FORM NO. 3318-398 GB Rev A

TORO®

MODEL NO. 08882—60001 & UP

OPERATOR'S MANUAL

SANDPRO® 2000

To understand this product, and for safety and optimum performance, read this manual before starting operation. Pay special attention to SAFETY INSTRUCTIONS highlighted by this symbol.

FOREWORD

The SAND PRO 2000 was developed to provide an efficient, trouble free and economical method of sand trap maintenance. The latest concepts of engineering, design and safety have been incorporated into this machine, along with the highest quality parts and workmanship. Excellent service will be derived if proper operation and maintenance practices are followed.

You know, since you have purchased the industry leader in sand trap and other maintenance excellence, that future performance and dependability are of prime importance. TORO also is concerned about future use of the machine and of safety to the user. Therefore, this manual must be read by you and those involved with the SAND PRO 2000 to make sure that safety, proper set—up, operation and maintenance procedures are followed at all times. The major sections of the manual are:

Safety, mechanical and some general information in this manual are emphasized. DANGER, WARNING and CAUTION identify safety messages. Whenever the triangle safety symbol appears, it is followed by a safety message that must be read and understood. For more details concerning safety, read the safety instructions on pages 4 and 5. IMPORTANT identifies special mechanical information and NOTE identifies general information worthy of special attention.

If help concerning set up, operation, maintenance or safety is ever needed, contact your local Authorized TORO Distributor. In addition to genuine TORO replacement parts, the distributor also has optional equipment for the complete line of TORO turf care equipment. Keep your Toro all TORO. Buy genuine TORO parts and accessories.

Table of Contents

Safety

The SAND PRO 2000 was designed and tested to offer safe service when operated and maintained properly. Although hazard control and accident prevention partially are dependent upon the design and configuration of the machine, these factors are also dependent upon the awareness, concern, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the machine. Improper use or maintenance of the machine can result in injury or death. To reduce the potential for injury or death, comply with the following safety instructions.

WARNING: Engine exhaust contains carbon monoxide which is an odorless, deadly poison. Carbon monoxide is also known to cause birth defects. Do not run the engine indoors or in an enclosed area.

BEFORE OPERATING

1. Operate the machine only after reading and understanding the contents of this manual.

2. Never allow children to operate the machine or adults to operate it without proper instructions.

3. Become familiar with the controls and know how to stop the engine quickly.

4. Keep all shields, safety devices and decals in place. If a shield, safety device or decal is malfunctioning, illegible, or damaged, repair or replace it before operating the machine.

5. Always wear substantial shoes. Do not operate machine while wearing sandals, tennis shoes or sneakers. Do not wear loose fitting clothing which could get caught in moving parts and cause personal injury.

6. Wearing safety glasses, safety shoes, long pants and a helmet is advisable and required by some local safety and insurance regulations.

7. Ensure the traction interlock switch is adjusted correctly so the engine cannot be started unless the traction pedal is released and in neutral position.

8. Keep everyone, especially children and pets away from the areas of operation.

9. Since gasoline is highly flammable, handle it carefully.

- **A.** Use an approved gasoline container.
- **B.** Do not remove the cap from the fuel tank when the engine is hot or running.
- **C.** Do not smoke while handling gasoline.
- **D.** Fill the fuel tank outdoors and to about one inch below the top of the tank, (bottom of filler neck). Do not overfill.
- **E.** Wipe up any spilled gasoline.

10. Check the safety interlock system daily for proper operation. If the switch should malfunction, replace it before operating the machine. (After every two years, replace the interlock switch in the safety system, whether it is working properly or not.)

WHILE OPERATING

11. Exhaust fumes are hazardous and could be deadly, so do not run the engine in a confined area without adequate ventilation.

12. Sit on seat when operating the machine. Never carry passengers.

13. When starting the engine:

- **A.** Make sure the traction pedal is released.
- **B.** After the engine is started, keep your foot off the traction pedal. Machine must not move. If movement is evident, the neutral return bracket is adjusted incorrectly; therefore, shut the engine off and readjust bracket so machine does not move when in neutral position. If the engine does not start, check interlock switch for proper adjustment.

14. Using the machine demands attention. To prevent tipping or loss of control:

A. Use care when entering and leaving sand traps. Use extreme caution around ditches, creeks or other hazards.

B. Watch for holes or other hidden hazards.

C. Use caution when operating machine on a steep slope. Reduce speed when making sharp turns or when turning on hillsides.

D. Avoid sudden stops and starts. Do not go from reverse to full forward without first coming to a complete stop.

E. Before backing up, look to the rear and assure no one is behind the machine.

F. Watch out for traffic when near of crossing roads. Always yield the right of way.

15. If optional Hitch Kit, model 08833, is installed on machine, vertical load on hitch should not exceed 200 lbs.

16. Do not touch the engine, muffler or exhaust pipe while the engine is running or soon after it has stopped because these areas are hot enough to cause burns.

17. If the machine ever vibrates abnormally, stop immediately, turn the engine off, wait for all motion to stop and inspect for damage. Repair all damage before commencing operation.

18. Before getting off the seat:

A. Stop movement of the machine. Take precautions to prevent accidental starts, rolling away, etc.

B. Shut the engine off and wait for all movement to stop.

19. Whenever machine is left unattended, be sure the engine is stopped, implement is lowered and the key is removed from ignition.

MAINTENANCE

20. Before servicing or making adjustments to the machine, stop the engine and pull the spark plug wire off spark plug to prevent accidental starting of the engine.

21. Make sure all hydraulic line connectors are tight,and all hydraulic hoses and lines are in good condition before applying pressure to the system.

22. Keep body and hands away from pin hole leaks or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, not hands, to search for leaks. Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin and do serious damage. If fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

23. Before disconnecting or performing any work on the hydraulic system, all pressure in system must be relieved by stopping the engine and lowering attachments to the ground.

