

J.E. LOVE COMPANY

LOVE®

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CG 100 SERIES

CONCORD GRAPE PRE-PRUNER

OPERATOR'S MANUAL

SERIAL NUMBERS 001 -

Manufacturers of Special Harvesting Equipment

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FORWARD

This manual provides instructions and essential information in regards to operating your J. E. Love Company product. Close adherence to these instructions will result in proper operation of your product.

J. E. LOVE COMPANY WARRANTY

The J. E. Love Company warrants that it will repair F.O.B. its factory or furnish without charge F.O.B. its factory, a similar part to replace any material in its machinery which within one year after date of retail delivery or lease/rental is proved to the satisfaction of the Company to have been defective at the time it was delivered. Provided that all parts claimed defective are returned, properly identified, to the Company's branch having jurisdiction over the territory, charges prepaid.

This warranty to repairs applies only to new and unused machinery, which after shipment from the factory of the Company, has not been altered, changed, repaired or treated in any manner whatsoever, and does not extend to equipment or implements not manufactured by the J. E. Love Company, although sold or operated with the Company's Machinery.

Furthermore, component parts, equipment, accessories and items not fabricated by J. E. Love Company are warranted only to the extent of the original manufacturer's warranty.

THIS WARRANTY TO REPAIR IS THE ONLY WARRANTY EITHER EXPRESS, IMPLIED OR STATUTORY, UPON WHICH SAID MACHINERY IS SOLD. SPECIFICALLY, THE J. E. LOVE COMPANY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR IMPLIED WARRANTY OF FITNESS FOR PURPOSE.

The Company's liability in connection with this transaction is expressly limited to the repair or replacement of defective parts, all other damages and warranties, statutory or otherwise, being hereby expressly waived by the purchaser.

No representative of the Company has the authority to change this warranty or this contract in any manner whatsoever, and no attempt to repair or promise to repair or improve the machinery covered by this contract by any representative of the Company shall waive any consideration of the contract or change or extend this warranty in any manner whatsoever.

The J. E. Love Company shall in no event be responsible or liable in damages for losses, delays or nonperformance caused by or due to current energy, fuel or material shortages or due to Labor Contracts beyond the control of the Company.

WARRANTY CLAIMS PROCEDURE

1. A warranty claim must be submitted through the point of purchase.
2. Defective parts for such a warranty claim is made must be returned to the J. E. Love Company, transportation charges prepaid, within 30 days from the claim date.

RETURNED GOODS POLICY

1. No goods may be returned without prior approval.
2. All goods returned must be accompanied with documentation identifying date of purchase.
3. All goods returned must be delivered to J. E. Love Company, transportation charges prepaid.
4. A 15% restocking charge is applied to returned goods credits.

- SAFETY PRECAUTIONS -



Attention!
Your Safety is involved

This symbol is used to call the Operator's attention to safety precautions. When you see this symbol, heed its warning



WARNING – SHIELDS ARE FOR YOUR PROTECTION – KEEP THEM IN PLACE.



CAUTION – BLOCK SECURELY – DO NOT PLACE YOURSELF UNDER ANY EQUIPMENT SUSPENDED HYDRAULICALLY WITH MECHANICAL STOPS, JACKS OR HOISTS WITH OUT BLOCKING SECURELY.



CAUTION – STOP MACHINERY TO CLEAN, OIL OR REPAIR.



CAUTION – RELEASE TO LOWEST POSITION BEFORE LUBRICATING OR SERVICING.



CAUTION – KEEP HANDS, FEET, AND CLOTHING AWAY FROM POWER DRIVEN PARTS.



CAUTION – OPERATOR MUST TURN-OFF PRE-PRUNER BEFORE LEAVING TRACTOR.



CAUTION – BALLAST TRACTOR TO GAIN STABILITY, WHEN NECESSARY.

SAFETY CONSIDERATIONS

This machine was designed with a total commitment to safety. Common sense and knowledge about your machine will ultimately dictate how safe a working environment you will experience. It is your responsibility to insure the operator of this machine has the fundamental knowledge about farm implement hazards and to insure he follows sound safe practices while operating this machine.

- Read and understand the Operator's Manual.
- Properly train anyone operating the Pre-Pruner.

Primary risks are:

- Moving blades could sever fingers or lacerate the body.
- Up and down motion of the mast could result in injury to people loitering around the machine.

When the tractor is running, keep people away.

Be sure to :

1. Always shut down the Pre-Pruner and your tractor when leaving the drivers seat.
2. Insure all chain guards are installed on the Pre-Pruner before operating.
3. Never lubricate the chains while running the Pre-Pruner. Turn the tractor off, remove the chain guards and administer chain oil to each of the four chains.
4. Always wear eye protection.
5. Always wear an appropriate filter over your nose and mouth. This is especially true when the wind is blowing towards you.

