

# 3010 ROW-CROP UTILITY TRACTORS



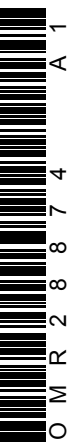
JOHN DEERE

## OPERATORS MANUAL 3010 ROW-CROP UTILITY TRACTORS

OMR28874 A1 English

JOHN DEERE TRACTOR WORKS  
OMR28874 A1

LITHO IN THE U.S.A.  
ENGLISH





# contents

<i>specifications</i>	<b>2</b>
<i>controls and instruments</i>	<b>4</b>
<i>operation</i>	<b>9</b>
<i>safety rules</i>	<b>43</b>
<i>fuels and lubricants</i>	<b>45</b>
<i>lubrication and periodic service</i>	<b>49</b>
<i>service</i>	<b>59</b>
<i>tractor storage</i>	<b>76</b>
<i>trouble shooting</i>	<b>78</b>
<i>attachments</i>	<b>83</b>
<i>index</i>	<b>86</b>



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**IGNITION SYSTEM:**

Type . . . . . Battery-distributor  
 Distributor point gap . . . . . 0.022 in.  
 Distributor timing . . . . . 20 degrees BTDC at 1900 rpm.

Spark plugs:  
 Size . . . . . 18 mm.  
 Spark plug gap . . . . . 0.025 in.

**TRANSMISSION:**

Type . . . . . Syncro-Range, constant mesh  
 Gear selections . . . . . 8 forward and 3 reverse  
 Shifting . . . . . 4 stations, synchronized shifting within stations

**HYDRAULIC SYSTEM:**

Type . . . . . Closed center, constant pressure. Includes power steering, power brakes, implement control, and transmission-differential lubrication  
 Maximum pressure . . . . . 2250 psi

**POWER TAKE-OFF**

Type . . . . . Independent, dual-speed PTO shaft with front and rear power take-off. Rear stub shafts for PTO conversion  
 Speed (at 1900 engine rpm). Front—1000 rpm (See page 39)  
 Rear—540 or 1000 rpm

Rear PTO ahead of drawbar  
 hitch point . . . . . 540 rpm-14 in., 1000 rpm-16 in.  
 PTO shaft above ground . . . . . 21-7/8 in.

PTO CLUTCH: . . . . . Single 10-in. plate, automotive type, hand-operated

**BRAKES:** . . . . . Hydraulically power actuated, disk-type, operating in oil

**BELT PULLEY (SPECIAL EQUIPMENT):**

Diameter . . . . . 12 in.  
 Width . . . . . 8-1/2 in.  
 Engine speed . . . . . 1900 rpm  
 Pulley speed . . . . . 980 rpm  
 Belt speed . . . . . 3077 fpm

**FRONT TIRES:**

Size . . . . . 6.50 - 16, 6-ply  
 7.50 - 16, 6-ply

**REAR TIRES:**

Size . . . . . 13.6 - 28, 6-ply  
 14.9 - 28, 6-ply  
 16.9 - 24, 6-ply

**FRONT WHEEL TREAD:**

Fixed tread front axle . . . . . 54-3/4 and 60 in.  
 Adjustable tread front axle . . . . . 49-1/4 to 78-1/2 in.

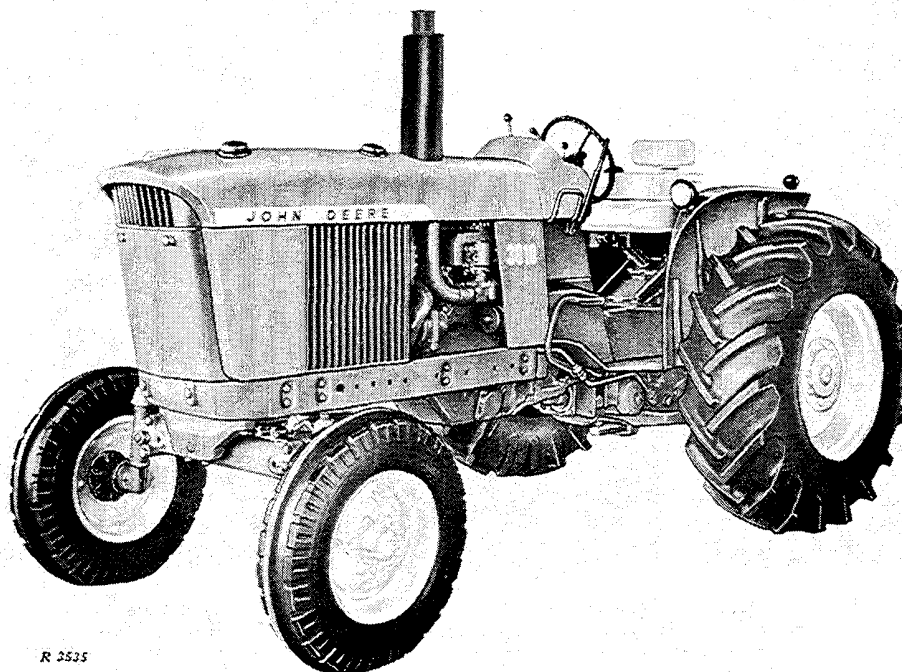
**REAR WHEEL TREAD:**

Regular 24 in. wheels . . . . . 62 to 78 in.  
 Regular 28 in. wheels . . . . . 60 to 80 in.  
 Power adjusted 24 in. wheels . . . . . 58 to 78 in.  
 Power adjusted 28 in. wheels . . . . . 56 to 78 in.

**DIMENSIONS:**

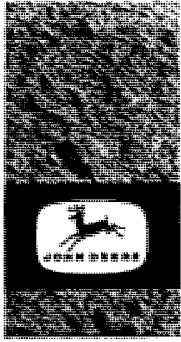
Wheel base (long or short optional) . . . . . 92-3/4 or 81-1/2 in.  
 Over-all length . . . . . 134-1/2 in.  
 Over-all height . . . . . 86-3/4 in.  
 Height to steering wheel . . . . . 64 in.  
 Width . . . . . 70 in.  
 Clearance . . . . . 17-7/16 in.  
 Turning radius . . . . . 120 in.

