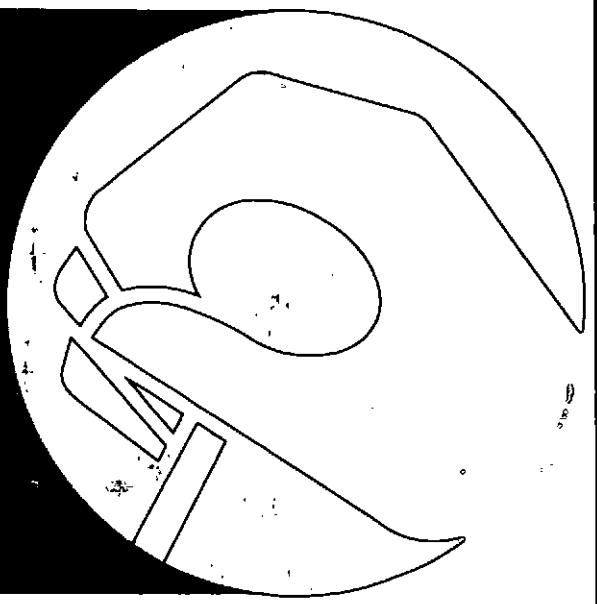
6076 Engines

JOHN DEERE

OPERATOR'S MANUAL



Deere Power Systems Group
OMRG17286 Issue D1
(This manual replaces OMRG17286 H9)

LITHO IN U.S.A.

Introduction

TO THE OPERATOR

This new engine was carefully designed and manufactured to give years of dependable service. To keep it running efficiently, follow the instructions in this operator's manual. Each section is clearly identified so you can easily find the information you need—whether it is operation, lubrication, or service.

Read the Contents to learn where each section is located. Use the alphabetical index for fast reference.

Through this manual, "right-hand" and "left-hand" sides are determined by facing the drive end (rear) of the engine.

Record your engine serial number and option codes in the spaces indicated in the Specifications section in the back of this book. Your dealer needs this information to give you prompt, efficient service when you order parts. If your engine requires replacement parts, see your authorized servicing dealer or engine distributor. Authorized servicing dealers stock factory original parts and have the specialized equipment and personnel with technical knowledge to provide skilled and efficient workmanship on your engine.

All 6076 (400 Series) engines are six cylinder diesel engines. 6076 Engines may be identified by one of the following designations which are a portion of the serial number:

6076T
6076A
6076H

- The first digit shown above indicates the number of cylinders.

- The second, third, and fourth digits indicate the displacement in liters.

- The fifth digit indicates engine aspiration:

T—Turbocharged
A—Turbocharged and aftercooled utilizing engine coolant as a means for cooling intake air.
H—Turbocharged and Air-to-Air aftercooled utilizing ambient air as a means for cooling intake air.

For example: 6076A indicates a six-cylinder engine that has 7.6 L (466 cu. in.) displacement and is turbocharged and aftercooled.

Certain engine accessories such as radiator, air cleaner, and instruments are optional equipment on John Deere OEM Engines. These accessories may be provided by the equipment manufacturer instead of John Deere. This operator's manual applies only to the engine and those options available through the John Deere distribution network.

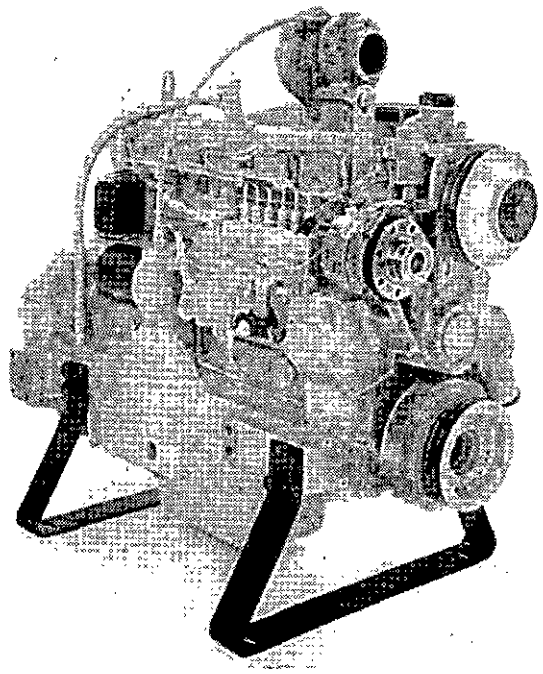
IMPORTANT WARRANTY INFORMATION

The warranty on this engine appears on your copy of the purchase order which you should have received from your dealer when making your purchase. This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty.

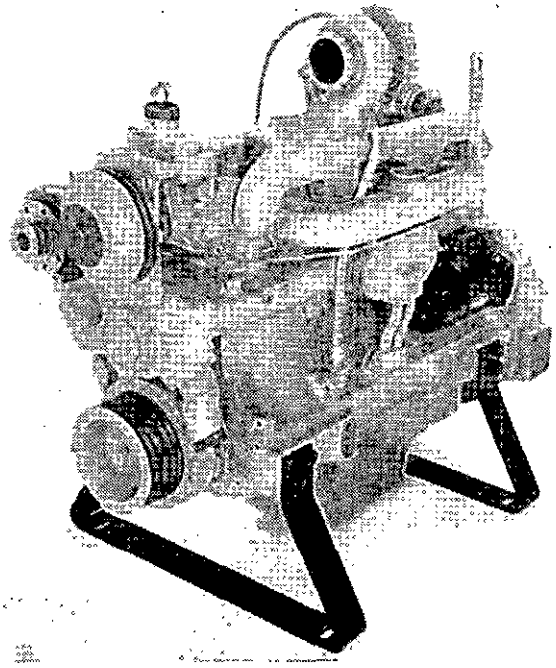
Warranty and field improvements are a part of John Deere's product support program for customers who operate and maintain their equipment as described in this manual. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied. Setting fuel delivery above specifications or otherwise over-powering machines will result in such action.

Your Operator's Manual contains SI Metric equivalents which immediately precede the U.S. Customary units of measure.

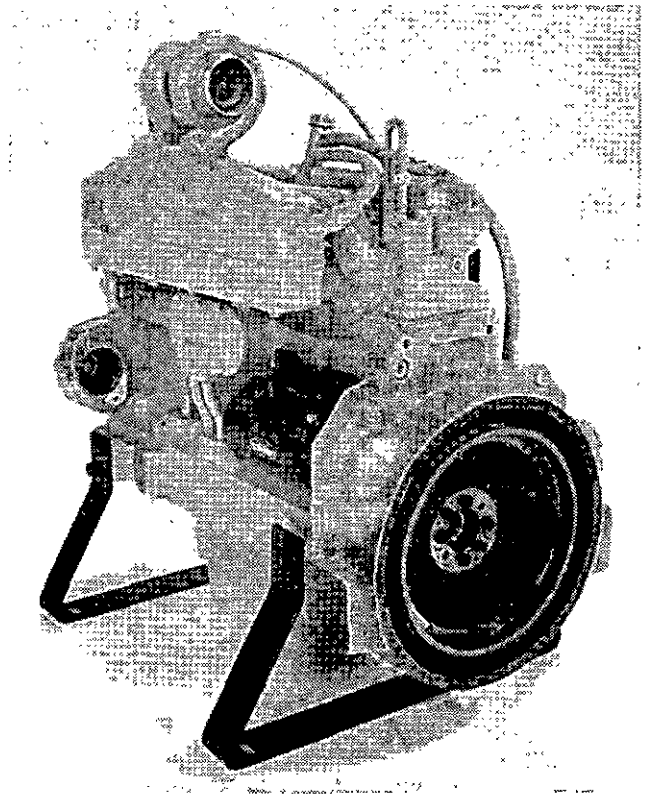
Identification Views



RG5319 -UN-15DEC88

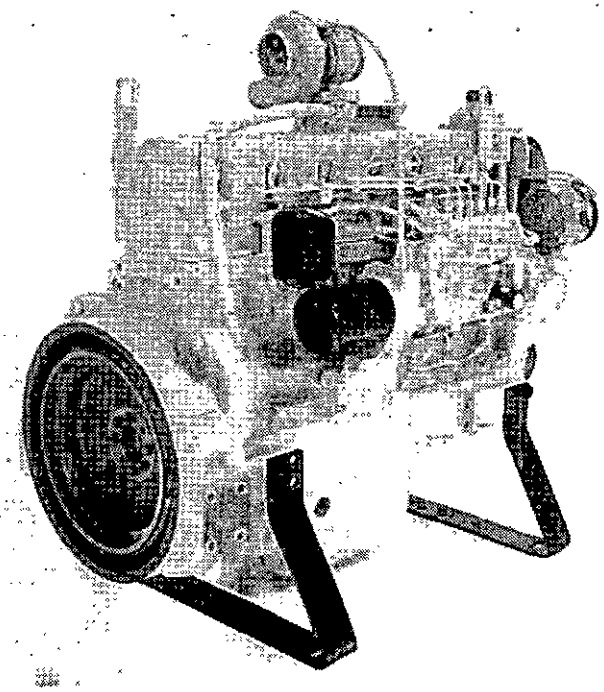


RG5320 -UN-15DEC88



RG5321 -UN-15DEC88

6076AF Engine with Auxiliary Drive



RG5322 -UN-15DEC88

6076HF Engine

S55,OMCO,C -19-15FEB88

Safety

RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.

T81389 -UN-07DEC88

DX,ALERT -19-04JUN90

UNDERSTAND SIGNAL WORDS

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

TS187 -19-30SEP88

DX,SIGNAL -19-04JUN90

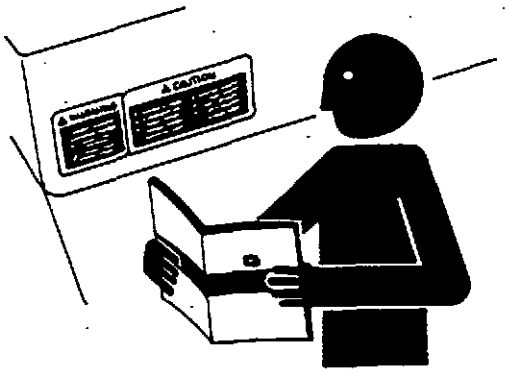
FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.



TS201 -UN-23AUG88

DX,READ -19-04JUN90

060591

PREVENT BYPASS STARTING

Avoid possible injury or death from engine runaway.

Do not start engine by shorting across starter terminal. *Engine will start with PTO engaged if normal circuitry is* bypassed.

Start engine only from operator's station with PTO disengaged or in neutral.

RG5419 -UN-28FEB89

RG,BYPAS1 -19-19MAR91

HANDLE FUEL SAFELY—AVOID FIRES

Handle fuel with care: it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.

TS202 -UN-23AUG88

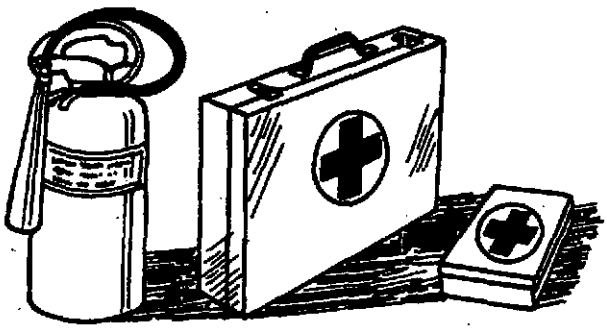
DX,FIRE1 -19-04JUN90

PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TS291 -UN-23AUG88

DX,FIRE2 -19-04JUN90

HANDLE STARTING FLUID SAFELY

Starting fluid is highly flammable.

Keep all sparks and flame away when using it. Keep starting fluid away from batteries and cables.

To prevent accidental discharge when storing the pressurized can, keep the cap on the container, and store in a cool, protected location.

Do not incinerate or puncture a starting fluid container.

T6089AU -UN-23MAR89

DX,FIRE3 -19-04JUN90

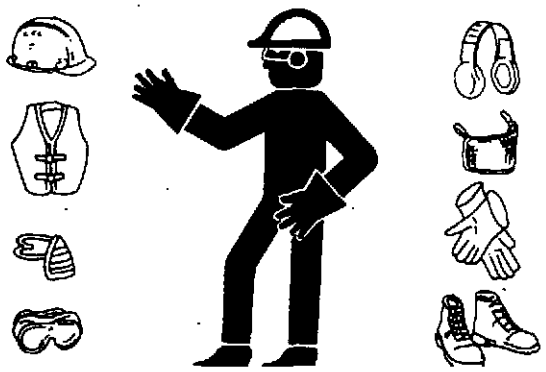
WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



TS206 -UN-23AUG88

DX,WEAR -19-10SEP90

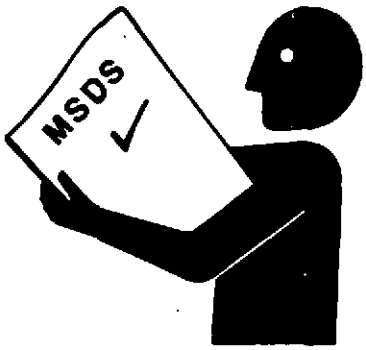
HANDLE CHEMICAL PRODUCTS SAFELY

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.

Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

(See your John Deere dealer for MSDS's on chemical products used with John Deere equipment.)



TS1132 -UN-26NOV90

DX,MSDS,NA -19-15MAR91

STAY CLEAR OF ROTATING DRIVELINES

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.

TS198 -UN-23AUG88

DX,PTO -19-04JUN90

PRACTICE SAFE MAINTENANCE

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate or service machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

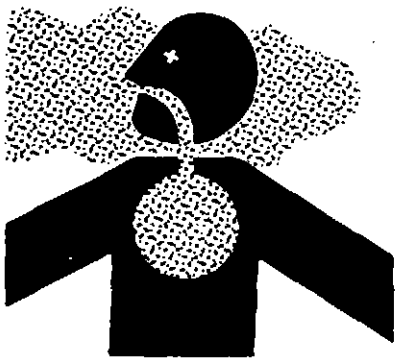
TS218 -UN-23AUG88

DX,SERV -19-04JUN90

WORK IN VENTILATED AREA

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



TS220 -UN-23AUG88

DX,AIR -19-04JUN90

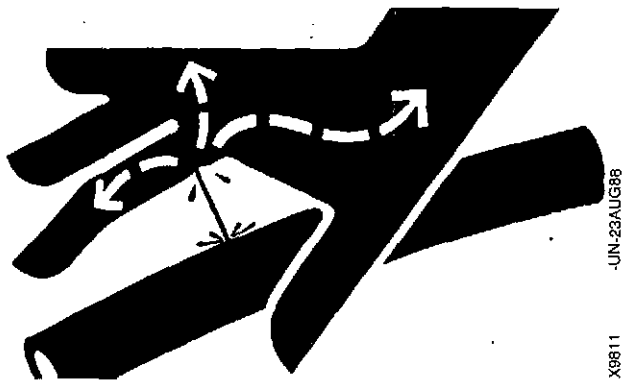
AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any *fluid injected into the skin must be surgically removed* within a few hours or gangrene may result. Doctors *unfamiliar with this type of injury should reference a* knowledgeable medical source.



X9811 -UN-23AUG88

DX,FLUID,REGII -19-24JUL90

SERVICE COOLING SYSTEM SAFELY

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

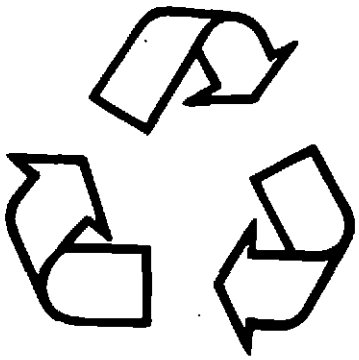
DX,RCAP -19-04JUN90

DISPOSE OF WASTE PROPERLY

Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer. Do not pour waste onto the ground, down a drain, or into any water source.



TS1133 -UN-26NOV90

DX,DRAIN -19-15MAR91

INSTRUMENT PANEL

All controls and instruments are optional equipment on John Deere OEM Engines. They may be provided by the equipment manufacturer instead of John Deere. The following information applies only to those controls and *instruments provided by John Deere.*

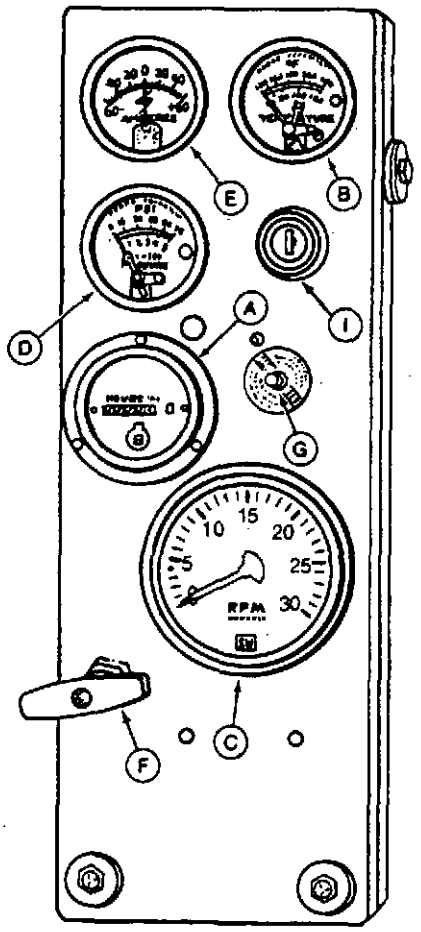
The key switch controls the electrical system. It has four positions:

- ACCESSORY (not used)
- OFF
- ON
- START

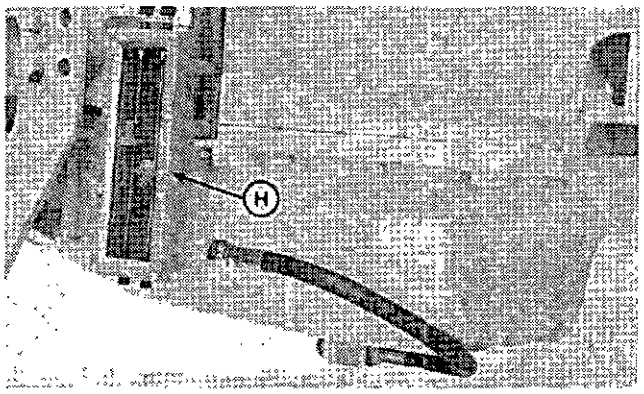
When the switch is released from the START position, a spring inside the switch returns it to the ON position.

NOTE: A combination tachometer and hour meter is also an available option. See your authorized servicing dealer or engine distributor.

A—Electric Hour Meter
B—Coolant Temperature Gauge
C—Tachometer
D—Oil Pressure Gauge
E—Ammeter
F—Hand Throttle
G—Reset Switch
H—Crankcase Oil Level Switch



RG4477 -UN-14DEC88

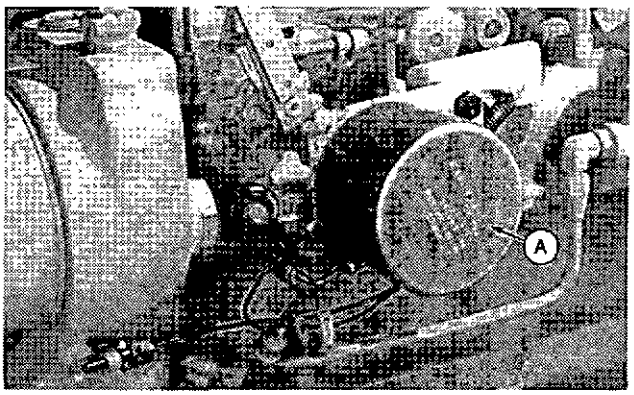


RG4668 -UN-14DEC88

S55,OMCI,R -19-19MAR91

A—Electric Shut-off Solenoid-Mechanical (Regular) Governor.

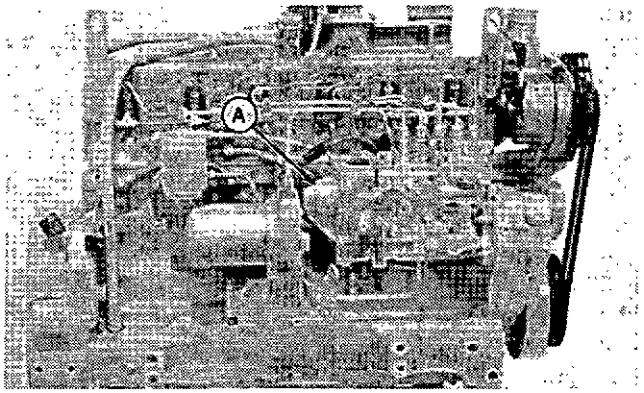
NOTE: Kits are available for electric shut-off solenoid mounted onto injection pump (as shown) or toward rear of engine directly below fuel filter base.



S55,OMCI,X -19-15MAR91

A—Electronically Controlled Electric Governor

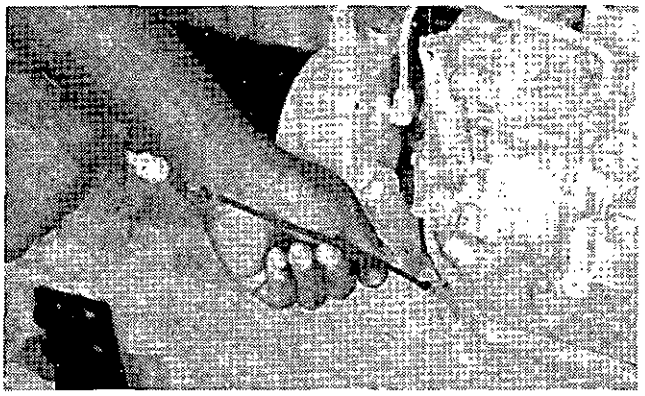
NOTE: In some cases the electronic engine control unit (ECU, not shown) senses potential engine problems and automatically shuts engine down before any damage occurs.



S55,OMCI,Y -19-15MAR91

Engine Break-In

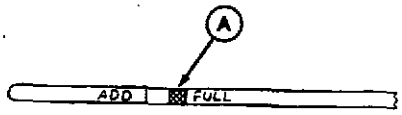
BREAK-IN SERVICE


RG5308 -UN-15DEC88

The engine is ready for normal operation, however, extra care during the first 100 hours will result in more satisfactory long-term engine performance and life.

1. This engine is filled with break-in (10W30) oil. Normal engine oil pressure is 276—345 kPa (2.76—3.45 bar) (40—50 psi) at rated speed and normal operating temperature. Normal engine coolant temperature range is 82°—94°C (180°—202°F). Run the engine the first 50—100 hours with break-in oil.

IMPORTANT: DO NOT operate engine when oil level is below ADD mark on dipstick. ALWAYS keep oil level within the crosshatch pattern (A) or at the full mark, whichever is present. Oil levels anywhere within crosshatch are considered full.



