



2120 Tractor

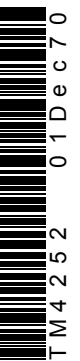


TECHNICAL MANUAL 2120 Tractor

TM4252 (01Dec70) English

John Deere Werke Mannheim
TM4252 (01Dec70)

LITHO IN U.S.A.
ENGLISH



CONTENTS

SECTION 10 — GENERAL INFORMATION

- Group 5 - Specifications
- Group 10 - Pre-delivery, delivery and after-sales inspections
- Group 15 - Lubrication and service
- Group 20 - Engine and tractor tune-up and adjustment
- Group 25 - Removal and installation of assemblies

SECTION 20 — ENGINE

- Group 5 - General information, diagnosing malfunctions
- Group 10 - Cylinder head, camshaft and balancer shafts
- Group 15 - Cylinder block, liners, pistons and connecting rods
- Group 20 - Crankshaft, crankshaft 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

SECTION 30 — FUEL SYSTEM

- Group 5 - Diagnosing malfunctions
- Group 10 - Fuel tank, transfer pump, fuel filters
- Group 15 - ROTO-DIESEL injection pump
- Group 20 - ROOSA-MASTER injection nozzles
- Group 25 - Cold weather starting aids

SECTION 40 — ELECTRICAL SYSTEM

- Group 5 - Diagnosing malfunctions
- Group 10 - Components and wiring diagrams

SECTION 50 — POWER TRAIN

- Group 5 - Engine clutch and clutch linkage
- Group 10 - HIGH-LOW shift unit
- Group 15 - Transmission
- Group 20 - Differential assembly
- Group 25 - Final drives
- Group 30 - Continuous-running power shaft
- Group 35 - Independent power shaft

SECTION 60 — FRONT AXLE, STEERING AND BRAKES

- Group 5 - Front axle
- Group 10 - Steering
- Group 15 - Brakes

SECTION 70 — HYDRAULIC SYSTEM

- Group 5 - General information, diagnosing malfunctions, pressure tests
- Group 10 - Oil reservoir, filter, valves and oil cooler
- Group 15 - Hydraulic pump and transmission oil pump
- Group 20 - Rockshaft
- Group 25 - Selective control valves (spool type)
- Group 30 - Selective control valve (poppet valve type)
- Group 35 - Remote hydraulic cylinder

SECTION 80 — MISCELLANEOUS

- Group 5 - Belt pulley
- Group 10 - DE LUXE seat
- Group 15 - Front and rear wheels
- Group 20 - Hydraulic hitch
- Group 25 - Roll guard

**Thanks very much for your reading,
Want to get more information,
Please click here, Then get the complete
manual**

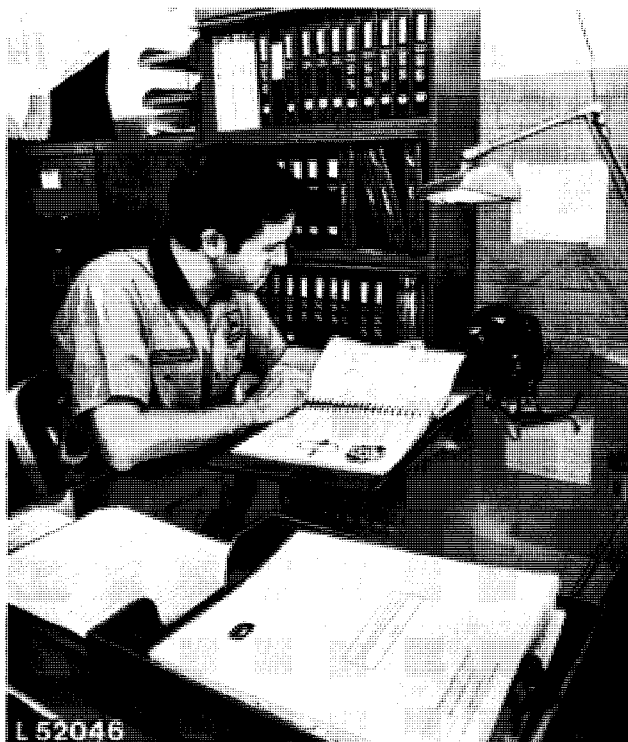
JustClickHere 

NOTE:

**If there is no response to click on the link above,
please download the PDF document first, and then
click on it.**

**Have any questions please write to me:
admin@servicemanualperfect.com**

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*
- *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.

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 generator (alternator), starter and the main hydraulic pump have model numbers to facilitate identification of different makes of a given unit.

