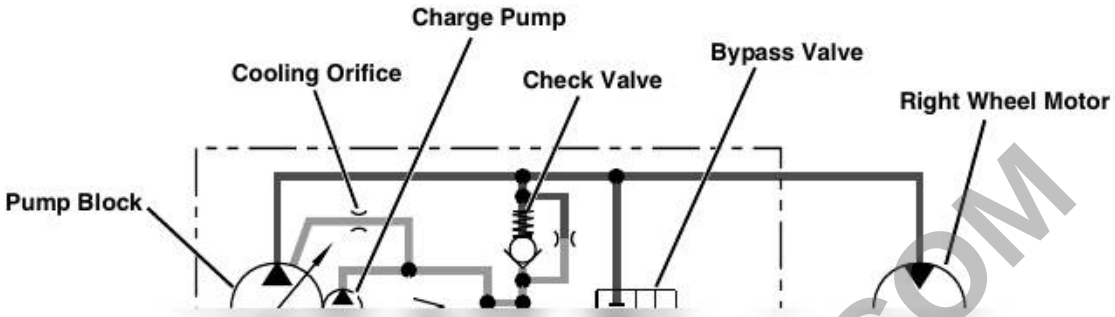
HYDRAULIC SYSTEM SCHEMATIC



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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
- Specifications
- Component Location
- System Schematic
- Theory of Operation
- Troubleshooting Chart
- Diagnostics
- Tests and 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.

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.

We appreciate your input on this manual. To help, there are postage paid postcards 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.

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Safety
Specifications and Information
Engine
Electrical
Hydrostatic Power Train
Brakes
Attachments
Miscellaneous M

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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.

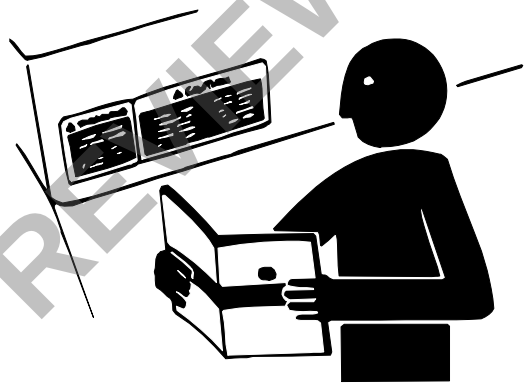
Follow recommended precautions and safe servicing practices.

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

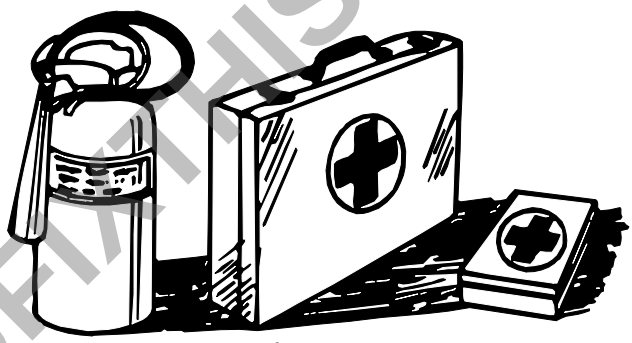


Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.

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.

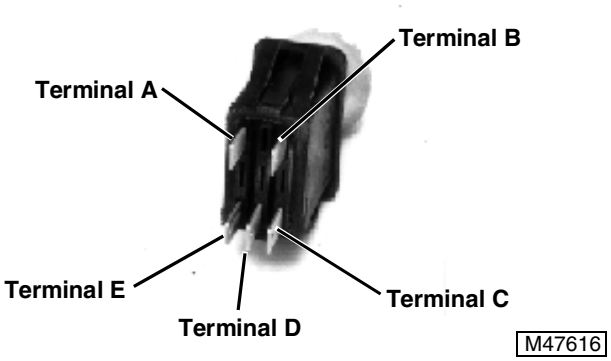
Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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

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7. Connect ohmmeter leads to terminals A and B. There should be continuity.
8. Connect ohmmeter leads to terminals C and E. There should be continuity.
9. Move PTO switch to ON position.
10. Connect ohmmeter leads to terminals D and E. There should be continuity.

Results:

- If continuity is not correct, replace switch.

SEAT SWITCH TEST

Reason:

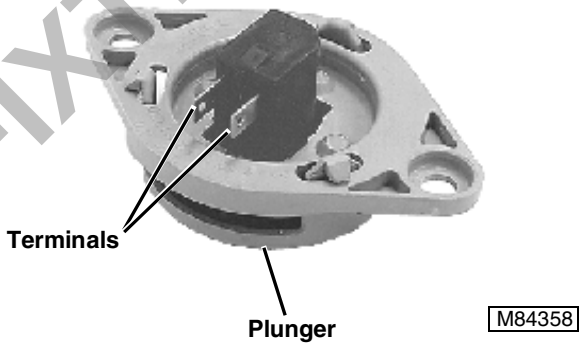
To verify continuity between the seat switch terminals when the operator is on the seat.

