

# Farmall BN Tractor

## Operators Manual

1004046R2

Reprinted





***This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about your safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.***

SB001

IF THIS MACHINE IS USED BY AN EMPLOYEE, IS LOANED, OR IS RENTED, MAKE SURE THAT THE OPERATOR UNDERSTANDS THE TWO INSTRUCTIONS BELOW.

BEFORE THE OPERATOR STARTS THE ENGINE:

1. GIVE INSTRUCTIONS TO THE OPERATOR ON SAFE AND CORRECT USE OF THE MACHINE.
2. MAKE SURE THE OPERATOR READS AND UNDERSTANDS THE OPERATOR'S MANUAL FOR THIS MACHINE.

# **WARNING**

**IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH.**

BEFORE STARTING THE ENGINE, DO THE FOLLOWING:

1. READ THE OPERATOR'S MANUAL.
2. READ ALL SAFETY DECALS ON THE MACHINE.
3. CLEAR THE AREA OF OTHER PERSONS.

LEARN AND PRACTICE SAFE USE OF MACHINE CONTROLS IN A SAFE, CLEAR AREA BEFORE YOU OPERATE THIS MACHINE ON A JOB SITE.

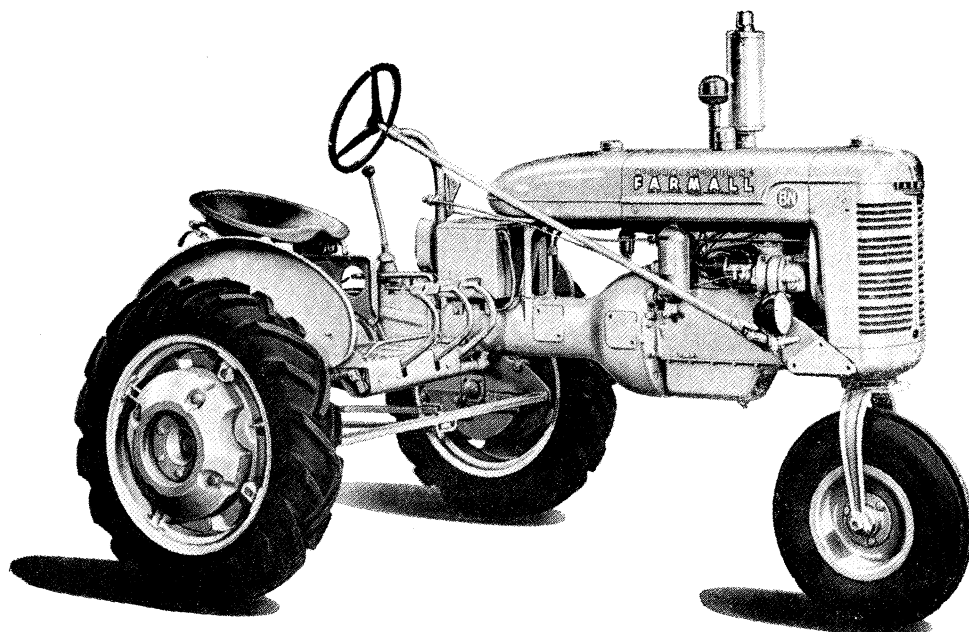
It is your responsibility to observe pertinent laws and regulations and to follow manufacturer's instructions on machine operation and maintenance.

See your Authorized Case dealer for additional operator's manuals, parts catalogs, and service manuals.

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**NOTE:** The instructions in this manual cover the operation of tractors on all types of fuel, except where otherwise specified.



**View of the Farmall-BN. The electric lighting, wheel weights, muffler and swinging drawbar shown in this illustration are special features.**

## SPECIFICATIONS

### Capacities (U. S. Measure)

Gasoline tank (when operating on distillate).....	Approx. $7\frac{1}{8}$ gal.
Fuel tank .....	Approx. 11 gal.
Water cooling system .....	Approx. $3\frac{1}{4}$ gal.
Crankcase pan .....	Approx. 5 qt.
Transmission case (less power take-off or belt pulley).....	Approx. 5 qt.
Transmission case with power take-off .....	$5\frac{1}{2}$ qt.
Transmission case (with power take-off and belt pulley or belt pulley only*)..	Approx. 6 qt.
Steering gear housing .....	Approx. 1 qt.
Rear axle drive housing (each) .....	Approx. 3 pt.
Air cleaner oil cup.....	$\frac{3}{4}$ pt.

