FORM NO. 3318-341 GB Rev A

TORO®

MODEL. 04375—50001 AND UP

OPERATOR'S MANUAL

GREENSMASTER® 3000-D

To achieve maximum safety, optimum performance, and to gain knowledge of the machine, it is essential that you or any other operator of the machine read and understand the contents of this manual before starting the engine. Pay particular attention to the instructions highlighted by the triangular safety alert symbol. Failure to comply with the safety instructions may result in personal injury.

This operator's manual has instructions on safety, operation, and maintenance.

This manual emphasizes safety, mechanical and general product information. DANGER, WARNING and CAUTION identify safety messages. Whenever the triangular safety alert symbol appears, understand the safety message that follows. "IMPORTANT" highlights special mechanical information and "NOTE" emphasizes general product information worthy of special attention.

IDENTIFICATION AND ORDERING

MODEL AND SERIAL NUMBER

The model and serial number for the traction unit is on a plate that is mounted on the left front frame member. The model and serial number for the cutting unit is on a plate that is mounted on the top front of the center cutting unit. Use model and serial number in all correspondence and when ordering parts.

To order replacement parts from an authorized TORO Distributor, supply the following information:

1. Model and serial numbers of the machine.

2. Part number, description and quantity of parts desired.

NOTE: Do not order by reference number if a parts catalog is being used; use the part number.

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Safety

Training

1. Read the instructions carefully. Be familiar with the controls and the proper use of the equipment.

2. Never allow children or people unfamiliar with these instructions to use the lawn mower. Local regulations may restrict the age of the operator.

3. Never mow while people, especially children, or pets are nearby.

4. Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.

5. Do not carry passengers.

6. All drivers should seek and obtain professional and practical instruction. Such instruction should emphasize:

    - the need for care and concentration when working with ride-on machines;
    - control of a ride-on machine sliding on a slope will not be regained by the application of the brake. The main reasons for loss of control are:
        - insufficient wheel grip;
        - being driven too fast;
        - inadequate braking;
        - the type of machine is unsuitable for its task;
        - lack of awareness of the effects of ground conditions, especially slopes;
        - incorrect hitching and load distribution.

Preparation

1. While mowing, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.

2. Thoroughly inspect the area where the equipment is to be used and remove all objects which may be thrown by the machine.

3. **WARNING—Petrol is highly flammable.**

    - Store fuel in containers specifically designed for this purpose.
    - Refuel outdoors only and do not smoke while refueling.
    - Add fuel before starting the engine. Never remove the cap of the fuel tank or add petrol while the engine is running or when the engine is hot.
    - If petrol is spilled, do not attempt to start the engine but move the machine away from the are of spillage and avoid creating any source of ignition until petrol vapors have dissipated.
    - Replace all fuel tanks and container caps securely.

4. Replace faulty silencers.

Operation

1. Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.

2. Mow only in daylight or in good artificial light.

3. Before attempting to start the engine, disengage all blade attachment clutches and shift into neutral.

4. Do not use on slopes of more than:

    - Never mow side hills over 5°
    - Never mow uphill over 10°
    - Never mow downhill over 15°

5. Remember there is no such thing as a “safe” slope. Travel on grass slopes requires particular care. To guard against overturning:

- do not stop or start suddenly when going up or downhill;
- engage the clutch slowly, and always keep the machine in gear, especially when travailing downhill;
- machine speeds should be kept low on slopes and during tight turns;
- stay alert for bumps and hollows and other hidden hazards;
- never mow across the face of the slope, unless the lawn mower is designed for this purpose.

6. Use care when pulling loads or using heavy equipment.

- Use only approved drawbar hitch points.
- Limit loads to those you can safely control.
- Do not turn sharply. Use care when reversing.
- Use counterweight(s) or wheel weights when suggested in the instruction handbook.

7. Watch out for traffic when crossing or near roadways.

8. Stop the blades rotating before crossing surfaces other than grass.

9. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation .

10. Never operate the lawn mower with defective guards, shields or without safety protective devices in place.

11. Do not change the engine governor settings or overspeed the engine. Operating the engine at excessive speeds may increase the hazard of personal injury.

12. Before leaving the operator's position:

- disengage the power take-off and lower the attachments;
- change into neutral and set the parking brake;
- stop the engine and remove the key.

13. Disengage the drive to attachments when transporting or not in use.

14. Stop the engine and disengage the drive to the attachment

- before refueling;
- before removing the grass catcher;
- before making height adjustments unless the adjustment can be made from the operator's position.
- before clearing blockages;
- before checking, cleaning or working on the lawnmower;
- after striking a foreign object. Inspect the lawnmower for damage and make repairs before restarting and operating the equipment.

15. Reduce the throttle setting during engine runout and, if the engine is provided with a shutoff valve, turn the fuel off at the conclusion of mowing.

Maintenance and Storage

1. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.

2. Never store the equipment with petrol in the tank inside a building where fumes may reach an open flame or spark.

3. Allow the engine to cool before storing in any enclosure.

4. To reduce the fire hazard, keep the engine, silencer, battery compartment and petrol storage area free of grass, leaves, or excessive grease.

5. Check the grass catcher frequently for wear or deterioration.

6. Replace worn or damaged parts for safety.

7. If the fuel tank has to be drained, this should be done outdoors.

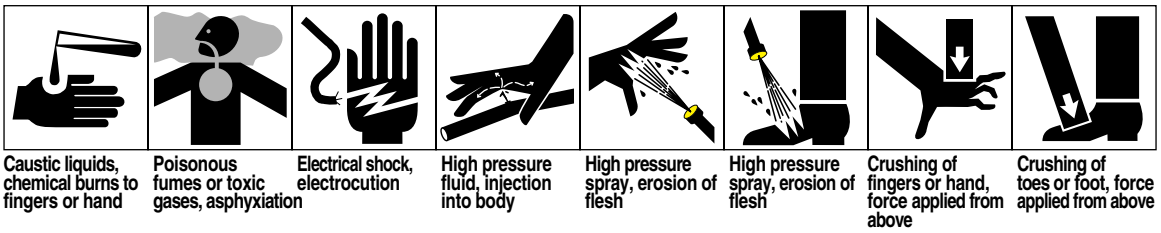
8. Be careful during adjustment of the machine to pre-

vent entrapment of the fingers between moving blades and fixed parts of the machine.

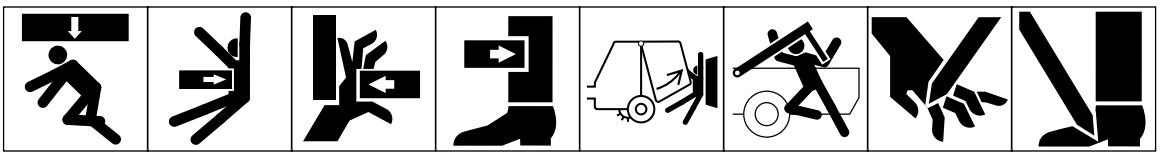
9. On multi-bladed machines, take care as rotating one blade can cause other blades to rotate.

10. When the machine is to be parked, stored or left unattended, lower the cutting means unless a positive mechanical lock is used.

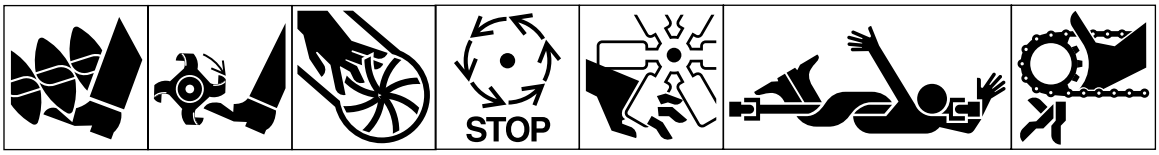
Symbol Glossary



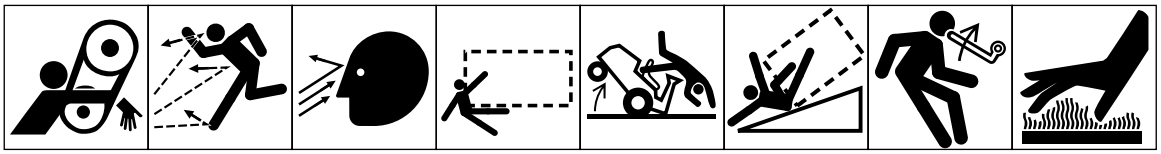
Caustic liquids, chemical burns to fingers or hand | Poisonous fumes or toxic gases, asphyxiation | Electrical shock, electrocution | High pressure fluid, injection into body | High pressure spray, erosion of flesh | High pressure spray, erosion of flesh | Crushing of fingers or hand, force applied from above | Crushing of toes or foot, force applied from above



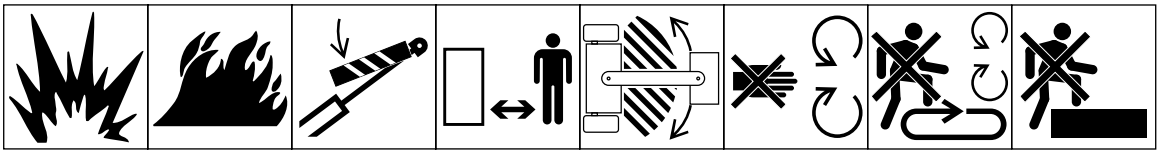
Crushing of whole body, applied from above | Crushing of torso, force applied from side | Crushing of fingers or hand, force applied from side | Crushing of leg, force applied from side | Crushing of whole body | Crushing of head, torso and arms | Cutting of fingers or hand | Cutting of foot



