LE GRAND ROCHESTER LIMITED

ANCHOR & HOPE LANE, CHARLTON, LONDON, S.E.7, ENGLAND

Formerly of: HORSTED AIRPORT, ROCHESTER, KENT, ENGLAND

Telephone: GREENWICH 3277. Cables: "LEGRANDEST" LONDON

LEGRAND Halliburton PRODUCTS

LEGRAND Carter HYDRAULIC PUMPING UNITS

LEGRAND QUALITY O·C·T PRODUCTS WELLHEAD EQUIPMENT

LEGRAND DAVEY Compressor Co LIGHT ROTARY RIGS

LEGRAND Cardwell SERVICING AND WORKOVER RIGS

LEGRAND PUMPING UNITS

MANUFACTURED IN ENGLAND UNDER LICENCE

INDEX

Represented in the following areas by

CANADA	Le Grand Ltd., 111 58th Avenue, S.W., Calgary Alberta, Canada
TRINIDAD	The Industrial Agencies Ltd., 14, High Street, San Fernando, Trinidad, B.W I
TRINIDAD	Messrs. Halliburton Tucker Limited, 15 Meáden Street, San Fernando, Trinidad, B.W I
EASTERN VENEZUELA	A-Z Export, S.A., Apartado 4026, Puerto La Cruz, E. Venezuela
WESTERN VENEZUELA	A-Z Export, S.A., Apartado 304, Maracaibo, W Venezuela
ARGENTINA	J Stone y Cia (Argentina) SAI y C.S.A., Defensa 465, Buenos Aires, Argentina
FAR EAST	Earl Fuller P.O. Box 1272, Bangkok, Thailand
SPAIN	Messrs. Mclaurin, Morrison y Cia. S.A., Sanchez Pacheco 81 Madrid
HEAD OFFICE	Le Grand Sutcliff and Gell Ltd., Iddesleigh House, Caxton Street, London, S.W I

ASSOCIATED COMPANIES

Le Grand Limited, 111 58th Avenue, S.W., Calgary, Alberta, Canada	Tel. CALGARY CH34636
Le Grand ADSCO Limited, The Green, Southall, Middlesex	Tel. SOUTHALL 2211
Le Grand Western Foundries Limited, The Green, Southall, Middlesex	Tel. SOUTHALL 2211
Site Investigations Company Limited, The Green, Southall, Middlesex	Tel. SOUTHALL 2211
Boldon Drilling & Engineering Co. Ltd., East Boldon, Co. Durham	Tel. BOLDON 7294

STONE PLATT GROUP

SERIES "L" PUMPING UNITS

The units illustrated are the result of many years of close association between our design engineers and production engineers from many of the world's oil fields. (THEY ARE MANUFACTURED THROUGHOUT TO A.P.I. SPECIFICATION AND ARE AUTHORIZED TO BEAR THE A.P.I. MONOGRAM.)

The units are built to satisfy most pumping conditions and range from 2,000 to 33,000 lb. polished rod load with gearboxes conforming to A.P.I. Standard ratings from 6,400 to 640,000 lb. in peak torque. The ability to use full stroke with full polished rod load without exceeding the peak torque capacity of the gearbox is a feature of all units.

Small units have beam type counterbalance, while units of 7,500 lb. load rating and above have easily adjustable rack and pinion counterbalance weights on the cranks. In addition the smaller sizes of the medium range can be provided with beam or crank weights, or a combination of both. All units are floor clearing.

The " L " SERIES was designed to keep spares inventories, so important in foreign operations, at a minimum. While a large number of types of units is listed in this catalogue these are made up from the twelve standard gearboxes and a limited range of wearing parts such as bearings with modifications only to counterbalancing and steelwork. Many variations in stroke and load-carrying capacity can thus be met while employing a comparatively small number of such assemblies to cover the range.

In addition all bearing assemblies have been designed in " package " form so that the whole assembly can be changed in a matter of minutes causing minimum shut-down time to the well and permitting any necessary repairs to be carried out as convenient in the better conditions of the workshop.

All parts, including steelwork such as the samson post and base, are accurately manufactured using jigs and templates to ensure complete interchangeability.

GENERAL CONSTRUCTION

LEGRAND Pumping Units are manufactured throughout to A.P.I. Specification. They are of double crank, fully equalized construction, and have been designed to break down into components of reasonable size for shipment, field erection and service.

STEELWORK

On all units the base is spread at the front for stability and a gearbox plinth, integral with it, is used when necessary to make the cranks on all units floor clearing. Particular care has been taken when plinths are used to keep the geometry of the units correct by having samson posts of suitable height to maintain the pitman-crank ratio.

On L7½-57 PRB-54″ and above the samson posts are of four-legged construction. Provision is made for final lining-up of the unit by lateral and longitudinal adjustment of the saddle on top of the samson post. All units in these sizes can be supplied with front drive (motor under samson post) when specified with order.

On L9-57 BRB-36″ and below samson posts are vertical with rear-bracing and integral with the base. To permit final lining-up of the unit oversize square holes are left in the base and large eccentric washers are supplied with foundation bolts.

WALKING BEAMS

Constructed from rolled steel joist rated in accordance with A.P.I. standards.

MULEHEADS

Of welded plate construction. On L7½-57 PRB-54″ and above the mulehead is designed to swing back on top of he walking beam so giving ample travelling block clearance. On L9-57 BRB-36″ and below muleheads lift off.

EQUALIZERS

Pitmans and equalizer beams are fully equalized through spherically mounted bearings.

GEARBOXES

Gearboxes are of the double-helical, double-reduction type to A.P.I. Ratings and Specifications. The first reduction gear train on sizes 320 and above are of the split design to reduce overhung loads and deflections. Crankshafts on all units above size 40 have three keyways to enable cranks to be repositioned on the shaft at intervals to reduce peak wear on the teeth. A magnetic drain plug is provided which can only be removed by means of the special spanner provided.

