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MANUAL PREVIEW

Joliet Oil
Operator's Manual
Bates Steel Mule

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Operator's Manual

JOL-O-BSM

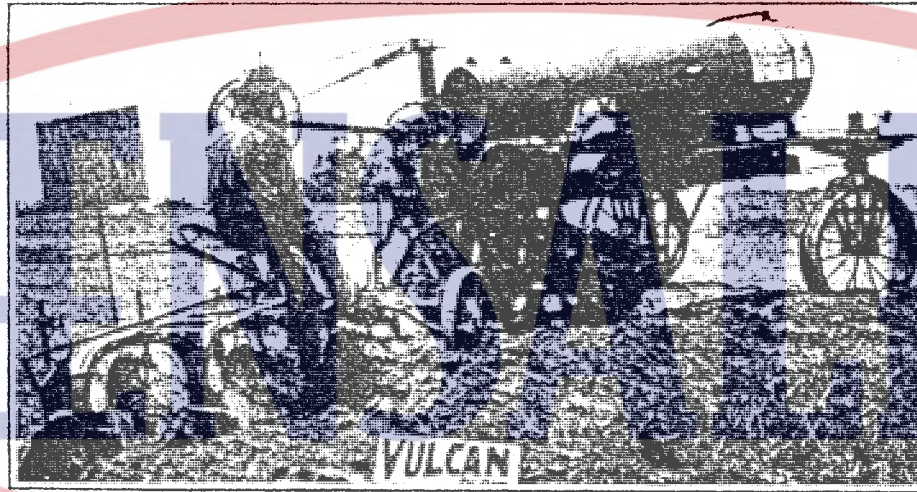
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JOLIET OIL TRACTOR CO.

Joliet, Illinois

Steel Mule 13-30

1916-1918



Steel Mule 13-30

Joliet Oil Tractor Co., Joliet, Ill.

Two wheels and one crawler, driving from crawler in rear center. Recommended for three 14" plows, 28" thresher. Height 68 $\frac{3}{4}$ inches, face of crawler 15 inches; total traction surface 720 sq. in. Weight 5,600 lbs. Price \$985. Vertical four cylinder motor, cast en bloc, 4x6, r.p.m. 900 normal, valve-in-head. Bennett kerosene carburetor. Dixie high tension independent magneto with impulse starter. Centrifugal pump, fan and tubular radiator. Babbitt transmission bearings. Force sight feed lubrication. Two forward, one reverse speed, 2 $\frac{1}{4}$ to 3 $\frac{1}{2}$ m.p.h. Selective sliding gear speed change, enclosed. Chain final drive. Machined steel gearing.

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DIRECTIONS FOR OPERATING BATES STEEL MULE

ASSEMBLY OF MACHINE

The tractor is shipped on skids, in a partially "knocked-down" condition, in order to make it convenient to unload and handle.

The front cross arms, bearing pattern number S-63 should be first bolted to the I-beam side frames of the main body of the tractor. Care

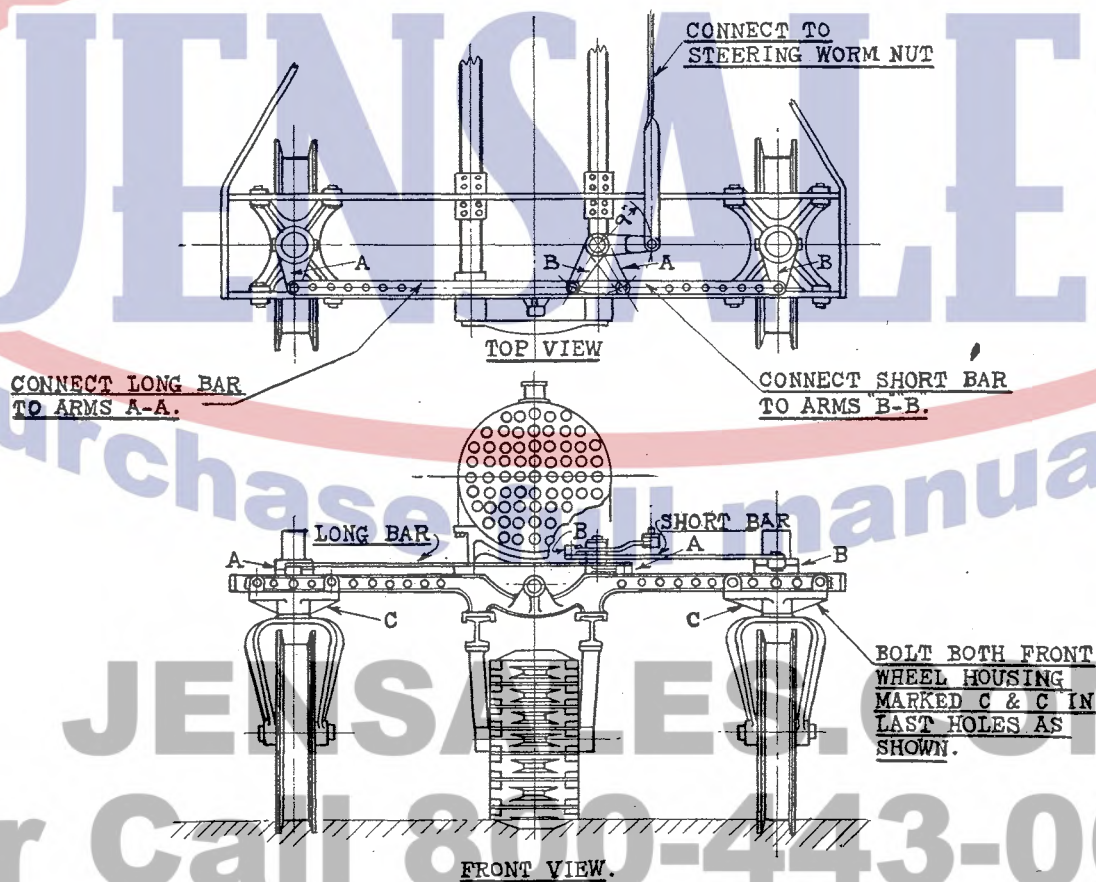


Fig. 1.

should be taken to place the cross arm with the boss towards the front of the tractor.

