BBS422 22 TON LOG SPLITTER

SAFETY, ASSEMBLY AND OPERATION INSTRUCTIONS

BIGBEAR POWER



* CHAINSAW SOLD SEPARATELY

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Conventions used in this manual

⚠ WARNING

This indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

⚠ DANGER

This machine was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

⚠ CAUTION

This indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

⚠ NOTICE

This information is important in proper using of your machine. Failure to follow this instruction could result in damage to your machine or property.

Additional Information and Potential Changes

We reserve the right to discontinue, change, and improve its products at any time without notice or obligation to the purchaser. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your machine. This manual provides complete operating and maintenance instructions that will help to maintain your equipment in top running order. Read this manual carefully before assembling, operating, or servicing your equipment.

PART I: General Safety Rules

Safety Labels Found on Your Unit

It is vitally important to understand the meaning of the danger notices and all messages should be kept in legible condition. In the instance of wear these notices should be replaced and use of the machine suspended while without such notices.

The operator is advised to observe the warnings given on the affixed notices.

The symbols affixed to the machine serving to warn of danger during its use and maintenance are as follows:



Figure 1. Labels

⚠ WARNING

Read this Safety & Operating Instructions manual before you use the equipment. Become familiar with the operation and service recommendations to ensure the best performance of your machine.

Propose

⚠ CAUTION

The solely purpose of this equipment is to split logs. Do not use it for any other purpose.

Failure to comply with instructions in this Manual and in the Engine Manual releases the manufacturer from all liability, in particular for any damage resulting from improper or incorrect use, through negligence, superficial interpretation or flagrant disregard for the safety requirements herein. Should any information given in the following pages be unclear or not straight forward please contact the dealer directly.

It should only be used by trained operators who are familiar with the content of this manual. It is potentially hazardous to fit or use any parts other than your dealer parts. The company disclaims all liability for the consequences of such use, which in addition voids the machine warranty.

Before using

⚠ NOTICE

A. Operators must be fully trained before using this machine.
B. User Manual is read and understood.
C. All fasteners are checked for tightness.
D. Make sure machine is on level surface before operating.
E. Always block machine to prevent unintended movement.
F. Logs should be cut with square ends prior to splitting.
G. Fire extinguisher is available on site.

When using

⚠ NOTICE

A. Maintain strict discipline at all times and service machine at specified periods.
B. DO NOT put any part of your body into cutting area while the machine is running.
C. DO NOT operate the machine while under the influence of alcohol or drugs.
D. Always operate this machine from the operator zone(s) specified in the manual.
E. When loading a log, always place your hands on the sides of the log, not on the ends, and never use your foot to help stabilize a log. Failure to do so, may result in crushed or amputated fingers, toes, hand, or foot.
F. Use only your hand to operate the controls.
G. Never attempt to split more than one log at a time unless the ram has fully extended and a second log is needed to complete the separation of the first log.
H. For logs which are not cut square, the least square end and the longest portion of the log should be placed toward the beam and wedge, and the square end placed toward the end plate.
I. Always keep fingers away from any cracks that open in the log while splitting. They can quickly close and pinch or amputate your fingers.
J. Keep your work area clean. Immediately remove split wood around the machine so you do not stumble over it.
K. Never move this machine while the engine is running.

Protecting Yourself and Those Around You

⚠ WARNING

This is a high-powered machine, with moving parts operating with high energy. You must operate the machine safely. Unsafe operation can create a number of hazards for you, as well as anyone else in the nearby area. Always take the following precautions when using this machine:

A. Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people, their property, and themselves.
B. Always wear protective goggles or safety glasses while using the equipment to protect your eyes from possible thrown debris.
C. Wear shoes with non-slip treads when using. If you have safety shoes, we recommend wearing them. Do not use while barefoot or wearing open sandals.
D. **Keep bystanders at least 30 feet away from the wind direction at all times.**

Safety for Children and Pets

⚠ WARNING

Tragic accidents can occur if the operator is not alert to the presence of children and pets. Children are often attracted to the machine and the working activity. Never assume that children will remain where you last saw them. Always follow these precautions:

A. Keep children and pets at least 30 feet from the wind direction and ensure they are under the watchful care of a responsible adult.
B. Never allow children to operate the equipment.

Safety with Gasoline - Powered Machines

⚠ WARNING

Gasoline is a highly flammable liquid. Gasoline also gives off flammable vapor that can be easily ignited and cause a fire or explosion. Never overlook the hazards of gasoline. Always follow these precautions:

A. Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
B. Never run the engine in an enclosed area or without proper ventilation as the exhaust from the engine contains carbon monoxide, which is an odorless, tasteless, and a deadly poisonous gas.
C. Store all fuel and oil in containers specifically designed and approved for this purpose and keep away from heat and open flame, and out of the reach of children.
D. Replace rubber fuel lines and grommets when worn or damaged and after 5 years of use.
E. Fill the gasoline tank outdoors with the engine off and allow the engine to cool completely. Don't handle gasoline if you or anyone nearby is smoking, or if you're near anything that could cause it to ignite or explode. Reinstall the fuel tank cap and fuel container cap securely.
F. If you spill gasoline, do not attempt to start the engine. Move the machine away from

the area of the spill and avoid creating any source of ignition until the gas vapors have dissipated. Wipe up any spilled fuel to prevent a fire hazard and properly dispose of the waste.

G. Gasoline is extremely flammable, and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes, which can ignite. Wash your skin and change your clothes immediately.

H. Your machine is equipped with an internal combustion engine, and it is intended for use near any unimproved forest, brush, or grass-covered land; the engine exhaust must be equipped with a spark arrester.

I. Allow the engine to cool completely before storing in any enclosure. Never store a machine that has gas in the tank, or a fuel container, near an open flame or spark such as a water heater, space heater, clothes dryer, or furnace.

J. Never make adjustments or repairs with the engine running. Shut down the engine, disconnect the spark plug wire, keeping it away from the spark plug to prevent accidental starting, and wait 5 minutes before making adjustments or repairs.

K. Never tamper with the engine's governor setting. The governor controls the maximum safe operating speed and protects the engine. Over-speeding the engine is dangerous and will cause damage to the engine and to the other moving parts of the machine. If required, see your authorized dealer for engine governor adjustments.

L. Keep combustible substances away from the engine when it is hot.

M. Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals to cause cancer, birth defects, or other reproductive harm.

N. Never cover the machine while the muffler is still hot.

O. Do not operate the engine with the air cleaner or the carburetor air intake cover removed. Removal of such parts could create a fire hazard. Do not use flammable solutions to clean the air filter.

P. The muffler and engine become very hot and can cause a severe burn; do not touch.

Q. DO NOT use in the rain.

General Safety

⚠ WARNING

Operating this equipment safely is necessary to prevent or minimize the risk of death or serious injury. Always take the following precautions when operating:

A. This equipment is a powerful tool, not a plaything. Exercise extreme caution at all times.

B. Know how to stop the equipment quickly.

C. Never operate your unit on a slippery, wet, muddy, or icy surface. Exercise caution to avoid slipping or falling.

D. See manufacturer's instructions for proper operation and installation of accessories.

E. Never, under any conditions, remove, bend, cut, fit, weld, or otherwise alter standard parts on the equipment. This includes all shields and guards. Modifications to your

machine could cause personal injuries and property damage and will invalidate your warranty.

F. If the machine starts to make an unusual noise or vibrate, shut down the engine, disconnect the spark plug wire, keeping it away from the spark plug to prevent accidental starting, wait 5 minutes for the engine to cool down, then inspect for damage. Vibration is generally a warning of trouble. Check damaged parts and clean, repair and/or replace as necessary.

G. Never tamper with safety devices. Check their proper operation regularly.

H. Before performing any maintenance or inspection procedure, shut down the engine, disconnect the spark plug wire, keeping it away from the spark plug to prevent accidental starting, and wait 5 minutes for the machine to cool down.

I. Never allow people who are unfamiliar with these instructions to use the equipment. Allow only responsible individuals who are familiar with these rules of safe operation to use your machine.

J. While using, don't hurry or take things for granted. When in doubt about the equipment or your surroundings, stop the machine and take time to look things over.

K. Many accidents occur when more than one person operates the machine. If a helper is assisting in loading logs, never activate the control until the helper is a minimum of 10 feet away from the machine.

L. Keep the operator zone and adjacent area clear for safe, secure footing.

M. Never operate the machine when under the influence of alcohol, drugs, or medication.

N. Use the machine only in daylight.

O. Stay alert for hidden hazards or traffic.

P. Keep all nuts and bolts tight and keep the equipment in good operating condition.

Q. DO NOT use in the rain.

R. Climbing aboard and/or riding on the equipment is strictly prohibited.

S. Tampering with the safety systems and guards is strictly prohibited.

T. Use of the machine by minors under the age of 16 years or by persons without the necessary psychological and physical capabilities is forbidden.

