

WOOD SPLITTER K-36 Operator's Manual 8-55210

INGERSOLL Ingersoll Equipment Co., Inc.

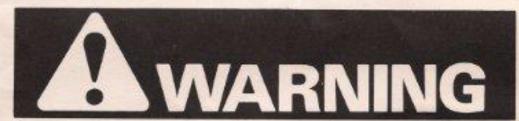


This Safety Alert Symbol Indicates Important Safety Messages In This Manual. When You See This Symbol Carefully Read The Message That Follows and Be Alert To The Possibility Of Personal Injury Or Death

IF THIS MACHINE IS USED BY AN EMPLOYEE OR IS LOANED OR RENTED, MAKE ABSOLUTELY CERTAIN THAT THE OPERATOR(S), PRIOR TO OPERATING:

- IS INSTRUCTED IN SAFE AND PROPER USE.
- REVIEWS AND UNDERSTANDS THE MANUAL(S) PERTAINING TO THE MACHINE.

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BEFORE STARTING ENGINE

STUDY OPERATOR'S MANUAL SAFETY MESSAGES READ ALL SAFETY SIGNS ON MACHINE CLEAR THE AREA OF OTHER PERSONS

LEARN & PRACTICE SAFE USE OF CONTROLS BEFORE OPERATING

IT IS YOUR RESPONSIBILITY TO UNDERSTAND AND FOLLOW MANUFACTURER'S INSTRUCTIONS ON MACHINE OFFRATION, SERVICE AND TO DESERVE PERTINENT LAWS AND REQUIREMENT DEALER.

DPERATOR AND SERVICE MANUALS MAY BE OBTAINED FROM YOUR EQUIPMENT DEALER.

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INGERSOLL

Ingersoll Equipment Co., Inc.

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SAFETY RULES



The safety messages contained in this manual are to be used together with the safety messages appearing in your Tractor Operator's Manual. Make sure you review both manuals before you operate the Tractor. Wood Splitter combination.



CAUTION: Read the operator's manual completely before attempting to use this wood splitter.



CAUTION: Before starting this wood splitter, review the "Rules for Safe Operation". Failure to follow these rules may result in serious injury to the operator or bystanders.



CAUTION: Do not allow anyone to operate your wood splitter who has not read the operator's manual or has not been instructed on the proper use of the wood splitter.



CAUTION: Never allow children or untrained adults to operate this wood splitter.



CAUTION: Most accidents occur when more than one [1] person operates the wood splitter. If a helper is assisting in loading logs to be split, never actuate controls until the helper is clear of the area.



WARNING: Never allow anyone to ride on the wood splitter.



CAUTION: Never transport cargo on the wood splitter.



CAUTION Extremely high fluid pressures are developed in hy draulic wood splitters. Pressurized hydraulic fluid escaping through a pin hole opening can puncture skin and cause severe blood poisoning. Therefore, the following instructions should be heeded at all times.

- Do not operate the wood splitter with frayed, kinked, cracked or damaged hoses, fittings or tubing.
- 2 Stop the engine and relieve hydraulic system pressure by stroking the valve handle both ways several times be fore changing or adjusting fittings, hoses, tubing or other system components
- 3 Do not adjust the pressure settings of the pump or valve
- 4 Do not check for leaks with your hand. Leaks can be lo cated by passing cardboard or wood over the suspected area. Look for discoloration. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.



CAUTION Keep the operator zone and adjacent area clear for secure footing.



WARNING: Always operate the wood splitter with all protective equipment in place and all controls properly adjusted.



CAUTION: If your wood splitter is equipped with an internal combustion engine and intended for use near any unimproved forest, brush, or grass covered land, the engine exhaust should be equipped with a spark arrestor. Take fire fighting equipment with you. Make sure you comply with local, state and federal codes.



CAUTION: Ram type machines should be used only for splitting wood and only in the direction of the grain. If the manufacturer has attachments for other uses, follow their installation and safe operating instructions.



CAUTION: Always operate the wood splitter at manufacturer's recommended speed.



WARNING: Always keep hands and feet clear of moving parts.



CAUTION: Always shut off the engine while repairing or adjusting the wood splitter except as recommended by the manufacturer.



