

Operation

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

Important: Before operating the machine, check the fluid levels, and remove debris from the machine. Ensure that the area is clear of people and debris. You should also know and have marked the locations of all utility lines.

Before Operation

Before Operation Safety

General Safety

- Have the property or work area marked for buried lines and other objects, and do not dig in marked areas; note the location of unmarked objects and structures, such as underground storage tanks, wells, and septic systems.
- Inspect the area where you will use the equipment.
 - Evaluate the terrain to determine what accessories and attachments you need to properly and safely perform the job.
 - Remove all debris.
 - Ensure that the area is clear of bystanders before operating the machine.
 - Stop the machine if anyone enters the area.
- Become familiar with the safe operation of the equipment, operator controls, and safety decals.
 - The owner is responsible for training all operators and mechanics.
 - Never allow children or untrained people to operate or service the machine. Local regulations may restrict the age or require certified training of the operator.
 - Know how to stop the machine and shut off the engine quickly.
 - Check that the operator's presence controls, safety switches, and shields are attached and functioning properly. Do not operate the machine unless they are functioning properly.
 - Locate the pinch-point areas marked on the machine and attachments; keep your hands and feet away from these areas.
 - Stop the machine, shut off the engine, and remove the key before leaving the operating position.

Fuel Safety

- Use extreme care in handling fuel. It is flammable and its vapors are explosive.
- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only an approved fuel container.
- Do not remove the fuel cap or fill the fuel tank while the engine is running or hot.
- Do not add or drain fuel in an enclosed space.
- Do not store the machine or fuel container where there is an open flame, spark, or pilot light, such as on a water heater or other appliance.
- If you spill fuel, do not attempt to start the engine; avoid creating any source of ignition until the fuel vapors have dissipated.
- Do not fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground, away from your vehicle before filling.
- Remove the equipment from the truck or trailer and refuel it while it is on the ground. If this is not possible, then refuel from a portable container rather than a fuel-dispenser nozzle.
- Keep the fuel-dispenser nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.

Adding Fuel

Recommended Fuel

- For best results, use only clean, fresh (less than 30 days old), unleaded gasoline with an octane rating of 87 or higher ((R+M)/2 rating method).
- **Ethanol:** Gasoline with up to 10% ethanol (gasohol) or 15% MTBE (methyl tertiary butyl ether) by volume is acceptable. Ethanol and MTBE are not the same. Gasoline with 15% ethanol (E15) by volume is not approved for use. **Never use gasoline that contains more than 10% ethanol by volume**, such as E15 (contains 15% ethanol), E20 (contains 20% ethanol), or E85 (contains up to 85% ethanol). Using unapproved gasoline may cause performance problems and/or engine damage which may not be covered under warranty.
- **Do not** use gasoline containing methanol.
- **Do not** store fuel either in the fuel tank or fuel containers over the winter unless you use a fuel stabilizer.
- **Do not** add oil to gasoline.

Using Stabilizer/Conditioner

Use fuel stabilizer/conditioner in the machine to keep the fuel fresh longer when used as directed by the fuel-stabilizer manufacturer.

Important: Do not use fuel additives containing methanol or ethanol.

Add the amount of fuel stabilizer/conditioner to fresh fuel as directed by the fuel-stabilizer manufacturer.

Filling the Fuel Tank

1. Park the machine on a level surface, engage the parking brake (if equipped), and lower the boom.
2. Shut off the engine, remove the key, and allow the engine to cool.
3. Clean around the fuel-tank cap and remove it (Figure 15).

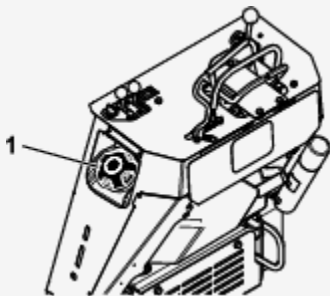


Figure 15

1. Fuel-tank cap
4. Add fuel to the tank until the level is 6 to 13 mm (1/4 to 1/2 inch) below the bottom of the filler neck.
Important: This space in the tank allows fuel to expand. Do not fill the fuel tank completely full.
5. Install the fuel-tank cap securely, turning it until it clicks.
6. Wipe up any spilled fuel.

Performing Daily Maintenance

Before starting the machine each day, perform the Each Use/Daily procedures listed in .

