Form No. 3350-707

Twister® 1600 Utility Vehicle

Model No. 12004—Serial No. 240000001 and Up
Model No. 12004TC—Serial No. 240000001 and Up

Operator's Manual

Register your product at www.Toro.com

Original Instructions (EN, GB)

Warning

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

Important The engine in this product is not equipped with a spark arrester muffler. It is a violation of California Public Resource Code Section 4442 to use or operate this engine on any forest-covered, brush-covered, or grass-covered land as defined in CPRC 4126. Other states or federal areas may have similar laws.

This spark ignition system complies with Canadian ICES-002.

Ce système d'allumage par étincelle de véhicule est conforme à la norme NMB-002 du Canada.

The enclosed Engine Owner's Manual is supplied for information regarding The U.S. Environmental Protection Agency (EPA) and the California Emission Control Regulation of emission systems, maintenance and warranty.

Keep this engine Owner's Manual with your unit. Should this engine Owner's Manual become damaged or illegible, replace immediately. Replacements may be ordered through the engine manufacturer.

Contents

	Page
Introduction	2
Safety	3
Before Operating	3
While Operating	4
Maintenance	6
Slope Chart	7
Safety and Instruction Decals	9
Specifications	11
General Specifications	11
Setup	12
Loose Parts	12
Checking the Crankcase Oil	12
Fuel Tank	13
Checking the Brake Fluid Level	13
Checking the Tire Pressure	13
Checking the Transmission Oil	14
Operation	14
Think Safety First	14
Controls	14
Pre-Starting Checks	16
Starting the Engine	16
Stopping the Vehicle	16
Parking the Vehicle	16
Cargo Bed	16
Tailgate Latches	17
New Vehicle Break-In	17
Transporting the Vehicle	17
Loading the Cargo Box	18
Towing the Vehicle	18
Towing a Trailer	18
Maintenance	19
Recommended Maintenance Schedule	19
Maintaining the Vehicle under Special Operating Conditions	20
Jacking the Vehicle	20
Checking and Adjusting Neutral	21
Servicing the Engine Oil	21
Cleaning the Engine Cooling Areas	22
Servicing the Air Cleaner	22
Greasing the Machine	23
Servicing the Brakes	24
Inspecting the Tires	24
Adjusting the Front Suspension	24
Adjusting Front Wheel Toe-In	25
Servicing the Drive Belt	26
Maintaining the Primary Drive Clutch	26
Servicing the Fuel System	27
Spark Plugs	27
Changing the Transaxle Fluid	28
Replacing the Fuses	28
Replacing the Headlight Bulbs	29
Servicing the Battery	29
Washing the Vehicle	30
Schematics	31
The Toro Total Coverage Guarantee	32

Introduction

Read this manual carefully to learn how to operate and maintain your product properly. The information in this manual can help you and others avoid injury and product damage. Although Toro designs and produces safe products, you are responsible for operating the product properly and safely.

You may contact Toro directly at www.Toro.com for product and accessory information, help finding a dealer, or to register your product.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and

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Bloomington, MN 55420-1196

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serial numbers of your product ready. Figure 1 illustrates the location of the model and serial numbers on the product.

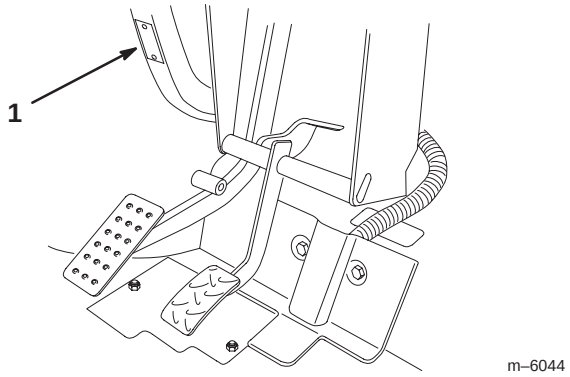


Figure 1

1. Location of the model and serial numbers

Write the product model and serial numbers in the space below:

Model No. _____

Serial No. _____

This manual identifies potential hazards and has special safety messages that help you and others avoid personal injury and 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 you do not follow the recommended precautions.

Warning signals a hazard that *may* cause serious injury or death if you do not follow the recommended precautions.

Caution signals a hazard that may cause minor or moderate injury if you do not follow the recommended precautions.

This manual uses two other words to highlight information. **Important** calls attention to special mechanical information and **Note:** emphasizes general information worthy of special attention.

Safety

Improper use or maintenance by the operator or owner can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety alert ⚠ symbol, which means CAUTION, WARNING, or DANGER—"personal safety instruction." Failure to comply with the instruction may result in personal injury or death.

⚠ Warning ⚠

This vehicle is an off-highway vehicle only and is not designed, equipped, or manufactured for use on public streets, roads, or highways.

Before Operating

- Operate the machine only after reading and understanding the contents of this manual.
- **Never** allow children to operate the vehicle. Anyone who operates the vehicle should have a motor vehicle license.
- **Never** allow other adults to operate the vehicle without first reading and understanding the Operator's Manual. Make sure that all operators are physically and mentally capable of operating the vehicle.
- This vehicle is designed to carry **only the operator and one passenger** in the seat provided by the manufacturer. **Never** carry any other passengers on the vehicle.
- **Never** operate the vehicle when under the influence of drugs or alcohol. Even prescription drugs and cold medicines can cause drowsiness.
- Do not drive the vehicle when you are tired. Be sure to take occasional breaks. It is very important that you stay alert at all times.
- Become familiar with the controls and know how to stop the engine quickly.
- 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.
- Always wear substantial shoes. Do not operate the 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.
- Wearing safety glasses and long pants is advisable.
- 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 headlights, and even consider adding additional lights.
- Be extremely careful when operating around people. Always be aware of where bystanders might be.

- Before operating the vehicle, always check the designated areas of the vehicle that are stated in the pre-starting section of this manual. If something is wrong, do **not** use the vehicle. Make sure that the problem is corrected before the vehicle or attachment is operated.
- Since gasoline is highly flammable, handle it carefully.
  - Use an approved gasoline container.
  - Do not remove the cap from the fuel tank when the engine is hot or running.
  - Do not smoke while handling gasoline.
  - Fill the fuel tank outdoors and to about 1 inch (25 mm) below top of tank (bottom of the filler neck). Do not overfill.
  - Wipe up any spilled gasoline.
  - Do not fill fuel containers in the cargo bed; place fuel containers on the ground before filling.

While Operating

Warning

Engine exhaust contains carbon monoxide, which is an odorless, deadly poison that can kill you.

Do not run engine indoors or in an enclosed area.

- The operator and passenger should remain seated whenever the vehicle is in motion. The operator should keep both hands on the steering wheel, whenever possible and the passenger should use the hand holds provided. Keep your arms and legs within the vehicle body at all times.
- Drive slower and turn less sharply when you are carrying a passenger. Remember your passenger may not be expecting you to brake or turn and may not be ready.
- Always watch out for and avoid low overhangs such as tree limbs, door jambs, and over-head walkways. Make sure there is enough room over head to easily clear the vehicle and your head.
- Always shift into neutral and apply the parking brake before leaving an idling vehicle, or else the vehicle may creep.
- Failure to operate the vehicle safely may result in an accident, tip over of the vehicle, and serious injury or death. Drive carefully. To prevent tipping or loss of control:
  - Use extreme caution and reduce speed around unfamiliar areas or any areas that have abrupt changes in ground conditions or elevation.
  - Watch for holes or other hidden hazards.
  - Use extra caution when operating the vehicle on wet surfaces, in adverse weather conditions, at higher speeds, or with a full load. Stopping time and distance will increase with a full load.
  - Avoid sudden stops and starts. Do not go from reverse to forward or forward to reverse without first coming to a complete stop.
  - Slow down before turning. Do not attempt sharp turns or abrupt maneuvers or other unsafe driving actions that may cause a loss of vehicle control.
  - When dumping, do not let anyone stand behind the vehicle and do not dump the load on anyone's feet. Release the tailgate latches from the side of box, not from behind.
  - Only operate the vehicle when the cargo box is down and latched.
  - Before backing up, look to the rear and ensure no one is behind the vehicle. Back up slowly.
  - 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.
  - The electrical and exhaust systems of the vehicle can produce sparks capable of igniting explosive materials. Never operate the vehicle in or near an area where there is dust or fumes in the air which are explosive.
- Do not touch the engine or muffler while the engine is running or soon after it has stopped. These areas may be hot enough to cause burns.
- If the machine ever vibrates abnormally, stop immediately, wait for all motion to stop, and inspect for damage. Repair all damage before commencing operation.
- Before getting off of the seat:
  A. Stop the movement of the machine.
  B. Set the parking brake.
  C. Turn the ignition key to OFF.
  D. Remove the key from the ignition.

Note: If the vehicle is on an incline, block the wheels after getting off of the vehicle.

Braking

- Slow down before you approach 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 (GVW) has a major impact on your ability to stop and/or turn. Heavy loads and attachments make a vehicle harder to stop or turn. The heavier the load, the longer it takes to stop.
- Decrease the vehicle speed if the cargo box has been removed and there is no attachment on the vehicle. The braking characteristics change and fast stops may cause the rear wheels to lock up, which may affect the control of the vehicle.
- Turf and pavement are much more slippery 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.

Operating on Hills

Warning

Operating the vehicle on a hill may cause tipping or rolling of the vehicle, or the engine may stall and you could lose headway on the hill. This could result in personal injury.

- **Do not exceed slopes greater than 12°.**
- **Do not accelerate quickly or slam on the brakes when backing down a hill, especially with a load.**
- **If the engine stalls or you lose headway on a hill, slowly back straight down the hill. Never attempt to turn the vehicle around.**
- **Never drive across a steep hill; always drive straight up or down or go around the hill.**
- **Avoid turning on a hill.**
- **Reduce your load and the speed of the vehicle.**
- **Avoid stopping on hills, especially with a load.**

These extra cautions need to be taken when operating the vehicle on a hill:

- Slow down before starting up or down a hill.
- If the engine stalls or you begin to lose headway while climbing a hill, gradually apply the brakes and slowly back straight down the hill.
- Turning while traveling up or down hills can be dangerous. If you have to turn while on a hill, do it slowly and cautiously. Never make sharp or fast turns.
- Heavy loads affect stability. Reduce the weight of the load and your speed when operating on hills or if the load has a high center of gravity. Secure the load to prevent it from shifting.
- Avoid stopping on hills, especially with a load. Stopping while going down a hill will take longer than stopping on level ground. If the vehicle must be stopped, avoid sudden speed changes, which may initiate tipping or rolling of the vehicle. Do not slam on the brakes when rolling backward, as this may cause the vehicle to overturn.
- Travel straight up and down slopes whenever possible.
- We strongly recommend installing the optional ROPS Kit when operating on hilly terrain.

