



International Harvester Operator's Manual for FARMALL 230

Operator's Manual

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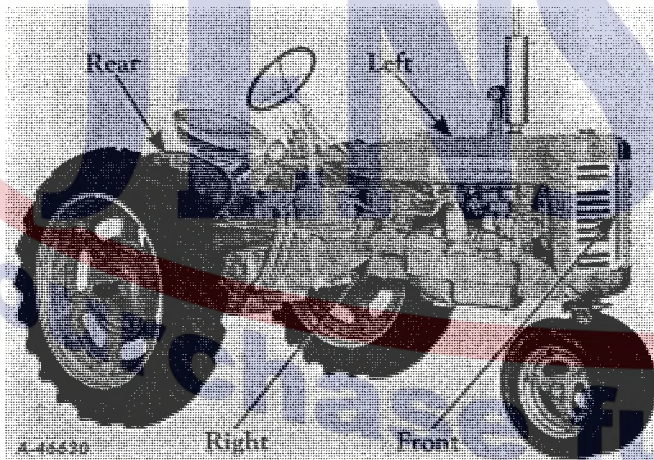
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INTRODUCTION

Assembled in this book are operating and maintenance instructions for the Farmall 230 Tractor. 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.

If you should need information not given in this manual, or require the services of a trained mechanic, get in touch with the International Harvester dealer in your locality. 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.

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 radiator end of the tractor; to REAR, the drawbar end. See *Illust. 2*.



Illust. 2
Terms of location.

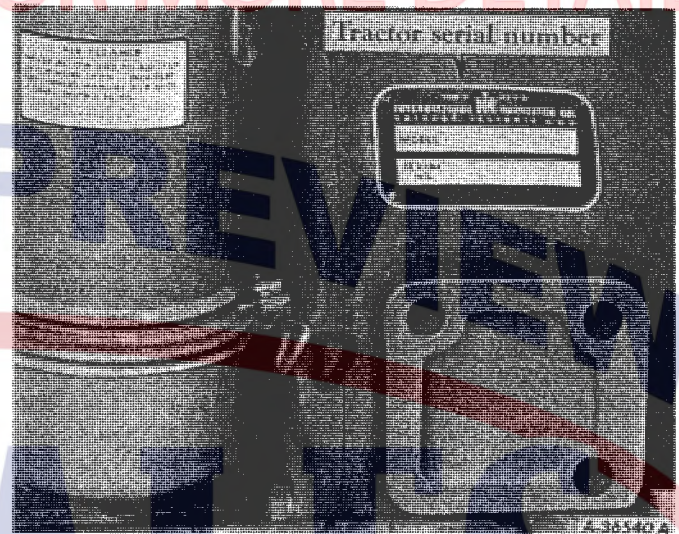
The illustrations in this manual are numbered to correspond with the pages on which they appear; for example, *Illusts. 2, 2A, and 2B* are on page 2.

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.

Many of these items are illustrated and described in the Extra Equipment and Accessories section of this manual.

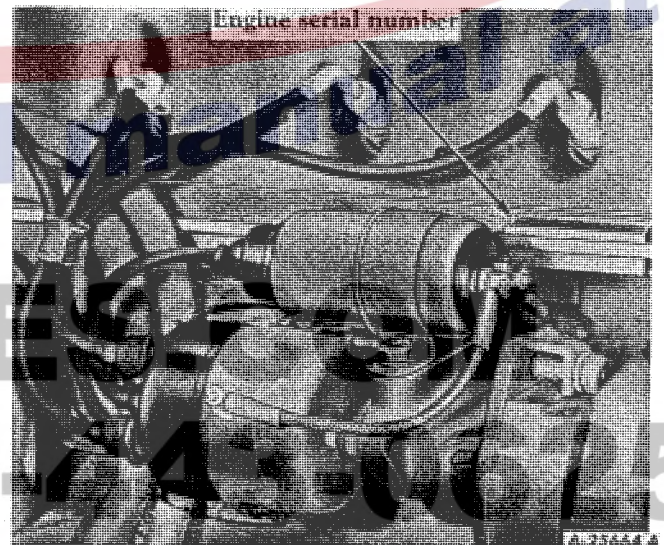
Where operating and maintaining instruction on these items is required, it is included in the instructions for operating and maintaining the tractor. Disregard the instructions for equipment not on your tractor.

