840, 940, 1040 and 1140 Tractors

JOHN DEERE

TECHNICAL MANUAL

840, 940, 1040 and 1140
Tractors

TM4353 (01JUN82) English

John Deere Werke Mannheim
John Deere Ibérica S.A. Getafe
TM4353 (01JUN82)

LITHO IN U.S.A. (REVISED)
ENGLISH

840, 940, 1040 and 1140 Tractors
Technical Manual
TM-4353

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General

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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 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, and hydraulic pump have model numbers to facilitate identification of different makes of a given unit.

Engine

Number of cylinders		3
Cylinder liner bore		106.5 mm (4.19 in.)
Stroke		110 mm (4.33 in.)
Displacement		2940 cm^3 (179 cu.in.)
Compression ratio		16.8 : 1
Maximum torque		
840 at 1300 rpm	135 Nm	100 ft-lb
940 at 1300 rpm	150 Nm	110 ft-lb
1040 at 1400 rpm	165 Nm	122 ft-lb
1140 at 1400 rpm	185 Nm	136 ft-lb
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 speed

840 and 940 ..... 2560 rpm

1040 and 1140 ..... 2660 rpm

Slow idle speed ..... 800 rpm

Rated engine speed

840 and 940 ..... 2400 rpm

1040 and 1140 ..... 2500 rpm

Working speed range

840 and 940 ..... 1300 to 2400 rpm

1040 and 1140 ..... 1400 to 2500 rpm

Flywheel horsepower according to DIN 70020

at engine rated speed of 2400 rpm

840 ..... 28 kW 38 hp

940 ..... 32 kW 44 hp

at engine rated speed of 2500 rpm

1040 ..... 37 kW 50 hp

1140 ..... 41 kW 56 hp

PTO* horsepower according to DIN 70020

at engine rated speed of 2400 rpm (without mid PTO)

840 ..... 25 kW 34 hp

940 ..... 29 kW 39 hp

at engine rated speed of 2500 rpm

1040 ..... 33 kW 45 hp

1140 ..... 37 kW 50 hp

PTO* horsepower according to DIN SAE J 816 b

at engine rated speed of 2500 rpm

1040 ..... 32 kW 43 hp

1140 ..... 36 kW 48 hp

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

Engine Clutch ..... Single dry disk with torsion damper or dual-stage dry disk, foot-operated

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* 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 %.

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

840 ..... Roto Diesel Nr. R 3432 F 720
940 ..... Roto Diesel Nr. R 3432 F 710
1040 ..... Roto Diesel Nr. R 3432 F 690
1140 ..... Roto Diesel Nr. R 3432 F 700

Air cleaner ..... Dry-type air cleaner with secondary (safety) element

Electrical System

Batteries ..... 2 x 12 volts, 55 Ah

Alternator with internal regulator

Tractors without operator's cab ..... 14 volts, 33 or 55 amps.
Tractors with operator's cab ..... 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" multiple disk clutch and brake packs

Travel speed decreases in each gear by ..... Approx. 20 %

Shifting to reduced (Lo) speed ..... Preloaded cup springs

Shifting to normal (Hi) speed ..... Hydraulic

Creeper Transmission

Type ..... Synchronized reduction unit

Travel speed decreases in low (I) 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

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

Type ..... Independent of transmission, with engine dual stage clutch

PTO SPEEDS (in rpm) – Tractors with mid PTO

Engine speed	540 rpm shaft	1000 rpm shaft
800	210	385
2075	540	1000
2400	625	1160
2560	665	1230

PTO SPEEDS (in rpm) – Tractors without mid PTO

Engine speed	540 rpm shaft	1000 rpm shaft
800	180	335
2400	540	1000
2500	565	1040
2560	575	1065
2660	600	1110

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

Power Steering ..... Hydraulically operated steering linkage

Manual Steering ..... Recirculating ball bearing type

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

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

Hydraulic System

Type	Closed center, constant pressure system		
Standby pressure*	19000 kPa	190 bar	2760 psi
Operating pressure**	17000 kPa	170 bar	2470 psi
Hydraulic pump	4 or 8-piston pump with variable displacement		

