



2150 AND 2255 TRACTORS



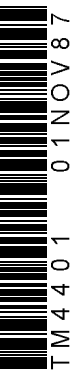
JOHN DEERE

TECHNICAL MANUAL 2150 AND 2255 TRACTORS

TM4401 (01NOV87) English

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2150 AND 2255 TRACTORS TECHNICAL MANUAL TM-4401 (Nov-87)

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Group 00

SPECIFICATIONS AND SPECIAL TOOLS

SPECIFICATIONS

SERIAL NUMBERS

The engine serial number is stamped into the plate located on the lower front right-hand side of the cylinder block.

NOTE: When ordering engine parts, quote all digits of serial number stamped on the plate.

The plate showing the tractor serial number is located on the right-hand side of the front axle carrier.

NOTE: When ordering tractor spare parts (excluding engine parts), quote all digits and letters of serial number stamped on the plate.

A plate showing the tractor type, transmission serial number, (and cone point measurement etched into pinion face of differential drive shaft as well as reduction of differential) is located on the right-hand side of the transmission case.

MODEL NUMBERS

The fuel injection pump, fuel injection nozzles, alternator, starting motor, and hydraulic pump have model numbers for positive identification.

ENGINE

Number of cylinders 3

Cylinder liner bore 106.5 mm (4.19 in.)

Stroke 110 mm (4.33 in.)

Displacement 2940 cm³ (179 cu.in.)

Compression ratio

2150 up to engine serial no. 554175CD and
2255 up to engine serial no. 570858CD 16.8 : 1

2150 from engine serial no. 554176 CD and
2255 from engine serial no. 570859 CD 17.4 : 1

Maximum torque

2150 at 1400 rpm
Up to engine serial no. 571078 CD 175 N·m (129 lb-ft)
From engine serial no. 571079 CD 185 N·m (136 lb-ft)

2255 at 1400 rpm
Up to engine serial no. 581072 CD 185 N·m (136 lb-ft)
From engine serial no. 581073 CD 192 N·m (141 lb-ft)

Firing order 1 - 2 - 3

Valve clearance (engine hot or cold)

Intake valve	0.35 mm (0.004 in.)
Exhaust valve	0.45 mm (0.018 in.)

Fast idle speed 2610—2660 rpm

Slow idle speed 700—800 rpm

Rated engine speed 2500 rpm

Working speed range 1400—2500 rpm

PTO* horsepower at engine rated speed—2500 rpm

2150

Up to engine serial no. 571078 CD 34 kW 45 hp

From engine serial no. 571079 CD 37 kW 50 hp

2255 37 kW 50 hp

Lubrication system Full internal force-feed system with full flow filter

ENGINE CLUTCH Single dry disk or dual-stage dry disk,
foot-operated

COOLING SYSTEM

Type Pressurized system with centrifugal pump

Temperature regulation Thermostat

FUEL SYSTEM

Type Direct injection

Fuel injection pump timing to engine TDC

Fuel injection pump type Distributor type

2150

Up to engine serial no. 571078 CD Roto Diesel Nr. R 3432 F 940

From engine serial no. 571079 CD Rotor Diesel Nr. R 3432 F 830

2255

Up to engine serial no. 581072 CD Rotor Diesel Nr. R 3432 F 830

From engine serial no. 581073 CD Rotor Diesel Nr. R 3432 F 940

Air cleaner Dry-type air cleaner with secondary (safety) element

**With the engine run in (above 100 hours of operation) and having reached operating temperature (engine and transmission); measured by means of a dynamometer. Permissible variation ± 5 per cent.*

ELECTRICAL SYSTEM

- Batteries 1 or 2 x 12 volts, 55 ampere-hours
- Alternator with internal regulator 14 volts, 33 or 55 amps
- Starting motor 12 volts, 3 kW (4 hp)
- Battery terminal grounded negative

SYNCHRONIZED TRANSMISSION

- Type Synchronized transmission
- Gear selections 8 forward and 4 reverse
- Gear shifting Two forward groups and one reverse group
Synchronized forward and reverse shifting
within groups

COLLAR SHIFT TRANSMISSION

- Type Helical gears
- Gear selections 8 forward, 4 reverse speeds
- Gear shifting Two forward ranges, One reverse range

HI-LO SHIFT UNIT

- Type Hydraulic gear reduction unit which can be shifted under load with "wet" multiple disk clutch and brake packs
- Travel speed decreases in each gear by Approx. 20 percent
- Shifting to reduced (Lo) speed Pre-loaded cup springs
- Shifting to normal (Hi) speed Hydraulic

REVERSER

- Type Hydraulically controlled can be shifted under load, with "wet" disk clutches and brakes, planetary reverser unit
- Gear selections 1 to 4
- Increase in reverse gear speeds Approx. 16 percent