Operating on Rough Terrain

Reduce speed and load when operating on rough terrain, uneven ground, and near curbs, holes, and other sudden changes in terrain. Loads may shift, causing the vehicle to become unstable.

We strongly recommend installing the optional ROPS Kit when operating on rough terrain.

Warning

Sudden changes in terrain may cause abrupt steering wheel movement, possibly resulting in hand and arm injuries.

- **Reduce your speed when operating on rough terrain and near curbs.**
- **Grip the steering wheel loosely around the perimeter. Keep your hands clear of the steering wheel spokes.**

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 and personal injury, follow these guidelines:

- Do **not** carry loads which **exceed** the load limits described on the vehicle weight label; refer to Specifications, page 11, for vehicle weight limits. The load rating is for **level surfaces only**.
- Reduce the weight of the load when operating on hills and rough terrain to avoid tipping or overturning of the vehicle.

- Reduce the weight of the load if the center of gravity is high. Items such as bricks, fertilizer, or landscape timbers stack higher in the box. The higher a load is stacked, the more likely the vehicle is to tip over. Distribute the load as low as possible, making sure that the load does not affect rear visibility.
- Position the weight of the load evenly from side to side. If you position the load toward one of the sides, the vehicle is more likely to tip over while turning.
- Position the weight of a load evenly from front to back. If you position the load behind the rear axle, it will reduce the weight on the front wheels. This may result in a loss of steering control or cause the vehicle to tip over on hills or bumpy terrain.
- Use extra caution if the load exceeds the dimensions of the box and when handling off-center loads that cannot be centered. Keep loads balanced and secure to prevent them from shifting.
- Always secure loads so that they do not shift. If a load is not secured, or you are transporting a liquid in a large container such as a sprayer, the load 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 cause the vehicle to tip over.

Warning

The weight of the box may be heavy. Hands or other body parts could be crushed.

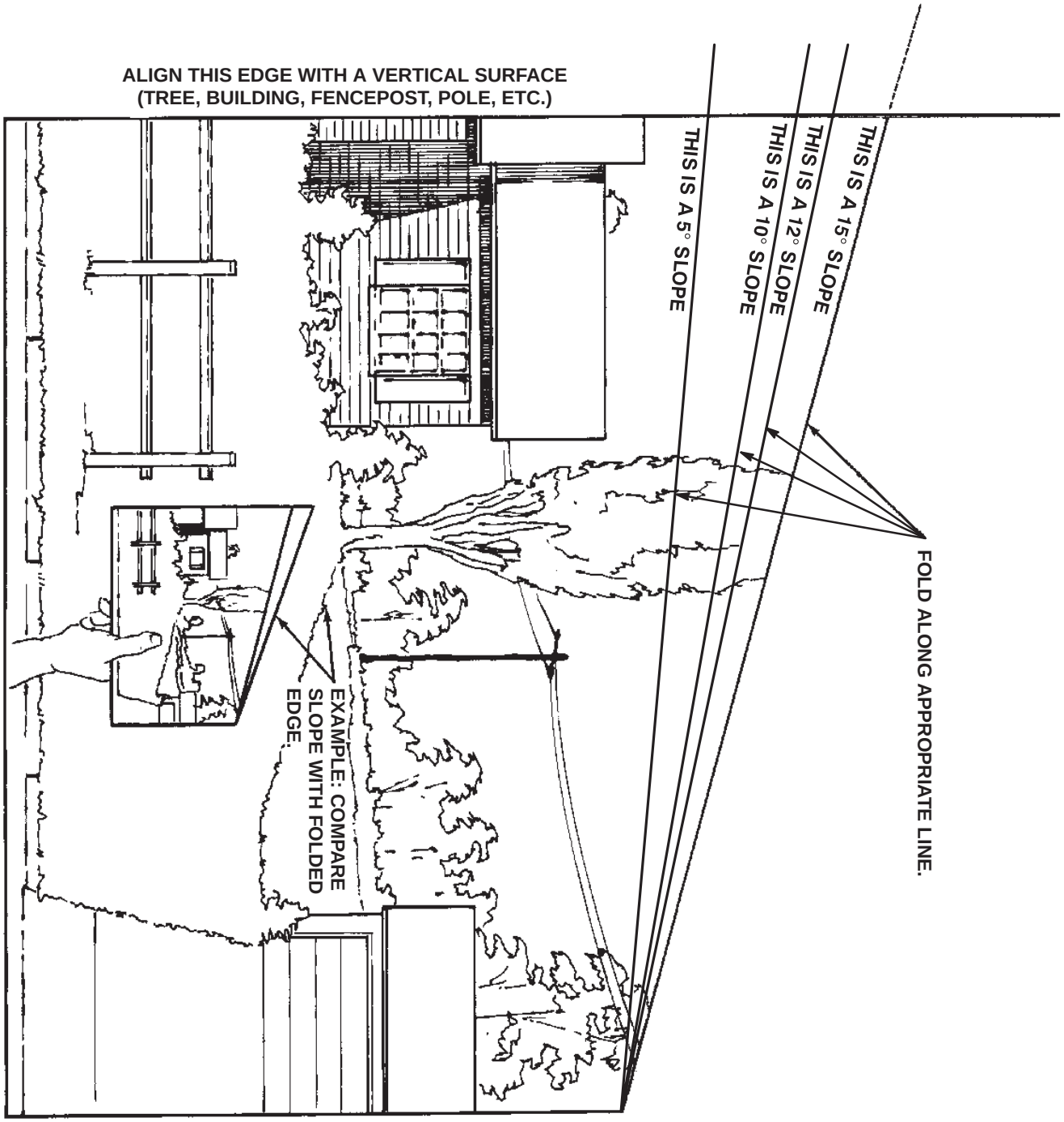
- **Keep hands and other body parts clear when lowering the box.**
- **Do not dump materials on bystanders.**

- Never dump a loaded cargo box while the vehicle is sideways on a hill. The change in weight distribution may cause the vehicle to overturn.
- When operating with a heavy load in the cargo box, reduce your speed and allow for sufficient braking distance. Do not suddenly apply the brakes. Use extra caution on slopes.
- Be aware that heavy loads increase your 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.
- Never overload your vehicle. The name plate (located under dash on center column) shows load limits for the vehicle. Never overload the attachments or exceed the Gross Vehicle Weight (GVW).

Maintenance

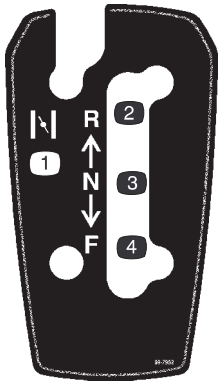
- Before servicing or making adjustments to the machine, stop the engine, set the parking brake, and remove the key from the ignition to prevent someone from accidentally starting the engine.
- To make sure the entire machine is in good condition, keep all nuts, bolts, and screws properly tightened.
- To reduce potential fire hazard, keep the engine area free of excessive grease, grass, leaves, and accumulation of dirt.
- Never use an open flame to check the level or leakage of fuel or battery electrolyte.
- 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.
- Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.
- If repairs are ever needed or assistance is required, contact an Authorized Toro Dealer.
- 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 vehicle operation, performance, or durability. This may result in injury or death. Such use could void the product warranty.

Slope Chart


ALIGN THIS EDGE WITH A VERTICAL SURFACE
(TREE, BUILDING, FENCEPOST, POLE, ETC.)
THIS IS A 5° SLOPE
THIS IS A 10° SLOPE
THIS IS A 12° SLOPE
THIS IS A 15° SLOPE
FOLD ALONG APPROPRIATE LINE.
EXAMPLE: COMPARE SLOPE WITH FOLDED EDGE.

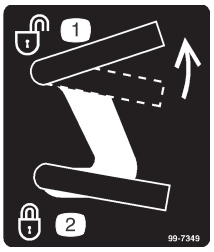
Safety and Instruction Decals

Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.



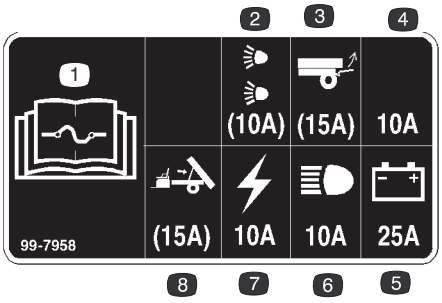
99-7952

1. Choke
2. Reverse
3. Neutral
4. Forward



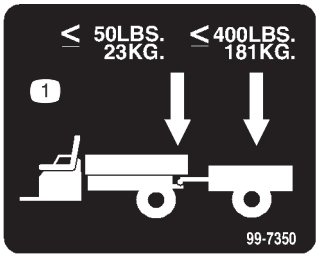
99-7349

1. Unlock the cargo bed
2. Lock the cargo bed



99-7958

1. Read the *Operator's Manual* for information on fuses.
2. 10 amp. fuse for the optional Road Light Kit
3. 15 amp. fuse for the optional Rear Lift Kit
4. 10 amp. fuse—open
5. 25 amp. fuse for the charge circuit
6. 10 amp. fuse for the headlights
7. 10 amp. fuse for the low oil light and the hour meter
8. 15 amp. fuse for the optional Electric Bed Lift Kit



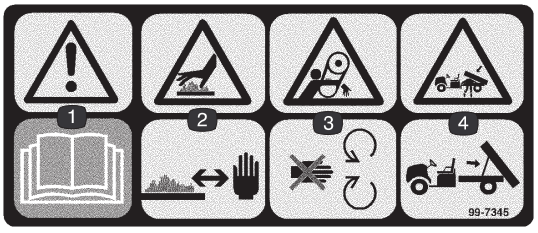
99-7350

1. Maximum tongue weight is 50 lb. (23 kg); maximum trailer weight is 400 lb. (181 kg).



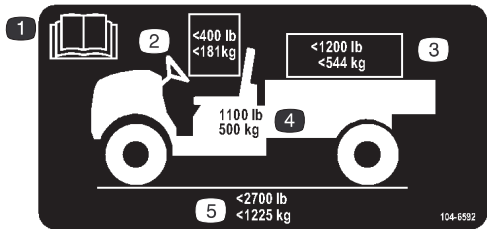
99-7954

1. Warning—read the *Operator's Manual.*
2. Falling hazard—do not carry passengers in the cargo bed.
3. Explosion hazard, static discharge into fuel container—do not fill fuel containers in the cargo bed; place fuel containers on the ground before filling.



