: No. 4AS, bronze bushed, 5″ x 10½″, oil bath, dust proof.
SAMSON POST: Tripod, 9′-9½″ high.
BASE: 8″ deep, 25″ wide at gear box, 16′-1¼″ long.
CRANKS: No. 4846, 46″ radius.
CRANK PINS: 3¾″ x 3½″, bronze bushed, oil bath.
TAIL BEARING: 3 13/16″ x 7¼″, bronze bushed.

	TC-44-15
GEARS	Double Reduction Main Gear: 24″ P.D. 6¼″ Face
RATING	19.8 H.P. at 20 S.P.M. 98,000 lb. ins. Peak Torque
RATIO	29.4
CRANKSHAFT	4 7/16″ Diameter
SHEAVE	19¼″ P.D.-4C Std. 33¼″ P.D. Maximum 1 13/16″ Bore
WEIGHT	13,940 lbs.

STATIC COUNTERBALANCE—LBS.

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

CALIFORNIA STOCK ASSEMBLIES

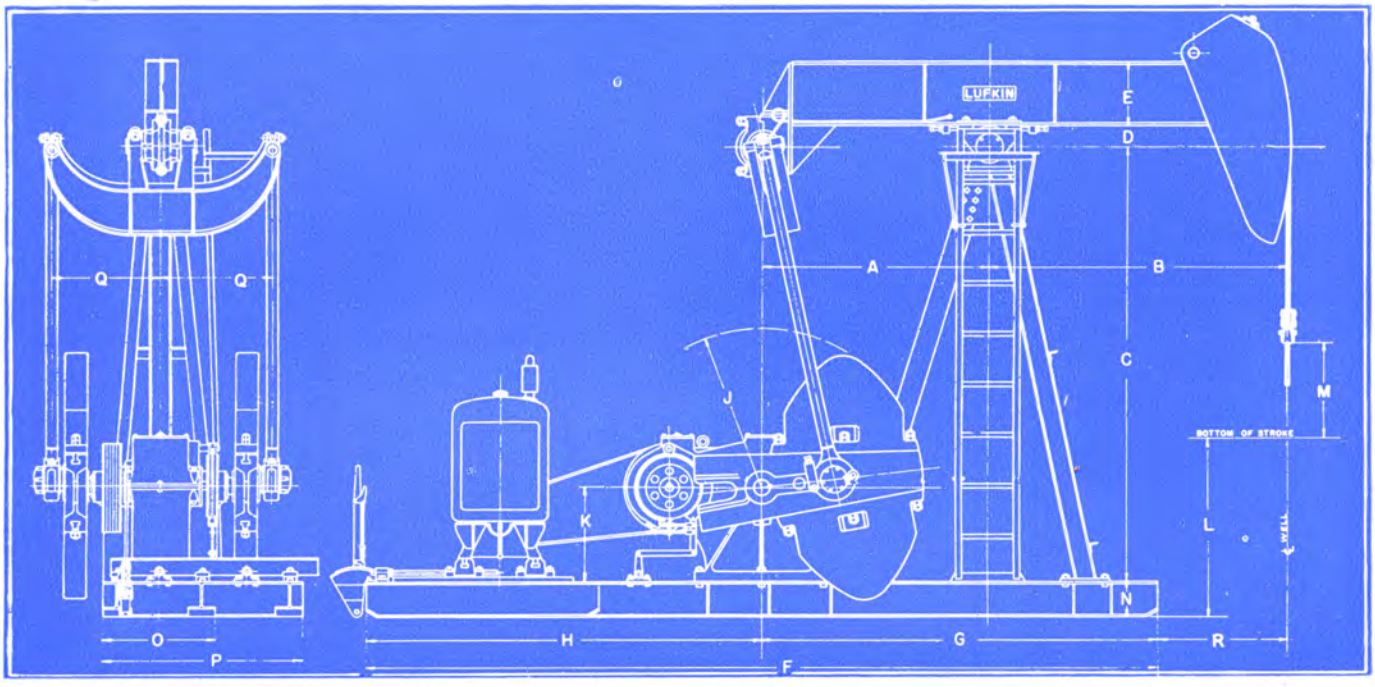


FIGURE 10

LUFKIN UNIT ASSEMBLIES TC-1, 2, 3 AND 44 (CALIFORNIA)

GENERAL DIMENSIONS

Unit	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R
TC-1	10′-0″	10′-0″	13′-3″	7″	24¼″	25′-10″	14′-6″	11′-4″	5′-11½″	2′-4″	6′-6½″	3′-0″	16″	3′-7″	5′-11″	3′-2 3/16″	5′-6″
TC-2	8′-0″	8′-0″	12′-1″	6″	21″	22′-1″	11′-9″	10′-4″	4′-11½″	2′-3″	5′-0½″	2′-8″	16″	3′-1″	5′-5″	2′-11 7/16″	4′-3″
TC-3	5′-3¼″	7′-0″	10′-4″	6″	18″	17′-1½″	8′-10¾″	8′-2¾″	4′-3½″	2′-3″	5′-2½″	2′-3″	10″	2′-8″	4′-8½″	2′-7 7/16″	3′-4½″
TC-44	6′-0″	6′-0″	9′-9½″	6″	15⅞″	16′-1¼″	7′-9¼″	8′-4″	3′-10″	18″	4′-5½″	24″	8″	2′-1″	4′-1″	2′-4 13/16″	4′-2¾″

Note: TC-44 has Trout Simplified Cranks.

LUFKIN UNIVERSAL TC-5C UNIT ASSEMBLIES—10,000 Lbs. Polish Rod Load

WALKING BEAM: 14″ x 8″ x 43 lbs., 5′-0″ and 5′-0″ working centers.
HANGER: Removable Horsehead with ¾″ wire line.
PITMAN: Universal Cross Pin Type Equalizer. Side Members 4″ I Beams.
CENTER BEARING: Bronze bushed, 4 7/16″ x 9″.
SAMSON POST: Tripod, 8′-0″ high standard; 9′-10″ high Special.
BASE: 6″ deep, 25″ wide at gear box, 14′-5″ long.
CRANK: No. 4242C, 42″ radius.
CRANK PINS: 3¾″ x 3½″, bronze bushed, oil bath.
TAIL BEARING: 3 7/16″ x 6½″, bronze bushed.

Note: See Page 1728, No. 44 Catalog, for Dimensions, except for Special Samson Post Height.

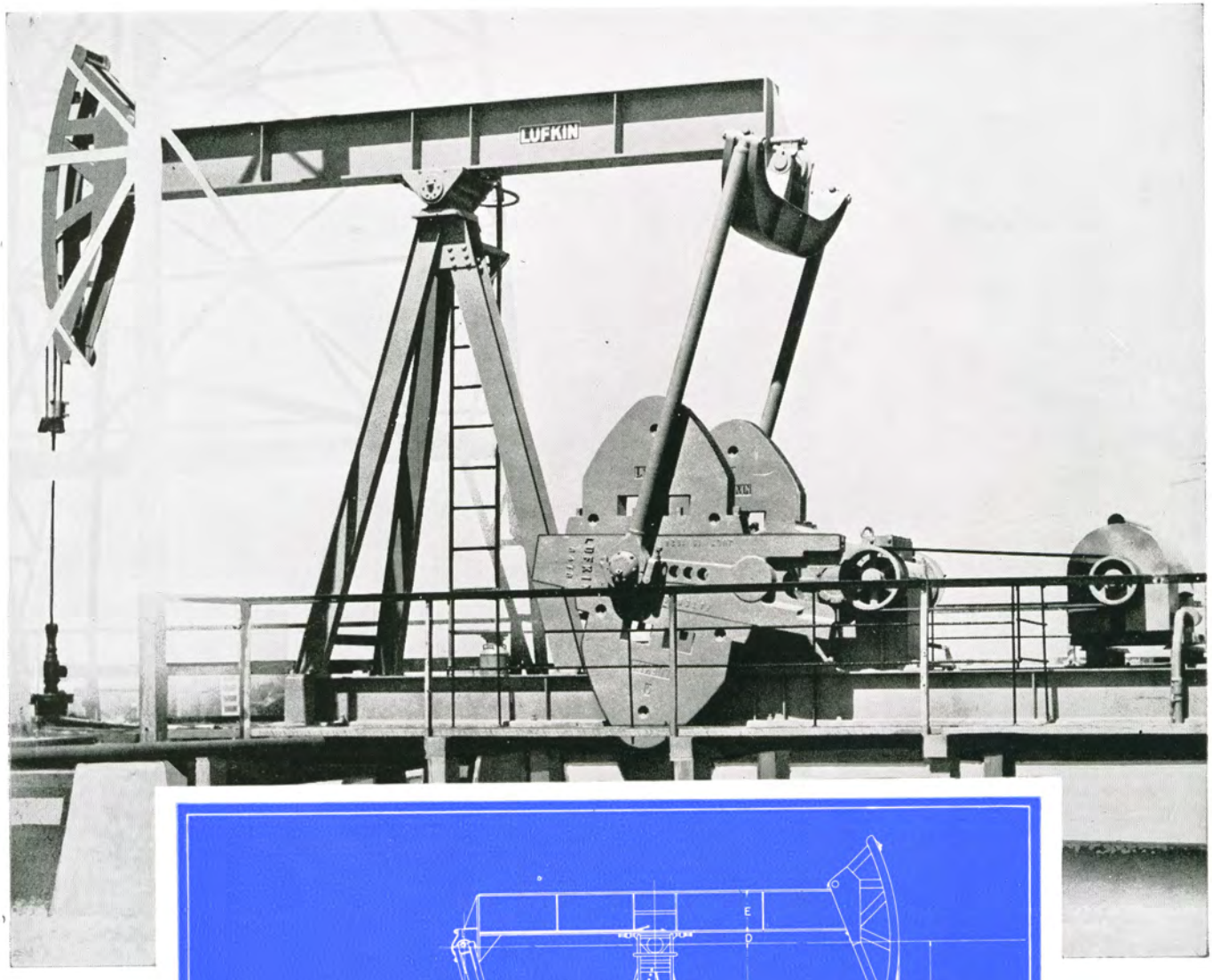
	TC-5C-7B
GEARS	Double Reduction Main Gear: 19½″ x 5″
RATING	11.1 H.P. at 20 S.P.M. 54,945 lb. ins. Peak Torque
RATIO	29.32
CRANKSHAFT	4″
SHEAVE	19¼″ P.D. 3-C Std. 27¼″ P.D. Maximum 1 11/16″ Bore
WEIGHT	8,500 lbs.

STATIC COUNTERBALANCE—LBS.

Stroke	No. 5 Wts.	Aux. Wts.
22″	10,200	13,200
32″	7,000	9,100
42″	5,340	6,930

For small TC-77-3 and TC-66-5A units, for long stroke units, and for single crank foundation type units, see catalog.

LUFKIN SIMPLIFIED LONG STROKE UNITS



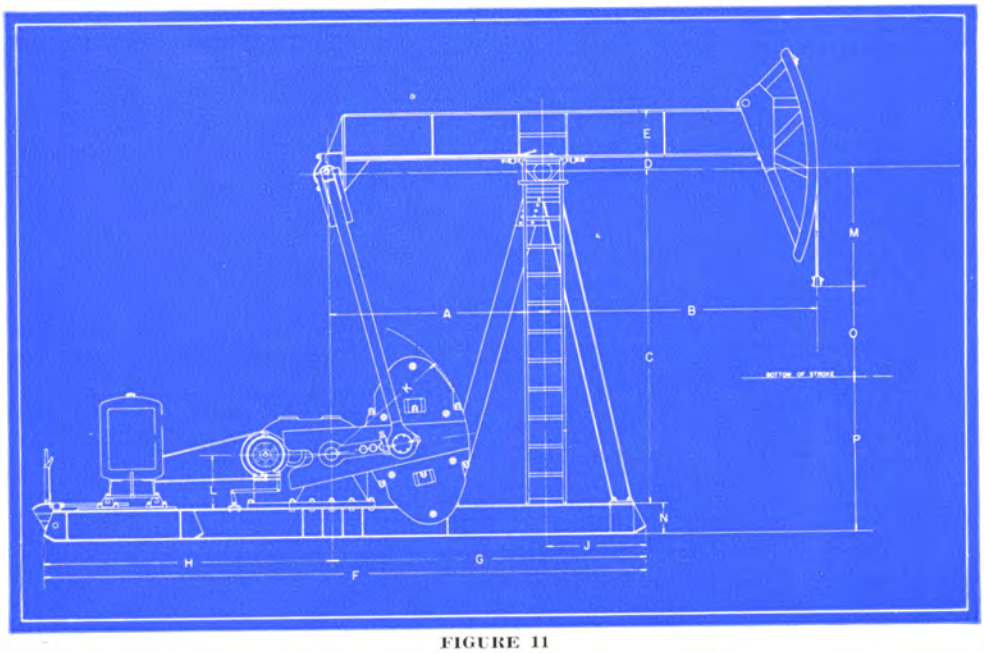


FIGURE 11

GENERAL DIMENSIONS LUFKIN LONG STROKE UNITS

UNIT	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
TC-OL-61.....	10′-11¼″	14′-0¾″	14′-6″	7″	24¾″	28′-5″	15′-1″	13′-4″	4′-1¾″	78″	2′-6″	5′-7″	16″	54″	5′-9″
TC-OOL-71.. ...	11′-9″	15′	16′	9″	33″	30′-9″	16′-5″	14′-4″	4′-8″	82″	3′	7′-1″	21″	60″	5′-8″

LUFKIN SIMPLIFIED LONG STROKE UNIT

(Illustrated on the opposite page)

Lufkin Long Stroke Units were engineered and built expressly to

1. Handle extremely large volumes of fluid from nominal depths.
2. Handle moderate fluid volume from extreme depths.
3. Reduce peak loading and minimize sucker rod failures.
4. Increase pump volumetric efficiency when handling gassy fluid.