U. The placing of hands, other parts of the body and clothing in the moving parts of the machine is prohibited.

V. Take care not to touch the silencer/muffler when hot.

W. It is strictly prohibited to leave the equipment running whilst unsupervised.

X. It is strictly prohibited to transport the machine with the engine running. When loading the machine onto a vehicle, the inclination of the ramps must not exceed 15°.

Y. This machine should not be towed on any street, highway or public road without checking the existing federal, state, or local vehicle requirements. Any licensing or modifications such as taillights, etc., needed to comply is the sole responsibility of the purchaser. If a "Statement of Origin" is required in your state, see your local dealer.

Safety for Hydraulic oil

⚠ WARNING

Hydraulic log splitter develops high fluid pressures during operation. Fluid escaping through a pinhole opening can penetrate your skin and cause blood poisoning, gangrene, or death. Give attention to the following instructions at all times:

A. Do not check for leaks with your hand.

B. Leaks can be detected by passing cardboard or wood while wearing protective gloves and safety glasses over the suspected area. Look for discoloration of cardboard or wood.

C. Do not operate the machine with frayed, kinked, cracked, or damaged hoses, fittings, or tubing.

D. Stop the engine and relieve hydraulic system pressure before changing or adjusting fittings, hoses, tubing, or other system components.

E. Do not adjust the pressure settings of the pump or valve.

F. If injured by escaping fluid, see a doctor immediately. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

A Note to All Users

List of warnings and cautions cannot be all-inclusive. If situations occur that are not covered by this manual, the operator must apply common sense and operate in a safe manner.

PART II: Familiar with the Log Splitter

It may be helpful to familiarize yourself with the controls and features of the equipment. If you have any question, CONTACT BIGBEAR POWER 725-274-6171 EXT 1 8am-4pm PST

TECHNICAL SPECIFICATIONS

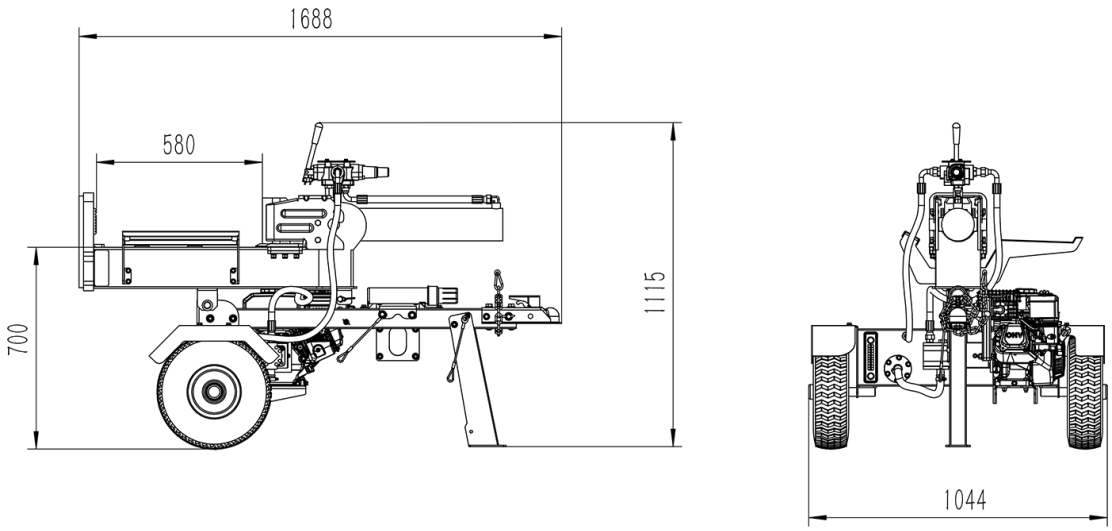


Figure 2. Dimensions

Engine	**7HP 4-Strokes Gasoline engine**
POWER	**4.1KW/3600rpm**
Displacement	**212CC**
Fuel tank	**3.6L**
Oil capacity	**0.6L**
Hydraulic Oil capacity	**12.0L**
Start	**Pull start**
Hydraulic pump	**two stages,13/4.2ml/r(16gal)**
Ram	**4 "**
Split way	**Horizontal/Vertical**
Cycle time	**13S**
Split capacity	**Length:500mm(19.5");Diameter:300mm(12")**
Wheel	**16*4.8-8**
Net/Gross Weight	**174/212 KGS**
Crate dimensions	**L*W*H:1570*530*600mm**

Main parts Description

Compare the illustration below with the controls on your log splitter, and get familiar with its features before starting to operate. Know how to stop the machine quickly in the event of an emergency.

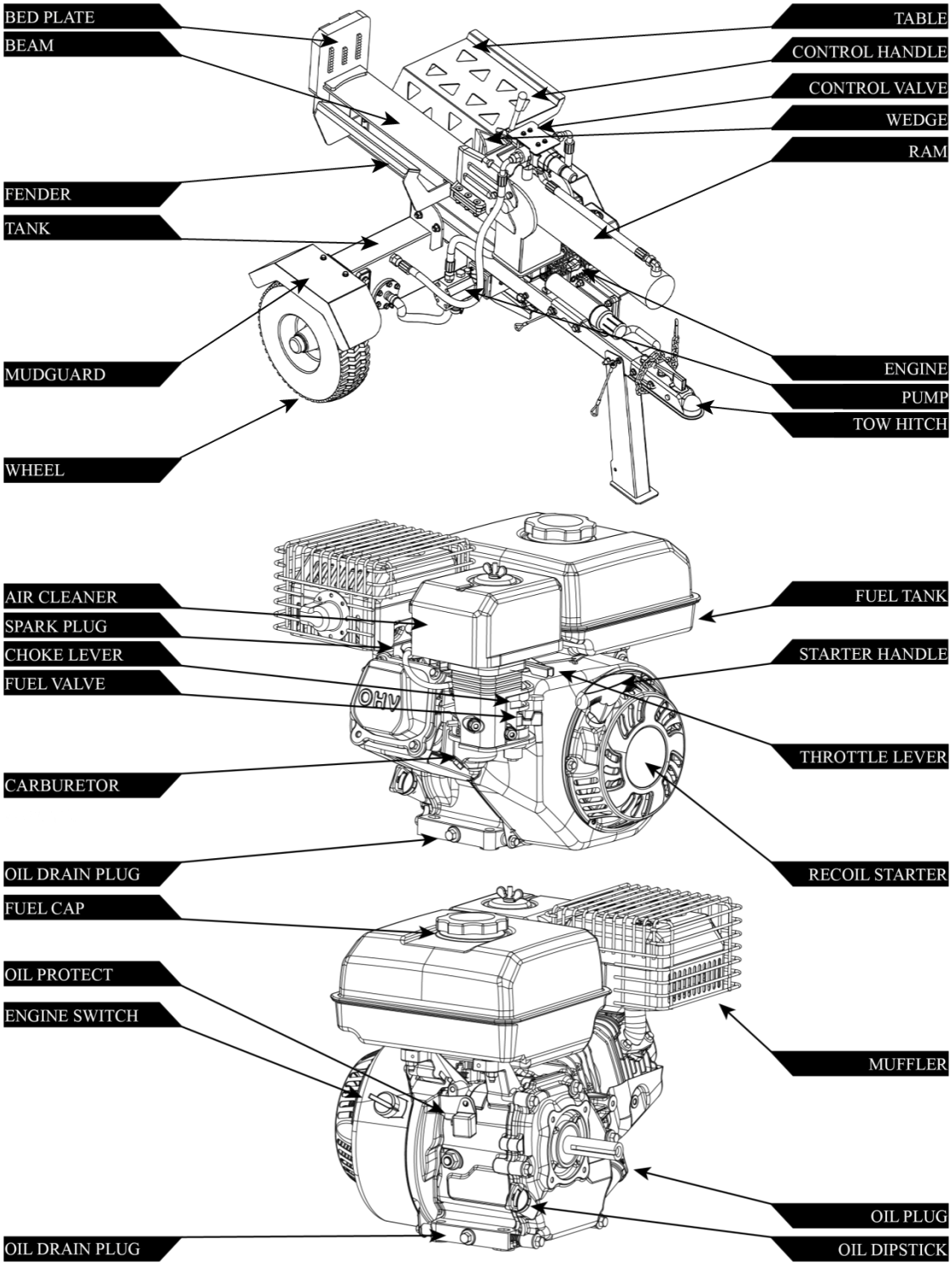


Figure 3. Main parts instruction

Assembly

1. Unpacking from Crate:

- Pry top, sides, and ends off the pallet. Set panels aside to avoid personal injury.

- Remove any loose parts if included with unit (i.e., operator's manual, etc.)

- Cut and remove straps(if any) which secure parts to the bottom of the pallet. Unbolt any remaining parts which may be bolted to the bottom of the pallet.