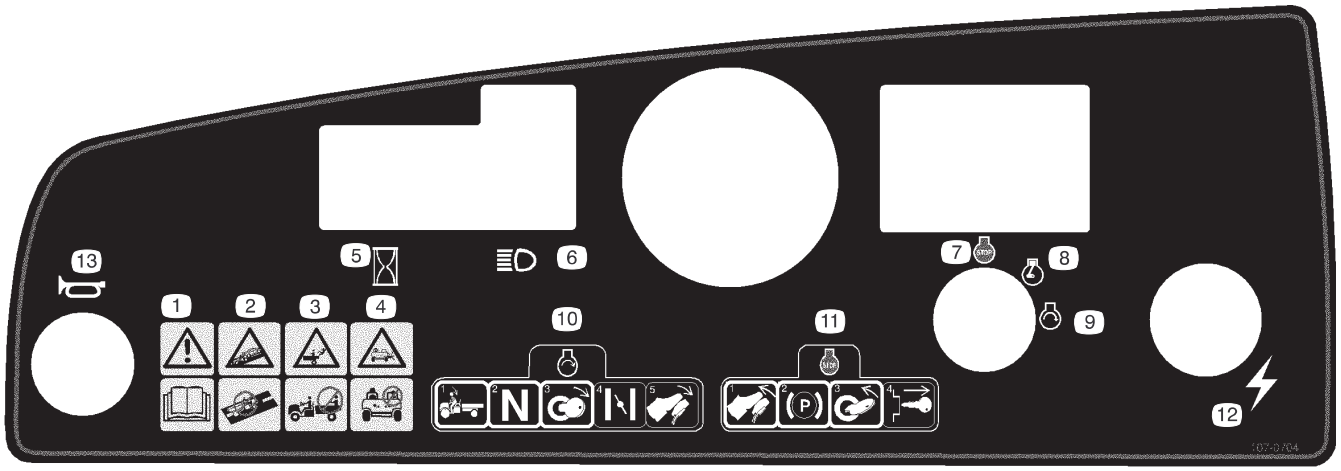
99-7345

1. Warning—read the *Operator's Manual.*
2. Hot surface/burn hazard—stay a safe distance from the hot surface.
3. Entanglement hazard, belt—stay away from moving parts.
4. Crushing hazard, cargo box—use the prop rod to support the cargo bed.



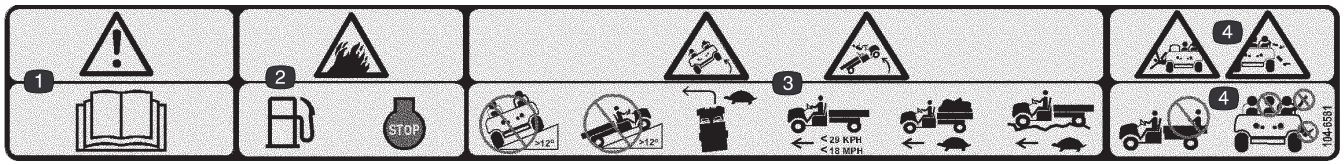
104-6592

1. Read the *Operator's Manual.*
2. The maximum combined operator and passenger weight is 400 lb. (181 kg.).
3. The maximum cargo weight is 1200 lb. (544 kg).
4. The base weight of the vehicle is 1100 lb. (500 kg).
5. The maximum gross vehicle weight is 2700 lb. (1225 kg).



107-0704

1. Warning—read the *Operator's Manual.*
2. Collision hazard—do not operate the vehicle on public streets, roads, or highways.
3. Falling hazard—do not carry passengers in the cargo bed.
4. Falling hazard—do not allow children to operate the vehicle.
5. Hour meter
6. Headlights
7. Engine—stop
8. Engine—run
9. Engine—start
10. To start the engine, sit on the operator's seat, put the gear selector in Neutral, turn the ignition key on, pull the choke lever out (if needed), and press the accelerator pedal.
11. To stop the engine, release the accelerator pedal, set the parking brake, turn the ignition key off, and remove the ignition key.
12. Electrical power (power point)
13. Horn



104-6581

1. Warning—read the *Operator's Manual.*
2. Fire hazard—before fueling, stop the engine.
3. Tipping hazard—do not drive the vehicle across or up a slope greater than 12 degrees; drive slowly when turning, when carrying a full or heavy load, and when driving on rough terrain; keep the vehicle speed under 18 MPH (29 km/h).
4. Falling and arm/leg injury hazards—do not carry passengers in the cargo bed and keep arms and legs inside of the vehicle at all times.

Specifications

Note: Specifications and design are subject to change without notice.

General Specifications

Base weight	Dry 1050 lb. (476 kg)
Rated capacity (on level ground)	1600 lb. (726 kg) total, including 200 lb. (91 kg) operator and 200 lb. (91 kg) passenger, load, trailer tongue weight, gross trailer weight, accessories, and attachments
Maximum gross vehicle weight (GVW) (on level ground)	2700 lb. (1225 kg) total, including all of the weights listed above
Maximum cargo capacity (on level ground)	1200 lb. (544 kg) total, including trailer tongue weight and gross trailer weight
Tow capacity: Standard Hitch Heavy Duty Hitch	 Tongue weight 50 lb. (23 kg) Maximum trailer weight 400 lb. (181 kg) Tongue weight 100 lb. (45 kg) Maximum trailer weight 800 lb. (363 kg)
Overall width	59 in. (150 cm)
Overall length	115 in. (292 cm)
Ground clearance	9-1/4 in. (23.5 cm) at the front with no load or operator 7 in. (18 cm) at the rear with no load or operator
Wheel base	79 in. (200.7 cm)
Wheel tread (center line to center line)	49 in. (124.5 cm) in the front 48-1/4 in. (122.6 cm) in the rear
Cargo box length	46 in. (116.8 cm) inside 51 in. (129.5 cm) outside
Cargo box width	49 in. (124.5 cm) inside 54 in. (137.2 cm) outside
Cargo box height	10 in. (25.4 cm) inside

Setup

Note: Determine the left and right sides of the machine from the normal operating position.

Loose Parts

Description	Qty.	Use
Key	2	Use in ignition.
Operator's Manual	1	Read before operating the machine.
Engine Operator's Manual	1	Read before operating the machine.
Operator Video	1	Watch before operating the machine.
Registration Card	1	Complete and return to Toro.

Checking the Crankcase Oil

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

1. Position the machine on a level surface.
2. Clean around the oil dipstick (Fig. 2) so dirt cannot fall into the hole and damage the engine.
3. Unscrew the oil dipstick and wipe the metal end clean.
4. Slide the oil dipstick fully into the filler tube, but do not thread it onto the tube. Pull the dipstick out and look at the metal end. If the oil level is low, remove the filler cap from the valve cover (Fig. 2) and pour oil into the opening until the oil level is up to the "FULL" mark on the dipstick; refer to Servicing the Engine Oil, page 21, for the proper oil type and viscosity. Add the oil slowly and check the level often during this process. **Do not overfill.**

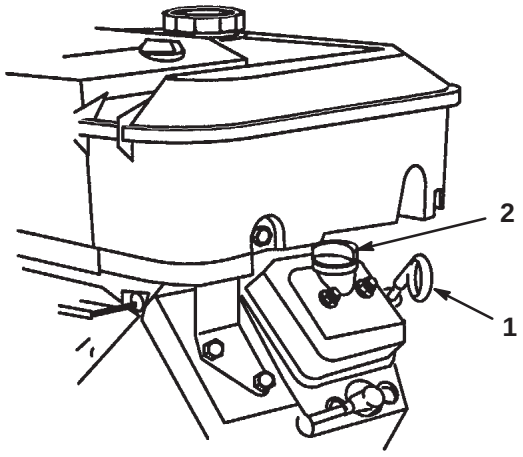


Figure 2

1. Oil dipstick
2. Filler cap

5. Install the oil dipstick.

Fuel Tank

Recommended Gasoline

Use fresh, clean, **unleaded** regular gasoline suitable for automotive use (87 pump octane minimum). Leaded gasoline may be used if unleaded regular is not available.

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

In certain conditions, gasoline is extremely flammable and highly explosive. A fire or explosion from gasoline can burn you and others and can damage property.

- **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 to 1 in. (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.**
- **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

The fuel tank capacity is approximately 7 gallons (26.5 l).

1. Shut the engine off and set the parking brake.
2. Clean the area around the fuel tank cap (Fig. 3).

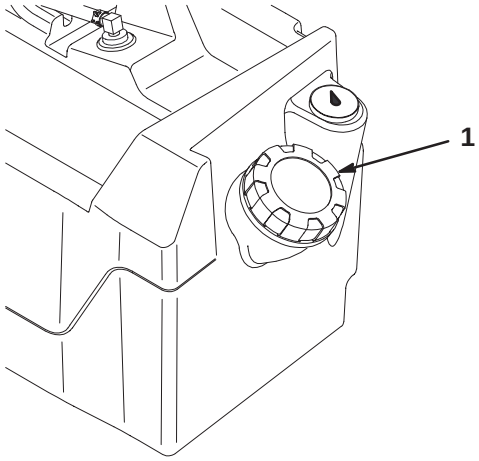


Figure 3

1. Fuel tank cap

3. Remove the fuel tank cap.
4. Fill the tank to about one inch (25 mm) below the top of 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.

Checking the Brake Fluid Level

Check the brake fluid level before the engine is first started; refer to Servicing the Brakes, page 24.

Checking the Tire Pressure

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

The air pressure range for the front and rear tires is 8–22 psi (55–103 kPa).

The air pressure needed is determined by the payload carried. The **lower** the air pressure, the less the compaction, smoother the ride, 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.

Checking the Transmission Oil

The transaxle fluid level should be at the bottom of the level indicator hole (Fig. 4). If it is not, fill the reservoir with the appropriate fluid; refer to Changing the Transaxle Fluid, page 28, steps 3 and 4.

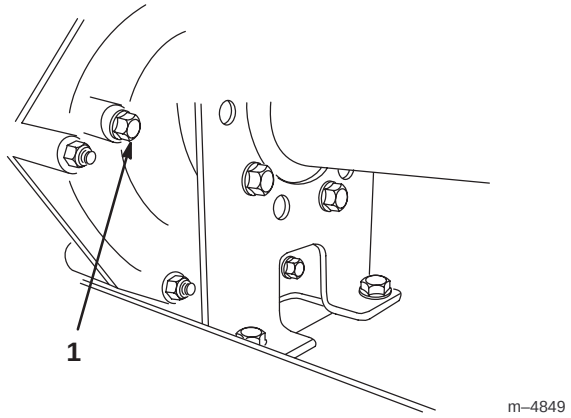


Figure 4

1. Level indicator hole

Operation

Note: Determine the left and right sides of the machine from the normal operating position.

Think Safety First

Please carefully read all of 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. 5) gives the operator the ability to vary the engine and ground speed of the vehicle. Depressing the pedal increases the engine RPM and ground speed. Releasing the pedal decreases the engine RPM and ground speed. Maximum forward speed is 18 MPH (26 km/h).

Brake Pedal

The brake pedal is used to stop or slow the vehicle (Fig. 5).

Caution

Brakes can become worn or can be misadjusted resulting in personal injury.

If brake pedal travels to within 1 in. (25 mm) of the vehicle floor board, the brakes must be adjusted or repaired.

