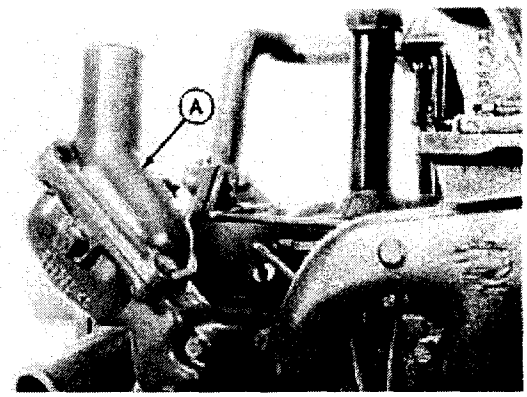
9. For thermostat replacement, remove cap screws and thermostat cover (A).

NOTE: Some engines have only one thermostat. Illustration shows the two-thermostat engine.



S11,OMLM,DX1 -19-15NOV89

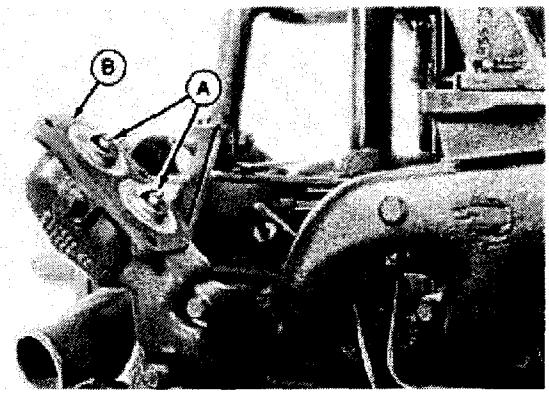
10. Remove and discard thermostats (A) and all gasket material (B).

11. Install new gasket.

12. Install new thermostats and cover. Tighten all cap screws to 27 N·m (20 lb-ft).

13. Close all drain valves on the engine and the radiator.

IMPORTANT: Air must be expelled from cooling system when system is refilled. Loosen temperature sending unit fitting at rear of cylinder head or plug in thermostat housing to allow air to escape when filling system. Retighten fitting or plug when all the air has been expelled.



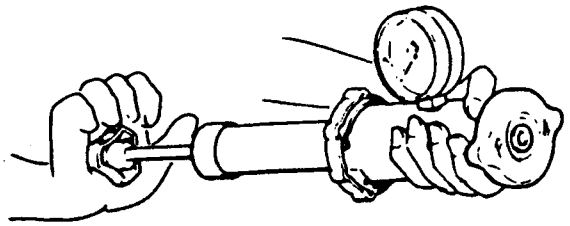
14. Add coolant to radiator until coolant touches bottom of filler neck. (See RECOMMENDED ENGINE COOLANT in Fuels, Lubricants, and Coolant Section for determining appropriate coolant.)

15. Run engine until it reaches operating temperature. This mixes coolant and water uniformly and circulates it through the entire system. The normal engine coolant temperature range is 82°—94°C (180°—202°F).

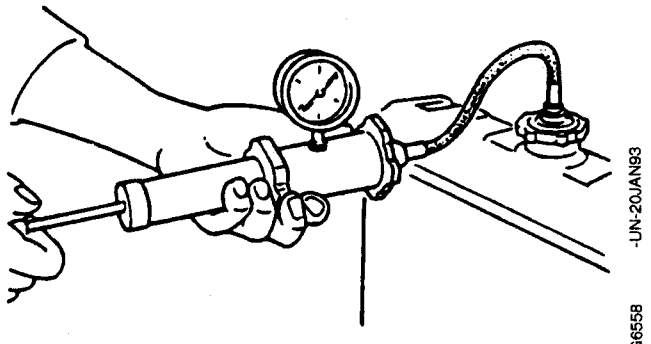
16. After running engine, check coolant level and entire cooling system for leaks.

S11,OMLM,DY -19-09AUG94

PRESSURE TEST COOLING SYSTEM AND RADIATOR CAP



RG6557 -UN-20JAN93



RG6558 -UN-20JAN93

CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

Test Radiator Cap:

1. Remove radiator cap and attach to an approved tester as shown.

2. Pressurize cap to 50 kPa (0.5 bar) (7 psi)*. Gauge should hold pressure for 10 seconds within the normal range if cap is acceptable.

If gauge does not hold pressure, replace radiator cap.

3. Remove the cap from gauge, turn it 180°, and retest cap. This will verify that the first measurement was accurate.

Test Cooling System:

NOTE: Engine should be warmed up to test overall cooling system.

1. Allow engine to cool, then carefully remove radiator cap.

2. Fill radiator with coolant to the normal operating level.

IMPORTANT: DO NOT apply excessive pressure to cooling system, doing so may damage radiator and hoses.

3. Connect gauge and adapter to radiator filler neck. Pressurize cooling system to 50 kPa (0.5 bar) (7 psi)*.

4. With pressure applied, check all cooling system hose connections, radiator, and overall engine for leaks.

If leakage is detected, correct as necessary and pressure test system again.

If no leakage is detected, but the gauge indicated a drop in pressure, coolant may be leaking internally within the system or at the block-to-head gasket. Have your servicing dealer or distributor correct this problem immediately.

**Test pressures recommended are for all Deere OEM cooling systems. On specific vehicle applications, test cooling system and pressure cap according to the recommended pressure for that vehicle.*

RG18293,6 -19-02AUG94

PERFORM ENGINE TUNE-UP

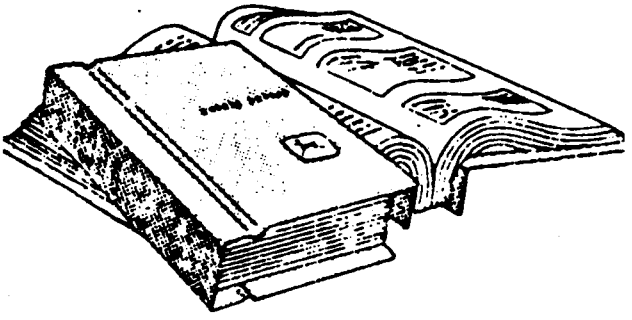
As a general guideline, an engine tune-up is recommended at 1200 Hour or 2-Year intervals (whichever comes first). However, a tune-up should be performed as often as needed to maintain optimum performance within the general condition limits of the engine. Some engine applications, such as generator sets, may require a different tune-up interval than given above. Have your authorized servicing dealer or engine distributor perform the following checks and services:

- Check, and adjust if necessary, engine valve clearance. (Lubrication and Maintenance/400 Hr and 1200 Hr/2-Yr.
- Change oil and filter. (Lubrication and Maintenance/250 Hr.)
- Check electrical system. (Lubrication and Maintenance/250 Hr.)
- Lubricate PTO clutch internal levers and linkage. (Lubrication and Maintenance/600 Hr/1-Yr)
- Clean crankcase vent tube. (Lubrication and Maintenance/600 Hr/1-Yr)
- Replace fuel filters. (Lubrication and Maintenance/600 Hr/1-Yr)
- Check air intake system and replace air cleaner elements. (Lubrication and Maintenance/600 Hr/1-Yr)
- Check, and adjust if necessary, engine speeds. (Lubrication and Maintenance/1200 Hr/2-Yr)
- Check fuel injection system: Check, and if necessary, adjust injection pump timing, clean injection nozzles and adjust opening pressure. (Lubrication and Maintenance/1200 Hr/2-Yr)
- Inspect turbocharger and check turbocharger boost pressure on turbocharged engines. (Lubrication and Maintenance/1200 Hr/2-Yr)
- Check crankshaft vibration damper. (Lubrication and Maintenance/1200 Hr/2-Yr)
- Check and service engine cooling system. (Lubrication and Maintenance/1200 Hr/2-Yr)
- Check engine oil pressure. Adjust, if necessary. (See your authorized servicing dealer or engine distributor.

S55,OMTU,B -19-02MAR93

ADDITIONAL SERVICE INFORMATION

This is not a detailed service manual. If you want more detailed service information, use the form in the back of this manual to order a component technical manual.



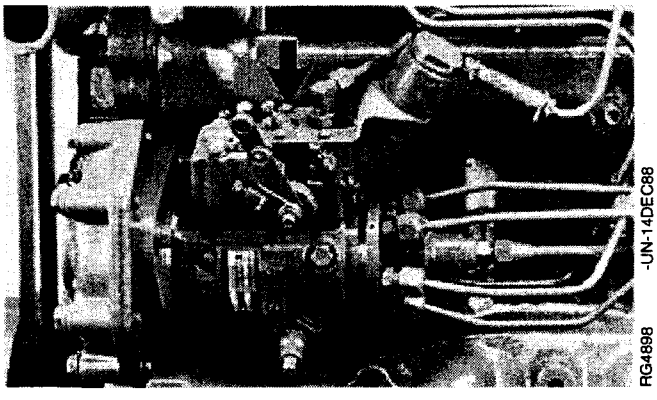
RG4624 -UN-15DEC88

S11,OMSE,AL -19-10JUN86

DO NOT MODIFY FUEL SYSTEM

IMPORTANT: Modification or alteration of the injection pump (arrow), the injection pump timing, or the fuel injectors in ways not recommended by the manufacturer will terminate the warranty obligation to the purchaser.

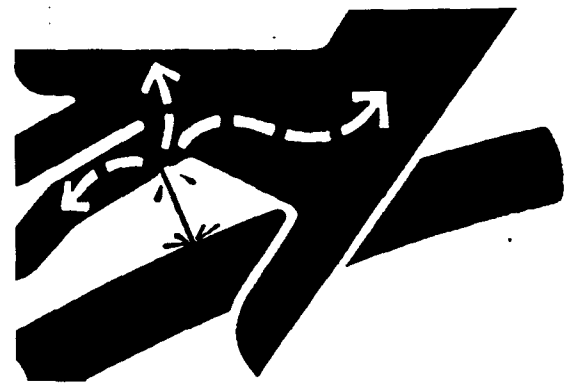
Do not attempt to service injection pump or fuel injectors yourself. Special training and special tools are required. (See your authorized servicing dealer or engine distributor.)



RG4898 -UN-14DEC88

S11,OMSE,AM -19-09AUG94

BLEED THE FUEL SYSTEM

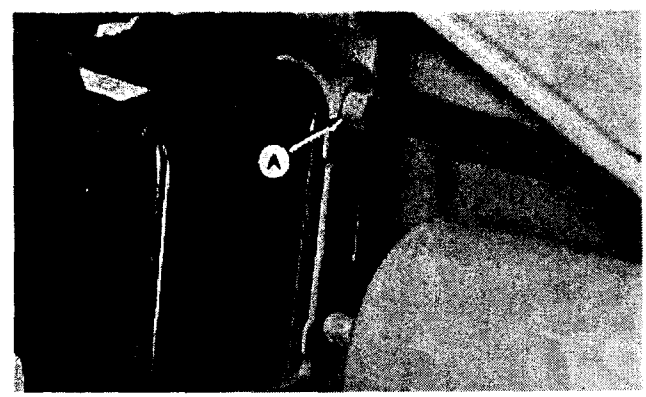

X9811 -UN-23AUG88

CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting fuel or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result. Doctors unfamiliar with this type of injury may call the Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.

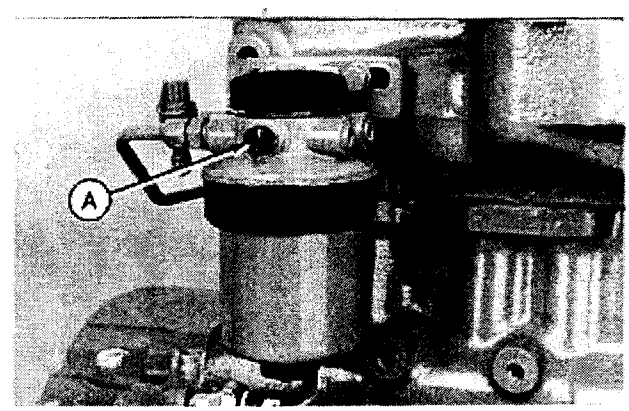
Whenever the fuel system has been opened up for service (lines disconnected or filters removed), it will be necessary to bleed air from the system.