With three years' long stroke experience in nine California fields, in several Mid-Continent fields, and in foreign fields as well; our present design is time-tested and proven as the most satisfactory medium for handling the toughest pumping jobs yet conceived. Our Number 61 gear which replaces the Number 51-B gear on the Nine-Foot Stroke Unit is a result of analysis of complete test data obtained in field experience, the increased rating of the Number 61 allows more universal application.

The Ten-Foot Number 71 Unit is the "Big Bertha" of the industry, with the largest gear box ever built for oil field service. Its enormous capacity is indicative of its ability to subject the proposed 1⅛" sucker rods to their ultimate allowable working stress. Field experience has demonstrated that this is the unit for obtaining the absolute maximum in production.

Of identical design with our smaller twin crank units, these long-strokers provide simplicity, ease of counter-balance adjustment, and smoothness of operation, and require practically no attention.

LUFKIN TC-OL AND TC-OOL ASSEMBLIES

SPECIFICATIONS

	TC-OOL-71	TC-OL-61
WALKING BEAM	33"x15¾"x200 lb. 15'-0" and 11'-9" Working Centers	24"x14"x160 lb. 14'-0¾" and 10'-11¼" Working Centers
HANGER	Hinged Horsehead with 4—1" Wire Ropes	Hinged Horsehead with 1⅛" Wire Ropes
PITMAN	Universal Equalizer, "In Line" Brgs., 5" XX Pipe	Universal Equalizer, "In Line" Brgs. 5" X Hvy. Pipe
CENTER BEARING	Bronze Bushed 7½"x22½" Oil Bath, Dust Proof	Bronze Bushed 7"x20" Oil Bath, Dust Proof
SAMSON POST	Tripod, 16'-0" High	Tripod, 14'-6" High
BASE	21" Deep, 60½" Wide, at Gear Box, 30'-9" Long	16" Deep, 4'-2" Wide at Gear Box, 28'-5" Long
CRANKS	No. 9482, 82" Radius	No. 8478, 78" Radius
CRANK PINS	7"x6½", Oil Bath, Bronze Bushed	7"x6½", Oil Bath, Bronze Bushed
TAIL BEARING	5 13/16"x13½" Bronze Bushed	4 13/16"x12" Bronze Bushed

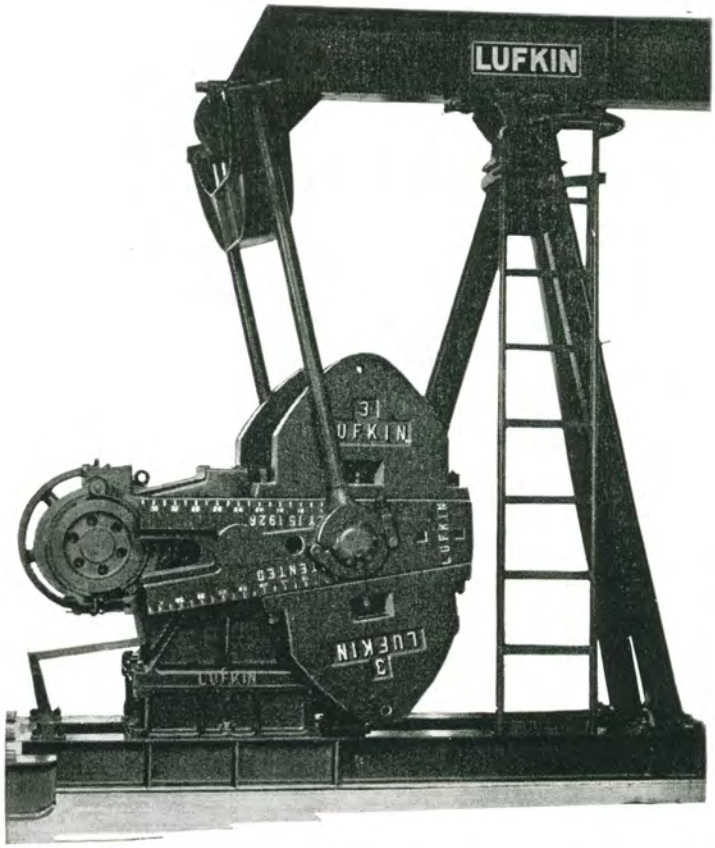
	TC-OOL-71	TC-OL-61
GEARS	Double Reduction Main Gear 50.4"x12"	Double Reduction Main Gear 41.6"x11"
RATING	151.5 H.P. @ 20 S.P.M. Peak Torque 750,000 lb. Ins.	103.2 H.P. @ 20 S.P.M. Peak Torque 511,600 Lb. Ins.
RATIO	28.72	28.6
CRANKSHAFT	7 7/16"	7"
SHEAVE	35"—10-D Std., 70" Max. 4 7/16" Bore	34"—12-C Std., 59¾" Max. 3 7/16" Bore
WEIGHT	65,000	48,645

STATIC COUNTERBALANCE—LBS.

TC-OOL-71			TC-OL-61		
Stroke	Reg. Wts.	With Aux. Wts.	Stroke	Reg. Wts.	With Aux. Wts.
43.38....	45,250	55,800	46.44...	35,250	44,530
58.69....	33,500	41,250	61.92...	26,440	33,390
74.....	26,500	32,700	77.4....	21,150	26,720
89.3.....	22,000	27,150	92.88...	17,620	22,260
104.6.....	18,750	23,100	108.36...	15,110	19,080
120.....	16,300	20,200			

Bell Crank Take Off for Pumping Extra Wells may be applied to all Lufkin Units.

Safety Oiling Platform may be furnished at additional charge.



Special Sub Base under Gear Unit where necessary for Cranks to clear derrick floor.

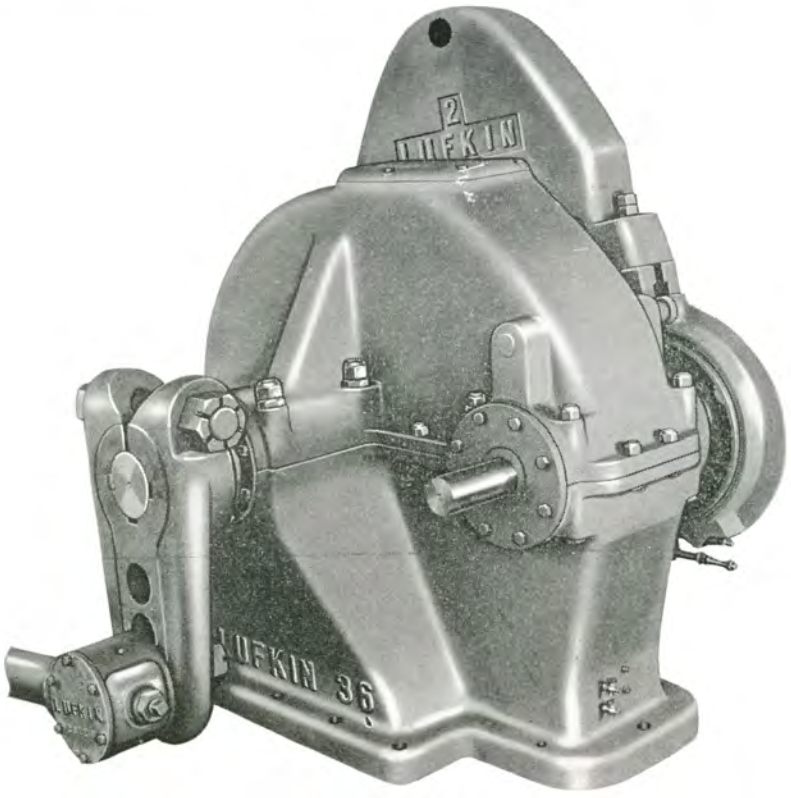


FIGURE 12

LUFKIN SINGLE CRANK UNITS

All Lufkin units, both single and double reduction types are built as illustrated with the sheave on the left side and brake on the right. The main counterbalance, of course, is on the right. The back-side crank is on the left. The sheave and brake can be reversed, if necessary, to suit special requirements. The cut to the right illustrates a complete and standard unit with the exception of the back-crank, which is extra and considered special.

LUFKIN COUNTERBALANCED BACK SIDE CRANK

The LUFKIN counterbalanced back side crank is equipped with two weights, either of which may be rotated 360° independently of each other. Any effective counterbalance from zero to maximum, or any degree of lead or lag is readily obtainable.

The counterweights and cranks are made of high-test gray iron while the straps for the counterweights are of malleable iron.

The strokes obtainable are 20″ and 30″. The total weight of the crank with two counterweights is 4900 pounds.

The crank will give a maximum counterbalance of 7680 pounds at the 20″ stroke and 5120 pounds at the 30″ stroke.

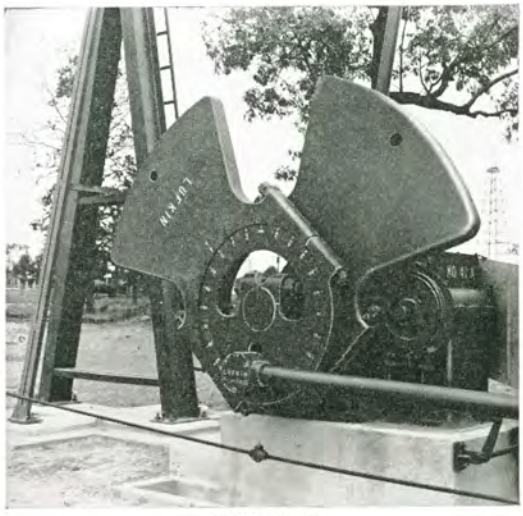


FIGURE 13

GENERAL SPECIFICATIONS SINGLE CRANK UNITS

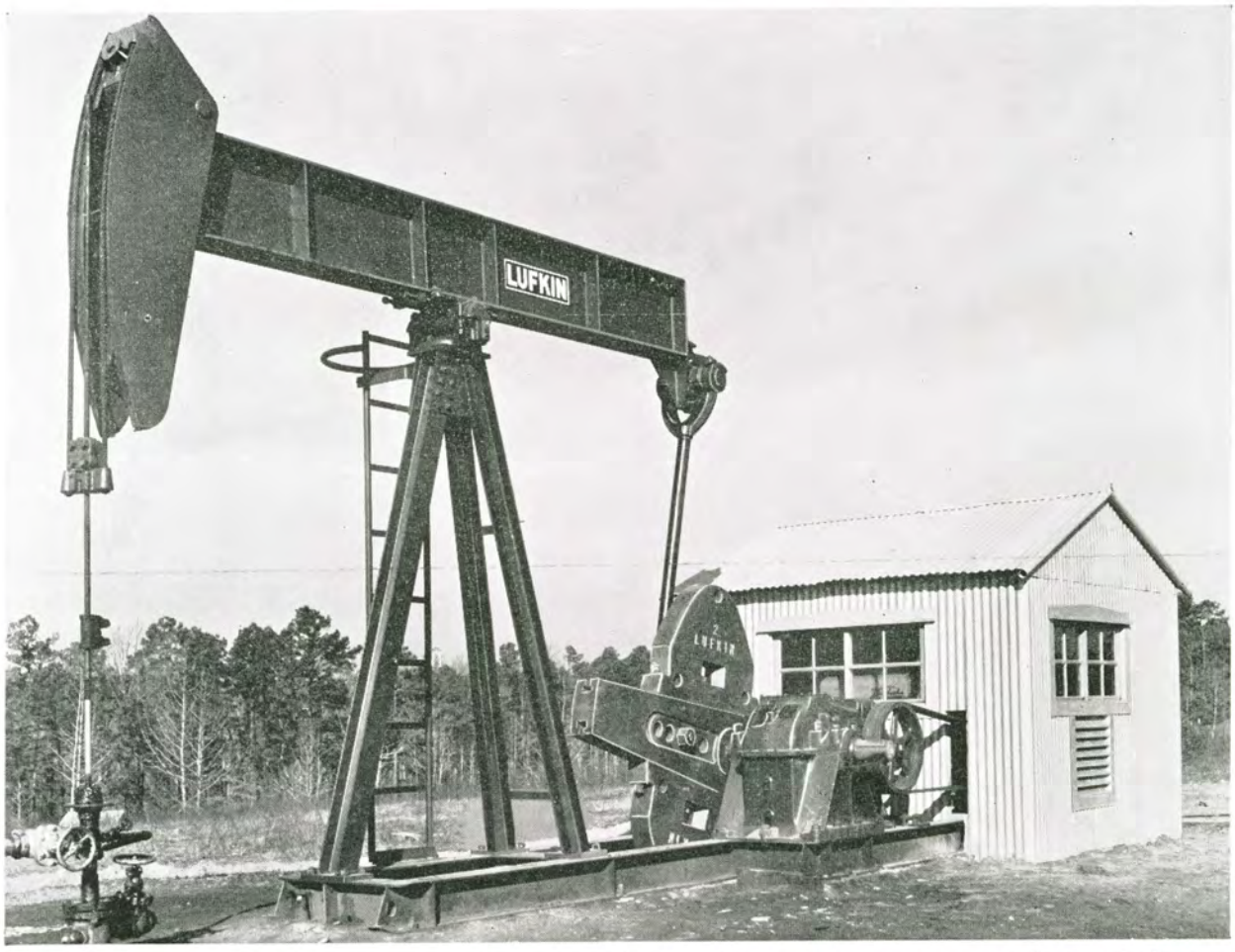
UNIT No.	Type of Gears	Nom. H.P. at 20 s.p.m.	Peak Torque in Lb. Inches	Ratio	Diam. Face Main Gear	Crank Shaft Dia.	Bore Drive Sheave	Sheave P.D. and No. Grooves	Center of Crank to Base of Unit	Crank and Wts.	Stroke	Static Center-Balance, Lbs.	
												Reg. Wts.	Aux. Wts.
61.....	DR	103.3	511,600	28.6	41.6″x11″	7″	3 7/16″	34″–12C Std. 59¾″–Max.	30″	7472 and No. 1	34″	16,000	19,950
60.....	SR	85.5	423,230	9.54	50″x12″	6 7/16″	3 11/16″	37″–7D Std. 37″–Max.	30″		44″	12,350	15,400
54-B.....	SR	67.8	335,610	9.4	47″x10″	6 7/16″	3 7/16″	34¼″–12C Std. 34¼″–Max.	28″		54″	10,100	12,550
41-B.....	DR	57.7	285,620	30.12	34″x10″	6 7/16″	2 11/16″	24¼″–8C Std. 47¼″–Max.	28″		64″	8,500	10,600
35.....	DR	43.2	214,000	28.45	30″x 9″	6″	2 7/16″	24¼″–6C Std. 41¼″–Max.	27″	6466 and No. 2	74″	7,550	9,400
36.....	SR	50.4	249,480	9.94	45″x 8″	6″	3 3/16″	34¼″–9C Std. 34¼″–Max.	27″		34″	12,100	15,050
22-E.....	DR	29.2	144,540	28.67	25″x7⅝″	5 7/16″	2 3/16″	24¼″–5C Std. 38″–Max.	27″	5460 and No. 2	44″	9,350	11,650
18-B.....	SR	33.0	163,350	10.5	42″x6″	5 7/16″	2 11/16″	32¼″–6C Std. 32¼″–Max.	27″		54″	7,650	9,500
24.....	SR	24.6	121,750	9.67	36¼″x5½″	4 7/16″	2 1/16″	28″–6C Std. 28″–Max.	21″	4456 and No. 2A	64″	6,450	8,000
16.....	SR	14.7	72,685	10	32½″x4″	4″	2 7/16″	24″–5C Std. 24″–Max.	18″		24″	14,400	17,950
15.....	DR	19.8	98,000	29.4	24″x6¼″	4 7/16″	1 11/16″	19¼″–4C Std. 33¼″–Max.	18″		34″	10,150	12,700
											44″	7,850	9,800
											54″	6,400	8,000
											24″	11,500	14,150
											34″	8,100	10,000
											44″	6,300	7,750

LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

LUFKIN FOUNDRY & MACHINE COMPANY, LUFKIN, T

LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

KIN, TEXAS—*"Quality Machinery Since 1900"*



Single Crank Unit on Steel Base

Bottom: Similar installation of heavier type with Universal Hanger and double channel single arm take-off pumping two additional wells.

SINGLE REDUCTION GEAR UNITS

Single reduction gear units are preferred where slow speed engines (up to 750 R.P.M.) are used. They are built in six sizes.

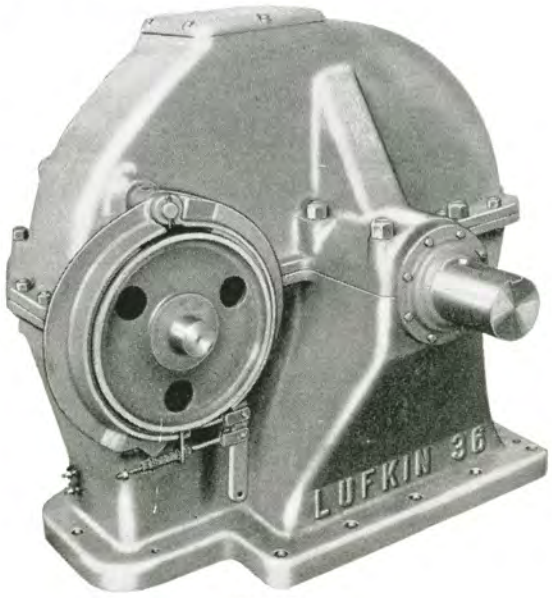


FIGURE 14

DOUBLE REDUCTION GEAR UNITS

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

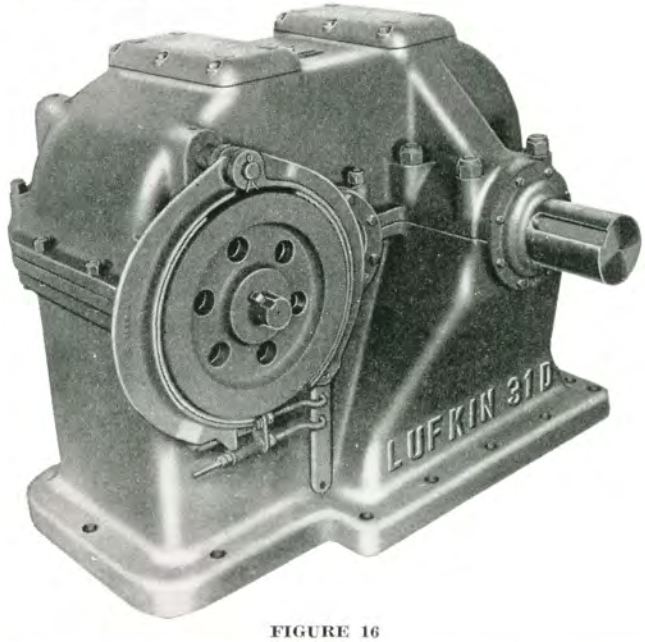


FIGURE 16

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

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

FIGURE 15
Single Reduction Gear Unit, cover removed

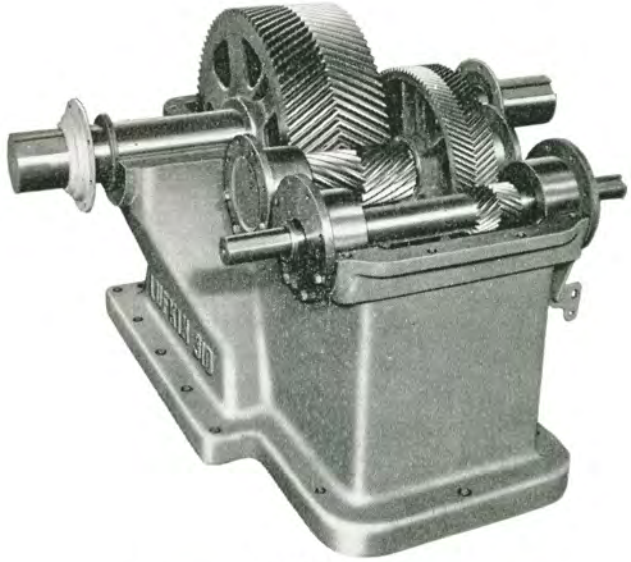


FIGURE 17
Double Reduction Gear Unit, cover removed

1. Housings 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. Gears Cases are jig bored to same accuracy as gears.
4. All Shafts forged from alloy steel, heat treated and precision ground.
5. Oversize Bronzoid Bearings on crankshafts. Easily renewable.
6. Crank Shaft held rigid by Bronzoid hub plates. All pinions float on Hy-Load Hyatt Roller Bearings.
7. No Oil Leaks. Pinion shaft bearings equipped with patented oil seals; main crankshaft with collar oil slinger and aluminum drain cover.
8. No Oil Pumps. Lufkin gears operate in oil bath with gear wipers to flood bearings.
9. Clam Shell Brake. No grabbing. Improved ratchet lever and stand, locomotive type.

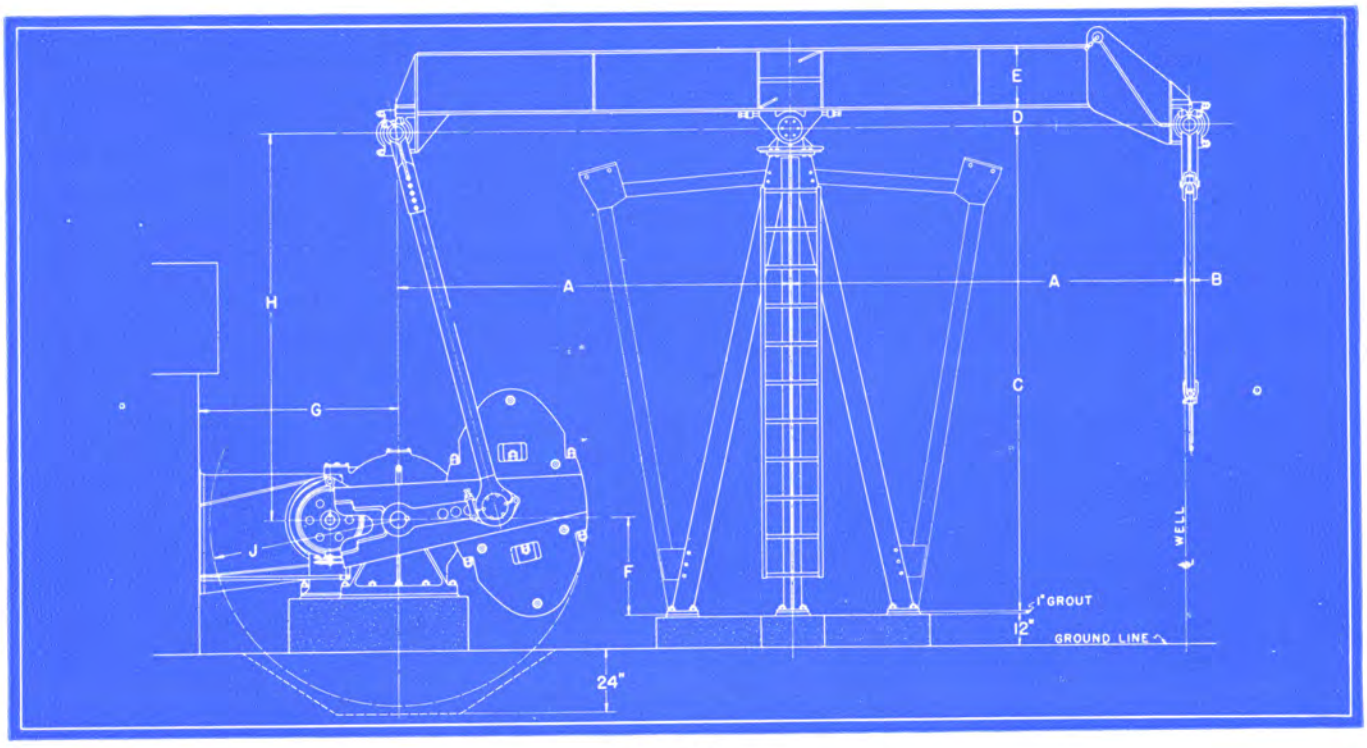


FIGURE 18

Lufkin Single Crank Unit Assembly—Crank in Sump

GENERAL DIMENSIONS

Assembly	A	B	C	D	E	F	G	H	J
100	14′-0″	2″	17′-6″	7″	24″	3′-1″	6′-6″	14′-5″	5′-11½″
200	12′-6″	2¼″	15′-7″	7″	24″	3′-1″	6′-6″	12′-6″	5′-11½″
300	12′-6″	2¼″	15′-5″	6″	24″	2′-7″	6′-3″	12′-10″	5′-5½″
400	8′-0″	2¼″	13′-6″	6″	21″	2′-1″	5′-6″	11′-5″	4′-11⅛″†

† No. 15, 16 and 24 Unit furnished with 4′-7½″ Radius Crank. If crank sump not desired subtract 2′-0″ from "H."