When in need of parts, always specify the tractor and engine serial numbers. The tractor serial number is stamped on a name plate attached to the left side of the clutch housing. See *Illust. 2A*.



Illust. 2A
Location of the tractor serial number.

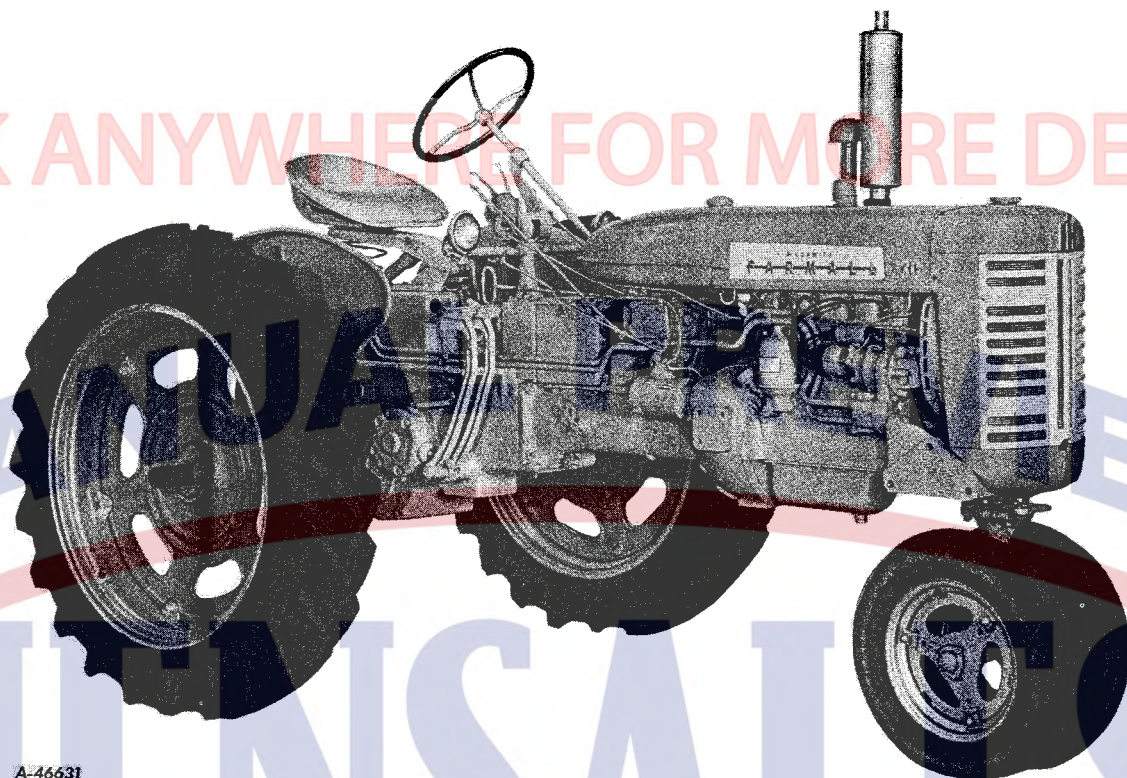
The engine serial number is stamped on the right side of the engine crankcase above the battery ignition unit. See *Illust. 2B*. This serial number is preceded by the prefix C-123, which indicates that it is a carbureted engine with 123-cubic-inch piston displacement.