1. Loosen the air bleed plug or air bleed screw (A) on fuel filter base.



T95989 -UN-20OCT88

Rectangular Fuel Filter



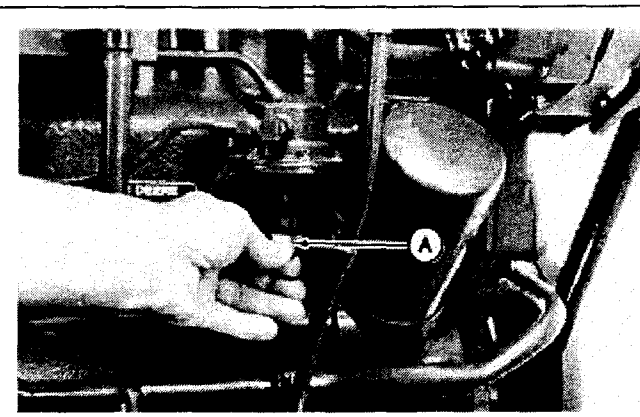
CD30353 -UN-03FEB93

Round Fuel Filter

RG18293,7 -19-17FEB93

2. When equipped, operate supply pump primer lever (A) or switch on the ignition (electric supply pumps) so that supply pump is operating.

3. Wait until fuel flow is free from air bubbles. Tighten bleed plug or screw securely, continue operating hand primer until pumping action is not felt. Push hand primer inward (toward engine) as far as it will go.



RG4900 -UN-14DEC88

S11,OMSE,AO1 -19-17FEB93

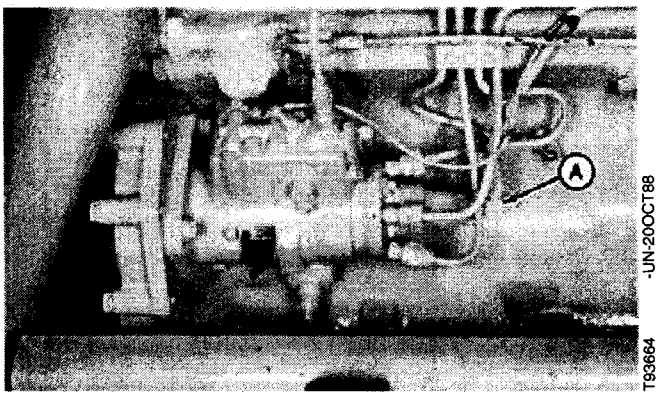
If the engine will not start:

4. Slightly loosen fuel supply line connector (A) at injection pump.

5. Pump hand primer lever until fuel, without air bubbles, flows from fuel supply line connection.

6. Tighten supply line connector to 27 N·m (20 lb-ft).

7. Leave hand primer in the inward position toward cylinder block.



S11,OMSE,AO2 -19-17FEB93

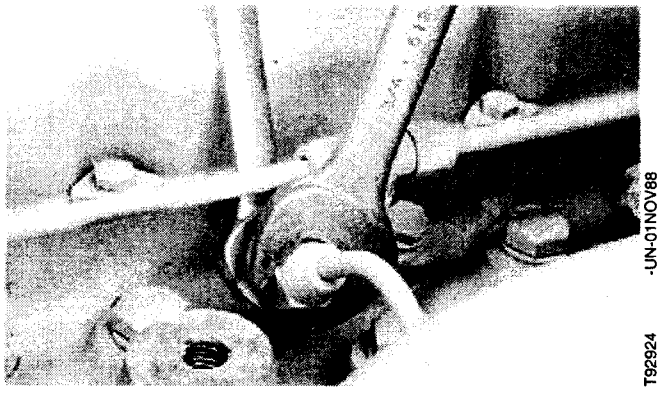
If the engine still will not start:

8. Move the speed control lever to slow idle.

9. While cranking engine with starting motor, loosen one fuel line connector slightly using two wrenches until fuel (free of air bubbles) flows from connector. Tighten connector while cranking engine.

10. Repeat procedure for remaining injection nozzles until engine starts and air has been removed from fuel system.

If engine still will not start, see your authorized servicing dealer or engine distributor.



S11,OMSE,AO3 -19-17FEB93

CHECKING COOLANT LEVEL

CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns.

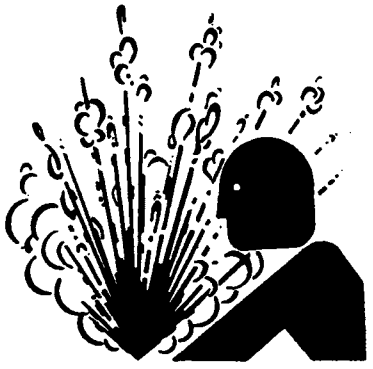
Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

TS281 -UN-23AUG88

Coolant should be maintained at bottom of filler neck. Fill radiator with appropriate coolant. (See RECOMMENDED ENGINE COOLANT in Fuels, Lubricants, and Coolant Section for determining appropriate coolant.) Check overall cooling system for leaks.

RG,OMSE,1 -19-09AUG94

ADDING COOLANT



TS281 -UN-23AUG88

CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

IMPORTANT:

- **Never pour cold liquid into a hot engine, as it may crack cylinder head or block. DO NOT operate engine without coolant for even a few minutes.**
- **John Deere TY15161 Cooling System Sealer may be added to the radiator to stop leaks. DO NOT use any other stop-leak additives in the cooling system.**
- **Air must be expelled from cooling system when system is refilled. Loosen temperature sending unit fitting at rear of cylinder head or plug in thermostat housing to allow air to escape when filling system. Retighten fitting or plug when all the air has been expelled.**

Add coolant to radiator until coolant touches bottom of filler neck. (See RECOMMENDED ENGINE COOLANT in Fuels, Lubricants, and Coolant Section for determining appropriate coolant.)

Certain geographical areas may require special antifreeze or coolant practices. If you have questions, consult your authorized servicing dealer or engine distributor for the latest information and recommendations.

S11,OMLM,DZ1 -19-09AUG94

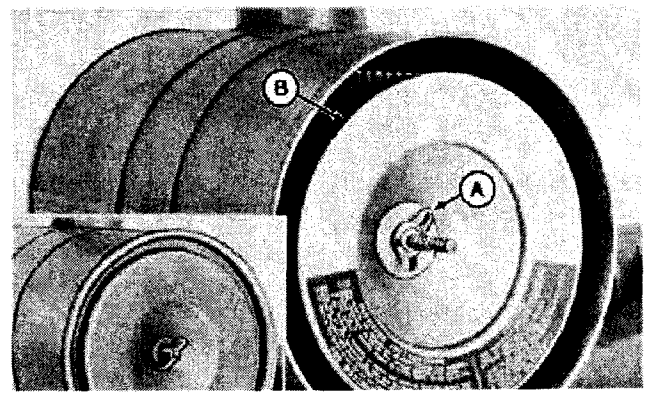
REMOVE AND INSPECT AIR CLEANER ELEMENTS

1. Remove wing nut and remove canister cover shown in small illustration inset.

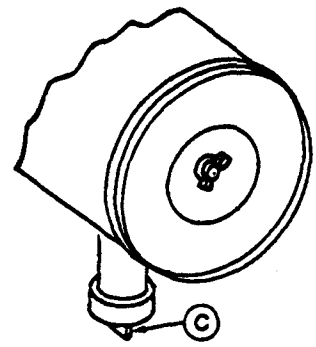
2. Remove wing nut (A) and remove primary element (B) from canister.

3. Thoroughly clean all dirt from inside canister.

NOTE: Some engines may have a dust unloader valve (C) on the air cleaner. If equipped, squeeze valve tip to release any trapped dirt particles.



RG4686 -UN-20DEC88

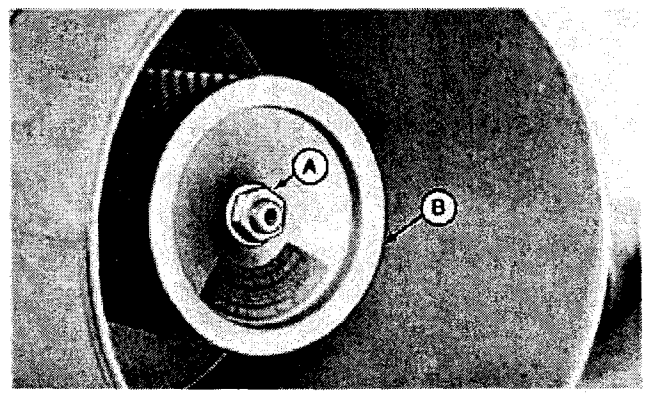


RG4687 -UN-20DEC88

S11,OMLM,FE -19-02MAR93

IMPORTANT: Remove secondary element (B) ONLY if it is to be replaced. DO NOT attempt to clean secondary element.

4. To replace secondary element, remove nut (A) and remove element. Immediately install a new element so dirt does not enter air intake system. (See REPLACE AIR CLEANER ELEMENTS in Lubrication and Maintenance/600 Hours/1-Year Section.)



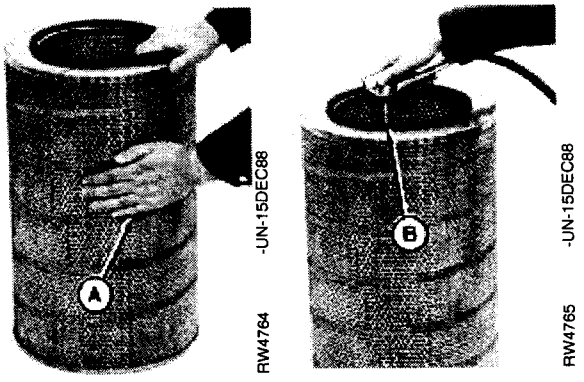
RG4688 -UN-20DEC88

S11,OMLM,FF -19-09AUG94

CLEANING PRIMARY FILTER ELEMENT

IMPORTANT: Always replace secondary (safety) filter elements. DO NOT attempt to clean them.

Do not blow air from outside portion of filter with air nozzle. Wear safety glasses and remove bystanders.



1. Gently pat sides of element with palm of hand (A) to loosen dirt. DO NOT tap element against a hard surface.

CAUTION: Only a special air cleaning gun (B) should be used. Concentrated air pressure from an ordinary air nozzle may severely damage filter element. Do not exceed 210 kPa (2.1 bar) (30 psi) when cleaning filter element.

2. Insert the cleaning gun into element, hold air nozzle about 25.4 mm (1.0 in.) from perforated metal retainer. Force air through filter from inside to outside and move air gun up and down pleats to remove as much dirt as possible.

3. Repeat steps 1 and 2 to remove additional dirt.

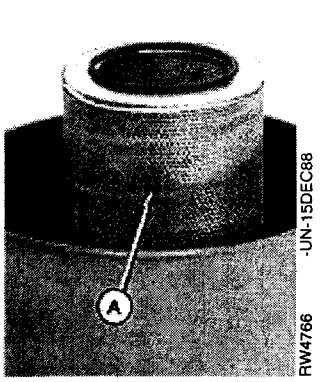
4. Inspect element for damage after cleaning. Replace element if any damage is found.

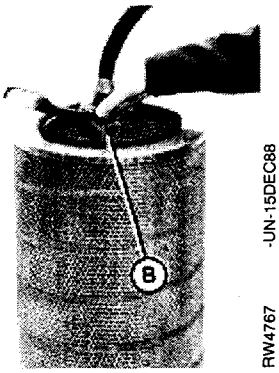
S11,OMLM,AF -19-22JUN94

WASHING PRIMARY FILTER ELEMENT

IMPORTANT: Never wash element in gasoline or any solvent. Never use compressed air on a wet element. Do not oil element.

Use extreme caution when washing filters as washing can damage filtering media which could result in failure.