24. To make sure entire machine is in good condition, keep all nuts, bolts and screws properly tightened.

25. If major repairs are ever needed or assistance is required, contact an Authorized TORO Distributor.

26. To reduce potential fire hazard, keep the engine area free of excessive grease, grass, leaves and accumulation of dirt.

27. If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and any parts of the body away from the engine and any moving parts. Keep everyone away.

28. Do not overspeed the engine by changing governor settings. Maximum engine speed is 3000 rpm. To assure safety and accuracy, have an Authorized Toro Distributor check maximum engine speed with a tachometer.

29. Engine must be shut off before checking oil or adding oil to the crankcase.

30. To be sure of optimum performance and safety, always purchase genuine TORO replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous. Such use could void the product warranty of The Toro Company.

Sound & Vibration Levels

Sound Levels

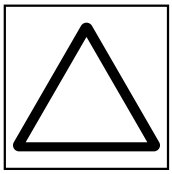
This unit has an equivalent continuous A-weighted sound pressure at the operator ear of: 83 dB(A), based on measurements of identical machines per 84/538/EEC.

Vibration Levels

This unit has a vibration level of 2.5 m/s^2 at the posterior, based on measurements of identical machines per ISO 2631 procedures.

This unit does not exceed a vibration level of 0.5 m/s^2 at the posterior based on measurements of identical machines per ISO 2631 procedures.

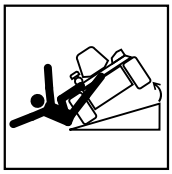
Symbol Glossary


SAFETY ALERT SYMBOL


GENERAL HAZARD SAFETY ALERT

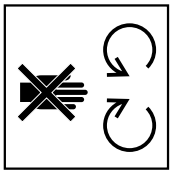

STORED ENERGY HAZARD, KICKBACK OR UPWARD MOTION


HOT SURFACE, BURNS TO FINGERS OR HANDS

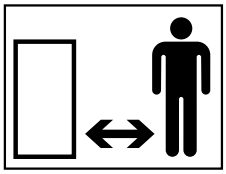

MACHINE TIPPING

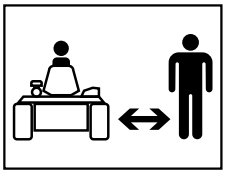

RUNOVER/ BACKOVER


CRUSHING OF TOES OR FOOT, FORCE APPLIED FROM ABOVE


DO NOT OPEN OR REMOVE SAFETY SHIELDS WHILE ENGINE IS RUNNING


CAUSTIC LIQUIDS, CHEMICAL BURNS TO FINGERS OR HAND


STAY A SAFE DISTANCE FROM MACHINE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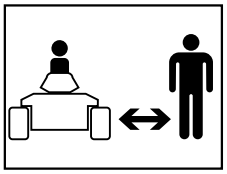
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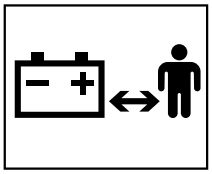