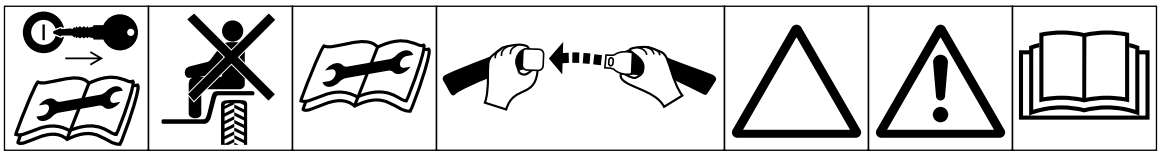
Cutting or entanglement of foot, rotating auger | Severing of foot, rotating knives | Severing of fingers or hand, impeller blade | Wait until all machine components have completely stopped before touching them | Severing of fingers or hand, engine fan | Whole body entanglement, implement input drive line | Fingers or hand entanglement, chain drive



Hand & arm entanglement, belt drive | Thrown or flying objects, whole body exposure | Thrown or flying objects, face exposure | Runover/backover, (relevant machine to appear in dashed box) | Machine tipping, riding mower | Machine rollover, ROPS (relevant machine to appear in dashed box) | Stored energy hazard, kickback or upward motion | Hot surfaces, burns to fingers or hands

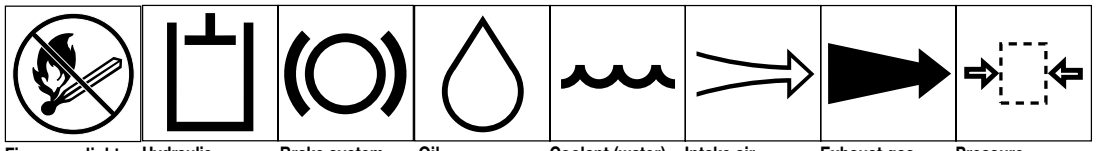


Explosion | Fire or open flame | Secure lifting cylinder with locking device before getting in hazardous area | Stay a safe distance from the machine | Stay clear of articulation area while engine is running | Do not open or remove safety shields while engine is running | Do not step on loading platform if PTO is connected to tractor & engine is running | Do not step

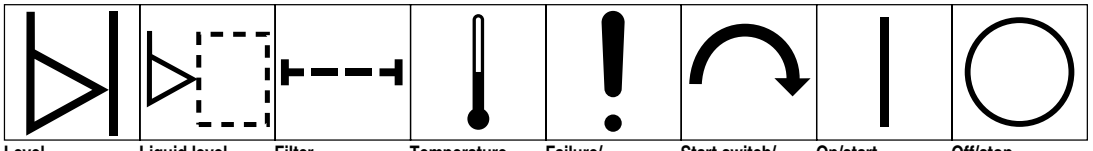


Shut off engine & remove key before performing maintenance or repair work | Riding on this machine is allowed only on a passenger seat & only if the driver's view is not hindered | Consult technical manual for proper service procedures | Fasten seat belts | Safety alert triangle | outline safety alert symbol | Read operator's manual

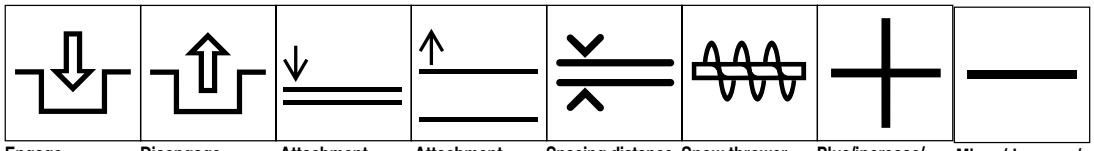
Eye protection must be worn | Head protection must be worn | Hearing protection must be worn | Caution, toxic risk | First aid | Flush with water | Engine | Transmission



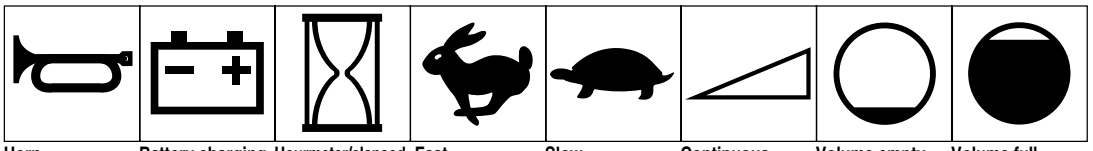
Fire, open light & smoking prohibited | Hydraulic system | Brake system | Oil | Coolant (water) | Intake air | Exhaust gas | Pressure



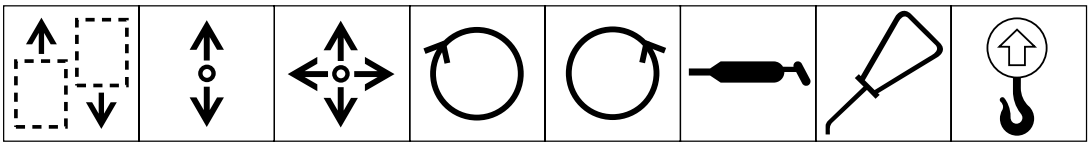
Level indicator | Liquid level | Filter | Temperature | Failure/ Malfunction | Start switch/ mechanism | On/start | Off/stop



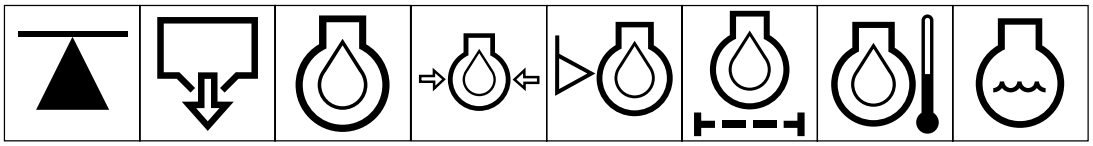
Engage | Disengage | Attachment lower | Attachment raise | Spacing distance | Snow thrower, collector auger | Plus/increase/ positive polarity | Minus/decrease/ negative polarity



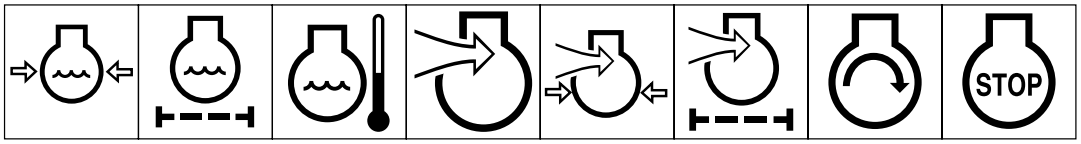
Horn | Battery charging condition | Hourmeter/elapsed operating hours | Fast | Slow | Continuous variable, linear | Volume empty | Volume full



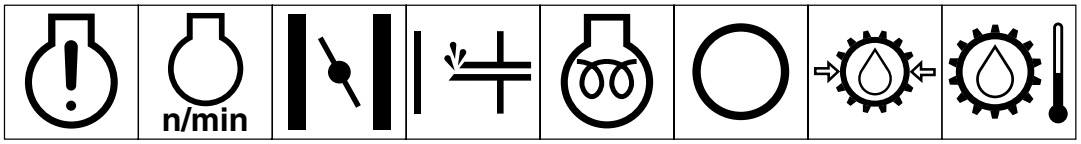
Machine travel direction, forward/rearward | Control lever operating direction, dual direction | Control lever operating direction, multiple direction | Clockwise rotation | Counter-clock-wise rotation | Grease lubrication point | Oil lubrication point | Lift point



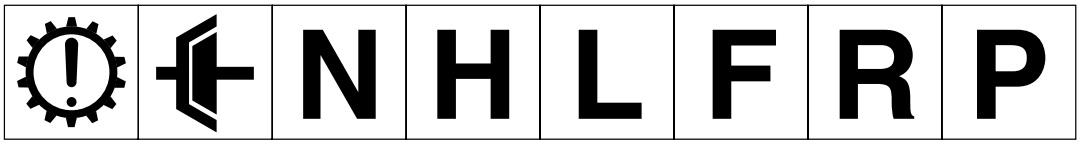
Jack or support point | Draining/ emptying | Engine lubricat-ing oil | Engine lubricating oil pressure | Engine lubricating oil level | Engine lubricating oil filter | Engine lubricating oil temperature | Engine coolant



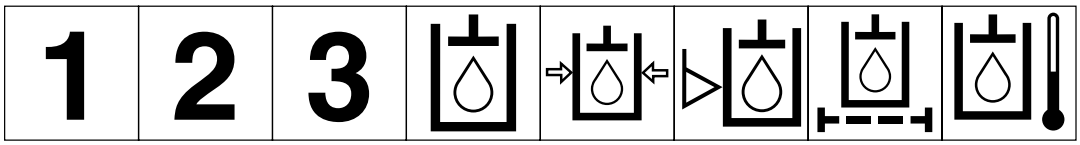
Engine coolant pressure | Engine coolant filter | Engine lubricating oil pressure | Engine intake/ combustion air | Engine intake/ combustion air pressure | Engine intake/ air filter | Engine start | Engine stop



