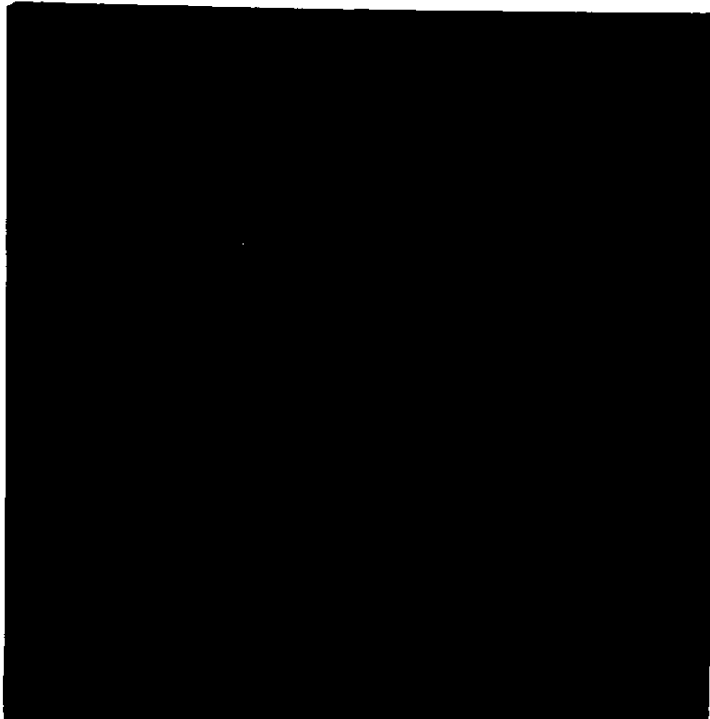


**INTERNATIONAL<sup>®</sup>**  
**CUB CADET<sup>®</sup>**  
**70 and 100**  
**Tractors**

**OPERATOR'S MANUAL**



**BE SURE THIS OPERATORS MANUAL IS KEPT WITH THIS  
MACHINE AT ALL TIMES, REGARDLESS OF OWNERSHIP.**

## **TO THE OWNER**

We are glad to welcome you as an owner of a product of International Harvester Company. You have a fine product, designed and built to give you many years of efficient operation. The way you operate and the care you give this product will have much to do with its successful performance.

To help you operate your equipment with utmost efficiency we have provided this operator's manual. It has been carefully prepared to give you the benefit of many years of experience gained in field testing and normal usage of this and similar products.

We urge you to study this manual so you will understand your new equipment thoroughly before operating it. We also urge you to take care of your manual so you will have it available for reference when you need it.

If your manual is lost or destroyed, a new copy may be ordered from the International Harvester dealer at a nominal price. Your International Harvester dealer will also be glad to answer any questions you may have on the operation or care of this product.

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# WORK SAFELY – FOLLOW THESE RULES

Disengage all clutches and shift into neutral before starting the engine.

Disengage power to any attachments and stop engine before leaving operator's seat or making any repairs or adjustments.

Know the controls and how to stop quickly – READ THE OPERATOR'S MANUAL.

Do not allow children or adults to operate the equipment without proper instruction.

Clear work area of objects which might be picked up and thrown.

Disengage power to any attachment when transporting or not in use.

Do not carry passengers. Keep children and pets a safe distance away.

Take precautions, such as disengaging power take-off, shifting into neutral, setting the parking brake, stopping the engine and removing ignition key when leaving machine unattended.

Reduce speed on slopes and in sharp turns to prevent tipping or loss of control.

Stay alert for holes in terrain and other hidden hazards.

Don't stop or start suddenly when going uphill or downhill.

Use care when pulling loads or using heavy equipment: – A. Use only approved hitch points. B. Limit loads to those you can safely control. C. Don't turn too sharp, and use care when backing. D. Use counterweight or wheel weights when suggested in Operator's Manual.

Watch out for traffic when crossing or near roadways.

When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.

Handle gasoline with care – it is highly flammable: – A. Use approved gasoline container. B. Never remove the fuel tank cap or fill the fuel tank when the engine is running, is hot, or indoors. Also, do not smoke when working around inflammable fuel. Wipe up spilled gasoline. C. Replace gasoline cap securely. D. Open doors if engine is running in a garage – exhaust gases are dangerous.

Keep machine in good operating condition and keep safety devices in place. Use guards or shields as instructed in Operator's Manual.

It is recommended that the machine be stopped and inspected for damage after striking a foreign object and that any damage be repaired before restarting and operating the machine.

Always depress the brake pedal and set the brake pedal lock before working on the engine.

## INTRODUCTION

Assembled in this manual are operation, and lubrication maintenance instructions for the International Cub Cadet 70 and 100 Tractors. This material has been prepared in detail in the hope that it will help you to better understand the correct care and efficient operation of your tractor.

Your International Harvester dealer has factory-trained servicemen, modern tools, and IH service parts to assure you of satisfactory tractor operation. To get the most out of your tractor, and to assure economical operation and top performance, your tractor should be inspected periodically by your International Harvester dealer.

Depending upon your use of the tractor, these inspections should be performed as needed, or at least once a year, at which time a tune-up or other necessary service work should be performed. Proper pre-season maintenance will assure you of minimum lost time when your tractor is most needed.

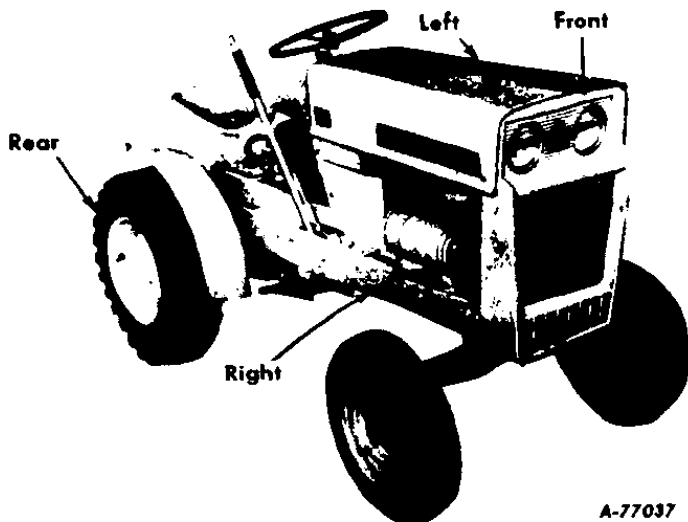
Dealers are kept informed on the latest methods of servicing tractors. They carry stocks of IH parts, and are backed in every case by the full facilities of a nearby International Harvester district office and parts depot.

In order to provide a tractor equipped as nearly as possible to suit each customer's needs, a variety of extra equipment and accessories is available.

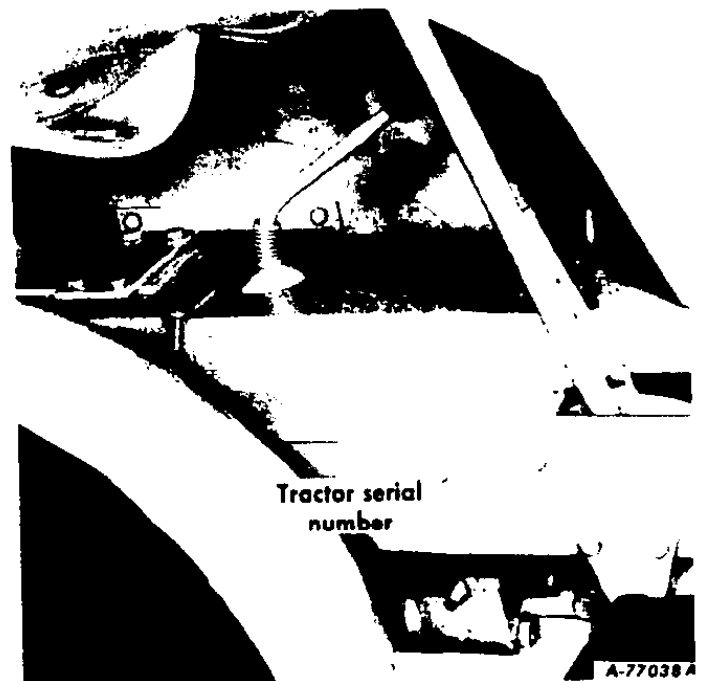
Where operating and maintaining instruction on these items is required, it is included in the instructions for operating or maintaining the tractor. Disregard the instructions for equipment not on your tractor.

The illustrations in this manual are numbered to correspond with the pages on which they appear; for example, *Illusts. 3 and 3A* are on page 3.

Throughout this manual the use of the terms **LEFT**, **RIGHT**, **FRONT**, and **REAR** must be understood to avoid confusion when following instructions. **LEFT** and **RIGHT** indicate the left and right sides of the tractor when facing forward in the driver's seat. Reference to **FRONT** indicates the grille end of the tractor; to **REAR**, the drawbar end. See *Illust. 3*.



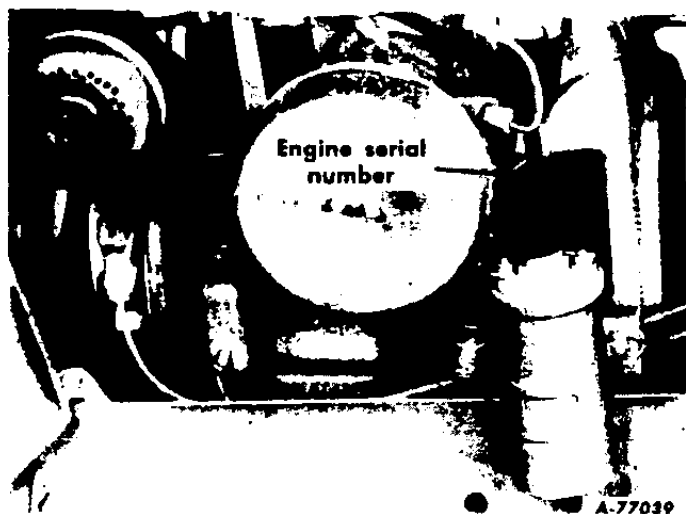
**Illust. 3**  
Terms of location.



**Illust. 3A**  
Location of tractor serial number.

# INTRODUCTION

When in need of parts, always specify the tractor and engine serial numbers. The tractor serial number is stamped on a pad or the reduction drive housing on the right side of the tractor. See *Illust. 3A*.



The engine serial number is stamped on a plate on the left side of the engine. See *Illust. 4*.

*Illust. 4*  
Location of engine serial number.

## INSTRUMENTS AND CONTROLS

### LIFTING THE HOOD

The tractor hood is arranged to swing up and forward to make the engine and fuel tank readily accessible.

To raise the hood, take hold of each side of the hood at the rear, pull outward, and raise it upward and forward to its stop.

### CLUTCH AND BRAKE PEDAL

The combination clutch and brake pedal is used to disengage the engine from the transmission when shifting gear and to actuate the brake to stop the tractor.

To disengage the clutch, press the pedal approximately half way down. To stop the tractor press the pedal all the way down.

The brake pedal lock is used to lock the brake pedal in the depressed position. This keeps the tractor from moving.

