420
Gasoline Crawler

Operators Manual

9-781

CLUTCH

Heavy-duty, dry-type, single-disc, 9-1/4 inch dia., spring-loaded, foot operated.

TRANSMISSION

Spur gear, manual shifting, three speeds forward and one reverse, with with "shuttle shift" pattern.

FUEL SYSTEM

Carburetor . . . . . Marvel Schebler Updraft
Fuel Strainer . . . . . In fuel pump, below dash; also bulb under gas tank
Fuel Pump . . . . . Bendix 12 volt - 2-3/4 to 3-1/2 P.S.I.

COOLING SYSTEM

Pressurized System . . . . . 4 P.S.I. cap
Radiator . . . . . Tube and Fin Construction
Temperature Control . . . . . Thermostat
Thermostat Position . . . . . Upper Hose Connection
Fan (all models except Loader) . . . . . 16 Inch Four Blade-Suction
(Loader only) . . . . . 16 Inch Six Blade-Pusher
Water Pump . . . . . Centrifugal Type with Pre-Lubricated Bearings
Water Pump Drive . . . . . "V" Belt

ELECTRICAL AND IGNITION SYSTEMS

Ignition Switch. . . . . Key Type
Starter Switch . . . . . Push Button
Battery (dry charge type). .12 Volt, 50 Amp. Hr. - Positive Post Grounded
Spark Plugs . . . . . Champion D16 (or equivalent)
gap .025 Inch
(Shank Length 1/2 inch, 18 mm. thread)
Distributor. . . . . Automatic Advance 26°, Point Gap .020 Inch
Generator (3 brush type) . . . . . Third brush not adjustable -
With Voltage Regulator
Starting Motor . . . . . Automatic Engagement With Sealed Starter Drive
Head Lights . . . . . 12 Volt, Sealed Beam Units
Rear Light . . . . . 12 Volt, Replaceable Bulb
Fuse (1 light, 1 input wire to ammeter) . . . . . 20 Ampere - Replaceable

Crankcase Breather

This filler cap serves as a breather for the crankcase. A fine wire mesh, see Figure 10, inside the cap, prevents entry of dirt. Wash the breather in tractor fuel weekly. Dip in oil, allow to drain, and replace on the filler spout.

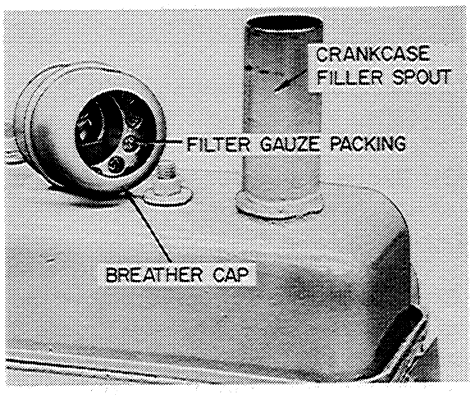

Figure 10 - Crankcase Breather

AIR CLEANER

The air cleaner oil cup must be removed, cleaned, and refilled daily exactly to the "Oil Level" mark.

Figure 11 - Oil Bath Air Cleaner

Referring to Figure 11, unscrew the clamp sufficiently to allow the oil cup to be removed straight down from the air cleaner body. Extract the baffle and clean both baffle and cup in tractor fuel. Refill cup to "OIL LEVEL" mark with one pint oil, of the following viscosity:

Freezing Weather —	S.A.E. 10
Warm Weather —	S.A.E. 30
Hot Weather —	S.A.E. 40

Replace cup and secure with thumb screw clamp. DO NOT OVERFILL THE OIL CUP.

GENERATOR

Every 60 hours add a few drops of S.A.E. 10-W motor oil to each of the oil cups. DO NOT OVER-LUBRICATE, especially at the rear bearing (commutator end).

