

2100 Series Tractors

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Section 1001

SAFETY, GENERAL INFORMATION
AND TORQUE SPECIFICATIONS

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SAFETY

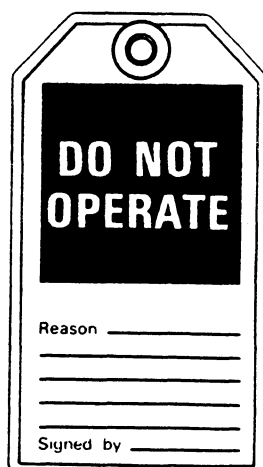


This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.

1-1 C

To prevent injury always follow the Warning, Caution and Danger notes in this section and throughout the manual.

Put the warning tag shown below on the key for the keyswitch when servicing or repairing the machine. One warning tag is supplied with each machine. Additional tags Part Number 331-4614 are available from your service parts supplier.



B004



WARNING: Before starting engine, study Operator's Manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating.

It is your responsibility to understand and follow manufacturers instructions on machine operation, service, and to observe pertinent laws and regulations. Operator's and Service Manuals may be obtained from your J.I. Case dealer

45 2



WARNING: If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing

45 3 A



WARNING: Read the operator's manual to familiarize yourself with the correct control functions.

46 27



WARNING: When working in the area of the fan belt with the engine running, avoid loose clothing if possible, and use extreme caution.

35 4



WARNING: Operate the machine and equipment controls from the seat position only. Any other method could result in serious injury.

48 55



WARNING: When doing checks and tests on the equipment hydraulics, follow the procedures as they are written. **DO NOT** change the procedure.

47 44



WARNING: This is one man machine, no riders allowed.

35 8



WARNING: When putting the hydraulic cylinders on this machine through the necessary cycles to check operation or to remove air from a circuit, make sure all people are out of the way.

47 45



WARNING: Use insulated gloves or mittens when working with hot parts.

Don 8-86530



CAUTION: Lower all attachments to the ground or use stands to safely support the attachments before you do any maintenance or service.

Don 8-86530



CAUTION: Pin sized and smaller streams of hydraulic oil under pressure can penetrate the skin and result in serious infection. If hydraulic oil under pressure does penetrate the skin, seek medical treatment immediately. Maintain all hoses and tubes in good condition. Make sure all connections are tight. Make a replacement of any tube or hose that is damaged or thought to be damaged. **DO NOT** use your hand to check for leaks, use a piece of cardboard or wood.

Don 8-86530



CAUTION: When removing hardened pins such as a pivot pin, or a hardened shaft, use a soft head (brass or bronze) hammer or use a driver made from brass or bronze and a steel head hammer.

Don 8-86530



CAUTION: When using a hammer to remove and install pivot pins or separate parts using compressed air or using a grinder, wear eye protection that completely encloses the eyes (approved goggles or other approved eye protectors).

Don 8-86530



CAUTION: Use suitable floor (service) jacks or chain hoist to raise wheels or tracks off the floor. Always block machine in place with suitable safety stands.

Don 8-86530



CAUTION: When servicing or repairing the machine. Keep the shop floor and operator's compartment and steps free of oil, water, grease, tools, etc. Use an oil absorbing material and or shop cloths as required. Use safe practices at all times.

Don 8-86530



CAUTION: Some components of this machine are very heavy. Use suitable lifting equipment or additional help as instructed in this Service Manual.

Don 8-86530



DANGER: Engine exhaust fumes can cause death. If it is necessary to start the engine in a closed place, remove the exhaust fumes from the area with an exhaust pipe extension. Open the doors and get outside air into the area.

Don 8-86530



DANGER: When the battery electrolyte is frozen, the battery can explode if (1), you try to charge the battery, or (2), you try to jump start and run the engine. To prevent the battery electrolyte from freezing, try to keep the battery at full charge. If you do not follow these instructions, you or others in the area can be injured.

Don 8-86530



DANGER: Batteries contain acid and explosive gas. Explosions can result from sparks, flames or wrong cable connections. To connect the jumper cables correctly to the battery of this machine see the Operator's Manual. Failure to follow these instructions can cause serious injury or death.

GENERAL INFORMATION

CLEANING

Clean all metal parts except bearings, in mineral spirits or by steam cleaning. Do not use caustic soda for steam cleaning. After cleaning dry, and put oil on all parts. Clean oil passages with compressed air. Clean bearings in kerosene, dry the bearings completely and put oil on the bearings.

INSPECTION

Check all parts when the parts are disassembled. Replace all parts that have wear or damage. Small scoring or grooves can be removed with a hone or crocus cloth. Complete visual inspection for indications of wear, pitting and the replacement of parts necessary will prevent early failures.

