McCormick Farmall 230 Tractor

Operators Manual

1004482R3

Reprinted

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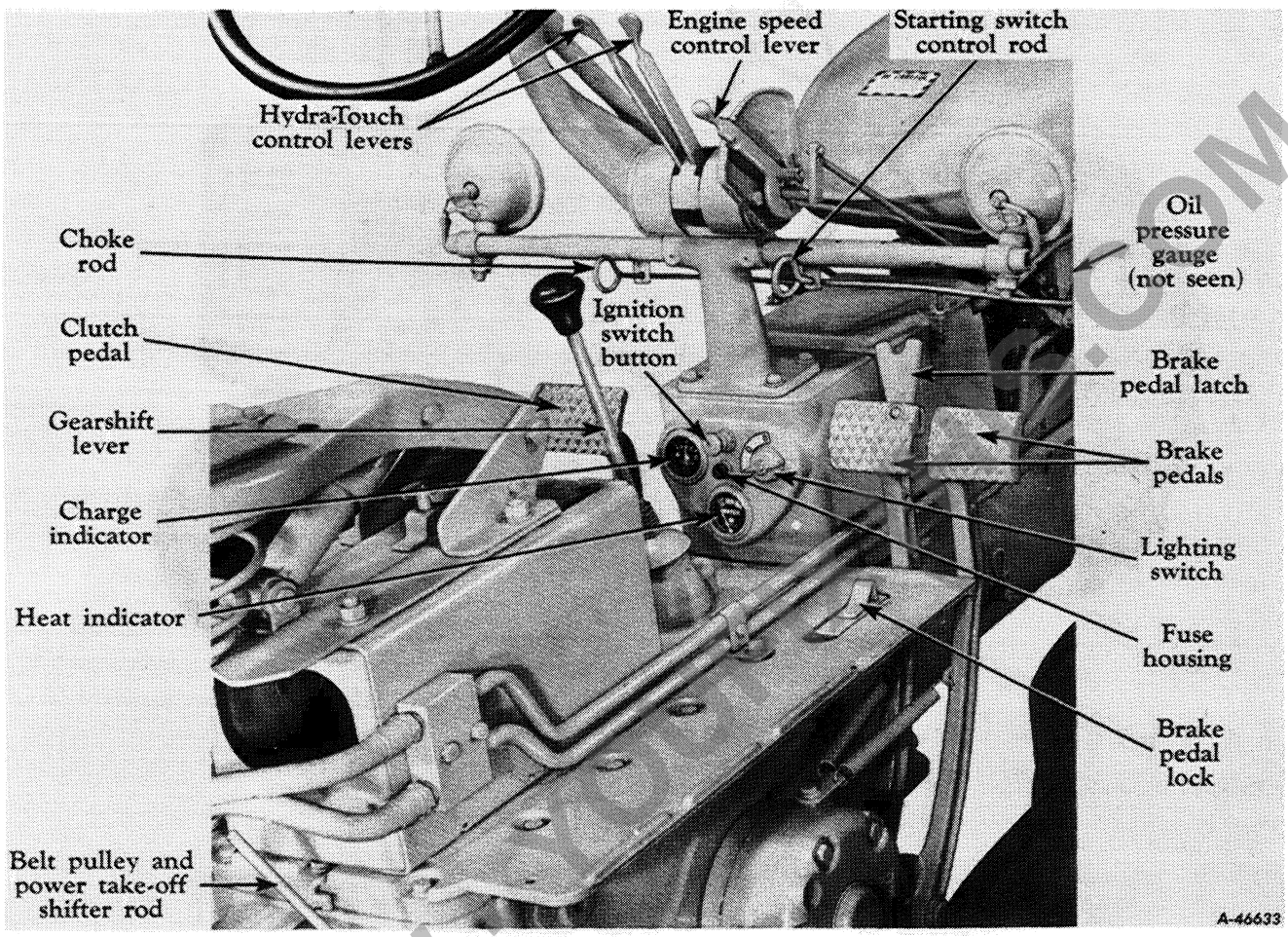
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DESCRIPTION

Instruments and Controls



Illust. 4
Location of instruments and controls.

Brake Pedals

These pedals are used to stop the tractor, to hold the tractor in a stationary position, or to assist in making sharp turns as outlined below:

To stop the tractor, depress both pedals at the same time. Before driving the tractor in high gear, always latch the pedals together.

