



830 TRACTOR



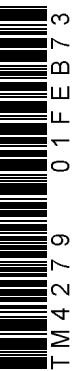
JOHN DEERE

TECHNICAL MANUAL 830 TRACTOR

TM4279 (01FEB73) English

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Tractor-830

Technical Manual

TM-4279 (Feb-73)

CONTENTS

SECTION 10 — GENERAL

- Group 5 - Specifications
- Group 10 - Pre-delivery, delivery and after-sales inspections
- Group 15 - Lubrication and periodic service
- Group 20 - Engine and tractor tune-up
- Group 25 - Tractor separation

SECTION 20 — ENGINE

- Group 5 - General information, diagnosing malfunctions
- Group 10 - Cylinder head and camshaft
- Group 15 - Cylinder block, liners, pistons and connecting rods
- Group 20 - Crankshaft, main bearings and flywheel
- Group 25 - Timing gear train
- Group 30 - Oil pump, oil pressure regulating valve and oil filter
- Group 35 - Engine cooling system
- Group 40 - Speed control linkage

SECTION 30 — FUEL SYSTEM

- Group 5 - Diagnosing malfunctions
- Group 10 - Fuel tank, transfer pump, fuel filter
- Group 15 - ROTO DIESEL injection pump
- Group 20 - Injection nozzles
- Group 25 - Cold weather starting aid

SECTION 40 — ELECTRICAL SYSTEM

- Group 5 - Diagnosing malfunctions
- Group 10 - Components and wiring diagram
- Group 15 - Starting motor
- Group 20 - Alternator and regulator

SECTION 50 — POWER TRAIN

- Group 5 - Engine dual-stage clutch and clutch linkage
- Group 10 - Collar-shift transmission
- Group 15 - Differential
- Group 20 - Final drives
- Group 25 - Continuous-running PTO

SECTION 60 — FRONT AXLE, STEERING SYSTEM AND BRAKES

- Group 5 - Front axle
- Group 10 - Steering system
- Group 15 - Hydraulic brake

SECTION 70 — HYDRAULIC SYSTEM

- Group 5 - General information, diagnosing malfunctions, pressure tests
- Group 10 - Oil reservoir, filter and valves
- Group 15 - Hydraulic pump and transmission oil pump
- Group 20 - Rockshaft
- Group 25 - Selective control valves
- Group 30 - Remote cylinder

SECTION 80 — MISCELLANEOUS

- Group 5 - Belt pulley
- Group 10 - Seat
- Group 15 - Front wheels

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Section 10 GENERAL

CONTENTS OF THIS SECTION

GROUP 5 — SPECIFICATIONS

	Page
Serial numbers	5-2
Model numbers	5-2
Engine	5-2
Engine clutch	5-2
Electrical system	5-2
Transmission	5-3
Differential and final drives	5-3
Differential lock	5-3
PTO	5-3
Hydraulic system	5-3
Power steering	5-3
Manual steering	5-3
Hydraulic brakes	5-3
Capacities	5-3
Travel speeds	5-3
Front and rear wheels	5-3
Dimensions and weights	5-3

GROUP 10 — PREDELIVERY, DELIVERY AND AFTER-SALES INSPEC- TIONS

Predelivery inspection	10-1
Delivery inspection	10-4
After-sales inspections	10-4

GROUP 15 — LUBRICATION AND PERIODIC SERVICE

	Page
Lubrication and periodic service	15-1

GROUP 20 — ENGINE AND TRACTOR TUNE-UP

General information	20-1
Preliminary engine testing	20-1
Engine tune-up	20-2
Checking engine performance	20-3
Tractor tune-up	20-3
Standard torques	20-5
Special tools	20-5

GROUP 25 — TRACTOR SEPARATION

Separating between engine and tractor front end	25-1
Removing and installing engine	25-3
Removal and installation of clutch housing	25-4
Removal and installation of final drives	25-6
Removal and installation of rockshaft	25-7
Torques for hardware	25-8
Special tools	25-8

Group 5 SPECIFICATIONS

SERIAL NUMBERS

The engine serial number is stamped into the name plate at the lower right of the front cylinder block.

NOTE: If ordering engine parts, indicate all digits of the serial number on the name plate.