WARNING: When loading the wood splitter, place your hands on the sides of the log outside of the path for the wedge or ram. Never place your hands or any part of your body between a log and any part of the wood splitter.



CAUTION: On logs that are not cut square, the longest portion of the log should be rotated down and placed at the wedge end.



CAUTION: Never attempt to split more than one [1] log at a time unless the ram has been fully extended and a second log is needed to complete the separation of the first log.



CAUTION: Use only your hand to operate the wood splitter controls.



CAUTION: Do not refuel the engine until it has cooled for several minutes



CAUTION: Clean debris and chaff from engine cylinder, cylinder head fins, blower housing rotating screen and muffler areas. If the engine is equipped with a spark arrestor muffler, clean and inspect it regularly. IFollow manufacturer's service instructions. I Replace. if damaged.



CAUTION: Be thoroughly familiar with all controls and with the proper use of the equipment.

- Always wear "safety" shoes or heavy boots. A dropped log can seriously injure.
- Always wear "safety" glasses or goggles to provide eye protection from flying splinters when operating the machine.
- Avoid wearing jewelry or loose fitting clothing that might become entangled in moving or rotating parts of the machine.



WARNING. Make sure the wood splitter is on a level surface. Block the wheels securely before operating the machine to avoid possible injury from unexpected machine movement.



CAUTION Never store the equipment with fuel in the tank inside a building where fumes might reach an open flame or spark. Allow the engine to cool before storing in any enclosure.



CAUTION: Always operate the wood splitter from the manufacturer's indicated operator zone to assure maximum operator safety.



CAUTION: Clean debris from movable parts, but only when the engine is shut off.



CAUTION: Logs to be split should be cut as squarely as possible to avoid unexpected movement of split wood.



CAUTION: Check to be sure all nuts and bolts are tight to assure the equipment is in safe working condition.



CAUTION: Never leave the wood splitter unattended with the power source operating.



WARNING: Pinch point Keep hands away from ram, wedge and partially split wood. Pinching can cause injury. Stand clear and keep hands and feet from under wood splitter when changing height. Unexpected movement can cause injury.



CAUTION: Never operate the wood splitter when under the influence of alcohol, drugs or medication, Proper operation requires a clear head.



CAUTION: The owner should instruct all operators how to properly operate a wood splitter.



CAUTION: Do not disconnect quick coupler while engine is running. Personal injury or damage to equipment may result.

IMPORTANT: Always install new decals whenever the old decals are destroyed, lost, painted over or illegible. When individual parts are replaced that have decals attached, be sure to install a new decal with the new part. Replacement decals are available from your Dealer.

INTRODUCTION

This Operator's Manual is for the Model K-36 Wood Splitter.

This Operator's Manual includes:

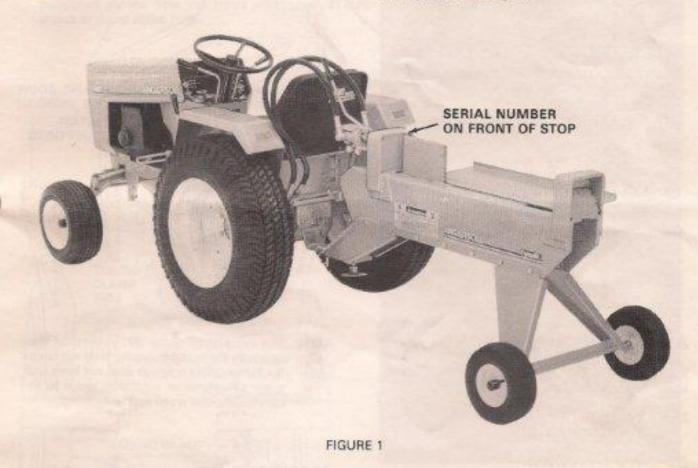
- a. Safety Rules
- b. Installation Procedure
- c. Operating Procedure
- d. Specifications
- e. Maintenance

Read this manual before operating your Wood Splitter.

The words, "Right, Left, Front and Rear" as used in this manual indicate directions when you are in the tractor's operator's seat in the normal operating position.

See your authorized dealer for parts or repairs.

The Ingersoll Equipment Co., Inc. reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation relating to such changes.