To hold the tractor in a stationary position, latch the pedals together, depress them, and lock them in this depressed position by using the brake pedal lock.

To assist in making a sharp turn, operate the pedals individually, depressing the pedal on the side toward which the turn is to be made.

The brake pedal latch (*Illusts. 4 and 18*) is used to latch both brake pedals together, causing the brakes to operate simultaneously.

Caution! Always latch the brake pedals together when driving the tractor in high gear (fifth speed). To latch the pedals together, engage the latch (located in back of the left pedal) (*Illusts. 4 and 18*) in the slot in back of the right pedal. When the brake pedals are not latched together, the latch should rest in the slot in back of the left brake pedal.

The brake pedal lock (*Illust. 18*) is used to lock the brake pedals in the depressed position. This prevents the tractor from moving.

Clutch Pedal

This pedal, when depressed all the way, disengages the engine from the transmission.

Choke Rod

The choke rod makes it possible to regulate the carburetor choke from the driver's seat. Pulling out on the choke rod closes the carburetor choke for starting the engine; pushing it back in opens the choke.

Radiator Shutter Control Lever

The control lever opens and closes the radiator shutter, controlling the engine temperature. Pull the lever all the way back to close the shutter and move the lever forward to open the shutter.

Note: Tractors with gasoline engines are not regularly equipped with this feature.

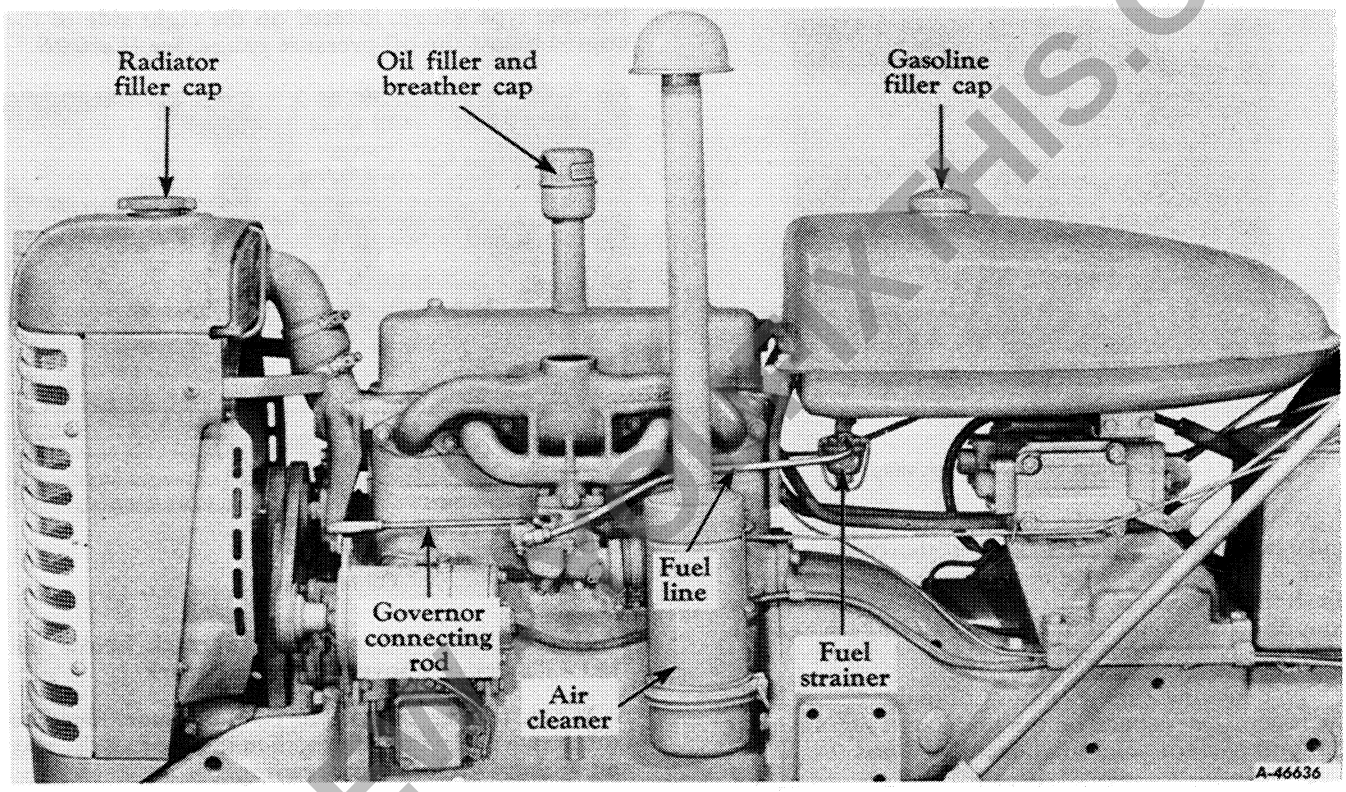
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OPERATING YOUR TRACTOR