### IMPLEMENT LIFT HANDLE

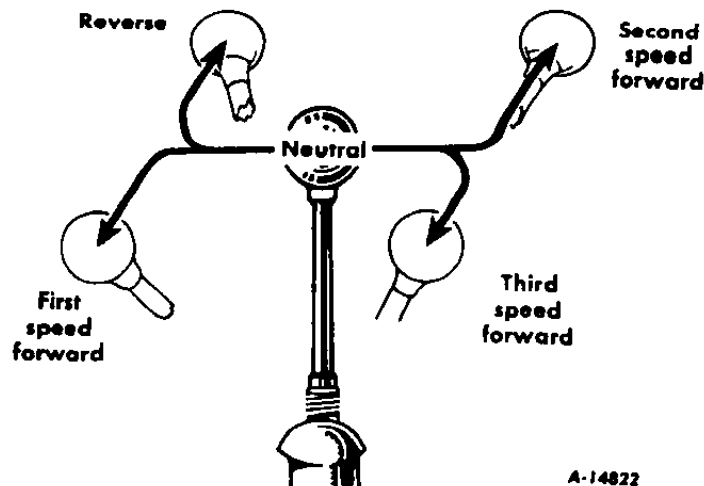
This handle is used to lift or lower implements used with the tractor. Depress the release button to move the handle.

When operating an implement in the "FLOAT" position, depress the release button on top of the handle and move the wire bail over the top of the button.

An adjustable stop limits the travel of the implement handle to control the lowering of the implement when "FREE-TO-FLOAT". See *Illust. 11A*.

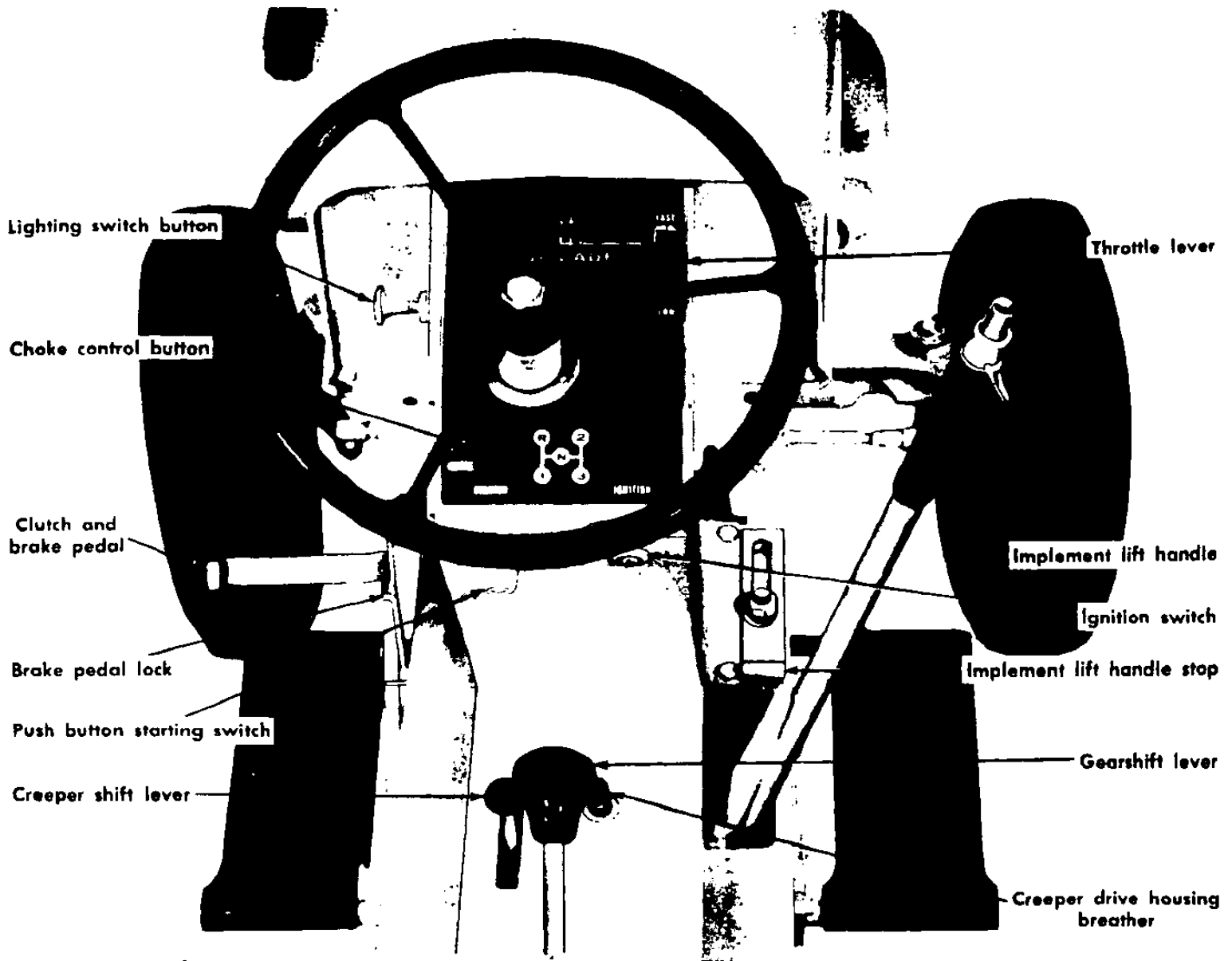
### GEARSHIFT LEVER

This lever is used to select various gear ratios provided in the transmission. There are three forward speeds and one reverse speed. See *Illust. 4A*. Refer to "SPECIFICATIONS" on page 24.



*Illust. 4A*  
Gear shifting positions.

## INSTRUMENTS AND CONTROLS



Illust. 5  
Instruments and controls.

### CREEPER SHIFT LEVER

The creeper drive provides slower selective speeds in each respective gear, by a four to one reduction in speed than when in direct drive. When the creeper shift handle (Illust. 5) is moved all the way forward it is in the direct drive position. When the handle is moved all the way rearward, it is in the creeper drive position. Do not use a mid-point position on the creeper drive as a neutral. Neutral must

be obtained only with the standard transmission gearshift lever.

### CHOKE CONTROL BUTTON (Electric Starting)

The choke control button is used to regulate the carburetor choke. Pulling out on the choke control button closes the carburetor choke for starting the engine; pushing it back in opens the choke.

# INSTRUMENTS AND CONTROLS

## CARBURETOR CHOKE LEVER (Manual Starting)

The carburetor choke lever controls the air supply to the carburetor. When the choke lever is moved away from the engine all the way (closed position) the air supply is cut off, thereby enriching the fuel mixture for starting the engine. Moving the choke lever back in opens the choke for normal engine operation.

## THROTTLE LEVER

This lever (on the right side of the instrument panel) controls the speed of the engine and, when set in a given position, will maintain a uniform engine speed.

When the lever is set at the bottom position "SLOW", the engine speed is fully retarded and when the lever is at the top position "FAST", the engine speed is fully advanced.

## GOVERNOR

The governor is set at the time the engine is assembled and should not require readjustment unless the governor arm is removed or loosened from the governor shaft. Consult your International Harvester dealer if the governor does not function properly.

## IGNITION SWITCH

A key-type lock ignition switch is on the right side of the instrument panel. Turn the key clockwise to turn on the ignition. The key cannot be removed when in this position.

**Note:** For tractors with electric starting, when the engine is not operating or the engine has stalled and the operator leaves the tractor, the key must be turned to the "OFF" position to prevent battery discharge.

## PUSH BUTTON STARTING SWITCH (Electric Starting)

Pushing this button completes the electrical circuit between the battery and the motor-generator causing it to function as a cranking motor to start the engine.

## RETRACTABLE STARTER (Manual Starting)

This starter uses a friction shoe assembly under spring tension to engage in the drive cup when the starter handle is pulled.

## LIGHTING SWITCH BUTTON

Pull the button (Illust. 5) out to turn on the lights and push it in to turn off the lights.

# BEFORE STARTING THE TRACTOR

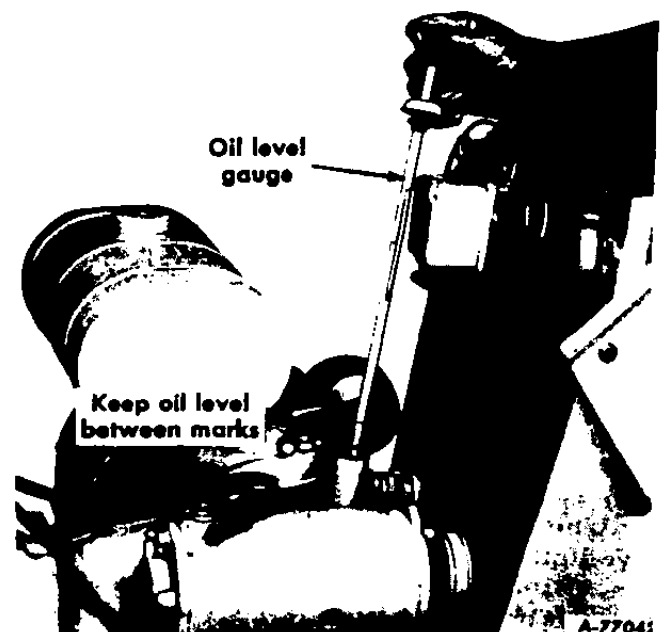
## LUBRICATION

Lubricate the entire tractor, using the "Lubrication Guide".

Check the oil levels of the engine crankcase and transmission to see that they are filled to the correct levels with oil of the proper viscosity for the prevailing temperature. Refer to "Lubrication Section", beginning on page 21.

## PNEUMATIC TIRES

Check the air pressure and inflate or deflate the front and rear tires on the International Cub Cadet 70 Tractor to six pounds for normal operating conditions, or eight pounds for heavy load operations. The front tires on the International Cub Cadet 100 Tractor should have eight pounds and the rear tires six pounds for normal operating conditions or ten pounds in the front tires and eight pounds in the rear tires for heavy load operations.



Illust. 6  
Oil level gauge.



# BEFORE STARTING THE TRACTOR

## FUEL SYSTEM

Fill the fuel tank with clean, fresh, regular grade gasoline, preferably at the end of each day's use. This will force out any moisture-laden air and prevent condensation in the fuel tank. Do not mix oil with the gasoline.

The fuel tank filler cap has an air vent. Keep the vent open at all times to assure proper flow of the fuel.