SERIAL NUMBER

When you need parts or information always give the:

- a. Wood Splitter Model Number: K 3 6
- b. Wood Splitter Serial Number: AM 15117

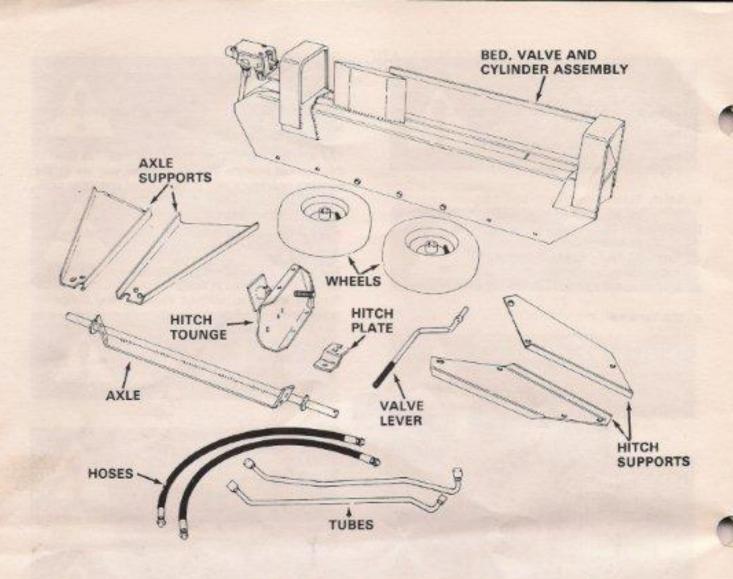


FIGURE 2 Wood Splitter - Disassembled

ATTACHMENT APPLICATION

The Model K-36 Wood Splitter fits on the following Model Tractors:

220 Prio	Prior to PIN 9702946
	PIN 9734870 And After

- 222 Prior to PIN 9706651 PIN 9736998 And After
- 224 Prior to PIN 9708665 PIN 9738335 And After
- 226 All
- 444 Prior to PIN 9711027 PIN 9739739 And After
- 446 Prior to PIN 9728158 PIN 9742953 And After
- 448 All

NOTE: This excludes 1976 and 1977 year model tractors with the metal hydraulic reservoir under the battery. This reservoir does not have adequate oil volume or expansion space to accommodate this wood splitter.

SPECIFICATIONS

Cycle Time (out & return)	
Maximum Opening	25" (635 mm)
Splitting Stroke	24" (609 mm)
Splitting pressure	
outward stroke	12 tons (106,750 N)
return stroke	9.8 tons (87,180 N)
Relief Valve Setting	2500 PSI (17,236 kPa)
Hydraulic Cylinder	3.5" (88 mm)
Rod	1.5" (38 mm)
Shipping Weight	375 lb. (170 kg)
Tire Pressure	
Maximum Towing Speed	9.4 mph (15 km/h)

ASSEMBLY AND INSTALLATION

 Place the two-speed transaxle in high range. Place a clean pan under the tractor travel valve. Place the tractor travel lever in full forward position to prevent the reservoir from draining. Remove the inlet hose from the tractor travel valve.

NOTE: Keep fittings, tubes and ports plugged as much as possible to prevent dirt from entering.

 IMPORTANT: Route Wood Splitter inlet tube (color coded yellow) from pump outlet hose to rear of tractor so that it passes above the hydraulic motor and axle and between the two-speed transaxle shift lever and shift rod. This tube will be positioned second from the frame rail. Loosely attach to pump outlet hose.

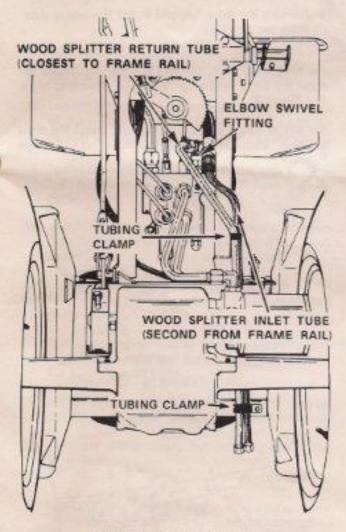


FIGURE 3 Tubing Installation

Install the elbow swivel fitting provided on the straight male fitting at the inlet port of the travel valve. 4. IMPORTANT: Route Wood Splitter outlet tube from rear of tractor to travel valve inlet so that it passes above the hydraulic motor and axle and between the two-speed transaxle shift lever and shift rod. This tube should lie next to the frame rail.



