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**ACCIDENTS
INVOLVING
BRUSH CHIPPERS
CAN AND
SHOULD BE
PREVENTED...**

**Operator Training and
Enforcement of Safety
Policies are**

Essential!

DANGER

READ, UNDERSTAND AND FOLLOW ALL
SAFETY RULES AND INSTRUCTIONS

This booklet describes important safety features on Brush Bandit® Chippers. This booklet involves safety for your employees and the chipper. The safety features are available as update kits for older chippers and can

be obtained for very little expense. If you have chippers that Do Not have any of these - Add them to your chipper now.

If you have purchased a Bandit® Brush Chipper second hand, know someone that has, or have resold a Bandit® Brush Chipper - please contact us. Please fax us at (989) 561-2986 "Data Department - RP" or email us at www.banditchippers.com with the chipper model number, chipper serial number, and current owners name, address, etc. We need to know them and we want them to know us. Your assistance is greatly appreciated.

Make sure your chipper operators have been properly trained, and have read, understand and follow safety and operational procedures contained in the manuals, on the chipper itself, on decals, in this booklet and the video. These devices can be obtained through your local Bandit Dealer. To find your closest Dealer look in your yellow pages, look on our web page, (www.banditchippers.com) or call 800-952-0178.

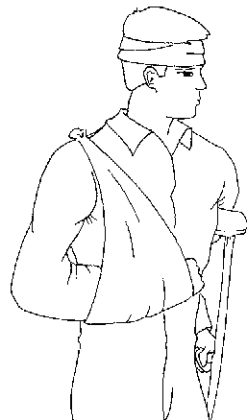
Most, if not all, chipper related accidents are caused by operator negligence. A lack of proper and ongoing training, and lack of enforcement of safety policies significantly increase the opportunity for operator error.

Many companies involved in tree care or tree maintenance have weekly meetings to review potential hazards and discuss how accidents can be avoided. These meetings are a benefit to new inexperienced employees, and also remind experienced employees of the obvious dangers involved with tree work. Even experienced employees may be injured if they mistakenly believe they fully understand the machine yet take unnecessary chances.

Industry leaders agree that safety should be at the top of everyone's priority list. Employees need constant reminders not to become over confident and not to take a casual approach to the potential hazards they encounter on a daily basis. Improperly operating a brush chipper is very dangerous. The operator must be trained and warned that amputation and death can happen unless they follow all warning instructions. They must also always be in position and ready to operate feed controls if a dangerous situation should arise.

Bandit Industries, Inc. provides numerous decals on our chippers, safety instructions in operator manuals and videos to warn operators of hazards involving the use of the chipper. Additionally, we endeavor to provide safety features on the machines to help prevent possible accidents when operators become careless and neglectful.

The Brush Bandit® Chipper was introduced in 1983. Since then there have been several accidents in the feed wheel area involving hands, arms, feet and legs, some of which have resulted in death. These injuries are caused by operators



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DANGER

NEVER REACH INTO THE INFEED HOPPER.

feed wheels or to dislodge a piece of material in the machine. DO NOT reach or kick into the infeed hopper under any circumstances!

Operators must be trained to be constantly thinking about being in a position and ready to use the forward-off-reverse feed control bar and other controls. They should be thinking and ready to stop or reverse the feed control bar the instant they feel any pulling toward infeed hopper or feed wheels. It is very easy to activate the control when the operator is properly positioned, to stop or reverse the feed wheels, especially if they are properly trained and paying attention.

It is difficult to activate the forward-off-reverse feed control bar if the operator is bent over, reaching into the infeed hopper of the chipper. In this position the operator is past the feed control bar, and in a very unsafe situation requiring him/her to reach back and contact the control bar to stop or reverse feed wheels. The operators manual, video and decals (located several places on chipper) state; “never put feet or hands into the infeed hopper for any reason”.

If you have short pieces of wood, leaves, or twigs simply lay them on top of longer material while it is feeding into the chipper. You can also use the wooden pusher tool. Do not feed vines or vine type material into the chipper. Cut the vines into 4 to 5 foot lengths and lay them on top of longer material while it is feeding into the chipper. With the vine material at this length, stop the feed wheels and lay the 4 to 5 foot pieces in the infeed hopper, then they should be fed with the wooden pusher paddle. If you can't cut vines to this length, don't feed it into the chipper. Never put feet or hands into the infeed hopper for any reason! Always be positioned and ready to operate control handle.

