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NOTICE

ANY PART, PORTION, DESIGN, NUMBER, SPECIFICATION, AND/OR DIMENSION IN THIS MANUAL IS SUBJECT TO CHANGE WITHOUT NOTICE BY THE MANUFACTURER.

INTRODUCTION

The purpose of this manual is to provide the user with specifications and procedures for the operation, maintenance and repair of this BANDIT product. As with any piece of equipment, safety should always be a constant thought while the machine is being operated, serviced or stored. In order to highlight this consideration, the material which addresses safety is proceeded by the following signal words:

Signal Word	Likelihood of Occurrence	Degree of Potential Injury or Damage
⚠ **DANGER**	Will occur if warning is ignored	Severe
⚠ **WARNING**	Can occur if warning is ignored	Severe
⚠ **CAUTION**	Will or can occur if warning is ignored	Minor to Severe
NOTICE	Important, but not hazard related	Minor

The equipment is designed and manufactured in accordance with the latest product industry standards. This alone does not prevent injury. It is the operator's responsibility to use good judgement and follow the warnings and instructions as indicated in this manual, on the machine and follow all safety standards per ANSI and OSHA instructions.

⚠ WARNING

Improper use of the product can result in severe personal injury. Personnel using the equipment must be qualified, trained and familiar with the operating procedures as defined in this manual, prior to operating the product.

⚠ WARNING

It is the responsibility of the owner or employer to insure that the operator is trained and practices safe operation while using and servicing the machine. It is also the owner's responsibility to provide and follow a regularly scheduled preventative maintenance and repair program on the product, using only factory approved replacement parts. Any unapproved repairs or modifications may not only damage the machine and its performance, but could result in severe personal injury. Unapproved repairs or modifications will void warranty and eliminate manufacturer of any liability claims. Consult the equipment manufacturer!!!

Each machine is shipped with a manual, a customer's check sheet on the product, and any available parts & service manuals on component parts not produced by this manufacturer. Additional copies of these manuals and check sheets can be purchased from the manufacturer, or through the dealer. Engine parts, service and maintenance manuals **MUST** be purchased through the engine manufacturer or their dealer.

NOTICE

The producer of this Bandit product reserves the right to make any modifications or revisions to the design or specifications of its machine without advance notice. The producer also reserves the right to change machine and part prices as needed without advance notice.

BANDIT INDUSTRIES, INC.

EXPLANATION OF LIMITED WARRANTY

The manufacturer will not reimburse the customer or dealer labor costs incurred for installing “bolt-on” or “slip-on” items, such as hydraulic pumps and motors, control valves, flow dividers, belts, sheaves, etc. The manufacturer will provide replacement parts to the customer for defective parts during the warranty period. **Defective parts must be returned to Bandit Industries, Inc.** It will be the customer’s responsibility to install the replacement parts unless arrangements are made with the selling dealer.

The manufacturer will not reimburse travel costs to servicing dealer unless prior approval has been obtained from the manufacturer. It is the customer’s responsibility to deliver the machine to dealer’s service facility, unless other arrangements have been agreed to between selling dealer and customer.

The manufacturer may elect, at its discretion, to reimburse reasonable labor costs to customer or dealer for major defect repairs. Diagnostic labor and overtime labor will not be covered under warranty. Prior approval must be obtained from Bandit Industries, Inc.

There are several forms that must be completely filled out and returned to us in reference to our portion of warranty. Read and understand the Bandit Limited Warranty responsibilities. Some components on your machine are covered by their respective manufacturers and cannot be handled through Bandit Industries as stated in Warranty Section of this manual.

Use this manual to help you resolve what and where your problem is, in most cases you can fix it easily. If you still have problems, work through the dealer you purchased the machine through, or contact Bandit Industries direct if needed.

Make sure the following forms are used, for us as well as you, to keep track of service and pending warranty request. It is our company policy that all parts shipped out will be invoiced until the possible warranty parts are returned with a Warranty Claim Form completed for consideration.

Make sure the Warranty Validation Form is completed and sent in to us as soon as you receive the Bandit. This will activate our warranty responsibilities.

If Warranty Validation Form is not on file, all Warranty consideration is null and void.

NOTICE

Prior to delivery to final owner and during storage, this machine must be serviced and lubricated to avoid damage that will not be covered under warranty, see “Lubrication & Coolant” page.

Also, damage or premature failure of equipment components because of incorrect or incomplete service and maintenance by the equipment owner will not be covered under warranty.

All controls, safety devices, guards, and shields must be correctly operational and securely in place at all times during equipment operation.

BANDIT INDUSTRIES INC. LIMITED WARRANTY
(989) 561-2270

Bandit Industries Inc., also referred to as “Manufacturer” warrants this new product to be free of defects in workmanship and material for a period of 1 year or 2000 operating hours, which ever comes first.

This warranty takes effect upon delivery to the original retail purchaser. The manufacturer at it’s option will replace or repair at a point designated by the manufacturer, any parts which appear to have been defective in material or workmanship. The manufacturer is not responsible for labor, consequential damages, traveling or down time expenses.

This warranty and any possible liability of Bandit Industries Inc., is expressly in lieu of any other warranties, expressed or implied, including but not limited to, any implied warranty or merchantability of fitness for a particular purpose and of any noncontractual liabilities including product liabilities based upon negligence or strict liability. Bandit Industries Inc., will not be liable for consequential damages resulting from breach of warranty.

All parties involved agree that the Owner’s Sole and Exclusive Remedy against the Manufacturer, whether in contract or arising out of this warranty, instructions, representations, or defects shall only be for the replacement or repair of defective parts as provided herein. In no event or circumstances shall the Manufacturer’s liability exceed the purchase price of the machine. The buyer also agrees that no other remedy (including but not limited to consequential or incidental loss) shall be available to him or her.

It is absolutely necessary to return the Warranty Validation Form, completely and accurately filled out, and notify Bandit Industries Inc., in writing within ten (10) days from the date of purchase to validate this warranty. If Warranty Validation Form is not on file, all Warranty Consideration is NULL AND VOID.

This warranty will <u>not</u> apply if the Bandit Chipper is not operated with replacement parts or equipment <u>not</u> manufactured or recommended by Bandit Industries, Inc.

This warranty will not apply if the Bandit Chipper is not operated in a manner recommended by the manufacturer. The following examples would void the warranty:

1. The completed Warranty Validation Form is not on file.
2. The Bandit Chipper has been abused, or not serviced properly.
3. Repairs or attempted repairs made without prior written authorization.
4. Repairs made due to normal wear are not warrantable.
5. The Chipper was involved in, or damaged by an accident.
6. The Chipper was damaged from any type of foreign material.