The coupling, on the end of the extension shaft, through the cross arm boss, should be attached to the end of the motor crank shaft by means of the bolt furnished for this purpose.

TO START THE ENGINE

BE SURE THE GEARS ARE IN NEUTRAL POSITION AND THE CLUTCH DISENGAGED.

Open the throttle on carburetor to its maximum position. Open short-circuiting switch connected to magneto. Move the breaker box on the magneto to the farthest position with the direction of rotation. (For example, if the magneto shaft revolves to the RIGHT when viewed from the front of the tractor, the breaker box should be turned to the RIGHT in order to get the full retarded position, necessary for starting.) After the motor has started the breaker box should be advanced to the fullest position—(Extreme LEFT in the example given above)—and must be left at this point when the tractor is in use.

Note. Sometimes if the weather is cool it will be necessary to use a “rich” starting mixture—this can be made by closing the “butterfly-valve” in the air intake neck of carburetor. As soon as the engine starts be sure and open this valve to its fullest extent.

In cranking the tractor motor the same care should be taken as is exercised in starting an automobile, namely, NEVER push down on the crank.

Caution. Do not attempt to start the motor with the spark advanced because a “back-fire” will result and with it the danger of an injury to the operator.

To stop motor—Close the switch located near the magneto.

TO START AND OPERATE TRACTOR

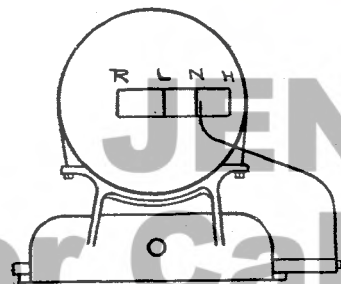


Fig. 2.

R—Reverse position.

L—Low speed position.

N—Neutral position.

H—High speed position.

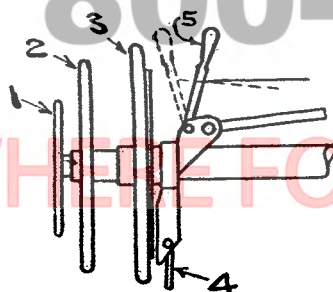


Fig. 3.

1. Gear shift wheel.
2. Steering wheel.
3. Clutch wheel.
4. Lock latch.
5. Throttle lever.

On the back of the fuel tank is located an indicator scale showing the position of the transmission gears.

Disengage clutch wheel "3" to the right until the transmission gears stop spinning. (Pulley will stop revolving when clutch is fully disengaged.) Now turn gear shift wheel "1" until indicator shows gears to be in mesh at the desired position. Release lock latch "4" and allow clutch to engage GRADUALLY—regulate throttle lever "5" until the tractor travels at the desired speed according to the load. The throttle should always be open to the fullest extent on heavy loads. The governor should regulate the flow of gas under *all* conditions, except when engine is running idle with the hand throttle nearly closed.

Figure 4 illustrates the different combinations of gears giving the various speeds.

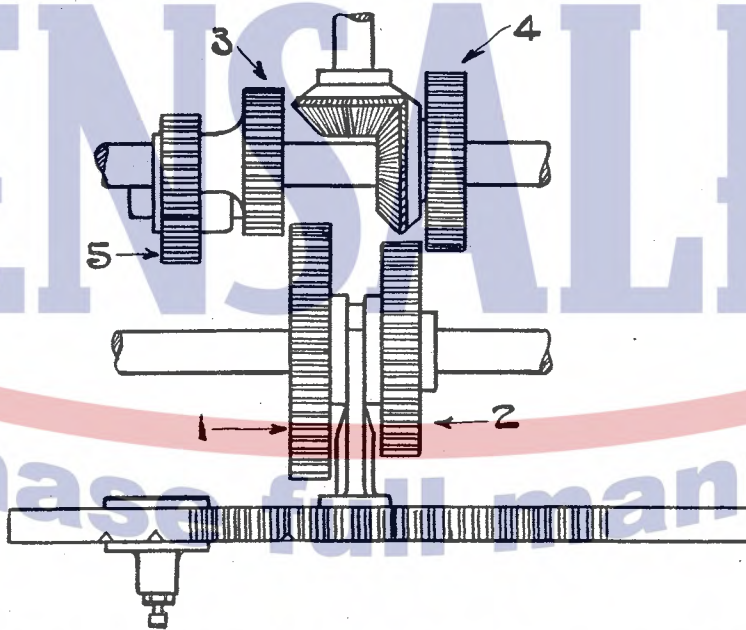


Fig. 4.

Gears 1 and 3 in mesh—Low speed.

Gears 2 and 4 in mesh—High speed.

Gears 1 and 5 in mesh—Reverse.

In case the gears exhibit a tendency to slip out of any of the respective positions, additional tension should be put on the spring ball located in the boss on the left hand side of the transmission case, near the rear fuel tank bracket.

Turning the adjusting screw to the right increases the tension; to the left it decreases the amount. When the proper setting is secured, the lock-nut on the adjusting screw should be firmly set up in place.