\*-On tractors equipped with belt pulley, add  $\frac{3}{4}$  pint additional lubricant to transmission case when belt pulley housing has been drained.

### Engine

Cylinders.....	4
Bore.....	3 in.
Stroke.....	4 in.
Engine speed (governed) (maximum full load).....	1400 rpm.
*Power take-off shaft speed.....	541 rpm.
Magneto (fixed spark) (clockwise rotation).....	IHC Type H-4
Spark plug (Champion No. 15A or A.C.-87) gap.....	.028 to .032 in.
Valve clearance (engine hot).....	.014 in.
Carburetor (with Donaldson air cleaner).....	Zenith

### Clutch and Belt Pulley

Single-plate, dry-disk (spring-loaded).....	9 in.
*Pulley speed.....	1157 rpm.
*Belt speed (with $8\frac{1}{2}$ -in. pulley).....	2574 ft. per min.
*Pulley diameter.....	$8\frac{1}{2}$ in.
*Pulley face.....	6 in.

\*-Special (furnished when ordered)

### Foot Brakes

External contracting on drums.

### Transmission (Four-Speed)

Speed (miles per hour) (Based on 8-24 ( $\frac{3}{4}$ round) pneumatic tires).....	<table style="display: inline-table; vertical-align: middle;"> <tr> <td>1st.....</td> <td><math>2\frac{1}{4}</math></td> </tr> <tr> <td>2nd.....</td> <td><math>3\frac{1}{2}</math></td> </tr> <tr> <td>3rd.....</td> <td><math>4\frac{5}{8}</math></td> </tr> <tr> <td>High.....</td> <td><math>9\frac{5}{8}</math></td> </tr> <tr> <td>Reverse..</td> <td><math>2\frac{3}{4}</math></td> </tr> </table>	1st.....	$2\frac{1}{4}$	2nd.....	$3\frac{1}{2}$	3rd.....	$4\frac{5}{8}$	High.....	$9\frac{5}{8}$	Reverse..	$2\frac{3}{4}$
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3rd.....	$4\frac{5}{8}$										
High.....	$9\frac{5}{8}$										
Reverse..	$2\frac{3}{4}$										

### Wheels and Tread

Front wheels (for pneumatic tires).....	6.00-12 in.
Rear wheel (for pneumatic tires).....	8-24 in.
Wheelbase.....	$72\frac{3}{4}$ in.
Tread, rear.....	56 to 84 in.

### General Dimensions

Length (over-all).....	$107\frac{7}{8}$ in.	
Width (over-all) minimum (56-in. rear tread).....	$71\frac{1}{4}$ in.	
Width (over-all) maximum (84-in. rear tread).....	$92\frac{1}{2}$ in.	
Height (over-all) (steering wheel).....	$65\frac{1}{2}$ in.	
Drawbar (adjustable) {	height.....	$14\frac{1}{8}$ in.
	vertical adjustment.....	10 to $16\frac{1}{2}$ in.
	lateral adjustment.....	$13\frac{1}{8}$ in. to each side of center hole
Ground clearance.....	$23\frac{1}{4}$ in.	
Turning radius (with single front wheel and 56-in. rear tread).....	6 ft. 10 in.	

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## INSTRUMENTS AND CONTROLS

(See *Illusts. 1, 2, 5, 7, and 8*)

### Clutch Pedal

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

### Brake Pedal Latch (See *Illust. 8*)

This latch is used to latch both brake pedals together, causing the brakes to operate simultaneously.

### Brake Pedal Lock

The brake pedal lock is used to lock the brake pedals in the depressed position, which prevents the tractor from moving.

### Brake Pedals

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

*To stop the tractor*, the pedals should be latched together so both brakes will operate simultaneously.

*To hold the tractor in a stationary position*, latch the pedals together; move brake pedal lock forward to engaged position, and then depress the pedals.

*To assist in making a sharp turn*, the pedals must be operated individually; depress the pedal on the side toward which the turn is to be made.

### Gearshift Lever

This lever is used to select the various gear ratios provided in the transmission. There are four forward speeds and one reverse speed (see *Illust. 7*).