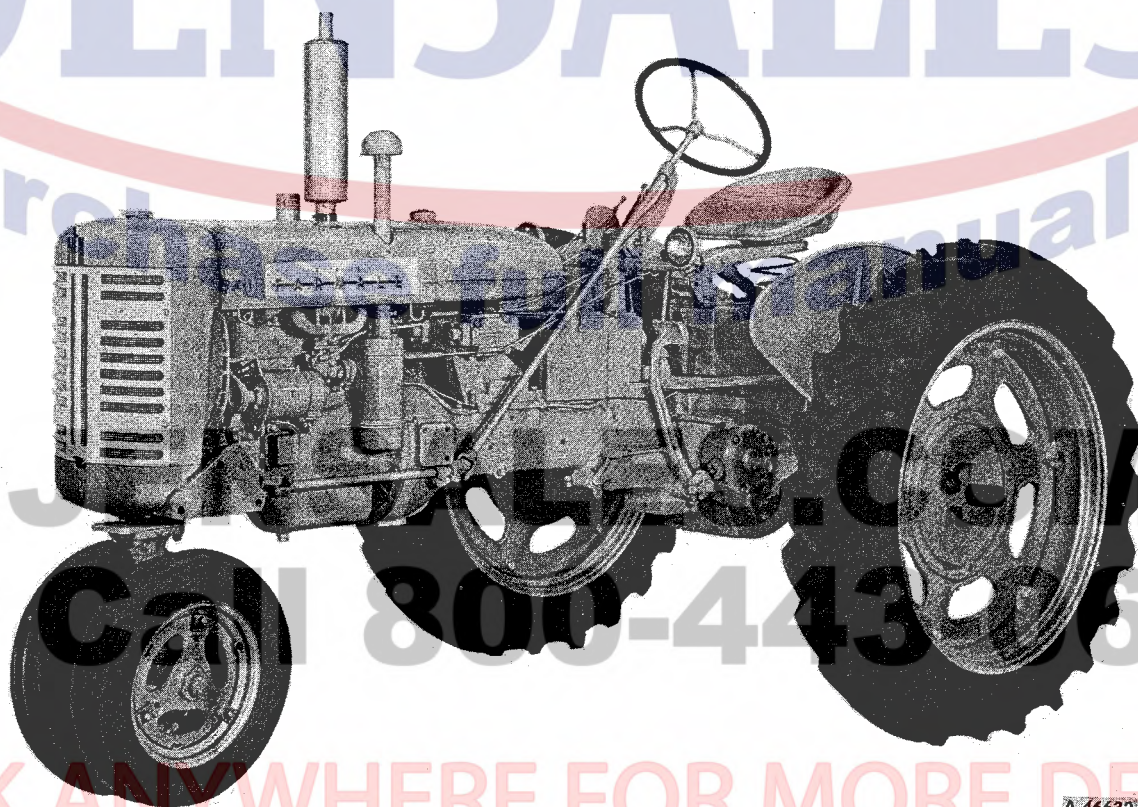
Illust. 2B
Location of the engine serial number.

For ready reference we suggest that you write these serial numbers in the spaces provided on the Delivery Report.

DESCRIPTION



Illust. 3
Right side view.



Illust. 3A
Left side view.

OPERATING YOUR TRACTOR



Be extra careful when working on hillsides. Watch out for holes or ditches into which a wheel might drop and overturn the tractor.

Steering the Tractor

The tractor is steered in the conventional manner by means of the steering wheel; however, to make a sharp or pivot turn, press the right or left brake pedal, depending on the direction in which the turn is to be made. The brake pedals must be unlatched so they can be operated individually.

Towing the Tractor

When towing is necessary, use a tow rope or cable and have an operator steer the tractor and operate the brakes.

Attach a tow rope or cable at the implement mounting bolt holes on the side of the steering gear housing. In no case should the attachment be made to the lower bolster.



Always drive the tractor at speeds slow enough to insure safety, especially when driving over rough ground or near ditches.

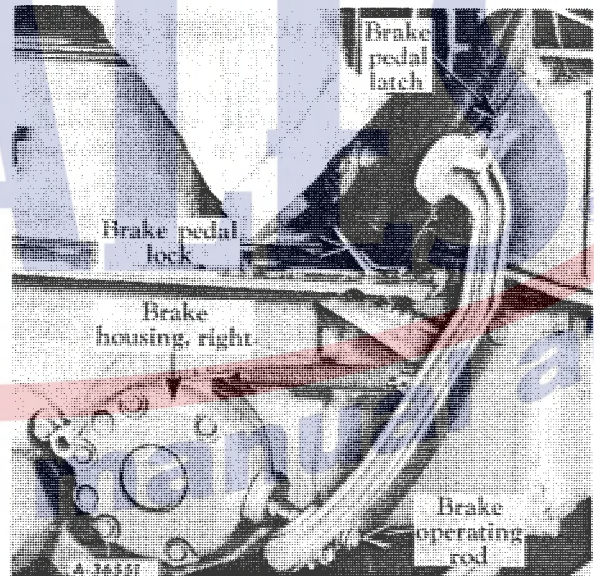
Caution! When towing a tractor to get it started, do not exceed the normal ground speed attained in the gear selected for towing the tractor. Refer to table on page 19.

