

OPERATOR'S MANUAL

Serial number 1100760 and up

WX900 Series Log Splitter

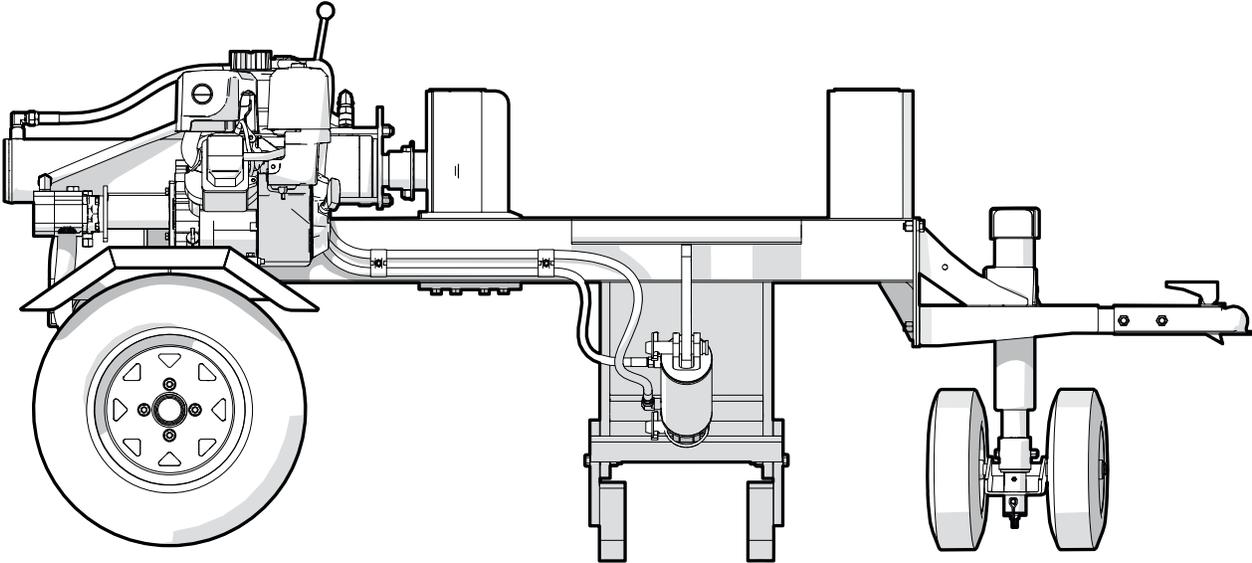


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1. Introduction

WARNING!

Do not attempt to start or operate the machine before you read this manual thoroughly. Make sure that you understand how to operate the machine correctly and safely before you use it.

Keep this manual with the machine at all times.

W034

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Review all safety, operation and maintenance information contained in this manual.

Congratulations on choosing a **Wallenstein WX900 Series Log Splitter!**

This high-quality machine is designed and manufactured to meet the needs of an efficient wood splitting operation.

Models Covered in this Manual

- **WX950**
- **WX960**
- **WX970**

For available accessories, go to WallensteinEquipment.com.

This manual is subject to change without notice. For the most current information, go to WallensteinEquipment.com.

Information that is specific to a model is noted. Otherwise, the information in this manual applies to all of the listed models.

Units of measurement in Wallenstein Equipment technical manuals are written as:
US Customary (SI metric).

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Wallenstein dealer or distributor if you need assistance, information or additional copies of the manuals.



1.1 Delivery Inspection Report

Wallenstein WX950, WX960, and WX970 Log Splitter

To register your product and start the warranty, go to WallensteinEquipment.com.

This form must be completed by the dealer at the time of delivery, and then signed by the dealer and customer.

I received the product manuals and was thoroughly instructed about the care, adjustments, safe operation, and applicable warranty policy.

I thoroughly instructed the customer about the equipment care, adjustments, safe operation, and applicable warranty policy, and reviewed the manuals with them.

Customer	Dealer
Address	Address
City, State/Province, ZIP/Postal Code	City, State/Province, ZIP/Postal Code
()	()
Phone Number	Phone Number
Contact Name	
Model	
Serial Number	
Delivery date	

Dealer Inspection Checklist

- _____ All support stands move freely.
- _____ Machine controls function correctly.
- _____ All fasteners are torqued to the correct specification.
- _____ All grease points are lubricated.
- _____ Purchased accessories are included, if applicable.
- _____ Operator's Manual is in the storage tube.
- _____ Hydraulic system and cylinders function correctly.
- _____ Hydraulic controls move freely.
- _____ Hydraulic fluid reservoir level is correct.
- _____ Hydraulic connections are tight, and hoses and fittings are in good condition.
- _____ There are no hydraulic leaks.
- _____ Engine starts and runs, and fluid levels are correct.

- _____ Tire pressure is correct (see the tire sidewall).
- _____ Tires are in good condition.

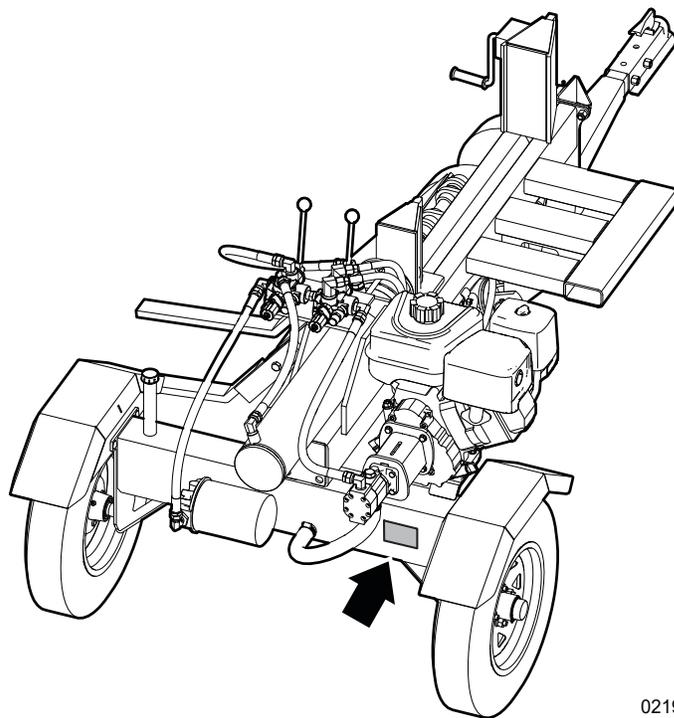
Safety Checks

- _____ All safety labels are applied and legible.
- _____ All guards and shields are installed, and the covers are closed.
- _____ Wheel lug nuts are tightened to the correct torque.
- _____ A retainer is installed through each hitch point.
- _____ Safety chains are on the ball-mount hitch.
- _____ Operating and safety instructions were reviewed.

1.2 Serial Number Location

Always provide the model and serial number of your Wallenstein product when ordering parts, or requesting service or other information. The product information plate location is shown in the illustration.

For future convenience, record the product Model and Serial Number in the spaces provided below.



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Figure 1—Serial number location (typical)

Record Product Information Here	
Model:	
Serial Number:	

1.3 Types of Labels on the Machine

When getting familiar with the Wallenstein product, notice that there are numerous labels located on the machine. There are different types of labels for safety, information, and product identification. The following section explains what they are for and how to read them.

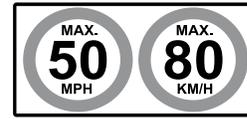
Safety labels have a yellow background and are generally two panel. A safety label can be vertical or horizontal.



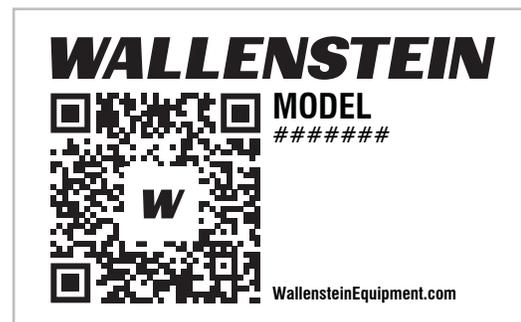
Mandatory action labels are pictorial with a blue background and generally rectangular with single or multiple symbols. This label shows the type of personal protective equipment (PPE) that is necessary for safe operation.



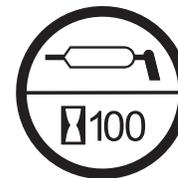
Information labels are usually pictorial with a white background and the number of panels can be different. This type of label provides information for the operator or shows the operation of a control.



Product labels indicate the machine model and serial number. For more product information, scan the quick response (QR) code.



Maintenance labels have a green background and the number of panels can be different. This label shows the type of maintenance and how frequently it is necessary.



For safety label definitions, see *Safety Label Definitions on page 13*. For illustrations of the labels and the label locations, download the parts manual for your Wallenstein product at WallensteinEquipment.com.

2. Safety

Read and understand all safety information before operating the machine.

2.1 Safety Alert Symbol

This Safety Alert Symbol means:

ATTENTION! BE ALERT!

YOUR SAFETY IS INVOLVED!

The safety alert symbol identifies important safety messages on the machine and in the manual.

When you see this symbol, be aware of the possibility of personal injury or death. Follow the instructions in the safety message.

2.2 Signal Words

The signal words **DANGER**, **WARNING** and **CAUTION** identify the severity of a hazard to anyone who uses the machine. The applicable signal word for each message was selected using the following guidelines:

DANGER

Identifies a hazardous situation that, if not avoided, **will** result in serious injury or death. This signal word is used to tell anyone who uses the machine about the most hazardous situations and machine components that cannot be guarded against.

WARNING

Identifies a hazardous situation that, if not avoided, **could** result in serious injury or death. This signal word includes hazards that occur when guards are removed and can be used to tell anyone who uses the machine about unsafe practices.

CAUTION

Identifies a hazardous situation that, if not avoided, **could** result in minor or moderate injury. It can also be used to tell anyone who uses the machine about unsafe practices.

IMPORTANT – Identifies a situation that could result in damage to the machine or property, but is not a personal injury hazard.



Provides additional information that is helpful.



2.3 Why Safety is Important

- **Accidents disable and kill people.**
- **Accidents cost money.**
- **Accidents are preventable**

YOU are responsible for the safe operation and maintenance of your Wallenstein product. **YOU** must make sure that you and anyone else who uses, maintains, or works around the machine is familiar with the operation and maintenance procedures and related **SAFETY** information contained in this manual. Follow the safety best practices included in this manual while using your machine.

YOU are responsible for your own safety. Follow safety best practices to protect yourself and the people around you. Make these practices part of your safety program. Make sure that **EVERYONE** who uses this machine is familiar with the recommended operation and maintenance procedures, and obeys all the safety instructions. Most accidents can be prevented.

Do not risk injury or death by ignoring safety instructions and best practices.

2.4 Safety Rules

WARNING!

Never bypass or remove a safety function. Never operate the machine when a safety function does not work. Safety functions are intended to protect people from hazards that can cause serious injury or death. Keep safety components maintained and in working condition.

CAUTION!



Hearing loss hazard. Prolonged exposure to loud noise may cause permanent hearing loss. Use suitable protection while operating the machine.

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Wallenstein Equipment puts considerable effort into designing products that are safe to use; however, it is also the responsibility of the operator to use the equipment safely.

For safety information that is specific to machine operation, service, or maintenance, see the applicable section in this manual.

- It is the operator's responsibility to read, understand, and follow ALL safety and operating instructions in this manual.
- If you do not understand any part of this manual or need assistance, contact your local dealer, the distributor, or Wallenstein Equipment.
- Do not allow anyone to use this machine until they have read this manual. The operator must have a thorough understanding of the safety precautions and how the machine works. Review the safety instructions with all users annually.
- Operators must be responsible, familiar with, and physically able to use the machine. Each operator must be trained before using the machine. Before operation, evaluate the physical and/or mental limitations of each operator to make sure that they can use the machine safely. Never let a child operate the machine.
- Make sure that all users understand the safety labels on the machine before operating, servicing, adjusting, or cleaning it. For safety label definitions, see *Safety Label Definitions on page 13*.
- Learn the controls and how to stop the machine quickly in the event of an emergency. For instructions, see *Emergency Stop on page 27*.



- Keep a first-aid kit available and know how to use the contents of it.



- Keep a fire extinguisher available and know how to use it.



- Wear the appropriate PPE when operating, servicing, or maintaining the machine. This includes, but is not limited to:
 - A hard hat.
 - Heavy gloves.
 - Hearing protection.
 - Protective shoes with steel toes and slip resistant soles.
 - Protective glasses, goggles, or a face shield.

- Prolonged exposure to loud noise may cause permanent hearing loss. Power equipment with or without a vehicle attached can often be noisy enough to cause permanent, partial hearing loss.