CAUTION: Extremely high fluid pressures are developed in hydraulic wood splitters. Pressurized hydraulic fluid escaping through a pin hole opening can puncture skin and cause severe blood poisoning. Therefore, the following instructions should be heeded at all times.

- Do not operate the wood splitter with frayed, kinked, cracked or damaged hoses, fittings or tubing
- 2 Stop the engine and relieve hydraulic system pressure by stroking the valve handle both ways several times be fore changing or adjusting fittings, hoses, tubing or other system components
- Do not adjust the pressure settings of the pump or valve.
- 4 Do not check for leaks with your hand Leaks can be located by passing cardboard or wood over the suspected area. Look for discoloration. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.
- Tighten all fittings at pump outlet hose and travel valve inlet.
- IMPORTANT: Loop one hose between the tube ends.
- For all models except the 448; install the two (2) hose clamps, provided, to the short hose connnecting the return tube to the lower oil cooler tube.

NOTE: This step for tractors that do not have worm drive clamps on the short hose.

VERY IMPORTANT: Always loop one hose between the hydraulic tubes when the wood splitter is removed. Failure to observe this procedure will result in oil loss (tubes left open) or pump damage (tubes plugged) if the engine is started.

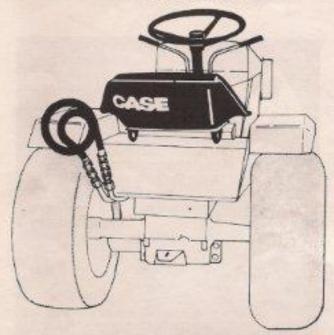


FIGURE 4 Looped Hose

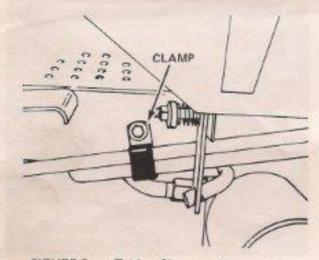


FIGURE 5 Tubing Clamp on Frame Rall

 a. Use one clamp provided to clamp the wood splitter hydraulic tubes to the tractor left side frame rail. Locate the clamp about 4 inches (100 mm) forward of the two speed transaxle shift lever and with the bolt hole up.

IMPORTANT: The tube from the pump hose must be on top. The tube to the travel control valve inlet must be on the bottom. Centerpunch and drill a 5/16" hole in the frame rail using the hole in the clamp as your guide.

Bult the clamp, with tubes, in position.

b. Use the second clamp provided to fasten the wood splitter hydraulic tubes to the rear seat support. Both tubes must be positioned to the right of the mounting hole for the clamp.

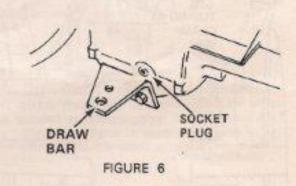
IMPORTANT: The top tube (step a) from the pump hose must be to the left (outside).

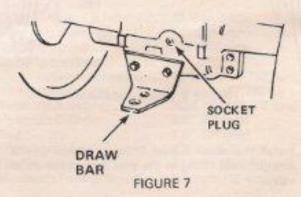
IMPORTANT: The bottom tube (step a) to the travel control valve inlet must be to the right (inside).

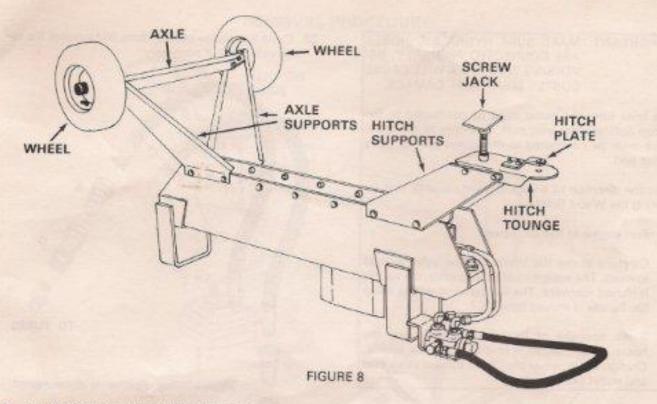
- Replace the rear oil fill plug in the transaxle housing with the correct size socket plug provided.
- Remove the draw bar and install the heavy duty draw bar provided.