Test Equipment:

- Ohmmeter or Continuity Tester

Procedure:

1. Park machine on level surface.
2. Move control levers to NEUTRAL position.
3. Turn key switch to OFF position.
4. Engage park brake.
5. Raise and latch cowling.
6. Disconnect seat switch connector.



7. Check continuity across switch terminals. There should be no continuity.
8. Depress plunger.
9. Check continuity across switch terminals. Continuity should exist between terminals.

Results:

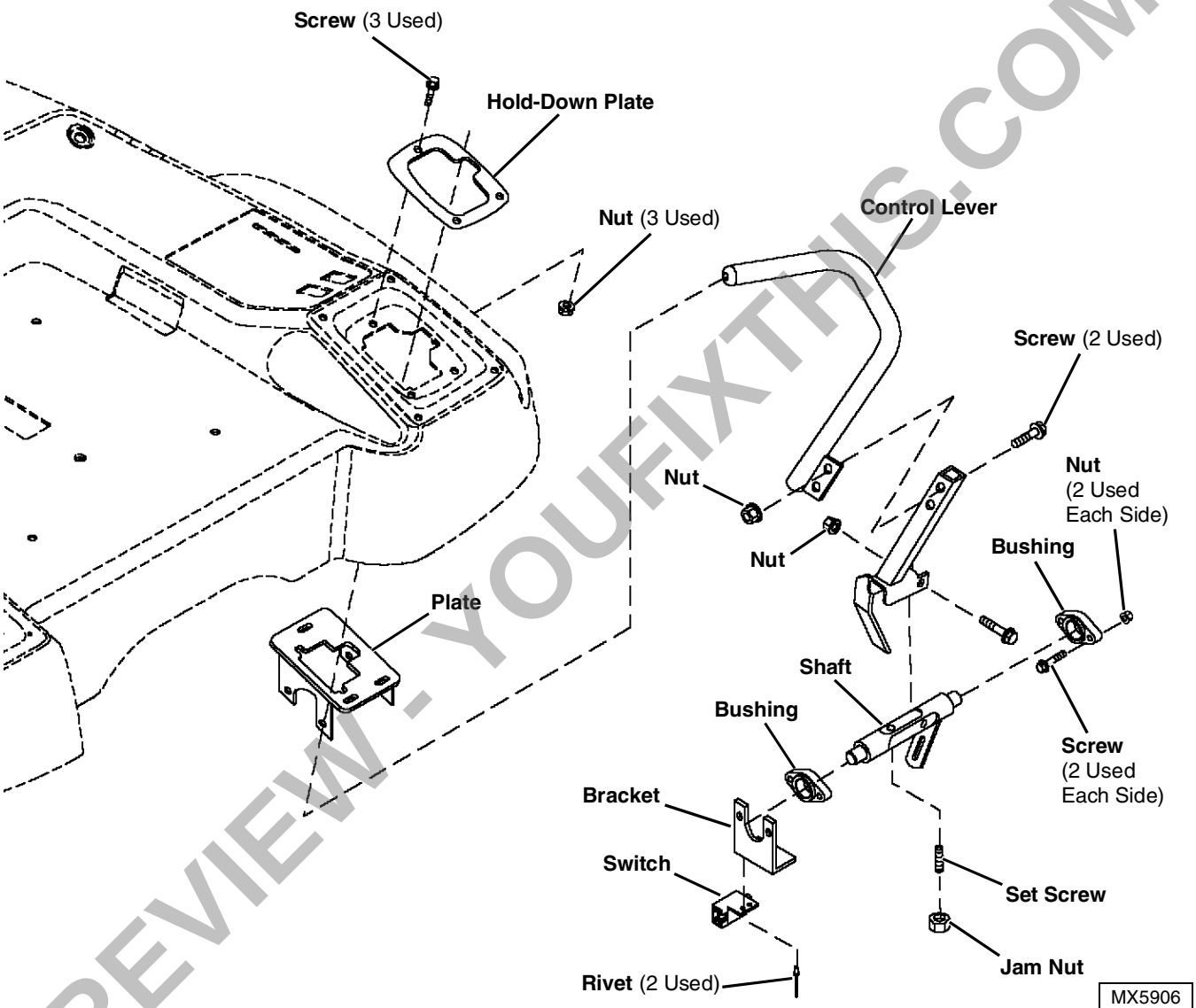
- If continuity is not correct, replace the switch.