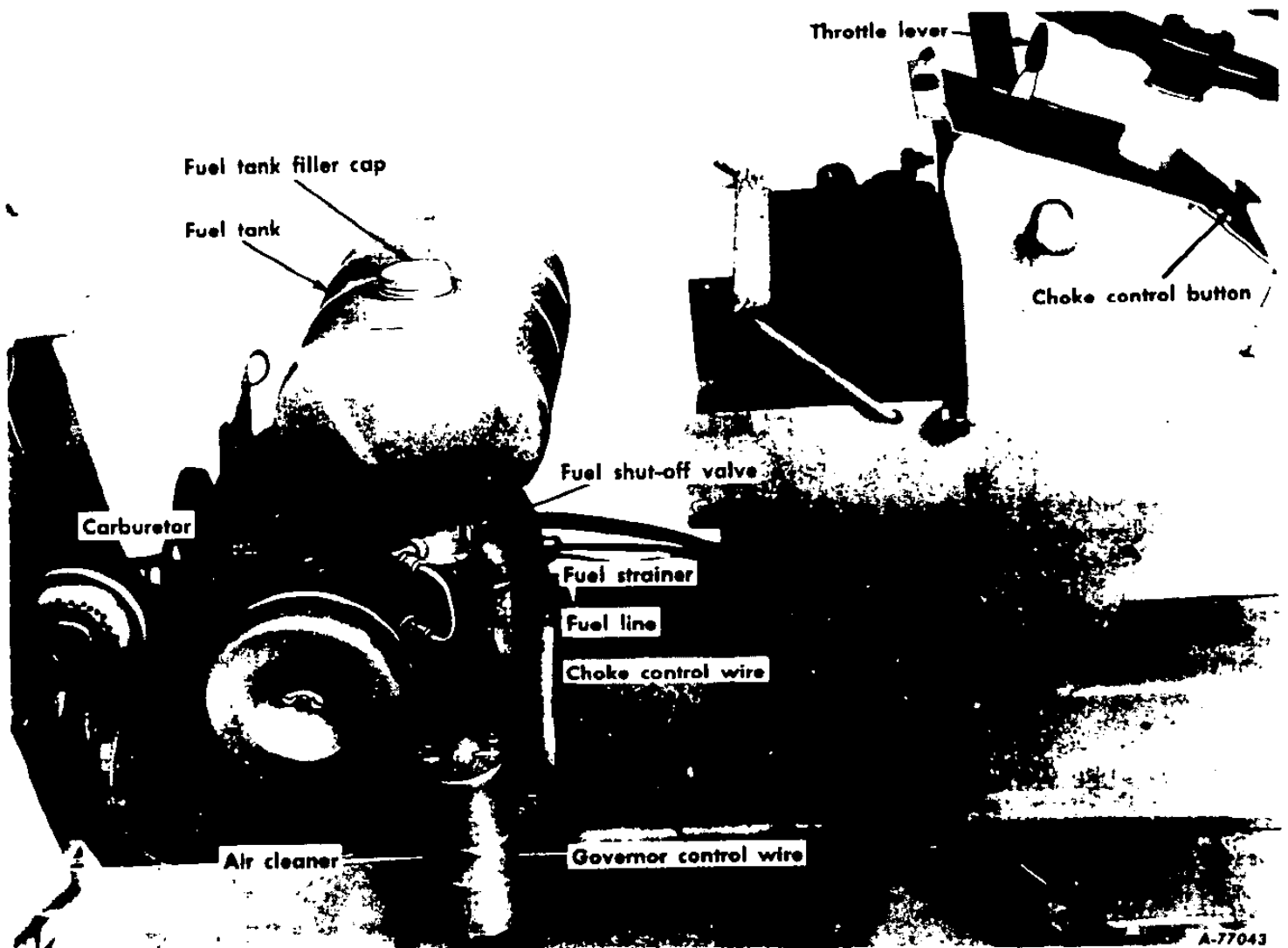
**Safety First!** Never remove the fuel tank cap or fill the fuel tank when the engine is running or is hot, or when near an open flame. Do not smoke when working around inflammable

fuel, as the air within a radius of several feet is mixed with a highly explosive vapor. When pouring fuel, keep the container or hose nozzle in contact with the metal of the fuel tank to avoid the possibility of an electric spark igniting the gas. Avoid spilling gasoline on a hot engine.

## INSTRUMENTS AND CONTROLS

Thoroughly acquaint yourself with all instruments and controls, as described on pages 4 to 6, before attempting to start or operate the tractor.

# OPERATING THE ENGINE



Illust. 7  
Fuel system and controls.

# OPERATING THE ENGINE

## STARTING THE ENGINE (With Electric Starting)

1. Put the gearshift lever in the neutral position. See *Illust. 4A*.
2. Pull the choke control button all the way out (see *Illust. 7*). More or less choking may be necessary due to variations in temperature, grade of fuel, etc. Little or none will be needed when the engine is warm.
3. Place the throttle lever halfway between "SLOW" and "FAST". See *Illust. 7*.
4. Disengage the clutch by pressing the clutch and brake pedal all the way down.
5. Turn the ignition switch clockwise to the horizontal position. Press the starter button (*Illust. 5*) and release it as soon as the engine starts; however, do not operate the motor-generator for more than 30 seconds at any one time. If the engine does not start within this time, release the starter button and wait a minute or two; then try again.
6. After the engine starts, slowly release the clutch pedal and gradually push the choke control button all the way in. Do not use the choke to enrich the fuel mixture, except when necessary to start the engine.

## STARTING THE ENGINE (With Manual Starting)

1. Put the gearshift lever in the neutral position and lock the brake.

2. Pull the choke control button all the way out. See *Illust. 5*. More or less choking may be necessary due to variations in temperature, grade of fuel etc. Little or none will be needed when the engine is warm.

3. Place the throttle lever halfway between "SLOW" and "FAST". See *Illust. 5*.
4. Turn the key ignition switch clockwise.
5. Raise the tractor hood. The retractable starter is mounted on a support plate at the front of the engine at the right side of the tractor.
6. Give a quick steady pull on the retractable starter handle to start the engine. Do not jerk or pull it out to its very end in a rough manner. A steady pull will accomplish just as much. Always pull the handle so the cord is in a straight line through the guide. Maintain your hold on the handle and allow the cord to return slowly. Releasing the handle when the cable is extended will shorten the life of the starter.
7. After the engine starts, gradually push the choke control button all the way in.

## STOPPING THE ENGINE

Move the throttle lever to the "SLOW" position and allow the engine to idle for a short time before stopping. Then turn the key to the "OFF" position.

# FUEL SYSTEM

The flange bolts "A" (*Illusts. 9 and 9A*) which hold the carburetor to the engine should be checked periodically for tightness.

Also the fuel bowl nut under the carburetor should be checked occasionally to see that it is kept tight to avoid any air leakage past the fuel bowl gasket.

## CLEANING THE FUEL STRAINER AND SEDIMENT BOWL

Clean the fuel strainer after every 25 hours of operation. To do this proceed as follows:

1. Close the shut-off valve. See *Illusts. 9 and 9A*.
2. Loosen the knurled nut under the sediment bowl and remove the bowl and screen.

3. Clean the sediment bowl and screen.

4. When reassembling, be sure the cork gasket between the bowl and the main body is in good condition and does not leak. Use a new gasket if necessary.

## CARBURETOR ADJUSTMENTS

The carburetor is adjusted at the factory and under normal operating conditions it will not require readjusting. If this adjustment has been disturbed for any reason, proceed as follows:

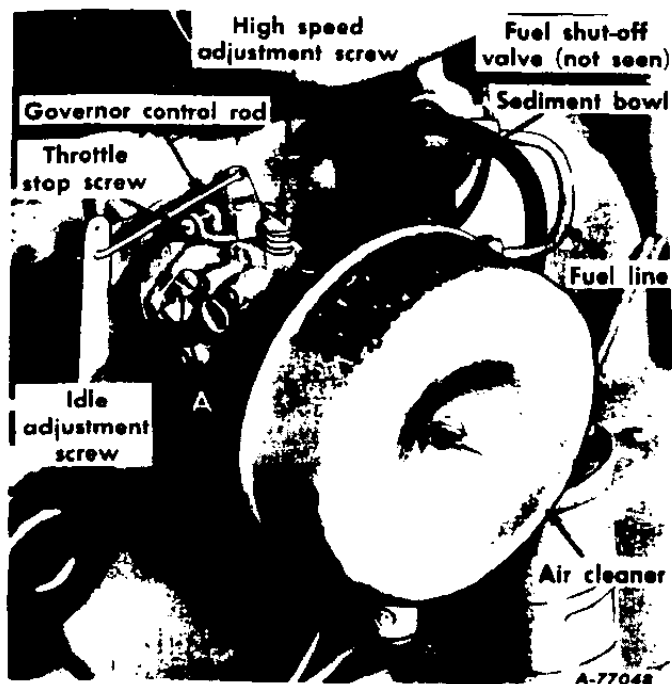
### Adjusting the High-Speed Adjustment Screw

Turn the high speed adjustment screw (*Illusts. 9 and 9A*) counter-clockwise two turns from the closed position and start the engine

# FUEL SYSTEM

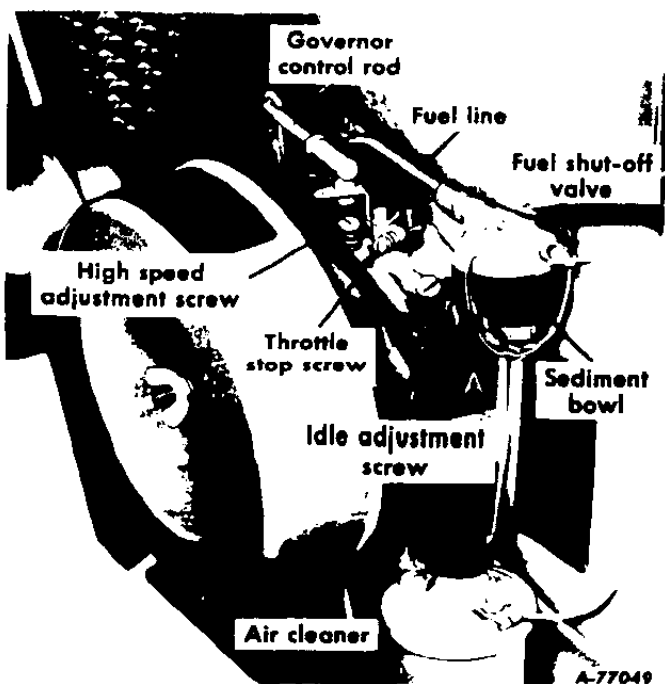
## CARBURETOR ADJUSTMENTS - Continued

### Adjusting the High Speed Adjustment Screw - Continued



Illust. 9  
Carburetor and fuel strainer.  
(Seven horsepower engine.)

After the engine has reached normal operating temperature, accelerate the engine and check its response.



Illust. 9A  
Carburetor and fuel strainer.  
(Ten horsepower engine.)

Place the engine under load and adjust the high speed adjustment screw (Illusts. 9 and 9A) to the leanest mixture that will allow satisfactory acceleration and steady governor operation.

If the engine misses and backfires under load, the high speed mixture is too lean. The high speed adjustment screw must be turned counter-clockwise 1/4 turn at a time until the condition is corrected.

If the engine shows a sooty exhaust and is sluggish under load, the high speed mixture is too rich. The high speed adjustment screw must be turned clockwise 1/4 turn at a time until the condition is corrected.

For a final check of the high speed adjustment, operate the engine under load and make any corrections necessary for smooth operation.

### Adjusting the Idle Adjustment Screw

The idle adjustment screw (Illusts. 9 and 9A) adjustments should be made at the same time as the high speed adjustment screw adjustments, as each effects the other.

Close the idle adjustment screw to its seat by turning it clockwise; then open it one turn. Start the engine and operate it at fast idling speed (without any load) until thoroughly warm.

While the engine is running at fast idle speed, it is advisable to screw in the throttle stop screw (Illusts. 9 and 9A) a few turns to keep the engine from stopping when the throttle lever is moved to the fully retarded "SLOW" position. The engine will then be idling at a fairly high speed and the throttle stop screw can be backed out a little at a time until the desired idle speed is obtained.

