

Product: John Deere 250G,440G,550GE,G2500K,G4400K,G5500K and G5500KE Generators Service Repair Technical Manual
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250G, 440G, 550GE, G2500K, G4400K, G5500K, and G5500KE GENERATORS

TECHNICAL MANUAL

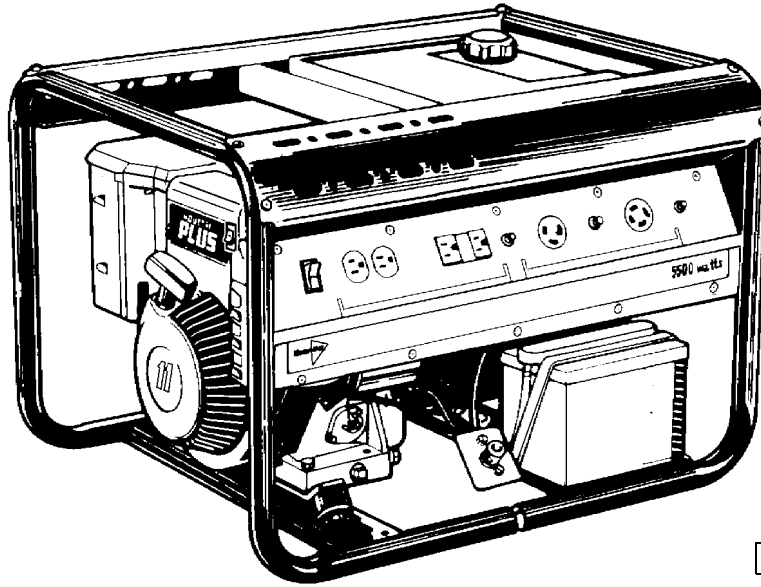
**John Deere
Worldwide Commercial and
Consumer Equipment Division**

TM1791 (18Feb00)

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MX0519

550GE GENERATOR

This technical manual is written for an experienced technician and contains sections that are specifically for this product. It is a part of a total product support program.

The manual is organized so that all the information on a particular system is kept together. The order of grouping is as follows:

- Table of Contents
- General Diagnostic Information
- Specifications
- Electrical Wiring Harness Legend
- Component Location
- System Schematic
- Wiring Harness
- Troubleshooting Chart
- Theory of Operation
- Diagnostics
- Tests & Adjustments
- Repair








Note: Depending on the particular section or system being covered, not all of the above groups may be used.

Each section will be identified with a symbol rather than a number. The groups and pages within a section will be consecutively numbered.

We appreciate your input on this manual. To help, there are postage paid post cards included at the back. If you find any errors or want to comment on the layout of the manual please fill out one of the cards and mail it back to us.

All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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 John Deere Worldwide Commercial &
 Consumer Equipment Division
 Charlotte, NC
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Safety	
Specifications and General Information	
Engine (B&S 5 HP)	
Engine (B&S 8 and 11 HP)	
Engine (Kawasaki 5 HP)	
Engine (Kawasaki 8 and 11 HP)	
Electrical	



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 servicing practices.

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.

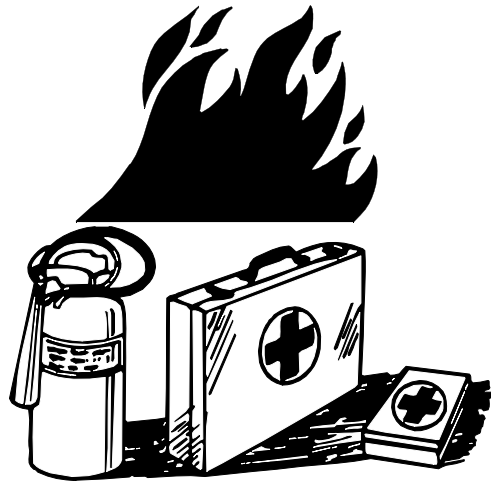
REPLACE SAFETY SIGNS



Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.

HANDLE FLUIDS SAFELY-AVOID FIRES

Be Prepared For Emergencies



When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

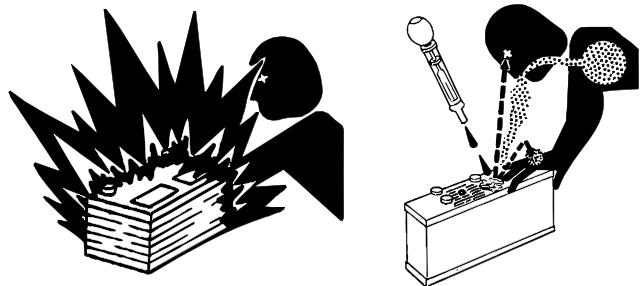
Do not store oily rags; they can ignite and burn spontaneously.

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.

USE CARE IN HANDLING AND SERVICING BATTERIES



Prevent Battery Explosions

- Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

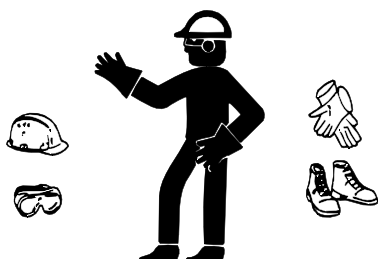
- Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.
- Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).

Prevent Acid Burns

- 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 acid burns 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. Use 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.
 4. 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.

USE SAFE SERVICE PROCEDURES

Wear Protective Clothing



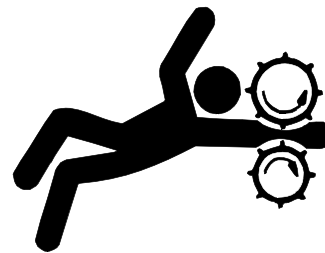
Wear close fitting clothing and safety equipment appropriate to the job.

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.

Service Machines Safely



Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.

Use Proper Tools

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards. Use power tools only to loosen threaded parts and fasteners. For loosening and tightening hardware, use the correct size tools. **DO NOT** use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches. Use only service parts meeting John Deere specifications.

Work In Clean Area

Before starting a job:

1. Clean work area and machine.
2. Make sure you have all necessary tools to do your job.
3. Have the right parts on hand.
4. Read all instructions thoroughly; do not attempt shortcuts.

Using High Pressure Washers

Directing pressurized water at electronic/electrical components or connectors, bearings, hydraulic seals, fuel injection pumps or other sensitive parts and components may cause product malfunctions. Reduce pressure and spray at a 45 to 90 degree angle.

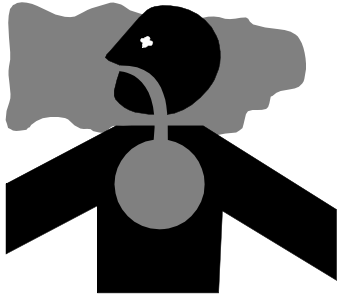
Illuminate Work Area Safely

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.





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.

WARNING: California Proposition 65

Warning:

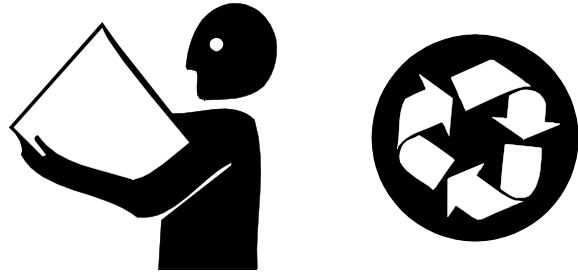
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Gasoline engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Remove Paint Before Welding Or Heating

Avoid potentially toxic fumes and dust. Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch. Do all work outside or in a well ventilated area. Dispose of paint and solvent properly. Remove paint before welding or heating: If you sand or grind paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

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.

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

LIVE WITH SAFETY



Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.