### Manifold Heat Control Lever

This control lever is used on the distillate-gasoline engine. For normal op-

eration it should be set in the top notch (hot) position. If the distillate-gasoline engine is to be operated on gasoline, the control lever should be set in the bottom notch (cold) position, and the manifold shield should be removed. (For complete instructions refer to pages 11 and 13.)

### Magneto Ignition Switch Button

This button, when pushed all the way in, will ground the magneto and stop the engine. Pull out this button when starting the engine.

### Engine Speed Control Lever

This lever controls the speed of the engine and, when set in a given position, will maintain a uniform engine speed even though the engine load may vary.

### Radiator Shutter Control Crank

The control crank opens and closes the radiator shutter controlling the engine temperature. Turn the crank counterclockwise to close the shutter, and clockwise to open it.

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

### Heat Indicator (See *Illust. 4*)

This gauge registers the temperature of the liquid in the cooling system. The indicator pointer should be in the high side of the "RUN" range for engines using distillate or kerosene for fuel, and in the low side of the "RUN" range for engines using gasoline for fuel.

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

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## INSTRUMENTS AND CONTROLS—Continued

### Oil Pressure Indicator

This gauge indicates whether oil is circulating through the engine. The indicator needle should be in the white area when the engine is operating (as shown in *Illust. 11*). If it is not in the white area, stop the engine immediately and investigate the cause of the oil pressure failure.

### Choke Lever (on carburetor)

This lever, which is on the carburetor (see *Illusts. 21 to 24*), cuts off the air supply, thereby enriching the fuel mixture for starting the engine, when it is moved all the way down (closed position). Always move the choke lever all the way up (open position) as the engine warms up.

## BEFORE OPERATING YOUR NEW TRACTOR

*Make a complete inspection of the tractor for any shortages or damage which may have occurred during shipment.*

### Lubrication

(1) Lubricate the entire tractor, using the Lubrication Chart (see pages 21 to 25) as a guide.

(2) Check the oil levels of the engine crankcase, air cleaner, transmission case, and steering gear case to be sure that they are filled to the correct levels with the proper grades of oil for the prevailing temperature (refer to specifications of lubricants on page 26).

(3) Tractors shipped to destinations in the United States of America, Canada, and Mexico are filled with oil in all parts before leaving the factory. However, lubricant compartment should be checked for proper levels as outlined in paragraph 2 above.

#### TRACTORS PACKED FOR EXPORT

All oil is drained from the engine crankcase, air cleaner, and all gear cases on tractors packed for export.

(4) Engines shipped to destinations in the United States of America, Canada, and Mexico are filled with a light engine oil before leaving the factory. For further information, refer to the *Lubrication Chart*.

(5) Before starting a new engine, re-

move the spark plugs and put about one teaspoonful of crankcase oil into each cylinder; replace the spark plugs and crank the engine to distribute the oil over the cylinder walls. This assures positive lubrication of the cylinders and pistons immediately after starting and eliminates the possibility of scoring. Procedure outlined is necessary only for a new engine, or for an engine that has been idle for a long time.

### Pneumatic Tires

Before moving the tractor, check the air pressure in the pneumatic tires, and inflate or deflate to correct pressures as shown in the chart on page 43.

### Engine Cooling System

The water capacity is approximately three and one-quarter U.S. gallons.

(1) Be sure the drain plug (on left side of crankcase near radiator) is closed (see *Illust. 19*).

(2) Fill the radiator to a level slightly below the bottom of the filler neck. Filling the radiator to this level will allow for expansion of the coolant

## BEFORE OPERATING YOUR NEW TRACTOR—Continued

### Engine Cooling System—Continued

under normal operating conditions. Use clean water. Soft or rain water is recommended as it does not contain alkali which forms scale and which may clog the passages.

(3) If your tractor is to be operated in freezing temperatures (32°F. or lower) refer to "Cold Weather Operation" on

page 18. Also refer to "Cooling System," page 28.

### Fuel System

(1) Use the fuel for which the tractor engine is designed.

(2) During the first one hundred hours of operation, mix one pint of engine oil with every five U.S. gallons of fuel.