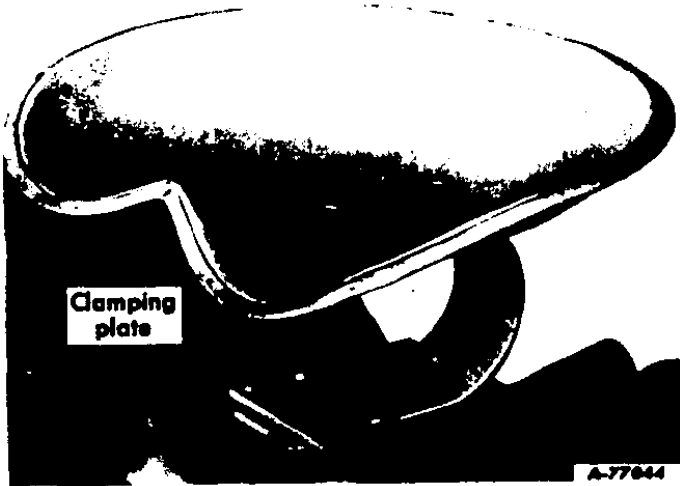
If the engine misses or rolls while backing out the throttle stop screw, the idle adjustment screw may be adjusted in or out until the engine operates smoothly. Speed up the engine for a few seconds; then recheck the idle adjustment. A slight adjustment in or out will give the smoothest idle.

### FUEL SHUT-OFF VALVE

Be sure the shut-off valve on the fuel strainer under the gasoline tank is open. To prevent leakage or seepage when the valve is in its full-open position, screw out the needle stem (shut-off valve) until the seat on the stem is tight against the stop.

# DRIVING THE TRACTOR

## ADJUSTING THE SEAT



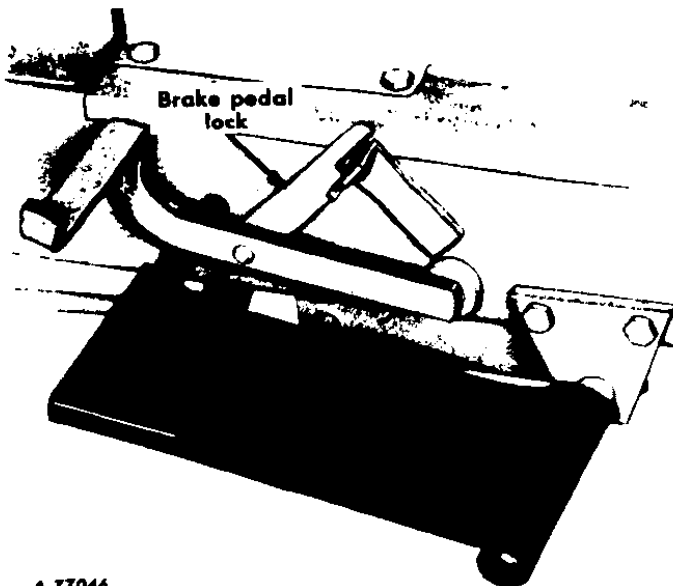
Illust. 10  
Adjusting the seat.

The tractor seat can be set in the most comfortable driving position by loosening the four cap screws in the seat spring clamping plate and sliding the spring and seat assembly forward or back to the position which is most comfortable for the operator.

Tighten the cap screws after the seat is adjusted.

## LOCKING THE BRAKE

Always lock the brake when the tractor is parked on a grade. To lock the brake, press down on the foot pedal; then place the brake pedal lock in the engaged position. To disengage the lock, press down on the foot pedal



Illust. 10A  
Brake pedal lock in the engaged position.

and lift the lock out and place it in the disengaged position.

## STARTING THE TRACTOR

1. Advance the throttle lever slightly. See Illust. 7.

2. Disengage the clutch by pressing the clutch pedal all the way down.

3. Hold the clutch pedal in this position and move the gearshift lever to the desired speed.

4. Start the tractor in motion by slowly releasing the clutch pedal and moving the throttle lever to the position where the engine operates best for the load to be handled. **Note:** Do not shift gears while the engine clutch is engaged or while the tractor is in motion.

5. Do not rest your foot on the pedal while driving the tractor, as this will result in excessive wear on the clutch lining.

Always be sure the rear wheels are free to turn. Under any adverse conditions, do not attempt to free the tractor by speeding up the engine and suddenly engaging the clutch. Try backing out instead of going forward.

## OPERATING THE CREEPER DRIVE

To operate the tractor in creeper drive, move the creeper shift handle (Illust. 5) all the way rearward. Then select the speed desired and proceed as instructed under "Starting the Tractor".

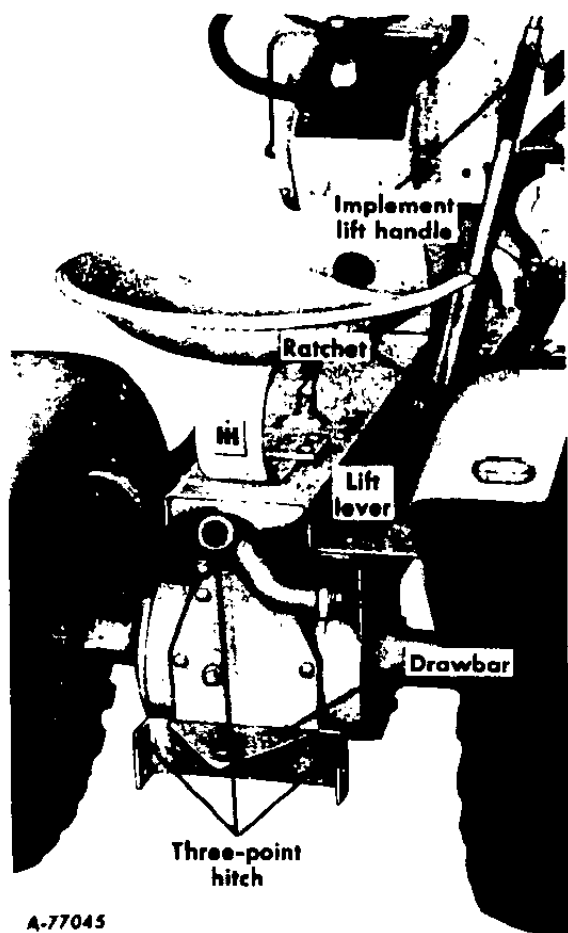
The following table shows the speeds available in each of the three forward gears and the reverse gear.

Gear	Miles Per Hour	
	Direct Drive	Creeper Drive
First	2.284	.571
Second	3.045	.761
Third	6.852	1.713
Reverse	2.545	.636

## STOPPING THE TRACTOR

Disengage the clutch by pressing the pedal all the way down. Move the gearshift lever to the neutral position.

# HITCHING TRAILING EQUIPMENT TO THE TRACTOR



Illust. 11  
Drawbar and three-point hitch.

Trailing-type implements must be hitched

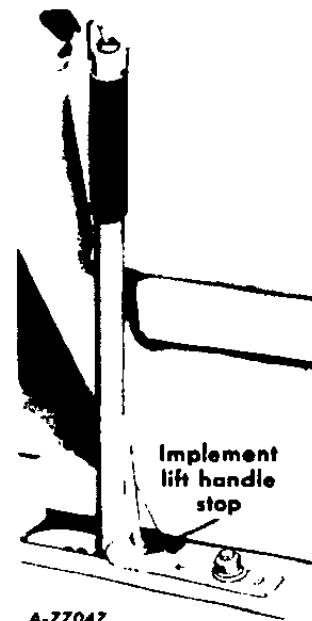
to the tractor **only** at the hitch hole in the drawbar. See Illust. 11.

When the tractor has a three-point hitch (Illust. 11), various implements adaptable to the three-point hitch are raised and lowered with the implement lift handle. The lift handle can be set to hold the implement at various heights by use of the six notches in the implement lift ratchet. The lower mounting bracket has three holes which are used for additional adjustment.

When operating an implement in the "FLOAT" position, depress the release button on top of the handle and move the wire bail over the top of the button.

When the implement is allowed to float, the position of the lift handle forward travel can be limited by the adjustable stop. Loosen the nut, slide the stop to the required position, and tighten the nut. See Illust. 11A.

Refer to the implement manual for proper hitching instructions.



Illust. 11A  
Adjustable stop limiting handle travel.

## ENGINE COOLING AND AIR CLEANER

### ENGINE COOLING

This tractor has an air cooled engine. Air must be able to circulate freely around the engine, through the screen and shroud, and over the fins of the cylinder head and cylinder block. Keep these areas free of accumulated dirt and trash. Failure to do this will cause the engine to overheat and result in damaged moving parts.

### DRY-TYPE AIR CLEANER

Incoming air for combustion is filtered by a dry-type air cleaner having a filter element inside of the cover.



Illust. 11B  
Removing the air cleaner filter element.

# ENGINE COOLING AND AIR CLEANER

## DRY-TYPE AIR CLEANER - Continued

Remove and clean or replace the element with a new one when loss of power is noticeable.

### Cleaning the Element

To clean the element, remove the wing nut and air cleaner cover (Illustr. 12) then remove the element and tap it lightly on a flat surface to cause the loose dirt to fall off. Handle the paper element with care to avoid perforations.

Do not use compressed air to remove the dirt as this can rupture the element. Do not wash or use solvent.

### Replacing the element

Replace the element with a new one if dirt does not drop off easily or if it is bent, crushed or damaged. When replacing the element be sure it fits snugly around the inside edge of the air cleaner base. Then replace the cover and tighten the wing nut finger tight.

## ELECTRICAL SYSTEM

The twelve-volt electrical system of the tractor consists principally of a motor-generator, voltage regulator, and a twelve-volt battery.

Use the illustrations on page 14, as a guide for identifying the various electrical units and for tracing the electrical cables and connections. Be sure all terminals are clean and securely fastened.

### SPARK PLUGS

**Note:** Remove all dirt from the base of the spark plug before removing the spark plug.

Remove the spark plug after every 100 hours of operation for cleaning and checking the gap. A gap of .025-inch should be maintained. When making this adjustment, always bend the outer electrode. Never bend the center electrode, as it may damage the insulator. If the gap between the electrodes is too great, due to improper setting or burning

off of the ends, the engine will misfire and be hard to start.

### Cleaning the Spark Plugs

Sandblasting is the recommended method of cleaning the spark plug. Never scrape or clean the insulator with anything which will scratch the porcelain. Scratched porcelain allows carbon and dirt to accumulate much faster.

Always use a spark plug wrench when removing or reinstalling the plug.

Be sure the gasket is in good condition, and screw the plug in tightly.

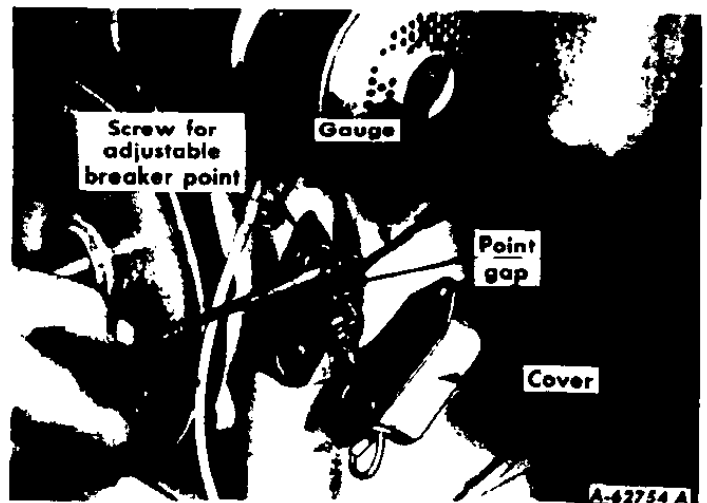
Replace a defective plug with a new plug.