Always stand to the side of the infeed hopper when inserting material. This will allow you to turn away from the wood, and walk away, without passing through the material. Feeding from the side also positions the operator further from the feed rolls.

If you or your employees are not following these instructions, a very serious accident could occur. There is no such thing as a “minor accident” if an operator gets into the feed wheels. Severe lacerations, amputations or even death can occur.

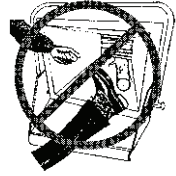
Do not let this happen to you or your employees. Follow correct operating instructions.



DANGER

NEVER REACH INTO THE INFEED HOPPER.

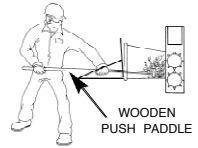
There have been several accidents that involved foot amputations, leg amputations and death as a result of operators kicking into the infeed hopper of the chipper. Brush Chippers are designed to be operated with hands placing the material into the chipper - NOT FEET! If the operator kicks the material that has become lodged or is not going into the feed wheels, he or she is placing themselves in extreme danger. If the wood does free up and goes into the feed wheels, the operator can be thrown off balance. NEVER KICK OR PLACE A FOOT IN THE CHIPPER INFEED HOPPER! Use a wooden push paddle to feed light loose wood material such as twigs, leaves, etc. or when job is done you can



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shut off everything, sweep up everything and throw it in the chip box or pile. If wood material becomes lodged and stops feeding, back it out and turn it to a better position or trim it with a chain saw. Then, re-feed it into the chipper. **NEVER FIGHT WITH THE WOOD TO GET IT TO ENTER THE CHIPPER!**

Bandit Industries, Inc. continues looking into what can be done to reduce chipper injuries. The following safety features have been developed for, and are currently being used on Brush Bandit® Chippers. They are available from your Bandit Dealer. Some are new and some have been presented before. We urge you to update your chippers with these devices.



To update your chippers, you must supply chipper models and serial numbers of every unit where you are installing these very important safety features. Safety devices available vary between “Hand-Fed” and “Loader-Fed” Chippers.

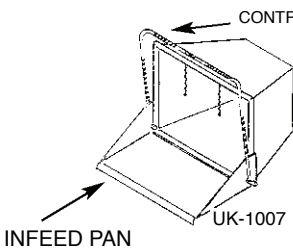
These approximate prices only apply to chippers that were not originally built with the device, or were not shipped the device previously. Prices do not include shipping costs, or taxes.

SAFETY FEATURE

WELD ON INFEEED PAN EXTENSION

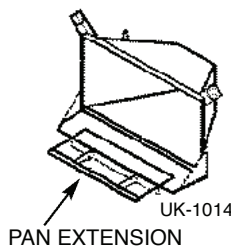
Update Kit # UK-1007
“WELD-ON INFEEED
 EXTENSION PAN”
 Update Kit # UK-1014
“12” EXTENSION FOR 18” PAN”

You must supply the chipper model number and chipper serial number when ordering, to insure an accurate fit of the weld-on pan or pan extension. Also supply the inside width dimension of the inlet end of the infeed hopper or existing 18” deep folding infeed pan. Folding infeed pans were optional on Bandit Chippers for many years. The 18” deep infeed pan became standard equipment on Bandit hand-fed chippers in February 1994. The 30” deep folding infeed pan became standard in January 2000. If your chipper is not equipped with the pan device that extends the infeed hopper 30”, one of these two weld-on kits would apply. They are simple to install. The purpose is to help locate the chipper operator further from the feed rollers; in the event he/she negligently reaches toward the rollers. **THERE IS NO NEED TO REACH OR KICK INSIDE THE INFEEED HOPPER AREA.** It is foolish, negligent and extremely dangerous. **DO NOT DO IT!** **DONT** use your foot to push material inside the infeed hopper. **ALWAYS** be in a position and ready to quickly activate the forward-neutral-reverse feed control bar whenever you are near the infeed hopper. “Stop To Think” **BEFORE** you put your hand, foot or body in a dangerous position - and then **DONT DO IT!**