POLISH ROD CAPACITIES OF LUFKIN WALKING BEAMS FOR SINGLE AND TWIN CRANKS

Walking Beam Number	Section	Working Centers	RATING, POUNDS A.P.I.	RATING, POUNDS A.I.S.C.	Where Used
1625-CU	24″ x 14″—160 lb	25′	22,051	44,900	OL—61 and 60
1328-CU	24″ x 14″—130 lb	28′	16,800	30,565	TC-0A—SC-100 and 200
1325-CU	24″ x 14″—130 lb	25′	19,750	35,860	TC-0A and 1A—SC-100 and 200
1025-CU	24″ x 12″—100 lb	25′	13,900	25,285	SC-300
1020-CU	24″ x 12″—100 lb	20′	19,000	34,570	TC-2A
1020-CUH	24″ x 12″—100 lb	20′	19,000	34,570	TC-2A
8216-CUH	21″ x 9″ —82 lb	16′	15,800	28,500	TC-2 and TC-3A—SC-400
6412-CUH	18″ x 8¾″—64 lb	12′—3¼″	13,450	24,400	TC-3
5812-CUH	16″ x 8½″—58 lb	12′	12,700	22,850	TC-44
4310-CUH	14″ x 8″ —43 lb	10′	10,450	18,786	TC-5C
2808-CUH	12″ x 6½″—28 lb	8′	7,420	13,350	TC-66
2107-CUH	10″ x 5¾″—21 lb	7′	5,120	8,640	TC-77

LUFKIN UNIVERSAL SAMSON POST ASSEMBLIES
GENERAL SPECIFICATIONS

Assembly	Units Generally Used	BEAM SPECIFICATIONS No.	Depth	Width Flange	Weight Per Ft.	Centers	A.P.I. Rating	Post Specifications Height	Type	Cap.	Center Bearing No. & Size	PITMAN Pipe Size	PITMAN Centers	Crank Pin Size	Tail & Hanger Bearing Size
100	61, 60, 41-B, 54-B	1328CU	24″	14″	130	28′	16,800	17′-6″	AT	40,750	1-AS 7″x20″	5″		5½″x5½″	5″x12″
200	41-B, 54-B	1325CU	24″	14″	130	25′	19,750	15′-7″	AT	47,800	1-AS 7″x20″	5″	See Table	5½″x5½″	5″x12″
300	41-B, 54-B, 35, 36	1025CU	24″	12″	100	25′	13,900	15′-5″	AT	47,800	2-AS 6″x17″	4″	Above	5½″x5½″	5″x 9″
400	35, 36, 22-D, 18-B, 16, 15 24	8216CUH	21″	9″	82	16′	15,800	13′-6″	AT	46,090	2-AS 6″x17″	4″		5½″x5½″	5″x 9″

Note: Headache Posts and Foundation Bolts furnished at Extra Price when specified.

OIL TIGHT—BRONZE BUSHED CENTER BEARING

Patents Pending

FIGURE 19

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

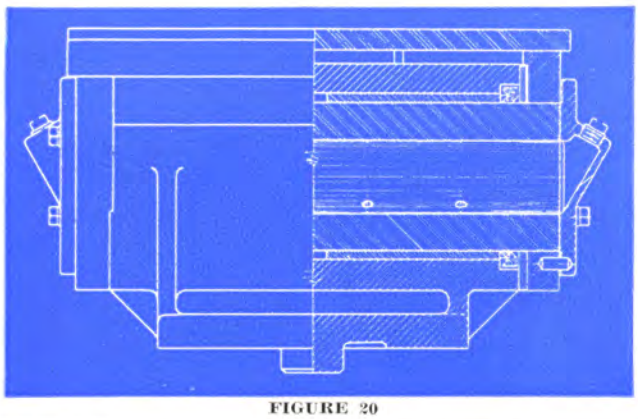


FIGURE 20

Center Bearing No.	Size Bearing	Where Used
1-AS	7″ x 20″	TC No. 0-A and No. 1-A SC No. 100 & 200 Long Stroke
2-AS	6″ x 17″	TC No. 2 and No. 2-A SC No. 300 & 400
3-AS	6″ x 14″	TC No. 3 and No. 3-A
4-AS	5″ x 10½″	TC No. 44

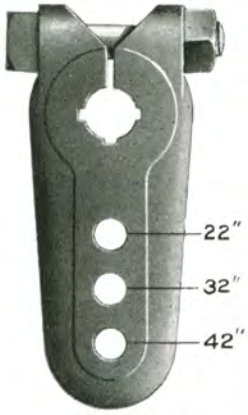


FIGURE 21

FIGURE 22
Single Take-Off Connector.

LUFKIN BACK-SIDE CRANKS

3 Hole 42″ stroke—Max. Bore 6-7/16″—No. 1910-W

3 Hole 36″ stroke—Max. Bore 5-7/16″—No. 2059-W

3 Hole 30″ stroke—Max. Bore 4-7/16″—No. 2060-W

BABBITTED OIL BATH CENTER BEARINGS, SERIES B & C

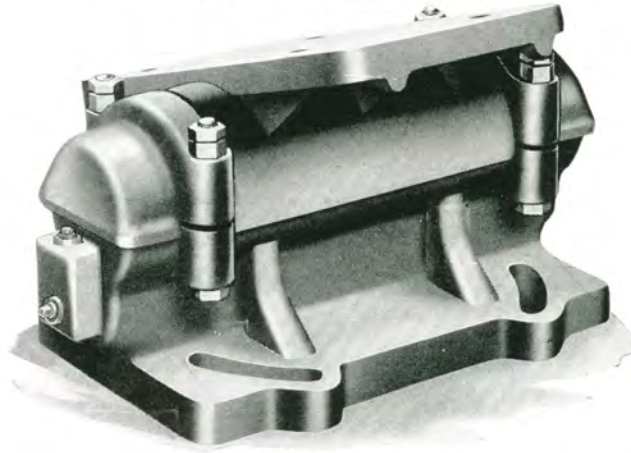


FIGURE 23

Series "B" and "C" Bearings listed below show our babbitted center bearings which are oil bath, but only reasonably dust proof, as blue print shows. This bearing is lined with a special high grade tin base metal to withstand the severe service of heavy loads and has ample oil capacity.

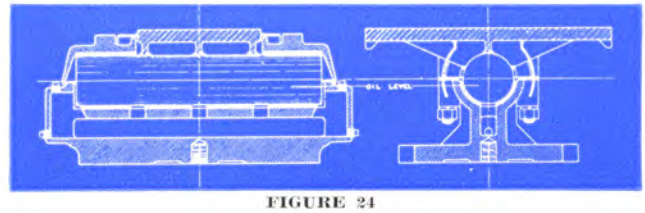


FIGURE 24

Center Bearing No.	Size Bearing	Where Used
1-B	5″ x 24″	TC No. 1-A SC No. 300
2-B	5″ x 18″	TC No. 2 and No. 2-A SC No. 400
2-C	5″ x 24″	TC No. 2 and No. 2-A SC No. 400
3-B	4″ x 18″	TC No. 3 TC No. 44
3-C	5″ x 18″	TC No. 3

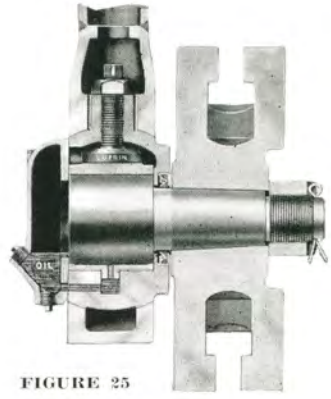


FIGURE 25

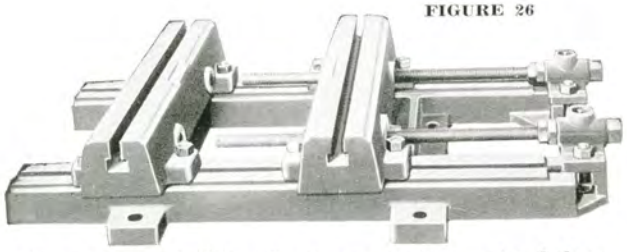
General characteristics of the new "Universal" pitman are:

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

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

UNIVERSAL RAILS—FOR MOTORS OR GAS ENGINES

FIGURE 26



Dimensions of 32" rails shown on blue print below

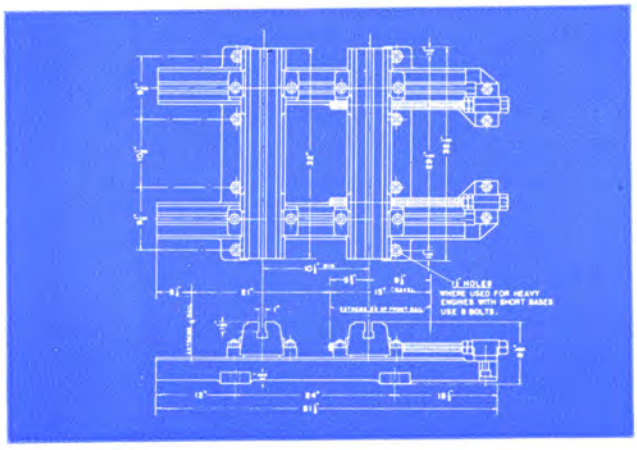


FIGURE 27

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

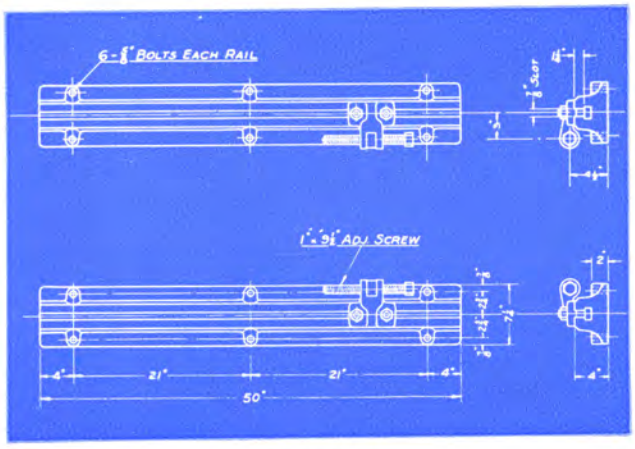
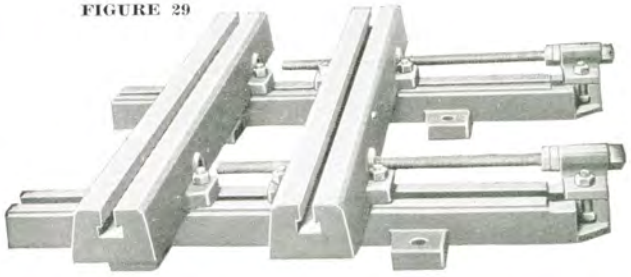


FIGURE 28

Dimensions of 50" plain engine rail with adjusting screws for two cylinder vertical engines and small horizontal engines.

FIGURE 29



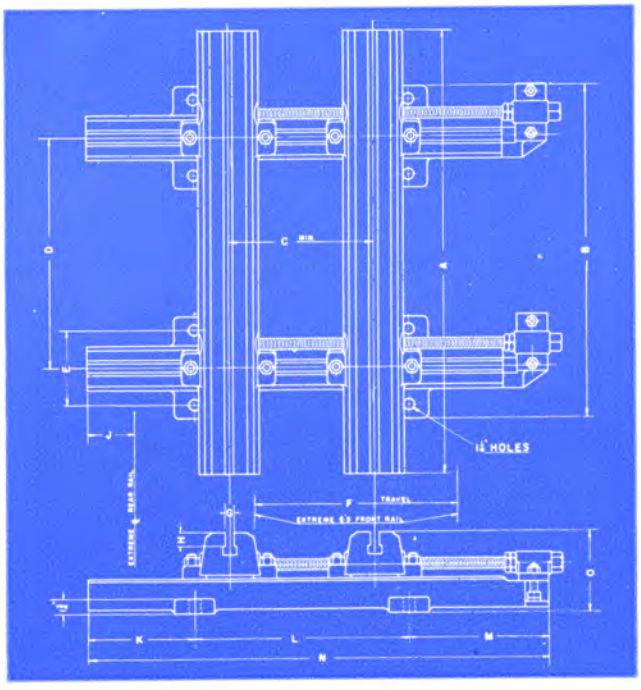


FIGURE 30

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

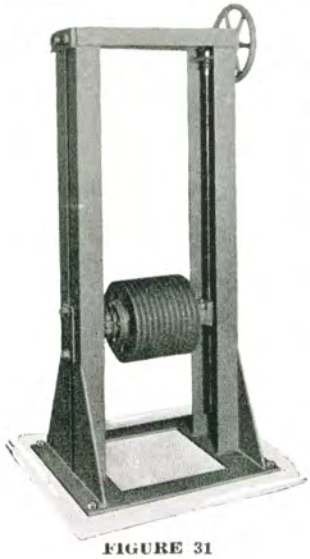


FIGURE 31

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

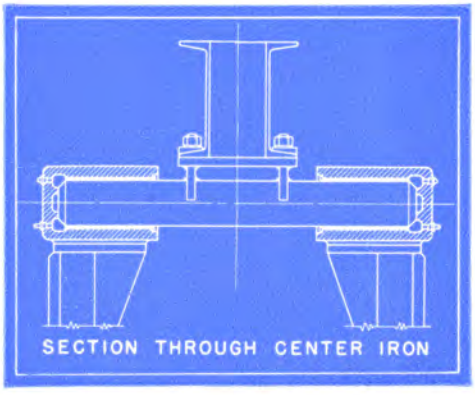


FIGURE 32

LUFKIN ARC-WELDED IMPROVED PUMP JACKS

THREE SIZES

No. 20 .....20,000 Lb. Capacity
No. 17B .....17,000 Lb. Capacity
No. 10B .....10,000 Lb. Capacity

Cross Section Showing Shaft and Bronzoid Bearings Oil Seals.