Before attempting to start or operate the tractor, be sure you review the instructions for the new tractor and thoroughly familiarize yourself with the instruments and controls.

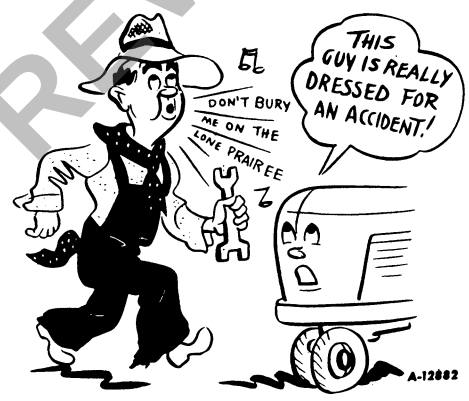
Operating a Gasoline Engine

This engine is designed to operate on gasoline with an 86 minimum octane rating (Research Method).



Illust. 10

Fuel system—gasoline engine.



Loose or "floppy" clothing should not be worn by the operator because of the danger of it wrapping on or getting into the moving parts.

Radiator Shutter

Tractors designed for gasoline engine operation are not regularly equipped with a radiator shutter but this feature can be supplied. If your tractor is so equipped, close the radiator shutter when starting the engine in cold weather; then regulate it as required to hold the needle of the heat indicator on the low side of the "RUN" range.

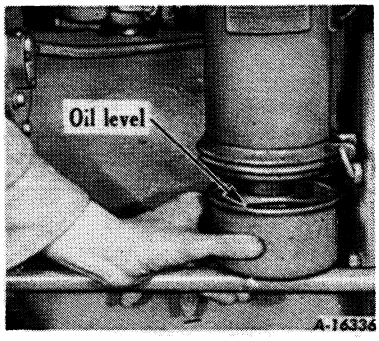
Fuel System

Check the gasoline tank to make sure it is full; also be sure the shut-off valve on the fuel strainer under the gasoline tank is open.

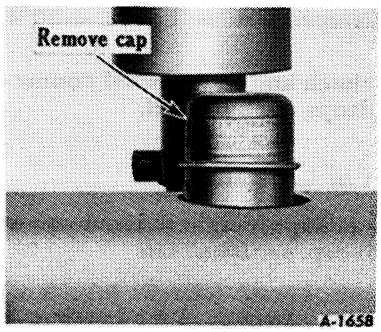
To assure against leakage or seepage when the valve is in its full open position, be sure to screw the needle stem (shut-off valve) out until the seat on the stem is tight against the stop.

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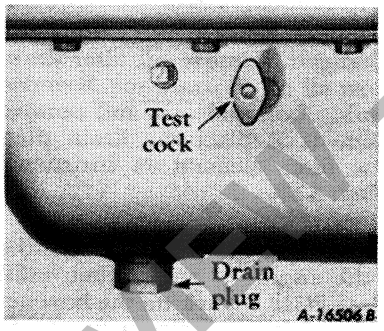
LUBRICATION



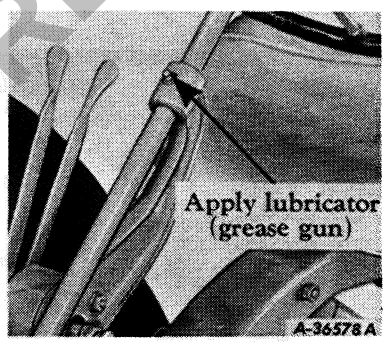
Illust. 31
Air cleaner oil cup.



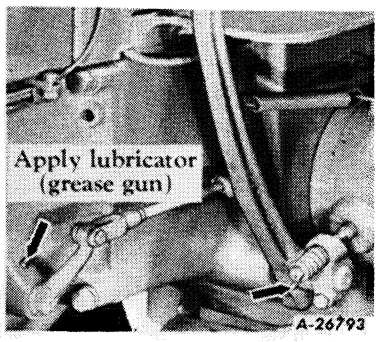
Illust. 31A
Crankcase oil filler.