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CONTROL LEVER ASSEMBLIES— MODELS F680 (S.N. 020001—) AND F687

Repair

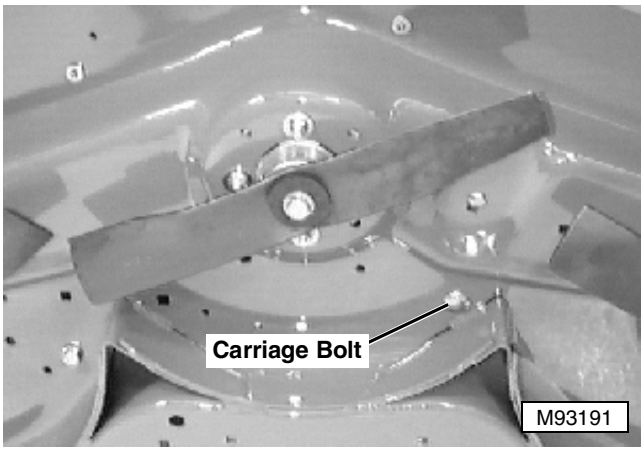


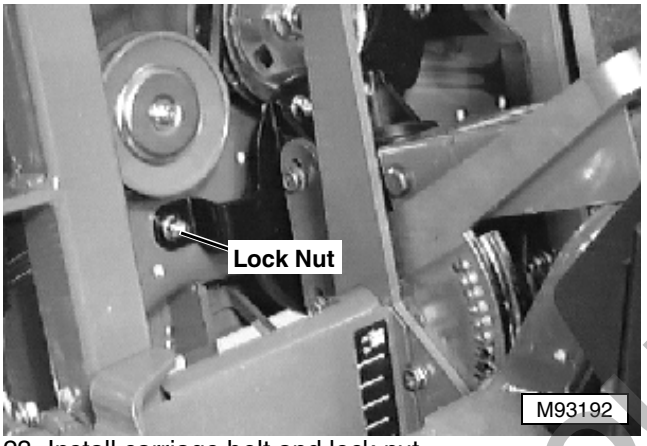
Left Side Shown

- Inspect all parts for wear or damage. Replace parts as needed.
- Adjust control cable. (See NEUTRAL [ZERO CREEP] CHECK AND ADJUSTMENT.)
- Adjust control lever height. (See CONTROL LEVER HEIGHT ADJUSTMENT.)

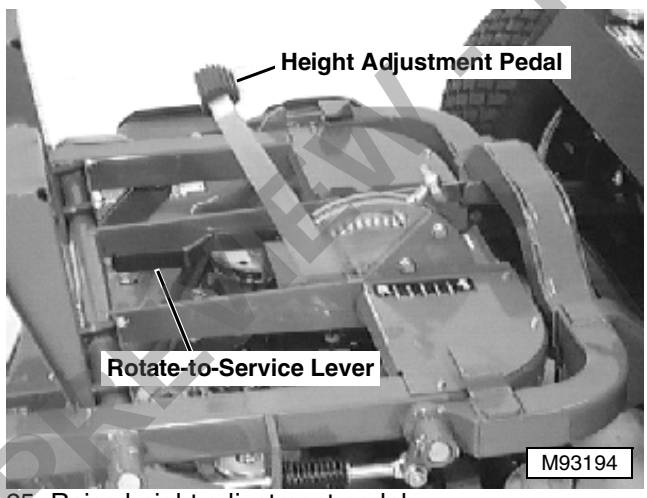
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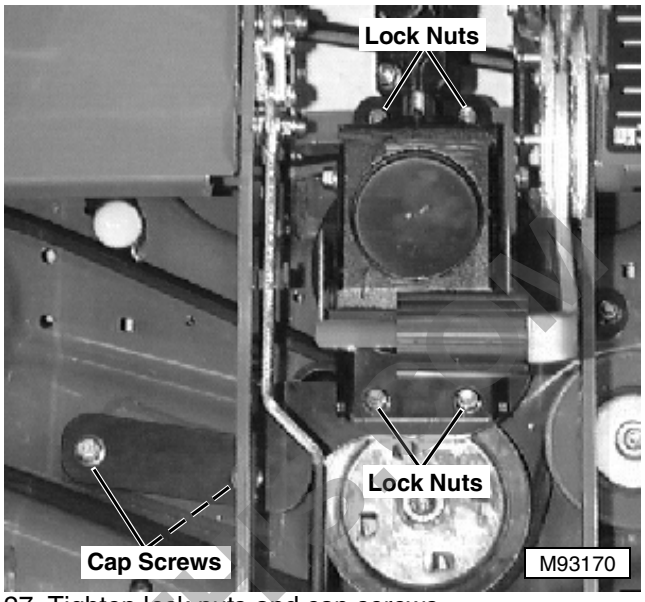




