Form No. 3324-570 Rev A

TORO®

Workman® 2100

Air-Cooled Gasoline Utility Vehicle

07253TC—200000001 and Up

Operator's Manual

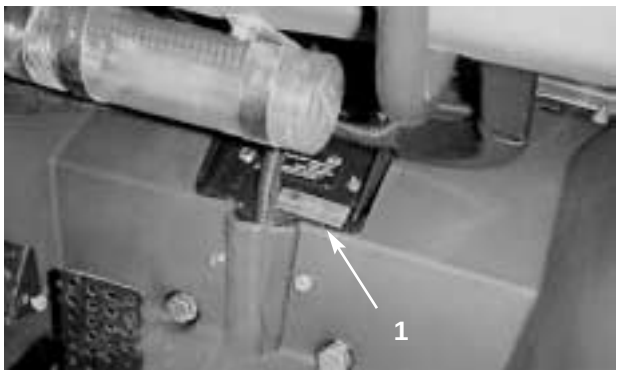
CE

Introduction

Thank you for purchasing a Toro product.

All of us at Toro want you to be completely satisfied with your new product, so feel free to contact your local Authorized Service Dealer for help with service, genuine replacement parts, or other information you may require.

Whenever you contact your Authorized Service Dealer or the factory, always know the model and serial numbers of your product. These numbers will help the Service Dealer or Service Representative provide exact information about your specific product. You will find the model and serial number plate located in a unique place on the product as shown below.



1. Model and Serial Number Plate

For your convenience, write the product model and serial numbers in the space below.

Model No: _____

Serial No.: _____

Read this manual carefully to learn how to operate and maintain your product correctly. Reading this manual will help you and others avoid personal injury and damage to the product. Although we design, produce and market safe, state-of-the-art products, you are responsible for using the product properly and safely. You are also responsible for training persons, who you allow to use the product, about safe operation.

The warning system in this manual identifies potential hazards and has special safety messages that help you and others avoid personal injury, even death. DANGER, WARNING and CAUTION are signal words used to identify the level of hazard. However, regardless of the hazard, be extremely careful.

DANGER signals an extreme hazard that will cause serious injury or death if the recommended precautions are not followed.

WARNING signals a hazard that may cause serious injury or death if the recommended precautions are not followed.

CAUTION signals a hazard that may cause minor or moderate injury if the recommended precautions are not followed.

Two other words are also used to highlight information. “Important” calls attention to special mechanical information and “Note” emphasizes general information worthy of special attention.

The left and right side of the machine is determined from the normal operator’s position.

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

Contents

Safety

Safe Operating Practices

The WORKMAN® 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, maintenance and storage of the machine. Improper use or maintenance of the machine can result in injury or death.

This is a specialized utility vehicle designed for off-road use. its ride and handling will have a different feel than what drivers experience with passenger cars or trucks. So take time to become familiar with your WORKMAN®. Not all of the attachments that adapt to the WORKMAN® are covered in this manual. See the specific Operator's Manual provided with the attachment for additional safety instructions. READ THESE MANUALS.

TO REDUCE THE POTENTIAL FOR INJURY OR DEATH, COMPLY WITH THE FOLLOWING SAFETY INSTRUCTIONS.

Supervisor's Responsibilities

1. Make sure operators are thoroughly trained and familiar with the Operator's Manual and all labels on the vehicle.

2. Be sure to establish your own special procedures and work rules for unusual operating conditions (e.g. slopes too steep for vehicle operation). Use the 3rd High Lockout switch if high speed could result in a safety or vehicle abuse situation.

Before Operating

3. Operate the machine only after reading and understanding the contents of this manual. A replacement manual is available by sending complete model and serial number to: The Toro Company, 8111 Lyndale Avenue South, Minneapolis, Minnesota 55420.

4. Never allow children to operate the vehicle. Never allow adults to operate it without proper instructions. Only trained and authorized persons should operate this vehicle. Make sure all operators are physically and mentally capable of operating the vehicle. Anyone who operates the vehicle should have a motor vehicle license.

5. This vehicle is designed to carry only you, the operator, and one passenger in the seat provided by the manufacturer. Never carry any other passengers on the vehicle.

6. Never operate the vehicle when under the influence of drugs or alcohol.

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

8. 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.

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

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

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

12. Before operating the vehicle, always check all parts of the vehicle and any attachments. If something is wrong, stop using vehicle. Make

sure problem is corrected before vehicle or attachment is operated again.

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

A. Use an approved gasoline container.

B. Do not remove cap from fuel tank when engine is hot or running.

C. Do not smoke while handling gasoline.

D. Fill fuel tank outdoors and to about one inch below top of tank (bottom of filler neck). Do not overfill.

E. Wipe up any spilled gasoline.

14. Check the safety interlock system daily for proper operation. If a switch should malfunction, replace the switch before operating machine. After every two years, replace the interlock switches in the safety system, whether they are working properly or not.

WARNING

POTENTIAL HAZARD
Engine exhaust contains carbon monoxide, which is an odorless, deadly poison.

WHAT CAN HAPPEN
Carbon monoxide can kill you.

HOW TO AVOID THE HAZARD
Do not run the engine indoors or in an enclosed area.

While Operating

15. Operator and passenger should remain seated whenever the vehicle is in motion. Operator should keep both hands on steering wheel, whenever possible and passenger should use the hand holds provided. Keep arms and legs within the vehicle body at all times. Never carry passengers in box or on attachments. Remember your passenger may not be expecting you to brake or turn and may not be ready.

16. Never overload your vehicle. Name plate (located under dash on passenger side) shows load limits for vehicle. Never overfill attachments or exceed the vehicle maximum gross vehicle weight.

17. When starting the engine:

A. Sit on operator's seat and engage the parking brake.

B. Disengage PTO (if so equipped) and return the hand throttle lever to OFF position (if so equipped).

C. Move shift lever to NEUTRAL and depress clutch pedal.

D. Keep foot off the accelerator pedal.

E. **Diesel models only**: Turn ignition key to ON, hold glow switch ON (maximum 30 seconds.)

F. Turn ignition key to START.

18. Using the machine demands attention. Failure to operate vehicle safely may result in a accident, tip over of vehicle and serious injury or death. Drive carefully. To prevent tipping or loss of control:

A. Use extreme caution, reduce speed and maintain a safe distance around sand traps, ditches, creeks, ramps, any unfamiliar areas or other hazards.

B. Watch for holes or other hidden hazards.

C. Use caution when operating vehicle on a steep slope. Normally travel straight up and down slopes. Reduce speed when making sharp turns or when turning on hillsides. Avoid turning on hillsides whenever possible.

D. Use extra caution when operating vehicle on wet surfaces, at higher speeds or with a full load. Stopping time will increase with a full

load. Shift into a lower gear before starting up or down a hill.

E. When loading bed, distribute load evenly. Use extra caution if the load exceeds the dimensions of the vehicle/bed. Operate vehicle with extra caution when handling off-center loads that cannot be centered. Keep loads balanced and secure to prevent them from shifting.

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

G. Do not attempt sharp turns or abrupt maneuvers or other unsafe driving actions that may cause a loss of vehicle control.

H. When dumping, do not let anyone stand behind vehicle and do not dump load on any one's feet. Release tailgate latches from side of box, not from behind.

I. Before backing up, look to the rear and assure no one is behind. Back up slowly.

J. Watch out for traffic when near or crossing roads. Always yield the right of way to pedestrians and other vehicles. This vehicle is not designed for use on streets or highways. Always signal your turns or stop early enough so other persons know what you plan to do. Obey all traffic rules and regulations.

K. Never operate vehicle in or near an area where there is dust or fumes in the air which are explosive. The electrical and exhaust systems of the vehicle can produce sparks capable of igniting explosive materials.

L. Always watch out for and avoid low over hangs such as tree limbs, door jambs, over head walkways, etc. Make sure there is enough room over head to easily clear the vehicle and your head.

M. If ever unsure about safe operation, STOP WORK and ask your supervisor.

19. Do not touch engine, transaxle, radiator, muffler or muffler shield while engine is running or soon after it has stopped because these areas may be hot enough to cause burns.

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

21. Before getting off the seat:

A. Stop movement of the machine.

B. Lower bed.

C. Shut engine off and wait for all movement to stop.

D. Set the parking brake.

E. Remove key from ignition.

F. Block wheels if machine is on an incline.

Maintenance

22. Before servicing or making adjustments to the machine, stop engine, set the parking brake and remove key from ignition to prevent accidental starting of the engine.

23. Never work under a raised bed without placing bed safety support on fully extended cylinder rod.

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

25. 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.

26. Before disconnecting or performing any work on the hydraulic system, all pressure in system must be relieved by stopping engine, cycling dump valve from raise to lower and/or lowering box and attachments. Place the remote hydraulics lever in the float position. If box must be in raised position, secure with safety support.

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

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

29. 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.

30. Do not overspeed engine by changing governor settings. Maximum engine speed is 3650 rpm. To assure safety and accuracy, have an Authorized TORO Distributor check maximum engine speed with a tachometer.

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

32. 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. Altering this vehicle in any manner may affect the vehicle's operation, performance, durability or its use may result in injury or death. Such use could void the product warranty of The TORO Company.