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

NOTE: If ordering tractor parts, (excluding engine parts), indicate all digits of the serial number on the name plate.

MODEL NUMBERS

The injection pump, injection nozzles, the alternator, starter and the hydraulic pump have model numbers to facilitate identification of different makes of a given unit.

SPECIFICATIONS

ENGINE

Number of cylinders 3

Cylinder liner bore 98 mm (3.86 in.)

Stroke 110 mm (4.33 in.)

Displacement 2490 cm³ (152 cu.in.)

Compression ratio 16.7 : 1

Maximum torque at
1400 rpm 14.1 mkp (102 ft.lbs.)

Firing order 1 - 2 - 3

Valve clearance (engine hot or cold)

Intake valve 0.35 mm (0.014 in.)

Exhaust valve 0.45 mm (0.018 in.)

Fast idle 2545 rpm

Slow idle 650 rpm

Working speed range 1400 to 2400 rpm

PTO power 35 HP (26.2 kW)
(at 2400 rpm engine speed and
624 rpm powershaft speed)

ENGINE CLUTCH

Dual dry disk clutch, foot-operated.

ELECTRICAL SYSTEM

Batteries 2 x 12 volts,
55 ampere-hours

or 1 x 12 volts,
70 ampere-hours

Starter 12 volts, 4 HP

Alternator 14 volts, 28 amps.

Battery terminal grounded negative

* 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%.

TRANSMISSION

Type Collar shift
 Gear selections 8 forward and 4 reverse
 Shifting 4 speeds each in high, low, and reverse ranges. Park lock included.

DIFFERENTIAL AND FINAL DRIVES

Planetary reduction gear and differential with spiral bevel gears.

DIFFERENTIAL LOCK

Hand or foot operated; spring-loaded out of engagement.

PTO

Single, 540 rpm rear powershaft continuous-running.

Power Shaft Speeds (in rpm)

Engine Speed in rpm	540 rpm shaft
650	170
2070	540
2400	624
2545	662

HYDRAULIC SYSTEM

Open center, constant oil flow system; also includes rockshaft and selective control valves.

Relief valve setting 148 to 150 kp/cm²
 (2105 to 2130 psi)

Pump gear pump driven by the engine

POWER STEERING

The steering system is an "open center" type independent from the tractor hydraulic system. It is connected to the front wheels by means of a steering linkage.

Relief valve setting 148 to 150 kp/cm²
 (2105 to 2130 psi)

Pump gear pump driven by the engine

MANUAL STEERING

The manual steering is a recirculating ball bearing, worm and nut type. A number of steel balls between ball nut and steering wheel shaft provide for positive engagement of steering wheel and steering linkage.

HYDRAULIC BRAKES

The disk brakes run in an oil bath and are hydraulically controlled.

CAPACITIES

	Ltr.	US.gals.	Imp.gals.
Fuel tank	62.5	16.5	13.75
Cooling system	10.5	2.75	2.3
Engine crankcase incl. filter	5.7	1.5	1.25

Transmission-hydraulic system

Dry system	30.0	7.9	6.6
At service intervals	28.0	7.4	6.2
Belt pulley	1.1	0.3	0.25

TRAVEL SPEEDS

See Operator's Manual

FRONT AND REAR WHEELS

For tire sizes, treads, inflation pressure and weights see Operator's Manual.

DIMENSIONS AND WEIGHTS

See Operator's Manual.

Group 10

PREDELIVERY, DELIVERY AND AFTER-SALES INSPECTIONS

PREDELIVERY INSPECTION

To promote complete customer satisfaction, proper predelivery service including mending of possible shipping damage and giving the finishing touches to the tractor, are of prime importance to the dealer.

A tag pointing out the factory-recommended procedure for predelivery service is attached to

every new tractor before it leaves the factory. The reverse side of this tag is filled in by the factory after the tractor has undergone a thorough inspection prior to shipping.

After completing the factory-recommended dealer checks and services listed on the predelivery tag, remove the tag from the tractor and file it with the shop order for the job. The tag will then serve as a basis for certifying that the unit has received the proper predelivery service.