See your International Harvester dealer for various makes of replacement plugs.

### IGNITION TIMING



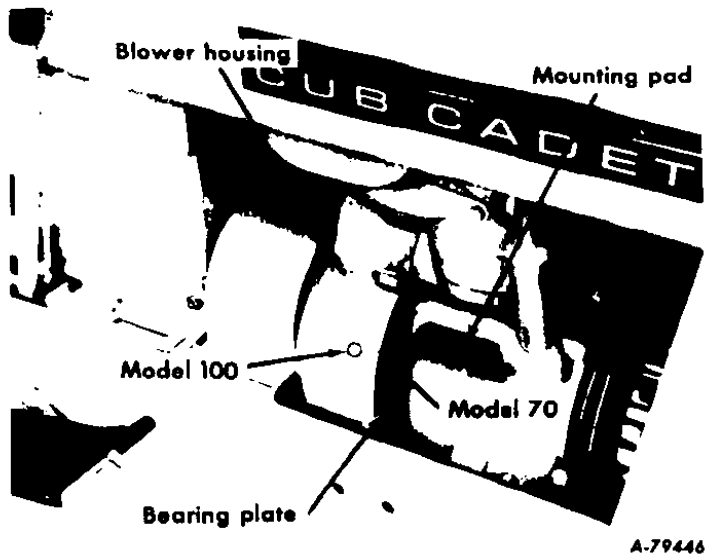
Illus. 12  
Checking the spark plug gap.  
Set gap at .025-inch.



Illust. 12A  
Adjusting the breaker points.  
Set gap of .020-inch.

# ELECTRICAL SYSTEM

## IGNITION TIMING - Continued



Illust. 13  
Location of timing sight hole.  
(Motor-generator has been removed to better  
illustrate the location).

Remove the breaker point cover (Illust. 12A) after every 100 hours of operation for cleaning the points and resetting the gap. A gap of .020-inch should be maintained. Replace badly pitted or burned points.

For more precise timing, a timing light should be used. The engine has a timing sight hole which is located in the right side of the engine bearing plate on the International Cub Cadet 70 Tractor or in the right side of the blower housing in the International Cub Cadet 100 Tractor. See Illust. 13.

With the engine running at 1500 r. p. m., or more, adjust the breaker points until the "SP" or first mark on the flywheel is centered in the sight hole. Note: The "SP" mark will appear 20 degrees before top dead center. The second mark is the top dead center mark and is stamped with "DC" below the mark.

## MOTOR-GENERATOR

The motor-generator (12-volt, negative ground) will function as a cranking motor when the starter button is pressed, driving the engine by means of a belt.

When the engine is operating and the starter button is not depressed, the unit will function as a generator.

## MOTOR-GENERATOR BELT

Check the slack of the motor-generator belt after the first 10 hours of operation and every 50 hours of operation thereafter to assure maintenance of the correct tension. The tension is correct when the belt can be depressed a maximum of 1/4-inch by a ten pound force applied midway between the two pulleys.

These instructions also apply when an old belt is replaced with a new one.

## Adjusting the Motor-Generator Belt

Loosen the motor-generator brace bolt "A" and mounting bolts "B" Illust. 14.

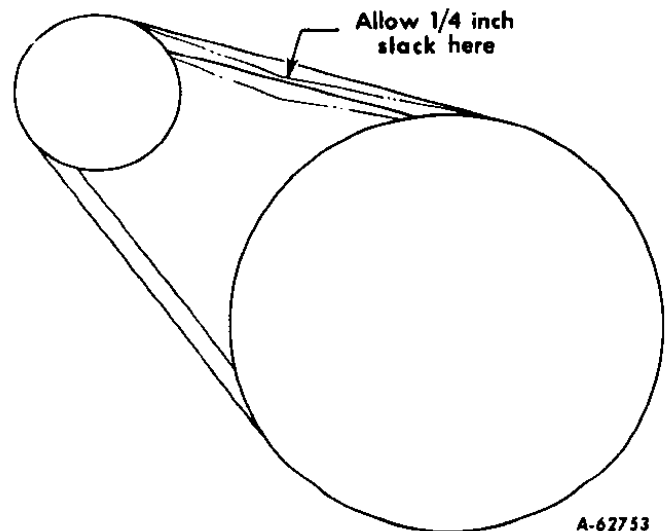
Move the generator away from the engine until the tension on the belt is correct. See Illust. 13A.

Note: Under no circumstances should a pry bar be used on the motor-generator to obtain belt tension as damage to the bearings will result.

Tighten mounting bolts "B" and brace bolt "A".

## Removing and Replacing the Motor-Generator Belt

Replace the motor-generator belt when it becomes badly worn. To remove the old belt, loosen the motor-generator brace bolt "A" and mounting bolts "B", Illust. 14. Move the generator in toward the engine and slip the old belt off the pulleys and over the crankshaft. Install the new belt in the reverse order of removal and adjust the belt to the proper tension as previously instructed.



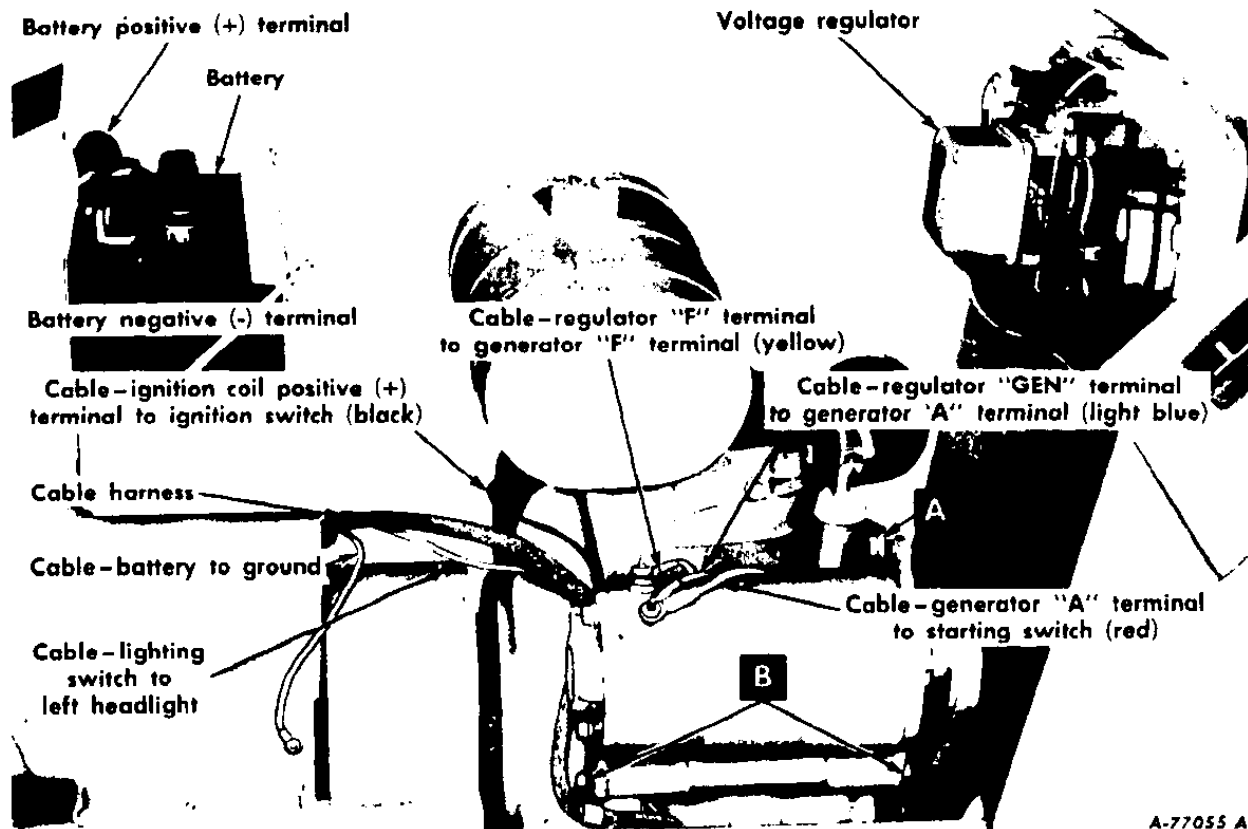
Illust. 13A  
Correct motor-generator belt tension.

## VOLTAGE REGULATOR

A satisfactory charging rate is maintained by the voltage regulator. If the regulator fails to operate correctly, see your International Harvester dealer.

Note: Never place a jumper lead between or accidentally bridge the "BAT" terminal and the "F" terminal on the regulator, as this will damage the regulator.

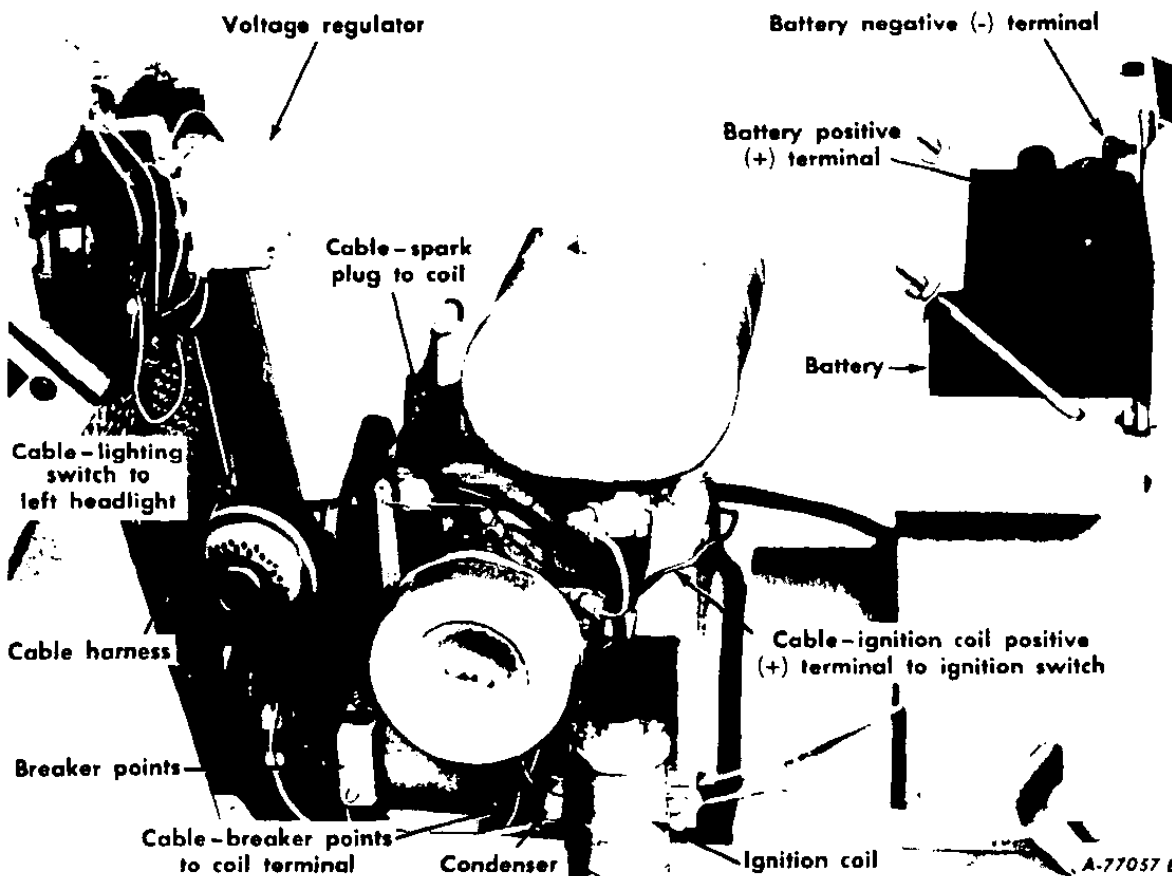
# ELECTRICAL SYSTEM



A-77055 A

Illust. 14

Electrical units on the right side of the Tractor.