33. This vehicle should not be modified without the TORO Company's authorization. Direct any inquiries to:

The TORO Company
Commercial Division
Vehicle Engineering Department
300 West 82nd St.
Bloomington, Minnesota 55420 USA

Sound Pressure Level

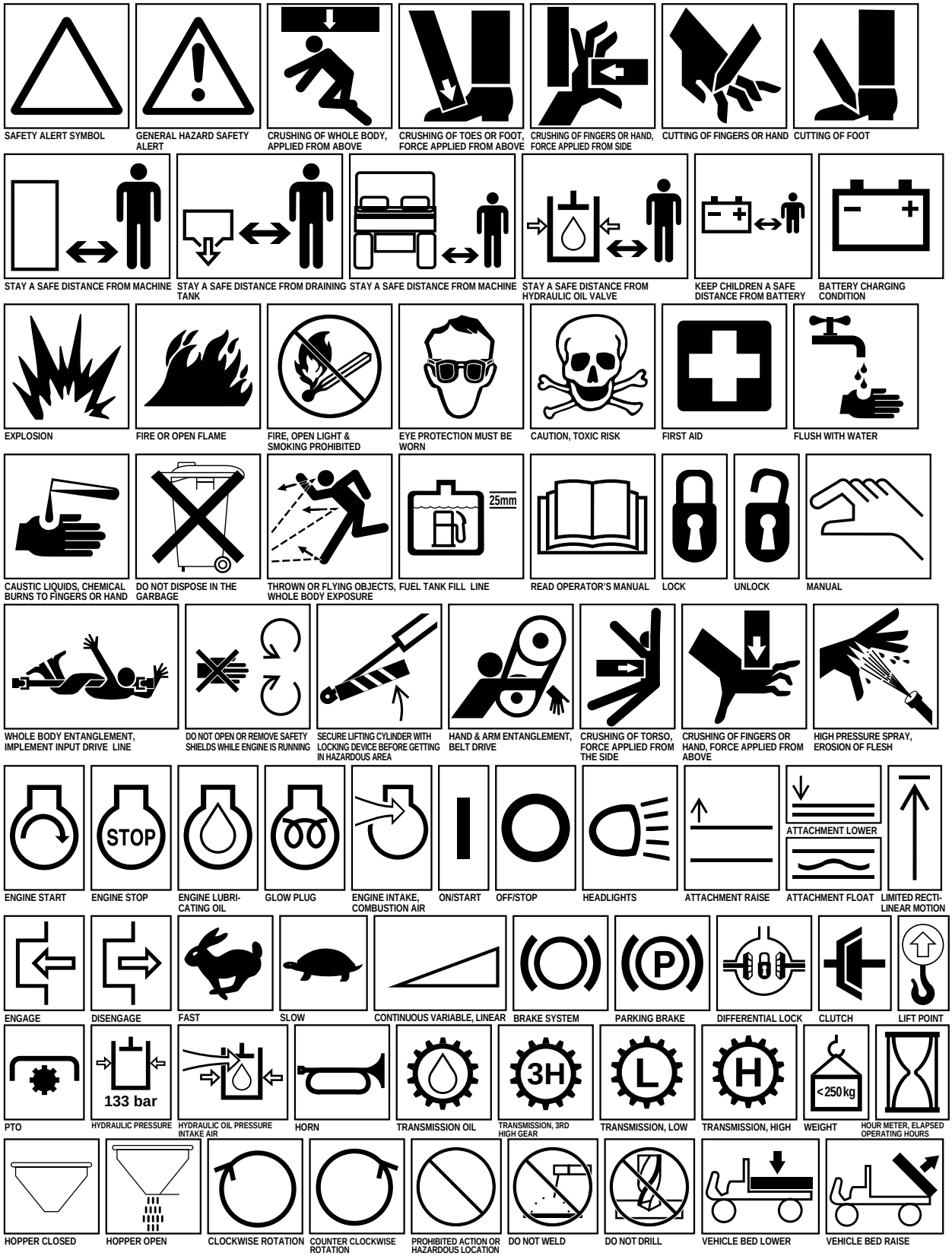
This unit has an equivalent continuous A-weighted sound pressure at the operator ear of: 80 dB(A) based on measurements of identical machines per J1174-MAR 85 procedures.

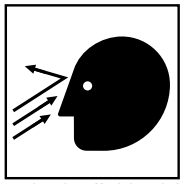
Vibration Level

This unit does not exceed a vibration level of 2.5 m/s^2 at the hands based on measurements of identical machines per ISO 5349 procedures.

This unit does not exceed a vibration level of 2.5 m/s^2 at the posterior based on measurements of identical machines per ISO 2631 procedures.

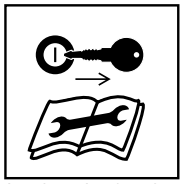
Symbol Glossary




THROWN OR FLYING OBJECTS, FACE EXPOSURE


SEVERING OF FINGERS OR HAND, ENGINE FAN


RIDING ON THIS MACHINE IS ALLOWED ONLY ON A PASSENGER SEAT & ONLY IF THE DRIVER'S VIEW IS NOT HINDERED

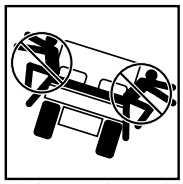

SHUT OFF ENGINE & REMOVE KEY BEFORE PERFORMING MAINTENANCE OR REPAIR WORK


MACHINE TIPPING


USE CAUTION ON STEEP HILLS


MACHINE TIPPING

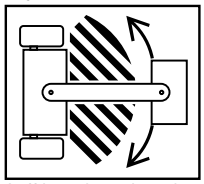

MACHINE TIPPING

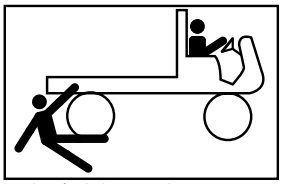

DO NOT JUMP FROM TIPPING MACHINE

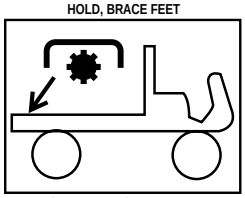

HOLD TIGHTL & BRACE FEET

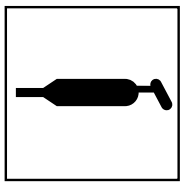

LEAN AWAY FROM TIP

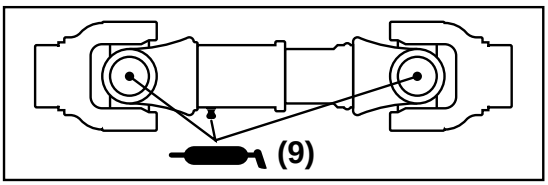

HOLD HIP RESTRAINT & HAND HOLD, BRACE FEET


STAY CLEAR OF ARTICULATION AREA WHILE ENGINE IS RUNNING

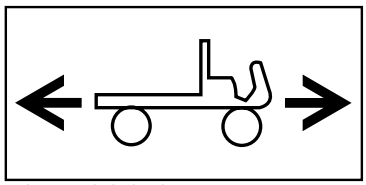

RUNOVER/BACKOVER, VEHICLE

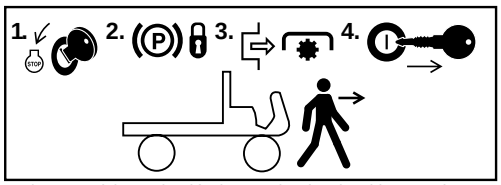

REAR POWER TAKE OFF


GREASE LUBRICATION POINT

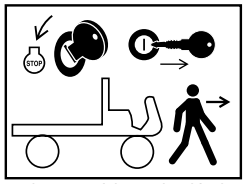


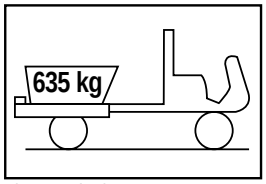
GREASE LUBRICATION POINT


MACHINE DIRECTION OF MOVEMENT

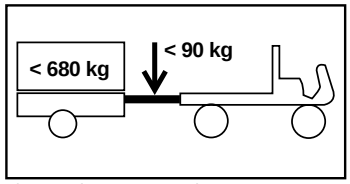


BEFORE LEAVING OPERATOR POSITION, TURN OFF IGNITION, LOCK PARKING BRAKE, DISENGAGE PTO, REMOVE KEY FROM IGNITION.

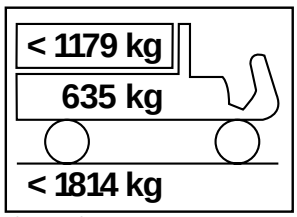

BEFORE LEAVING OPERATOR POSITION, TURN OFF IGNITION AND REMOVE KEY.



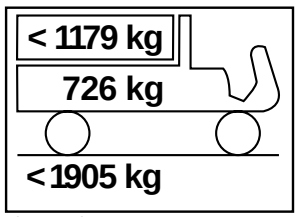
LOAD RATING, HOPPER



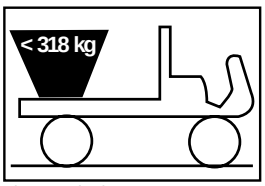
LOAD RATING, TRAILER AND HITCH



LOAD RATING



LOAD RATING



LOAD RATING, HOPPER

Specifications

Type: 4-wheel, step-through, two-person vehicle.

Engine: Briggs & Stratton, V-twin cylinder, 4-cycle, OHV, air-cooled, gas engine, 11.9 KW (16 hp) @ 3600 rpm, 480 cc (29.3 cu. in.) displacement, 1.4 L oil capacity. Electronic ignition. Full-pressure lubrication, oil filter. Remote air cleaner with replaceable element.

Battery: 12 volt with 280 cold cranking amps @ –17°C (0° F).

Fuel System: Gasoline tank capacity is 26.5 L (7 gallons).

Transaxle: Rear transaxle configuration, single speed forward and reverse gearbox with differential.

Frame: Welded, high-strength steel channels and tubes.

Front Suspension: Independent “A” frame control arm with integral suspension.

Rear Suspension: Solid mounted transaxle.

Steering System: Manual; non-adjustable column

Tires: Front tires: 22.5” x 10”-8, 4-ply rating, turf tread. **Rear tires:** 25” x 12”-9, 4-ply rating, turf tread.

Brakes: 16 cm (6.3”) rear drum mechanical actuator.

Seats: Bucket seats with hip restraint; tip forward for storage access.

Roll-Over Protection System/Seat Belts: optional

Controls: Foot-operated accelerator, brake pedal, and parking brake; throttle/brake release feature; ignition switch, light switch, choke knob, power accessory plug, and forward/reverse gear shift selector.

Gauges: Hour meter, oil pressure warning light and fuel gauge.

Lights: Twin halogen headlights.

Tow Hitch: Hitch has a hole for ball or pin.

Cargo Box: Rotational molded plastic box with manual dump, maximum tip angle of 46 degrees.

Forward Speed: 29 kmh **(**18 mph) maximum

General Specifications (approximately):

Base weight: Dry 373 Kg (1000 lbs).
Rated capacity: 615Kg (1650 lbs.) (includes 75 Kg. (200 lb.) operator and 200 75 Kg (200 lb.) passenger)

Maximum gross vehicle weight: 989 Kg. (2650 lbs).

Tow Capacity:

Standard hitch: Tongue weight 37 Kg. (50 lbs).

Maximum trailer weight: 149 Kg. (400 lbs).