CRANKS

Have a split boss to facilitate assembly.

BALANCE WEIGHTS

On crank-balanced units the balance weights can be adjusted very easily by one man by means of the rack and pinion adjustment. On beam-balanced units the beam weights are made in two halves for easy handling. (For details of both see Special Features, Page 180-6.

PRIME MOVERS

Units are suitable for any type of prime mover, electric motor or gas or oil engine. Unless otherwise specified they are normally shipped with extension base for electric motor; but extension bases are made to suit any make of gas (oil) engine. Speed variation is obtained by changing the driving pulley.

TIEDOWNS

Indented (rag) type foundation bolts are supplied as standard; clamps and U-bolts are available for customers preferring a central hold-down but must be specified when ordering.

PULLEYS

Fitted to the input shafts of the gearboxes, pulleys are arranged for standard vee belts. Motor pulleys can be supplied if required. Prime Mover speed and required unit speed should be specified.

BELTS

Supplied to our standard or to customer's requirements.

BELT GUARDS

Of welded sheet steel construction.

LADDERS

Fitted with safety rings and supplied with the larger units. Service platforms are also available for the ladder top as an optional extra.

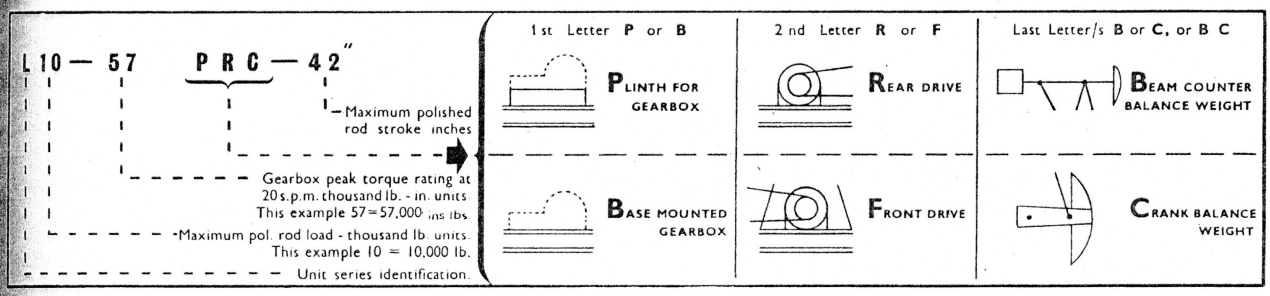
LUBRICATION

Saddle, equalizer and crankpin bearings each have their own reservoirs. On all units larger than the L7½-40 BRB-30″, i.e. on all those units on which the bearings cannot be reached from the ground, a ground-level replenishment system is fitted. For all lubrication including gearbox a S.A.E. 140 oil should be used for ambient temperatures between 35°F. and 130°F.; for lower temperatures, —20°F. to +50°F., use S.A.E. 80.

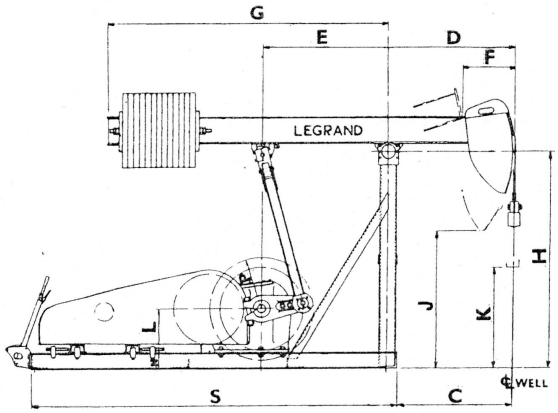
EXPORT PACKING

All parts are adequately protected and packed in cases and crates designed for ocean shipment and ease of handling in the field.

UNIT IDENTIFICATION CODE INDEX



LW2-6·4 PRB-16″
LW2-6·4S PRB-16″
LW3-10 PRB-30″
LW3-16 PRB-30″
LW5-25 PRB-40″
LW5-40 PRB-40″
L4-16 BRB-24″
L6-25 BRB-24″
L7½-40 BRB-30″
L7½-40 BRB-42″
L9-57 BRB-36″



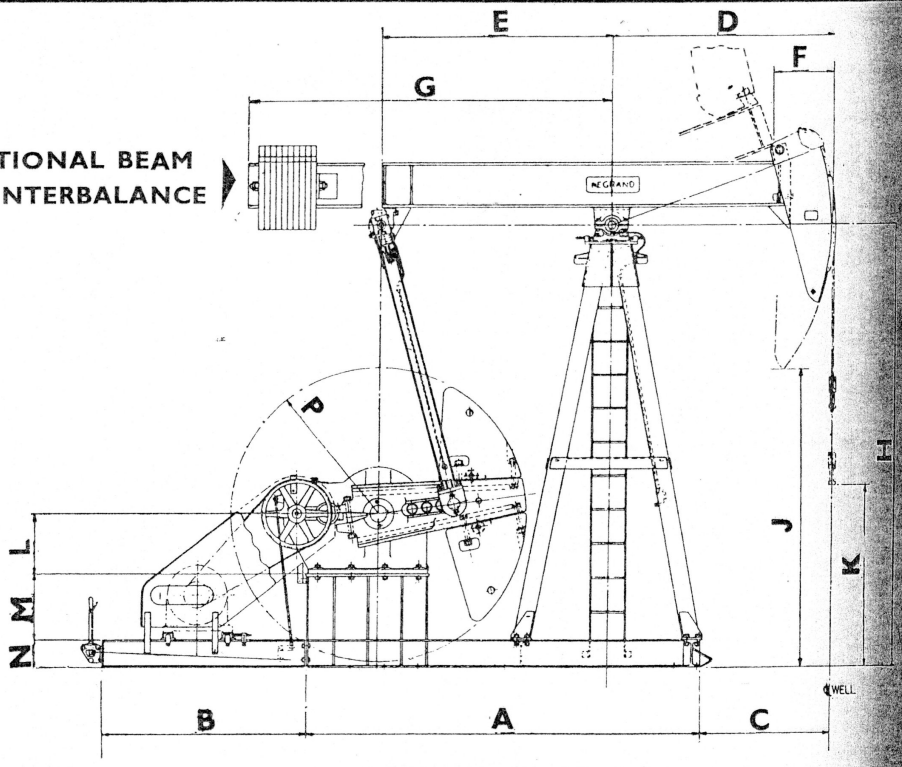
"K"—Lowest position of Carrier Bar
"J"—Lowest position of Mulehead