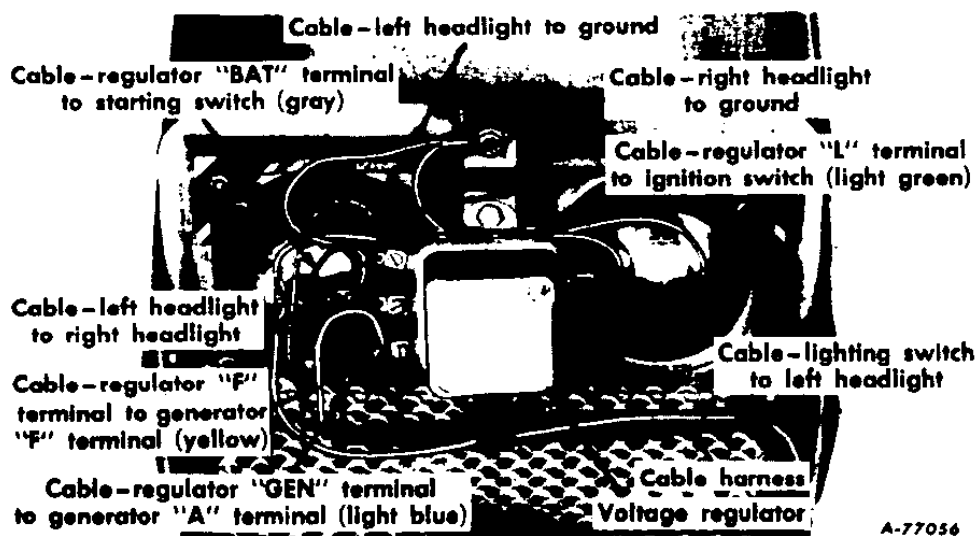
A-77057 B

Illust. 14A

Electrical units on the left side of the Tractor.



# ELECTRICAL SYSTEM



Illust. 15  
Voltage regulator and headlight cables.

## STORAGE BATTERY

### Battery and Cables

Before working on any part of the electrical system, disconnect the battery ground cable at the battery negative (-) terminal. See Illust. 14. Do not reconnect this cable until all work has been completed. This will prevent shorting and causing damage to any of the electrical units. Examine the electrical cables occasionally to be sure they are not being chafed by contact with adjacent parts.

### Cleaning and Servicing the Battery

Occasionally remove the battery cables and brighten the terminal contact surfaces with wire wool, and reassemble them. Apply a light coat of vaseline or chassis lubricant. Be sure the terminals are clamped tightly and that the battery is fastened securely in the battery box. Replace unserviceable cables. Keep the vent holes in the battery filler caps open.

If the battery shows need of charging, it should be given immediate attention. Keeping the battery fully charged not only adds to its life but makes it available for instant use when needed.

### Liquid Level

Check the battery at least once a month for water level.

The electrolyte (acid and water) in each cell should be at ring level at all times to prevent battery failure. When the electrolyte is below this level, pure, distilled water should be added.

Acid or electrolyte should never be added except by a skilled battery man. Under no circumstances add any special battery "dopes," solutions or powders.

**Caution!** Electric storage batteries give off highly inflammable hydrogen gas when charging and continue to do so for some time after receiving a steady charge.

Do not under any circumstances allow an electric spark or an open flame near the battery. Do not lay tools across battery terminals as this may result in a spark or short circuit which may cause an explosion. Be careful to avoid spilling any electrolyte on hands or clothing.

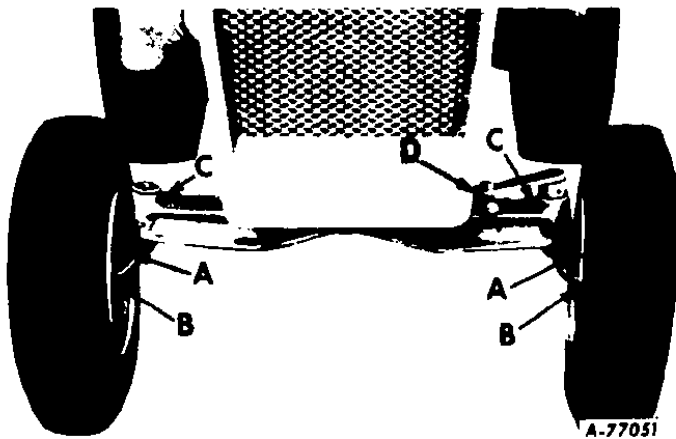
For dependable battery service, see your International Harvester dealer.

### Ground Cable

When replacing a battery, make certain the ground cable is connected to the negative (-) terminal on the battery.

# FRONT WHEELS

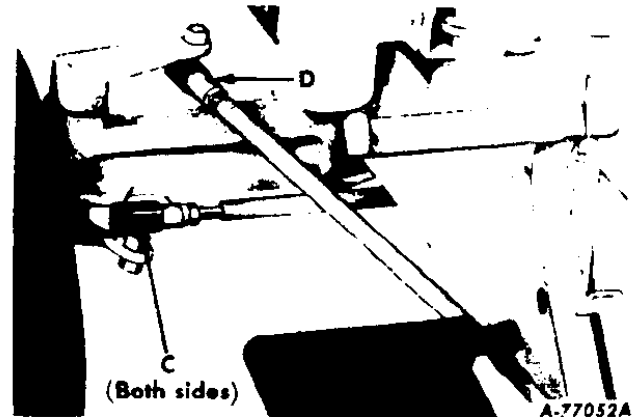
## FRONT WHEEL TOE-IN



Illust. 16  
Front wheel adjustments.

The front wheel should have 1/32-inch to 1/8-inch toe-in (1/32-inch to 1/8-inch closer in front than in the rear). Measure the distance between two points "A" and two points "B", Illust. 16. Points "A" and "B" must be on the inside of the wheels at the outer edges and at the same height from the ground as the front wheel hubs.

To adjust the toe-in, disconnect the tie rod ball joints "C" (Illusts. 16 and 16A), loosen the lock



Illust. 16A  
Tie rod and drag link ball joints.

nuts, and turn the tie rod ball joint ends in or out as required.

## TURNING RADIUS

The front wheels should have an equal angle for left and right turns. If adjustment is necessary, disconnect the drag link ball joint "D" (Illusts. 16 and 16A), loosen the lock nut and turn the drag link ball joint in or out as required.

# PNEUMATIC TIRES

Follow the instructions and recommendations shown below in order to secure maximum life and efficient service from the pneumatic tires.

## CARE OF TIRES

Avoid stumps, stone, deep ruts and other hazards. Cuts in tires should be repaired immediately as neglect decreases the tire life.

Keep tires free from oil and grease as both destroy rubber.

After using the tractor for spraying—insect control work—use water to remove any chemicals that may be on the tires.

## INFLATION

Keep the pneumatic tires properly inflated. Underinflation will damage the tire cord body and may also cause the tire to slip on the rim, thus tearing out the tube valve stem. Overinflation results in excessive slippage, which causes rapid tire wear.

Check the air pressure once a week with an accurate low-pressure gauge having one-pound graduations. Do not allow the air pressure to drop below the recommendations.

Always see that tire valve caps are in place and screwed on tightly. The caps prevent the loss of air through the valve core, and also prevent loose soil, mud, gravel, snow, and ice from entering and damaging the valve core and air chamber in the tires.

## PNEUMATIC TIRES

### OPERATING PRESSURE FOR TIRES

Inflate the front and rear tires for normal or heavy load operations as shown in the following table.

Tire Size	Normal Load Operations	Heavy Load Operations
<b>Front Tires</b>	Pounds per square inch	
4.80/4.00-8	8	10
16 x 6.50-8	6	6
<b>Rear Tires</b>		
6-12	6	8
23 x 8.50-12*	6	6

\* - For use with International Cub Cadet 100 Tractors only.

### MOUNTING TIRES ON THE RIM

After mounting a new or old tire on the rim, inflate it to 20 pounds pressure to seat the tire bead on the rim flange and to prevent the tire from creeping and shearing off the valve. Then deflate the tire to the correct operating pressure.

### REAR WHEEL WEIGHTS

The drawbar pull of a tractor can be increased by the addition of cast-iron weights to the driving wheels.

The rear wheel weights weigh approximately 26 pounds each. Weights can be attached to each rear wheel to reduce slippage and tire wear and increase traction.

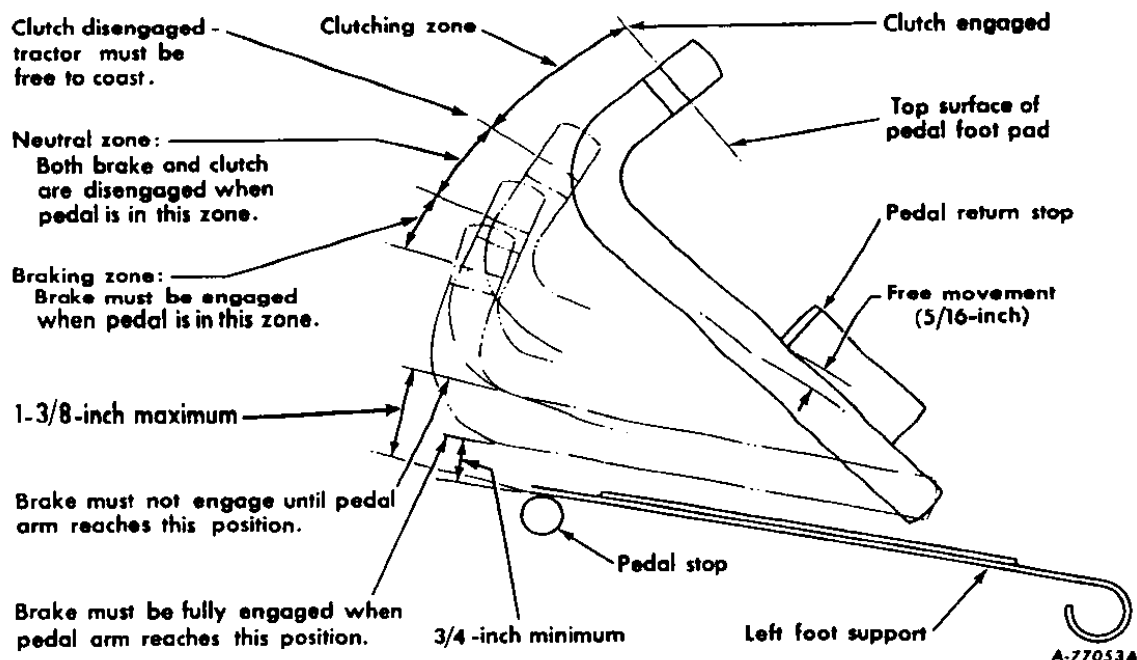
The first set of rear wheel weights is attached to each rear wheel with two bolts, lock washers and hex. nuts.