- Wear hearing protection on a full-time basis if the noise in the operator's position exceeds 80 dB. Noise over 85 dB on a long-term basis can cause severe hearing loss. Noise over 90 dB adjacent to the operator on a long-term basis may cause permanent, total hearing loss.
- Avoid wearing loose fitting clothing, loose or uncovered long hair, jewelry, and loose personal articles. These can get caught in moving parts and cause injury. Jewelry may also ground a live electrical circuit causing injury and machine damage.
- Never consume alcohol or drugs before or during machine operation. Alertness or coordination can be affected. Consult your doctor about operating this machine while taking prescription medications.
- Only use the machine in daylight or good artificial light.
- Make sure that all guards and shields are installed, and the covers are closed. If removal is necessary for repair, replace them before using the machine.
- Never allow anyone to ride on the machine during transport.
- Before starting the engine, make sure that the machine is clear of debris.
- Do not touch hot engine parts, the muffler cover, hoses, engine body, or engine oil during operation or after the engine stops. Contact with hot surfaces can cause burns.

2.5 Equipment Safety Guidelines

Safety is one of the main concerns in designing and developing equipment. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment.

Avoid hazards by observing the following precautions. Insist anyone working with you follow them as well.

- Replace safety or instruction labels that are not readable or are missing. For locations and explanations, see *Safety Labels on page 11*.
- Do not modify the equipment in any way. Unapproved modification can result in serious injury or death. In addition, unapproved modification can cause incorrect operation and decrease the life of the machine. Unapproved modification voids the warranty.
- Make sure that the machine is correctly stationed, adjusted, and in working condition.
- Keep the machine free of accumulated grease and debris to prevent fires and machine damage.
- Make sure that the split wood does not interfere with the safe operation of the machine.
- Look for and avoid overhead hazards (for example; branches, cables, and electrical wires).
- Never exceed the limitations of the machine. If the machine is not operating normally or you feel unsafe, stop the machine!

2.6 Safe Condition

The term **Safe Condition** is referenced throughout this manual. What this means is setting the machine in a state that makes it safe to load, service, maintain, or prepare for storage.

Complete the following to place the machine in a Safe Condition before performing any service, maintenance work, or storage preparation:

SAFE CONDITION

1. Stop the machine.
For instructions, see *Stop the Machine on page 27*.
2. Make sure all moving parts have stopped.
3. Disconnect the engine spark-plug wire and keep it away from the spark plug.

2.7 Safety Training

An untrained operator can cause serious injury or death to themselves or others. Review the safety instructions with all users annually. The *Sign-Off Form on page 10* can be used to keep a training record.

- When someone does not understand the operation of a machine, they can create dangerous situations very quickly. Operators must understand the safety information in this manual and the safety labels that are on the machine
- The owner has the responsibility to provide instruction to anyone who is going to operate the machine. This machine is dangerous to anyone who is unfamiliar with its operation.
- If the machine is loaned or rented, it is the owner's responsibility to make sure that, before using the machine, every operator:
 - Reads and understands this manual.
 - Is instructed in the safe and correct use of the machine.
 - Understands and knows how to set the machine to a **Safe Condition**.
For instructions, see *Safe Condition*.

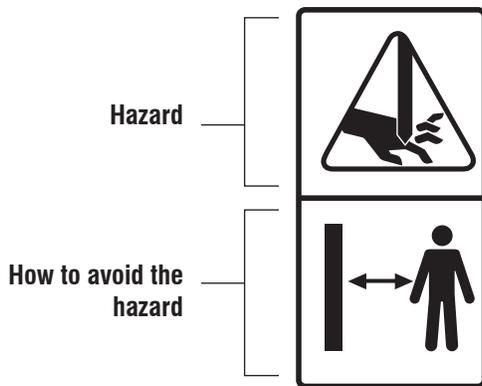
3. Safety Labels

WARNING!

Replace all safety labels that are missing, damaged, or illegible. If a component is replaced and it has a safety label on it, apply a safety label to the new component. Operating the machine with missing, damaged, or illegible safety labels puts the operator at risk of serious injury or death.

W100

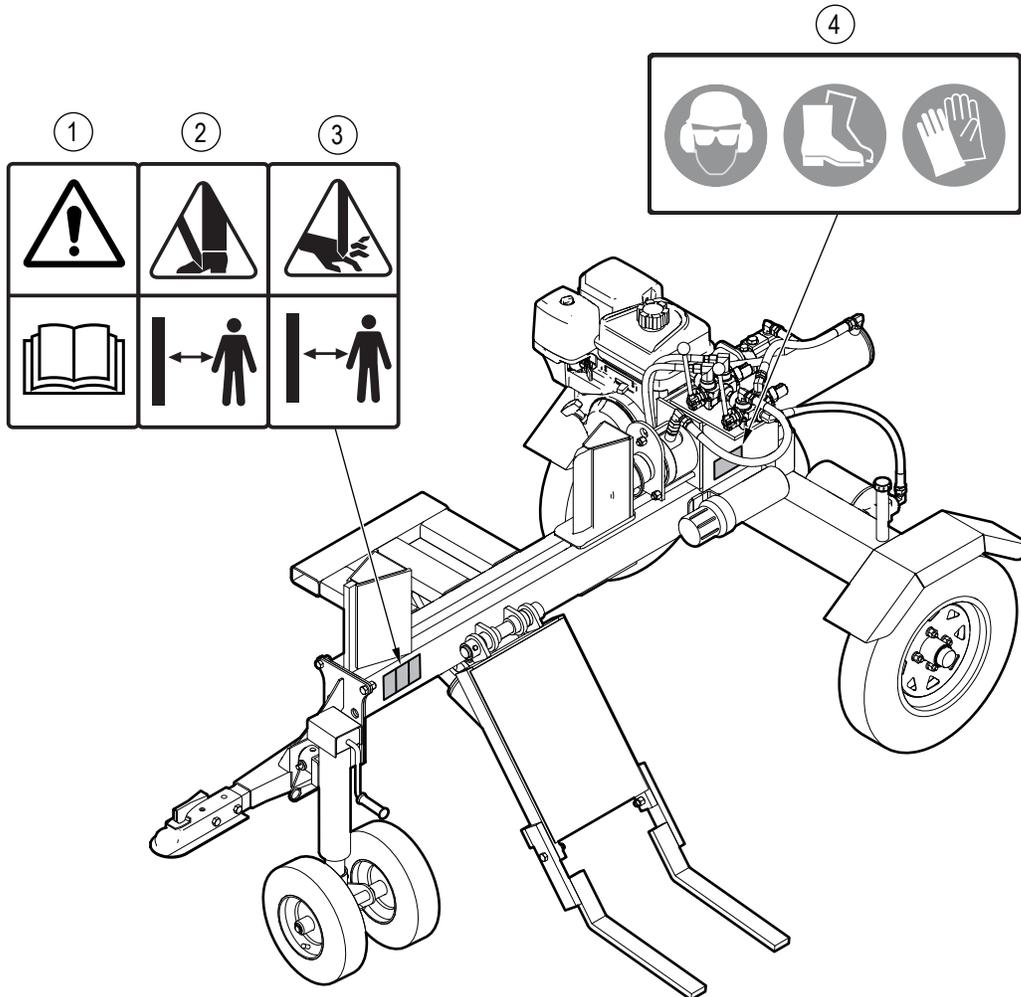
Learn what the safety labels mean and know the safety hazards. A safety label can be vertical or horizontal. Vertical safety labels have a top panel and a bottom panel. Horizontal safety labels have a left side panel and a right side panel. The top or left side panel shows the safety alert (possible hazard), and the bottom or right side panel shows the action message (how to prevent illness, injury, or death).



Think SAFETY! Work SAFELY!

3.1 Safety Label Locations

Numbers correspond with the *Safety Label Definitions* on page 13.



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Figure 2 – Safety label locations (typical)

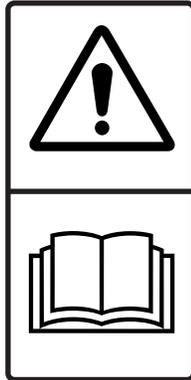
3.2 Safety Label Definitions

1. CAUTION!

Read the Operator's Manual

There is important safety information and instructions in the Operator's Manual.

Read all the safety information and instructions in the Operator's Manual. Know what all the safety labels mean.



2. WARNING!

Crush hazard

Logs and split wood can fall from the machine and cause personal injury.

Keep your feet away from the machine when a log is on the machine, being lifted onto the machine, or being split. Always wear steel-toed footwear while operating the machine.



3. WARNING!

Pinch and crush hazard

Your hands can be pinched or crushed by the splitting wedge or while the log is being split.

Keep your hands away from all moving parts while the machine is operating. Wait for all moving parts to stop before putting a log on the machine or clearing an obstruction.



4. WARNING!

Wear the necessary PPE

- A hard hat.
- Heavy gloves.
- Hearing protection.
- Protective footwear with steel toes and slip resistant soles.
- Protective goggles or a face shield.



3.2.1 Replace a Safety Label

- Always replace safety labels that are missing or have become illegible. Replacement safety labels are available through your local Wallenstein Equipment dealer or distributor.
- Keep the safety labels clean and legible at all times.
- Parts replaced that had a safety label on them must also have the safety label replaced.

Requirements

- The installation area must be clean and dry.
- The application surface must be clean and free of grease or oil.
- The ambient temperature must be above 50 °F (10 °C).
- A squeegee, plastic bank card, or similar tool is required to smooth out the label.

Procedure



Determine the exact position for the label before removing the backing paper. If possible, align the label with an edge on the machine.

1. Peel the label off the backing paper.
2. Position the label above the location where it is being applied to the machine.
3. Starting at one edge, carefully press the center of the exposed sticky-backing in place, smoothing it out as you work from one side to the other.
4. Use an appropriate tool to smooth out the label, working from one end to the other.

Small air pockets can be pierced with a pin and smoothed out using a piece of the label backing paper.

4. Familiarization

Wallenstein log splitters are designed to split logs into smaller portions. A gas engine provides power to the machine.

4.1 New Operator

WARNING!

Make sure all operators understand how to place the machine in a safe condition before performing any service, maintenance work, or storage preparation. For instructions, see *Safe Condition on page 9*.

It is the responsibility of the owner or operator to read this manual, and to train all new operators before they start working with the machine. Follow all safety instructions.

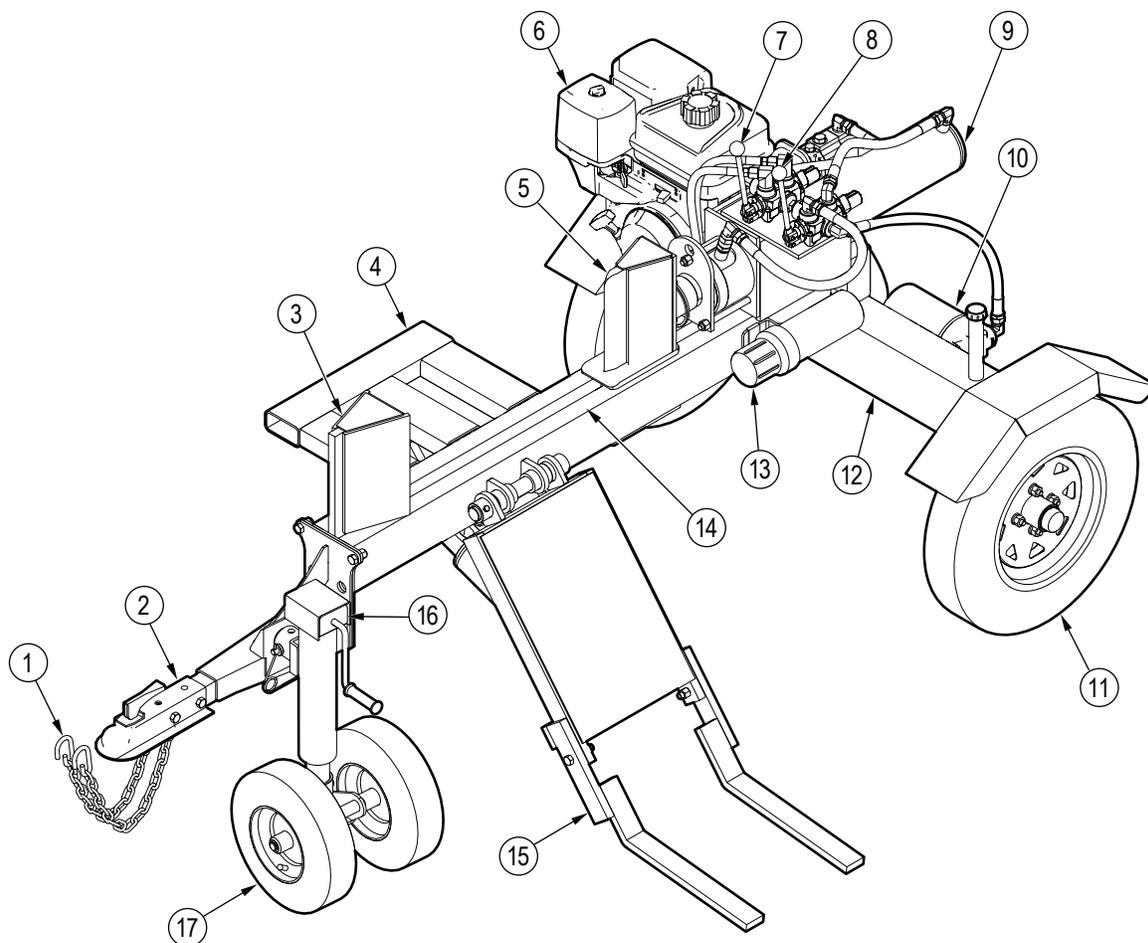
Untrained operators are not qualified to use the machine.
They can endanger themselves and others or damage property.

