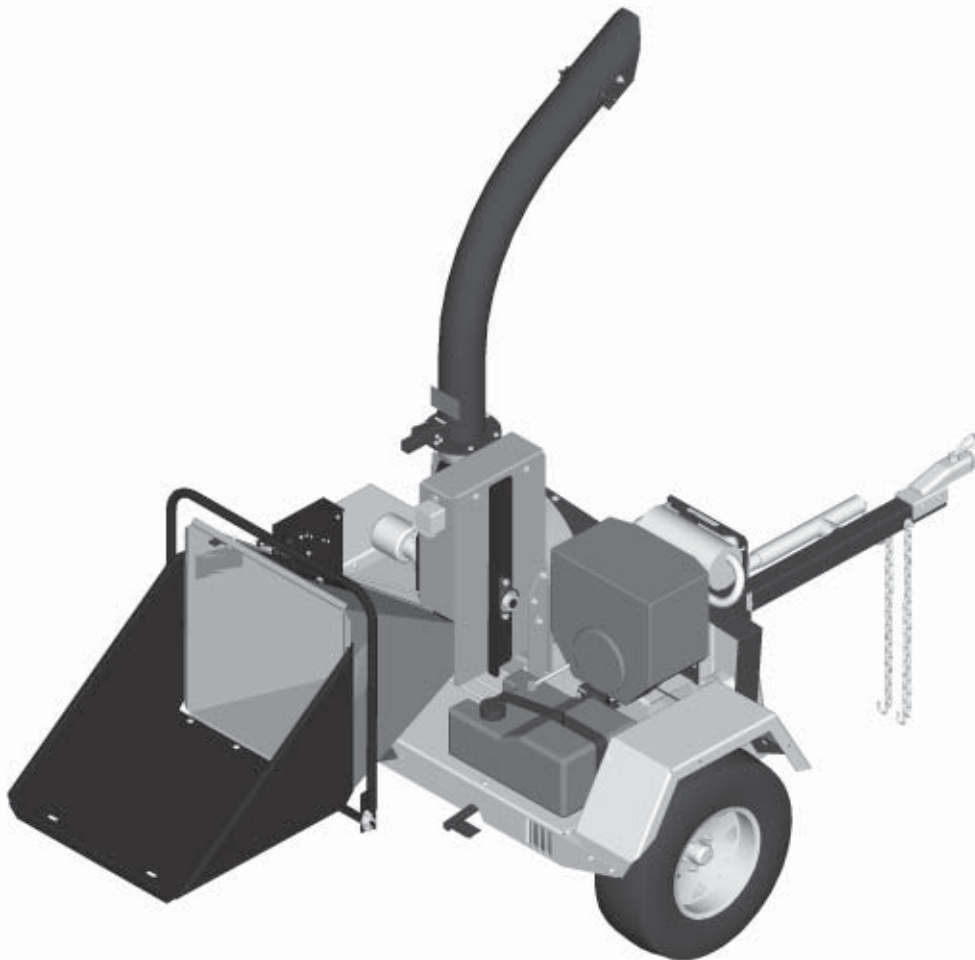




# Instruction & Owners Manual

# 5" Chipper

Models  
74520  
74554



**Crary Company**  
Box 849  
West Fargo, ND 58078  
(701) 282-5520 • (800) 247-7335  
FAX: (701) 282-9522  
[www.crary.com](http://www.crary.com)

**Cat. No. 12666**  
**Manual No. 399**

## Dear Bear Cat Customer,

Thank you for purchasing a Crary Bear Cat Chipper. The Bear Cat Chipper is designed, tested, and manufactured to give years of dependable performance. To keep your chipper operating at peak efficiency, it is necessary to adjust it correctly and make regular inspections. The following pages will assist you in the operation and maintenance of your machine. Please read and understand this manual before operating the chipper.

If you have any questions or comments about this manual, please call us toll-free at 1-800-247-7335.

If you have any questions or problems with your chipper, please call or write your local factory-authorized Bear Cat dealer.

## Please Send Us Your Warranty Card

A warranty card is included in your owners kit packaged with your chipper. Please take the time to fill in the information requested on the card. When you send your completed card to us, we will register your machine and start your coverage under our limited warranty.

### Owner's Record

Please take a moment to record the following information about your chipper. If you need to call for assistance, please be ready to provide your model and serial numbers. This information will allow us (or your dealer) to help you more quickly when you call.

#### Model Number

#### Serial Number

## How to Contact Bear Cat

### ADDRESS

#### Crary Bear Cat

237 NW 12th Street  
PO Box 849  
West Fargo, ND 58078

### PHONE

800-247-7335  
701-282-5520  
Fax: 701-282-9522

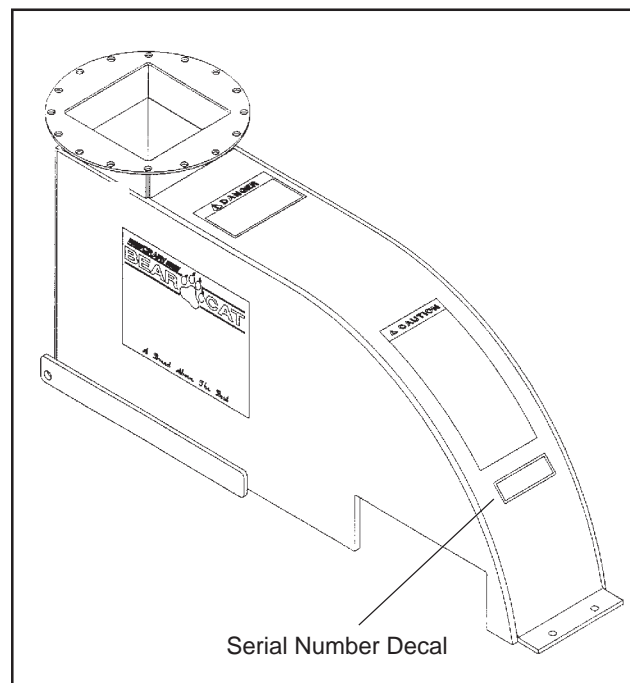
### EMAIL

opesales@crary.com  
service@crary.com

### HOURS

M-F, 8 a.m. to 5 p.m.  
Central Time

## Serial Number Decal Location



## Chipper Limited Warranty

Crary Bear Cat Chipper models 74520 and 74554 are warranted for two years from date of sale for consumers and 90 days from the date of sale for commercial or rental operations.

Within the above stated period, Crary Co. will replace any part(s) found to be defective in material and/or workmanship, after the receipt of the part in our plant. Labor costs to replace these defective parts will be paid at a Crary established labor rate and time allowed (flat rate) for repair. All transportation charges incurred in shipping part(s) are the responsibility of the purchaser.

This warranty is void in the case of accidents, failure to perform normal maintenance, or failure to follow those instructions listed in the service manual. This warranty is also in lieu of all other expressed warranties and voids any implied warranty as to the merchantability or fitness of the product for a particular purpose and of any other obligation on the part of Crary Co. Some states do not allow limitations on how long the implied warranty lasts, so the above limitation may not apply to you.

This warranty applies only to parts or components which are defective, and does not cover necessary repair due to normal wear, misuse, accidents, or lack of proper maintenance. This includes belts, pulleys, and chipper blades. Regular routine maintenance of the unit to keep it in proper operating condition is the responsibility of the owner.

All warranty repair reimbursable under the Crary Co. warranty must be performed by an authorized Bear Cat service dealer using Bear Cat approved replacement parts. Repair or attempted repair by anyone other than an authorized Bear Cat service dealer is not reimbursable under the Crary Co. warranty. In addition, these unauthorized repair attempts may result in additional malfunction, the correction of which is not covered by warranty.

Crary Co. is not liable for indirect, incidental, or consequential damages in connection with the use of this product including any cost or expense or providing substitute equipment or service during periods of malfunction or non-use.

Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

Be sure to note the chipper serial number in any correspondence with Crary Co. or any authorized Bear Cat dealer. The serial number is located on the chipper trailer.



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# Safety Instructions

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Your safety and the safety of others is important. Valuable safety messages are provided in this manual and on the machine. Please read these messages carefully.

A safety message alerts to potential hazards that could injure you or others. Each safety message is preceded by one of three words: **DANGER**, **WARNING**, or **CAUTION**.



**DANGER**

You **WILL** be **KILLED** or **SERIOUSLY HURT** if safety instructions are not followed.



**WARNING**

You **CAN** be **KILLED** or **SERIOUSLY HURT** if safety instructions are not followed.



**CAUTION**

You **CAN** be **HURT** if safety instructions are not followed.

## Before Operating



- Do not operate this equipment before reading and understanding the owners manual. See engine owners manual for additional safety information.
- Keep safety decals clean and legible.
- Replace missing or illegible safety decals.
- Familiarize yourself and other operators with the equipment operation. Don't hurry the learning process or take the unit for granted.
- Do not allow children-or any person unfamiliar with the use of the unit- to use this machine.
- Do not operate this equipment in the vicinity of bystanders. Keep area clear of all persons and pets.
- Do not run this equipment in an enclosed area; carbon monoxide is extremely dangerous. The engine exhaust contains carbon monoxide, a colorless, odorless, and tasteless gas.
- Always use an approved fuel container. Do not remove gas cap or add fuel when engine is running. Add fuel to a cool engine only.
- Do not fill fuel tank indoors. Keep open flames, sparks, smoking materials, and other sources of combustion away from fuel.



## Safety Instructions-Cont.

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- Do not operate this machine if you are under the influence of alcohol, medications, or substances that can affect your vision, balance, and judgement. Do not operate if tired or ill. You must be in good health to operate this machine safely.
- Shut off the engine and ensure all moving parts are stopped before inspecting or servicing any part of the machine.
- Inspect the surrounding area thoroughly before using this machine. Remove all foreign objects (stones, wire, bottles, and cans) before operating.
- Use only in daylight or good artificial light.
- **Never use without proper guards in place.**
- **Wear safety glasses at all times** while operating this machine. One pair of safety glasses is provided.
- Avoid wearing loose fitting clothing. Never operate this machine wearing clothing with drawstrings that could wrap around or get caught in the machine.
- Check that all screws, nuts, bolts, and other fasteners are properly secured before starting the machine. Check all screws, nuts, bolts, and other fasteners for proper tightness to ensure everything is in proper working condition once every 10 hours of operation.
- Keep all guards, deflectors, and shields in place and in good working condition.
- Do not transport or move machine while the machine is running.



### CAUTION

The standard muffler installed on the 20 HP Honda engine is not equipped with a spark arrester. One must be added before use if this machine is intended to be used in an area where a spark arrester is required by law. Contact the local authorities if these laws apply to you. See your authorized engine dealer for spark arrester options.



## Safety Instructions-Cont.

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### Operation

- Do not allow hands, or any part of body or clothing, inside the feeding chamber, discharge chute, or near any moving part.
- Operate the machine only on a level surface. Do not operate the machine on a paved, concrete, or hard gravel surface. Operating on a hard surface may cause discharged material to rebound and kickback. Increased machine vibration will also result causing machine movement and premature wear of parts or loosening of fasteners.
- Check the cutting chamber to verify it is empty before starting the machine.
- Exclude pieces of metal, rocks, bottles, cans, and other foreign objects when feeding chipable material into the machine.
- Shut off engine immediately if the cutting mechanism strikes any foreign object or the machine starts making an unusual noise or vibrating. Allow the machine to stop completely. After machine stops:
  1. Inspect for damage.
  2. Replace or repair any damaged parts.
  3. Check for and tighten any loose parts.
- Do not allow processed material to build up in the discharge area; this may prevent proper discharge and can result in kickback of material through the feed opening.
- Stand clear of the discharge area when operating this machine.
- Keep your face and body back from the feed opening.
- Do not overreach. Keep proper balance and footing at all times.
- Keep the engine clear of debris and other accumulations.
- Do not tamper with the engine governor settings on the machine; the governor controls the maximum safe operating speed and protects the engine and all moving parts from damage caused by over speed.
- Setting up your chipping site so you are not endangered by traffic and the public is not endangered by your work is critical for safety. Take great care to provide adequate warning by way of signage and coning, if diverting vehicles or pedestrian traffic is necessary.



## Safety Instructions-Cont.

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- A well-prepared traffic plan includes parking off the highway whenever possible. Cone the work area as soon as the chipper vehicle is stopped. Avoid sudden traffic stoppage or lane diversion. Do not allow pedestrians to walk through the work area. Ensure chips or dust do not blow into traffic, parked cars, or pedestrians.
- Check the bolts on the following for correct torque (75 ft. lbs.) every 10 hours of operation:
  1. Chipper rotor bearing
  2. Chipper blades (use 5/16" bolts (20 ft. lbs.))
  3. Rotor blades
  4. Chipper anvil

**For hydraulic feed models:**

  5. Hydraulic feed roller bearing
  6. Hydraulic motor mounting



Failure to maintain proper fastening torque (75 ft. lbs.) on component bolts listed above may result in severe damage to the chipper and/or personal injury.

- Shut off engine and allow machine to stop completely before clearing debris if the machine becomes clogged.
- On electric start models, disconnect cables from battery before doing any inspection or service.
- Rotate the discharge tube to face the opposite direction of the towing vehicle before towing. This prevents the discharge tube from projecting over the trailer wheels and striking foreign objects.
- Lock the rotor by inserting a bolt or punch through the locking holes on the side of the rotor housing.

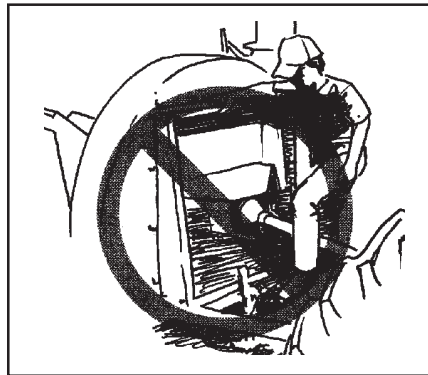


## Safety Instructions-Cont.

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### Additional Safety Rules for PTO Models

- Read and follow instructions on PTO safety decals.
- Stay alert and pay attention when PTO chipper is operating.
- Keep bystanders, especially children, away from PTO driveline.
- Connect 3 pt. hitch pins and snap pins, connect PTO driveline, and have leg stands solidly on the ground when in use to proper spacing.
- Check the driveline to ensure it is attached securely to the tractor.
- Keep guards and shields in place at all times while operating. Disengage tractor PTO and shut off engine before removing guards or shields.
- Keep hands, feet, and clothing away from all PTO drive parts.



- Do not clean, lubricate, or adjust the PTO shaft when it is running.
- Clothing worn by operator must be fairly tight. Never wear loose fitting jackets, shirts, or pants when working around the PTO. Tie long hair back or put under a cap.





## Safety Instructions-Cont.

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- Keep hydraulic hoses, electric cords, chains, and other items from contacting the driveline.
- Make sure the tractor is in neutral or park and PTO is disengaged before starting the tractor.
- Do not exceed the recommended 540 RPM PTO operating speed.
- When this equipment is stopped for servicing, inspection, storage, or to change an accessory, make sure to disengage PTO and shut off tractor engine.
- To move the unit: shut off the PTO, lift 3 pt. hitch, and adjust leg stands if needed.



### **WARNING**

Recommended tractor PTO horsepower is 15 HP to 45 HP. Use of these units on tractors above 45 PTO horsepower may cause belt and machine damage in overload conditions.