SPECIFICATIONS

ENGINE

Number of cylinder	4
Cylinder liner bore	4.02 in. (102 mm)
Stroke	4.33 in. (110 mm)
Displacement	219 cu.in. (3590 cm ²)
Compression ratio	16.7 : 1
Maximum torque at 1500 rpm	170 ft.lbs. (23.5 mkg)
Firing order	1 - 3 - 4 - 2
Valve clearance (engine hot or cold)	
Intake valve	0.014 in. (0.35 mm)
Outlet valve	0.018 in. (0.45 mm)

Fast idle	2650 rpm
Slow idle	650 rpm
Working speed range	1500 to 2500 rpm
Flywheel horsepower ¹ at 2500 rpm	
Net	67 HP (68 PS)
Gross ²	71 HP (72 PS)
PTO horsepower ³ (at 2500 rpm engine speed and 650 or 1210 rpm powershaft speed)	60 HP (61 PS)

ENGINE CLUTCH

Dual dry disk clutch, foot operated.

Single dry disk clutch with torsion damper (isolator), foot-operated (on tractors with independent PTO)

ELECTRICAL SYSTEM

Batteries	2 x 12 Volts, 55 Ah
Starter	12 Volts, 4 HP (4 PS)
Alternator	12 Volts, 28 A
Generator	12 Volts, 11 A
Battery terminal grounded	negative

1) 1 PS = 1 ch = 0.736 KW; 1 KW = 1,36 PS = 1.36 ch; 1 PS = 0.986 HP; 1 HP = 1.01 PS

2) Less water pump, fan, generator (alternator), air cleaner and muffler.

3) 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 \pm 5%.

TRANSMISSION

Collar shift transmission with helical cut gears.

This transmission is available in three variations:

- 8 speed transmission with parking lock, without independent hand brake;
- 8 speed transmission without parking lock and with independent hand brake;
- 8 speed transmission without parking lock, with blocked 8th gear and independent hand brake.

With this transmission 8 or 7 forward and 4 reverse speeds are available.

HIGH-LOW SHIFT UNIT

Hydraulically controlled reduction gear which can be shifted under load, with "wet" multiple disk clutch and "wet" multiple disk brake. Allows reduction of the individual gear speeds by 26%.

DIFFERENTIAL AND FINAL DRIVES

Planetary reduction gear and differential with spiral bevel gears.

DIFFERENTIAL LOCK

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

POWER SHAFTS

Continuous Running Power Shafts

The power shafts are independent of the transmission if the tractor is equipped with a dual stage engine clutch.

Independent Power Shafts

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

The independent power shaft is engaged by a hydraulically operated disc clutch. Disengaging the clutch is achieved by operating the hydraulically actuated band type brake.

Power Shaft Speeds (in rpm)

Engine Speed in rpm	540 rpm shaft	1000 rpm shaft
650	169	315
2067	538	1000
2075	540	1004
2500	650	1210
2650	689	1283

HYDRAULIC SYSTEM

Closed center, constant pressure system; also includes rockshaft, power steering and selective control valves.

System pressure 2220 to 2280 psi
 (156 to 160 kg/cm²)

Pump 4 or 8-piston pump driven by the engine

POWER STEERING

The steering system is a "closed center" type incorporated by the hydraulic system and supplied with oil by the main hydraulic pump. It is connected to the front wheels by means of a steering linkage.

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.

HANDBRAKE

Band-type locking brake acting on differential.

CAPACITIES

	Imp. Gals.	US Gals.	Liters
Fuel tank	16.25	19.5	73.8
Cooling system	2.5	3.0	11.4
Engine crankcase incl. filter	1.25	1.5	5.7
Transmission-hydraulic system			
Dry system	7.9	9.5	36.0
At service intervals	6.5	7.4	28.0
Oil-bath air cleaner	0.22	0.26	1.0
Belt pulley	0.25	0.30	1.1

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

Every new JOHN DEERE Tractor leaves the factory in such a condition that it can be delivered to the customer after a minimum of service.

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 midway between radiator core and bottom edge of filler neck	Operator's manual
CAUTION: On tractors equipped with a generator and shipped with dry-charged batteries or without batteries which are to be started by means of a slave battery, do not remove insulating tape on terminal of cable to starter under any circumstances. Also, do not remove – contrary to earlier statements – wire between terminals D+ of regulator and D+ of generator. If this advice is disregarded, damage to generator and regulator may result.	.....	.....
CAUTION: On tractors equipped with an alternator, do not remove or disconnect the bridge piece which connects D+, DF and D-terminals.		
Remove 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
<p>COOLING SYSTEM</p>		
<p>Check radiator for coolant loss</p>	<p>Coolant level should be midway between radiator core and bottom edge of filler neck.</p>	<p>Operator's manual</p>
<p>Check gravity of antifreeze and rust inhibitor mixture</p>	<p>.....</p>	<p>Operator's manual</p>
<p>ELECTRICAL SYSTEM</p>		
<p>CAUTION: On tractors equipped with a generator which are to be started by means of a slave battery, do not remove insulating tape on terminal of cable to starter under any circumstances. Also, do not remove - contrary to earlier statements - wire between terminals D+ of regulator and D+ of generator. If this advice is disregarded, damage to generator and regulator may result.</p>	<p>.....</p>	<p>Section 40, group 10</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, on tractors supplied with a generator.</p>		
<p>CAUTION: If a tractor equipped with alternator is to be started by means of a slave battery, do not remove bridging wire connecting alternator terminals D+, DF and D- under any circumstances. Removing this wire will result in immediate destruction of diodes.</p>	<p>.....</p>	<p>Section 40, group 10</p>
<p>If the batteries are to be installed in the tractor, proceed as follows: Remove bridging wire from terminals D+, DF and D- and connect wires to alternator.</p>	<p>.....</p>	<p>Section 40, group 10</p>