The owner is responsible for all scheduled maintenance as explained in the Operators Manuals. Negligence of proper maintenance or any other negligence, accident or fire; nor with failure to adjust, tighten, or replace wear items included but not limited to items such as knives, knife anvil, belts, lubrication fluids, bearings, filters, hydraulic components, loose nuts or bolts, etc. may void warranty.

All components and parts being returned to Bandit Industries for warranty consideration must be complete and assembled when delivered. Hydraulic components and parts must be returned assembled with all fluid ports capped or plugged and free of foreign contamination, or warranty will not be considered.

BANDIT INDUSTRIES, INC. LIMITED WARRANTY
(989) 561-2270

NOTICE This warranty applies only to new and unused equipment or parts thereof manufactured by Bandit Industries Inc. and is void if the machine is operated with replacement parts or equipment not manufactured or recommended by Bandit Industries Inc.

All other components are warranted by their respective manufacturers (i.e. engines, axles, hydraulic pumps and motors, clutches, tires, batteries, etc.) Any machines used for lease or rental purposes warranty is limited to 90 days from the first day of initial service.

NOTICE **Clutch maintenance and adjustments and engine maintenance (air filter maintenance, oil changes, oil filter maintenance, etc.) are important to your machine. Refer to the clutch or engine manual for the maintenance schedule. Failure to perform the clutch or engine maintenance will void the warranty with the respective manufacturer, Bandit Industries Inc. does not warranty these components!**

CONTINENTAL U.S. INFORMATION PHONE NUMBERS FOR ACCESSORIES (NOT COVERED UNDER PRODUCT WARRANTY PROGRAM)

Briggs & Stratton (Vanguard) Engines	1-414-259-5333	PGL Auto Clutch	1-800-551-2938
Caterpillar Engines (Thru 275Hp)	1-800-551-2938	PT Tech Clutch	1-330-414-3172
Caterpillar Engines (300Hp & Up)	1-866-228-2111	NACD, Rockford Clutch	1-800-383-9204
Continental Engines	1-800-726-8870	Twin Disc Clutch	1-262-638-4000
Cummins Engines	1-248-573-1592	Electronic Solutions	1-866-736-6839
Deutz, Lombardini Engines	1-800-445-5273	I.E.C. (formerly E.S.I.)	1-815-985-0383
Ford, Hatz Engines	1-800-726-8870	L.O.R. MFG.	1-866-644-8622
GM, Perkins Engines	1-800-551-2938	Miratron Inc.	1-866-285-0132
Honda Engines	1-734-453-6258	Omnex Radios	1-419-294-4985
John Deere Engines	1-888-803-9175	Dexter Axles	1-574-295-7888
Kohler Engines	1-800-854-9273	Tires	1-989-463-4088
Kubota Engines	1-800-457-7056	Caterpillar Tracks	1-309-636-1100
Robin Engines	1-248-399-0002	Chermack Tracks	1-715-458-2655
Wisconsin Engines	1-800-726-8870	Petro-Canada Hydrex XV	1-888-284-4572
Interstate Batteries	1-800-331-2000		

(Phone numbers for outside the continental U.S. can be supplied from your phone directory or local Bandit dealer.)

In order to process any warranty claims, it is the owner's responsibility to report the claims promptly to the Manufacturer, or our authorized dealer from whom the equipment was purchased.

It is necessary to include the following information on any and all requests for warranty:

1) Warranty Claim Form, obtained from Bandit Industries or it's dealers, completely and accurately filled out.
2) Dealer from whom purchased.
3) Date of delivery.
4) Serial number of unit.
5) Model number of unit.
6) Engine make and serial number.
7) Length of time in use (hours on machine).
8) Date of Failure.
9) Nature of Failure.

Bandit Industries Inc., reserves the right to alter, improve, revise or modify any parts or products with the altered, improved, revised or modified parts or products. They also may change design, specifications, or part prices without advance notice.

Bandit Industries Inc., is NOT responsible for updating or upgrading completed machines with design changes that are made after it's production.

Bandit Industries Inc., expects the Customer/Owner to bring their machine to the Dealer/Manufacturer for Warranty Repairs. The Manufacturer DOES NOT pay Dealers or Customers for bringing their machine in for repair. Nor does the Manufacturer furnish loaner machines while the unit is being repaired.

TYPICAL CHIPPER SERIAL NUMBER AND/OR WORK ORDER NUMBER LOCATIONS

1. Beltshield
2. Stamped into top of hood
3. Side of frame
4. Stamped into top of frame
5. W/O # on stamped or welded on top of tongue

NOTICE The engine information is located on the engine block. The clutch information is located on the clutch plate (if equipped).

SAFETY PROCEDURES

⚠ DANGER

The words ⚠ Danger, ⚠ Warning, ⚠ Caution, and Notice are used on the safety decals and throughout this manual, to make you aware of the safety procedures. These procedures are very important, read and obey them.

YOUR SAFETY IS VERY IMPORTANT TO US!

This machine is equipped with safety decals, guards and designs for your protection.

Don't ever take the machine for granted, always be cautious and careful when operating your equipment.

Read and follow all the instructions in your manual thoroughly. Your safety is dependent on your knowledge of how to operate and maintain this machine. You may obtain additional copies of this manual from your Bandit Dealer.

Before operating machine, you must have all potential operators; read and understand manuals and decals, watch the video and follow the recommendations.

Regardless of how hard a manufacturer tries to produce a safe machine, accidents still happen. Normally accidents are caused by people making mistakes. They do not read the manual, they ignore warning decals or do not use lockouts provided for their safety. This normally happens after the person has become accustomed to the machinery. In the initial start up and operation of the machinery, they are cautious, they are very careful because they do not understand the machine.

This equipment is intended for use by personnel who are experienced with similar equipment. Always operate safely. There should be at least two qualified and trained operators at the work site. They should be positioned in safe working locations, following safety procedures and instructions, and aware of each others whereabouts. There should, also, be at least two people on site during maintenance and service procedures in case an accident should occur. Never operate any machine while under the influence of drugs or alcohol.

Keep children, bystanders and animals clear of working area. Never operate equipment that is in need of repair or adjustment.

⚠ DANGER

Before starting the machine, take a minute to check a few things. The machine should be in an area restricted from people passing by. This area around the machine must be free of all objects that can obstruct your movement when working with the machine. The machine should be checked for loose tools or foreign objects, especially in the infeed hopper area. All tools not in use should be secured in a tool box.

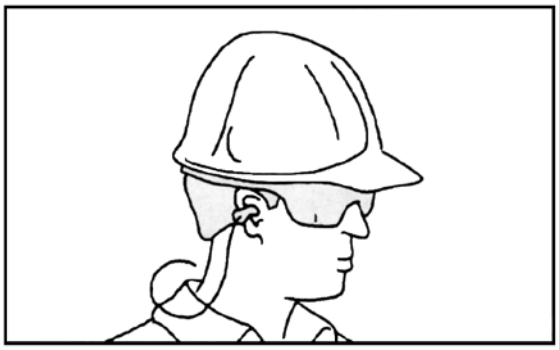
⚠ WARNING

Operators **must** at all times be located within easy reach of all controls and shut-off devices when the unit is running. They must be attentive and prepared to activate the devices.