Capacities

Fuel tank		
Plastic tank	78 liters	20.6 U.S.gals.
Metal tank	62.5 liters	16.5 U.S.gals.
Cooling system		
Without operator's cab	10.5 liters	1.8 U.S.gals.
With operator's cab	15.5 liters	4.1 U.S.gals.
Engine crankcase		
Without filter change	6.5 liters	1.7 U.S.gals.
With filter change	7 liters	1.8 U.S.gals.
Transmission - Hydraulic system (including oil reservoir and oil cooler on 940, 1040 and 1140 tractors)		
Synchronized transmission		
Initial filling – 840	53 liters	14 U.S.gals.
– 940, 1040, 1140	59 liters	15.6 U.S.gals.
Oil change – 840	45 liters	11.9 U.S.gals.
– 940, 1040, 1140	51 liters	13.5 U.S.gals.
Collar shift transmission (without mid PTO)		
Initial filling – 840	41 liters	10.8 U.S.gals.
– 940, 1040, 1140	47 liters	12.4 U.S.gals.
Oil change – 840	33 liters	8.7 U.S.gals.
– 940, 1040, 1140	39 liters	10.3 U.S.gals.
Collar shift transmission (with mid PTO)		
Initail filling – 840	36 liters	9.5 U.S.gals.
– 940	42 liters	11.1 U.S.gals.
Oil change – 840	28 liters	7.4 U.S.gals.
– 940	34 liters	9.0 U.S.gals.
Oil reservoir	4 liters	1.1 U.S.gals.
Oil cooler	2 liters	0.5 U.S.gals.
Mechanical front wheel drive		
Front axle housing	5.3 liters	1.4 U.S.gals.
Wheel hub housing, each	0.75 liter	0.2 U.S.gals.
Belt pulley	1 liter	0.3 U.S.gals.

On tractors for Canada only:
* 15500 kPa 155 bar 2250 psi
** 14000 kPa 140 bar 2050 psi

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	800 rpm
Fast idle	
840 and 940	2560 rpm
1040 and 1140	2660 rpm
Rated speed	
840 and 940	2400 rpm
1040 and 1140	2500 rpm

FAN BELT

The fan belt should have 19 mm (0.75 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump (use a spring scale).

CLUTCH PEDAL

Clutch pedal free travel	approx. 25 mm 1 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 Nm	35 ft-lb
Front wheel rim to hub		
Tractors without MFWD	180 Nm	130 ft-lb
Tractors with MFWD	300 Nm	220 ft-lb
Axle knees to axle center, cap screws	400 Nm	300 ft-lb
Tie rod outer clamp, cap screw	110 Nm	80 ft-lb
Tie rod inner clamp, cap screw	40 Nm	30 ft-lb
Rear wheels to rear axle	240 Nm	175 ft-lb
4-post roll guard		
Roll guard to fender, cap screws	120 Nm	85 ft-lb
U-bolt hex. nuts	130 Nm	95 ft-lb
2-post roll guard		
Supports to crossbar, cap screws	230 Nm	170 ft-lb
U-bolt hex. nuts	230 Nm	170 ft-lb
Rear fender to final drive housing, cap screws	130 Nm	95 ft-lb

Lubrication and Service

CAPACITIES

Engine crankcase		
Without filter change	65 liters	1.7 U.S.gals.
With filter change	7.0 liters	1.8 U.S.gals.
Transmission - Hydraulic system (including oil reservoir and oil cooler on 940, 1040 and 1140 tractors)		
Synchronized transmission		
Initial filling – 840	53 liters	14 U.S.gals.
– 940, 1040, 1140	59 liters	15.6 U.S.gals.
Oil change – 840	45 liters	11.9 U.S.gals.
– 940, 1040, 1140	51 liters	13.5 U.S.gals.
Collar shift transmission (without mid PTO)		
Initial filling – 840	41 liters	10.8 U.S.gal.s
– 940, 1040, 1140	47 liters	12.4 U.S.gals.
Oil change – 840	33 liters	8.7 U.S.gals.
– 940, 1040, 1140	39 liters	10.3 U.S.gals.
Collar shift transmission (with mid PTO)		
Initial filling – 840	36 liters	9.5 U.S.gals.
– 940	42 liters	11.1 U.S.gals.
Oil change – 840	28 liters	7.4 U.S.gals.
– 940	34 liters	9.0 U.S.gals.
Oil reservoir	4 liters	1.1 U.S.gals.
Oil cooler	2 liters	0.5 U.S.gals.
Mechanical front wheel drive		
Front axle housing	5.3 liters	1.4 U.S.gals.
Wheel hub housing, each	0.75 liters	0.2 U.S.gals.
Belt pulley	1 liter	0.3 U.S.gals.