When towing a tractor to transport it from one place to another, the gearshift lever must be in the neutral position and the ground speed should not exceed twenty miles per hour.

Stopping the Tractor

Disengage the clutch by pressing down firmly on the clutch pedal and move the gearshift lever to the neutral position. Use the brakes if necessary.

Locking the Brakes



Illust. 18

Brake pedals in the locked position.

Always lock the brakes when the tractor is parked on a grade or when doing belt work. To lock the brakes, latch the brake pedals together and press down with the foot. At the same time tilt the brake lock forward by pressing the heel against the brake lock lug (or actuator). See Illust. 18. The lock will then engage with the ratchet on the left brake pedal. The brake pedals will lock in this position. To release the brakes, simply press the brake pedals further down and the lock will automatically fall back into the disengaged position.

OPERATING YOUR TRACTOR



Be sure to stop the power take-off before dismounting from the tractor.



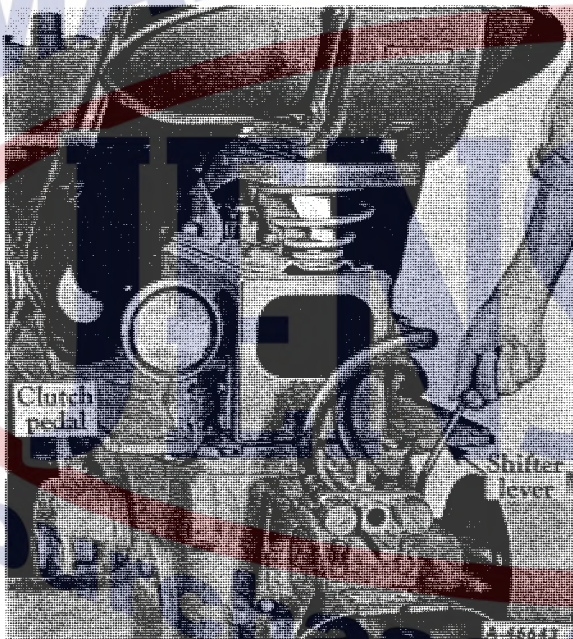
When operating the power take-off, be sure that the master shield (*Illust. 83*) covering the power take-off exposed shaft is always in place.



When the power take-off shaft is not in use, always keep it covered with the power take-off shaft guard.

Caution! Do not exceed the recommended power take-off speed for the driven machine.

Operating the Power Take-Off with the Tractor Standing Still



Illust. 24

Operating the power take-off.

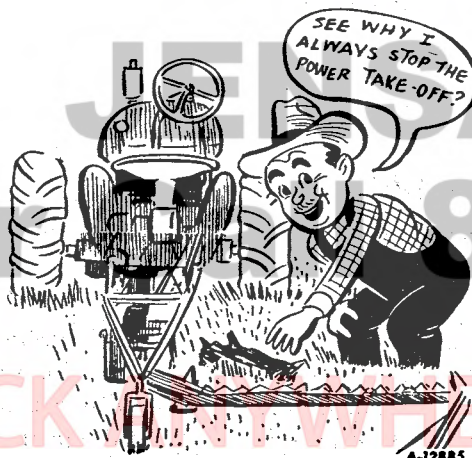
1. The transmission gearshift lever must be in the neutral position.
2. Move the engine speed control lever back to low idle speed.
3. Depress the clutch pedal to disengage the engine clutch.
4. Move the shifter lever all the way back. See *Illust. 24*.
5. Slowly release the clutch pedal.

Operating the Power Take-Off with the Tractor in Motion

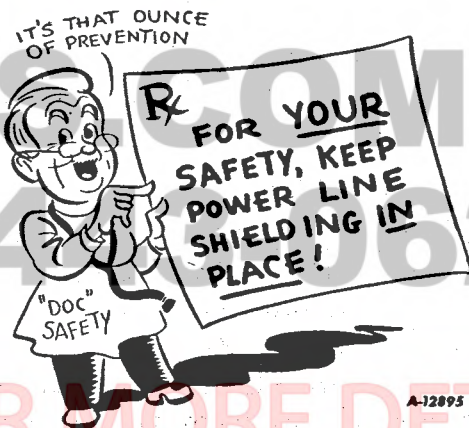
Follow the first four steps outlined above; then, keeping your foot pressed down on the clutch pedal (in the disengaged position), advance the engine speed control lever and move the transmission gearshift lever to the speed desired to run the tractor. Slowly release the clutch pedal and the tractor will start in motion with the power take-off in operation.