DISTRIBUTOR

Every 60 hours remove the distributor cap, without taking the wires from the cap terminals. Place 2 — 3 drops of S.A.E. 10-W motor oil on the wick under the rotor.

ing the clutch" will cause rapid wearing of clutch components.

Transmission Gear Shifting Lever — Shift diagram decal is located on dash. THE CRAWLER MUST BE STOPPED AND THE CLUTCH PEDAL FULLY DEPRESSED BEFORE SHIFTING INTO ANY GEAR.

Steering and Brake Controls — Steering of the Crawler is by means of controlled planetary differential steering. This permits one track to be slowed down, while the opposite track is, at the same time speeded up. Thus the Crawler is steered in the direction of the slower track. Power is delivered to both tracks at all times.

The operator controls the steering by pulling back on either of the two steering levers. Pulling back on the right hand lever will steer the Crawler toward the right, pulling back on the left hand lever will steer the Crawler to the left.

NOTE: This Crawler is equipped with planetary differential steering. This means while turning, a track on the turning side is slowed, but never stops completely. Do not exert excessive pressure on steering levers — excessive pressure is not necessary to turn the Crawler.

Braking is accomplished, after pushing the clutch pedal in, by pulling back on both steering levers simultaneously.

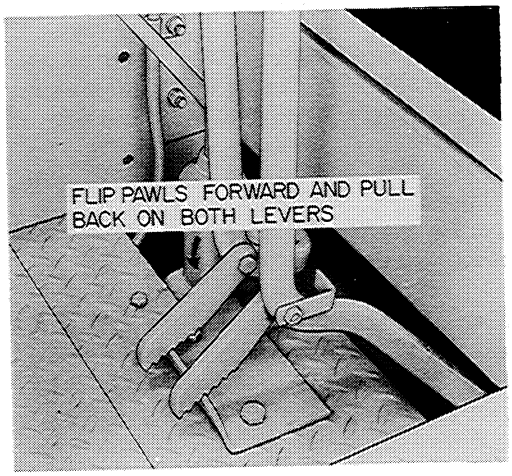

Figure 19 - Steering Levers in Locked Position

PARKING BRAKES

As indicated in Figure 19, brakes may be used for parking by flipping ratchet pawls forward and pulling back on both levers. BE SURE TO FLIP LEVERS BACK WHEN OPERATING CRAWLER.

PERSONAL SAFETY PRECAUTIONS

1. Before starting engine be sure all operating controls are in neutral.

2. Keep brakes in proper adjustment.

3. Always be properly seated in the driver's seat before operating any of the controls.

4. Be extra careful when working on banks or hillsides.

5. Keep Crawler in gear when going down steep grades.

6. Drive at speeds slow enough to insure safety and complete control, especially over rough terrain.

7. Reduce speed when making a turn.

8. Never leave the Crawler unattended while the engine is running.

9. Never dismount from Crawler while it is in motion.

10. Never permit persons other than the operator to ride on the Crawler.

11. Use caution in removing pressure radiator filler cap when radiator is hot.

12. Never refuel while Crawler engine is running or hot.

13. Do not smoke while refueling.

14. Do not wear loose fitting clothing which may catch on moving parts.

15. To prevent highway accidents, use red warning flags during daylight hours and red warning lamps after dark.

16. Keep a first aid kit and fire extinguisher on Crawler at all times.

17. Remember, a careful operator is always the best insurance against an accident.

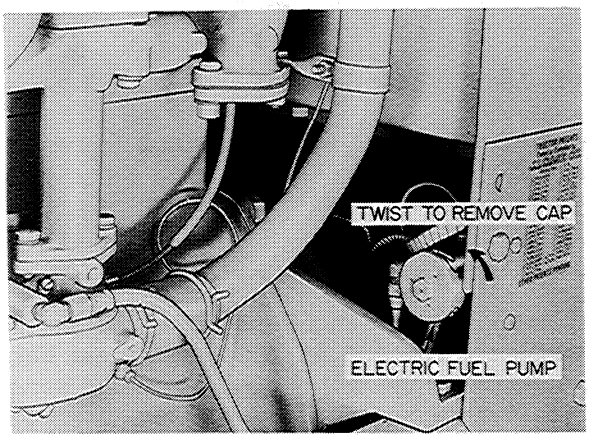

Figure 30 - Fuel Pump

FUEL SEDIMENT BULB (Clean every 100 hours)

Always fill the fuel tank at the end of the day's operation to prevent the tank from "sweating" and water entering the fuel. Empty sediment bulb under fuel tank and clean after every 100 hours operation, see Figure 31.