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
Cleaning hydraulic pump strainer	every	1000 hours
Checking MFWD oil level	every	50 hours
MFWD oil change	every	1000 hours
Cleaning and packing front wheel bearings	every	1000 hours
Lubricating grease fittings		
Front axle and front axle bearings	every	50 hours
Rear axle bearings	every	500 hours
in wet and muddy conditions	every	10 hours
Three-point hitch	every	200 hours

Tune-Up

PTO horsepower* at 2400 rpm rated engine speed (without mid-PTO)			
According to DIN 70020, 840	25 kW		34 hp
940	29 kW		39 hp
PTO horsepower* at 2500 rpm rated engine speed			
According to DIN 70020, 1040	33 kW		45 hp
1140	37 kW		50 hp
According to SAE J 816 b, 1040	32 kW		43 hp
1140	36 kW		48 hp
Compression	2100 kPa	21 bar	300 psi
Slow idle			800 rpm
Fast idle			
840 and 940			2560 rpm
1040 and 1140			2660 rpm
Rated engine speed			
840 and 940			2400 rpm
1040 and 1140			2500 rpm
Air intake system vacuum	3.5 to 6.0 kPa	35 to 60 mbar	14 to 25 in. water head
Air cleaner restriction warning switch closes at a vacuum of	5.5 to 6.5 kPa	55 to 65 mbar	22 to 26 in. water head
Blow-by at crankcase vent tube, max.			
840 and 940	1.9 m^3/h		67 cu.ft./h
1040 and 1140	2.1 m^3/h		74 cu.ft./h
Thermostat opens at	82° C		180° F
Radiator cap high pressure valve opens at	40 to 50 kPa	0.4 to 0.5 bar	6 to 7 psi
Radiator cap low pressure valve opens at	0 to 4 kPa	0 to 0.4 bar	0 to 0.6 psi

FAN BELT

Fan belt should have 19 mm (0.75 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump (use a spring scale).

* With the engine run in (more than 100 hours of operation) and having reached operating temperature (engine and transmission); measured by means of a dynamometer. Permissible variation $\pm$ 5 %

Tractor Separation

TORQUES FOR HARDWARE

Front axle carrier to engine block		
front attaching cap screws (4 used)	230 Nm	170 ft-lb
rear attaching cap screws (2 used)	180 Nm	130 ft-lb
Hydraulic pump drive shaft, cap screws	50 Nm	35 ft-lb
Jointed shaft flange to front axle drive hub (tractors with MFWD), cap screws	35 Nm	25 ft-lb
Drag link to bell crank and steering arm, slotted nuts*	75 Nm	55 ft-lb
Clutch housing to engine block		
cap screws	230 Nm	170 ft-lb
hex. nuts	325 Nm	240 ft-lb
Clutch housing to transmission case, cap screws	160 Nm	120 ft-lb
Retainer of hydraulic lines to clutch housing, cap screw	45 Nm	30 ft-lb
Final drive housing to transmission case, cap screws	120 Nm	85 ft-lb
Rockshaft housing to transmission case, cap screws	120 Nm	85 ft-lb
Rear wheels to rear axle	240 Nm	175 ft-lb
4-Post roll guard		
Roll guard to fender frame, cap screws	120 Nm	85 ft-lb
U-bolts to rear axle housings, hex. nuts	130 Nm	95 ft-lb
2-Post roll guard		
Supports to crossbar, cap screws	230 Nm	170 ft-lb
U-bolts to rear axle housings, hex. nuts	230 Nm	170 ft-lb
Rear fenders to final drive housings, hex. nuts	130 Nm	95 ft-lb
Drawbar to transmission case, cap screws	120 Nm	85 ft-lb
Basic weight to front axle carrier, cap screws	400 Nm	300 ft-lb

* *NOTE: If cotter pin cannot be inserted when tightening to the specified torque, turn nut to next slot and secure with cotter pin.*

TORQUES FOR HARDWARE (Contd.)

Operator's Cab

Cab to rubber mounting block, slotted nuts*	10 to 20 Nm	7 to 14 ft-lb
Rubber bearing block to mounting and pivot brackets, cap screws	50 Nm	35 ft-lb
Mounting pivot bracket to final drive housing, cap screws	100 Nm	70 ft-lb
Mounting bracket to battery box, cap screws	50 Nm	35 ft-lb
Battery box to flywheel housing,		
upper cap screw	200 Nm	145 ft-lb
lower cap screws	100 Nm	70 ft-lb

* *NOTE: Insert cotter pin within specified torque.*

Standard Torques

Recommended torques in Nm and ft-lb for UNC and UNF cap screws

Head marking (Identifying strength)	  or 10.9*		  or 12.9**	
Thread-O.D. (in.)	Nm	ft-lb	Nm	ft-lb
1/4	15	10	20	15
5/16	30	20	40	30
3/8	50	35	70	50
7/16	80	55	110	80
1/2	120	85	170	120
9/16	180	130	240	175
5/8	230	170	320	240
3/4	400	300	580	425
7/8	600	445	930	685
1	910	670	1400	1030
1-1/8	1240	910	1980	1460
1-1/4	1700	1250	2800	2060

NOTE: A variation of ± 10 % is permissible for all torques indicated in this chart.