Although filter elements can be washed, replacement is highly recommended. Wash oily or sooty filter only if you have a second clean filter available since it may take up to 3 days to dry after washing.

1. Blow dust from the filter with compressed air or flush with clean water.

2. Soak filter for at least 15 minutes in a solution of warm water and John Deere R36757 Filter Element Cleaner. Agitate the filter gently to flush out dirt after soaking.

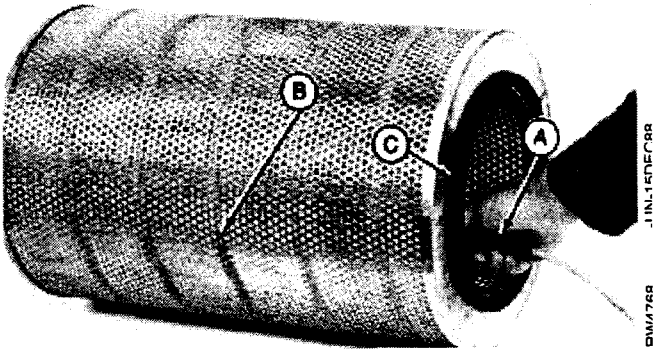
3. Rinse element thoroughly from inside (B) with clean water. Keep water pressure under 280 kPa (2.8 bar) (40 psi) to avoid damaging filtering pleats.

4. Allow element to dry completely before using. This usually takes from one to three days. Do not oven dry or use drying agents. Protect element from freezing until dry.

5. Inspect element before installing. (See INSPECTING PRIMARY FILTER ELEMENT, later in this section.)

S11,OMLM,AG -19-09AUG94

INSPECTING PRIMARY FILTER ELEMENT



Inspect filter for damage after cleaning or to determine if it is practical to clean filter.

1. Hold a bright light inside element (A) and check carefully for holes. Discard any element which shows the smallest hole or rupture.

2. Be sure outer screen (B) is not dented. Vibration would quickly wear a hole in filter.

3. Be sure filter gasket (C) is in good condition. If gasket is damaged or missing, replace element.

If the filter is to be stored for later use, place it in a plastic bag to protect it from dust and damage.

S11,OMLM,AH -19-17AUG93

ELEMENT STORAGE

Seal element in a plastic bag and store in shipping container to protect against dust and damage.

IMPORTANT: Air cleaner element MUST BE DRY before storing in plastic bag.

S11,OMLM,AI -19-19MAR91

REPLACE FAN AND ALTERNATOR BELTS

1. Inspect belts for cracks, fraying, or stretched out areas. Replace if necessary. (See FAN AND ALTERNATOR BELTS TENSION OR REPLACEMENT in Lubrication and Maintenance/250 Hour Section.)

S11,OMSE,AP -19-09AUG94

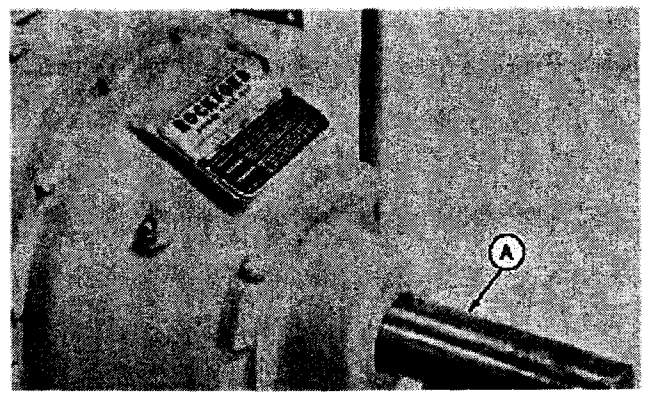
POWER TAKE-OFF (PTO) CLUTCH

CAUTION: Entanglement in rotating driveline can cause serious injury or death. Keep shield on PTO drive shaft (A) between the clutch housing and the engine driven equipment at all times during engine operation. Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments.

TS198 -UN-23AUG88

Proper performance of the power take-off unit will be related to the care it is given. Lubricate it periodically and keep the clutch properly adjusted. (See Lubrication and Maintenance/250 Hour Section.)

If the power take-off does not work properly after adjustment and lubrication, contact your authorized servicing dealer or engine distributor.



RG4693 -UN-14DEC88

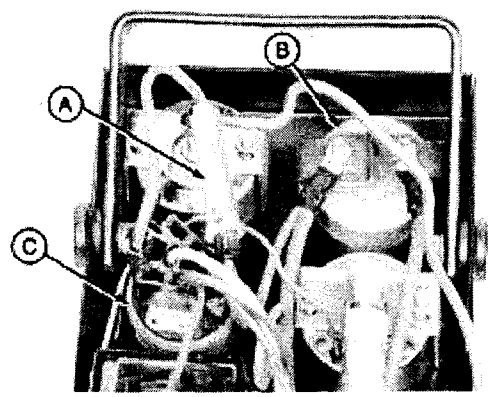
S11,OMSE,U -19-09AUG94

CHECK FUSES

The following instructions apply to engines equipped with a John Deere instrument panel.

On North American Sourced Instrument (Gauge) Panels:

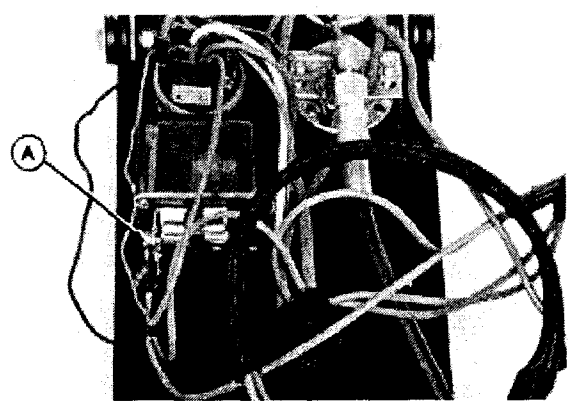
1. Check the fuse (A) between the ammeter (B) and key switch (C) located on back side of instrument panel. If defective replace with an MDL-25 fuse.



RG4493 -UN-14DEC88

S11,OMSE,AA -19-17FEB93

2. Check the fuse (A) mounted on the bottom of the magnetic safety switch. If defective, install an equivalent 14-amp fuse.



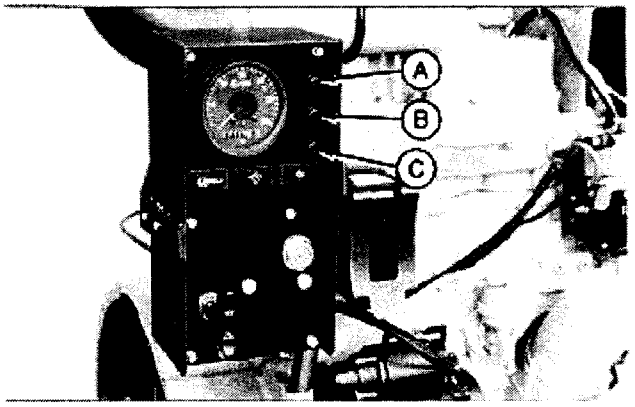
RG4496 -UN-14DEC88

S11,OMSE,W -19-26JUL93

On European Sourced Instrument (Gauge) Panels:

1. Check the following fuses and replace as necessary:

A—25 amp - Starting Circuit
B— 3 amp - Tachometer Light
C—10 amp - Safety Switch



RG18293,8 -19-17FEB93

Troubleshooting

GENERAL TROUBLESHOOTING INFORMATION

Troubleshooting engine problems can be difficult. An engine wiring diagram is provided in this section to help isolate electrical problems on power units using John Deere wiring harness and instrument (gauge) panel.

Later in this section is a list of possible engine problems that may be encountered accompanied by possible causes and corrections. The illustrated diagrams and troubleshooting information are of a general nature, final design of the overall system for your engine application may be different. See your engine distributor or servicing dealer if you are in doubt.

A reliable program for troubleshooting engine problems should include the following basic diagnostic thought process:

- Know the engine and all related systems.
- Study the problem thoroughly.
- Relate the symptoms to your knowledge of engine and systems.
- Diagnose the problem starting with the easiest things first.
- Double-check before beginning the disassembly.
- Determine cause and make a thorough repair.
- After making repairs, operate the engine under normal conditions to verify that the problem and cause was corrected.

RG18293,9 -19-02MAR93

ENGINE WIRING DIAGRAM LEGEND

A1—Speed Control Unit
B1—Magnetic Speed Sensor
B2—Coolant Temperature Sensor
B3—Oil Pressure Sensor
F1—Starting Circuit Fuse (25 amp)
F2—Safety Switch Fuse (10 amp)
F3—Tachometer Fuse (3 amp)
G1—Battery
G2—Alternator
H1—Coolant Temperature Indicator Lamp
H2—Oil Pressure Indicator Lamp
H3—Alternator Indicator Lamp
K1—Starter Relay
K2—Fuel Shut-off Relay
M1—Starter Motor
P1—Coolant Temperature Gauge
P2—Oil Pressure Gauge
P3—Crankcase Oil Level Switch/Gauge
P4—Tachometer
P5—Hourmeter
P6—Ammeter
S1—Key Switch
S2—Magnetic Safety Switch—North American Auto Override Module—European (Saran)
Y1—Starter Solenoid
Y2—Fuel Shut-off Solenoid
Y3—Electric Fuel Pump
BLK—Black
BLU—Blue
BRN—Brown
GRN—Green
ORG—Orange
PUR—Purple
RED—Red
YEL—Yellow

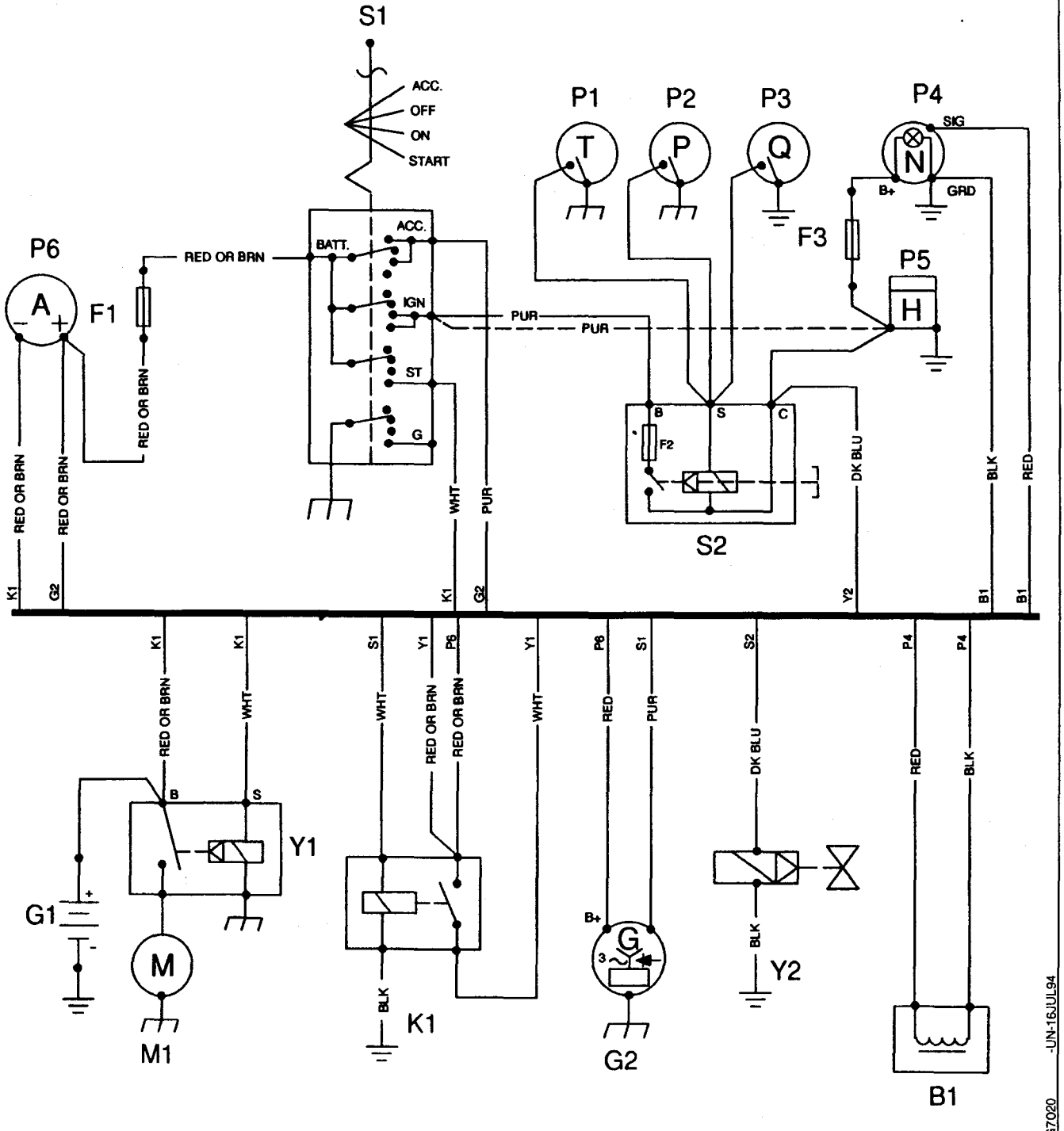
NOTE: On North American Series 300 engines without electronic tachometer:
Early Units —A purple wire (shown as a dashed line in wiring diagram) connects between hourmeter "P5" and key switch "S1".