Heavy-Duty hitch: Tongue weight 74 Kg. (100 lbs).

Maximum trailer weight: 298 Kg. (800 lbs).

Overall width: 150cm (59”)

Overall length: 292cm (115”)

Ground clearance: 16.8cm (6.6”) w/no load or operator

Wheel base: 200cm (79”)

Wheel tread (center line to center line): 124.5cm (49”) front, 122.6cm (48.25”) rear

Cargo box length: 117 cm (46”) inside, 130cm (51”) outside

Cargo box width: 124.5cm (49”) inside, 137cm (54”) outside

Cargo box height: 25.4cm (10”) inside

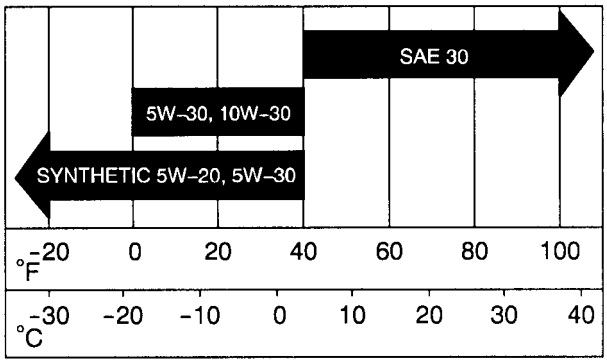
Specifications and design subject to change without notice.

Before Operating

Check the Crankcase Oil

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

Oil Type: Detergent oil (API service SE, SF, or SG)
Viscosity: See table below



1. Position the machine on a level surface.

2. Remove the dipstick and wipe it with a clean cloth (Fig. 1). Insert the dipstick into the tube and make sure it is seated fully. Remove the dipstick and check the level of oil.

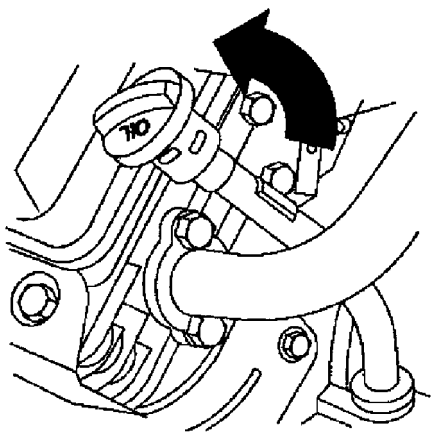


Figure 1

1. Dipstick

3. If the oil level is low, remove the filler cap from the valve cover (next to the dipstick) and pour oil into the opening until the oil level is up to the "FULL" mark on the dipstick. Add the oil slowly and check the level often during this process. **Do not overfill.**

4. Install the dipstick firmly in place.

Fuel Tank

Recommended Gasoline

The Toro Company strongly recommends the use of fresh, clean, UNLEADED regular grade gasoline in Toro gasoline powered products. Unleaded gasoline bums cleaner, extends engine life, and promotes good starting by reducing the build-up of combustion chamber deposits. Minimum Octane rating of 85.

IMPORTANT: Never use gasoline containing METHANOL, gasoline containing more than 10% ethanol, gasoline additives, or white gas because engine fuel system damage could result.

DANGER

POTENTIAL HAZARD
In certain conditions gasoline is extremely flammable and highly explosive.

WHAT CAN HAPPEN
A fire or explosion from gasoline can burn you, others, and cause property damage.

HOW TO AVOID THE HAZARD

- Use a funnel and fill the fuel tank outdoors, in an open area, when the engine is cold. Wipe up any gasoline that spills.
- Do not fill the fuel tank completely full. Add gasoline to the fuel tank until the level is no higher than 1" (25 mm) below the bottom of the filler neck. This empty space in the tank allows gasoline to expand.
- Never smoke when handling gasoline, and stay away from an open flame or where gasoline fumes may be ignited by a spark.
- Store gasoline in an approved container and keep it out of the reach of children. Never buy more than a 30-day supply of gasoline.

DANGER

POTENTIAL HAZARD
In certain conditions, gasoline is extremely flammable and highly explosive.

WHAT CAN HAPPEN
A fire or explosion from gasoline can burn you, others, and cause property damage.

HOW TO AVOID THE HAZARD

- Always place gasoline containers on the ground away from your vehicle before filling.
- Do not fill gasoline containers inside a vehicle or on a truck or trailer bed because interior carpets or plastic truck bed liners may insulate the container and slow the loss of any static charge.
- When practical, remove gas-powered equipment from the truck or trailer and refuel the equipment with its wheels on the ground.
- If this is not possible, then refuel such equipment on a truck or trailer from a portable container, rather than from a gasoline dispenser nozzle.
- If a gasoline dispenser nozzle must be used, keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete.

Filling the Fuel Tank

Fuel tank capacity is approximately 26.5 L (7 gallons).

1. Shut the engine off and set the parking brake.

2. Clean the area around the fuel tank cap (Fig. 2).

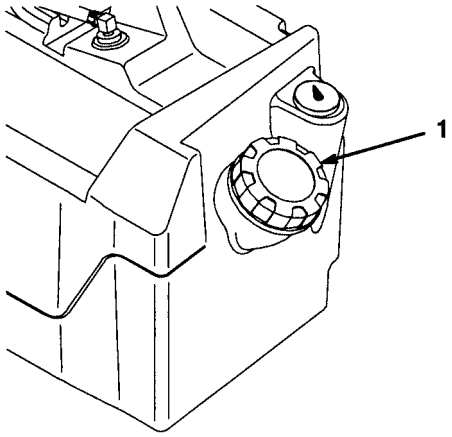


Figure 2

1. Fuel tank cap

3. Remove the fuel tank cap.

4. Fill the tank to about one inch below the top of the tank, (bottom of the filler neck). This space in the tank allows gasoline to expand. **Do not overfill.**

5. Install the fuel tank cap securely. Wipe up any fuel that may have spilled.

Check The Shift Cable Spring Adjustment

1. Shift the gear selector to FORWARD. Adjust the non-compressed spring height to 25–28mm (1–1-1/8”) (Fig. 3).

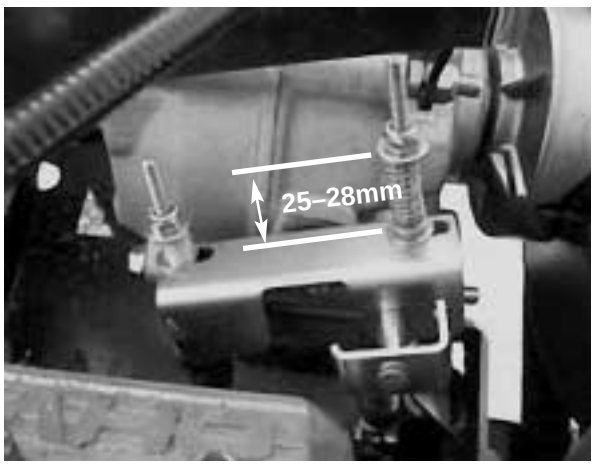


Figure 3

2. Shift the gear selector to REVERSE. Adjust the non-compressed spring height to 25–28mm (1” to 1-1/8”).

Check Tire Pressure

Check tire pressure every 8 hours or daily to assure proper levels.

Air pressure range in front and rear tires is 55–103 kPa (8–15 psi).

The needed air pressure is determined by the payload carried. The ***lower*** the air pressure, the less the compaction and tire marks are minimized. Lower pressure should not be used for heavy payloads at high speeds.

Higher pressures should be used for heavier payloads at higher speeds. Do not exceed the maximum pressure.

Operation

Think Safety First

Please carefully read all the safety instructions and symbols in the safety section. Knowing this information could help you or bystanders avoid injury.

Controls

Accelerator Pedal

The accelerator pedal (Fig. 4) gives the operator the ability to vary ground speed of the vehicle. Depressing the pedal starts the engine. Depressing the pedal farther increases ground speed. Releasing the pedal will slow the vehicle and the engine will stop running.

Brake Pedal

The brake pedal is used to stop or slow the vehicle (Fig. 4).

CAUTION

POTENTIAL HAZARD
Brakes can become worn or can be misadjusted.

WHAT CAN HAPPEN
Personal injury may result

HOW TO AVOID THE HAZARD
If the brake pedal travels to within 2.5 cm (1”) of the vehicle floor board, the brakes must be adjusted or repaired.

Parking Brake

The parking brake is a small plate at the top of the brake pedal (Fig. 4). Whenever the engine is shut off, the parking brake must be engaged to prevent accidental movement of the vehicle. To engage the parking brake, step on the brake pedal firmly and roll forward with the top of your foot. To disengage, depress the accelerator pedal. If the vehicle is parked on a steep grade, make sure the parking brake is applied. Place blocks at the downhill side of the wheels.

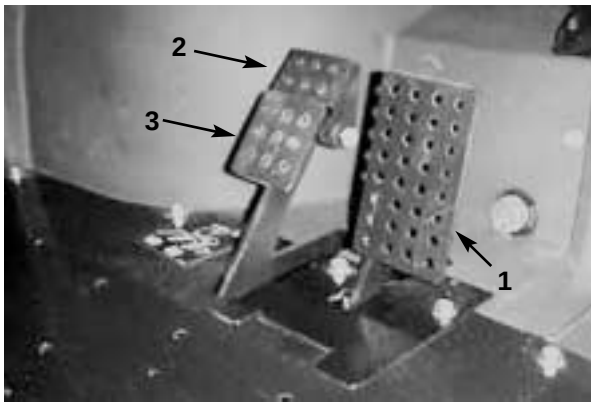


Figure 4

1. Accelerator pedal
2. Brake pedal
3. Parking brake

Choke Control

The choke control is located below and to the right of the operator’s seat. To start a cold engine, close the carburetor choke (Fig. 5) by pulling the choke control outward to ON position. After the engine starts, regulate the choke to keep the engine running smoothly. As soon as possible, open the choke by pushing the control in to the OFF position. A warm engine requires little or no choking.