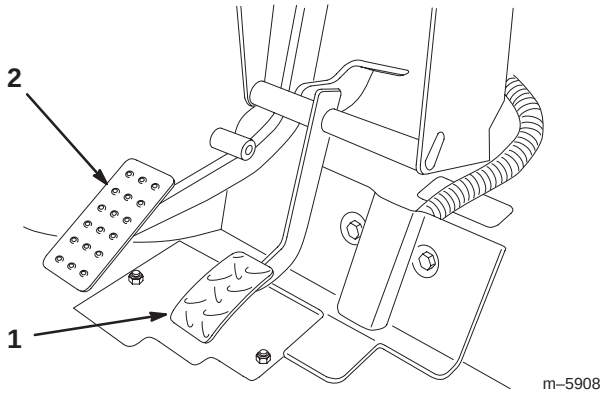


Figure 5

1. Accelerator pedal
2. Brake pedal

Parking Brake

The parking brake is between the seats (Fig. 6). Whenever the engine is shut off, the parking brake must be engaged to prevent accidental movement of the vehicle. To engage the parking brake, pull back on the lever. To disengage, push the lever forward. If the vehicle is parked on a steep grade, make sure that the parking brake is applied. Place blocks at the downhill side of the wheels.

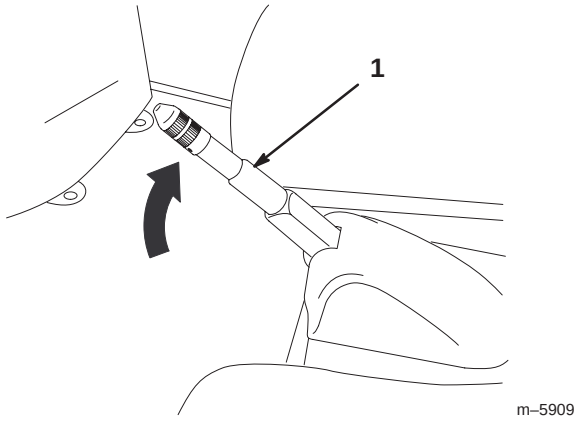


Figure 6

1. Parking brake lever

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. 7) by pulling the choke control outward 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 the control in to the OFF position. A warm engine requires little or no choking.

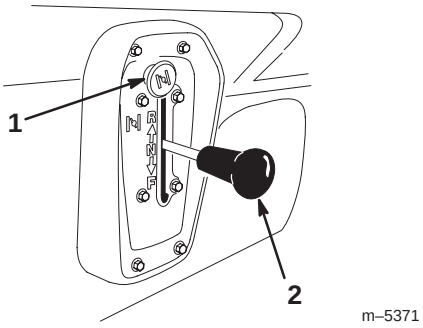


Figure 7

1. Choke
2. Gear shift selector

Gear Shift Selector

The gear shift selector has three positions: forward, reverse, and neutral (Fig. 7). The gear shift selector must be in neutral to start the engine.

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

Ignition Switch

The ignition switch (Fig. 8), used to start and stop the engine, has three positions: On, Off, and Start. Rotate the key clockwise to the Start position to start the vehicle. When the engine starts, release the key. When the vehicle is stopped, rotate the key counterclockwise to the Off position to shut the engine off. Remove the key from the ignition.

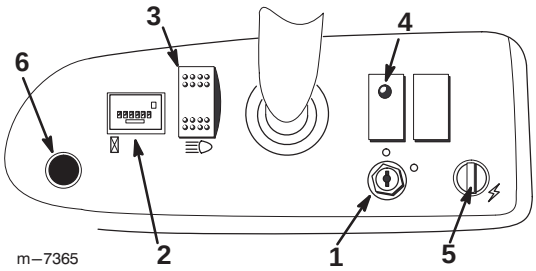


Figure 8

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

Hour Meter

The hour meter (Fig. 8) indicates the total number of hours that the engine has run.

Oil Light

The oil light warns the operator if the engine oil pressure drops below a safe level (Fig. 8). If the light comes on and remains lit, the oil level should be checked and oil added if necessary; see Servicing the Engine Oil, page 21.

Note: The oil light may flicker. This is normal and no action needs to be taken.

Light Switch

Toggle the switch to activate the headlights. Push to turn the lights on (Fig. 8).

Power Point

Use the power point to power 12 volt optional electrical accessories (Fig. 8).

Horn Button

Press the horn button to sound the horn (Fig. 8).

Fuel Gauge

The fuel gauge (Fig. 9) shows the amount of fuel in the tank.

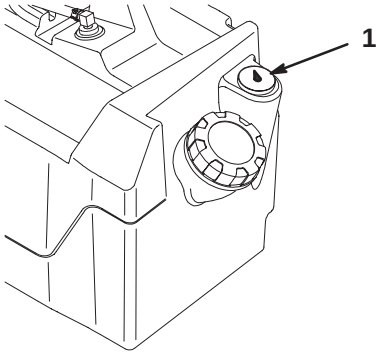


Figure 9

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. 10).

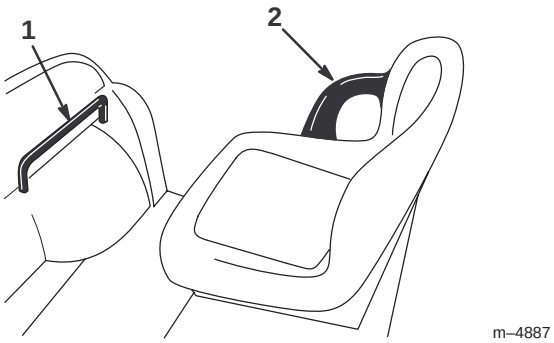


Figure 10

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:

- Check the tire pressure.

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

- Check all fluid levels and add the appropriate amount of Toro specified fluids, if any are found to be low.
- Check the brake pedal operation.
- Ensure that the lights are working.
- Turn the steering wheel to the left and right to check steering response.
- 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 and you are not able to correct the problem, contact an Authorized Service Dealer.

Starting the Engine

1. Sit in the operator's seat.
2. Put the gear shift selector in Neutral.

Note: The engine will only start in Neutral.

3. Insert the key into the ignition switch, turn it clockwise to the Start position, and pull the choke out. When the engine starts, release the key.

Note: An engine that has been running and is warm may not require pulling the choke out.

4. After the engine starts and warms up, slowly return the choke knob to the Off position. If the engine stalls or hesitates, pull the Choke out for a few seconds. Then move it back to Off.
5. Disengage the parking brake.
6. Slowly step on the accelerator pedal.

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

Stopping the Vehicle

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

Note: Stopping distance may vary depending on the vehicle load and speed.

Parking the Vehicle

1. Engage the parking brake and rotate the ignition key to Off.
2. Remove the key from the 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. 11).
2. Lift up on the latch with one hand while raising the bed with the other hand.

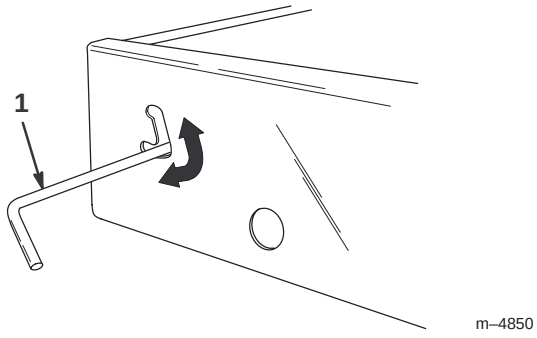


Figure 11

1. Latch

3. Raise the bed to its full height; then lower it slightly to engage the prop rod (Fig. 12).

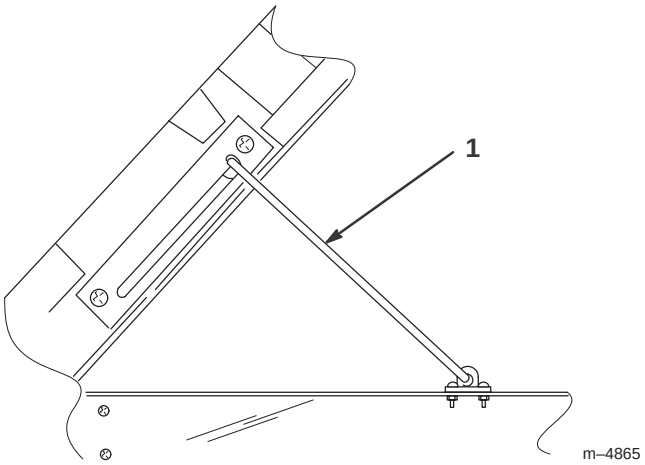


Figure 12

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 (Fig. 11).

Tailgate Latches

1. To open the tailgate latches, lift the latch handles up (Fig. 13). The latches will spring out toward the center of the tailgate. Slowly lower the tailgate.

Note: You may need to push the end of the tailgate in (especially if there is a load against the tailgate) before the latches will spring toward the center of the tailgate and release.

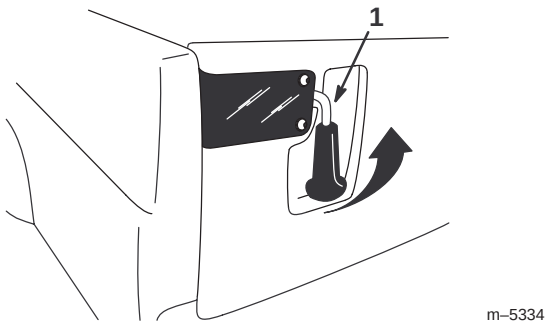


Figure 13

1. Tailgate latch

2. To close the tailgate latches, lift the handles upward and slide them toward the outside of the vehicle.
3. 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 break-in operation. New brake linings may not be at optimum performance until several hours of use has caused the brakes to become burnished (broken-in).
- Vary the vehicle speed during operation. Avoid fast starts and quick stops.
- A break-in oil for engine is not required. Original engine oil is the same type specified for regular oil changes.
- Refer to the Maintenance section for any special low hour checks.
- Check the front suspension positioning and adjust it if necessary; refer to Adjusting the Front Suspension, page 24.

Transporting the Vehicle

For moving the vehicle long distances, a trailer should be used. Make sure that the vehicle is secured to the trailer. Refer to Figures 14 and 15 for the location of tie-down points.

Caution

Loose seats may fall off of the vehicle and trailer when transporting and land on another vehicle or become an obstruction on the road.

Remove the seats or make sure that the seats are securely fastened in the detents.