Later Units —The wire (shown as a solid line) connects between the hourmeter and magnetic safety switch "S2" (C terminal).

RG,18293,WIRE -19-09AUG94

WIRING DIAGRAM—NORTH AMERICAN SERIES 300 ENGINES

KEY SWITCH					
	B	G	ACC.	ON	ST.
OFF					
ACC.	•		•		
ON	•		•	•	
START	•	•		•	•



RG,DIAG,CTM67 -19-03AUG94

ENGINE WIRING DIAGRAM LEGEND

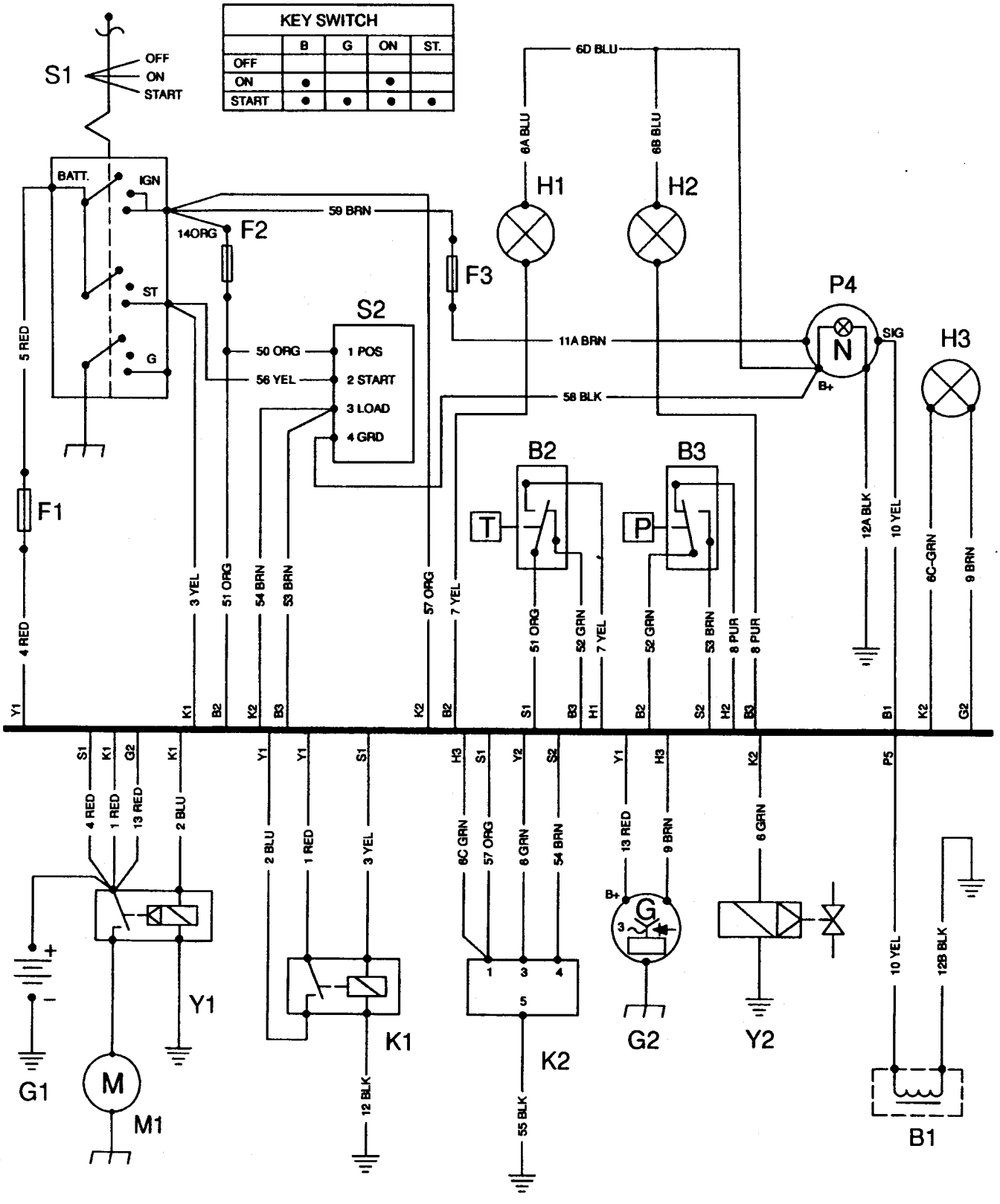
A1—Speed Control Unit
B1—Magnetic Speed Sensor
B2—Coolant Temperature Sensor
B3—Oil Pressure Sensor
F1—Starting Circuit Fuse (25 amp)
F2—Safety Switch Fuse (10 amp)
F3—Tachometer Fuse (3 amp)
G1—Battery
G2—Alternator
H1—Coolant Temperature Indicator Lamp
H2—Oil Pressure Indicator Lamp
H3—Alternator Indicator Lamp
K1—Starter Relay
K2—Fuel Shut-off Relay
M1—Starter Motor
P1—Coolant Temperature Gauge
P2—Oil Pressure Gauge
P3—Crankcase Oil Level Switch/Gauge
P4—Tachometer
P5—Hourmeter
P6—Ammeter
S1—Key Switch
S2—Magnetic Safety Switch—North American Auto Override Module—European (Saran)
Y1—Starter Solenoid
Y2—Fuel Shut-off Solenoid
Y3—Electric Fuel Pump
BLK—Black
BLU—Blue
BRN—Brown
GRN—Green
ORG—Orange
PUR—Purple
RED—Red
YEL—Yellow

NOTE: On North American Series 300 engines without electronic tachometer:
Early Units —A purple wire (shown as a dashed line in wiring diagram) connects between hourmeter "P5" and key switch "S1".

Later Units —The wire (shown as a solid line) connects between the hourmeter and magnetic safety switch "S2" (C terminal).

RG,18293,WIRE -19-09AUG94

WIRING DIAGRAM—EUROPEAN (SARAN) SERIES 300 ENGINES



DIAGNOSING ENGINE MALFUNCTIONS

Symptom	Problem	Solution
Engine hard to start or will not start	Improper starting procedure.	Review starting procedure.
	No fuel.	Check fuel tank.
	Air in fuel line.	Bleed fuel line.
	Cold weather.	Use cold weather starting aids.
	Slow starter speed.	See "Starter Cranks Slowly".
	Crankcase oil too heavy.	Use oil of proper viscosity.
	Improper type of fuel.	Consult fuel supplier; use proper type fuel for operating conditions.
	Water, dirt, or air in fuel system.	Drain, flush, fill and bleed system.
	Clogged fuel filter.	Replace filter element.
	Dirty or faulty injection nozzles.	Have authorized dealer or engine distributor check injectors.
	Injection pump shut-off not reset.	Turn key switch to "OFF" then to "ON".
Engine knocks	Low engine oil level.	Add oil to engine crankcase.
	Injection pump out of time.	See your authorized servicing dealer or engine distributor.
	Low coolant temperature.	Remove and check thermostat.
	Engine overheating.	See "Engine Overheats".
Engine runs irregularly or stalls frequently	Low coolant temperature.	Remove and check thermostat.
	Clogged fuel filter.	Replace filter element.
	Water, dirt, or air in fuel system.	Drain, flush, fill, and bleed system.
	Dirty or faulty injection nozzles.	Have authorized dealer or engine distributor check injectors.
Below normal engine temperature	Defective thermostat.	Remove and check thermostat.
	Defective temperature gauge or sender.	Check gauge, sender, and connections.

Continued on next page

Symptom	Problem	Solution
Lack of power	Engine overloaded.	Reduce load.
	Intake air restriction.	Service air cleaner.
	Clogged fuel filter.	Replace filter elements.
	Improper type of fuel.	Use proper fuel.
	Overheated engine.	See "Engine Overheats".
	Below normal engine temperature.	Remove and check thermostat.
	Improper valve clearance.	See your authorized servicing dealer or engine distributor.
	Dirty or faulty injection nozzles.	Have authorized servicing dealer or engine distributor check injectors.
	Injection pump out of time.	See your authorized servicing dealer or engine distributor.
	Turbocharger not functioning. (Turbocharged engines only.)	See your authorized servicing dealer or engine distributor.
	Leaking exhaust manifold gasket.	See your authorized servicing dealer or engine distributor.
	Defective aneroid control line.	See your authorized servicing dealer or engine distributor.
	Restricted fuel hose.	Clean or replace fuel hose.
	Low fast idle speed	See your authorized servicing dealer or engine distributor.
Low oil pressure	Low oil level.	Add oil.
	Improper type of oil.	Drain, fill crankcase with oil of proper viscosity and quality.
High oil consumption	Crankcase oil too light.	Use proper viscosity oil.
	Oil leaks.	Check for leaks in lines, gaskets and drain plug.
	Restricted crankcase vent tube.	Clean vent tube.
	Defective turbocharger.	See your authorized servicing dealer or engine distributor.

Continued on next page

Symptom	Problem	Solution
Engine emits white smoke	Improper type of fuel.	Use proper fuel.
	Low engine temperature.	Warm up engine to normal operating temperature.
	Defective thermostat.	Remove and check thermostat.
	Defective injection nozzles.	See your authorized servicing dealer or engine distributor.
	Engine out of time.	See your authorized servicing dealer or engine distributor.
Engine emits black or gray exhaust smoke	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load.
	Injection nozzles dirty.	See your authorized servicing dealer or engine distributor.
	Engine out of time.	See your authorized servicing dealer or engine distributor.
	Turbocharger not functioning.	See your authorized servicing dealer or engine distributor.
Engine Overheats	Engine overloaded.	Reduce load.
	Low coolant level.	Fill radiator to proper level, check radiator and hoses for loose connections or leaks.
	Faulty radiator cap.	Have serviceman check.
	Loose or defective fan belts.	Adjust belt tension. Replace as required.
	Low engine oil level.	Check oil level. Add oil as required.
	Cooling system needs flushing.	Flush cooling system.
	Defective thermostat.	Remove and check thermostat.
	Defective temperature gauge or sender.	Check water temperature with thermometer and replace, if necessary.
	Incorrect grade of fuel.	Use correct grade of fuel.

Continued on next page

Symptom	Problem	Solution
High fuel consumption	Improper type of fuel.	Use proper type of fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce Load.
	Improper valve clearance.	See your authorized servicing dealer or engine distributor.
	Injection nozzles dirty.	See your authorized servicing dealer or engine distributor.
	Engine out of time.	See your authorized servicing dealer or engine distributor.
	Defective turbocharger.	See your authorized servicing dealer or engine distributor.
	Low engine temperature.	Check thermostat.