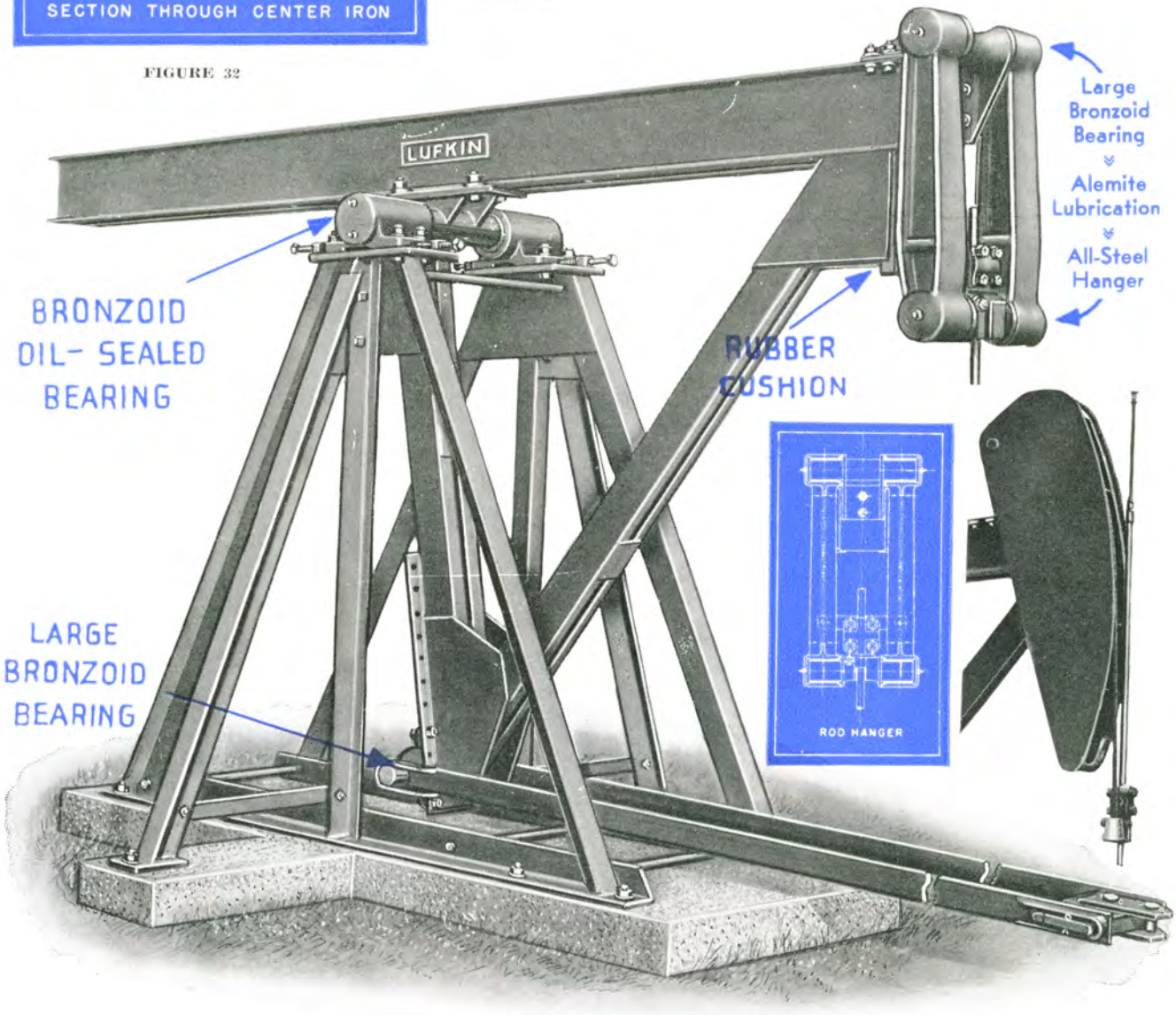


FIGURE 33

GENERAL SPECIFICATIONS

	No. 10-B	No. 17-B	No. 20
Rated Polish Rod Load	10,000 Lbs.	17,000 Lbs.	20,000 Lbs.
Stroke	48″	60″	72″
Maximum Ratio Polish Rod to Pull Rod Stroke	1.71 to 1	1.70 to 1	1.66 to 1
Minimum Ratio Polish Rod to Pull Rod Stroke	1.24 to 1	1.19 to 1	1.29 to 1
Depth Walking Beam	8″	10″	12″
Diameter and Length Saddle Bearing	$2^{15}/_{16}$″x10½″	$3^{15}/_{16}$″x15″	$5^{7}/_{16}$″x18″
Bearing Surface Saddle Bearing (Bronze)	31 Sq. In.	60 Sq. In.	97.9″
Bearing Surface on Hanger (Bronze)	16 Sq. In.	25 Sq. In.	41.25 Sq. In.
Base to Bottom of Hanger at Mid-Stroke	4′—5″	5′—2½″	6′—$1^{1}/_{16}$″
Stirrup Bearing Size	$2^{15}/_{16}$″x8″	$3^{15}/_{16}$″x10″	$4^{15}/_{16}$″x$13^{1}/_{4}$″
Number and Size Foundation Bolts	8—1¼″x24″	10—1¼″x24″	14—1¼″x24″

LUFKIN COMBINED VERTICAL SWING TAKE-OFF AND KNOCK-OUT

FIGURE 34—Patents allowed and others pending

The Lufkin combined vertical swing take-off and knock-out attachment is a great improvement over the earlier designs. Most important is the method of rolling the weight to any desired point simply by loosening two bolts on the weight saddle and turning the crank. Both operations can be accomplished by one man on the ground in a few minutes.

Hooking on and off wells is accomplished by one lever with no chance of injury to the operator.

The whole structure is thoroughly and substantially built of heavy structural steel with a view to rigidity and steady operation. As will be noted on Page 1568, Fig. 28, crank pin and bearing are of the improved type, adjustable for wear, and dust proof. The same bearing is in the swing take-off, the connection being made of 4″ pipe. Saddle bearings are bronze bushed and oil tight. Knockoff arrangement is of all steel forgings and made to give efficient lasting service.

LUFKIN VERTICAL SWING TAKE-OFF

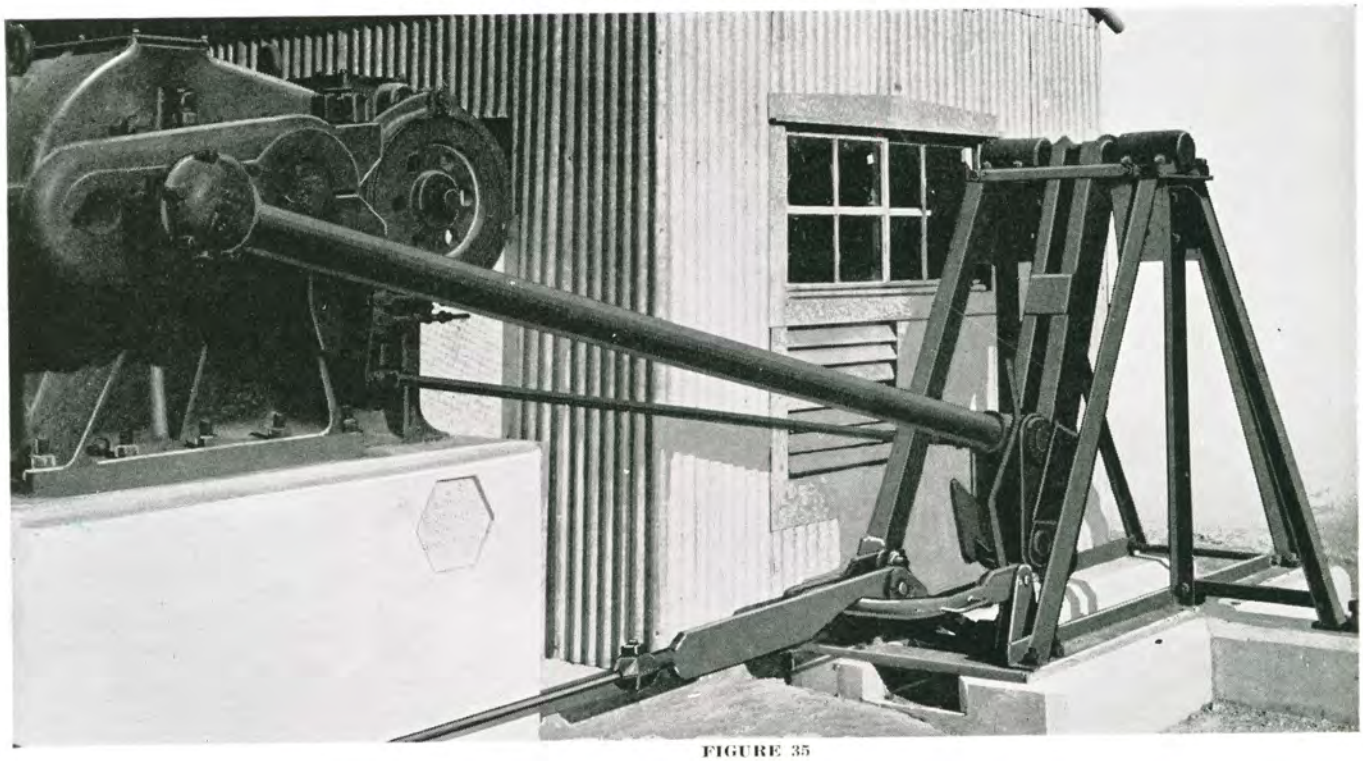


FIGURE 35

LUFKIN SURFACE EQUIPMENT

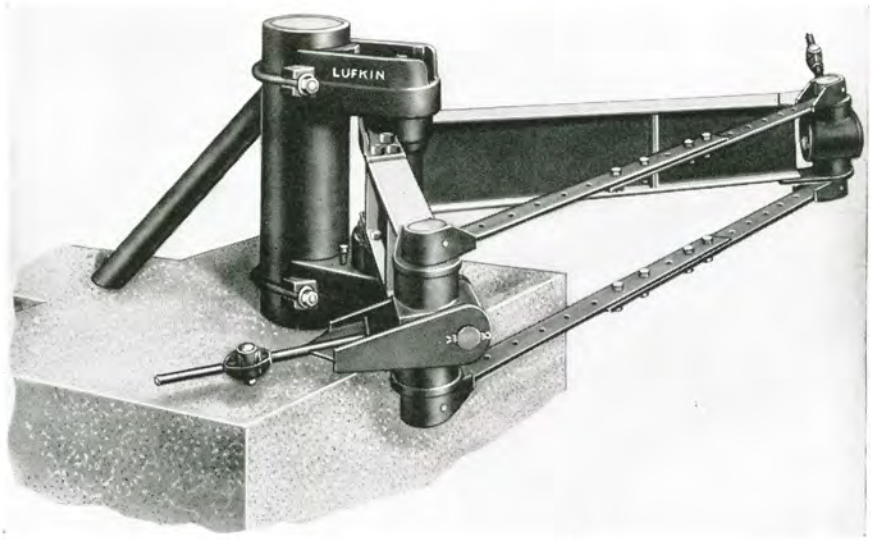


FIGURE 36

LUFKIN IMPROVED POST SWING

The bearings in the pivot shaft, which are 6½″ diameter by 3″ long, are bronze bushed and dust-proof with the vertical thrust running in an oil bath.

Rod line bearings are universal and are also bronze bushed and dust and oil tight. The swing is available for small or large angles.

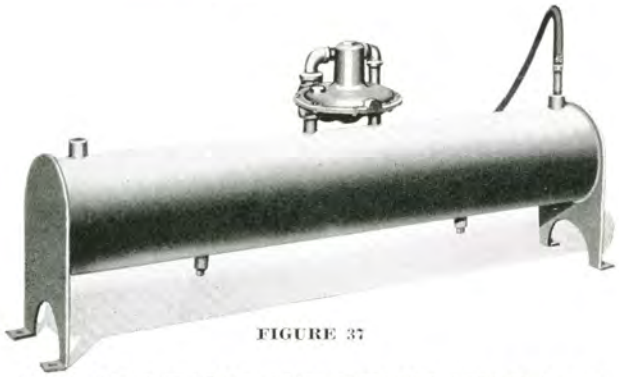
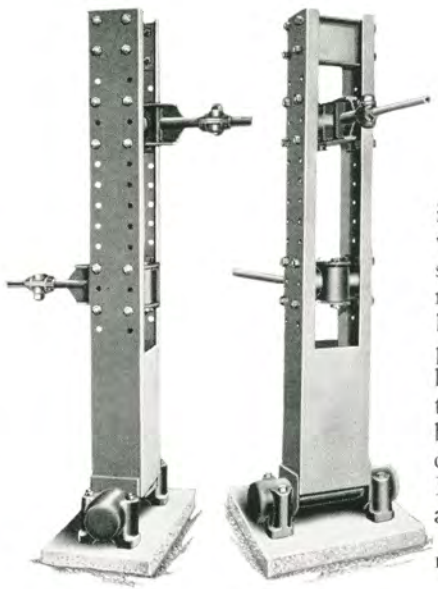


FIGURE 37

VOLUME TANK AND REGULATOR FOR GAS ENGINES

Double chamber volume tanks are usually furnished with multicylinder engines. They are carried in stock, fitted with Fisher regulators and flexible hose connection to engine as shown. The tank is 8″ in diameter and 48″ long with partition in center. They are well made and have ¾″ pipe coupling connections. Center of tank to base is 10″. The tank may also be used as a scrubber.



LUFKIN STROKE OR MULTIPLIER POST

This type post is commonly used when change in stroke is desired near unit. Take-off bearings on this post are bronze bushed, universal type. The lower bearings are interchangeable with Lufkin hold-up and hold-down.

FIGURE 38

LUFKIN KNOCK-OUT POST

Lufkin knock-out posts are especially handy. Lifting weight lever knocks the well off; lifting double connection under hook (which is the extension from a twin crank unit in this case) automatically puts the well in operation. The same knockout is used on central power and back-crank jobs. The knockout bar notches are on the upper edge allowing a smooth lower surface to ride on a renewable end grain wood block inserted in cast iron shoe and spreader plate.