Illust. 31B
Oil level test cock and crankcase drain (distillate engine).



Illust. 31C
Steering shaft rear bearing.



Illust. 31D
Clutch pedal and shaft.

Key to Lubrication Symbols

The symbols shown around the reference numbers *on page 30* indicate the intervals of lubrication.

Numbers correspond with reference numbers on the illustrations.

Detailed specifications of the lubricants are listed *on pages 28 and 29.*

△—Daily or After Every 10 Hours of Operation

1—Air cleaner. Clean and refill the oil cup to the oil level bead with the same new oil used in the engine crankcase. The capacity is 7/8 U.S. pint. *See pages 42 and 43* for further information. *See Illust. 31.*

2—Oil filler.
3—Oil level test cock.
4—Oil level gauge.

When operating on gasoline: Add sufficient new oil to bring the oil up to the "FULL" mark on bayonet gauge (4). *Refer to Illusts. 9B and 32D.*

When operating on distillate: Before starting the engine for the day's work, open test cock (3) in the crankcase pan and allow the oil to drain to this level. Then close the test cock (*Illust. 31B*); add new oil through the crankcase oil filler (2) until the oil appears at the "FULL" mark on the bayonet gauge (4) (approximately one U.S. pint). Do not check the oil level while the engine is operating or operate the engine if the level of the oil is below the "LOW" mark on bayonet gauge. *Refer to Illusts. 9B, 31A, 31B, and 32D.*

5—Steering shaft rear bearing.
8—Clutch pedal. Brake pedal (1).
9—Rear axle bearings (2).
10—Steering shaft center bearing.
11—Clutch shaft.

Use pressure-gun grease (chassis lubricant) and apply two or three strokes of the lubricator, or sufficient grease to flush out the old grease and dirt. *See Illusts. 31C to 32A inclusive.*

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Oil Filter

The life of your engine depends upon clean oil being circulated to all bearings. Every good tractor operator knows that dirt and other injurious materials eventually get into the crankcase of the engine and that in the normal course of engine operation the lubricating oil undergoes changes which produce sludge, acids, gums, varnish, and other harmful by-products.

The purpose of the oil filter is to separate and remove the dirt and other foreign substances from the oil to prevent these injurious materials from being circulated to the engine. The filter will keep the circulating oil free of harmful materials for 150 hours of operation under normal operating conditions. *See pages 28 and 29* for the recommended oil to use for the prevailing temperature. By following the simple, common-sense procedure for keeping dirt and oil impurities away from precision-made engine parts, you will safeguard your tractor engine against undue wear and the operating troubles and upkeep expense which are a natural result of that condition.

Note: To avoid delays, we recommend that you carry extra filter elements on hand so that replacement can be made at the proper time.

Changing the Filter Element

1. Do not change the element while the engine is running.

2. Remove the oil filter base drain plug (*Illust. 32D*) and allow the oil filter to drain completely.

3. Clean the filter case to prevent dirt from dropping into the base.

4. Unscrew and remove the retaining bolt.

5. Lift up and remove the case.

6. Remove the old element.

Note: If some special equipment on the tractor prevents lifting the case over the element, remove the case and the element together.

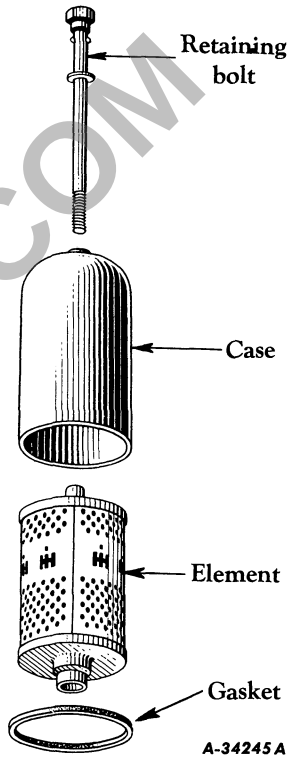
7. Wipe out the base and the case with a cloth dampened with kerosene.

8. Install the new filter element as follows:

   (a) Replace the drain plug in the filter base and install the new filter element.