TEMPORARY TRACTOR STORAGE

Service	Specifications	Reference
Check radiator for coolant loss and antifreeze protection (gravity of anti-freeze and rust inhibitor mixture)	Coolant level should be mid-way between radiator core and bottom edge of filler neck	Operator's manual
IMPORTANT: When the machine is delivered, red cable is not connected to alternator terminal "B+". Further, the alternator three-terminal plug is not connected. Connect cable and plug before operating tractor for the first time. If the tractor is to be operated for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt the circuit by switching off the starter switch before stopping the engine by means of fuel pump shut off cable. Further, it is recommended to use additional current (lights) whilst engine is running. Insulating tape on battery cable end leading to starting motor should not be removed. If this advice is disregarded, damage to alternator and regulator may result.	. . . . .	Section 40, group 10
Remove batteries. Drain electrolyte and store batteries	Store at room temperature	. . . . .
Reduce shipping pressure of tires	. . . . .	Operator's manual
Cover tractor and tires for protection and cleanliness	. . . . .	. . . . .

BEFORE DELIVERING TRACTOR

Service	Specifications	Reference
COOLING SYSTEM		
Check radiator for coolant loss	Coolant level should be midway between radiator core and bottom edge of filler neck.	Operator's manual
Check gravity of antifreeze and rust inhibitor mixture	.....	Operator's manual
ELECTRICAL SYSTEM		
<p>IMPORTANT: When the machine is delivered, red cable is not connected to alternator terminal "B+". Further, the alternator three-terminal plug is not connected. Connect cable and plug before operating tractor for the first time.</p>	.....	Section 40, group 10
<p>If the tractor is to be operated for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt the circuit by switching off the starter switch before stopping the engine by means of fuel pump shut off cable. Further, it is recommended to use additional current (lights) whilst engine is running. Insulating tape on battery cable end leading to starting motor should not be removed.</p>		
<p>If this advice is disregarded, damage to alternator and regulator may result.</p>		
<p>If the batteries are to be installed in the tractor, remove insulating tape on terminal of battery cable. This is to be done if the tractor was shipped with dry-charged batteries or without batteries.</p>	.....	.....
<p>Connect batteries in the proper polarity (negative to ground). If they are improperly connected, the rectifier diodes will be immediately destroyed.</p>	.....	Section 40, group 10
<p>First connect positive (+) cable and then ground (-) strap of each battery. Only then start tractor engine.</p>	.....	Section 40, group 10

BEFORE DELIVERING TRACTOR - Continued

Service	Specification	Reference
TIRES AND WHEELS		
Check tire inflation pressure	Operator's manual
Retighten wheel bolts	Section 80, group 15 and Operator's manual
LUBRICATION		
Check crankcase oil level	Top mark on dip stick	Operator's manual
Check transmission-hydraulic system oil level	Operator's manual
Lubricate all lubrication points on the tractor	Operator's manual
ENGINE		
Check air cleaner	Operator's manual
Fill fuel tank and start engine	Capacity: 62,5 liters (13.75 Imp.gals. = 16,5 U.S.gals.)	Operator's manual
Check lighting system, indicator lights and instruments for proper operation	Operator's manual
Check if speed control linkage moves easily	Section 20, group 40
Check engine idle speeds	Section 20, group 40
Check injection timing	Section 30, group 15
OPERATION		
Check clutch pedal adjustment	Approx. 25 mm (1 in.) clutch pedal free travel	Section 50, group 5
Shift transmission through all speeds	Operator's manual
Check differential lock operation	Operator's manual
Check power shaft operation	Operator's manual
Check 3-point hitch operation	Operator's manual
Check hydraulic system operation	Section 70, group 5
Check brake system	Section 60, group 15

BEFORE DELIVERING TRACTOR - Continued

Service	Specifications	Reference
Check steering operation	Section 60, group 10
Check seat operation	Operator's manual
Check operation of remote hydraulic cylinder (if equipped)	Section 70, group 5
GENERAL		
Tighten accessible nuts and attaching screws	Section 10, group 20
Attach roll guard (if equipped)	Tighten cap screws cross-wise 1. Step = 7 mkp (50 ft.lbs.) 2. Step = 41,5 mkp (300 ft.lbs.)	Section 80, group 20
Clean tractor and touch up paint

DELIVERY INSPECTION

A thorough discussion of the operation and service of the tractor at the time of its delivery helps to assure complete customer satisfaction.