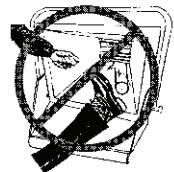


Cost Approx. \$75.00

Kit# UK-1008



Cost Approx. \$40.00



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SAFETY FEATURE

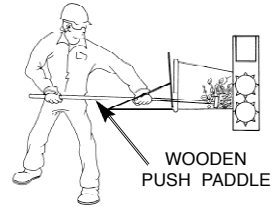
WOODEN PUSH PADDLE MOUNT

“WOODEN PUSH PADDLE AND MOUNT”

Cost Approx. \$25.00

The “Wood Push Paddle and Mount” have been standard equipment on our hand fed chippers since March 21, 1994. The wooden push paddle, if used correctly, is intended to reduce the chance of a negligent operator disregarding correct procedures, and using his foot or hand to push small wood debris in the infeed hopper area. The wooden push paddle allows the operator to safely push materials from outside the infeed hopper.

The wooden push paddle can also be used to push wood that may hang up in the feed wheels. If the hang up can not be dislodged by the wooden push paddle, a foot or hand won't help either. Do Not use steel or shovels or rakes. Reverse the material and trim it down, or shut down the chipper wait as many minutes as it takes for everything to completely stop and dislodge the material using safety procedures. Have you heard reports or seen operators bending over and reaching way back into the infeed hopper, near the feed wheels? Have you seen or heard of your employees using their foot to kick or push material that is inside the infeed hopper? If either answer is yes, think how important the wooden push paddle can be to discourage reaching or kicking into the feed wheels. The wooden push paddle can be ordered through the Bandit @ Dealer:



Update Kit # 1009

#626-0000-52
11 “ Wide Paddle

#980-0507-42
19” Wide Paddle

#981-1005-32
22” Wide paddle



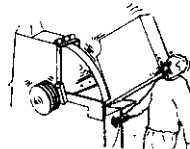
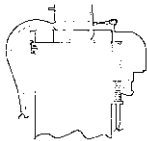
SAFETY FEATURE

SPRING LOCK FOR HOOD PIN

“SPRING LOCK FOR HOOD PIN”

Cost Approx. \$15.00

Since November 1996 Bandit Industries, Inc. has been installing on our hydraulic feed disc chippers a patented spring lock device for the hood pin. If properly maintained the device prevents the hood pin from being removed when the chipper disc is turning. The spring pin is positioned in front of a collar on the hood pin and when hood pin is secured in place the hood is kept closed. While the disc is turning, the spring lock pin prevents hood pin from being removed. The disc and disc shaft must stop turning to recess spring lock pin and remove the hood pin. Do Not open chipper hood with chipper disc turning. Do Not run chipper with hood open. Do Not close hood with chipper disc turning. Do Not operate without a factory approved chipper hood pin system securely in place, and padlocked.



When you supply chipper model and serial number, these kits are available from your local Bandit @ Dealer.

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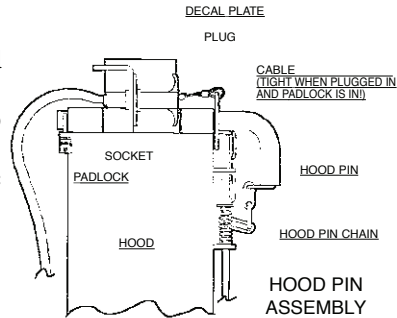
SAFETY FEATURE

CHIPPER HOOD ENGINE DISABLE PLUG

Update Kit # 1010
“CHIPPER HOOD ENGINE
DISABLE PLUG”
Cost Approx. \$50.00

Since September 1998 mechanical feed hand fed Bandit ® Chippers have been built with a plug-in device on the chipper hood that disables the engine if the hood pin, is not properly in place holding the chipper hood in the closed position. Correctly installed and maintained, the engine will not start or it will shut off if the plug-in is disconnected. The chipper hood must NEVER be opened, or pushed closed if the chipper disc is turning.

When you supply the chipper model and serial number, this kit is available through your local Bandit ® Dealer. You also need to supply us with the engine make and model, then we will include the electrical schematic to wire this device into the engine system.