⚠ DANGER

Torn or loose clothing is more likely to get caught in moving machinery parts or tree branches. Keep such items as long hair, shirt sleeves, and shirt tails properly contained. Avoid wearing necklaces, rings, watches, and especially neckties while operating this machinery. Make sure the machine is in excellent condition, and all the guards are in place, tight and secure.

Wear all personal protection equipment and follow all safety standards per ANSI and OSHA instructions. Examples of equipment: hard hat, face shield, safety glasses, gloves, ear protection, etc. Do not wear gauntlet or secured fit gloves. Always keep a fully charged fire extinguisher with the machine while operating or servicing the machine.



CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

SAFETY PROCEDURES

⚠ DANGER

Always block the tires and the machine tongue whenever the machine is unhooked for operation. DO NOT rely on the tongue jack for operational stabilization.

⚠ DANGER

Pay attention to the direction of the discharge chute before chipping. Never stand in front of the chipper discharge chute. Never direct the chute towards anyone or anything that could cause an accident or problems. Always stop chipping and warn anyone that comes near the discharge area. Failure to do this could result in severe injury. Wood chips flying out of the discharge chute can be very dangerous!

⚠ DANGER

NEVER sit, stand, lay, climb or ride anywhere on this machine while it is running, operating, or in transit. You will be injured.

⚠ WARNING

It is very important after you have operated a new machine for approximately an hour to shut down the machine and recheck all nuts and bolts. It is normal for nuts and bolts to loosen once on a new piece of machinery. If you tighten them now, there is a good possibility they won't loosen again. Certain nuts and bolts should be checked periodically such as anvil and knife nuts and bolts, etc. for torque and fit.

Most of the nuts used on the machine are self locking. After a nut or bolt has been removed five times, it should be replaced to insure proper tightness. This is especially critical on the chipper knife nuts and bolts!

After the engine is started, let the chipper disc/drum turn at the lowest RPM's possible. Listen for any type of noise that is foreign. Any steel on steel noise is foreign. If you hear a noise, stop the engine, find the problem and fix it.

⚠ DANGER

DO NOT operate this machine indoors! Exhaust fumes can be fatal. Never refuel while the machine is running. Never refuel in the shop or building. Always refuel in a well ventilated area, away from sparks or open flames, DO NOT SMOKE. Extinguish all smoking materials. Wipe up all spilled fuel before restarting the engine. Do not fill above 1/2" (12.7mm) from top of tank.

To obtain the most from your machine, for the least amount of cost, it is a good practice to set up and follow a scheduled preventative maintenance program. It will eliminate many possible problems and down time.

⚠ DANGER

Never reach into the infeed hopper area of the machine, there is never any reason to. There is absolutely no reason to work inside of the infeed hopper. If there are short pieces, or leaves and twigs, just leave them until feeding longer pieces. While the long pieces are feeding, simply toss the short pieces on top of them. The longer pieces will take them on into the machine.

A wooden push paddle has been provided to assist in feeding smaller material. It is the owner's and operator's responsibility to use and keep a wooden push paddle with the machine and to also secure it when transporting the machine. DO NOT use any body parts or any steel devices inside the infeed hopper area.

NOTICE

Do not attempt to start the engine or engage the engine PTO (power-take-off) system on this machine if the chipper disc/drum is jammed or frozen in place. If you do, you will damage or ruin the drive belts and/or the PTO which will not be covered under warranty and will cost you down time and money.

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the chipper drum to come to a complete stop, use extreme care and do not allow the chipper drum to turn, disconnect battery, and make sure the ignition key is in your possession.

⚠ DANGER

Never feed any materials that might contain wires, stones, nails, metal objects, or any foreign object which may damage the knives and become dangerous projectiles.

⚠ WARNING

This chipper is designed to "HAND FED" only! DO NOT feed wood with any type of knuckle boom loader, front end loader, or mechanical device. It will cause damage to the machine. If this happens, the machine WILL NOT be covered under warranty.

⚠ DANGER

Do not operate this chipper without the flexible curtain in the opening of the infeed hopper, per ANSI and OSHA standards. It is provided on this style chipper to reduce material kick back that can cause severe injury.

SAFETY PROCEDURES

⚠ DANGER

Avoid moving parts. Keep hands, feet, and clothing away from power driven parts. Keep all guards and shields in place and properly secured.

⚠ DANGER

DO NOT feed vines or vine-like material! DO NOT pile vines or vine-like material in front of the infeed hopper which may cause you to trip or fall! DO NOT allow vines or limbs to become entangled with you or your clothing! DO cut vine-like material into 4 to 5 foot (1.2 to 1.5 meter) length's, away from the chipper area! DO use a wooden pusher paddle when feeding the cut vines into the machine! ALWAYS be in position and prepared to shut down the machine!

⚠ DANGER

DO NOT slam the chipper hood to the open position. This will cause damage to the hinge. If your hinge has become damaged by slamming the hood to the open position, Replace The Hinge Immediately! If the hinge has become damaged it will cause misalignment of the hood, the chipper disc/drum may then hit the hood and cause a serious accident! Lubricate the hood hinge daily.

⚠ WARNING

Never use jumper cables during freezing temperatures. Tow the machine inside and allow the battery time to warm up. If the machine must be started outside, inspect the battery acid for ice formation. Explosion will occur with a frozen battery. If the machine is going to be operated in excessively cold conditions, a larger cold cranking amp battery may be needed to insure proper and prompt starting. Never use jumper cables in a confined or unventilated area. Battery acid fumes are explosive. Battery acid can cause severe burns. Never expose an open flame or spark near the battery. Keep all burning materials away from the battery. When servicing the battery, shield eyes and face, and do not smoke. Service in a well ventilated area.

⚠ DANGER

DO NOT remove the hood bolts until the chipper drum has came to a complete stop. The chipper drum will coast for several minutes after the engine is shut down. Always wait at least several minutes.

DO NOT operate the machine with the chipper hood open under any circumstances.

⚠ DANGER

Never turn the chipper disc/drum by hand, always carefully use a pry bar or wood bar. This will help prevent the person turning the disc/drum from being injured should the disc/drum break loose.

A sight hole in the chipper belt shield has been provided. If chipper belts are moving do not open chipper hood. Do not stick fingers in sight hole.

⚠ DANGER

Chipper knives are sharp and can be dangerous. It is always necessary for your protection to be extra careful and wear proper hand protection when handling knives.