   (b) Inspect the small metering hole at the threaded end of the oil filter retainer bolt, and make sure that it is not plugged. A plugged metering hole will impair or stop all oil flow through the oil filter element.

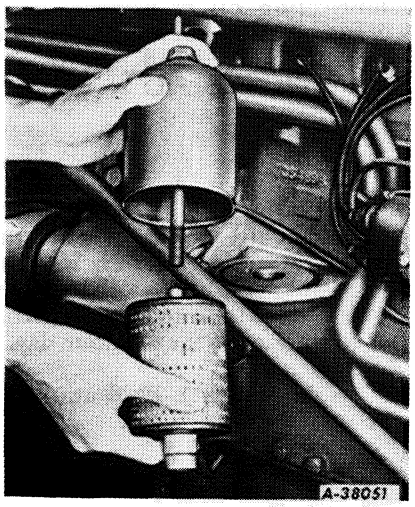
   (c) Make sure that the case gasket is in place and in good condition. Then replace the case and retaining bolt. Lower the retaining bolt carefully into the filter base, and tighten securely.



Illust. 27
Filter disassembled.

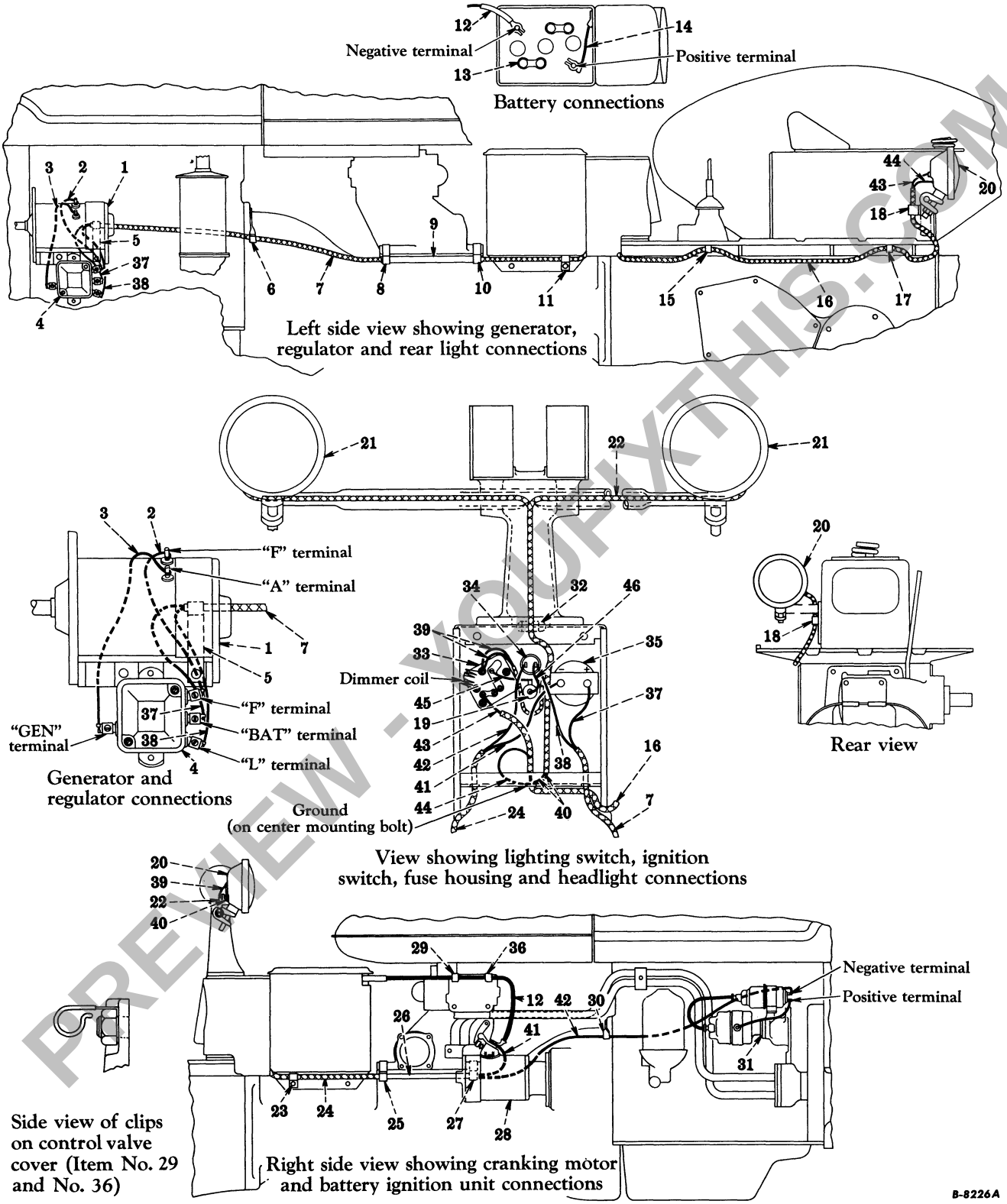
9. Drain and refill the crankcase oil pan with new oil as instructed in the "Lubrication Guide."