KEEP CHILDREN A SAFE DISTANCE FROM BATTERY

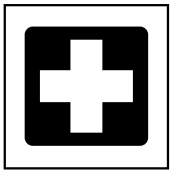

EXPLOSION


FIRE OR OPEN FLAME

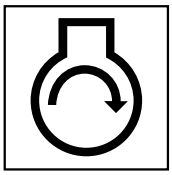

FIRE, OPEN LIGHT & SMOKING PROHIBITED


EYE PROTECTION MUST BE WORN

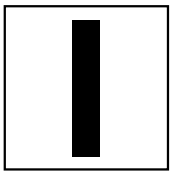

CAUTION, TOXIC RISK

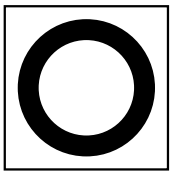

FIRST AID


FLUSH WITH WATER

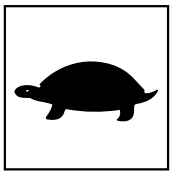

ENGINE START

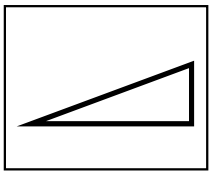
ENGINE STOP


ON/START


OFF/STOP

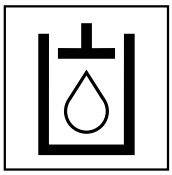

FAST

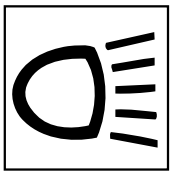

SLOW

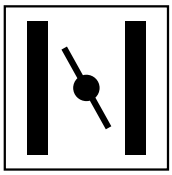

CONTINUOUS VARIABLE, LINEAR

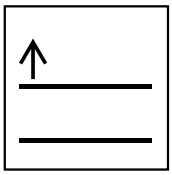

LOCK

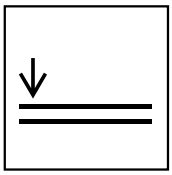

UNLOCK


HYDRAULIC OIL


HEADLIGHTS


CHOKE


ATTACHMENT RAISE

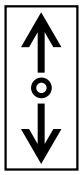

ATTACHMENT LOWER

PARK

FORWARD

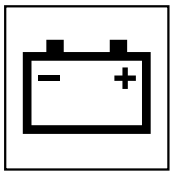
REVERSE

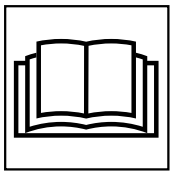
NEUTRAL

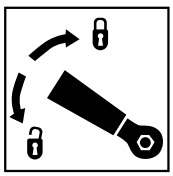

CONTROL LEVER OPERATING DIRECTION, DUAL DIRECTION

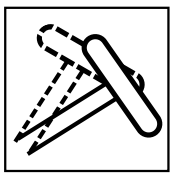
TRACTION PEDAL OPERATION


DO NOT DISPOSE IN THE GARBAGE

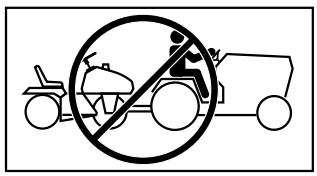

BATTERY CHARGING CONDITION

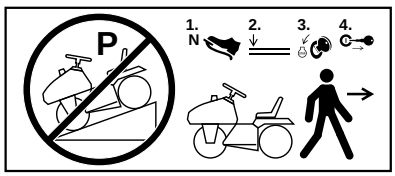

READ OPERATOR'S MANUAL


STEERING WHEEL LOCK OPERATION


STEERING WHEEL TILT OPERATION


USE CAUTION WHEN OPERATING UNIT ON A STEEP SLOPE


DO NOT TOW



NEVER PARK UNIT ON A SLOPE. BEFORE LEAVING OPERATOR POSITION, MOVE TRACTION PEDAL TO NEUTRAL, LOWER IMPLEMENTS TO GROUND, TURN IGNITION KEY TO "OFF" POSITION & REMOVE KEY.

Specifications

Configuration: Short-wheelbase tricycle vehicle with mid engine placement. Rear wheels powered. Front wheel steering. Operator positioned centrally.

Engine: Kohler, 4 cycle, air cooled, 12 hp @ 3600 rpm, 27.09 cu. in. (476 cc) displacement. Stellite intake and exhaust valve and rotator. Mechanical fuel pump, large capacity dual element air cleaner. 5-1/4 pint oil capacity.

Instrumentation: Ammeter and hour meter.

Gas Tank: 16-liter capacity.

Battery: 12-volt, lead acid, 32-amp hour.

Drive: Hydraulic. Coupling driven variable displacement piston pump with integral auxiliary charge pump to geroller motors which directly drive rear wheels.

Hydraulic Oil Filter: 25-micron, spin-on type.

Hydraulic Oil Reservoir: 11.4 l capacity.

Valve: Single section for raising and lowering of the implement.

Cylinder: Double acting.

Wheel Bearings: Needle bearing in each wheel motor.

Tires: 21 x 11.00-8 two-ply pneumatic tubeless. De-mountable and interchangeable. Recommended tire pressure is 27 kPa.

Speeds (at 3000 RPM): Variable between 0 and 15.8 kmh forward and 0 and 4 kmh reverse.

Seat Adjustment: 10 cm fore and aft. Additional 4.4 cm forward adjustment available by using front mounting holes.

Dimensions:

Width w/o implement:	146 cm
Width w/ rake model 08812:	190.5 cm
Height:	112 cm
Length w/o rake:	193 cm
Net Weight (wet):	243 kg

Optional Equipment:

Drag Mat, Model 08845
Rake, Model No. 08811
Edger Kit, Model No. 08822
Prong Rake Attachment, Part No.42-3960
Rake Mounting Kit, Model No.08814
Tooth Rake Kit, Model 08812
Weeder Kit, Model No. 08815
Spring Rake Kit, Model No. 08813
Finish Grader, Model No. 08867
Spiker, Model No. 08856
Hitch Kit, Part No. 20-3900
Front Blade Kit, Model No.08821
Cultivator Kit, Model No. 08818

Before Operating

CAUTION

Before servicing or making adjustments to the machine, stop the engine, pull wires off the spark plugs and remove the key from the switch.

CHECK CRANKCASE OIL (Fig. 1)

The engine is shipped with oil in the crankcase; however, check the level before and after the engine is first started.

Crankcase capacity is approximately 2.48 l.

1. Position the machine on a level surface.

2. Remove the dipstick and wipe it with a clean cloth. Push the dipstick down into the dipstick tube and make sure it is seated fully. Pull the dipstick out and check the level of oil.

3. If the oil level is low, add enough oil to raise the level to the FULL mark on the dipstick. Use oil having the APl "service classification" SF. Oil viscosity—weight—is selected according to anticipated ambient temperature. Temperature/ viscosity recommendations are:

A. *Above 32° F (0° C)*Use SAE 30. The use of multi-weight oil above 32° F (0° C) is not recommended due to increased oil consumption and excessive combustion chamber deposits.

B. *Below 32° F (0° C)*Use SAE 5W-2O or 5W-30, and if they are not available, 10W-30 or 10W-40 are acceptable substitutes.

IMPORTANT: Check the level of oil every 5 operating hours or daily. Change the oil after every 50 hours of operation.

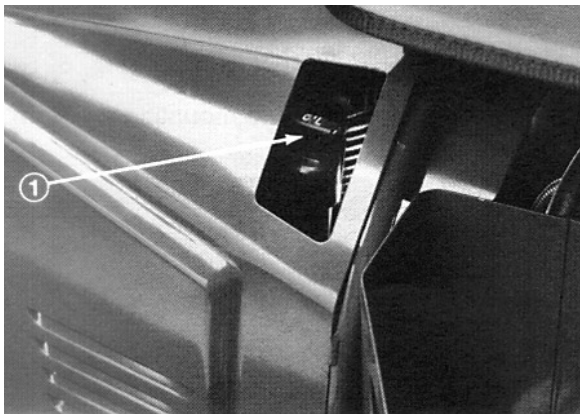


Figure 1

1. Dipstick

FILL THE FUEL TANK (Fig. 2)

THE TORO COMPANY STRONGLY RECOMMENDS THE USE OF FRESH, CLEAN, UNLEADED REGULAR GRADE GASOLINE IN TORO GASOLINE POWERED PRODUCTS. UNLEADED GASOLINE BURNS CLEANER, EXTENDS ENGINE LIFE, AND PROMOTES GOOD STARTING BY REDUCING THE BUILD-UP OF COMBUSTION CHAMBER DEPOSITS. LEADED GASOLINE CAN BE USED IF UNLEADED IS NOT AVAIL-

ABLE.