⚠ DANGER

The knives must be securely fastened and torqued in position. If one comes loose or breaks during operation, someone or something may get injured.

⚠ WARNING

If knife adjusting studs are not torqued properly, the alternating and opposed loads of chipping and centrifugal force could loosen the knives. Severe damage to drum and violent discharge of metal from either infeed hopper or discharge chute can result. The discharge can cause serious personnel injury.

⚠ WARNING

Failure to clean the wedge bar and drum recess thoroughly can prevent proper seating of the wedge bar and knife in the recess. Gap setting will be difficult to obtain and knives can become loose during operation. A loose knife can result in violent discharge through the discharge chute or kick back from the infeed hopper. Equipment damage and/or serious injury to personnel can result.

⚠ WARNING

Check laws and regulations. Know and obey all federal, state, and local laws and regulations that apply to your work situation and the transportation of a machine this size.

SAFETY PROCEDURES

⚠ WARNING

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. Machines should be fed from curbside (right side) whenever possible. Anytime an operator is near the infeed hopper, they must be within easy reach of control devices.

To increase production, don't waste time watching the material being fed. Once the limbs have started into the machine, you can walk away and get more material.

Always start the larger end (base end) of the log or branch in first.

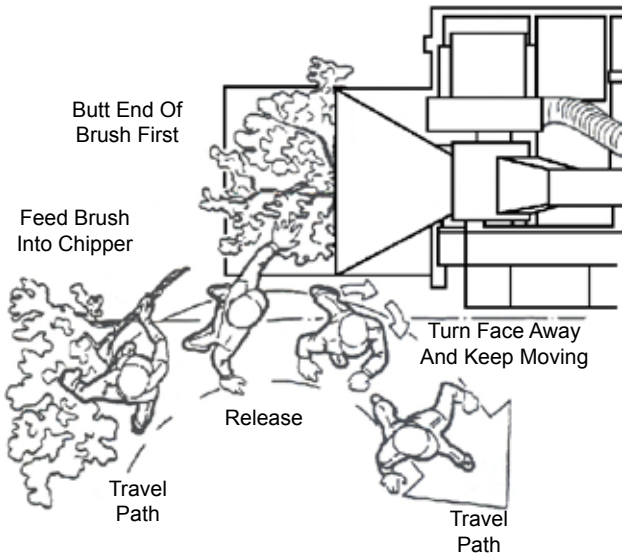
Keep the engine R.P.M.'s at full throttle whether you are chipping brush or round wood. Lower R.P.M.'s will cause weak throwing power, and can cause plugging in the discharge.

⚠ DANGER

Do not work on the machine if the engine is running with the clutch disengaged. A clutch can self engage if either the pilot or throw-out bearing happens to seize to the main output shaft.

There are various types of clutches (PTO's) available for this type of equipment. Make sure to study the original clutch manufacturer's manual that is provided with the machine and follow its instructions for operation, service, and adjustments. Some styles require clutch engagement to be maintained so that it takes a lot of force, others will require very little force, and some are push button, electric, manual lever, or hydraulic activation. Each different style clutch (PTO) is a very expensive item that will fail if not correctly maintained and adjusted. It will be quite costly if a few minutes are not taken daily, weekly, and monthly to keep the clutch serviced as required.

The operator must take care in the engagement and disengagement of the clutch, engine RPM should always be below 1000 RPM. When the engine has sufficiently warmed up, bump the clutch handle against engagement to start the chipper disc/drum turning. This will have to be repeated until the chipper disc/drum is turning at proper ratio with engine RPM. Then push the handle all the way in gear until it locks into position securely. After engagement raise engine RPM to full throttle. Engaging and disengaging the clutch at high engine RPM will quickly and excessively wear out clutch plates as well as bearings. Refer to clutch manufacturer's manual for proper service and operation.



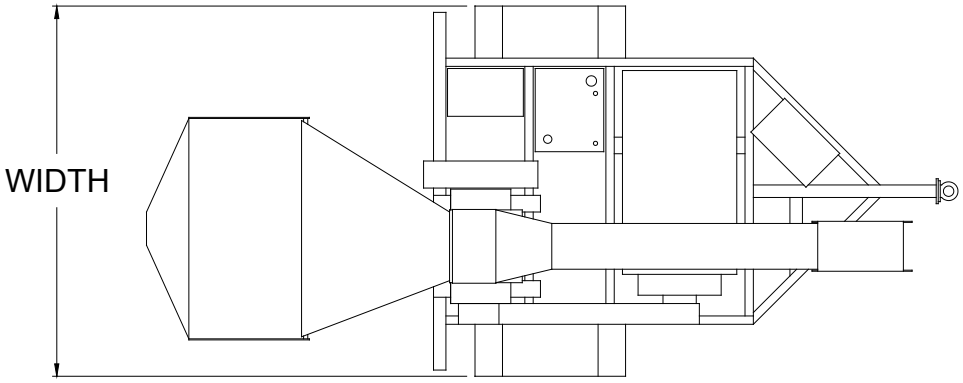
⚠ WARNING

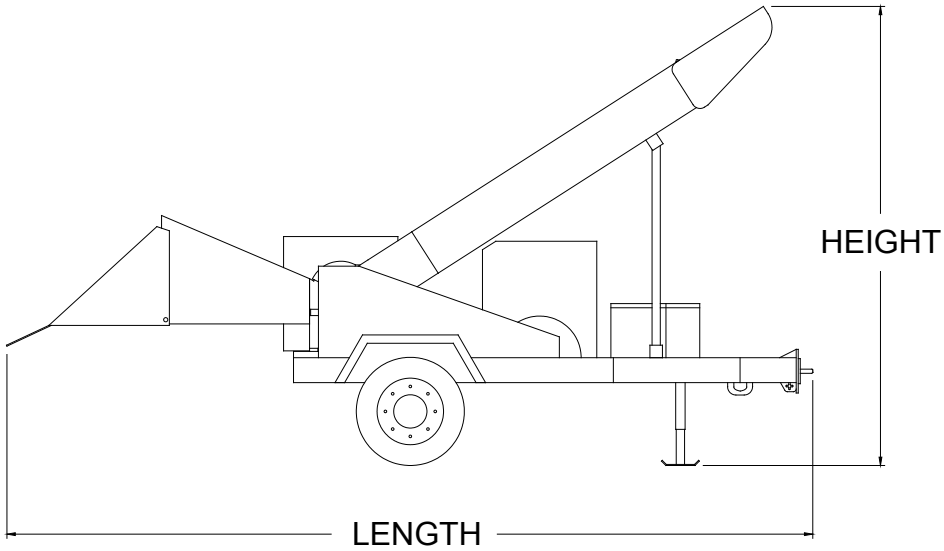
Before you begin to transport your trailerized machine follow all of the transportation procedures on page 19. Make sure that the tongue has been raised to the proper height and attach the machine securely to the towing vehicle. Once secured to vehicle, locate tongue jack and secure it in the transport position. Always hook safety chains to vehicle by crossing them under the tongue allowing enough slack to avoid binding or dragging the ground when making turns. Check brakes and highway lights make sure that they are all operating properly. Check that the plug terminal functions match the towing vehicle for proper operation. Be sure to check tire pressure before you begin to transport the machine. Close the folding pan, for the infeed hopper and make sure spring latches are locked into place. If machine is equipped with a vise, make sure to secure in place and clamp jaws closed. Close and secure any of the following, if equipped: tool box, battery box, engine cowl doors and side panels, radiator debris screens, inspection doors, cabinet doors, housing covers, tank caps and covers, etc.