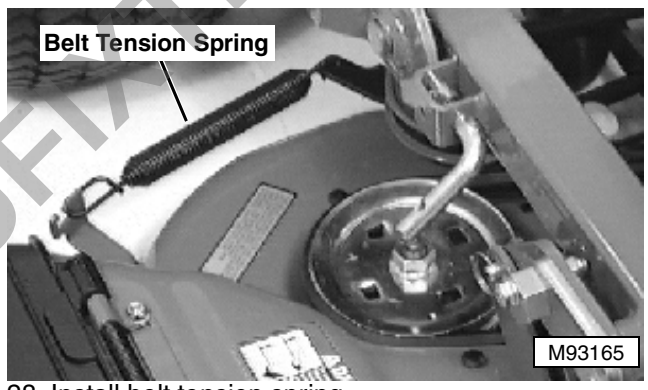
23. Install carriage bolt and lock nut.
24. Slowly lower the mower deck to the ground. (See ROTATE MOWER DECK—Lower Mower Deck.)



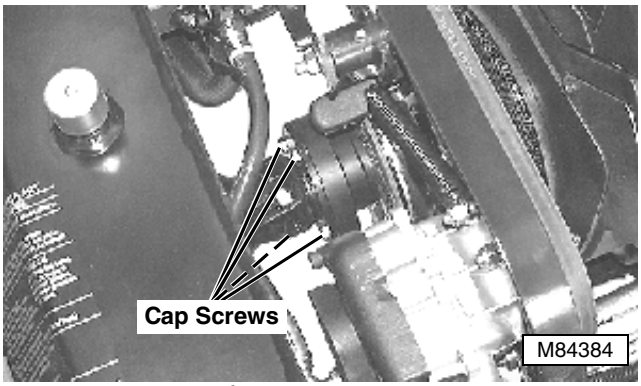
25. Raise height adjustment pedal.
26. Push rotate-to-service lever down until mower deck is locked in MOW position.



27. Tighten lock nuts and cap screws.



28. Install belt tension spring.
29. Install and latch mower deck belt shields.



30. Install drive shaft and cap screws. Tighten cap screws in an alternating pattern.

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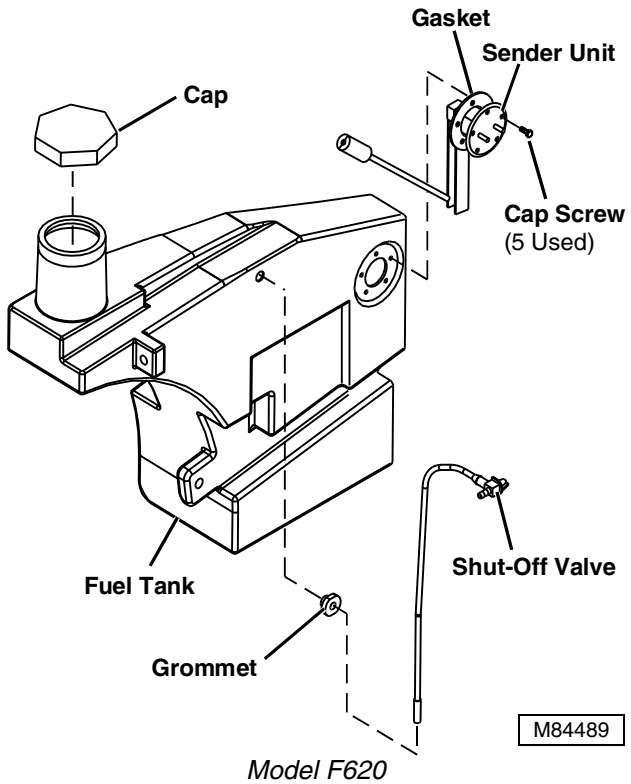
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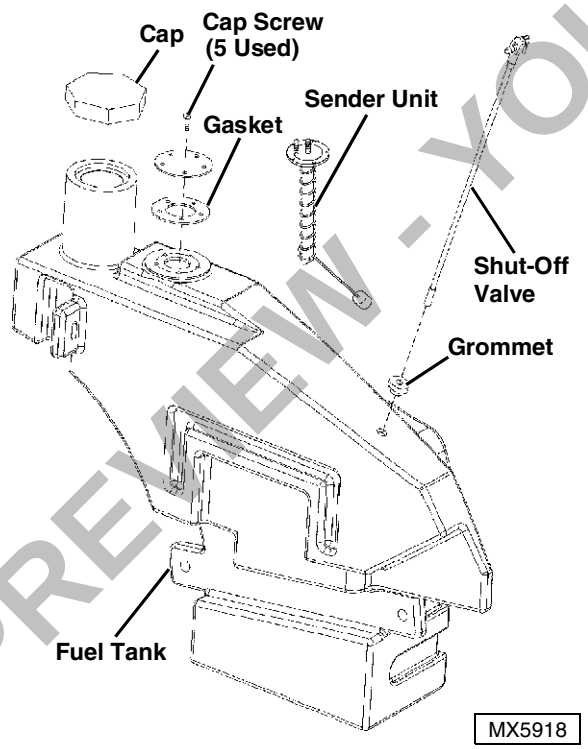
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Model F620