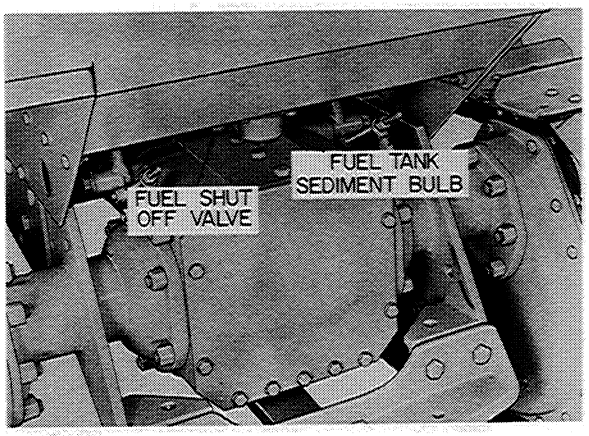

Figure 31 - Fuel Tank Sediment Bulb

CARBURETOR

The carburetor is of the "sealed bowl" type, and is extremely simple to adjust. When properly adjusted, maximum power with minimum fuel consumption will be the result.

Three adjustments can be made:

1. Idling speed setting.

time. This is important as a large percentage of the trouble due to overheated spark plugs is caused by plugs being too loose in the cylinder head.

Many engine malfunctions, such as pre-ignition, poor idling, engine misfire, or sluggish performance are blamed on spark plug failure. More often it is some other part of the engine that is at fault. The only positive way to make sure that the engine is in first-class condition, thus resulting in good spark plug performance, is to make a complete analysis of the engine, using a standard tune-up procedure.

IGNITION COIL

The function of the ignition coil is to transform the low voltage supplied by the battery into high-voltage energy necessary to jump the spark gap. Inspect and clean the coil with a cloth dampened in cleaning solvent periodically. Disconnect the wires and inspect the terminals for corrosion and looseness. Inspect the coil face for cracks, dents, or other damage. Look for evidence of electrical leakage around the high tension terminal, such as carbon runners or a rough path on the Bakelite plastic, and replace the coil if any evidence of trouble is found, see Figure 37.

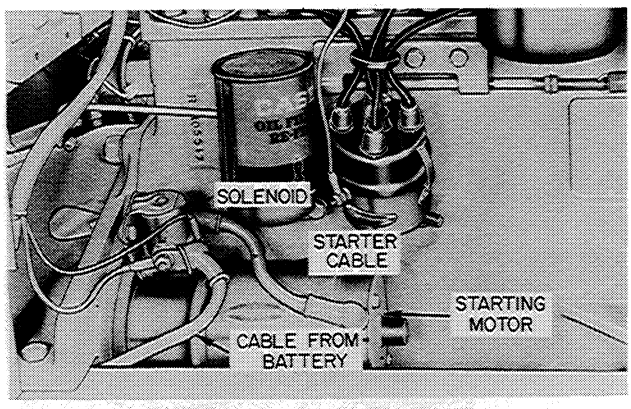

Figure 41 - Starting Motor

STARTING MOTOR

Due to construction of starting motors, no maintenance operations are necessary, except for cleaning the outside of the motor and checking for looseness of mounting, see Figure 41.

The starting motor is attached to the front flange of the clutch housing with two cap screws. These screws must be tight to prevent the starting motor from rocking and resulting in broken gear teeth or teeth locked on end.