⚠ DANGER

Keep the machine in good condition. Be sure the machine is in good operating condition and that all safety devices, including guards and shields are installed and functioning properly. Visually inspect the machine daily before starting the machine. Refer to the "Daily Start Up & Maintenance". Make no modifications to your equipment unless specifically recommended or requested by Bandit Industries Inc.

EQUIPMENT SPECIFICATIONS





Approximate Dimensions & Weights

(Dimensions & weights will vary depending on optional equipment)

Approx. Weight:	Model 1290:	5,020 lbs. (2277 kg)
	Model 1690:	5,100 lbs. (2313 kg)

(Approximate weights depending on engine and equipment options.)

Overall Dimension: Height: 9' 5" (2.9 m), Length: 15' 2" (4.6 m), Width: 7' 6" (2.3 m)

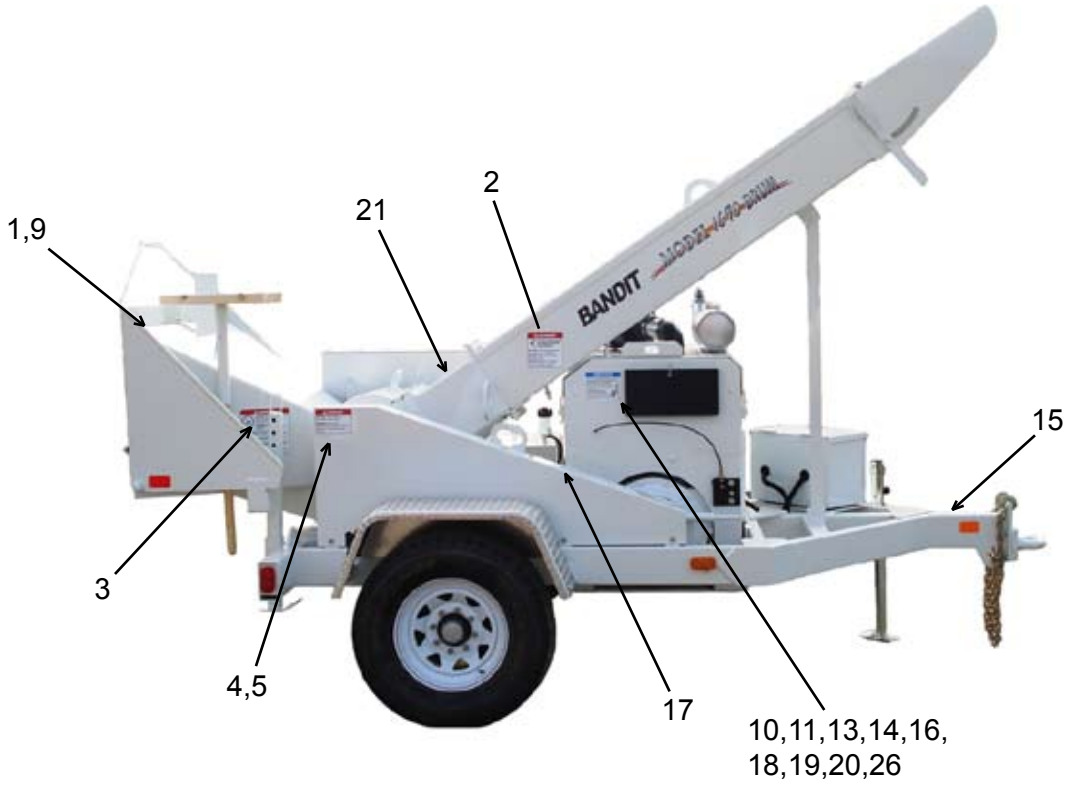
(NOTE: Measurements are to highest, longest, or widest points, not always as illustration is labeled.)

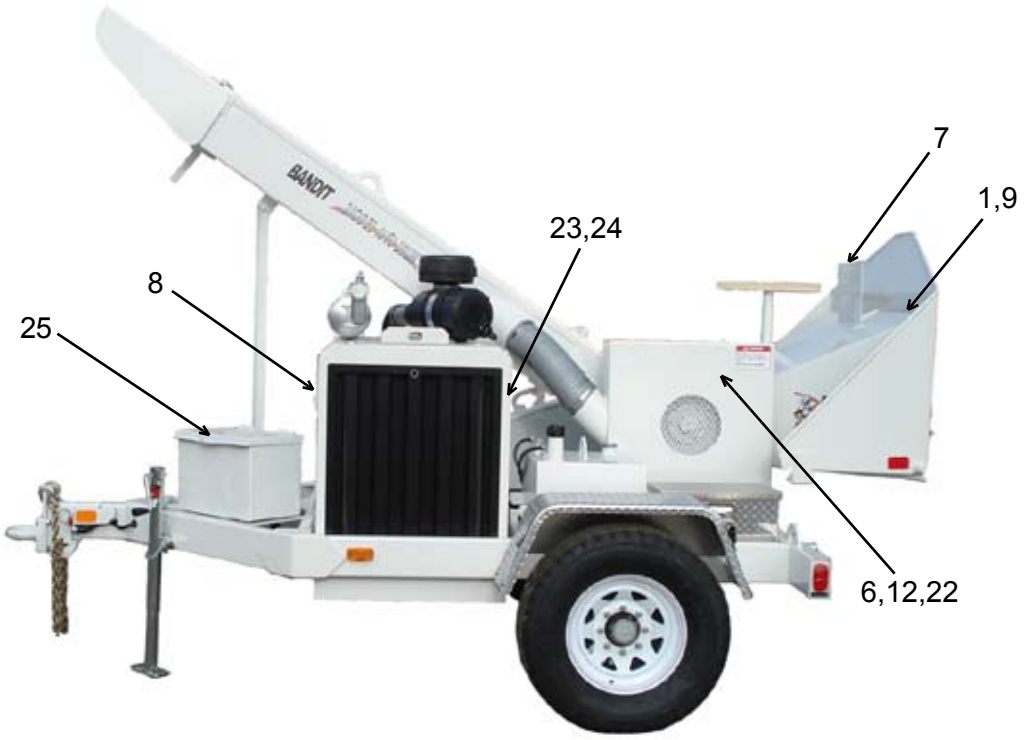
	Models 1290 & 1690
Fuel Tank Capacity:	23 1/2 Gallons (89 L)

(Approximate dimension depending on equipment options.)