Models F680 and F687

- Inspect all parts for wear or damage. Replace parts as needed.
- Use a new gasket kit (including sealant) when installing sender unit.

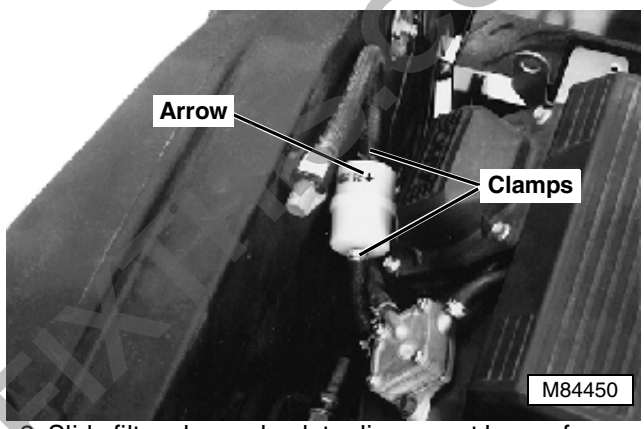
FUEL FILTER

Removal/Installation

⚠ CAUTION

Keep cigarettes, sparks, and flames away from fuel system. Make sure engine is cool to touch.

1. Turn fuel shut-off valve to OFF position.



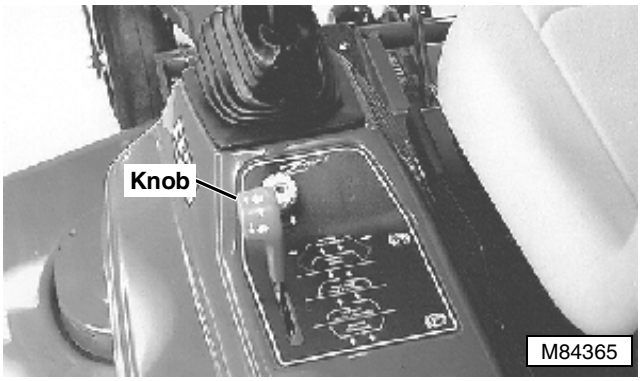
2. Slide filter clamps back to disconnect hoses from filter.
3. Disconnect fuel line to fuel pump and drain fuel into a properly marked container.
4. Remove fuel filter.

Installation is done in the reverse order of removal.

- Inspect fuel hoses for signs of cracks, wear or damage. Replace hoses if needed.
- Install new filter with arrow pointing towards line that leads to fuel pump.

THROTTLE CABLE

Removal/Installation



Model F620 Shown

1. Remove throttle lever knob.

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ENGINE OIL PRESSURE SWITCH TEST

Reason:

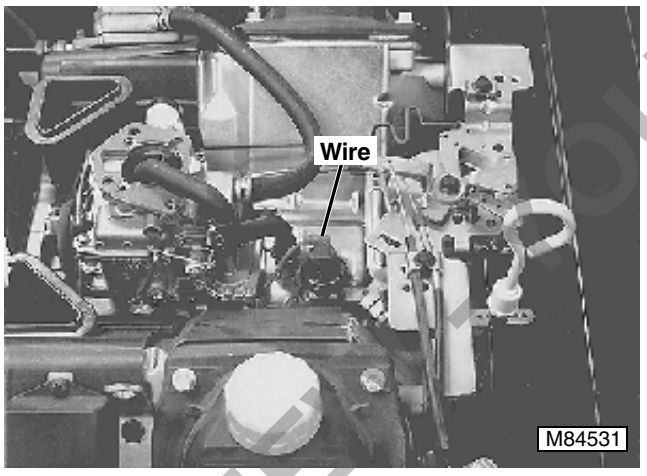
To determine if the engine oil pressure switch is functioning properly to warn the operator if the oil pressure has dropped below safe operating pressure.