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GENERAL SPECIFICATIONS

250G GENERATOR

Engine

Model Briggs & Stratton Industrial Plus
 Horsepower..... 5 hp
 Starting Automatic Rewind
 Running Time at 3600 RPM (Tank of Fuel)..... 7.2 Hours at Rated Load

Fuel System

Fuel Type.....Automotive
 Fuel Capacity 3 Gallons (11 Liters)

Electrical

AC Watts - Intermittent 2500
 AC Watts - Continuous 2300
 AC Power Output.....120 Volts, Single Phase
 Voltage Regulation Electronic, +/- 6%
 Frequency 60 Hz
 Rated Amperage..... 19.2
 Outlets..... (2) 15 amp, 120 V (Type 5-15R)
 (2) 15 amp, 120V GFCI

General

Sound Level at 50 ft.....71 dBA
 Length..... 22.25 in.(57 cm)
 Width..... 18.50 in.(47 cm)
 Height..... 19 in.(48 cm)
 Weight (dry).....95 lbs (43 kg)

440G GENERATOR

Engine

Model Briggs & Stratton Industrial Plus
 Horsepower..... 8 hp
 Starting Automatic Rewind
 Running Time at 3600 RPM (Tank of Fuel)..... 6.0 Hours at Rated Load

Fuel System

Fuel Type.....Automotive
 Fuel Capacity 5 Gallons (19 Liters)

Electrical

AC Watts - Intermittent 4400
 AC Watts - Continuous 4000
 AC Power Output..... 120 /240 Volts





Voltage Regulation Electronic, +/- 6%
 Frequency 60 Hz
 Rated Amperage (AC 120/240). 33.3/16.7
 Outlets (2) 20 amp, 120 V (Type 5-20R) GFCI Protected
 (2) 15 amp, 120 V (Type 5-15R) GFCI
 (1) 30 amp, 120 V (Type L5-30R)
 (1) 20 amp, 120/240 V (Type L14-20R)

General

Sound Level at 50 ft. 76 dBA
 Length 28 in. (71 cm)
 Width 22.25 in. (57 cm)
 Height 19.50 in. (49 cm)
 Weight (dry). 142 lbs (64 kg)

550GE GENERATOR

Engine

Model Briggs & Stratton Industrial Plus
 Horsepower 11 hp
 Starting Automatic Rewind/Electric
 Running Time at 3600 RPM (Tank of Fuel). 6.0 Hours at Rated Load

Fuel System

Fuel Type Automotive
 Fuel Capacity 5 Gallons (19 Liters)

Electrical

AC Watts - Intermittent 5500
 AC Watts - Continuous 5000
 AC Power Output 120/240 Volts
 Voltage Regulation Electronic, +/- 6%
 Frequency 60 Hz
 Rated Amperage (AC 120/240). 33.3/16.7
 Outlets (2) 20 amp, 120 V (Type 5-20R) GFCI Protected
 (2) 15 amp, 120V (Type 5-15R) GFCI
 (1) 30 amp, 120 V (Type L5-30R)
 (1) 20 amp, 120/240 V (Type L14-20R)

General

Sound Level at 50 ft. 75 dBA
 Length 28 in. (71 cm)
 Width 22.25 in. (57 cm)
 Height 9.50 in. (49 cm)
 Weight (dry). 192 lbs (87 kg)

2500K GENERATOR

Engine

MakeKawasaki
 Model FE170D-AS15
 Type..... Gasoline ("CARB" and EPA certified)
 Power @ 3600 rpm3.95 kW (5.3 HP)

Fuel System

Fuel Type.....Automotive
 Fuel Capacity 3 Gallons (11 Liters)

Electrical

AC Watts - Intermittent 2500
 AC Watts - Continuous 2300
 AC Power Output.....120 Volts, Single Phase
 Voltage Regulation Electronic, +/- 6%
 Frequency 60 Hz
 Rated Amperage 19.2
 Outlets..... (2) 15 amp, 120 V (Type 5-15R)
 (2) 15 amp, 120V GFCI

General

Sound Level at 50 ft.71 dBA
 Length..... 22.25 in.(57 cm)
 Width..... 18.50 in.(47 cm)
 Height 19 in.(48 cm)
 Weight (dry).....95 lbs (43 kg)

4400K GENERATOR

Engine

MakeKawasaki
 Model FE250D-AS15
 Type..... Gasoline ("CARB" and EPA certified)
 Power @ 3600 rpm5.89 kW (7.9 HP)

Fuel System

Fuel Type.....Automotive
 Fuel Capacity 5 Gallons (19 Liters)

Electrical

AC Watts - Intermittent 4400
 AC Watts - Continuous 4000
 AC Power Output..... 120 /240 Volts
 Voltage Regulation Electronic, +/- 6%
 Frequency 60 Hz
 Rated Amperage (AC 120/240)..... 33.3/16.7



Outlets..... (2) 20 amp, 120 V (Type 5-20R) GFCI Protected
 (2) 15 amp, 120 V (Type 5-15R) GFCI
 (1) 30 amp, 120 V (Type L5-30R)
 (1) 20 amp, 120/240 V (Type L14-20R)



General

Sound Level at 50 ft.....76 dBA
 Length..... 28 in. (71 cm)
 Width..... 22.25 in. (57 cm)
 Height..... 19.50 in.(49 cm)
 Weight (dry).....142 lbs (64 kg)

G5500K and G5500KE GENERATORS

Engine

Make.....Kawasaki
 Model..... FE350D-AS15
 Type..... Gasoline (“CARB” and EPA certified)
 Power @ 3600 rpm.....8.28 kW (11.1 HP)

Fuel System

Fuel Type.....Automotive
 Fuel Capacity..... 5 Gallons (19 Liters)

Electrical

AC Watts - Intermittent..... 5500
 AC Watts - Continuous..... 5000
 AC Power Output.....120/240 Volts
 Voltage Regulation..... Electronic, +/- 6%
 Frequency.....60 Hz
 Rated Amperage (AC 120/240)..... 33.3/16.7
 Outlets.....(2) 20 amp, 120 V(Type 5-20R) GFCI Protected
 (2) 15 amp, 120V (Type 5-15R) GFCI
 (1) 30 amp, 120 V (Type L5-30R)
 (1) 20 amp, 120/240 V (Type L14-20R)

General

Sound Level at 50 ft.....75 dBA
 Length..... 28 in.(71 cm)
 Width..... 22.25 in.(57 cm)
 Height..... 9.50 in.(49 cm)
 Weight (dry).....192 lbs (87 kg)

TORQUE SPECIFICATIONS

End Bell to Engine*	
250G and G2500K	13.6-16.9 N•m (120-150 lb-in.)
440G, 550GE, G440K, G5500K and G5500KE	27.1-28.2 N•m (240-250 lb-in.)
Stator Housing Bolts	6.8-9.0 N•m (60-80 lb-in.)
Rotor Bolt	11.3-15.8 N•m (100-140 lb-in.)
Brush Holder	1.4-1.8 N•m (12-16 lb-in.)
Stator to Bracket	16.9-17.5 N•m (150-155 lb-in.)
Receptacle (220G)	1.0-1.5 N•m (9-13 lb-in.)
Fan to Rotor	1.4-1.8 N•m (12-16 lb-in.)
Isolator to Frame	16.4-17.5 N•m (145-155 lb-in.)
Engine to Engine Support	16.4-17.5 N•m (145-155 lb-in.)
Ground Wire to Stator	5.1-6.2 N•m (45-55 lb-in.)
Tank Support to Frame	2.8-4.0 N•m (25-35 lb-in.)
Heat Shield to Tank Support	0.9-1.4 N•m (8-12 lb-in.)
Generator Support Bracket to Eng/Gen Support (250G)	16.4-17.5 N•m (145-155 lb-in.)
Generator Bracket to Isolator (440G and 550GE)	16.4-17.5 N•m (145-155 lb-in.)
Engine to Engine Support (440G and 550GE)	16.4-17.5 N•m (145-155 lb-in.)
Ground Screw (440G and 550GE)	16.4-17.5 N•m (145-155 lb-in.)
Panel to Frame	2.4-2.8 N•m (20-25 lb-in.)
Receptacles to Panels	1.4-1.6 N•m (12-14 lb-in.)
Circuit to Panel	1.8-2.4 N•m (15-20 lb-in.)
Front to Back Panel	1.8-2.4 N•m (15-20 lb-in.)
Idle Bracket to Engine	6.8-7.9 N•m (60-70 lb-in.)
Idle Paddle to Governor Arm	1.6-2.0 N•m (14-18 lb-in.)
Switch to Battery Plate (440G, G4400, 550GE, G550K)	7.9-9.0 N•m (70-80 lb-in.)
Battery Strap to Plate (440G, G4400, 550GE, G550K)	1.4-1.8 N•m (12-16 lb-in.)
Battery Cables to Battery	4.5-5.6 N•m (40-50 lb-in.)
Battery Cables to Starter Switch	5.6-6.8 N•m (50-60 lb-in.)
Battery Cables to Starter	3.4-4.5 N•m (30-40 lb-in.)
Idler Bracket to Muffler Bracket (550GE)	16.4-17.5 N•m (145-155 lb-in.)
Idler Bracket Clamp (550GE)	1.6-2.0 N•m (14-18 lb-in.)
Idler Paddle Clamp (550GE)	1.6-2.0 N•m (14-18 lb-in.)



