

# 2350 and 2550 Tractors



JOHN DEERE

## TECHNICAL MANUAL 2350 and 2550 Tractors

TM4403 (01MAY85) English

**TM4403 (01MAY85)**

LITHO IN U.S.A.  
ENGLISH



# 2350 AND 2550 TRACTORS TECHNICAL MANUAL TM-4403 (May-85)

## CONTENTS

### SECTION 10 - GENERAL

- Group 00 - Specifications and Special Tools
- Group 05 - Predelivery, Delivery and After-Sales Inspections
- Group 10 - Lubrication and Periodic Service
- Group 15 - Engine and Tractor Tune-Up
- Group 20 - Tractor Separation

### SECTION 20 - ENGINE

- Group 00 - Specifications and Special Tools
- Group 05 - General Information Diagnosing Malfunctions
- Group 10 - Cylinder Head, Valves, Camshaft and Balancer Shafts
- Group 15 - Cylinder Block, Liners, Pistons and Connecting Rods
- Group 20 - Crankshaft, Main Bearings and Flywheel
- Group 25 - Timing Gear Train
- Group 30 - Engine Lubrication System
- Group 35 - Cooling System

### SECTION 30 - FUEL AND AIR INTAKE SYSTEM

- Group 00 - Specifications and Special Tools
- Group 05 - General Information, Diagnosing Malfunctions
- Group 10 - Fuel Tank, Water Trap, Fuel Transfer Pumps and Fuel Filter
- Group 15 - Roto Diesel Fuel Injection Pump
- Group 20 - Fuel Injection Nozzles
- Group 25 - Cold Weather Starting Aids
- Group 30 - Speed Control Linkage
- Group 35 - Air Cleaner

### SECTION 40 - ELECTRICAL SYSTEM

- Group 00 - Specifications and Special Tools
- Group 05 - Description, Diagnosing Malfunctions and Tests
- Group 10 - Wiring Harnesses
- Group 15 - Controls and Instruments
- Group 20 - Lighting Systems
- Group 25 - Wiring Diagrams
- Group 30 - Starting Motor
- Group 35 - Alternator

All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

COPYRIGHT® 1985  
DEERE & COMPANY  
Moline, Illinois  
All rights reserved  
Previous Edition  
Copyright® 1982  
Copyright® 1984  
DEERE & COMPANY

---

## CONTENTS

### SECTION 50 - POWER TRAIN

- Group 00 - Specifications and Special Tools
- Group 05 - Description, Operation and Lubricating System
- Group 10 - Clutch Operating Linkages
- Group 15 - Engine Clutch
- Group 20 - Hi-Lo Shift Unit
- Group 21 - Reverser Transmission
- Group 22 - Creeper Transmission
- Group 25 - Transmission Shift Linkages
- Group 30 - Synchronized Transmission and Transmission Oil Pump
- Group 31 - Collarshift Transmission and Transmission Oil Pump
- Group 35 - Differential
- Group 40 - Final Drives
- Group 45 - Independent PTO
- Group 46 - Continuous - Running PTO
- Group 50 - Mechanical Front Wheel Drive

### SECTION 60 - STEERING SYSTEM AND BRAKES

- Group 00 - Specifications and Special Tools
- Group 05 - Steering
- Group 10 - Brakes

### SECTION 70 - HYDRAULIC SYSTEM

- Group 00 - Specifications and Special Tools
- Group 05 - Description, Diagnosing Malfunctions and Pressure Tests
- Group 10 - Oil Reservoir, Filter, Valves and Oil Cooler
- Group 15 - 22.6 cm<sup>3</sup> (1.38 cu. in.) Hydraulic Pump
- Group 16 - 40.0 cm<sup>3</sup> (2.40 cu. in.) Hydraulic Pump
- Group 20 - Rockshaft
- Group 25 - Selective Control Valve (Poppet Valve Type) and Breakaway Coupler
- Group 26 - Selective Control Valves (Spool Type)
- Group 30 - Remote Cylinder

### SECTION 80 - MISCELLANEOUS

- Group 00 - Specifications
- Group 05 - Front Axle
- Group 10 - Front and Rear Wheels

### SECTION 90 - OPERATOR'S STATION

- Group 00 - Specifications and Special Tools
- Group 05 - Air Conditioning System
- Group 10 - Cab Ventilation and Heating
- Group 15 - Seats
- Group 20 - SOUND-GARD Body
- Group 25 - ROLL-GARD Protective Structure

