

John Deere

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MODEL:

1010 Gasoline & Diesel

Crawler Tractors

S/n 21,901 & Up

**OPERATOR'S
MANUAL**



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John Deere
**1010 Gasoline &
Diesel Crawler Tractors**
(Serial No. 21901-UP)

OPERATORS MANUAL

John Deere 1010 Gasoline & Diesel Crawler
Tractors (Serial No. 21901-UP)

OMT17418 K1 English

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John Deere Dubuque Works
OMT17418 K1

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ENGLISH

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specifications

HORSEPOWER (PTO)

Diesel (Nebraska Test No. 798)	36.31
Gasoline (Nebraska Test No. 801)	35.93

ENGINE

	Diesel	Gasoline
Number of cylinders	4	4
Bore and stroke, inches	3-5/8 x 3-1/2	3-1/2 x 3
Displacement in cubic inches	145	115
N.A.C.C. or A.M.A. horsepower rating for tax purposes	21.03	19.6
Tapet clearance (engine cold)		
intake valve	.012	.012
exhaust valve	.018	.018
Compression ratio	19 to 1	7.9 to 1

ENGINE SPEEDS

	Diesel	Gas
Slow-idle	750	600
Fast-idle	2650	2700
Working speed range	1500 to 2500	1500 to 2500

ELECTRICAL SYSTEM

Battery (dry) voltage (nominal)	12 volts
Battery specific gravity (full charge)	1.250 (plus or minus .010)
Battery terminal grounded	positive

FINAL DRIVES

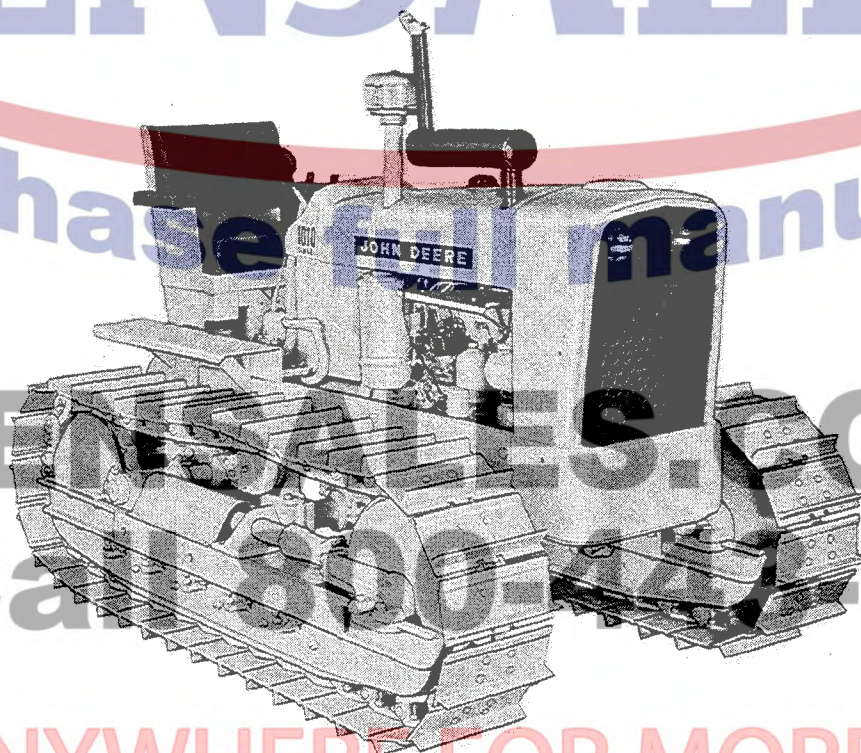
Gear reduction ratio in first gear (engine to axle)	112 to 1
Gear reduction ratio in high gear (engine to axle)	24 to 1

TRANSMISSION SPEEDS, MPH (No Slip)

Gear	1500 rpm	2100 rpm	2500 rpm
1st	.85	1.18	1.41
2nd	1.16	1.62	1.93
3rd	1.99	2.78	3.32
4th	3.92	5.49	6.54
Rev.	1.16	1.62	1.93

CAPACITIES (U.S. Standard Measures)

Fuel tank	12 gals.
Cooling system	2-3/4 gals.
Engine crankcase (including filter)	6 qts.
Transmission case	9 qts.
Hydraulic system	4 gals.
Direction reverser case	3 gals.
Final drives, each	1-1/2 pts.
Rockshaft housing	1 pt.