During Operation

During Operation Safety

General Safety

- Keep your hands and feet away from moving teeth, chain, auger, or other parts.
 - Keep bystanders and pets away from the machine and never carry passengers.
 - Wear appropriate clothing, including eye protection, long pants, substantial slip-resistant footwear, and hearing protection.
 - Tie back long hair and do not wear loose clothing or loose jewelry.
 - Stop digging if anyone enters the area.
- The machine moves in reverse during operation—be aware of your surroundings while using the machine.
 - Operate the machine only in areas where there is sufficient clearance for you to safely maneuver.
 - Be aware of obstacles in close proximity to you. Failure to maintain adequate distance from trees, walls, and other barriers may result in injury as the machine backs up during operation if you are not attentive to the surroundings.
 - Look behind and down before backing up to ensure that the path is clear.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Never jerk the traction and boom-elevation controls; use a steady motion.
- The owner/user can prevent and is responsible for accidents that may cause personal injury or property damage.
- Do not operate the machine when you are tired, ill, or under the influence of alcohol or drugs.
- Operate the machine only in good light.
- Ensure that all the drives are in neutral and engage the parking brake before starting the engine. Start the engine only from the operator's position.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
- Stop the digging chain when you are not digging.
- Stop the machine, shut off the engine, remove the key, and inspect the machine if you strike an object. Make any necessary repairs before resuming operation.
- Never run an engine in an enclosed area.
- Never leave a running machine unattended. Before leaving the operating position, do the following:
 - Park the machine on a level surface.

- Lower the boom to the ground.
- Engage the parking brake.
- Shut off the engine and remove the key.
- Check for overhead clearance (i.e., electrical wires, branches, and doorways) before driving under any objects and do not contact them.
- Do not operate the machine when there is the risk of lightning.
- Use only Toro-approved attachments and accessories.

Slope Safety

- Operate up and down slopes with the front of the machine uphill.
- Raising the boom on a slope affects the stability of the machine. Keep the boom in the lowered position when on slopes.
- Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. Operating the machine on any slope or uneven terrain requires extra caution.
- Establish your own procedures and rules for operating on slopes. These procedures must include surveying the site to determine which slopes are safe for machine operation. Always use common sense and good judgment when performing this survey.
- Slow down and use extra care on hillsides. Ground conditions can affect the stability of the machine.
- Avoid starting or stopping the machine on a slope.
- Avoid turning on slopes. If you must turn, turn slowly and keep the heavy end of the machine uphill.
- Keep all movements on slopes slow and gradual. Do not make sudden changes in speed or direction.
- If you feel uneasy operating the machine on a slope, do not do it.
- Watch for holes, ruts, or bumps, as uneven terrain could overturn the machine. Tall grass can hide obstacles.
- Use caution when operating on wet surfaces. Reduced traction could cause sliding.
- Evaluate the area to ensure that the ground is stable enough to support the machine.
- Use caution when operating the machine near the following:
 - Drop-offs
 - Ditches
 - Embankments
 - Bodies of water
- The machine could suddenly roll over if a track goes over the edge or the edge caves in. Maintain a safe distance between the machine and any hazard.
- If the machine starts to tip, let go of the controls and step away from the machine.
- Do not remove or add attachments on a slope.
- Do not park the machine on a hillside or slope.

Starting the Engine

1. Move the throttle lever midway between the SLOW and FAST positions (Figure 16).

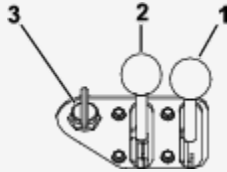


Figure 16

1. Choke lever (Toro engines only)
 2. Throttle lever
 3. Key
2. For Toro engines, do the following:
 1. Move the choke lever to the ON position (Figure 16).
Note: A warm or hot engine may not require choking.
 2. Turn the key to the ON position (Figure 16). When the engine starts, release the key.
 3. Gradually move the choke lever to the OFF position (Figure 16). If the engine stalls or hesitates, engage the choke again until the engine warms up.
 3. For Kohler engines, turn the key to the ON position (Figure 16). When the engine starts, release the key.
 4. Move the throttle lever to the desired setting (Figure 16).

Important: Running the engine at high speeds when the hydraulic system is cold (i.e., when the air temperature is at or below freezing) could damage the hydraulic system. When starting the engine in cold conditions, allow it to run in the middle throttle position for 2 to 5 minutes before moving the throttle to the FAST position.

Note: If the outdoor temperature is below freezing, store the machine in a garage to keep it warmer and aid in starting.

Driving the Machine

Use the traction controls to move the machine. The farther you move the traction controls in any direction, the faster the machine moves in that direction. Release the traction controls to stop the machine.

Caution

When reversing, you may back into stationary objects or over bystanders and cause serious personal injury or death.

Look behind you for obstructions or bystanders and keep your hands on the reference bar.