DIFFERENTIAL AND FINAL DRIVES

Type of differential Spiral bevel gears

Type of final drive Planetary reduction drive

DIFFERENTIAL LOCK

Operation Hand or foot operated

Disengage Will disengage automatically as soon as traction
has equalized

PTO SHAFTS

Independent PTO — 540 RPM

Type Independent of transmission, can be engaged
and disengaged under load

PTO clutch Hydraulically operated “wet” disk clutch

PTO brake Hydraulically operated “wet” disk brake

Continuous — Running PTO — 540 RPM

Type Independent of transmission, with
engine dual-stage clutch

PTO SPEEDS (IN RPM) — WITHOUT REVERSER

Engine speed	540 rpm shaft
800	180
2400	540
2500	565
2660	600

PTO SPEEDS (IN RPM) — WITH REVERSER

Engine speed	540 rpm shaft
800	210
2075	540
2400	625
2500	650
2660	690

MECHANICAL FRONT WHEEL DRIVE

Type Engaged hydraulically, under full load with "wet" disk clutch

Control Electrical/hydraulic solenoid switch

Engagement Pre-loaded cup springs

Disengagement Hydraulic

POWER STEERING Hydraulically operated steering linkage

FOOT BRAKES Self-adjusting, hydraulically operated "wet" disk brakes

HANDBRAKE Mechanically-operated band-type locking brake acting on the differential

HYDRAULIC SYSTEM

Type Closed center, constant pressure system

Standby pressure 15800—16200 kPa 158—162 bar 2300—2350 psi

Operating pressure 14000 kPa 140 bar 2050 psi

Hydraulic pump 8-piston pump with variable displacement

CAPACITIES

Fuel tank 74 L 19.6 U.S. gal.

Cooling System 10.5 L 2.80 U.S. gal.

Engine crankcase

 Without filter change 6.5 L 1.7 U.S. gal.

 With filter change 7 L 1.8 U.S. gal.

CAPACITIES - Continued

Transmission - Hydraulic system (including oil reservoir and oil cooler)

Synchronized transmission

Initial filling	59.0 L	15.6 U.S. gal.
Oil change	51.0 L	13.5 U.S. gal.

Collar shift transmission (with reverser)

Initial filling	42.0 L	11.1 U.S. gal.
Oil change	34.0 L	9 U.S. gal.
Oil reservoir	4.0 L	1.1 U.S. gal.
Oil cooler	2.0 L	0.5 U.S. gal.

Mechanical front wheel drive

Front axle housing	5.3 L	1.4 U.S. gal.
Wheel hub, each	0.75 L	0.2 U.S. gal.

TRAVEL SPEEDS see Operator's Manual

FRONT AND REAR WHEELS

Tires, tread widths, tire pressures and ballast weights see Operator's Manual

DIMENSIONS AND WEIGHTS see Operator's Manual

PREDELIVERY, DELIVERY AND AFTER-SALES INSPECTIONS

ENGINE SPEEDS

Slow idle	700—800 rpm
Fast idle	2610—2660 rpm
Rated speed	2500 rpm

FAN BELT

The fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump (use a spring scale).

BATTERIES

Specific gravity at an electrolyte temperature of 20°C (68°F)

Normal and arctic conditions	1.28
Tropical conditions	1.23

CLUTCH PEDAL

Clutch pedal free travel approx. 25 mm (1 in.)

FRONT WHEEL TOE-IN

Tractors without MFWD	3 to 6 mm	(0.12 to 0.25 in.)
Tractors with MFWD	0 to 3 mm	(0 to 0.12 in.)

TORQUES FOR HARDWARE

Start safety switch in rockshaft housing, max.	50 N·m	(35 lb-ft)
Front wheel rim to hub		
Tractors without MFWD	180 N·m	(130 lb-ft)
Tractors with MFWD	300 N·m	(220 lb-ft)
Axle knees to axle center, cap screws	400 N·m	(300 lb-ft)
Outer tie rod clamp		
Cap screw (1/2 in.)	110 N·m	(80 lb-ft)
Cap screw (M12)	90 N·m	(65 lb-ft)
Inner tie rod clamp		
Cap screw (3/8 in.)	40 N·m	(30 lb-ft)
Cap screw (M10)	55 N·m	(40 lb-ft)
Rear Wheels		
Tractors with steel wheel disks		
Rear wheels to rear axle	175 N·m	(130 lb-ft)
2-post ROLL-GARD protective structure		
Supports to crossbar, cap screws	230 N·m	(170 lb-ft)
Supports to final drives, cap screws and nuts	230 N·m	(170 lb-ft)

LUBRICATION AND SERVICE

CAPACITIES

Engine crankcase	
Without filter change	6.5 L (1.70 U.S. gal.)
With filter change	7.0 L (1.80 U.S. gal.)
Transmission-Hydraulic system (including oil reservoir and oil cooler)	
Synchronized transmission	
Initial filling	59.0 L 15.60 U.S. gal.)
Oil change	51.0 L (13.50 U.S. gal.)
Collar shift transmission (with reverser)	
Initial filling	42.0 L (11.10 U.S. gal.)
Oil change	34.0 L (9.00 U.S. gal.)
Mechanical front wheel drive	
Front axle housing	5.3 L (1.40 U.S. gal.)
Wheel hub each	0.75 L (0.20 U.S. gal.)