SET UP AND FAMILIARIZATION

Uncrating

The LOVE CG Series 100 Pre-Pruner will arrive partially assembled. You will have to attach the specific mounting bracket designed for your tractor. Then mount the CS Series 100 Pre-Pruner to the specific mounting bracket attached to your tractor. Finally connecting the hydraulic fittings.

Remove the mounting bracket from the packing material and lay it out on the work area. Cut the hold-down bands and remove them from around the Pre-Pruner. Remove the Pre-Pruner from the pallet by use of a hoisting mechanism only when you are ready to mount to the attached mounting bracket on your tractor.

Assembly

Equipment you will need:

1. A set of socket wrenches
2. A hoisting device capable of lifting a minimum of 1000 lbs. (your machine weighs in excess of 500 lbs.)
3. Use the lifting bracket provided with your machine to connect to your hoist. It has been designed to create a balanced load while in the air to simplify aligning the mounting screws with the frame (do not get underneath Pre-Pruner while suspended on lifting device...keep others clear of work area).

Your machine requires a customized mounting bracket designed for your particular tractor. The following instructions assume you have already mounted this bracket on to your tractor and you are now ready to mount the machine to this bracket.

1. Connect the lifting bracket into the “eyes” on each side of the machine. At the top of the bracket is a loop. This is where you connect your hoist. Note that one arm of the bracket is longer than the other. The shorter arm connects to the eye nearest the motors. When the machine is lifted off the ground, it should be parallel with the ground. If it is tipped one way or the other, you have the bracket hooked wrong.
2. Raise the machine slightly above the height of the mounting bracket that you have already mounted on your tractor.
3. Drive the tractor under the machine such that the screw holes in the frame of the bracket match those in the base of the machine.
4. Lower the machine on to the frame just enough so that you can slide the machine and align the holes.
5. There are seven screws that secure the machine to the bracket on your tractor. But you will only be able to install five of them at this point. Secure the five screws.
6. Remove the hoist and the lifting bracket
7. At this point, you need a second pair of hands for safety reasons. Lift the control panel out of its holder and slide the shaft into the holder mounted on the tractor bracket. Note: this is most easily done using the hoist, being careful not to damage any of the hydraulic devices. Once in its holder, it can be slid to a position most convenient for the operator. Tighten the bolt to secure panel to the holder.

8. **Connect the hydraulics to the tractor. Pull the lever located closet to the tractor towards the driver seat. The mast should go up. If it doesn't you have connected the hydraulics backwards.**
9. **Raise the mast to the top. Insert the two screws that you couldn't reach in step 5 above.**

De-installation:

Reverse the steps above to remove the machine from the tractor.

Operating the Pruner

Basic Controls:

(Picture of the Control panel)

Elevator and Canting Levers: The lever closest to the tractor raises and lowers the machine on the mast. The middle lever (Cant lever) articulates the cutting head for positioning it in the desired cutting angle. Note that there is a needle valve behind the levers. Adjust this to set the speed the machine can move up and down the mast. It is recommended that you set this where it takes about 3-4 seconds for the machine to move from the bottom to the top of the mast. The reason for this slow speed will become more apparent once you are moving in the fields and must adjust the height of the machine to the changing height of the grape row.

On/Off Valve: This black knob supplies fluid to the two motors. It should always be turned off whenever the operator leaves the tractor seat. Rather than abruptly pushing the valve in or out, it is best to turn it on or off slowly. This will reduce the torque that is placed on the machine when the valve is opened or closed abruptly.

The first motor flow control, (closest to the tractor) is limited to 5 gal/minute flow. Open it at about $\frac{3}{4}$ open. Depending upon your tractor hydraulics, you may later change this speed. (This flow controls the speed of the inner blades, which do most of the cutting work)

Brush Control Lever: The third lever located furthest from the driver seat. This lever operates the second motor that powers the drums and other devices designed to pull in cane from the grape row canopy. It has three positions. Pulled back, it locks in place and the drums turn for cutting operations. In center position, it turns off the flow to the motors and the drums don't turn. Pushed forward, the motor reverses and the drums reverse. This is a critical function to be explained later. See the section on "Basic Operating Technique. This is the lever that will also be referred to as the "panic lever."

The second motor flow control. (Furthermost from the tractor seat) This control dictates the speed the drums turn. Start at about $\frac{1}{4}$ open. Later we will discuss adjusting this speed to match the ground speed of your tractor. For now, it is enough to know that the flow control should be set so the drums turn very slowly.

