

**CX Series Tractors
Service Manual SM 8-10602**

Section Pub. No.

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Section 1001

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SAFETY, GENERAL INFORMATION AND STANDARD TORQUE SPECIFICATIONS

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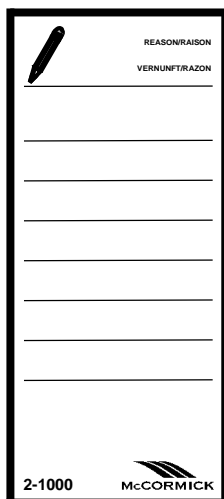
SAFETY



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.

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

Put a warning tag as shown below on the key for the key switch when carrying out servicing or repairs to the tractor. Warning tags (publication number 2-1000) are available from your McCormick dealer.



WARNING: Read the operators manual to familiarize yourself with the correct control functions.



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



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



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 you McCormick dealer.



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.



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



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



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.



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



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



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.



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.



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).



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.



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 oil absorbing material and or shop cloths as required. Use safe practices at all times.



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



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.



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 that 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.



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

Lubrication

Only use the oils and lubricants specified in the Operators 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

NOTE: A "click type" torque wrench is recommended for the bolt torques listed below.

Chart 1 (Plain Nuts/Bolts)

BOLT SIZE (mm)	TYPE 8.8				TYPE 10.9			
	MIN		MAX		MIN		MAX	
	lb ft	Nm	lb ft	Nm	lb ft	Nm	lb ft	Nm
M4	3.0	4.0	3.4	4.5	4.3	5.8	4.8	6.5
M5	4.8	6.5	5.5	7.5	7.0	9.5	7.8	10.5
M6	8.2	11.0	9.2	12.5	11.8	16.0	13.3	18.0
M8	20.0	27.0	22.5	31.0	28.7	39.0	32.3	44.0
M10	40.0	54.0	45.0	61.0	56.0	77.0	64.0	87.0
M12	69.0	94.0	78.0	106.0	100.0	134.0	110.0	151.0
M14	110.0	150.0	125.0	170.0	160.0	215.0	180.0	240.0
M16	175.0	235.0	190.0	260.0	245.0	335.0	275.0	375.0
M20	345.0	470.0	390.0	530.0	480.0	650.0	540.0	730.0
M22	475.0	640.0	530.0	720.0	655.0	890.0	735.0	1000.0
M24	600.0	810.0	675.0	915.0	830.0	1125.0	930.0	1265.0
M30	1190.0	1615.0	1340.0	1815.0	1645.0	2235.0	1855.0	2515.0
M36	2080.0	2825.0	2340.0	3175.0	2875.0	3900.0	3235.0	4390.0

Chart 2 (Phosphate Coated Nuts/Bolts)

BOLT SIZE (mm)	TYPE 8.8				TYPE 10.9			
	MIN		MAX		MIN		MAX	
	lb ft	Nm	lb ft	Nm	lb ft	Nm	lb ft	Nm
M4	2.3	3.0	2.6	3.4	3.2	4.4	3.6	4.9
M5	3.6	4.9	4.1	5.6	5.2	7.1	5.9	8.0
M6	6.2	8.3	6.9	9.4	8.9	12.0	10.0	13.5
M8	15.0	20.3	16.9	23.3	21.5	29.2	24.2	32.8
M10	30.0	41.0	34.0	46.0	42.0	58.0	48.0	65.0
M12	52.0	71.0	59.0	80.0	75.0	101.0	83.0	113.0
M14	83.0	113.0	94.0	126.0	120.0	161.0	135.0	180.0
M16	131.0	176.0	143.0	195.0	185.0	251.0	205.0	280.0
M20	259.0	353.0	293.0	400.0	360.0	490.0	405.0	550.0
M22	355.0	480.0	400.0	540.0	490.0	665.0	550.0	750.0
M24	450.0	608.0	506.0	686.0	625.0	845.0	700.0	950.0
M30	893.0	1211.0	1005.0	1361.0	1235.0	1675.0	1390.0	1885.0
M36	1560.0	2119.0	1755.0	2381.0	2156.0	2925.0	2425.0	3295.0

Chart 3 (Zinc or Cadmium Plated Nuts/Bolts)