S11,OMTS,Z -19-17FEB93

DIAGNOSING ELECTRICAL SYSTEM MALFUNCTIONS

Symptom	Problem	Solution
Undercharged System	Excessive electrical load from added accessories.	Remove accessories or install higher output alternator.
	Excessive engine idling.	Increase engine rpm when heavy electrical load is used.
	Poor electrical connections on battery, ground strap, starter or alternator.	Inspect and clean as necessary.
	Defective battery.	Test battery.
	Defective alternator.	Test charging system.
Battery Uses Too Much Water.	Cracked battery case.	Check for moisture and replace as necessary.
	Defective battery.	Test Battery.
	Battery charging rate too high.	Test charging system.
Batteries will not charge	Loose or corroded connections.	Clean and tighten connections.
	Sulfated or worn-out batteries.	See your authorized servicing dealer or engine distributor.
	Loose or defective alternator belt.	Adjust belt tension or replace belts.
Starter will not crank	PTO engaged.	Disengage PTO.
	Loose or corroded connections.	Clean and tighten loose connections.
	Low battery output voltage.	See your authorized servicing dealer or engine distributor.
	Faulty start circuit relay.	See your authorized servicing dealer or engine distributor.
	Blown fuse (MDL-25)	Replace fuse.

Continued on next page

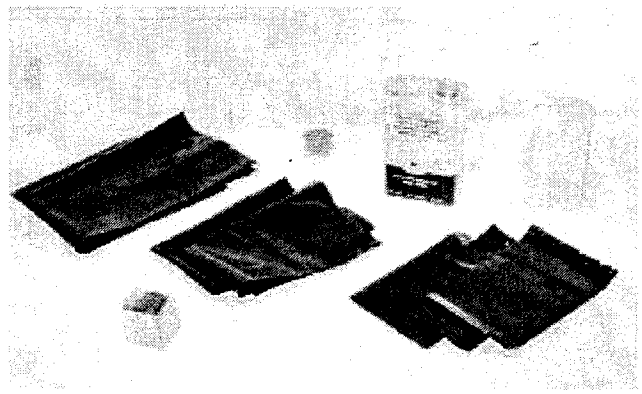
Symptom	Problem	Solution
Starter cranks slowly	Low battery output.	See your authorized servicing dealer or engine distributor.
	Crankcase oil too heavy.	Use proper viscosity oil.
	Loose or corroded connections.	Clean and tighten loose connections.
Starter and hour meter functions; rest of electrical system does not function	Blown fuse on magnetic switch	Replace fuse. (14 amp)
Entire electrical system does not function	Faulty battery connection.	Clean and tighten connections.
	Sulfated or worn-out batteries	See your authorized servicing dealer or engine distributor.
	Blown fuse (MDL-25)	Replace fuse.

S11,OMTS,AB -19-02MAR93

USE AR41785 ENGINE STORAGE KIT

See your John Deere servicing dealer or engine distributor for an AR41785 Engine Storage Kit. Closely follow instructions provided with this kit.

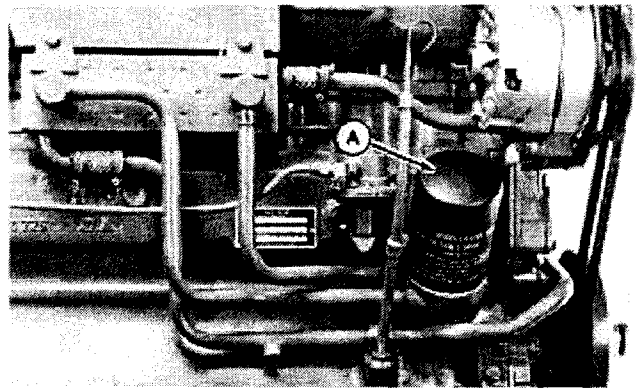
IMPORTANT: Inhibitors can easily change to gas. Seal or tape each opening immediately after adding inhibitor.



RG21891,58 -19-25JAN93

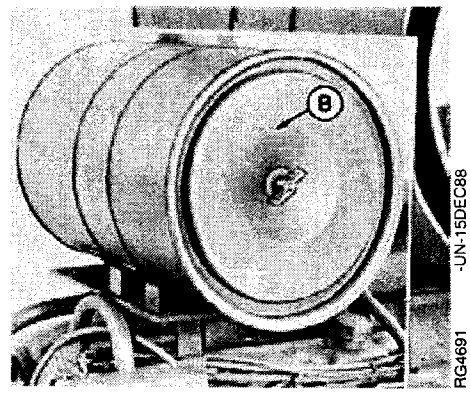
STORING THE ENGINE

IMPORTANT: Any time your engine will not be used for several months, the following recommendations for storing it and removing it from storage will help to minimize corrosion and deterioration. Use the AR41785 Engine Storage Kit. Follow recommended service procedure included with storage kit.



1. Change engine oil and replace filter (A). Used oil will not give adequate protection. (See CHANGE ENGINE OIL AND FILTER in Lubrication and Maintenance/250 Hour Service.)

2. Service air cleaner (B). (See REMOVE AND INSPECT AIR CLEANER ELEMENTS in Service As Required section.)



3. Draining and flushing of cooling system is not necessary if engine is to be stored for only several months. However, for extended storage periods of a year or longer, it is recommended that the cooling system be drained, flushed, and refilled with proper coolant solution. (See RECOMMENDED ENGINE COOLANT in Fuels, Lubricants, and Coolant Section and ADDING COOLANT in Service As Required Section.)

S11,OMST,H1 -19-09AUG94

4. Drain fuel tank and add 30 ml (1 oz) of inhibitor to the fuel tank for each 15L (4 U.S. gal) of tank capacity.

5. Add 30 ml (1 oz) of inhibitor to the engine crankcase for each 0.95 L (1 qt) of crankcase oil.

6. Disconnect air intake piping from the manifold. Pour 90 ml (3 oz) of inhibitor into intake system and reconnect the piping.

7. Crank the engine several revolutions with starter (do not allow the engine to start).

8. Loosen fan and alternator belts to relieve tension. Remove belts if desired.

9. Remove and clean batteries. Store them in a cool, dry place and keep them fully charged.

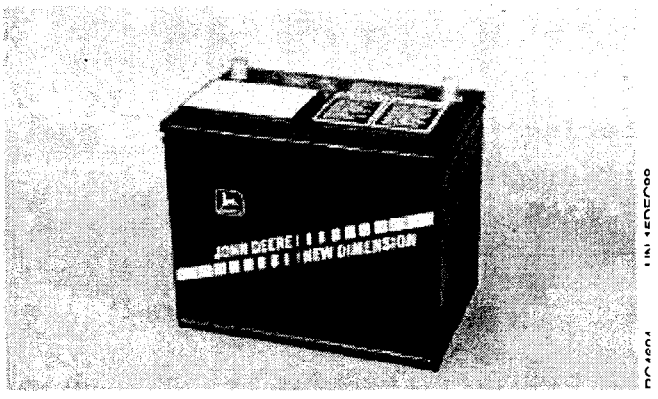
10. Disengage the PTO clutch.

11. Seal all openings on engine with plastic bags and tape supplied in storage kit. Follow instructions supplied in kit.

12. Coat all exposed metal surfaces with grease or corrosion inhibitor.

13. Clean the exterior of the engine and touchup any scratched or chipped painted surfaces.

14. Store the engine in a dry protected place. If engine must be stored outside, cover it with a waterproof canvas or other suitable protective material and use a strong waterproof tape.



S11,OMST,G1 -19-19MAR91

REMOVING ENGINE FROM STORAGE

1. Remove all protective coverings from engine. Unseal all openings in engine and remove covering from electrical systems.

2. Remove the batteries from storage. Install batteries and connect the cables.

3. Install new fan and alternator belts. Adjust belt tensions to their appropriate specifications. (See FAN AND ALTERNATOR BELTS TENSION OR REPLACEMENT in Lubrication and Maintenance/250 Hour Section.)

4. Fill fuel tank.

5. Perform all appropriate prestarting checks. (See PRESTARTING CHECKS in Engine Operating Guidelines Section.)

6. Crank engine for 20 seconds with starter (do not allow the engine to start). Then start engine.

IMPORTANT: DO NOT operate starter more than 30 seconds at a time. Wait at least 2 minutes for starter to cool before trying again.

7. Operate engine at slow idle for several minutes. Warm up carefully and check all gauges before placing engine under load.

S11,OMST,J -19-09AUG94

GENERAL OEM ENGINE SPECIFICATIONS

Item	Unit Of Measure	3029D	3029T
Number of Cylinders	——	3	3
Fuel	——	Diesel	Diesel
Bore	mm (in.)	106.5 (4.19)	106.5 (4.19)
Stroke	mm (in.)	110.0 (4.33)	110.0 (4.33)
Displacement	L (cu.in.)	2.9 (179)	2.9 (179)
Compression Ratio	——	17.8:1	17.8:1
Rated Speed:			
Std. Governor	RPM	2500	2500
3—5% Governor	RPM	1500/1800	1500/1800
Fast Idle Speed	RPM	2710	2710
Slow Idle Speed (factory)	RPM	800—850	800—850
Industrial Power Rating—			
(maximum intermittent)	kW	43	59
@ Rated Speed w/o Fan	(hp)	(58)	(79)
Basic Weight (dry)	kg (lb)	315 (694)	330 (728)
Flywheel and Housing (SAE No.)	——	4	4
Injection Nozzles	mm	9.5	9.5
Fuel Filter Area	cm^2 ($in.^2$)	5162/2581 (800/400)	5162/2581 (800/400)
Physical Dimensions:			
Width	mm (in.)	519 (20.4)	519 (20.4)
Height	mm (in.)	820 (32.3)	927 (36.5)
Length	mm (in.)	716 (28.2)	716 (28.2)

See ENGINE CRANKCASE OIL FILL QUANTITIES with filter change later in this group.

RG18293,11 -19-09JUN94

GENERAL OEM ENGINE SPECIFICATIONS—CONTINUED

Item	Unit Of Measure	4039D	4039T	4045D	4045T
Number of Cylinders	——	4	4	4	4
Fuel	——	Diesel	Diesel	Diesel	Diesel
Bore	mm (in.)	106.5 (4.19)	106.5 (4.19)	106.5 (4.19)	106.5 (4.19)
Stroke	mm (in.)	110.0 (4.33)	110.0 (4.33)	127.0 (5.00)	127.0 (5.00)
Displacement	L (cu.in.)	3.9 (239)	3.9 (239)	4.5 (276)	4.5 (276)
Compression Ratio	——	17.8:1	17.8:1	17.8:1	17.2:1
Rated Speed:					
Std. Governor	RPM	2500	2500	2400	2400
3—5% Governor	RPM	1500/1800	1500/1800	1500/1800	1500/1800
Fast Idle Speed	RPM	2700	2700	2600	2600
Slow Idle Speed (factory)	RPM	800—850	800—850	800—850	800—850
Industrial Power Rating—					
(maximum intermittent)	kW	60	82	63	86
@ Rated Speed w/o Fan	(hp)	(80)	(110)	(85)	(115)
Basic Weight (dry)	kg (lb)	422 (929)	437 (962)	474 (1043)	487 (1071)
Flywheel and Housing					
(SAE No.)	——	2,3,4	2,3,4	2,3,4	2,3,4
Injection Nozzles	mm	9.5	9.5	9.5	9.5
Fuel Filter Area	cm^2 ($in.^2$)	5162/2581 (800/400)	5162/2581 (800/400)	5162/2581 (800/400)	5162/2581 (800/400)
Physical Dimensions:					
Width	mm (in.)	519 (20.4)	536 (21.1)	519 (20.4)	512 (20.1)
Height	mm (in.)	818 (32.2)	993 (39.1)	818 (32.2)	1029 (40.5)
Length	mm (in.)	844 (33.2)	869 (34.2)	844 (33.2)	869 (34.2)

See ENGINE CRANKCASE OIL FILL QUANTITIES with filter change later in this group.