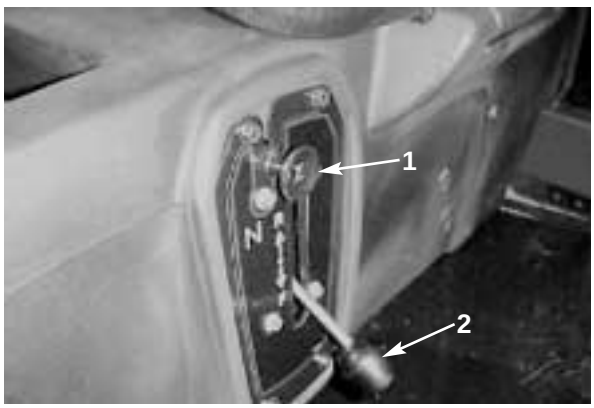


Figure 5

1. Choke
2. Gear shift selector

Gear Shift Selector

The gear shift selector moves the vehicle in the desired direction forward or reverse (Fig. 5). The vehicle will start in either direction.

Note: If the gear shift selector is in REVERSE when the ignition is turned on, a buzzer will sound to warn the operator.the

IMPORTANT: The vehicle should always be stopped before changing the gear selection and direction.

Ignition Switch

The ignition switch (Fig. 6), used to start and stop the engine, has two positions: OFF and ON. Turn the key clockwise-ON position-to allow operation. When the vehicle is stopped, turn the key counterclockwise to THE OFF position. Remove the key from the ignition.

Hour Meter

The hour meter (Fig. 6) indicates the total number of hours the engine is running. The hour meter starts to function whenever the accelerator is depressed.

Oil Light

The oil light warns the operator if the engine oil pressure drops below a safe level (Fig. 6). If the light comes on, the oil level should be checked and oil added if necessary; see Engine Oil in the Maintenance section.

Light Switch

Toggle switch to activate headlights. Push to turn lights “ON” (Fig. 6).

Power Point

The power point is used to power optional electrical accessories (Fig. 6).

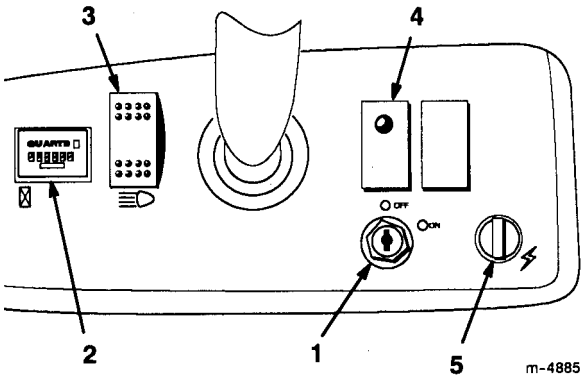


Figure 6

1. Ignition switch
2. Hour meter
3. Light switch
4. Oil light
5. Power point

Fuel Gauge

The fuel gauge (Fig. 7) shows amount of fuel in the tank.

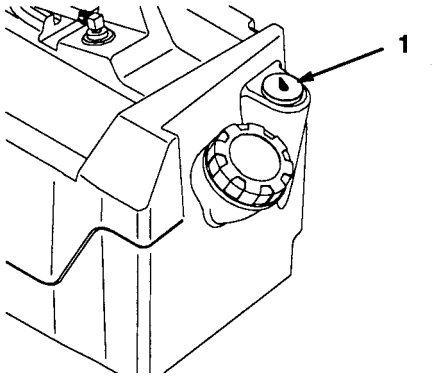


Figure 7

1. Fuel gauge

Passenger Hand Holds

The passenger hand holds are located on the right side of the dash panel and at the outside of each seat (Fig. 8).

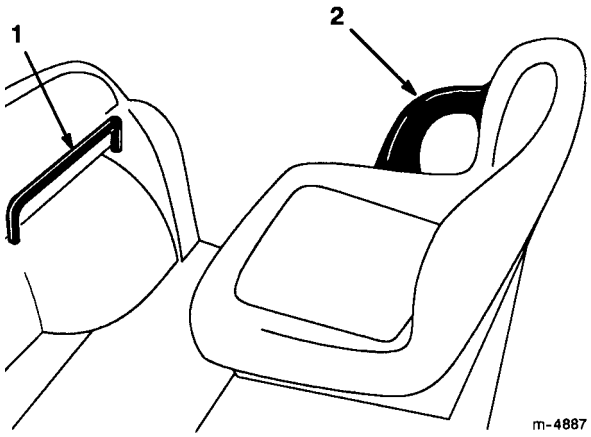


Figure 8

1. Passenger hand hold
2. Hip restraint

Pre-Starting Checks

Safe operation begins before taking the vehicle out for a day's work. You should check these items each time:

1. Check tire pressure.

Note: These tires are different than car tires, they require less pressure to minimize turf compaction and damage.

2. Check all fluid levels and add the appropriate amount of Toro specified fluids, if any are found to be low.

3. Check brake pedal operation.

4. Check to see that the lights are working.

5. Turn the steering wheel to the left and right to check steering response.

6. Check for oil leaks, loose parts and any other noticeable malfunctions. Make sure the engine is off and all moving parts have stopped before checking for oil leaks, loose parts and other malfunctions

If any of the above items are not correct, notify your mechanic or check with your supervisor before taking the vehicle out for the day. Your supervisor may want you to check other items on a daily basis, so ask what your responsibilities are.

Starting The Engine

1. Sit in the operator's seat and disengage the parking brake.

2. Insert the key into the ignition switch and turn it clockwise to the ON position.

Note: If the gear shift selector is in REVERSE, the buzzer will sound to warn the operator.

3. Move gear shift selector to the desired position.

4. Slowly step on the accelerator pedal.

Note:The parking brake will automatically disengage when the accelerator pedal is depressed.

Note: If the engine is cold, depress and hold the accelerator pedal about half way down and pull the choke knob out to the ON position.

IMPORTANT: Do not attempt to push or tow the vehicle to get it started.

Stopping The Vehicle

To stop the machine, remove your foot from the accelerator pedal and slowly depress the brake pedal.

Parking The Vehicle

1. Engage the parking brake and turn the ignition key to OFF.

2. Remove the key from switch to prevent accidental starting.

Cargo Bed

Raising the Bed

1. Slide the latch upward toward the top of the cutout in the bed frame (Fig. 9).

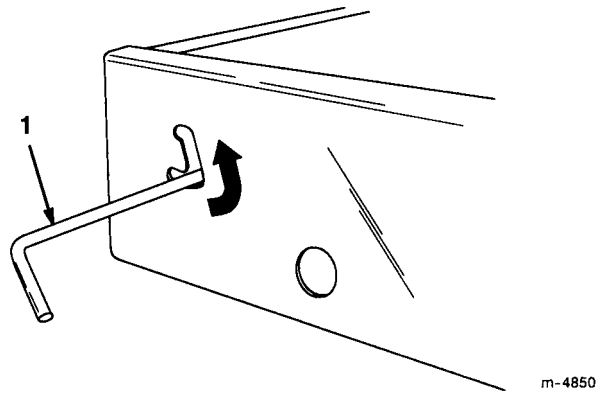


Figure 9

1. Latch

2. Lift up on the latch with one hand while raising the bed with your other hand.

3. Pull up on prop rod to lock in place (Fig. 10).

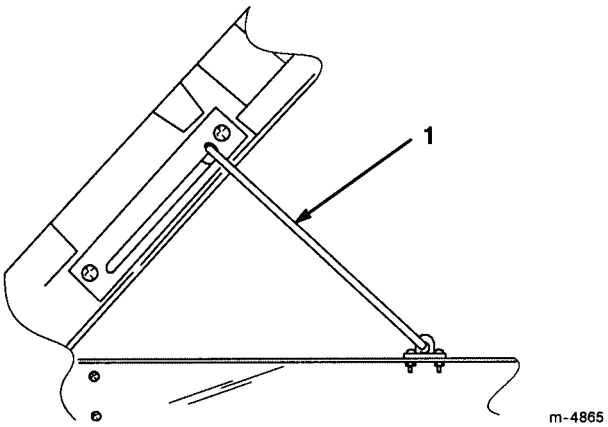


Figure 10

1. Prop rod

Lowering the Bed

1. Lift up the bed slightly with one hand while pressing down on the prop rod.

2. Lower the bed until the latch engages.

3. To secure the bed tightly to the bed frame, move the latch to the lower section of the cutout.

Tailgate Latches

1. To open the tailgate latches, push the latches toward the outside of the vehicle (Fig. 11).

2. Lift the latches up. The latches will spring out toward the center of the tailgate. Slowly lower the tailgate.

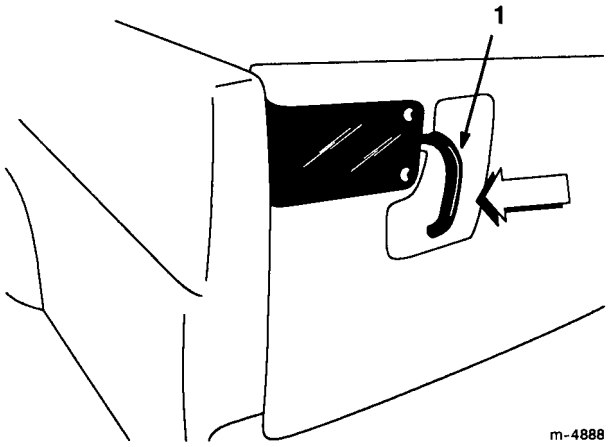


Figure 11

1. Tailgate latch

3. To close the tailgate latches, lift the handles upward and slide them toward the outside of the vehicle.

4. Push the latch handles downward to secure the latch and tailgate.

New Vehicle Break-in

To provide proper performance and long vehicle life, follow these guidelines for the first 100 operating hours.

- Check the fluid and engine oil levels regularly and be alert for indications of overheating in any component of the vehicle.
- After starting a cold engine, let it warm up for about 15 seconds before accelerating.
- Avoid hard braking situations for the first several hours of new vehicle brake-in operation. New brake linings may not be at optimum

performance until several hours of use has caused the brakes to become burnished (broke-in).

- Vary vehicle speeds during operation. Avoid fast starts and quick stops.
- A break-in oil for the engine is not required. Original engine oil is the same type specified for regular oil changes.
- Refer to the *Maintenance* section of the operator's manual for any special low hour checks.
- Check front suspension positioning and adjust if necessary; refer to *Adjusting Front Suspension*.

Operating Characteristics

The vehicle is designed with safety in mind. It has four wheels for added stability. It uses familiar automotive style controls, including the steering wheel, brake pedal, and accelerator pedal. It is important to remember, however, that this vehicle is not a passenger car. It is a work vehicle and not designed for use on roadways.