RG5420 -UN-15DEC88

2. Check engine oil level more frequently. If oil must be added during this period, use seasonal viscosity grade oil. (See DIESEL ENGINE OIL in Fuels, Lubricants, and Coolant Section.)

S55,OMBI,C -19-24APR91

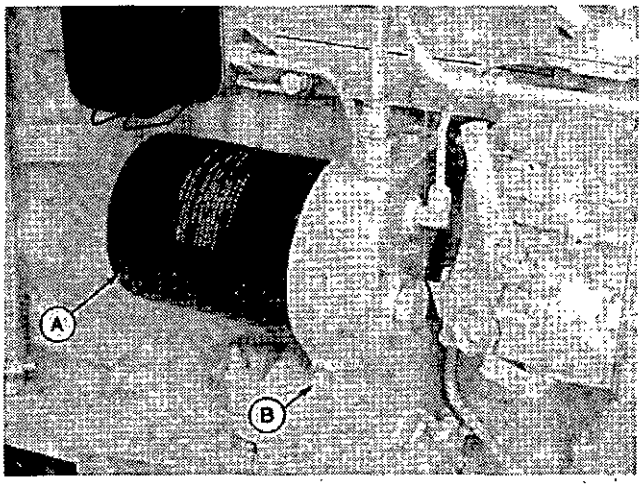
3. During the first 20 hours, avoid prolonged periods of engine idling or sustained maximum load operation.

4. *If engine will idle longer than 5 minutes, stop engine.*

5. After the first 100 hours maximum, drain engine oil, drain oil filter base (B), and change engine oil filter (A). Fill with seasonal viscosity grade oil. (See DIESEL ENGINE OIL in Fuels, Lubricants and Coolant section.)

NOTE: Some increase in oil consumption may be expected when low viscosity oils are used. Check oil levels more frequently.

If air temperature is below -10°C (14°F), use an engine heater.



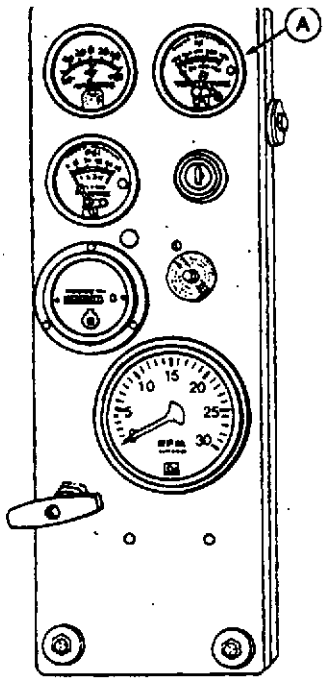
RG5307 -UN-15DEC88

S55,OMBI,A -19-15MAR91

6. Watch coolant temperatures (A) closely. If coolant temperature rises above 99°C (210°F), reduce load on engine. Unless temperature drops quickly, stop the engine and determine the cause before resuming operation.

NOTE: When the coolant temperature gauge reads approximately 104°C (220°F), the engine will shutdown automatically, if equipped with safety controls.

7. The tension on newly installed V-belts should be checked daily for the first few days of operation because of the initial stretching. Also, check belts for proper seating in pulley grooves.



S11,OMBI,K -19-19MAR91

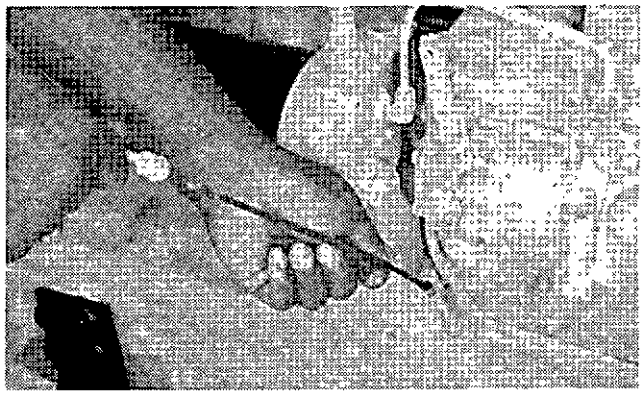
DAILY PRESTARTING CHECKS

Do the following before starting the engine for the first time each day.

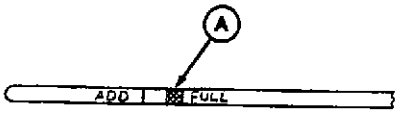
1. Check engine oil. Always keep oil level at full mark on dipstick. Add oil as required. (See DIESEL ENGINE OIL in Fuels, Lubricants, and Coolant section for oil specifications.)

Oil fill locations are either on rocker arm cover or on injection pump gear cover housing.

NOTE: ALWAYS keep oil level within the crosshatch pattern (A) on dipstick when operating engine. Oil levels anywhere within crosshatch are considered full.



RG5308 -UN-15DEC88

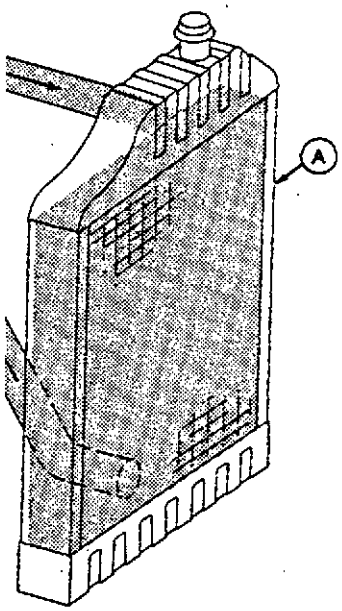


RG5420 -UN-15DEC88

S55,OMPC,A -19-24APR91

2. Check the coolant level when engine is cold. Coolant level should be approximately 19 mm (3/4 in.) below bottom of filler neck. Fill radiator (A) with appropriate coolant. (See ENGINE COOLANT RECOMMENDATIONS in Fuels, Lubricants, and Coolant section.)

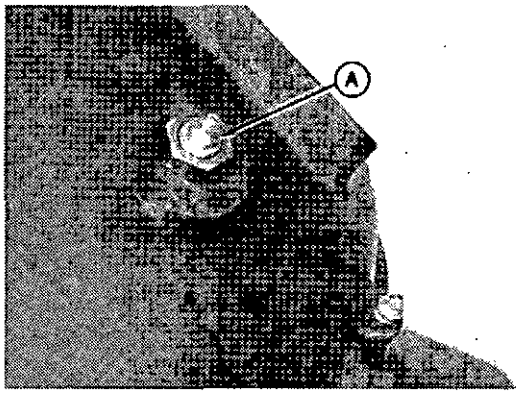
IMPORTANT: Engine coolant must contain coolant conditioner to guard against rust and corrosion in the engine. (See ADDING COOLANT in Lubrication and Maintenance/1200 Hours/2-Year Section.)



RG4675 -UN-14DEC88

S11,OMPC,P -19-19MAR91

3. Apply one shot of John Deere Multi-Purpose Lubricant or its equivalent at PTO release bearing grease fitting (A). DO NOT over lubricate.

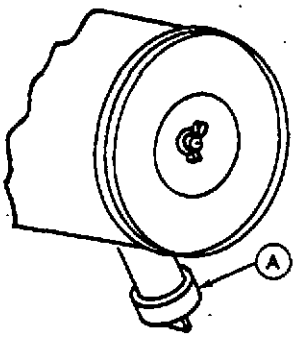


S55,OMPC,B -19-05JAN88

4. If the air cleaner has an automatic dust unloader valve (A), squeeze the unloader valve on air cleaner assembly to clear away any dust buildup.

If equipped with restriction indicator gauge, check gauge to determine if air cleaner needs to by serviced.

IMPORTANT: Maximum air intake restriction is 6.25 kPa (0.06 bar) (1.0 psi) (25 in. H_2O). A clogged air cleaner element will cause excessive intake restriction and a reduced air supply to the engine.

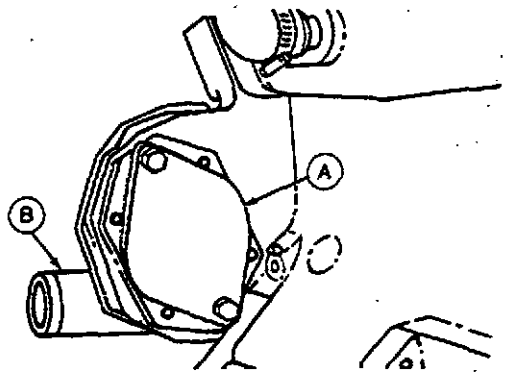


RG,OM76PC,UV -19-06MAY91

AUXILIARY DRIVE LIMITATIONS

IMPORTANT: When attaching an air compressor, hydraulic pump, or other attachment to be driven by the auxiliary drive (engine timing gear train at front of engine), power requirements of the accessory must be limited to:

- **37 kW (50 HP) Continuous Operation**
- **45 kW (60 HP) *Intermittent Operation***



RG4717 -UN-14DEC88

A—Auxiliary Drive Gear Rear Cover **B—Water Pump Inlet *Tube***

S55,OMOE,AW -19-24APR91

STARTING THE ENGINE

The following instructions apply to the optional controls and instruments available thru the John Deere Parts Distribution Network. The controls and instruments for your engine may be different from those shown here; always follow manufacturer's instructions.

CAUTION: Before starting engine in a confined building, install proper outlet exhaust ventilation equipment. Always use safety approved fuel storage and piping.

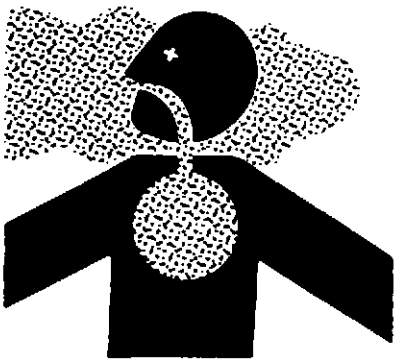
NOTE: If temperature is below 0°C (32°F), it may be necessary to use cold weather starting aids available from your authorized servicing dealer or engine distributor. Follow manufacturers recommended procedure when using starting aids.

CAUTION: Starting fluid is highly flammable. Do not use near fire, sparks, or flames. Do not incinerate or puncture a starting fluid container.

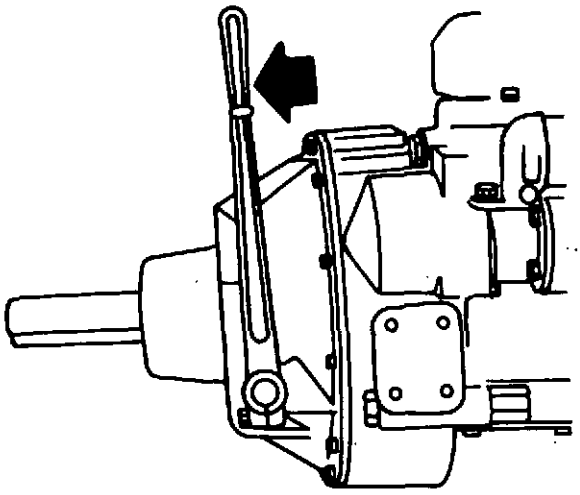
1. Perform all prestarting checks outlined in previous section.

2. Open the fuel supply shut-off valve, if equipped.

3. If equipped with PTO clutch, pull lever (arrow) rearward (away from engine) to disengage PTO clutch.



TS220 -UN-23AUG88



RG5602 -UN-30NOV89

S11,OMOE,AS -19-19MAR91

4. Pull hand throttle (A) 1/3 of the way out. Turn the handle in either direction to lock it in place.

5. Depress and hold reset button (B) while starting.

IMPORTANT: Do not operate the starter for more than 30 seconds at a time. To do so may overheat the starter. If the engine does not start the first time, wait at least 2 minutes before trying again. If it does not start after four attempts, see Troubleshooting Section.

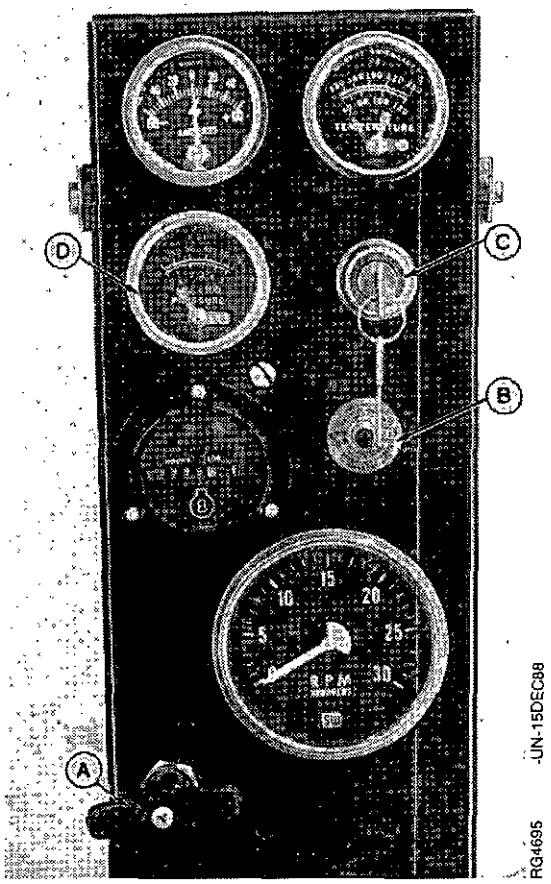
6. *Turn the key switch (C) clockwise to crank the engine.* When the engine starts, release the key so that it returns to the "ON" position.

IMPORTANT: If the key switch is released before the engine starts, wait until the starter and the engine stop turning before trying again. This will prevent possible damage to the starter and/or flywheel.

7. After the engine starts, continue to hold the reset button in until the oil pressure gauge (D) reads at least 103 kPa (1.03 bar) (15 psi). The safety controls will not allow the engine to run at a lesser oil pressure unless the reset button is held in.

IMPORTANT: Should the engine die when operating under load, immediately disengage PTO and restart the engine to prevent overheating of turbocharged parts, caused when the flow of oil for cooling and lubrication is stopped.

8. *Check all gauges for normal engine operation.* If operation is not normal, stop the engine and determine the cause.



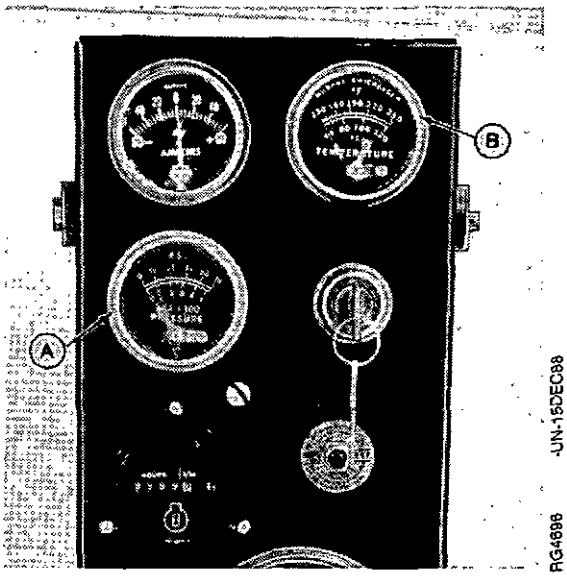
A—Hand Throttle
B—Reset Button
C—Key Switch
D—Oil Pressure Gauge

S11,OMOE,AT -19-15MAR91

WARMING ENGINE

IMPORTANT: To assure proper lubrication, operate engine at or below 1200 rpm with no load for 1 to 2 minutes. Extend this period 2 to 4 minutes when operating at temperatures below freezing.

Engines used in generator set applications where the governor is locked at a specified speed may not have a slow idle function. Operate these engines at high idle for 1 to 2 minutes before applying the load. This procedure does not apply to Standby generator sets where the engine is loaded immediately upon reaching rated speed.



1. Check oil pressure gauge (A) as soon as engine starts. If gauge needle does not rise above 103 kPa (1.03 bar) (15 psi) within 5 seconds, stop the engine and determine the cause. Normal engine oil pressure is 310±34 kPa (3.10±0.34 bar) (45±5 psi) at full load rated speed (1800—2200 rpm) and normal operating oil temperature 105°C (220°F)

2. Watch coolant temperature gauge (B). Do not place engine under full load until it is properly warmed up. The normal engine coolant temperature range is 82°—94°C (180°—202°F).

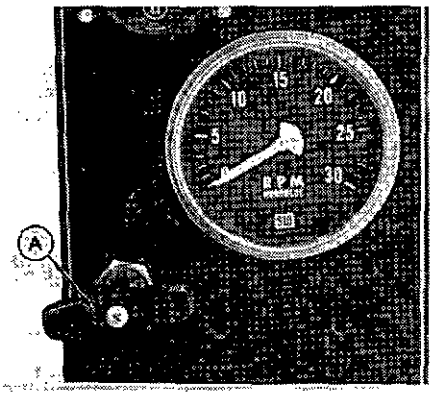
NOTE: It is a good practice to operate the engine under a lighter load and at lower speeds than normal for the first 30 minutes after start-up.

S11,OMOE,D -19-25APR91

CHANGING ENGINE SPEED—STANDARD (MECHANICAL) GOVERNOR

To increase engine speed, turn handle (A) to the horizontal position and pull out until desired engine speed is obtained. Turn the handle in either direction to lock throttle position. The handle is pushed inward to decrease engine speed.

NOTE: Engines equipped with electronically controlled electric governors run at a constant speed and are programmable controlled.



RG4697 -UN-15DEC88

S55,OMOE,AZ -19-21JAN88

ENGINE SPEEDS

6076TF, HF and AF Engines are designed to insure optimum performance at the speeds given below. Have your authorized servicing dealer or engine distributor adjust engine speeds as needed.

Recommended engine working speeds are as follows:

Engine	Normal Working Range (Minimum*-Maximum**) rpm	Fast Idle Speed rpm	Rated Speed rpm
6076TF			
Standard Mechanical Governor	1500-2200	2420	2200
3—5% Mechanical Governor	1500-1800	1890	1800
6076AF			
Standard Mechanical Governor	1500-2200	2420	2200
3—5% Mechanical Governor	1500-1800	1890	1800
Electric Governor	1500-1800	1800	1800
6076HF			
Standard Mechanical Governor	1500-2200	2420	2200
3—5% Mechanical Governor	1500-1800	1890	1800
Electric Governor	1500-1800	1800	1800

- Slow idle speeds are set at 800-850 rpm at the producing factory on all engines. Equipment manufacturers will reset slow idle according to specific application. Refer to your machine technical manual for this specification.

- Fast idle speeds are 10% (approximately 200 rpm) greater than rated speed on standard governor engines and 3-5% (100 rpm maximum) greater than rated speed on generator set engines with a 3-5% governor.

- Rated speed is the speed obtained when engine is operating at full throttle and full load.

**The engine will run at any speed from slow idle to fast idle. For constant operation, keep speed at or above 1500 rpm.*

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

S55,OMOE,BA -19-25APR91

060591

STANDBY POWER UNITS

To assure that your engine will deliver efficient standby operation when needed, run engine (at rated speed) without load for 30 minutes every 2 weeks.

S55,OMOE,BE -19-06MAY91

IDLING ENGINE

Avoid unnecessary engine idling. Prolonged idling may cause the engine coolant temperature to fall below its normal range. This, in turn, causes crankcase oil dilution, due to incomplete fuel combustion, and permits formation of gummy deposits on valves, pistons, and piston rings. It also promotes rapid accumulation of engine sludge and unburned fuel in the exhaust system.

Slow idle speed for this engine is 800—850 rpm at factory. If engine must be left running more than 3 or 4 minutes, minimum engine speed should be 1200 rpm. DO NOT allow engine to idle longer than 5 minutes.

NOTE: Generator set applications where the governor is locked at a specified speed may not have a slow idle function. These engines will idle at no load governed speed (high idle).

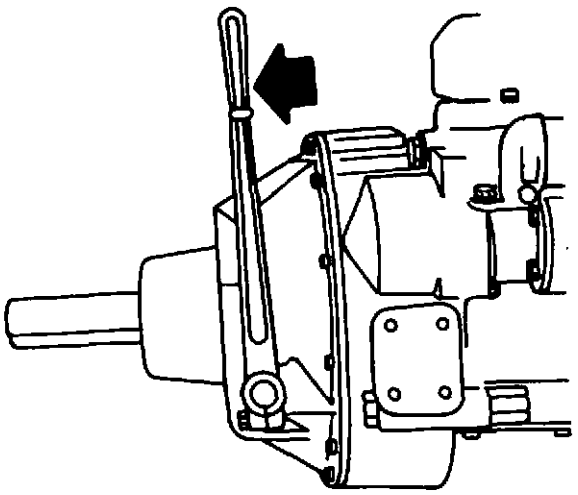
S11,OMOE,G -19-24APR91

STOPPING THE ENGINE

1. Pull PTO clutch lever rearwards (away from engine) to disengage clutch.

2. Move the throttle lever (A) to slow idle on regular (mechanical) governor engines.

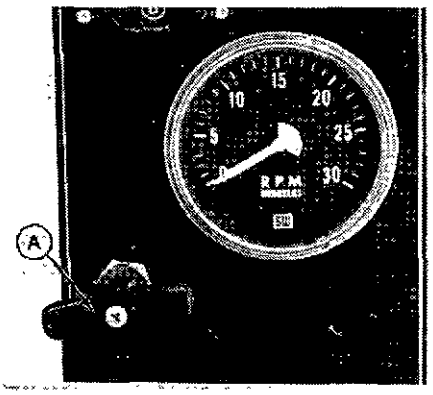
IMPORTANT: Before stopping an engine that has been operating at working load, idle engine at least 2 minutes at 1000—1200 rpm to cool hot engine parts. Engines in generator set applications, where the governor is locked at a specified speed and no slow idle function is available, should be unloaded and idled for at least 2 minutes at high idle.



RG5802 -UN-30NOV89

3. Turn key switch to "OFF" position to stop the engine. Remove ignition key.

IMPORTANT: Make sure that exhaust stack cap is installed when engine is not running. This will prevent water and dirt from entering engine.



RG4697 -UN-15DEC88

S55,OMOE,BC -19-25APR91

USING A BOOSTER BATTERY OR CHARGER

A booster battery can be connected in parallel with battery on the unit to aid in cold weather starting. Use heavy duty jumper cables.

CAUTION: Gas given off by battery is explosive. Keep sparks and flames away from battery. Before connecting or disconnecting a battery charger, turn charger off. Make last connection and first disconnection at a point away from battery. Always connect NEGATIVE (—) cable last and disconnect this cable first.

NOTE: 6076 Engines are available with 12-volt or 24-volt electrical systems. See your John Deere Dealer or Engine Distributor for additional information on using booster batteries.

IMPORTANT: Be sure polarity is correct before making connections. Reversed polarity will damage electrical system. Always connect positive to positive and negative to ground. Always use 12-volt booster battery for 12-volt electrical systems and 24-volt booster battery for 24-volt electrical systems.