DECAL LOCATIONS

Decal locations may vary, these are general locations.





DECAL LOCATIONS

Modifications and/or additions of decals to this list will happen.
Consult chipper dealer or manufacturer for most current decal package.

LOCATION	NUMBER	DESCRIPTION
1.	SPD-02	Moving Parts...
2.	SPD-04	Flying Discharge Material...
3.	SPD-12	Do Not Feed Vine-Like...
4.	SPD-21	Do Not Operate...Rubber Curtain in Opening...
5.	SPD-28	Do Not Insert Fingers
6.	SPD-30	Do Not Sit, Stand, Lay, Climb...
7.	SPD-32	Do Not Operate This Machine...
8.	ID-42	Bandit Industries Inc...USA
9.	INST-04	Arrow
10.	INST-12	Grease Daily (Arrow)
11.	INST-16	Grease Weekly Arrow
12.	INDT-24	Flywheel Brake
13.	INST-39	Oil Daily Arrow
14.	INST-44	California Proposition 65
15.	INST-95	Electric Plug-In Schematic
16.	INST-101	Canada Engine Decal
17.	N-03	Service Required Under Beltshield...
18.	N-05	Frequently Adjust...PTO...
19.	SPN-06	Decal Maintenance...
20.	N-07	Clutch Operation...
21.	SPN-11	Correct Knife And Hardware...
22.	SPN-23	Flywheel Brake Operation...
23.	SPW-02	Diesel Fuel Only...
24.	SPW-03	Gasoline Fuel Only...
25.	SPW-04	Frozen Battery Can Explode...
26.	SPW-08	Wear Personal Protection...
27.	712-0500-42	Basic Safety Decal Kit (Options may require additional decals)
28.	900-8900-22	Bandit Model 1290 Vinyl Decals
29.	900-8900-24	Bandit Model 1690 Vinyl Decals

NOTICE

Some decals are for optional equipment. Decal locations may vary, these are general locations.
If any decals become damaged, replace immediately.

DECALS

Decals located on your Bandit equipment contain useful information to assist you in operating your equipment safely. Some of the decals on your machine and their location are shown in this section.

It is very important that all decals remain in place and in good condition on your machine. Please follow the care and instructions given below:

1) You should use soap and water to keep your decals clean. Never use mineral spirits or any other abrasive cleaners.
2) Replace immediately any missing or damaged decals. The location the decal is going to be applied to must be clean and dry, and at least 40°F (5°C) before applying decal.
3) When the need arises to replace a machine component with a decal attached, be sure and replace the decal.
4) Replacement decals are available, and can be purchased from the manufacturer or your Bandit Dealer.
5) Combination English / Spanish decals are typically standard. Other foreign language decals are available and may be purchased. Mail translated decals required to Bandit Industries, Inc.

EXAMPLES:

NOTICE

DECAL MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER OF THIS MACHINE. KEEP DECALS LEGIBLE. DECALS (ETC.) ARE AVAILABLE IN OTHER LANGUAGES.

CONTACT: PARTS DEPARTMENT
6750 MILLBROOK RD.
REMUS, MI USA 49340
PHONE (888) 748-6348

DANGER

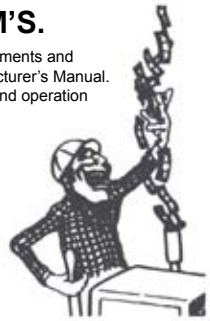
DO NOT insert fingers or amputation could occur.

DO NOT perform any maintenance until belts inside this hole have completely stopped moving.

NOTICE

THE CLUTCH HANDLE SHOULD NOT BE ENGAGED OR DISENGAGED AT SPEEDS ABOVE 1000 RPM'S.

DO NOT operate this Clutch/PTO unless proper adjustments and lubrication are maintained per the Clutch/PTO Manufacturer's Manual. Different brands and models require different service and operation procedures. New Clutch/PTO's require more frequent adjustment.



GOOD OPERATORS DON'T WASTE MONEY!

Clutches will fail, glaze over, and burn up from improper adjustment. This will cost the owner of this machine thousands of dollars to repair. A well maintained, correctly adjusted clutch should function properly for years.

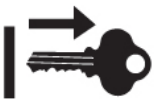
DANGER

DO NOT sit, stand, lay, climb or ride anywhere on this machine while it is running, operating or in transit.

YOU WILL BE INJURED!

⚠ DANGER

AVOID INJURY OR DEATH!
DO NOT OPERATE THIS MACHINE UNLESS:



- Only properly and fully trained people are used.
- Wearing clothing and personal protective equipment per ANSI Z133 and OSHA 29-1910 standards.
- Constantly prepared and positioned to activate the control and shut down devices.
- All guards and covers are secure and in place.
- Only factory approved pins, guards and replacement parts are used.

- All safety devices and controls are operational.
- Never allow hand, foot or body part to enter infeed area, conveyors or guards during operation or while running.
- All decals are legible, in place and operator thoroughly understands them.

- Never open guards, covers or inspection doors while disc/drum is turning or engine is running.

Follow all safety and operational instructions per manuals decals, video, ANSI Z133 and OSHA 29-1910 standards.

⚠ DANGER

Do not operate this chipper without rubber curtain in opening of infeed, per ANSI & OSHA standards.

It is provided on this style chipper to reduce material kick back that can cause severe injury.