Torque figures indicated above and in the Specification sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

* Tempered steel high strength bolts and cap screws
** Tempered steel extra high strength bolts and cap screws

Recommended torques in Nm and ft-lb for metric cap screws						
Head marking (identifying) strength)	8.8*		10.9**		12.9***	
Thread-O.D. (mm)	Nm	ft-lb	Nm	ft-lb	Nm	ft-lb
M5	7	5	9	6.5	10	8.5
M6	10	8.5	15	10	20	15
M8	30	20	40	30	40	30
M10	50	35	80	60	90	70
M12	100	75	140	100	160	120
M14	160	120	210	155	260	190
M16	240	175	350	260	400	300
M20	480	355	650	480	780	575
M24	820	605	1150	850	1350	995
M30	1640	1210	2250	1660	2700	1990
M36	2850	2110	4000	2950	4700	3465

NOTE: A variation of ± 10 % is permissible for all torques indicated in this chart.

Torque figures indicated above and in the Specification sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

* Regular bolts and cap screws
** Tempered steel high strength bolts and cap screws
*** Tempered steel extra high strength bolts and cap screws

Recommended torques in Nm and ft-lb for pipe and hose connections				
	with O-rings		with cone	
Thread size	Nm	ft-lb	Nm	ft-lb
3/8-24 UNF	7.5	5.5	8	6
7/16-20 UNF	10	7	12	9
1/2-20 UNF	12	9	15	11
9/16-18 UNF	15	11	25	18
3/4-16 UNF	25	20	45	35
7/8-14 UNF	40	30	60	45
1-1/16-12 UNC	60	45	100	75
1-3/16-12 UNC	70	50	120	90
1-5/16-12 UNC	80	60	140	105
1-5/8-12 UNC	110	80	190	140
1-7/8-12 UNC	150	110	220	160

Special Tools

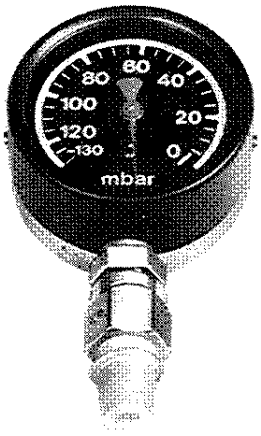
Tune-Up

Tool	Description and Part No.	Use
 L30722	Compression tester kit FKM 10021	Checking engine compression

Fig. 1 — Compression Tester Kit

 L30515	Pressure test kit FKM 10002	Measuring air intake system vacuum

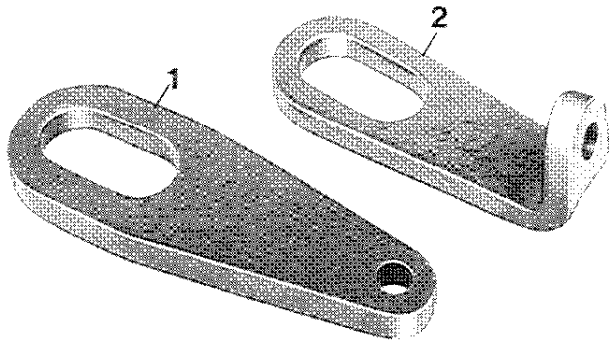
Fig. 2 — Pressure Gauge Set

Tool	Description and Part No.	Use
	Vacuum gauge FKM 10242	Measuring air intake system vacuum

L30913

Fig. 3 — Vacuum Gauge

Tractor Separation



L23985

Fig. 4 — Lifting Eyes, Straight and Bent

1 Lifting eye, straight JD-244-1 2 Lifting eye, bent JD-244-2	Tractor separation

Tractor Separation (Contd.)