**SHIPPING WEIGHT:** . . . . . 5624 lbs.



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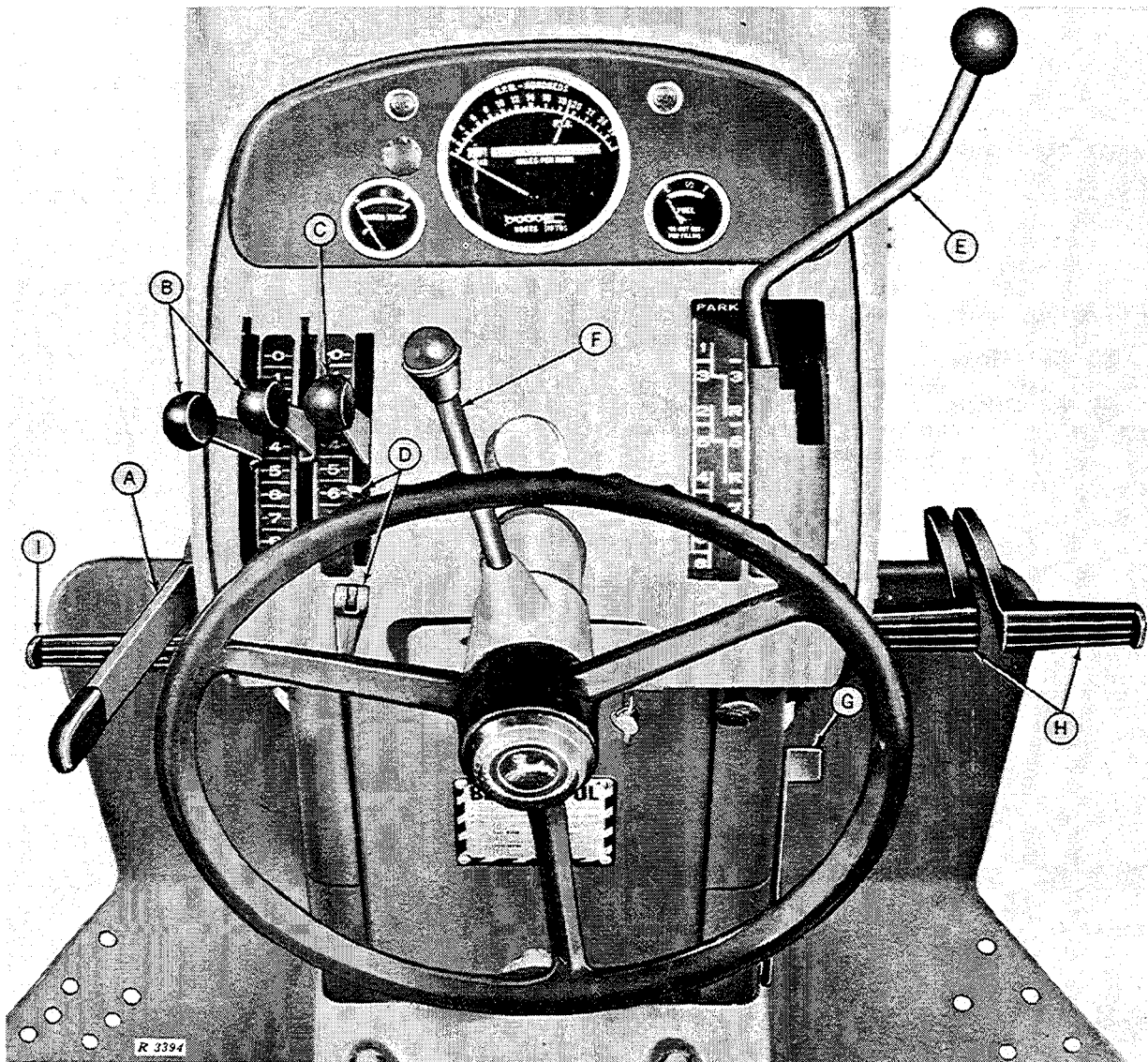
John Deere 3010 Row-Crop Utility Gasoline Tractor



# controls and instruments

Before attempting to operate your new tractor, become familiar with the location and purpose of its controls and instruments. Study the next few pages carefully, regardless of your previous tractor experience.

## Controls



A - Power take-off clutch lever  
B - Remote hydraulic cylinder operating levers  
C - Rockshaft control lever  
D - Rockshaft control lever stop and lock

E - Shift lever  
F - Hand throttle  
G - Foot throttle  
H - Brake pedals  
I - Clutch pedal

### A. Power take-off clutch lever

The PTO clutch lever is used to engage and disengage the power take-off shaft. The lever is located at the extreme left-hand side of the dash within easy reach of the operator.

### B. Remote hydraulic cylinder operating levers

The tractor can be equipped to operate either one or two remote hydraulic cylinders. One or two operating levers for the remote cylinders are located on the left-hand side of the dash.

### C. Rockshaft control lever

The rockshaft and Universal 3-Point Hitch are raised or lowered by the lever on the dash just to the left of the steering column.

### D. Rockshaft control lever stop and lock

The stop and lock for the rockshaft control lever are used to give the lever an adjustable, preset rearward position.

### E. Shift lever

The shift lever is used to obtain any one of eight forward and three reverse gear selections. It also can be placed in a "PARK" position and in a "TOW" position.

### F. Hand throttle

This lever, extending upward from the steering column, is used to select engine working speeds.

### G. Foot throttle

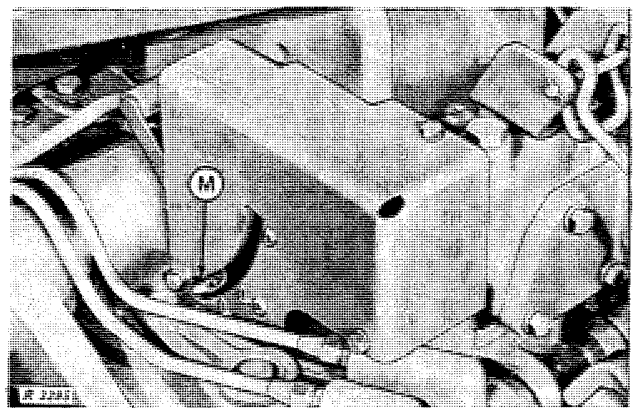
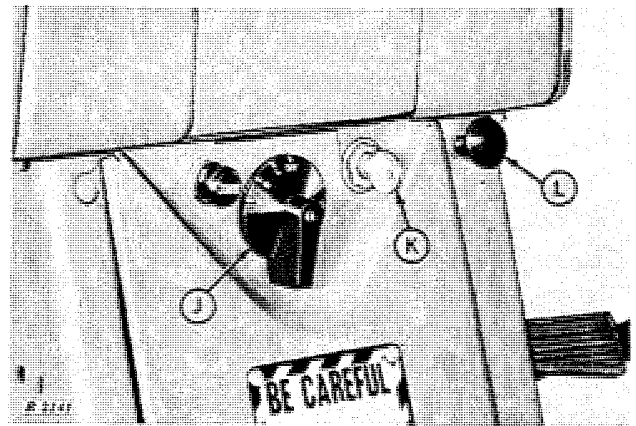
When desired, this pedal can be used instead of the hand throttle to control the engine speed.