IMPORTANT SAFETY and control panel information: The hydraulic system is designed to cut out at about 500-600 PSI. This protects the parts from excessive torque and extends the life of the machine. It also protects your vineyard plants from possible damage as well as posts and wires. For instance, our tests show that most likely, should the machine be driven into a grape wire, neither the wire nor the blades should be damaged. The down side of this protection is that occasionally, the blades may abruptly stop because a large second year cane may find itself in the cutting blades at just the right time and place to overload the hydraulics. When this happens, the operator must first reverse the above-described "Brush Control lever" in hopes of releasing the vine. If this fails, stop the tractor immediately, shut off the "ON/OFF Valve" described above, shut down the tractor and remove the vine by hand. Use leather gloves to protect your hands.

Basic Operating Techniques

Getting comfortable with the machine: It usually only takes 6-7 rows of grapes for the operator to become a proficient operator. The following instructions are provided to assist the operator to learn the functions more rapidly.

- New operators have a tendency to want to see what is going on in the front of the machine. Avoid leaning over the right side of the tractor in hopes of better seeing what the machine is doing. Have confidence that the distance from the back of the machine to the grape row is the same as is taking place in the front.
- Adjust the speed of the quilled drums to your ground speed. There is a tendency to believe that the faster the machine goes, the better and faster it will cut. This is not true. The goal of the quilled drums is to peel the cane from the canopy at a rate that they will be cut off before winding around the drum and get torn off the cordon. Start with the drums turning at a very slow speed and as you go down the row, adjust the speed faster until you sense you are getting maximum results without the grape row (wire) being jerked toward the machine. See “Control Panel” above for more on setting speed.
- Adjust the height and cant of the machine. Depending on whether your grape rows run north and south or east and west, you will notice a difference on how the cane hangs on each side of the cordon. You must experiment with setting the angle of the cutting blades (cant) to accommodate this difference.

As you travel down the row, you will find that you can see the trunks of the plants ahead of the machine and will learn to make angle adjustments as well as height adjustments to tailor the angle for each plant.

From year to the next, you may decide to place more emphasis on removing more cane at the top of the plants, and the next year concentrate on removing the buds at the bottom of the plants to force upward growth of the plants. All these factors must be taken into account in giving instruction as to how to adjust the angle and height of your machine. Your machine has been designed to give these options. Therefore, there is no single instruction to describe how best to set the machine angles and height. For the first year of operation, however, we recommend tipping the machine to concentrate removal of the lower part of the cordon. This will be the first step in training the plants to adapt to “Machine Pruning” and ultimately, become more productive in future years.

Maintenance

This machine was designed for long life. Sealed bearings, slow moving parts and exceptionally hard steel used in the blades predict that service life will be exceptionally good. The blades are delivered with very sharp cutting edges, but to date none of the blades put into service have dulled to where they need to be re-sharpened. It is expected that the cutting efficiency will not be reduced even if the blades become dull. Keep in touch with your dealer on updates in servicing these parts. The following are the recommended servicing requirements to maintain your warranty.

Lubricate and adjust the chains at the beginning of the season and after every 15- 20 acres. Do this by:

1. Lower the machine to the bottom of the mast.
2. Shut off the tractor.
3. Remove the covers on all chains. There are three of them.
4. Clean out the grape cane that has accumulated there.
5. Adjust the tension of the chains if necessary. If you can obtain any movement in the blades and drums by turning them with your hands they are acceptable. Too much slack will result in the chains hitting the covers or allow the chain to jump the sprockets. If adjustment is required, loosen the bolt that passes through the idler wheel. If you have difficulty with the chain coming loose after several hours of operation, once properly positioned and the bolt turned tight, you may spot weld the washer to the frame of the machine. Some models of machines have been spot welded before delivery. If the chain needs tightening, break the spot weld with a chisel and reposition it.

6. Lubricate the chain with a quality spray on chain lubricant such as found in a motor cycle shop.
7. Replace the covers, taking note of the "slotted fins" that slips on both sides of the sheet metal to keep it in alignment. This is important to ensure the sheet metal doesn't bang into the chains when the machine is running.

Lubricate the mast with typical bearing grease. This can be done through the four grease zerks located on each side of the mast. Then coat the surfaces of the mast that the machine housing rides on.

1. Under questions and answers, talking about adjusting the clutch in the "nose piece" (don't know what else to call it....perhaps "1st stage canopy lifter"...it should probably be put under maintenance. also, the tension placed on the tine I reported as 1 1/2 inches should read 4 1/2 inches before the clutch releases.
2. Under maintenance, I forgot to address changing out the "fingers" Instructions might read as follows"

To replace the black quills located on the drums, remove the half drum containing the defective quill by removing the two screws securing it.