OTHER MATERIALS

Number	Name	Use
*T43514 / 277	Thread Lock and Sealer (High Strength)	Apply to threads of end bell to engine screws

LOCTITE® is a registered trademark of the Loctite Corp.

METRIC FASTENER TORQUE VALUES

Property Class and Head Markings	4.8	8.8	9.8	10.9	12.9
Property Class and Nut Markings	5	10	10	12	

TS1163

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	109
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	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

DO NOT use these hand torque values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only and include a ±10% variance factor. Check tightness of fasteners periodically. DO NOT use air powered wrenches.

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

Fasteners should be replaced with the same class. Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

When bolt and nut combination fasteners are used, torque values should be applied to the **NUT** instead of the bolt head.



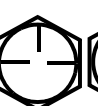
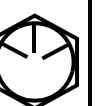







Tighten toothed or serrated-type lock nuts to the full torque value.

^a "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated (yellow dichromate - Specification JDS117) without any lubrication.

Reference: JDS—G200.

INCH FASTENER TORQUE VALUES



SAE Grade and Head Markings	1 or 2 ^b No Marks 	5  5.1  5.2 	8  8.2 
	2 No Marks 	5  	8  

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 hand torque values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only and include a ±10% variance factor. Check tightness of fasteners periodically. DO NOT use air powered wrenches.

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

Fasteners should be replaced with the same grade. Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

When bolt and nut combination fasteners are used, torque values should be applied to the **NUT** instead of 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 (yellow dichromate - Specification JDS117) 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.

Reference: JDS—G200.

GASOLINE— NORTH AMERICA


CAUTION

Gasoline is **HIGHLY FLAMMABLE**, handle it with care.

DO NOT refuel machine while:

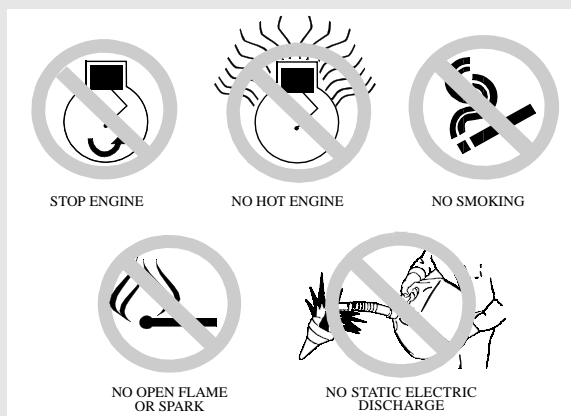
- indoors, always fill gas tank outdoors;
- machine is near an open flame or sparks;
- engine is running, **STOP** engine;
- engine is hot, allow it to cool sufficiently first;
- smoking.

Help prevent fires:

- fill gas tank to bottom of filler neck only;
- be sure fill cap is tight after fueling;
- clean up any gas spills **IMMEDIATELY**;
- keep machine clean and in good repair—free of excess grease, oil, debris, and faulty or damaged parts;
- any storage of machines with gas left in tank should be in an area that is well ventilated to prevent possible igniting of fumes by an open flame or spark, this includes any appliance with a pilot light.

To prevent fire or explosion caused by **STATIC ELECTRIC DISCHARGE** during fueling:

- **ONLY** use a clean, approved **POLYETHYLENE PLASTIC** fuel container and funnel **WITHOUT** any metal screen or filter.



To avoid engine damage:

- DO NOT mix oil with gasoline;
- **ONLY** use clean, fresh unleaded gasoline with an octane rating (anti-knock index) of 87 or higher;
- fill gas tank at the end of each day's operation to help prevent condensation from forming inside a partially filled tank;
- keep up with specified service intervals.

Use of alternative oxygenated, gasohol blended, unleaded gasoline is acceptable as long as:

- the ethyl or grain alcohol blends DO NOT exceed 10% by volume or
- methyl tertiary butyl ether (MTBE) blends DO NOT exceed 15% by volume.



IMPORTANT: DO NOT use **METHANOL** gasoline because **METHANOL** is harmful to the environment and to your health.


WARNING

California Proposition 65 Warning: Gasoline engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

GASOLINE STORAGE— NORTH AMERICA

IMPORTANT: Keep all dirt, scale, water or other foreign material out of gasoline.

Keep gasoline stored in a safe, protected area. Storage of gasoline in a clean, properly marked (“**UNLEADED GASOLINE**”) **POLYETHYLENE PLASTIC** container **WITHOUT** any metal screen or filter is recommended. **DO NOT** use de-icers to attempt to remove water from gasoline or depend on fuel filters to remove water from gasoline. Use a water separator installed in the storage tank outlet. **BE SURE** to properly discard unstable or contaminated gasoline. When storing unit or gasoline, it is recommended that you add **John Deere Gasoline Conditioner and Stabilizer (TY15977)** or an equivalent to the gasoline. **BE SURE** to follow directions on container and to properly discard empty container.

GASOLINE—EUROPE

CAUTION

Gasoline is **HIGHLY FLAMMABLE**, handle it with care.

DO NOT refuel machine while:

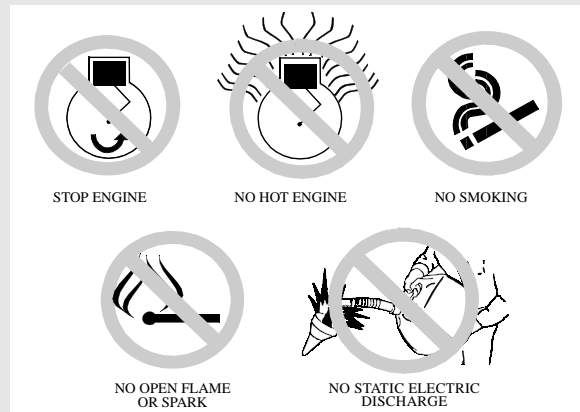
- indoors, always fill gas tank outdoors;
- machine is near an open flame or sparks;
- engine is running, **STOP** engine;
- engine is hot, allow it to cool sufficiently first;
- smoking.

Help prevent fires:

- fill gas tank to bottom of filler neck only;
- be sure fill cap is tight after fueling;
- clean up any gas spills **IMMEDIATELY**;
- keep machine clean and in good repair—free of excess grease, oil, debris, and faulty or damaged parts;
- any storage of machines with gas left in tank should be in an area that is well ventilated to prevent possible igniting of fumes by an open flame or spark, this includes any appliance with a pilot light.