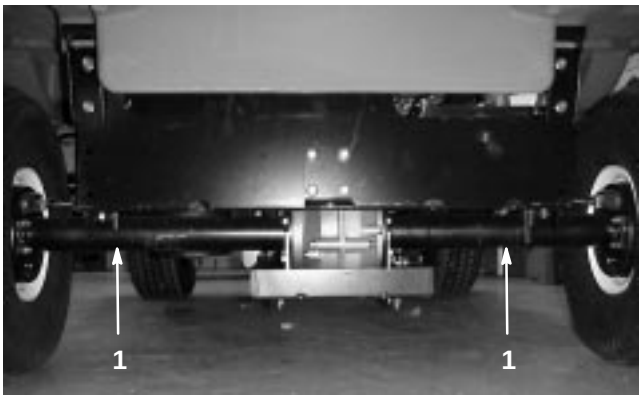


Figure 14

1. Tie down points

Loading the Cargo Box

The capacity of the cargo box is 13 ft.^{3} (0.37 m^3). The amount (volume) of material that can be placed in the box without exceeding the vehicle load ratings can vary greatly depending on the density of the material. For example, a level box of wet sand weighs 1500 lb. (680 kg), which exceeds the load rating by 500 lb. (227 kg). But a level box of wood weighs 650 lb. (295 kg), which is under the load rating.

See the table below for load volume limits with various materials:

Material	Density (lb./ft.^{3})	Max. cargo box capacity (on level ground)
Gravel		
Dry	95	3/4 full (approx.)
Wet	120	1/2 full (approx.)
Sand		
Dry	90	3/4 full
Wet	120	1/2 full
Wood	45	Full
Bark	<45	Full
Earth, packed	100	3/4 full (approx.)

Towing the Vehicle

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

Warning

Towing at excessive speeds could cause a loss of steering control, resulting in personal injury.

Never tow the vehicle faster than 5 MPH (8 km/h).

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, page 17.

1. Remove the drive belt; refer to Replacing the Drive Belt, page 26, steps 1 and 2.
2. Affix a tow line to the tongue on the front of the frame (Fig. 15).
3. Put the vehicle in neutral and release the parking brake.

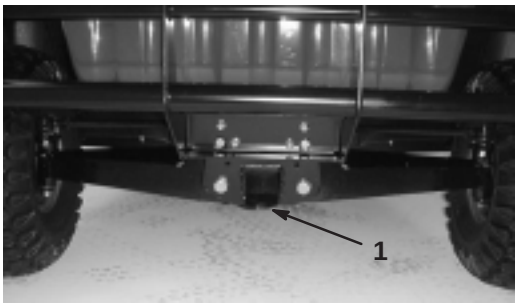


Figure 15

1. Towing tongue and tie down point

Towing a Trailer

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

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. Always load a trailer with 60% of the cargo weight in the front of the trailer. This places approximately 10% of the Gross Trailer Weight (GTW) on the tow hitch of the vehicle.

The maximum cargo load shall not exceed 1200 lb. (544 kg), including the GTW and tongue weight. For example, if the GTW = 400 lb. (181 kg) and tongue weight = 50 lb. (23 kg), then the maximum cargo load = 750 lb. (340 kg).

To provide adequate braking and traction, always load the cargo box when trailering. Do not exceed the GTW limits.

Avoid parking a vehicle with a trailer on a hill. If you must park on a hill, engage the parking brake and block the trailer tires.

Maintenance

Note: Determine the left and right sides of the machine from the normal operating position.

Recommended Maintenance Schedule

Important Refer to your **engine operator's manual** for additional maintenance procedures.

Maintenance Service Interval	Maintenance Procedure
After first 8 hours	• Change the engine oil. • Check the drive belt tension.
Every 8 hours	• Check the engine oil. • Check the tire pressure.
After first 20 hours	• Check the front wheel toe-in at the proper ride height.
Every 50 hours	• Check the battery fluid level. • Check the battery cable connections. • Change the engine oil (includes synthetic oil).[1]
Every 100 hours	• Lubricate all grease fittings. • Clean the engine cooling areas.[1] • Inspect the air cleaner filter.[1] • Replace the engine oil filter. • Inspect the brake and parking brake. • Inspect the condition and wear of the tires. • Torque the wheel lug nuts. • Check the front suspension toe-in and ride height. • Check the operation of the Neutral gear shift position.
Every 200 hours	• Replace the air cleaner filter. • Check the parking brake cable adjustments. • Inspect the drive belt.
Every 400 hours or yearly	• Inspect the fuel lines. • Clean and lubricate the primary drive clutch • Complete all yearly maintenance procedures specified in the **engine operator's manual.**
Every 800 hours or yearly	• Replace the fuel filter. • Change the transaxle oil. • Replace the spark plugs.

[1]Twice as often in special operating conditions; refer to Maintaining the Vehicle under Special Operating Conditions, page 20.

Caution

If you leave the key in the ignition switch, someone could accidently start the engine and seriously injure you or other bystanders.

Remove the key from the ignition and disconnect the wire(s) from the spark plug(s) before you do any maintenance. Set the wire(s) aside so that it does not accidentally contact the spark plug(s).

Warning

The bed must be raised to perform some routine maintenance. The bed could fall and injure persons that are underneath it.

- **Always use prop rod to hold bed up before working under raised bed.**
- **Remove any load material from bed before working under raised bed.**

Maintaining the Vehicle under Special Operating Conditions

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

- Desert operation
- Cold climate operation (below 50° F [10° C])
- Trailer towing
- Driving time typically less than 5 minutes
- Frequent operation in dusty conditions
- 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 air cleaner daily to prevent excessive wear.
- Frequent periods with the engine idling in neutral (key start models only)

Jacking the Vehicle

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

Danger

A vehicle on a jack may be unstable and slip off of the jack, injuring anyone beneath it.

- **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. 16) The jacking point at the rear of the vehicle is under the axle tubes (Fig. 17).

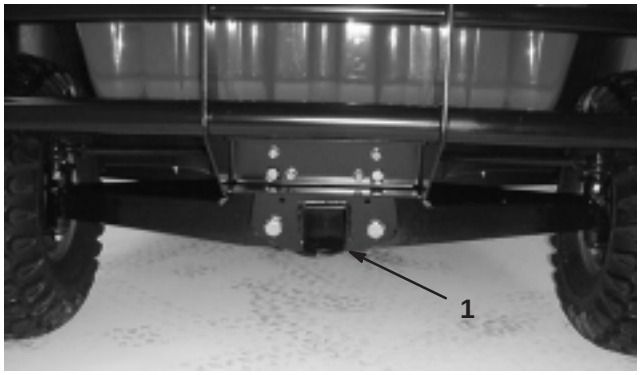


Figure 16

1. Front jacking point



Figure 17

1. Rear jacking points

Checking and Adjusting Neutral

When performing routine maintenance and/or engine diagnostics, the transaxle must be shifted into neutral (Fig. 18). The vehicle has a neutral position on the shift lever, which controls the neutral in the transaxle. The following steps should be taken to make sure that the neutral shift lever operates the transaxle neutral correctly:

1. Set the shift lever into the Neutral position.

2. Ensure that the neutral bracket is in the neutral position (level) by turning the drive clutch (Fig. 18). The vehicle should not roll back and forth. If it does, manually move the neutral bracket to the neutral position.

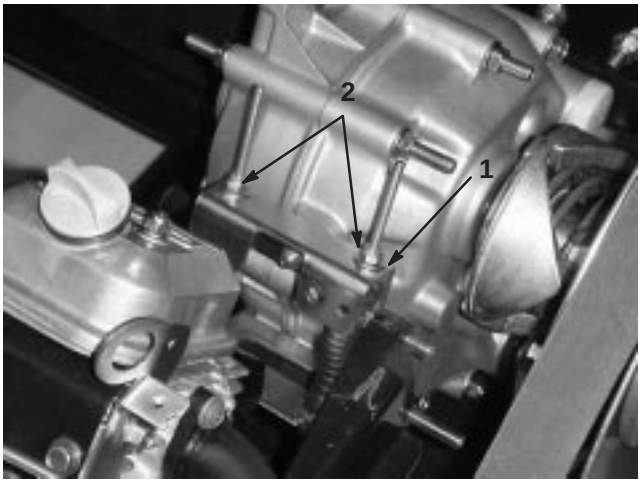


Figure 18

1. Neutral bracket
2. Locknuts

3. Tighten one of the locknuts (Fig. 18) just enough to take the slack out of the shift cable.

Note: You must hold the threaded shaft below the bracket to tighten the locknut on top.

4. Tighten the other locknut just enough to take the slack out of the other shift cable.

5. Pull up on each shift cable an ensure that there is no gap between the nut/washer and the neutral bracket (Fig. 19). If there is a gap, tighten the nut.

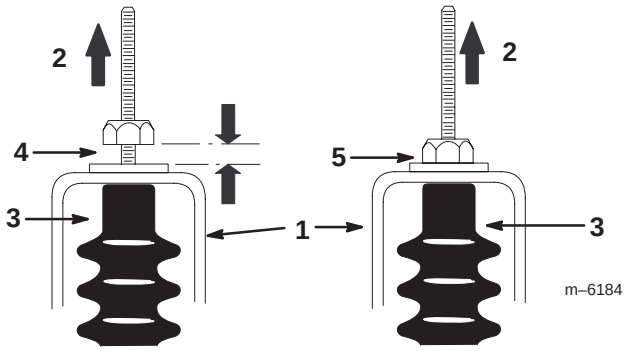


Figure 19

1. Neutral bracket
2. Pull up
3. Cable boot
4. Wrong, must tighten the nut
5. Correct adjustment

6. Start the engine and shift into Forward, Reverse, and Neutral several times to ensure that the neutral bracket is operating properly.

Servicing the Engine Oil

Check the oil level before each use.

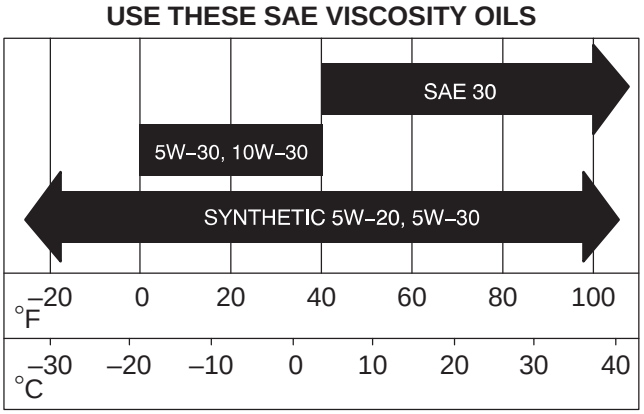
Change the oil after the first 8 operating hours and every 50 hours thereafter. Change the oil twice as often in special operating conditions; refer to Maintaining the Vehicle under Special Operating Conditions, page 20.

Replace the oil filter every 100 hours.

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

Oil Type: Detergent oil (API service SF, SG, SH, SJ, or higher)

Crankcase Capacity: 48 oz./1-1/2 qt. (1.4 liters) when the filter is changed



Checking the Oil Level

To check the oil level, refer to Checking the Crankcase Oil, page 12.