### H. Brake pedals

The two brake pedals, located at the front right-hand side of the platform, activate the hydraulically-operated power brakes.

### I. Clutch pedal

Pressing the clutch pedal, located at the front left-hand side of the platform, disengages the clutch to permit shifting gears.



J - Light switch  
K - Key switch  
L - Engine choke knob  
M - Selector lever

### J. Light switch

This switch is used to turn on all tractor lights.

### K. Key switch

This switch is used to activate the electrical system and to start the engine. The switch has four positions, accessory, off, on, and start.

### L. Engine choke knob

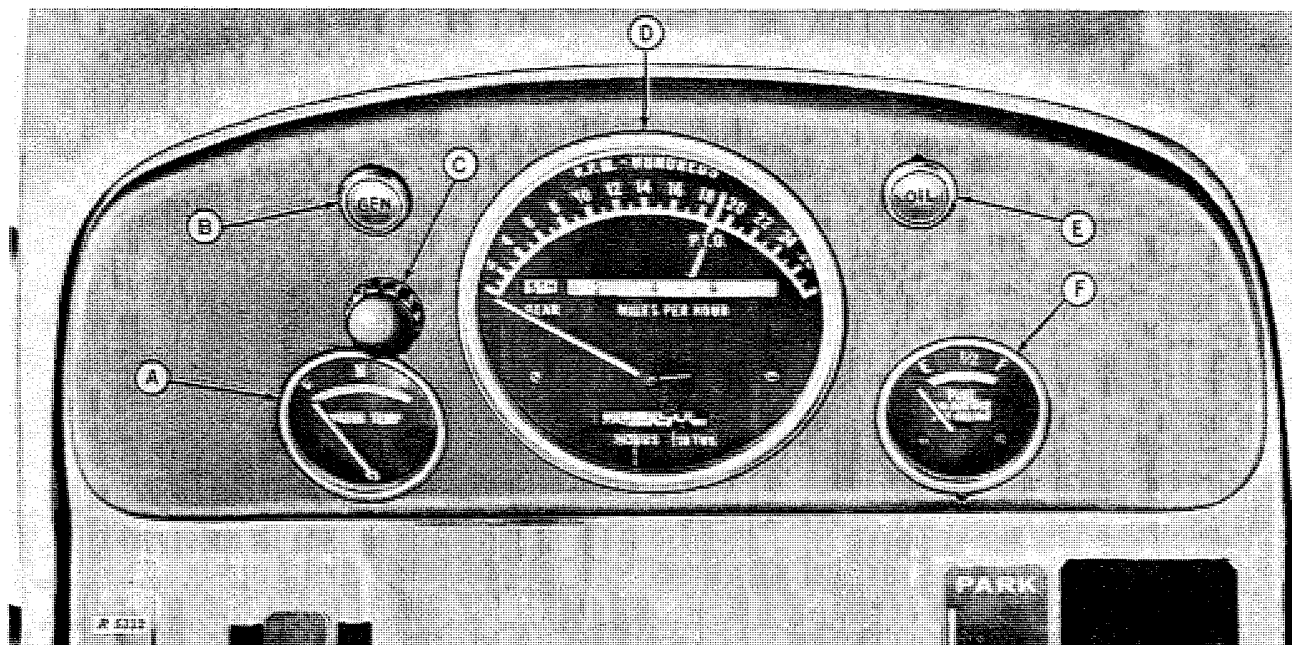
Pulling out on this knob chokes the engine to provide a richer mixture to aid in starting the engine.

### M. Selector lever

This lever, located below the seat, determines the desired sensitivity of response from the rockshaft and 3-point hitch for various operating conditions.

## Instruments

All instruments are conveniently grouped on the instrument panel where they may be observed easily by the operator.



A - Water temperature gauge  
B - Generator indicator light  
C - Speed indicator knob

D - Speed-hour meter  
E - Oil pressure indicator light  
F - Fuel gauge

### A. Water temperature gauge

This gauge shows the temperature of the coolant in the engine cooling system. After the engine has had time to warm up, the indicator should remain in the "N" (normal) range.

### B. Generator indicator light

This lamp glows red if the generator is failing to charge the batteries properly. It goes out when the generator is in satisfactory condition and is rotating fast enough to charge the batteries.

### C. Speed indicator knob

This knob is turned so that the speed-hour meter will show the correct tractor ground speed in miles per hour.

### D. Speed-hour meter

The speed-hour meter shows the following: (1) *Engine Speed*, in hundreds of rpm with PTO mark to show the proper engine speed for operating the power take-off; (2) *Tractor Ground Speed*, in miles per hour according to the gear in which tractor is operating; and (3) *Hours of Operation*, or accumulated engine service, in hours and tenths of hours.

### E. Oil pressure indicator light

This lamp glows red when the engine oil pressure is not satisfactory. It does not indicate the condition or amount of oil in the crankcase.

### F. Fuel gauge

This electrically-operated gauge shows the amount of fuel in the tank. It will operate only when the key switch is turned on.

## Seat

Your tractor may be equipped with either the regular seat or an optional deluxe seat. The regular seat is cushioned by no-sag springs and foam padding, while the deluxe seat uses a steel compression spring and shock absorber to provide "Float-Ride" suspension. The deluxe seat is also equipped with a flexibly-mounted padded backrest and semi-circular foam padding which surrounds the operator.

Both seats are designed for operator comfort and excellent visibility of the working area.

Use only warm water and mild soap to clean the seat cushions. NEVER USE SOLVENTS.