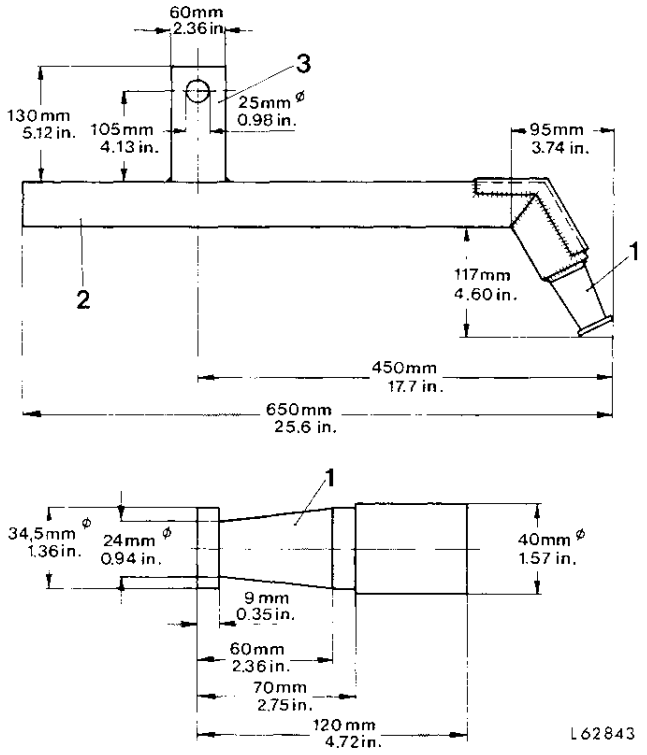
Tool	Description and Part No.	Use
	–	Removing rockshaft (tractors with operator's cab)

Fig. 5 – Tool for Removing Rockshaft (Self-Manufacture)

1 Round material 40 x 120 mm (1.57 x 4.72 in.)
2 Pipe 48 x 3.5 x 650 mm (1.89 x 0.14 x 25.6 in.)
3 Flat metal 60 x 12 x 130 mm (2.36 x 0.47 x 5.12 in.)

Group 05
Predelivery, Delivery and After-Sales Inspections

The John Deere Delivery Receipt, when properly filled out and signed by the dealer and customer, verifies that the predelivery and delivery services were satisfactorily performed. When delivering this machine, give the customer his copy of the delivery receipt and the operator's manual. Explain their purpose to him.

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

After the first 100 operating hours another inspection should be performed by the dealer to make sure that the tractor is in proper operating condition.

The predelivery and after-sale inspection check lists in the operator's manual will be completed by the dealer when the inspections are being performed. He will then forward them to the sales branch service department.

Tractor Storage

When storing a new tractor, proceed as follows:

Short Term (Under 30 Days)

1. Fill fuel tank. This prevents condensation of moisture in tank.
2. Check engine oil level, transmission-hydraulic oil level, and coolant level. Add oil or coolant if necessary. During cold weather, be sure coolant contains sufficient anti-freeze.
3. Check electrolyte level in batteries. If electrolyte does not cover plates, add distilled water. Make sure batteries are fully charged.
4. Store tractor in a dry, protected place. If necessary to store tractor outside, cover it with a protective material. Protect tires from heat, sunlight, and petroleum products.

Long Term (Over 30 Days)

To protect engine, fuel system, transmission and hydraulic system, use the AR 41785 rust inhibitor. The above part no. includes one can of rust inhibitor, masking tape and protective caps to cover all engine openings.

Protect as follows:

1. Add 220 cm^3 (7.5 oz.) of rust inhibitor to the engine oil.
2. Add 185 cm^3 (6.5 oz.) of rust inhibitor to the oil in the transmission/hydraulic system with collar shift transmission and 230 cm^3 (8 oz.) in the transmission/hydraulic system with synchronized transmission.
3. Drain fuel tank, pour 150 cm^3 (5 oz.) of rust inhibitor into the empty tank and add approx. 10 liters (2.6 U.S. gals.) of fuel. Start engine and run at fast idle for 15 to 20 minutes to distribute the mixture through the whole fuel system. While the engine is running, operate the complete hydraulic system several times. Shut off engine in time to leave some fuel in the tank. Then allow the engine to cool down for 15 to 20 minutes.
4. Prepare 15 c.c. (0.5 oz.) of rust inhibitor for each cylinder. Remove plug of intake manifold or connecting pipe of starting fluid adapter at

the intake manifold, whichever applies, Inject rust inhibitor into the intake manifold. Pull out shut-off knob and crank engine with starter several times.

However, do not allow the engine to start. Otherwise the whole procedure must be repeated.

After the rust inhibitor has been added, the engine may not be started again.

IMPORTANT! Rust inhibitor agents evaporate very easily. For this reason, seal all openings after the inhibitor has been added. Also, always keep the inhibitor container closed.

5. Fill the fuel tank.
6. Remove batteries. Add distilled water, if necessary. Charge the batteries and store in a cool, dry place where they will not freeze.
7. Seal all openings such as the vent tube and exhaust outlet.
8. Slacken fan belt.
9. Replace or repair damaged parts. Touch up any painted surfaces which are scratched or chipped.
10. Coat exposed metal surfaces, such as axles and piston rods of hydraulic cylinders, with grease or corrosion preventative.
11. Store the tractor in a dry, protected place. If the tractor is stored outside, cover it with a waterproof tarpaulin.
12. Block up the tractor so that tires do not touch the ground. Protect tires from heat and sunlight.