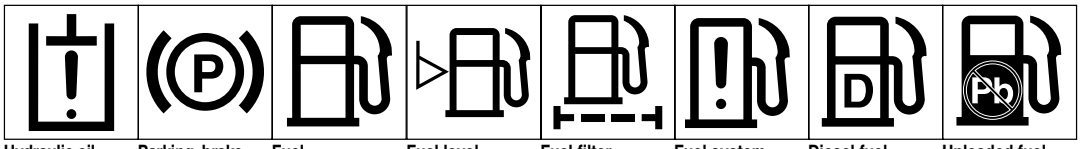
Engine failure/ malfunction | Engine rotational speed/frequency | Choke | Primer (start aid) | Electrical preheat (low temperature start aid) | Transmission oil | Transmission oil pressure | Transmission oil temperature



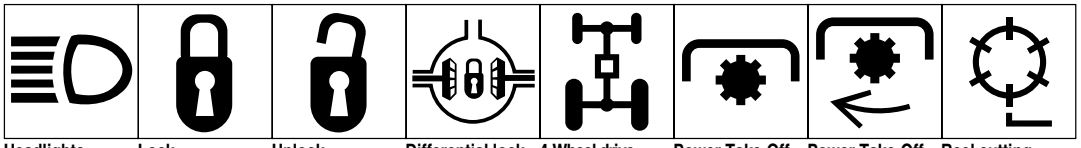
Transmission failure/malfunction | Clutch | Neutral | High | Low | Forward | Reverse | Park



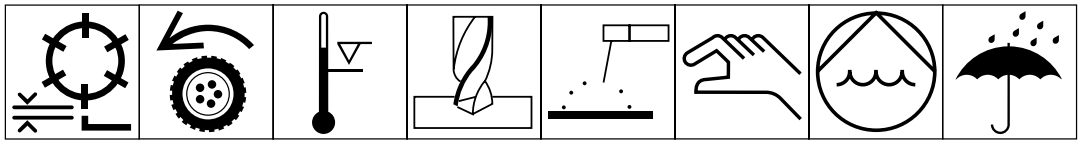
First gear | Second gear | Third gear (other #'s may be used until the maximum # of forward gears is reached.) | Hydraulic oil | Hydraulic oil pressure | Hydraulic oil level | Hydraulic oil filter | Hydraulic oil temperature



Hydraulic oil failure/malfunction | Parking brake | Fuel | Fuel level | Fuel filter | Fuel system failure/malfunction | Diesel fuel | Unleaded fuel



Headlights | Lock | Unlock | Differential lock | 4-Wheel drive | Power Take-Off | Power Take-Off, rotational speed | Reel cutting element



Reel cutting element, height adjustment | Traction | Above working temperature range | Drilling | Manual metal arc welding | Manual | 0356 Water pump | 0626 Keep dry

0430 weight | Do not dispose in the garbage | CE logo

Specifications

Power: 4-cycle, 12.7 kw liquid cooled, 3 cylinder, vertical overhead valve diesel engine. Maximum governed engine speed (no load): 2800 +0 –50 rpm.

Engine Oil Capacity: 3.8 qt (3.6 L) without filter.

Engine Oil Filter: Replaceable, full-flow, spin-on type. Toro Part No. 67-4330. Filter capacity: 0.5L.

Air Cleaner: Heavy-duty remote.

Cooling System:

Radiator—3.3 capacity.

Expansion Tank—Remote-mounted, 0.946 L capacity. System contains a 50/50 mix of ethylene glycol antifreeze and water.

Drive:
Traction—All-hydraulic drive consisting of multiple stack pump, valve and two low-speed, high-torque gear motors to drive the front wheels.

Cutting Units—All hydraulic drive consisting of three gear pump sections, three valve sections and three gear motors which drive the reels.

Power Steering: Steering valve and cylinder operated by a separate section of the fixed displacement hydraulic gear pump.

Hydraulic Filter: 10-micron, cartridge type with 5,838 cm^2 filter area for extra long life.

Hydraulic Oil Reservoir: 17 l capacity with internal baffle to promote cooling. Fluid used: Mobil DTE 26 or Shell Tellus 68. Red Dye added to the oil.

Fuel Tank: 28.4 l capacity.

Fuel System: Includes a fuel filter/water separator and 12-volt electric (transistor type) fuel pump with replaceable fuel filter.

Electrical & Instrumentation: Has ammeter, hour meter, coolant temperature gauge and 4-bank warning lamp cluster. The electrical system has a 40-amp alternator, a 40-Amp self-resetting circuit breaker for glow circuit protection and 15-amp circuit breaker on the control panel. The panel is removeable for easy access to electrical components.

Interlock Switches: Prevent engine starting if the shift selector, or mow/lift systems are engaged. They stop the engine if you leave seat when either the traction selector or mow/lift pedal is engaged.

Controls: Hand-operated ignition switch, throttle, gear selector and steering control arm quick-adjust lever. Foot operated traction drive. Brakes and mow/lift pedal.

Seat Adjustment: 10.1 cm forward and rearward. Can be adjusted to achieve an additional 64 mm.

Brakes: 15.2 cm drum-type mechanical with rack and pawl lock for parking.

Tire Pressure: Front—55–82 kPa. Rear—55–103 kPa.

Wheel Bearings: Drive Wheels—Needle provided in wheel motors. Rear Caster Wheel—Timken tapered roller.

General Specifications:

Width of Cut—59 in. (149 cm).
Wheel Tread—49–1/2 in. (125 cm).
Wheel Base—49 in. (124 cm).
Overall Length—91 in. (231 cm).
Overall Width—69-3/4 in. (177 cm).
Overall Height—50-1/4 in. (127 cm).
Net Weight (Wet)—1,233 lb (559 kg).
Shipping Weight—1,478 lb (670 kg).
Speeds @ 2800 engine rpm
1st—3.8 mph (6.1 km/hr).
2nd— 7.4 mph (11.9 km/hr).
Rev.— 1.9 mph (3.1 km/hr).
Engine Idle Speed—1700 rpm. +50 –0
Reels—1940 rpm.
Clip—(8-blade cutting unit.) 0.25 in. (6.3 mm).
Battery—12 volt, BCI group size 26, maintenance free with 530 cranking amps at –18° C.

Before Operating

ADD ENGINE OIL

1. Move the machine to a level surface, stop the engine and set the parking brake. Unlatch and open the hood (Fig. 2).

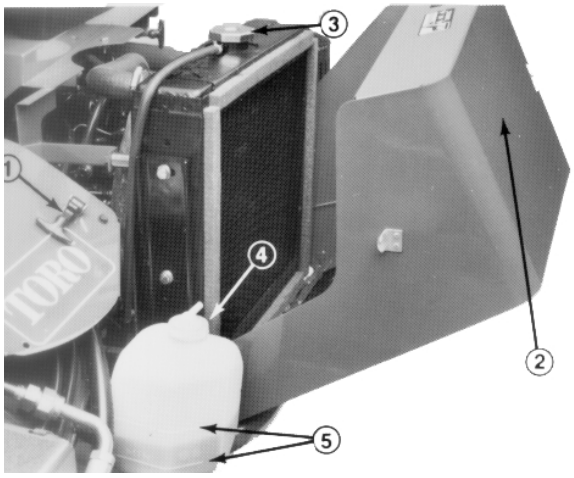


Figure 1

1. Engine hood latch
2. Engine hood
3. Radiator cap
4. Expansion tank cap
5. Fill marks

2. Remove the dipstick from the left front of the engine, wipe the end with a clean rag and insert it fully into the dipstick tube (Fig. 1). Remove the dipstick and check the oil level. If the oil level is low, go to step 3. If the oil level is up to the FULL mark on the dipstick, insert the dipstick and close and latch the hood. Continue with the pre-operating procedures.

3. If the oil level is low, unscrew the oil fill cap from the top of the engine (Fig. 1). Add a small quantity of a high-quality SAE 30 or 10W-30 detergent oil having the American Petroleum Institute—API—"service classification" CD and recheck the dipstick level. Continue until the oil level is up to the FULL mark on the dipstick. Do not overfill.

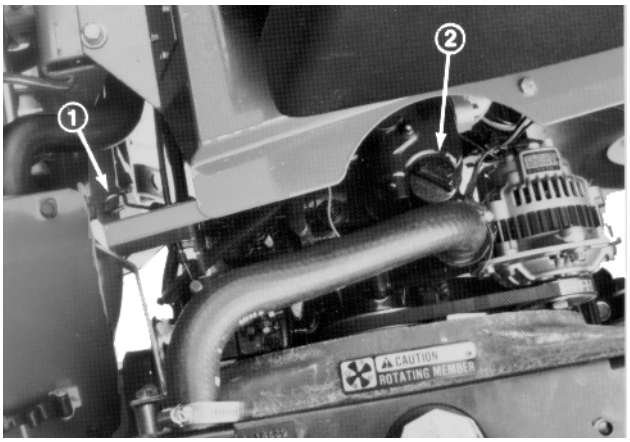


Figure 2

1. Oil dipstick
2. Oil fill hole

IMPORTANT: Check the oil level every 5 operating hours or daily. Change the oil after every 50 hours operation and change the filter after every 100 hours.

4. Install and tighten the oil fill cap and insert the dip-

stick into the tube. Close and latch the engine hood.

CHECK THE COOLING SYSTEM

The cooling system is filled with a 50/50 solution of water and permanent ethylene glycol anti-freeze. Check the level daily before starting the engine. Capacity of the system is approximately 4-1 /2 qt (4.2 L).

1. Move the machine to a level surface, stop the engine and set the parking brake. Unlatch and open the engine hood (Fig. 2).

2. Carefully remove the radiator cap and the expansion tank cap (Fig. 2).

CAUTION

If the engine has been running, pressurized hot coolant can escape when the radiator cap is removed and cause burns.