UNIT	S*	C	D	E	F	G	H	J	K	L	M	N	P	Walking Beam	Width of Main Base	Width of Main Base at Well end
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in. lbs./ft.	in.	in.
LW2-6·4 PRB-16″	87½	21⅝	28	28	7½	57	48	32½	26	8¾	2	3	11	5×3 ×11	15¾	24
LW2-6·4S PRB-16″	87½	21⅝	28	28	7½	57	48	32½	26	12	—	3	11	5×3 ×11	15¾	24
LW3-10 PRB-30″	114	38¾	45	36/45	11	78	63	35	24	8½	3¼	4	14¾	8×4 ×18	16¾	25
LW3-16 PRB-30″	114	38¾	45	36/45	11	78	63	35	24	11½	¼	4	14¾	8×4 ×18	16¾	25
LW5-25 PRB-40″	138	52	60	48/60	14½	90	84	46½	36	12½	2½	5	18¾	10×5¾×29	18¾	27
LW5-40 PRB-40″	138	52	60	48/60	14½	90	84	46½	36	12½	2½	5	18¾	10×5¾×29	18¾	27
L4-16 BRB-24″	105	33½	36	36	14¼	77	63	38	28	11	—	5	15	8×5 ×28	15¼	24
L6-25 BRB-24″	105	33	36	36	15	80	53	38	28	12½	—	5	15	8×6 ×35	16¼	25
L7½-40 BRB-30″	121	42	45	45	16½	99½	78	47	37	14	—	8	18	10×6 ×40	21	28
L7½-40 BRB-42″	121	60	63	45	22	104	78	38¾	29¼	14	—	8	18	10×8 ×55	21	28
L9-57 BRB-36	138½	51	54	51½	17	109½	87	52	36	14	—	8	21	10×8 ×55	21¼	36

*Dimension (S) is made up of Main and Extended Bases which bolt together to facilitate packing, except L4, L5, and L6 which are of unit construction.

TECHNICAL DATA		LW2-6·4 PRB-16″	LW2-6·4S PRB-16″	LW3-10 PRB-30″	LW3-16 PRB-30″	LW5-25 PRB-40″	LW5-40 PRB-40″	L4-16 BRB-24″	L6-25 BRB-24″	L7½-40 BRB-30″	L7½-40 BRB-42″	L9-57 BRB-36″
Maximum Polished Rod Load	lb.	2,000	2,000	3,000	3,000	5,000	5,000	4,000	6,000	7,500	7,500	9,000
A.P.I. Beam Rating	lb.	2,000	2,000	3,100	3,100	5,200	5,200	6,250	7,988	9,100	9,150	10,700
Range of Polished Rod Strokes	in.	12, 16	12, 16	24, 30	24, 30	32, 40	32, 40	12, 16	12, 16	15, 20	21, 28	18, 24
								20, 24	20, 24	25, 30	35, 42	30, 36
Gear Reducer A.P.I. Peak, Torque Rating ...	in./lb.	6,400	6,400	10,000	16,000	25,000	40,000	16,000	25,000	40,000	40,000	57,000
Gear Reducer Ratio		30:1	11·9:1	32·26:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1
Gear Reducer Pulley Size, P.C.D. fitted as Standard	in.	10	20	14	19	21	22	19	21	23	23	20
V-Belts No. and Section		2A	2A	2B	2B	3B	4B	2B	3B	4B	4B	5B
A.P.I. h.p. at 20 s.p.m.		1·29	1·29	2·01	3·23	5·06	8·08	3·23	5·05	8·1	8·1	11·6
Balance Weights	lb.	798	798	1,200	1,200	2,232	2,232	1,500	2,136	2,816	4,016	3,240
Max. Counterbalance effect at Max. Stroke	lb.	1,400	1,400	2,100	2,100	3,180	3,240	3,010	4,170	5,570	8,100	5,850
Net Weight	lb.	2,200	2,200	2,500	2,600	3,800	3,875	3,200	3,800	6,100	7,300	8,000
Gross Weight	lb.	2,650	2,650	3,000	3,100	4,400	4,475	3,800	4,400	6,700	8,000	8,450

L7½-57 PRB-54″
L7½-57 PRC-54″
L7½-114 PRC-84″
L9½-160 PRC-84″
L10-57 PRC-42″
L10-57 PRBC-42″
L10-114 PRC-56″
L11-80 PRC-42″
L13-80 PRC-48″
L13-114 PRC-54″
L13-160 PRC-72″
L15-114 PRC-54″
L15-160 PRC-54″
L15-160 PRC-64″
L17-160 PRC-72″