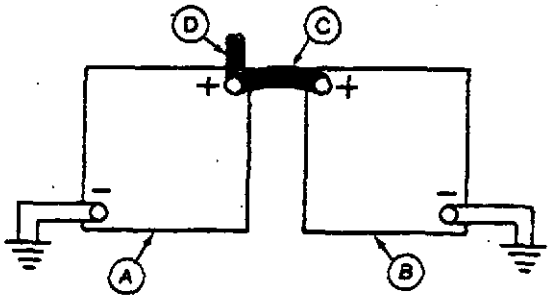
1. Connect both booster batteries together as shown in illustration.

2. Connect a jumper cable to POSITIVE (+) post of booster battery and to the POSITIVE (+) post of battery connected to the starter.

3. Complete connections by connecting one end of another jumper cable to the NEGATIVE (—) post of the booster battery and the other end to a good ground on the engine frame away from the battery.

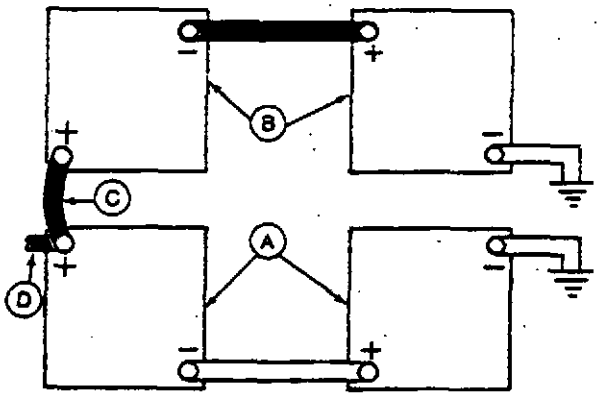
A—12-Volt Machine Battery(ies)
B—12-Volt Booster Battery(ies)
C—Booster Cable
D—Cable to Starting Motor

TS204 -UN-23AUG88



RG4678 -UN-14DEC88

12-Volt System



RG4698 -UN-14DEC88

24-Volt System

S55,OMOE,BD -19-19MAR91

060591

DIESEL FUEL

Use either Grade No. 1-D or Grade No. 2-D fuel as defined by ASTM Designation D975 for diesel fuels. In European countries, use ISO 1585 commercial diesel fuel. Find expected air temperature at time of start on thermometer scale in chart. Correct diesel fuel grade is shown to the right of scale.

NOTE: At altitudes above 1500 m (5000 ft) use Grade 1-D for all temperatures. If engine is operated under "stand-by" conditions, use grade 1-D for all temperatures.

If engine is operated at temperatures of -40° to -57°C (-40° to -70°F), Grade DF-A arctic fuel is recommended.

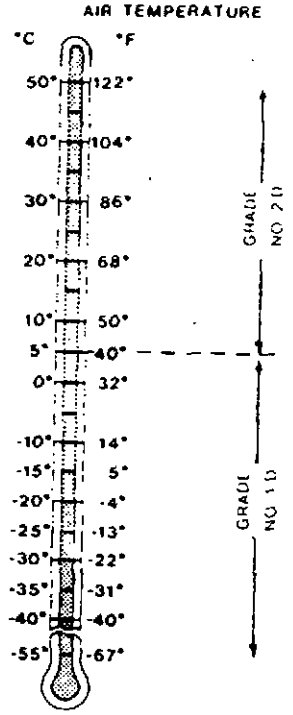
Fuel sulphur content of less than 0.5 percent is preferred, to prevent higher wear from corrosive combustion products.

IMPORTANT: If fuel sulphur content exceeds 0.7 per cent, the engine oil drain interval must be reduced by 50 percent.

Cetane number should be no less than 40 to assure satisfactory starting and overall performance. At low temperatures and/or high altitude, a cetane number of more than 45 is recommended.

NOTE: Excessive white smoke at start-up could be the result of low cetane fuel.

Cloud point should be at least 6°C (10°F) below lowest expected air temperature at time of starting. Wax can separate from fuel when temperature decreases to cloud point and may plug filter.



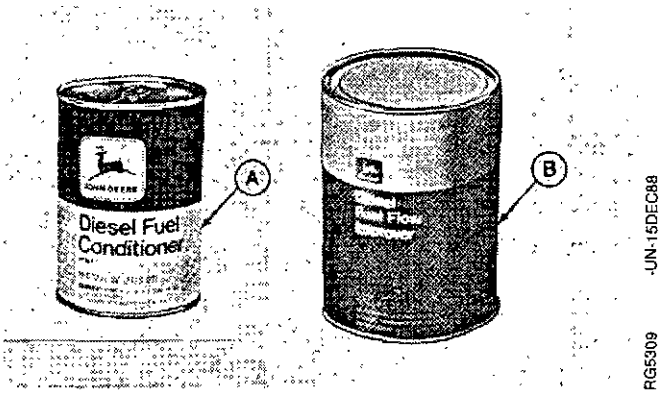
IF YOU OPERATE YOUR EQUIPMENT AT TEMPERATURES BELOW THE LIMITS SHOWN, CONSULT YOUR DEALER FOR SPECIAL LUBRICANTS AND STARTING AIDS.

S11,OMFL,A -19-27MAR91

DIESEL FUEL STORAGE

IMPORTANT: Buy good quality, clean fuel from a reputable supplier.

Proper fuel storage is critically important. Use clean storage and transfer tanks. Periodically drain water and sediment from bottom of tank. Store fuel in a convenient place away from buildings.



Avoid storing fuel over long periods of time. If there is a very slow turnover of fuel in the fuel tank or supply tank, it may be necessary to add John Deere Fuel Conditioner (A) to prevent water condensation. This conditioner may be poured directly into fuel tank or bulk storage tank.

John Deere Diesel Fuel Conditioner does the following:

—Improves engine performance.
—Keeps injectors and nozzles clean.
—Reduces maintenance cost.
—Gives better combustion.
—Helps eliminate sludge and gum.
—Retards rust and corrosion.
—Keeps fuel system clean.
—Provides more power and faster starts.
—Prolongs fuel filter life.
—Improves storage stability.

NOTE: To reduce fuel gelling and control wax separation during cold weather, John Deere Diesel Fuel Flow Improver (B) may be added to fuel or bulk storage tank.

Consult your John Deere Parts Network for local availability and follow directions on label.

S11,OMFL,F -19-08FEB91

FILLING FUEL TANK

CAUTION: Be careful when handling fuel. Never fill tank while engine is hot or running. DO NOT smoke while filling fuel tank.

IMPORTANT: The fuel tank should be vented through filler cap. If new filler cap is required, always replace it with a vented cap.

Fill fuel tank at end of each day's operation. This prevents condensation in tank as moist air cools.

S11,OMFL,C -19-10NOV89

DIESEL ENGINE OIL

Use oil viscosity based on the expected air temperature range during the period between oil changes.

IMPORTANT: John Deere TORQ-GARD SUPREME PLUS-50™ engine oil is not recommended during engine break-in (first 100 hours on a new or overhauled engine). The superior lubricating properties of this oil will not allow the engine to properly wear during break-in period.

John Deere TORQ-GARD SUPREME PLUS-50 engine oil is recommended at all other times. This oil is specially formulated to provide superior protection against high temperature thickening and wear as well as exceptional cold weather starting performance; these properties may result in longer engine life.

NOTE: When John Deere TORQ-GARD SUPREME PLUS-50 engine oil and a John Deere oil filter are used, the change interval may be extended by 50 hours. ALWAYS follow recommendations in the operator's manual.

John Deere TORQ-GARD SUPREME® engine oil is also recommended but standard operating manual oil change intervals must be maintained. Other oils may be used if they meet one or more of the following specifications:

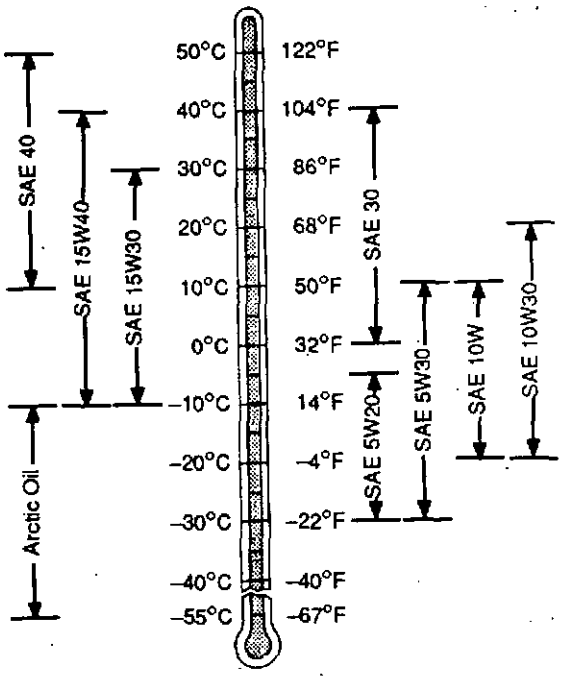
- API Service Classification CE or CD
- Military Specification MIL-L-2104E or MIL-L-2104D

In European countries, oils meeting CCMC Specification D4 or D5 may be used.

SAE 5W20, SAE 5W30, and arctic oil viscosity grades meeting API Service Classification CC may be used, but oil and filter must be changed at one-half the normal interval.

Oils meeting Military Specification MIL-L-46167B may be used as arctic oils.

NOTE: Some increase in oil consumption may be expected when low viscosity oils are used. Check oil levels more frequently.



CTM8,GR02,1 -19-19MAR91

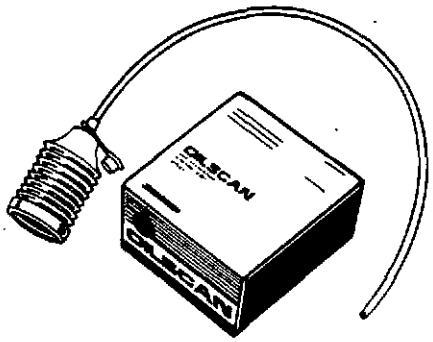
060581

OILSCAN™ AND COOLSCAN™

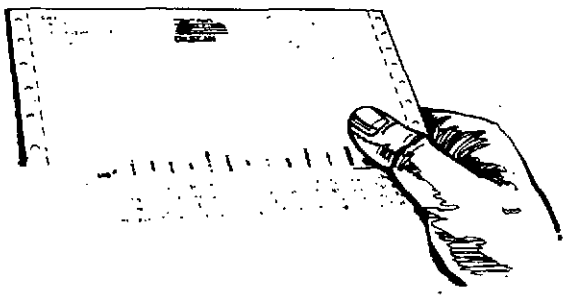
OILSCAN and COOLSCAN are John Deere sampling programs to help you monitor machine performance and identify potential problems before they cause serious damage.

Oil and coolant samples should be taken from each system prior to its recommended change interval.

OILSCAN and COOLSCAN kits are available from your John Deere dealer.



T6828AB -UN-15JUN89



T6829AB -UN-18OCT88

DX,OILSCAN -19-13JUN90

COLD WEATHER OPERATION

Additional information on cold weather operation is available from your authorized servicing dealer.

S11,OMFL,G -19-19NOV85

SYNTHETIC LUBRICANTS

Synthetic lubricants may be used in John Deere equipment if they meet the applicable performance requirements (industry classifications and/or military specifications) as shown in the operator's manual.

The recommended temperature limits and service or oil change intervals should be maintained as shown in the operator's manual.

Avoid mixing different brands, grades, or types of oil. Oil manufacturers blend additives in their oils to meet certain specifications and performance requirements. Mixing different oils can interfere with the proper functioning of these additives and degrade lubricant performance.

DX,SYNLU -19-15MAR91

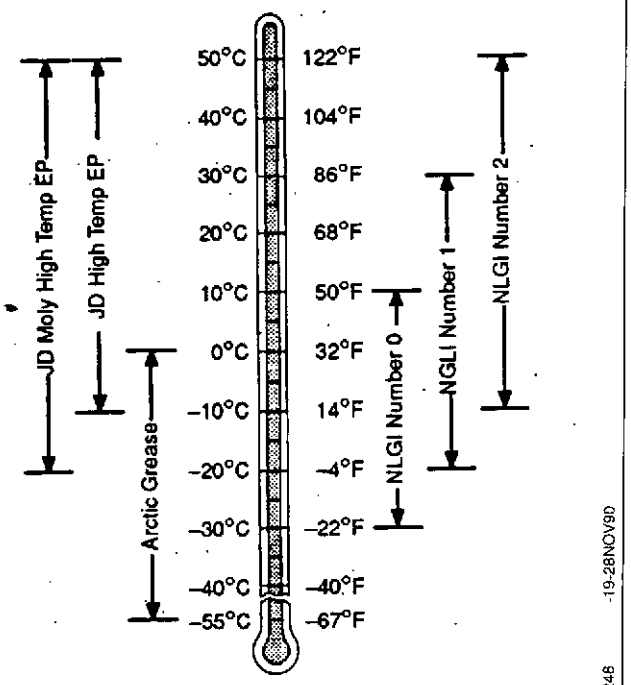
EXTREME PRESSURE OR MULTIPURPOSE GREASE

Use grease based on the expected air temperature range during the service interval.

John Deere Moly High Temperature EP Grease and John Deere High Temperature EP Grease are recommended.

Other greases that may be used are:

- SAE Multipurpose EP Grease with 3 to 5 percent molybdenum disulfide.
- SAE Multipurpose EP Grease.
- Greases meeting Military Specification MIL-G-10924C may be used as arctic grease.



DX,GREA1 -19-15MAR91

LUBRICANT STORAGE

Your equipment can operate at top efficiency only if clean lubricants are used.

Use clean containers to handle all lubricants.

Store lubricants and containers in an area protected from dust, moisture, and other contamination.

DX,LUBST -19-15MAR91

ENGINE COOLANT RECOMMENDATIONS

TS281 -UN-23AUG88

CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns.
Shut off engine. Remove the radiator filler cap only when the cap is cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

- Always maintain engine coolant at correct level.

- Coolant make-up should be mixed at same concentrations as original coolant, including inhibitors.

- In tropical areas where antifreeze or John Deere Cooling Fluid is not available, use water meeting quality specifications outlined in this group and John Deere RE23182 Liquid Coolant Conditioner. The liquid coolant conditioner should be added in the amount recommended on the label for your cooling system capacity.

RG5214 -UN-14DEC88

IMPORTANT: John Deere Liquid Coolant Conditioner does not protect against freezing.

In certain geographical areas where water quality is unacceptable, John Deere Engine Cooling Fluid is marketed for use in the engine cooling system. It protects the engine from corrosion and freezing down to -37°C (-35°F).

John Deere Engine Cooling Fluid or John Deere Low Silicate Antifreeze are recommended for all John Deere Diesel Engines. John Deere Cooling Fluid is ready to use as is without dilution or mixing. John Deere Low Silicate Antifreeze is concentrated and should be mixed minimum 40%—maximum 60% antifreeze and distilled or deionized water. Consult your John Deere Parts Network for local availability.

RG,OMFL,3 -19-25APR91

ENGINE COOLANT REQUIREMENTS

To meet critical cooling system protection requirements, the coolant has to consist of high quality water, the correct type antifreeze, and the correct supplemental coolant additive concentration. Refer to charts, water quality specifications (A) and water quality evaluations (B) when determining coolant requirements.

1. **Water Quality:**

   Preferred—Distilled or deionized

   Acceptable—Softened to 170 parts per million (10 grains per gallon)

2. **Antifreeze:**

—Must be ethylene-glycol type, contain not more than 0.1 percent anhydrous metasilicate, and meet General Motors Performance Specification GM1899M, or be formulated to GM6038M (or equivalent).

IMPORTANT: Some types of ethylene-glycol antifreeze commonly available on the *open market are intended for* automotive use. These products are often labeled for use in aluminum engines and usually contain more than 0.1 percent anhydrous metasilicate. Use of this type antifreeze can cause a gel-like deposit to form that reduces heat transfer and coolant flow. When wet, the gel becomes the same color as the coolant. When dry, it is a white, powdery deposit. Check container label or consult with antifreeze supplier *before using*.

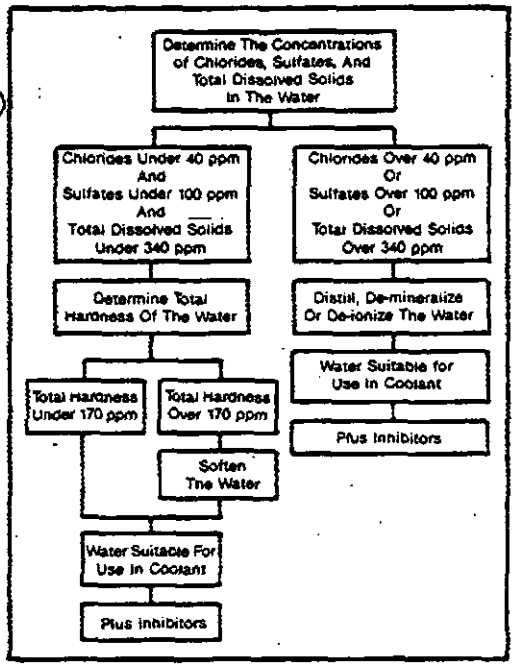
—Solutions containing 60 percent (maximum) to 40 percent (minimum) antifreeze mixed with clean soft water or deionized water are recommended.

—Antifreeze solutions should be used year-round for freeze protection, boil-over protection, and to provide a stable environment for seals and hoses. It is acceptable to use a properly inhibited coolant mix of clean soft water and John Deere Liquid Coolant Conditioner during warm weather operation on some applications in place of antifreeze solutions. Contact your authorized servicing dealer or engine distributor, if there are further questions.

(A)

	PARTS PER MILLION	GRAINS PER GALLON
Chlorides (Maximum)	40	2.5
Sulfates (Maximum)	100	5.8
Total Dissolved Solids (Maximum)	340	20
Total Hardness (Maximum)	170	10

(B)



RG5045 -19-28FEB89

A—Water Quality Specifications

B—Water Quality Evaluation

RG,OMFL,1 -19-22MAR91

060591

ENGINE COOLANT REQUIREMENTS—CONTINUED

2. **Antifreeze: (continued)**

—DO NOT use methyl alcohol base antifreeze.

—DO NOT use methoxy propanol antifreeze. Damage can occur to rubber seals on cylinder liners which are in contact with coolant.

—DO NOT use antifreeze-coolant mix containing sealer or stop-leak additives.

NOTE: John Deere Liquid Coolant Conditioner does not protect against freezing.

3. **Inhibitors:**

—ALWAYS inhibit the antifreeze-coolant mix with a non-chromate inhibitor such as RE23182 John Deere Liquid Coolant Conditioner.

—DO NOT use soluble oil.

—ALWAYS follow the supplier's recommendations printed on the container. Over-inhibiting antifreeze solutions can cause silicate-dropout. When this happens, a gel-type deposit is created which retards heat transfer and coolant flow.

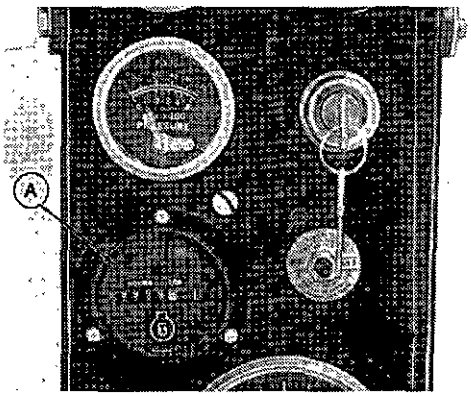
Contact your authorized servicing dealer or engine distributor, if there are further questions.

S11,2000.FS -19-24APR91

OBSERVE SERVICE INTERVALS

Using hour meter (A) as a guide, perform all services at the hourly intervals indicated on following pages. At each scheduled maintenance interval, perform all previous maintenance operations in addition to the ones specified. Keep track of services performed in Lubrication and Maintenance Records section.

IMPORTANT: Recommended service intervals are for *normal operating conditions. Service* MORE OFTEN if engine is operated under adverse conditions. Neglecting maintenance can result in failures or permanent damage to the engine.



S11,OMLM,BJ -19-22MAR91

USE CORRECT FUELS, LUBRICANTS AND COOLANT

IMPORTANT: Use only fuels, lubricants and coolants meeting specifications outlined in Fuels, Lubricants and Coolant Section when servicing your John Deere Engine.

Consult your John Deere Servicing Distributor or your nearest John Deere Parts Network for recommended fuels, lubricants, and coolant. Also available are necessary additives for use when operating engines in tropical, arctic, or any other adverse conditions.

S11,OMLM,B1 -19-13NOV89

LUBRICATION AND MAINTENANCE SERVICE INTERVAL CHART

Item	Lubrication and Maintenance Service Intervals					
	Daily	100 Hour	250 Hour	600 Hour/ 1-Year	1200 Hour/ 2-Year	As Required
Check Engine Oil and Coolant Level	•					
Check Fuel Filter	•					
Lubricate PTO Release Bearing	•					
Check Dust Unloader Valve on Air Cleaner	•					
Lubricate PTO Clutch Shaft Bearing		•				
Service Fire Extinguisher		•				
Service Battery			•			
Change Engine Oil and Filter*			•			
Check Fan and Alternator Belt Tension			•			
Check PTO Clutch Adjustment			•			
Check Weep Hole - Gear Driven Water Pumps			•			
Lubricate PTO Clutch Internal Levers & Linkage				•		
Clean Crankcase Vent Tube				•		
Check Air Intake Hoses and Connections				•		
Replace Fuel Filter Element				•		
Coolant Solution Analysis-Add Inhibitor as needed				•		
Replace Air Cleaner Elements and Check Air Intake System				•		
Check Cooling System				•		
Perform Engine Tune-Up					•	
Check and Adjust Engine Speeds					•	
Adjust Engine Valve Clearance					•	
Check Fuel Injection System					•	
Inspect Turbocharger					•	
Check Crankshaft Vibration Damper					•	
Flush Cooling System and Replace Thermostats					•	
Pressure Test Cooling Systems					•	
Inspect and Service Air Cleaner Elements						•

***Change the oil for the first time after 100 hours of operation, then at every 250 hours thereafter. If TORQ-GARD SUPREME PLUS-50 oil is used along with a John Deere oil filter, the oil change interval may be extended by 50 hours.**

RG,OM76LM,MC -19-25APR91

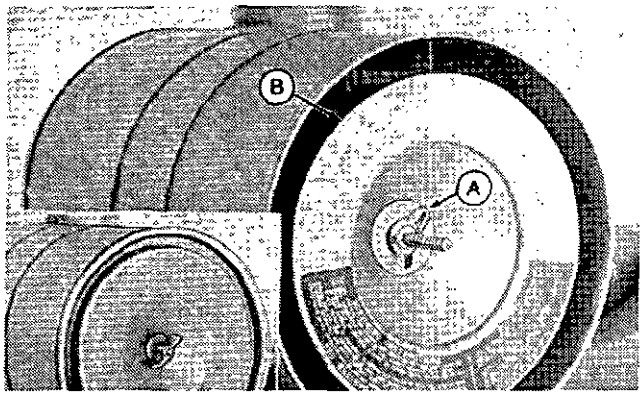
REMOVE AND INSPECT AIR CLEANER ELEMENTS

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

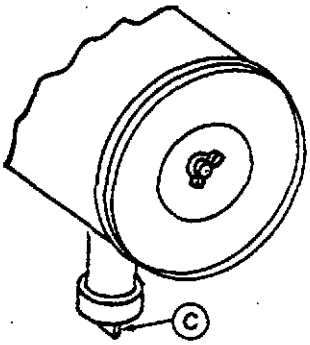
2. Remove wing nut (A) and remove primary element (B) from canister.