John Deere
T 5391

Right-hand side view of John Deere 1010 Diesel Crawler Tractor

A. Direction reverser control lever

The direction reverser lever allows the operator to reverse tractor motion without de-clutching or shifting gears. The lever has two positions—front and rear—which give equivalent forward and reverse speeds for the forward gear in which the tractor is being operated.

B. Hydraulic system control levers

For the dual hydraulic system, two control levers are used. The inner lever controls the hydraulic cylinders at rear of tractor; the outer lever controls remote cylinder functions when used. In the single hydraulic system, only the inner control lever is used and it controls all hydraulic functions.

C. Steering levers

To turn the tractor to the right, pull back on the right steering lever; to turn tractor to the left, pull back on left lever. Pulling back on one lever disengages a steering clutch, stopping flow of power to the track on the same side. Pulling the lever farther back applies a brake which retards or stops the track, making short turns possible.

D. Hand throttle

Moving the hand throttle forward increases engine speed; pulling the lever rearward reduces speed.

G. Shift lever

The shift lever is used to select any one of four forward gears or one reverse gear.

E. Brake pedal

The brake pedal, located in front of the right foot rest, is provided to slow tractor down when it is in motion. Depressing brake pedal applies both steering brakes evenly without disengaging steering clutches, thereby allowing tractor engine to help slow or stop the tractor.

F. Brake lock

A brake lock is provided for locking brake pedal in depressed position during parking. This lock is engaged by lifting lock from foot rest

and inserting it in ratchet on brake pedal while pedal is depressed.

H. PTO shifter lever

This control lever engages and disengages the powershaft. When a winch, belt pulley or other equipment is mounted on the powershaft, the lever is used to engage and disengage the equipment. The powershaft is engaged when lever is moved to left.

I. Clutch pedal

The clutch pedal interrupts the flow of power from the engine to the transmission and powershaft. The clutch is disengaged by depressing the pedal. Releasing the pedal engages the power from the engine to the transmission and powershaft.

J. Choke control (gasoline)

Pulling choke control rearward provides a rich mixture of fuel for the engine when starting. When choke control is pushed in, the choke returns to its normal operating position.

J. Engine stop knob (diesel)

Pulling out on this knob stops the diesel engine.

K. Key starter switch

This switch is used to activate the electrically operated instruments and to start the engine. It also activates the glow plugs on diesel engines.

L. Fuse

The fuse is wired in series with the light circuit. If lights fail, check this fuse. Replace only with a 20-ampere fuse.

M. Light switch

This switch is used to turn on all tractor lights.

N. Cigarette lighter

Your tractor may be equipped with a cigarette lighter for your convenience. To operate, push in. Lighter will pop out automatically.

Instrument panel

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



A - Water temperature gauge
B - Generator tel-light
C - Dash lamp
D - Tachometer

E - Reverser oil pressure tel-light
F - Engine oil pressure tel-light
G - Fuel gauge

A. Water temperature gauge

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

B. Generator tel-light

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

C. Dash lamp

Your tractor may be equipped with a dash lamp to provide illumination of the instrument panel at night. It is turned on by the light switch when main lights are on.

D. Tachometer

The tachometer shows the following:

(1) Engine Speed, in hundreds of rpm; (2)

Tractor Speed, in miles per hour, according to the gear in which the tractor is operating; and (3) correct engine speed for PTO work.

E. Reverser oil pressure tel-light

This lamp (marked "CLU"), glows red when there is a failure in the direction reverser system. Normally, the light should go out during engine operation above slow idle speeds. A definite sign of failure is to have this light stay on with engine at speeds of 1900 rpm or over.

F. Engine oil pressure tel-light

With the engine operating at normal speeds, this lamp glows red when there is a failure somewhere in the engine oil pump or system. It does not indicate the condition or amount of oil in the crankcase.