- Check if any parts are missing as Figure 4 shows, including:

A: Mainframe assy.
B: Tow bar and Foot assy.
C: Foot.
D: Engine and pump assy.
E: Tank.
F: Wheel.
G: Fender.
H:Table.
I: Mudguards.
J: Oil hose.
K: Dust cover.
L: Bolt.
M: Nut.

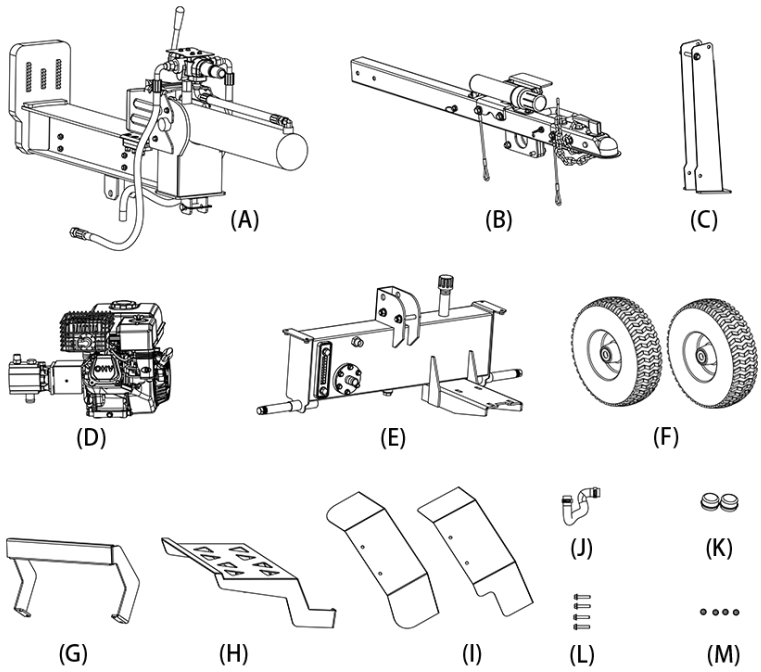


Figure 4. Loose parts unpacking

2. Follow the below figure 5, Wheels Installation. Lift one side of the tank(5), mount the wheel(4) onto the axle, secure the wheel with a slotted nut(3) loosely, insert the cotter pin(2) and bend the end of the cotter pin to prevent loosening, then install the dust cover(1).

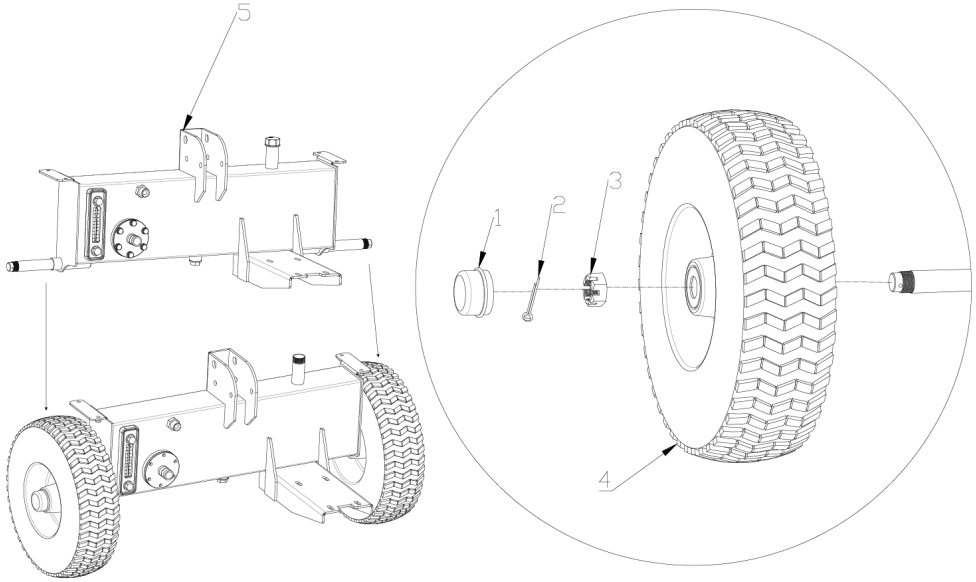


Figure 5. Wheels Installation

3. Follow the below figure 6. Tow bar Installation: Align the two holes at the end of the tow bar(3) with the two holes on the connection part of the tank assembly. Then insert two bolts(2) into the holes for fixation. Finally install and lock the nuts(1) in the sequence shown in the drawing.

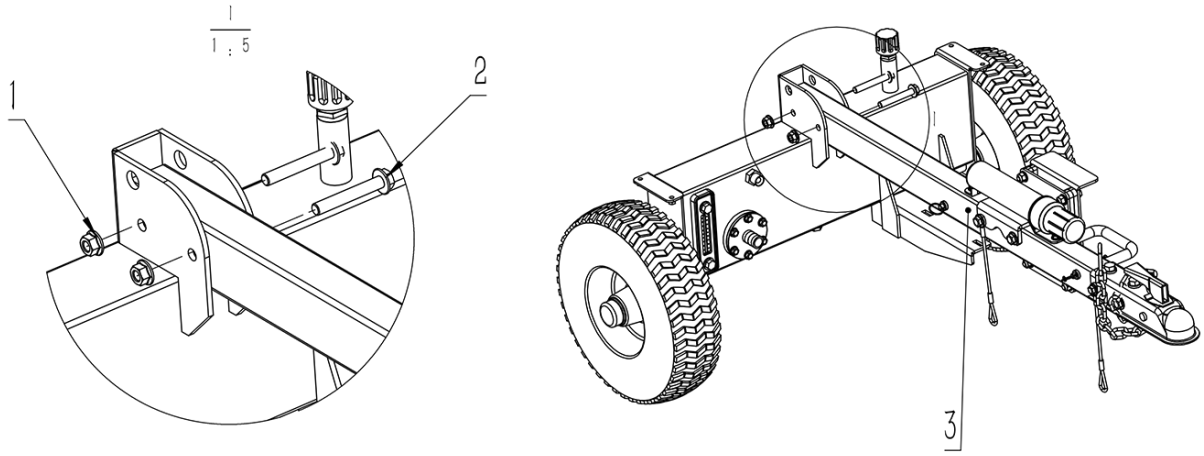


Figure 6. Tow-bar Installation

4. Follow the below figure 7. Foot Installation: use the bolt(1) and nut(2) lock the foot(3).

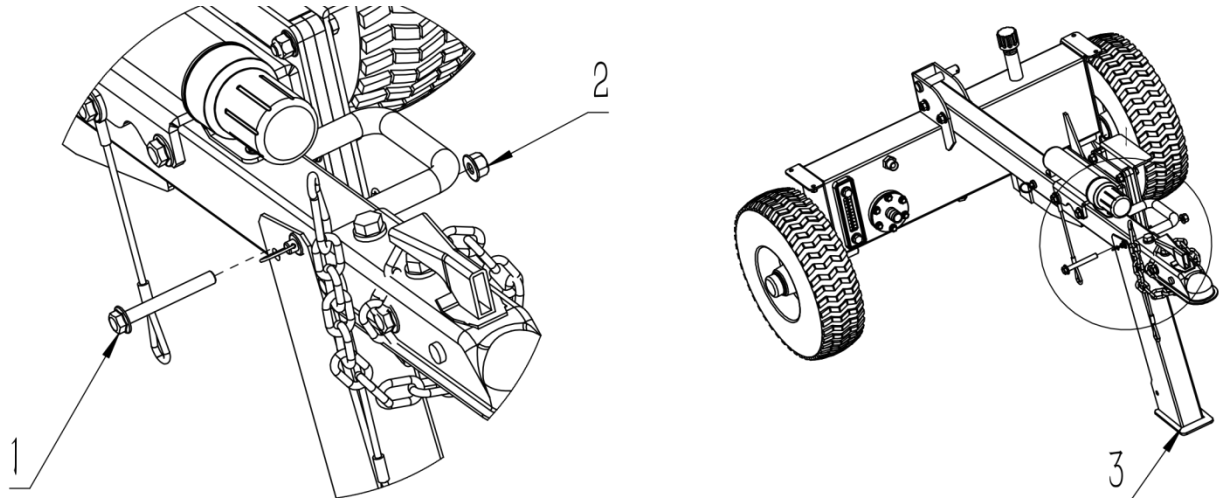


Figure 7. Foot Installation

5. Follow the below figure 8, Beam Installation： First erect the beam(4) to vertical position and move tank assy.(2) beside beam. Align the connection points, insert the beam pin(4) and secure it with the cotter pin(2). Slowly lower the beam to keep it horizontal with the tow bar, then insert the square pin(5).