10. Start the engine and check the oil pressure indicator to see whether lubricating oil is circulating through the engine; then inspect the filter for oil leaks.



Illust. 27A
Installing new oil filter element.

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Illust. 54
Wiring diagram for starting and lighting on tractors with battery ignition.

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MAINTENANCE

Trouble Shooting

Possible Cause	Possible Remedy
Hard to Start	
No gasoline in starting tank or carburetor	Fill the tank with gasoline; open the fuel shut-off valve. Check the fuel lines, fuel strainer and carburetor.
Distillate in starting fuel or carburetor	Drain the carburetor and use gasoline for starting; *see page 14.*
Fuel strainer or fuel lines clogged	Clean the fuel strainer, check the fuel lines and carburetor.
Impulse coupling inoperative (tractors with magneto)	Flush with kerosene; *see page 48.*
Water in gasoline	Drain the fuel tank and carburetor. Use new fuel and dry the spark plugs.*
Water in cylinders	Check the cylinder head gasket or look for a clogged drain hole in the exhaust manifold or muffler.
Choked improperly. Flooded engine	Follow the starting instructions *on pages 11 and 12.*
Defective ignition or loose wiring	Check the wiring, plugs, battery ignition unit or magneto, etc. *See pages 43 to 55.*
Defective battery or cranking motor	Check and service; *see pages 56 and 57*, or replace.
Spark plugs dirty or improper gap	Clean, adjust the gaps to .023 inch, or replace the plugs.
Magneto grounded (tractors with magneto)	Pull out on the ignition switch. Check for other possible grounds; also see "Magneto" *on page 48.*
Engine speed control not advanced	Advance the lever one-third for starting.
Lack of compression	*
Flywheel ring gear teeth broken	*
Lubricating oil of too high viscosity	Drain and refill with proper lubricant. See the "Lubrication Table" *on page 29.*
Gears engaged	Put the gearshift in the neutral position.
Internal seizure	*
Engine Operates Irregularly or Knocks	
Engine incorrectly timed	Retime. See "Timing the Distributor to the Engine" *on pages 46 and 47*, or "Timing the Magneto to the Engine" *on page 50.*
Spark plugs dirty; wrong gap or wrong type	Clean, reset the gaps to .023 inch, or replace.
Poor or weak spark	Check the battery ignition unit or magneto to see if the spark is good from the coil. Check the breaker points and breaker point opening, spark plugs, and wiring; *see pages 43 and 44.*
Carburetor setting incorrect	Adjust; see "Carburetor" *on pages 36 and 37.*
Poor grade fuel or water in fuel	Drain and use a good grade of clean fuel.
Engine overheating	Check the cooling system and fan belt; adjust the radiator shutter if used; see "Engine Overheats" *on page 74.*
Operating a cold engine on distillate	Warm up the engine on gasoline before changing over to distillate fuel.
Engine valves at fault	Check the valve clearance.*
Air leaks around intake manifold	Check the gasket and tighten the nuts.
Engine smokes	Check the air cleaner oil level. Check the fuel delivery at the carburetor. Check for worn piston and rings.*
Excessive carbon in engine	*
Loose piston pin or bearings	*
Broken rings or loose pistons	*
Worn connecting rod and main bearings	*
Governor sticking or needs adjustment	*
Lack of Power	
Engine speed control lever not advanced	Advance the engine speed control lever.
Engine cold or overheated	Run the engine until it warms up before putting it under load. Adjust the radiator shutter if used. Check the cooling system.*
Engine overloaded	Reduce the load.
Engine knocks excessively	Use good fuel; also check the timing.*

***See your International Harvester dealer.**

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