For Model 220, 222, 224 and 226 tractors: Install the draw bar so it "steps up" from the mounting bolts. See Figure 6.

For Model 444, 446 and 448 tractors: Install the draw bar so it "steps down" from the mounting bolts. See Figure 7.







- 11. Lay the splitter bed upside down as shown.
- Loosely attach the axle supports to the rear holes
 of the splitter bed. The supports must be to the
 outside of the bed and must slent to the rear.
- Fasten the axle to the axle supports. Use 5/16" x
 7/8" bolts and flange lock nuts. Tighten the axle support bolts.
- Install the wheels with the valve stem to the outside. Use the washers and cotter pins provided. Apply grease and install plastic axle caps.
- Loosely attach the hitch supports to the front holes of the splitter bed. The supports must slant to the front as shown.
- Install the hitch tongue to the hitch supports. Use 3/8" x 7/8" bolts and flange lock nuts. Tighten the hitch support bolts.
- Install the hitch plate to the bottom of the tongue.
 Use the 5/16" x 3/4" bolts, lockwashers and nuts.
- Turn the splitter over. Put blocking under the screw jack.

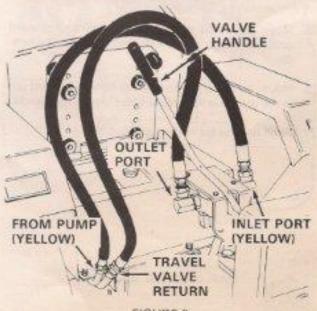
IMPORTANT: To avoid physical injury, make sure you have ample assistance,

 Adjust the screw jack to align the splitter hitch with the tractor draw bar. Move the tractor rearward and fasten to the splitter with the hitch pin provided.

- Install the valve handle with the offset facing forward. Use the small clevis pin and cotter pin provided.
- IMPORTANT: Connect the hose from the outside tube (from pump) to the Wood Splitter valve inlet port (right hand side of valve).

IMPORTANT: The outside tube (from pump) and the Wood Splitter valve inlet port are color coded yellow. Connect yellow to yellow.

 Connect the hose from the inside tube (return to travel valve) to the Wood Splitter valve outlet port. The valve ports are identified on the underside of the valve casting.



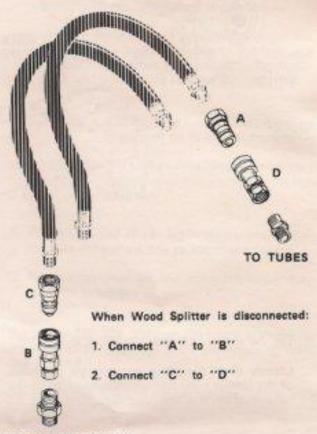
IMPORTANT: MAKE SURE HYDRAULIC HOSES ARE CONNECTED PROPERLY. REVERSING THE HOSES WILL CAUSE COSTLY EQUIPMENT DAMAGE.

The hose from the pump must be connected to the Wood Splitter valve inlet port. The hose to the travel valve must be connected to the Wood Splitter valve outlet port.

Test the direction of wedge movement after first installing the Wood Splitter:

- a. Run engine at low idle speed.
- Carefully stroke the Wood Splitter valve a small amount. The wedge must extend when the handle is moved rearward. The wedge must retract when the handle is moved forward.
- c. If the opposite of this movement occurs, the hoses are connected in reverse. Stop the engine. Change the hoses at the Wood Splitter valve inlet and outlet ports.
- IMPORTANT: Check all hydraulic fittings for tightness. Be sure pump outlet does not interfere with steering gear, frame rail or travel lever.
- Fill the tractor hydraulic reservoir. Check your tractor operator's manual, or the decal on the reservoir, for the correct oil level and type.
- Start the tractor engine. Run the engine at low idle speed.
- IMPORTANT: Make sure the wood splitter control valve is in the neutral position before attempting to start the engine.
- Move the wood splitter control handle rearward until the wedge is fully extended. Release the handle.
- Move the wood splitter control handle forward until the wedge is fully retracted. Release the handle.
- 27. Refill the tractor hydraulic reservoir.