BOLT SIZE (mm)	TYPE 8.8				TYPE 10.9			
	MIN		MAX		MIN		MAX	
	lb ft	Nm	lb ft	Nm	lb ft	Nm	lb ft	Nm
M4	2.6	3.5	2.9	3.9	3.7	5.0	4.1	5.6
M5	4.1	5.6	4.6	6.3	5.9	8.0	6.6	9.0
M6	7.0	9.5	7.8	10.6	10.0	13.6	11.3	15.3
M8	17.0	23.1	19.1	25.9	24.4	33.1	27.4	37.2
M10	34.0	46.0	38.3	52.0	48.0	65.0	54.0	74.0
M12	59.0	80.0	66.0	90.0	85.0	114.0	94.0	128.0
M14	94.0	128.0	106.0	145.0	136.0	183.0	153.0	205.0
M16	149.0	200.0	161.0	220.0	208.0	285.0	235.0	320.0
M20	293.0	400.0	330.0	450.0	408.0	555.0	460.0	620.0
M22	400.0	545.0	450.0	615.0	555.0	755.0	625.0	850.0
M24	510.0	690.0	575.0	780.0	705.0	955.0	790.0	1075.0
M30	1010.0	1375.0	1140.0	1545.0	1400.0	1900.0	1580.0	2140.0
M36	1770.0	2400.0	1990.0	2700.0	2445.0	3315.0	2750.0	3730.0

Section 1002

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GENERAL SPECIFICATIONS AND TORQUES

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GENERAL SPECIFICATIONS

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GENERAL SPECIFICATIONS

Capacities

TRANSMISSION/HYDRAULIC (HY-TRAN ® ULTA) OIL CAPACITY

2WD Tractors	34.5 Litres
MFD Tractors	37 Litres
Fuel Tank.....	155 Litres

Electrical Specifications

Type of System.....	12 Volt, Negative Ground
Batteries	One or Two 12 Volt, Low Maintenance Hybrid Batteries Connected in Parallel DIN Type 60527, Top Stud Terminals

BATTERY TYPE	SAE (COLD CRANKING CAPACITY)	IEC	DIN	AMPERE HOURS	RESERVE CAPACITY
644	660 Amps	440 Amps	400 Amps	95	180 mins
664	770 Amps	515 Amps	465 Amps	105	210 mins
648	810 Amps	545 Amps	490 Amps	120	220 mins

Fuel Level Sender Resistance

Empty	28 to 34 Ohms
Full	240 to 250 Ohms

Steering Specifications

TRACK ADJUSTMENT

2WD Toe-in	0 to 5 mm
MFD Toe-in.....	0 to 2 mm

STEERING PUMP (ENGINE DRIVEN)

CX50 and CX60

Direction of Rotation	Clockwise
Flow at 2250 engine rpm	27.7 L/min.
Rated Working Pressure.....	160 bar

CX70, CX80, CX90 and CX100

Direction of Rotation	Counterclockwise
Flow at 2200 engine rpm	30.3 L/min.
Rated Working Pressure.....	160 bar

Transmission Specifications

CLUTCH

CX50/60/70 Tractors

Maximum Clutch Plate Thickness.....	10.4 mm
Clutch Plate Diameter	305 mm
Number of Friction Plate Pads	5 each side

CX80/90/100 Tractors

Maximum Clutch Plate Thickness.....	10.4 mm
Clutch Plate Diameter	310 mm
Number of Friction Plate Pads	7 each side

SPEED TRANSMISSION

Speed Transmission Synchronizer End Play 0.05 to 0.30 mm

RANGE TRANSMISSION

Pinion Bearing End Play (Maximum) 0.076 mm
 Synchronizer Running Clearance 0.05 to 0.30 mm
 Selector Fork Running Clearance 0.05 mm

REAR AXLE

Planetary Gear/Planetary Gear Carrier Shimming refer to Section 6018

DIFFERENTIAL

Differential Lock Selector Ring Clearance (Engaged Position) 0.025 to 0.90 mm
 Ring Gear to Pinion Backlash 0.152 to 0.304 mm
 Ring Gear to Differential Housing Run-out 0 to 0.102 mm
 Differential Bearing Rolling Pull 2.0 to 6.5 kg

PTO CLUTCH

Standard Clutch

Number of Friction Plates 5
 Number of Steel Separator Plates (2 between each Friction Plate) 8

Heavy Duty Clutch

Number of Friction Plates 6
 Number of Steel Separator Plates 5

MFD CLUTCH

Friction Plate Thickness (New) 2.25 to 2.35 mm
 Friction Plate Thickness (Minimum) 2.00 mm
 MFD Clutch Torque 638 to 792 Nm
 Output Shaft Bearing Preload (without oil seals) 20 to 40 N
 MFD Drive Shaft Deflection (below the centre line of the shaft)
 (measured at Centre Support Bearing) 0.50 to 0.55 mm