G. Fuel gauge

This electrically-operated fuel gauge shows the amount of fuel in the tank. It will not operate until the key starter switch is turned on.

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 this unit.

Operating the diesel engine

Starting the diesel 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 36.

(b) Check the radiator coolant level—see page 52.

(c) Inspect air cleaner oil. Service the air cleaner cup if dirt level exceeds $\frac{3}{8}$ inch. See page 36.

(d) Check the fuel strainer sediment bowl—see page 48.

(e) Check pre-cleaner—see page 36.

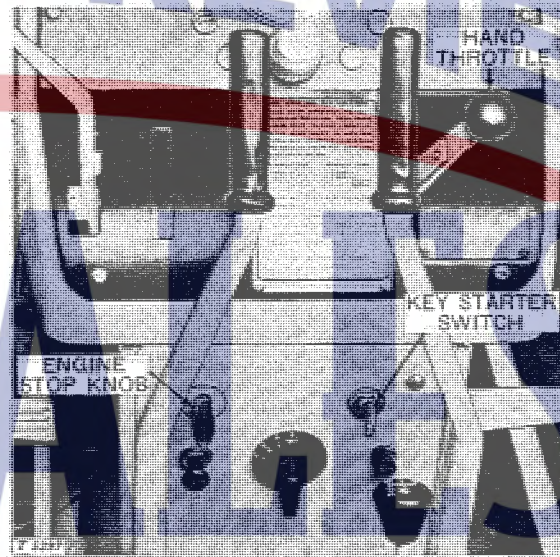
2. Make sure the fuel shut-off valves are open—see page 48. Make sure engine stop knob is pushed in.

3. Place the shift lever in neutral and apply brake lock.

4. Turn key starter switch one-eighth turn counterclockwise to actuate glow plugs. Starter switch is spring loaded, and so must be held in counterclockwise position throughout desired preheating time.

Preheat the glow plugs a minimum amount of time as listed:

Temperature	Preheat time
Above 40° F.	1 minute
40° F. to 10° F.	2 minutes
10° F. to -10° F.	2 to 3 minutes
-10° F. to -20° F.	3 to 4 minutes



Starting controls

5. To insure delivery of fuel to the injectors, move the hand throttle to the full open position (forward) and then move back to approximately one-half to three-quarters open.

6. Depress clutch pedal to decrease drag on engine.

7. Turn key starter switch one-quarter turn clockwise to crank engine.

8. If engine does not begin firing after 15 to 30 seconds of cranking, preheat glow plugs an additional minute before cranking engine again.

CAUTION: If engine fails to start, do not re-use starting switch until starting motor stops rotating to avoid serious damage to the starter.

9. With engine running and the hand throttle advanced, oil pressure tel-light should go out. If indicator glows bright red after engine has been running 10 seconds, the engine should be turned off and cause of reduced oil pressure determined.

10. The generator tel-light will glow red for a few seconds after ignition is turned on during cranking, and after engine has fired. If tel-light continues to glow after engine has been running 10 seconds, the generator is not charging and the cause of trouble should be determined.

NOTE: The generator tel-light may glow continuously with engine at slow idle. This is normal and does not indicate malfunction unless tel-light continues to glow after increased acceleration.

11. Release clutch. Warm engine and transmission for five minutes by operating engine at 1000 rpm. Do not allow engine to operate at idle speed during engine warm up.

12. After engine has had time to warm up, advance hand throttle to the 1900 rpm position. Make certain that the reverser oil pressure tel-light (marked "CLU") goes out at this speed. If tel-light continues to glow, determine cause of difficulty before attempting to operate the tractor.

Cold weather starting

The engine will start easier in extreme cold weather if the hand throttle is placed in the one-half speed position, the clutch disengaged, and the longer periods of preheating with glow plugs are observed (see preheating table on page 8).

Use a lighter diesel fuel in extreme cold weather to insure delivery of fuel to the injectors, as recommended in table on page 30.

