

840, 940, 1040 and 1140 Tractors



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

CONTENTS

SECTION 10 – GENERAL

- Group 00 – Specifications and special tools
- Group 05 – Pre-delivery, delivery and after-sale inspections
- Group 10 – Lubrication and periodic service
- Group 15 – Engine and tractor tune-up
- Group 20 – Tractor separation

SECTION 20 – ENGINE

- Group 00 – Specifications and special tools
- Group 05 – Description, diagnosing malfunctions
- Group 10 – Cylinder head, valves 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 – Lubrication system
- Group 35 – Cooling system

SECTION 30 – FUEL AND AIR INTAKE SYSTEM

- Group 00 – Specifications and special tools
- Group 05 – General information, diagnosing malfunctions
- Group 10 – Fuel tank, water trap, fuel transfer pumps and fuel filter
- Group 15 – Roto Diesel fuel injection pump
- Group 20 – Fuel injection nozzles
- Group 25 – Cold weather starting aids
- Group 30 – Speed control linkage
- Group 35 – Air cleaner

SECTION 40 – ELECTRICAL SYSTEM

- Group 00 – Specifications and special tools
- Group 05 – Description and diagnosing malfunctions
- Group 10 – Wiring harnesses
- Group 15 – Controls and instruments
- Group 20 – Lighting systems
- Group 25 – Wiring diagrams
- Group 30 – Starting motor
- Group 35 – Alternator

SECTION 50 – POWER TRAIN

- Group 00 – Specifications and special tools
- Group 05 – Description, operation and lubricating system
- Group 10 – Clutch operating linkage
- Group 15 – Engine clutches
- Group 20 – Hi-Lo shift unit
- Group 25 – Creeper transmission
- Group 30 – Transmission shift linkage
- Group 35 – Synchronized transmission and transmission oil pump
- Group 40 – Collar shift transmission and transmission oil pump
- Group 45 – Differential
- Group 50 – Final drives
- Group 55 – Independent PTO
- Group 60 – Continuous-running PTO
- Group 65 – Mechanical front wheel drive

Copyright © by
DEERE & COMPANY
European Office
D 68 Mannheim
All rights reserved

CONTENTS (Contd.)**SECTION 60 – STEERING SYSTEM AND BRAKES**

- Group 00 – Specifications and special tools
- Group 05 – Power steering
- Group 10 – Manual steering
- Group 15 – Brakes

SECTION 70 – HYDRAULIC SYSTEM

- Group 00 – Specifications and special tools
- Group 05 – Description, diagnosing malfunctions and pressure tests
- Group 10 – Oil reservoir, filter, valves and oil cooler
- Group 15 – Hydraulic pumps
- Group 20 – Rockshaft
- Group 25 – Selective control valves (spool type)
- Group 30 – Selective control valves (poppet valve type)
- Group 35 – Hose couplers
- Group 40 – Remote cylinder

SECTION 80 – MISCELLANEOUS

- Group 00 – Specifications and special tools
- Group 05 – Front axle
- Group 10 – Belt pulley
- Group 15 – Front and rear wheels
- Group 20 – Axla trailer hitch

SECTION 90 – OPERATOR'S CAB

- Group 00 – Specifications and special tools
- Group 05 – Cab ventilation and heating
- Group 10 – Operator's seats
- Group 15 – Operator's cab
- Group 20 – 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**

Section 10 General

CONTENTS OF THIS SECTION

GROUP 00 – SPECIFICATIONS AND SPECIAL TOOLS

	Page
Specifications	00-3
Serial numbers	00-3
Model numbers	00-3
Engine	00-3
Engine clutch	00-4
Cooling system	00-5
Fuel system	00-5
Electrical system	00-5
Synchronized transmission	00-5
Collar shift transmission	00-5
Hi-Lo shift unit	00-6
Creeper transmission	00-6
Differential and final drives	00-6
Differential lock	00-6
PTO	00-6
Mechanical front wheel drive	00-7
Power steering	00-7
Manual steering	00-7
Foot brakes	00-7
Handbrake	00-7
Hydraulic system	00-8
Capacities	00-8
Travel speeds	00-9
Front and rear wheels	00-9
Dimensions and weights	00-9
Predelivery, delivery and after-sales inspections	00-10
Lubrication and service	00-11
Tune-up	00-12
Tractor separation	00-13
Standard torques	00-14
Special tools	00-16

GROUP 05 – PREDELIVERY, DELIVERY AND AFTER-SALES INSPECTIONS

	Page
Tractor storage	05-1
Predelivery inspection	05-2
Delivery inspection	05-9
After-sales inspection	05-10

GROUP 10 – LUBRICATION AND SERVICE

Lubrication and service	10-1
-----------------------------------	------

GROUP 15 – TUNE-UP

Preliminary engine testing	15-1
Dynamometer test	15-1
Testing compression pressure	15-2
Tune-up	15-3
Checking tractor operation	15-8
Standard torques	15-9

GROUP 20 – TRACTOR SEPARATION

Separating between engine and tractor front end	20-1
Removal and installation of engine	20-5
Removal and installation of clutch housing	20-8
Removal and installation of final drives	20-11
Removal and installation of rockshaft	20-13
Removal and installation of operator's cab	20-15

Group 00

Specifications and Special Tools

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 .....	.035 mm	0.014 in.
Exhaust valve .....	.045 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

* 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 $\pm 5\%$.

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 SteeringHydraulically operated steering linkage

Manual SteeringRecirculating 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)			
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 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**	
	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 $\pm 10\%$ 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 $\pm 10\%$ 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				
Thread size	with O-rings		with cone	
	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