### **Safety Rules for Towing**

- Rotate the discharge tube to face the opposite direction of the towing vehicle before towing. This prevents the discharge tube from projecting over the trailer wheels and striking foreign objects.
- Lock the rotor by inserting a bolt or punch through the locking holes on the side of the rotor housing.
- Connect hitch safety chains. Tighten and secure trailer hitch bolts. Do not attempt to tow the trailer if vehicle is not equipped with a 2" ball.
- Maximum towing speed is 55 MPH. Inflate tires to manufacturers specs. as stated on the tire sidewall. Check wheel lug bolts periodically to ensure they are tight and secure.
- Make sure the jack stand on trailer is in the UP position to clear the ground during towing. Place the jack stand on a level surface and secure it in the DOWN position before use.
- Never allow passengers to ride on the chipper chute while the vehicle is moving, whether the chipper is running or not.
- Shut off fuel supply to engine when towing.
- Disconnect spark plug wire when towing.



## Safety Instructions-Cont.

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### Maintenance and Storage

*See engine owners manual or contact the engine manufacturer for engine safety instructions and decals.*

- Shut off machine and disconnect the spark plug wire when this equipment is stopped for service, inspection, storage, or to change an accessory. Disconnect battery.
- Replace any missing or unreadable safety decals. Refer to the parts manual for part numbers when ordering safety decals from an area Bear Cat dealer.
- Store the machine out of reach of children and where fuel vapors will not reach an open flame or spark. Drain the fuel and dispose of it in a safe manner for storage periods of three months or more. Cool machine before storing.

#### Torque Chart

Standard minimum tightening torque for normal assembly applications.

#### Bolts (SAE GR5)

Size	Ft. Lbs.
5/16"	20
3/8"	35
1/2"	75
5/8"	90

#### Screws

Size	Ft. Lbs.
5/16" Set	15



# Engine Model Assembly

---

Your chipper may arrive totally or partially assembled. Perform the steps in this section if your chipper arrives partially assembled.

## Attach the Trailer Axle

1. Remove the chipper from the shipping crate.
2. Place the unit on a level surface before attempting to assemble it. See the Torque Chart at the bottom of page 8 for minimum tightening torque of bolts and screws.
3. Raise the trailer several inches from the ground with a hoist or jack. Ensure the chipper is securely supported.
4. Position the fenders over the axle and secure with eight 3/8 x 1-1/4" bolts and nuts.
5. Align the torsion axle with the mounting brackets on the sides of the chipper trailer. Secure with four 1/2 x 1-1/4" bolts and nuts.



*Do not operate this unit without the chipper chute correctly installed. Rotating cutting blades can cause serious personal injury.*

## Attach the Trailer Wheels

1. Hold one wheel to a hub and align the wheel lug holes with the hub lug holes (see figure 1).
2. Thread the lug bolts into the holes and tighten to 75 ft. lbs. Follow a star pattern when tightening lug bolts.
3. Repeat for the remaining wheel.

## Attach the Hitch

1. Insert the adjustable hitch into the hitch channel on the trailer bottom.
2. Insert a 3/8 x 3-1/2" bolt through the bolt hole in the adjustable hitch as shown in figure 1.
3. Secure with a washer and nut.
4. Place the jack stand on the side of the hitch and secure with the snap pin.

## Attach the Chipper Chute

1. Mount the chipper chute to the chipper housing using eight 3/8 x 1-1/2" bolts and locknuts (see figure 1).
2. Attach the chute extension tray to the extension chute hinge on the chipper. Use four 3/8" x 1" bolts, washers, and nuts.

## Attach the Blower Discharge Tube

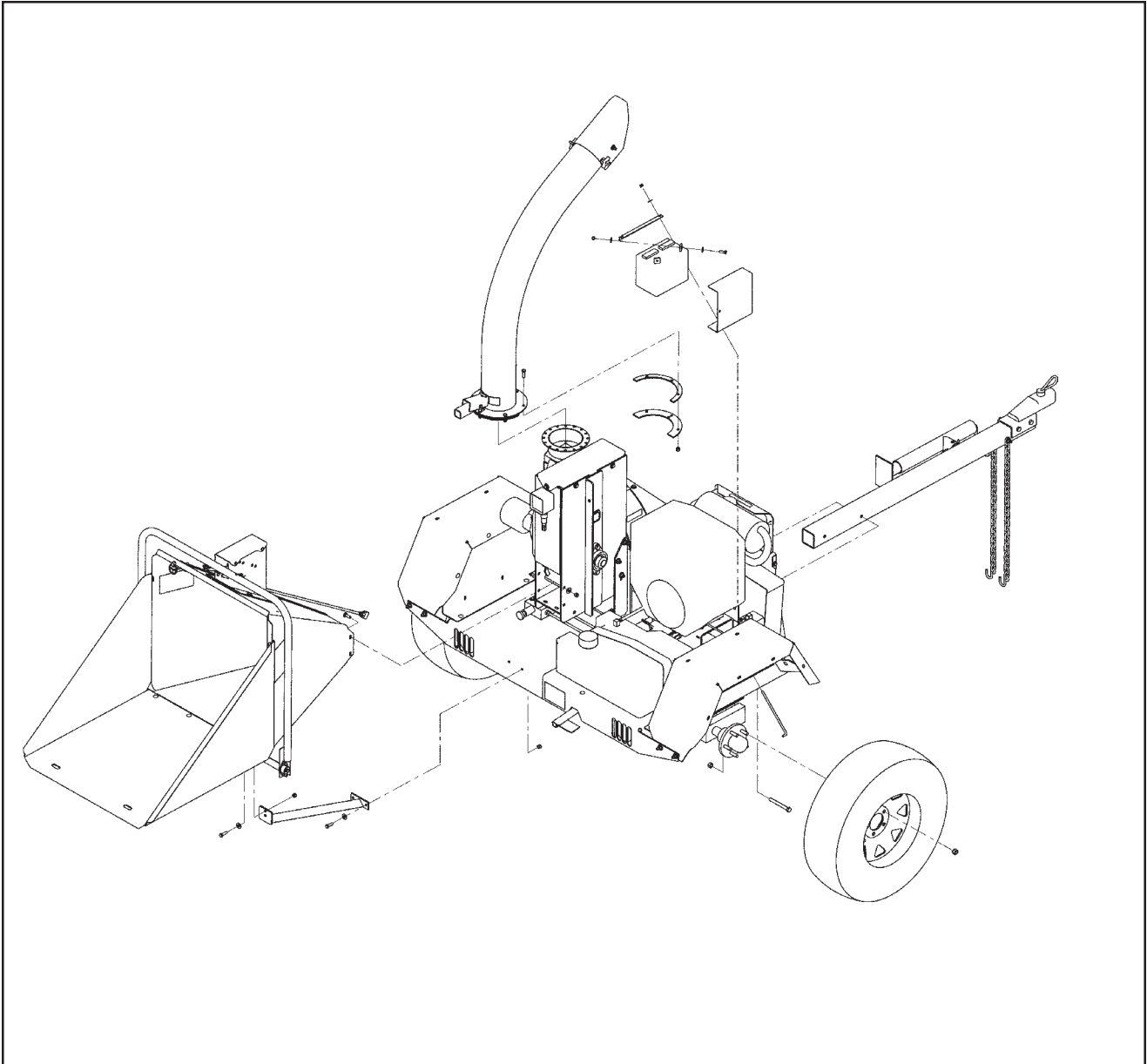
1. Attach the blower discharge tube to the mounting flange on the chipper frame (see figure 1). Half of the mounting clamp is already attached to the tube.
2. Slide the tube into the flange and tighten the bolts to secure it.
3. Install the second half of the clamp to the tube and flange.
4. Grease the chute to allow free rotation. Rotate the tube 360 degrees and lock it in place with the handle to make sure it is mounted correctly.