TRACK ROLLERS

LUBRICATE TRACK ROLLERS DAILY — SEVERAL TIMES A DAY IF CRAWLER IS OPERATING IN MUDDY, WATER, OR SANDY CONDITIONS.

The track rollers carry the entire weight of the Crawler. To get more life from rollers, the front and rear rollers on each side should be exchanged in position with the two center rollers every three months.

SECTION II TERRALOAD'R

TABLE OF CONTENTS

Referring to Figure 11: If the original ramp was inside the excavation it will be necessary to leave enough of the ramp at one end to remove the Crawler. This portion of the ramp will have to be cleaned out by some other method.

If there is room enough around excavation to make an outside ramp the entire excavation can be cleaned out and the outside ramp can be backfilled, see Figure 13.

Where there is not enough room to make an outside ramp, an artifical ramp can be used, made from long planks and blocks, see Figure 13.

Backfilling a green wall should be done with extreme care. The Crawler should not be run too close to the bank, because of the danger of wall crumbling. The Loader bucket must be kept clear of the wall, to eliminate possibility of damage.

DIGGING FROM THE BANK

Bank digging is one of the main uses of the Loader. There are certain methods that should be followed.

To load from a bank with a Loader, the approach of the bank should be made with the bucket horizontal and at ground level. This is the strongest position because Loader arms are against the stops and the cylinders are retracted. The bucket is also in the best position for bank penetration.

When digging from a bank, the moment that the bucket reaches its maximum penetration, the engine will start to stall. The operator has to de-clutch the Crawler immediately for an instant. Do not slip the clutch as it will cause rapid wearing of the clutch components. When the operator de-clutches the machine, the engine R. P. M. will rise and provide more power to operate the hydraulic system. While the clutch pedal is depressed the operator can shift into reverse gear.

THE BEST OPERATOR IS

Sure
Alert
Fit
Efficient

SECTION III BACKHOE

TABLE OF CONTENTS

NOTE: Be sure, when traveling after dark, that proper lights are installed on the rear of the Backhoe and Crawler.

CAUTION
THE RATE OF TRAVEL ON HILLSIDES AND CURVES SHOULD ALWAYS BE SUCH THAT THERE IS NO DANGER OF TIPPING.