The vehicle has special tires, a center twisting assembly, and other features that give it extra traction. These features add to the versatility of the vehicle. You must keep in mind that the vehicle is not a recreation vehicle. It is not an all terrain vehicle. And, it is definitely not meant for "stunt driving" or "horsing around." It is a work vehicle, not a play vehicle. Children should not be allowed to operate the vehicle. Anyone who operates the vehicle should have a motor vehicle license.

If you are not experienced at driving the vehicle, practice driving it in a safe area away from other people. Be sure you are familiar with all the vehicle's controls, particularly those used for braking, steering and transmission shifting. Learn how your vehicle handles on different surfaces. Your operating skills will improve with experience, but as in operating any vehicle, take it easy as you begin. Be sure you know how to stop quickly in an emergency. If you need help, ask your supervisor for assistance.

Many factors contribute to accidents. You have control over several of the most important. Your actions, such as driving too fast for conditions, braking too fast, turning too sharp, and combinations of these, are frequent cause of accidents.

One of the major causes of accidents is fatigue. Be sure to take occasional breaks. It is very important that you stay alert at all times.

Never operate the vehicle, or any equipment, if you are under the influence of alcohol or other drugs. Even prescription drugs and cold medicines can cause drowsiness. Read the label on the medicine or check with your doctor or pharmacist if you are unsure about a certain medication.

One of the most important rules to follow is to go slower in unfamiliar areas. It is surprising how much damage and injury common things can cause. Tree branches, fences, wires, other vehicles, tree stumps, ditches, sand traps, streams, and other things found in most parks and golf courses can be hazardous to the operator and passenger.

Avoid driving when it is dark, especially in unfamiliar areas. If you must drive when it is dark, be sure to drive cautiously, use the head lights, and even consider adding additional lights.

Passengers

Whenever you have a passenger riding in the vehicle make sure he or she is holding on securely. Drive slower and turn less sharply because your passenger does not know what you are going to do next and may not be prepared for turning, stopping, accelerating, and bumps.

You and your passenger should remain seated at all times, keeping arms and legs inside the vehicle. The operator should keep both hands on steering wheel, whenever possible and passenger should use the hand holds provided.

There should never be passengers in the cargo box. The vehicle is meant to have one driver and only one passenger—no more.

Speed

Speed is one of the most important variables leading to accidents. Driving too fast for the conditions can cause you to lose control and have an accident. Speed can also make a minor accident worse. Driving head-on into a tree at slow speed can cause injury and damage, but, driving into a tree at high speed can destroy the vehicle and kill you and your passenger.

Never drive too fast for the conditions. If there is any doubt about how fast to drive, slow down.

Turning

Turning is another important variable leading to accidents. Turning too sharply for the conditions or speed can cause the vehicle to lose traction and skid, or even tip over.

Wet, sandy and slippery surfaces make turning more difficult and risky. The faster you are going, the worse this situation becomes so, slow down before turning.

Braking

It is good practice to slow down before you get near an obstacle. This gives you extra time to stop or turn away. Hitting an obstacle can damage the vehicle and its contents. More important, it can injure you and your passenger.

Gross vehicle weight has a major impact on your ability to stop and/or turn. Heavier loads and heavier attachments make a vehicle harder to stop or turn. The heavier the load, the longer it takes to stop.

The braking characteristics also change with no bed or attachment on the vehicle. Fast stops may cause the rear wheels to lock up, which may affect the control of the vehicle. It is a good idea to decrease vehicle speed with no bed or attachment.

Turf and pavement are much slipperier when they are wet. It can take 2 to 4 times as long to stop on wet surfaces as on dry surfaces.

If you drive through standing water deep enough to get the brakes wet, they will not work well until they are dry. After driving through water, you should test the brakes to make sure they work properly. If they do not, drive slowly while putting light pressure on the brake pedal. This will dry the brakes out.

WARNING

POTENTIAL HAZARD

- Operating the vehicle on a hill may cause tipping or rolling of the vehicle.
- The engine may stall or you could lose headway on a hill.

WHAT CAN HAPPEN

The vehicle may tip or roll causing personal injury.

HOW TO AVOID THE HAZARD

- If the engine stalls or you lose headway on a hill, never attempt to turn the vehicle around.
- Always back straight down a hill in reverse gear.
- Never back down a hill using only the brakes.
- Never drive across a steep hill; always drive straight up or down or go around the hill.
- Avoid turning on a hill.
- Do not accelerate quickly or slam on the brakes. Sudden speed change can initiate tipping or rolling of the vehicle.

Hills

Use extra care when on hills. Never go on hills that are extremely steep. Stopping while going down a hill will take longer than on level ground. Turning while going up or down a hill is more dangerous than turning on the level. Turns while going down hill, especially with the brakes on, and, turning up hill while traversing a hill are particularly dangerous.

Slow down before starting up or down a hill. If you have to turn while on a hill, do it as slowly and

cautiously as possible. Never make sharp or fast turns on a hill.

If you stall or begin to lose headway while climbing a steep hill, quickly apply the brakes, shift to reverse, and restart the engine.

Reduce the weight of the load if it is a steep hill or if the load has high center of gravity. Remember, loads can shift. Secure them.

Loading and Dumping

The weight and position of the cargo and passenger can change the vehicle center of gravity and vehicle handling. To avoid loss of control resulting in personal injury, follow these guidelines.

WARNING

POTENTIAL HAZARD
The weight of the box may be heavy.

WHAT CAN HAPPEN
Hands or other body parts may be crushed.

HOW TO AVOID THE HAZARD
- Keep hands and other body parts clear when lowering the box.
- Do not dump materials on people or animals.

Do not carry loads that exceed the load limits described on the vehicle weight label.

Loads vary in how they are distributed. Sand spreads out evenly and quite low. Other items, such as bricks, fertilizer or landscape timbers, stack higher in the box.

The height and weight of the load has a significant influence on tip overs. The higher a load is stacked, the more likely the vehicle is to tip over. Reducing the total weight is one way to reduce the risk of a tip over. Distributing the load as low as possible is another way to reduce the risk of a tip over.

If the load is positioned toward one of the sides, it will make the vehicle much more likely to tip over on that side. This is especially true when turning if the load is on the outside of the turn.

Never position heavy loads behind the rear axle. If the load is positioned so far to the rear that it is behind the rear axle, it will reduce the weight on the front wheels and this will reduce steering traction. With the load all the way to the back, the front wheels can even come off of the ground when going over bumps or up a hill. This will result in a loss of steering and may lead to the vehicle tipping over.

As a general rule, position the weight of the load evenly from front to rear and evenly from side to side.

If a load is not secured, or you are transporting a liquid in a large container such as a sprayer, it can shift. This shifting happens most often while turning, going up or down hills, suddenly changing speeds or while driving over rough surfaces. Shifting loads can lead to tip overs. Always secure loads so that they do not shift. Never dump the load while the vehicle is sideways on the hill.

Heavy loads increase stopping distance and reduce your ability to turn quickly without tipping over.

The rear cargo space is intended for load carrying purposes only, not for passengers.

Transporting The Vehicle

For moving the vehicle long distances, a trailer should be used. Make sure the vehicle is secured to the trailer. Refer to Figures 12 and 13 for location of tie down points.

Figure 12

1. Tie-down points

Towing The Vehicle

WARNING

POTENTIAL HAZARD
Towing at excessive speeds could cause the vehicle to lose steering control.

WHAT CAN HAPPEN
Loss of control could result in personal injury.

HOW TO AVOID THE HAZARD
Never tow the vehicle faster than 8 kmh (5 mph).

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

Towing the vehicle is a two-person job. If the machine must be moved a considerable distance, transport it on a truck or trailer; refer to *Transporting The Vehicle.*

1. Remove the drive belt; refer to *Replacing The Drive Belt*, steps 1 and 2.

2. Affix a tow line to tongue on front frame member (Fig. 13).

3. Put the vehicle in neutral (see *Neutral Lock Assembly*) and release the parking brake.

Figure 13
1. Towing tongue and tie-down point

Trailer Towing

The Workman 2100 is capable of pulling trailers. Two types of tow hitches are available for the Workman, depending on your application. Contact your Authorized Toro Distributor for details.

When equipped with the standard tow hitch, the vehicle can tow trailers with a gross trailer weight (GTW) of 149 Kg (400 lbs.) and a tongue weight of 18.7 Kg (50 lbs). When equipped with the optional heavy-duty tow hitch, the vehicle can tow trailers with a GTW of 298 Kg (800 lbs.) and a tongue weight of 37.3 Kg (100 lbs.) Always load a trailer with 60% of the cargo weight in the front of the trailer. This places approximately 10% of the GTW on the tow hitch of the vehicle.

When hauling cargo or towing a trailer, do not overload your vehicle or trailer. Overloading can cause poor performance or damage to the brakes, axle, engine, transaxle, steering, suspension, body structure or tires. The maximum combined gross vehicle weight shall not exceed 989 Kg (2,650 lbs).

Maintenance

Daily Maintenance Checklist

Duplicate this page for routine use.
Note: Check proper section of the operator's manual for fluid specifications.

Maintenance Check Item	Daily Maintenance check for Week of _____						
	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Brake & Parking Brake Operation							
Gear Shift Operation							
Fuel Level							
Engine Oil Level							
Transaxle Oil Level							
Inspect the Air Filter							
Inspect Engine Cooling Fins							
Unusual Engine Noises							
Unusual Operating Noises							
Tire Pressure							
Fluid Leaks							
Instrument Operation							
Accelerator Operation							
Lubricate All Grease Fittings[1]							
Touch-up Damaged Paint							
[1]= Immediately after **every** washing, regardless of the interval listed.							