4.2 Training

Each operator must be trained in the correct operating procedures before using the machine.

1. Review control locations, functions, and movement directions.
2. Move the machine to a large open area to allow the operator to become familiar with control function and machine response.
3. When the new operator is familiar and comfortable with the machine, they can proceed with the work.

4.3 Machine Components



02200

Figure 3—WX950, WX960, and WX970 log splitter components

1. Safety chains
2. Trailer tongue
3. Stop block
4. Shelf
5. Splitting wedge
6. Engine
7. Log lifter shelf control lever
8. Splitter-control lever
9. Hydraulic cylinder
10. Hydraulic fluid filter
11. Tire (1 of 2)
12. Hydraulic fluid reservoir
13. Operator's Manual storage tube
14. Splitter bed
15. Log lifter shelf
16. Trailer jack
17. Jockey wheel assembly

5. Controls

Before operating the machine, be familiar with the location and function of the controls.

5.1 Engine Controls

! WARNING!

Before starting the engine, read and understand the safety and operating information under *Engine Operation Safety on page 21.*

IMPORTANT! For complete information about the engine controls, see the engine manufacturer's manual.

5.1.1 Throttle Lever

The throttle control lever has the following functions:



Fast
Engine speed is fast.



Slow
Engine speed is slow.

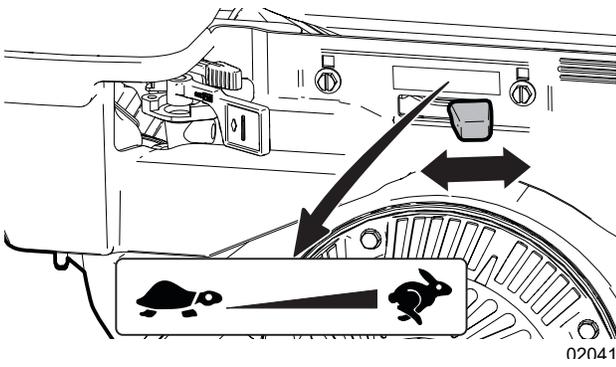


Figure 4—Engine throttle control

5.1.2 Fuel Shut-off Valve

The fuel shut-off valve has the following functions:



Fuel shutoff closed
Fuel valve is closed. The engine is off.



Fuel shutoff open
Fuel valve is open. The engine can be started.

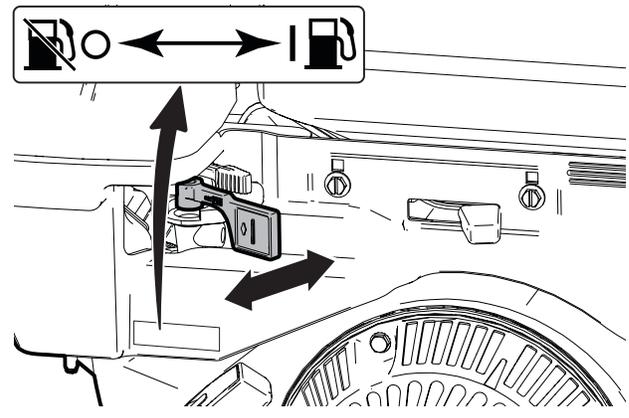


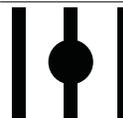
Figure 5—Engine fuel shutoff

5.1.3 Choke Lever

The choke control lever has the following functions:



Choke closed
Engine start.



Choke open
Engine warm.

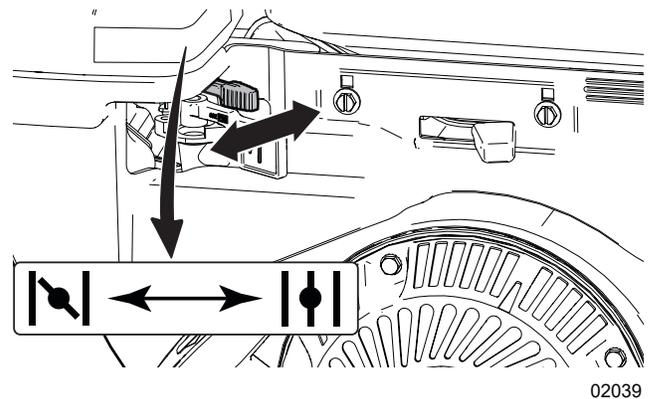


Figure 6—Engine choke control

5.1.4 Recoil Starter

WARNING!

Fast retraction of the starter cord (called kickback) pulls your hand and arm toward the engine faster than you can let go of the handle. Serious bodily harm (for example; bruises, sprains, fractures, and broken bones) can result.

When starting the engine, pull the starter cord slowly until you feel resistance, and then pull it rapidly to avoid kickback.

W102

The engine is a recoil-start. An operator grips the starter-cord handle to pull the starter cord and start the engine.

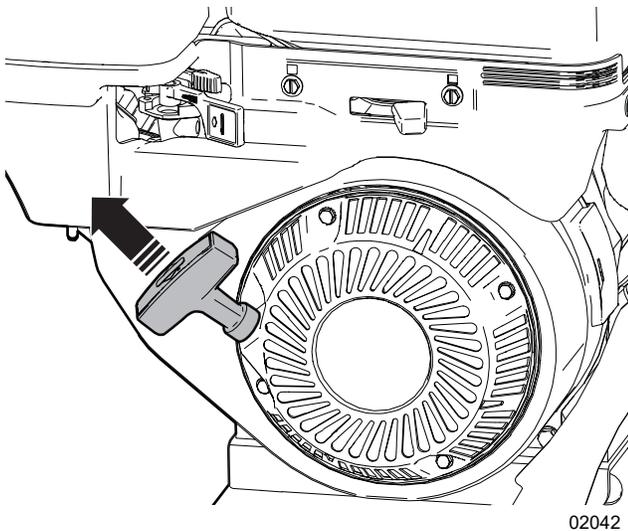


Figure 7—Starter cord

5.2 Hydraulic Controls

The WX900 series log splitters have two hydraulic control valves. The splitter-control valve moves the splitting wedge. The log lifter control valve moves the log lifter shelf.

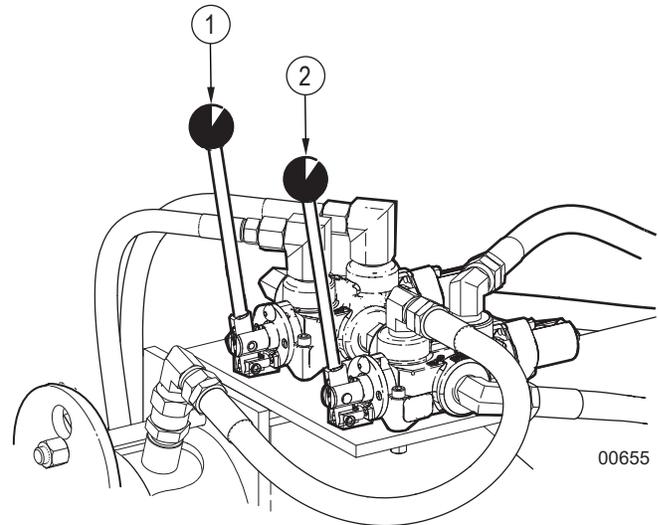


Figure 8—Hydraulic-control valves

1. Log lifter shelf control valve
2. Splitter-control valve

5.2.1 Splitter Control

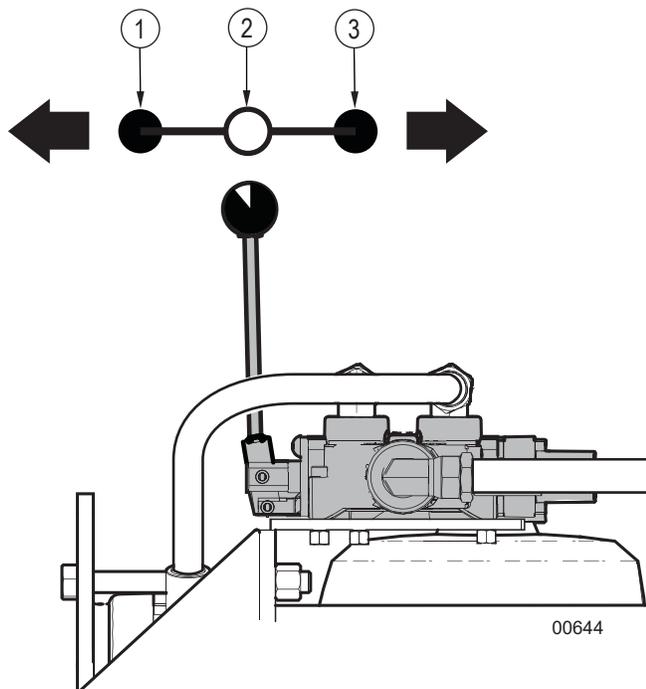


Figure 9—Splitter-control valve

1. Extend
2. Stop
3. Retract

Extend position

- Push the splitter-control lever forward to move the wedge toward the log. Hold the lever forward to split the wood.
- Releasing the lever returns it to the stop position.

Stop Position

- The stop position is when the splitter-control valve is in neutral. The wedge or push block stops moving when the lever is moved to this position. The valve lever spring-returns to the stop position when released from either the extend position or retract position.
- The splitter-control lever can be moved to stop at any time.

Retract Position

- Pull the lever fully backwards to retract the wedge. The splitter-control valve holds the lever in retract allowing a hands-free return cycle.
- The valve lever returns to the stop position when wedge or push block is fully retracted.
- The lever can be moved out of the retract position and into the stop position at any time.

5.2.2 Log Lifter Shelf Control

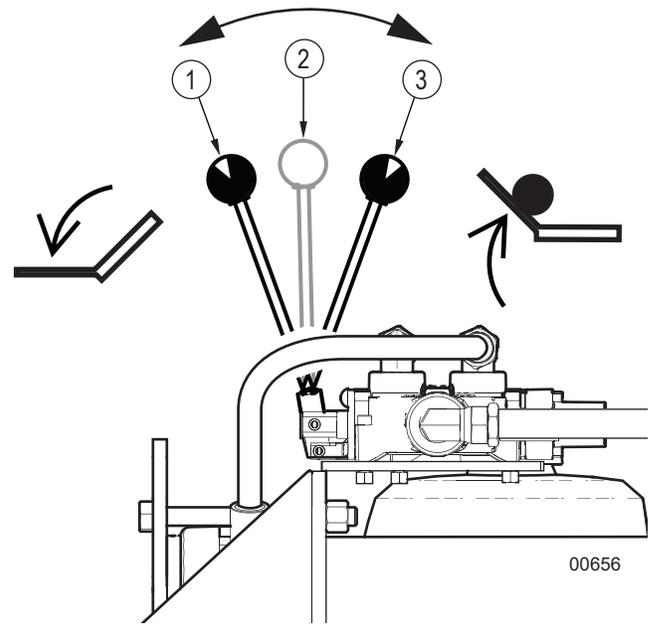


Figure 10—Log lifter shelf control valve

1. Lower
2. Stop
3. Lift

Lower position

- Push the log lifter shelf control lever forward to lower the log lifter shelf. Hold the lever forward to lower the log lifter shelf to its lowest position.
- Releasing the lever returns the lever to the stop position.

Stop Position

- The stop position is when the log lifter shelf control valve is in neutral. The shelf stops moving when the lever is moved to this position. The valve lever spring-returns to the stop position when released from either the lower position or lift position.
- The log lifter shelf control lever can be moved to stop at any time

Lift Position

- Pull the log lifter shelf control lever fully backwards to lift the log lifter shelf. Hold the lever backwards to lift the log lifter shelf to its highest position.
- Releasing the lever returns the lever to the stop position.

6. Operating Instructions

Wallenstein WX900 Series log splitters are self-contained machines designed to push wood through a wedge to split it.

The operator has the responsibility of being familiar with all operating and safety procedures and following them.

6.1 Operating Safety

WARNING!

Wear the personal protective equipment (PPE) that is required to complete the work safely.

This includes, but is not limited to a hard hat, hearing protection, a face shield, protective footwear, a respirator, and heavy gloves.

W101

WARNING!

Always use the machine outdoors and park the machine in a position where the prevailing winds blow the engine exhaust away from the operator. Exhaust from the engine contains carbon monoxide (CO) that can accumulate to a dangerous level, even in an area with good air flow.

W006

WARNING!

Risk of pinching or crushing hazard between the wedge or push block and the log!

Never place hands at the ends of the log. Always grasp logs by the sides when loading or removing.