To prevent fire or explosion caused by **STATIC ELECTRIC DISCHARGE** during fueling:

- **ONLY** use a clean, approved **POLYETHYLENE PLASTIC** fuel container and funnel **WITHOUT** any metal screen or filter.



To avoid engine damage:

- **DO NOT** mix oil with gasoline;
- **ONLY** use clean, fresh unleaded gasoline with an octane rating (anti-knock index) of 87 or higher;
- fill gas tank at the end of each day's operation to help prevent condensation from forming inside a partially filled tank;
- keep up with specified service intervals.

Use of alternative oxygenated, gasohol blended, unleaded gasoline is acceptable as long as:

- the ethyl or grain alcohol blends **DO NOT** exceed 10% by volume or
- methyl tertiary butyl ether (MTBE) blends **DO NOT** exceed 15% by volume.



IMPORTANT: **DO NOT** use **METHANOL** gasoline because **METHANOL** is harmful to the environment and to your health.

GASOLINE STORAGE—EUROPE

IMPORTANT: Keep all dirt, scale, water or other foreign material out of gasoline.

Keep gasoline stored in a safe, protected area. Storage of gasoline in a clean, properly marked (“**UNLEADED GASOLINE**”) **POLYETHYLENE PLASTIC** container **WITHOUT** any metal screen or filter is recommended. **DO NOT** use de-icers to attempt to remove water from gasoline or depend on fuel filters to remove water from gasoline. Use a water separator installed in the storage tank outlet. **BE SURE** to properly discard unstable or contaminated gasoline. When storing unit or gasoline, it is recommended that you add **John Deere Gasoline Conditioner and Stabilizer (TY15977)** or an equivalent to the gasoline. **BE SURE** to follow directions on container and to properly discard empty container.

ENGINE OIL—NORTH AMERICA

Use the appropriate oil viscosity based on the expected air temperature range during the period between recommended oil changes. Operating outside of these recommended oil air temperature ranges may cause premature engine failure.

The following John Deere oil is **PREFERRED**:

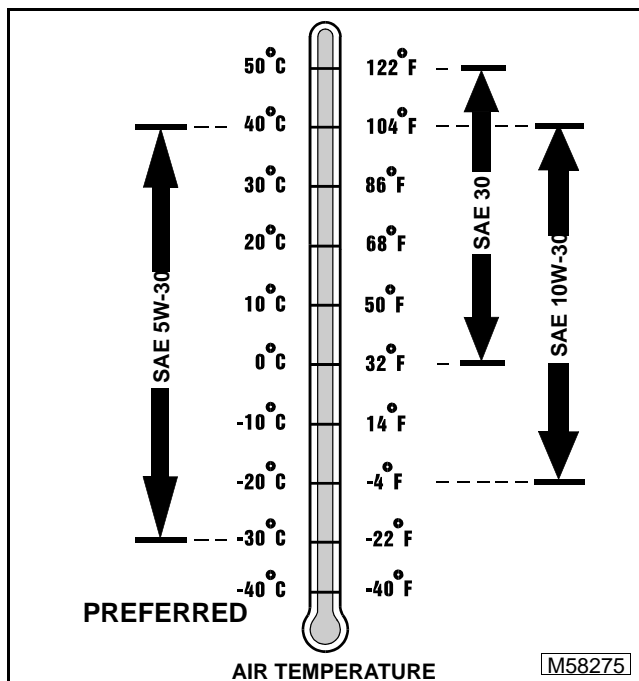
- **TORQ-GARD SUPREME®—SAE 5W-30.**

The following John Deere oils are **also recommended**, based on their specified temperature range:

- **TURF-GARD®—SAE 10W-30;**
- **PLUS-4®—SAE 10W-30;**
- **TORQ-GARD SUPREME®—SAE 30.**

Other oils may be used if above John Deere oils are not available, provided they meet one of the following specifications:

- SAE 5W-30—API Service Classification SG or higher;
- SAE 10W-30—API Service Classification SG or higher;
- SAE 30—API Service Classification SC or higher.



John Deere Dealers: You may want to cross-reference the following publications to recommend the proper oil for your customers:

- Module DX, ENOIL2 in JDS-G135;
- Section 530, Lubricants & Hydraulics, of the John Deere Merchandise Sales Guide;
- Lubrication Sales Manual PI7032.

ENGINE OIL—EUROPE

Use the appropriate oil viscosity based on their expected air temperature range during the period between recommended oil changes. Operating outside of these recommended oil air temperature ranges may cause premature engine failure.

The following John Deere oils are **PREFERRED**:

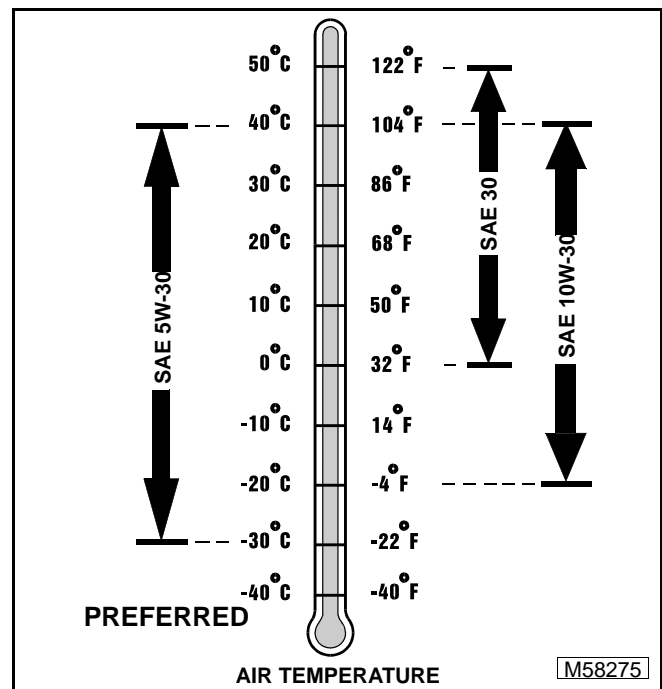
- **TORQ-GARD SUPREME®—SAE 5W-30;**
- **UNI-GARD™—SAE 5W-30.**

The following John Deere oils are **also recommended**, based on their specified temperature range:

- **TORQ-GARD SUPREME®—SAE 10W-30;**
- **UNI-GARD™—SAE 10W-30;**
- **TORQ-GARD SUPREME®—SAE 30**
- **UNI-GARD™—SAE 30.**

Other oils may be used if above John Deere oils are not available, provided they meet one of the following specifications:

- CCMC Specification G4 or higher.



John Deere Dealers: You may want to cross-reference the following publications to recommend the proper oil for your customers:

- Module DX, ENOIL2 in JDS-G135;
- Section 530, Lubricants & Hydraulics, of the John Deere Merchandise Sales Guide.

ENGINE BREAK-IN OIL

IMPORTANT: ONLY use a quality break-in oil in rebuilt or remanufactured engines for the **first 5 hours (maximum) of operation**. DO NOT use oils with heavier viscosity weights than SAE 5W-30 or oils meeting specifications API SG or SH, these oils will not allow rebuilt or remanufactured engines to break-in properly.

The following John Deere oil is **PREFERRED**:

- John Deere **BREAK-IN ENGINE OIL**.

John Deere BREAK-IN ENGINE OIL is formulated with special additives for aluminum and cast iron type engines to allow the power cylinder components (pistons, rings, and liners as well) to “wear-in” while protecting other engine components, valve train and gears, from abnormal wear. Engine rebuild instructions should be followed closely to determine if special requirements are necessary.

John Deere BREAK-IN ENGINE OIL is also recommended for non-John Deere engines, both aluminum and cast iron types.