" K " Lowest position of Carrier Bar
" J " —Lowest position of Mulehead

UNIT	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Walking Beam in. lbs./ft.	Width of Main Base	Width of Main Base at Well End
L7½-57 PRB-54*†	111″	54¾″	55″	81″	63″	23″	124″	108½″	54″	38″	14″	5″	8″	25½″	12× 8× 65	21¼″	36½″
L7½-57 PRC-54†	115½″	58″	51″	81″	63″	23″	—	115″	63″	44″	14″	19½″	8″	40″	12× 8× 65	21¼″	36½″
L7½-114 PRC-84″	139″	72″	88″	121″	81″	24″	—	157¾″	78″	54″	21″	23″	10″	52½″	16× 8× 75	28″	41½″
L9½-160 PRC-84″	139″	72″	93″	126″	81″	27″	—	157″	76″	54″	21″	23″	10″	52¼″	16× 8× 75	28″	41½″
L10-57 PRC-42″†	115½″	58″	33″	63″	63″	22″	—	115″	74″	59½″	14″	19½″	8″	40″	12× 8× 65	21¼″	36½″
L10-57PRBC-42″†	115½″	58″	33″	63″	63″	22″	94″	115″	74″	59½″	14″	19½″	8″	40″	12× 8× 65	21¼″	36½″
L10-114 PRC-56″	136″	72″	54″	84″	81″	22½″	—	144″	91¾″	50½″	21″	16½″	8″	44″	14× 8× 70	28″	41½″
L11-80 PRC-42″†	115½″	58″	33″	63″	63″	22″	—	116½″	75¾″	61″	14″	19½″	8″	40″	12× 8× 65	21¼″	36½″
L13-80 PRC-48″	124″	72″	42½″	72″	72″	21″	—	141½″	95″	78″	14″	28½″	8″	49″	14× 8× 70	21¼″	36½″
L13-114 PRC-54″	139″	72″	48″	81″	81″	23″	—	157″	105″	64″	21″	23″	10″	52½″	16× 8× 75	28″	41½″
L13-160 PRC-72″	158½″	72″	69½″	108″	96″	28″	—	182″	114″	60″	21″	29″	12″	60″	18×12×122	29″	41½″
L15-114 PRC-54″	139″	72″	48″	81″	81″	23″	—	157″	105″	64″	21″	23″	10″	52¼″	16× 8× 75	28″	41½″
L15-160 PRC-54″	139″	72″	48″	81″	81″	23″	—	157″	105″	64″	21″	23″	10″	52¼″	16× 8× 75	28″	41½″
L15-160 PRC-64″	139″	72″	63″	96″	81″	24″	—	157″	97″	62″	21″	23″	10″	52¼″	18× 6× 80	28″	41½″
L17-160 PRC-72″	158¼″	72″	69½″	108″	96″	28″	—	182″	114″	60″	21″	29″	12″	60″	18×12×122	29″	41½″

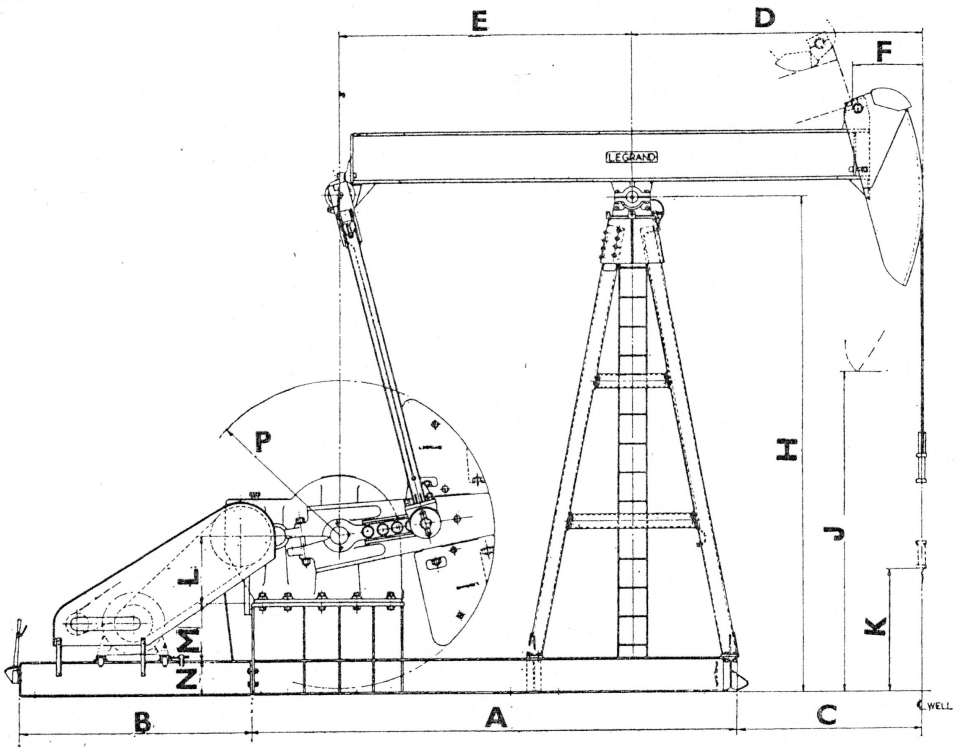
* Beam Counterbalance only, no crank weights. † Not fitted with ladder.