CONTROLS

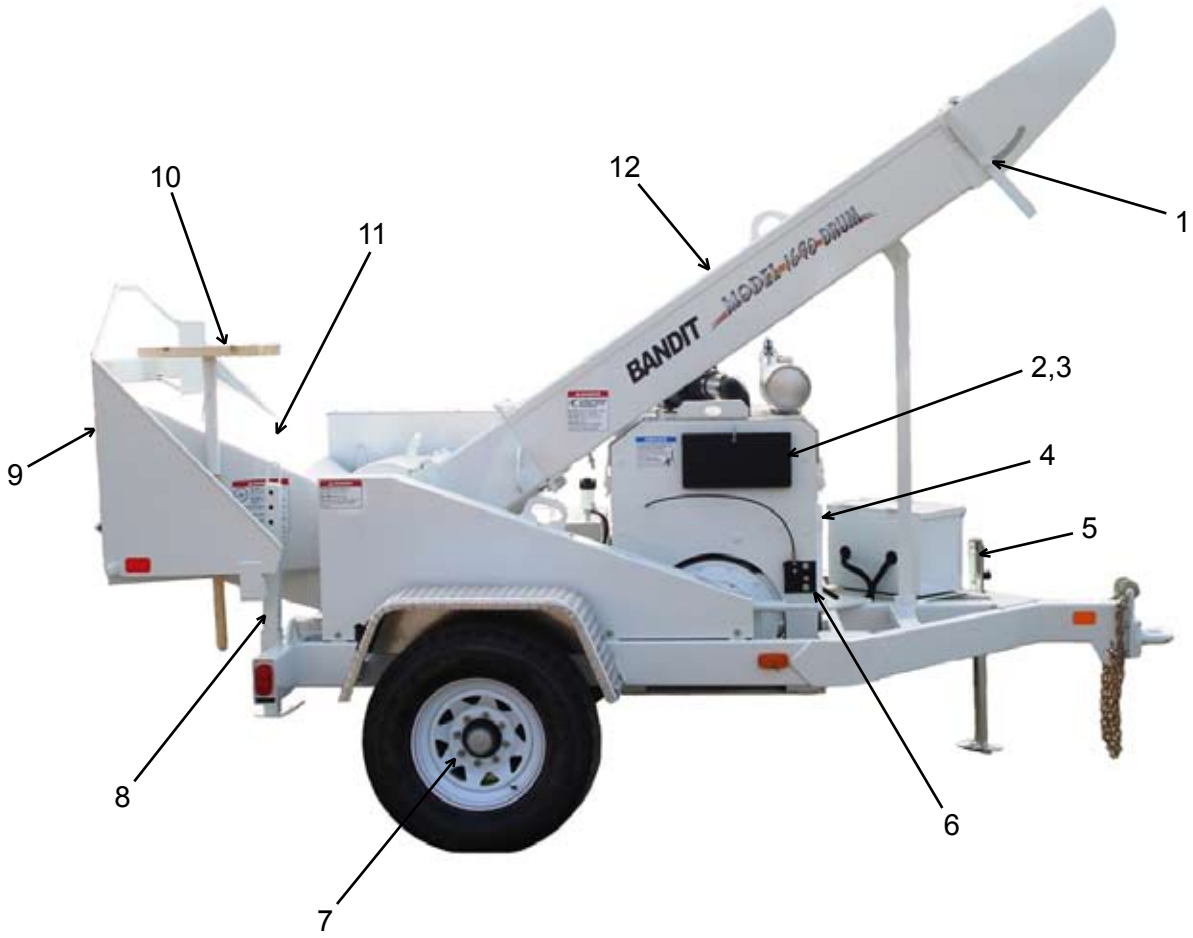
Models 1290/1690 Basic Location of Controls and Adjustments

LOCATION SHOWN

1. Discharge Flipper Adjuster
2. Engine Controls, Adjusters
3. Electric Engine Throttle Adjuster (if equipped)
4. Clutch Handle
5. Foot Pad Jack
6. “Bandit” Lever Throttle Adjuster (if equipped)
7. Lug Nuts
8. Rear Stabilizer
9. Folding Infeed Pan
10. Wooden Push Paddle
11. Infeed Hopper
12. Discharge Chute

NOT SHOWN

Knives & Hardware
Chipper Belts
Side Discharge Deflector
Flywheel Brake
Engine Shut Off Switch



CONSULT THE ENGINE MANUFACTURER'S MANUAL FOR SPECIFIC CONTROLS, OPERATION, & MAINTENANCE FOR TYPICAL ENGINES

1) **Ignition Switch:**
Turn the ignition switch key clockwise one stop (on position) to turn the electrical system on. The key should remain in the on position while the engine is running. Turn the key fully clockwise (start position) this will start the engine. To shut off the engine, return the key to the off position.

2) **On/Off Switch - Push Button Start:**
Some gasoline engines may have a Toggle Switch or an On/Off Switch combined with a push button to start the engine. First turn the On/Off Switch or Toggle Switch to the on position, then depress and hold the Push Button Start until the engine starts, then release the button. To shut off the engine, return the On/Off Switch or Toggle Switch to the off position.

3) **Ignition Switch With Preheat:**
The typical diesel engine may have a preheat system to assist in starting the engine during cold weather. To activate the preheat system, continue to hold the ignition key in the preheat position for 15 to 20 seconds, then attempt to start the engine. If the engine fails to start within 15 seconds, return the key to the preheat position, hold 10 seconds, and try starting again.

4) **Choke Adjustment (if equipped):**
Some gasoline engines may have a choke adjustment, pull the choke lever out to choke the engine. Push the choke lever in for normal engine operations.

5) **Throttle Adjustment (if equipped):**
Some engines may have a knob or a handle for the throttle adjustment. Typically you would pull the knob out, or turn the handle to increase the engine R.P.M.'s. To decrease you would push in the knob or turn the handle the opposite way.

6) **"Bandit" Lever Lock Cable Throttle System (if equipped):**
The Bandit throttle system has (2) positions, HIGH and LOW. Engine R.P.M. is controlled by moving the lever from one position to the other.

8) **Push Button Or Electric Throttle System (if equipped):**
Some engines may have a push button or electric throttle adjustment. Engine R.P.M. is controlled by pushing a button or switch to raise or lower the R.P.M.

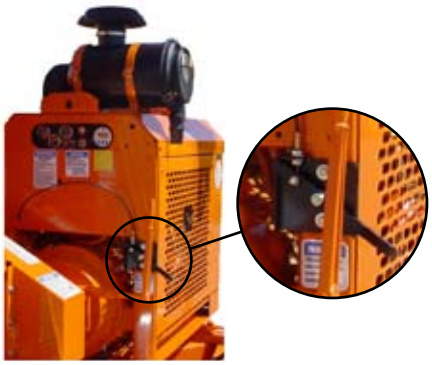
9) **Alternator Warning Light:**
This light will glow when the alternator is not charging, or when the ignition switch is turned on and the engine is not running.

10) **Oil Pressure Warning Light:**
This light will glow when the oil pressure is to low, or when the ignition switch is turned on and the engine is not running.

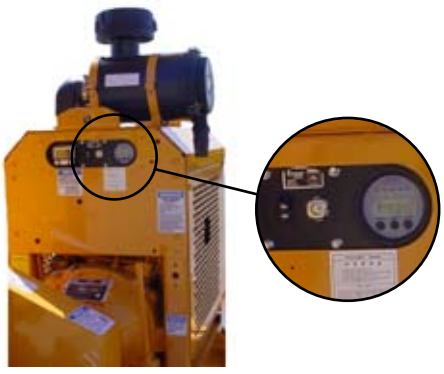
11) **Engine Temperature Warning Light:**
This light will glow when the engine, or engine coolant, is above normal operating temperature. If this occurs allow the engine temperature to cool down. If the engine is overheating because of a loss of coolant, or a broken fan belt, shut the engine off immediately.