Changing and Draining the Oil

1. Start the vehicle and let it run for a few minutes to warm the oil.
2. Park the machine on a level surface, set the parking brake, turn the ignition off, and remove the key.
3. Raise the bed and secure it with the prop rod.
4. Disconnect the spark plug wires and battery cables.
5. Remove the drain plug (Fig. 20) and let the oil flow into a drain pan. When the oil drains completely, install the drain plug.

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

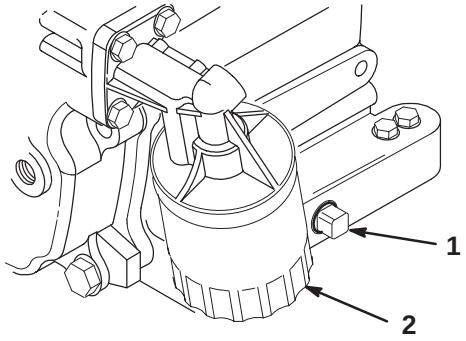


Figure 20

1. Engine oil drain plug
2. Engine oil filter

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. Reinstall the oil fill cap and dipstick firmly in place.

Changing the Oil Filter

Replace the oil filter every 100 operating hours or yearly, whichever occurs first.

1. Drain the oil from the engine; refer to Changing and Draining the Oil, page 22.
2. Remove the existing oil filter (Fig. 20). Apply a light coat of clean oil to the new filter gasket.
3. Screw the filter on until gasket contacts mounting plate, then tighten filter an additional 1/2 to 3/4 turn further. **Do not overtighten.**
4. Fill the crankcase with the proper type of new oil; refer to Servicing the Engine Oil, page 21.
5. Start and run the engine to check for leaks.
6. Stop the engine and recheck the oil level. Add oil if necessary.

Cleaning the Engine Cooling Areas

Clean the rotating screen, cooling fins, and external surfaces of the engine every 100 hours of operation or more often under extremely dusty and dirty conditions.

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.

Servicing the Air Cleaner

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

Ensure that 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 conditions are extremely dusty or dirty.

Removing the Filter Element

1. Park the machine on a level surface, set the parking brake, turn the ignition off, and remove the key.
2. Raise the bed and secure it with the 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. 21).

4. Gently slide the filter out of the air cleaner body to reduce the amount of dust dislodged (Fig. 21). Avoid knocking the filter against the air cleaner body.

5. Inspect the filter and discard it if it is damaged.

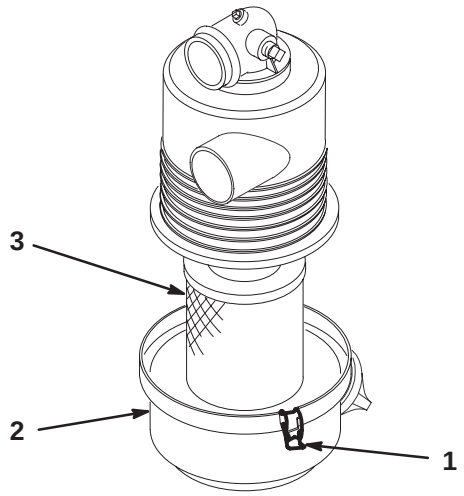


Figure 21

1. Air cleaner latches
2. Cover
3. Filter

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 the directions on the filter cleaner carton for complete information.

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

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

   C. Dry the filter element using warm, flowing air at 160°F (71°C) maximum, or allow the 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 the inside to the outside of the dry filter element. Keep the air hose nozzle at least 2 inches (51 mm) 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 100 psi (689 kPa) air pressure.

   B. Inspect the filter element 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 the 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 that the filter is sealed properly by applying pressure to the outer rim of the filter when installing it. Do not press on the flexible center of the filter.

3. Install the cover and secure the latches.

Greasing the Machine

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 are at the tie rod ends (4) (Fig. 22) and the king pins (2) (Fig. 23).

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

2. Pump grease into the bearing or bushing.

3. Wipe off excess grease.

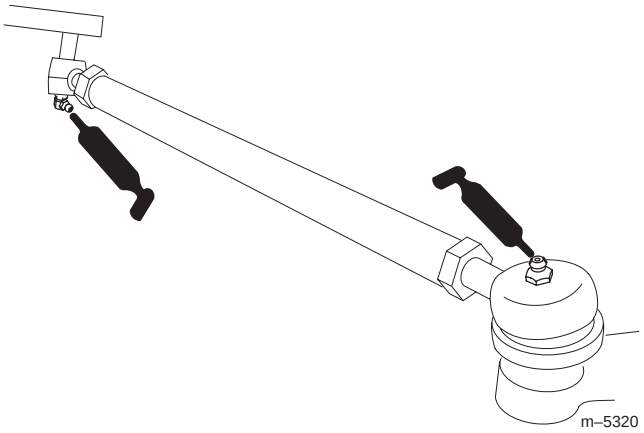


Figure 22

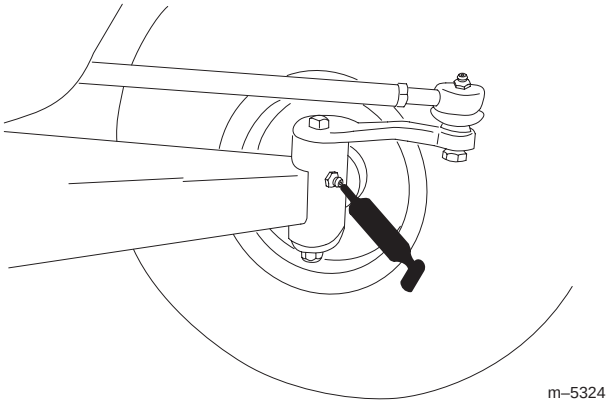


Figure 23

Servicing the Brakes

Inspecting the Brakes

Brakes are a critical safety component of the vehicle. As with all safety components, they should be closely inspected at regular intervals to ensure optimum performance and safety. The following inspections should be done every 100 hours:

- Inspect the brake shoes for wear or damage. If the lining (brake pad) thickness is less than 1/16 in. (1.6 mm), the brake shoes should be replaced.
- Inspect the backing plate and other components for signs of excessive wear or deformation. If any deformation is found, the appropriate components must be replaced.
- Check the brake fluid level; refer to Checking the Brake Fluid Level, page 24.

Checking the Brake Fluid Level

The brake fluid reservoir is filled and shipped from the factory with DOT 3 brake fluid. Check the level before the engine is first started and every 8 hours or daily, thereafter.

1. Park the machine on a level surface, set the parking brake, turn the ignition off, and remove the key.
2. Look at the side of the reservoir. The level should be above the Minimum line (Fig. 24). If the fluid level is low, clean the area around the cap, remove the cap, and fill the reservoir to above the Minimum line. **Do not overfill.**

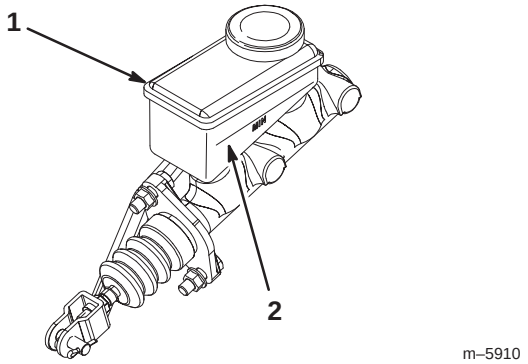


Figure 24

1. Brake fluid reservoir
2. Minimum line

Inspecting the 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.

Check the wheels to ensure that they are mounted securely. Torque the front bolts to 135–165 ft.-lb. (183–224 kPa) and the rear lug nuts to 45–65 ft.-lb. (61–88 kPa).

Adjusting the Front Suspension

The ride height of each side of the vehicle can be adjusted separately. The ride height should be 8-3/4 to 9-1/2 in. (22.2–24.1 cm) with the following parameters:

- The tire pressure should be at 12 psi (83 kPa).
- The vehicle should be driven back and forth a few times to relax the A-arms.
- Measure the ride height with the wheels facing straight ahead and a 175–225 lb. (79–102 kg) operator in the driver's seat.

  Note: The driver should drive up to the measurement area and stay seated in the vehicle while the measurement is being taken.

- Measure the ride height on a flat surface, from the bottom of the front tongue to the ground.

1. Jack the front end of the vehicle off of the ground; refer to Jacking the Vehicle, page 20.
2. Remove the travel limiting bolt (Fig. 25).
3. Loosen the centering bolts in the front A-arm (Fig. 25).
4. Remove the ride height adjustment bolt (Fig. 25).

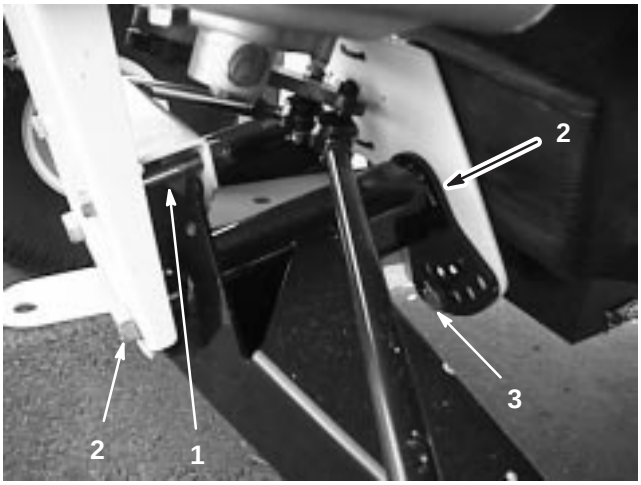


Figure 25

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

5. Rotate the front A-arm to the desired position (refer to the note below) and replace the ride height adjustment bolt (Fig. 25).

Note: The A-arms are made with rubber and have different spring rates. Because of the different spring rates, the A-arms come adjusted from the factory based on that spring rate. Generally the adjustment bolts will be installed in hole number 2, 3, or 4 (Fig. 26) and it may be different from the left side (driver side) to the right side (passenger side). If the A-arms look like they are sagging, then they should be adjusted to the next higher number (Fig. 26). Each hole equals about 3/4 in. (19 mm) of adjustment at the wheel. You will also need to do this if you are adding heavy attachments or carrying heavy loads often.

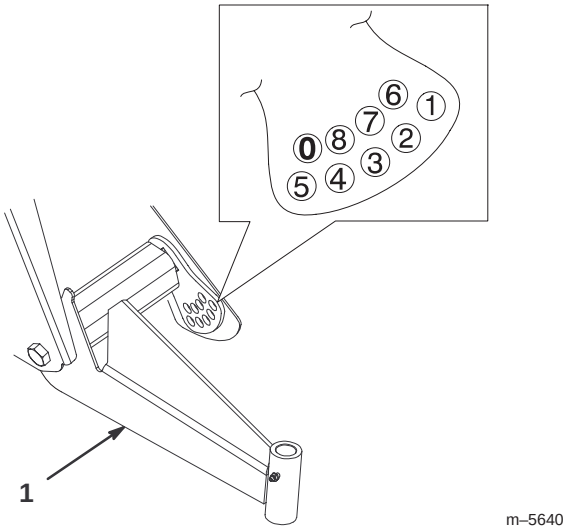


Figure 26

1. Left-hand A-arm

6. Torque the ride height adjustment bolt to 135–165 ft.-lb. (183–224 N·m).
7. Replace the travel limiting bolt (Fig. 25).