### Moving seat to upper, rear position

To move the deluxe seat up and back, stand up and lift the seat release latch. The seat will move automatically to the upper, rear position. This gives you plenty of room when you desire to drive while standing. Sit down to return the seat to normal, preset operating position.

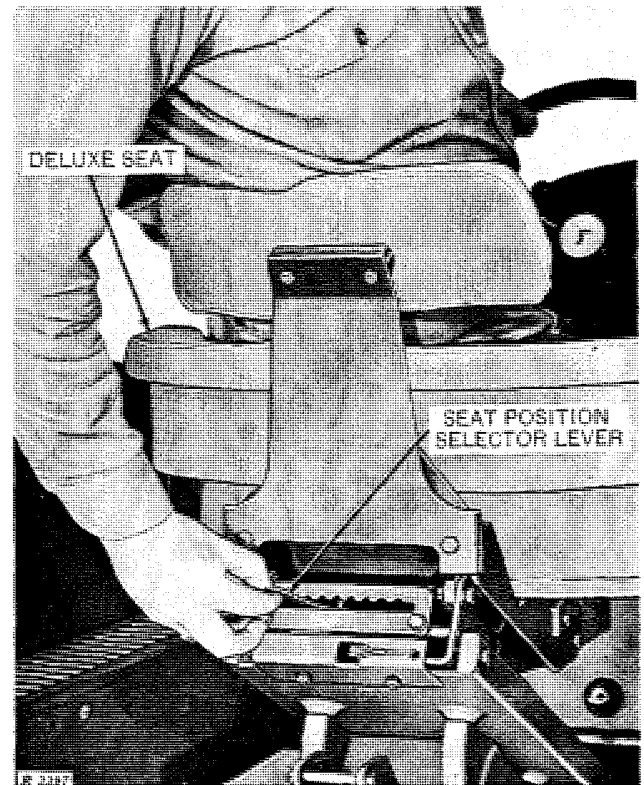
To move the regular seat out of the way for standing, lift the seat release latch and push the seat to the upper, rear position where it will latch. To return the seat to normal, preset operating position, lift the latch and allow the seat to move forward.

### Adjusting for height of operator

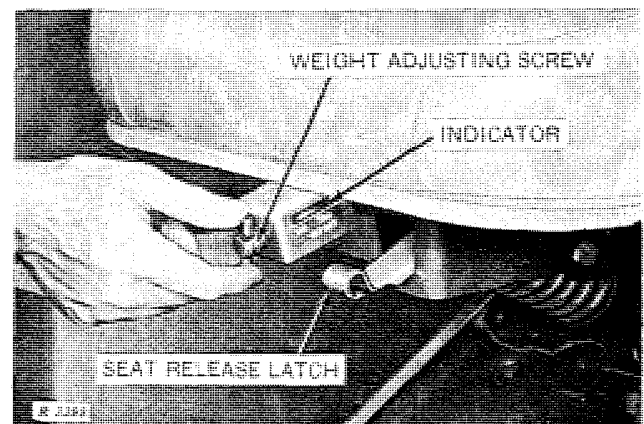
The normal operating position of the seat can be suited to the height of the individual operator. To make this adjustment, first move the seat to the upper, rear position. Then shift the seat position selector lever between "short" and "tall" until the pedals and levers can be operated comfortably when you are seated. The seat will always return to this position when you sit down after having moved the seat up and to the rear for standing.

### Adjusting for weight of operator (deluxe seat)

You can adjust the tension of the steel compression spring of the deluxe seat to conform to your weight. This gives the proper amount of comfort and enables the seat to "float" when the tractor is driven over rough ground. To make

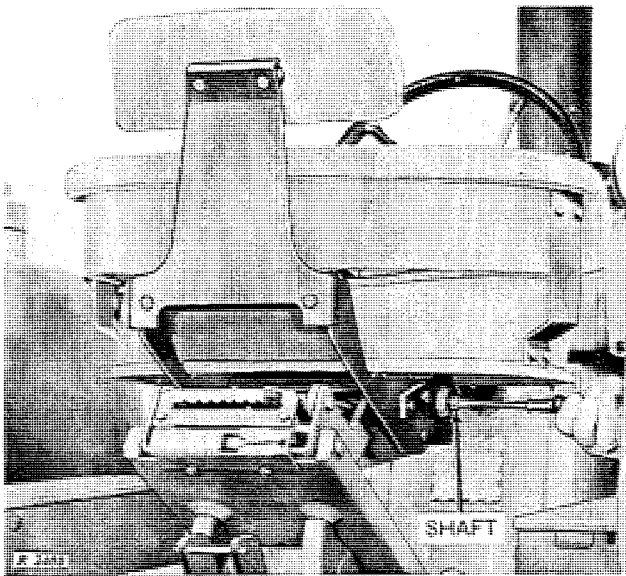


Adjusting seat for height of operator



Adjusting deluxe seat for weight of operator

this adjustment, turn the weight-adjusting screw clockwise or counter-clockwise until the indicator below the seat conforms to your weight.



Turning counterbalance shaft

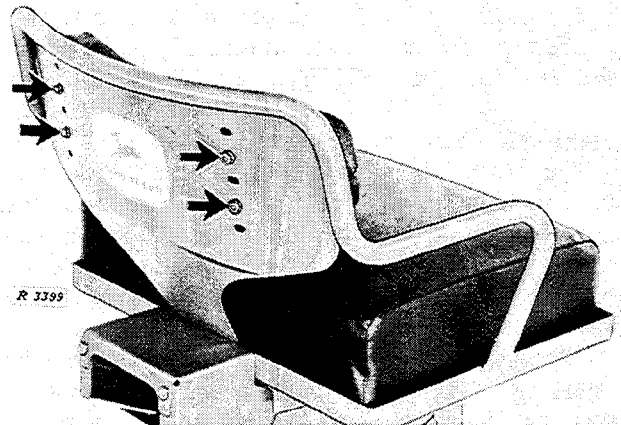
**Adjusting counterbalance spring (deluxe seat)**

If the deluxe seat does not move fully to the rear when unlatched, adjust the counterbalance spring as follows. Push the seat to the upper, rear position. Insert a screwdriver in the slot in the counterbalance shaft and push in on the screwdriver to unlatch the shaft. Turn the shaft counter-clockwise until seat action is satisfactory. Line up the latch across the end of the

