

2048
H. H. Hunt

Announcing...

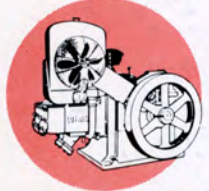
The New LUFKIN

MARK II Unitorque PUMPING UNIT

Call your LUFKIN Representative for the complete MARK II story



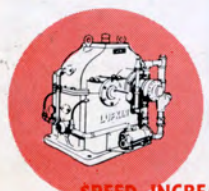
PUMPING UNITS



GAS ENGINES



TRAILERS



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Lufkin equipment in Canada is handled by
THE LUFKIN MACHINE CO., LTD., 9950 65th Avenue, Edmonton, Alberta, Canada, Regina, Saskatchewan, Canada

LUFKIN MARK II UNITORQUE PUMPING UNIT ASSEMBLIES

- | | |
|-----------------------|-----------------------|
| M-114D-143-64 | M-320D-304-120 |
| M-114D-173-64 | M-320D-304-144 |
| M-114D-200-74 | M-456D-253-144 |
| M-160D-200-74 | M-456D-256-120 |
| M-160D-246-74 | M-456D-304-120 |
| M-160D-200-86 | M-456D-304-144 |
| M-160D-246-86 | M-456D-304-168 |
| M-228D-200-74 | M-456D-356-144 |
| M-228D-246-74 | M-456D-356-168 |
| M-228D-200-86 | M-640D-253-144 |
| M-228D-246-86 | M-640D-256-120 |
| M-228D-256-100 | M-640D-304-120 |
| M-228D-256-120 | M-640D-304-144 |
| M-320D-256-100 | M-640D-304-168 |
| M-320D-256-120 | M-640D-356-144 |
| M-320D-304-100 | M-640D-356-168 |

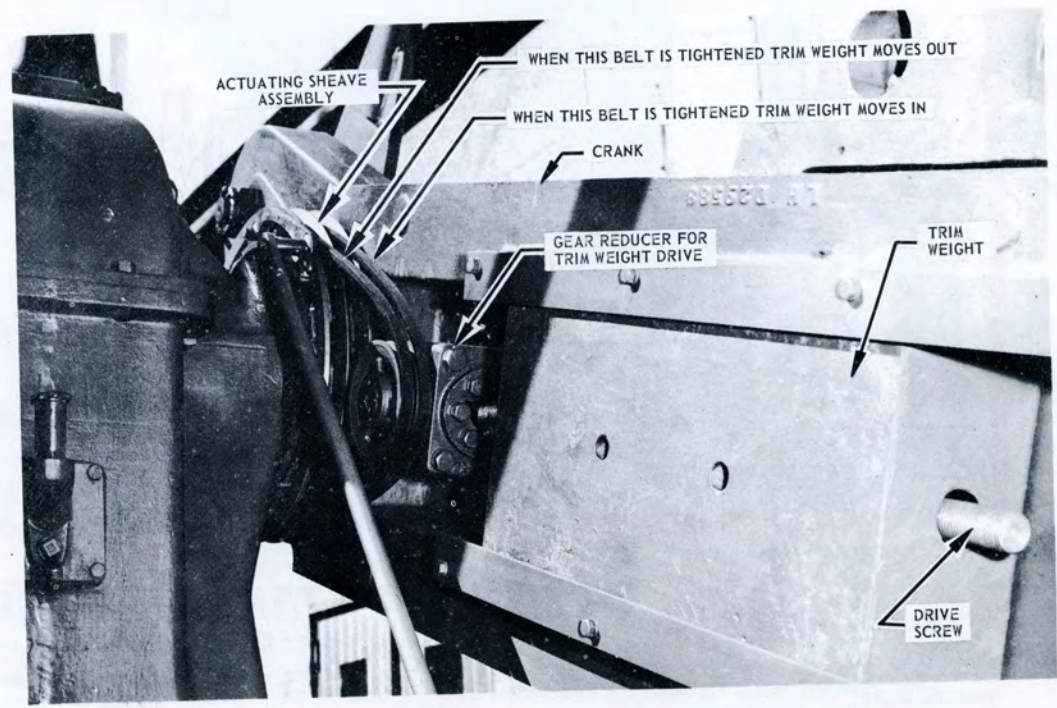
NOTE: Units Shown In Bold Face Type Are Currently Available

SEMI-AUTOMATIC COUNTERBALANCE

(OPTIONAL AT ADDITIONAL COST)

For those applications where changing well conditions necessitate changing counterbalance requirements, a semi-automatic counterbalancing device is available on the LUFKIN Mark II Unitorque units. A counterbalance **TRIM WEIGHT** located in each crank can be moved either in or out depending on whether less or more counterbalance is required. Moving the trim weights is easily accomplished while the unit is running by moving a lever either forward or backward (see front cover). One lever actuates the right hand trim weight; the other lever operates the left hand.