Note: The vehicle may need to be lowered to the ground on that side to install the bolt.

8. Tighten and torque the centering bolts to 240–290 ft.-lbs. (325–393 N·m).
9. Check the ride height at the front tongue per the dimensions and parameters given at the beginning of this procedure.

Adjusting Front Wheel Toe-In

Check the front wheel toe-in after every 100 operating hours, or annually, whichever occurs first.

The toe-in should be 1/8–5/8 in. (3–16 mm) with the following parameters:

- The tire pressure should be at 12 psi (83 kPa).
- The ride height should be correct before setting the toe-in; refer to Adjusting the Front Suspension, page 24.
- The vehicle should be driven back and forth a few times to relax the A-arms.
- Measure the toe-in with the wheels facing straight ahead and a 175–225 lb. (79–102 kg) operator in the driver's seat.

  Note: The driver should drive up to the measurement area and stay seated in the vehicle while the measurement is being taken.

If the vehicle will be run with medium to heavy loads most of the time, set the toe-in on the high side of the recommended amount. If it is going to be run with a light load most of the time, set the toe-in on the low side of the recommended amount.

1. Ensure that the front suspension is adjusted properly; refer to Adjusting the Front Suspension, page 24. Adjust if necessary.
2. Measure the distance between both of the front tires at the axle height at both the front and rear of the front tires (Fig. 27). A fixture or alignment gauge is needed for the rear measurement of the front tires at axle height. Use the same fixture or alignment gauge to accurately measure the front of the front tires at axle height (Fig. 27).

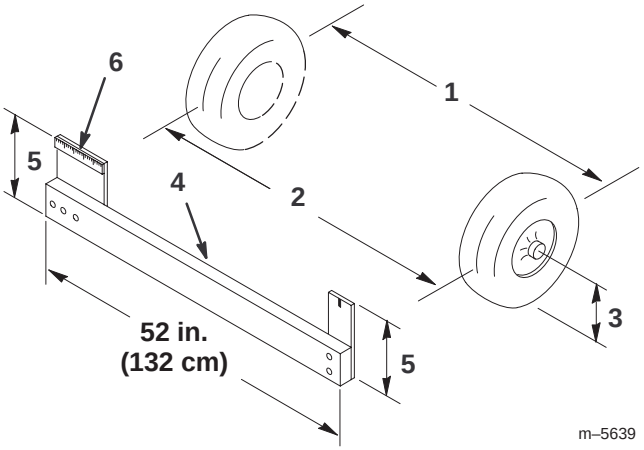


Figure 27

1. Tire center line—back
2. Tire center line—front
3. Axle center line
4. Fixture
5. Axle center line distance
6. 6 in. (15 cm) ruler

3. If the measurement does not fall within the specified range (refer to the dimensions and parameters at the beginning of this procedure), loosen the jam nuts at both ends of the tie rods (Fig. 28).

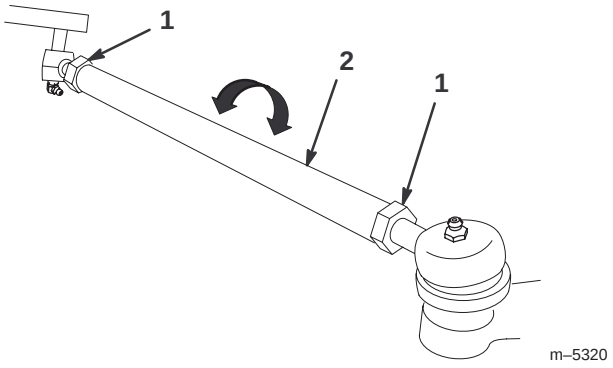


Figure 28

1. Jam nut
2. Tie rod

4. Rotate both tie rods to move the front of the tire inward or outward.
5. Tighten the tie rod jam nuts when the adjustment is correct.
6. Ensure that there is full travel of the steering wheel in both directions.

Servicing the Drive Belt

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, shift into Neutral, set the parking brake, turn the ignition off, and remove the key.
2. Raise bed and secure with prop rod.
3. Rotate and inspect belt for excessive wear or damage. Replace as necessary.

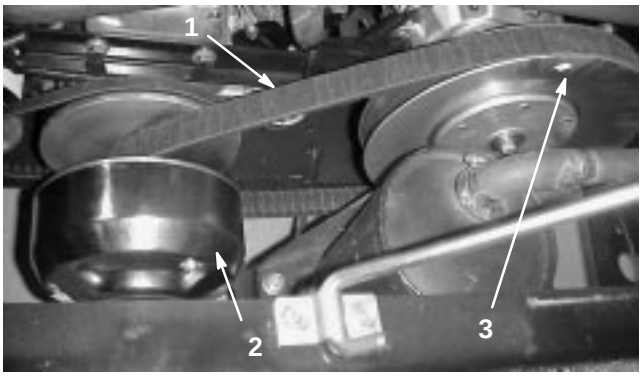


Figure 29

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

Replacing the Drive Belt

1. Rotate and route the belt over the secondary clutch (Fig. 29).
2. Remove the belt from the primary clutch (Fig. 29).
3. To replace the belt, reverse the procedure.

Maintaining the Primary Drive Clutch

After every 400 operating hours or yearly, clean and lubricate the clutch as follows:

1. Raise and latch the cargo box.
2. Stop the engine, remove the key, and set the parking brake.

3. Remove the 3 bolts securing the cover to the clutch and remove the cover (Fig. 30).

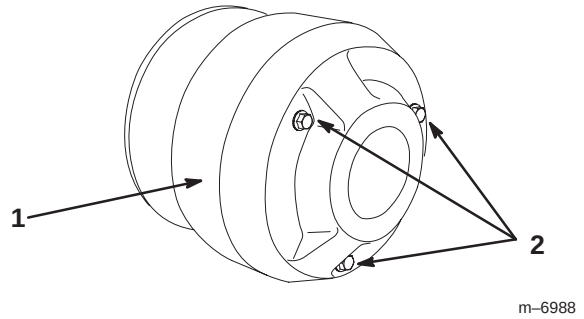


Figure 30

1. Cover
2. Bolts

4. Thoroughly clean the inside of the cover and the inner workings of the clutch using compressed air.

Caution

The dust in the clutch will become airborne and could damage your eyes or you could inhale it causing breathing difficulties.

Wear safety goggles and a dust mask or other eye and respiratory protection when performing this procedure.

5. Lubricate the moving parts in the areas circled in Figure 31 using Toro Dry Lubricant Spray, available through your Authorized Toro Dealer or Distributor.

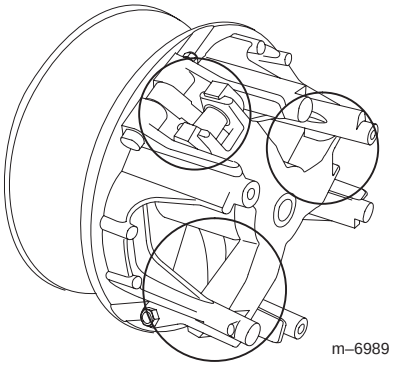


Figure 31

6. Install the clutch cover and secure it with the 3 bolts removed previously.

Servicing the 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.

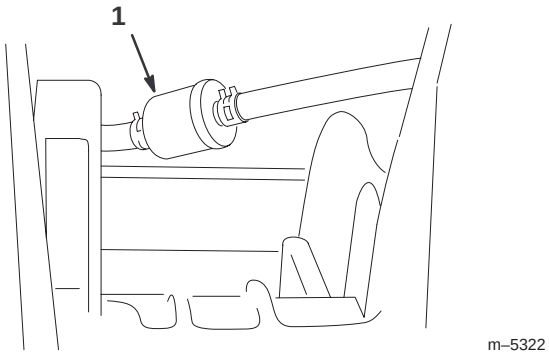


Figure 32

1. Fuel filter

4. Install the replacement fuel filter to the fuel lines with the clamps previously removed. Mount the filter so that the arrow points toward the carburetor.

Spark Plugs

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

Type: Champion RC 14YC (or equivalent)

Air Gap: 0.030 in. (0.76 mm)

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

Checking and Replacing the Spark Plug

1. Clean the area around the spark plugs so that foreign matter cannot fall into the cylinder when the spark plug is removed.

2. Pull the spark plug wires off of 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 ensure that there is no damage.

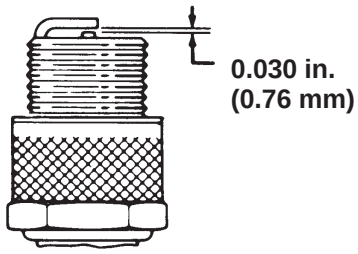


Figure 33

Important A cracked, fouled, dirty or malfunctioning spark plug must be replaced. Do not sand blast, scrape, or clean the 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 the center and side electrodes at 0.030 in. (0.76 mm). Install the correctly gapped spark plug and tighten the plug to 18–22 ft.-lb. (24–30 N·m). If a torque wrench is not used, tighten the plug firmly.

5. Install the spark plug wires.

Changing the Transaxle Fluid

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

1. Position the vehicle on a level surface, set the parking brake, turn the ignition off, and remove the key.

2. Remove the drain plug from the right side of the reservoir (Fig. 34) and let the fluid flow into a drain pan. Install and tighten the plug when the fluid stops draining.

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

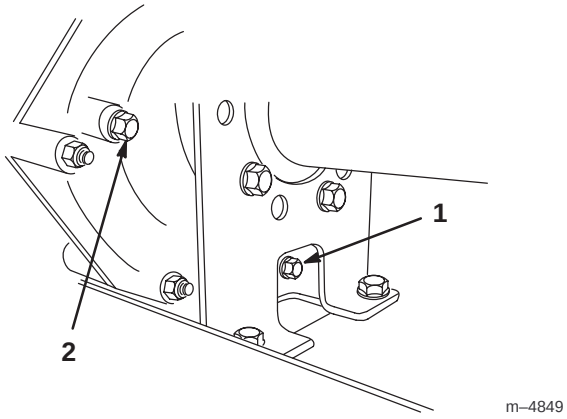


Figure 34

1. Drain plug 2. Level indicator hole

3. Fill the reservoir (Fig. 35) with approximately 1-1/2 qt. (1.4 liters) of SAE 10W30 motor oil or until the oil level is at the bottom of the level indicator hole (Fig. 34).