Test Equipment:

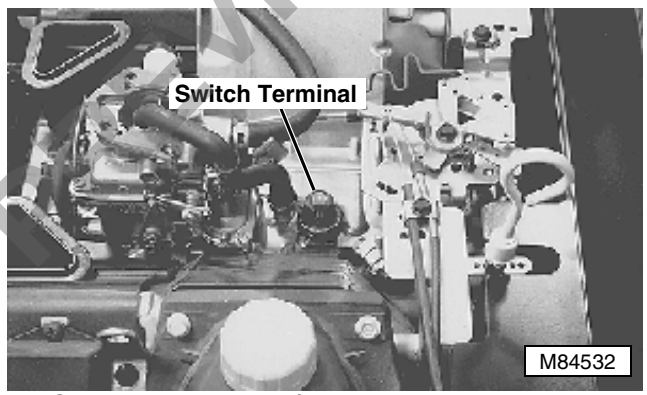
- Ohmmeter

Procedure:

1. Park machine on level surface.
2. Move control levers to NEUTRAL position.
3. Turn key switch to OFF position.
4. Engage park brake.
5. Raise and latch cowling.
6. Remove air cleaner assembly. (See AIR CLEANER ASSEMBLY—Removal/Installation in ENGINE section.)



7. Disconnect wire from oil pressure switch.



8. Connect black lead of ohmmeter to engine block and red lead of ohmmeter to terminal of switch.
9. Set ohmmeter for 1x scale.
10. Measure resistance between terminal and engine block.

Results:

- There should be continuity between terminal and ground.

NOTE: Apply Pipe Sealant with TEFLON® to threads of switch any time it is installed.

- If there is NO continuity between terminal and ground, replace the switch.

11. Start and run engine.
12. Measure resistance between terminal and engine block. There should be NO continuity.

Results:

- If the switch DOES have continuity to engine block (ground) with engine running, check oil pressure.

NOTE: Apply Pipe Sealant with TEFLON® to threads of switch any time it is installed.

- If oil pressure is to specification, replace the oil pressure switch.

FUEL SHUTOFF SOLENOID TEST

Reason:

To determine if the fuel shutoff solenoid is working properly.

Test Equipment:

- Jumper Wire

Procedure:

⚠ CAUTION

Gasoline is present in the carburetor and fuel line. Gasoline is extremely flammable and its vapors can explode if ignited. Keep sparks and other sources of ignition away from the engine.

1. Park machine on level surface.
2. Move control levers to NEUTRAL position.
3. Turn key switch to OFF position.
4. Engage park brake.
5. Raise and latch cowling.
6. Close fuel shutoff valve.

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8. Perform check procedure to verify adjustment.
9. Repeat steps 5—7 as needed.
10. Stop engine.
11. Lower cowling.
12. Check tracking. (See TRACKING CHECK AND ADJUSTMENT.)

TRACKING CHECK AND ADJUSTMENT

Reason:

Correct tracking adjustment will allow the machine to maintain a straight line direction of travel.

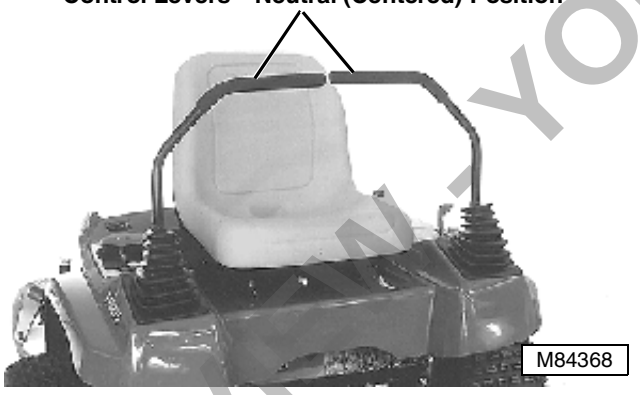
Check Procedure:

1. Park machine on a level surface.
2. Release park brake.

NOTE: To ensure straight line tracking, drive wheel tire pressure must be equal.

3. Check drive wheel tire pressure.

Control Levers—Neutral (Centered) Position



4. Move both control levers inward to centered neutral (centered) position.
5. With the operator on the seat, start engine.
6. While holding both control levers together, push both control levers forward to desired mowing speed.