NOTE: Never Use Methanol, Gasoline Containing Methanol, Gasoline Containing More Than 10% Ethanol, Gasoline Additives, Premium Gasoline Or White Gas Because Engine Fuel System Damage Could Result.

Fuel tank capacity is 16 liters.

1. Clean the area around the fuel tank cap.

2. Remove the fuel tank cap.

3. Fill the tank to about one inch below the top of the tank, (bottom of filler neck). DO NOT OVERFILL. Then install the cap.

4. Wipe up any fuel that may have spilled to prevent a fire hazard.

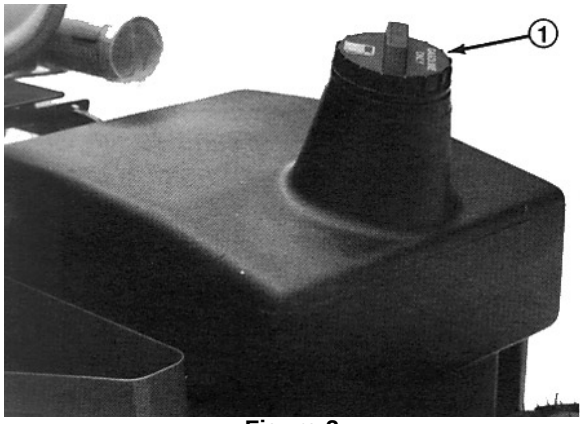


Figure 2

1. Fuel tank cap

⚠ DANGER

Because gasoline is flammable, caution must be used 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 gasoline before starting the engine. Use a funnel or spout to prevent spilling gasoline, and fill the tank no higher than one inch below the top of the tank (bottom of the filler neck). DO NOT OVER FILL.

Store gasoline in a clean safety approved container and keep the cap on the container. Keep gasoline in a cool, well-ventilated place; never in an enclosed area such as a hot storage shed. To assure volatility, do no buy more than a 30-day supply of gasoline. Gasoline is a fuel for internal combustion engines; therefore do not use it for any other ;purpose. Since many children like the smell of gas, keep it out of their reach because the fumes are explosive and dangerous to inhale.

CHECK HYDRAULIC SYSTEM (Fig. 3)

The hydraulic system is designed to operate on SAE 10W-30 or 10W-40 SF type motor oil. The machine's reservoir is filled at the

factory with oil. However, check the level of oil before the engine is first started and daily thereafter.

1. Remove the cap from hydraulic oil reservoir.
2. Check the level of oil in the reservoir. the oil level should be up to the top of cone point on the tank screen.

3. If the oil level is low, add SAE 10W-30 or 10W-40 SF type motor oil until the level is up to the top of cone point on the tank screen. DO NOT OVERFILL.

4. Install the reservoir cap.

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

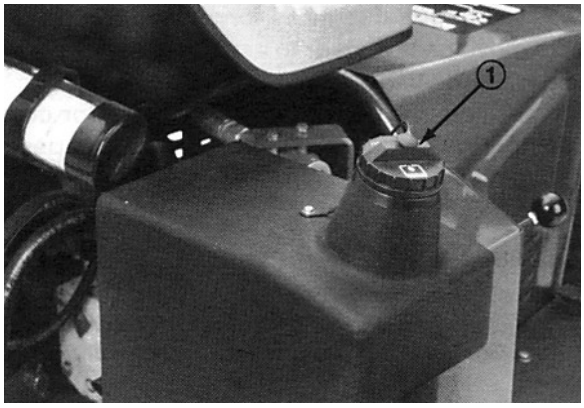


Figure 3

1. oil reservoir cap

CHECK TIRE PRESSURE

Check tire pressure before operating the machine. Correct air pressure in the front and rear tires is 27–41kPa.

Controls

Traction and Stopping Pedal (Fig. 4–5)—The traction pedal has three functions: one, to make the machine move forward, two, to move it backward and three, to stop the machine. Using the heel and toe of your right foot, depress the top of the pedal to move forward and bottom of the pedal to move backward or to assist in stopping when moving forward. Also, allow the pedal to move or move it to the neutral position to stop the machine. For operator comfort, do not rest the heel of your foot on reverse when operating forward (Fig. 5).

Ground speed is proportionate to how far the traction pedal is depressed. For maximum ground speed, the pedal must be fully depressed while the throttle is in the FAST position. To get maximum power or when ascending a hill, have the throttle in the FAST position while depressing the pedal slightly to keep engine rpm high. When engine rpm begins to decrease, release the pedal slightly to allow rpm to increase.

IMPORTANT: For maximum pulling power, the throttle should be in the "Fast" position, and the traction pedal just barely depressed.

⚠ CAUTION

Use the maximum ground speed ONLY when driving from one area to another. Maximum speed is not recommended when using an attached or towed implement.

IMPORTANT: The SAND PRO must not be operated in reverse with the implement in the down (operating) position, or the implement could be severely damaged.

Ignition Switch (Fig.6)—The ignition switch, used to start and stop the engine, has three positions: OFF, RUN and START. Turn the key clockwise—START position—to engage the starter motor. Release the key when the engine starts. The key will move automatically to the ON position. To shut the engine off, turn the key counterclockwise to the OFF position.

Choke Control (Fig. 6)—To start a cold engine, close the carburetor choke by pulling the choke control out to the ON position. After the engine starts, regulate the choke to keep the engine running smoothly. As soon as possible, open the choke by pushing it downward to the OFF position. A warm engine requires little or no choking.