The throttle control regulates the engine speed as measured in rpm (revolutions per minute). Place the throttle lever in the FAST position for best performance. You can, however, use the throttle position to operate at slower speeds.

Shutting off the Engine

1. Park the machine on a level surface, engage the parking brake (if applicable), and lower the boom.
2. Move the throttle lever to the SLOW position (Figure 16).
3. If the engine has been working hard or is hot, let it idle for a minute before turning the key switch to the OFF position.

Note: This helps to cool the engine before you shut it off. In an emergency, you can shut off the engine immediately.

4. Turn the key switch to the OFF position and remove the key.
5. **Caution**
A child or untrained bystander could attempt to operate the machine and be injured. Remove the key from the switch when leaving the machine, even if just for a few seconds.

Digging a Trench

1. Start the engine, raise the boom, move the throttle lever to the FAST position, and move the machine over the area to be trenched.
Important: Allow the machine to warm up for several minutes before digging.
2. Pull the trencher control lever to the reference bar to engage the trencher.
3. Without moving the traction controls, slowly lower the boom and chain into the ground to the desired depth.
4. Once the trencher boom is in the ground at a 45° to 60° angle, slowly move the machine rearward to extend the trench.
Note: While trenching, the drive speed automatically decreases.
5. When finished, raise the boom out of the trench, then stop the trencher.

Operating Tips

- Clean the area of trash, branches, and rocks before trenching to prevent damaging the machine.
- Always begin trenching with the slowest ground speed possible. Increase speed if conditions permit. If the chain speed slows down, reduce the ground speed to keep the chain moving at its fastest rate. Do not spin the tracks while trenching.
- Always use full throttle (maximum engine speed) when trenching.
- Always trench backward (i.e., in reverse).
- Trench with the chain at a 45° to 60° angle for best results.
- You will be able to dig a trench faster by controlling the depth with periodic adjustments of the boom.
- If the trencher binds in the soil, reverse the chain direction. Once the chain is loose, change chain directions and continue trenching.
- If you need the finished trench to be cleaner than what is possible with the trencher, you can purchase a crumber from your dealer. The crumber mounts onto the trencher head and scrapes the trench clean as you dig.
- To improve the quality of trenches less than 61 cm (24 inches) deep, use a 61 cm (24 inch) boom.
- Use the correct chain for the ground conditions, as listed in the following table:

Soil Type	Recommended Chain Type
Sandy	Soil chain (configure with extra teeth for a faster digging speed; refer to your Authorized Service Dealer)
Sandy Loam/Loam/Loamy Clay	Soil chain

Wet, sticky clay	Soil chain
Hard soils: dry clay and compacted soils	Combination chain
Rocky soil/gravel	Rock chain

After Operation

After Operation Safety

- Park the machine on a level surface, disengage the trencher hydraulics, lower the boom, engage the parking brake, shut off the engine, and remove the key. Wait for all movement to stop and allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Clean debris from the attachments, drives, mufflers, and engine to help prevent fires. Clean up oil or fuel spills.
- Keep all parts in good working condition and all hardware tightened.
- Use care when loading or unloading the machine into a trailer or truck.

Securing the Machine for Transport

Important: Do not operate or drive the machine on roadways. Use care when loading or unloading the machine into a trailer or truck.

1. Park the machine on a level surface, engage the parking brake (if applicable), and lower the boom.
2. Shut off the engine and remove the key.
3. Secure the machine to a trailer with chains or straps using the tie-down/lift loops at the front and rear of the machine (Figure 17 and Figure 18). Refer to your local ordinances for trailer and tie-down requirements.

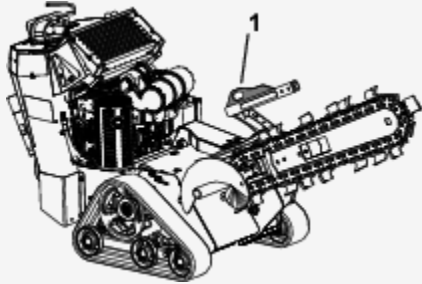


Figure 17

1. Front tie-down loop

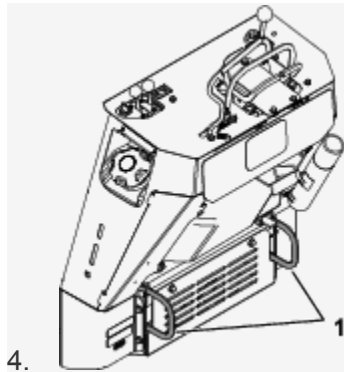


Figure 18

1. Rear tie-down loops

Lifting the Machine

You can lift the machine using the tie-down/lift loops as lift points (Figure 17 and Figure 18).