Proper delivery should be an important phase of the dealer's program.

It is a well-known fact that many complaints have arisen simply because the owner was not shown how to operate and service his new tractor properly. Therefore, enough time should be devoted, at the customer's convenience, to introducing him to his new tractor and explaining to him how to operate and service it.

Using the tractor operator's manual as a guide, be sure that the owner understands the following points properly.

1. Adjusting the seat
2. Operation of control levers and instruments
3. Starting and shutting off the engine
4. The importance of the tractor break-in period
5. Use of weights and proper inflation pressure as well as filling of tires with water and calcium chloride, if required.
6. Operating the complete hydraulic system
7. Operating the power shaft and belt pulley (if equipped)
8. The importance of the safety rules
9. The importance of lubrication and periodic service

AFTER-SALES INSPECTION

In the interest of the purchaser and the dealer an after-sales inspection should be carried out by the dealer after the first 100 hours of using a new John Deere tractor.

The purpose of this inspection is to make sure that the customer is receiving satisfactory performance from his tractor. At the same time, the inspection should reveal whether or not the tractor is being operated, lubricated and serviced properly.

Through this inspection a needless volume of service work can be eliminated by preventing

minor difficulties from developing into serious problems later on. It also will promote stronger dealer-customer relations and give the customer an opportunity to ask questions that may have arisen during the first few days of use.

Thereby the dealer has the further opportunity of promoting the possible sale of other new equipment.

The following inspection program is recommended:

AFTER-SALES INSPECTION

Service	Specifications	Reference
COOLING SYSTEM		
Check coolant level	Coolant level should be midway between radiator core and bottom edge of filler neck	Operator's manual
Clean exterior of radiator	.....	.....
Check hose connections	.....	.....
FUEL SYSTEM		
Check fuel filter for water or sediment and clean transfer pump screen	.....	Operator's manual
Check line connections	.....	.....
ELECTRICAL SYSTEM		
Check gravity of battery electrolyte	Gravity should be 1.260 at an electrolyte temperature of 27°C (80°F)	
Check electrolyte level of batteries	To bottom of filler neck in each cell	Operator's manual
Check tension of fan belt	19 mm (3/4 in.) deflection with a 9 kp (20 lbs.) force	Operator's manual and section 20, group 35
Start engine and check operation of lights, indicator lamps and instruments	.....	Operator's manual
LUBRICATION		
Check crankcase oil level	Top mark on dip stick	Operator's manual
Check transmission oil level	.....	Operator's manual
Check oil level of manual steering gear housing	Add oil up to filler hole	Operator's manual
Check oil level of belt pulley housing	Add oil up to filler hole	Operator's manual
Lubricate clutch throw-out bearing	.....	Operator's manual
Lubricate 3-point hitch	.....	Operator's manual

AFTER-SALES INSPECTION

Service	Specifications	Reference
ENGINE		
Check air cleaner	.....	Operator's manual
Check valve clearance	Intake valve: 0.35 mm (0.014 in.) Exhaust valve: 0.45 mm (0.018 in.)	Section 20, group 10
Check engine speed under load as well as fast and slow idle speed	.....	Section 20, group 40
Check engine performance	.....	Section 10, group 20
GENERAL		
Check clutch pedal adjustment	Approx. 25 mm (1 in.) free travel	Section 50, group 5
Shift transmission through all speeds	.....	Operator's manual
Check operation of PTO	.....	Operator's manual
Check differential lock	.....	Operator's manual
Check operation of hydraulic system	.....	Section 70, group 5
Check steering system	.....	Section 60, group 10
Check brakes	.....	Section 60, group 15
Tighten accessible nuts and cap screws	.....	Section 10, group 20
Tighten roll guard attaching screws and nuts	41.5 mkp (300 ft.lbs.)	.....
Tighten accessible hydraulic lines	.....	.....
Visual inspection of tractor	Damaged paint, loose connections, proper positioning of hoses and lines, leaks, operation of all mechanical parts	.....

Group 15
LUBRICATION AND PERIODIC
SERVICE

For brands of oil and lubricants to be used as well as for lubricating and servicing the tractor 830, see operator's manual.



Group 20

ENGINE AND TRACTOR TUNE-UP


GENERAL INFORMATION

Before tuning up the engine, determine whether a tune-up will restore operating efficiency. If there is doubt, the following preliminary tests will help to determine if the engine can be tuned up.