TECHNICAL DATA		L7½-57 PRB-54″	L7½-57 PRC-54″	L7½-114 PRC-84″	L9½-160 PRC-84″	L10-57 PRC-42″	L10-57 PRBC-42″	L10-114 PRC-56″	L11-80 PRC-42″	L13-80 PRC-48″	L13-114 PRC-54″	L13-160 PRC-72″	L15-114 PRC-54″	L15-160 PRC-54″	L15-160 PRC-64″	L17-160 PRC-72″
Maximum Polished Rod Load	lbs.	7,500	7,500	7,500	9,500	10,000	10,000	10,000	11,000	13,000	13,000	13,000	15,000	15,000	15,000	17,000
A.P.I. Beam Rating ...	lbs.	10,000	10,000	10,000	9,500	12,000	12,900	12,000	12,900	14,000	15,000	21,600	15,000	15,000	15,000	21,600
Range of Polished Rod Strokes	ins.	27, 36, 45, 54	27, 36, 45, 54	31½, 49, 66½, 84	37·3, 52·9 68·4, 84	21, 28, 35, 42	21, 28, 35, 42	24·9, 35·3 45·6, 56	21, 28, 35, 42	21, 30, 39, 48	24, 34, 44, 54	33, 46, 59, 72	24, 34, 44, 54	24, 34, 44, 54	28·5, 40·25 52, 64	33, 46, 59, 72
Gear reduced A.P.I. Peak Torque Rating	lbs.	57,000	57,000	114,000	160,000	57,000	57,000	114,000	80,000	80,000	114,000	160,000	114,000	160,000	160,000	160,000
Gear Reducer Ratio ...	ins.	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1
Gear Reducer Pulley Size P.C.D. Fitted as Standard	ins.	20	20	24¼	24¼	20	20	24¼	21	21	24¼	32	24¼	24¼	24¼	32
V Belts Number and Section		5 B	5 B	4 C	5 C	5 B	5 B	4 C	5 B	5 B	4 C	4 C	4 C	5 C	5 C	4 C
A.P.I. h.p. at 20 S.P.M. ...		11·6	11·6	23	32·4	11·6	11·6	23	16·2	16·2	23	32·4	23	32·4	32·4	32·4
Balance Weights ... ... (total dead weight)	lbs.	4,040	4,520	4,600	5,400	4,520	4,440	4,900	4,520	5,692	4,440	4,440	6,012	5,400	7,760	8,440
Max. Counterbalance effect at Max. Stroke	lbs.	5,150	5,658	5,050	6,030	7,292	7,388	6,736	7,292	9,645	8,900	8,750	10,775	10,175	10,400	12,450
Net Weight (approx.) " R " Units	lbs.	10,250	12,050	15,000	17,950	11,750	12,540	15,200	11,750	15,700	17,600	18,500	17,600	17,950	20,200	23,400
Gross Weight (approx.) ...	lbs.	11,000	12,750	15,800	18,950	12,450	13,300	16,050	12,450	16,500	18,600	19,500	18,600	18,950	21,250	24,400

All units shown on this page can be supplied with the Prime Mover under the Samson Post if required. Full details will be supplied on request.

LE GRAND ROCHESTER LIMITED

L17-228 PRC-72″
L17-228 PRC-84″
L22½-320 PRC-84″
L20-228 PRC-72″
L25-228 PRC-72″
L25-320 PRC-72″
L25-320 PRC-84″
L27-320 PRC-84″
L29-320 PRC-72″
L30-456 PRC-108″
L30-640 PRC-132″
L33-640 PRC-120″



"K" —Lowest position of Carrier Bar
"J" —Lowest position of Mulehead

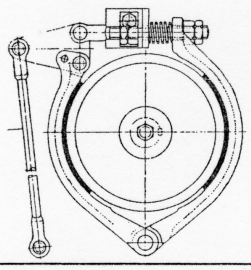
UNIT	A	B	C	D	E	F	H	J	K	L	M	N	P	Walking Beam	Width of Main Base	Width of Main Base at Well End
														in. lbs./ft.		
L17-228 PRC-84″ ...	182½″	92″	83″	126″	108″	28″	203⅜″	135″	51⅜″	27″	21″	14″	60″	20×12×135	31½″	53″
L20-228 PRC-72″ ...	182½″	92″	65″	108″	108″	28″	203⅜″	130⅜″	51⅜″	27″	21″	14″	60″	20×12×135	31½″	53″
L25-228 PRC-72″ ...	200½″	93½″	74½″	120″	120″	28″	205⅜″	136″	53½″	27″	29″	15″	69½″	20×12×135	34⅜″	53″
L25-320 PRC-72″ ...	198″	93″	77″	120″	120″	28″	204⅜″	131⅝″	51¼″	28″	24″	15″	64½″	20×12×135	34⅜″	53″
L27-320 PRC-84″ ...	199″	93″	96½″	140″	120″	28″	211″	142″	57″	28″	28″	15″	69½″	24×12×165	34⅜″	53″
L29-320 PRC-72″ ...	198″	93″	77″	120″	120″	28″	211″	142″	57″	28″	28″	15″	69½″	22×12×150	34⅜″	53″
L30-456 PRC-108″ ...	248″	90″	99″	156″	156″	36″	290″	188″	60″	28″	41½″	16″	84″	32×12×159	34⅜″	72″
L30-640 PRC-132″ ...	248½″	108″	139″	198″	156″	39″	292½″	168″	60″	30″	50″	16″	93″	36×12×179	34⅜″	72″
L33-640 PRC-120″ ...	248½″	108″	121″	180″	156″	38″	292½″	181½″	60″	30″	50″	16″	93″	36×12×179	34⅜″	72″