Power Take-Off Shaft Governed Speed [®]

Maximum (full load)..... (engine speed, 1,650 r.p.m.)	539 r.p.m.
Low idle (no load)..... (engine speed, 425 r.p.m.)	139 r.p.m.
Fast idle (no load)..... (engine speed, 1,815 r.p.m.)	593 r.p.m.

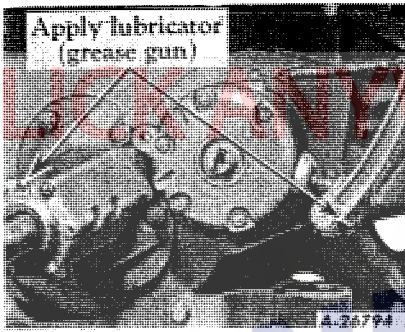


Always stop the power take-off before dismounting from the tractor.



When tractor is pulling power equipment, be sure that all power line shielding is in place and in good order.

LUBRICATION



Illustr. 32

Rear axle bearing and brake pedal.

Adjustable Wide Front Axle

- 12—Tie rod (4).
- 13—Steering knuckle post (2).
- 14—Front axle pivot shaft.
- 15—Stay rod bearing.

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 Illustr. 30.*

○—Weekly or After Every 60 Hours of Operation

- 19—Impulse coupling (tractors with magneto).

Use a light oil, such as sewing machine or cream separator oil, and oil liberally. Use kerosene when the temperature is below +10°F. *See Illustr. 32B.*

Miscellaneous parts.

Lubricate the clutch and brake pedal connections with a few drops of engine oil.

◇—After Every 150 Hours of Operation

- 20—Generator oil cups (2).

Use an oil can and apply eight to ten drops of SAE-20 oil in each cup. *See Illustr. 32C.*

- 21—Clutch release bearing retainer.

Use pressure-gun grease (chassis lubricant) and apply two or three strokes of the lubricator. Do not overlubricate. The fitting can be reached by removing the clutch housing dust cover from the left side of the clutch housing. *See Illustr. 32A.*

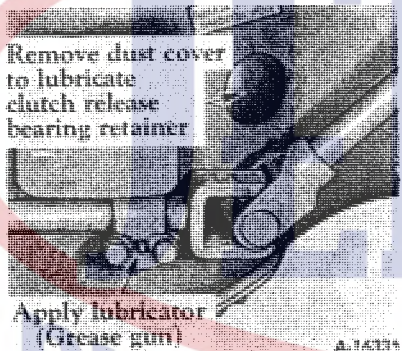
- 22—Oil filter element.

Replace the oil filter element every time the crankcase oil is changed. Remove oil filter drain plug (23) and allow all oil to drain out. Remove the oil filter retaining bolt and case and remove the used filter element. Replace the drain plug and install a new filter element as instructed on page 27. *See Illustr. 32D.*

- 23—Oil filter drain plug.

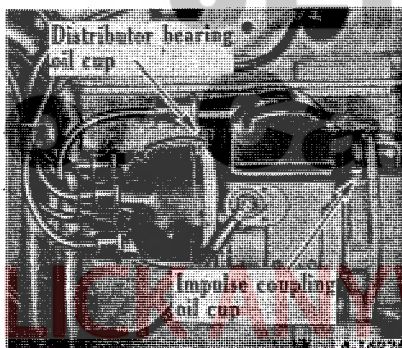
Remove plug (24) and drain all oil from the crankcase while the engine is warm; then refill with new oil to the level of upper test cock (4) or to the "FULL" mark on the bayonet gauge. The crankcase pan capacity is five U. S. quarts. *See Illustr. 31B.* For the correct lubricating oil to use, see the lubrication specifications on pages 28 and 29.

- 24—Crankcase oil pan drain plug.



Illustr. 32A

Steering shaft center bearing and clutch release bearing retainer.