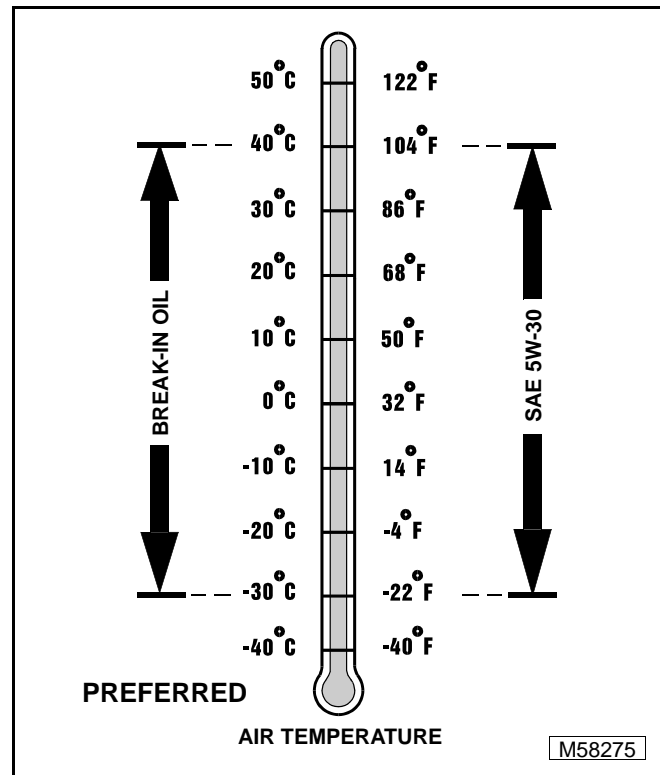
The following John Deere oil is **also recommended** as a break-in engine oil:

- **TORQ-GARD SUPREME®—SAE 5W-30**.

If the above recommended John Deere oils are not available, use a break-in engine oil meeting the following specification during the first 5 hours (maximum) of operation:

- SAE 5W-30—API Service Classification SE or higher.
- SAE 5W-30—CCMC Specification G4 or higher.

IMPORTANT: After the break-in period, use the John Deere oil that is recommended for this engine.



John Deere Dealers: You may want to cross-reference the following publications to recommend the proper oil for your customers:

- Module DX, ENOIL4 in JDS-G135;
- Section 530, Lubricants & Hydraulics, of the John Deere Merchandise Sales Guide;
- Lubrication Sales Manual PI7032.

ANTI-CORROSION GREASE

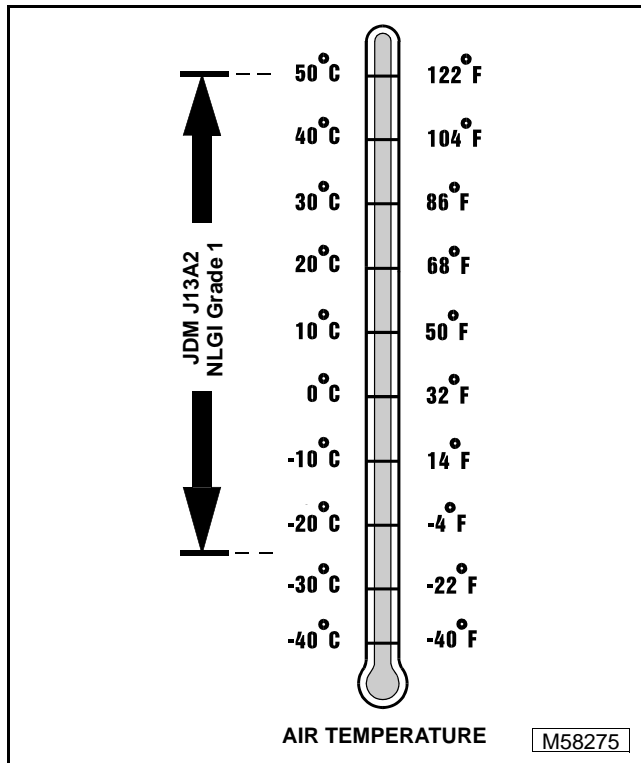
This anti-corrosion grease is formulated to provide the best protection against absorbing moisture, which is one of the major causes of corrosion. This grease is also superior in its resistance to separation and migration.

The following anti-corrosion grease is **PREFERRED**:

- DuBois MPG-2® Multi-Purpose Polymer Grease—M79292.

Other greases may be used if they meet or exceed the following specifications:

- John Deere Standard JDM J13A2, NLGI Grade 1.



John Deere Dealers: You may want to cross-reference the following publications to recommend the proper grease for your customers:

- Module DX,GREA1 in JDS-G135;
- Section 530, Lubricants & Hydraulics, of the John Deere Merchandise Sales Guide;
- Lubrication Sales Manual PI7032.

MIXING OF LUBRICANTS

In general, avoid mixing different brands or types of lubricants. Manufacturers blend additives in their lubricants to meet certain specifications and performance requirements. Mixing different lubricants can interfere with the proper functioning of these additives and lubricant properties which will downgrade their intended specified performance.

ALTERNATIVE LUBRICANTS

Conditions in certain geographical areas outside the United States and Canada may require different lubricant recommendations than the ones printed in this technical manual or the operator's manual. Consult with your John Deere Dealer, or Sales Branch, to obtain the alternative lubricant recommendations.

IMPORTANT: Use of alternative lubricants could cause reduced life of the component.

If alternative lubricants are to be used, it is recommended that the factory fill be thoroughly removed before switching to any alternative lubricant.

SYNTHETIC LUBRICANTS

Synthetic lubricants may be used in John Deere equipment if they meet the applicable performance requirements (industry classification and/or military specification) as shown in this manual.

The recommended air temperature limits and service or lubricant 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.

LUBRICANT STORAGE

All machines operate at top efficiency only when clean lubricants are used. Use clean storage containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contamination. Store drums on their sides. Make sure all containers are properly marked as to their contents. Dispose of all old, used containers and their contents properly.

PRODUCT IDENTIFICATION LOCATIONS

When ordering parts or submitting a warranty claim, it is **IMPORTANT** that you include the product identification number and the component product identification numbers.

The location of identification numbers and component product identification numbers are shown.

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SPECIFICATIONS

ENGINE SPECIFICATIONS

Manufacturer	Briggs & Stratton
Model	133412
Type (cycle)	Air cooled (4)
Horsepower@	5 hp (3.72 kW)@ 3250 rpm
Displacement	206 cc (12.57 cu. in.)
Slow Idle Speed	1750 rpm
Fast Idle Speed	3300 ± 100 rpm
Lubrication Type	Splash System
Oil capacity	0.62 L (21 U.S. oz.)



FUEL

Type required	Unleaded Gasoline, 87 Octane
Fuel filter	In Line

ELECTRICAL SPECIFICATIONS

Ignition	Electronic
Spark plug	RJ19LM Champion)
Starting	Recoil with compression release
Armature Air Gap	0.25 - 0.36 mm (0.010 - 0.014)
Spark Plug Gap	0.71 - 0.84 mm (0.028 - 0.033 in.)

REPAIR SPECIFICATIONS

Camshaft:

Journal - Minimum OD	12.65 mm (0.498 in.)
Lobe - Minimum OD	24.13 mm (0.950 in.)

Connecting Rod:

Crankpin End - Maximum ID	25.43 mm (1.001 in.)
Piston Pin Bore - Maximum ID	12.50 mm (0.492 in.)

Crankshaft Journals:

Flywheel End - Minimum OD	22.17 mm (0.873 in.)
PTO End - Minimum OD	25.35 mm (0.998 in.)
Crankshaft Crankpin - Minimum Standard OD	25.30 mm (0.996 in.)
Crankshaft End Play	0.05 - 0.30 mm (0.002 - 0.008 in.)

Crankshaft Bearings (In Crankcase & Crankcase Cover):

Maximum ID	22.30 mm (0.878 in.)
------------------	----------------------

Cylinder Bore:

Bore ID	65.06 - 65.09 mm (2.5615 - 2.5625 in.)
---------------	--

Stroke:

.....61.93 mm (2.438 in.)