BEARINGS

Check bearings for easy action. If bearings have a loose fit or rough action replace the bearing. Wash bearings with a good solvent or kerosene and permit to air dry. DO NOT DRY BEARINGS WITH COMPRESSED AIR.

NEEDLE BEARINGS

Before you press needle bearings in a bore always remove any metal protrusions in the bore or edge of the bore. Before you press bearings into position put petroleum jelly on the inside and outside diameter of the bearings.

GEARS

Check all gears for wear and damage. Replace gears that have wear or damage.

OIL SEALS, O-RINGS AND GASKETS

Always install new oil seals, o-rings and gaskets. Put petroleum jelly on seals and o-rings.

SHAFTS

Check all shafts that have wear or damage. Check the bearing and oil seal surfaces of the shafts for damage.

SERVICE PARTS

Always install genuine Case service parts, when ordering refer to the Parts Catalog for the correct part number of the genuine Case replacement items. Failures due to the use of other than genuine Case replacement parts are not covered by warranty.

LUBRICATION

Only use the oils and lubricants specified in the Operator's or Service Manual. Failures due to the use of non specified oils and lubricants are not covered by warranty.

STANDARD TORQUE DATA FOR NUTS AND BOLTS

Where no special torque data is specified, the following torque figures should be applied. Threads should be lubricated with engine oil or chassis grease.

TORQUE SPECIFICATIONS $\pm 10\%$									
SIZE	GRADE 8.8			GRADE 10.9			GRADE 12.9		
	lb-ft	Nm	kg/m	lb-ft	Nm	kg/m	lb-ft	Nm	kg/m
5 mm	4	5.5	0.56	5.5	7.5	0.76	6.6	9	0.92
6 mm	6.6	9	0.92	9.2	12.5	1.27	11	15	1.53
8 mm	16.5	22.5	2.3	23	31.5	3.2	26.5	36	3.67
10 mm	32	44	4.5	45	62	6.3	55	75	7.65
12 mm	57	77.5	7.9	81	110	11.2	95	130	13.2
14 mm	88	120	12.2	125	170	17.3	155	210	21.4
16 mm	140	190	19.4	195	265	27	236	320	32.6
18 mm	192	260	26.5	269	365	37.2	320	435	44.3
20 mm	273	370	37.7	383	520	53	457	620	63.2
22 mm	369	500	51	516	700	71.4	619	840	85.6
24 mm	471	640	65.2	665	900	92	796	1080	110
27 mm	702	950	97	996	1350	137.7	1195	1620	165.2
30 mm	955	1300	132.5	1328	1800	183.6	1593	2160	220.3

TORQUE DATA FOR HYDRAULIC FITTINGS

FITTINGS, CONNECTIONS AND PLUGS

Diameter x Pitch	Newton / Metres	Pounds / Feet	Kilogram / Metres
10 mm x 1	20	14.5	2
12 mm x 1.5	35	26	3.6
14 mm x 1.5	45	33.2	4.6
16 mm x 1.5	60	44	6.1
18 mm x 1.5	70	51	7.1
22 mm x 1.5	100	73	10.2
27 mm x 2	200	147	20.4
33 mm x 2	280	207	28.6
42 mm x 2	380	281	38.8

NUTS FOR TUBES AND HOSES

Diameter x Pitch	Newton / Metres	Pounds / Feet	Kilogram / Metres
16 mm x 1.5	20	14.5	2
18 mm x 1.5	35	26	3.6
20 mm x 1.45	45	33.2	4.6
24 mm x 1.5	60	44	6.1

FLANGES

Diameter x Pitch	Newton / Metres	Pounds / Feet	Kilogram / Metres
8 mm x 1.5	28	21	2.9
10 mm x 1.5	55	41	5.6
12 mm x 1.75	90	67	9.2
14 mm x 2	145	107	14.8
16 mm x 2	230	170	23.5

Section

1002

SPECIFICATIONS

1002

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GENERAL SPECIFICATIONS

Capacities

Engine Oil Capacity (with Filter Change):	
2120 and 2130 Series Tractors.....	6.7 litres
2140 and 2150 Series Tractors.....	9.2 litres
Air Conditioning:	
Compressor Oil Capacity.....	170 ml
Refrigerant System Capacity.....	1.8 kg
Receiver - Drier Oil Capacity.....	28.4 ml
Condenser Oil Capacity.....	56.8 ml
Evaporator Oil Capacity.....	56.8 ml
Hoses (Total) Oil Capacity.....	28.4 ml
Transmission/Hydraulic System:	
2 Wheel Drive Tractors.....	36 litres
MFD Tractors.....	38 litres
MFD Axle - Differential.....	4 litres
MFD Axle - Planetaries (Each).....	0.8 litres
Fuel Tank.....	60 litres