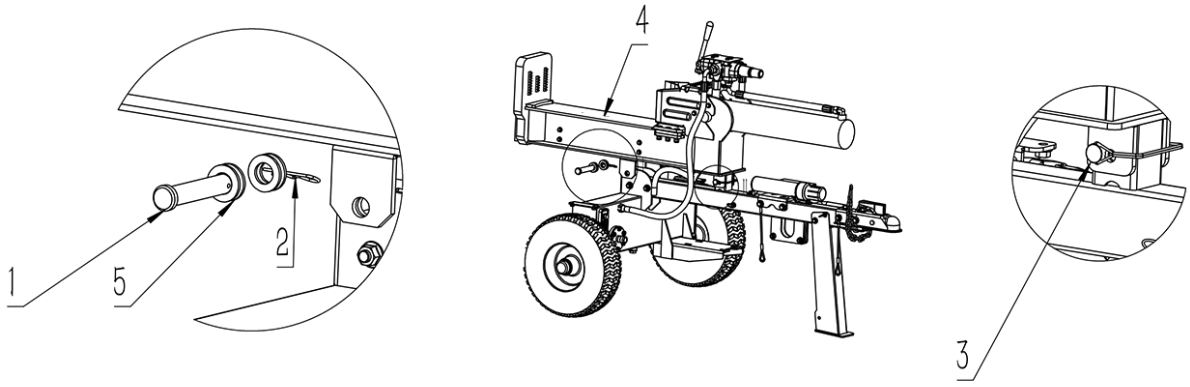


Figure 8. Beam Installation

6. Follow the below figure 9, Engine Installation: Put engine(3) onto fixaton plate and align the 4 holes, use bolt(1),and lock nut(2) lock.

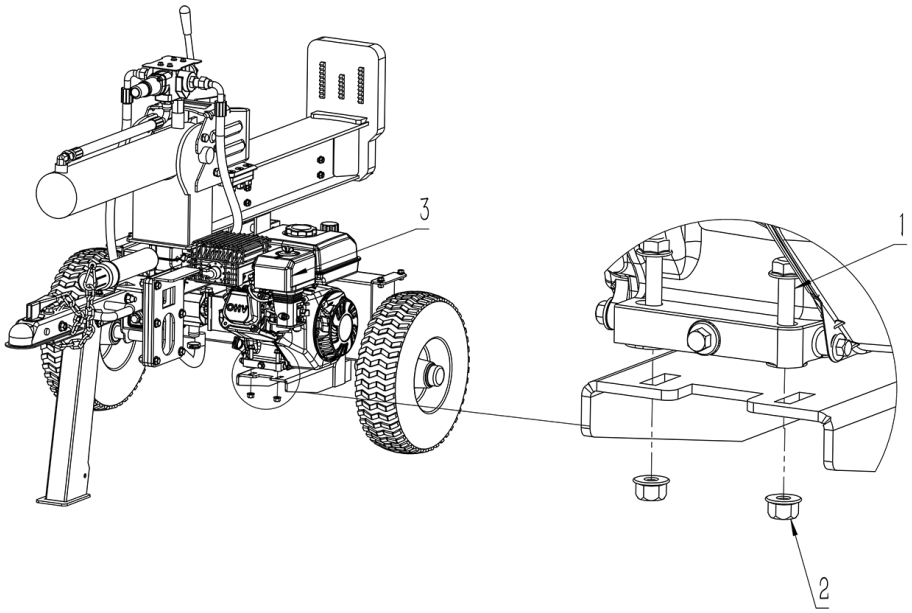


Figure 9. Engine Installation

7. Follow the below figure 10, Hoses Installation:

A. Pump hose(4): Connect one side to the top of pump(1) and another side routing through the bottom of beam and connect to the valve(2) as below shows.

B. Return hose(5): Connect one side to the upper connector of tank(3) and another side to the valve(2) connector at the same side of beam.

C. Suction hose(6): connect one side to the bottom side of tank(3) and another to the bottom of pump(1), and secure with buckle(7) at both end.

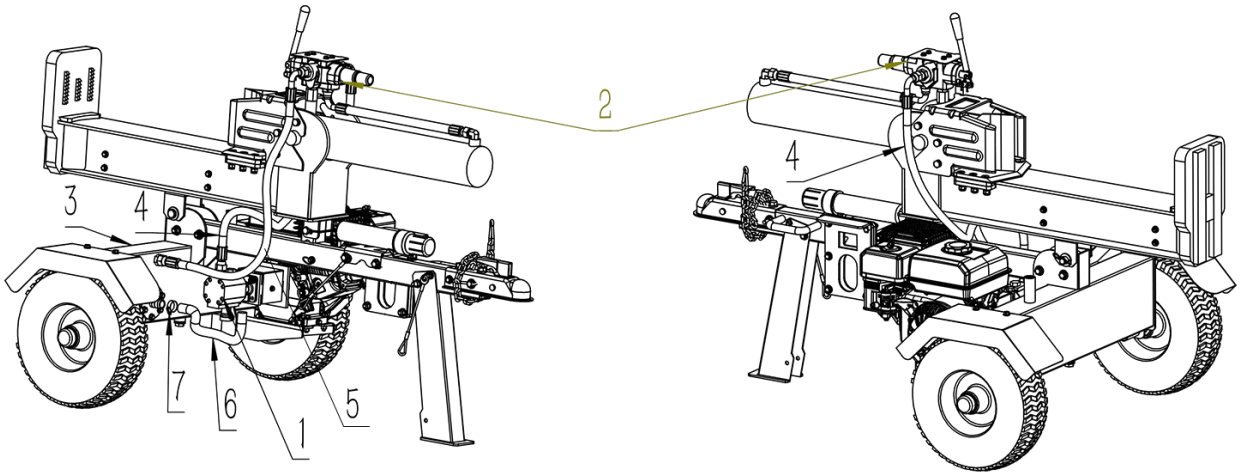


Figure 10. Hoses Installation

8. Follow the below figure 11, Mudguard Installation: Align the mudguard(2) with the holes of the mainframe, secure with bolt(1)

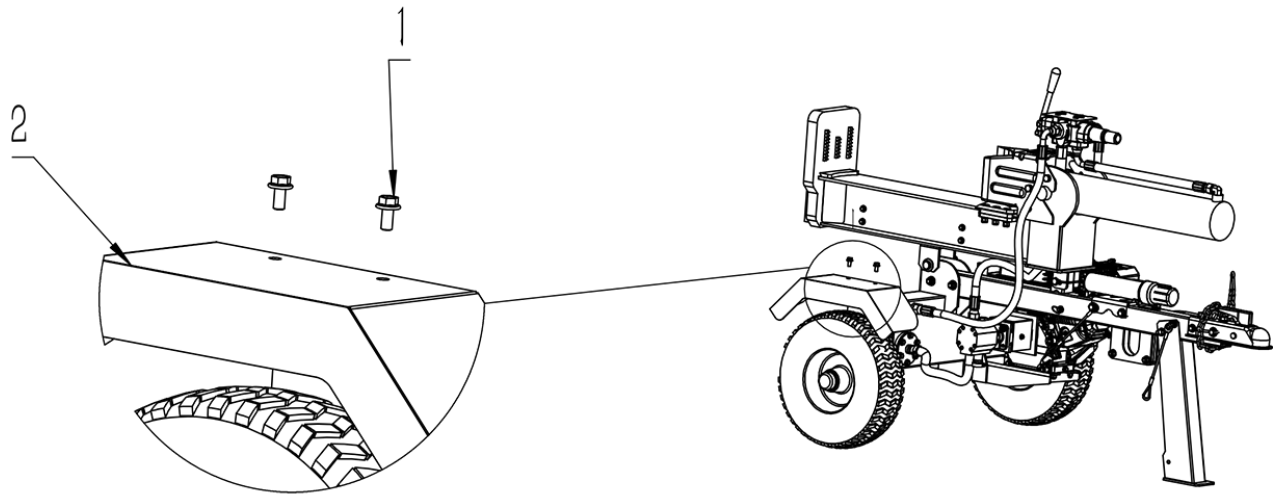


Figure 11. Mudguard Installation

9. Follow the below figure 12, Table Installation: Align the holes of Fender(4), Table(3) with the holes of Beam as figure shows, secure with bolt(1),lock nut(2) .