1. Remove the drywall screw passing through the quill.
2. To make it easier to drive in a new quill, build a jig using 1/2 inch schedule 40 PVC, or a metal 1/2 inch pipe. Cut it about an inch and a half shorter than the length of the quill you want to install.
3. Slightly taper one end of the quill using a grinder. Place the tapered end into the hole in the Drum, slip jig you have constructed over the quill and using a hammer, drive the quill into the PVC drum about 3/4 inch. Secure the quill using a dry wall screw.
4. Install the drum back on the machine.
5. Bend the quill towards the nearest cutting blade. Cut the length of the quill 1/2 inch shorter than the distance to the teeth of the nearest blade such that it cannot get caught in them during operation. The quills nearest the center of the drum must also be shortened such that they are 2 inches from the opposite drum.

1. Measuring and communicating dimensions for building the specific mounting bracket for the tractor or machine. ***Are re you wanting to give instructions for farmers to make their own mounts? Doesn't seem appropriate to jeopardize yourself with liability for proper strength and safety. Seems anything you represent, you would want to build. all that should be offered is that Mount should be +/- 36" from ground to top surface, but may vary if your grape rows are higher than 6ft. or lower than 3 ft..***
2. Installation instructions for the mounting bracket. ***What's to say? Bolt it on. Perhaps add, with a bolt rated with a hardness of ??? You probably know more about this than I.***
3. What is included in the Pre-pruner kit (pre-pruner, mounting bracket, control panel, hydraulics, operators manual, parts illustrations & listings, warranty, ect...) ***This one is for you. I don't know what you intend to include.***
4. Hydraulic installation instructions. ***I avoided this topic in the draft because presumably these things are addressed at time of installation by the dealer, and specific information about hydraulic systems are usually addressed in the tractor hand book. A few ideas however,***
 1. ***At time of purchase, the hydraulics of your machine were adjusted to the make and brand of your tractor. If you decide to install in on a different tractor, you need to know that most tractor brands use what is called an "open center" hydraulic system. John Deere and some other models may have "closed center" systems and the way your***

pruner is plumbed may need to be modified. Consult you're tractor handbook and dealer about this modification.

2. *This pruner contains motors and therefore should not be connected to remote outlets on your tractor unless so specified in your tractor manual. Be sure the outlets you use are for constant flow applications.*
 3. *The connectors required to hook your pruner to your tractor is your responsibility. Consult your tractor manual for the type of connectors required.*
5. A FAQ (frequently asked questions) sheet identifying all the field problems which either you have or might be encountered operating the Pre-pruner in normal operating conditions? e.g. question and answer format...pre-pruner blades stop....perform the following steps....
1. Why is my machine making strange noises? *From time to time, pieces of cane will get into the chain housing or position themselves in a situation where they rub against moving parts and create a variety of sounds that may resemble a defective bearing. In most cases this is not a problem and can be ignored. Most likely, they will find their way out and the noise will cease. If the sound is persistent, or you sense a change in the operation of the pruner, you should investigate by first removing any cane that seems to be wedged in an inappropriate location.*
 2. Why is material building up between the blades causing friction and heat on the blade? *It is common for particles of cane and leaf material to temporarily lodge between the blades. The motion of the blades will eventually eject the material. However, if you prune the grapes early in the season, a combination of wet weather conditions combined with a situation that the sap, berries and leaf material are still attached to the cane, this may become a problem. If the situation is severe enough, the friction may even stop the blades from turning. The two solutions are; clean between the blades with the cleaning tool provided with your machine, and administer an oil between the blades such as WD-40. This will help to keep sap from building up on the blades that causes cane and leaf particles from sticking to the surfaces. The alternative better solution is to wait for dry conditions.*
 3. How tight should the chains be on the machine? *The chain should not be too tight, it will cause excessive wear on the sprockets. On the other hand, too much slack on the chain may result in sprockets skipping or the chain may bump into the housing. The proper tightness can be determined by griping a sprocket and attempt to turn it each direction. You should be able to slightly rotate it one direction or the other and see some slack form in the chain.*
 4. How tight should the clutch be set on the "nose piece" that first lifts the cane to the machine.? *The purpose of the clutch is to stop the steel tines from yanking the cane off the cordon if you stop the tractor while the machine is still in motion. It also releases if excessive cane is encountered relative to the ground speed of your tractor. From time to time, this may need to be adjusted by tightening the pressure nut. Tightness can be checked by pushing on the end of one of the two tines and attempt to turn it in a counter clockwise direction. The clutch should release before the tine gives off center more than about 1 ½ inches. (I need to check this measurement.)*