PRELIMINARY ENGINE TESTING

Service	Specifications	Reference
Checking air intake system by means of vacuum gauge	355 to 635 mm (14 to 25 in.) water head; engine running at fast idle speed	 "Fundamentals of Service, Engine" manual under "Diagnosis and Testing"
Check radiator for air bubbles or oil film	.....	.....
Check compression which should be at least using special tool No. 19.58-90.578	21 kp/cm ² (300 psi)	 "Fundamentals of Service, Engine" manual under "Diagnosis and Testing"
Measure engine horsepower at powershaft (using a dynamometer)	Record measured performance and compare with performance measured after carrying out "Engine Tune-up"	.....

ENGINE TUNE-UP

Service	Specifications	Reference
AIR INTAKE SYSTEM		
Service air cleaner and check system for leaks	 Operator's manual and "Fundamentals of Service, Engine" manual
Check crankcase vent tube for foreign particles (restriction)
Tighten cylinder head cap screws	15 mkp (110 ft.lbs.)	Section 20, group 10
Check and adjust valve clearance	Intake valve: 0.35 mm (0.014 in.) Exhaust valve: 0.45 mm (0.018 in.)	Section 20, group 10
BATTERIES		
Thoroughly clean wires, connections and batteries
Tighten cable clamp screws
Liberaly coat battery terminals and cable connectors with petroleum jelly
Check electrolyte level of battery	Operator's manual
Check specific gravity of electrolyte	Operator's manual
ALTERNATOR		
Check fan belt tension	19 mm (3/4 in.) deflection with 9 kp (20 lbs.) force	Section 20, group 35
FUEL SYSTEM		
Check fuel tank and lines for leaks or restriction
Clean screen of fuel transfer pump	Operator's manual
Check fuel filter element and replace, if necessary	Section 30, group 10
Check injection timing and adjust, if necessary	Section 30, group 15
Bleed fuel system	Section 30, group 15
Check engine speeds and adjust speed control linkage, if necessary	Section 20, group 40

ENGINE TUNE-UP - Continued

Service	Specifications	Reference
ENGINE LUBRICATION SYSTEM		
Check engine oil pressure	3.5 to 4.2 kp/cm ² (50 to 60 psi) at 2400 rpm	Section 20, group 30
COOLING SYSTEM		
Clean and flush cooling system	.....	"Fundamentals of Service, Engine" manual
Check radiator hoses for damage and leaks	.....	.....
Clear radiator core of restrictions	.....	.....

CHECKING ENGINE PERFORMANCE



After the engine has been tuned up as explained above, determine powershaft horsepower by means of a dynamometer, see "Fundamentals of Service, Engine" manual.

Compare measured performance in HP with output measured before carrying out "Engine tune-up".

TRACTOR TUNE-UP

After carrying out engine tune-up, make the following adjustments on the tractor:

Service	Specifications	Reference
ENGINE CLUTCH		
Adjust clutch pedal free travel	Approx. 25 mm (1 in.)	Section 50, group 5
FRONT WHEELS		
Clean and lubricate front wheel bearings	.....	Section 80, group 15
Adjust front wheel bearings	.....	Section 80, group 15
Check toe-in	3 to 6.5 mm (0.125 to 0.25 in.)	Section 60, group 5
Check torque of front wheel bolts	12 mkp (87 ft.lbs.)	.....
HYDRAULIC BRAKES		
Bleed brake system	.....	Section 60, group 15

TRACTOR TUNE-UP - Continued

Service	Specifications	Reference
HYDRAULIC SYSTEM		
Check max. system pressure	148 kp/cm ² (2105 psi)	Section 70, group 5
Check max. power steering system pressure (if equipped)	150 kp/cm ² (2130 psi)	Section 70, group 5
Check rockshaft lift cycle time at 2100 rpm engine speed	2,5 sec.	Section 70, group 5
Check time required for extending or retracting remote cylinder at 2100 rpm engine speed	2 sec.	Section 70, group 5
TIRES		
Check tire inflation pressure	. . . . .	Operator's manual
TORQUES		
Check all accessible cap screws and nuts of tractor for proper torque	Torque chart

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