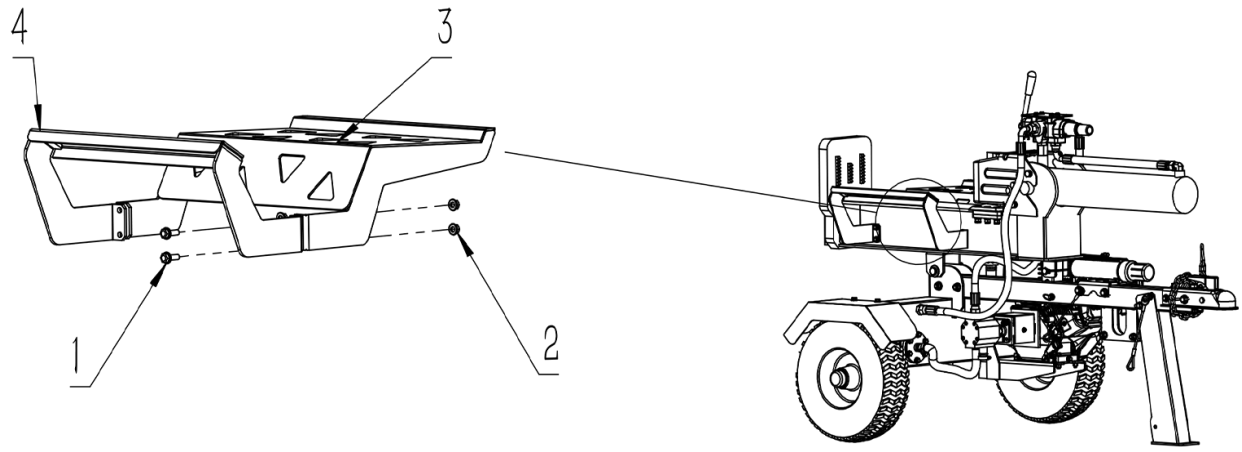


Figure 12 Table and Fender Installation

10. Add recommended ISO32 hydraulic oil use fuel kit (2) show the drawing as figure13 followe the step.

STEP1: Fill the tank full with hydraulic oil (10L).

STEP2: Run the machine for 1-2minutes, then stop.

STEP3: Add 2L more (12L total).Oil level should be at the 70/158mark on the oil gauge.

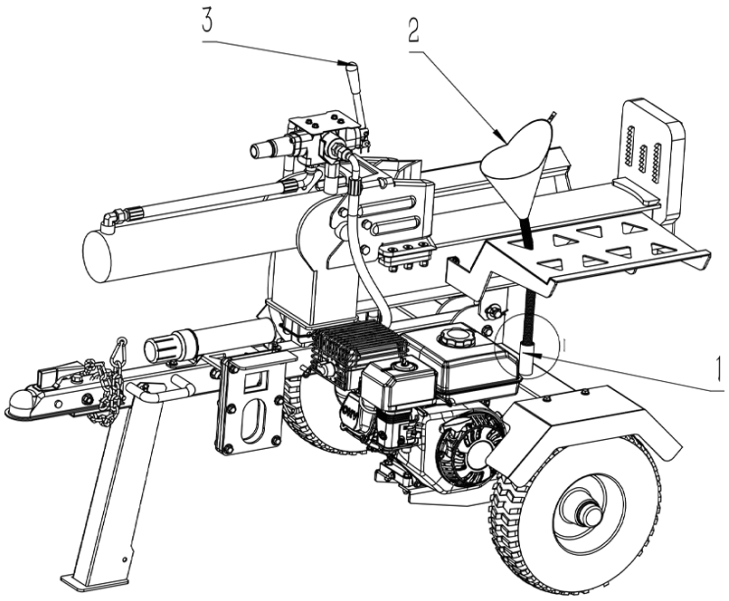


Figure 13 Add hydraulic oil

PART III: Operating the Log Splitter

It may be helpful to better familiarize yourself with the features of your equipment before beginning the steps outlined in this chapter.

⚠ WARNING

A. Read and understand all instructions, safety precautions, and/or warnings listed in "PART I: General Safety Rules" before operating. Make sure that all operators of this equipment are trained in general machine use and safety.
B. Know the correct and incorrect methods of using equipment and never use an incorrect or unsafe method.
C. Inspect machine work area and machine before operating.
D. PUT/CHECK OIL AND GASOLINE IN ENGINE BEFORE STARTING.
E. Do not operate if excessive vibration occurs. Shut engine off immediately and check for damaged or worn impeller, loose impeller bolt, loose engine or lodged foreign objects.
F. Make sure you do not get too close to sharp drop-offs to avoid tipping over.
G. Always park your equipment on level ground.

ENGINE OIL LEVEL CHECK

1. BEFORE CHECKING ENGINE:

A. Make certain the engine is level.

B. The engine switch is in the OFF position

2. Remove the filler cap/dipstick and wipe it clean.

3. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.

4. If the oil level is low, fill to the edge of the oil filler hole with the recommended oil. SAE 10W-30 is recommended for general use. Refer to engine oil recommendations in engine manual for other viscosity and information.

5. Screw in the filler cap/dipstick securely.

Before Starting the engine

1. Lubricate the beam area where the splitting wedge will slide with engine oil. Do not use grease..

2. Make sure that the screws, fixing elements and protection devices are in place and that the affixed notices are legible.

3. Check gasoline level, make sure there is enough gasoline, recommend more 1/2 to 2/3 level of tank.

4. Check engine oil level, if not clean, replace with new engine oil.

5. Check hydraulic oil level to make sure with proper amount as below instructions.

6. Attach spark plug wire to the spark plug. Make certain the metal cap on the end of the spark plug wire is fastened securely over metal tip of the spark plug.

Hydraulic oil check

1. Remove tank filler cap(Figure 14), which is on top of tank on side of the beam.

2. Fill the tank with 10W AW(or #46) hydraulic fluid.

3. Check fluid level with the oil gauge to be between LOW LEVEL and UPPER LEVEL. The reservoir tank has a capacity of approximately 12 liters. Do not overfill.

4. Screw in the dipstick securely.

5. Start engine according to instructions.

6. Use control handle to engage the wedge to the farthest extended position and then retract it.

7. Refill tank to within the range specified on the dipstick.

8. Extend and retract the wedge 12 complete cycles to remove trapped air.

9. Much of the original fluid has been drawn into the cylinder and hoses. Make certain to refill the reservoir to prevent extreme damage to the hydraulic pump. Failure to refill the tank will void your warranty.

IMPORTANT: Do not operate the log splitter without the proper amount of hydraulic oil in the reservoir and keep the hydraulic fluid below 85° .

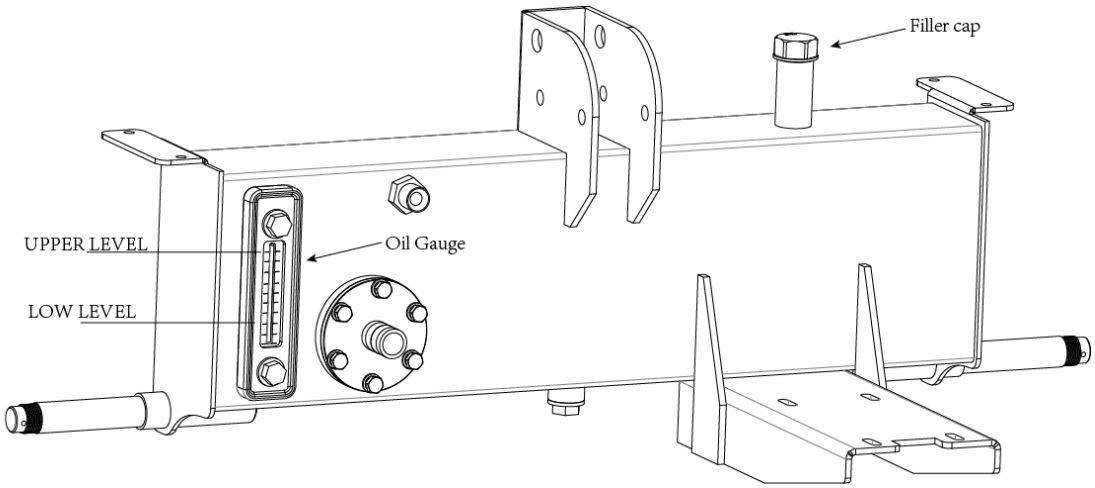


Figure 14. Hydraulic oil gauge

Starting

1. **Position your equipment on flat, dry ground.**
2. **Turn the fuel valve is in the "ON" position.**
3. **Move the choke lever to the "CHOKE" position (should only be needed if the engine is cold).**
4. **Slide the throttle control lever about one-third way towards the FAST position.**
5. **Recoil Start: Turn the Ignition Switch to the "On" position. Grasp the recoil starter handle and slowly pull until you feel resistance. Let the cord retract a little bit then pull the cord rapidly to start the engine. One or two pulls usually starts the engine.**
6. **Electric Start(if have): Turn and hold the Key in the start position for 2-4 seconds until Engine starts then let the Key return to run position(try only 3-5 times if not able to start and wait for motor to cool, or the battery power will be shortage or the fuse of**

engine starter maybe blown).

7. **Move the choke control lever (if used for cold engine) slowly back to the "RUN" position when the engine is running well.**
8. **If the engine has not been running (cold engine), warm up the engine by running the engine at half throttle for 3 to 4 minutes, then advance the engine throttle control to the maximum speed.**
9. **If weather is cold, run wedge up or down beam 6 to 8 times to circulate the hydraulic fluid, which will warm and thin the fluid.**

Stopping

1. **Move the Throttle Lever to IDLE.**
2. **Recoil Start: Turn the Engine Switch to the OFF position.**
3. **Electric Start: Turn the Key to the OFF position.**
4. **Turn off the fuel valve.**
5. **Disconnect spark plug wire and ground against the engine to prevent unintended starting.**

Control Handle

The control handle(Figure 15) has three positions.