Notation for areas of concern:
Inspection performed by:_____

Date	Information

Minimum Recommended Maintenance Intervals

Maintenance Procedure	Maintenance Interval & Service				
Change Engine Oil-initial **8 Hours**	**Every 50 hours**	**Every 100 hours**	**Every 200 hours**	**Every 400 hours**	**Every 800 hours**
Check Battery Fluid Level Check Battery Cable Connections Change Engine Oil (includes synthetic oil)'					
Lubricate All Grease Fittings Clean The engine Rotating Screen[2] Air Cleaner Filter-Inspect[2] Replace The engine Oil Filter Inspect The brake and Parking Brake Inspect Condition and Wear of Tires Torque Wheel Lug Nuts Check Front Suspension Adjustment					
Air Cleaner Filter-Replace Check Brake Cable Adjustments Inspect Drive Belt					
Inspect Fuel Lines Check Front Wheel Toe-in					
Replace Fuel Filter Change Transaxle Oil Replace Spark Plugs Drain/Flush Fuel Tank					

1. More often when operating under heavy load or high temperatures.
2. More often in dusty, dirty conditions

Important: Refer to your engine operator's manual for additional maintenance precedures

CAUTION

POTENTIAL HAZARD
If you leave the key in the ignition switch, someone could start the engine.

WHAT CAN HAPPEN
Accidental starting of the engine could seriously injure you or other bystanders.

HOW TO AVOID THE HAZARD
Remove the key from the ignition switch and pull the wire(s) off the spark plug(s) before you do any maintenance. Also push the wire(s) aside so it does not accidentally contact the spark plug(s).

WARNING

POTENTIAL HAZARD
Bed must be raised to perform some routine maintenance.

WHAT CAN HAPPEN
Bed can fall and injure persons that are underneath a raised bed.

HOW TO AVOID THE HAZARD
- Always use prop rod to hold bed up before working under raised bed.
- Remove any load material from the bed before working under raised bed.

Heavy-Duty Operation

IMPORTANT: If the vehicle is subjected to conditions listed below, maintenance should be performed twice as frequently.

- Desert operation
- Cold climate operation (below 32 degrees F)
- Trailer towing
- Frequent operation on dusty roads
- Construction work
- After extended operation in mud, sand, water, or similar dirty conditions, have your brakes inspected and cleaned as soon as possible. This will prevent any abrasive material from causing excessive wear.
- Under frequent heavy duty operating conditions, lubricate all grease fittings and inspect the air cleaner daily to prevent excessive wear.

Jacking the Vehicle

Whenever the engine is run for routine maintenance and/or engine diagnostics, the rear wheels of the vehicle should be 25mm (1”) off the ground with the rear axle supported on jack stands.

DANGER

POTENTIAL HAZARD
A vehicle on a jack may be unstable.

WHAT CAN HAPPEN
The vehicle could slip off the jack injuring anyone beneath it.

HOW TO AVOID THE HAZARD
- Do not start the engine while the vehicle is on a jack.
- Always remove the key from the ignition before getting off of the vehicle.
- Block the tires when the vehicle is on a jack.

The jacking point at the front of the vehicle is on the front of the frame behind the towing tongue (Fig. 14). The jacking point at the rear of the vehicle is under the axle tubes (Fig. 15).

Figure 14

1. Front jacking point

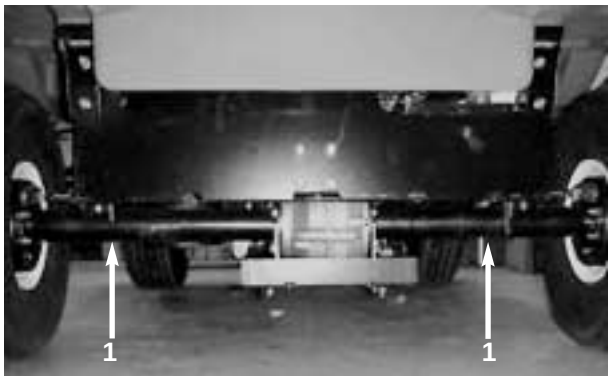


Figure 15

1. Rear jacking points

Neutral Lock Assembly

When performing routine maintenance and/or engine diagnostics, the transaxle must be shifted into a neutral position. The vehicle does not have a neutral position on the shift lever, so the following steps must be performed:

1. To lock the transaxle in neutral, rotate the locking pin 180 degrees on the shift block (Fig. 16).

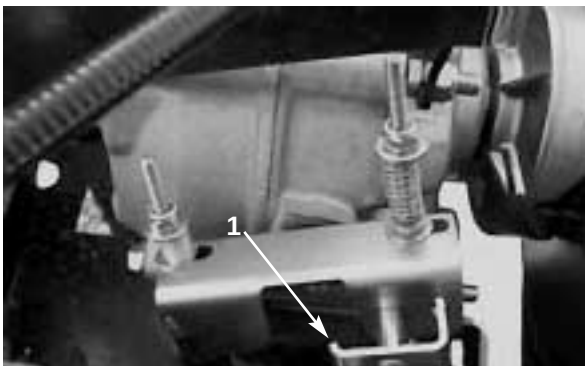


Figure 16

1. Locking pin

2. Shift the gear selector into REVERSE and then into FORWARD. Leave the gear shift selector in the FORWARD position.

3. Ensure that the transaxle is locked in neutral by rotating the secondary clutch (Fig. 17). No tire rotation should occur.

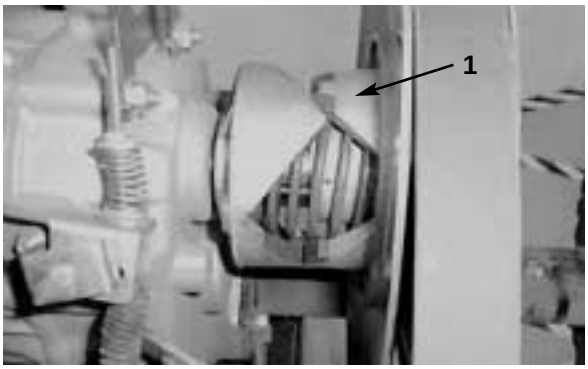


Figure 17

1. Secondary clutch

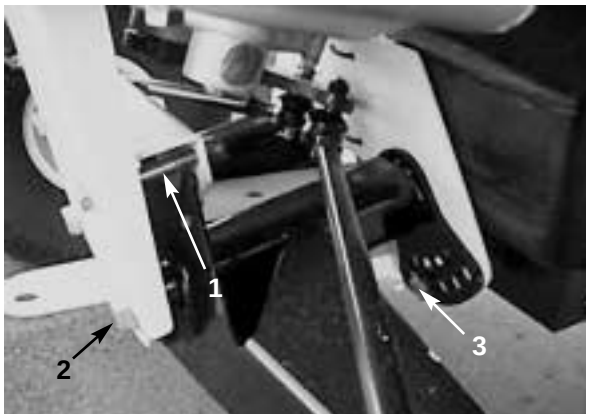


Figure 18

1. Travel limiting bolt
2. Centering bolt
3. Ride height adjustment bolt

Adjusting The Front Suspension

The ride height of each side of the vehicle can be adjusted.

1. Jack the front end of the vehicle off the ground; refer to *Jacking the Vehicle*.

2. Remove the travel limiting bolt (Fig. 18).

3. Loosen the centering bolts in the front "A" frame (Fig. 18).

4. Remove the ride height adjustment bolt (Fig. 18).

5. Rotate the front "A" frame to desired position (Fig. 18).

6. Replace the ride height adjustment bolt and the travel limiting bolt (Fig. 18).

7. Tighten and torque the centering bolts to 359±34 N•m (265±25 ft-lbs).

8. Tighten and torque the ride height adjustment bolt to 203±20 N•m (150 ± 15 ft-lbs).

9. Repeat procedure on opposite side of the vehicle.

Greasing and Lubrication

Service Interval/Specification

Lubricate all bearings and bushings after every 100 hours or once a year, whichever occurs first. Grease more frequently when using for heavy duty vehicle operations.

Grease Type: No. 2 General Purpose Lithium Base Grease

Where to Add Grease

The grease fitting locations and quantities are: tie rod ends (4) (Fig. 19), king pins (2) (Fig. 20), and throttle and brake pedal pivots (2) (Fig. 21).

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

2. Pump grease into the bearing or bushing.

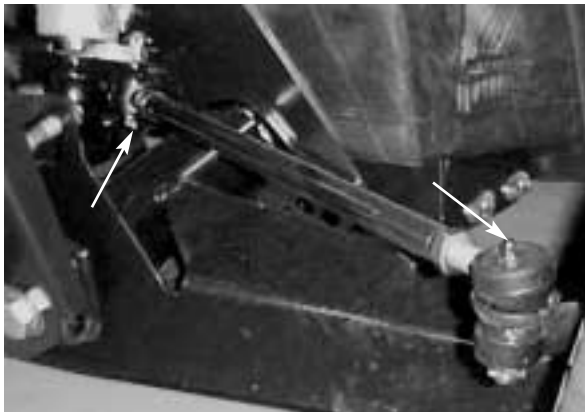


Figure 19

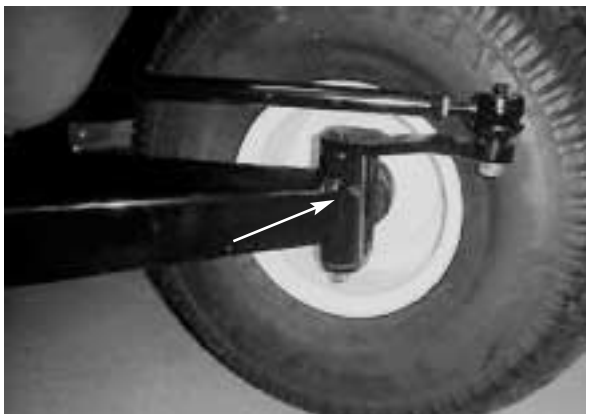


Figure 20

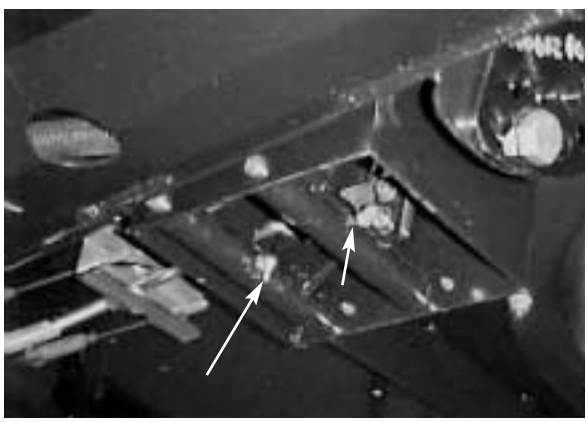


Figure 21

Air Cleaner

Service Interval/Specification

Check the air cleaner body for damage that could possibly cause an air leak. Replace a damaged air cleaner body.