MFD PARKING BRAKE

Front and Rear Brake Pads (New) 10.70 to 10.90 mm
 Front and Rear Brake Pads (Minimum) 10.50 mm
 Central Brake Pads (New) 4.00 to 4.10 mm
 Central Brake Pads (Minimum) 3.50 mm

MFD AXLE

Differential

Separator Plate Thickness 1.5 mm
 Friction Disc Thickness 1.45 to 1.6 mm
 Thrust Plate Thickness 2.7 to 2.8 mm
 Pinion Shaft Bearing Preload 105 to 157 N

Pinion Shaft/Differential Bearing

Total Preload 105 to 157 (+ 29.5 to 44.1) N

Bevel Gear to Pinion Backlash 0.16 to 0.22 mm

Lubricants

Planetary and Wheel Hub

Type SAE 85W-140EP
 Capacity, per Hub 0.6 Litres

Differential/Axle Housing

Type SAE 85W-140EP
 Capacity 6 Litres

Grease Multi-Purpose Lithium Grease

Brake Specifications

2WD PARKING BRAKE

Number of Friction Discs	3
Number of Stationary Discs	3
Friction Disc (New)	2.90 mm
Stationary Disc Thickness (New)	1.80 mm
Type	Hydraulically Operated Oil Cooled Disc
Inner Brake Ring Backlash	0.127 to 0.635 mm
Brake Piston Test Pressure	
Low Pressure Test	4 Steps of 3.4 bar up to 13.8 bar
High Pressure Test	27.6 bar

Hydraulic Specifications

		CX50/60	CX70/80/90/100
Hydraulic System Type		Open	
Steering Hydraulic Pump		27.7 L/min. at 2250 engine rpm	30.3 L/min. at 2200 engine rpm
Transfer Pump		36 L/min.	
Flow to Remotes	540/750 PTO	50.2 L/min.	59.4 L/min.
	540/1000 PTO	51.7 L/min.	
Main Hydraulic Pump	540/750 PTO	50.2 L/min.	59.4 L/min.
	540/1000 PTO	51.7 L/min.	
Pump gear (No. of teeth)	540/750 PTO	23	19
	540/1000 PTO	27	23
Pump mounting plate thickness		N/A	5.31 to 5.43 mm

Main Relief Valve Pressure	172.5 bar
Remote Detent Kick-out Pressure	144.7 to 172.3 bar
Steering Relief Valve Pressure	141 to 148 bar
Regulated Pressure	20 bar
Oil Cooler By-pass Pressure	10.4 bar
Steering Return Flow	
CX50/60 at 2250 engine rpm	27.7 L/min.
CX70/80/90/100 at 2200 engine rpm	30.3 L/min.
Oil Cooler Flow	
CX50/60 at 2250 engine rpm	23.7 L/min.
CX70/80/90/100 at 2200 engine rpm	26.3 L/min.
PTO Control Spool Assembly	
Return Spring - Free Length	79.63 mm
High Pressure Spring - Free Length	29.65 mm
Low Pressure Spring - Free Length	24.42 mm
Hitch Valve	
Load Check Spring - Free Length	29.7 Mm
Secondary Raise Spring - Free Length	40.4 mm
Hydraulic Oil Test Temperature	49°C

Air Conditioning System Specifications

Refrigerant Type.....	HFC - 134a Per ARI Standard 700
System Capacity	1.93 kg
Boiling Point at Atmospheric Pressure.....	- 26° C
Compressor	
Manufacturer.....	SANDEN
Model	SD 7H15MD4609
Number of Cylinders	7
Displacement Per Revolution.....	155 cc
Clutch Voltage.....	12V
Clutch Coil Amperage Draw at 12 Volts.....	3.6 to 4.2 Amperes
Front Clutch Plate Air Gap	0.4 to 0.8 mm
Drive Belt Tension (New)	422 to 516 N
Drive Belt Tension (Used)	400 to 489 N
Compressor and System Lubrication (Nominal)	
Lubricant Type	Sanden SP - 20 PAG Oil
Compressor Capacity (New).....	270 to 300 ml
Compressor Capacity (Previously Run).....	50 to 100 ml
Component Capacity (add to compressor when component has been replaced)	
Receiver Dryer.....	25 to 30 ml
Condenser	45 to 50 ml
Evaporator	35 to 40 ml
Hose and Tubes (Total)	45 to 50 ml
High Pressure Switch	
Location	Discharge Hose from Compressor to Condenser
Operation	Closed by Excessive Pressure
Cut Out Pressure	26.9 to 28.3 bar
Low Pressure Switch	
Location	Evaporator Outlet in the Cab Roof
Operation	Closed by Low Pressure
Cut Out Pressure	0.14 to 0.41 bar
Temperature Control Switch	
Location	Evaporator Core in the Cab Roof
Cut Out Temperature (Maximum Cold Setting).....	0.8° to 2.5° C
Cut In Temperature (Maximum Cold Setting).....	5.8° to 7.5° C
Coolant	
Fluid Type	50 percent Ethylene Glycol and Water
CX50 and CX60 Tractors	
Capacity.....	13.4 litres
CX70, Cx80, CX90 and CX100 Tractors	
Capacity	17.5 litres