Removing the Tractor from Storage

1. Remove all protective coverings.
2. Check crankcase and transmission/hydraulic system oil levels.
3. Check coolant level.
4. Check tire inflation pressure.
5. Install batteries and connect cable and ground strap.
6. Adjust fan belt.
7. Carry out 500-hour check.
8. Run engine at approx. 1500 rpm for some minutes. Check all systems before placing tractor under load.

Predelivery Inspection

Before delivering the tractor to the customer, the following checks and services should be performed by the dealer:

Engine

LEAKS

1. Check engine and fuel lines for leaks. Repair as necessary.

CHECKING CRANKCASE OIL LEVEL

NOTE: Tractor should be on a level surface when oil level is checked. If it is not, check only to make sure the crankcase is not dry. Recheck oil level later, when tractor is on level ground.

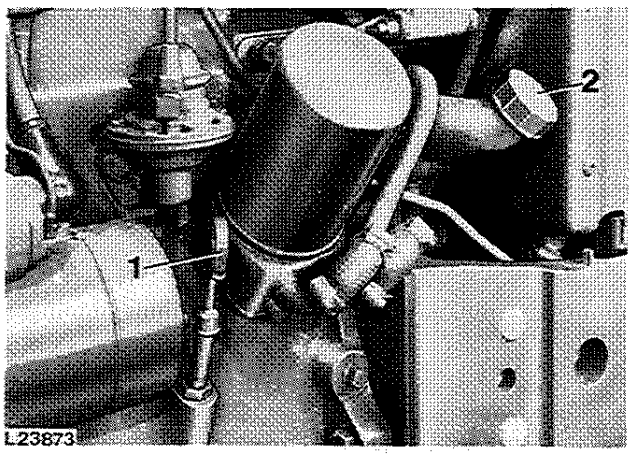


Fig. 1 — Engine Oil Dipstick and Filler Cap

1 Dipstick
2 Filler cap

1. Pull out dipstick 1 (fig. 1) and check oil level.
2. If necessary, add oil to bring oil level to top mark on dipstick. Use John Deere Torq-Gard Supreme engine oil SAE 10W-20 or an equivalent oil (see group 10).

CHECKING COOLANT LEVEL

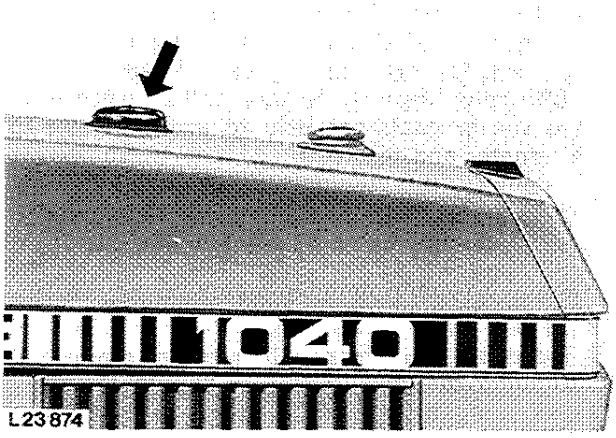


Fig. 2 — Radiator Filler Cap

1. Remove radiator filler cap and check coolant level. Coolant level must be midway between the filler neck and top of radiator core.
2. If necessary, add coolant to obtain this level.

John Deere Engine Cooling Fluid is filled into the cooling system at the factory. It protects the engine against corrosion and against frost down to -36°C (-35°F).

IMPORTANT: Use only John Deere Engine Cooling Fluid in the cooling system, independent of the season.

If no John Deere Engine Cooling Fluid is available use a mixture of 50 % ethylene-glycol antifreeze/ anticorrosion inhibitor and 50 % clear, soft water. This mixture gurantees engine protection against corrosion and against frost down to -36°C (-35°F).

Never use any cooling system sealing additives.

IDLE SPEEDS

1. Warm up engine to operating temperature and check slow and fast idle speeds. Adjust, if necessary (see Section 30, Group 30).
2. Slow idle speed: 750 rpm
3. Fast idle speed:
   Tractors 840 and 940: 2560 rpm
   Tractors 1040 and 1140: 2660 rpm

ENGINE SHUT–OFF CABLE

1. Check operation of shut-off cable. Move hand throttle lever completely forward and idle engine for 1 to 2 minutes.
2. Completely pull out shut-off knob, making sure engine stops immediately.
3. If necessary, adjust shut-off cable (see Section 30, Group 30).