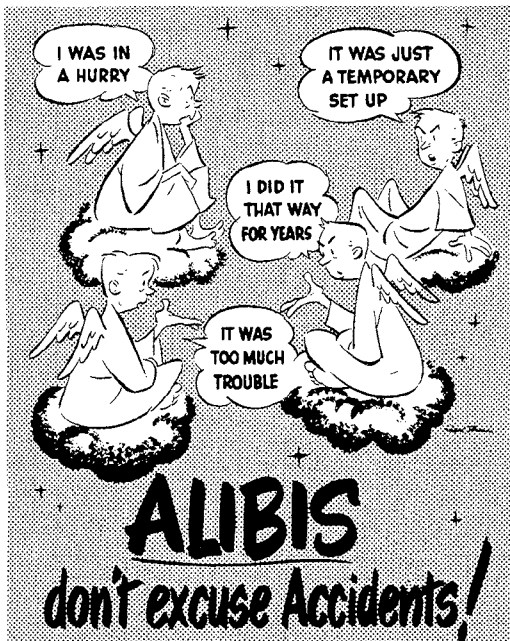
shaft with one of the pairs of slots in the side of the seat support and release pressure on the screwdriver.

**Adjusting the back (regular seat)**

The position of the back of the regular seat can be adjusted to suit the individual operator. To move the back up or down, remove the seat back attaching screws, move the back to the desired position, and replace and tighten the attaching screws.



Seat back attaching screws (regular seat)



R 2205



R 2206

**CAUTION:** Before starting the tractor engine, be sure there is plenty of ventilation. Never operate the tractor in a shed or garage.



# operation

Complete instructions for operating your tractor safely and efficiently are given on the following pages. By following these directions carefully, you can be sure that you are taking full advantage of the many features built into your tractor.

## Operating the engine

### Starting the engine

(1) Perform the following checks and services before starting the engine for the first time each day:

- (a) Check the engine crankcase oil level--see page 52.
- (b) Check the radiator coolant level--see page 52.
- (c) Change the air cleaner oil when the dirt level exceeds 3/8-inch--see page 52.
- (d) Check the fuel pump sediment bowl. If the tractor has a pre-cleaner, check the collector bowl--see page 53.
- (e) Grease the front axle pivot pins and steering spindles--see page 53.
- (f) Grease the front wheel bearings if the tractor has been operated in extremely wet or muddy conditions--see page 53.

(2) Make sure the fuel shut-off valve on the bottom of the fuel tank is open. See page 61.

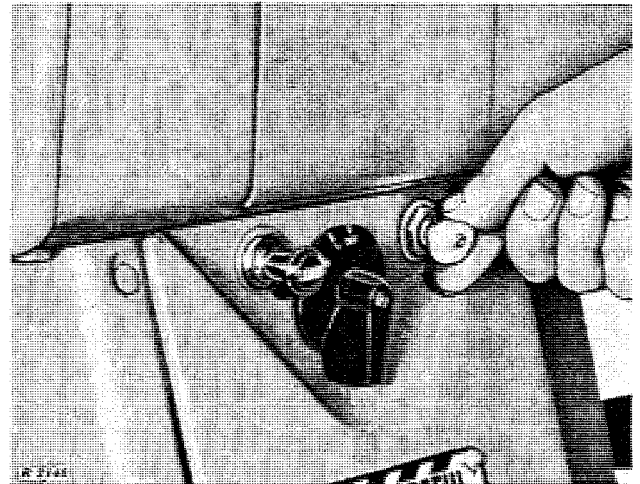
(3) Make sure the shift lever is in neutral or in the "PARK" position and depress the clutch pedal to decrease drag on the engine.

(4) Place the hand throttle in the 600 rpm position, all the way to the left with the knob in.

(5) When the prevailing temperature is below 60 degrees F., pull out on the engine choke knob.

(6) Turn the key switch clockwise to the first position. The generator and oil pressure indicator lights should glow. If either lamp fails to glow, turn off the key switch and determine the cause.

(7) Turn the key switch all the way to the right to start the engine. Do not hold the key switch in start position for more than 30 seconds at a time. To do so may overheat the starter. If the engine does not start the first time, move the throttle slightly to the right and wait for a minute or two before trying again. If it does not start after four such attempts, refer to "Trouble Shooting" (page 78).



Operating key switch

*NOTE: At low temperatures, it may be necessary to use a cold weather starting aid to start the engine (page 10).*

If the key switch is released before the engine starts, wait until the starter stops before turning the switch again. This will prevent possible damage to the starter.

## 10 operation

(8) As soon as the engine starts, push the choke knob in. During cold weather, it may be necessary to leave the choke partially on for the first few minutes.

(9) As the engine begins to run, check to see that the oil pressure indicator light and generator indicator light go out. If either lamp continues to glow, stop the engine and determine the cause.

### Cold weather starting aids

When the prevailing temperature is 40 degrees Fahrenheit or lower, use of a special cold weather starting aid may be necessary.

These aids, available from your John Deere dealer, are effective at low temperatures, only when the engine is otherwise operating satisfactorily. They will not correct such deficiencies as low battery charge, crankcase oil of heavy viscosity, and high electrical resistance which may prevent the engine from starting.

### Additional battery

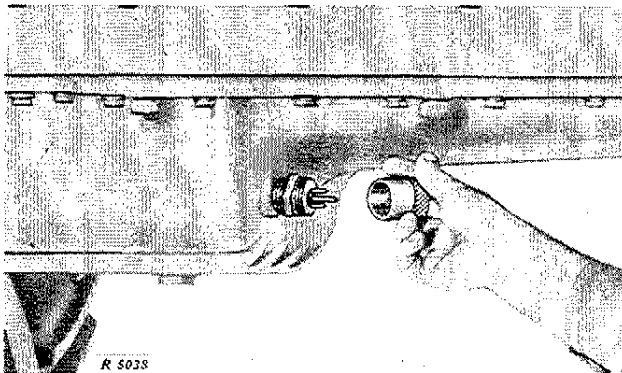
Starting the engine in cold weather can be made easier by connecting an additional 12-volt battery in parallel with the 12-volt battery on the tractor.

Use jumper cables to connect the positive (+) terminal of the booster battery to the positive (+) terminal of the tractor battery and the negative (-) terminal of the booster battery to the negative (-) terminal of the tractor battery.

A tractor-mounted booster battery is available from your John Deere dealer.