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

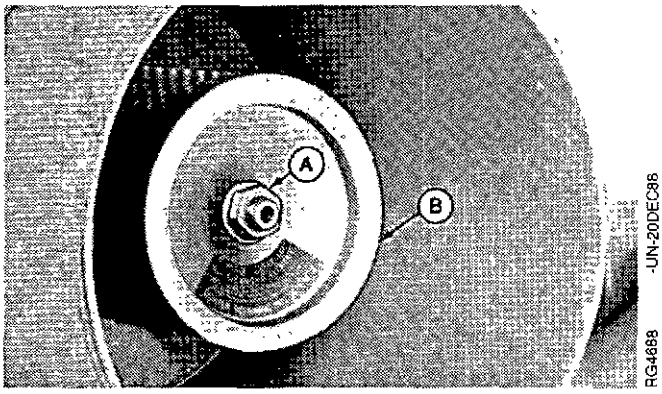


RG4687 -UN-20DEC88

S11,OMLM,FE -19-22MAR91

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 -19-19MAR91

CLEANING PRIMARY ELEMENT

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

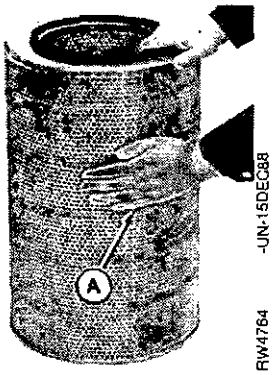
CAUTION: Reduce compressed air pressure to less than 210 kPa (2.1 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear proper protective safety equipment including eye protection.

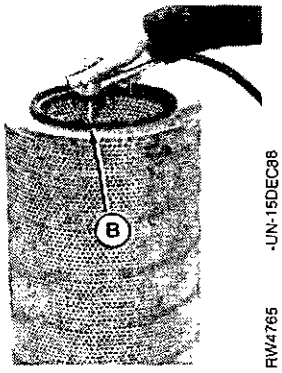
2. Using a John Deere AR62322 Dry Element Cleaner Gun (B), clean element with compressed air. Hold nozzle next to inner surface, and move up and down pleats.

IMPORTANT: Do not direct air against outside of element, as it might force dirt through to inside.

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

4. Inspect element before reinstalling.





S11,OMLM,AF -19-15NOV89

WASHING PRIMARY ELEMENT

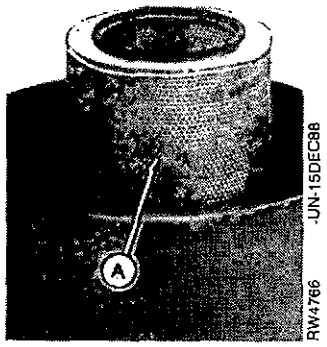
IMPORTANT: Never wash element in gasoline or any solvent. Never use compressed air on a wet element. Do not oil element.

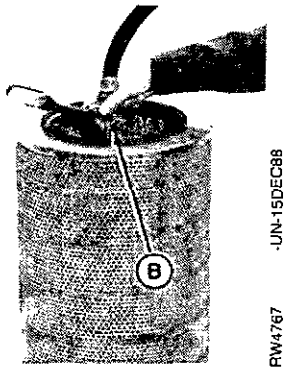
1. If element is coated with oil or soot, wash in a solution of warm water and John Deere R36757 Filter Element Cleaner. Let element soak at least 15 minutes (A), then agitate gently to flush out dirt.

2. Rinse element thoroughly from inside with clean water. Use element cleaning gun (B) or a free-running hose. Keep pressure under 280 kPa (2.8 bar) (40 psi) to avoid damaging filtering pleats.

3. 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.

4. Inspect element before installing.





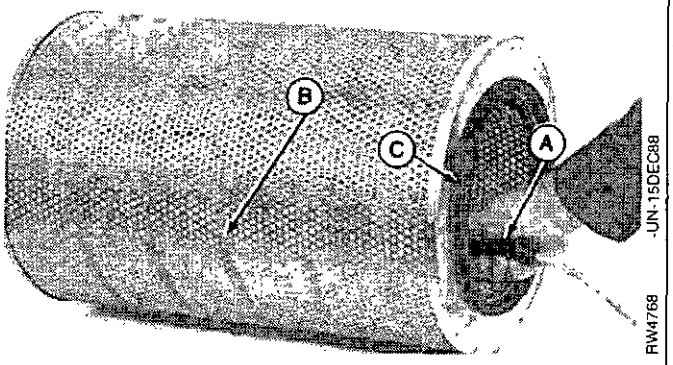
S11,OMLM,AG -19-15NOV89

INSPECT PRIMARY ELEMENT

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

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.



S11,OMLM,AH -19-24JAN85

ELEMENT STORAGE

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

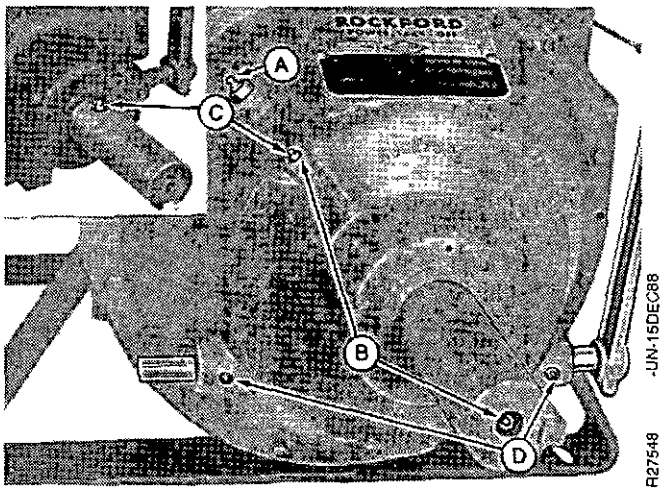
IMPORTANT: Air cleaner element MUST BE DRY before storing in plastic bag.

S11,OMLM,AI -19-19MAR91

LUBRICATE PTO CLUTCH SHAFT BEARINGS

Apply one or two shots of John Deere Multipurpose Lubricant or its equivalent at clutch drive shaft bearing fittings (B or C). DO NOT over-lubricate to avoid getting oil on clutch facings.

IMPORTANT: Lube release bearing fitting (A) daily or at 10 hour intervals for continuous operation. (See Prestarting Checks section.) Lube shaft fittings (D) at 600 Hours or 1-Year intervals. (See LUBRICATE PTO CLUTCH SHAFT BEARINGS in 600 Hour/1-Year Service section.)



R27548 -UN-15DEC88

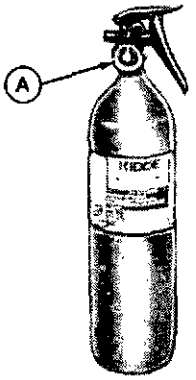
A—Release Bearing Grease Fitting
B—Fittings for Side-Loaded Drive
C—Fittings for In-Line Drive
D—Lever Shaft Fittings

S11,OMLM,C -19-22MAR91

SERVICE FIRE EXTINGUISHER

A fire extinguisher (A) is available from your authorized servicing dealer or engine distributor.

Read and follow the instructions which are packaged with it. The extinguisher should be inspected at least every 100 hours of engine operation or once a month. Once extinguisher is operated, no matter how long, it must be recharged. Keep record of inspections on the tag which comes with the extinguisher instruction booklet.



RW4918 -UN-15DEC88

S11,OMLM,AP -19-19MAR91

SERVICE BATTERY

TS204 -UN-23AUG88

CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

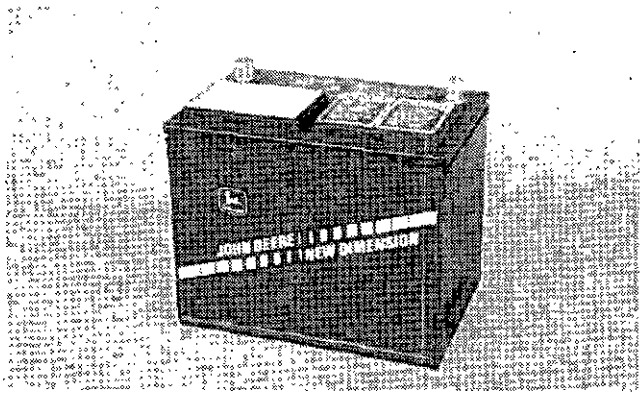
Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace it last.

1. Keep batteries clean by wiping them with a damp cloth. Keep all connections clean and tight. Remove any corrosion, and wash terminals with a solution of 1 part baking soda and 4 parts water. Tighten all connections securely.

NOTE: Coat battery terminals and connectors with a mixture of petroleum jelly and baking soda to retard corrosion.

2. Keep battery fully charged, especially during cold weather. If a battery charger is connected with charger off, attach positive battery charger lead to positive battery terminal. Then attach negative battery charger lead to a good ground.



RG4694 -UN-15DEC88

S55,OMLM,E -19-26MAR91

CAUTION: Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Using proper jump start procedure.

If you spill acid on yourself:
1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 10—15 minutes. Get medical attention immediately.

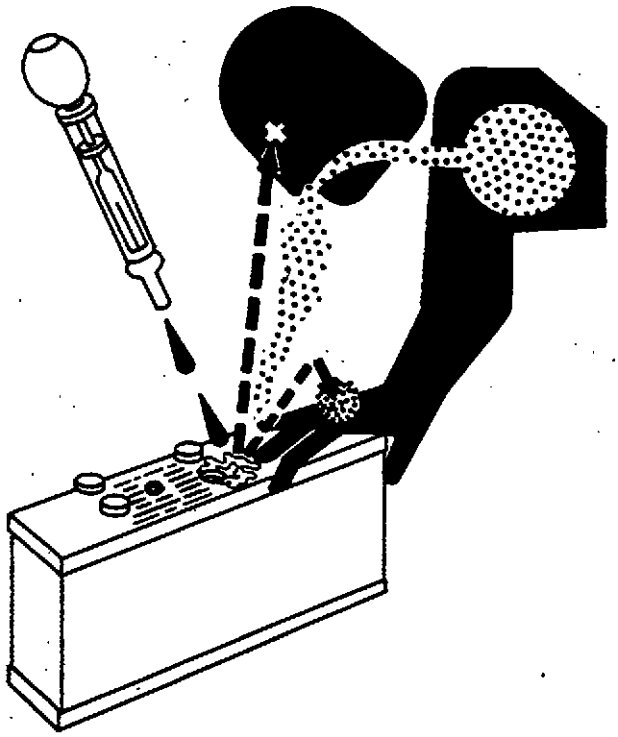
If acid is swallowed:
1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.

NOTE: Maintenance-free batteries should require little additional service. However, electrolyte level can be checked by cutting the center section of decal on dash-line, and removing cell plugs. If necessary, add clean soft water to bring level to bottom of filler neck.

IMPORTANT: In freezing weather, run engine at least 30 minutes to assure thorough mixing after adding water.

If necessary to replace battery, replacement battery(s) must meet or exceed the following recommended capabilities at -18°C (0°F):

12-Volt System . . . . . 800 Cold Cranking Amps
24-Volt System . . . . . 570 Cold Cranking Amps

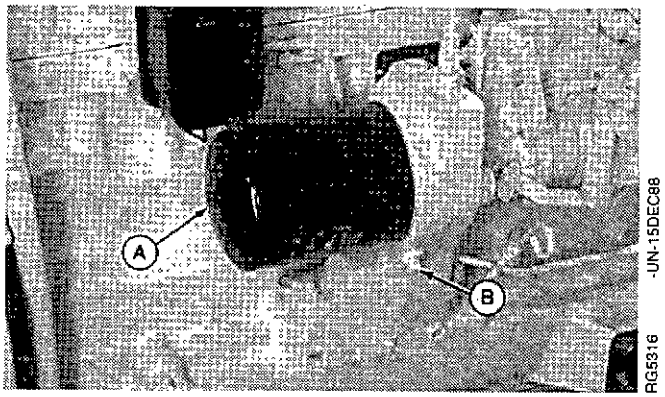


TS203 -UN-23AUG88

S55,2000,KF -19-26MAR91

060591

CHANGE ENGINE OIL AND FILTER



If John Deere TORQ-GARD SUPREME PLUS—50 engine oil and a John Deere oil filter are used, the oil and filter change interval may be extended by 50 hours.

OILSCAN is a John Deere sampling program to help you monitor machine performance and identify potential problems before they cause serious damage. OILSCAN kits are available from your John Deere dealer. Oil samples should be taken prior to the oil change. Refer to instructions provided with the kit.

1. Run engine approximately 5 minutes to warm up oil. Stop engine.

2. Remove oil pan drain plug and drain crankcase oil while warm. Remove plug (B) and drain oil from oil filter housing.

3. Remove and discard full-flow filter element (A). Remove engine oil filter and packing. Clean filter mounting pad.

IMPORTANT: Filtration of oils is critical to proper lubrication. Always change filter regularly. Use filter meeting John Deere performance specifications.

4. Oil new packing and install new full-flow filter element. Hand tighten element 1/2 to 3/4 turn after packing contacts filter housing. DO NOT overtighten.

5. Install all drain plugs removed to drain oil.

6. Fill engine crankcase with clean John Deere engine oil, as recommended in the Fuels, Lubricants, and Coolant section earlier in this manual.

Oil fill quantities for 6076TF,AF,HF engines are listed below.

Oil Pan Option Code	Oil Pan Part No.	Crankcase Oil Capacity
1904	R73692	21.0L (22.0 qt)
1906	RE45439	24.0L (25.5 qt)
1906	RE18726	24.0L (25.5 qt)
1916	R94338	26.0L (27.5 qt)
1922	R86396	29.0L (30.5 qt)

NOTE: Since optional oil pans are available on most OEM Engines, crankcase oil capacity may vary slightly from amount shown. Always fill crankcase to full mark on dipstick. Dipsticks with a crosshatch pattern are considered full, if the oil is anywhere within the range of the crosshatch.

IMPORTANT: Immediately after completing oil change, crank engine for 30 seconds without depressing reset button on instrument panel. This will help insure adequate lubrication to engine components.

7. Start engine and run to check for possible leaks.

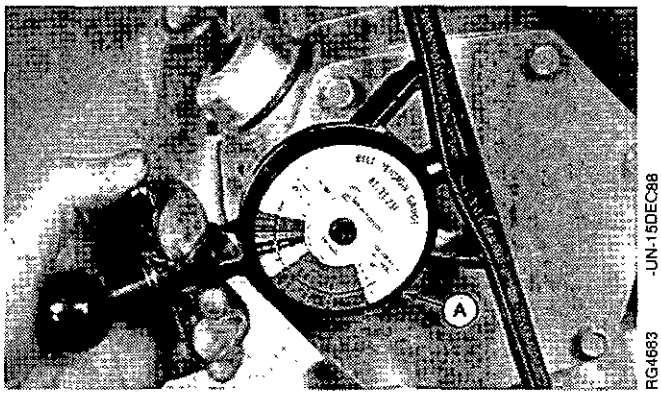
8. Stop engine and check oil level after 10 minutes. Oil level reading should be on upper mark of dipstick.

S55,OMLM,B -19-24APR91

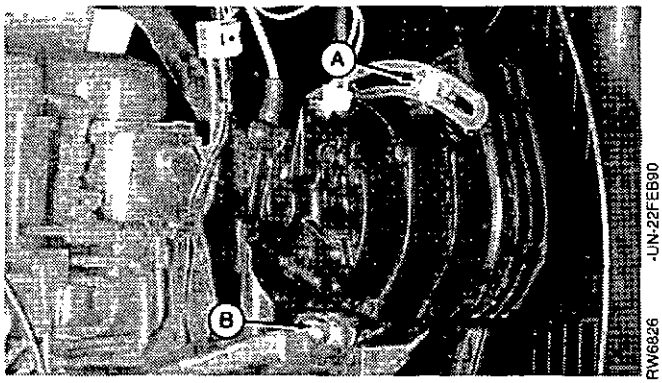
CHECK AND ADJUST ALTERNATOR AND FAN BELT TENSION

NOTE: Too little tension causes slippage or "slip and grab," causing the belt to break. If the belt does not break, the slip will cause excessive cover wear, burn spots, and overheating.

Too much tension causes belt heating and excessive stretch, as well as damage to drive components such as sheaves and shafts. Excessive tightness will also place heavier loads on the bearings causing them to fail. Remember that V-belts should ride on the sides of standard sheaves not on the bottom of the groove.



RG4683 -UN-15DEC88



RW6826 -UN-22FEB90

1. Check alternator belt tension using JDG529 Belt Tension Gauge (A) or equivalent belt tension gauge capable of measuring 579-623 N (130—140 lb force).

NOTE: Engine having dual belts, check front belt tension only. Measure tension on the long part of the belt as illustrated.

IMPORTANT: Do not pry against alternator rear frame. Do not tighten or loosen belts while they are hot.

2. If belts need adjustment, loosen alternator bracket cap screw (A) and nut (B) on mounting bolt.

3. Apply outward pressure to alternator front frame until strand tension is read on tension gauge.

	Tension New Belt	**Tension Used*Belt**
Single Belt	578—622 N (130—140 lb force)	378—423 N (85—95 lb force)
Dual Belt	423—467 N (95—104 lb force)	378—423 N (85—95 lb force)

4. Tighten alternator bracket cap screw and nut securely.

5. Immediately after a 10 minute run-in of a new or used belt, recheck belt tension as shown in table above.

6. If tension is not within specifications, wait 10 minutes, loosen belt and retighten to 378—423 N (85—95 lb force) strand tension.

** Belts are considered used after 10 minutes of operation.*

S11,OMLM,AM -19-26MAR91

CHECK PTO CLUTCH ADJUSTMENT

CAUTION: Never attempt to service the PTO while it is in operation. Loose clothing could get caught in moving parts; keep clothing tight against body. Use extreme care when working around the PTO.

TS198 -UN-23AUG88

1. Measure clutch engagement force at handle grip with a spring scale. The engagement force should be 289—333 N (65—75 lb-force).

IMPORTANT: Improper adjustment of the PTO clutch might shorten clutch life. Make sure adjustments are made properly.

2. If adjustments are needed, disengage clutch and remove cover plate clutch housing (shown removed).

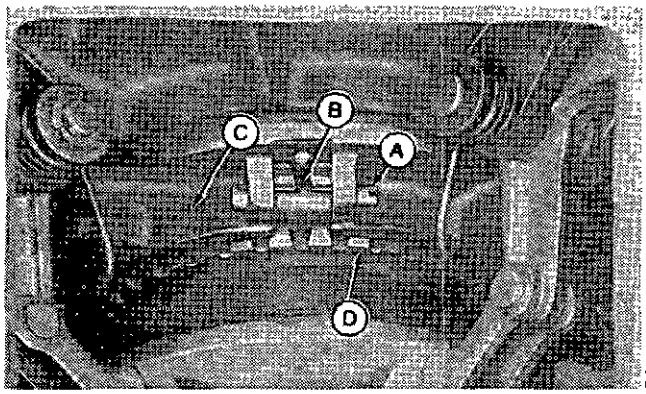
3. Turn adjusting lock screw (A) to disengage locking cam (B) from clutch body splines (C).

4. Turn adjusting ring (D) to adjust clutch engagement pressure.

5. Measure engagement pressure at clutch handle with spring scale.

6. Turn adjusting lock screw to engage locking cam with clutch body hub splines when specified engagement pressure is achieved.

7. Recheck clutch engagement force with spring scale. Install cover plate. Disengage clutch.

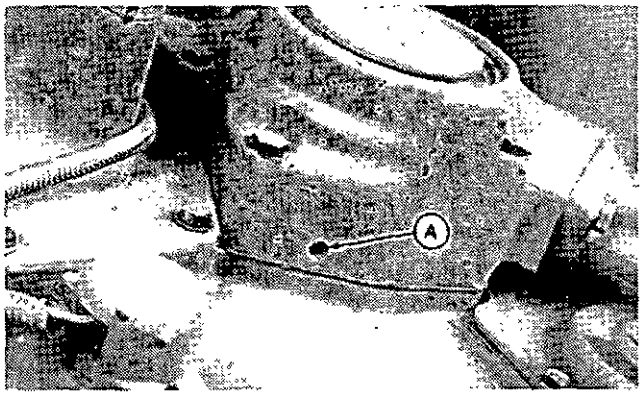


RG78255Q1 -UN-15DEC88

A—Lock Screw
B—Locking Cam
C—Body Splines
D—Adjusting Ring

S55,OMLM,D -19-24APR91

CHECK AND CLEAN WATER PUMP WEEP HOLE — GEAR DRIVEN WATER PUMPS



The gear driven water pump weep hole (A) can plug from fine dust mixing with normal water pump seal misting.

Remove the foam filter from the weep hole located in the bottom of the water pump housing. 6076 engines with gear driven water pumps began using a foam filter at Engine Serial Number (101935—).

Inspect the water pump weep hole for any restrictions. Insert a heavy gage wire to make sure the hole is open. The depth of the weep hole is 63.5 mm (2.5 in.).

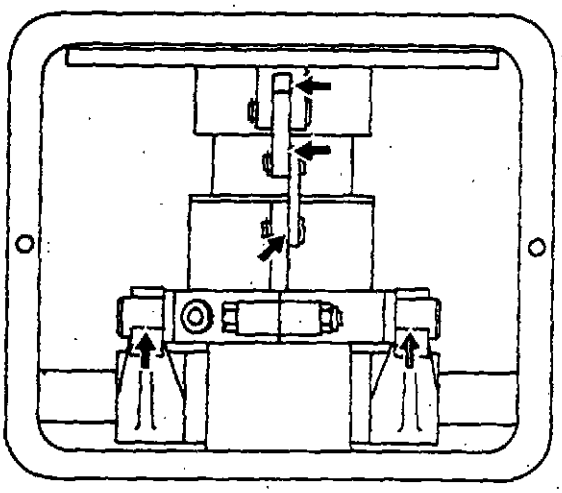
Compress R98527 foam filter with fingers. Insert the filter in the weep hole until it is flush with the bottom of the water pump housing.