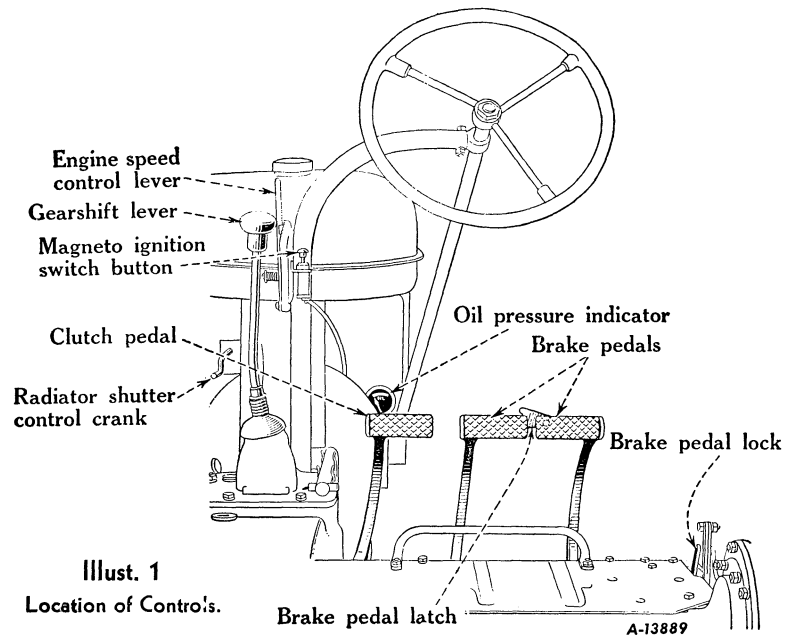
## HOW TO PREPARE YOUR TRACTOR FOR EACH DAY'S WORK

### Fuel System

Fill the fuel tank at the end of each day's run. This will force out any moisture-laden air and prevent condensation. The capacity of the fuel tank is eleven U. S. gallons. Tractors designed for distillate-gasoline operation have an auxiliary gasoline tank (capacity approximately seven-eighths U. S. gallon) which is used only for starting and

warming up the engine. If a distillate-gasoline engine is to be operated on gasoline only, the large fuel tank is used for gasoline, and the small tank can be shut off or used as an auxiliary tank.

**NOTE:** Refer to "Operating Precautions" on page 16 regarding the selection of fuels, and safety measures when filling fuel tanks.



Illustr. 1  
Location of Controls.



## HOW TO PREPARE YOUR TRACTOR FOR EACH DAY'S WORK —Continued

### Cooling System

Remove the radiator cap and check to be sure that the water comes up to a point slightly below the bottom of the filler neck. Be sure to replace the radiator cap.

### Lubrication

(1) Change the oil in the air cleaner oil cup.

(2) Be sure that the oil in the crankcase

pan is up to the level of the upper test cock. When your tractor is being operated on distillate fuel, open the lower test cock in the crankcase pan and allow the oil to drain to this level. Close the lower test cock and open the upper cock. Add new oil until it appears at this level, and then close the cock.

(3) Refer to the Lubrication Chart (pages 21 to 25) for complete lubrication requirements.

## OPERATING A GASOLINE ENGINE

### Radiator Shutter

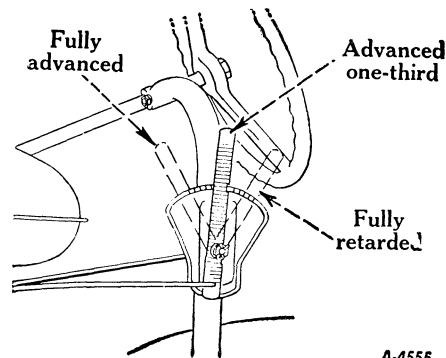
Tractors designed for gasoline engine operation are not regularly equipped with a radiator shutter but this feature can be supplied. If your tractor is so equipped, close the radiator shutter when starting the engine in cold weather; then regulate it as required to hold the needle of the heat indicator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

### Fuel System

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

### Engine Speed Control Lever

The engine speed control lever enables you to adjust the speed of the engine to the load that is to be handled. After you have selected the desired engine speed, the governor will automatically



A-4555

Illust. 2

View Showing Various Positions of the Engine Speed Control Lever.

maintain this engine speed under variable loads. Retarding of the engine speed control lever will decrease the load which the tractor can handle.

The rated or maximum full load governed speed is 1400 revolutions per minute; maximum idle speed is approximately 1540 revolutions per minute; minimum speed (hand throttle) is

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