Conversion Table

Conversion	Conversion
mm X 0.03937 = inches	N (Newtons) X 0.225 = lbf
Bar X 14.5038 = PSI	NM X 0.738 = lb. ft
Litres X 0.22 = Imperial Gallons	NM X 8.85 = lb. in
Litres X 0.264 = U.S Gallons	°C X 1.8 (=32) = °F

SPECIAL TORQUES

NOTE: To convert NM to lb. ft. see Conversion Table on Page 6.

Steering

Steering Wheel Retaining Nut	45 to 51 Nm
Steering Hand Pump Retaining Bolts	45 to 51 Nm
Steering Hand Pump End Cover Retaining Bolts	25 to 35 Nm
Steering Relief Valve Plug	40 to 60 Nm
Front Weight Bracket Retaining Bolts.....	481 to 542 Nm
Front Wheel Nuts.....	refer to Operators Manual for correct wheel rim size
Wheel Bearing Nut	refer to Section 5003 for tightening procedure
2WD Front Axle	
Tie Rod Lock Nut.....	34 to 40 Nm
Tie Rod Lock Bolt	81 to 88 Nm
Tie Rod Tube Lock Nut.....	235 to 250 Nm
Steering Arm Clamp Bolt.....	108 to 122 Nm
Wheel Bearing Nut	refer to Section 5003
2WD Steering Cylinder	
Cylinder Clevis (with Loctite 270)	110 to 135 Nm
Cylinder Clevis Pin Retaining Bolt.....	27 to 31 Nm
Lower Bearing Carrier Retaining Bolts.....	110 to 122 Nm
Steering Pump (Engine Driven)	
Retaining Bolts	41 to 48 Nm
Inlet Tube Retaining Screws	23 to 31 Nm
Front Bolster to Engine Retaining Bolts (with Loctite 271)	258 to 284 Nm
Front Bolster to Engine Retaining Nuts (with Loctite 271).....	258 to 284 Nm

Transmission

Flywheel Retaining Bolts	116 to 130 Nm
Clutch Retaining Bolts	20 to 23 Nm
Engine to Speed Transmission Mounting Bolts	122 to 129 Nm
Speed to Range Transmission Retaining Bolts	
1/2 inch Bolts (With Loctite 271)	101 to 104 Nm
5/8 inch Bolts (With Loctite 271).....	205 to 230 Nm
Main Shaft Retaining Bolts	42 to 47 Nm
Selector Fork to Selector Rail Lock Bolt.....	89 to 100 Nm
Selector Fork to Selector Rail Lock Nut.....	53 to 59 Nm
PTO Bearing Retainer Bolts (with Loctite 271)	42 to 47 Nm
Clutch Release Bearing Carrier Retaining Bolts (with Loctite 271)	42 to 47 Nm
Pinion Shaft Retaining Bolts	42 to 47 Nm
Planet Carrier Retaining Bolt.....	290 to 330 Nm
Rear Axle Mounting Bolt.....	270 to 305 Nm
Flange Axle - Wheel Nuts.....	278 to 298 Nm
Bar Axle - Wheel to Hub Bolts	183 to 207 Nm
Differential	
Ring Gear Dowel Bolts.....	156 to 170 Nm
Ring Gear Retaining Bolts.....	156 to 170 Nm
Bearing Carrier Retaining Bolts.....	156 to 170 Nm
PTO Clutch Access Cover	117 to 133 Nm
PTO Shaft Cover Retaining Bolts	45 to 50 Nm
PTO Clutch Access Cover Retaining Bolts.....	117 to 133 Nm
PTO Housing	
3/8 inch Retaining Bolts	45 to 50 Nm
1/2 inch Retaining Bolts	136 to 152 Nm