S11,OMSP,K1 -19-17FEB93

GENERAL OEM ENGINE SPECIFICATIONS—CONTINUED

Item	Unit Of Measure	6059D	6059T	6068D	6068T
Number of Cylinders	——	6	6	6	6
Fuel Type	——	Diesel	Diesel	Diesel	Diesel
Cylinder Bore	mm (in.)	106.5 (4.19)	106.5 (4.19)	106.5 (4.19)	106.5 (4.19)
Engine Stroke	mm (in.)	110.0 (4.33)	110.0 (4.33)	127.0 (5.00)	127.0 (5.00)
Engine Displacement	L (cu.in.)	5.9 (359)	5.9 (359)	6.8 (414)	6.8 (414)
Compression Ratio	——	17.8:1	17.8:1	17.8:1	17.2:1
Rated Speed:					
Std. Governor	RPM	2500	2500	2400	2400
3—5% Governor	RPM	1500/1800	1500/1800	1500/1800	1500/1800
Fast Idle Speed	RPM	2700	2700	2600	2600
Slow Idle Speed (factory)	RPM	800—850	800—850	800—850	800—850
Industrial Power Rating—					
(maximum intermittent)	kW	89	123	97	129
@ Rated Speed w/o Fan	(hp)	(120)	(165)	(130)	(173)
Flywheel and Housing (SAE No.)	——	2,3,4	2,3,4	2,3,4	2,3,4
Injection Nozzles	mm	9.5	9.5	9.5	9.5
Fuel Filter Area	cm^2 ($in.^2$)	5162/2581 (800/400)	5162/2581 (800/400)	5162/2581 (800/400)	5162/2581 (800/400)
Basic Weight (dry)	kg (lb)	518 (1140)	525 (1155)	588 (1294)	602 (1324)
Physical Dimensions:					
Width	mm (in.)	569 (22.4)	569 (22.4)	513 (20.2)	513 (20.2)
Height	mm (in.)	936 (36.8)	1033 (40.7)	1017 (40.0)	1070 (42.1)
Length	mm (in.)	1125 (44.3)	1125 (44.3)	1125 (44.3)	1125 (44.3)

See ENGINE CRANKCASE OIL FILL QUANTITIES with filter change later in this section.

RG,18293,GNSPEC-19-11AUG94

FUEL INJECTION PUMP SPECIFICATIONS[1]

ENGINE MODEL	INJECTION PUMP OPTION CODES	POWER RATING @ RATED SPEED WITHOUT FAN kW (hp)	RATED SPEED[2] (rpm)	SLOW IDLE (rpm)	FAST IDLE[3] (rpm)
4029DF	1602,1650	43 (58)	2500	800	2750
	1603,1644	35 (47)	1800		1890
	1620,1641,1648	31 (41)	1500		1575
	1632	37 (50)	2200	800	2420
4029TF	1602,1632,1634,1640	59 (79)	2500	800	2750
	1633	46 (62)	2200	800	2420
	1645	48 (64)	2100	800	2310
4039DF	1602,1615,1623	60 (80)	2500	800	2750
	1603,1620,1621	49 (66)	1800	800	1890
	1609	58 (78)	2300	800	2530
	1614	60 (80)	2900	800	3190
	1641,1645	40 (54)	1500		1575
	1664	60 (80)	2500	1600	2750
4039TF	1601	69 (92)	1800	800	1890
	1602,1615,1619,1650,1651	82 (110)	2500	800	2750
	1603,1620	76 (102)	1800		1890
	1605	82 (110)	2900	800	3190
	1610	71 (95)	2300	800	2530
	1611	78 (105)	2200	800	2420
	1635,1641	63 (85)	1500		1575
4045DF	1602	63 (85)	2400	800	2640
	1623	55 (74)	2100	900	2310
	1626	61 (82)	2200	800	2420
4045TF	1601,1629,1630,1631,1632	90 (120)	2400	800	2640
	1602,1619	86 (115)	2400	800	2640
	1609,1628	84 (113)	1800		1890
	1620	70 (94)	1500		1575
	1625,1627	84 (113)	2200	800	2420
6059DF	1602,1615,1623	89 (119)	2500	800	2750
6059TF	1602,1615,1619,1652,1653	123 (165)	2500	800	2750
	1603,1624	111 (149)	1800		1890
	1636,1641	94 (126)	1500		1575
	1644,1645	123 (165)	1800		1890
	1646,1647	104 (139)	1500		1575
6068DF	1602,1619,1622,1623	97 (130)	2400	800	2640
6068TF	1610	94 (126)	2200	850	2420
	1602,1619,1642,1643	129 (173)	2400	800	2640

[1] Engine speeds listed are preset to factory specification. Slow idle speed may be reset depending upon specific vehicle application requirements. Refer to your machine operator's manual for engine speeds that are different from those preset at the factory.

[2] Generator set engines (3-5% governor) usually run at 1500 rpm (50Hz) or 1800 rpm (60Hz) when operating under load depending on cycles of AC current.

[3] For engines with standard governor, fast idle is 7-10% above rated speed. For engines with generator set governors, fast idle is 3-5% above rated speed.

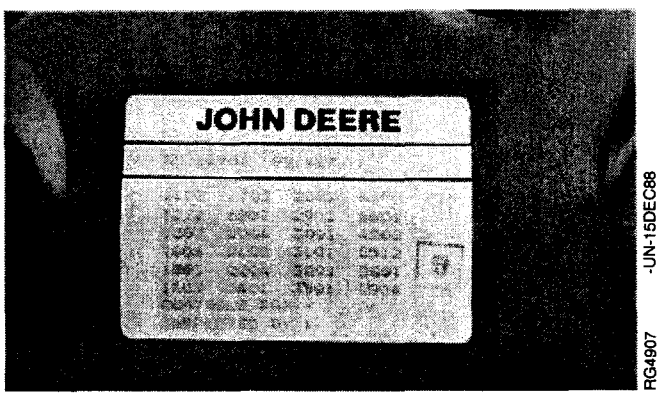
RG,OPTCD,16 -19-11AUG94

ENGINE CRANKCASE OIL FILL QUANTITIES

```
J O H N   D E E R E                              11/05/94

Commande: 182838760   Base code: 147AA   Load: 654150
   -    18  1101- 1202- 1301- 1406- 1501- 1603- 1701-
1902- 2004- 2109- 2204- 2403- 2802- 2902- 3001- 3115-
3519- 3601- 3703- 3901- 4005- 4199- 4398- 4499- 4599-
4603- 4708- 47AA  4802- 4901- 5001- 5101- 5299- 5525-
5601- 5906- 6206- 6699- 6903- 7699- 9801-
Controle par (inspected by):                    ***
```

Saran Option Code Label



Dubuque Option Code Label

Each engine has a 13-digit John Deere engine serial number. The first two digits identify the factory that produced the engine:

"T0" indicates the engine was built in Dubuque, Iowa
"CD" indicates the engine was built in Saran, France

In addition to the serial number plate, OEM engines have an engine option code label affixed to the rocker arm cover. These codes indicate which of the engine options were installed on your engine at the factory. When in need of parts or service, furnish your authorized servicing dealer or engine distributor with these numbers.

On Saran-built engines, the engine option code label includes an engine base code. This base code must also be recorded along with the option codes. At times it will be necessary to furnish this base code to differentiate two identical option codes for the same engine model.

To determine the option code for the oil fill quantity of your engine, refer to the engine option code label affixed to the rocker arm cover. The first two digits of the code (40) identify the dipstick tube group. The last two digits of each code identify the specific dipstick and tube assembly on your engine.

Listed below are engine crankcase oil fill quantities:

• Saran-Built Engines

OEM Engine Model	Dipstick Tube Option Code(s)	Crankcase Oil Capacity
CD3029DF	4001,4002	6.0 L (6.5 qt)
CD3029DF	4003,4022	6.0 L (6.5 qt)
CD3029TF	4001,4003,4023	8.0 L (8.5 qt)
CD3029TF	4002	6.0 L (6.5 qt)
CD3029TF	4021	8.5 L (9.0 qt)
CD4039DF	4001,4002,4005	8.5 L (9.0 qt)
CD4039DF,TF	4003	12.0 L (12.5 qt)
CD4039DF	4004*	9.0 L (9.5 qt)
CD4039DF	4004	14.5 L (15.5 qt)
CD4039DF	4006,4010,4019	8.5 L (9.0 qt)
CD4039DF	4011	13.0 L (14.0 qt)
CD4039TF	4002	13.5 L (14.5 qt)
CD4039TF	4004,4013	14.5 L (15.5 qt)
CD4039TF	4005,4006,4020	12.5 L (13.0 qt)
CD4039TF	4007	13.0 L (14.0 qt)
CD4039TF	4008,4012	11.5 L (12.0 qt)
CD4045DF,TF	4003	12.0 L (12.5 qt)
CD4045DF	4004	9.0 L (9.5 qt)
CD4045TF	4007	15.0 L (16.0 qt)
CD4045TF	4020	12.5 L (13.0 qt)
CD6059DF,TF	4001,4004	17.0 L (18.0 qt)
CD6059DF,TF	4010,4012	17.0 L (18.0 qt)
CD6059DF	4005	14.0 L (15.0 qt)
CD6059DF,TF	4006,4008	20.0 L (21.0 qt)
CD6059DF,TF	4007,4011,4015	15.0 L (16.0 qt)
CD6059TF	4009	14.0 L (15.0 qt)
CD6068DF,TF	4010	17.0 L (18.0 qt)

• Dubuque-Built Engines

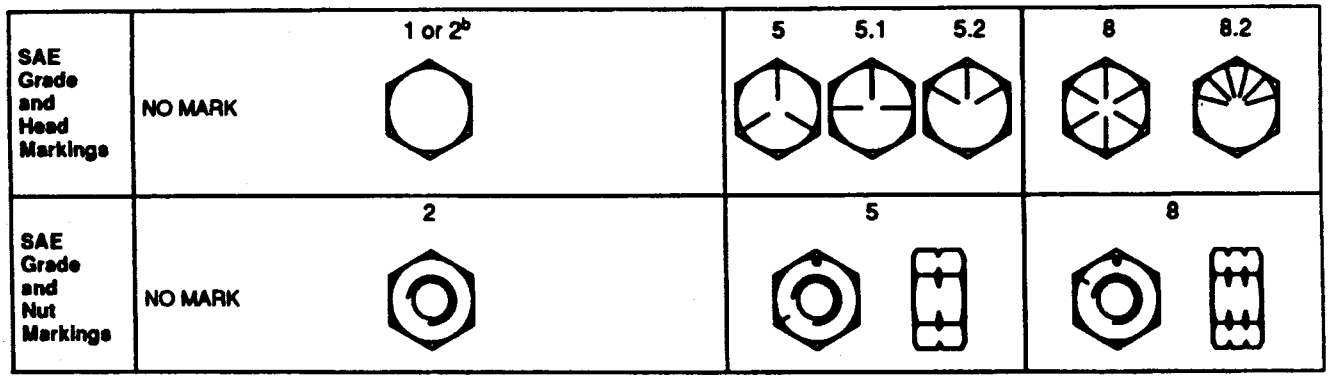
OEM Engine Model	Dipstick Tube Option Code(s)	Crankcase Oil Capacity
T04039DF	4001	9.5 L (10.0 qt)
T04039DF	4002	9.0 L (9.5 qt)
T04039DF,TF	4004	13.5 L (14.5 qt)
T04039DF,TF	4006	13.0 L (14.0 qt)
T04039DF	4007	8.5 L (9.0 qt)
T04039DF	4012	13.0 L (14.0 qt)
T04039DF,TF	4013,4014	11.5 L (12.0 qt)
T04039TF	4001	13.0 L (14.0 qt)
T04039TF	4007	12.5 L (13.0 qt)
T04045DF	4001,4002	9.0 L (9.5 qt)
T04045DF	4003	13.0 L (14.0 qt)
T04045DF,TF	4004	13.5 L (14.5 qt)
T04045TF	4005	13.0 L (14.0 qt)
T06059DF,TF	4001	19.5 L (21.0 qt)
T06059DF	4002	11.5 L (12.0 qt)
T06059DF,TF	4004	19.0 L (20.0 qt)
T06059DF,TF	4005	24.5 L (26.0 qt)
T06059TF	4007	17.0 L (18.0 qt)
T06068DF,TF	4001	19.0 L (20.0 qt)
T06068DF,TF	4004	19.0 L (20.0 qt)
T06068DF	4005	24.5 L (26.0 qt)

** For engine base code 1476F only*

Crankcase oil capacity may vary slightly from amount shown. ALWAYS fill crankcase to full mark or within crosshatch on dipstick, whichever is present. DO NOT overfill.