3. Inspect the coolant level. The radiator coolant level should be to 1 inch (25 mm) below the filler neck and the expansion tank level should be midway between the minimum and maximum marks on its side (Fig. 2).

4. If the coolant level is low, replenish the system. DO NOT OVERFILL.

5. Install the radiator and expansion tank caps. Close and latch the engine hood.

FILL THE FUEL TANK WITH DIESEL FUEL

The engine runs on No. 2-D or 1-D automotive-type diesel fuel with a minimum octane rating of 40.

Note: A higher octane rated fuel may be required if the machine is used at high altitudes and low atmospheric temperatures.

Use No. 2-D diesel fuel at temperatures above 20°F (-7°C) and No. 1 -D diesel fuel below 20°F (-7°C). No. 1 -D diesel fuel at lower temperatures provides lower flash point and pour point characteristics, therefore easing startability and lessening the chance of chemical separation of the fuel due to low temperatures (wax appearance, which may plug filters).

No. 2-D diesel fuel above 20°F (-7°C) will contribute toward longer life of the pump components. Do not use furnace oil.

Store fuel outside of buildings in a convenient location. Tipping the front of the tank up slightly will allow contaminants to collect at the lower end, away from the outlet. Never empty the tank below 4 in. (10 cm) from the bottom of the tank to avoid picking up water and other contaminants that may have collected at the bottom. Either filter the remainder at the bottom through a chamois or dispose of it periodically to prevent excessive build-up of contaminants.

Keep all fuel containers free of dirt, water, scale and other contaminants. Many engine difficulties can be traced to contaminants in the fuel.

Use only metal containers for fuel storage. DO NOT store the fuel in a galvanized metal container. A chemical reaction will result, which will plug the filters and cause possible fuel system damage.

If possible, fill the fuel tank at the end of each day. This will prevent buildup of condensation inside the fuel tank, preventing possible engine damage. Allow the engine to thoroughly cool down before refueling.

1. Using a clean rag, clean area around the fuel tank cap.

2. Remove the cap from the fuel tank (Fig. 13) and fill the 7.5 gallon (28.41) tank to within 1 inch (25 mm) from the top with diesel fuel. Install the fuel tank cap tightly after filling the tank.

DANGER

Because diesel fuel is flammable, use caution when storing or handling it. Do not fill the fuel tank while the engine is running, hot or when the machine is in an enclosed area. Vapors may build up and be ignited by a spark or flame source many feet away. DO NOT SMOKE while filling the fuel tank to prevent the possibility of an explosion. Always fill the fuel tank outside and wipe up any spilled diesel fuel before starting the engine. Use a funnel or spout to prevent spilling diesel fuel and fill the tank to about 1 inch (25 mm) below the filler neck. Store diesel fuel in a clean safety-approved container and keep the cap in place on the container. Keep diesel fuel in a cool, well-ventilated place; never in an enclosed area such as a hot storage shed. To assure volatility and to prevent contamination. do not buy more than a 6-month supply.

Figure 3

1. Fuel tank cap

CHECK THE HYDRAULIC SYSTEM

The hydraulic system operates on Mobil DTE 26 or equivalent anti-wear hydraulic fluid. The machine's reservoir is filled at the factory with fluid. However, check the level of hydraulic fluid before the engine is first started and daily thereafter.

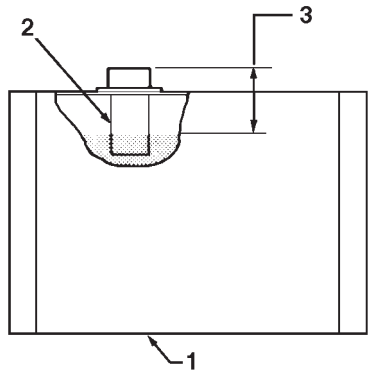


Figure 4

1. Hydraulic reservoir
2. Screen
3. Fluid Level (9 cm) from top of fill hole

Hydraulic Oil (Recommended brands):

Mobile	DTE 26
Shell	Tellus 68
Amoco	Rykon Oil #68
Conoco	Super Hydraulic Oil 68
Exxon	Nuto 68
Kendall	Kenoil R&O AW 68
Pennzoil	Penreco 68
Phillips	Magnus A 68
Standard	Energol HLP 68
Sun	Sunvis 831 WR
Union	Unax AW 68
Chevron	AW Hydraulic Oil 68

Note: All are interchangeable. Mobile SAE 10W30 or 10W40 may be substituted if the above oils are not available.

IMPORTANT: **Use only hydraulic oils specified. Other fluids could cause system damage.**

Note: A red dye additive for the hydraulic system oil is available in 2/3 oz. bottles. One bottle is sufficient for 15–23 liters of hydraulic oil. Order Part No. 44-2500 from your Authorized Toro Distributor.

1. Park the machine on a level surface. Make sure the machine has cooled down so the oil is cold.

2. Remove the cap from the top of the reservoir and check the fluid level. The fluid should be approxi-

mately 9 cm below the top of the fill hole.

3. If the oil level is low, slowly fill with Mobile DTE 26 or equivalent hydraulic oil until the level is correct. Do not mix oils. Install the cap.

IMPORTANT: To prevent system contamination, clean the top of hydraulic oil containers before puncturing. Assure the pour spout and funnel are clean.

TIRE PRESSURE

The tires are over-inflated at the factory for shipping purposes. Reduce the pressure to the proper levels before starting the unit.

Vary the tire pressure for the drive wheels, depending on your turf conditions, from a minimum of 8 psi (55.2 kPa) to a maximum of 12 psi (82.7 kPa). Vary the tire pressure for the rear wheel from a minimum of 8 psi (55.2 kPa) to a maximum of 15 psi (103.4 kPa).

Traction on the Greensmaster can be improved with lower tire pressure.

Controls

MOW PEDAL (Fig. 5)

Depressing the mow pedal FULLY during operation lowers the cutting units and starts the reels. The operator need not hold the pedal down during operation.

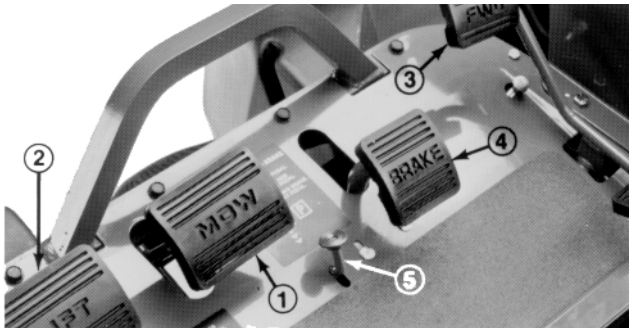


Figure 5

1. Mow pedal
2. Lift pedal
3. Traction pedal
4. Brake pedal
5. Parking brake button

LIFT PEDAL (Fig. 5)

Depressing the lift pedal during operation stops the reels from rotating and lifts the cutting units. The lift pedal must be FULLY depressed until the cutting units are fully raised and have ceased rotation.

TRACTION PEDAL (Fig. 5)

The traction pedal has two functions; to make the machine move forward and, also to make it move in reverse. To move forward, depress the top of the pedal; for reverse, depress the bottom of the pedal. Do not rest your heel on the reverse portion of pedal during forward operation (Fig. 5, 6).

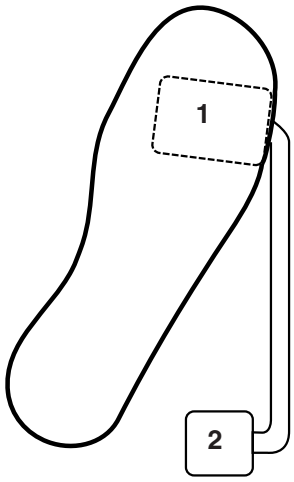


Figure 6

1. Forward
2. Reverse

BRAKE PEDAL (Fig. 5)

The brake pedal actuates an automotive mechanical drum-type brake located at each traction wheel.

PARKING BRAKE BUTTON (Fig. 5)

To lock the brakes for parking, depress the brake pedal, then depress the parking brake button. To disengage the parking brake, depress the brake pedal. Form the habit of locking the parking brake before leaving the machine.

IGNITION KEY SWITCH (Fig. 7)

The ignition switch, used to start and stop the engine, has three positions: OFF, ON and START. Turn the key clockwise to START to engage the starter motor. Release the key when the engine starts. The key will automatically move to the ON position. Turn the key counter-clockwise to OFF to stop the engine.

GLOW PLUG INDICATOR LIGHT (Fig. 7)

When the ignition key is turned to ON, the glow plug indicator light will turn on, indicating the glow plugs are being heated. Refer to *Starting/Stopping The Engine* for starting procedure. A self-resetting, 40-amp circuit breaker protects the glow plug.

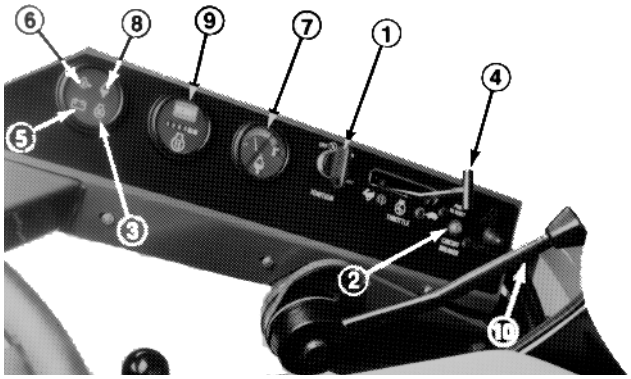


Figure 7

1. Ignition key switch
2. 15-amp circuit breaker
3. Glow plug Indicator light
4. Throttle control
5. Charge indicator
6. Engine oil pressure indicator
7. Coolant temperature gauge
8. High tenant temperature indicator
9. Hour meter
10. Steering control arm height selection lever

IMPORTANT: Do not use ether or other types of starting fluids to start the engine.