Piston:

Piston Bore - Maximum ID12.47 mm (0.491 in.)
 Connecting Rod Bore - Maximum ID12.50 mm (0.492 in.)

Piston Pin:

Pin Diameter - Minimum OD12.42 mm (0.489 in.)

Piston Rings:

End Gap - Compression Rings - Maximum0.89 mm (0.035 in.)
 End Gap - Oil Control Ring - Maximum1.14 mm (0.045 in.)
 Ring-to-Land Clearance - Maximum0.18 mm (0.007 in.)

Valve Clearance:

Intake 0.13 - 0.18 mm (0.005 - 0.007 in.)
 Exhaust 0.23 - 0.28 mm (0.009 - 0.011 in.)

Valve:

Head Margin0.79 mm (0.031 in.)
 Seat Width 1.17 - 1.57 mm (0.047 - 0.063 in.)

TORQUE SPECIFICATIONS

Spark Plug 20 N•m (180 lb-in.)
 Cylinder Head15.7 N•m (140 lb-in.)
 Flywheel Nut 81 N•m (60 lb-ft)
 Intake Manifold Cap Screw13.5 N•m (120 lb-in.)
 Muffler Cap Screw 12 N•m (100 lb-in.)
 Carburetor Mount 9 N•m (90 lb-in.)
 Connecting Rod Cap Screw 11 N•m (100 lb-in.)
 Crankcase Cover Cap Screw13.6 N•m (120 lb-in.)



OTHER MATERIALS

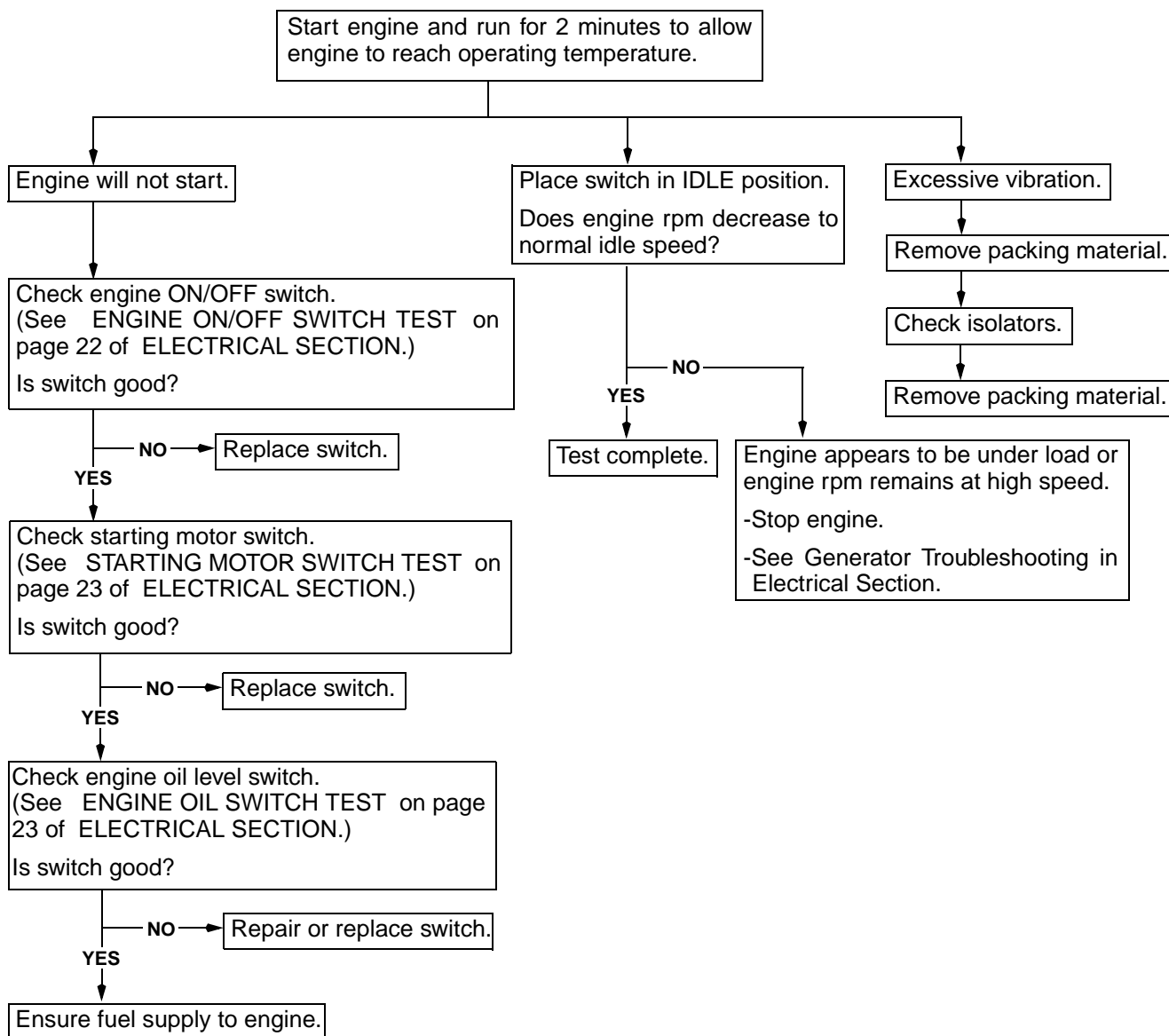
Number	Name	Use
M79292	MPG-2 [®] Multipurpose Grease	Apply to engine crankshaft
PT569	John Deere NEVER-SEEZ [®] Lubricant	Apply to crankshaft end
	SCOTCH-BRITE [®] Abrasive Sheets/Pads	Clean cylinder head
	Valve Lap Compound	Lap valves
T43512 / TY9473 / LOCTITE [®] 242	Thread Lock and Sealer (Medium Strength)	Apply to governor shaft
TY15130 / LOCTITE [®] 395	Form-in-Place Gasket	Rocker arm cover mating surfaces
TY9375/TY9480/ LOCTITE [®] 592	Thread Sealant (General Purpose) with TEFLON [®]	Apply to threads of oil pressure switch