1. Move control handle FORWARD to move wedge to split wood.

NOTE: Control handle will return to neutral position as soon as handle is released.

2. Release the control handle to stop the wedge movement.

3. **Move control handle Retract to return the wedge toward the cylinder. The control handle will lock in the disengaged position. It will return to neutral automatically when the return stroke is complete.**

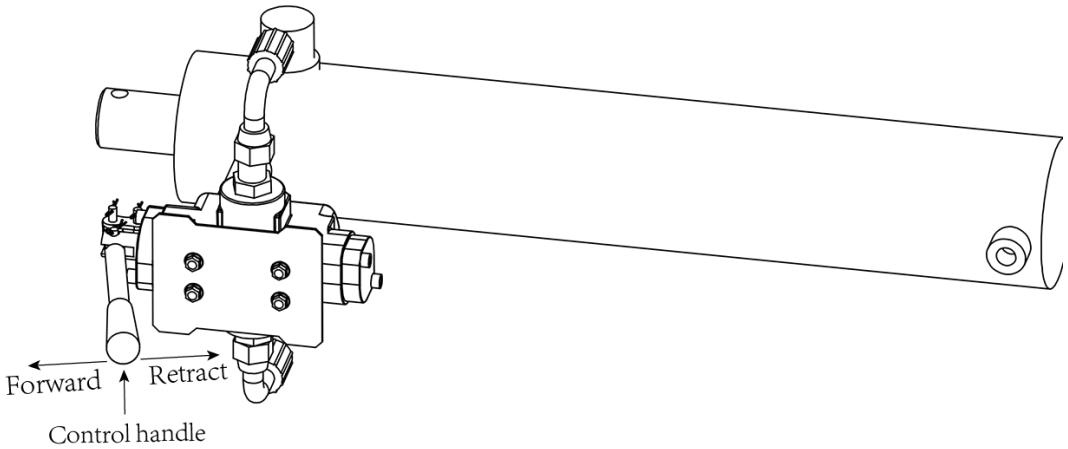


Figure 15. Control Handle

Engine Controls

See the accompanying engine manual for the location and function of the controls on the engine.

IMPORTANT: This unit is shipped without gasoline or oil in the engine. Be certain to service engine with gasoline and oil as instructed in the accompanying engine manual before operating your machine.

Using the Log Splitter

1. Place the log splitter on level, firm, dry ground.

2. Block the front and back of both wheels.

3. Place the log against the end plate and only split wood in the direction of the grain (lengthwise).

4. To stabilize the log, place your hand only on sides of log. Never place hand on the end between the log and the splitting wedge.

5. Only one adult should stabilize the log and operate the control handle, so the operator has full control over the log and the splitting wedge.

Vertical Position

1. Pull the horizontal beam lock out to release the beam and pivot the beam to the vertical position.

2. To lock the beam in the vertical position, pull out on the vertical beam lock to secure the beam.

4. Stand in front of the unit to operate the control handle and to stabilize the log.

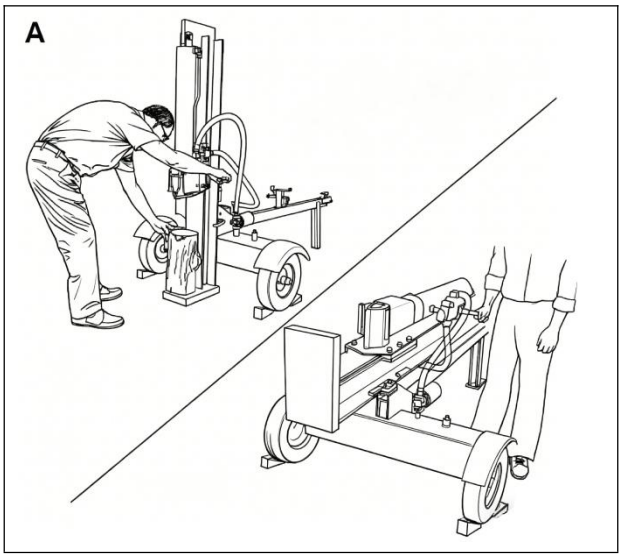
See A.

Horizontal Position

1. Pull the vertical beam lock out and rotate it down. Pivot beam to the horizontal position. The beam will lock automatically in the horizontal position.

2. Stand behind the reservoir tank to operate control handle and to stabilize the log.

See B.



PART IV: Maintaining the Log Splitter

Regular maintenance is the way to ensure the best performance and long life of your machine. Please refer to this manual and the engine manufacturer's user manual and engine manual for maintenance procedures.

The manuals form an integral part of the machine and must therefore be kept intact and in good condition, in a known, easily accessible place for the entire working life of the machine, even if the equipment is passed on to another owner. The purpose of these manuals is to provide the information necessary for the safe and competent use of the product.

⚠ WARNING

Before performing any maintenance procedure or inspection, stop the engine, wait five minutes to allow all parts to cool. Disconnect the spark plug wire, keeping it away from the spark plug before cleaning, or inspecting the machine.

A. Stop the engine and relieve hydraulic system pressure before repairing or adjusting fittings, hoses, tubing, or other system components.

B. To prevent fires, clean debris and chaff from the engine and muffler areas. If the engine is equipped with a spark arrester muffler, clean and inspect it regularly according to manufacturer’s instructions. Replace if damaged.

C. Periodically check that all nuts and bolts, hose clamps, and hydraulic fittings are tight to be sure equipment is in safe working condition.

D. Check all safety guards and shields to be sure they are in the proper position. Never operate with safety guards, shields, or other protective features removed.

E. The pressure relief valve is preset at the factory. Do not adjust the valve.

F. Never attempt to move this machine over hilly or uneven terrain without adequate help.

G. For your safety, replace all damaged or worn parts immediately with original equipment manufacturer’s (O.E.M.) parts only. “Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!”

H. Do not alter this machine in any manner, alterations such as attaching a rope or extension to the control lever, or adding to the width or height of the wedge may result in personal injury.

Storage

⚠ WARNING

a. Never store engine indoors or in enclosed poorly ventilated areas with fuel in tank, where fuel fumes may reach an open flame, spark or pilot light, as on a furnace, water heater, clothes dryer or other gas appliance. If engine is to be unused for 30 days or

more, prepare as follows: Remove all gasoline from carburetor and fuel tank to prevent gum deposits from forming on these parts and causing possible malfunction of engine. Drain fuel outdoors, into an approved container, away from open flame. Be sure engine is cool. Do not smoke. Run engine until fuel tank is empty and engine runs out of gasoline.

b. Fuel stabilizer is an acceptable alternative for minimizing the formation of gum deposits during storage. Add stabilizer to gasoline in storage container or fuel tank. Follow stabilizer manufacturer's instructions to determine proper mix ratio. Run engine at least 10 minutes after adding stabilizer to allow it to reach carburetor.

c. In the instance of a long period of non-use, drain the fuel tank completely.

d. Clean the machine thoroughly.

NOTE: We do not recommend the use of pressure washers or garden hose to clean your unit. These may cause damage to electric components, spindles, pulleys, bearings or the engine. The use of water will shorten life and reduce serviceability.

BEFORE STORAGE

1. Wipe unit with an oiled rag to prevent rust, especially on the wedge and the beam.

2. Drain fuel tank. Always drain fuel into approved container outdoors, away from open flame. Be sure that engine is cool before draining the fuel. Do not smoke while handling fuel.

3. Start the engine and let it run until the fuel lines and carburetor are empty.

4. Remove spark plug, pour approximately 1/2 ounce (approximately one tablespoon) of engine oil into cylinder and crank slowly to distribute oil.

5. Replace spark plug.

6. Do not store gasoline from one season to another.

7. Replace your gasoline can if it starts to rust. Rust and/or dirt in the gasoline will cause problems.

8. Store unit in a clean, dry area. Do not store next to corrosive materials, such as fertilizer.

NOTE: If storing in an unventilated or metal storage shed, be certain to rustproof the equipment by coating with a light oil or silicone.

Regular Maintenance Checklist

Procedure	Before Each Use	Every 3 Hours	Every 25 Hours	Every 100 Hours
Check engine oil level	Δ			
Check general equipment condition	Δ			
Check blade for sharpness	Δ			
Check the pull cord	Δ			
Clean engine exterior and cooling			Δ	
Change Engine Oil	First time 5hours		Δ	
Replace air filter			Δ	
Replace spark plug				Δ
Check Hydraulic oil	Δ			
Replace Hydraulic oil				Δ

Changing Engine Oil

1. Remove the "Engine Oil Filler Cap".
2. Loosen and remove the "Engine Oil Drain Bolt".
3. After the engine oil has completely drained, reinstall the "Engine Oil Drain Bolt".
4. Add the correct amount of oil through the "Oil Filler Port", then reinstall the filler cap.