RG,OM76LM,WH -19-26MAR91

LUBRICATE PTO CLUTCH INTERNAL LEVERS AND LINKAGE

1. Remove the PTO housing cover and apply one shot of John Deere Multipurpose Lubricant to each pivot point of each clutch linkage (upper three arrows).

2. Apply one shot of John Deere Multipurpose Lubricant to PTO lever shaft fittings (lower two arrows).



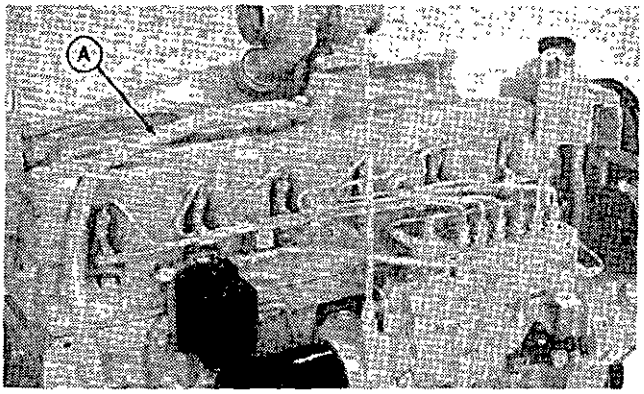
RG01044

RG1044 -UN-15DEC88

S11,OMLM,I -19-22MAR91

CLEAN CRANKCASE VENT TUBE

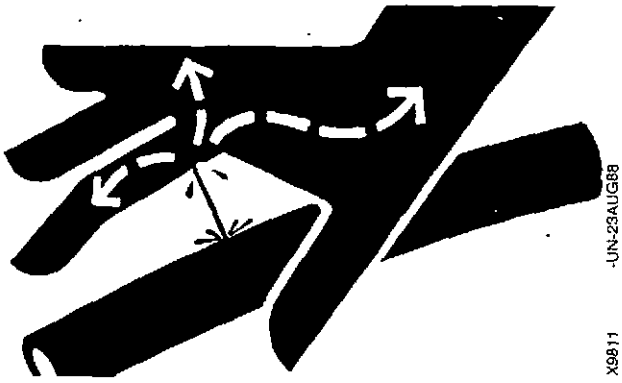
1. Remove and clean crankcase tube (A). Install vent tube and tighten hose clamp securely after cleaning.



RG5311 -UN-15DEC88

S55,OMLM,G -19-06JAN88

RELIEVE SYSTEM PRESSURE



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.

S11,3010,OZ -19-20JUN89

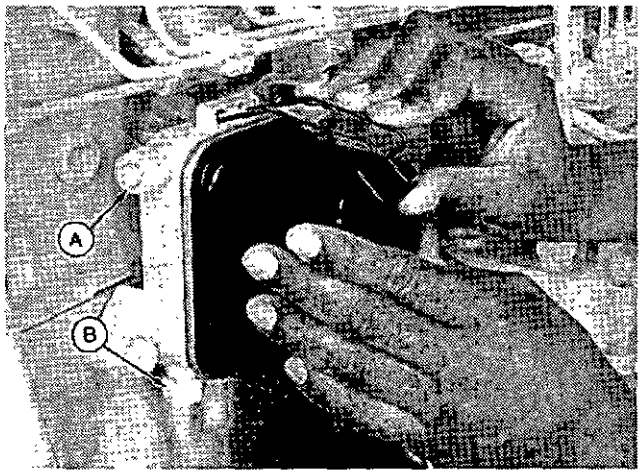
REPLACE SINGLE FUEL FILTER

1. Close the fuel shut-off valve at bottom of fuel tank (not illustrated).

2. Loosen bleed plug (A) and remove drain plug (B) to drain fuel from filter.

NOTE: Keep a small container under drain plug to catch draining fuel.

3. With fuel filter firm against base, lift up on top retaining spring and pull down on bottom retaining spring. Pull fuel filter off guide pins of fuel filter base and discard.



S55,3010,D -19-22MAR91

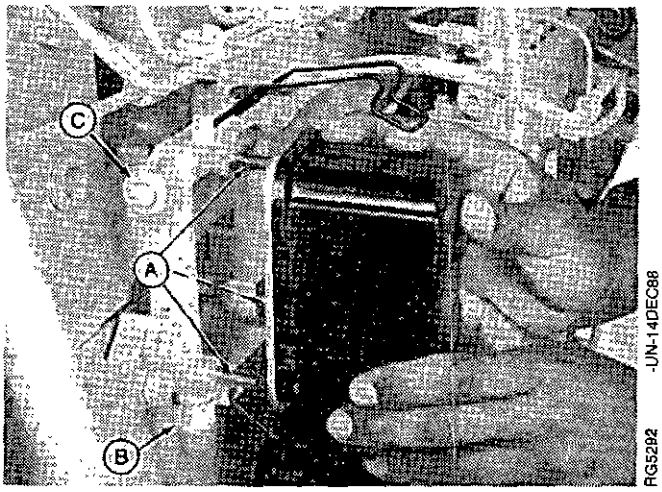
4. Install fuel filter onto guide pins (A) on fuel filter base. Hold filter firmly against base.

NOTE: Secure retaining spring by pushing on center (at highest point) until it is seated in groove.

5. Secure bottom retaining spring first, then secure top retaining spring.

6. Install drain plug (B), shown installed. Tighten bleed plug (C) and drain plug securely. Do not overtighten.

7. Open fuel shut-off valve and bleed the fuel system as described later in the Service section.



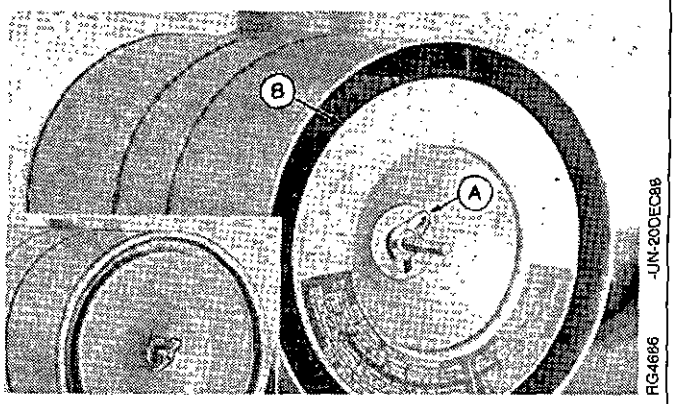
S55,3010,E -19-28SEP88

REPLACE AIR CLEANER ELEMENTS

This procedure applies to John Deere air cleaner kits. Refer to manufacturers instructions for servicing air cleaners not supplied by John Deere.

1. Remove wing nut and remove air cleaner cover from canister.

2. Remove wing nut (A) and remove primary air cleaner assembly (B) from canister.

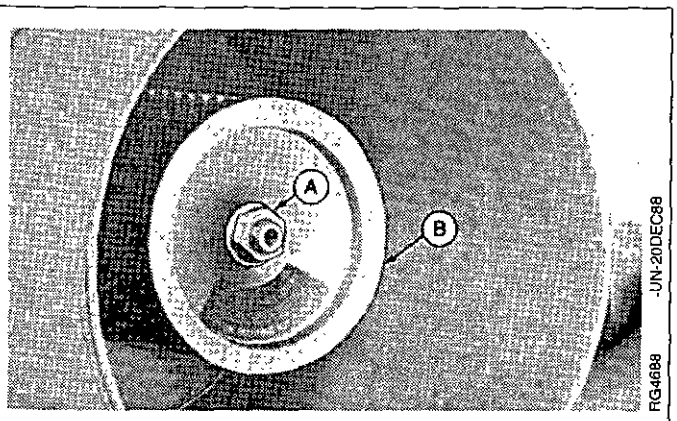


S11,OMLM,EX -19-24APR91

IMPORTANT: Clean dirt from inside of canister before removing secondary element.

3. Remove retaining nut/air restriction indicator (A) and secondary element (B). Replace secondary element with new element immediately to prevent dust from entering air intake system.

4. Install new primary element and cover assembly. Tighten wing nut securely.

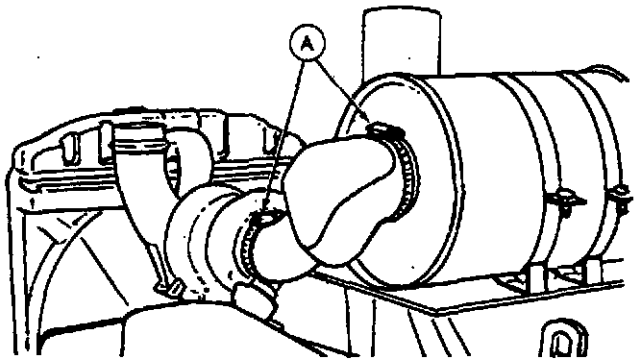


S11,OMLM,BL -19-18MAR91

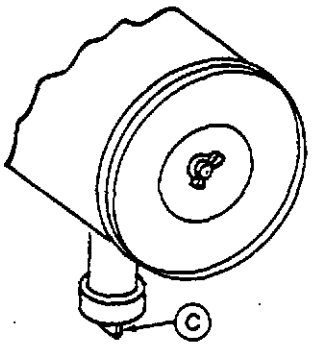
CHECK AIR INTAKE SYSTEM

1. Check the clamps (A) on the piping that connects the air cleaner to the turbocharger. Tighten the clamps as necessary. This will help prevent dirt from entering the air intake system, causing internal engine damage.

2. Inspect rubber dust unloader valve (C) on bottom of air cleaner for cracks or plugging. Correct as necessary.



RG4689 -UN-20DEC88



RG4687 -UN-20DEC88

S11,OMLM,EY -19-15MAR91

CHECK EFFECTIVENESS OF COOLANT SOLUTION

When your coolant has accumulated 600 hours of operating time, the effectiveness of your engine coolant should be evaluated by obtaining a coolant sample.

COOLSCAN is a John Deere sampling program to help you monitor the effectiveness of your engine's coolant solution and identify potential problems before they cause serious damage. COOLSCAN kits are available from your John Deere dealer. Refer to instructions provided with kit.

RG,OMLM,3 -19-22MAR91

CHECK COOLING SYSTEM

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

1. Check entire cooling system for leaks. Tighten all clamps securely.

2. Replace hoses when hard or cracked.

3. In tropical areas when John Deere Liquid Coolant Conditioner is used with clean, soft water; drain, flush and add new coolant as specified in Fuels, Lubricants, and Coolant Section.

RG,OM76LM,CC -19-24APR91

CHECK AND ADJUST ENGINE SPEEDS

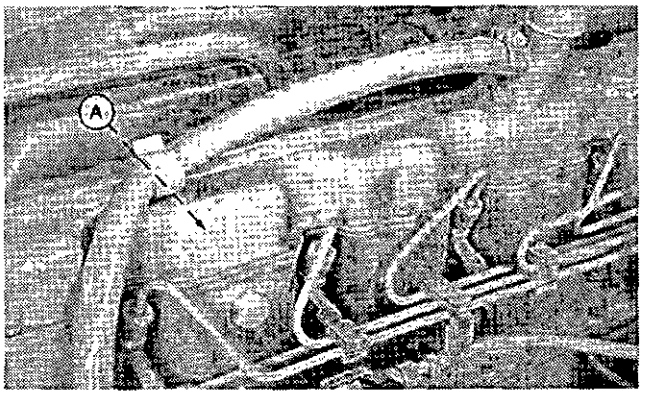
If equipped with a tachometer on the instrument panel, observe the tachometer to verify engine speeds. Refer to ENGINE SPEEDS in Operating the Engine section, earlier in this manual.

S11,OMOE,DL1 -19-22MAR91

ADJUST ENGINE VALVE CLEARANCE

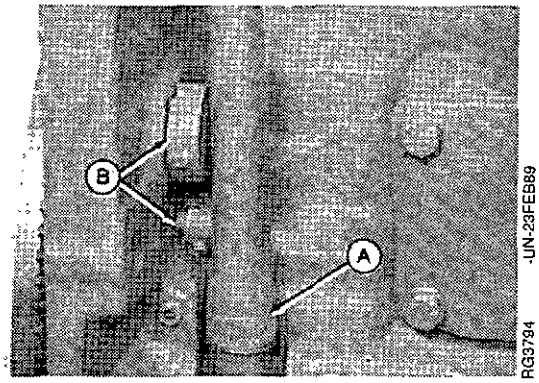
Adjust engine valve clearance, or have your authorized servicing dealer or engine distributor adjust the valve clearance.

IMPORTANT: Valve clearance should be adjusted after every 1200 hours of engine *operation.*



RG,OM76LM,VA -19-22MAR91

CHECK AND ADJUST VALVE CLEARANCE



Too little valve clearance throws valves out of time. Valves open too early and close too late. This causes the valves to overheat due to hot combustion gases rushing past valves when out of time. Overheating lengthens valve stems which prevents proper seating of valves. The valves seat so briefly or poorly that normal heat transfer into the cooling system does not have time to take place, causing burned valves and low power.

Too much valve clearance causes a lag in valve timing causing engine valve train imbalance. The fuel-air mixture enters the cylinders late during intake stroke. The exhaust valve closes early and prevents waste gases from being completely removed from cylinders. Also, the valves close with a great deal of impact, which may crack or break the valves and scuff the camshaft and followers.

CAUTION: To prevent accidental starting of engine while performing valve adjustments, always disconnect (-) negative battery terminal.

NOTE: Valve clearance can be checked with engine cold or warm.

1. Remove rocker arm cover with ventilator tube (A).

2. Remove plastic plugs (B).

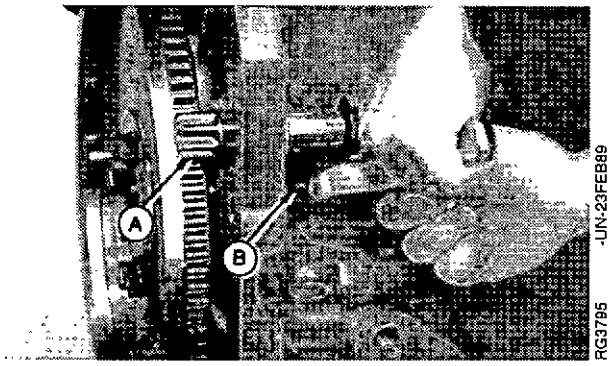
IMPORTANT: Visually inspect contact surfaces of valve tips or wear caps and rocker arm wear pads. Check all parts for excessive wear, breakage, or cracks. Replace parts that show visible damage.

Rocker arms that exhibit excessive valve clearance will require a more thorough inspection for the necessity to replace potentially damaged parts.

RG,OM76LM,VA1 -19-18MAR91

3. Rotate engine with the JDE81-1 Flywheel Turning Tool (A) until JDE81-4 Timing Pin (B) engages timing hole in flywheel.

If the rocker arms for No. 1 cylinder are loose, the engine is at No. 1 "TDC-Compression." If the rocker arms for No. 6 cylinder are loose, the engine is at No. 6 "TDC-Compression." Rotate the engine one full revolution to No. 1 "TDC-Compression."



RG,OM76LM,VA2 -19-18MAR91

4. With engine lock-pinned at "TDC" of No. 1 piston's compression stroke, check and adjust (as needed) valve clearance on Nos. 1, 3 and 5 exhaust valves and Nos. 1, 2 and 4 intake valves.

VALVE CLEARANCE SPECIFICATIONS

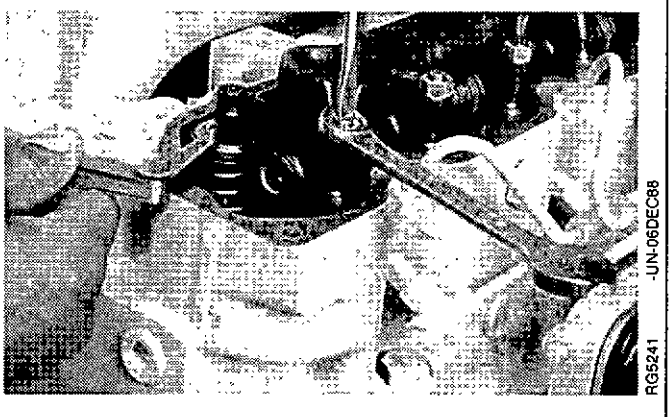
Intake Valves	0.38 mm (0.015 in.)
Exhaust Valves	0.51 mm (0.020 in.)

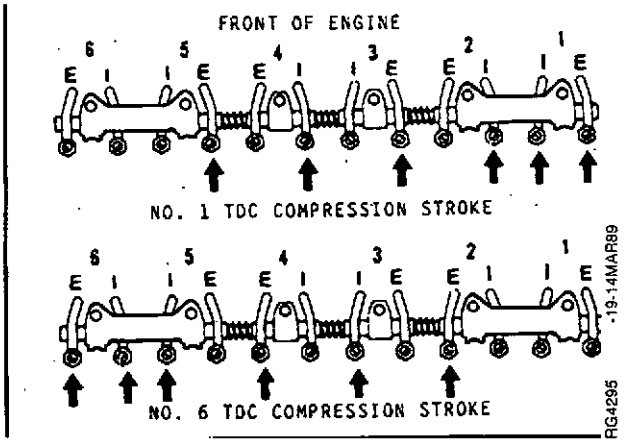
5. If valve clearance needs to be adjusted, loosen the locknut on rocker arm adjusting screw. Turn adjusting screw until feeler gauge slips with a slight drag. Hold the adjusting screw from turning with screwdriver and tighten locknut to 27 N·m (20 lb-ft). Recheck clearance again after tightening locknut. Readjust clearance as necessary.

6. Rotate flywheel 360 degrees until No. 6 piston is at "TDC" of its compression stroke. Rocker arms for No. 6 piston should be loose.

7. Check and adjust (as needed) valve clearance to the same specifications on Nos. 2, 4 and 6 exhaust and Nos. 3, 5, and 6 intake valves. Tighten valve adjusting screw locknut to 27 N·m (20 lb-ft).

8. Recheck clearance on all valves again after locknut is tightened.





RG,OM76LM,VA3 -19-18MAR91

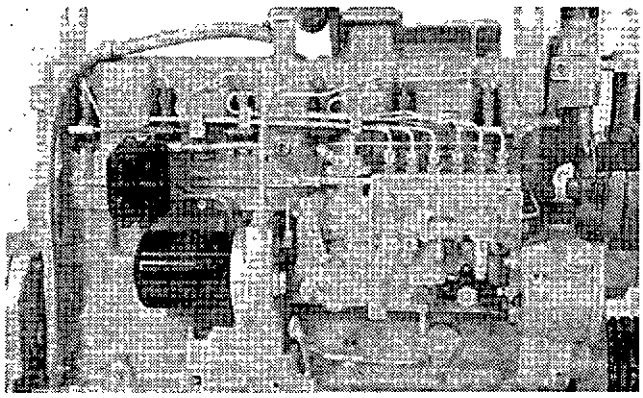
CHECK FUEL INJECTION SYSTEM

1. Check the overall fuel injection system for evidence of leaks, bent or broken lines.

2. Check the engine-to-injection pump timing.

3. Remove and clean injection nozzles. Adjust opening pressures as required.

See your authorized servicing dealer or engine distributor for services mentioned above.



S55,OMLM,I -19-22MAR91

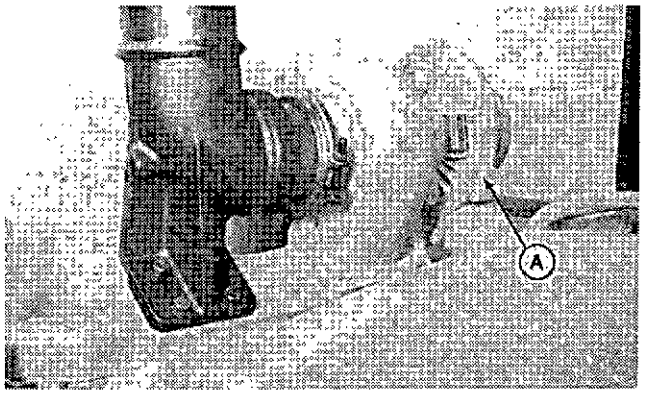
INSPECT TURBOCHARGER

Have your authorized servicing dealer or engine distributor perform all necessary turbocharger inspections.

1. Check turbocharger (A) for excessive radial and axial shaft end play.

2. Check and tighten all exhaust system connections securely.

3. Check turbocharger boost pressure.

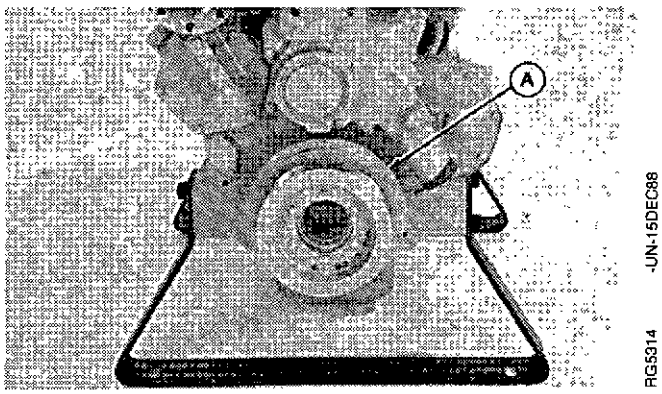


S55,OMLM,J -19-06JAN88

CHECK CRANKSHAFT VIBRATION DAMPER

1. Grasp vibration damper (A) with both hands and attempt to turn it in both directions. If rotation is felt, damper is defective and should be replaced.

IMPORTANT: The vibration damper assembly is not repairable and should be replaced every five years or 4500 hours, whichever occurs first.



S55,OMLM,O -19-22MAR91

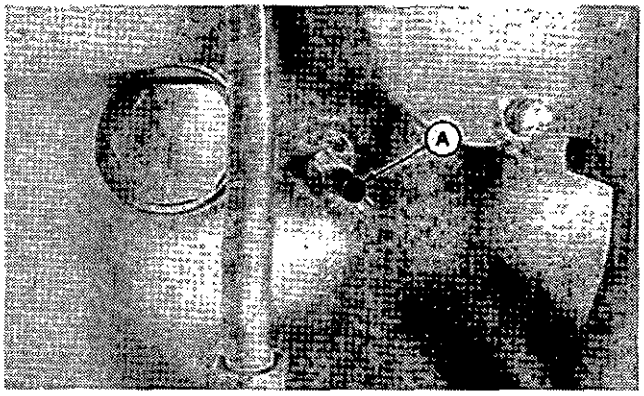
060591

FLUSH COOLING SYSTEM AND REPLACE THERMOSTATS

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.

The cooling system has a coolant filter conditioner, standard on all engines. Radiator, fan, and coolant heater are some of the optional cooling system components. For efficient operation, drain old coolant, flush the entire system, replace thermostats, and fill with clean antifreeze solution.



RG5277 -UN-14DEC88

1. On left side, open drain valve (A) on engine block and drain coolant.

2. Open drain valve on radiator and drain coolant from radiator. Loosen radiator cap.

3. Close all drain valves after coolant has drained.

IMPORTANT: Remove thermostats at this time, if not previously done. Install cover (without thermostats) and tighten cap screws to 47 N·m (35 lb-ft).