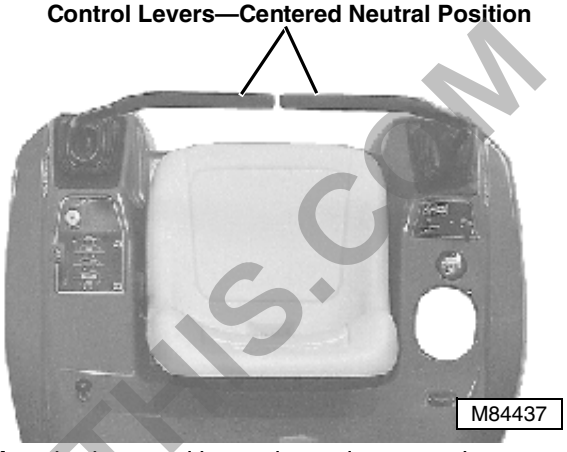
Results:

- If machine travels to the right or left, perform Adjustment Procedure.

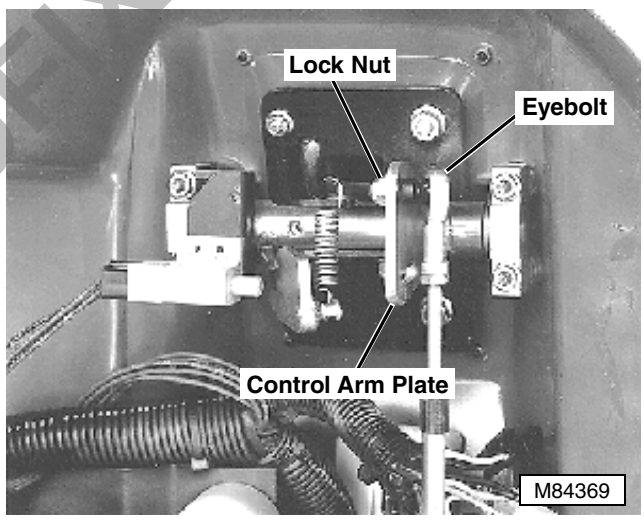
Adjustment Procedure:

1. Park machine on a level surface.
2. Move key switch to OFF position.
3. Engage park brake.
4. Raise and lock cowl.

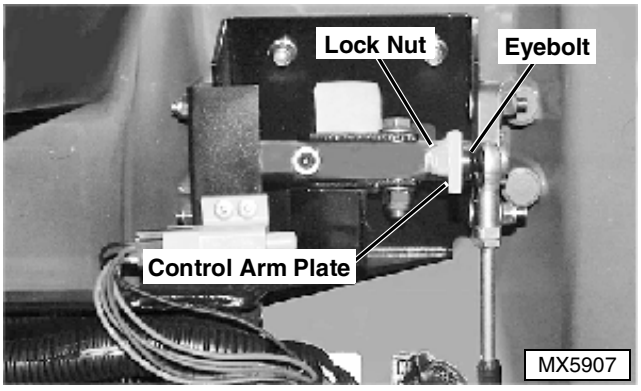
Control Levers—Centered Neutral Position



5. Move both control levers inward to neutral (centered) position.



Model F620 and Model F680 (S.N. —020000)



Model F680 (S.N. 020001—)

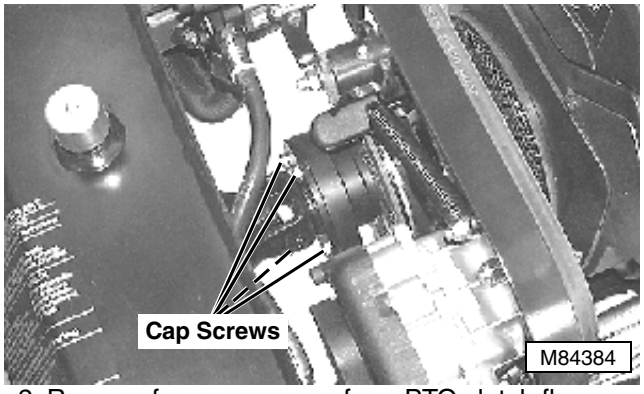
6. Loosen the lock nut securing the control cable to the control arm plate.

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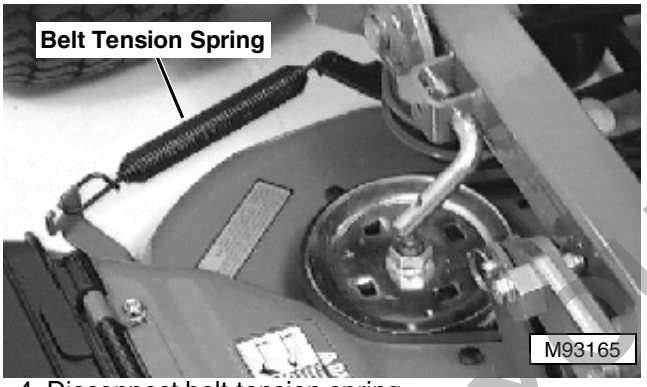
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Removal/Installation— 54-Inch Mower Deck (S.N. —015000)