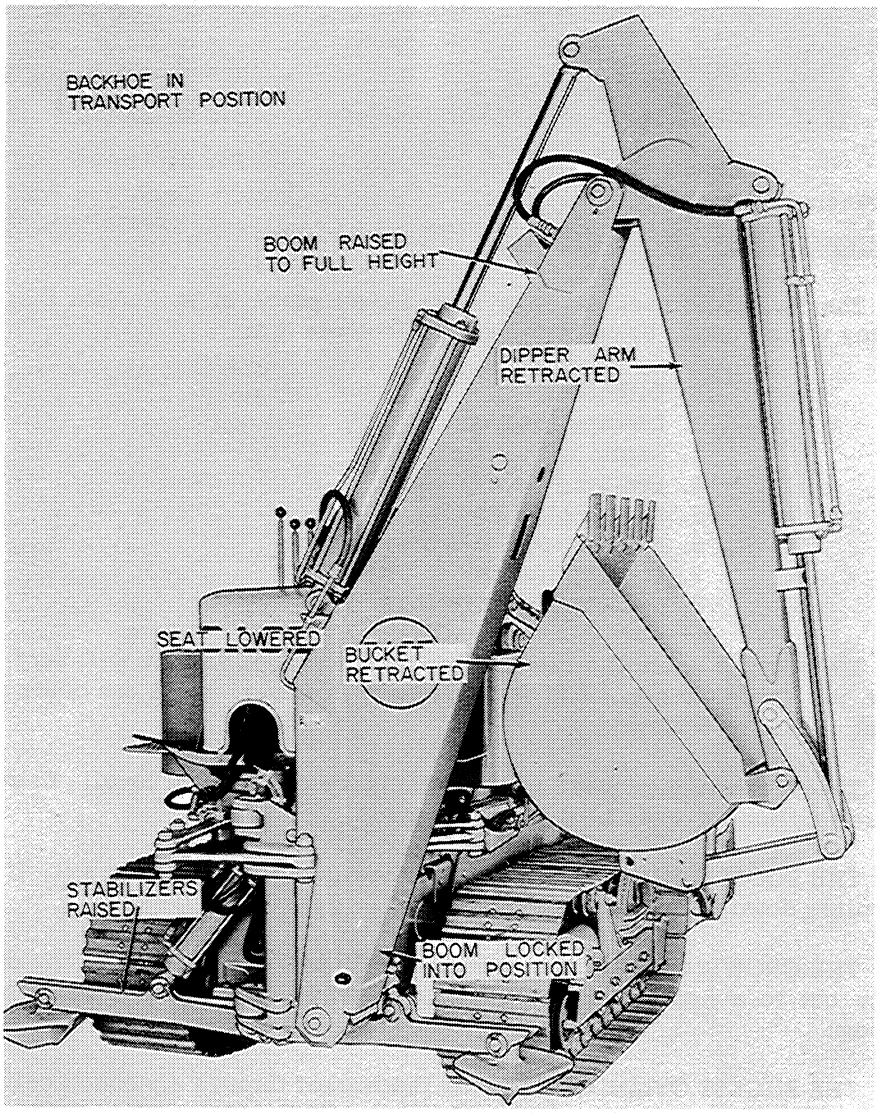

Figure 9 - Backhoe in Transport Position

SECTION IV P.T.O. - BELT PULLEY

TABLE OF CONTENTS

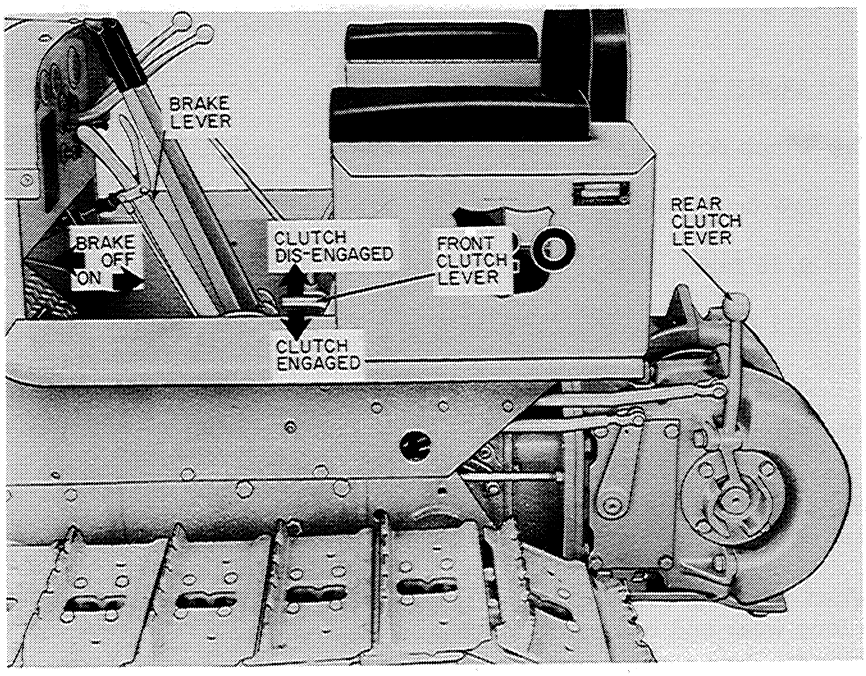

Figure 3 - Operating Controls

1. Disengage Crawler clutch and set Winch brake.
2. Disengage Winch clutch (move lever to right hand position).
3. Shift Crawler transmission into neutral position before leaving Crawler seat.