THROTTLE CONTROL (Fig. 7)

The throttle control alters engine speed. Moving the control forward increases engine speed—FAST; rearward decreases engine speed—SLOW.

Note: The engine cannot be stopped by the throttle control.

BATTERY CHARGING INDICATOR (Fig. 7)

The charging indicator light should be off when the engine is running. If it is on, the charging system should be checked and, if necessary, repaired.

ENGINE OIL PRESSURE INDICATOR (Fig. 7)

If the engine oil drops below a safe level, the light glows. Stop the engine and attend to the problem before continuing operation.

COOLANT TEMPERATURE GAUGE & INDICATOR (Fig. 7)

The coolant temperature gauge registers the system's coolant temperature. If the temperature becomes extreme, the engine will automatically shut off and the high temperature indicator will light. Should this occur, turn the ignition key to OFF, check the radiator for debris, the fan belt condition and the expansion tank for proper coolant level. When the coolant temperature has lowered to a safe level, the high temperature shutoff will automatically reset.

HOUR METER (Fig. 7)

The hour meter registers accumulated engine operating time.

STEERING ARM HEIGHT SELECTOR LEVER

Turn the lever counter-clockwise to loosen adjustment; clockwise to tighten. Raise or lower the control arm for operator comfort.

CIRCUIT BREAKER (Fig. 7)

A 15-amp circuit breaker to protect the electrical system is in the control panel. Should the circuit breaker actuate, locate and correct the cause for this occurrence. Then, push the reset button to reactivate the circuit.

SHIFT SELECTOR (Fig. 8)

The shift selector is located on the top of the right hand panel. It provides two (2) traction selections, plus a "NEUTRAL" position. It is permissible to shift from one selection to another while the Greensmaster 3000-D is in motion. No damage will result.

1. Neutral — Used for starting Greensmaster 3000-D engine.

2. No. 1 Position — Used for greens mowing operation.

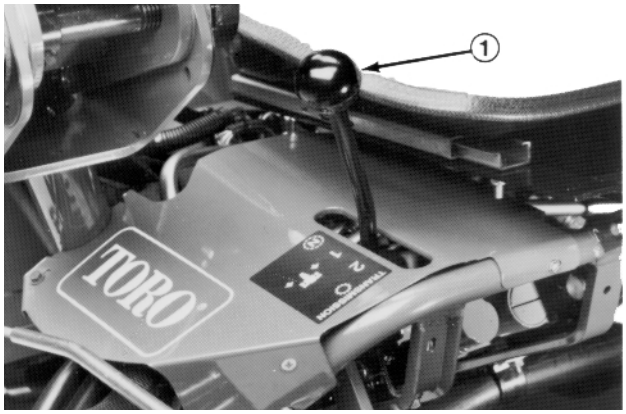


Figure 8

1. Shift selector

3. No. 2 Position—Used for transport operation.

Note: If the Greensmaster 3000-D is operated in reverse with the cutting units down, the cutting units will be pulled off the lift arms.

SEAT ADJUSTING HANDLE (Fig. 9)

The lever on left side of the seat allows four inch (101 mm) fore and aft adjustment.

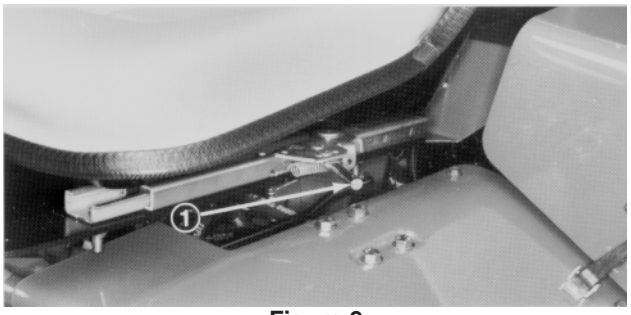


Figure 9

1. Seat adjusting handle /under seam

First-Time Operation

BREAK-IN PERIOD

1. Refer to the engine manual supplied with the Greensmaster 3000-D for recommended oil change and maintenance procedures during the engine break-in period.

2. Only 8 hours break-in period is required for components other than the engine on the Greensmaster 3000-D.

3. Since the first hours operation are critical to future machine dependability, monitor its functions and performance closely. Thus, minor difficulties can be noted and corrected before leading to major problems. Closely inspect the Greensmaster 3000-D during break-in for signs of oil leakage, loose fasteners or other malfunctions.

4. To assure optimum performance of the brake system, burnish (break-in) the brakes before use. To burnish brakes: Firmly apply the brakes and drive the machine at mowing speed until brakes are hot, as indicated by their smell. An adjustment to the brakes may be required after break-in.

STARTING/STOPPING THE ENGINE

IMPORTANT: The fuel system must be bled if any of the following have occurred:

A. Initial start-up of a new machine.

B. The engine has ceased running due to lack of fuel.

C. Maintenance has been performed upon fuel system components; i.e., filter replaced, separator serviced, etc.

Refer to *Bleeding The Fuel System.*

Note: Inspect areas beneath the mowers to insure they are clear of debris. Clear the area, if necessary, before starting.

1. Sit on the seat, place the shift selector in "Neutral", check the mow and lift pedals to ensure they are level with one another.

2. Keep your foot off the traction pedal and make sure it is in neutral.

3. Move the throttle control to the full FAST position.

4. Turn the ignition key to ON and hold there until the glow plug indicator light goes off (approximately 6 seconds).

IMPORTANT: Do not use ether or other type starting fluids to start the engine.

5. Immediately turn the ignition key to START (Fig. 7). Release the key immediately when the engine starts and allow it to return to the ON position. Move the throttle control to SLOW.

Note: Do not run the starter motor more than 20 seconds at a time or premature starter failure may result. If the engine fails to start after 20 seconds, turn the key to OFF. Recheck the control settings and procedures, wait 10 additional seconds and repeat the starter operation.

6. If the engine fails to start, turn the ignition key back to OFF, wait 2–3 seconds and repeat the starting cycle.

7. Use the following procedures when the engine is first started, engine oil is changed, or engine, transmission or axle are overhauled.

   A. Operate the machine in forward and reverse for one to two minutes.

   B. Check the operation of the mow and lift pedals.

   C. Turn the steering wheel fully left and right to check steering response.

CAUTION

Shut the engine off and wait for all moving parts to stop before checking for oil leaks, loose parts or other malfunctions.

D. Shut the engine off and check fluid levels. Also check for oil leaks, loose parts and other malfunctions.

8. To stop the engine, move the throttle to SLOW and turn the ignition key to OFF. Remove the key from the switch to prevent accidental starting.

BLEEDING THE FUEL SYSTEM

1. Locate the fuel filter/water separator at the right rear under fuel tank (Fig. 10).

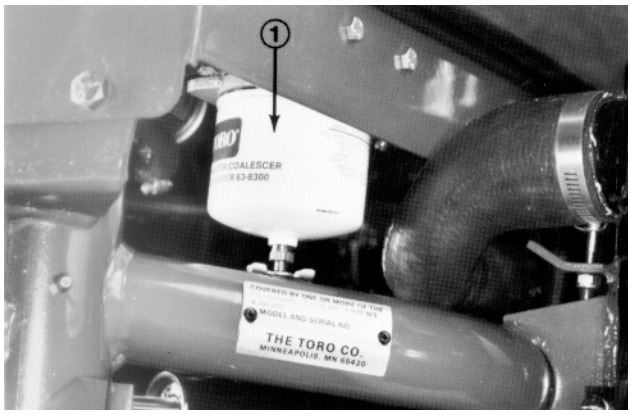


Figure 10
1. Fuel filter/water separator

2. From the left side of the rear wheel, locate the air bleed screw on top of the fuel filter/water separator and loosen the screw (Fig. 11).

CAUTION

Be careful while working around the muffler as it may be hot and cause injury.

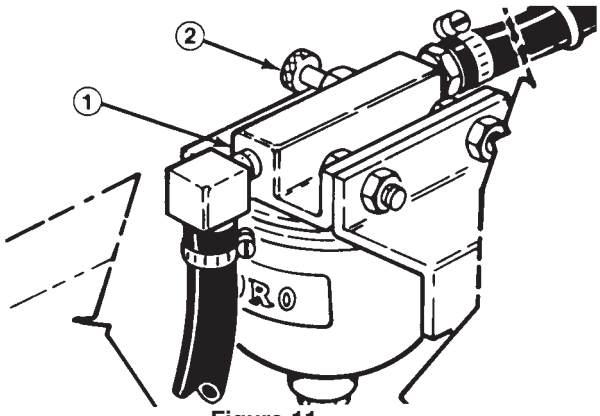


Figure 11
1. Fuel filter/water separator 2. Bleed screw

3. Turn the ignition switch key to the RUN position. The electric fuel pump will begin operation forcing air out the air bleed screw. Leave the key in the RUN position until a solid stream of fuel flows out around screw. Tighten the screw and turn the ignition key to OFF.