# Engine Model Assembly-Cont.

## Before Using

Fill the engine with oil (per instructions in supplied engine manual) and fill the fuel tank with fuel.



**Figure 1**

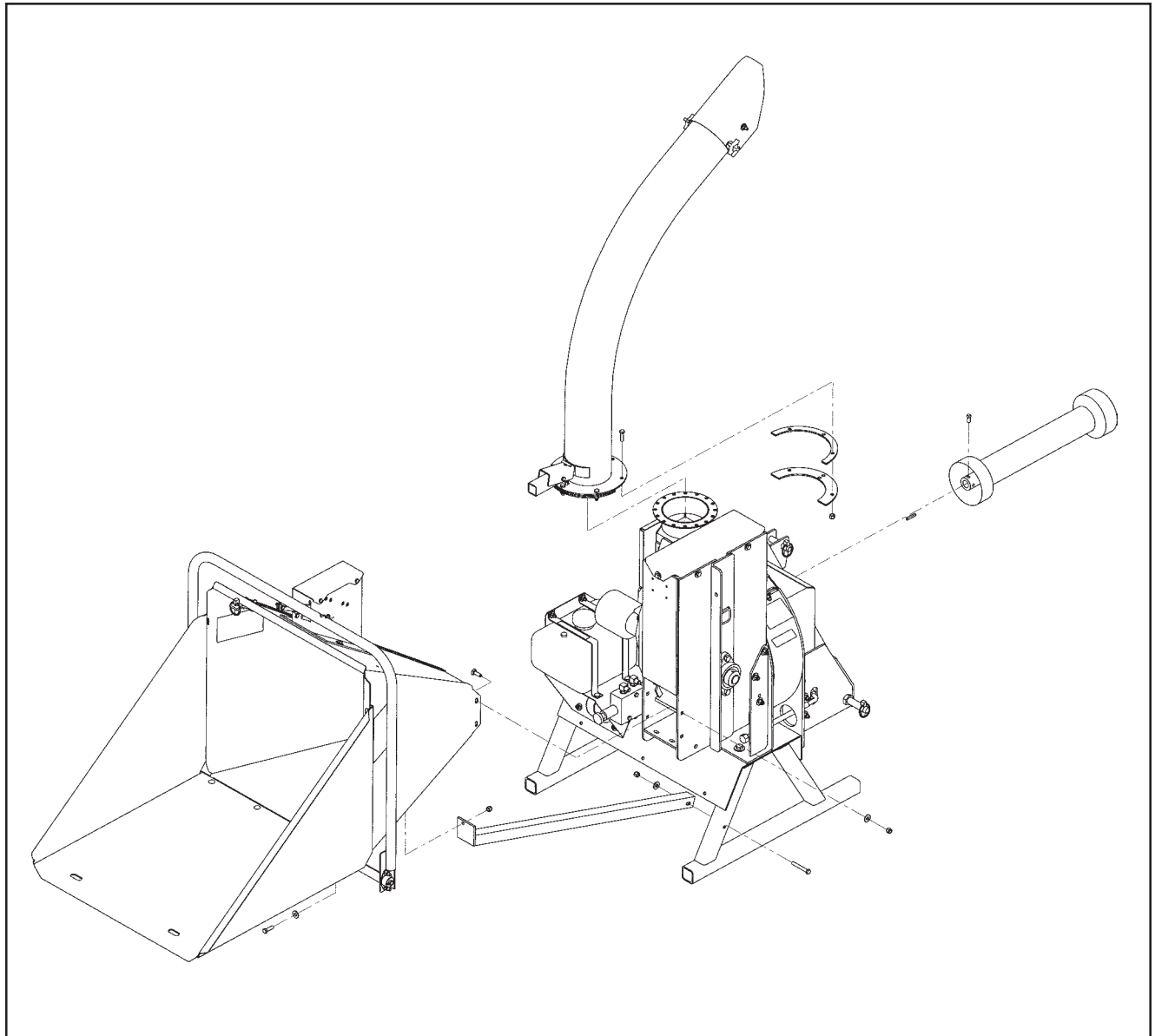
## Connect Hydraulic Harness

1. Connect 6 pin female connect on chipper chute to male connector on the roller support weldment.



## PTO Model Assembly

---



### **Connect PTO Shaft**

1. Connect the PTO shaft female end to the rotor shaft using key stock and two set screws contained in the owners kit.
2. Connect the opposite end of the PTO shaft to the tractor.
3. Check all screws, bolts, and nuts for tightness. See torque chart on page 8 for correct tightness.

### **Connect Hydraulic Harness**

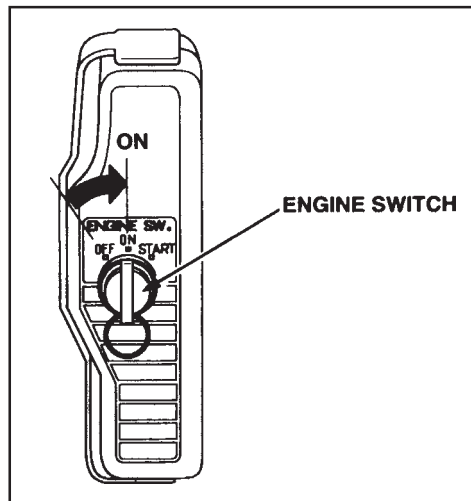
1. Remove black cover from coils located next to the engine manifold.
- 2.

## Starting Instructions: 20 HP Engine Models

*Move machine to a clear, level area outdoors before starting. Do not operate machine on a paved, concrete, or gravel surface. Do not operate in the vicinity of bystanders. Make sure cutting chamber is empty before starting.*

**NOTE: Normal engine output is 3600 RPM no load.**

1. Check engine oil level before starting.
2. Turn engine fuel valve to the ON position, and move choke lever to the CLOSE position. **NOTE: the choke may not be needed if the engine is warm or the air temperature is high.**
3. Move the throttle level towards the FAST position approximately 1/3 of the way.
4. Depress the clutch pedal and turn the engine switch to START and hold until the engine starts.



*Release the key if the engine fails to start within 5 seconds.*

*Failure to release starter will overheat and possible damage the starter. Wait 10 seconds before trying again.*

5. Release the key when the engine starts and allow it to return to the ON position.
6. Gradually move the choke lever to the OPEN position as the engine warms.
7. Slowly release foot pedal to engage chipper.

## Starting Instructions: PTO Models

*This chipper is designed to be used with tractor PTO's rated at 15 to 45 horsepower. Using this chipper with PTO's above 45 horsepower may cause belt and machine damage in overload conditions.*

1. Place tractor transmission in neutral and set parking brake.
2. Connect 3 pt. mounts between the chipper and the tractor. Secure connections with snap pins. Adjust 3 pt. top link so that chipper sits level.
3. Connect PTO shaft to tractor. Make sure you are using the correct RPM machine.
4. Start tractor engine and engage PTO drive clutch (refer to tractor owners manual). Increase speed to rated PTO RPM position.

**Note:** Do not inspect or work on PTO drive area without first disengaging PTO and shutting off tractor engine.



# Operation- Cont.

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## Feed Sensor Instructions

The feed sensor monitors the chipper rotor RPM to maximize chipping efficiency. The low RPM setting is the rotor speed when the feed roller stops. The feed sensor restarts the feed roller when the chipper rotor RPM reaches the return operating speed. This ability to automatically stop the feed roller prevents the engine from overloading and stalling.

- **Engine Models:** The feed sensor arrives programmed at the factory to the following recommended settings.

low= 1650 RPM

normal= 2000 RPM

high= 0

return= 1675 RPM

poles= 1

- **PTO models:** Set feed sensor to above recommended factory settings. Refer to the following page for instructions.

## Feed Sensor Operation

The feed sensor is energized when the chipper is started. Logs begins to feed as the chipper rotor RPM reaches the "return" setting. The feed sensor continues to monitor the chipper rotor speed during use.