Note: Refer to the engine manual for the correct type of engine oil to use.

Engine Service

Refer to the engine manufacturer's user manual for engine maintenance.

Handling and Transportation

⚠ Notice

1. Always turn the fuel valve to OFF position before transporting the log splitter.
2. Never move the machine while the engine is running.

Wedge Assembly Adjustment

1. As normal wear occurs and there is excessive "play" between the wedge and beam, adjust the bolts on the side of the wedge assembly to eliminate excess space between the wedge and the beam.
2. Loosen the jam nuts on the two adjustment bolts on the side of the wedge.
3. Turn the adjustment bolts in until snug and then back them off slowly until the wedge

assembly will slide on the beam.

4. Tighten the jam nuts securely against the side of the wedge to hold the adjustment bolts in this position.

Conditions that will void Warranty

1. Failure to maintain proper fluid level in reservoir.

2. Changing the relief valve setting or pressure adjustment of control valve without proper knowledge and instruction from the factory.

WARNING: Higher pressure could cause the hoses to burst, cylinder to rupture, and intense fluid to be released, which could result in serious personal injury.

3. Disassembling the pump.

4. Use of incorrect hydraulic fluid.

5. Allowing the flexible pump coupler to deteriorate without proper and regular inspection

6. Lack of lubrication or improper lubrication of the beam or unit.

7. Improper adjustment of splitting wedge.

8. Excessive heating of the hydraulic system.

9. Attempting to start unit in temperatures under 20℉ without pre-heating fluid in reservoir.

10. Unattended leaks in hydraulic system.

Hydraulic Fluid

1. Check the hydraulic fluid level in the log splitter reservoir tank before each use.

2. Maintain fluid level within the range specified on the dipstick at all times.

3. Change the hydraulic fluid in the reservoir every 100 hours of operation.

4. Disconnect the suction hose from the bottom of the reservoir tank and drain the fluid into a suitable container. Refill using only 10W AW(or #46) hydraulic fluid.

NOTE: Please dispose of used hydraulic fluid and engine oil at approved recycling centers only.

5. Since contaminants in fluid may damage the hydraulic components, you will have to drain the fluid and flush the reservoir tank and hoses with kerosene whenever any repair work is performed on the tank, hydraulic pump or valve. For this job, contact your nearest service dealer.

Hydraulic Filter

Change the hydraulic filter every 50 hours of operation.

Hose Clamps

Check, before each use, if hose clamps on the suction hose (attached to the side of the pump) are tight. Check the hose clamps on the return hose at least once a season.

Tires

See sidewall of tire for recommended pressure. Maximum tire pressure under any circumstances is 30 p.s.i. Maintain equal pressure on all tires.

WARNING: Excessive pressure (over 30 p.s.i.) when seating beads may cause tire/rim assembly to burst with force sufficient to cause serious injury.

PART V: Troubleshooting and Parts List

Most problems are easy to fix. Consult the Troubleshooting Table below for common problems and their solutions. If you continue to experience problems, contact the dealers in your area.

⚠ WARNING

Before performing any maintenance procedure or inspection, stop the engine, wait five minutes to allow all parts to cool. Disconnect the spark plug wire, keeping it away from the spark plug.

Troubleshooting Table

SYMPTOM	POSSIBLE CAUSE
The engine won't start. *(Please refer to the engine user manual for engine-specific procedures.)*	➢ *Is the ignition switch in the "ON" position?* ➢ *Is the fuel shut-off valve on?* ➢ *Are you using fresh, clean gas? If the gas is old, change it. Use a fuel stabilizer if you keep gas longer than 30 days.* ➢ *Is the spark plug clean? If the spark plug is dirty or cracked, change it. If it's oily, leave it out, hold a rag over the plug hole and pull the recoil cord several times to blow out any oil in the cylinder, then wipe off the plug and reinsert it.*
The engine lacks power or is not running smoothly. *(Please refer to the engine user manual for engine-specific procedures.)*	➢ *Check that the Throttle Lever is in the "Run" position.* ➢ *Is the air filter clean? If it's dirty, change it following the procedure in the engine manufacturer's owner's manual.* ➢ *Is the spark plug clean? If it's fouled or cracked, change it. If it's oily, leave it out, hold a rag over the plug hole and pull your recoil cord several times to blow out any oil in the cylinder, then wipe off the plug and reinsert it.* ➢ *Are you using fresh, clean unleaded gas? If it's old, change it. Use a fuel stabilizer if you keep gas longer than 30 days.* ➢ *Does your engine have the right amount of clean oil? If it's dirty, change it following the procedure in the engine manufacturer's owner's manual.* ➢ *Check the oil level and adjust as needed.*
Engine smokes. *(Please refer to the engine user manual for engine-specific procedures.)*	➢ *Check the oil level and adjust as needed.* ➢ *Check the air filter and clean or replace if needed.* ➢ *You may be using the wrong oil—too light for the temperature. Refer to your Engine Owner's Manual for detailed information.* ➢ *Clean the cooling fins if they're dirty.*
Engine stalls	➢ *No fuel*

Engine fumes	➢ *Low grade fuel* ➢ *Too much engine oil* ➢ *Choke not fully opened* ➢ *Air filter blocked*
excessive vibration	➢ *Check engine* ➢ *Check blade if bent or broken or jammed*
Engine overloads during work operations	➢ *Engine speed too low* ➢ *Blade worn*
The blade cannot cut or becomes loose	➢ *Blade not be properly installed.* ➢ *Blade may have become dull or broken* ➢ *Blade jammed*

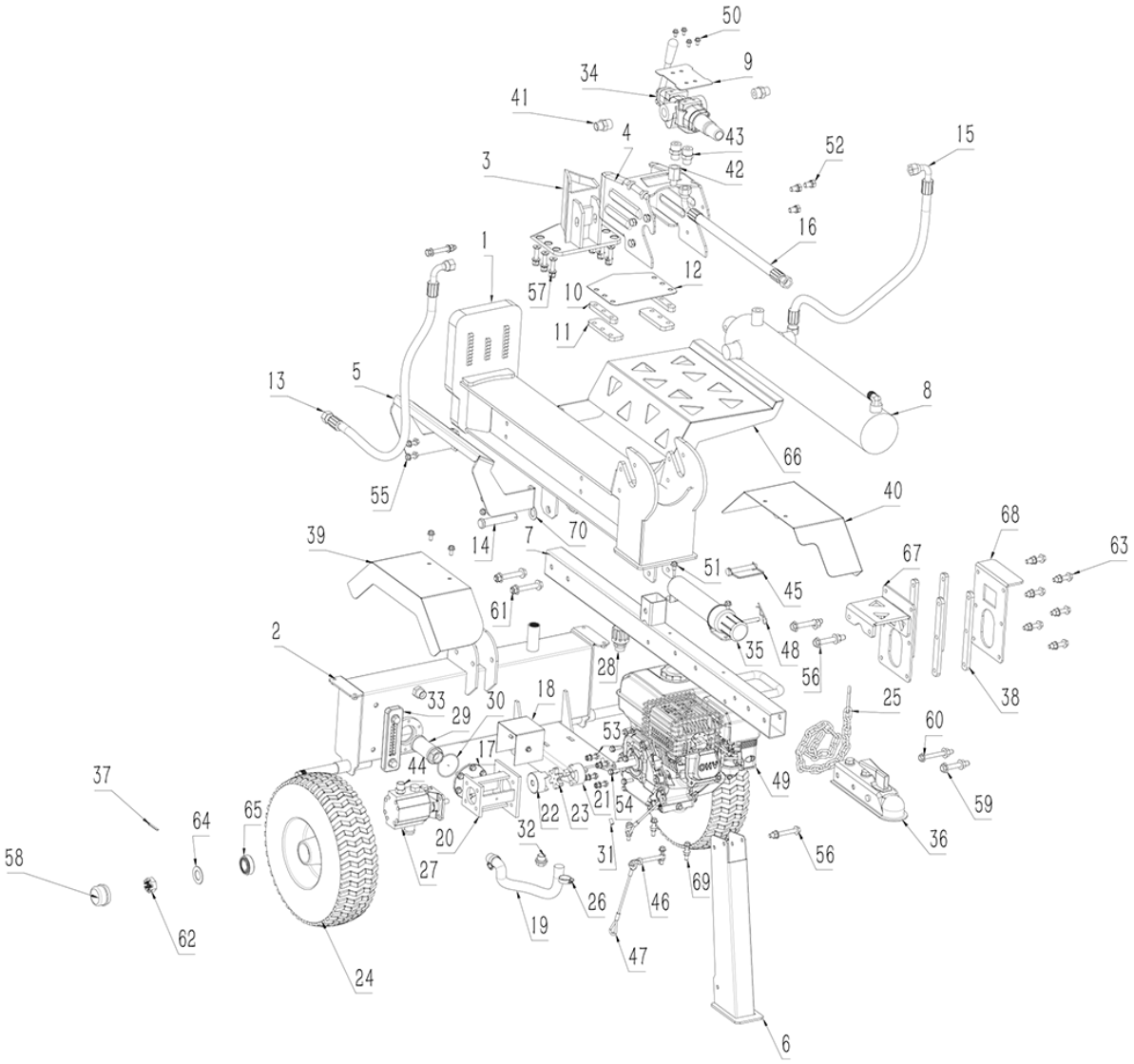
NOTE: For repairs beyond those listed above, contact your nearest authorized service center.