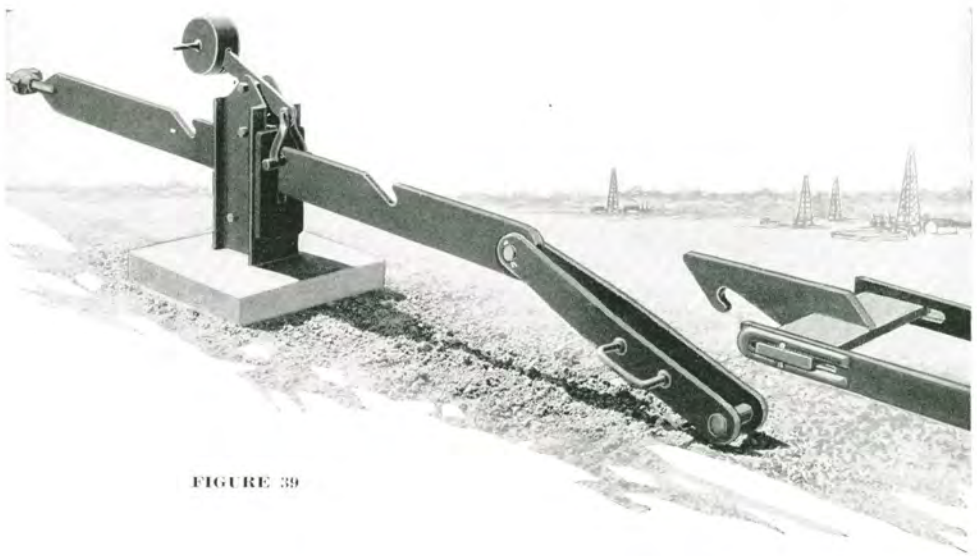
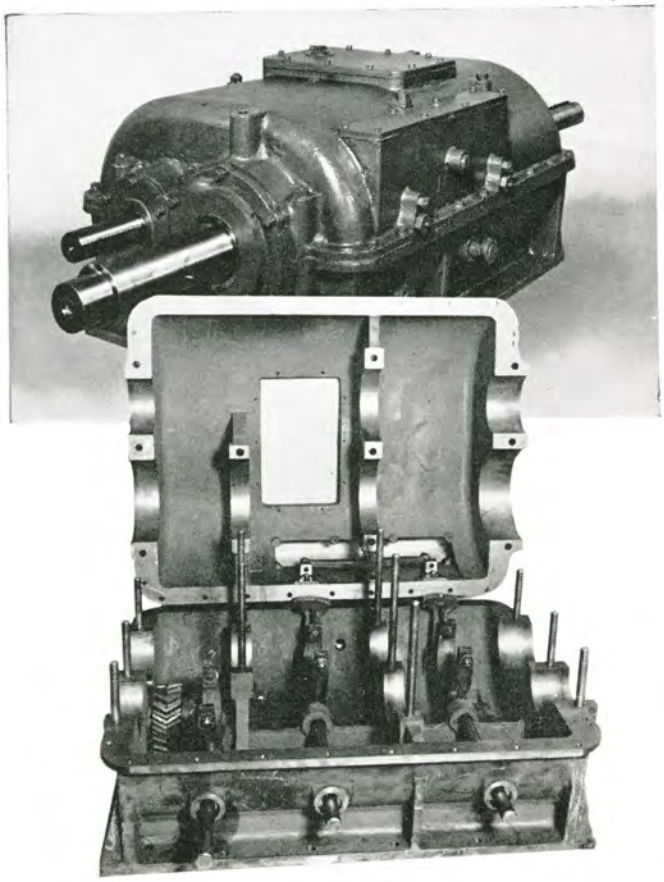
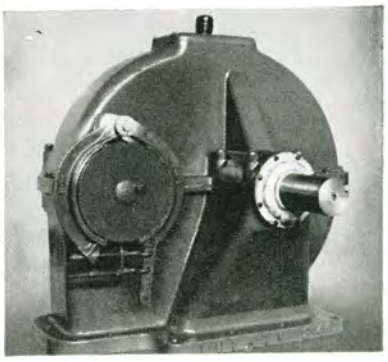


FIGURE 39



Left. Herringbone Transmission for Rotary Drilling Rig.



Right. Herringbone Gear Unit for Oil Well Pumping.

Right. Typical Order for River Clamps.

LUFKALOY Iron fundamentally is an alloy of iron and carbon having a basic structure similar to that of carbon tool steel with the exception of excess carbon which is distributed as microscopically fine graphite. LUFKALOY Iron is a controlled specification iron having a thoroughly homogeneous structure, uniform density, and definite physical properties.

COMPARISON OF PHYSICAL PROPERTIES OF CAST FERROUS ENGINEERING MATERIALS

Physical Properties[1]	LUFKALOY METAL Controlled Specification IRONS						Ordinary Gray Cast Iron	Fully Annealed Malleable Iron[7]	Plain Low Carbon Cast Steel[8]	Mild Steel Forgings[9]
	Grade AAA	Grade AA	Grade A	Grade B	Grade C	Grade D				
[2]Tensile Strength as Cast	60,000	50,000	45,000	40,000	35,000	30,000	30,000	55,000	60,000	80,000
[2]Yield Point—0.2% Set	47,500	45,000	42,500					37,500	30,000	40,000
[2]Tensile Strength—Heat Treated	78,000	75,000	65,000							
[2]Tensile Strength at 1000° F	50,000	45,000					17,000	35,000	27,000	40,000
[2]Modulus of Elasticity in Tension @ ¼ Breaking Load	25,000,000	21,000,000					11,000,000	25,000,000	29,000,000	30,000,000
[2]Modulus of Elasticity in Tension H. T. @ ¼ Breaking Load	26,000,000	24,000,000								
[3]Transverse Strength 1.20 dia. x 18″ Centers	3,500 min.	3,300 min.	3,000 min.	2,800 min.	2,500 min.	2,200 min.	2,000			
Deflection in inches	.35 min.	.33 min.	.27 min.	.25 min.	.22 min.	.18 min.	.15-22	[6]		
[2]Modulus of Rupture—Round Bar	100,000 min.	90,000 min.	80,000 min.	70,000 min.	65,000 min.	55,000 min.				
[2]Ultimate Shearing Strength, Single Shear, Lbs., per Sq. In	60,000 min.	50,000 min.	45,000 min.	40,000 min.	[4]	[4]	[5]	48,000	33,000	44,000
[2]Compressive Strength as Cast	185,000	175,000	165,000				100,000	60,000	90,000	120,000
[2]Endurance Limit	25,000	22,000	20,000				9,000	25,000	28,000	33,000
B. H. N. Sand Cast 1.20″ dia. Bar	228-255	220-250	210-240	200-230	190-220	180-210	150-190	110-145	160-175	160-175

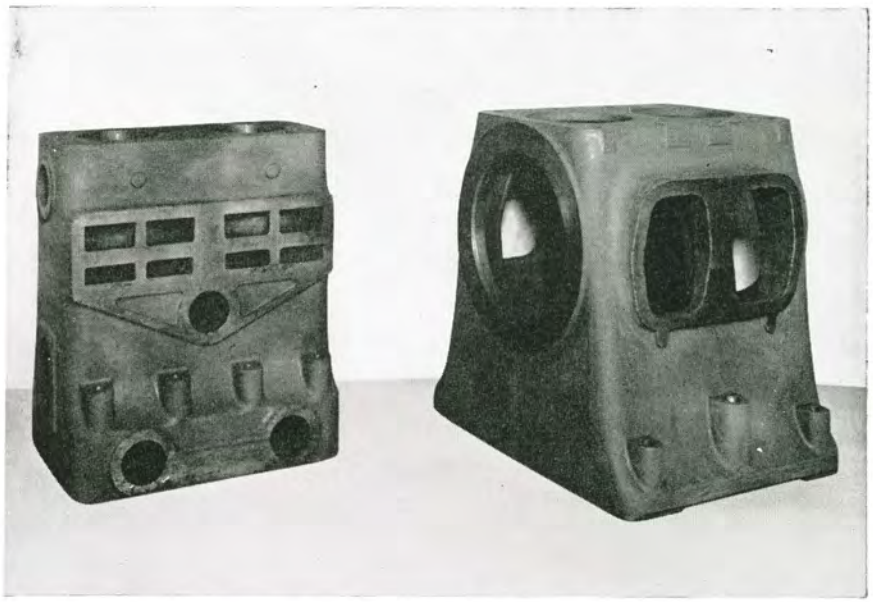
[1] All Physical Properties for LUFKALOY METAL are based on A.S.T.M. "B" Transverse Test Bars. [2] Values are in pounds per square inch. [3] Values are in pounds. [4] Undetermined. [5] Has been reported from 1.15 to 2.03 times tensile strength. [6] Poissons ratio—0.17. [7] A.S.T.M. Spec. A-4733, Grads 35018. [8] A.S.T.M. A-27-24, Class B, Soft. [9] A.S.T.M. Spec. A-20-27.

LUFKALOY

Controlled Specification Iron Castings

LUFKALOY Castings are produced in our own modern Foundry which has a capacity of sixty tons daily. Castings are manufactured in all sizes up to nine tons each. Special castings have been made up to fifteen tons.

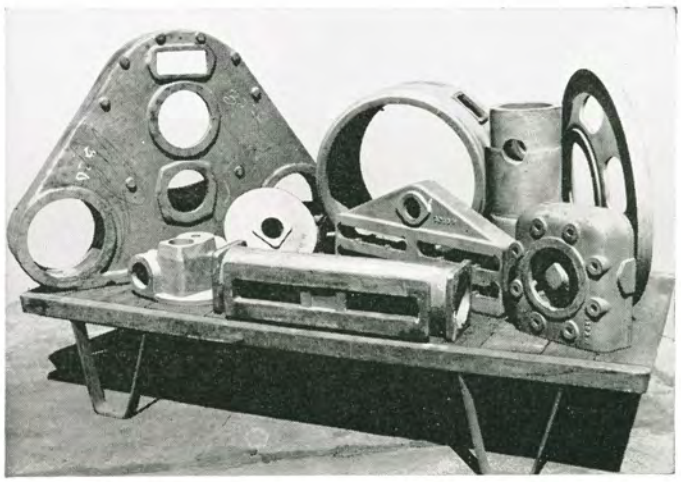
MARINE ENGINE LINER
42" Dia. x 84" high, Wt. 6000 lbs.
Specification No. 11-E



Two Cylinder Engine. Block and Base.
Specification 11-E and 111-E

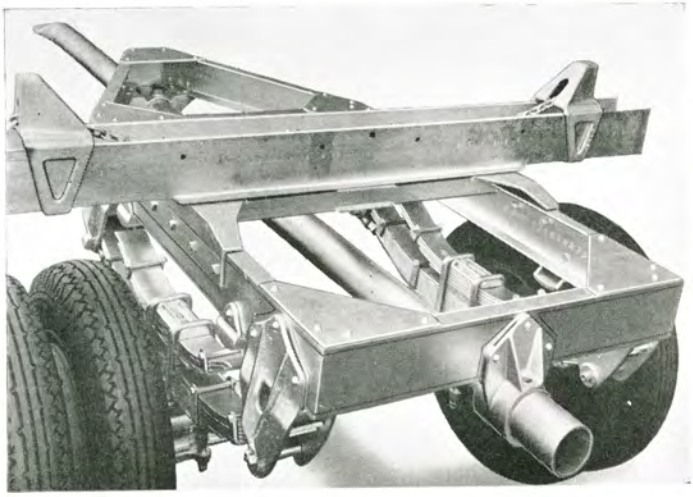
Heat Resisting Iron Gas Burner Casting

Cylinder Head, Specification 11-E



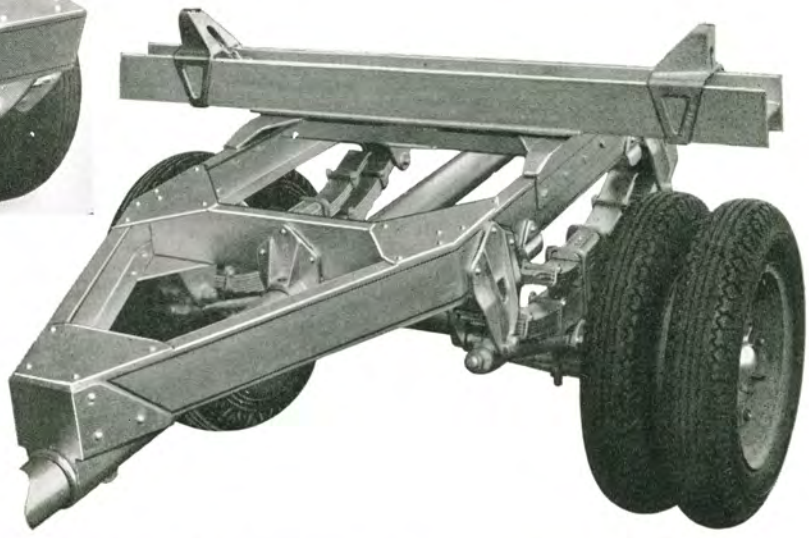
Various Engine Castings include Piston, Head, Manifold, etc.