AIR CLEANER AND SAFETY ELEMENT

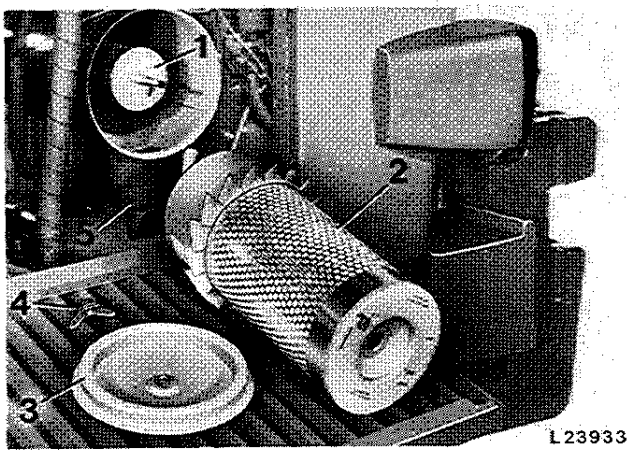


Fig. 3 – Air Cleaner and Safety Element

1 Safety element
2 Air cleaner element
3 Cover
4 Wing nut
5 Dust unloading valve

1. Check air cleaner and safety elements for proper installation.

2. Make sure that dust unloading valve 5 (fig. 3) (rubber cap) is installed on air cleaner.

AIR INTAKE CONNECTIONS

Check air intake connections for tightness. Tighten any loose clamps.

EXHAUST STACK

1. Install exhaust stack, making sure it is in vertical position.

2. Install exhaust stack flap with flap hinge at the rear (as seen in direction of forward travel). When closed, flap should not contact exhaust stack end. If necessary, clamp flap to exhaust stack to obtain a clearance of 2 mm (0.08 in.) between flap and stack end.

CHECKING V-BELT TENSION

Fan Belt

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

Electrical System

BATTERIES

1. Check battery terminals and battery cable ends. If they are corroded, clean and coat them with petroleum jelly.

2. Check electrolyte level in each battery cell. Add distilled water if necessary to bring level above cell plates.

3. If batteries are not fully charged, charge them. Remove cell caps before charging the battery.

Important Notes

1. **If the engine is to be run for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt the circuit by switching off the main switch before stopping the engine by means of the fuel pump shut-off cable. Further it is recommended to use additional current (lights) while engine is running. Do not run engine at a speed above 1000 rpm. Insulate battery end of disconnected starter cable properly to avoid damage to alternator and regulator.**

   On tractors with operator's cab: Do not connect ground strap of slave battery to cab.

2. **Connect batteries or battery charger in the proper polarity ("+" and "–"). If they are improperly connected, the rectifier diodes will be immediately destroyed.**

START SAFETY SWITCH

1. Check operation of start safety switch.
2. If the starting motor does not work although the main switch is in starting position and the range shift lever is in neutral or "park"* position, check the start safety switch by installing a new switch and check circuit (see Section 40, Group 15).

IMPORTANT! Do not overtighten switch when installing it in the rockshaft housing. Tighten switch to maximum torque of 50 Nm (35 ft-lb).

LIGHTING SYSTEM

1. Check lighting system and repair as necessary. Replace any defective bulbs (see Section 40, Group 20).
2. Check headlight adjustment and correct, if necessary (see Section 40, Group 20).

OPERATOR'S CAB CONTROLS

Fan Switch

Open air outlets. Check fan switch 2 (fig. 4) for proper operation.

Heater Switch

With fan operating, check heater switch 1 (fig. 4) for proper operation. For this purpose, turn switch counterclockwise, making sure that warm air enters cab (with engine at operating temperature).

Windshield Wiper Switch

Check windshield wiper switch for proper operation.

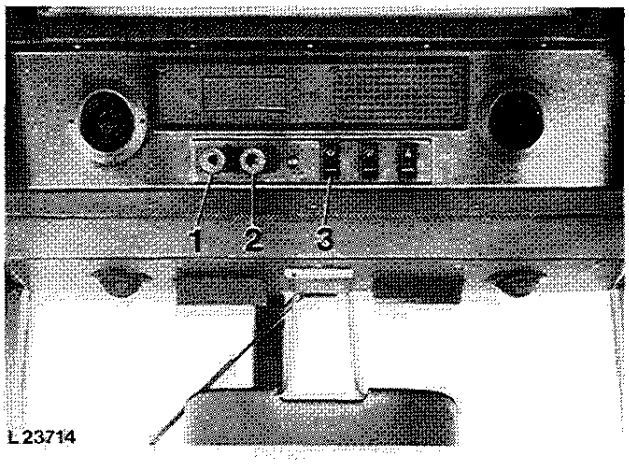


Fig. 4 – Operator's Cab Controls

1 Heater switch
2 Fan switch
3 Windshield wiper switch

CONTROLS AND INSTRUMENTS

Check controls and instruments for proper operation.