4. Fill the cooling system with clean water. Run the engine about 10 minutes to stir up possible rust or sediment.

5. Stop engine and immediately drain the water from system before rust and sediment settle.

6. After draining water, close drain valves and fill the cooling system with a heavy duty cooling system cleaner such as Fleetguard® RESTORE™, or equivalent, and water. Follow the instructions with the cleaner.

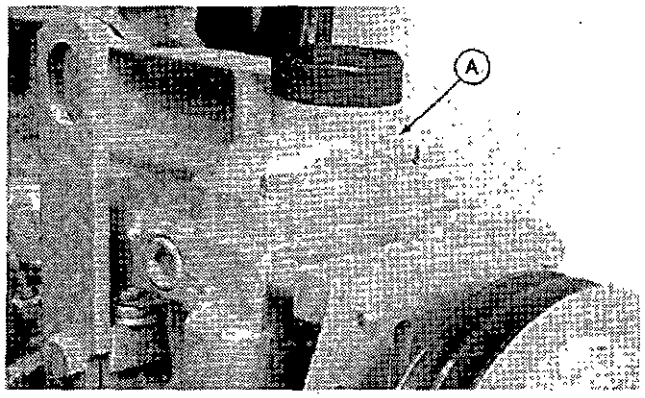
7. After cleaning the cooling system, fill with water to flush the system. Run the engine about 10 minutes, then drain out flushing water.

Fleetguard is a registered trademark of Cummins Engine Company.

RESTORE™ is a trademark of Fleetguard.

S55,OMLM,K -19-04APR91

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



S55,OMLM,L -19-06JAN88

9. Remove and discard thermostats (A) if not previously removed, and all gasket material (B).

10. Apply gasket sealant to new gasket and install.

11. Install new thermostats and cover. Tighten all cap screws to 47 N·m (35 lb-ft).

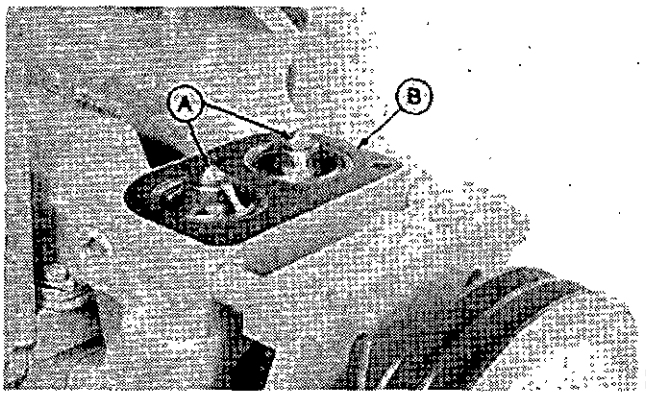
12. Close all drain valves on the engine and the radiator.

13. Fill cooling system with coolant. Follow recommendations given on the following page. (See ADDING COOLANT following in this section.)

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

NOTE: Coolant level should be approximately 19 mm (3/4 in.) below bottom of radiator filler neck.

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



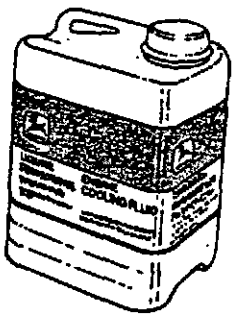
S55,OMLM,M -19-26MAR91

ADDING COOLANT

TS281 -UN-23AUG88

CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns.
Shut off engine. Remove the radiator filler cap only when the cap is cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

IMPORTANT: When adding coolant to the system, use a solution of 50—67 percent John Deere Low Silicate Antifreeze and 33—50 percent CLEAN, SOFT WATER. John Deere Engine Cooling Fluid may be used as is where available (premixed, no mixing required).



RG5214 -UN-14DEC88

- **Never use a coolant solution containing less than 10 percent ethylene glycol.**
- **Never use a cooling system sealing additive.**
- **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.**

RG4690 -UN-14DEC88

RE23182 Liquid Coolant Conditioner may be used with a low silicate, ethylene glycol antifreeze if neither John Deere Low Silicate Antifreeze nor John Deere Engine Cooling Fluid is available.

Engines must be drained, flushed, and refilled with John Deere Low Silicate Antifreeze or Cooling Fluid and John Deere Liquid Coolant Conditioner every 1200 Hours/2-Years. However, these solutions eventually lose their effectiveness and must be recharged with additional liquid coolant conditioner. See label on container for recommended service intervals and concentration rates.

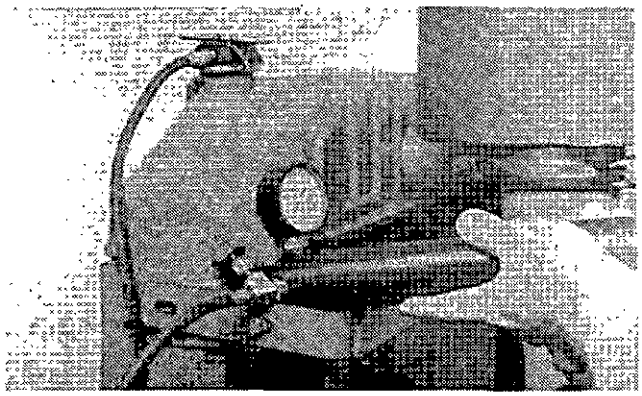
John Deere Liquid Coolant Conditioner does not protect the cooling system from freezing.

S55,OMLM,N -19-24APR91

060591

TEST RADIATOR AND CAP

1. Pressure test radiator and cap to insure efficient operation and eliminate the chance of engine damage due to overheating. (See your authorized servicing dealer or engine distributor.)



S11,OMLM,BC -19-22MAR91

ENGINE TUNE-UP/1200 HOUR OR 2 YEAR

An engine tune-up is recommended every 1200 hours or two years, whichever comes first. Have your authorized servicing dealer perform the following checks and services:

NOTE: Engine equipped with electronically controlled electric governors have no service requirements. If you suspect problems with the electric governor system, consult your authorized servicing dealer or engine distributor.

- Change oil and filter. (Lubrication and Maintenance/250 Hr.)
- Check, and replace as needed, fan and alternator belts. (Service)
- Check electrical system. (Lubrication and Maintenance/250 Hr.)
- Clean weep hole - Gear driven water pump. (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 filter. (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 valve clearance. (Lubrication and Maintenance/1200 Hr/2-Yr.)
- Check, and adjust if necessary, engine speeds. (Lubrication and Maintenance/1200 Hr/2-Yr.)
- Check fuel injection system: Check engine/injection pump timing, clean injection nozzles and adjust opening pressure. (Lubrication and Maintenance/1200 Hr/2-Yr.)
- Inspect turbocharger and check turbocharger boost pressure. (Lubrication and Maintenance/1200 Hr/2-Yr.)
- Check and service engine cooling system. (Lubrication and Maintenance/1200 Hr/2-Yr.)
- Check crankshaft vibration damper. Replace as required. (Lubrication and Maintenance/1200 Hr/2-Yr.)
- Check engine oil pressure. Adjust as necessary. (See your authorized servicing dealer or engine distributor.)

NOTE: Some applications, such as stand-by generator sets, may require a different service interval than given above. A tune-up should be performed as often as necessary to maintain optimum performance within the general condition limits of the engine.

ENGINE TROUBLESHOOTING

Symptom	Problem	Solution
Engine hard to start or will not start	Improper starting procedure.	Review starting procedure.
	No fuel.	Check fuel tank.
		Check shut-off valve wiring connection (Elec. Gov. only)
	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 elements.
	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	Insufficient oil.	Add oil.
	Injection pump out of time.	See your authorized servicing dealer or engine distributor.
	Low coolant temperature.	Remove and check thermostats.
	Engine overheating.	See "Engine Overheats".
Engine runs irregularly or stalls frequently	Low coolant temperature.	Remove and check thermostats.
	Clogged fuel filter.	Replace filter element.
	Water, dirt, or air in fuel system.	Drain, flush, fill, and bleed system.
	Dirty of faulty injection nozzles.	Have authorized dealer or engine distributor check injectors.
Below normal engine temperature	Defective thermostat.	Remove and check thermostats.

Continued on next page

Symptom	Problem	Solution
	Defective temperature gauge or sender.	Check gauge, sender, and connections.
Lack of power	Engine overloaded.	Reduce load.
	Intake air restriction.	Service air cleaner.
	Clogged fuel filter.	Replace filter element.
	Improper type of fuel.	Use proper fuel.
	Overheated engine.	See "Engine Overheats".
	Below normal engine temperature.	Remove and check thermostats.
	Improper valve clearance.	See your authorized servicing dealer or engine distributor.
	Dirty of 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.	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.

Continued on next page

Symptom	Problem	Solution
	Defective turbocharger.	Clean your authorized servicing dealer or engine distributor.
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 thermostats.
	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 thermostats.

Continued on next page

Symptom	Problem	Solution
	Defective temperature gauge or sender.	Check water temperature with thermometer and replace if necessary.
	Incorrect grade of fuel.	Use correct grade of fuel.
High fuel consumption	Improper type of fuel.	Use proper 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 thermostats.

S55,OMTS,L -19-28JAN88

ELECTRICAL SYSTEM TROUBLESHOOTING

Symptom	Problem	Solution
Voltmeter indicates low battery voltage (key on and engine stopped)	Defective battery.	See your authorized servicing dealer or engine distributor.
	Low charging voltage.	Have your authorized servicing dealer or engine distributor check charging circuit.
	High resistance in charging circuit.	Have your authorized servicing dealer or engine distributor check charging circuit.
	Voltmeter malfunction.	Have your authorized servicing dealer or engine distributor check voltmeter.
Voltmeter indicates low charging voltage (engine running)	Low engine speed.	Increase speed.
	Slipping belts.	Tighten belts.
	Defective battery.	See your authorized servicing dealer or engine distributor.
	Defective alternator.	See your authorized servicing dealer or engine distributor.
	Excessive load.	Remove load.
Voltmeter indicates excessive charging voltage	Faulty connection to alternator.	Check wiring connections.
	Defective regulator. Voltmeter malfunction.	Have your authorized servicing dealer or engine distributor check alternator.
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 inoperative	PTO engaged.	Disengage PTO.
	Loosen or corroded connections.	Clean and tighten loose connections.
	Low battery output.	See your authorized servicing dealer or engine distributor.

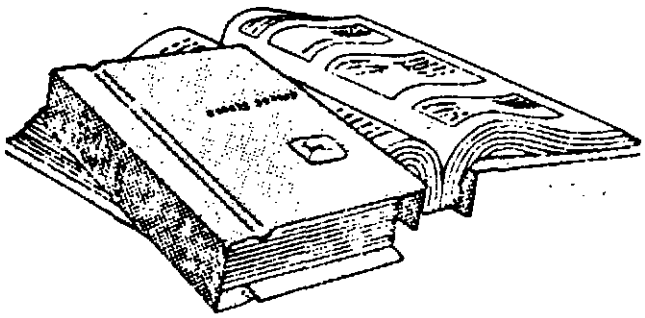
Continued on next page

Symptom	Problem	Solution
	Faulty or misadjusted starter safety switch or starter solenoid malfunction.	See your authorized servicing dealer or engine distributor.
	Blown fuse (MDL-25)	Replace fuse.
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.

S55,OMTS,N -19-26MAR91

ADDITIONAL SERVICE INFORMATION

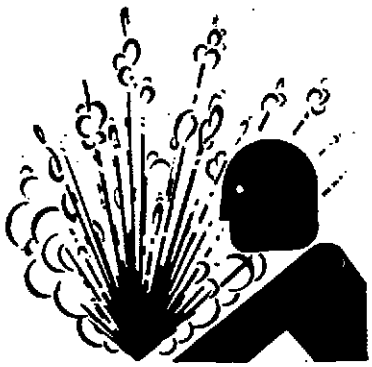
This is not a detailed service manual. It contains only information needed for operation and routine maintenance. If you want more detailed service information, use the form in the back of this manual to order a component technical manual or any other additional service literature.



S55,OMSE,C -19-06JAN88

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.



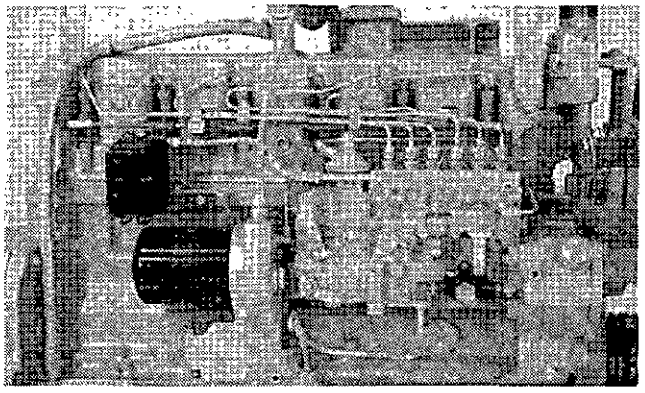
Coolant should be maintained at 19 mm (3/4 in.) below bottom of filler neck. Fill radiator with appropriate coolant. See ADDING COOLANT as described in Lubrication and Maintenance/1200 Hr/2-Yr service section. Check cooling system for leaks.

RG,OMSE,1 -19-25APR91

DO NOT MODIFY FUEL SYSTEM

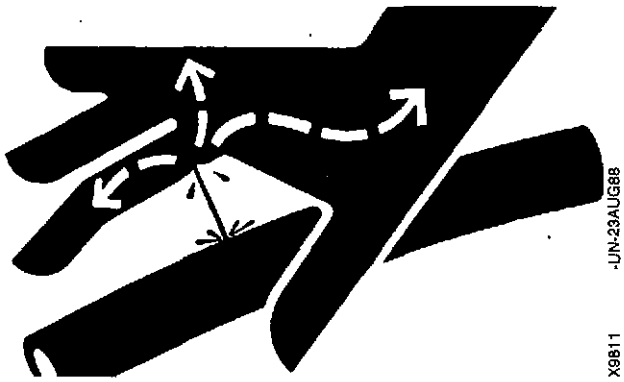
IMPORTANT: Modification or alteration of the injection pump, the injection pump timing, or the fuel injectors in ways not recommended by the manufacturer will terminate the warranty obligation to the purchaser. See warranty information inside front cover.

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



S55,OMSE,D -19-15MAR91

BLEED THE FUEL SYSTEM



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.

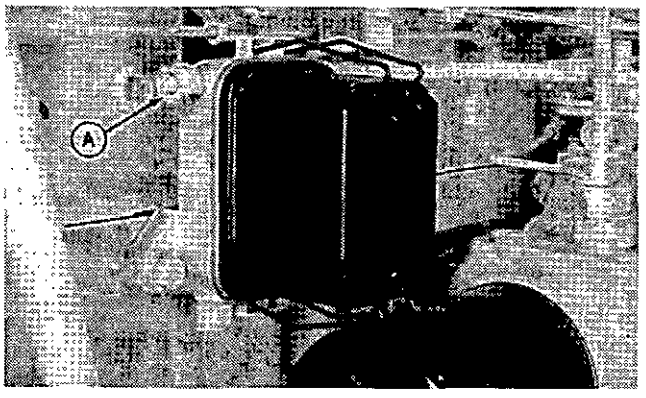
If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result. Doctors unfamiliar with this type of injury may call the Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.

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.

S11,0408,AC -19-22MAR91

1. Loosen bleed plug (A) on fuel filter base.

IMPORTANT: When bleeding the fuel system on engines equipped with electronic governors, the key switch must be at the "ON" position.



S55,OMSE,E -19-15FEB88

2. Unscrew hand primer (A) on fuel supply pump until it can be pulled by hand.

3. Operate the hand primer until a smooth flow of fuel, free of bubbles, comes out of the filter bleed plug hole.

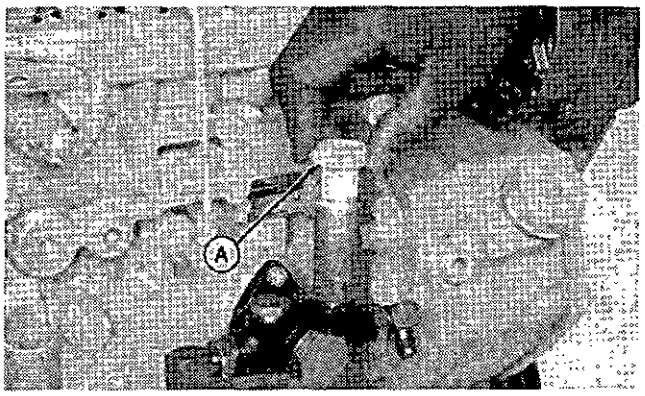
4. Gently stroke the hand primer down and close the bleed plug. Tighten plug securely. DO NOT overtighten. Continue operating hand primer until slight pressure is felt. The pressure indicates that fuel has filled the gallery in the injection pump.

IMPORTANT: Be sure hand primer is all the way down in barrel before tightening to prevent internal thread damage.

5. Lock hand primer in position.

NOTE: If the engine will not start, it may be necessary to loosen the fuel lines at the injection nozzle to bleed air from system. Put the hand throttle in slow idle position. Push the engine fuel shut-off control knob all the way in. Turn the engine with the starter until fuel without air flows from the loose fuel line connections. Tighten the connections.

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



S55,OMSE,F -19-15FEB88

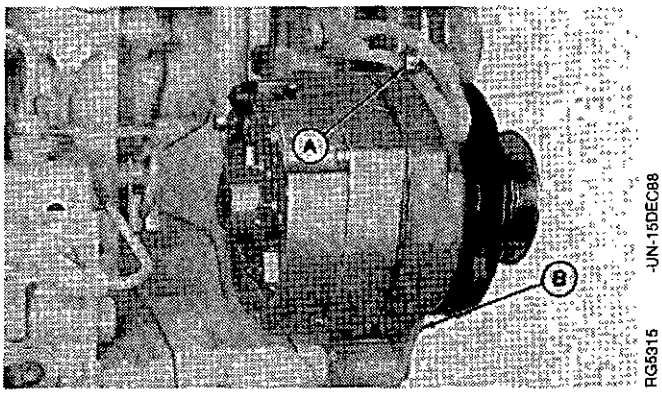
INSPECT FAN AND ALTERNATOR BELTS

IMPORTANT: Do not pry against rear frame. Do not tighten or loosen belts while they are hot.

1. Loosen alternator adjusting cap screws (A) and mounting bolt (B).

2. Rotate top of alternator toward engine and remove belt.

3. Inspect belt for fraying, cracks, or wear. Replace as necessary. (See CHECK AND ADJUST ALTERNATOR AND FAN BELT TENSION in Lubrication and Maintenance/250 Hour section.)



S55,OMSE,G -19-15MAR91

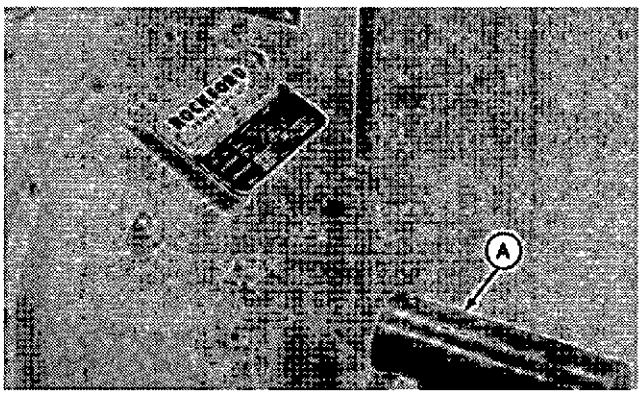
POWER TAKE-OFF (PTO) CLUTCH

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.



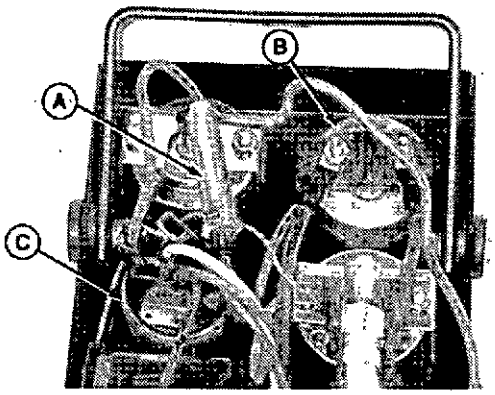
RG4893 -UN-14DEC88

S11,OMSE,U -19-19MAR91

CHECK FUSES

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

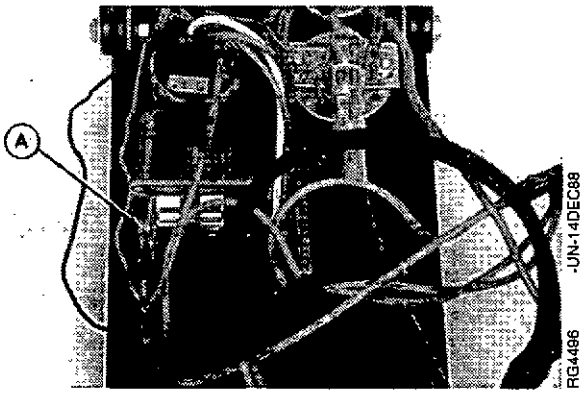
1. Check the fuse (A) between the ammeter (B) and key switch (C) located on back side of instrument panel. If defective replace with an MDL-25 fuse.