If additional weight is desired, a second set of weights can be attached to each first weight by using two longer bolts, lock washers, and hex. nuts.

### TIRE CHAINS

Tire chains will provide increased traction for wet ground conditions, when plowing snow, or pulling heavy loads. Rear wheel weights are recommended for use with chains.

## CLUTCH AND BRAKE



Illust. 17  
Clutch and brake adjustments.

# CLUTCH AND BRAKE

As the clutch and brake are both operated by the same pedal, care must be taken to maintain a neutral zone so the clutch is disengaged when the brake is applied.

## ADJUSTING THE CLUTCH

It is important that a clearance of .050-inch be maintained between the clutch release lever and the clutch release bearing. In order to maintain this clearance, the pedal should have a free movement of approximately 5/16-inch. See *Illust. 17*. This measurement is taken at the point of contact of the pedal arm with the front edge of the pedal return stop.

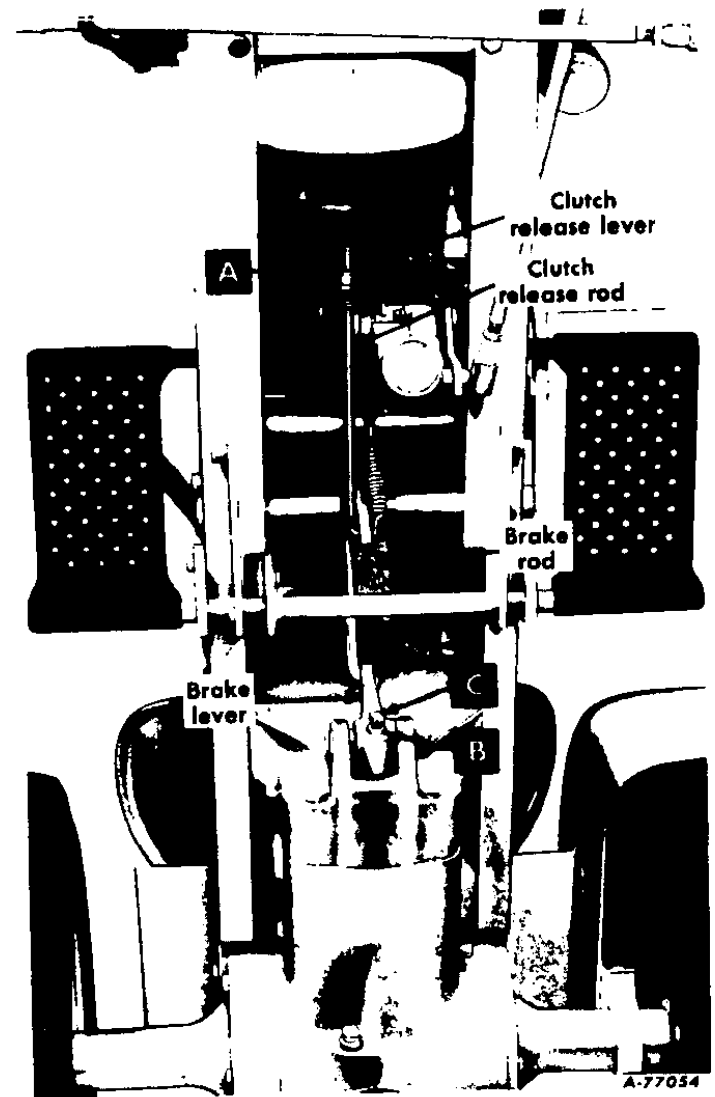
The clutch pedal adjustments are set at the factory and should not require frequent attention unless the linkage has been disturbed or when the pedal movement becomes less than 3/16-inch. When it is necessary to adjust the clutch, turn the adjusting nut "A" on the clutch release rod (*Illust. 18*) in or out as required to get the proper measurements.

## ADJUSTING THE BRAKE

The brake should engage when the pedal arm is pressed down to within a maximum of 1-3/8-inches and a minimum of 3/4-inch distance above the top of the left foot support, which serves as the pedal stop. See *Illust. 17*.

It may be possible to push the pedal all the way down to the pedal stop, but this is of no concern as long as the brake is engaged when the pedal arm is at least 3/4-inch above the pedal stop.

To adjust the brake, loosen the jam nut "B" and turn the brake lever adjusting screw "C" (*Illust. 18*) in or out as required to get this measurement. The brake must not engage before the pedal arm is within the maximum distance of 1-3/8-inches above the pedal stop.



*Illust. 18*  
Clutch and brake adjustments.

# STORING THE TRACTOR

## STORAGE

When your tractor is not to be used for some time, it should be stored in a dry and protected place. Leaving your tractor outdoors, exposed to the elements, will result in materially shortening its life.

Follow the procedure outlined below when your tractor is placed in storage. We also recommend that caution be practiced in starting an engine that has been in storage.

1. Wash or clean and completely lubricate the tractor. See the "Lubrication Guide" on pages 22 and 23.
  2. Run the engine until the fuel is exhausted from the fuel tank and carburetor. Clean the fuel strainer screen and glass bowl. See page 8.
- Note:** Gum will eventually form in the fuel tank, line, and carburetor if the unit is not drained. Gum can be dissolved with acetone or a 50-50 mixture of alcohol and benzol.
3. After the engine has cooled, remove the spark plug and pour one tablespoonful of lubricating oil of good quality into the cylinder. Crank the engine slowly by hand to distribute the oil over the cylinder walls. Then replace the spark plug.
  4. Clean the exterior of the engine.
  5. Remove the battery and place it on a rack or bench in a cool, dry place above freezing (+32° F.). Check the battery at least once a month for water level. See page 15.
  6. Press the clutch and brake pedal all the

way down and engage the brake pedal lock. This will prevent the clutch lining from sticking to the pressure plate.

## REMOVING FROM STORAGE

1. Remove the spark plug and pour a mixture of one-half gasoline and one-half light lubricating oil into the cylinder; one ounce (two tablespoonfuls) is enough.
  2. Crank the engine rapidly until the excess oil has been blown out of the spark plug hole. This operation will loosen any tight piston rings and wash old, gummy oil from valves and piston.
  3. Install the spark plug after cleaning and setting the gap.
  4. Fill the fuel tank.
  5. Install a fully charged battery and be sure the proper connections are made. See **Illusts. 14 and 14A.**
  6. Start the engine and let it run slowly.
- Caution!** Do not accelerate the engine rapidly, or operate it at high speed immediately after starting. Also, keep the doors wide open or move the machine outside the storage room immediately, to avoid danger from exhaust gas.
7. Inflate the tires to the correct operating pressures. See "Pneumatic Tires" on pages 16 and 17.
  8. Before driving the tractor, disengage the brake pedal lock.

# TROUBLE SHOOTING

## Possible Cause

## Possible Remedy

### HARD TO START

No gasoline in fuel tank or carburetor . . . . .	Fill the tank with gasoline; open the fuel shut-off valve. Check the fuel line, fuel strainer and carburetor.
Fuel strainer or fuel line clogged . . . . .	Clean the fuel strainer, check the fuel line and carburetor.
Water in gasoline . . . . .	Drain the fuel tank and carburetor. Use new fuel and dry the spark plug.
Choked improperly. Flooded engine . . . . .	Follow the starting instructions.
Defective ignition or loose wiring . . . . .	Check the wiring, spark plug, or breaker points. See pages 12 to 15.
Defective battery . . . . .	Check and service; see page 15, or replace.
Spark plug dirty or improper gap . . . . .	Clean, adjust the gap to .025 inch, or replace the plug.

### ENGINE OPERATES IRREGULARLY OR KNOCKS

Engine incorrectly timed . . . . .	*
Spark plug dirty; wrong gap or wrong type . . .	Clean, reset the gap to .025 inch, or replace.
Poor or weak spark . . . . .	Check the breaker points and breaker point opening, spark plug, and wiring, see pages 12 to 15.
Carburetor setting incorrect . . . . .	Adjust; see "Carburetor" on pages 8 and 9.
Poor grade fuel or water in fuel . . . . .	Drain and use a good grade of clean fuel.
Engine overheating . . . . .	See "Engine Overheats" below.
Engine valves at fault . . . . .	*
Engine smokes . . . . .	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 piston . . . . .	*
Worn connecting rod and main bearings . . . . .	*
Governor sticking or needs adjustment . . . . .	*

### LACK OF POWER

Engine cold or overheated . . . . .	Run the engine until it warms up before putting it under load. See "Engine Overheats" below.*
Engine overloaded . . . . .	Reduce the load.
Governor not working properly . . . . .	*
Poor compression . . . . .	Service the valves and piston rings.*
Poor fuel or too lean a mixture . . . . .	See "Carburetor" on pages 8 and 9.
Fuel line or strainer obstructed . . . . .	Clean; see page 8.
Fuel tank air vent closed . . . . .	Open the vent in the cap.
Air cleaner clogged or air leakage between carburetor and engine . . . . .	Clean the air cleaner as instructed on page 11. Tighten the carburetor and manifold mounting nuts.
Incorrect timing or faulty ignition . . . . .	See "Breaker Points and Spark Plug" on pages 12 and 13.
Clutch slipping . . . . .	Adjust the free travel of the pedal; see pages 17 and 18.
Brake drags . . . . .	Adjust the brake; see pages 17 and 18.

### ENGINE OVERHEATS

Insufficient cool air, dirty air intake screen, shroud, or cooling fins . . . . .	Keep the air intake area and cooling fins clean; See "Engine Cooling and Air Cleaner" on pages 11 and 12.
---	---

\* See your International Harvester dealer.

# LUBRICATION

## CRANKCASE OIL LEVEL

Never check the oil level while the engine is operating.

The crankcase oil filler cap has a bayonet-type oil level gauge attached to it. See *Illust. 6*. Do not run the engine for any length of time with the oil level above the "FULL" mark or below the "LOW" mark on the gauge. When checking the oil level, the gauge must be withdrawn and wiped clean, then inserted all the way and withdrawn for a true reading.

## ENGINE OIL

Oils designated "For Service MS" are recommended for this engine.

## TO AID STARTING

To aid starting, the selection of crankcase lubricating oils should be based on the lowest anticipated temperature until the next drain period.

## GEAR LUBRICANT

Use only high-quality lubricating oils and greases as specified in the "Lubrication Table". For your own protection, select only oils and greases of recognized manufacture.

Keep your supply of lubricating oil absolutely clean and free from dust. Always use clean containers. Keep the lubricator clean and wipe dirt from the lubrication fittings before applying the lubricator.

# LUBRICATION TABLE

Point of Lubrication	Fill At Hours	Change At Hours	Capacity	Anticipated Air Temperature		
				Above +32°F.	+32° to 0°F.	Below 0°F.
Engine crankcase 7 H.P. engine	10	30	2-1/2 pts.	SAE-30 engine oil	SAE-10W engine oil	SAE-5W or SAE-5W-20 engine oil
10 H.P. engine			3 pts.			
Transmission	100	Yearly	7 pts.	IH Hy-Tran® Fluid or SAE-30 engine oil.		
Creeper drive housing			1/2 pt.			
Steering gear housing	Yearly	-	1/4 lb.	Two strokes of the lubricator, using chassis lubricant (multi-purpose lithium grease).		
Steering knuckles	10	-	Use chassis lubricant (multi-purpose lithium grease) and apply two or three strokes of the lubricator or sufficient grease to flush out old grease and dirt.			