Throttle Control (Fig. 6) —Lever connects to and operates the throttle linkage to the carburetor. The trottle control has two posi-

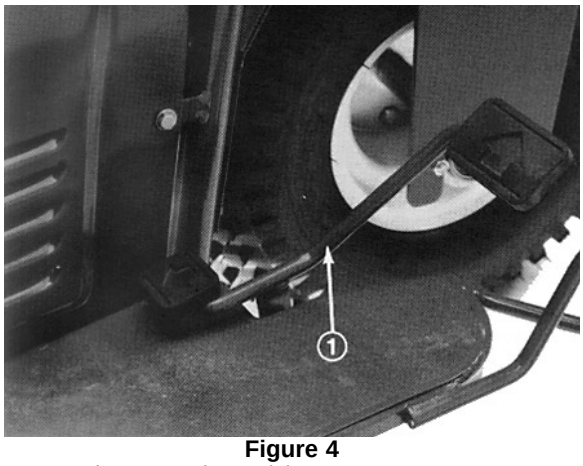


Figure 4

1. Traction & stopping pedal

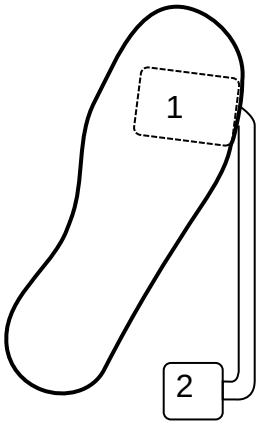


Figure 5

1. Forward
2. Reverse

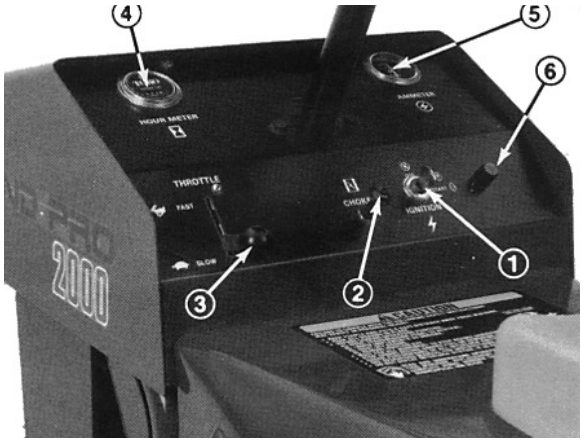


Figure 6

1. Fuel tank cap
2. Choke control
3. Throttle control
4. Hour meter
5. Ammeter
6. Fues

tions: SLOW and FAST. Engine speed can be varied between the two settings.

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

Hour Meter (Fig. 6)—Shows the total hours of machine operation. The Hour Meter starts to function whenever the key switch is turned to the "ON" position.

Ammeter (Fig. 6)—The ammeter indicates the rate of battery charge or discharge.

Note: During normal operation, there will usually be slight ammeter needle movement to the positive side.

Lift Lever (Fig.7)—To raise the implement, pull the lever up; to lower the implement, push the lever down. When the desired position is attained, release the lever and it will return to neutral.

NOTE: The SAND PRO has a double-acting lift cylinder. Down pressure can be applied to the implement for certain operating conditions.

Fuel Shut-Off Valve (Fig. 8)— Close the fuel shut-off valve when storing the machine.

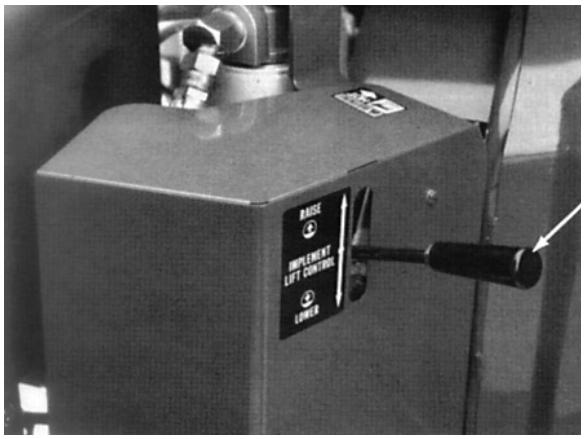


Figure 7

1. Lift lever

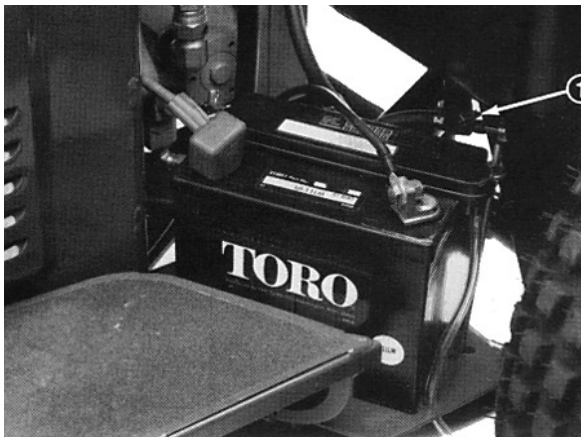


Figure 8

1. Fuel shut-off valve

Operating

STARTING/STOPPING THE ENGINE

1. Remove your foot from the traction pedal and make sure the pedal is in the neutral position.

2. Pull the choke lever out to the ON position—when starting a cold engine—and the throttle lever to the SLOW position.

3. Insert the key into the ignition switch and rotate it clockwise to start the engine. Release the key when the engine starts. Regulate the choke to keep the engine running smoothly.

IMPORTANT: To prevent overheating of the starter motor, do not engage starter longer than 10 seconds. After 10 seconds of continuous cranking, wait 60 seconds before engaging starter motor again.

4. When the engine is started for the first time, or after overhaul of the engine, operate the machine in forward and reverse for one to two minutes. Also operate the lift lever to be sure of proper operation of all parts.

⚠ CAUTION

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

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

6. Close the fuel shut-off valve before storing the machine.

CHECK INTERLOCK SYSTEM OPERATION

The purpose of the interlock system is to prevent the engine from cranking or starting unless the traction pedal is in “NEUTRAL”.