### Crankcase oil heater

Your tractor is designed to permit use of a 240-watt electrical crankcase oil heater. This heater warms the oil in the crankcase to facilitate engine starting.



Removing cap from crankcase oil heater

To install the crankcase oil heater, remove the plug from the crankcase and drain the crankcase oil. Apply thread paste to the threads of the heater, insert the heater in the opening, and refill the crankcase. When the heater is to be put into use, remove the protective cap, attach the cord, and plug the cord into any convenient 115-volt electrical source with suitable ground. The connector on the cord has a release lever to lock the connector and heater terminal connection. Press the release lever when connecting the heater cord.

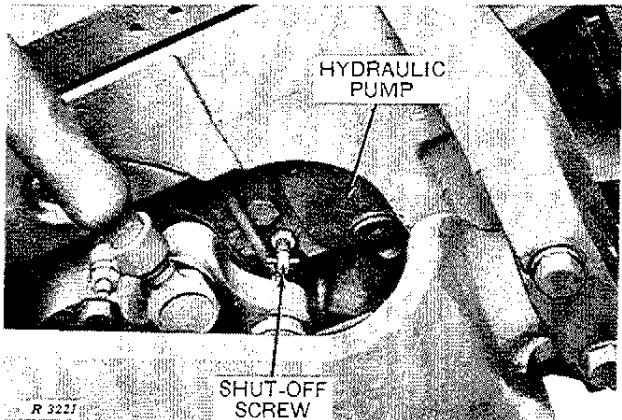
When the prevailing air temperature is between 0 degrees and 20 degrees F., use the oil heater for two or three hours before starting the engine. At below 0 degrees F., use the heater for four to six hours before starting the engine.

### Battery warmer

This warmer is used to warm the battery, permitting it to furnish electrical current to the starter efficiently in cold weather.

Place the battery warmer under the battery in the battery compartment and plug the cord from the warmer into any convenient 115-volt electrical source. It may be necessary to disconnect and connect the battery during installation of the warmer. Be sure to connect the battery cables properly (page 68) after installing the warmer.

### Putting hydraulic pump out-of-stroke



Hydraulic pump shut-off screw

The starter speed during cold weather starting may be increased by taking the hydraulic pump out-of-stroke (pump will not build up pressure). To do so, turn the shut-off screw in (clockwise) a few turns with a screwdriver. Then turn the screw in by hand until resistance is felt. With a screwdriver, turn the screw in one more turn. The hydraulic pump is now out-of-stroke.

After the engine has started, use a screwdriver to back the shut-off screw all the way out (turn the screw counter-clockwise). The pump will now build up pressure.

*NOTE: Oil will leak past the shut-off screw if it is not backed all the way out against the internal stop.*

### Tractor warm-up period

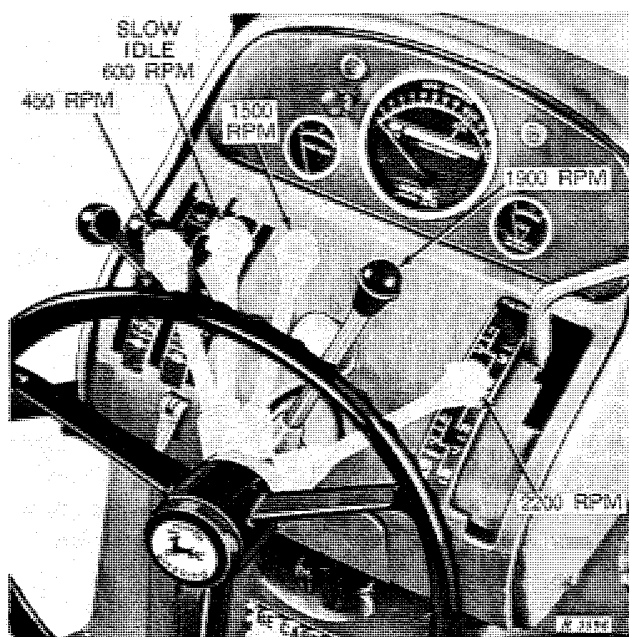
Always be sure the tractor is warmed up properly before operating under a full load.

A good way to do this is first to idle the engine at about 1500 rpm for 5 minutes and then operate it at about 1900 rpm for another 5 minutes.

It is good practice to operate the tractor for the first 30 minutes in a lower gear than is normally required for the load. This gives the oil a chance to circulate freely and prevents undue wear on engine or transmission parts.

### Engine idling

Avoid unnecessary engine idling. Prolonged engine idling may cause the engine coolant to



Range of hand throttle positions

fall below its normal range. This in turn causes crankcase oil dilution, due to incomplete fuel combustion, and permits formation of gummy deposits on valves, pistons, and piston rings. It also promotes rapid accumulation of engine sludge.

When the tractor is to remain idle for a considerable length of time, stop the engine.

### Engine speeds

The tractor engine is designed to operate at working speeds ranging from 1500 to 2200 rpm. These are variable governed speeds, and the engine can be operated at any speed between the two extremes to meet various working conditions.

Operate the engine at 1900 rpm to obtain the SAE rated PTO speeds. Slow idle is 600 rpm. A 450 rpm idle speed is also provided for engine shut-off.

In addition, engine speeds may be varied up to 2500 rpm to save you time when traveling on highways or on smooth-surfaced roads.

For engine idle speed adjustment, see page 57.

### Using hand throttle

Use the hand throttle to select slow idle or any of the variable governed speeds from 1500 to 2200 rpm.

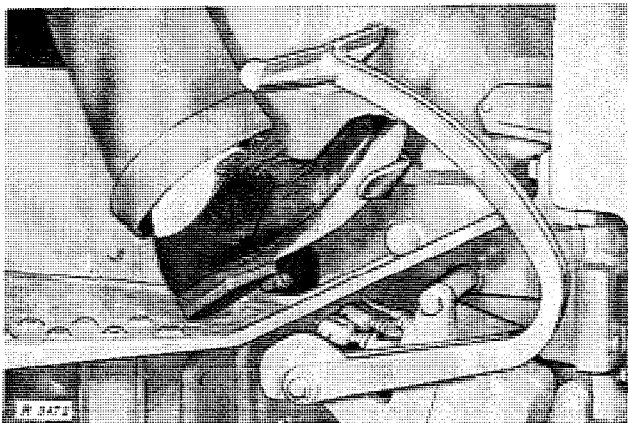
Push the throttle to the left as far as it will go to obtain a slow idle speed of approximately 600 rpm. To obtain 450 rpm idle speed for engine shut-off, pull out on the knob on the hand throttle and push the throttle to the left as far as it will go. To obtain 1900 rpm load speed, pull the lever to the right to the first stop. Placing the lever halfway between slow idle and 1900 rpm gives the 1500 rpm speed. Engine speeds between 1500 and 1900 rpm may be selected by moving the lever between these two positions.