W035

- Attach all guards and shields, and close all covers before starting the machine. If a guard, shield, or cover was removed, install it.
 - Do not move or transport the machine when the engine is on.
 - Stop the engine before leaving the machine unattended.
 - Do not put your hands near the wood being split.
 - Do not step over or straddle the log splitter during operation.
 - Do not try to split more than one log at a time. The logs may be ejected from the log splitter and cause injury.
 - Keep your fingers and hands away from cracks in the log that can open while splitting.
 - Always load logs by holding the middle of the log, not the cut ends.
 - Do not reach into or load the log splitter when the wedge is moving.
 - Do not try to split logs across the grain. Some types of wood can burst or splinter causing pieces to be ejected, causing injury.
 - For unevenly cut logs, always place the square cut end against the splitting wedge.
 - Never stand, sit, or climb on any part of the machine, especially while the engine is on.
 - Never operate the machine alone. Always have a minimum of two trained people:
 - There should be one operator and one spotter present during machine operation. The operator and spotter must know all the machine safety, controls, and operating functions.
 - The operator must be in control of the machine at all times. The spotter must stay outside of the hazard zone while the machine is operating.
- Read and understand this manual before you start the machine. Review all safety information annually.
 - Park the machine in a clear location on dry, level ground. Do not operate the machine on a hillside or area that is cluttered, wet, muddy, or icy to prevent slips, trips, and falls.
 - Keep the work area clean and free of debris.
 - Only operate the engine in a location that has good air flow. Engine exhaust gases contain carbon monoxide (an odorless gas) that can cause asphyxiation.

6.2 Before Starting the Engine

1. Check the engine oil level. See *page 22*.
2. Check the hydraulic fluid level. See *page 25*.
3. Check the fuel level. See *page 24*.
4. Check the engine air filter. See *page 40*.
5. Review the Safety Rules on *page 8*.
6. Clear the area of bystanders, especially small children.
7. Make sure each operator is trained and familiar with the set up and operation of the log splitter.
8. Follow the Pre-Operation Checklist.
9. Review the Controls. See *page 16*.
10. Survey the work site and place the log splitter in a clear, level work area.
11. Set up the machine correctly. See *page 26*.

6.3 Pre-Start Checklist

Do the following before you start the machine the first time and every time thereafter:

Items to Complete	✓
Review the <i>Operating Safety on page 19</i> , and <i>Engine Operation Safety on page 21</i> .	
Check the engine oil and fuel levels. If necessary, add engine oil or fuel.	
Make sure that the machine is lubricated as specified in the <i>Maintenance Schedule on page 35</i> .	
Check that the push block or wedge is lubricated.	
Check the hydraulic system for leaks. Tighten all leaking fittings and replace any leaking components.	
Remove anything that is entangled on the machine. For example, branches or vines.	
Make sure that all guards and shields are installed, and the covers are closed. Replace guards, shields, or covers, if necessary.	
Make sure the tires are filled to the specified pressure. For the correct tire pressure, see the tire sidewall.	
Make sure that all of the fasteners are installed and torqued to the correct specification. For more information, see <i>Bolt Torque on page 43</i> .	
Make sure that the operator and spotter are wearing the necessary PPE. The PPE must be in good condition.	
Make sure the operator and spotter are not wearing loose-fitting clothing or jewelry, and long hair is tied up.	
Make sure that there are no bystanders inside the work zone and the spotter is not near a hazard.	

6.4 Machine Break-In

Although there are no operational restrictions on the log splitter when used for the first time, it is recommended that the following items be checked:

Review the engine owner's manual for break-in recommendations. Place the machine in a **Safe Condition** before checking any components. Refer to *Safe Condition* on page 9.

After One Hour of Operation

1. Review the *Operating Safety* on page 19, and *Engine Operation Safety* on page 21.
2. Check the engine oil and fuel levels. If necessary, add engine oil or fuel.
3. Make sure that the machine is lubricated as specified in the *Maintenance Schedule* on page 35.
4. Check that the push block or wedge is lubricated.
5. Check the hydraulic system for leaks. Tighten all leaking fittings and replace any leaking components..
6. Remove anything that is entangled on the machine. For example, branches or vines.
7. Make sure that all guards and shields are installed, and the covers are closed. Replace guards, shields, or covers, if necessary.
8. Make sure the tires are filled to the specified pressure. For the correct tire pressure, see the tire sidewall.
9. Make sure that all of the fasteners are installed and torqued to the correct specification. For more information, see *Bolt Torque* on page 43.

After Five Hours of Operation

- Change the engine oil.
For instructions, see the engine manufacturer's manual.

After Eight Hours of Operation

- Complete the tasks listed under *After One Hour of Operation*.

6.5 Engine Operation

CAUTION!

Before starting the engine, review the safety, operating, and maintenance instructions in the engine manual.

W019

6.5.1 Engine Operation Safety

WARNING!



Never smoke or vape while working with fuel. Fuel vapors can explode causing injury or death. Keep sparks, flames, and hot components away.

W027

WARNING!

Never operate the engine indoors. Park the machine outdoors in a position where the prevailing winds blow the exhaust away from you.

Engine exhaust contains carbon monoxide (CO) that can quickly accumulate to a dangerous level. Carbon monoxide can cause illness, unconsciousness, or death.

W072

WARNING!

Keep fuel away from sparks, open flame, pilot lights, heat, and any other source of ignition. Fuel and vapors are extremely flammable and explosive. Fire or explosion can cause severe burns, bodily harm, or death.

- Remove the wire from the spark plug before servicing the engine or equipment to prevent accidental starting.
- Keep the cylinder fins and engine shrouds free of debris to prevent the engine from overheating.
- Examine the muffler periodically to make sure it is functioning effectively. Repair or replace a worn or leaking muffler.
- Use fresh fuel (less than three months old). Stale fuel creates deposits that cause the carburetor to be clogged and leak.
- Check the fuel lines and fittings on a regular basis for cracks or leaks. Replace damaged fuel lines or fittings if necessary.

- Store fuel away from all wood material.
- Only operate the engine in a location that has good air flow. Engine exhaust gases contain carbon monoxide (an odorless gas) that can cause asphyxiation.
- Do not put your hands or feet near moving parts.
- Do not choke the carburetor to stop the engine. Whenever possible, gradually reduce the engine speed before stopping.
- Do not tamper with governor springs, governor links or other parts that may increase the governed speed. Engine speed is selected by the original equipment manufacturer.
- Do not check for a spark with the spark plug or spark plug wire removed.
- Do not attempt to start the engine with the spark plug removed. If the engine floods, set the choke control to **Open**, set the throttle control to **Fast**, and then try starting the engine again.
- Do not hit the flywheel with a hard object or metal tool. This can cause the flywheel to shatter during operation. Use the correct tools to service the engine.
- Do not touch a hot muffler, cylinder, or fins. Contact may cause burns. Wait for the machine to cool. Use a no-touch thermometer to measure the temperature.
- Do not operate the engine in any of the following situations:
 - With an accumulation of wood chips, dirt, or other combustible materials in the muffler area.
 - In an area where fuel is spilled. Move the machine away from the spill until the fuel evaporates. Do not create any sources of ignition in the spill area.
 - With the air filter or air filter cover removed. Doing this can damage the engine.
 - Without a muffler or heat shield. Inspect the muffler and heat shield periodically. Replace a damaged muffler or heat shield.

6.5.2 Check the Engine Oil Level

IMPORTANT! For more information about engine oil, see the engine manufacturer's manual and *Engine Oil* on page 33.

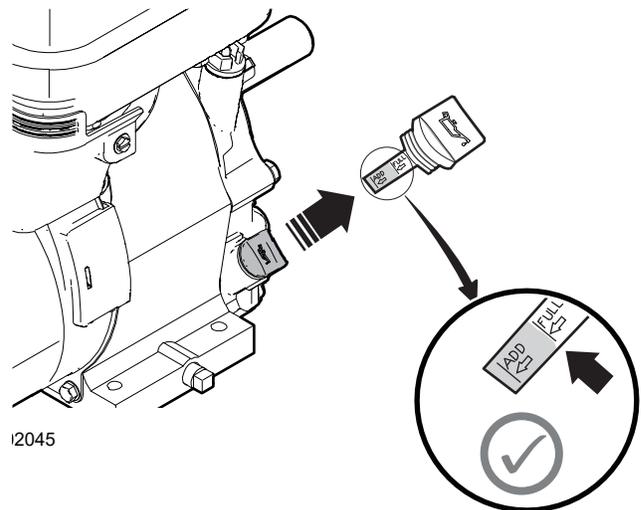
Operating the engine with a low oil level can cause engine damage that is not covered by the warranty.



The engine must be in a level position for the dipstick to show the oil level correctly.

Check the engine oil level before each use.

1. Park the machine on level ground.
2. Stop the machine.
For instructions, see *Stop the Machine* on page 27.
3. Remove the oil-level dipstick and clean it.
4. Fully insert the oil-level dipstick.
5. Remove the oil-level dipstick and check the oil level.
The oil level is correct when the oil is visible on the dipstick from the end to the full (upper) mark.
6. Do one of the following:
 - If the oil level is correct, continue with step 7.
 - If the oil level is low, add oil until the oil-level is at the full (upper) mark. For instructions, see *Add Oil to the Engine*.
7. Install the oil-level dipstick and make sure that it is tight.



12045

Figure 11 – Check the engine oil level

6.5.3 Add Oil to the Engine

IMPORTANT! For more information about engine oil, see the engine manufacturer's manual and *Engine Oil* on page 33.

The engine has two oil-fill locations. The oil-fill locations are shown in the following image.

1. Check the engine oil level to make sure that the oil level is low. For instructions, see *Check the Engine Oil Level* on page 22.
2. Turn the oil-fill cap counterclockwise to remove it.
3. Use a clean funnel to slowly add the correct type and amount of oil. **Do not overfill.**
4. Wait a minimum of one minute.
5. Remove the funnel, and then check the engine oil level.
6. Install the oil-fill cap and make sure that it is tight.

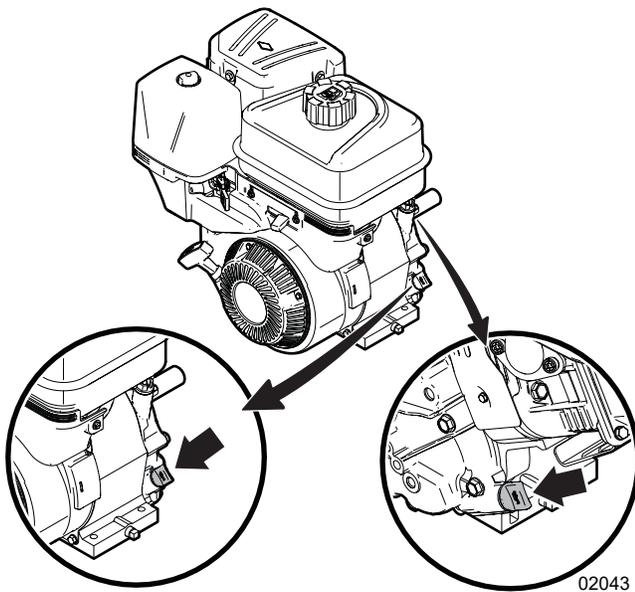


Figure 12—Engine oil-fill locations

6.5.4 Check the Fuel Level

CAUTION!

Check the fuel level outdoors or in an area where there is good air flow. Fuel vapors are very toxic. Breathing fuel vapors can cause irritation, illness, or unconsciousness.

Check the fuel level before each use.

Starting work with a full tank helps to eliminate or reduce operating interruptions for refueling. Avoid running the tank dry.

1. Park the machine on level ground.
2. Stop the machine.
For instructions, see *Stop the Machine* on page 27.
3. Wait a minimum of five minutes for the engine to cool.
4. Turn the fuel cap counterclockwise to remove it.
5. Do one of the following:
 - If there is enough fuel in the tank, install and secure the fuel cap to prevent spillage.
 - If there is not enough fuel in the tank, add fuel. For instructions, see *Add Fuel to the Engine* on page 24.

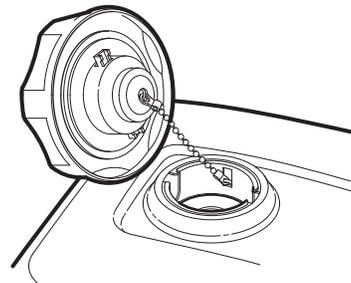


Figure 13—Fuel cap

6.5.5 Add Fuel to the Engine

Fuel tank capacity: **0.82 US gal (3.1 L)**.

WARNING!



Never smoke or vape while working with fuel. Fuel vapors can explode causing injury or death. Keep sparks, flames, and hot components away.

W027

Refuel in a well-ventilated area with the engine stopped. If the engine has been running, allow it to cool first. Never refuel the engine inside a building where gasoline fumes can come in contact with flames or sparks.

For fuel specification, see *Fluids and Lubricants* on page 33. Refer to the engine manual for additional information on fuels.

1. Clean the area around fuel tank cap. **Fill the tank to 1/2" (12 mm) below bottom of filler neck to provide space for any fuel expansion.** Do not overfill.
2. Install fuel fill cap securely and wipe up any spilled fuel.