If engine is completely cold, at temperatures below -10°F. , it may be necessary to use a booster battery to obtain sufficient cranking speed for

starting. The booster battery and proper preheating should allow you to start the engine even under the most severe cold conditions.

CAUTION: Ether is NOT recommended as a starting aid due to possible damage to the engine or starter.

The oil used in the air cleaner should be the same as that used in the engine. Do not dilute the oil in the air cleaner.

The battery should be brought to full charge (page 55) so that maximum cranking speed can be obtained.

Hydraulic pump disengaging lever

The engine will start easier at low ambient temperatures if the hydraulic pump is disengaged.

To disengage the hydraulic pump during cold weather starting, move the lever downward and toward the rear of the tractor. This will prevent the hydraulic pump from rotating while the engine is being cranked.

After the engine has started and warmed up sufficiently, pull the hand throttle rearward to the slow idle position. Then engage the hydraulic pump by moving the lever upward toward the front of the tractor.



Hydraulic pump disengaging lever

or Call 800-443-0625

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Operating the gasoline engine

Starting the gasoline 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 36.

(b) Check the radiator coolant level—see page 52.

(c) Inspect air cleaner oil. Dirt level must never exceed 3/8-inch before oil is replaced—see page 36.

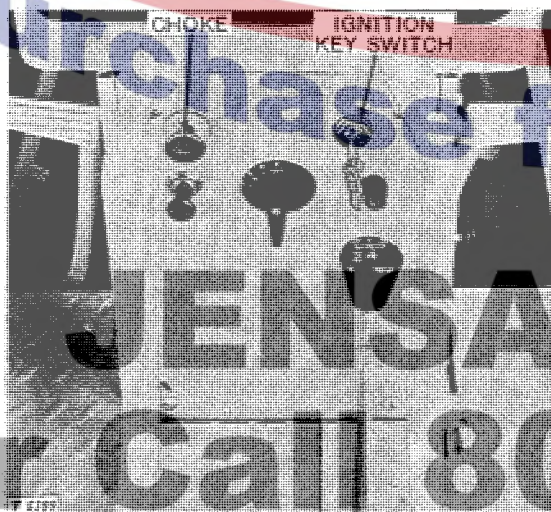
(d) Check the fuel strainer sediment bowl—see page 49.

(e) Check pre-cleaner—see page 36.

2. Make sure the fuel shut-off valves are open—see page 49.

3. Place the shift lever in neutral, apply brake lock, and depress the clutch pedal to decrease drag on engine.

4. Advance the hand throttle to the halfway open position.



Starting controls

5. Pull choke control outward full distance. (If engine has been running a short time previously, it may not be necessary to use choke.

It is advisable to try starting engine without choking in this case.)

6. Turn ignition key switch clockwise to actuate starter.

NOTE: Limit time starter is used to 30 seconds. If engine does not start within 30 seconds, let starter rest for two minutes before trying again. This will allow battery to restore charge and will give starter time to cool.

7. After engine has started, or after it has turned 4 or 5 revolutions, push choke control all the way in. This will prevent flooding of carburetor. Usually enough gasoline for starting purposes has been drawn into combustion chamber by this time.

8. With engine running and the hand throttle advanced, oil pressure tel-light should go out. If indicator glows bright red after engine has been running 10 seconds, ignition key should be turned off and cause of reduced oil pressure determined.

9. The generator tel-light will glow red for a few seconds after ignition is turned on during cranking, and after engine has fired. If tel-light continues to glow after engine has been running 10 seconds, the generator is not charging and the cause of trouble should be determined.

NOTE: The generator tel-light may glow continuously with engine at slow idle. This is normal and does not indicate malfunction unless tel-light continues to glow after increased acceleration.

10. Regulate engine speed by using hand throttle.

11. Release clutch. Warm engine and transmission for five minutes by operating engine at 1000 rpm. Do not allow engine to operate at idle speed during engine warm up.

12. After engine has had time to warm up, advance hand throttle to the 1900 rpm position. Make certain that the reverser oil pressure tel-light (marked "CLU") goes out at this speed. If tel-light continues to glow, determine cause of difficulty before attempting to operate the tractor.