 Cycle the wedge several times and recheck the reservoir. Refill if necessary.



TO SPLITTER VALVE

FIGURE 10

If you will be removing and installing your Wood Splitter frequently, you may want to add hydraulic quick couplers.

Hydraulic Quick Couplers can be purchased from your authorized dealer and added to the hydraulic hoses on your Wood Splitter. Use the diagram above for their installation.



CAUTION: Do not disconnect quick coupler while engine is running. Personal injury or damage to equipment may result.

REMOVAL PROCEDURE

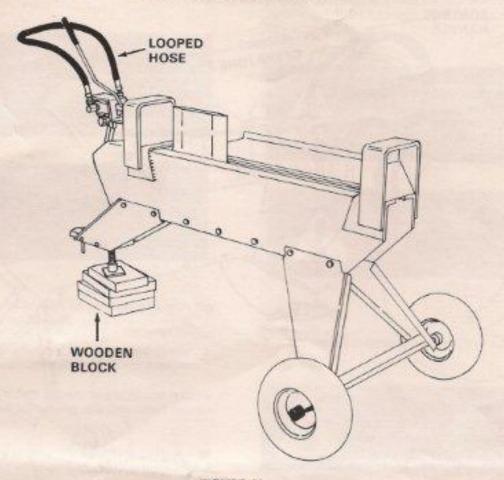


FIGURE 11

- Park the tractor/splitter in the splitter storage place.
- Place a wooden block under the jack. Lower the jack until weight is removed from the draw bar. Remove the hitch pin.
- 3. Retract the wedge fully during storage.
- 4. IMPORTANT: Shut off engine.
- Relieve hydraulic pressure by stroking the valve handle both ways several times. Remove the hydraulic hoses. Loop one hose between the tubes on the tractor. Loop the other hose between the wood splitter valve inlet and outlet ports.

VERY IMPORTANT: Always loop one hose between the hydraulic tubes when the wood splitter is removed. Failure to observe this procedure will result in oil loss (tubes left open) or pump damage (tubes plugged) if the engine is started.

6. Roll or drive the tractor slightly shead.

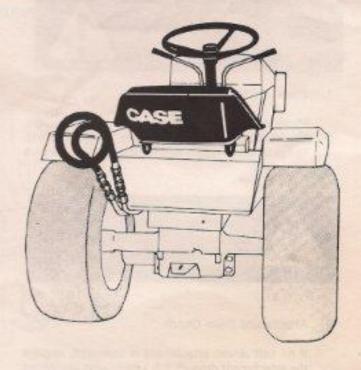
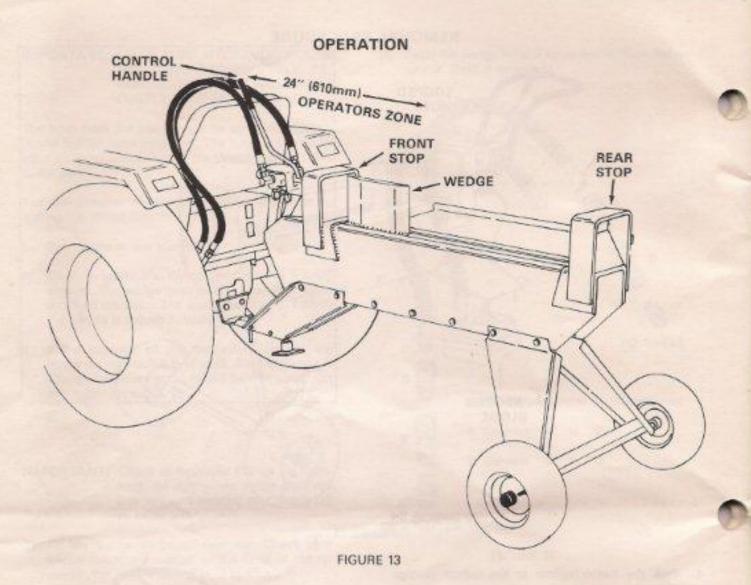


FIGURE 12 Looped Hose



OPERATING CONTROLS

1. Wood Splitter control handle

Move the handle rearward to extend the wedge. To retract the wedge, move the handle forward. The handle will return to neutral when you remove your hand.