Fuel System Specifications

Fuel Filter	
Type.....	Replacement paper cartridge, 1.55 to 2.0 micron
Replacement Period.....	300 hours
Fuel Pump	
Type.....	Diaphragm, driven from the engine camshaft
Fuel Injection Pump	
Type.....	Single cylinder immersed pump
Manufacturer.....	Bosch
Code.....	PFR IK 90 A 503
Injection Order:	
3 Cylinder Engine.....	1 - 3 - 2
4 Cylinder Engine.....	1 - 3 - 4 - 2
Injection Pressure.....	70 Bar 1015 PSI
Fuel Injectors	
Manufacturer.....	Bosch
Nozzle Code.....	DLLA 150 S 925
Holder Code.....	KBEL 100 S 31
Opening Pressure.....	180 to 188 Bar 2610 to 2725 PSI

Electrical Specifications

Type of System.....	12 Volts, negative ground
Battery	
Number of Batteries Required.....	1
Voltage of the Battery.....	12 Volts
Reverse Capacity.....	100 Minutes
Cold Cranking Capacity (SAE) at - 18°C.....	440 Amperes

Starter Motor

Manufacturer..... Bosch
 Reference 3 Cylinder Engine..... JF 12V 2.4KW
 4 Cylinder Engine..... JF 12V 3.0KW

No-Load Test at 27°C (80°F)

Volts 12
 Current Draw..... 170 amperes maximum
 Armature Speed..... 8000 rpm minimum

Brush Length 8.5 mm minimum

Armature Runout 0.03 mm maximum

Commutator Diameter 42.5 mm minimum

Armature End Play..... 0.1 to 0.3 mm

Overrunning Clutch Rolling Resistance 1.8 to 2.3 kg

Alternator

Manufacturer..... Bosch
 Type K1-14V 23/55A

Output at 1200 RPM.....	14 volts	10 Amperes
2000 RPM.....	14 volts	36 Amperes
2350 RPM.....	14 volts	40 Amperes
6000 RPM.....	14 volts	55 Amperes

Resistance of Rotor Winding 4.0 Ohms $\pm$ 0.2 Ohms
 Stator Winding..... 0.1 Ohms

Minimum Brush Length (Extending from Holder) 5 mm

Maximum Out of Roundness:

Rotor 0.05 mm
 Slip Rings 0.03 mm

Drive Belt Tension..... Deflection of 20 to 25 mm under a 10 to 12 kg load

Steering Specifications

Front Wheels Toe-In 0 to 5 mm

Wheel Tilt Angle 1.5 degrees

Axle Tilt Angle

Vineyard..... 6 degrees
 Narrow 12 degrees

Distance Between Wheels Mounting Flange (Planetary Gear Carriers)

Vineyard..... 905 mm
 Narrow 1150 mm

Steering Unit

Manufacturer.....	Danfoss
Type	OSPC 80 ON
Relief Valve Pressure:	
With Dual Hydraulic Pump	85 to 95 Bar 1233 to 1378 PSI
With Single Hydraulic Pump	105 to 111 Bar 1522 to 1609 PSI
Shock Valve Pressure.....	180 Bar 2610 PSI
Rotor-Stator Wear Limit	0.127 mm
Rotor-Stator Thickness Difference.....	0.051 mm

Priority Valve

Manufacturer.....	Danfoss
Type	OLSA 40
Control Pressure.....	4 Bar 58 PSI

Transmission Specifications

Transmission Oil..... Case HY-TRAN PLUS (MS 1207)

PTO Clutch

Operation.....	Lever
Plate Material	Organic
External Diameter	280 mm
Plate Thickness:	
New.....	8.5 to 9.1 mm
Maximum Wear	6.5 mm
Shell	0.4 to 0.6 mm
Average Compression Load	8013 kg
Thrust Bearing Free Travel	2 mm
Total Travel with Wear	15 mm
Hand Lever Free Travel	15 to 30 mm

Transmission Clutch

Operation.....	Pedal
Plate Material	Organic
External Diameter	280 mm
Plate Thickness:	
New.....	8.5 to 9.1 mm
Maximum Wear	6.5 mm
Shell	0.4 to 0.6 mm
Average Compression Load	8013 kg
Thrust Bearing Free Travel	2 mm
Total Travel with Wear	15 mm
Pedal Free Travel.....	15 to 30 mm

Belleville Washer

Thickness.....	3.895 to 3.905 mm
Free Height.....	13 mm
External Diameter	262 mm

Number of Splines6
Output shaft (DIN 9611A)1 $\frac{3}{8}$ inch

Click on the image link below for the full version of the service manual