## Resetting Daily Hourmeter

- The feed sensor is equipped with an hour meter to track hour usage.

**NOTE:** Stop the engine and make sure the chipper blades and all moving parts are completely stopped before resetting the hour meter.

1. Turn key switch to "ON" to energize the feed sensor.
2. Push the "S" button until Day flashes on the LCD display.
3. Depress the "S" button for five seconds and release.
4. Push and hold down the "S" button for an additional 13 seconds until daily hours are reset to zero.

- The daily hours continue to accumulate until reset by the operator.



# Operation- Cont.

---

## Feed Sensor Programming Instructions

### Step 1. Initiating Program Mode

1. Hold down the "S" button while turning the engine key to the "on" position until "L" starts to flash on the LCD.

### Step 2. Enter Low (L=Low) RPM

- The low setting is the RPM speed where the feed roller stops. The "up" arrow increases the RPM setting, while the "down" arrow decreases the RPM setting. Setting the speed lower causes the engine to lug down more before the feed roller stops.

1. Hold the appropriate (either up or down) arrow until the desired RPM speed is displayed.
2. Push the "S" button once with the desired RPM setting displayed to save.

**NOTE:** Do not choose a setting equal to or below zero.

### Step 3. Enter Normal (N=Normal) RPM

The normal setting is the RPM speed the chipper rotor usually turns.

1. Hold the appropriate (either up or down) arrow until the desired RPM speed is displayed.
2. Push the "S" button once with the desired RPM setting displayed to save.

### Step 4. Enter High (H=High) RPM

The high setting is not needed with this application.

1. Set to zero to deactivate.
2. Push the "S" button once with zero displayed to save.

### Step 5. Enter Return (rEt=Return) RPM

The return setting is the RPM speed where the feed roller restarts. The feed roller should restart before the rotor reaches "normal" RPM to maximize chipper efficiency. Setting the speed higher allows the engine to recover more before the feed roller restarts.

1. Hold the appropriate (either up or down) arrow until the desired RPM speed is displayed.
2. Push the "S" button once with the desired RPM setting displayed to save.

### Step 6. Enter Number of Poles (IPU=Number of Poles)

The number of poles is used to indicate the number of speed pickup devices.

1. Hold the appropriate (either up or down) arrow until one (1) is displayed.
2. Push the "S" button one with one (1) displayed to save.



## Operation- Cont.

---

### Chipping

*Please read and follow all safety instructions in this manual. Failure to operate the chipper in accordance with the safety instructions MAY RESULT IN PERSONAL INJURY!*

The Bear Cat chipper is designed to chip a variety of materials into a more readily decomposing or handled condition. The following guidelines can be used to help you get started.

- Run unit at full operating speed before starting to chip material.
- Select limbs that are up to 5 inches in diameter. Trim side branches that cannot be bent enough to feed into the chipper chute. Hold small diameter branches together in a bundle and fed in simultaneously.
- Feed brush from the side of the chipper chute, rather than from the front. Then, step aside to avoid being hit by the brush moving into the chipper.
- Do not lean over the chipper chute to push objects into the cutting device. Use a push stick or brush paddle.
- Never use shovels or forks to push brush. They can be chipped, are expensive to replace, and cause extensive damage. In addition, metal pieces can come back to injure or kill.
- Never push brush into the chipper chute with your feet.
- Place limb, butt end first, into the chipper chute until it contacts the hydraulic feed roller and is drawn into the chipper blades. The actual feed rate of the limb into the chipper will depend on the type of material fed and sharpness of the cutting blades.
- Stop the material feeding and allow the engine to recover if the engine slows to where it may stall.
- Remove the branch and rotate it before reinserting it into the chute if the chipper jams.
- Alternately insert and retract the limb or insert continuously at a rate that will not kill the engine.
- Chipping dead, dry material will create heat and dull the chipping blades quickly.
- Alternate greener material with dry material to lubricate the chipping blades for longer life and better performance.
- When the chipping blades become dull, they will require periodic sharpening. Refer to Service and Maintenance, "Sharpening Chipper Blades."



*Do not leave machine unattended, or attempt any inspection or service unless the engine is stopped and the key removed from key switch.*



## Operation- Cont.

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### Stopping Instructions: Engine Models

1. Move throttle to slowest position.
2. Depress foot clutch pedal.
3. Turn engine switch to OFF position.
4. Turn fuel valve to OFF position.
5. Release the foot clutch pedal to help slow the rotor once the engine stops.
6. Allow machine to come to a complete stop.

**NOTE:** The heavy rotor will continue to turn for some time after the engine stops. You can tell that the rotor has stopped when no noise or machine vibration is present.

### Stopping Instructions: PTO Models

1. Move tractor throttle to slowest position.
2. Disengage PTO lever and shut off tractor engine.
3. Allow machine to come to a complete stop.

**NOTE:** The heavy rotor will continue to turn for some time after the engine stops. You can tell that the rotor has stopped when no noise or machine vibration is present.



## Service and Maintenance



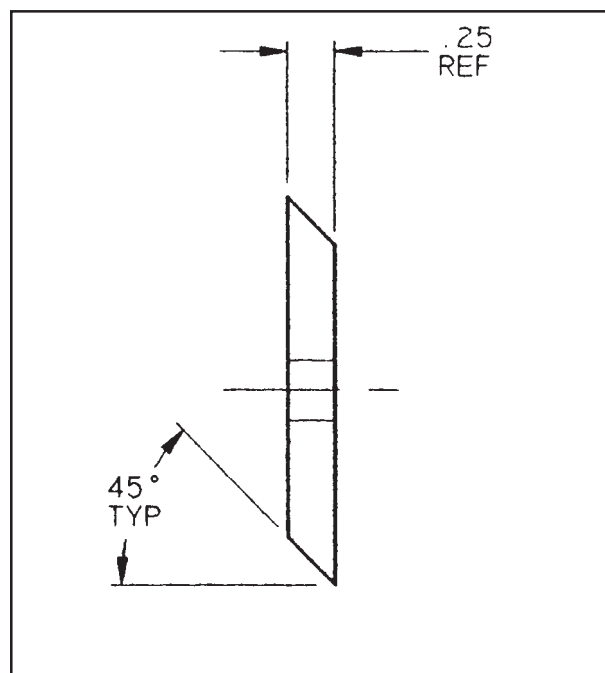
*Before inspecting or servicing any part of the machine, shut off the engine, and make sure all moving parts have come to a complete stop. The chipping blades are sharp! Use care when working on machine to avoid injury.*

Check the engine oil, and change the oil and filter as recommended in the engine manual. Service and replace the air cleaner as recommended.

### Sharpening Chipper Blades

The chipper blades will eventually dull, making chipping difficult. It is recommended to sharpen chipper blades every 5-15 hours of chipper operation. To remove the chipping blades for sharpening:

1. Remove the one 3/8 inch retaining bolt holding access cover to main frame assembly.
2. Tilt access cover over to allow rotor access. Rotate the rotor so that the bolts holding a chipping blade are most accessible.
3. Remove the two hex head bolts holding the chipper blade. Repeat for all four chipper blades. The four chipping blades have two edges per blade and can be reversed one time each before sharpening. Remove and reverse the chipping blades if both sides have not been used. Reinstall chipping blades and proceed with chipping.
4. To grind the angled edge of the chipping blade to 45 degrees (see figure 2):
  - Grind the blades on a slow-speed wet grinder if possible or have them sharpened by a professional.



**Figure 2**



## Service and Maintenance-Cont.

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- Be careful when grinding so that the blade material does not get too hot and change color if you use a bench grinder–this will remove the blade's special heat treated properties.
- Use short grinding times and cool with water.
- Try to remove an equal amount off each blade to maintain balance.