CAUTION: Read the operator's manual completely before attempting to use this wood splitter.

2. Attachment Drive Clutch

If no belt driven attachment is mounted, engage the attachment drive clutch when using the Wood Splitter. This will reduce wear on the clutch hub. (Remember, the attachment drive clutch must be in "off" to start the tractor engine.)



CAUTION: Keep the operator zone and adjacent area clear for secure footing.

POSITION THE TRACTOR

- Position the tractor on a level surface free of obstructions that may cause you to lose your footing.
- Place the two-speed transaxle in neutral.
- Apply the parking brake and block both sides of the rear wheels.



WARNING: Make sure the wood splitter is on a level surface. Block the wheels securely before operating the machine to avoid possible injury from unexpected machine movement.

PREPARATION



CAUTION: Before starting this wood splitter, review the "Rules for Safe Operation". Follure to follow these rules may result in serious injury to the operator or bystanders.



CAUTION: Do not allow anyone to operate your wood splitter who has not read the operator's manual or has not been instructed on the proper use of the wood splitter.

Be thoroughly familiar with all controls and with the proper use of the equipment.

- Always wear safety shoes or heavy boots. A dropped log can seriously injure your foot.
- Always wear safety glasses or goggles to provide eye protection from flying splinters when operating the machine.
- Avoid wearing jewelry or loose fitting clothing that might become entangled in moving parts of the machine.
- Make sure the splitter is on a level surface. Block the wheels securely before operating the machine to avoid possible injury from unexpected machine movement.

Always operate the Wood Splitter from the manufacturer's indicated operator zone to assure maximum operator safety.



CAUTION: Always operate the wood splitter from the manufacturer's indicated operator zone to assure maximum operator safety.



CAUTION: Logs to be split should be cut as squarely as possible to avoid unexpected movement of split wood.

SPLIT WOOD

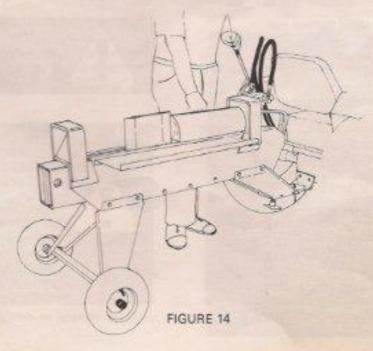
 Set engine throttle between 1/2 of full speed and full speed.



CAUTION: Always operate the wood splitter at manufacturer's recommended speed.



CAUTION Never leave the wood splitter unattended with the power source operating.





WARNING: Pinch point. Keep hands away from ram, wedge and partially split wood. Pinching can cause injury. Stand clear and keep hands and feet from under wood splitter when changing height. Unexpected movement can cause injury.



WARNING: Always keep hands and feet clear of moving parts.



CAUTION: Never allow children or untrained adults to operate this wood splitter.

Move the handle forward until the opening between the wedge and the stop is large enough to accept the log.



WARNING When loading the wood splitter, place your hands on the sides of the log outside of the path for the wedge or ram. Never place your hands or any part of your body between a log and any part of the wood splitter.

- 3. Place a log on the Wood Splitter bed.
 - a. Never attempt to split more than one (1) log at a time unless the ram has been fully extended and a second log is needed to complete the separation of the first log.
 - On logs that are not cut square, the longest portion of the log should be rotated down and placed at the wedge end.



CAUTION: On logs that are not cut square, the longest portion of the log should be rotated down and placed at the wedge end. Use only your hand to operate the Wood Splitter controls.



CAUTION: Use only your hand to operate the wood splitter controls.

 Move the handle rearward and hold it in that position for the splitting stroke. The handle will return to neutral automatically when released.

IMPORTANT: The handle must always be allowed to return to neutral automatically when released.

- Place another log on the Wood Splitter bed between the wedge and the front stop (or 1/2 of the first log if splitting in fourths, etc.).
- Move the handle forward and hold it in that position for splitting on the return stroke. The handle will return to neutral automatically when released.
- Repeat the cycle.