To obtain working speeds above 1900 rpm, pull out on the knob at the end of the hand throttle. With the knob pulled out, pull the throttle to the right as far as it will go. This is the 2200 rpm position. Engine speeds between 1900 and 2200 rpm may be selected by moving the lever between these two positions.

## 12 operation

### Using foot throttle

The foot throttle is used to select engine transport speeds above 2200 rpm or to raise engine speed momentarily.



Operating the foot throttle

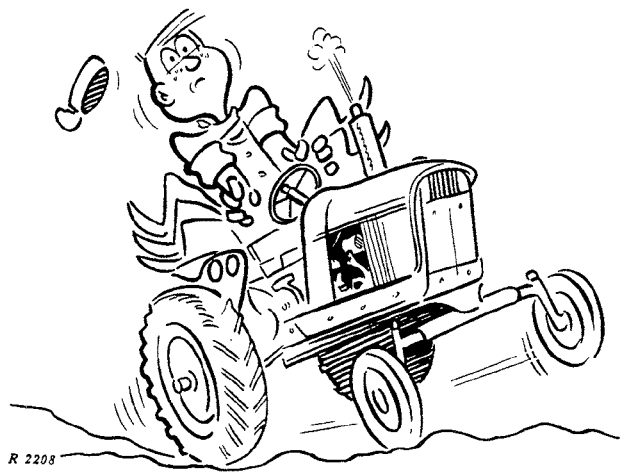
Press down on the foot throttle to speed up the engine. When the pedal is pushed forward as far as it will go, the engine operates at 2500 rpm.

The foot throttle operates independent of the hand throttle. When it is not in use, engine speed is determined by the setting of the hand throttle.

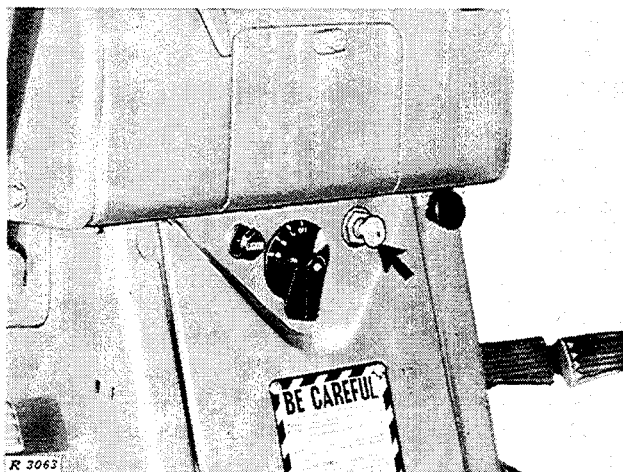
*NOTE: The foot throttle is not intended as a means of increasing the normal working speed of the engine.*

### Stopping the engine

Allow the engine to idle at 450 rpm for a minute or so before stopping it. This permits it to cool gradually. Sudden stopping of a hot engine may cause metal parts to overheat momentarily and subject them to possible damage.



**CAUTION:** Fast driving is the cause of many accidents. Drive at a safe speed at all times.



Key switch

Pull outward on the hand throttle knob and push the throttle all the way to the left into the 450 rpm slow idle position. Stop the engine by turning the key switch off.

Remove the key from the key switch to prevent tampering and unauthorized operation of the tractor.

### Breaking in the engine

Your new tractor is shipped from the factory with a special breaking-in oil in the crankcase. To be sure that all bearing surfaces will be properly lubricated during initial operation, break in the tractor engine as follows.

During the first 20 hours of service, operate the tractor engine at half load with the hand throttle in the 1900 rpm position. The speed-hour meter will show an engine speed of approximately 2100 rpm at half load.

After this 20-hour period, drain the oil from the crankcase, replace the crankcase oil filter element and fill the crankcase with new oil of the proper weight and quality. See page 48. Your tractor is then ready for normal operation.

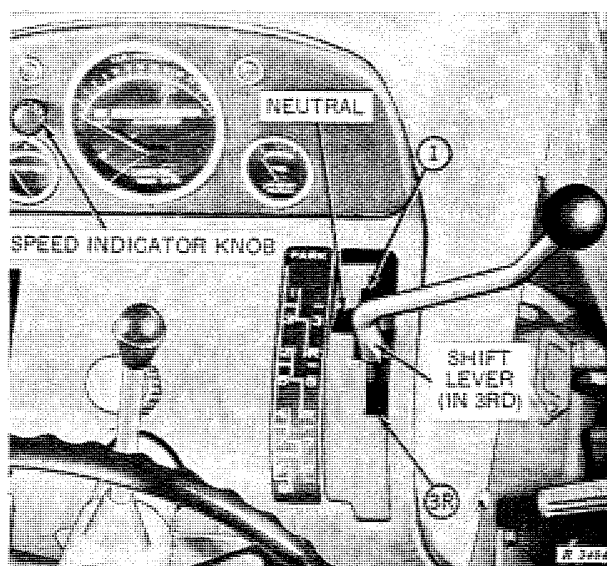
*NOTE: Observe the engine coolant temperature carefully, especially during the break-in period. If the temperature rises above the "N" range on the water temperature gauge, shift to a lower gear to reduce the load on the engine.*

### Selecting ground speed

The tractor has 8 forward speeds and 3 reverse speeds for each of the throttle positions that may be used. These combinations enable the operator to balance speed and power for maximum economy and allow him flexibility to meet varying working conditions. For example, for a given ground speed the operator may choose to work in a low gear at high engine speed for maximum reserve power or in a higher gear at a lower engine speed for maximum fuel economy.

Examples of the ground speeds at which the tractor will travel are shown below. Engine working speeds may be varied between 1500 rpm and 2200 rpm, and engine transport speeds may be varied up to 2500 rpm. Tractor ground speeds shown in the chart are only for engine speeds of 1500, 1900, 2200, and 2500 rpm within these ranges. Ground speeds for other possible throttle positions are not given.