6.6 Hydraulic System Operation

IMPORTANT! Check the hydraulic fluid quality every 50 hours. If the fluid is dirty or smells burnt, replace it.

IMPORTANT! Be aware of high fluid temperatures. Temperatures higher than 180 °F (82 °C) can cause damage to the seals and degrade the hydraulic fluid quality.

The hydraulic system is a closed-loop system that uses pressurized automatic transmission fluid (ATF) to control the splitter-control and log lifter shelf control valves.

6.6.1 Hydraulic System Operation Safety

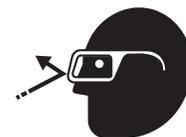
IMPORTANT! Optimal hydraulic fluid temperatures are between 120° F and 140° F (50° C and 60° C). If the hydraulic fluid temperature is higher than 180° F (82° C), it can cause seal damage and degrade the hydraulic fluid. High hydraulic fluid temperatures often indicate that there is a problem.

For more information, see *Hydraulic System Maintenance Safety* on page 38.

- Make sure that all hydraulic system components are kept clean and in working condition.
- Replace a hydraulic hose that shows signs of swelling, wear, leaks, or damage immediately. A swollen, worn, damaged, or leaking hose can burst and cause a hazardous and unsafe condition.
- High-pressure hydraulic fluid leaks:
 - Do not use your hand to check for hydraulic fluid leaks. Hydraulic fluid that leaks under pressure can penetrate the skin and cause serious injury or death. Use a piece of cardboard, wood, or plastic to check for leaks. Put on heavy gloves.



- Put on the correct eye protection when doing an inspection for a high-pressure hydraulic leak.



- Get medical attention immediately if injured by a concentrated high-pressure stream of hydraulic fluid. Serious infection or a toxic reaction can occur after hydraulic fluid pierces the skin.
- Do not bend or hit high-pressure hydraulic hoses.
- Never adjust a pressure relief valve or other pressure-limiting device to a pressure that is greater than the specified rating.

6.6.2 Check the Hydraulic Fluid Level

IMPORTANT! Do not operate machine if fluid level is not visible on the dipstick. Damage to the pump and other components can occur.

Do not overfill the tank past the full mark.

Always check fluid levels after changing filters or servicing hydraulic components.

Hydraulic fluid quality should be inspected every 40 hours. If the fluid is dirty or smells burnt, it should be replaced.

Be aware of high hydraulic fluid temperatures. Temperatures higher than 180 °F (82 °C) could cause seal damage and degrade the fluid quality.

hydraulic fluid level every 40 hours or weekly.

Check with the machine parked on level ground and the engine stopped.

The proper level is when the fluid is visible at the full (upper) mark on the dipstick.

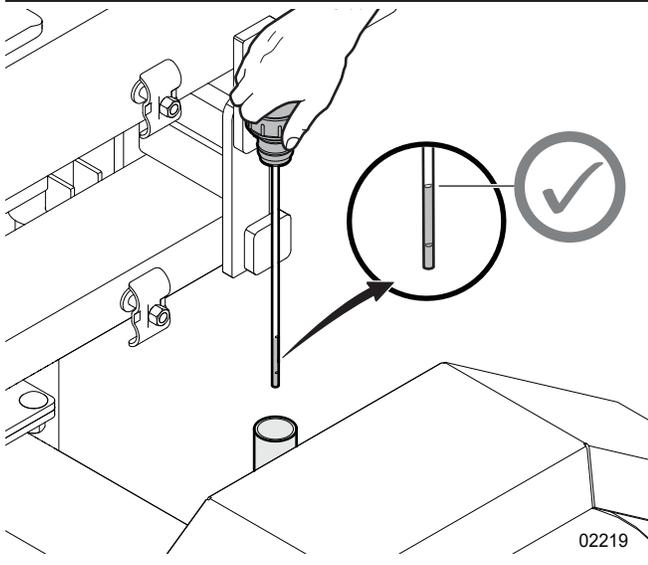


Figure 14—Hydraulic tank fluid level dipstick

6.6.3 Add Hydraulic Fluid

The hydraulic system uses **Dexron® III ATF**. Dexron VI or Mercon® are acceptable substitutes.

1. Check the hydraulic fluid level to make sure that the fluid level is low.
For instructions, see *Check the Hydraulic Fluid Level*.
2. Set the machine to a safe condition.
For instructions, see *Safe Condition on page 9*.
3. Clean the area around the fill cap.
4. Remove the fill cap.
5. Use a clean funnel to add hydraulic fluid to the reservoir until the fluid fills the bottom half of the sight glass.
Do not overfill the reservoir.
6. Remove the funnel.
7. Install the fill cap and make sure that it is tight.
8. Clean the area around the fill cap and remove any spilled fluid.

6.7 Set Up the Machine

IMPORTANT! Park the log splitter on a level, dry work area free of debris and other objects.

Position the log splitter so the prevailing wind blows engine exhaust away from the operator.



If a tow vehicle is available, leaving the splitter attached to it provides greater stability.

1. Put the log splitter next to the wood to be split.
2. Do one of the following:
 - If the machine is not attached to a tow vehicle, do steps 3 to 9.
 - If the machine is attached to a tow vehicle, do steps 6 to 9.
3. Remove the snap lock pin and lower the jockey wheel assembly. Insert the snap lock pin.
4. Turn the trailer jack to set the jockey wheel assembly on the ground.
5. If the ground is uneven, remove snap lock pin on the jockey wheel axle, turn the wheels so the log splitter does not roll. Insert the snap lock pin.
6. Block the wheels so the machine is stable.
7. Make sure that working area is clear of stones, branches or other obstacles.
8. Precut logs to desired block size, ready to load onto splitter bed.
9. Determine where the split wood is going to be piled. Make sure that the location does not interfere with loading the log splitter.

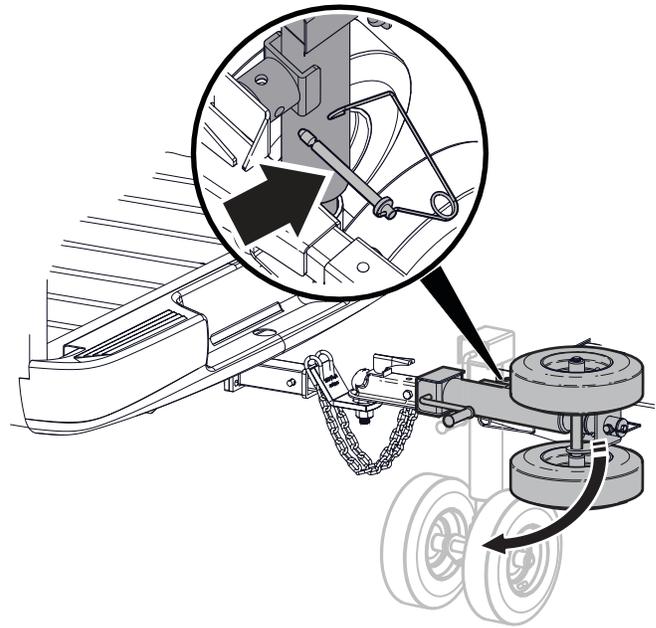


Figure 15—Lower the jockey wheel assembly

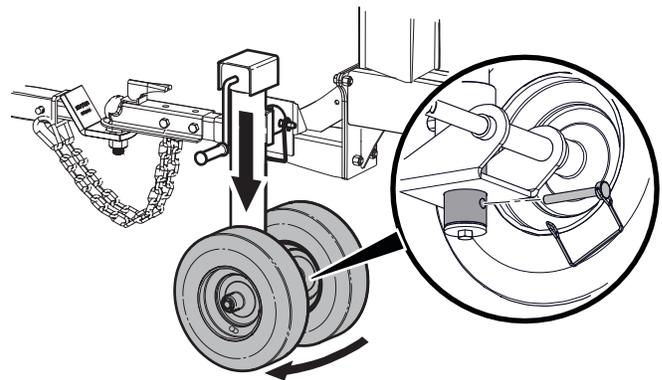


Figure 16—Turn the jockey wheel assembly

6.8 Start the Machine

WARNING!

Fast retraction of the starter cord (called kickback) pulls your hand and arm toward the engine faster than you can let go of the handle. Serious bodily harm (for example; bruises, sprains, fractures, and broken bones) can result.

When starting the engine, pull the starter cord slowly until you feel resistance, and then pull it rapidly to avoid kickback.

W102

WARNING!

Before you start the machine, read and understand all of the safety information in this manual, the engine manufacturer's manual, and the chain saw manufacture's manual.

IMPORTANT! If the engine does not start after repeated attempts, contact your local dealer or go to VanguardPower.com.

Before you start the machine, see the information under *Controls* on page 16.

1. Complete the tasks described in the *Pre-Start Checklist* on page 20.
2. Make sure that the machine is set up correctly, level, and in a stable position.
3. Move the hydraulic controls to the neutral position (out of detent).
4. Move the choke control to the **Closed** position.
5. Move the throttle control to the **Fast** position.
6. Firmly grip the starter-cord handle.
7. Pull the starter cord out slowly until you feel resistance, and then pull it rapidly.
8. When the engine warms up, move the choke control to the **Open** position.

6.9 Stop the Machine

IMPORTANT! Do not choke the carburetor to stop the engine.

1. Stop loading material onto the splitter bed.
2. Move the hydraulic controls to neutral.
3. Move the engine throttle control to the **STOP** position to turn off the engine and close the fuel shutoff valve.
4. Activate each hydraulic control two or three times to relieve the hydraulic system pressure.

6.10 Emergency Stop

In an emergency:

1. Move the hydraulic controls to neutral.
2. Move the engine throttle control to the **STOP** position to turn off the engine and close the fuel shutoff valve.
3. Activate each hydraulic control two or three times to relieve the hydraulic system pressure.
4. Remove the cause of the emergency before starting the engine and resuming work.

6.11 Log Lifter Shelf

WARNING!

Hands can be pinched, cut, crushed, or severed. If two or more people load or operate the machine together, a person can be seriously injured.

Only one person must load and operate the machine.

W036

1. Extend the log lifter shelf arm.
2. Move the log lifter shelf control lever to the **Lower** position. Hold the control lever in this position until the shelf is in its lowest position (on the ground).
3. Push the log onto the log lifter shelf. Make sure that the log is safely on the shelf and will not fall off.
4. Move the log lifter shelf control lever to the **Lift** position. Hold the control lever in this position until the shelf is even with the splitter bed.
5. Push the log onto the splitter bed.

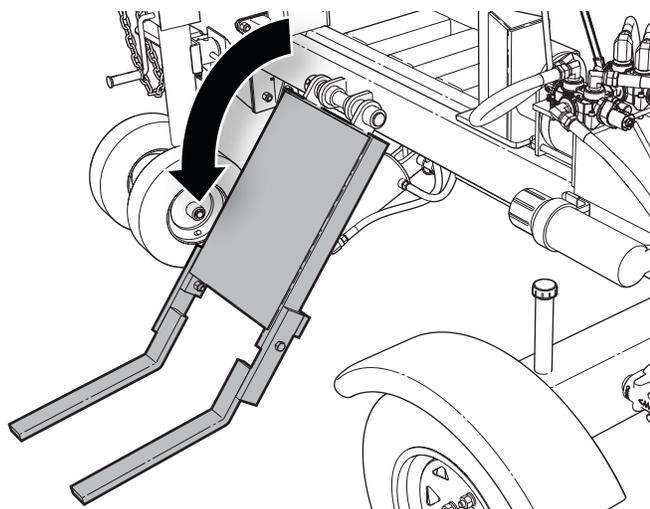


Figure 17—Lower the log lifter shelf

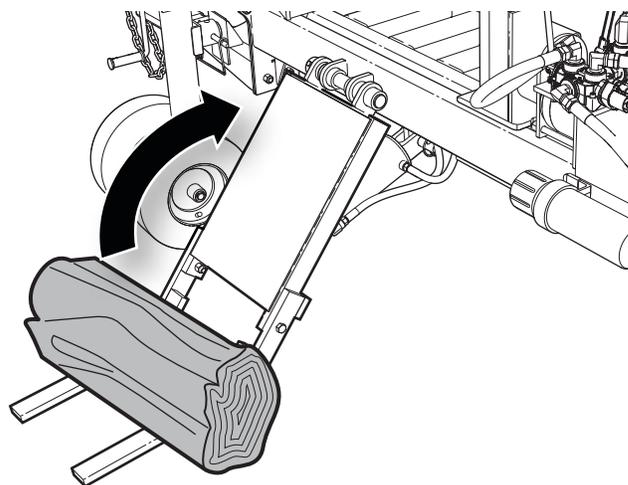


Figure 18—Lift the log lifter shelf

6.12 Log Placement

WARNING!

Risk of pinching or crushing hazard between the wedge or push block and the log!

Never place hands at the ends of the log. Always grasp logs by the sides when loading or removing.

W035

- Always grasp the log by the sides not the ends when placing in or removing logs from the splitter. This minimizes the chance of the operator getting fingers, hands or arm between the wedge / push block and the log.
- Any logs or debris remaining on the splitter bed should only be removed after it is safe to do so.