SAFETY FEATURE

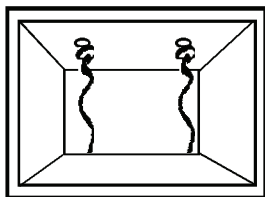
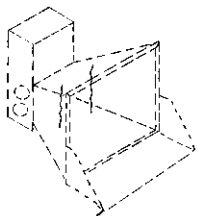
LAST CHANCE STOP

Update Kit # 1011
“LAST CHANCE STOP”
Cost Approx. \$48.00

Have you heard reports or seen your employees bending over and reaching into the infeed hopper, near the feedwheels? Along with the wooden push paddle and the infeed hopper pan, Bandit Industries, Inc. began installing on their mechanical feed hand fed chippers the patented “Last Chance Stop” cable system. This system has been standard on Bandit ® Chippers since March 1997. This device was developed to provide an emergency shut-off/reverse for the hydraulic feed rollers on most hand fed chippers, and operates without any electrical parts. The system typically consists of two simple cables hanging inside the infeed hopper and in front of the feed wheels approximately halfway between the entrance of infeed hopper and the feed wheels.

If an operator incorrectly finds themselves past the feed control bar and inside the infeed hopper, he/she has a cable to reverse/stop feed wheels and wood flow.

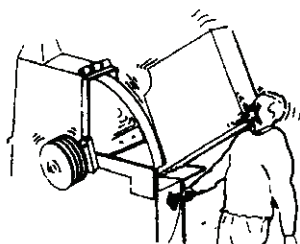
The “Last Chance Stop” is Not installed to encourage an operator to reach into the infeed hopper. Operators should never reach into that area with hands or feet. If your operator gets into a situation that the safety cable needs to be pulled, they have been operating the chipper in an unsafe manner contrary to all safety instructions. The system must be properly maintained and periodically checked. The “Last Chance Stop” will do nothing for the negligent operator kicking into infeed hopper.



Update Kit # 1012
“HOOD LOCK PIN WITH
ATTACHING CHAIN”
Cost Approx. \$22.00

 **SAFETY FEATURE**
HOOD LOCK PIN WITH ATTACHING CHAIN

Brush Chippers have been involved in a number of hood related accidents over the years. Some have resulted in death! All known hood accidents happened because factory installed solid steel 1 inch (2.54 cm) diameter pin joining the hood halves was removed and the disc was spinning when chipper hood was opened or being closed. Do Not open chipper hood with chipper disc turning. Do Not close hood with chipper disc turning. Do Not run chipper with hood open. Do Not operate without the factory approved chipper hood pin system securely in place.



PROCEDURE FOR UNPLUGGING YOUR CHIPPER

If your chipper is plugging, it is usually caused by allowing the engine to drop below required R.P.M.'s. This can be resolved by simply shutting the feedwheels off when the engine begins to lug down. Operating the engine at speed lower than full R.P.M.'s causes your chipper to plug. Always run the chipper at full engine speed. If your chipper is equipped with the autofeed feature, make sure it is set correctly. The setting for the low R.P.M. stop must be high enough not to allow the chipper discharge to plug. Dull chipper knives also contribute to chipper plugging. Dull knives can create slivers and chunks, causing the engine to lug excessively, Both of the aforementioned conditions cause a plugging situation.

STEPS TO FOLLOW WHEN UNPLUGGING YOUR CHIPPER

1. The power unit must not be running, the engine ignition shut off, and the engine key removed and in your pocket. Make sure the lock pin is installed into the chipper disc lock tube, and the battery disconnected.
2. Disc must not be turning! Open the hinged portion of the chipper hood.
3. Using your gloved hands and some type of raking tool, dig the chips out of the chipper housing.
4. If the discharge pipe is plugged, use a raking tool to pull the majority of chips out of the open outlet end of the pipe. Then, two people must remove pipe. Do not attempt this with one person, because the pipe can fall causing injury.
5. Never allow one person to turn the chipper wheel when someone else is working inside the chipper housing. More then likely, the wheel will turn hard then loosen, causing it to turn faster. If another person is anywhere near the cutter wheel they may be injured.
6. Never turn the cutter wheel by hand. Always use a pry bar. This will prevent the person turning the wheel from being injured should the wheel break loose.
7. Reinstall the discharge pipe, mount securely and point it away from anything.
8. Never leave the chipper hood open and try to start the engine when engaging the wheel to blow chips out of the housing, this is very hard on the P.T.O. of the chipper and may burn clutch plates. Also, the flying debris is very dangerous. An exposed turning chipper disc creates an unsafe condition. In other words, DO NOT start the chipper with the hood open because it is just too dangerous.
9. Once the wheel turns freely by hand, close the chipper hood, insert the hood pin, install the padlock in the hood pin, make sure plunger pin springs back into place, start the engine, properly engage clutch and throttle to full speed. Insert a small branch into the feedrolls. If the chips discharge properly, the chipper is clear and normal operation may resume.