Gates in the shift quadrant permit selection of the proper gear for the work to be done, as shown in the illustration. Turn the speed indicator knob on the instrument panel so that the speed-hour meter will show the correct tractor ground speed in miles per hour for the gear selected.



Shift lever and speed indicator knob

Avoid overloading the tractor. If the indicator hand drops below the engine speed established by the position of the hand throttle, the tractor is overloaded. When this occurs, shift to a lower gear. Overloading causes undue strain on parts, eventually resulting in poor operation and unnecessary repair expense.

### TRACTOR GROUND SPEEDS

Gear	Hand throttle operating range			Maximum foot throttle speed
	1500 rpm	*1900 rpm	2200 rpm	2500 rpm
1st	1-1/4 mph	1-3/4 mph	2 mph	2-1/4 mph
2nd	2 mph	2-1/2 mph	3 mph	3-1/4 mph
3rd	2-3/4 mph	3-1/4 mph	3-3/4 mph	4-1/4 mph
4th	3-1/2 mph	4-1/4 mph	5 mph	5-1/2 mph
5th	4-1/4 mph	5-1/4 mph	6 mph	7 mph
6th	5-1/2 mph	7 mph	8-1/4 mph	9-1/4 mph
7th	7 mph	8-3/4 mph	10-1/4 mph	11-1/2 mph
8th	11-1/2 mph	14-1/2 mph	16-3/4 mph	19 mph
3rd reverse	2-1/2 mph	3-1/4 mph	.....	.....
5th reverse	4 mph	5 mph	.....	.....
7th reverse	6-3/4 mph	8-1/2 mph	.....	.....

\* 1900 rpm engine speed gives 540 or 1000 rpm PTO speed which is proper PTO speed for most implements. Some PTO-driven implements are operated at other engine speeds. For detailed instructions, see the implement operator's manual.

NOTE: The ground speeds shown in this chart are for a tractor equipped with 13.6-28 rear tires with a loaded radius of 23.5 inches.



**Suggest:**

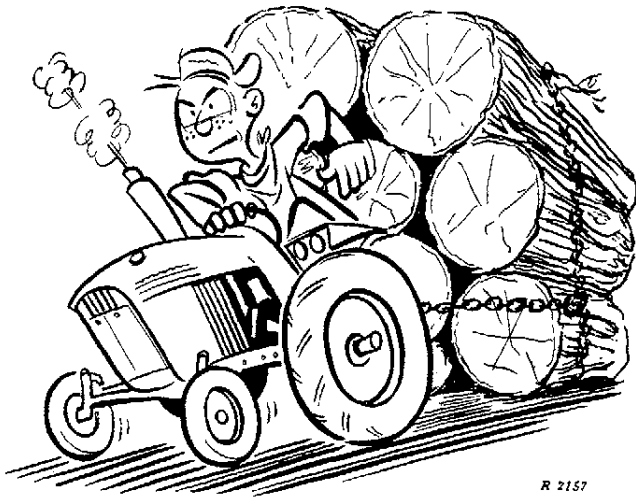
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R 2157

*An overloaded tractor will have a short service life*

### Shifting from neutral

Having determined the proper speed, depress the clutch pedal to disengage the clutch and move the shift lever from neutral (on the left-hand side of the quadrant) to the slot for the gear desired.

Gradually release the clutch pedal to take up the load smoothly.

### Shifting from one speed to another

The shift quadrant has four shift stations. Stations No. 1, 2, and 3 have two forward speeds and one reverse speed. Station No. 4 has two forward speeds only.

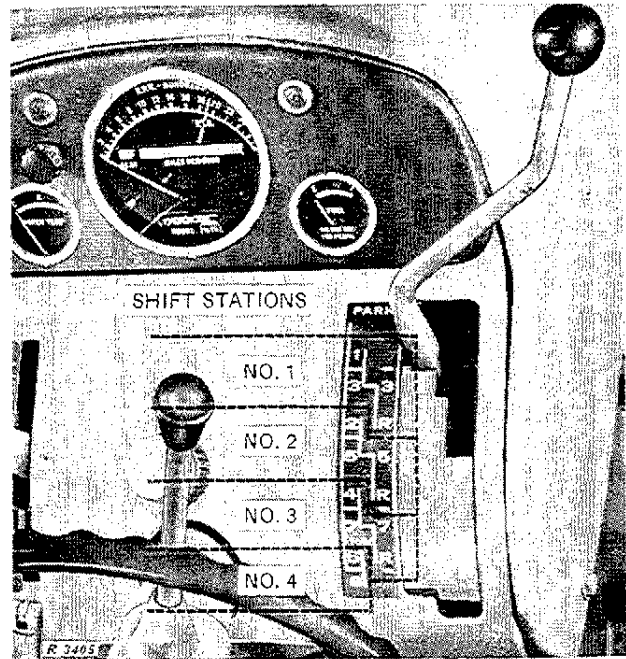
With the clutch pedal depressed, the transmission can be shifted from one forward speed to the other forward speed within the same station while the tractor is in motion. For instance, you can shift between 1st and 3rd gears, 2nd and 5th gears, 4th and 7th gears, and 6th and 8th gears without stopping the tractor.

You can also shift from a forward speed to the reverse speed within the same station without stopping the tractor, as explained above. However, to avoid injury and damage to the tractor, do so only at low ground speed.

To shift from one station to another, depress the clutch pedal, stop the tractor, and move the shift lever to neutral. Then shift from neutral to the new gear in the new station and gradually release the clutch pedal to engage the clutch.

### Parking the tractor

When the tractor is stopped for parking, for holding it on an incline, or for holding it during PTO or belt work, move the shift lever as far as it will go forward from neutral to the "PARK" position.



*Shift quadrant with shift lever in "PARK" position*

**CAUTION:** Be sure the tractor is stopped before placing the shift lever in "PARK" position.

This automatically holds the tractor stationary. Shifting from "PARK" to neutral or to an operating gear releases the braking action.

### Towing the tractor

The shift quadrant on your tractor also has a "TOW" position. Whenever the tractor is to be towed, move the shift lever to this position. This will eliminate unnecessary wear of transmission parts when the tractor is being towed by another vehicle.

**CAUTION:** The tractor should never be towed at high speed. Always attach a tow bar or chain to the tractor frame.

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