1. Check interlock operation in a wide open area free of debris and bystanders. Stop the engine.

2. Sit on the seat. Depress the traction pedal in the forward and reverse directions, while trying to start the engine. If the engine

cranks there may be a malfunction in the interlock system. Repair the system immediately. If the engine does not crank, system is operating correctly.

CAUTION

The interlock switch is for the operator's protection, so do not disconnect it. Check operation of the switch daily to assure the interlock system is operating. If the switch is defective, re;place it before operating. Regardless of whether the switch is operating correctly, replace it every two years to assure maximum safety. Do not rely entirely on safety switches—use common sense.

TOWING THE SAND PRO (Fig. 9)

In case of emergency, the SAND PRO can be towed for a short distance. However, Toro does not recommend this as a standard procedure.

IMPORTANT: Do not tow the machine faster than 3–5 kmh because drive system may be damaged. If the machine must be moved a considerable distance, transport it on a truck or trailer.

1. Reach under the front of the machine and rotate by-pass valve on the pump counterclockwise until it is fully open.

2. Before starting the engine, close the by-pass valve securely by rotating it clockwise. Do not exceed 6–10 Nm torque. Do not start the engine when the valve is open.

BREAK-IN PERIOD

1. Only 8 hours operating time is required for SAND PRO break-in period.

2. Since the first hours of operation are critical to future dependability of the machine, monitor its functions and performance closely so that minor difficulties that could lead to major problems are noted and can be corrected. Inspect the SAND PRO frequently during break-in for signs of oil leakage, loose fasteners, or any other malfunction.

OPERATING CHARACTERISTICS

Practice driving the SAND PRO because its operating characteristics are different from those of other utility vehicles. Two points to

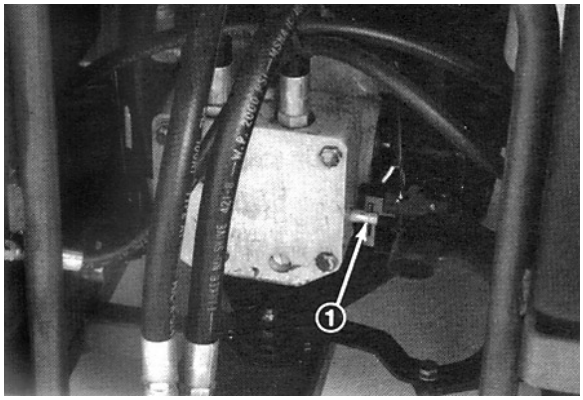


Figure 9

1. By-pass valve

consider when operating the vehicle are transmission and engine speed.

To maintain somewhat constant engine rpm, depress the traction pedal slowly. This allows the engine to keep up with ground speed of the vehicle. By contrast, pushing down quickly on the traction pedal will reduce engine rpm and, as a result, there will not be enough torque power to move the vehicle. Therefore, to transfer maximum power to the rear wheels, move the throttle to FAST and slightly depress the traction pedal.

By comparison, maximum ground speed with no load results when throttle is at FAST and the traction pedal is slowly but fully depressed. In summary, always keep engine rpm high enough to deliver maximum torque power to the rear wheels.

⚠ CAUTION

Using the machine demands attention. To prevent tipping or loss of control, use care when entering and leaving sand traps. Use extreme caution around ditches, creeks or other hazards. Use caution when operating the machine on a steep slope. Reduce speed when making sharp turns or when turning on hillsides. Avoid sudden stops and starts. Do not go from reverse to full forward without first coming to a complete stop.

INSPECTION AND CLEAN-UP

At the completion of operation, thoroughly wash the machine with a garden hose —without a nozzle—so excessive water pressure will not cause contamination and damage to seals and bearings.
Make sure cooling fins and the area around the engine cooling air intake are kept free of debris. After cleaning, inspect the machine for possible hydraulic fluid leaks, damage or wear to hydraulic and mechanical components.

Maintenance

LUBRICATION (Fig. 10)

The steering shaft grease fitting must be lubricated regularly with No. 2 General Purpose Lithium Base Grease.

1. Remove the (5) screws securing the front panel to the frame (Fig. 10). Locate grease fitting through the opening in the frame.

NOTE: We do not recommend lubricating the steering chain unless it becomes stiff because of rust. If the chain rusts, it may be lubricated lightly with a DRY-TYPE LUBRICANT.

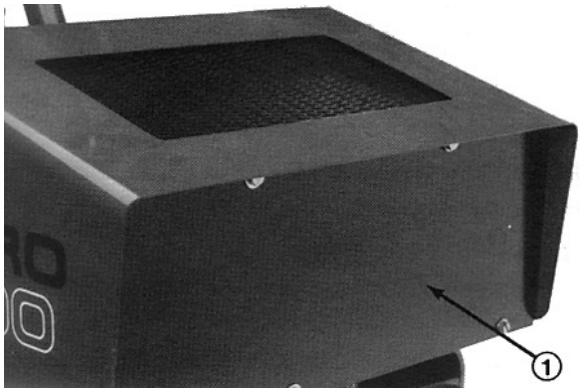


Figure 10

1. Front Panel

CHANGING CRANKCASE OIL

For new engines, change the oil after the first 5 operating hours. Thereafter, under normal conditions, change the oil after every 25 hours of engine operation. However, an engine operated in dusty or dirty conditions requires more frequent oil changes. If possible, run the engine just before changing oil. Warm oil flows more freely and carries more contaminants than cold oil.