RG,OMSP,2 -19-03AUG94

UNIFIED INCH BOLT AND CAP SCREW TORQUE VALUES



Size	Grade 1				Grade 2[b]				Grade 5, 5.1, or 5.2				Grade 8 or 8.2			
	Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]	
	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft
1/4	3.7	2.8	4.7	3.5	6	4.5	7.5	5.5	9.5	7	12	9	13.5	10	17	12.5
5/16	7.7	5.5	10	7	12	9	15	11	20	15	25	18	28	21	35	26
3/8	14	10	17	13	22	16	27	20	35	26	44	33	50	36	63	46
7/16	22	16	28	20	35	26	44	32	55	41	70	52	80	58	100	75
1/2	33	25	42	31	53	39	67	50	85	63	110	80	120	90	150	115
9/16	48	36	60	45	75	56	95	70	125	90	155	115	175	130	225	160
5/8	67	50	85	62	105	78	135	100	170	125	215	160	240	175	300	225
3/4	120	87	150	110	190	140	240	175	300	225	375	280	425	310	550	400
7/8	190	140	240	175	190	140	240	175	490	360	625	450	700	500	875	650
1	290	210	360	270	290	210	360	270	725	540	925	675	1050	750	1300	975
1-1/8	400	300	510	375	400	300	510	375	900	675	1150	850	1450	1075	1850	1350
1-1/4	570	425	725	530	570	425	725	530	1300	950	1650	1200	2050	1500	2600	1950
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2150	1550	2700	2000	3400	2550
1-1/2	1000	725	1250	925	990	725	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

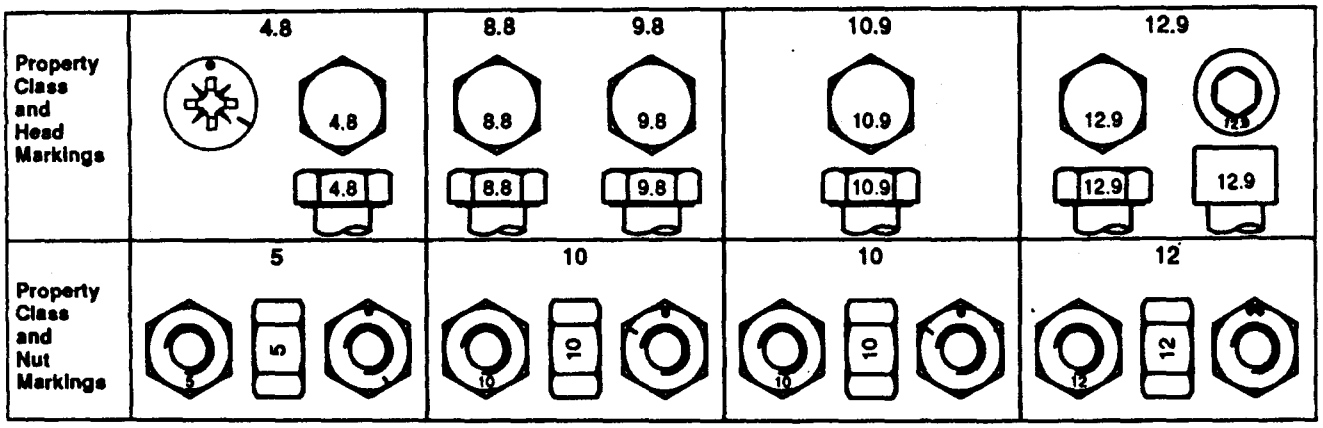
Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

[a] "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

[b] Grade 2 applies for hex cap screws (not hex bolts) up to 152 mm (6-in.) long. Grade 1 applies for hex cap screws over 152 mm (6-in.) long, and for all other types of bolts and screws of any length.

DX,TORQ1 -19-20JUL94

METRIC BOLT AND CAP SCREW TORQUE VALUES



TS1163 -19-04MAR91

Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]		Lubricated[a]		Dry[a]	
	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	255	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

[a] *"Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.*

DX,TORQ2 -19-20JUL94

USING LUBRICATION AND MAINTENANCE RECORDS

Refer to specific Lubrication and Maintenance Section for detailed service procedures.

1. Keep a record of the number of hours you operate your engine by regular observation of hour meter.

2. Check your record regularly to learn when your engine needs service.

3. DO ALL the services within an interval section. Write the number of hours (from your service records) and the date in the spaces provided. For a complete listing of all items to be performed and the service intervals required, refer to the quick-reference chart near the front of the Lubrication and Maintenance Section.

IMPORTANT: The service recommendations covered in this manual are for the accessories that are provided by John Deere. Follow manufacturer's service recommendations for servicing engine driven equipment not supplied by Deere.

RG21891,65 -19-09AUG94

DAILY (PRESTARTING) SERVICE

NOTE: Refer to DAILY PRESTARTING CHECKS in Engine Operating Guidelines Section for detailed procedures.

- Check engine oil level.
- Check coolant level.
- Lubricate PTO release bearing
- Check air cleaner dust unloader valve.
- Cecck fuel filter glass bowl for water.

S11,OMMR,I1 -19-17FEB93

00 HOUR SERVICE

Lubricate PTO clutch shaft bearings.

Service fire extinguisher

lours									
ate									
lours									
ate									
lours									
ate									
lours									
ate									

S11,OMMR,A1 -19-26JUL93

250 HOUR SERVICE

- *Change engine oil and filter.
- Service battery
- Check PTO clutch adjustment
- Check fan and alternator belt tension

Hours									
Date									
Hours									
Date									

**If TORQ-GARD SUPREME PLUS-50 oil is used along with a John Deere oil filter, the oil change interval maybe extended by 50 hours.*

S11,OMMR,AB -19-17FEB93

400 HOUR SERVICE

- *Initial valve clearance adjustment

Hours									
Date									

**Have your authorized servicing dealer or engine distributor adjust valve clearance after the first 400 hours of operation. Thereafter, have the valve clearance adjusted at 1200 Hour/2-Year intervals.*

S55,OMMR,BB -19-17FEB93

600 HOUR/1-YEAR SERVICE

- Clean crankcase vent tube
- Check air intake hoses and connections.
- Lubricate PTO clutch internal levers and linkage
- Replace fuel filter
- Coolant solution analysis - add inhibitor as needed
- Replace air cleaner elements
- Check air intake system
- Check cooling system

Hours									
Date									
Hours									
Date									

S11,OMMR,AD -19-17FEB93

200 HOUR/2-YEAR SERVICE

NOTE: An engine tune-up is recommended every 1200 hours or two years, whichever comes first. If the engine tune-up is not performed at 1200 hours, the following checks must take place:

Have your authorized servicing dealer or engine distributor check and adjust engine speeds

Have you authorized servicing dealer or engine distributor adjust valve clearance

Have you authorized servicing dealer or engine distributor check fuel injection system

- Have you authorized servicing dealer or engine distributor inspect turbocharger
- Check crankshaft vibration damper
- Flush cooling system
- Change thermostats
- Have your authorized servicing dealer or engine distributor test radiator and cap
- Perform engine tune-up

Hours									
Date									
Hours									
Date									

S11,OMMR,J -19-17FEB93

SERVICE AS REQUIRED

- Service air cleaner
- Replace V-belts.

Hours									
Date									

S11,OMMR,Z -19-22FEB93

Index

Page

A

Acid burns 44
Additives
  Coolant 25
Adjust valve clearance 49
Air cleaner 55
Air cleaner
  Service 70
Air filter element, washing 72
Air Intake System 53
Alternator belts 47, 73
Auxiliary gear drive limitations 32

B

Batteries 39, 43
Battery acid burns 44
Battery explosion 43
Belts, fan and alternator 47, 73
Booster battery charger 39
Break-In Engine Oil 16
Break-in oil 28
Break-in service 28

C

Chart
  Maintenance 41
  Service interval 41
Check valve clearance 49
Clutch
  Adjust 48
Codes, Option 3
Codes, Option
  Fuel Injection 94
Cold Weather Aids 15
Cold weather operation 35
Controls 27
Coolant 30, 69
Coolant
  Additives 25
  Disposing 26
  Level 30
  Products 22
  Requirements 20
Coolant effectiveness 55
Coolant solution 55
Coolant, engine 20

Page

Coolant, engine
  Specifications 23
Cooling system 57
Cooling system
  Pressure test 63
Cooling system service 57
Crankcase Vent Tube
  Clean 52
Crankshaft vibration damper 60

D

Damper, crankshaft vibration 60
Diesel fuel 13

E

Electrical system troubleshooting 86
Engine
  Break-in 28
  Coolant 20, 26, 30
  Idling 37
  Oil 17, 28, 30, 45
  Oil filter 45
  Oil level 30
  Serial number 1, 2
Engine coolant 69
Engine coolant
  Disposing 26
  Products 22
  Requirements 20
  Specifications 23
Engine electrical system
  Wiring diagram legend 78, 80
  Wiring diagram—European series 300 81
  Wiring diagram—N. American engines 79
Engine oil
  Break-In 16
Engine oil fill 95
Engine speeds 58
Engine starting 33
Engine storage 88
Engine storage kit 88
Engine troubleshooting 82
Engine tune-up 64
Engine warm-up 36
Engine, option codes 3
Engine, option codes
  Fuel Injection 94
Engine, specifications 91, 92

Page

Engine, Specifications
Fuel Injection 94

F

Fan belts 47, 73
Fire extinguisher, service 42
Fuel
Diesel 13
Injection system 59
Storage 14
Fuel Filter 53
Fuel filters 31
Fuel injection pump model no. 5
Fuel system
Modification 65
Fuel tank
Fillilng 14
Fuses, check 74

G

Gauges 27
Governors 36
Grease 19

H

Hand throttle 27
Hour meter 27, 40

I

Idling engine 37
Inch torque values 97
Instruments 27

K

Kit, engine storage 88

L

Log sheets
Lubrication and Maintenance 99

Page

Lubricant
Alternative 18
Storage 19
Synthetic 18
Lubrication and Maintenance
Intervals 40
Service as required 70
100-hour 42
250-hour 43
Lubrication and maintenance records 102
Lubrication, periodic
Service as required 70
100-hour 42
250-hour 43
Lubrication, periodic, Daily or every 10 hours 102
Lubrication, periodic, Service as required 102
Lubrication, periodic, 100-hour 100
Lubrication, periodic, 1200 Hr/2-Yr 102
Lubrication, periodic, 250-Hour 100
Lubrication, periodic, 400-Hour 101
Lubrication, periodic, 600 Hour/1-Year 101

M

Maintenance intervals 40
Maintenance, periodic
Service as required 70
100-hour 42
250-hour 43
Maintenance, periodic, 1200 Hr/2-Yr 59
Maintenance, periodic, 1200 Hr/2-Yr service 61
Maintenance, periodic, 1200-Hour 58
Maintenance, periodic, 600 Hour/1-Year 57
Maintenance, periodic, 600-Hour 53
Maintenance, Periodic, 600-Hour/6-Month 53
Metric torque values 98