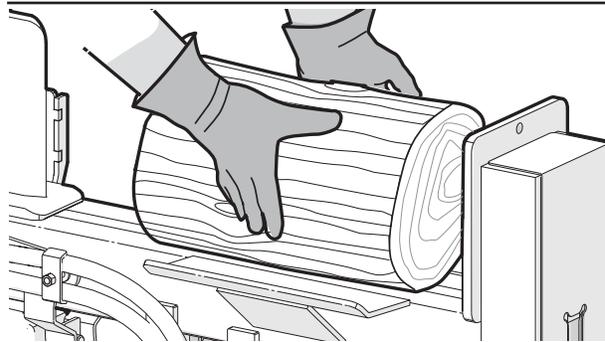


Figure 19—Correct log placement

6.13 Split Wood

WARNING!

Hands can be pinched, cut, crushed, or severed. If two or more people load or operate the machine together, a person can be seriously injured.

Only one person must load and operate the machine.

W036

IMPORTANT! Do not hold the splitter-control lever to extend or retract the cylinder once it has reached the end of its stroke. Doing so can overheat the hydraulic fluid and could damage the engine.

1. Put a log on the splitter, or use the log lifter shelf. For instructions, see *Log Lifter Shelf* on page 28.
2. Move control lever to the **Extend** position until push block or wedge starts to split the wood.
3. Release the lever when the log splits or cylinder reaches full stroke and stops.
4. Pull the lever to the **Retract** position to retract the push block or splitting wedge. The detent holds the lever until the cylinder fully retracts, allowing hands-free operation.
5. If the log is large enough to require another split, reposition and repeat steps 1-5.
6. Pile the split wood close to the working area, but do not allow pieces to pile up and clutter the area. A cluttered working area can lead to tripping and an accident.

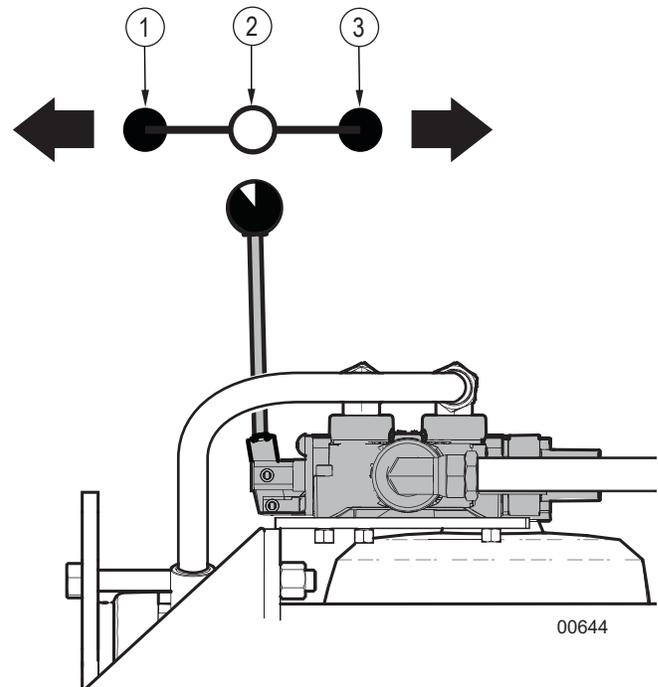


Figure 20– Splitter-control valve

1. Extend
2. Stop
3. Retract

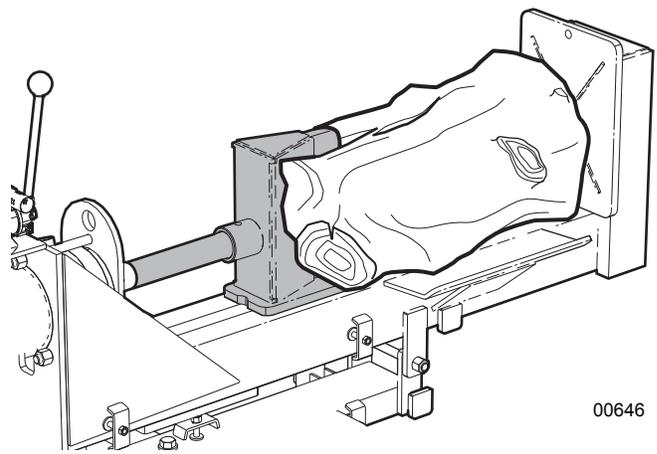


Figure 21– Split wood

7. Transport

IMPORTANT! Equipment that is transported on a public roadway must comply with the local laws that govern the safety and transport of machinery.

The machine is not intended for use or transport on public roadways. Therefore, it does not include the required lights, reflectors, and markings.

Before taking the machine on a public roadway, install the required lighting, reflectors, and markings, and make sure that they are in good working condition. For specific requirements, contact your local transportation authority.

7.1 Transport Safety

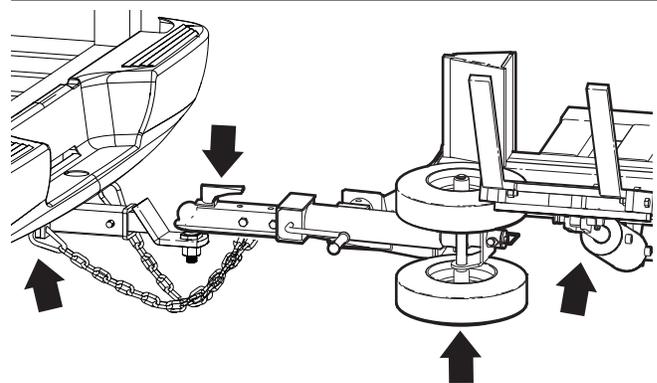
- Make sure that the machine is safely attached to the tow vehicle with a retainer through the hitch.
- Always attach the safety chains between the machine and the tow vehicle.
- Do not let people ride on the machine.
- Do not exceed a safe travel speed. Decrease your speed for rough terrain and around corners.
- Plan your route to avoid heavy traffic.
- Do not transport or move the machine with the engine on.
- Inspect wheel rims for dents or damage, and tighten the wheel lug nuts to the specified torque. For more information, see *Lug Nut Torque on page 44*
- Inspect the tires for cuts or damage.
- Make sure the tires are filled to the specified pressure. For correct tire pressure, see the tire sidewall.
- Make sure the tow vehicle is fitted with the correct size ball-mount hitch (2 inches).
- Secure all guards, shields, and covers.
- Make sure that all fuel and hydraulic tank caps are installed and secure (to prevent spills during transport).
- Remove all debris from the machine.
- After the machine is prepared for transport, complete a circle check to make sure everything is safe.
-

7.2 Prepare for Transport

- Lift the log lifter shelf to its highest position and retract the shelf arm.
- Stop the engine before transport.
- Clean all debris from the splitter that could fall off in transport.
- Check tire pressure. Inspect for cuts or damaged rims.
- Check lug nuts and torque as necessary. Inspect again after 20–25 mi (32–40 km). Check weekly. See *page 44*.
- Inspect and replace any axle dust caps that are missing, damaged or leaking.

7.3 Connect to a Tow Vehicle

1. Keep bystanders away from the machine and tow vehicle.
2. Make sure there is enough room and clearance to safely back up to the machine.
3. Slowly back the tow vehicle until the coupler on the hitch and ball are aligned.
4. Lift the hitch and place the coupler over the ball on the hitch.
5. Flip the latch to lock the coupler around the ball.
6. Pull out the jack stand snap lock pin and raise the jack stand to its stowed position. Install the snap lock pin.
7. Lift the rear jack stand and attach it with the snap lock pin.
8. Cross the safety chains under the trailer tongue and attach them to the tow vehicle hitch.
9. Reverse the above procedure when disconnecting from the tow vehicle.



00716

Figure 22—Attach to a tow vehicle

8. Storage

At the end of the season or when the machine is not going to be used for an extended length of time, store the machine correctly to prevent damage.

8.1 Storage Safety

WARNING!

Do not permit children to play on or around stored machinery or equipment. Sharp edges, unexpected movement, trips, falls, and other hazards can cause serious injury or death.

W105

CAUTION!

Store the machine away from furnaces, stoves, water heaters, or other appliances that have a pilot light or other ignition source. A pilot light or other source of ignition can ignite fuel vapors.

IMPORTANT! A pressure washer can damage the machine's product identification plate and make it unreadable. Do not direct the spray from a pressure washer onto the product identification plate. Use a clean, soft cloth that is dampened with water to remove dirt.

- Store the machine in a dry, level location away from human activity.
- Store the machine indoors, if possible.
- Support the machine with blocks for stability, if necessary.

8.2 Put the Machine in Storage

For information about engine storage, see the engine manufacturer's manual.

1. Fully retract the cylinder ram.
2. Do one of the following:
 - If the machine will be in storage for one to three months, add stabilizer to the engine fuel and drain the carburetor.
 - If the machine will be in storage for longer than three months, replace the engine fuel with an alkylate or appropriate engineered fuel. These fuel types prevent the buildup of insoluble solids (deposits) in the engine. For more information, see *Engine Fuel* on page 34. For instructions, see *Replace the Engine Fuel*.
3. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, debris, and residue.
4. Inspect the wedge, cylinder ram, splitting wedge and wear plates for damage or entangled material. Repair or replace damaged parts. Remove all entangled material.
5. Touch up all paint nicks and scratches to prevent rusting.
6. Store the machine in an area away from human activity.
7. Select an area that is dry, level and free of debris to park the log splitter.
8. If the log splitter is not stored inside a building, cover with a waterproof tarp. Tie securely in place.
9. Do not allow children to play on or around the stored machine.

8.2.1 Replace the Engine Fuel



Before you replace the fuel, read and understand the information under *Engine Operation Safety* on page 21.

1. Remove the current fuel from the engine.
Operate the machine until the fuel tank is empty or drain the fuel tank and properly dispose of the fuel.
2. Add new fuel to the engine.
For instructions, see *Add Fuel to the Engine* on page 24.
3. Start the machine.
For instructions, see *Start the Machine* on page 27.
4. Wait five to 10 minutes for the fuel to flush the carburetor.
5. Stop the machine.
For instructions, see *Stop the Machine* on page 27.

8.3 Remove the Machine from Storage

1. Review and follow the Pre-Start Checklist. See *page 20*
2. Review safety and operation procedures. See *Operating Safety* on page 19.

9. Service and Maintenance

WARNING!

Risk of serious personal injury. Stop engine before performing ANY service or maintenance procedure. Reinstall all covers and shields removed before putting machine back into service.

W033

IMPORTANT! Refer to the engine manufacturer's manual for engine maintenance and service information.

9.1 Maintenance Safety

- Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
- Never operate the machine or the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
- Before servicing or repairing, place the machine in a **Safe Condition**. See *Safe Condition* on page 9.
- Allow the engine to cool before performing maintenance. Engine components and oil may be hot enough to cause injury.
- Never work under equipment unless it is properly supported.
- When performing any service or maintenance work always use personal protective equipment.
- Where replacement parts are necessary, use only OEM parts to restore your equipment to original specifications. The manufacturer is not responsible for injuries or damages caused by use of unapproved parts or accessories.
- Inspect and tighten all bolts, nuts and screws. Check that all electrical and fuel connections are properly secured.
- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing splitter in service.
- When cleaning any parts, do not use gasoline. Use a cleanser designed for that purpose.
- Always use proper tools in good condition. Make sure you understand how to use them, before performing any service work.



9.2 Fluids and Lubricants

The machine requires various fluids and lubricants for operation and maintenance.

9.2.1 Lubricant Handling and Storage

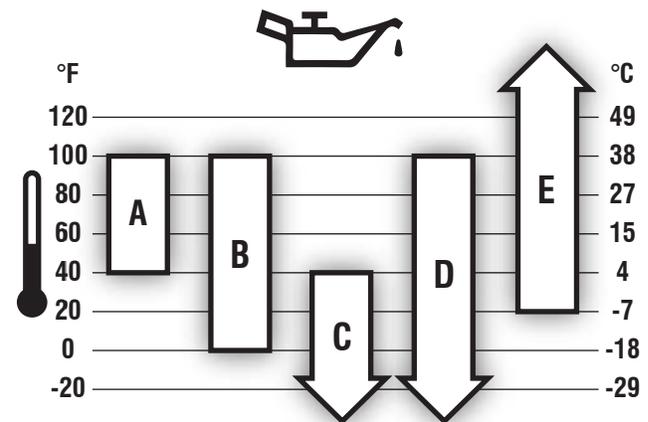
For optimum machine efficiency, use clean lubricants and clean containers to handle all lubricants. Store lubricants in an area that is protected from dust, moisture, and other contaminants.

9.2.2 Engine Oil

For engine maintenance and service information, see the engine manufacturer's manual.

Briggs & Stratton® Warranty Certified oils are recommended for the best engine performance. However, other high-quality detergent oils are permitted if they are classified for service SF, SG, SH, SJ, or higher. Do not use special additives.

Outdoor temperatures determine the required engine oil viscosity. Select the best oil viscosity for the expected outdoor temperature range. Use the following chart as a guide:



01802

A SAE 30 – Below 40 °F (4 °C) the use of SAE 30 results in hard starting.