SERVICE INTERVALS

Checking crankcase oil level	every 10 hours
Changing engine oil	every 100 hours
Changing engine oil filter	every 200 hours
Checking transmission/hydraulic system oil level	every 50 hours
Changing transmission/hydraulic system oil filter	every 500 hours
Changing transmission/hydraulic oil	every 1000 hours
Cleaning hydraulic pump strainer	every 1000 hours
Checking MFWD oil level	every 100 hours
MFWD oil change	every 1000 hours
Cleaning and packing front wheel bearings	every 1000 hours
Lubricating grease fittings	
Clutch throw-out bearing grease fitting (when equipped)	every 100 hours
Mechanical front wheel drive universal-jointed shaft	every 50 hours
In wet and muddy conditions	every 10 hours
Front axle and front axle bearings	every 50 hours
In wet and muddy conditions	every 10 hours
Rear axle bearings	every 500 hours
In wet and muddy conditions	every 10 hours
Three-point hitch	every 200 hours

TUNE-UP

PTO horsepower* at 2500 rpm rated engine speed

2150			
Up to engine serial no. 571078 CD	.....	34 kW	(45 hp)
From engine serial no. 571079 CD	.....	37 kW	(50 hp)
2255	.....	37 kW	(50 hp)
Compression	..... 2100 kPa	21 bar	300 psi
Slow idle	.....		700—800 rpm
Fast idle	.....		2610—2660 rpm
Rated engine speed	.....		2500 rpm
Air intake system vacuum	..... 3.5—6.0 kPa	35—60 mbar	(14—25 in. water head)
Air cleaner restriction warning switch closes at a vacuum of	..... 5.5—6.5 kPa	55—65 mbar	(22—26 in. water head)
Blow-by at crankcase vent tube, max	.....	2.1 m ³ /h	(74 cu. ft./h)
Thermostat opens at	.....	82°C	(180°F)
Radiator cap high pressure valve opens at	..... 40—50 kPa	0.4—0.5 bar	(6—7 psi)
Radiator cap low pressure valve opens at	..... 0—4 kPa	0—0.04 bar	(0—0.6 psi)

Fan Belt

Fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lbs) pull midway between crankshaft and alternator or water pump (use a spring scale).

**With the engine run in (more than 100 hours of operation) and having reached operating temperature (engine and transmission); measured by means of a dynamometer. Permissible variation \pm 5%.*

TRACTOR SEPARATION

TORQUES FOR HARDWARE

Front axle carrier to engine		
front attaching cap screws (4 used)	230 N·m	(170 lb-ft)
Rear attaching cap screws (2 used)	180 N·m	(130 lb-ft)
Hydraulic pump drive shaft, cap screws	50 N·m	(35 lb-ft)
Jointed shaft flange to front axle		
drive hub (tractors with MFWD), cap screws	35 N·m	(25 lb-ft)
Drag link to bell crank or steering arm,		
slotted nuts*	75 N·m	(55 lb-ft)
Clutch housing to engine block		
Cap screws and hex nuts	230 N·m	170 ft-lb
Clutch housing to transmission case, cap screws	160 N·m	120 ft-lb
Transmission case drain plugs	135 N·m	100 ft-lb
Hydraulic lines retainer to		
clutch housing, cap screw	45 N·m	32 ft-lb
Final drive housings to transmission case, cap screws	120 N·m	85 ft-lb
Rockshaft housing to transmission case, cap screws	120 N·m	85 ft-lb
Rear wheels to rear axle	240 N·m	175 ft-lb
Rear fenders to final drive housings, hex. nuts	130 N·m	95 ft-lb
2-post roll guard to final drive housings		
both supports to crossbar	230 N·m	170 ft-lb
both supports to crossbar	230 N·m	170 ft-lb
Basic weight to front axle carrier, cap screws	400 N·m	300 ft-lb
Drawbar to transmission case, cap screws	120 N·m	85 ft-lb

**NOTE: If cotter pin cannot be inserted when tightening to the specified torque, turn nut to next slot and secure with cotter pin.*



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