5. Replace the chipping blades and tighten bolts to 20 ft. lbs.

6. Close cover and replace bolts.

### Chipping Blade Sharpening Tips

Poor chipping performance is usually a result of dull chipping blades. Check for the following symptoms if your chipper performance has decreased:

- Severe vibration when feeding material into the chipper.
- Saw dust instead of chips.
- Chips discharge unevenly or have stringy tails—especially when chipping green branches.

Check for permanent damage before sharpening the chipping blades. Replace the blade if:

- The blade is cracked (especially around the bolt holes) or the edges are too deeply chipped to be ground smooth.
- The base of the cutting edge is worn or has been re-sharpened so that it is too close to the rotor chipping slot.

### Setting Chipping Blade Clearance

The four chipping blades should clear the chipper anvil located directly under the chipper chute by 1/32 inch to 1/8 inch. The chipper anvil is adjustable and reversible.

#### To adjust:

1. Lift rotor access cover and expose rotor. Loosen the two 1/2 inch bolts that hold the chipper anvil to the frame.
2. Measure the amount of clearance between chipping blade and chipper anvil from inside of housing.
3. Adjust inward or outward to desired measurement. Use the nuts on the adjustment bolt for PTO models (see figure 3).
4. Tighten bolts on chipping block to 75 ft. lbs. and resume operation.

Remove the two bolts holding the anvil and use one of the other three edges if the chipper anvil edge is damaged or worn unevenly. Adjust for correct measurement.

*Never grind on the back side of the chipper blade.*



## Service and Maintenance-Cont.

### Adjusting Drive Belt

Check the condition of the drive belt annually or after every 25 hours of operation, whichever comes first. Replace cracked, frayed, worn, or stretched drive belt. Only replace drive belt with original banded type belt, do not use single type belts. To adjust the drive belt, proceed as follows:

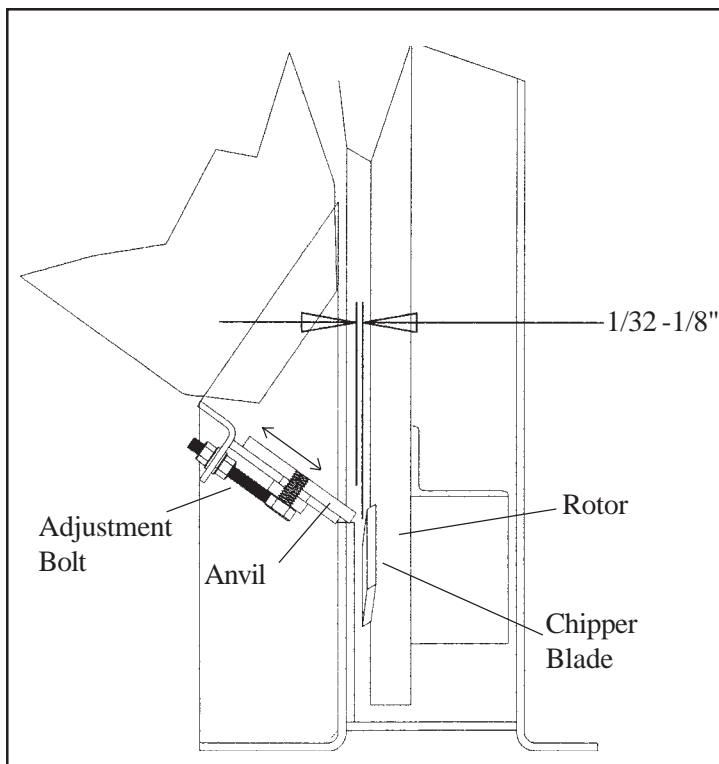
1. Depress foot clutch pedal.
2. Shut engine off.
3. Disconnect battery cables.
4. Remove large belt guard (three 5/16 inch bolts).
5. Adjust the eyebolt that anchors the idler spring to adjust the belt tension.
6. Tighten the eyebolt until the belt deflection at the center of the belt is 7/16" when a 20 lb. load is placed against the belt (see figure 4).
7. Replace belt guard.
8. Start engine and test belt for looseness.
9. Replace the belt if no adjustment is left.



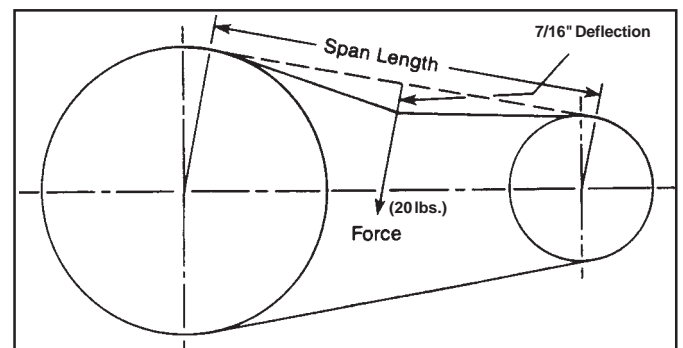
*Blades are sharp; avoid contact with chipper blades.*

### Replacing Drive Belt

1. Remove large belt guard (three 5/16" bolts).
2. Loosen eye bolt.
3. Push belt idler pulley off drive belt.



**Figure 3**



**Figure 4**



## Service and Maintenance-Cont.

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4. Remove drive belt from pulleys.
5. Install new belt on pulleys and lower belt idler. Check alignment of pulleys and adjust if needed.
6. Check belt tension before start-up. Adjust the eyebolt that anchors the idler spring to adjust the belt tension. Tighten the eyebolt until the belt deflection at the center of the belt is 7/16" when a 20 lb. load is placed against the belt (see figure 4). Move the engine on the mounting stand if unable to attain proper tension.
7. Replace belt guard.
8. Depress foot clutch pedal, start engine, release foot clutch pedal to engage belt, and test unit.
9. Readjust pulleys and belt tension if needed.

### Clearing Plugged Rotor

Feeding too much chipable material at once can plug the chipper. To clear plugged rotor, proceed as follows:

1. Depress foot clutch pedal and stop engine. Release foot clutch pedal when engine is stopped.
2. Remove the one 3/8" retaining bolt holding the access cover to the main frame assembly.
3. Lift up rotor access cover.
4. Clean the debris from the chipper rotor. Release idler and turn the rotor by hand to be sure it is free to rotate.
5. Close rotor access cover and replace bolts.
6. Depress foot clutch pedal, and start engine.
7. Release foot clutch pedal when engine is running to engage drive belt and resume operation.

*If the machine becomes plugged, depress foot clutch pedal, shut off the engine, and allow the machine to come to a complete stop before clearing debris. Do not operate the machine without proper guards and screens in place.*

### Repairing or Replacing Rotor Bearings

1. Remove the one 3/8 inch retaining bolt holding access cover to main frame assembly. Tilt access cover over to allow rotor access.
2. Remove large belt guard (three or five 5/16 inch bolts).
3. Lift belt idler pulley off drive belt and remove belt from pulleys.
4. Remove the bushing and pulley from the rotor shaft using the push bolts from the bushing.
5. Remove the two 1/2 inch bolts on each rotor bearing.
6. Pound 1/4" roll pin out of the rotor shaft on front bearing.
7. Lift the rotor assembly completely out of the frame with an overhead hoist or lifting device. The complete rotor assembly is 140 lbs.
8. Remove both bearings with a puller when the rotor assembly is out of the frame and place new bearings on rotor shaft.