Naturally, when a radical change in counterbalance is required, such as when the stroke length is changed, the main counterweights themselves must be moved.



GENERAL ENGINEERING INFORMATION

GOMETRY

- (1) The cross yoke (equalizer) is shifted forward toward the horsehead instead of placing it directly over the gear reducer. This produces approximately a 195° upstroke and a 165° downstroke. (See illustration below).

The 195° upstroke reduces the acceleration where the load is greatest and thus, effects a reduction in polished rod load.

By locating the cross yoke forward a greater mechanical advantage is obtained for lifting the load, and a lesser mechanical advantage is obtained for the reduced downstroke load, i.e., the maximum upstroke torque factor is decreased and the maximum downstroke torque factor is increased.

- (2) The counterbalance weights are offset on the crank. This produces a counterbalance torque which at the beginning of the upstroke "lags" the torque produced by the pitman load approximately $7\text{-}1/2^\circ$. Similarly, at the beginning of the downstroke this same offset condition produces a counterbalance torque which "leads" the pitman load torque approximately $7\text{-}1/2^\circ$. (See illustration below).

Independently, these features would not produce a uniform torque, but working together a "unitorque" system is obtained which in turn can effect a torque reduction on the gear reducer up to 35%.

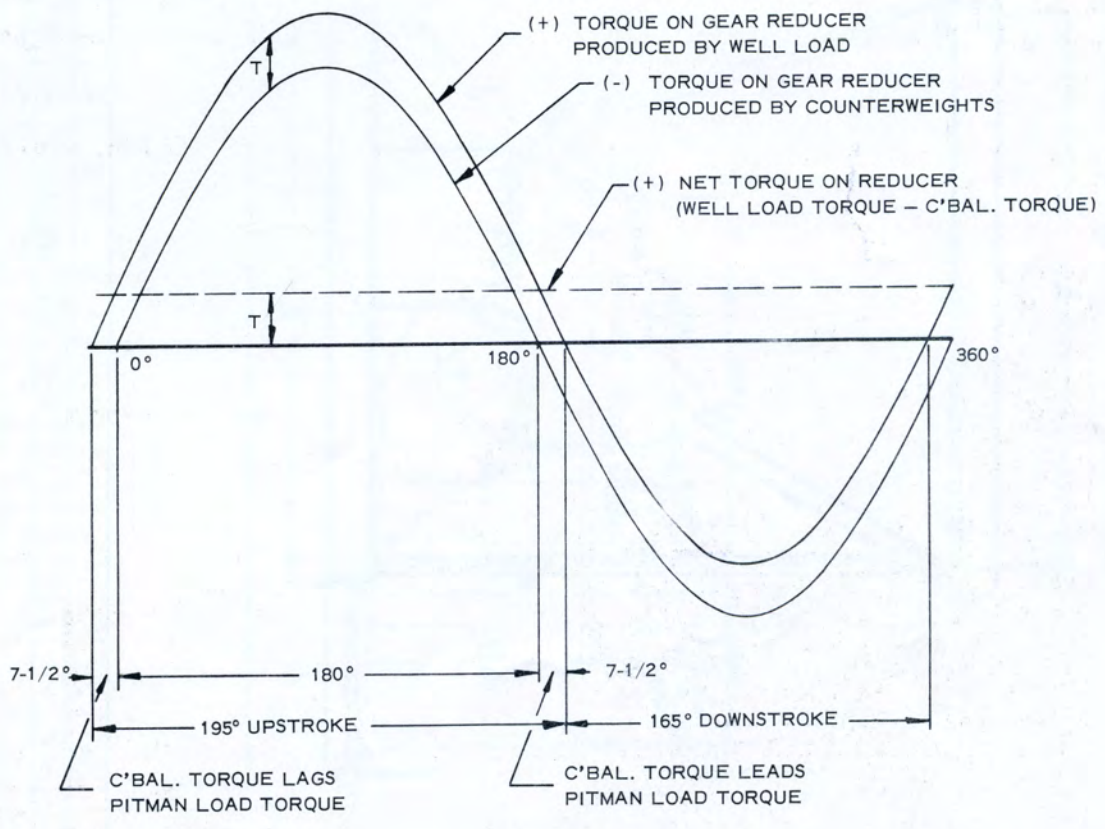


ILLUSTRATION SHOWING HOW A UNIFORM TORQUE CAN BE OBTAINED UNDER IDEAL CONDITIONS

