



830 TRACTOR



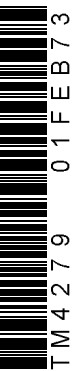
JOHN DEERE

TECHNICAL MANUAL 830 TRACTOR

TM4279 (01FEB73) English

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TM4279 (01FEB73)

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ENGLISH



Tractor-830

Technical Manual

TM-4279 (Feb-73)

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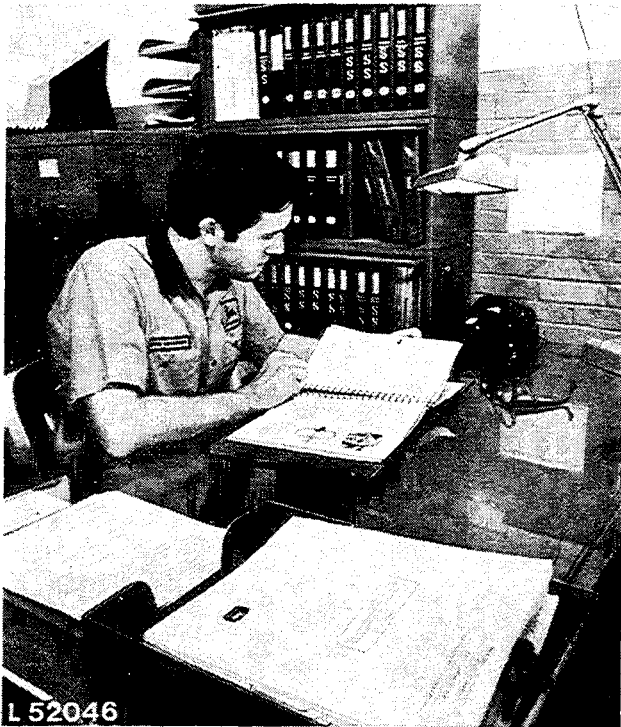
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INTRODUCTION



Use FOS Manuals for Reference

This technical manual is part of a twin concept of service:

- FOS Manuals — for reference
- Technical Manuals — for actual service

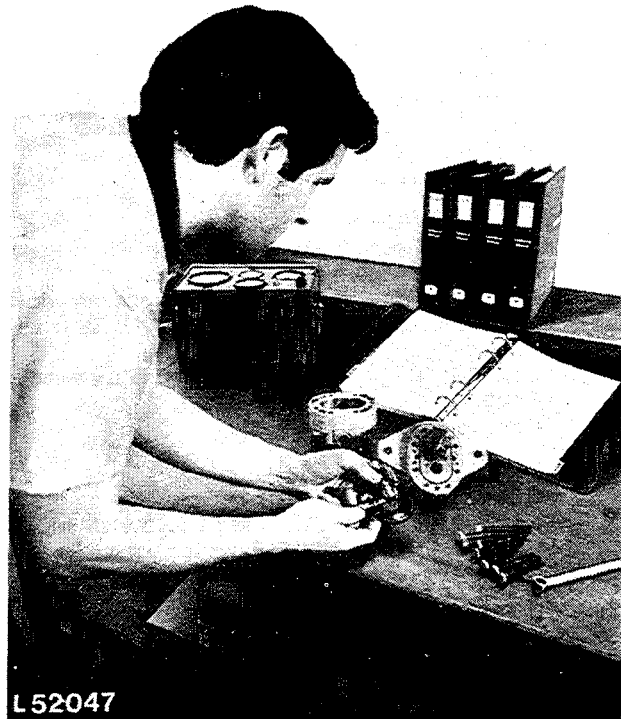
The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

Fundamentals of Service (FOS) Manuals cover basic theory of operation, fundamentals of trouble shooting, general maintenance, and basic types of failures and their causes. FOS Manuals are for training new men and for reference by experienced men.

Technical Manuals are concise service guides for a specific machine. Technical Manuals are on-the-job guides containing only the vital information needed by a journeyman mechanic.



When a serviceman should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the TM to identify the reference.



Use Technical Manuals for Actual Service

Some features of this technical manual:

- *Table of contents at front of whole Manual.*
- *Contents at front of each Section*
- *Exploded views showing parts relationship*
- *Photos showing service techniques*
- *Specifications at end of each Group*
- *Special tools at end of each Group*

This technical manual was planned and written for you — a journeyman mechanic. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.



This safety alert symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

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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:



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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

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