## Service and Maintenance-Cont

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9. Replace roll pin with a new 1/2" x 2" pin, P/N 15137.
10. Return the complete rotor assembly to the chipper frame with an overhead hoist or lifting device.
11. Slide rotor back until front roll pin is tight against the front bearing.
12. Lock the front bearing and install the four 1/2 inch bolts on each bearing to secure them to the frame. Tighten bolts to 75 ft. lbs.
13. Check and adjust chipper anvil if needed. Lock rear bearing.
14. Slide bushing onto shaft with flange against bearing and lock bushing to shaft.
15. Attach large pulley to bushing.
16. Replace drive belt on pulleys and lower belt idler. Check alignment of pulleys and adjust engine if needed.
17. Check belt tension before start-up. Adjust the eyebolt that anchors the idler spring to adjust the belt tension. Tighten the eyebolt until the belt deflection at the center of the belt is 7/16" when a 20 lb. load is placed against the belt (see figure 4, page 19).
18. Close cover and replace bolts.
19. Replace belt guard and resume operation.
20. Depress foot clutch pedal, start engine, release foot clutch pedal to engage belt, and test unit. Readjust pulleys and belt tension if needed.

### Greaseable Bearings and Pivots

The chipper has greaseable bearings and pivots that require grease every 50 hours:

- Two bearings on the rotor shaft (All models).
- One grease zerk on the discharge chute (All models).
- One pivot on the clutch pedal (Model 74520).
- Two bearings on the jack shaft (Model 74554).
- Two bearings on the PTO shaft shield (Model 74554).
- One grease zerk on the idler pivot (Model 74554).

### Trailer Service Tips

- Check wheel bolt torque every 10 hours of towing use.
- Check air pressure in tires every 10 hours of towing.
- Check and repack wheel bearings with grease every 12 months.
- Connect safety chains when towing.
- Tighten and secure trailer hitch bolts.
- Check trailer lights.



# Service and Maintenance Schedule

Inspection Items	Interval									
	Before Each Use	Every 10 Hours	Every 25 Hours	Every 50 Hours	Every 100 Hours	Every 200 Hours	Every 300 Hours	Every 800 Hours	Every 1 years	
Check Nuts & Bolts (Including Wheels & Tire Pressure)	●									
Engine Oil	Check	●								
	Replace			◎	●					
Replace Spark Plug							●			
Air Filter Element	Check	●								
	Clean				●*					
	Replace						●**			
Replace Fuel Filter									●	
Check Sharpness of Chipper Blades		●								
Grease Bearings and Pivots				●						
Check Bolts: Chipper Blade, Chipper Anvil, Rotor Paddles		●								
Check Drive Belt			●							
Clean Machine				●						

Note: (\*) Service more frequently when used in dusty conditions

(\*\*) Replace Paper element type only



*Before inspecting or repairing any part of the machine, shut off the engine and make sure all moving parts have come to a complete stop.*



Indicates first hours of use.



# Troubleshooting

---

<u>Problem</u>	<u>Probable Cause</u>	<u>Suggested Remedies</u>
1. Engine will not start.	a) Improper control settings. b) Lack of fuel. c) Internal engine problems. d) Spark plug disconnected. e) Dirty, stale, or contaminated gas.	a) Use proper settings. b) Fill fuel tank. c) Contact dealer. d) Connect spark plug. e) Refill gas tank with fresh, clean unleaded regular gasoline.
2. Engine stalls or stops.	a) Obstructed discharge. b) Plugged rotor. c) Feeding material too fast into chipper.	a) Use branch or similar object to clear discharge. b) Clear rotor. c) Slow feed rate.
3. Engine overheats.	a) Cooling system plugged. b) Improper oil level	a) Clean cooling fan and fins. b) Fill engine to correct oil level. Refer to the engine owners manual.
4. PTO will not turn or has slow RPM's.	a) PTO not engaged on tractor. b) PTO shaft loose.	a) Engage PTO. b) Check all connections, repair if needed.
5. Hard to feed chipper or excessive power to chip.	a) <b>Dull chipper blades.</b> b) Obstructed discharge. c) Chipper blades to anvil clearance is incorrect.	a) Reverse or sharpen blades. b) Use branch or similar object to clear discharge. c) Set chipper blade to anvil clearance to recommended distance (1/16" to 1/8").
6. Engine stalls or belt squeals when engaging clutch.	a) Engaging clutch too fast. b) Plugged rotor. c) Belt tension too loose.	a) Lift clutch more slowly. b) Clear rotor. c) Tighten or replace belt.
7. Material from chipper wraps around rotor shaft.	a) Stringy, green material bypasses chipper blades. b) Improper blade clearance. c) Plugged discharge screen. d) Chipper blades to anvil clearance is incorrect. e) Dull chipper blades.	a) Rotate branch or material when feeding to cut completely. b) Adjust clearance. c) Install wet debris discharge screen. d) Set chipper blade to anvil clearance to recommended distance (1/16" to 1/8"). e) Sharpen or replace blades.



# Troubleshooting

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<b><u>Problem</u></b>	<b><u>Probable Cause</u></b>	<b><u>Suggested Remedies</u></b>
8. Excessive vibration while running.	a) Drive system vibration. b) Rotor out of balance. c) Chipper blade to anvil clearance is incorrect.	a) Check drive belts and pulleys for bad or worn areas. Check PTO shaft for wear. Dull chipper blades. b) Inspect rotor for broken or missing chipper blades. Repair if needed. Check rotor to see if it wobbles. Check to see if rotor is assembled correctly. c) Set chipper blade to anvil clearance to recommended distance (1/16" to 1/8").
9. Rotor will not turn.	a) Drive belt too loose or broken. b) Obstructed discharge. c) Plugged rotor.	a) Adjust or replace. b) Use branch or similar object to clear discharge. c) Clear rotor.
10. Cannot engage clutch.	a) Improper belt installation. b) Shock absorber binding. c) Improper belt tension. d) Engagement spring binding in spring cover. e) Pulleys not aligned. f) Clutch pedal binding.	a) Install belt properly. b) Replace shock absorber. c) Tighten or loosen belt as needed. d) Remove spring cover and clean. e) Aligned pulleys with straight edge. f) Determine cause and repair.
11. Excessive belt wear.	a) Not using correct belt. b) Pulley damaged or wore. c) Pulley not in alignment. d) Belt tension too loose.	a) Contact authorized dealer to order Bear Cat belts. b) Replace pulley. c) Align pulley with straight edge. d) Tighten belt or replace.
12. Trailer sways during towing.	a) Tire air pressure not correct.	a) Check tire sidewall for inflation limits.
13. Plugged discharge tube.	a) Engine speed too slow. b) Feeding too much material into unit.	a) Increase engine speed. b) Feed smaller material into shredder. Feed material into the shredder slower.