RG4493 -UN-14DEC88

S11,OMSE,AA -19-19MAR91

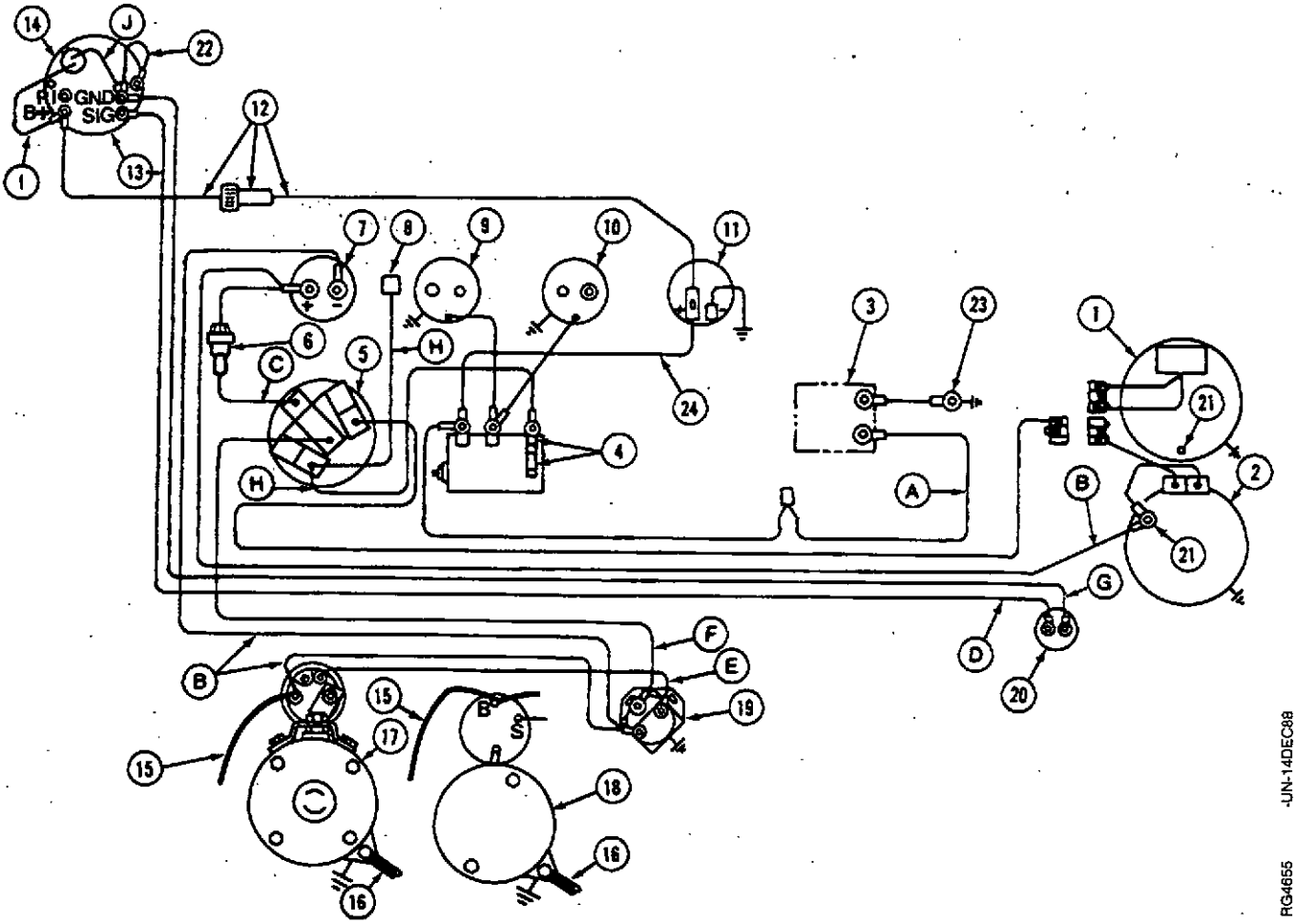
2. Check the fuse (A) mounted on the bottom of the magnetic safety switch. If defective, install a new SFE-14 fuse.



RG4496 -UN-14DEC88

S11,OMSE,W -19-19MAR91

WIRING DIAGRAM—12-VOLT SYSTEM

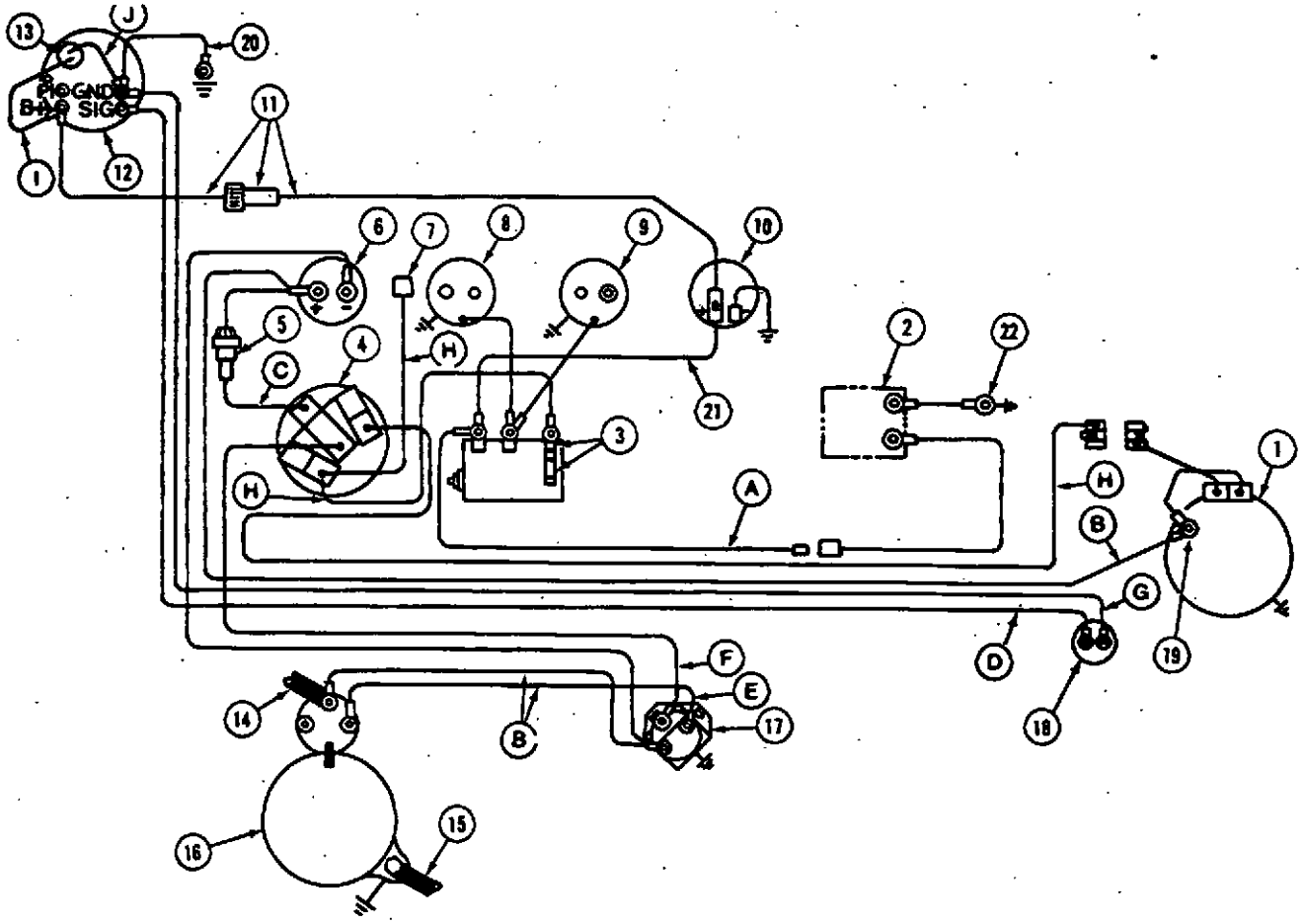


1—Motorola Alternator
2—Delco-Remy Alternator
3—Rack Puller or Shut-Off Solenoid
4—Safety Switch With SFE 14-Amp Fuse
5—Key Switch
6—Fuseholder With MDL 25-Amp Fuse
7—Ammeter
8—This Terminal Not Used
9—Oil Pressure Gauge
10—Water Temperature Gauge
11—Hour Meter
12—RE18166 Lead With 3—Amp MDX Fuse
13—Tachometer With Hour Meter
14—RE18187 Light
15—Positive Battery Cable
16—Negative Battery Cable
17—Delco-Remy Starting Motor
18—John Deere Starting Motor
19—Starter Circuit Relay
20—Magnetic Speed Sensor
21—Output Terminal
22—AT26016 Ground Lead
23—AR93161 Ground Lead
24—AR67341 Wiring Lead
A—14 Gauge—Dark Blue
*B—8 Gauge—Red or Brown
C—12 Gauge—Red or Brown
D—18 Gauge —Red
E—10 Gauge—White
F—14 Gauge—White
G—18 Gauge—Black or Black With White Stripe
H—16 Gauge—Purple
I—18 Gauge—Yellow
J—18 Gauge—Brown

Brown wiring leads not used at starter circuit relay (Key 19).

S55,OMSE,H -19-22JAN88

WIRING DIAGRAM—24-VOLT SYSTEM



1—Delco-Remy Alternator
2—Shut-Off Solenoid
3—Safety Switch With SFE 14-Amp Fuse
4—Key Switch
5—Fuseholder With MDL 25-Amp Fuse
6—Ammeter
7—This Terminal Not Used
8—Oil Pressure Gauge
9—Water Temperature Gauge
10—Hour Meter
11—RE18166 Lead With 3—Amp MDX Fuse
12—Tachometer With Hour Meter
13—RE18187 Light
14—Positive Battery Cable
15—Negative Battery Cable
16—John Deere Starting Motor
17—Starter Circuit Relay
18—Magnetic Speed Sensor
19—Output Terminal
20—AT26016 Ground Lead (To Instrument Panel)
21—AR67341 Wiring Lead
22—AR93161 Ground Lead
A—14 Gauge—Dark Blue
*B—8 Gauge—Red or Brown
C—12 Gauge—Red or Brown
D—18 Gauge —Red
E—10 Gauge—White
F—14 Gauge—White
G—18 Gauge—Black or Black With White Stripe
H—16 Gauge—Purple
I—18 Gauge—Yellow
J—18 Gauge—Brown

*Brown wiring leads not used at starter circuit relay (Key 19).

S55,OMSE,I -19-06JAN88

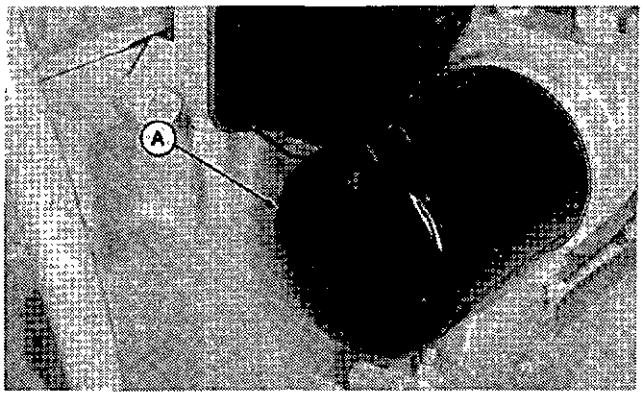
STORING THE ENGINE

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.

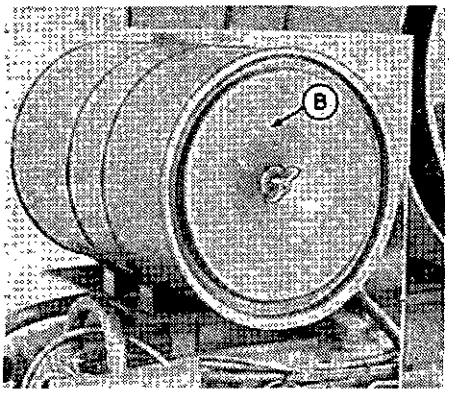
1. Change engine oil and replace filter (A). Used oil will not give adequate protection. (See CHANGE ENGINE OIL AND FILTER in Lubrication and Maintenance/250 Hour Service.)

2. Service air cleaner (B). (See REMOVE AND INSPECT AIR CLEANER ELEMENTS in Lubrication and Maintenance/As Required.)

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 of all coolant and refilled. Refill with appropriate coolant. See ENGINE COOLANT RECOMMENDATIONS in Fuels, Lubricants, and Coolant section and ADDING COOLANT in Lubrication and Maintenance/1200 Hr/2-Yr.



RG5317 -UN-15DEC88



RG4891 -UN-15DEC88

RG,OM76ST,SE -19-15MAR91

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.

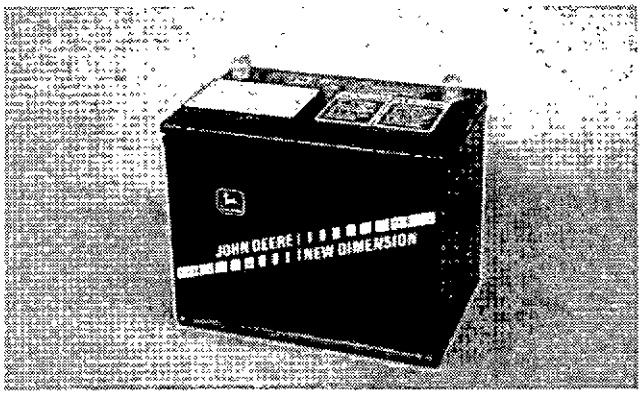
10. Disengage the PTO clutch.

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.



RG4684 -UN-15DEC88

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 CHECK AND ADJUST ALTERNATOR AND FAN BELT TENSION in Lubrication and Maintenance/250 Hour section.)

4. Fill fuel tank.

5. Perform all appropriate prestarting checks. (See Prestarting Checks.)

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.

RG,OM76ST,RFS -19-15MAR91

GENERAL OEM SPECIFICATIONS

Item	Unit of Measure	6076T	6076A	6076H
Number of cylinders	—	6	6	6
Fuel	—	diesel	diesel	diesel
Bore	mm (in.)	116 (4.56)	116 (4.56)	116 (4.56)
Stroke	mm (in.)	121 (4.75)	121 (4.75)	121 (4.75)
Displacement	L (cu.in.)	7.6 (466)	7.6 (466)	7.6 (466)
Compression Ratio	——	15.5:1	15.5:1	15.5:1
Valve Clearance				
Intake	mm (in.)	0.38 (0.015)	0.38 (0.015)	0.38 (0.015)
Exhaust	mm (in.)	0.51 (0.020)	0.51 (0.020)	0.51 (0.020)
Slow Idle speed	RPM	850	850	850
Fast Idle speed				
7—10% (Std.) Mechanical Governor	RPM	2420	2420	2420
Rated Speed				
7—10% (Std) Mechanical Governor	RPM	2200	2200	2200
3—5% Mechanical Governor	RPM	1500/1800	1500/1800	—
Electronic Governor	RPM	—	1800	1800
Industrial power rating @ rated speed without fan				
Intermittent	kW (HP)	149 (200)	186,168 (250),(225)	205 (275)
Continuous	kW (HP)	127 (170)	160 (215)	175 (235)
Torque (max) @ RPM without fan	N·m (ft-lb)	@ 1400 840 (619)	@ 1500 1045 (771)	@ 1500 1119 (825)

S55,OMSP,A -19-25APR91

060591

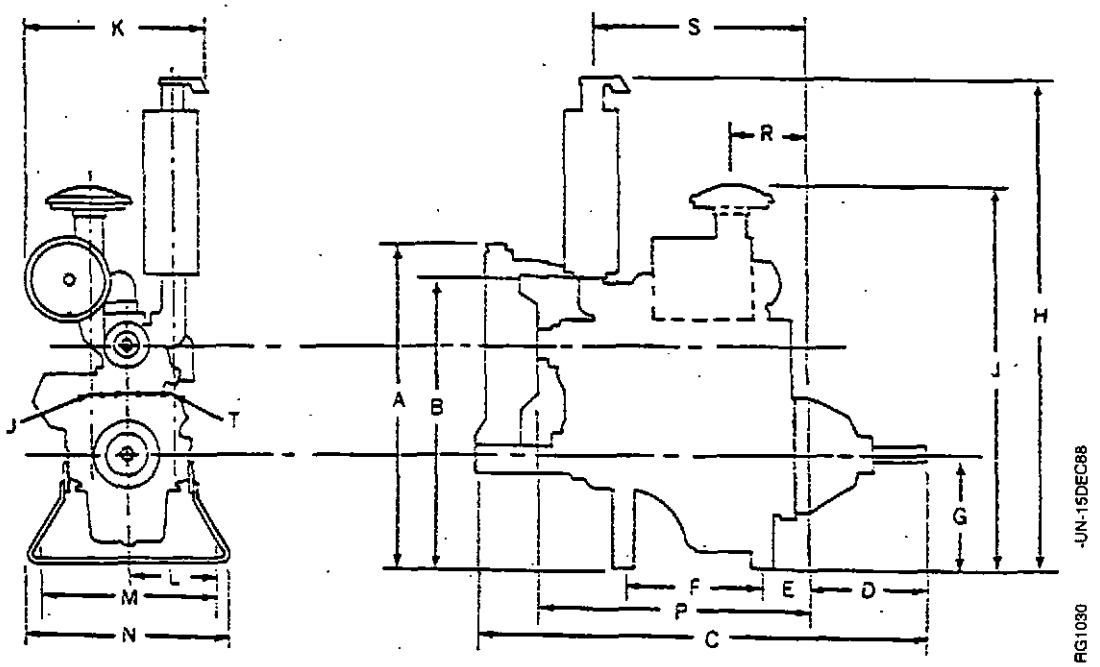
GENERAL OEM SPECIFICATIONS—CONTINUED

Item	Unit Of Measure	6076T	6076A	6076H
Auxiliary Drive				
Power Output (Maximum)				
Intermittent	kW (HP)	45 (60)	45 (60)	45 (60)
Continuous	kW (HP)	37 (50)	37 (50)	37 (50)
Drive Ratio	—	1.05:1 drive:crankshaft	1.05:1 drive:crankshaft	1.05:1 drive:crankshaft
Engine Rotation*	—	counter- clockwise*	counter- clockwise*	counter- clockwise*
Crankcase capacity with filter change**	L (qt)	25 (26)	25 (26)	25 (26)
PTO shaft diameter	mm (in.)	57 (2.25)	64 (2.5)	64 (2.5)
Basic Weight (dry)	kg (lb)	794 (1746)	831 (1829)	794 (1746)
Physical Dimensions: (including flywheel housing, flywheel, and electrics)				
Width	mm (in.)	572 (22.5)	572 (22.5)	572 (22.5)
Height	mm (in.)	1173 (46.2)	1173 (46.2)	1173 (46.2)
Length	mm (in.)	1229 (48.4)	1229 (48.4)	1229 (48.4)

**As viewed from flywheel end of engine.*

***Since optional oil pans are available on most OEM Engines, crankcase oil capacity may vary. (See CHANGE ENGINE OIL AND FILTER in the Lubrication and Maintenance/250 Hour section for crankcase capacities with filter change.)*

S55,OMSP,B -19-25APR91



A—Height—to—Radiator Cap
B—Height—to—Exhaust Elbow
C—Overall Length
D—PTO Assembly Length
E—Rear Mounting Hole—to—Flywheel
F—Mounting Holes Length
G—Crankshaft Height
H—Height-to-Top of Muffler
J—Height-to-Top of Air Cleaner
K—Width Less Radiator
K1—Width With Radiator (Not Shown)
L—Crankshaft-to-Mounting Hole
M—Mounting Holes Width
N—Overall Mount Width
P—Block Length
R—Air Cleaner-to-Flywheel
S—Muffler-to-Flywheel
T—Crankshaft-to-Exhaust Manifold (Left)
U—Crankshaft-to-Air Intake (Right)

DIMENSION mm (in.)	6076TF	6076AF	6076HF
A	1321 (52.0)	1334 (52.5)	1321 (52.0)
B	1283 (50.5)	1283 (50.5)	1283 (50.5)
C	1753 (69.0)	1794 (70.6)	1753 (69.0)
D	394 (15.5)	410 (16.13)	394 (15.5)
E	236 (9.3)	236 (9.3)	236 (9.3)
F	711 (28.0)	711 (28.0)	711 (28.0)
G	381 (15.0)	381 (15.0)	381 (15.O)
H	2190 (86.2)	2190 (86.2)	2190 (86.2)
J	1549 (61.0)	1549 (61.0)	1549 (61.0)
K	546 (21.5)	559 (22.0)	546 (21.5)
K_1	622 (24.5)	775 (30.5)	622 (24.5)
L	324 (12.8)	324 (12.8)	324 (12.8)
M	648 (25.5)	648 (25.5)	648 (25.5)
N	800 (31.5)	800 (31.5)	800 (31.5)
P	1208 (47.5)	1208 (47.5)	1208 (47.5)
R	381 (15.0)	381 (15.0)	381 (15.0)
S	1092 (43.0)	1092 (43.0)	1092 (43.0)
T	167 (6.6)	167 (6.6)	167 (6.6)
U	25 (1.0)	25 (1.0)	25 (1.0)

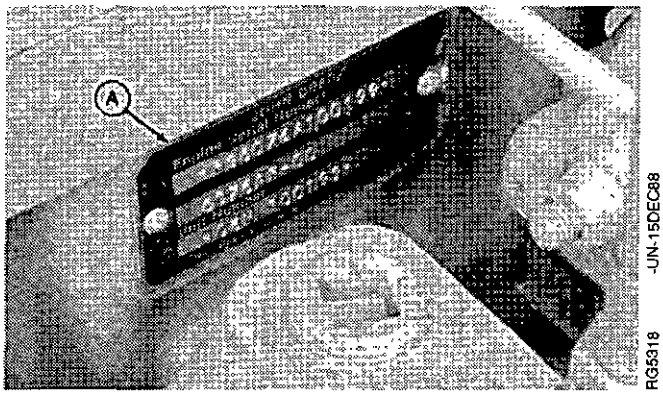
(Specifications and design subject to change without notice.)

S55,OMSP,C -19-28JAN88

060591

ENGINE SERIAL NUMBER PLATE

Located on right-hand side of engine block between the oil filter housing and injection pump.



555,OMSP,D -19-06JAN88

RECORD ENGINE SERIAL NUMBER

Your engine will have one of three engine serial number plates:

A—John Deere Name Plate
B—DDA/DDC Unit Number Plate
C—Generic Plate

Record all of the numbers and letters found on your engine serial number plate in the spaces provided below.

This information is very important for repair parts or warranty information.