4. Unlatch and open the engine hood.

5. Using a 10-mm wrench, open the air bleed screw on the fuel injection pump.

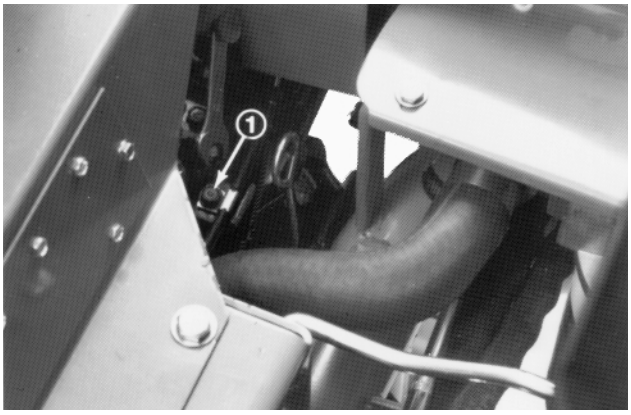


Figure 12
1. Fuel injection pump bleeder screw

6. Turn the ignition switch key to the RUN position. The electric fuel pump will begin operation forcing air out the air bleed screw. Leave the key in the RUN position until a solid stream of fuel flows out around screw. Tighten the screw and turn the ignition key to OFF.

7. Close and latch the engine hood.

INITIAL PRE-OPERATING CHECK

Note: Inspect the areas beneath mowers to insure they are clear of debris. Clear the area, if necessary, before starting.

1. Sit on the seat, place the shift selector in "Neutral", check the mow and lift pedals to ensure they are level with one another.

2. Keep your foot off traction pedal, make sure it is in the neutral position and move the throttle control to the full FAST position.

3. Start the engine and allow it to thoroughly warm up. Then check the machine as follows:

A. With the throttle control in the FAST position, depress the mow pedal; the cutting units should drop and all reels should turn.

B. Depress and hold the lift pedal down; the cutting units should stop and raise to full transport position.

Note: Stop the engine and ensure the lip of each basket clears the reel during operation. If contact is noted, re-adjust the pull arms.

C. Depress the brake pedal to keep the Greens master 3000-D from moving. Operate the traction pedal through forward and reverse positions.

D. Continue the procedures for 1-2 minutes, then neutralize the traction lever and the mow and lift pedals. Lock the parking brake, stop the engine and remove the ignition key. Check for oil leaks. If leaks are evident, check the hydraulic fittings for tightness. If oil leaks continue, contact your local TORO Distributor for assistance and, if necessary, replacement parts.

IMPORTANT: The motor or wheel seals may show some trace of oil for a brief period of time until the Greensmaster 3000-D break-in period has been completed .

Note: Since the Greensmaster 3000-D is new and the bearings and reels are tight, it is necessary to use the FAST throttle control position for this check. A fast throttle setting may not be required after the break-in period.

CHECKING INTERLOCK SWITCHES

Perform the following three system checks daily to be sure the interlock system is operating correctly.

1. Sit on the seat. Engage the parking brake and fully depress the lift pedal and release it. Move the shift selector to the #1 and #2 positions while, at the same time, trying to start the engine in each position. The engine should not crank, which means the traction switch on the valve bank is functioning correctly (Fig. 13). If the engine did not crank, proceed to step 2. If the engine cranked, there may be a malfunction in the safety interlock system.

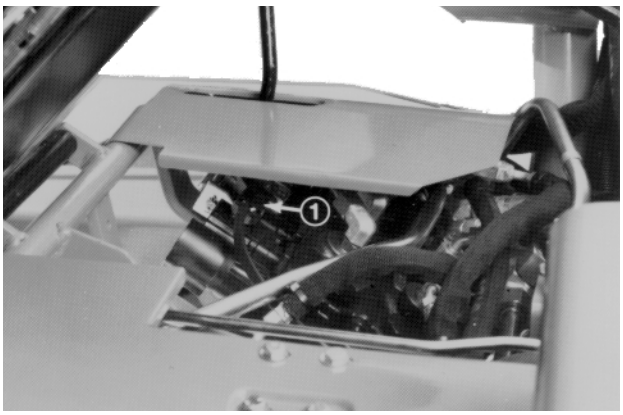


Figure 13

1. Traction switch

2. Sit on the seat. Engage the parking brake, fully depress the lift pedal and release it. Move the shift selector to neutral and try to start the engine. The engine should start and continue to run. This means the traction switch and mow/lift switch on the valve bank are functioning correctly. Go to step 3. If the engine cranked, but did not start, there is a malfunction. It is not, however, in the interlock system.

3. Sit on the seat. Engage the parking brake and

move the shift selector to neutral. Depress the mow pedal and try to start the engine. The engine should not crank. This means the mow/lift switch is functioning correctly. If the engine did not crank, go to step 4. If the engine cranked, there is a malfunction in the safety interlock system.

4. Sit on the seat. Move the shift selector to neutral, depress the lift pedal and release it. Start the engine and drive to an area free of debris and foreign objects. Keep all persons, especially children, away from the machine and out of the area of operation. Move the shift selector to Neutral and ensure mow pedal is disengaged. Set the throttle control at half speed and engage the parking brake. Hold the steering wheel, brace your feet on the foot deck and brake pedal and move the shift selector to the #1 position. Carefully lift yourself from the seat: the engine should stop. If the engine stops, the interlock system is functioning correctly.

5. Repeat the above check with the shift selector in #2 position. If the engine does not stop, stop the engine and find the problem before operating the machine again.

PREPARING THE MACHINE FOR MOWING

To assist in aligning the machine for successive cutting passes, it is suggested the following be done to the No. 2 and No. 3 cutting unit baskets:

1. Measure in approximately 5 inches (13 cm) from the outer edge of each basket.

2. Either place a strip of white tape or paint a line onto each basket paralleling the outer edge of each basket (Fig. 14).

TRAINING PERIOD

Before mowing with the Greensmaster 3000-D, The Toro Company suggests you find a clear area and practice starting, stopping, raising and lowering the cutting units, turning, etc. This training period will be beneficial to the operator in helping gain confidence in the performance of the Greensmaster 3000-D.

IMPORTANT: If you shift to the No. 2 traction selector position while cutting greens, no increase in speed will result. However, a sudden increase in speed will develop when you actuate the lift pedal. For safety purposes, it is recommended you use the No. 1 traction selection only for cutting greens and the No. 2 traction selection for transport.

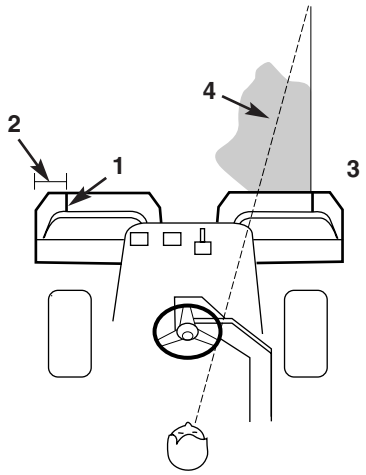


Figure 14

1. Alignment stripe
2. Approve 5 in. (13 cm)
3. Cut grass on the right
4. Keep focal spot (2–3 meters) ahead of the machine

Operating Instructions

BEFORE MOWING

Inspect the green for debris, remove the flag from the cup, and determine the direction best to mow. Base the direction to mow on the previous mowing direction. Always mow in an alternate pattern from the previous mowing, so the grass blades will be less apt to lay down and therefore be difficult to trap between the reel blades and bed knife.

MOWING PROCEDURES

1. Approach the green with the shift selector in the No. 1 position. Start on one edge of the green so the ribbon procedure of cutting may be used. This holds compaction to a minimum and leaves a neat, attractive pattern on the greens.

2. Actuate the mow pedal as the front edge of the grass baskets cross the outer edge of the green. This procedure drops the cutting units to the turf and starts the reels.

Note: The No. 1 (rear) cutting unit reel will not start until all the cutting units are on the ground and No. 2 and No. 3 cutting units are operating.

IMPORTANT: Remember that the No. 1 cutting unit reel is delayed and therefore, you should practice to try to gain the required timing necessary to minimize the clean-up mowing operation.

3. Overlap a minimal amount with the previous cut on return passes. To maintain a straight line across the green and keep the machine an equal distance from the edge of the previous cut, establish an imaginary sight line approximately 6 to 10 feet (1.8 to 3 m) ahead of the machine to the edge of the uncut portion of the green (Fig. 14, 15). Some find it useful to include the outer edge of the steering wheel as part of the sight line; i.e., keep the steering wheel edge aligned with a point that is always kept the same distance away from the front of the machine (Fig. 14, 15).

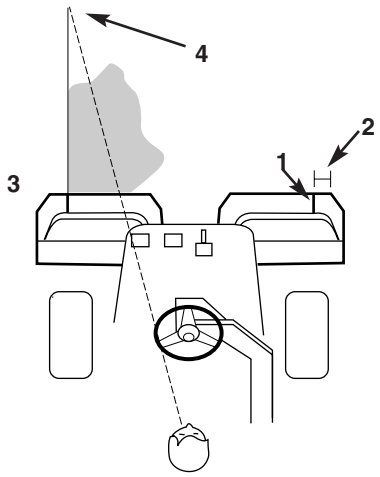


Figure 15

1. Alignment stripe
2. Approximately 13 cm
3. Cut grass on the left
4. Keep focal spot (2–3 meters) ahead of the machine

4. As the front of the baskets cross the edge of the green, depress the lift pedal. This will stop the reels and lift the cutting units. Timing is important so the mowers do not cut into the fringe area. However, as much of the green as possible should be cut to minimize the amount of grass left to mow around the outer periphery.