# Specifications

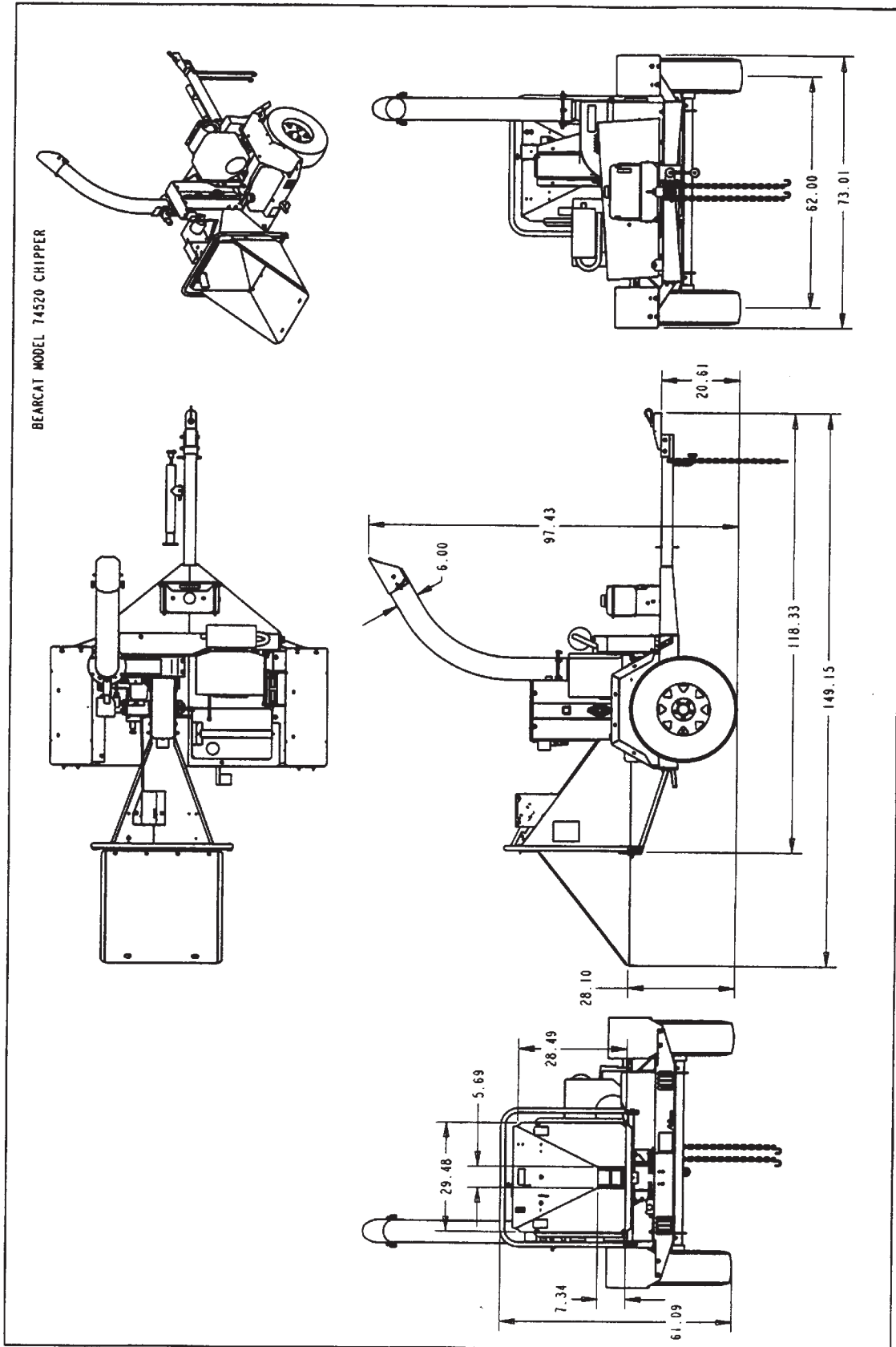
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Overall Size:	150" x 73" x 90"
Max Chipper Capacity (dia.):	5"
Chipper Blade Qty.:	4 Reversible Tool Steel
Rotor Size:	20" Dia. x 1.25"
Rotor Weight:	140 lbs.
Rotor Shaft Diameter:	1.75"
Discharge Size:	6"
Drive Type:	Belt
Belt Size:	2B70
Weight (lbs.):	1490 lbs. (engine) 900 lbs. (PTO)
Wheel Base:	62"
Tires:	225/75/15
Fuel Tank Capacity (gal.):	6.6
Hydraulic Tank Capacity (gal.):	3
Engine:	Honda OHV 20hp gasoline

Specifications are subject to change due to design modifications.

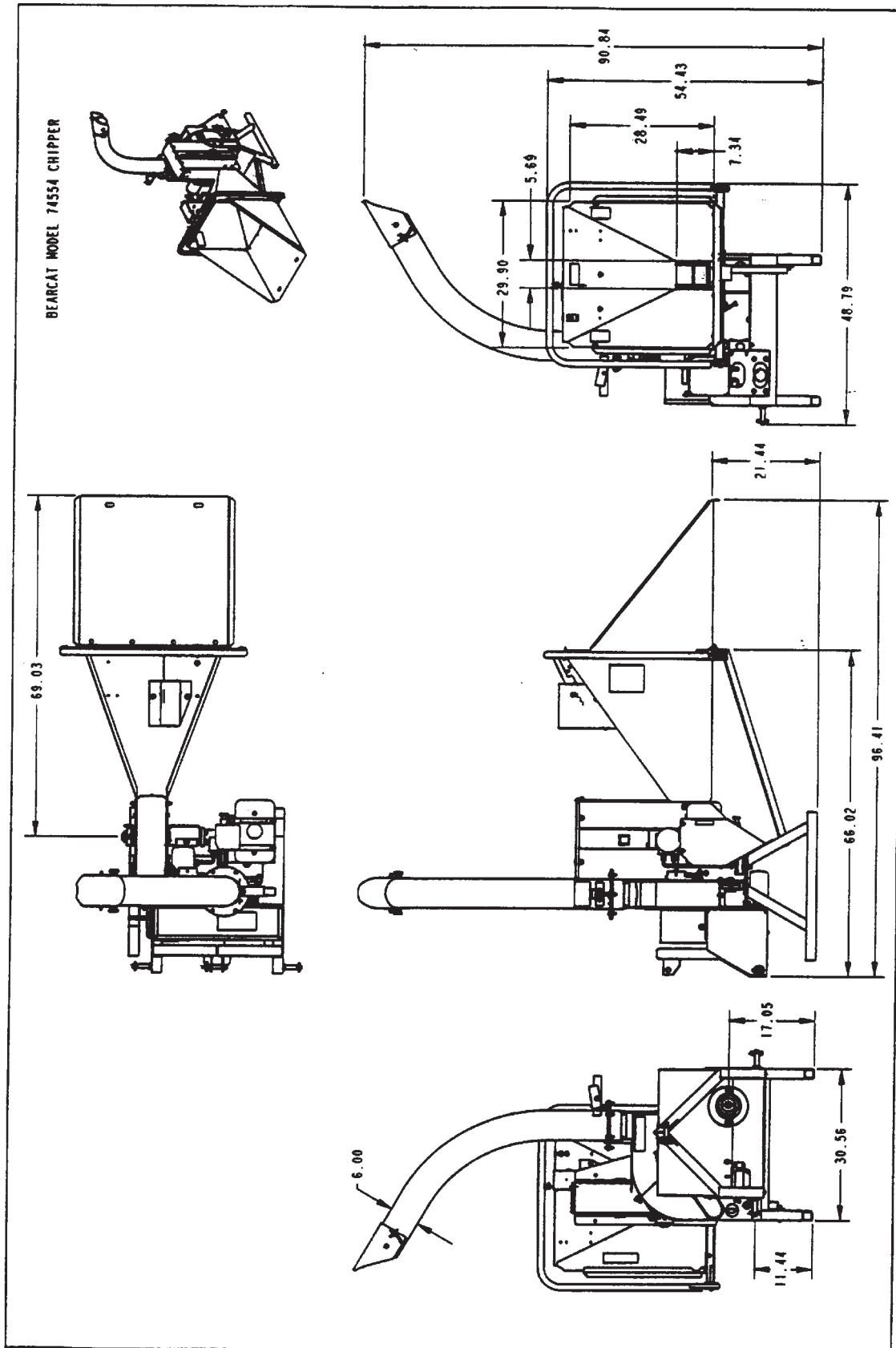


# Specifications





# Specifications



## HEALTH WARNING

### **GASOLINE, DIESEL, AND OTHER PETROLEUM PRODUCTS**

Harmful or fatal if swallowed.

Long-term exposure to vapors has caused cancer in laboratory animals.

- Avoid prolonged breathing of vapors.
- Keep face away from nozzle and gas tank/container opening.
- Never siphon by mouth.

Failure to use caution may cause serious injury or illness.

## **WARNING**

CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR OTHER REPRODUCTIVE HARM ARE FOUND IN GASOLINE, DIESEL, CRUDE OIL, AND MANY OTHER PETROLEUM PRODUCTS AND THEIR VAPORS, OR RESULT FROM THEIR USE.

READ AND FOLLOW LABEL DIRECTIONS AND USE CARE WHEN HANDLING OR USING ALL PETROLEUM PRODUCTS.

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