LUFKIN PIPE, POLE, FLOAT AND VAN TRAILERS



Lufkin Pipe and Pole Trailers are designed especially for hauling pipe, steel beams, lumber, logs, piling, and other self-supporting materials.

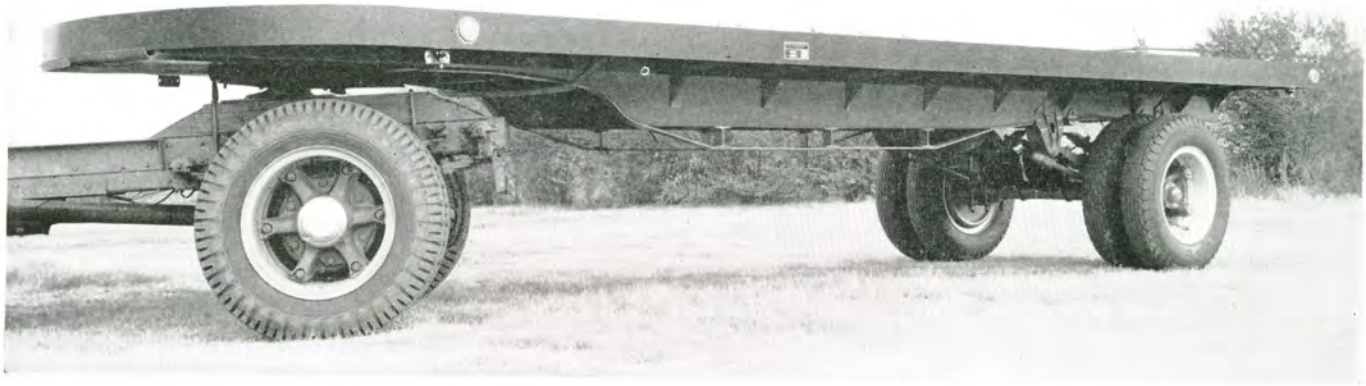
This trailer is of all steel, electric welded and riveted construction, featuring slip-spring suspension and radius rod.

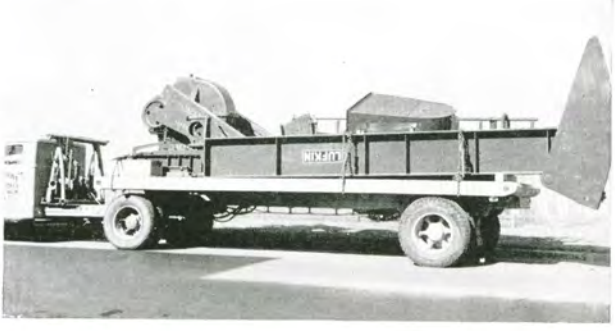


Equipment includes draw bar and fifth wheel with king pin of suitable size, adjustable chain block or stake socket optional at no increase in price. Electric or vacuum brakes can be furnished if desired.

LUFKIN ALL STEEL VANS are modern in design and construction and are made to any special standards as to size or finish. Modern streamlining adds to the beauty of this freight liner and to the prestige of the owner. Ask for our Special Van Bulletin No. 105.

PIPE, POLE, FLOAT AND VAN TRAILERS





THE LUFKIN FLOAT—CENTER FRAME TYPE—MODERN—STREAMLINED

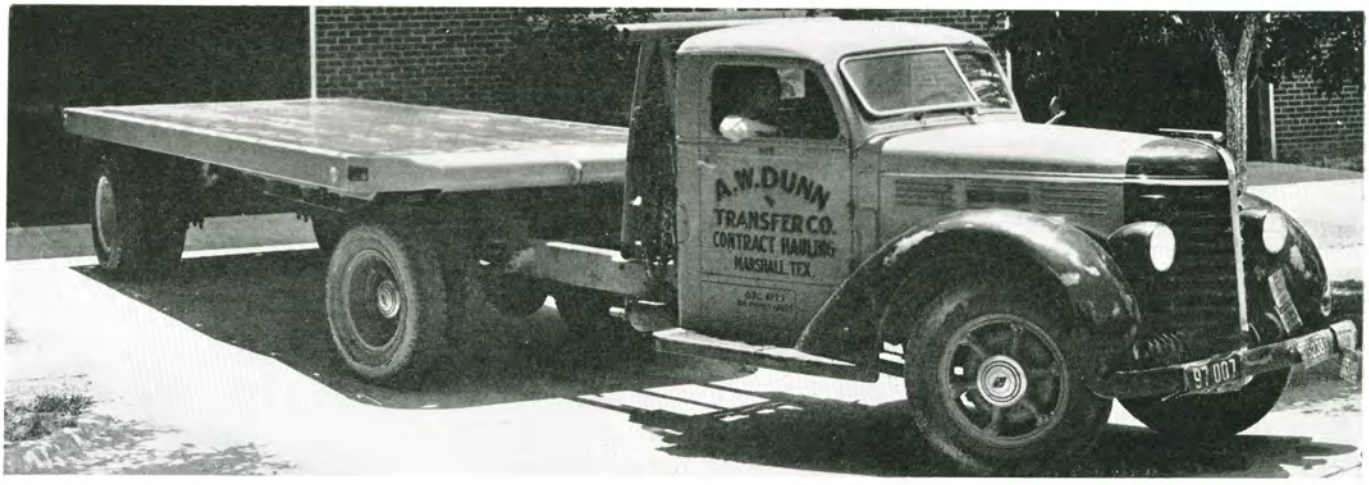
In the design and construction of Lufkin Trailer equipment the same high standards of engineering and manufacturing which have distinguished **Lufkin equipment** in the oil fields of the world have been used throughout in Lufkin's Trailer Division.

The outstanding features incorporated in the Lufkin Trailer design, aside from streamlining, etc., are:

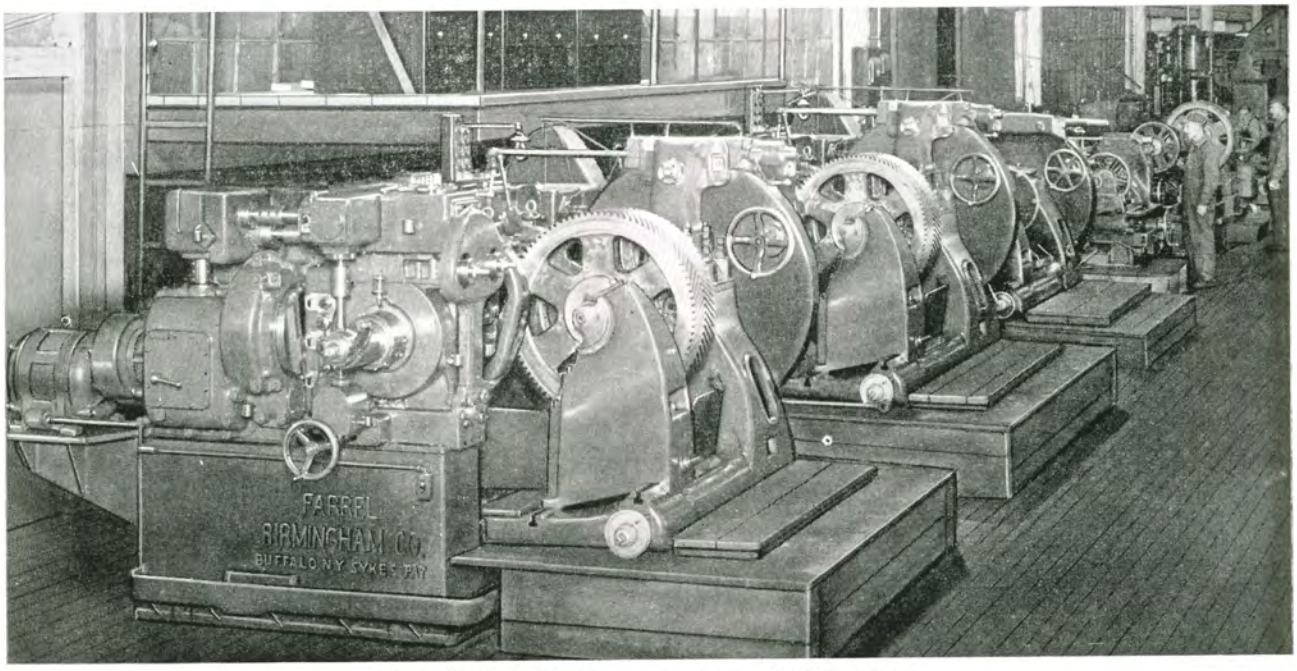
1. Free end springs which **carry** the load.
2. Radius Rods which **pull** the load.
3. Perfect axle alignment maintained by the use of adjustable radius rods.
4. Refinements in support legs, fifth wheel and extra tire carrier.

Side Illustrations: Typical Lufkin center frame floats in use by some of the largest operators in Texas.

Lower: Lufkin Float particularly adaptable to oil field haulage.

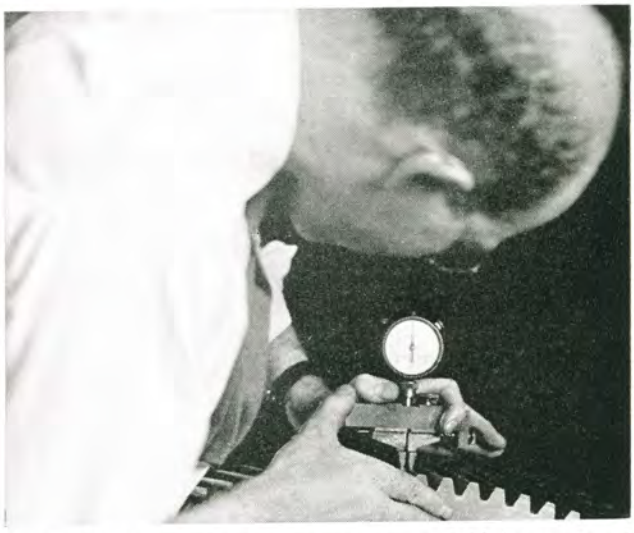


LUFKIN FOUNDRY & MACHINE CO. LUFKIN, TEXAS

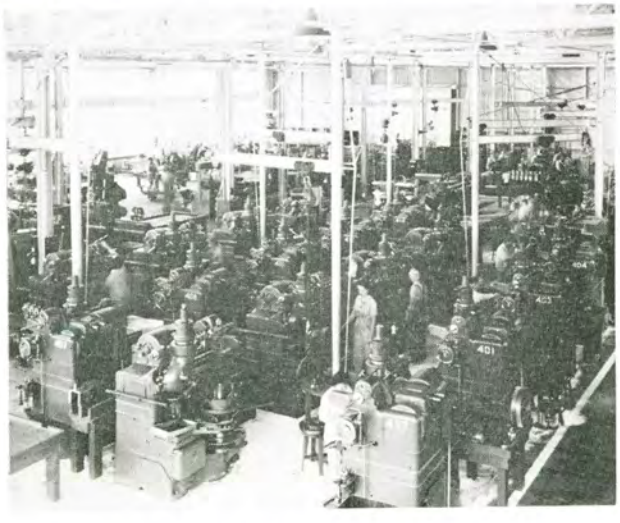


Gear Cutting Department of our Lufkin Plant.

Testing pinion shaft blank for eccentricity before cutting herringbone teeth. Accuracy here is of extreme importance.



Teeth of herringbone gears must pass rigid inspection for accuracy of formation.

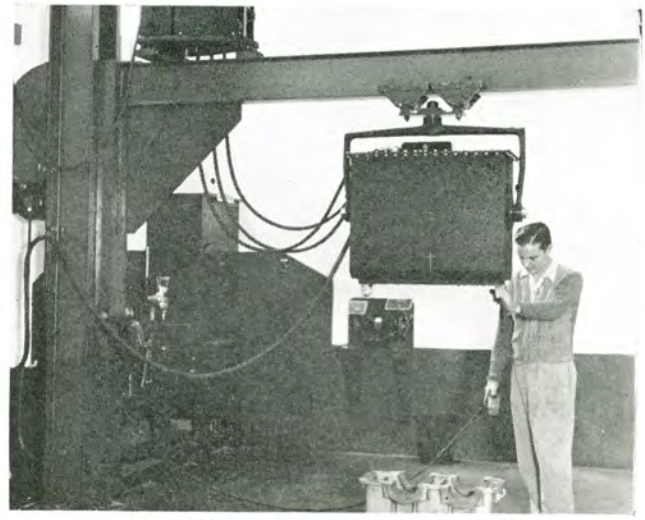


General View of Gear Plant.

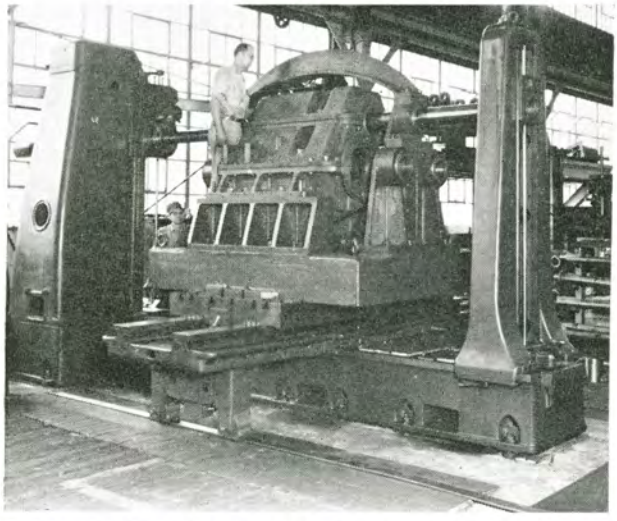
Testing Gear Teeth for Hardness.