TECHNICAL DATA		L17-228 PRC-84″	L20-228 PRC-72″	L25-228 PRC-72″	L25-320 PRC-72″	L27-320 PRC-84″	L29-320 PRC-72″	L30-456 PRC-108″	L30-640 PRC-132″	L33-640″ PRC-120
Maximum Polished Rod Load	lbs.	17,000	20,000	25,000	25,000	27,000	29,000	30,000	30,000	33,000
A.P.I. Beam Rating	lbs.	22,200	26,000	25,000	25,000	28,000	30,300	30,000	30,800	33,900
Range of Polished Rod Strokes ...	ins.	28, 42, 56, 70, 84	24, 36, 48, 60, 72	24, 36, 48, 60, 72	24, 36, 48, 60, 72	28, 42, 56, 70, 84	24, 36, 48, 60, 72	48, 63, 78, 93, 108	44, 66, 88, 110, 132	48, 66, 84 102, 120
Gear Reducer A.P. Peak Torque Rating	ins. lbs.	228,000	228,000	228,000	320,000	320,000	320,000	456,000	640,000	640,000
Gear Reducer Ratio		30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1	30:1
Gear Reducer Pulley Size P.C.D. fitted as Standard	ins.	40	33	33	33	33	33	36	43½	43½
V Belts Number and Section		4 C	6 C	7 C	7 C	7 C	7 C	10 C	9 D	9 D
A.P.I. h.p. at 20 S.P.M.		27·6	46	46	65	65	64·8	92·5	129·5	129·5
Balance Weight (total dead weight) ...	lbs.	8,000	8,000	9,108	8,600	13,440	10,800	13,668	13,776	13,776
Max. Counterbalance effect at Max. Stroke	lbs.	11,720	13,663	18,825	16,056	19,410	20,125	21,550	21,625	23,800
Net Weight (approx.)	lbs.	29,350	28,850	31,900	33,000	37,800	35,200	52,250	60,000	59,500
Gross Weight (approx.)	lbs.	30,700	30,250	33,300	34,400	39,200	36,600	53,850	61,800	61,300

All units shown on this page can be supplied with the Prime Mover under the Samson Post if required. Full details will be supplied on request.

SPECIAL FEATURES

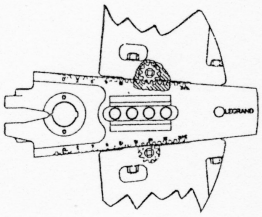
BRAKES



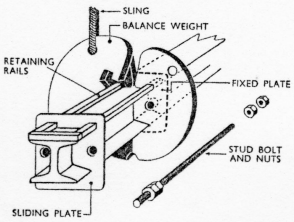
Brakes are of the external shoe type, self-compensating, and normally applied by a sturdy but simple ratchet lever conveniently placed near the prime mover. They may be applied prior to erection or dismantling of the brake lever and extension by inserting a locking pin and adjusting the nuts on the operating bolt. This allows them to remain applied and thus hold the crank and balance weights in any desired position while the unit is in transit, or being installed in the field.

COUNTERBALANCE

CRANK



BEAM



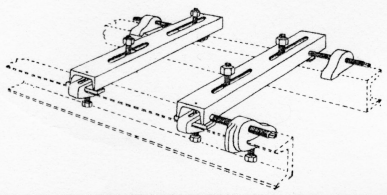
CRANK

The rack and pinion method of adjusting the counterbalance weights is so easy to use that it ensures the unit being kept to the degree of balance. One man can adjust all four balance weights in a few minutes without altering the position of the cranks. Adjustment is made by setting the cranks horizontal, slackening off holding down bolts, turning pinion with handle supplied and finally re-tightening holding down bolts firmly. Lead or lag may be set as required by the particular well conditions. The closed ends of the slots in the crank prevent weights coming off even if holding down bolts are allowed to become slack. The rack teeth are shrouded and not so subject to damage as the exposed type.

BEAM

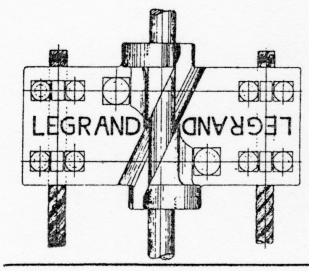
Beam weights are made in two identical halves for easy fitting and are hung on rails at the top of the beam. Fixing is by a bolt passing through a hole in each weight and retainer plates. Even if the bolt is slack the rails and retainer plates prevent weights from falling off.

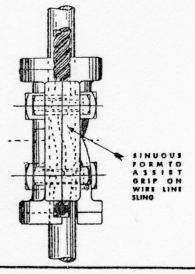
SLIDERAILS



In this assembly clamps are used in place of the lower rails and adjusting blocks instead of the conventional slotted rail. This feature simplifies the assembly and increases flexibility and capacity to accept any type and size of prime mover without interference with unction boxes or leads.

LE GRAND PATENTED CARRIER BAR

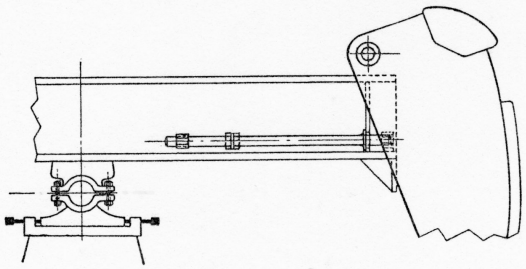




British Patent No. 673876

Of cast steel with a sinuous grooved clamp at each side to grip the wire line sling. The carrier bars are easily placed on the polish rod or removed by means of the angular slot. This carrier bar is used on all units larger than the L7½-40 BRB-42″. On this size and smaller a simple bar type is used. This has slots at each side to take the thimble ends of the sling.

MULEHEAD



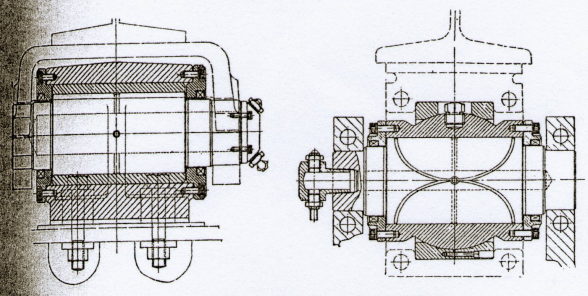
Beam-Mulehead Connecting Bolt is extended so that it can be reached from the ladder for the safety of the personnel. On the range L7½-57 PRB-54″ to L17½-160 PRC-72″ the mulehead pin is hung in eccentric collars so that the mulehead can be aligned vertically once locked the mulehead pin rotates freely in the collars but alignment is held.