CAUTION: Most accidents occur when more than one [1] person operates the wood splitter. If a helper is assisting in loading logs to be split, never actuate controls until the helper is clear of the area.



CAUTION: The owner should instruct all operators how to properly operate a wood splitter.



CAUTION: If your wood splitter is equipped with an internal combustion engine and intended for use near any unimproved forest, brush, or grass covered land, the engine exhaust should be equipped with a spark arrestor. Take fire fighting equipment with you. Make sure you comply with local, state and federal codes.

WOOD SPLITTING HINTS

STRINGY LOGS

Stringy logs may not completely separate when the wedge has reached the end of its stroke. Move the log back from the stop, insert a short log between the stop and the log to be split and complete the splitting stroke. If possible, select a short log with a "natural" handle for this purpose and save it.

TREE CROTCHES AND BRANCH FORKS

Tree crotches and branch forks split easier from the bottom upwards in the direction of the growth.

LARGE DIAMETER LOGS AND STRINGY LOGS

Large diameter or stringy logs may not readily split down the center. They split more easily at the outside or bark side. Place the bark side down on the Wood Splitter bed after the first split is made.

The entire outer circumference of the log may have to be split away before a successful split through the middle can be made.



CAUTION: Ram type machines should be used only for splitting wood and only in the direction of the grain. If the manufacturer has attachments for other uses, follow their installation and safe operating in structions.

REACHING THE RELIEF VALVE MAXIMUM PRESSURE

The Wood Splitter control handle must be released immediately upon hearing the "squealing" sound of the relief valve. This sound indicates that the Wood Splitter wedge has stalled and no further splitting action is happening.

After the Wood Splitter has stalled, the wedge should be retracted, the log repositioned on the wedge, and a new attempt made.

Develop the habit of releasing the Wood Splitter control handle just before the wedge reaches the end of its stroke.

This method of operation will:

- Prevent the hydraulic pressure from reaching its relief valve setting.
- Allow the hydraulic system to operate at cooler temperatures.

Increase the life expectency of the hydraulic system.

VERY IMPORTANT: Operating over relief valve generates heat rapidly in the hydraulic system and can cause component damage.

REMOVING A STUCK LOG FROM THE WEDGE

Use a second log to push the stuck log off the wedge.



CAUTION: Never attempt to split more than one |1| log at a time unless the ram has been fully extended and a second log is needed to complete the separation of the first log.

 Position a strong log (or split piece of log) against the stop opposite the one being used in the splitting stroke.

A log or split piece of log that is strong, appropriate in length and small in diameter works best,

- Carefully stroke the wedge, guiding the "push off log" to one side of the wedge and against the stuck log.
- Continue the stroke to push the stuck log from the wedge.
- Reposition the log and make another attempt. The Wood Splitter has more splitting force when the wedge moves rearward, Make your most difficult splits in that direction.



CAUTION: Be thoroughly familiar with all controls and with the proper use of the equipment.

- Always wear "safety" shoes or heavy boots. A dropped log can seriously injure.
- Always wear "safety" glasses or goggles to provide eye protection from flying splinters when operating the machine.
- Avoid wearing jewelry or loose fitting clothing that might become entangled in moving or rotating parts of the machine.

MAINTENANCE

Check nuts, bolts and hydraulic connections for tightness before each use.



CAUTION: Check to be sure all nuts and bolts are tight to assure the equipment is in safe working condition.

The wedge slider should not be lubricated. Grease tends to hold grit (abrasives) resulting in rapid wear.

Inspect the splitting edge of the wedge frequently. Use a file to remove burrs and sharpen the splitting edge when necessary.

Paint or lightly oil exposed parts when your Wood Splitter is put into storage.



CAUTION: Always shut off the engine while repairing or adjusting the wood splitter except as recommended by the manufacturer.

Apply grease to the splitter wheels yearly or more often if transported great distances. Use as many stokes as needed of multi purpose grease. Remove axle caps to allow grease to penetrate outer bearings.

Adjust tire pressure to 22 PSI (150 kPa).



CAUTION: Clean debris from movable parts, but only when the engine is shut off.