# Section 10 GENERAL

## CONTENTS OF THIS SECTION

	Page		Page
<b>GROUP 00 - SPECIFICATIONS AND SPECIAL TOOLS</b>		<b>GROUP 05 - PREDELIVERY, DELIVERY AND AFTER-SALES INSPECTIONS</b>	
Specifications .....	10-00-3	Tractor Storage .....	10-05-1
Serial Numbers .....	10-00-3	Predelivery Inspection .....	10-05-2
Model Numbers .....	10-00-3	Delivery Inspection .....	10-05-9
Engine .....	10-00-3	After-Sales Inspection .....	10-05-10
Engine Clutch .....	10-00-4		
Cooling System .....	10-00-4	<b>GROUP 10 - LUBRICATION AND SERVICE</b>	
Fuel System .....	10-00-4	Lubrication and Service .....	10-10-1
Electrical System .....	10-00-5		
Synchronized Transmission .....	10-00-5	<b>GROUP 15 - TUNE-UP</b>	
Collar Shift Transmission .....	10-00-5	Preliminary Engine Testing .....	10-15-1
Hi-Lo Shift Unit .....	10-00-5	Dynamometer Test .....	10-15-1
Reverser Transmission .....	10-00-5	Testing Compression Pressure .....	10-15-2
Creep Transmission .....	10-00-6	Engine Tune-Up .....	10-15-3
Differential and Final Drives .....	10-00-6	Checking Tractor Operation .....	10-15-8
Differential Lock .....	10-00-6	Standard Torques .....	10-15-9
PTO .....	10-00-6		
Mechanical Front Wheel Drive .....	10-00-7	<b>GROUP 20 - TRACTOR SEPARATION</b>	
Hydrostatic Steering .....	10-00-7	Separating Between Engine and	
Foot Brakes .....	10-00-7	Tractor Front End .....	10-20-1
Handbrake .....	10-00-7	Removal and Installation of Engine .....	10-20-5
Hydraulic System .....	10-00-7	Removal and Installation of	
Capacities .....	10-00-7	Clutch Housing .....	10-20-9
Travel Speeds .....	10-00-8	Removal and Installation of	
Front and Rear Wheels .....	10-00-8	Final Drives .....	10-20-13
Dimensions and Weights .....	10-00-8	Removal and Installation of	
Predelivery, Delivery and		Rockshaft .....	10-20-18
After-Sales Inspections .....	10-00-8	Removal and Installation of	
Lubrication and Service .....	10-00-9	SOUND-GARD® Body .....	10-20-20
Tune-Up .....	10-00-11		
Tractor Separation .....	10-00-12		
Standard Torques .....	10-00-13		
Special Tools .....	10-00-15		

**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, 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, hydrostatic steering valve, compressor of air conditioning system (when equipped) and hydraulic pump have model numbers to facilitate identification of different makes of a given unit.

**ENGINE**

Number of cylinders .....		4
Cylinder liner bore .....	106.5 mm	4.19 in.
Stroke .....	110 mm	4.33 in.
Displacement .....	3920 cm <sup>3</sup>	239 cu. in.
Compression ratio .....		16.8 : 1
2350 up to engine serial no. 571 490 CD and 2550 up to engine serial no. 547 536 CD .....		16.8:1
2350 from engine serial no. 571 491 CD and 2550 from engine serial no. 547 537 CD .....		17.4:1
<b>Maximum torque</b>		
2350 at 1400 rpm .....	220 N·m	160 lb-ft
2550 at 1400 rpm .....	250 N·m	185 lb-ft
Firing order .....		1 - 3 - 4 - 2
<b>Valve clearance (engine hot or cold)</b>		
Intake valve .....	0.35 mm	0.014 in.
Exhaust valve .....	0.45 mm	0.018 in.

Fast idle speed .....	2670 to 2660 rpm
Slow idle speed .....	700 to 800 rpm
Rated engine speed .....	2500 rpm
Working speed range 2350 and 2550 .....	1400 to 2500 rpm
PTO* horsepower at engine rated speed—2550 rpm	
According to SAE J816b—2350 .....	41 kW                      55 hp
2550 .....	48 kW                      65 hp

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

**ENGINE CLUTCH** ..... Single dry disk clutch with torsion damper, 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

2350 .....	Roto Diesel No. R 3448F040
2550 up to engine serial no. 573009CD .....	Roto Diesel No. R 3443F950
2550 from engine serial no. 573010CD .....	Roto Diesel No. R 3448F230

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 ..... 2 x 12 volts, 55 Ah or 66 Ah
- Alternator with internal regulator
  - Tractors without SOUND-GARD body ..... 14 volts, 33 or 55 amps.
  - Tractors with SOUND-GARD body ..... 14 volts, 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" multi-  
ple disk clutch and brake packs
- Travel speed decreases in each gear by ..... Approx. 20 per cent
- Shifting to reduced (Lo) speed ..... Preloaded cup springs
- Shifting to normal (Hi) speed ..... Hydraulic

**Reverser Transmission**

- 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 per cent.