1. Place an oil drain pan below the drain plug on bottom of crankcase. Clean the area around drain plug.

2. Remove the drain plug and allow oil to flow into drain pan. After the oil is drained, reinstall the oil drain plug.

3. Remove the dipstick/filler cap and pour approximately 2.5 l of oil having the APl “service classification” SF into the filler neck. Oil viscosity is selected according to anticipated ambient temperature. Temperature/viscosity recommendations are:

A. Above 32° F (0°C)—Use SAE 30. The use of multi-weight oil above 32° F (0°C) is not recommended due to increased oil consumption an excessive combustion chamber deposits.

B. Below 32° F (0° C)—Use SAE 5W-20 or 5W-30, and if they are not available, 10W-30 or 10W-40 are acceptable substitutes.

4. Check the oil and make sure the level is up to the FULL mark on the dipstick. Add more oil if the level is low; however, DO NOT OVERFILL.

5. Dispose of oil properly.

SERVICING AIR CLEANER (Fig. 11–12)

The foam precleaner must be cleaned and re-oiled after every 25 hours engine operation if the engine is operated in clean air conditions. However, the air cleaner must be cleaned every few hours if operating conditions are extremely dusty or sandy.

1. Remove the engine shield mounting screws and remove the shield.

2. Remove the lock nut and air cleaner cover.

3. Remove the foam precleaner by sliding it off the paper element.

4. **A.** Wash the foam precleaner in detergent and warm water.

B. Wrap the foam precleaner in cloth and squeeze it dry. Do not wring the precleaner.

C. Saturate the foam pre-cleaner in engine oil. Squeeze to remove excess oil.

5. Reinstall it on the paper cartridge.

Inspect the paper element every 50 hours of operation and replace when dirty or damaged. Do not wash the paper element or do not clean it with compressed air because damage will occur.

Note: With the air cleaner disassembled, check the air cleaner components for damage. Replace if necessary. Make sure the rubber breather tube in the base plate is securely in place or severe engine damage may occur.

6. Reinstall the element with the precleaner, element cover seal, air cleaner element cover, nut, air cleaner cover and lock nut.

7. Tighten the lock nut 1/2 to 1 turn after the nut contacts cover. Do not overtighten.

8. Reinstall the engine shield.

CHECKING AND REPLACING THE SPARK PLUG (Fig. 13)

Since the air gap between center and side electrodes increases gradually during normal engine operation, check the condition of electrodes at 100-hour intervals. The correct spark plug for the engine is

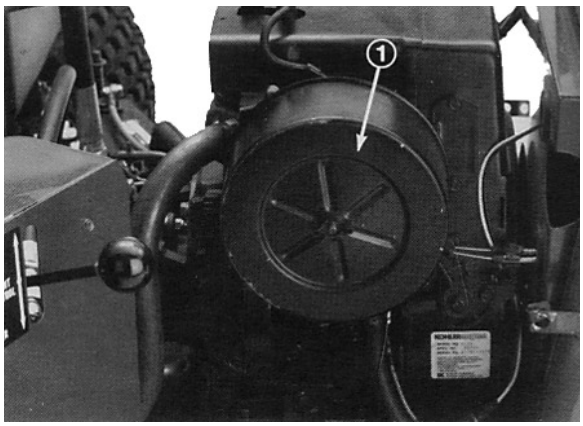


Figure 11

1. Air cleaner cover

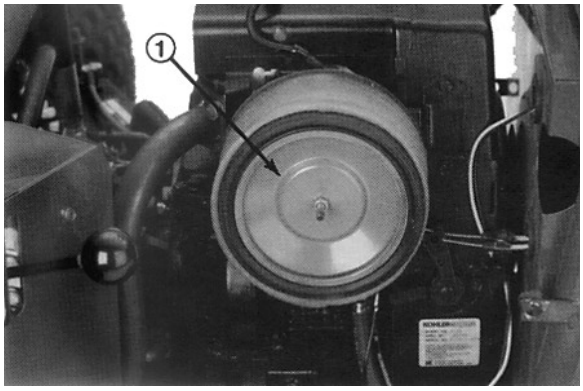


Figure 12

1. Foam precleaner

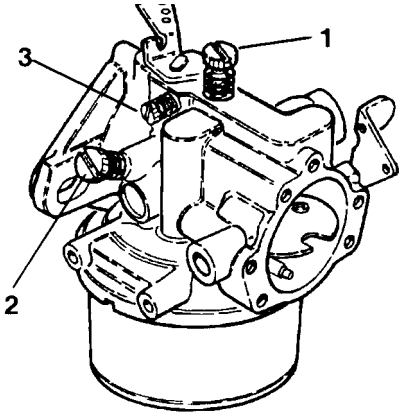


Figure 13

1. Main fuel screw
2. Idle fuel adjusting screw
3. Idle speed screw

Champion RJ-19 LM or equivalent. Set the air gap at .025 in.

1. Remove the engine shield mounting screws and remove the shield.

2. Clean the area around the spark plug so dirt does not fall into the cylinder when the plug is removed.

3. Pull the wire off the spark plug and remove the plug from the cylinder head.

4. Check the condition of the center and side electrodes to determine operating temperature of the engine.

   A. A light-brown insulator tip indicates correct spark plug and heat range.

   B. A black or oily insulator tip indicates an excessively rich fuel mixture, possibly caused by a dirty air cleaner element or a carburetor that is set too rich.

   C. A ight-gray or blistered-white insulator indicates overheating caused by a lean carburetor setting or and incorrect spark plug (heat range too high).

   IMPORTANT: A cracked, fouled or dirty spark plug must be replaced. Do not sandblast, scrape or clean electrodes by using a wire brush because grit may release from the plug and enter combustion chamber resulting in engine damage.

5. After setting the air gap at .025", install the spark plug in the cylinder head. Tighten the plug to 13-20 Nm. Push the wire onto the spark plug.

6. Reinstall the engine shield.

CLEANING THE CYLINDER HEAD FINS

To avoid overheating and possible engine damage, cooling fins on the cylinder head must be kept clean.