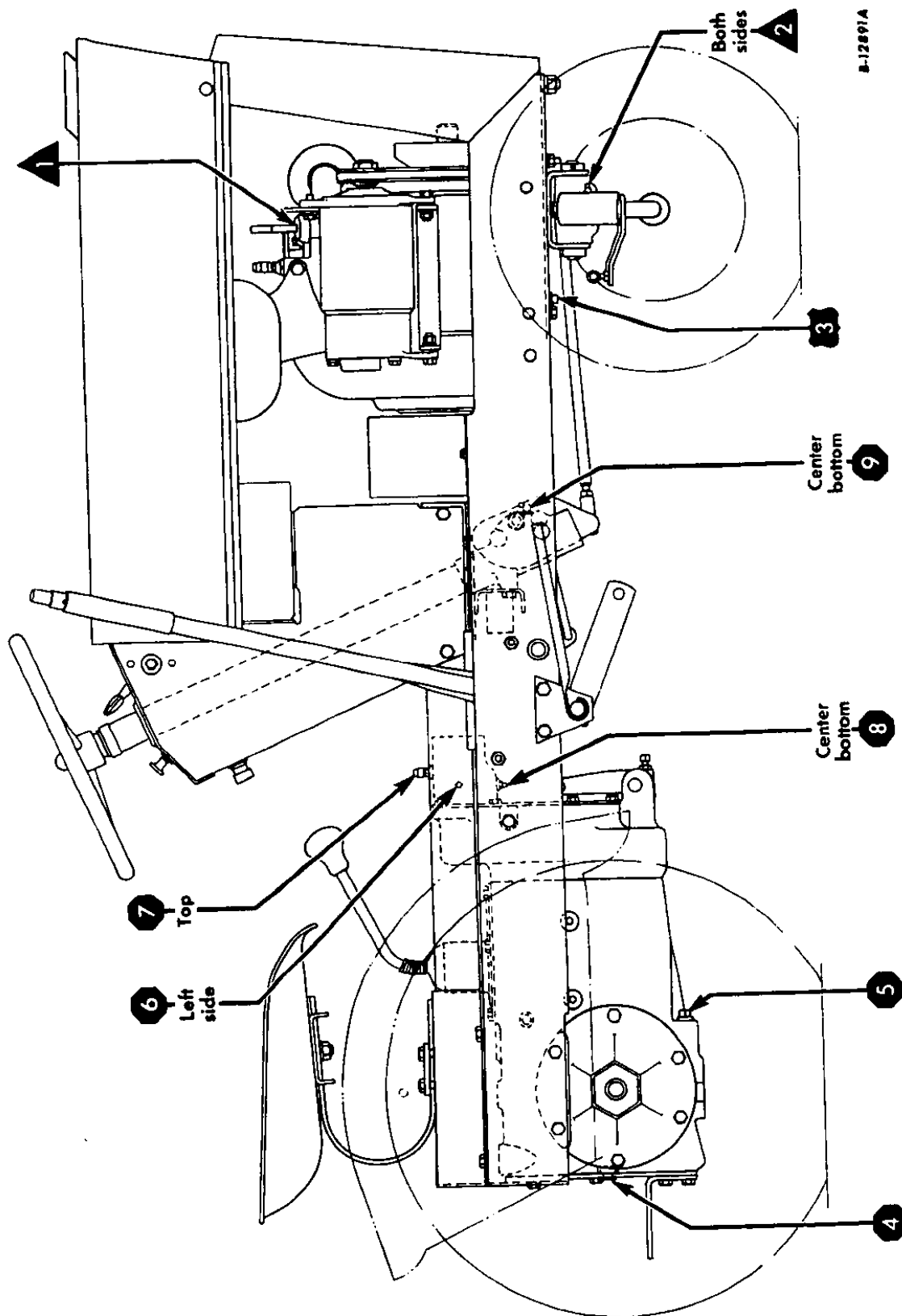
# LUBRICATION GUIDE

The symbols around the reference numbers indicate the intervals of lubrication.

▲ -- 10 hours,

■ -- 30 hours,

● -- Periodic



Illust. 22  
Lubrication view.



# LUBRICATION GUIDE



-- After Every 10 Hours of Operation

1 - Oil filler cap and bayonet-type oil level gauge.

Check the oil (with the engine stopped) and add sufficient new oil to bring it to the "FULL" mark on the bayonet gauge. Do not overfill. Do not operate the engine if the oil level is below the "LOW" mark on the bayonet gauge.

2 - Steering knuckles (2).

Use chassis lubricant (multi-purpose lithium grease) and apply 2 or 3 strokes of the lubricator or sufficient grease to flush out old grease and dirt.



-- After Every 30 Hours of Operation

3 - Engine crankcase.

While the oil is warm, remove the drain plug (3) and drain all of the oil from the crankcase. Replace the drain plug. Remove the crankcase oil filler cap (1). Refill the crankcase with new oil up to the "FULL" mark on the oil level gauge. Refer to the "Lubrication Table" for the proper quantity and viscosity to use.



-- Periodic

## Transmission

4 - Oil level and filler plug.  
5 - Oil drain plug.

Check the oil level periodically. Keep the lubricant up to the level plug (4) on the rear of the transmission case. Change the oil in the transmission case at least once a year. Remove the drain plug (5) and remove the oil level and filler plug (4) and allow all of the oil to drain out. Replace the drain plug. Refill with approved lubricant up to the level plug opening and replace the plug.

## Creeper drive housing

6 - Level plug.  
7 - Breather and filler plug.  
8 - Drain plug.

Check the oil level periodically. Keep the lubricant up to the level plug (6) on the left side of the creeper drive housing. Drain and refill the housing each time the oil is changed in the transmission case. To change the oil, remove the drain plug (8) at the bottom of the housing and allow all the oil to drain. Then replace the drain plug. Remove the breather and oil filler plug (7) at the right of the creeper shift handle on top of the frame assembly, and remove the oil level plug (6). Fill to the level plug opening with SAE-30 engine oil and replace the plugs.

9 - Steering gear housing.

Once a year apply two strokes of the lubricator, using chassis lubricant (multi-purpose lithium grease).

**Note:** To locate the lubrication fitting, turn the front wheels to the maximum right turn position. Then reach up under the right side of the tractor frame to locate the fitting.

## Miscellaneous

Lubricate the clutch pedal shaft and linkage with eight or ten drops of engine oil.

# SPECIFICATIONS

	International Cub Cadet 70 Tractor	International Cub Cadet 100 Tractor
<b>CAPACITIES (APPROXIMATE - U.S. MEASURE)</b>		
Fuel tank . . . . .	5 qts.	6-1/2 qts.
Crankcase . . . . .	2-1/2 pts.	3 pts.
Transmission case . . . . .	7 pts.	7 pts.
Steering gear housing . . . . .	1/4 lb.	1/4 lb.
Creeper drive housing . . . . .	1/2 Pt.	1/2 Pt.
<b>TRANSMISSION (THREE SPEEDS)</b> (Speeds based on 6-12 size rear tires)		
Speed: 1st . . . . .	2.3 mph	2.3 mph
2nd . . . . .	3.9 mph	3.9 mph
3rd . . . . .	6.9 mph	6.9 mph
Reverse . . . . .	2.5 mph	2.5 mph
<b>ENGINE</b>		
Make and model (with electric starting) . . . . .	Kohler K 161S	Kohler K 241AS
(with retractable starter) . . . . .	Kohler K 161T	. . . . .
Cylinders . . . . .	1	1
Bore . . . . .	2-7/8 in.	3-1/4 in.
Stroke . . . . .	2-1/2 in.	2-7/8 in.
Displacement . . . . .	16-1/4 cu. in.	23.9 cu. in.
Rated horsepower (at 60°F and 29.92 in. Hg barometric pressure) . . . . .	7.0 at 3600 rpm	10.0 at 3600 rpm
Engine speed (governed)		
Minimum speed . . . . .	1000 rpm	1000 rpm
Maximum idle speed (no load) . . . . .	3780 rpm	3800 rpm
Maximum (full load) . . . . .	3600 rpm	3600 rpm
Valve clearance (engine cold) . . . . .		
.006 (intake)	.006 (intake)	.010 (intake)
.017 (exhaust)	.017 (exhaust)	.020 (exhaust)
Ignition (with electric starting) . . . . .	Battery	Battery
(with retractable starter) . . . . .	Magneto	. . . . .
Spark plug gap (14mm plug) (Champion J-8 or equivalent) . . . . .	.025 in. gap	.025 in. gap
Breaker points . . . . .	.020 in. gap	.020 in. gap
Timing (static) . . . . .	3° before TDC	3° after TDC
(running) . . . . .	20° before TDC	20° before TDC
Battery terminal grounded . . . . .	negative	negative
<b>FOOT BRAKE</b>		
Disc type, on transmission shaft . . . . .		4-1/2 in.
<b>CLUTCH</b>		
Double-plate, dry disc, spring loaded . . . . .		4-1/2 in.
<b>WHEELS AND TREAD</b>		
Front wheels, pneumatic tire size . . . . .		†4.80/4.00-8
Rear wheels, pneumatic tire size . . . . .		†6-12
Wheelbase . . . . .		43 in.
Tread . . . . .		.27 in.
<b>GENERAL</b>		
Length, over-all . . . . .		.63 in.
Width, over-all . . . . .		33-1/4 in.
Height, over-all (to top of steering wheel) . . . . .		39-3/4 in.
Ground clearance . . . . .		6 in.
Turning radius . . . . .		6-3/4 ft.
† Other pneumatic tire sizes are available.		

# EXTRA EQUIPMENT AND ACCESSORIES

The tractor is used for so many different types of work and is called on to operate under so many different conditions that a considerable variety of equipment is necessary to adapt it to the varied requirements of the user.

When you purchased your tractor, you probably had it completely equipped for your particular needs at the time. However, later you may wish to obtain some of the equipment or accessories shown below. These items can be purchased from, and installed by, your International Harvester dealer.

Type of Equipment	Type of Equipment
Creeper drive	Rear wheel fenders Rear wheel weights
Detachable seat pad Dual rear wheels	Three-point Hitch
Electric lighting	Utility box
Hydraulic Implement lift Power Take-Off	

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# Accidents can be prevented with your help

No accident-prevention program can be successful without the wholehearted co-operation of the person who is directly responsible for the operation of equipment.

To read accident reports from all over the country is to be convinced that a large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it. No power-driven equipment, whether it be transportation or processing, whether it be on the highway, in the harvest field or in the

industrial plant, can be safer than the man who is at the controls. If accidents are to be prevented—and they can be prevented—it will be done by the operators who accept a full measure of their responsibility.

It is true that the designer, the manufacturer, the safety engineer can help; and they will help, but their combined efforts can be wiped out by a single careless act of the operator.

It is said that "*the best kind of a safety device is a careful operator.*" We ask you to be that kind of an operator.

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**1 014 393 R8. Rev.1 8-74 (80)(81)**  
PRINTED IN UNITED STATES OF AMERICA