NOTE: On tractors with collar shift transmission, transmission indicator light glows only when there is a malfunction.

Power Train

CHECKING TRANSMISSION/HYDRAULIC SYSTEM OIL LEVEL

1. With the tractor on level ground, run the engine 2 to 3 minutes.
2. Place range and gear shift lever in neutral position.
3. Apply handbrake.

* On tractors equipped with collar shift transmission and parking lock only.

Suggest:

If the above button click is invalid.

Please download this document

first, and then click the above link

to download the complete manual.

Thank you so much for reading

4. Lower draft links.

5. Run engine at slow idle (750 rpm).

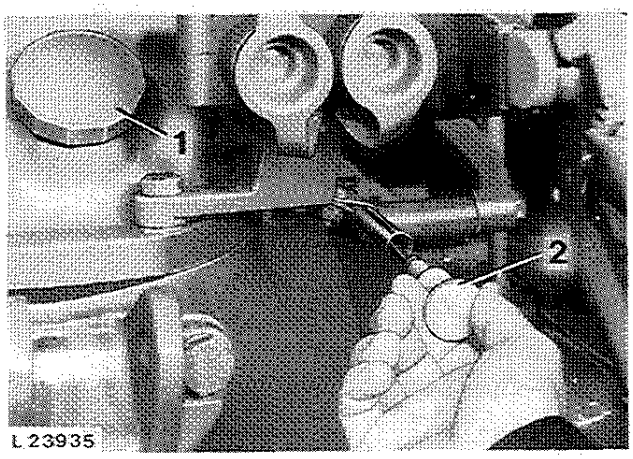


Fig. 5 – Transmission/Hydraulic System Dipstick and Filler Cap (Tractors with Synchronized Transmission)

1 Filler cap
2 Dipstick

6. Pull out dipstick and wipe clean.

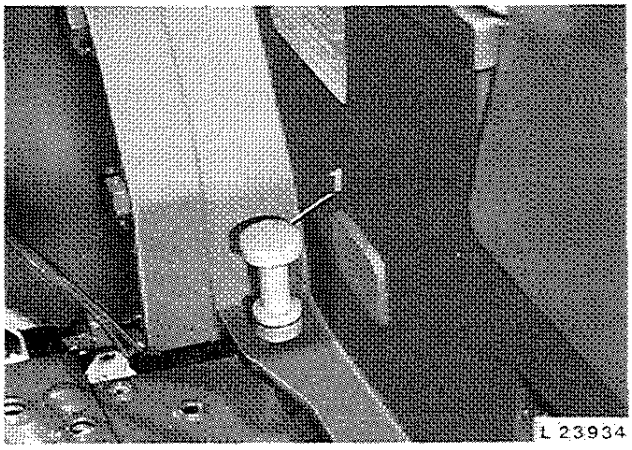


Fig. 6 – Transmission/Hydraulic System Dipstick (Tractors with Collar Shift Transmission)

1 Dipstick

7. Insert dipstick. Remove dipstick and check oil level.

8. If necessary, ad John Deere Hy-Gard Transmission and Hydraulic Oil or equivalent oil to bring oil level to top mark on dipstick.

NOTE: Types of oil not meeting our specifications will not give satisfactory service and may result in eventual damage.

TRANSMISSION

1. Check transmission for proper operation.

2. While driving tractor, shift transmission through all gears. If transmission does not function properly, refer to Section 50, Group 30 and 35 or 40.

DIFFERENTIAL LOCK

Check differential lock for proper operation. If you find any problem, refer to section 50, Group 45.

HI-LO SHIFT UNIT

Check PTO operation. For this purpose, run engine and move PTO control lever to engaged and disengaged position. If PTO does not operate properly, refer to Section 50, Group 55 or 60.

HI-LO SHIFT UNIT

Check Hi-Lo shift unit as follows:

1. Operate tractor in both high and low ranges, carefully observing both operations.

2. Use the brakes to simulate a load condition on the tractor.

3. Low oil pressure will be indicated by disk pack slippage, which causes the clutch pack to become noisy.

4. A mechanical failure in the Hi-Lo shift unit will also be indicated by unusual noise.

5. If you find any problems, refer to Section 50, Group 20.