CHANGING HYDRAULIC SYSTEM OIL AND FILTER (Fig. 14)

The hydraulic system filter must be changed initially, after the first ten hours of operation, and thereafter every 500 hours of operation or yearly, whichever comes first. Use a genuine Toro oil filter for replacement. The hydraulic oil must be changed every 500 hours of operation or yearly, whichever comes first.

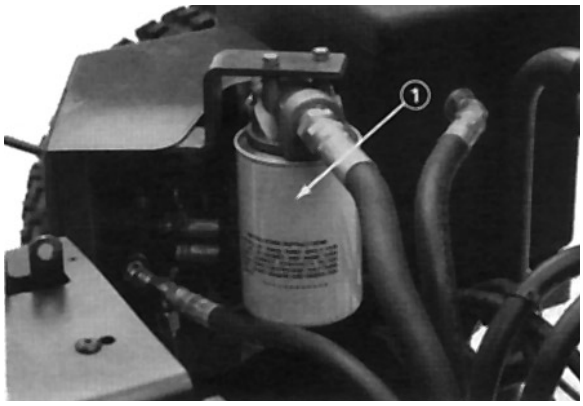


Figure 14

1. Hydraulic filter

1. Park the machine on a level surface and turn the engine off.

2. Pivot seat upward.

3. Disconnect hose from bottom fitting of the reservoir and let oil flow into drain pan. Reinstall and tighten the hose when the oil stops draining.

4. Clean the area around the hydraulic oil filter. Remove the filter from the bottom of the filter housing and allow the oil to flow into a drain pan. Use a bottom-type filter wrench. Dispose of the oil filter properly.

5. Apply a film of oil on the filter gasket. Install the filter by hand until the gasket contacts mounting head; then tighten filter an additional three-fourth's turn.

6. Fill the reservoir to proper level, refer to Check Hydraulic System.

7. Place all controls in the neutral or disengaged position and start the engine. Run the engine at its lowest possible RPM to purge the system of air.

8. Run the engine until the lift cylinder extends and retracts and forward and reverse wheel motion is achieved.

9. Stop the engine and check the oil level in the reservoir, add oil if necessary.

10. Check all connections for leaks.

11. Lower the seat.

12. Dispose of oil properly.

CHECKING HYDRAULIC LINES AND HOSES

After every 100 operating hours, check hydraulic lines and hoses for leaks, kinked lines, loose mounting supports, wear, loose fittings, weather deterioration and chemical deterioration. Make all necessary repairs before operating.

⚠ WARNING

Keep body and hands away from pin hole leaks or nozzels that eject high-pressure hydraulic fluid. Use cardboard or paper to find hydraulic leaks. Hydraulic fluid escaping under pressure can penetrate skin and cause injury. Fluid accidentally injected into the skin must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

REPLACING THE FUEL FILTER (Fig. 15)

An in-line filter is incorporated into the fuel line. Use the following procedures should replacement become necessary:

1. Close the fuel shut-off valve.

2. Clamp both fuel lines that connect to the fuel filter so gasoline cannot drain when lines are removed.

3. Loosen the hose clamps at both ends of the filter and pull the fuel lines off the filter.

4. Slide hose clamps onto the ends of the fuel lines. Push the fuel lines onto the fuel filter and secure them with hose clamps. Be sure the arrow on side of filter points toward the carburetor.

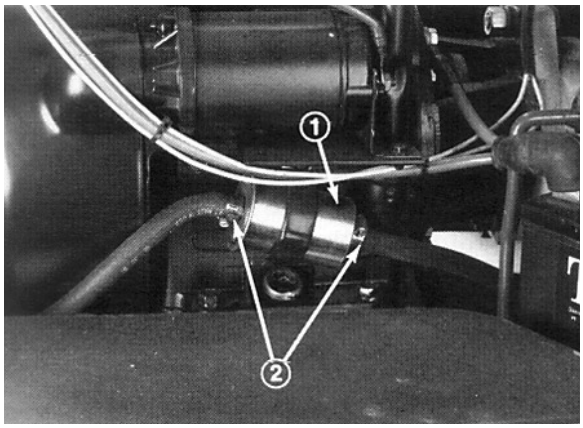


Figure 15

1. Fuel filter
2. Hose clamps

BATTERY STORAGE

If the machine will be stored for more than 30 days, remove the battery and charge it fully. Either store it on the shelf on the machine. Leave the cables disconnected if stored on the machine. Store the battery in a cool atmosphere to avoid quick deterioration of the charge in the battery. To prevent the battery from freezing, make sure it is fully charged. The specific gravity of a fully charged battery is 1.250.

BATTERY CARE

1. Battery electrolyte level must be properly maintained and the top of the battery kept clean. lf the machine is stored in a location where temperatures are extremely high, the battery will run down more rapidly than if the machine is stored in a location where temperatures are cool.

2. Keep the top of battery clean by washing periodically with a

brush dipped in ammonia or bicarbonate of soda solution. Flush the top surface with water after cleaning. Do not remove the fill cap while cleaning.

3. Battery cables must be tight on terminals to provide good electrical contact.

4. If corrosion occurs at the terminals, disconnect the cables, negative (–) cable first and scrape clamps and terminals separately. Reconnect cables, positive (+) cable first and coat terminals with petroleum jelly.

5. Check the electrolyte level every 25 operating hours or, if the machine is in storage, every 30 days.

6. Maintain cell level with distilled or demineralized water. Do not fill cells above the fill line.

IDENTIFICATION AND ORDERING

MODEL AND SERIAL NUMBERS

The SAND PRO 2000 has two identification numbers: a model number and a serial number. These numbers are stamped into a plate located on left fender. In any correspondence concerning the unit, supply the model and serial numbers to ensure correct information and replacement parts are obtained.

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

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

1. Model and serial numbers.

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


TORO®