MFD Transfer Gearbox

Mounting Bolts	117 to 133 Nm
Drain Plug	80 Nm
Front Cover Retaining Bolts	23 Nm
Rear Cover Retaining Bolts	23 Nm
Brake Pad Guide Pin Plug	150 Nm
Solenoid Cover Retaining Bolts	12 Nm
Solenoid Valve	27 Nm
Drive Shaft Coupling Locknut	54 to 61 Nm

MFD Axle

Axle Support Housing Retaining Bolts	200 Nm
Wheel Hub Drain/Filler Plug	80 Nm
Axle/Differential Housing Drain Plug	70 Nm
Axle Dipstick	10 Nm
Wheel Hub to Planetary Gear Carrier Countersunk Screws	25 Nm
Planetary Gear Carrier to Swivel Housing Retaining Bolts	78 Nm
Upper and Lower King Pin Retaining Bolts	120 Nm
Differential Housing to Axle Retaining Bolts	169 Nm
Bevel Gear Retaining Bolts (with Loctite 270)	78 Nm
Differential Bearing Cap Retaining Bolts	266 Nm
Locking Plate Retaining Bolts	12 Nm
Ball Joint Assembly to Steering Cylinder Piston Rod	300 Nm
Ball Joint Locknut	165 Nm
Steering Cylinder Retaining Bolts	120 Nm
Front Wheel Nuts	300 to 350 Nm
Front Weight Bracket	481 to 542 Nm
Wheel Stud	70 Nm

Brakes

Parking Brake Cable Bracket Bolts	45 to 50 Nm
Parking Brake Support Bolts	45 to 50 Nm
Parking Brake Assembly Support Nuts	156 to 176 Nm
Hydraulic Trailer Brake Valve	
End Cap Socket Head Screws	10 Nm
Bleed Valve	2.5 Nm

Hydraulics

Filter Manifold Retaining Bolts	45 to 50 Nm
Hydraulic Filter Retaining Bolt	16 to 21 Nm
Main Hydraulic Pump Retaining Bolts	24 to 28 Nm
Main Hydraulic Pump Drive Gear Locknut	61 to 68 Nm
Main Hydraulic Pump End Plate	
Retaining Bolt	27 to 31 Nm
Cap Screw	24 to 27 Nm
Main Relief Valve	34 to 54 Nm
Fitting, PTO Spool Supply	34 to 54 Nm
Elbow, Filter Manifold Inlet	34 to 54 Nm
Plug, PTO Spool	34 to 54 Nm
Hitch Valve Plugs and Cap Screws	refer to Section 8009
Regulator Valve	
Retaining Bolts	42 to 47 Nm
Solenoid Valve to Regulator Valve	10 to 15 Nm
Coil to Solenoid Retaining Nut	5 to 8 Nm
Regulator Pressure Valve Locknut	34 to 54 Nm
Oil Cooler By-Pass Valve Plug	34 to 54 Nm
Solenoid Valve Plug (8 Speed Transmission)	34 to 54 Nm
Differential Lock Solenoid	
Coil to Solenoid Retaining Nut	5 to 8 Nm
Unloader Valve	
Retaining Bolts	42 to 47 Nm
Regulator Valve Plug	34 to 54 Nm
Remote Valve	
Retaining Bolts	16 to 20 Nm
Hydraulic Housing	
3/8 inch Retaining Bolts	45 to 50 Nm
1/2 inch Retaining Bolts	108 to 122 Nm
Front Hitch	
Mounting Bolts	406 to 490 Nm
Front Cover Bolts	257 Nm
Piston Retaining Nut	776 Nm

Chassis and Mounted Equipment

Cab Mounting Nuts	190 to 244 Nm	140 to 180 lb ft
Cab Mounting Bolt to Threaded Plate	47 to 61 Nm	35 to 45 lb ft

Air Conditioning System

Fittings With O-Rings		THREAD				
FITTING	TORQUE	M10-1.25	5/8-18	3/4-16/18	7/8-14/18	1-14
Steel to Steel	Nm	-	31 to 36	40 to 46	45 to 52	-
Brass, Copper or Aluminium to Steel	Nm	10 to 14	18 to 23	24 to 30	30 to 37	45 to 52

IMPORTANT: Lubricate all threads and o-rings with mineral oil.

IMPORTANT: When tightening the air conditioner tubes and hoses, always use a second wrench for support.

1000 Series Engine Service Manual

**Naturally Aspirated 4 Cylinder Engines
Turbocharger 4 Cylinder Engines
Turbocharger 6 Cylinder Engines**

***This Service Manual Replaces SM 8-10040,
Containing SM 8-10050 (Table of Contents) and SM 8-10060***

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