B 10W-30 – Above 80 °F (27 °C) the use of 10W-30 may cause increased oil consumption. Check the oil level frequently.

C 5W-30

D Synthetic 5W-30

E Vanguard® Synthetic 15W-50

9.2.3 Engine Fuel

For complete fuel information and use at high altitudes, see the engine manufacturer's manual.

Fuel must meet the following specifications:

- Clean, fresh, unleaded gasoline.
- Minimum of 87 octane / 87 AKI (91 RON).
- Gasoline with up to 10% ethanol (gasohol) is acceptable if the fuel is fresh (less than three months old).

If the machine will be in storage for longer than three months, replace the fuel with one of the following fuel types:

- An alkylate fuel
- An engineered fuel that is high octane, ethanol-free, and formulated with power detergent to prevent the buildup of insoluble solids (deposits).

For instructions, see *Replace the Engine Fuel on page 32*.

9.2.4 Grease

Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance. An SAE multipurpose lithium-based grease is an acceptable substitute.

9.2.5 Hydraulic Fluid

Use Dexron® III automatic transmission fluid (ATF) for all operating conditions.

The following ATFs are acceptable substitutes:

- Dexron VI
- Mercon®

9.3 Maintenance Schedule

IMPORTANT! For more information, see the engine manufacturer's manual.

Complete maintenance tasks at the specified time or hour interval, whichever comes first.

Task	As required	8 hours or daily	40 hours or annually	100 hours or annually	200 hours or annually	Annually	600 hours or every three years	Reference
Check the condition of all hydraulic lines, hoses and fittings.	●							N/A ¹
Remove any entangled material from splitter.	●							N/A
Check that all fasteners are tight.	●							N/A
Check the engine oil level.		●						See page 22.
Check the fuel level.		●						See page 23.
Clean around the muffler and controls.		●						N/A
Check the hydraulic fluid level.			●					See page 25.
Inspect the hydraulic fluid quality.			●					See page 39.
Grease the frame slide, hinges, and pivot points.			●					See page 37.
Grease the axle bearings.				●				See page 37.
Check the tire pressure.				●				See the tire sidewall.
Change the hydraulic fluid and filter.				●				See page 39.
Clean the machine.				●				N/A
Service the exhaust system.				●				See the engine manual.
Clean the engine air filter ² .					●			See page 40.
Change the engine oil.					●			See the engine manual.
Replace the engine spark plug.						●		See the engine manual.
Service the engine cooling system.						●		See the engine manual.
Service the engine fuel system.						●		See the engine manual.
Replace the engine air filter.							●	See page 40.

¹ N/A indicates that a reference is not applicable

² In dusty conditions or when airborne debris is present, clean more often.

9.4 Grease Points

IMPORTANT! Do not over grease a bearing. Too much grease can cause the bearing seals to fail.



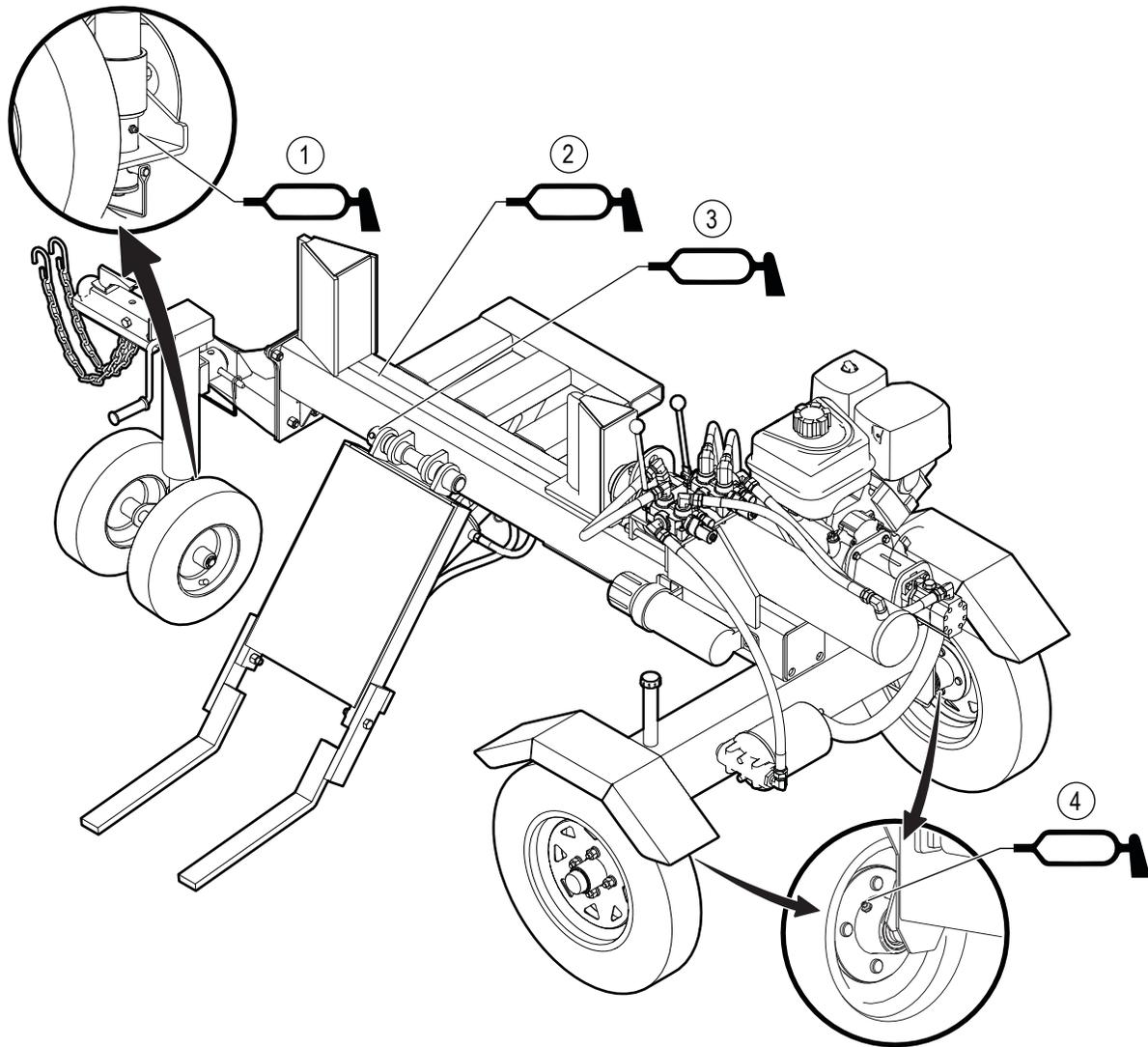
Look for this type of label on the machine. Each label identifies a grease point and shows the greasing interval in hours.

For grease specifications, see *Grease on page 57*.

- Use a clean cloth to clean each grease fitting before you apply grease. This prevents grease and dirt from getting inside the component.
- Use a hand-held grease gun to apply **one pump** of grease to each grease point.
- If a grease fitting is damaged, replace it immediately.
- If a grease fitting does not accept grease:
 - a. Remove the grease fitting.
 - b. Clean the passageway behind the grease fitting.
 - c. Clean the grease fitting thoroughly or get a new grease fitting.
 - d. Install the grease fitting.

9.4.1 Grease Fitting and Hinge/Pivot Point Locations

Item	Location	Frequency	Number of Locations
1	Jockey wheel bearing	100 hours or annually	1
2	Splitter bed sliding frame	40 hours or annually	1
3	Log lifter shelf hinge	40 hours or annually	1
4	Wheel bearings	100 hours or annually	2



02205

Figure 23 – Grease fitting and hinge/pivot point locations

9.5 Hydraulic System Maintenance

The hydraulic system controls the splitting wedge and log lifter shelf.

9.5.1 Hydraulic System Maintenance Safety

CAUTION!



Risk of burns to exposed skin. Hydraulic fluid gets hot during operation, which makes hoses, lines, and other parts hot as well. Wait for the fluid and components to cool before starting maintenance or service.

IMPORTANT! Optimal hydraulic fluid temperatures are between 120° F and 140° F (50° C and 60° C). If the hydraulic fluid temperature is higher than 180° F (82° C), it can cause seal damage and degrade the hydraulic fluid. High hydraulic fluid temperatures often indicate that there is a problem.

For more information, see *Hydraulic System Operation Safety* on page 24.

- Make sure that all hydraulic system components are kept clean and in working condition.
- Relieve pressure on the hydraulic system before working with it. The hydraulic system operates under extremely high pressure.
- Before applying pressure to the hydraulic system, make sure that all the connections are tight, and the hoses and fittings are not damaged.
- Replace hydraulic hoses that show signs of swelling, wear, leaks, or damage. A swollen, worn, damaged, or leaking hose can burst and cause a hazardous and unsafe condition.
- High-pressure hydraulic fluid leaks:
 - Do not use your hand to check for hydraulic fluid leaks. Hydraulic fluid that leaks under pressure can penetrate the skin and cause serious injury or death. Use a piece of cardboard, wood, or plastic to check for leaks. Put on heavy gloves.



- Put on the correct eye protection when doing an inspection for a high-pressure hydraulic leak.



- Get medical attention immediately if you are injured by a concentrated high-pressure stream of hydraulic fluid. Serious infection or a toxic reaction can occur after hydraulic fluid pierces the skin.
- Do not make any temporary repairs to the hydraulic hoses or fittings. Do not use tape, clamps, or cements to attempt a repair. This can cause sudden failure and create a hazardous and unsafe condition.
- Do not bend or strike high-pressure hoses or reinstall them in a bent or damaged condition.
- Make sure that hydraulic hoses are routed to avoid chafing.
- Never adjust a pressure relief valve or other pressure-limiting device to a pressure that is higher than the specified rating.

9.5.2 Change the Hydraulic Fluid

CAUTION!



Risk of burns to exposed skin. Hydraulic oil becomes hot during operation. Hoses, lines, and other parts become hot as well. Wait for the oil and components to cool before starting any maintenance or inspection work.

W028

Change the hydraulic fluid at 100 hours of operation or annually.

- Hydraulic fluid type: **Dexron® III ATF**
- Hydraulic fluid reservoir volume: **5 US gal (20 L)**. An extra 1/2 US gal (1–2 L) may be required to top up the circuit.

The hydraulic fluid reservoir drain plug is located under the machine. Before changing the hydraulic fluid, put the machine in a **Safe Condition**. See *Safe Condition* on page 9.

A 3/8" hex key is required to remove the drain plug.

Procedure

1. Put a drain pan of suitable capacity under the drain plug.
2. Clean the area around drains and remove the drain plugs.
3. Allow the fluid to fully drain, then flush the tank.
4. Dispose of used fluid in an environmentally safe manner.
5. Replace the plug and fill the tank with clean hydraulic fluid, up to the full mark on the dipstick.
6. Start the machine and cycle hydraulic functions to purge air from the system.
7. Stop the engine and recheck the fluid level. Fill to the full mark.

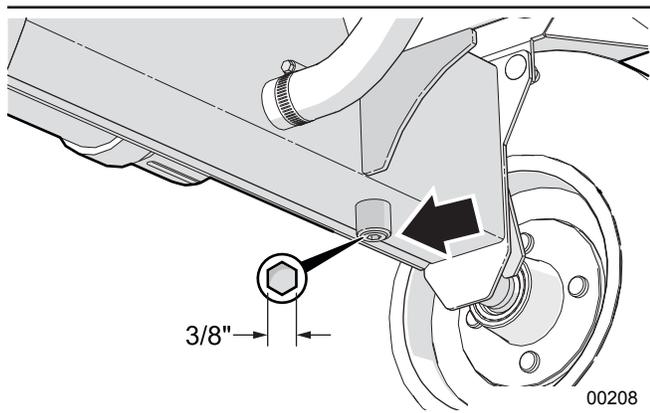


Figure 24—Hydraulic fluid reservoir drain plug

9.5.3 Change the Hydraulic Fluid Filter

CAUTION!



Risk of burns to exposed skin. Hydraulic oil becomes hot during operation. Hoses, lines, and other parts become hot as well. Wait for the oil and components to cool before starting any maintenance or inspection work.

W028

Change the hydraulic fluid filter at 100 hours of operation or annually.

The filter is located on side of the hydraulic fluid reservoir.

Before changing the hydraulic fluid filter, put the machine in a **Safe Condition**. See *Safe Condition* on page 9.

Procedure

1. Place a drain pan under the hydraulic filter head.
2. Remove the hydraulic fluid filter. A hydraulic fluid filter wrench may be necessary.
3. Apply a light coat of clean fluid to the seal and install the new filter. Tighten by hand only.
4. Run the machine for 1–2 minutes, operating the cylinder. Check filter head for fluid leaks.
5. If a leak is found, shut off the machine and correct it.
6. Check the hydraulic fluid level in the hydraulic reservoir. Fill fluid as necessary.
7. Dispose of spilled fluid in an environmentally safe manner.