**Creep Transmission**

Type ..... Synchronized reduction unit  
 Travel speed decreases in low (l) and reverse ranges by ..... approx. 79%  
 Shifting both ranges ..... Mechanical and not under load

**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**

**INDEPENDENT PTO - 540 rpm or 540/1000 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	1000 rpm shaft
800	180	335
2400	540	1000
2500	565	1040
2660	600	1110

**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 ..... Preloaded cup springs

Disengagement ..... Hydraulic

**Hydrostatic Steering** ..... Without mechanical linkage between steering valve and the front wheels

**Foot Brakes** ..... 1 Self-adjusting, hydraulically operated "wet" disk brakes

**Handbrakes** ..... Mechanically operated band-type locking brake acting on the differential

**Hydraulic System**

Type ..... Closed center, constant pressure system

Standby pressure ..... 15800 to 16200      158 to 162 bar      2300 to 2350 psi

Operating pressure ..... 14000 kPa      140 bar      2050 psi

Hydraulic pump ..... 8-piston pump with variable displacement

**Capacities**

Fuel tank ..... 91 L      24.0 U.S. gal

## Cooling System

Without SOUND-GARD body ..... 13 L      3.4 U.S. gal

With SOUND-GARD body ..... 14 L      4.0 U.S. gal

## Engine crankcase

Without filter change ..... 8 L      2.1 U.S. gal

With filter change ..... 8.5 L      2.25 U.S. gal

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

## Synchronized transmission

Dry system—2350 ..... 59 L      15.6 U.S. gal

2550 ..... 64 L      16.9 U.S. gal

Oil change—2350 ..... 51 L      13.5 U.S. gal

2550 ..... 56 L      14.8 U.S. gal

## Collar shift transmission (with reverser)

Dry system ..... 42 L      11.1 U.S. gal

Oil change ..... 34 L      9.0 U.S. gal

**Capacities (Contd.)**

Oil reservoir .....	4 L	1.1 U.S. gal
Oil cooler .....	2 L	0.5 U.S. gal

**Mechanical front wheel drive**

Front axle housing .....	5.0 L	(1.30 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 to 800 rpm
Fast idle .....	2610 to 2660 rpm
Rated speed .....	2500 rpm

**FAN BELT**

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

**COMPRESSOR BELT**

The compressor belt should have 19 mm (3/4 i.) flex with 60 N (13 lb force) pull midway between pulleys.

**BATTERIES**

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

Normal and arctic conditions .....	1.28
Tropical conditions .....	1.23

**Clutch Operating Linkage****Tractors without SOUND-GARD Body**

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

**Tractors with SOUND-GARD Body**

Travel of slave cylinder operating rod ..... 8.5 to 12 mm  
5/16 to 15/32 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)
Tie rod clamps		
Cap screw (M10) .....	55 N·m	(40 lb-ft)
Cap screw (M13) .....	90 N·m	(65 lb-ft)
Tie rod tube, cap screw .....	55 N·m	(40 lb-ft)
Rear wheels to axle .....	400 N·m	(300 lb-ft)
Wheel disk to hub (rack-and-pinion axle) .....	400 N·m	(300 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 .....	8.0 L	(2.1 U.S. gal)
With filter change .....	8.5 L	(2.3 U.S. gal)

Cooling System

Without SOUND-GARD body .....	13 L	(3.4 U.S. gal)
With SOUND-GARD body .....	15 L	(4.0 U.S. gal)

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

Synchronized transmission

Dry system - 2350 .....	59 L	15.6 U.S. gal
2550 .....	64 L	16.9 U.S. gal
Oil change - 2350 .....	51 L	13.5 U.S. gal
2550 .....	56 L	14.8 U.S. gal

Collar shift transmission (with reverser)

Dry system .....	42 L	11.1 U.S. gal
Oil change .....	34 L	9.0 U.S. gal

**Capacities (Contd.)**

Oil reservoir .....	4 L	1.1 U.S. gal
Oil cooler .....	2 L	0.5 U.S. gal

## Mechanical front wheel drive

Front axle housing .....	5.0 L	(1.30 U.S. gal)
Wheel hub, each .....	0.75 L	(0.2 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
Changing hydrostatic steering filter .....	every 100 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

Please click here and go  
back to our website.

**BUY NOW**

Then Instant Download the  
Complete Manual.

Thank you very much!