SPECIAL FEATURES

BEARINGS

SADDLE EQUALIZER

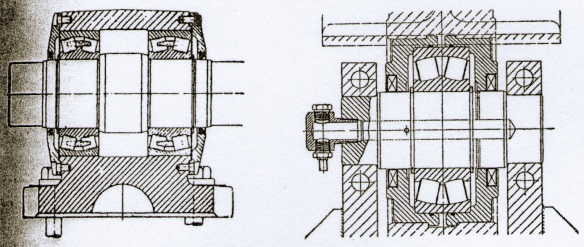
BRONZE



' As on medium range" (Pages 573-4)

SADDLE EQUALIZER

ROLLER



As on larger range" (Page 575)

All bearings are designed to take fu l loads for long periods continuously It will be noted that the equalizer in al types gives full universal action to provide perfect alignment.

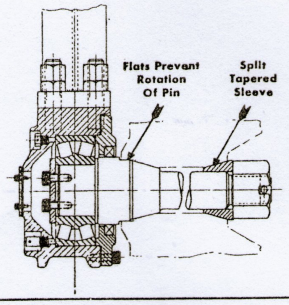
Al units n the medium range and smaller have bronze bearings in the saddle and equalizer, on the larger units, where loads are higher, a change is made to anti-fr ction bearings to keep the size and weight of these components within reasonable imits.

Al units in the heav er range, i.e. those with 228,000 b in gearboxes and larger, therefore have barrel-rol er bearings in the saddle and equalizer

LUBRICATION

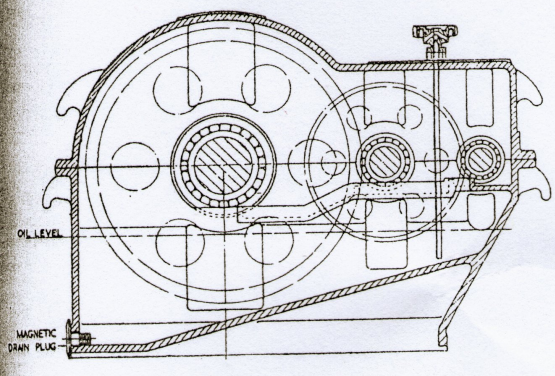
In al the bronze bearings and in the rol er bearing equalizers a hollow pin provides an ample oil reservoir n the roller bearing saddles and crankpins there is ample space in the housing to form a large oi reservoir

CRANKPINS



Crankpins are of the LEGRAND Patented quick release construction ncorporating split tapered sleeves, making removal exceptional y easy and el minating any difficulty n the field when occasion arises to alter the Polished Rod Stroke A sharp blow on a smal wedge inserted n the slot of the split tapered sleeve wi loosen the most obstinate p n. Crankpins run in self-align anti-friction bearings. The construction permits the complete assembly to be changed in a few m nutes should the occasion arise

GEARBOXES



GEARBOXES

All gearbox bearings are anti-friction They are ubri-cated by splash and weir To prevent contamination from metallic particles a magnetic drain p ug is fitted to the gearbox.

THE POWER PLANT COMPANY LIMITED

WEST DRAYTON, MIDDLESEX, ENGLAND

Telegrams: "ROC" West Drayton Telephone: West Drayton 2626

Branch Office: Manchester

Agents: Glasgow, Birmingham, Newcastle-on-Tyne, Derby, Leeds, Cardiff, Belfast. Also Dominions and Foreign

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PUMPING UNIT SPEED REDUCERS

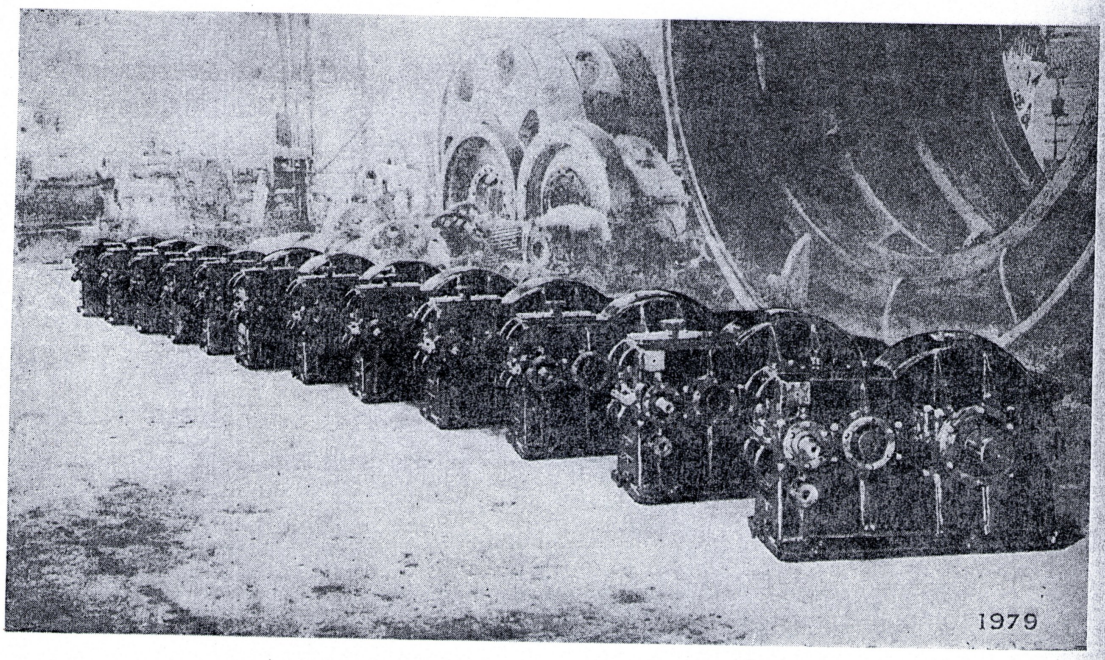
STANDARD DOUBLE HELICAL UNITS FOR BOOSTER PUMPS ON PIPE LINES

TURBINE REDUCTION UNITS FOR OIL FIELD POWER STATIONS

GEARS FOR SLUSH PUMPS

GEARS FOR DRILLING RIGS

GEARS FOR WATER SUPPLY AND SEWAGE DISPOSAL, ETC.