Hydraulic Troubleshooting

Problem	Cause	Remedy
Cylinder rod will not move	1. Broken drive shaft. 2. Shipping plugs left in hydraulic hoses. 3. Set screws in coupling not adjusted properly. 4. Loose shaft coupling. 5. Gear sections damaged. 6. Damaged relief valve. 7. Hydraulic lines blocked. 8. Incorrect oil level. 9. Damaged directional valve. 10. Blocked directional valve.	1. See authorized service dealer. 2. Disconnect hydraulic hoses, remove shipping plugs, reconnect hoses. 3. See operator's manual for correct adjustment. 4. Correct engine/pump alignment as necessary. 5. See authorized service dealer. 6. See authorized service dealer. 7. Flush and clean hydraulic system. 8. Check oil level. 9. See authorized service dealer. 10. Flush and clean hydraulic system.
Slow cylinder shaft speed while extending and retracting.	1. Gear sections damaged. 2. Excessive pump inlet vacuum. 3. Slow engine speed. 4. Damaged relief valve. 5. Incorrect oil level. 6. Contaminated oil. 7. Directional valve leaking internally. 8. Internally damaged cylinder.	1. See authorized service dealer. 2. Make certain pump inlet hoses are clear and unblocked-use short, large diameter inlet hoses. 3. See authorized service dealer. 4. See authorized service dealer. 5. Check oil level. 6. Drain oil, clean reservoir, and refill. 7. See authorized service dealer. 8. See authorized service dealer.
Leaking cylinder	1. Broken seals. 2. Scored cylinder.	1. See authorized service dealer. 2. See authorized service dealer.
Engine runs but wood will not split or wood splits too slowly	1. Small gear section damaged. 2. Pump check valve leaking. 3. Excessive pump inlet vacuum. 4. Incorrect oil level. 5. Contaminated oil. 6. Directional valve leaking internally. 7. Overloaded cylinder. 8. Internally damaged cylinder.	1. See authorized service dealer. 2. See authorized service dealer. 3. Make certain pump inlet hoses are clear and unblocked. 4. Check oil level. 5. Drain oil, clean reservoir, and refill. 6. See authorized service dealer. 7. Do not attempt to split wood against the grain. 8. See authorized service dealer.

Engine stalls during splitting	1. Low horsepower/weak engine. 2. Overloaded cylinder.	1. See authorized service dealer. 2. Do not attempt to split wood against the grain or see authorized service dealer.
Engine will not turn or stalls under low load conditions	1. Engine/pump misalignment. 2. Frozen or seized pump. 3. Low horsepower/weak engine. 4. Hydraulic lines blocked. 5. Blocked directional valve.	1. Correct alignment as necessary. 2. See authorized service dealer. 3. See authorized service dealer. 4. Flush and clean hydraulic system. 5. Flush and clean hydraulic system.
Leaking pump shaft seal	1. Broken drive shaft. 2. Engine/pump misalignment. 3. Gear sections damaged. 4. Poorly positioned shaft seal. 5. Plugged oil breather.	1. See authorized service dealer. 2. Correct alignment as necessary. 3. See authorized service dealer. 4. See authorized service dealer. 5. Make certain reservoir is properly vented.

Explosion View and Parts List



Parts no	Description	Quantity
1	Main Beam Welding Assembly	1
2	Fuel Tank Welding Assembly	1
3	Cutter Head Welding Assembly	1
4	Cutter Cover	1
5	Guard Plate Welding Assembly	1
6	Front Leg Welding Assembly	1
7	Tow Bar Welding Assembly	1
8	Trunnion Cylinder [4 Inch]	1
9	Four-Way Valve Plate	1
10	Cutter Head Slider [Thick]	2
11	Cutter Head Slider	2
12	Teflon Sheet	1
13	Oil Return Pipe	1
14	Hanging Beam Pin	1
15	Oil Outlet Pipe	1
16	Cylinder Pipe	1
17	Oil Outlet Body Flange	1
18	Oil Pump Bracket Cover Plate	1
19	Steel Wire Hose	1
20	Oil Pump Bracket	1
21	Coupling Input End	1
22	Coupling Output End	1
23	Coupling Elastic Buffer Pad	1
24	Tire [4.8-8]	2
25	21-Section Chain with Hook	1
26	Hoop Clamp	2
27	Oil Pump	1
28	Vent Cap	1
29	Oil Filter	1
30	Q-Type Seal Ring	1
31	Set Screw M8×10	2
32	Oil Drain Plug	1
33	Oil Level Gauge	1
34	Directional Valve	1
35	Small Tool Cup	1

Parts no	Description	Quantity
36	Tow Head	1
37	Cotter Pin φ3.5×35	2
38	Chainsaw Bracket Fixing Strip	1
39	Left Fender Welding Assembly	1
40	Right Fender Welding Assembly	1
41	Straight Joint [3/4 to 3/4 D-Type]	1
42	Inner Joint [1/2 to 1/2]	1
43	Straight Joint [3/4 to 1/2 D-Type]	3
44	Straight Joint [1/2 to 1/2 D-Type]	1
45	Square Pin 10x80	1
46	Pull Latch Pin 70	2
47	Connecting Wire Loop	2
48	R-Clip Pin	3
49	Gasoline Engine	1
50	Flange Bolt M6×12	10
51	Flange Bolt M8×12	8
52	Hex Bolt M12x20 + Spring Washer	6
53	M8×30 Hex Bolt + Flat Washer + Lock Nut Assembly	4
54	M8×25 Hex Bolt + Flat Washer	4
55	M8×25 Flange Bolt + Flange Lock Nut	4
56	M10x75 Flange Bolt + Flange Lock Nut	3
57	M10x50 Countersunk Bolt + Lock Nut Assembly	6
58	Shaft Cover	2
59	M12x75 Flange Bolt + Flange Lock Nut	1
60	M10x90 Flange Bolt + Flange Lock Nut	1
61	M12x80 Flange Bolt + Flange Lock Nut	2
62	Slotted Nut M24	2
63	M10x45 Flange Bolt + Flange Lock Nut	6
64	Flat Washer 24	4
65	Tapered Roller Bearing	4
66	Shelf Board Welding Assembly	1
67	Chainsaw Bracket Welding Assembly	1
68	Chainsaw Bracket Fixing Bending Plate	1
69	M8×40 Flange Bolt + Flange Lock Nut	4
70	Gasket 36×21×3	4

GX COMMERCIAL LLC 4301 S VALLEY VIEW BLVD, STE 10-11-12 LAS VEGAS, NV 89103

DO NOT RETURN TO THE STORE

BigBear Specialists are ready to help

Phone: **725-274-6171 EXT 1** Email: **CUSTOMERSERVICE@BIGBEARPOWER.COM**
Website: www.BIGBEARPOWER.com CONTACT US

Warranty Policy: Equipment with fuel is treated as hazardous material for D.O.T. transport and non-returnable per federal hazardous materials law (49 CFR § 173.220), including retailers' policies for outdoor gas power equipment.

EXTENDED 5-YR LIMITED GAS-POWERED WARRANTY

Engines: Rato engines have a 1-year warranty; a 4-year OEM commercial extended warranty is included at no extra cost. GX Commercial LLC will provide parts or replace Rato engines at our choice for 5 years from the purchase date at no cost to the original owner with proof of purchase receipt. The warranty is not transferable. All other engine brands are covered under their original OEM warranty.
Chassis: GX Commercial LLC will provide replacement parts to the original purchaser for 5 years for defective chassis components.
Not covered under this warranty for gas-powered equipment: Tires, Cutting Blades, Cutting Teeth, Labor, Anvils, Belts, Hardware, Batteries, chargers, damage, misuse, accessories, accepted shipping damage. Products included free of charge or as promotional items with the purchase of a main product are not covered under this warranty.

Extended 1-Year Limited Warranty for Handheld Electric Tools

Lithium handheld tools come with a 1-year warranty, plus a 1-year GX Commercial LLC extended warranty. GX Commercial LLC will provide parts or replace tools of our choice for 1 year from the purchase date to the original owner with proof of purchase receipt.

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