The 1 “ Hood Pin has to be in place to do what it was designed to do.

Hood pins and associated parts like padlocks, engine disable switch's and spring lock for hood pin are all available from Bandit ® Dealers.

Do Not attempt to remove the hood pin or open chipper hood until the engine is shut off, you have waited as many minutes as it takes and you can see, feel and hear that the chipper disc has stopped turning.

If the hood contacts a spinning chipper disc it can suddenly fly open and severely injure or kill you.

Make-shift replacement pins, don't work and are dangerous. Use the correct size factory approved pins.



SAFETY FEATURE

FEED CONTROL BAR

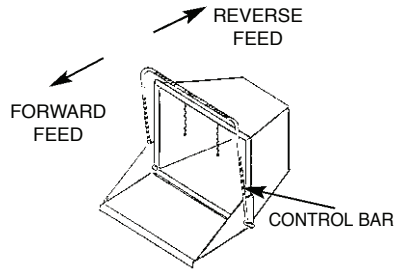
FEED CONTROL BAR

Brush Bandit ® Chippers that are designed to be hand fed have a simple, easy to reach feed control bar located across top and down both sides of the infeed hopper. The feed control bar operates the feed rollers forward- neutral- reverse pulling, stopping and reversing the wood branches into the chipper. The operator must always be thinking, ready and in a position to reverse the wood flow if a dangerous situation should arise. Push the control bar away from operator (toward chipper) to reverse wood flow

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on all chippers that are designed for hand feeding.

Keep the control handle serviced, and properly operational at all times. If something gets hung up in the chipper feed system, reverse it back out. Reposition the material and re-feed it back into the infeed hopper. If the wood material is too big or limby, back it out, trim it and re-feed it in portions. **NEVER** fight or wrestle with limbs or branches! Forcing material into the chipper is an unsafe practice. When you supply chipper model and serial number, replacement feed control bars are available from your Bandit® Dealer. They are approximately \$90.00 to \$160.00 depending on the size required.



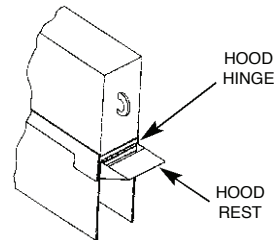
 **WARNING**
HOOD HINGE AND HOOD REST

HOOD HINGE AND HOOD REST

The hood hinge and the hood pin are what holds the pivoting hood half in place. Both have to be properly and securely fitted and maintained. A loose or bent hinge could cause the hood to come in contact with the chipper disc. If a Hood Hinge Gets Sloppy or Cracked or Bent It Must Be Replaced! Don't wait, Replace it! The hinge is used for hood alignment and hood location security.

Don't slam chipper hood open! It damages the hinge!

The hinge needs periodic lubrication to properly operate and to avoid excessive wear. The hinge, hood rest and hood require scheduled inspection. If they are damaged, replace them! Use only a Bandit factory replacement part. Depending on the chipper model, the hood hinges cost approximately \$25.00 to \$35.00 and the hood rests cost approximately the same.



 **WARNING**
WARNING DECALS

WARNING DECALS

There are warning decals prominently displayed on the chipper to provide a constant reminder as to how the machine should be fed, operated and maintained. It is the owners and operators responsibility to keep all decals, especially safety related decals, clean and readable. Every person involved in the operation or service of the chipper must be familiar, understand and follow instructions on decals. Decals are available in a variety of languages via Bandit @ dealers or factory.

English chipper decal kits cost approximately \$75.00 to \$100.00 depending on the chipper model.

Correct Installation and care of decals

1. You should use soap & water to keep your decals clean. Never use mineral spirits or any abrasive cleaners.
2. Replace immediately any missing or damaged decals.
3. Locate the decals on a cleaned dry surface with ambient temperature at least 40°F (5°C).
4. The decals should be in a conspicuous area in clear view of the operator.
5. Peel back about half of the backer paper on the decal. Locate it on the flat, dry, clean surface so it is smooth and secure. Peel off the remainder of the backer paper as you continue to stick the decal on the surface.
6. Rub decal from center outward to remove air bubbles and to secure contact.