Ensure the cover is sealing around the air cleaner body.

Air Cleaner Filter: Inspect after every 100 operating hours; replace after every 200 hours or sooner if dirty or damaged.

Note: Service the air cleaner more frequently (every few hours) if operating are extremely dusty or sandy.

Removing the Filter Element

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

2. Raise the bed and secure it with a prop rod.

3. Release the latches securing the air cleaner cover to the air cleaner body. Separate the cover from the body. Clean the inside of the air cleaner cover (Fig. 22).

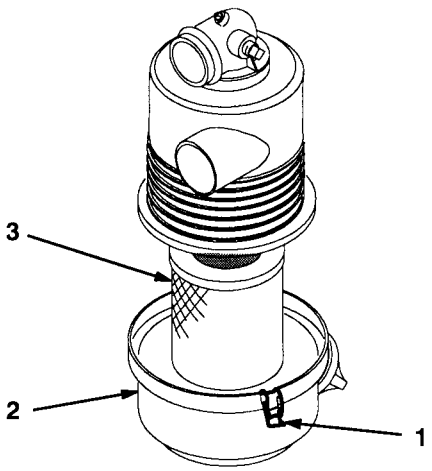


Figure 22

1. Air cleaner latches
2. Cover
3. Filter

4. Gently slide the filter out of the air cleaner body to reduce the amount of dust dislodged (Fig. 22). Avoid knocking the filter against the air cleaner body.

5. Inspect the filter and discard if damaged.

Cleaning the Filter Element

IMPORTANT: Do not wash or reuse a damaged filter.

1. Washing method:

   A. Prepare a solution of filter cleaner and water and soak the filter element about 15 minutes. Refer to directions of the filter cleaner carton for complete information.

   B. After soaking the filter for 15 minutes, rinse it with clear water. Rinse the filter from clean side to dirty side.

   IMPORTANT: To prevent damage to the filter element, maximum water pressure must not exceed 276 kPa (40 psi).

   C. Dry the filter element using warm, flowing air (71°C, 160°F max.), or allow element to air dry.

   IMPORTANT: Do not use a light bulb to dry the filter element because damage could result.

2. Compressed air method:

   A. Blow compressed air from inside to the outside of dry filter element. Keep the air hose nozzle at least 5cm (2 inches) from the filter and move the nozzle up and down while rotating the filter element.

   IMPORTANT: To prevent damage to the filter element, do not exceed 689 kPa (100 psi) air pressure.

   B. Inspect for holes and tears by looking through the filter toward a bright light.

Installing the Filter Element

IMPORTANT: To prevent engine damage, always operate the engine with the complete air cleaner assembly installed.

1. Inspect new filter for shipping damage. Check the sealing end of the filter.

   IMPORTANT: Do not install a damaged filter.

2. Insert the new filter properly into the air cleaner body. Ensure the filter is sealed properly by applying pressure to outer rim of the filter when installing. Do not press on the flexible center of the filter.

3. Reinstall the cover and secure the latches.

Engine Oil

Service Interval/Specification

Check the oil level before each use.

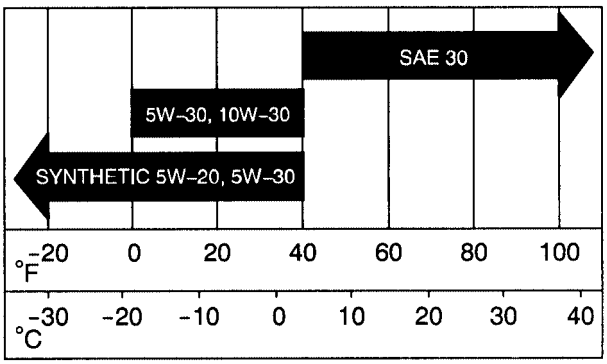
Change oil:
- After the first 8 operating hours.
- After every 50 operating hours.

Replace the oil filter every 100 hours.

Note: Change oil and oil filter more frequently when operating conditions are extremely dusty or sandy.

Oil Type: Detergent oil (API service SE, SF, or SG)
Crankcase Capacity: 1.6 liters (48 oz./1-1/2 qt.) when the filter is changed

Viscosity: See table below



Changing Oil and Filter

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

2. Raise bed and secure it with the prop rod.

3. Remove the drain plug (Fig. 23) and let oil flow into the drain pan. When the oil stops, install the drain plug.

   Note: Dispose of the used oil at a certified recycling center.

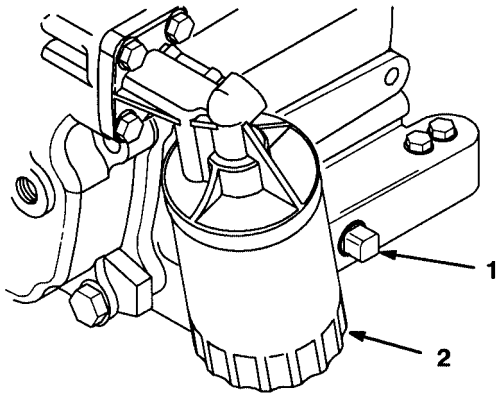


Figure 23

1. Engine oil drain plug
2. Engine oil filter

4. Remove the oil filter (Fig. 23). Apply a light coat of clean oil to the new filter gasket.

5. Screw the filter on until gasket contacts the mounting plate, then tighten the filter an additional 1/2 to 3/4 turn further. Do not overtighten.

6. Pour oil into fill opening until the oil level is up to the “FULL” mark on the dipstick. Add the oil slowly and check the level often during this process. Do not overfill.

7. Install the dipstick firmly in place.

Fuel System

Fuel Lines and Connections

Check lines and connections every 400 hours or yearly, whichever occurs first. Inspect for deterioration, damage, or loose connections.

Replacing the Fuel Filter

Replace the fuel filter after every 800 operating hours or yearly, whichever occurs first.

1. Raise the bed and support it with the prop rod.

2. Place a clean container under the fuel filter.

3. Remove the clamps securing the fuel filter to the fuel lines.

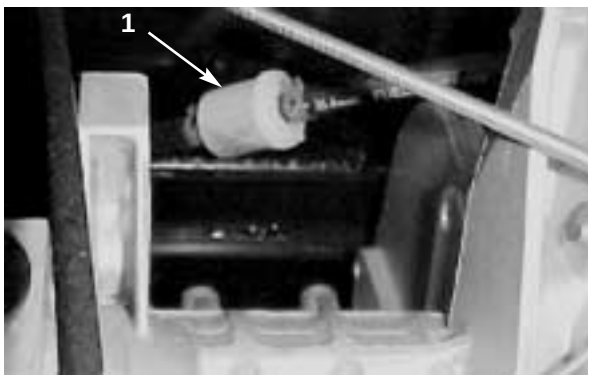


Figure 24

1. Fuel filter

4. Install the new fuel filter to the fuel lines with the clamps previously removed. The filter to be mounted so arrow points toward the carburetor.

Removing Debris From The Engine

Every 100 hours of operation (more often under extremely dusty, dirty conditions) clean the rotating screen and external surfaces as necessary.

IMPORTANT: Operating the engine with a blocked rotating screen, dirty or plugged cooling

fins or cooling shrouds removed, will cause engine damage due to overheating.

IMPORTANT: Never clean the engine with pressurized water because water could contaminate the fuel system.

Drive Belt

Service Interval/Specification

Check condition and tension of drive belt after first day of operation and every 200 operating hours thereafter.

1. Park the machine on a level surface, set the parking brake, and turn the engine off.
2. Raise the bed and secure it with a prop rod.
3. Put the vehicle in neutral; refer to *Neutral Lock Assembly.*
4. Rotate and inspect the belt for excessive wear or damage. Replace as necessary.

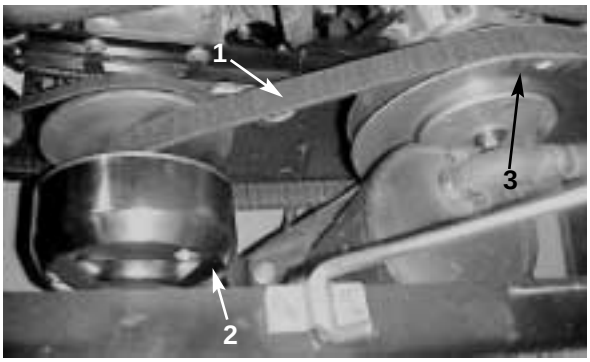


Figure 25

1. Drive belt
2. Primary clutch
3. Secondary clutch

Replacing the Drive Belt

1. Rotate and route the belt over the secondary clutch (Fig. 25).
2. Remove the belt from the primary clutch (Fig. 25).
3. To replace the belt, reverse the procedure.
4. Lower the bed.

Spark Plugs

Service Interval/Specification

Replace spark plugs after every 800 operating hours or yearly, whichever occurs first, to assure proper engine performance and reduce exhaust emission level.

Type: Champion RC 12YC (or equivalent)
Air Gap: 0.76 mm (0.03”)

Note: The spark plug usually lasts a long time; however, the plug should be removed and checked whenever the engine malfunctions.

Replacing the Spark Plug

1. Clean the area around the spark plugs so foreign matter cannot fall into the cylinder when the spark plug is removed.
2. Pull the spark plug wires off the spark plugs and remove the plugs from the cylinder head.
3. Check the condition of the side electrode, center electrode, and center electrode insulator to assure there is no damage.

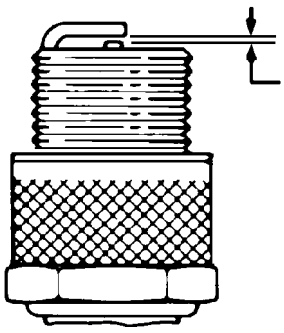


Figure 26

1. 0.76mm (0.03”)

IMPORTANT: A cracked, fouled, dirty or otherwise malfunctioning spark plug must be replaced. Do not sand blast, scrape, or clean electrodes by using a wire brush because grit may eventually release from the plug and fall into the cylinder. The result is usually a damaged engine.

4. Set the air gap between center and side of electrodes at 0.76mm (0.03”). Install a correctly gapped spark plug and tighten the plug to 24–30 Nm (18-22 ft-lb.). If a torque wrench is not used, tighten the plug firmly.