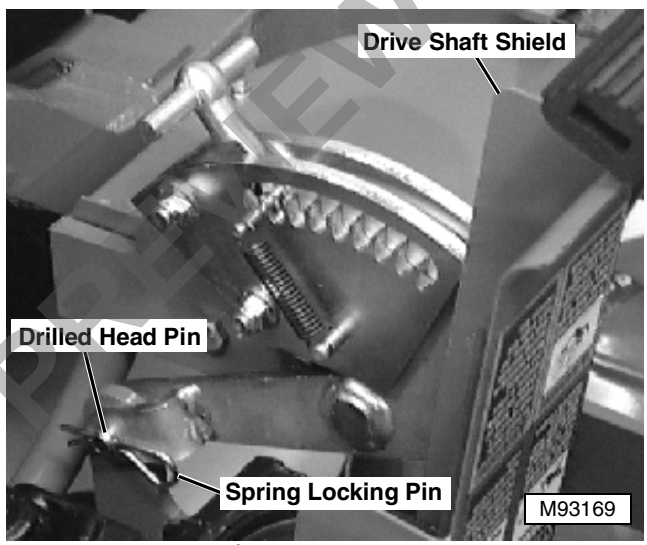
1. Raise and latch cowling.



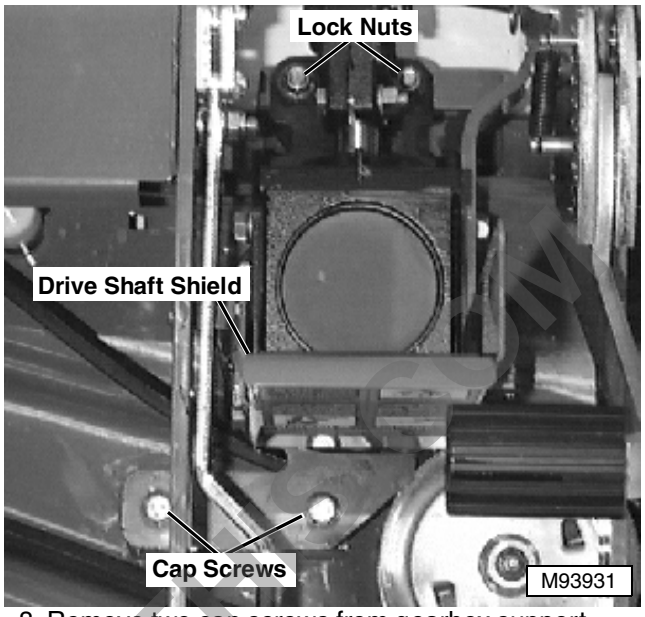
2. Remove four cap screws from PTO clutch flange.
3. Remove drive belt shields.



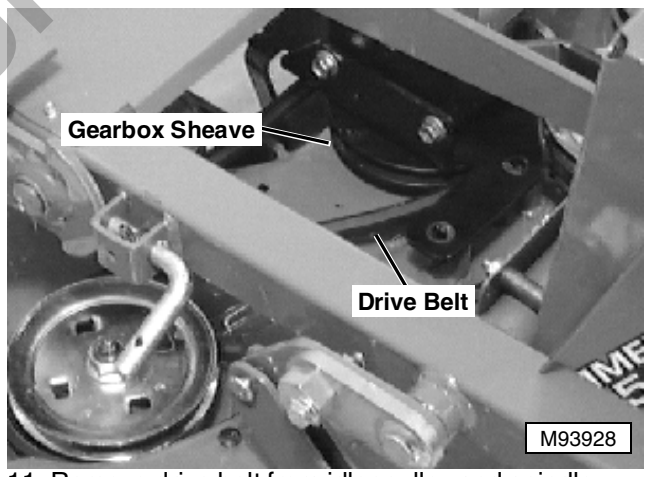
4. Disconnect belt tension spring.
5. Raise and support the front and rear of the mower deck approximately 152—203 mm (6—8 in.) with wooden blocks.



6. Raise drive shaft shield.
7. Remove spring locking pin and drilled head pin.



8. Remove two cap screws from gearbox support bracket.
9. Raise drive shaft shield.
10. Remove two carriage bolts and lock nuts attaching gearbox mounting bracket to mower frame mounting bracket.



11. Remove drive belt from idler pulley and spindle sheaves.
12. Lift gearbox and slide belt under sheave mounted on the bottom of the gearbox.
13. Remove gearbox and drive shaft assembly.

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