BEFORE DELIVERING TRACTOR - Continued

Service	Specifications	Reference
Fill batteries with electrolyte, charge batteries and install in tractor.	 "Fundamentals of Service, Electrical Systems" manual under "Batteries"
First connect positive (+) and then negative (-) wire of each battery. Only then start tractor engine.	Section 40, group 10
TIRES AND WHEELS		
Check tire inflation pressure	Operator's manual
Retighten wheel bolts and ball nuts	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 oil bath air cleaner	Fill with oil to "Full"	Operator's manual
Check dry type air cleaner	Operator's manual
Fill fuel tank and start engine	Capacity: 16.25 Imp. (19.5 US) Gals = 73.8 lit.	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
TESTING OPERATION		
Check clutch pedal adjustment	Approx. 1 in. (25 mm) clutch pedal free travel	Section 50, group 5
Check operation of HIGH-LOW shift	Section 50, group 10
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 adjustment	Operator's manual
Check operation of remote hydraulic cylinder (if equipped)	Section 70, group 5
GENERAL INFORMATION		
Tighten accessible nuts and attaching screws	Section 10, group 20
Attach roll guard	Tighten nuts and bolts to 94 ft.lbs. (13 mkg)	Section 80, group 25
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 counterweights and proper inflation pressure as well as filling of tires with water and magnesium 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 sediment bowls and elements of 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 80°F (27°C)	
Check electrolyte level of batteries	To bottom of filler neck in each cell	Operator's manual
Check tension of fan belt	3/4 in. (19 mm) deflection with a 20 lbs (9 kg) 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 oil level in oil-bath air cleaner	Fill with oil to level mark	Operator's manual
Check dry-type air cleaner	.....	Operator's manual
Check valve clearance	Intake valve: 0.014 in. (0.35 mm) Exhaust valve: 0.018 in. (0.45 mm)	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 INFORMATION		
Check clutch pedal adjustment	Approx. 1 in. (25 mm) free travel	Section 50, group 5
Check operation of HIGH-LOW shift unit	.....	Section 50, group 10
Shift transmission through all speeds	.....	Operator's manual
Check operation of power shaft	.....	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	94 ft.lbs. (13 mkg)	Section 80, group 25
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 model 2120 tractor, 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	14 to 25 in. (355-635 mm) 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	.....	.....
Measure blow-by at crankcase vent tube *	436 Imp.gals./h. 524 US.gals./h. 1982 liters/h.	
Check compression which should be at least (using special tool No. 19.58-90.578)	300 psi (21 kg/cm ²)	 "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"	.....

* Measure with a standard gas gauge, placing hose over end of crankcase vent tube. The engine must be tested at 2500 rpm, normal running temperature and should be run in (at least 100 hours). Measure over a period of 5 minutes and multiply measured value by 12 (for hourly rate). Compare with values quoted above.

There is no undue wear on piston rings and cylinder liners if the measured value is lower than that quoted above. Should a further test be desired, carry out a compression test. If the "blow-by" reading is more than that quoted above, the decline in performance is due to excessive wear and the engine should be overhauled.

ENGINE TUNE-UP-Continued

Service	Specifications	Reference
AIR INTAKE SYSTEM		
Oil-bath air cleaner - clean oil cup and fill with fresh engine oil to "Full" mark	 Operator's manual and "Fundamentals of Service, Engine" manual.
Dry-type air cleaner - clean filter element and dust unloading valve	 Operator's manual and "Fundamentals of Service, Engine" manual
Check crankcase vent tube for foreign particles (restriction)
Tighten cylinder head cap screws	110 ft.lbs. (15 mkg)	Section 20, group 10
Check and adjust valve clearance	Intake valve 0.014 in. (0.35 mm) Outlet valve 0.018 in. (0.45 mm)	Section 20, group 10
BATTERIES		
Thoroughly clean wires, connections and batteries
Tighten cable clamp screws
Liberally 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
GENERATOR (ALTERNATOR)		
Check fan belt tension	3/4 in. (19 mm) deflection with 20 lbs (9 kg) 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 first stage 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