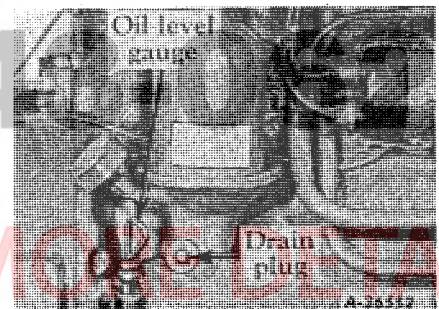
Illustr. 32B

Magneto (tractors so equipped).



Illustr. 32C

Generator.



Illustr. 32D

Oil level gauge and oil filter drain.

MAINTENANCE

The specific gravity reading will vary with the temperature of the electrolyte. For readings taken at any temperature other than $+80^{\circ}\text{F.}$, a temperature correction must be applied. This is done by adding .004 specific gravity for every 10° above $+80^{\circ}\text{F.}$, and by subtracting .004 specific gravity for every 10° below $+80^{\circ}\text{F.}$

Example No. 1

Hydrometer reading.....1.270
Electrolyte temperature..... $+20^{\circ}\text{F.}$
Subtract .024 Sp. Gr..... $(.004 \times 6)$
Corrected Sp. Gr. is.....1.246

Example No. 2

Hydrometer reading.....1.255
Electrolyte temperature..... $+100^{\circ}\text{F.}$
Add .008 Sp. Gr..... $(.004 \times 2)$
Corrected Sp. Gr. is.....1.263

Use an accurate hydrometer when testing for specific gravity. Readings should not be taken immediately after adding water.

All cells should show approximately the same specific gravity reading. Wide variations indicate something is wrong.

For dependable battery service, see your International Harvester dealer.

Battery Voltage

With the battery fully charged and on charge at the normal rate, the average cell voltage at $+80^{\circ}\text{F.}$ ranges between 2.5 and 2.7 volts; at $+100^{\circ}\text{F.}$, between 2.4 and 2.6 volts.

Cold Weather Operation

It is especially important to keep the battery at full charge for cold weather operation. Add water to the battery in freezing temperatures only when the tractor is to operate for several hours, to thoroughly mix the water and the electrolyte, or damage to the battery will result from the water freezing.

The electrolyte of a battery in various stages of charge will start to freeze at temperatures indicated in the table.

Specific Gravity (corrected to $+80^{\circ}\text{F.}$)	Freezing Temperature (degrees Fahrenheit)
1.230— $\frac{3}{4}$ charge.....	-62°F.
1.180.....	-16°F.
1.130.....	$+5^{\circ}\text{F.}$
1.080.....	$+19^{\circ}\text{F.}$

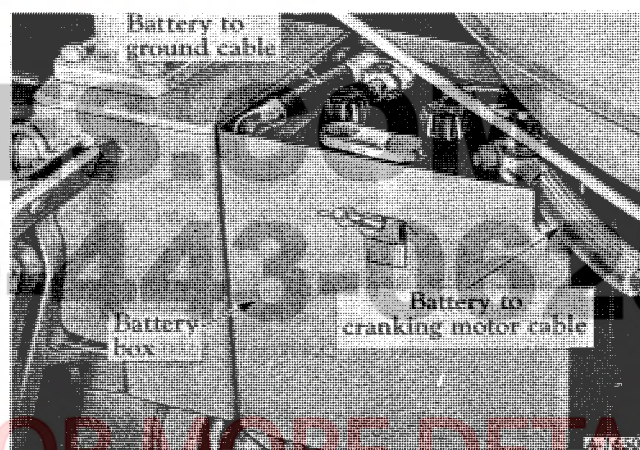
The temperatures shown in the table indicate the approximate points at which the first ice crystals begin to appear in the solution. The solution does not freeze solid until a lower temperature is reached. A battery three-fourths charged is in no danger of damage from freezing. Therefore, keep the battery better than three-fourths charged, especially during winter weather.

If your tractor is not to be operated for some time during the winter months, it is advisable to remove the battery and store it in a cool, dry place above freezing ($+32^{\circ}\text{F.}$). Place the battery on a rack or bench.

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

Before working on any part of the electrical system, disconnect the battery-to-ground cable. See *Illust. 58*.

Do not reconnect this cable until all electrical work has been completed. This will prevent shorting and causing damage to any of the electrical units.



Illust. 58
Battery and cables.