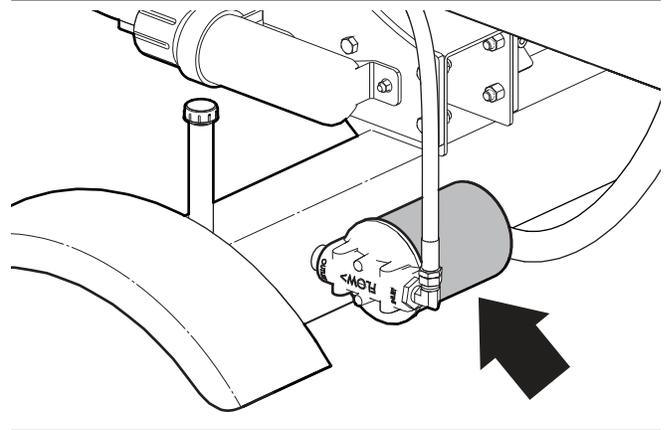


Figure 25—Hydraulic fluid filter

9.6 Engine Maintenance

For full engine maintenance information, see the engine manufacturer's manual.

9.6.1 Engine Maintenance Safety

WARNING!

Never operate the engine indoors. Park the machine outdoors in a position where the prevailing winds blow the exhaust away from you.

Engine exhaust contains carbon monoxide (CO) that can quickly accumulate to a dangerous level. Carbon monoxide can cause illness, unconsciousness, or death.

W072

For more information, see *Engine Operation Safety* on page 21.

- Remove the wire from the spark plug before servicing the engine or equipment to prevent the engine from starting.
- Examine the muffler on a regular basis to make sure that it operates effectively. Repair or replace a worn or leaking muffler.
- Before storage, replace fuel that contains ethanol with an alkylate or appropriate engineered fuel to prevent the buildup of deposits.
- Check the fuel lines and fittings frequently for cracks or leaks. Replace damaged fuel lines or fittings, if necessary.
- Store fuel away from all wood material.
- Do not check for a spark with the spark plug or spark plug wire removed.
- Do not touch a hot muffler, cylinder, or fins. Contact can cause burns.

9.6.2 Engine Air Filter

IMPORTANT! Operating the engine without an air filter, or with a damaged air filter, can allow dirt to enter the engine, causing rapid engine wear. This type of damage is not covered by warranty.

Clean the air filter after every 50 hours of operation or annually.

A dirty air filter can restrict air flow to the carburetor, reducing the engine performance. If the engine is operated in very dusty areas, clean the air filter more often than specified.

1. Loosen the air-filter cover fastener.
2. Remove the cover.
3. Remove the air filter.
4. Gently tap the air filter on a hard surface to loosen and remove dust and debris.
5. If the air filter is excessively dirty or damaged, replace it with a new air filter.
6. Install the air filter in the engine.
7. Install the cover.
8. Tighten the air-filter cover fastener.

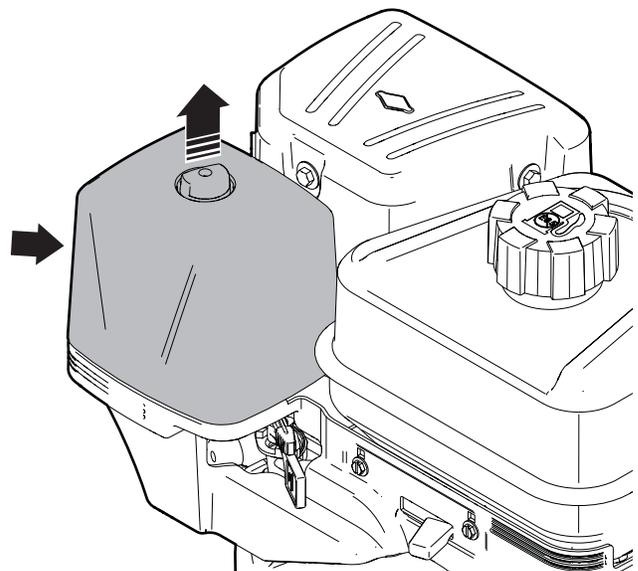


Figure 26—Remove the air filter

10. Troubleshooting

The following table lists some problems that may be encountered, with possible causes and solutions.

If a problem persists after reading through the Troubleshooting section, contact the local dealer, distributor or Wallenstein Equipment. Have the machine serial number ready.

Problem	Cause	Solution
Engine is difficult to start or performance is reduced.	The engine fuel. Not all fuel is the same.	Change the fuel provider or brand.
Cylinder rod moves slowly or does not move. Screeching or hissing noise.	There is no hydraulic fluid pressure.	The hydraulic fluid filter is plugged. Change the filter. Low hydraulic fluid level. Add fluid. System relief pressure setting is too low. Call your local Wallenstein dealer or distributor.
	Wood is jammed around wedge.	Shut the machine off and safely remove the wood.
	Low engine speed.	Check throttle is set to maximum. Check that the choke is off.
The splitter-control handle does not go to neutral after the rod is fully retracted.	The valve detent is set too tight.	Adjustment is necessary to the detent on the splitter control.
	The hydraulic fluid is cold.	Allow the machine to warm up.
	The hydraulic fluid is contaminated.	Change the hydraulic fluid and filter.
The splitter-control handle goes to neutral before the rod is fully retracted.	The detent is set too loose.	Adjustment is necessary to the detent on the splitter control.
Splitter-control handle does not go to neutral when released.	The splitter control may be damaged.	Splitter control may need service or replacement. Call your local Wallenstein dealer or distributor.
The cylinder stops on contact with wood.	The second stage on the pump is not functioning.	The pump may need to be serviced or replacement. Call your local Wallenstein dealer or distributor.
The wedge or push block jumps.	The wedge or push block frame is jamming.	Lubricate the slider wear plates.
The hydraulic hose is leaking.	The hose is worn or damaged.	Replace the hose.
The cylinder is leaking.	The seals are worn.	Seal replacement may be necessary. Call your local Wallenstein dealer or distributor.

11. Specifications

11.1 Machine Specifications¹

For engine specifications, see the engine manufacturer's manual.

For available accessories, go to WallensteinEquipment.com.

Model	WX950	WX960	WX970
Mounting	Trailer mounted		
Engine make and horsepower (displacement)	Vanguard® 10 hp (305 cc)		
Cylinder diameter	4.5" (11.4 cm)		
Cylinder stroke	24" (61 cm)	36" (91 cm)	48" (12 cm)
Splitting force	25 Ton		
Splitter-control valve type	3-position, auto-return detent		
Log lifter shelf control valve type	3-position, spring-loaded to neutral		
Hydraulic pump type	2-stage		
Hydraulic pump flow	16 gpm (60.5 Lpm)		
Splitter bed height	25" (64 cm)		
Wedge height	10" (25.4 cm)		
Tire size	5.3 x 12 LRB SportTrail		
Safety chains	Standard		
Ball hitch size	2"		
Splitter orientation	Horizontal		
Tongue weight	209 lb (95 kg)	223 lb (101 kg)	249 lb (113 kg)
Average cycle time	14 seconds		
Weight	785 lb (356 kg)	990 lb (449 kg)	1,135 lb (515 kg)
Dimensions (L x W x H)	81" x 63" x 38"	107" x 63" x 38"	130" x 63" x 38"
	206 x 160 x 97 cm	272 x 160 x 97 cm	330 x 160 x 97 cm

¹ Specifications are subject to change without notice.

11.2 Bolt Torque

The tables shown give correct torque values for various bolts and capscrews. Tighten all bolts to the torque values specified in the table, unless indicated otherwise. Check tightness of bolts periodically.

IMPORTANT! If replacing hardware, use fasteners of the same grade.

IMPORTANT! Torque figures indicated in the table are for non-greased or non-oiled threads. Do not grease or oil threads unless indicated otherwise. When using a thread locker, increase torque values by 5%.



Bolt grades are identified by the marks on top of the bolt head.

Imperial Bolt Torque Specifications						
Bolt Diameter	Torque					
	SAE Gr. 2		SAE Gr. 5		SAE Gr. 8	
	lbf•ft	N•m	lbf•ft	N•m	lbf•ft	N•m
1/4 inch	6	8	9	12	12	17
5/16 inch	10	13	19	25	27	36
3/8 inch	20	27	33	45	45	63
7/16 inch	30	41	53	72	75	100
1/2 inch	45	61	80	110	115	155
9/16 inch	60	95	115	155	165	220
5/8 inch	95	128	160	215	220	305
3/4 inch	165	225	290	390	400	540
7/8 inch	170	230	420	570	650	880



SAE Gr. 2



SAE Gr. 5



SAE Gr. 8

Metric Bolt Torque Specifications				
Bolt Diameter	Torque			
	Gr. 8.8		Gr. 10.9	
	lbf•ft	N•m	lbf•ft	N•m
M3	0.4	0.5	1.3	1.8
M4	2.2	3	3.3	4.5
M6	7	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M14	83	112	116	158
M16	166	225	229	310
M20	321	435	450	610
M30	1,103	1,495	1,550	2,100



8.8



10.9

11.3 Hydraulic Fitting Torque

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Hand-tighten swivel nut until snug.
4. To prevent twisting the tube, use two wrenches. Place one wrench on the connector body and tighten the swivel nut with the second. Torque to values shown.

If a torque wrench is not available, use the FFFT (Flats From Finger Tight) method.

Hydraulic Fitting Torque Specifications					
Tube size OD	Hex size across flats	Torque		Flats from finger tight	
		lbf•ft	N•m	Flats	Turns
3/16	7/16	6	8	2	1/6
1/4	9/16	11–12	15–17	2	1/6
5/16	5/8	14–16	19–22	2	1/6
3/8	11/16	20–22	27–30	1-1/4	1/6
1/2	7/8	44–48	59–65	1	1/6
5/8	1	50–58	68–79	1	1/6
3/4	1-1/4	79–88	107–119	1	1/8
1	1-5/8	117–125	158–170	1	1/8

Specifications are for non-lubricated connections.

11.4 Lug Nut Torque

It is a very important safety procedure to apply and maintain proper wheel mounting torque on your trailer axle. Torque wrenches are the best method to assure the proper amount of torque is being applied to a fastener.

Wheel lugs should be torqued before first road use and after each wheel removal. Check and re torque after the first 10 miles (16 km), 25 miles (40 km), and again at 50 miles (80 km). Check periodically thereafter.



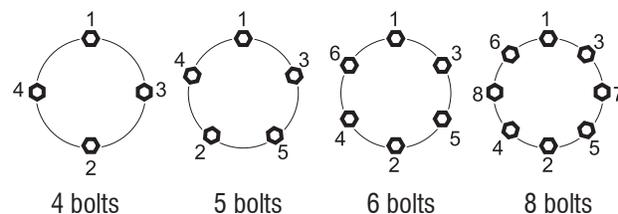
WARNING!

Wheel lug nuts must be installed and kept at the proper torque value to prevent loose wheels, broken studs, or possible separation of wheels from axle.

- Start all lug nuts onto the threads by hand.
- Tighten lug nuts in stages, following the pattern shown in the Wheel Lug Nut Torque table.

Lug Nut Torque Specifications				
Wheel size	Units	First stage	Second stage	Third stage
8 inch	lbf•ft	12–20	30–35	45–55
	N•m	16–26	39–45.5	58.5–71.5
12 inch	lbf•ft	20–25	35–40	50–60
	N•m	26–32.5	45.5–52	65–78
13 inch	lbf•ft	20–25	35–40	50–60
	N•m	26–32.5	45.5–52	65–78
14 inch	lbf•ft	20–25	50–60	90–120
	N•m	26–32.5	65–78	117–156
15 inch	lbf•ft	20–25	50–60	90–120
	N•m	26–32.5	65–78	117–156
16 inch	lbf•ft	20–25	50–60	90–120
	N•m	26–32.5	65–78	117–156

Lug nut torque pattern:



12. Warranty



LIMITED WARRANTY

Wallenstein products are warranted to be free of defects in materials and workmanship under normal use and service, for a period of

Five Years for Consumer Use

Two Years for Commercial/Rental Use

from the date of purchase, when operated and maintained in accordance with the operating and maintenance instructions supplied with the unit. Warranty is limited to the repair of the product and/or replacement of parts.

This warranty is extended only to the original purchaser and is not transferable.

Repairs must be done by an authorized dealer. Products will be returned to the dealer at the customer's expense. Include the original purchase receipt with any claim.

This warranty does not cover the following:

- 1) Normal maintenance or adjustments
- 2) Normal replacement of wearable and service parts
- 3) Consequential damage, indirect damage, or loss of profits
- 4) Damages resulting from:
 - Misuse, negligence, accident, theft or fire
 - Use of improper or insufficient fuel, fluids or lubricants
 - Use of parts or aftermarket accessories other than genuine Wallenstein parts
 - Modifications, alteration, tampering or improper repair performed by parties other than an authorized dealer
 - Any device or accessories installed by parties other than an authorized dealer
- 5) Engines. Engines are covered by the manufacturer of the engine for the warranty period they specify. For the details of your engine warranty, see your engine owner's manual. Information about engine warranty and service is also available in the FAQ section at www.wallensteinequipment.com

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