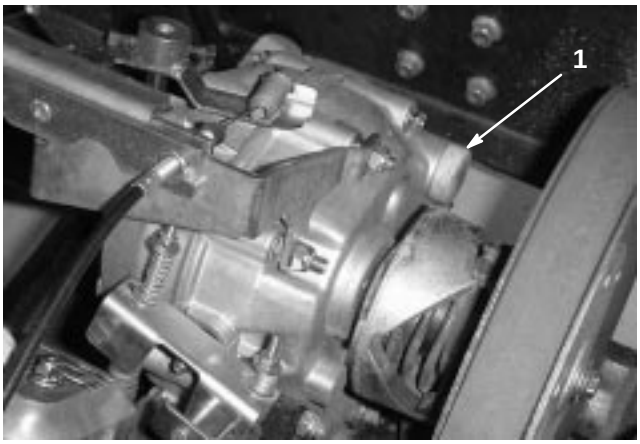


Figure 35

1. Oil fill

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

Replacing the Fuses

There are 4 fuses in the electrical system. They are located beneath the bed in a box on the right hand side of the frame (Fig. 36).

Low oil light, hour meter	10 amp.
Headlights	10 amp.
Charge circuit	25 amp.
Power point	10 amp. (15 amp. max.)

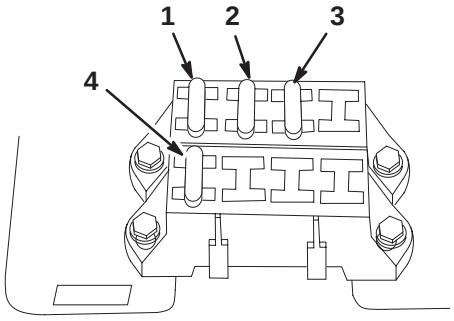


Figure 36

1. Charge circuit
2. Headlights
3. Power point
4. Low oil light, hour meter

Replacing the Headlight Bulbs

Replacement bulb: GE #862

1. Set the parking brake, turn the ignition off, and remove the key. Switch the headlights off.

2. Reach beneath the dash and rotate the lamp assembly 1/4 turn counterclockwise (Fig. 37). Pull the lamp assembly out of the reflector.

3. Remove the lamp assembly from the wire harness. Discard the lamp assembly.

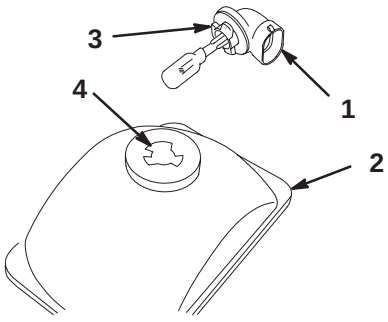


Figure 37

1. Lamp assembly
2. Reflector
3. Tabs
4. Slots

4. Push the replacement lamp assembly onto the wire harness.

5. Reach beneath the dash and align the three tabs on the lamp assembly with the slots in the reflector (Fig. 37). Insert the lamp assembly into the reflector and rotate it 1/4 turn clockwise until it stops.

Servicing the Battery

Warning

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. *Wash hands after handling.*

Important Do not jump start the vehicle.

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 volt with 280 cold cranking Amps @ 0°F (–18°C).

Removing the Battery

1. Position the vehicle on a level surface, set the parking brake, turn the ignition off, and remove key.

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

3. Remove the battery hold-down.

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

Warning

Incorrect battery cable routing could damage the vehicle and cables, causing sparks. Sparks can cause the battery gasses to explode, resulting in personal injury.

- **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.**

Warning

Battery terminals or metal tools could short against metal vehicle components, causing sparks. Sparks can cause the battery gasses to explode, resulting in personal injury.

- **When removing or installing the battery, do not allow the battery terminals to touch any metal parts of the vehicle.**
- **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 positive post is on the driver's side.
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 battery hold-down to secure the battery to the base.

Important Always keep the battery hold-down in place to protect and secure the battery.

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 32°F (0°C).

1. Remove the battery from the chassis; refer to Removing the Battery, page 29.
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

Charging the battery produces gasses that can explode.

Never smoke near the battery and keep sparks and flames away from battery.

3. Install the battery in the chassis; refer to Installing the Battery, page 30.

Storing the Battery

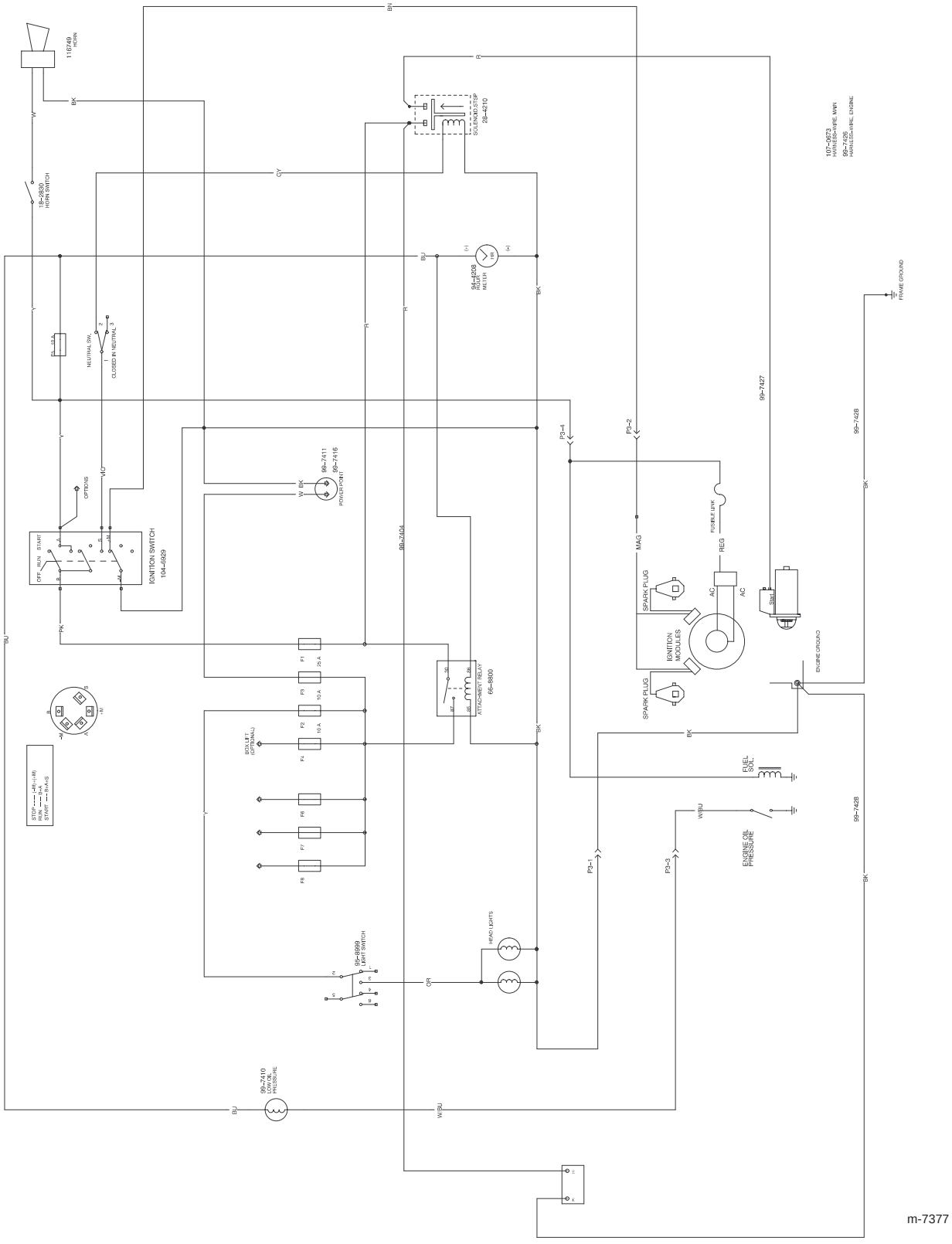
If the machine will be stored for more than 30 days, remove the battery and charge it fully. Either store it on the shelf or on the machine. Leave the cables disconnected if it is stored on the machine. Store the battery in a cool atmosphere to avoid quick deterioration of the charge in the battery.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

Washing the Vehicle

The vehicle should be washed as needed. Use water alone or with a mild detergent. A rag may be used, however the hood will loose some of its luster.

Important Pressurized water is not recommended when washing the machine. It may damage the electrical system, loosen important decals, or wash away necessary grease at friction points. Avoid excessive use of water, especially near the control panel, engine, and battery.

Schematics



Electrical Schematic

TORO.

Consumer
Vehicles

The Toro Total Coverage Guarantee

A One-Year Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly promise to repair any Toro Product used for residential or commercial use if defective in materials or workmanship for a period of one year from the date of purchase.

This warranty covers both the cost of parts and labor, but you must pay transportation costs.

This warranty applies to all consumer vehicles and their attachments.

Instructions for Obtaining Warranty Service

If you think that your Toro Product contains a defect in materials or workmanship, follow this procedure:

1. Contact any Toro Authorized or Master Service Dealer to arrange service at their dealership. To locate a dealer convenient to you, refer to the Yellow Pages of your telephone directory (look under “Lawn Mowers”) or access our website at www.Toro.com. U.S. Customers may also call 800-421-9684 to use our 24-hour Toro dealer locator system.
2. Bring the product and your proof of purchase (sales receipt) to the Service Dealer.

If for any reason you are dissatisfied with the Service Dealer’s analysis or with the assistance provided, contact us at:

Customer Care Department, Consumer Division
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
800-348-2424 (U.S. customers)
877-484-9255 (Canada customers)

Owner Responsibilities

You must maintain your Toro Product by following the maintenance procedures described in the operator’s manual. Such routine maintenance, whether performed by a dealer or by you, is at your expense.

Items and Conditions Not Covered

There is no other express warranty except for special emission system coverage on some products. This express warranty does not cover:

- Cost of regular maintenance service or parts, such as filters, fuel, lubricants, tune-up parts, brake and clutch adjustments
- Any product or part which has been altered or misused or required replacement or repair due to normal wear, accidents, or lack of proper maintenance
- Repairs necessary due to improper fuel, contaminants in the fuel system, or failure to properly prepare the fuel system prior to any period of non-use over three months
- Pickup and delivery charges

All repairs covered by this warranty must be performed by an Authorized Toro Service Dealer using Toro approved replacement parts.

General Conditions

Repair by an Authorized Toro Service Dealer is your sole remedy under this warranty.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty.

All implied warranties of merchantability (that the product is fit for ordinary use) and fitness for use (that the product is fit for a particular purpose) are limited to the duration of the express warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Countries Other than the United States or Canada

Customers who have purchased Toro products exported from the United States or Canada should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor’s service or have difficulty obtaining guarantee information, contact the Toro importer. If all other remedies fail, you may contact us at Toro Warranty Company.

Part No. 374-0038 Rev. A