5. Install the spark plug wires.

Adjusting Ground Speed

Ground speed is preset at the factory and should not need adjusting. If you think the ground speed needs adjusting, contact your local Authorized Toro Service Dealer.

Changing Transaxle Fluid

Change transaxle fluid every 800 operating hours or yearly, whichever occurs first.

1. Position the vehicle on a level surface, stop the engine, engage the parking brake and remove the key from the ignition switch.

2. Remove drain plug from right side of reservoir (Fig. 27) and let fluid flow into drain pan. Reinstall and tighten the plug when fluid stops draining.

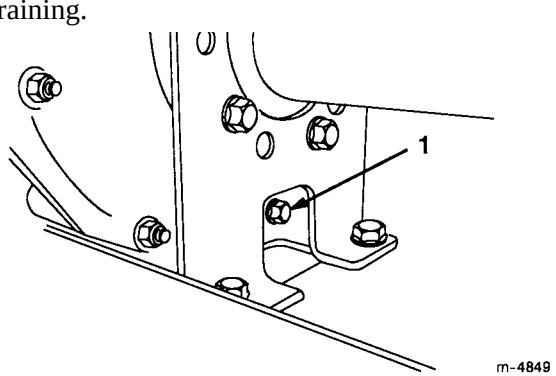


Figure 27

1. Drain plug

3. Fill the reservoir with approximately 1.4 liters (1-1/2 qt.) of 10W30 motor oil.

4. Start the engine and operate to fill system. Recheck the oil level and replenish, if required.

Brakes

Inspecting Brakes

Visually inspect the brakes for worn brake shoes after every 100 hours of operation.

Adjusting The Brake Pedal

Adjust the brake if the parking brake does not hold, brake pedal travel is excessive, or braking power is not sufficient when the brake pedal is depressed. Check adjustment every 200 hours.

1. Turn the ignition to OFF and remove the key.

2. Raise the vehicle off the ground; see *Jacking the Vehicle*.

3. Tighten the cable adjusting screw, located beneath the floor panel, until the cables are snug in the brake equalizer (Fig. 28).

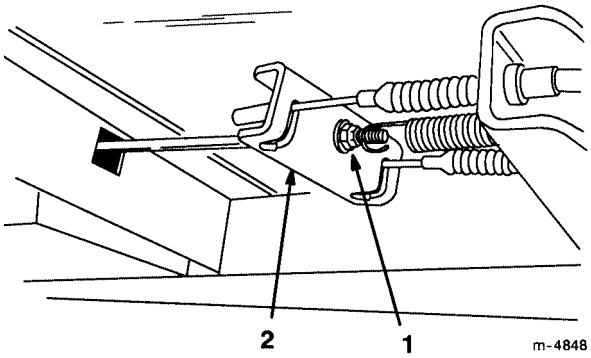


Figure 28

1. Cable adjusting screw
2. Brake equalizer

Inspecting Tires

Check tire condition at least every 100 hours of operation. Operating accidents, such as hitting curbs, can damage a tire or rim and also disrupt wheel alignment, so inspect tire condition after an accident.

Front Wheel Toe-in

After every 400 operating hours or annually, check front wheel toe-in.

1. Measure the distance between both of the front tires at axle height (at the front and rear of the wheels) (Fig. 29). Front measurement must be equal to the rear measurement 3mm (l/8 in.).

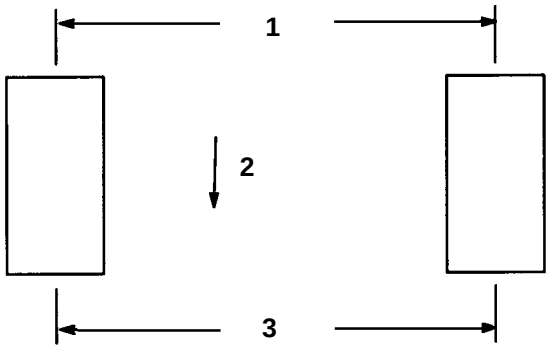


Figure 29

1. Center-to-Center Distance (rear of tires)
2. Forward
3. Center-to -Center Distance (front of tires)

2. To adjust, loosen jam nuts at both ends of tie rods (Fig. 30).

3. Rotate both tie rods to move front of tire inward or outward.

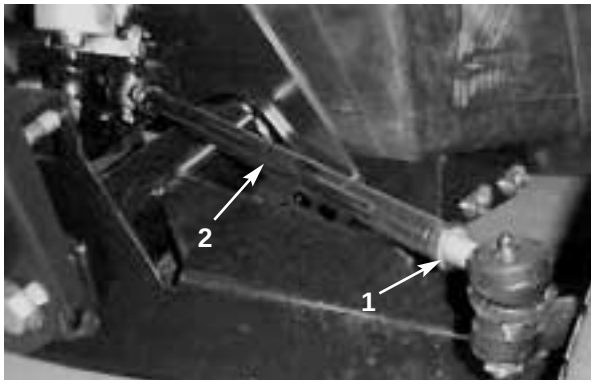


Figure 30

1. Jam nut
2. Tie rod

4. Tighten tie rod jam nuts when adjustment is correct.

5. Ensure there is full travel of the steering in both directions.

Fuses

There are three fuses in the machine's electrical system. They are located beneath the bed in a box on the right hand side of the frame (Fig. 31).

Fuses: Ignition System—10 amp.
Lights—10 amp.
Power Point—10 amp. (15 amp. max.)

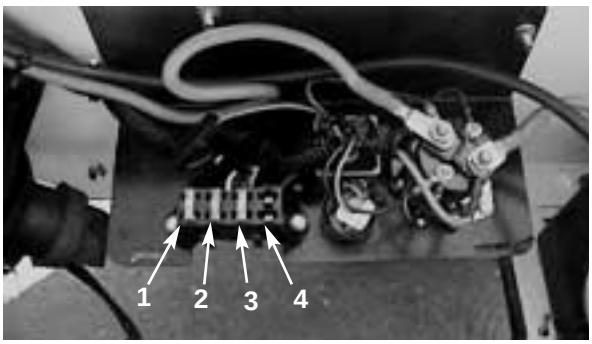


Figure 31

1. Ignition system
2. Lights
3. Power point
4. Open

Battery

IMPORTANT: Do not jump start the vehicle.

Service Interval/Specification

Always keep the battery clean and fully charged. Use a paper towel to clean the battery and battery box. If the battery terminals are corroded, clean them with a solution of four parts water and one part baking soda. Apply a light coating of grease to the battery terminals to prevent corrosion.

Voltage: 12 volts with 280 cold cranking Amps @ –17.8°C (0°F).

Removing the Battery

1. Position the vehicle on a level surface, stop the engine, engage the parking brake and remove the key from the ignition switch.

2. Raise the bed and secure with the prop rod.

3. Unhook the battery strap.

4. Disconnect the negative (black) ground cable from the battery post.

   IMPORTANT: Always disconnect the negative (black) cable first

WARNING

POTENTIAL HAZARD
Either the battery terminals or metal tools could short against metal vehicle components.

WHAT CAN HAPPEN
- Sparks can cause the battery gasses to explode.
- Damaged cables could short against metal vehicle components and cause sparks.

HOW TO AVOID THE HAZARD
- When removing or installing the battery, do not allow the battery terminals to touch any metal parts of the vehicle.
- Always DISCONNECT the negative (black) battery cable before disconnecting the positive (red) cable.
- Always RECONNECT the positive (red) battery cable before reconnecting the negative (black) cable.
- Do not allow metal tools to short between the battery terminals and metal parts of the vehicle.
- Always keep the battery strap in place to protect and secure the battery

5. Disconnect the positive (red) cable from the battery post.

6. Remove the battery from the chassis.

Installing the Battery

1. Set the battery on the battery base so the battery posts are toward the rear of the vehicle.

2. Connect the positive (red) cable to the positive (+) battery post and the negative (black) cable to the negative (–) battery post using the bolts and wing nuts. Slide the rubber boot over the positive battery post.

3. Replace the rubber strap to secure the battery to the base.

Checking Electrolyte Level

Check the electrolyte level every 50 operating hours or, if the machine is in storage, every 30 days.

1. Raise the bed and secure with the prop rod.

2. Remove the filler caps. If the electrolyte is not up to the fill line, add the required amount of distilled water; refer to *Adding Water to the Battery.*

WARNING

POTENTIAL HAZARD
Battery electrolyte contains sulfuric acid which is a deadly poison and it causes severe burns.

WHAT CAN HAPPEN
If you carelessly drink electrolyte you could die or if it gets onto your skin you will be burned.

HOW TO AVOID THE HAZARD
- Do not drink electrolyte and avoid contact with skin, eyes or clothing. Wear safety glasses to shield your eyes and rubber gloves to protect your hands.
- Fill the battery where clean water is always available for flushing the skin.
- Follow all instructions and comply with all safety messages on the electrolyte container.

Adding Water to the Battery

The best time to add distilled water to the battery is just before you operate the machine. This lets the water mix thoroughly with the electrolyte solution.

1. Clean the top of the battery with a paper towel.

2. Remove the filler caps from the battery and slowly fill each cell with distilled water until the level is up to the fill line. Replace the filler caps.

IMPORTANT: Do not overfill the battery. Electrolyte will overflow onto other parts of the vehicle and severe corrosion and deterioration will result.

Charging the Battery

IMPORTANT: Always keep the battery fully charged (1.260 specific gravity). This is especially important to prevent battery damage when the temperature is below 0°C (32°F).

1. Remove the battery from the chassis; refer to *Removing the Battery.*

2. Connect a 3- to 4-amp battery charger to the battery posts. Charge the battery at a rate of 3 to 4 amperes for 4 to 8 hours (12 volts). Do not overcharge the battery.

WARNING

POTENTIAL HAZARD
Charging the battery produces gasses.

WHAT CAN HAPPEN
Battery gasses can explode.

HOW TO AVOID THE HAZARD
Keep cigarettes, sparks and flames away from the battery.

3. Install the battery in the chassis; refer to Installing the Battery.

Storing the Battery

If the machine will be stored for more than 30 days, remove the battery and charge it fully. Either store it on the shelf or on the machine. Leave the cables disconnected if it is 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.


TORO®