Engine Serial Number (1st line)

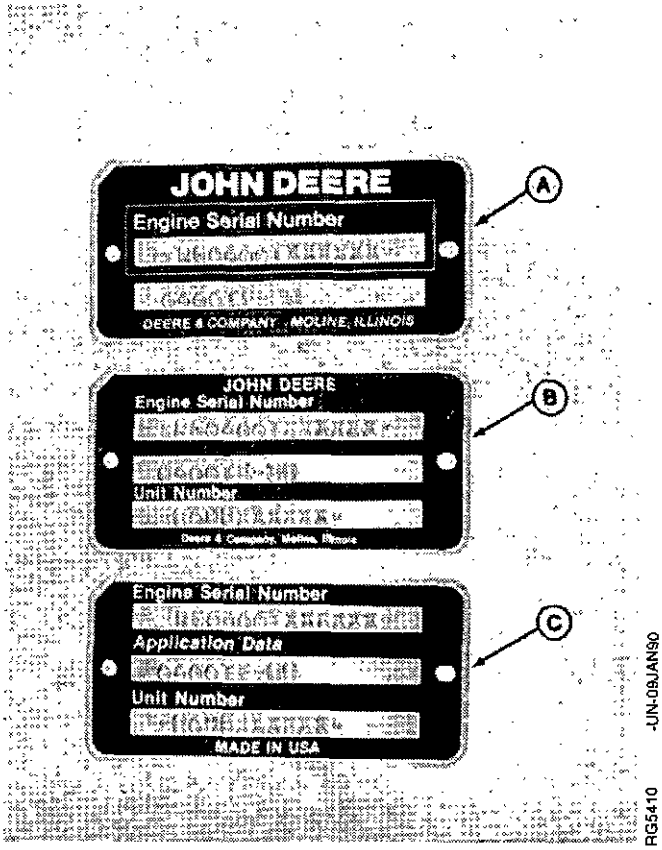
_____

Application Data or Type (2nd line)

_____

Unit Number (3rd line—provided on DDA/DDC or generic *plate only*)

_____



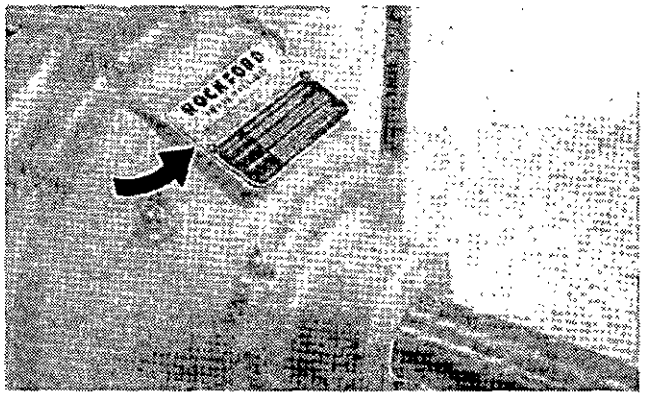
S11,OMSN,F -19-13JAN89

RECORD PTO SERIAL NUMBER

Serial number and model number are located on cover plate of PTO housing. Record the numbers in the following spaces:

Serial Number _____

Model Number _____



RG4622 -UN-15DEC88

S11,OMSN,N -19-10JUN86

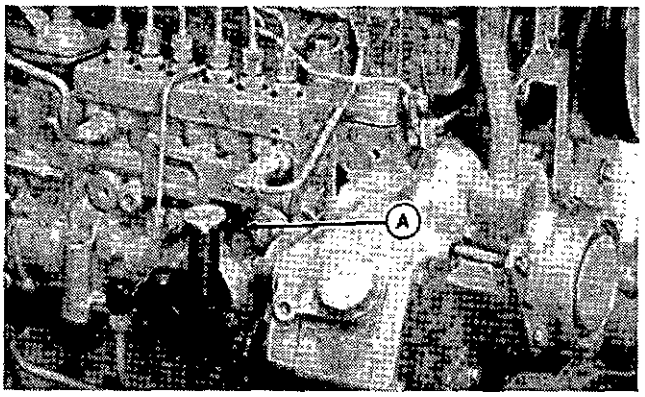
RECORD FUEL INJECTION PUMP MODEL NUMBER

Record the fuel injection pump model and serial information found on the serial number plate (A).

Model No. _____ RPM _____

Manufacturer's No. _____

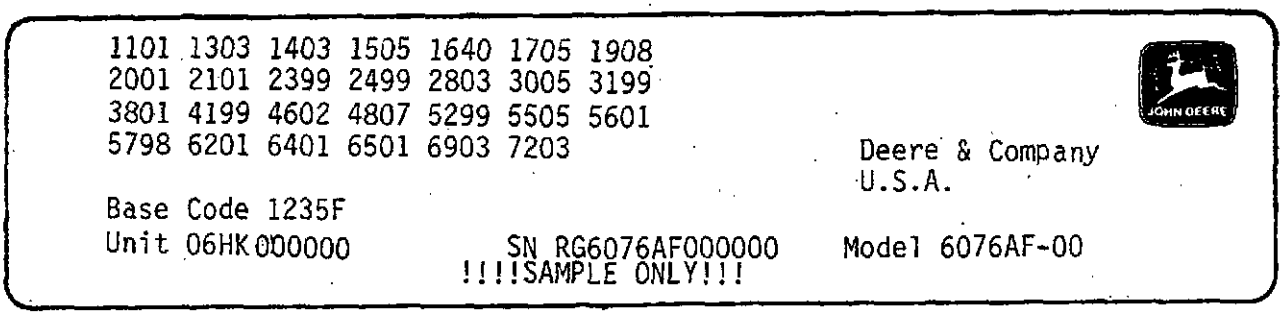
Serial No. _____



RG5729 -UN-28APR91

RG,OM76SP,FP -19-25APR91

ENGINE OPTION CODES



RG5348 -UN-15DEC88

In addition to the serial number plate, OEM engines have option code labels affixed to the rocker arm cover. The option codes indicate which of the optional engine accessories 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.

The first two digits of each code identify a specific group, such as alternator or radiator. The last two digits of each code identify one specific option provided on your engine, such as a 24-volt, 42-amp alternator.

If an engine is ordered without a particular component, the last two digits of that functional group option code will be 99, 00, or XX. The following list shows only the first two digits of the code numbers. For future reference such as ordering repair parts, it is important to have these code numbers available. Enter the third and fourth digits shown on your engine option code label in the spaces provided on the following pages.

NOTE: Your engine option code label may not contain all option codes if an option has been added after the engine left the producing factory.

RG,OM76SP,OC -19-26APR91

ENGINE OPTION CODES—CONTINUED

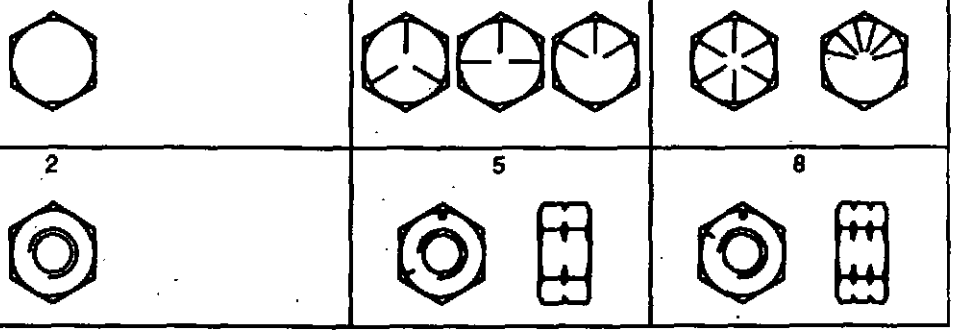
Option Codes	Description	Option Codes	Description
11_____	Rocker Arm Cover	30_____	Starting Motor
12_____	Oil Filler	31_____	Alternator
13_____	Crankshaft Pulley	35_____	Fuel Filter
14_____	Flywheel Housing	39_____	Thermostat Housing
15_____	Flywheel	40_____	Dipstick
16_____	Injection Pump	43_____	Starting Aid
17_____	Air Intake	44_____	Speed Sensor
19_____	Oil Pan	52_____	Gear Driven Auxiliary Drive
20_____	Water Pump	55_____	Transport Skid/Stands
21_____	Thermostat Cover	56_____	Paint
22_____	Thermostat	57_____	Water Pump Inlet
23_____	Fan Drive	62_____	Alternator Mounting
24_____	Fan Belt	64_____	Exhaust Elbow
26_____	Block Heater	65_____	Turbocharger
28_____	Exhaust Manifold	69_____	Serial Number Plate

NOTE: These optional codes are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

RG,OM76SP,OCL -19-24APR91

UNIFIED INCH BOLT AND CAP SCREW TORQUE VALUES

SAE Grade and Head Markings	NO MARK	1 or 2[b]	5 5.1 5.2	8 8.2
SAE Grade and Nut Markings	NO MARK	2	5	8



TS1162 -19-04MAR91

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	215	160	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	470	300	510	375	470	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.

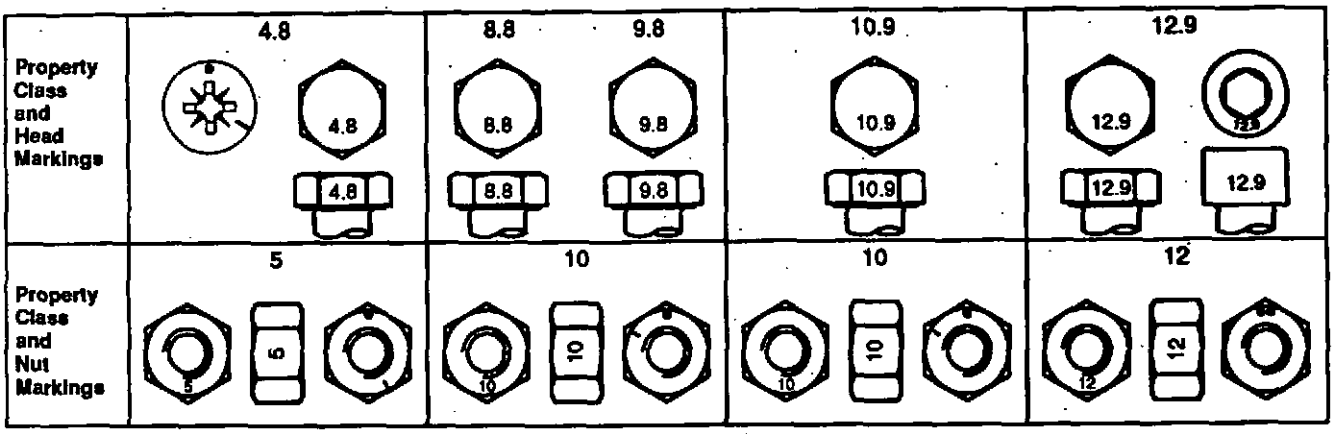
[a] *"Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.*

[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 -19-15MAR91

060591

METRIC BOLT AND CAP SCREW TORQUE VALUES



TS1183 -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	225	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	220	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 -19-15MAR91

060591

ARE WE MEETING YOUR NEEDS?

This operator's manual was written by Deere Power Systems Group's Service Publication Department.

In our effort to meet customer needs, we invite you to mail comments on this manual to the following address:

Deere Power Systems Group
P.O. Box 5100
Waterloo, IA. 50704-5100
Attn: Service Publications

Call your authorized servicing dealer or engine distributor if you have problems or need service.

RG5422 -UN-15DEC88

S55,OMSP,F -19-08JAN90

Lubrication and Maintenance Records

USING LUBRICATION AND MAINTENANCE RECORDS

1. Keep a record of the number of hours you run your engine.

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 chart near the front of the Lubrication and Maintenance section.

S55,2000,IK -19-19MAR91

SERVICE AS REQUIRED

- Service air cleaner

Hours									
Date									
Hours									
Date									
Hours									
Date									
Hours									
Date									

RW3845L -19-28NOV89

S11,OMMR,Z -19-22MAR91

DAILY (PRESTARTING) OR EVERY 10 HOURS SERVICE

NOTE: Refer to Prestarting Checks section for detailed procedures.

- Check engine oil level.
- Check coolant level.
- Lubricate PTO release bearing
- Check air cleaner dust unloader valve.

S11,OMMR,I1 -19-22MAR91

100 HOUR SERVICE

NOTE: Refer to Lubrication and Maintenance section for detailed procedures.

- Lubricate PTO clutch shaft bearings.

RW3846L -19-14MAR89

Hours									
Date									

- Service fire extinguisher

RW3846L -19-14MAR89

Hours									
Date									

RG,OM76MR,100 -19-22MAR91

ENGINE BREAK-IN SERVICE

Thoroughly document all service requirements and report to your authorized servicing dealer or engine distributor during the first 100 hours of operation.

• Change engine oil and filter (first 100 hours maximum, then every 250 hours thereafter).

IMPORTANT: Pay extremely close attention to engine oil pressure gauge and water temperature gauge during first 100 hours of operation. Shut engine down and consult authorized servicing dealer or engine distributor if problems are suspected.

NOTES:

RG,OM76MR,BI -19-04APR91

250 HOUR SERVICE

- *Change engine oil and filter.

Hours									
Date									
Hours									
Date									
Hours									
Date									
Hours									
Date									

RW3845L -19-28NOV89

- Service battery

Hours									
Date									
Hours									
Date									
Hours									
Date									
Hours									
Date									

RW3845L -19-28NOV89

- Check fan and alternator belt tension

Hours									
Date									
Hours									
Date									
Hours									
Date									
Hours									
Date									

RW3845L -19-28NOV89

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 -19-22MAR91

060591

250 HOUR SERVICE—CONTINUED

- Check PTO clutch adjustment

Hours									
Date									
Hours									
Date									
Hours									
Date									
Hours									
Date									

RW3845L -19-28NOV89

RG,OM76MR,250C -19-24APR91

600 HOUR/1-YEAR SERVICE

- Clean crankcase vent tube

RW3846L -19-14MAR89

Hours									
Date									

- Check air intake hoses and connections.

RW3846L -19-14MAR89

Hours									
Date									

- Lubricate PTO clutch internal levers and linkage

RW3846L -19-14MAR89

Hours									
Date									

- Replace fuel filter

RW3846L -19-14MAR89

Hours									
Date									

- Coolant solution analysis - add inhibitor as needed

RW3846L -19-14MAR89

Hours									
Date									

- Replace air cleaner elements

RW3846L -19-14MAR89

Hours									
Date									

S11,OMMR,AD -19-22MAR91

600 HOUR/1-YEAR SERVICE—CONTINUED

- Check air intake system

RW3846L -19-14MAR89

Hours									
Date									

- Check cooling system

RW3846L -19-14MAR89

Hours									
Date									

S11,OMMR,AE -19-25APR91

1200 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

RW3846L -19-14MAR89

Hours									
Date									

• Have your authorized servicing dealer or engine distributor adjust valve clearance

RW3846L -19-14MAR89

Hours									
Date									

• Have your authorized servicing dealer or engine distributor check fuel injection system

RW3846L -19-14MAR89

Hours									
Date									

• Have your authorized servicing dealer or engine distributor inspect turbocharger

RW3846L -19-14MAR89

Hours									
Date									

• Check crankshaft vibration damper

RW3846L -19-14MAR89

Hours									
Date									

S11,OMMR,J -19-25APR91

1200 HOUR/2-YEAR SERVICE—CONTINUED

• Flush cooling system

RW3846L -19-14MAR89

Hours									
Date									

• Change thermostats

RW3846L -19-14MAR89

Hours									
Date									

• Have your authorized servicing dealer or engine distributor test radiator and cap

RW3846L -19-14MAR89

Hours									
Date									

• Perform engine tune-up

RW3846L -19-14MAR89

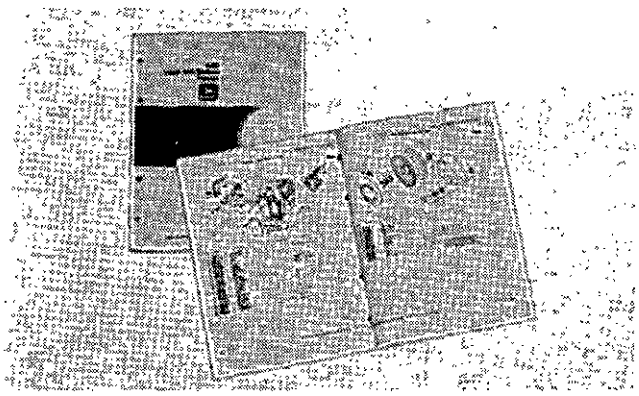
Hours									
Date									

S11,OMMR,AF -19-22MAR91

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.



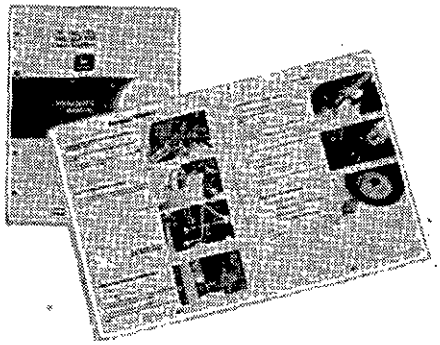
TS189 -UN-17JAN89

DX,PARTS -19-04JUN90

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 important if the copy furnished with your machine is misplaced.



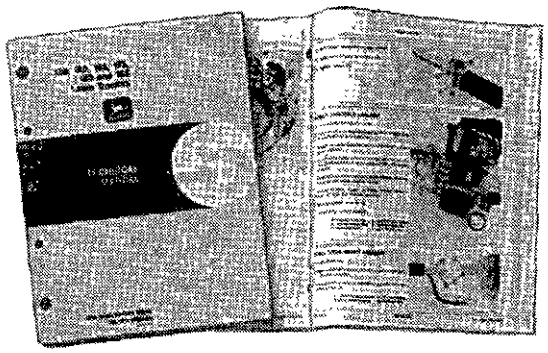
TS190 -UN-17JAN89

DX,OM -19-04JUN90

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.

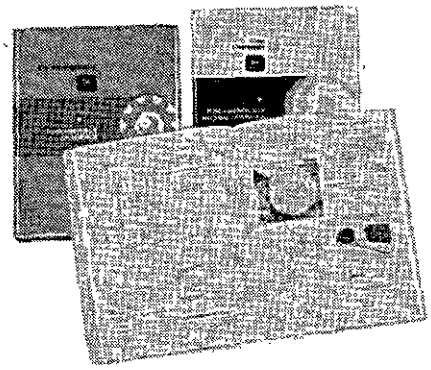


TS224 -UN-17JAN89

DX,TM -19-04JUN90

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 -19-04JUN90

060591

LUBRICATION AND MAINTENANCE SERVICE INTERVAL CHART

Item	Lubrication and Maintenance Service Intervals					
	Daily	100 Hour	250 Hour	600 Hour/ 1-Year	1200 Hour/ 2-Year	As Required
Check Engine Oil and Coolant Level	•					
Check Fuel Filter	•					
Lubricate PTO Release Bearing	•					
Check Dust Unloader Valve on Air Cleaner	•					
Lubricate PTO Clutch Shaft Bearing		•				
Service Fire Extinguisher		•				
Service Battery			•			
Change Engine Oil and Filter*			•			
Check Fan and Alternator Belt Tension			•			
Check PTO Clutch Adjustment			•			
Check Weep Hole - Gear Driven Water Pumps			•			
Lubricate PTO Clutch Internal Levers & Linkage				•		
Clean Crankcase Vent Tube				•		
Check Air Intake Hoses and Connections				•		
Replace Fuel Filter Element				•		
Coolant Solution Analysis-Add Inhibitor as needed				•		
Replace Air Cleaner Elements and Check Air Intake System				•		
Check Cooling System				•		
Perform Engine Tune-Up					•	
Check and Adjust Engine Speeds					•	
Adjust Engine Valve Clearance					•	
Check Fuel Injection System					•	
Inspect Turbocharger					•	
Check Crankshaft Vibration Damper					•	
Flush Cooling System and Replace Thermostats					•	
Pressure Test Cooling Systems					•	
Inspect and Service Air Cleaner Elements						•

***Change the oil for the first time after 100 hours of operation, then at every 250 hours thereafter. If TORQ-GARD SUPREME PLUS-50 oil is used along with a John Deere oil filter, the oil change interval may be extended by 50 hours.**

RG,OM76LM,MC -19-25APR91

060691

John Deere Service Literature Available

John Deere Distribution Service Center
Department S/P
1400-13th St., East Moline, IL. 61244-1493

To order these publications, fill out this form and the payment information and mail it to the address above. Make checks payable to Deere & Co. Service Publications. Please allow three weeks for delivery. No COD orders, please. Do not send cash or stamps. To place credit card orders, call **1-800-544-2122**. If you want manuals or catalogs for equipment not shown on this list, provide the model number, serial number, and name of the product.

Name _____

Address _____

City _____

State _____ Zip _____

Phone ( ) _____

Title	Order Number	Price Each	x Quantity	= Total
6076 Engines				
Parts Catalog	PC2182	$ 13.50	x	=
Operator's Manual	OMRG17286	4.00	x	=
Component Technical Manual				
6076 Engines	CTM6	20.10	x	=
Engine Accessories	CTM11	34.90	x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
			x	=
FOS Manual—Hydraulics	FOS1004B	13.86	x	=
FOS Manual—Electrical Systems	FOS2005B	16.73	x	=
FOS Manual—Engines	FOS3006B	16.41	x	=
FOS Manual—Power Trains	FOS4005B	12.46	x	=
SET OF FOUR FOS MANUALS (above)	FOS90SET	56.78	x	=
FOS Manual—Shop Tools	FOS5104B	6.22	x	=
FOS Manual—Welding	FOS5206B	12.62	x	=
FOS Manual—Belts and Chains	FOS5304B	6.87	x	=
FOS Manual—Bearings and Seals	FOS5404B	9.14	x	=
FOS Manual—Tires and Tracks	FOS5506B	8.55	x	=
FOS Manual—Mowing & Spraying Equipment	FOS5604B	6.22	x	=
FOS Manual—Air Conditioning	FOS5705B	10.13	x	=
FOS Manual—Fuels, Lubricants & Coolants	FOS5806B	9.07	x	=
FOS Manual—Fiber Glass	FOS5903B	9.07	x	=
FOS Manual—Fasteners	FOS6003B	9.07	x	=
FOS Manual—Iden. of Parts Failures	FOS6103B	11.14	x	=
SET OF 11 FOS MANUALS (above)	FOS71SET	93.66	x	=
SET OF ALL 15 FOS MANUALS	FOS181SET	150.44	x	=
1-in. 3-Ring Binder (400 pages max.)	SX2062	2.10	x	=
1-1/2-in. 3-Ring Binder (600 pages max.)	SX2063	5.00	x	=
1—1-1/2-in. 3-Post Binder (600 pages max.)	SX2066	7.50	x	=
2—3-1/2-in. 3-Post Binder (1400 pages max.)	SX2064	15.75	x	=
2-4-in. 4-Post Expandable (2000 pages max.)	SX2056	20.00	x	=
Catalog of Available Service Publications	DB1112	No Charge		
		Subtotal		

Method of Payment

- ☐ Check or Money Order enclosed
- ☐ John Deere Credit Card
- ☐ MasterCard ☐ Discover
- ☐ Visa ☐ American Express

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

Expiration date: _____

_____
Your Signature

Subtotal	Shipping & Handling
$ .50 to $ 14.99	$ 3.00
15.00 to 24.99	4.25
25.00 to 49.99	5.50
50.00 to 99.99	7.50
100.00 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 4% 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 - MAR 91)

S57,PSLIT,2 -19-24APR91

060591

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

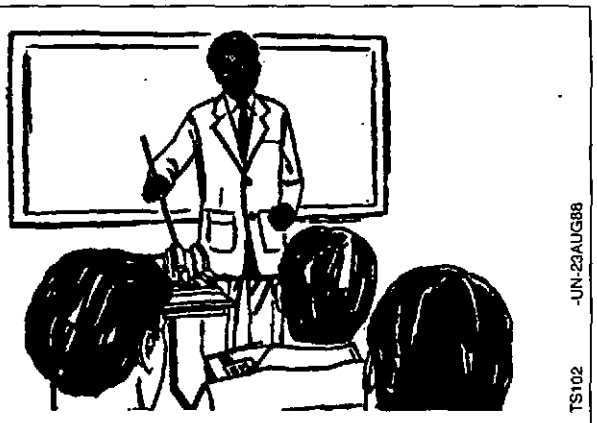
WELL-TRAINED TECHNICIANS

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

060591


SAFETY
live with it