5. Cut down operating time and ease lineup for the next pass by momentarily turning the machine in opposite direction, then turning in the direction of the uncut portion; i.e., if intending to turn right, first swing slightly left, then right. This will assist in getting the machine more quickly aligned for the next pass. Follow the same procedure for turning in the opposite direction. It's good practice to try to make as short a turn as possible. However, turn in a wider arc during warmer weather to minimize the possibility of bruising the turf.

Note: Due to the nature of the power steering system, the steering wheel will not return to its original position after a turn has been completed.

IMPORTANT: Never stop the Greensmaster 3000-D on a green with the cutting unit reels operating as damage to the turf may result. Stopping on a wet

green may leave marks or indentations from the wheels.

6. Finish cutting the green by mowing the outer periphery. Be sure to change the direction of cutting from the previous mowing. Always keep weather and turf conditions in mind and be sure to change the direction of mowing from the previous cutting. Replace the flag.

7. Empty the grass baskets of all clippings before transporting to the next green. Heavy wet clippings place an undue strain on the baskets and add unnecessary weight to the machine, thereby increasing the load on the engine, hydraulic system, brakes, etc.

TRANSPORT OPERATION

Make sure the cutting units are in the full up position. Set the shift selector in No. 2 if conditions will permit faster ground speed. Shift to No. 1 and operate at slower ground speeds in rough or hilly areas. Use the brakes to slow the machine while going down steep hills to avoid loss of control. Always approach rough areas at a reduced speed (shift selector in No. 1), and cross severe undulations carefully. Familiarize yourself with the width of the Greensmaster 3000-D. Do not attempt to pass between objects that are close together so that costly damage and downtime can be prevented.

WARNING

The Greensmaster 3000-D should never be used as a tow vehicle. The gusset on the rear frame may be used as a tiedown for transporting the machine on a trailer or truck, but never as a hitch point. Loss of steering may occur causing possible injury.

INSPECTION AND CLEAN-UP AFTER MOWING

After mowing, thoroughly wash the machine with a garden hose (without a nozzle so that excessive water pressure will not contaminate and damage the seals and bearings). After cleaning, inspect the machine for possible hydraulic fluid leaks, damage or wear to hydraulic and mechanical components and check the cutting units for sharpness. Also, lubricate the mow and lift pedal and brake shaft assembly with SAE 30 oil or spray lubricant to deter corrosion and help keep the machine performing satisfactorily during the next mowing operation .

Maintenance

LUBRICATION

CAUTION

Before servicing or making adjustments to the machine, stop the engine and remove the key from the switch.

The traction unit has grease fittings that must be lubricated regularly with No. 2 General purpose Lithium Base Grease. If the machine is operated under normal conditions, lubricate all bearings and bushings after every 50 hours of operation.

1. Wipe grease fitting clean so foreign matter cannot be forced into the bearing or bushing.

2. Pump grease into the gearing or bushing.

3. Wipe up excess grease.

4. Apply grease to the reel motor shaft when the cutting unit is removed for service.

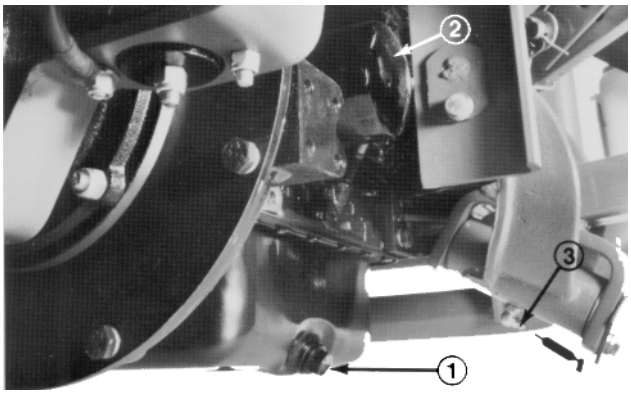


Figure 16

1. Engine oil drain plug
2. Engine oil filler
3. Pivot hinge

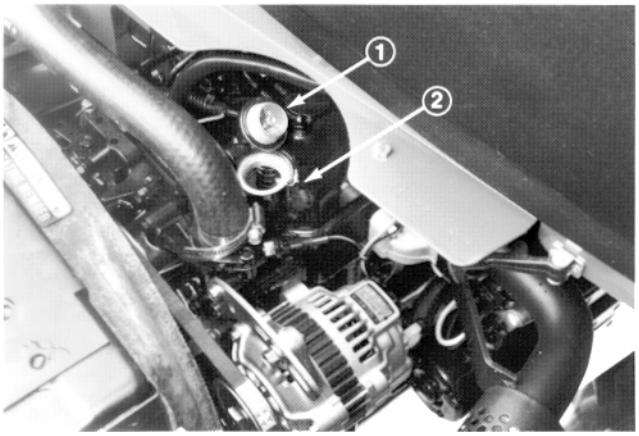


Figure 17
1. Oil fill cap
2. Oil fill hole

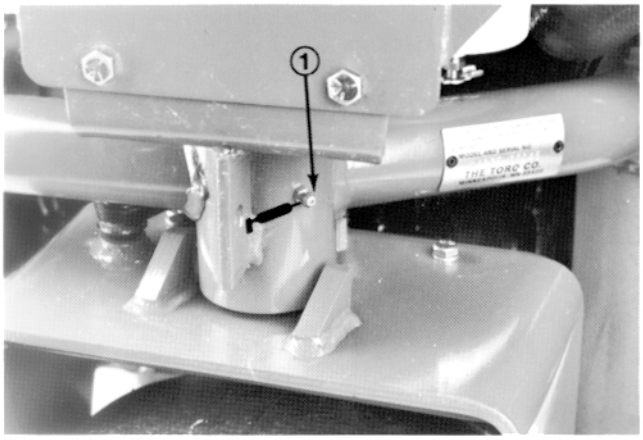


Figure 18
1. Grease

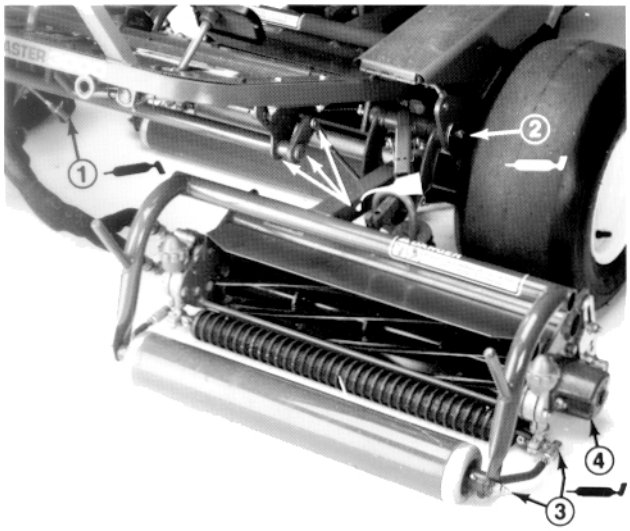


Figure 19
1. Mow pedal pivot
2. Lift arm pivot
3. Pull frame roller
4. Refer to cutting unit manual

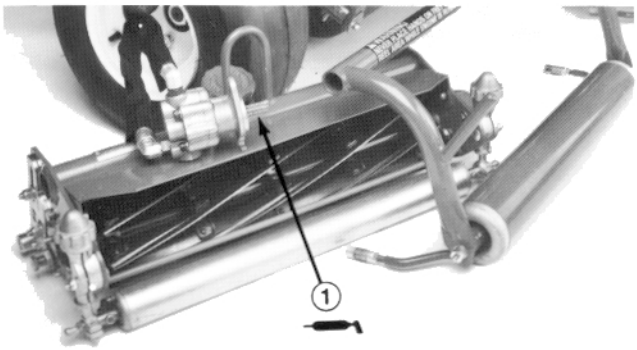


Figure 20
1. Coat with grease

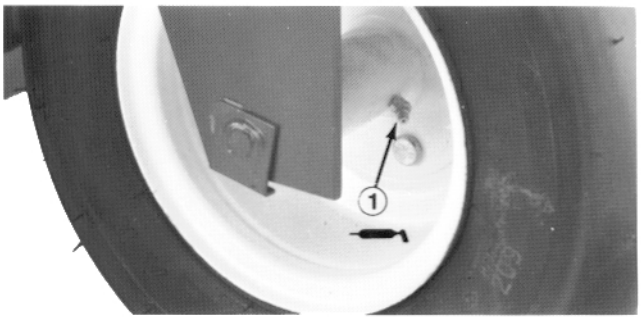


Figure 21
1. Rear wheel bearings

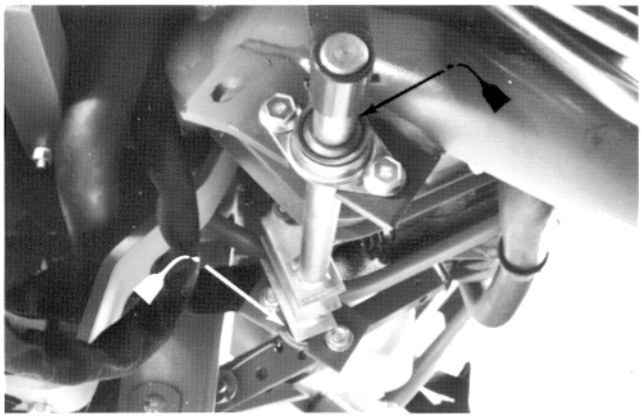


Figure 22

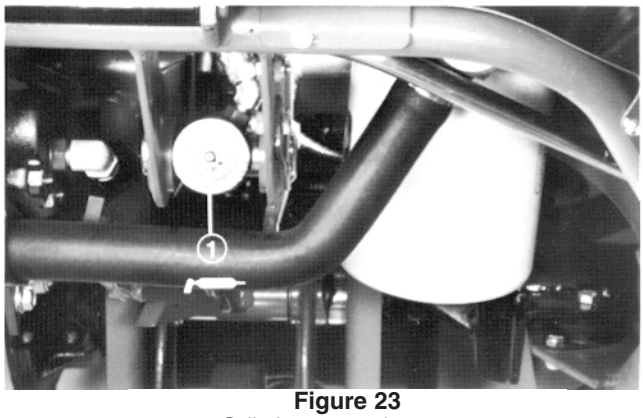
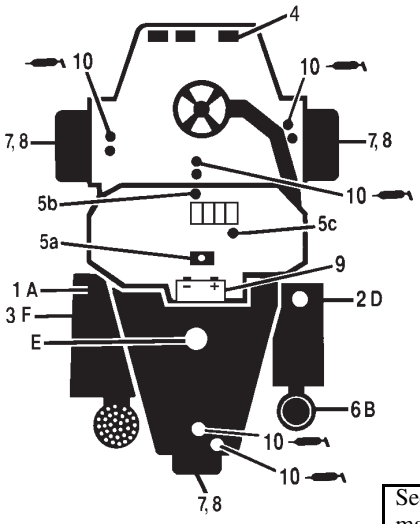