MODERN METHODS MEAN PRECISION EQUIPMENT

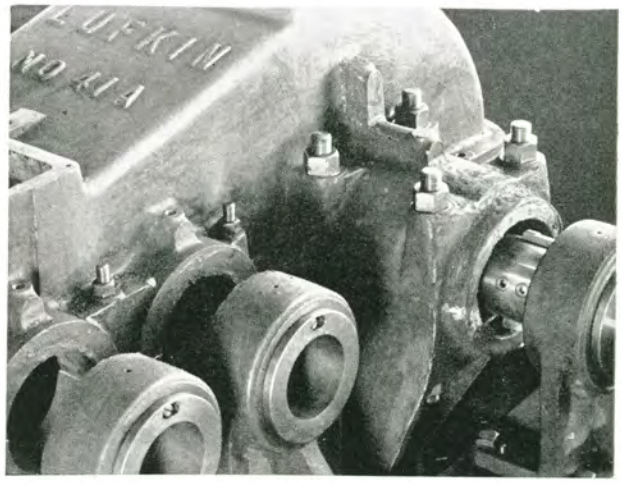
Modern Chemical Laboratory insures absolute check on chemical and physical analysis.



Radiography—a necessity for perfection of castings, etc.

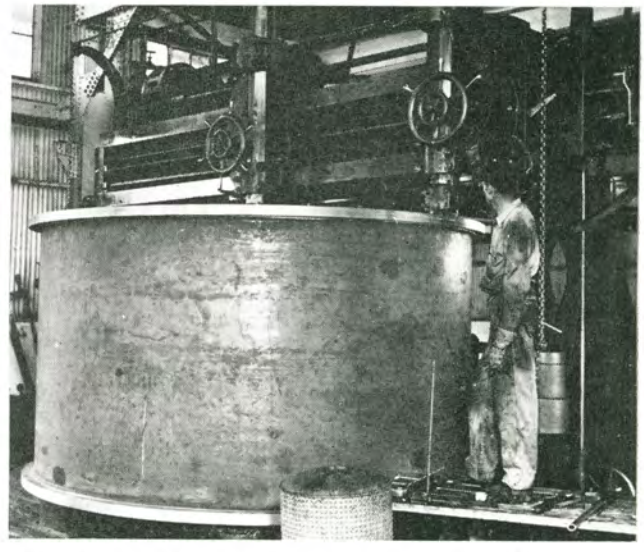


Modern G. & L. Boring Mills insure precision alignment of bore.

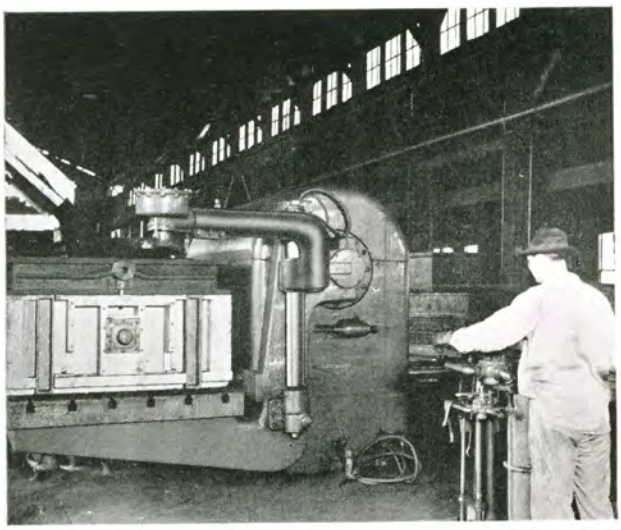


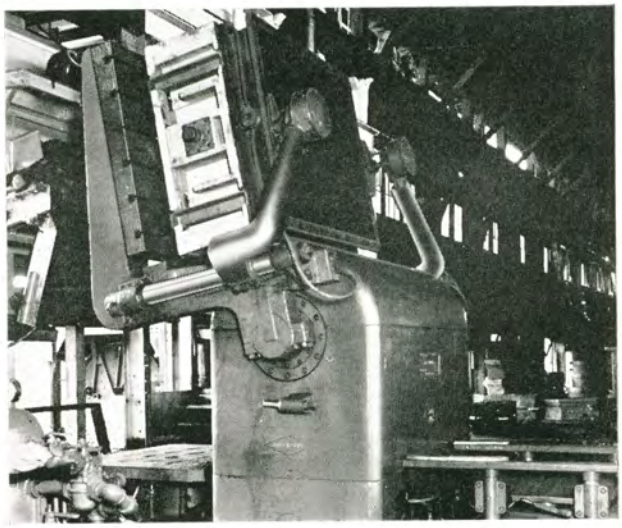
This photo shows start of boring operation with cover intact. Every Lufkin Unit is bored to absolute accuracy on equipment such as is described above.

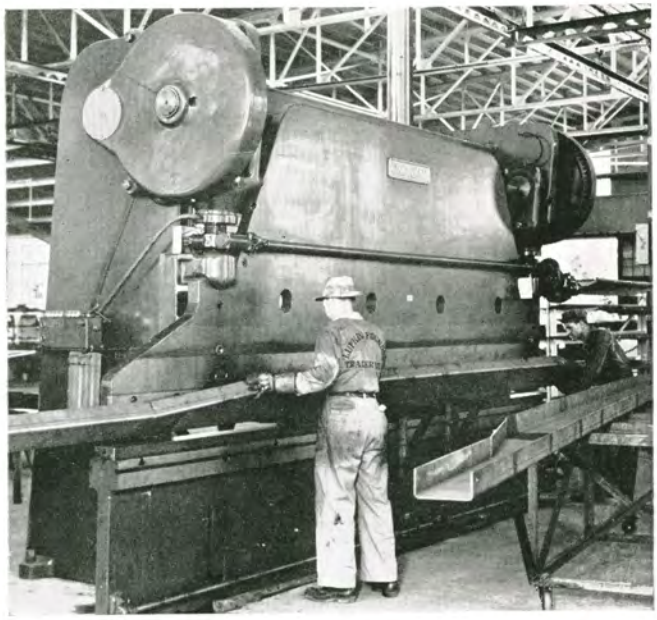
Casting and machine parts are sand blasted with modern equipment.



Niles Boring Mill—12-ft. diameter capacity—this casting poured in our own plant.



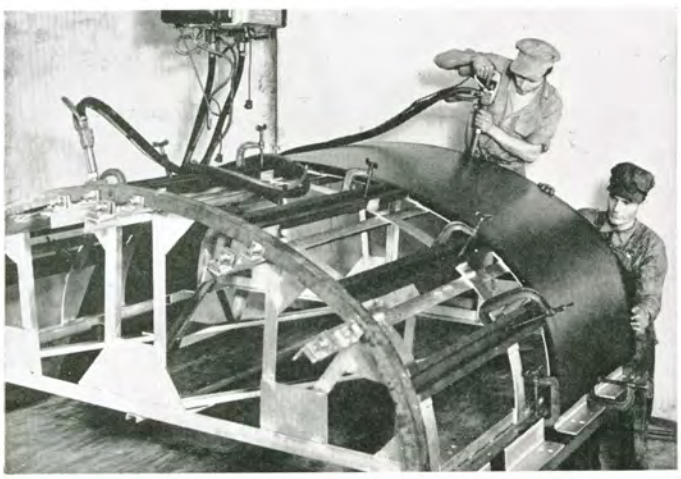


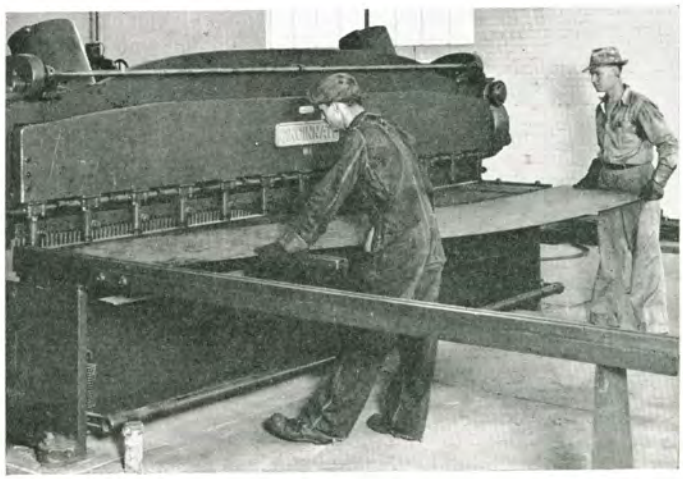


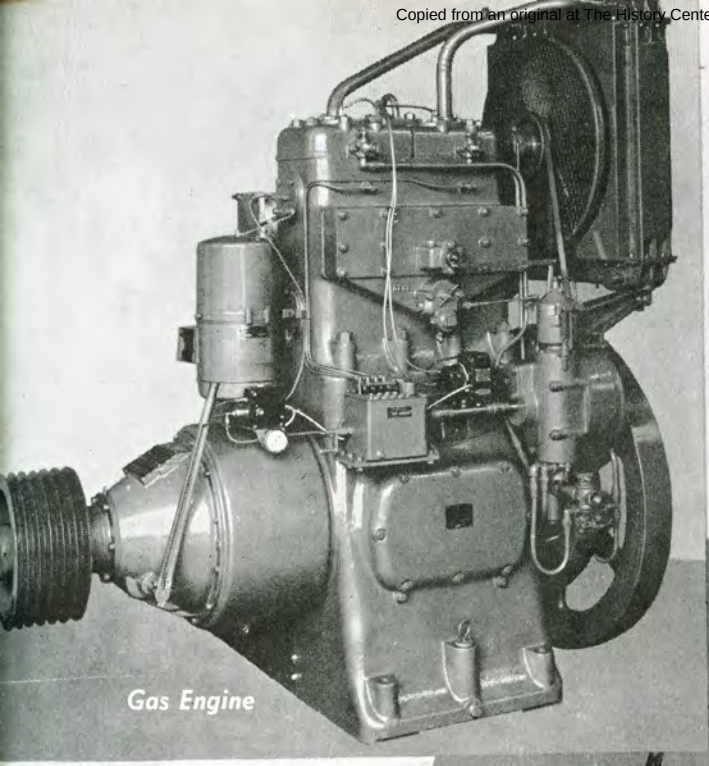
LARGEST MOULDING MACHINES IN SOUTHWEST

The above cut shows one of our moulding machines in operation. Our foundry is thoroughly modern with the newest machinery to insure the best quality of castings possible. All Lufkin iron castings are "Lufkaloy" alloy iron, exhibiting uniform density and solidity of grain structure throughout all metal sections regardless of their thickness. It possesses definite physical properties fully double those of unalloyed irons.

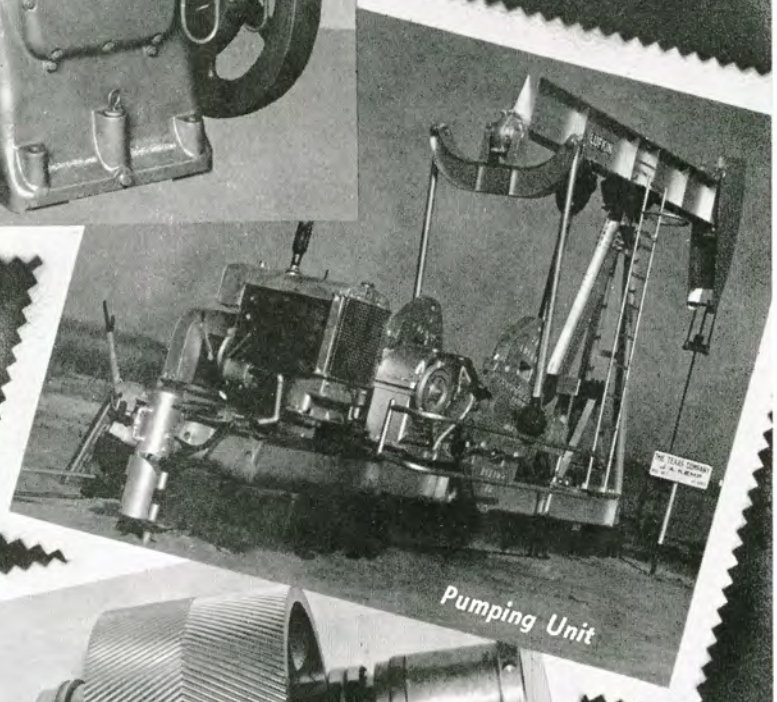
Modern tools have been installed in the new **Trailer Plant** of the Lufkin Foundry & Machine Company. Center left: Cincinnati Brake on which all parts are formed—this is said to be the largest tool of its kind in the Southwest. Lower left: All parts are formed to jig and template—this jig forms the van "nose" during "spot-welding" process. Lower right: Cincinnati Shear—for heavy duty shearing of plates, sheets, etc.







Gas Engine



Pumping Unit

Wide Face Herringbone Gear Transmission

Lufkin Liner

Popular...

LUFKIN PRODUCTS

LUFKIN FOUNDRY & MACHINE COMPANY

LUFKIN, TEXAS, U. S. A.

Printed in U. S. A.

LUFKIN

EQUIPMENT OF ADVANCED DESIGN