O

Oil
Engine 17
Oil pressure gauge 27
Oil, engine 28, 30, 45
Oil, engine fill 95
Operating the engine 33
Option Codes 3
Option Codes
Fuel Injection 94

Page

P

Power take-off (PTO) 33, 38, 48, 74
Power take-off (PTO)
  Levers and linkage, lubricate 52
  Serial number 5
Prestarting checks 30
Production number 2
PTO
  Clutch 48, 74
  clutch shaft bearings 42
  release bearing 31
  Shaft 74
PTO Clutch 38
PTO clutch 33

R

Radiator cap
  Pressure test 63
Radiator, cap
  Pressure test 63
Records
  Lubrication and maintenance 99

S

Serial number
  Engine 2
  PTO 5
Serial number plate 1
Service
  Intervals 40
Service interval chart 41
Service, battery 43
Service, information 65
Solution, coolant 55
Specifications 91, 92
Specifications
  Coolant 23
Speeds, engine 58
Standby power units 33
Starting, engine 33
Stopping engine 38
Storage
  Fuel 14
Storage, engine 88
Storing lubricants 19
Synthetic Lubricants 18

Page

T

Tachometer 27
Temperature gauge (coolant) 27
Thermostats 61
Torque values
  Inch 97
  Metric 98
Troubleshooting 82, 86
Troubleshooting
  General 76
Tube, Crankcase Vent
  Clean 52
Tune-up 64
Turbocharger, inspect 59

V

Valve clearance 49
Valve Clearance 59
Variable speed, adjust 58
Vibration damper 60

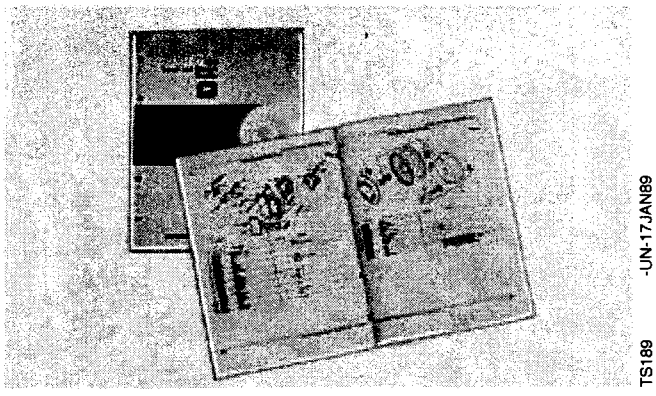
W

Warm-up engine 36
Washing primary air filter element 72
Wiring diagrams
  European series 300 engines 81
  North American engines 79

John Deere Service Literature Available

PARTS CATALOG

The parts catalog lists service parts available for your machine with exploded view illustrations to help you identify the correct parts. It is also useful in assembling and disassembling.



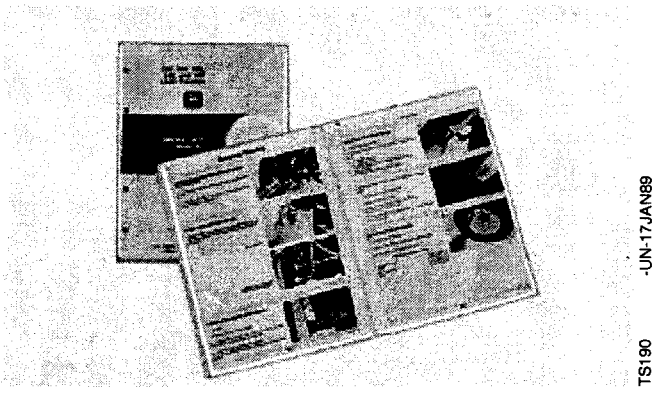
TS189 -UN-17JAN89

DX,PARTS -19-03MAR93

OPERATOR'S MANUAL

The operator's manual provides safety, operating, maintenance, and service information about John Deere machines.

An extra copy of the operator's manual is available. The operator's manual and safety signs on your machine may also be available in other languages. (See your John Deere dealer to order.)



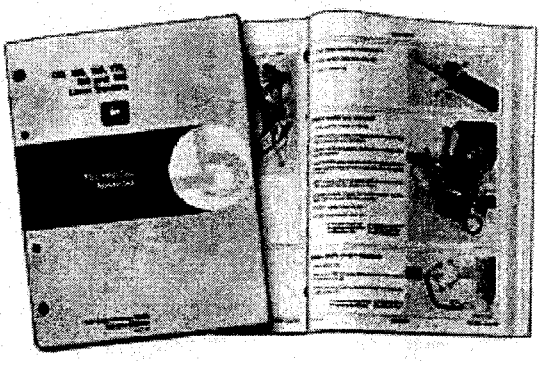
TS190 -UN-17JAN89

DX,OM -19-03MAR93

TECHNICAL AND SERVICE MANUALS

Technical and service manuals are service guides for your machine. Included in the manual are specifications, diagnosis, and adjustments. Also illustrations of assembly and disassembly procedures, hydraulic oil flows, and wiring diagrams.

Component technical manuals are required for some products. These supplemental manuals cover specific components.

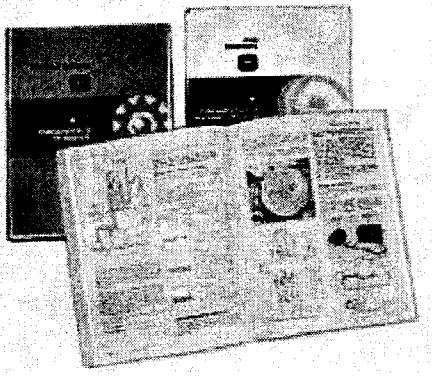


TS224 -UN-17JAN89

DX,TM -19-03MAR93

FMO AND FOS MANUALS

These are basic manuals covering most types and makes of machinery. FMO manuals tell you how to OPERATE agricultural machinery; FOS manuals tell you how to SERVICE machine systems. Each manual starts with basic theory and is fully illustrated with colorful diagrams and photographs. Both the "whys" and "hows" of adjustments and repairs are covered in this reference library.



TS195 -UN-02DEC88

DX,FMOFOS -19-03MAR93

John Deere Service Literature Available

John Deere Distribution Service Center
Service Publications Department
P.O. Box 186, Moline, IL. 61266-0186

Name _____

Address _____

City _____

State _____ Zip _____

Phone ( ) _____

To order, fill out this form and mail it to the address above. Check for prices with your John Deere dealer or call **1-800-522-7448**. You may also place credit card orders by calling this number. Make checks payable to Deere & Co. Service Publications. Allow three weeks for delivery. No COD orders. Do not send cash or stamps. If you want manuals or catalogs for equipment not shown on this list, provide the model number, serial number, and name of the product.

Title	Order Number	Price Each	x Quantity	= Total
300 Series Liter Engines Parts Catalogs:				
3029 Saran-Built Engines	PC3194		x	=
4039 and 4045 Dubuque-Built Engines	PC2305		x	=
4039 Saran-Built Engines	PC3191		x	=
6059 and 6068 Dubuque-Built Engines	PC2294		x	=
6059 Saran-Built (100000—) Engines	PC3192		x	=
Operator's Manuals:				
English Version	OMRG18293		x	=
Component Technical Manuals:				
3029, 4039, 4045, 6059, and 6068 Engines	CTM8		x	=
OEM Engine Accessories	CTM67		x	=
Alternators and Starting Motors	CTM77		x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
FOS Manual—Hydraulics	FOS1005B		x	=
FOS Manual—Electrical Systems	FOS2006B		x	=
FOS Manual—Engines	FOS3007B		x	=
FOS Manual—Power Trains	FOS4006B		x	=
FOS Manual—Shop Tools	FOS5105B		x	=
FOS Manual—Welding	FOS5207B		x	=
FOS Manual—Belts and Chains	FOS5304B		x	=
FOS Manual—Bearings and Seals	FOS5405B		x	=
FOS Manual—Tires and Tracks	FOS5507B		x	=
FOS Manual—Air Conditioning	FOS5707B		x	=
FOS Manual—Fuels, Lubricants & Coolants	FOS5807B		x	=
FOS Manual—Fasteners	FOS6004B		x	=
FOS Manual—Iden. of Parts Failures	FOS6104B		x	=
1-in. 3-Ring Binder (400 pages max.)	SX2062		x	=
1-1/2-in. 3-Ring Binder (600 pages max.)	SX2063		x	=
1—1-1/2-in. 3-Post Binder (600 pages max.)	SX2066		x	=
2—3-1/2-in. 3-Post Binder (1400 pages max.)	SX2064		x	=
2-4-in. 4-Post Expandable (2000 pages max.)	SX2056		x	=
Catalog of Available Service Publications	DB1112	No Charge		
			Subtotal	

Method of Payment

- ☐ Check or Money Order enclosed
- ☐ John Deere ☐ Farm Plan
- ☐ MasterCard ☐ Discover
- ☐ Visa ☐ American Express

_____
Credit Card Acct. No. (13 or 16 digits)

Expiration date: _____

_____
Your Signature

Subtotal	Shipping & Handling
$ 0.50 to $ 24.99	$ 3.00
25.00 to 49.99	4.25
50.00 to 99.99	5.50
100.00 to 199.99	7.50
200.00 and over	4% of subtotal

Optional shipping available. Please check and add cost to normal shipping above.

- ☐ 1 day air $15.00
- ☐ 2 day air $10.00

Illinois state residents add 6.25% and Iowa state residents add 5% for Retail Occupation Tax or show tax exemption number. Other states excluded.

Total Shipping & Handling

Amount Due in U.S. Dollars (Prices subject to change without notice. MAY-94)

RG,SLIT,1 -19-11AUG94

John Deere Service Keeps You On the Job

JOHN DEERE PARTS

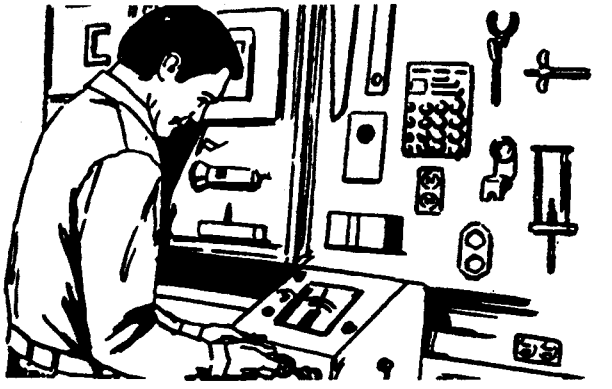
We help minimize downtime by putting genuine John Deere parts in your hands in a hurry.

That's why we maintain a large and varied inventory—to stay a jump ahead of your needs.

DX,IBC,A -19-04JUN90

THE RIGHT TOOLS

Precision tools and testing equipment enable our Service Department to locate and correct troubles quickly . . . to save you time and money.



DX,IBC,B -19-04JUN90

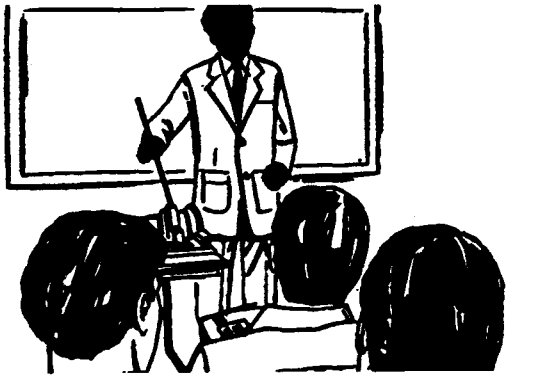
WELL-TRAINED TECHNICIANS

School is never out for John Deere service technicians.

Training schools are held regularly to be sure our personnel know your equipment and how to maintain it.

Result?

Experience you can count on!



DX,IBC,C -19-04JUN90

PROMPT SERVICE

Our goal is to provide prompt, efficient care when you want it and where you want it.

We can make repairs at your place or at ours, depending on the circumstances: see us, depend on us.

JOHN DEERE SERVICE SUPERIORITY: We'll be around when you need us.

DX,IBC,D -19-04JUN90