OPERATOR MANUALS

Chipper operator manuals are available for all our equipment and when machines leave the factory, they are shipped with the manuals. There is extensive safety, service and operational information in the manuals. An operator must never be allowed to use a chipper unless he/she is completely trained, has read and understands the manual and decals and will follow the instructions provided. The instructions are for the safety of operator, machine, bystanders and near by buildings. You can obtain manuals through your Bandit® dealers.

English Bandit chipper manuals cost approximately \$25.00 to \$30.00 depending on the chipper model.

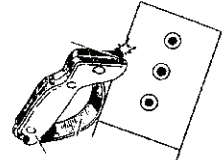


DULL CHIPPER KNIVES

You must use sharp, good quality chipper knives that have not been resharpened past the recommended width per manual. Dull chipper knives are not only dangerous, but add to operating costs and slow production. Chippers Do Not feed or throw chips properly when the knives are dull. Operating with dull knives may cause the operator to push, kick or wrestle with the wood going into the chipper which is unsafe. Dull knives make the chipper vibrate excessively, causing machine fatigue damage and the engine to use more fuel. Keep the knives sharp and the chipper will work smoother, feed wood easier and make a safer operation. In the long run sharp knives can save you money.

The chipper knives must be of good quality and correct design for that model chipper. The knives must be properly hardened at the edge, annealed at bolt holes and the correct chemical make up. Improper knives may break and cause a dangerous and costly accident. Use only factory approved knives and mounting hardware from Bandit Industries, Inc.

Bandit Industries offers through our dealers a unique knife sharpening device called "The Knife Saver Kit™" that within minutes can put a sharp edge back on a dulled chipper knife. The knife doesn't have to be removed from the disc or drum. The Knife Saver Kit™ sells for approx. \$49.95 under part number 900-9901-68.



The kit includes the sharpener, protective glove, a touch-up file and comes in a protective case. The Knife Saver Kit™ will not restore knives that are severely nicked or damaged, but will extend knife life before needing a professional knife grind.



SAFETY CLOTHING AND APPAREL

It is essential that a chipper operator wears proper gloves, clothing, hard hat, hearing protection, safety glasses, etc. when operating a chipper. Don't wear gauntlet type gloves, or loose improper clothing. Avoid wearing necklaces, rings, watches and neckties while operating the equipment.

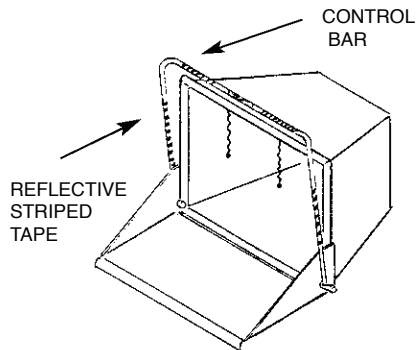


Follow the established "ANSI" and "OSHA" standards.



REFLECTIVE STRIPED TAPE ON FEED CONTROL HANDLE

We began installing striped reflective tape on the feed control handle of our hand fed chippers. This tape is reflective, self adhesive and has contrasting colors. The tape helps make the feed control bar stand out more and it makes the rear of the chipper more visible to a vehicle behind you while transporting chipper. Striped tape can be obtained through your local Bandit Dealer. The striped tape can be ordered under part number 900-9901-69 at a cost of approximately \$2.89 per foot.



Training is essential! It is extremely important for everyone who operates a wood chipper to be trained. Operating instructions for the chipper are included in Bandit manuals, decals and training video tapes with each chipper sold. We also highly recommend that you use the NAA chipper safety video. A copy of the video can be purchased by contacting NAA at the following address:

National Arborist Association
#3 Perimeter Road Unit 1
Manchester, NH 03103
603-673-3311

Safety training and enforcement of safety operating procedures is an important process. No device will prevent accidents when equipment is operated in an improper and dangerous manner. Operators need a frequent reminder as to the proper, safe operation of any piece of equipment, especially a chipper that is designed to quickly break down material much tougher than human flesh.

Please meet with your employees and have them read this Safety Booklet. Ask them what they think about the dangers we have discussed. Ask them if they have been guilty of some of the unsafe practices addressed in this bulletin. Lecture, preach, train, discuss and enforce safety procedures constantly!!

Maintenance of a chipper also includes maintenance of safety devices. If you lose or destroy the wooden push paddle get another one.

Chipper safety has to be a constant and continuing effort by all involved while operating and maintaining chippers.

Bandit Industries, Inc.
Printed March 2006