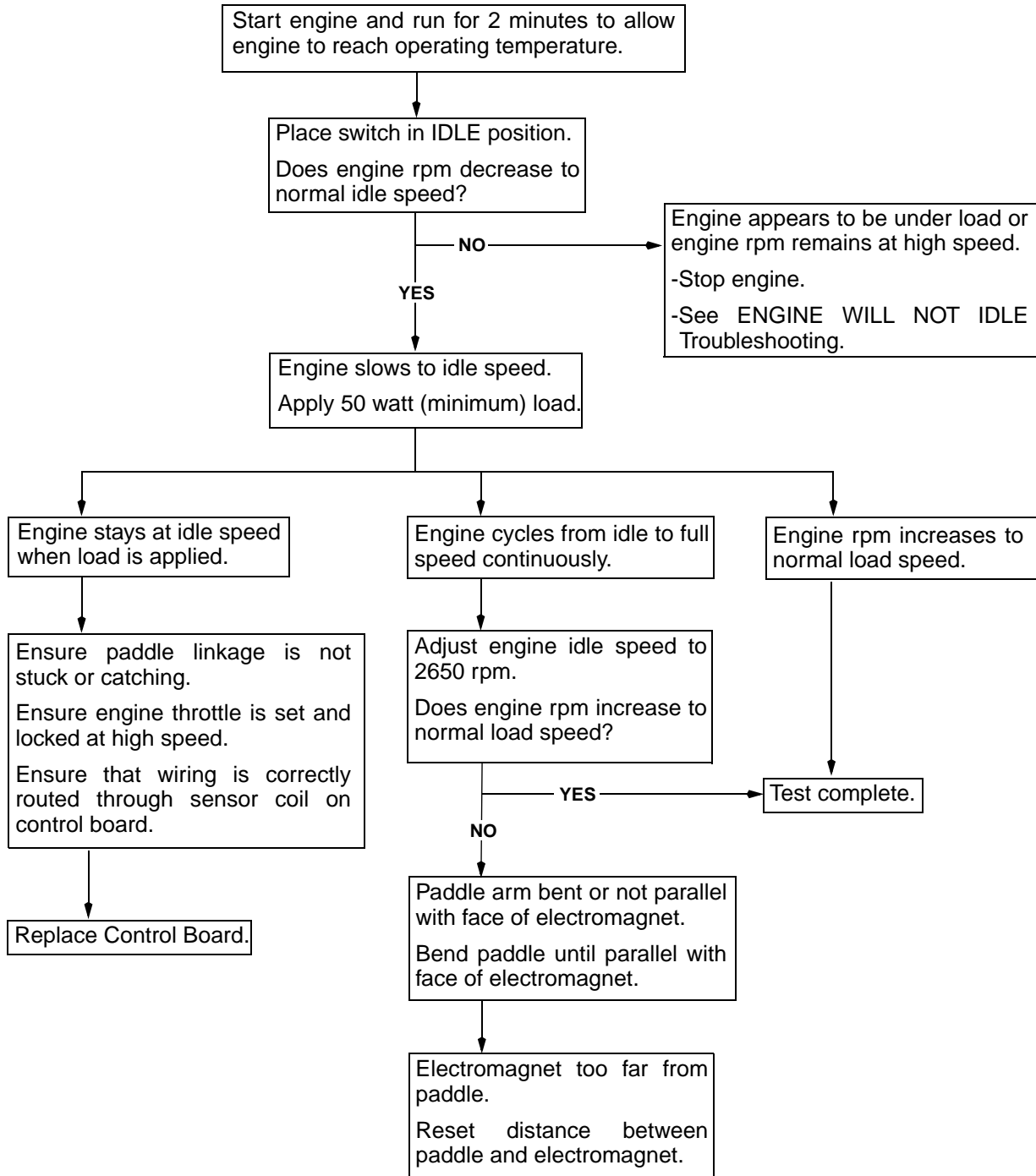
MPG-2[®] is a registered trademark of DuBois USA.
 LOCTITE[®] is a registered trademark of the Loctite Corp.
 SCOTCH-BRITE[®] is a registered trademark of the 3M Co.
 TEFLON[®] is a registered trademark of DuPont

TROUBLESHOOTING

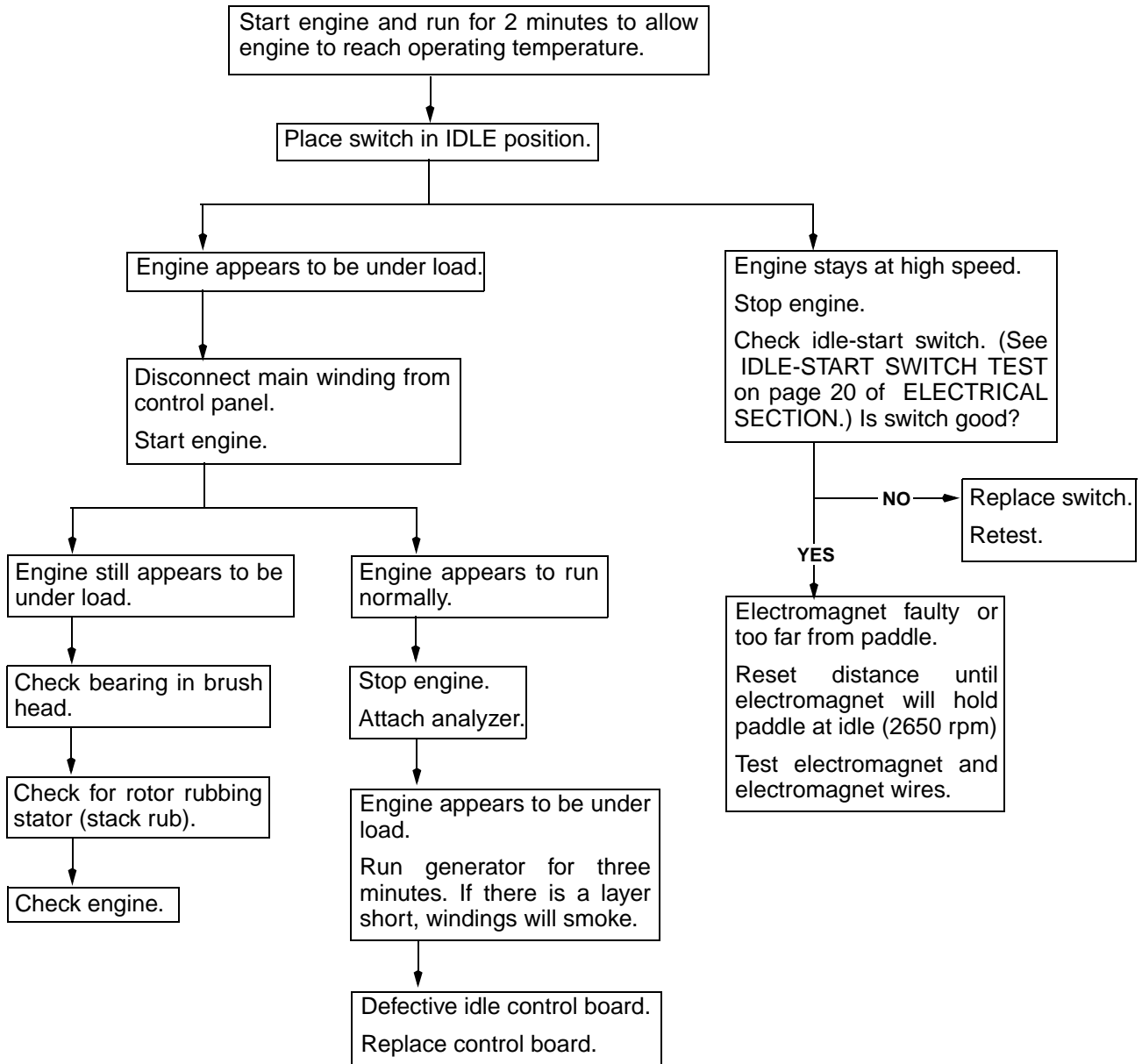
ENGINE OPERATION



ENGINE IDLE CONTROL



ENGINE WILL NOT IDLE



TESTS AND ADJUSTMENTS

ENGINE IDLE ADJUSTMENT

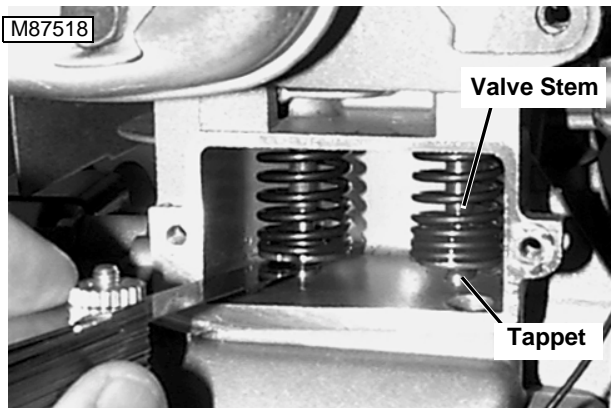
NOTE: The engine slow idle is controlled by the electromagnet and paddle control. The paddle is connected to the governor arm. The electromagnet is adjusted (two nuts) in or out to hold the governor at an idle that provides an 85 to 90 volt output. When the paddle is held by the electromagnet, the throttle arm should NOT be touching the idle set screw.

(See ELECTROMAGNET ADJUSTMENT on page 21 of ELECTRICAL SECTION.)

VALVE CLEARANCE CHECK

The valve tappet clearance should be checked whenever any valve grinding has been performed, or new valves are installed. Grinding the valve stem changes the valve tappet clearance.