To free spool Winch, refer to Figure 3, and proceed as follows:

1. Disengage Winch clutch (move to right hand position).
2. Release the Winch brake lever, cable can be unwound by hand.

SECTION VII EAGLE HITCHES

A. WITH RIGID DRAFT ARMS
B. WITH SWINGING DRAFT ARMS

TABLE OF CONTENTS

SECTION VIII PULL BEHIND HYDRAULICS

TABLE OF CONTENTS

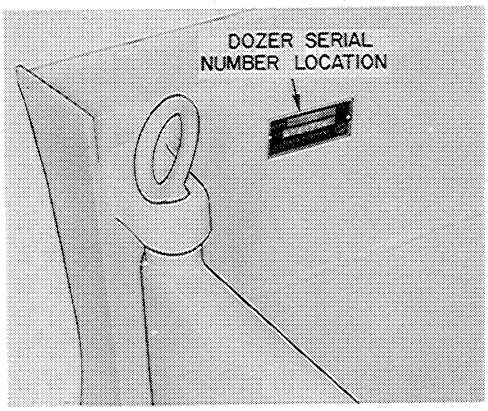

Figure 5
Dozer Serial Number Location

DOZER SERIAL NUMBER LOCATION

When ordering parts from your Case Dealer, always specify the serial number and model of your Dozer. The serial number plate is located on the left hand rear side of the Dozer blade, see Figure 5.

NOTE: The terms, "right hand" or "left hand", when used in this manual, are determined by standing at the rear of the unit and facing in the direction of forward travel of the Crawler.

DOZER SPECIFICATIONS

BLADE WIDTH

High Lift Bulldozer	5 Ft. 11 Inches
Mechanical Angling Dozer	7 Ft. 4 Inches
Hydraulic Angling Dozer	7 Ft. 8 Inches
Hydraulic Crowning Dozer	6 Ft. 4 Inches

BLADE HEIGHT

High Lift Bulldozer	2 Ft.
Mechanical Angling Dozer	2 Ft. 1-1/2 Inches
Hydraulic Angling Dozer	2 Ft. 1 Inch
Hydraulic Crowning Dozer	2 Ft. 1 Inch

MAXIMUM DROP BELOW GROUND

High Lift Bulldozer	10 Inches
Mechanical Angling Dozer	10 Inches
Hydraulic Angling Dozer	10-3/4 Inches
Hydraulic Crowning Dozer	10 Inches

BACKFILLING

Backfilling provides an excellent application of the Angling Dozer blade. This Crawlers low ground pressure, permits the Dozer to work in soft ground, where other units cannot go. It also enables working up to the edge of soft banks or new walls. Its size is adaptable to work that has to be done inside of new construction.

TRENCHING

Trenching provides an excellent application of the Hydraulic Crowning Dozer blade. The operator can tilt the blade from the seat. The feature is very applicable to trenching.

The operator can control the angle of the trench bank without losing time stopping to make a mechanical adjustment.

When attempting to make a level cut on a side slope, the blade will cut deepest on the down hill side or where the ground is soft. With hydraulic control, the operator can easily correct any undesirable blade draft.

TRANSPORTING

When transporting dirt from one part of an excavation to another with the Dozer, there is a certain amount of spillage from around the ends of the blade that must be replenished.

One method of checking this loss is to travel the same path each time so that ridges built up in earlier passes prevent dirt from leaving the blade.

Another method is to dig very slightly through the entire length of the pass, just enough to replenish the loss.

When rough grading, a higher gear speed should be used without lugging the engine, or causing loss of control.

When doing fine, precise grading, a lower gear speed should be selected to eliminate over running the hydraulic blade action. Blade speed is in direct relation with the engine speed, while the Crawler speed is in relation to gear ratio.

PIONEERING

Pioneering is the process of clearing and draining virgin land and preparing it for development.

The first step is removing shrubs, brush, and small trees. To do this, it is necessary to lower the blade until it merely skims the ground. This