Figure 23
1. Cylinder mount pin



GREENSMASTER 3000-D QUICK REFERENCE AID

Check/Service (daily)

1. Oil level, engine
2. Oil Level, Hydraulic tank
3. Cooling System, engine
4. Brakes
5. Interlock System:
   - 5a. Seat interlock
   - 5b. Mow/Lift interlock
   - 5c. Traction interlock.
6. Air cleaner
7. Tire Pressure (55–82 kPa front, 55–103 kPa rear)
8. Wheel nut torque (54–68 Nm)
9. Battery
10. Lubrication

FLUID SPECIFICATIONS/CHANGE INTERVALS:

See operator's manual for initial change	Fluid Type	Capacity	Change Intervals Fluid	Change Intervals Filter	Filter Part Number
Engine Oil	SAE 30 SG	*4 liter	50 hours	100 hours	67-4330
Air Filter				100 hours	27-7110
Fuel Filter				400 hours	63-8300
Hydraulic Oil	Mobil DTE 26	17 liter	2,000 hours	2,000 hours	74-3570
Fuel Tank	Unleaded Gas	28.4 liter			
Radiator	50/50 mix: water ethylene glycol	6.6 liter	Every 2 years		

*Including filter

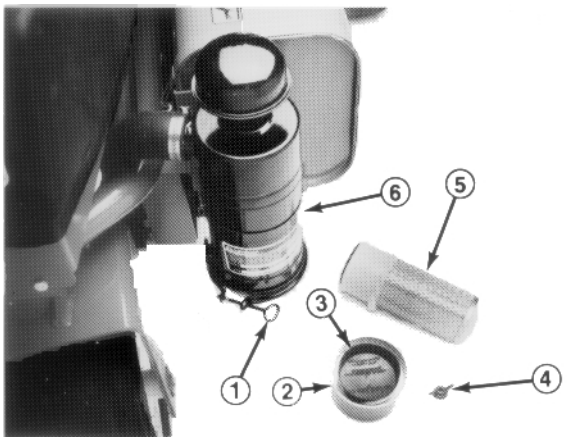


Figure 24

1. Thumb screw
2. Dust cap
3. Baffle
4. Wing nut with gasket
5. Filter element
6. Air cleaner body

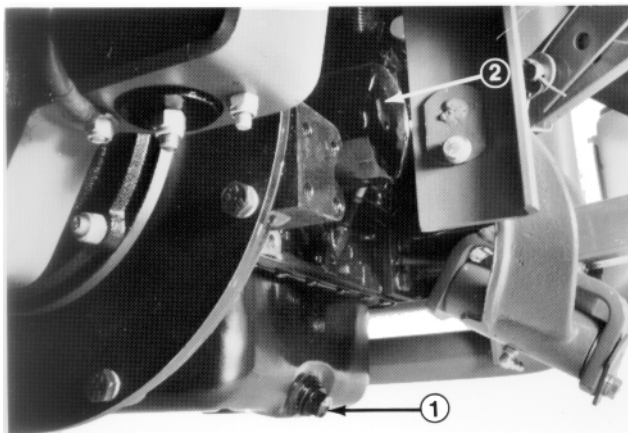


Figure 25

1. Oil drainplug
2. Engine oil filter

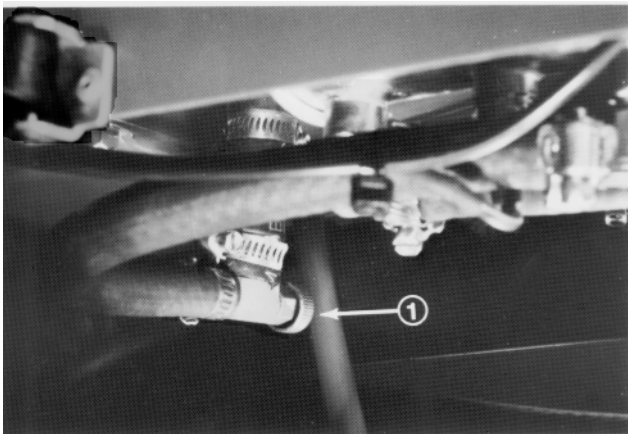


Figure 26

1. Fuel shut-off valve

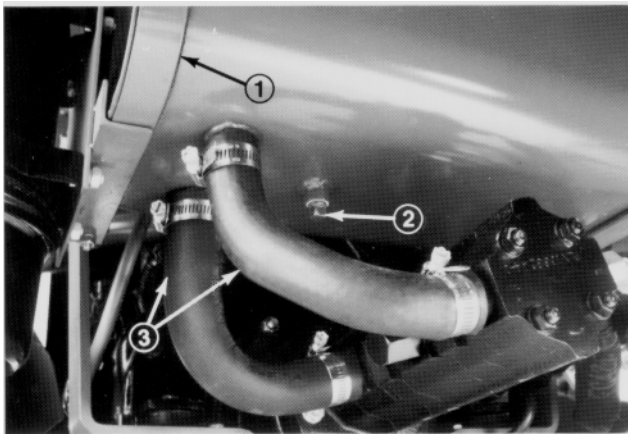


Figure 29

1. Felt strips under straps
2. Reservoir drain plug
3. Pump section lines

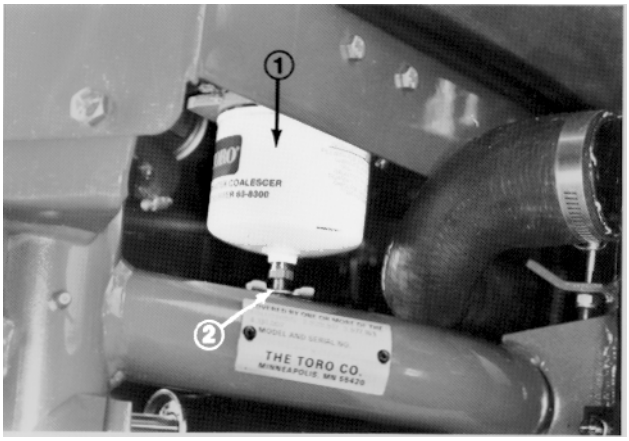


Figure 27

1. Fuel filter canister
2. Water drain

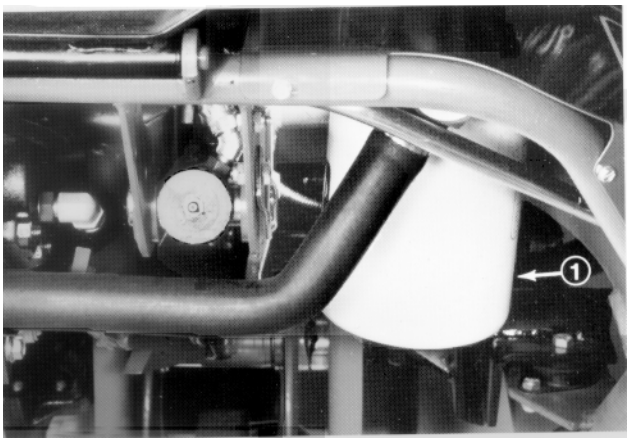


Figure 30

1. Hydraulic filter

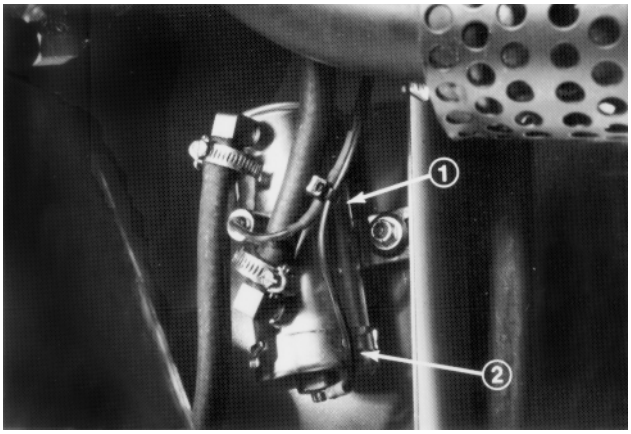


Figure 28

1. Fuel pump assembly
2. Fuel pump cover—unscrew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