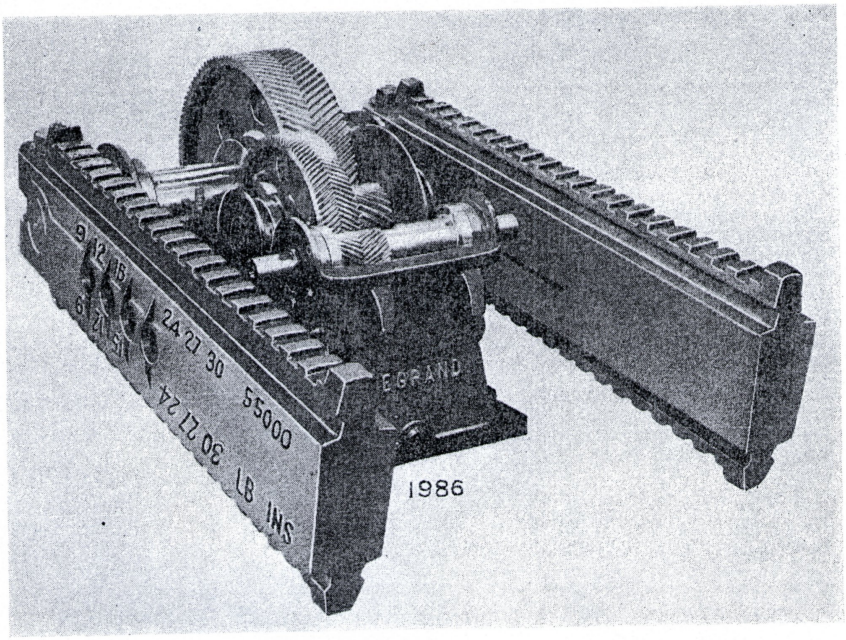


Group of P.5 Gear Boxes for 10/42 Oil Well Pumping Unit.

Our pumping unit speed reducers, of which many hundreds have been supplied, have been specially designed for working under the arduous conditions experienced in the oil fields. The list gives the capacities of our standard units, but we can supply special sizes to suit clients' particular requirements.

The reducers are of the double reduction type and the gear sizes conform to the standards established by the American Petroleum Institute.

GEARS. For the larger sizes the gears are arranged with the first reduction train divided, i.e. a pair of single helical gears fitted on each side of the second reduction pinion. By this arrangement, the bearing loads are equalized and the gear loads are applied to the shafts adjacent to the bearings. In the smaller sizes, where the loads are reduced, the gear arrangement is of the standard type, having one pair of first reduction and one pair of second reduction gears, each having continuous double helical teeth. The pinions are made in heat treated alloy forged steel, whilst the wheels and rims are made of alloy forged or cast steel of the required Brinell hardness, to give a long life. The teeth are generated by means of profile ground cutters, on machines of our own design and manufacture, thus enabling us to maintain the highest possible accuracy on the unit.



P.5. Oil Well Pumping Unit Gear Box fitted with Cranks (Cover removed).

BEARINGS. The bearings are of the ball and roller type, adequate in size to deal with the internal gear loads and the external loads imposed by the cranks and driving pulley.

SHAFTS. The first and second motion shafts are made integral with their respective pinions. The first motion shaft is extended on each side for carrying the driving pulley and the brake, whilst the crankshaft, which is made in forged steel, is extended on each side of the unit for carrying the cranks.

GEAR CASING. The casting is made in best quality close-grained cast iron and is rigidly designed. It is supplied complete with oil seals at the positions where the shafts project, end covers, inspection cover, lifting hooks, and combined breather, dipstick and oil filler plug. If required, brake pin facings can be cast on at convenient positions.

LUBRICATION. The gear lubrication is arranged by means of the teeth of each wheel passing through the oil contained in the lower half of the gear case. Suitable ducts or throwers are arranged to convey a supply of oil to the bearings automatically.

GENERAL. The reducers are covered by our usual guarantee concerning materials and workmanship. They are supplied ready for immediate service, it being necessary only to fill with lubricating oil to the required level before starting, and to maintain this level by periodic inspection.

Size.	Peak Torque at 20 S.P.M.	Ratio.	Maximum Overhung Load on Centre Line of Wrist Pin.	Shaft End Diameters.	
				H.S.	L.S.
P.2	12,000 lbs. in.	29·8:1	2,000 lbs.	$1\frac{3}{8}$	$2\frac{3}{4}$
P.3	20,000 ,,	29·8:1	3,000 lbs.	$1\frac{3}{8}$	$2\frac{3}{4}$
P.4	35,000 ,,	25:1	5,000 lbs.	$1\frac{3}{4}$	$3\frac{7}{8}$
P.4A	35,000 ,,	30:1	5,000 lbs.	$1\frac{3}{4}$	$3\frac{7}{8}$
P.5	55,000 ,,	25:1	5,000 lbs.	$1\frac{3}{4}$	$4\frac{3}{8}$
P.5A	55,000 ,,	30:1	5,000 lbs.	$1\frac{3}{4}$	$4\frac{3}{8}$
P.6	98,000 ,,	30·1:1	7,500 lbs.	$2\frac{1}{4}$	$5\frac{1}{2}$
P.7	140,000 ,,	30·1:1	7,500 lbs.	$2\frac{1}{2}$	6
P.8	200,000 ,,	30:1	10,000 lbs.	$2\frac{3}{4}$	$6\frac{1}{2}$
P.9	330,000 ,,	30:1	12,500 lbs.	$3\frac{1}{4}$	$7\frac{1}{2}$