1. Remove fuel tank and breather tube from carburetor.
2. Remove the crankcase breather assembly.
3. Rotate the crankshaft until the piston is at top-dead-center.



4. Check the clearance between the bottom of each valve stem and the tappet using a flat feeler gauge.

Valve Clearance Specification:

Intake 0.13 - 0.18 mm (0.005 - 0.007 in.)
 Exhaust 0.23 - 0.28 mm (0.009 - 0.011 in.)

If necessary, remove and grind the valve stem to obtain the proper clearance.

CRANKCASE BREATHER TEST

1. Remove cap from crankcase oil fill tube.
2. Remove crankcase breather tube from carburetor fitting and try to blow and suck air to and from the tube. Air should not pass into the crankcase freely when blown into, and return easily when sucked on. Reed valve inside breather must be loose and move back and forth with air pressure.
3. Replace breather if clogged, or open in both directions (See CRANKCASE BREATHER REMOVAL on page 12).
4. Replace crankcase oil fill tube.



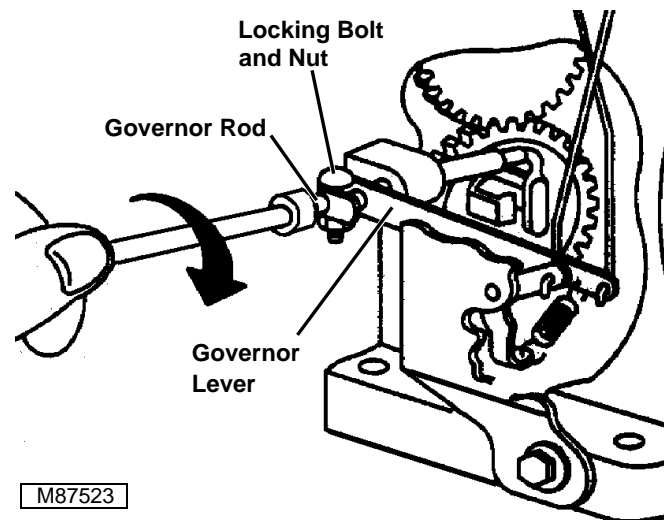
GOVERNOR ADJUSTMENT

Reason:

The governor prevents the engine from running above a preset rpm. Engine overspeeding will generate excessive heat, and the engine will fail prematurely.

Procedure:

1. Stop the engine.



2. Loosen governor lever locking bolt and nut. Move throttle control lever to fast idle position so throttle shaft is against full throttle stop.
3. Using a 3/16 inch socket on end of governor rod, rotate governor rod clockwise until resting against spool on governor gear.
4. Tighten locking bolt and nut.
- 5.

REPAIR

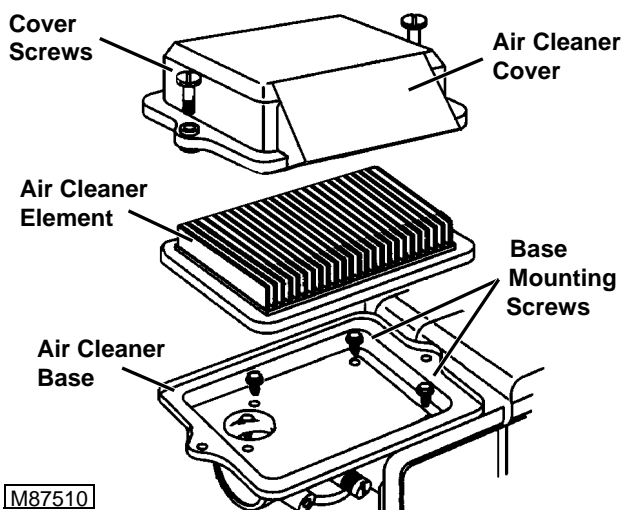
- Remove two electrical shut-off wires from spring clip on throttle control lever, and post on fuel tank mounting bracket.

CARBURETOR REMOVAL

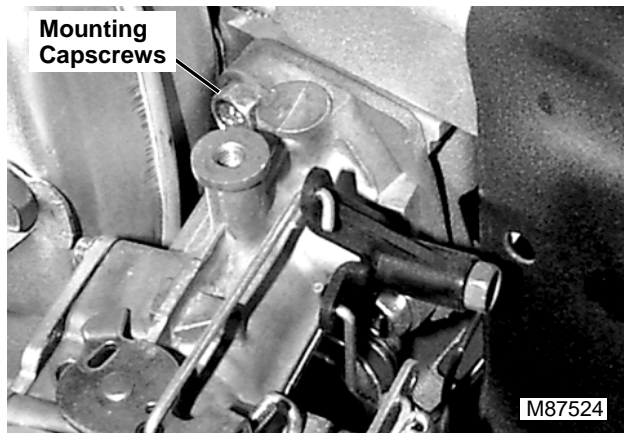
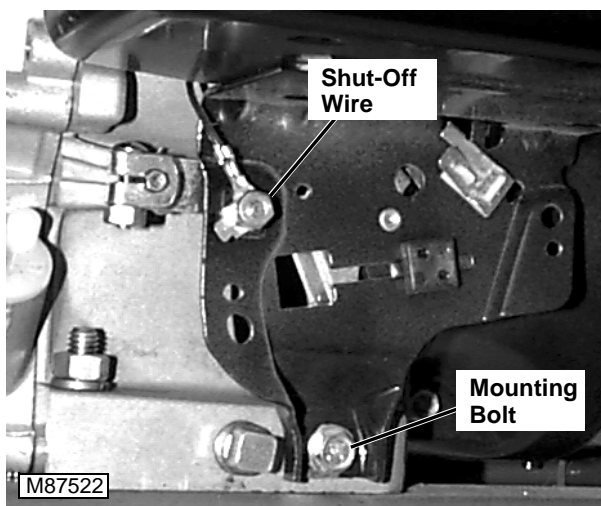
CAUTION

Gasoline is extremely flammable. Do not smoke. Always work in a ventilated area away from open flame or spark producing equipment; including equipment that utilizes pilot lights. Wipe-up any spills IMMEDIATELY.

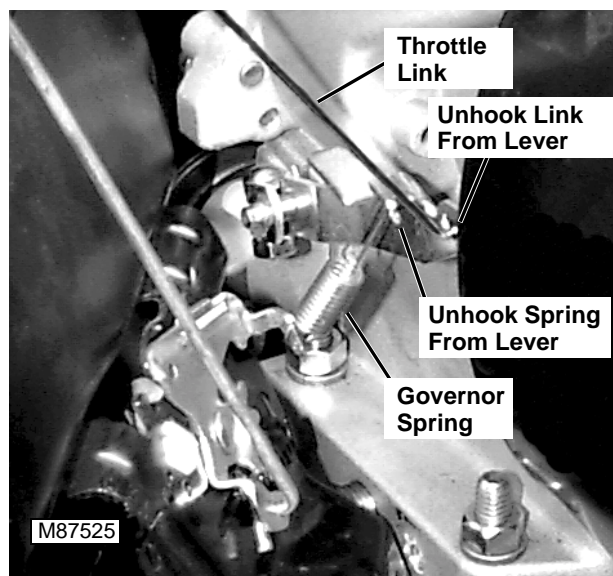
- Remove air cleaner



- Loosen two screws holding air filter cover to base. Remove cover and air filter element.
- Remove four screws holding air cleaner base to carburetor body, and remove base from engine.



- Remove two carburetor-to-cylinder block mounting capscrews.



- Slowly pull carburetor away from engine enough to unhook loop of governor spring from tang on governor lever. Breather tube should also disconnect from rubber fitting on breather cover.
- Pull carburetor from engine and unhook end of throttle link from governor lever.

Sample manual. Download All 174 pages at:

<https://www.bobmanualstore.com/downloads/john-deere-250g440g550geg2500kg4400kg5500k-and-g5500ke-generators-service-repair-technical-manual/>