TYPICAL DIESEL ENGINES

TYPICAL GASOLINE ENGINE



BANDIT THROTTLE SYSTEM



PUSH BUTTON OR ELECTRIC THROTTLE SYSTEM

ENGINE OPERATING SPEEDS

NOTICE

If your chipper is plugging, it is usually caused by allowing the engine to drop below required R.P.M.'s. Operating the engine at speeds lower than full R.P.M.'s causes your chipper to plug. **Always run the chipper at full engine speed.**

Some Current Engine Types	Maximum RPM
CAT 3054C / Perkins 1104C - 86 Hp	2500
CAT 3054C / Perkins 1104C - 115 Hp	2425
CAT C4.4 / Perkins 1104D - 97 Hp	2425
Perkins 804D - 84.5 Hp	2500
Cummins BT3.3 - 85 Hp	2500
Cummins B3.9 - 110 Hp	2500
Deutz - 66, 88 Hp	2800
John Deere 4045 - 80,100 Hp	2500
John Deere 4045 - 115 Hp	2500
John Deere 5030 - 75, 84 Hp	2800
Kubota V3300 - 73,90 Hp	2600
Kubota V3600T - 84.5 Hp	2600
Kubota V3800DIT - 99.2 Hp	2600
Some Prior Engine Types	
Ford 4 Cyl. - 70 Hp	2800
Ford 6 Cyl. - 119 Hp	2800
GM 3.0L - 76 Hp	2800
GM 4.3L - 135 Hp	2800
Hercules D2300 - 69 Hp	2500
Hercules G1600 - 57 Hp	2800
Hercules G2300 - 74 Hp	2800
Perkins 4.236 & 1000 Series	2500

Transportation Procedures

⚠ WARNING

BEFORE TRANSPORTING THE MACHINE THE FOLLOWING MUST BE COMPLETED.

1) Idle engine and disengage clutch.
2) Turn off engine, wait for the chipper drum to come to a complete stop and you must have the ignition key in your possession.
3) Remove all excess debris. Remove any wood or debris which may have collected.
4) Return wooden push paddle to the mount and secure for transportation. Store all tools in the tool box and make sure all boxes and cabinets are closed and secured.
5) Close the folding infeed pan for the infeed hopper and make sure the spring latch is locked into place.
6) Raise the front of the machine with the tongue jack and remove the stabilization blocks used.
7) Couple machine or transport trailer to transport vehicle by lowering the machine onto the hitch. Make sure the hitch matches the coupling size. Then secure hitch and lock it.
8) Place the tongue jack in the transport position.
9) Attach the safety chains by crossing them under hitch, make sure to allow the proper amount of slack in chains to avoid binding or dragging the ground when making turns.
10) Connect the brake breakaway cable (if equipped) and plug in the electrical connection for the lights on the machine or transport trailer.
11) Check running lights, turn signals, and brake lights. All must be operating properly before transporting the machine. Also check brakes (if equipped) to make sure they are operating correctly.
12) Check tires for correct pressure, cuts or damaged rims.
13) Check lug nuts and retorque if necessary. Check new units before operation, check again after 20-25 miles (32-40 km) and regularly check at least weekly.
14) Inspect and replace any axle dust caps that are damaged or leaking.
15) Check wheel bearings and grease or oil axles per axle manufacturer's manual.
16) Walk around the machine to confirm that everything is secure and that there is not anything loose that could fall off during transport. Look under machine to ensure nothing is dragging. Look down both sides of the machine for anything sticking out that may become damaged during transport.
17) If machine is equipped with a vise, make sure to secure in place and clamp jaws closed.
18) Close and secure any of the following, if equipped: engine cowl doors and side panels, radiator debris screens, inspection doors, housing covers, tanks caps and covers, etc.
19) The machine is now ready for transport. Make sure to obey all local regulations and laws regarding the transporting of this type of machine.
20) Do not drive too fast for road conditions or exceed speed regulations for equipment towing. Machine must be hauled level and the towing vehicle must be sized to handle hitch weight, towing weight, and braking requirements.

MAINTENANCE SECTION

The Bandit is a very simple machine to maintain. If you will follow a regular scheduled preventative maintenance program you should have years of trouble free operation.

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the drum to come to a complete stop, use extreme care and do not allow the chipper drum to turn, disconnect battery, and make sure the ignition key is in your possession.

⚠ DANGER

Do not let anyone operate or maintain this machine until they have thoroughly read this manual, reviewed the equipment decals, watched the equipment video, and has been properly trained. You can purchase additional Bandit manuals, decals and videos for a nominal fee.

NOTICE

Consult your engine manual for proper break-in procedures. Various engines require somewhat different procedures, but basically the engines need to operate at lower R.P.M.'s and loads for a specific time.

NOTICE

Failure to properly break-in your engine may result in poor bearing and piston ring surfaces.

NOTICE

The Bandit has only been run for a short time to test proper hydraulic pressures, possible leaks, etc. The fuel tank will be empty. Fuel is provided through a small auxiliary tank for testing. This immensely helps maintain safety in our manufacturing facility and while shipping.

NOTICE

Expensive damage to the Bandit will occur if proper preparation is not taken before welding on the machine. Be sure to disconnect both battery cables and the engine ECM (engine control module) before welding. Follow the specific Engine MFG. instructions for proper welding and grounding procedures, before attempting to weld on the machine. If welding on the machine, do not ground the welder through the machine bearings, ground near work to be performed.

DAILY START UP & MAINTENANCE

1) Check the safety decals and engine gauges:
Replace any missing or damaged decals and/or engine gauges.

2) Check all safety equipment:
Check for proper operation. Repair or replace as needed.

3) Check entire machine for loose bolts, nuts, parts, or components:
Check entire machine for any loose parts or components. Check for loose nuts or bolts. Torque, tighten, or replace any of the loose components. See page 23 for specific bolt torques.

4) Check all guards:
Check to make sure all guards are in place and installed correctly. Make sure they are secure.

5) Check chipper hood hinge:
Make sure the hood hinge operates correctly, and is lubricated. Must replace hinge if damaged.

6) Checking for foreign objects:
Before opening the hood make sure the clutch is disengaged, the engine off, battery is disconnected, and also make sure the ignition key is in your possession. Look for any foreign objects inside the chipper housing or in the knife pockets of the drum. Remove any foreign objects found.

DAILY START UP & MAINTENANCE (cont.)

7) Check chipper drum assembly:
Check the condition of knife wedge bolt threads, torqued bolts, excessive wear and impact cracks. If a problem is found contact the chipper manufacturer or an authorized Bandit dealer. Also check the chipper housing at this time. Check the chipper base, belly band, and hoods for wear or damage. Also inspect the chipper bearings.

8) Check chipper drum to turn:
Very carefully, manually with a pry bar or wood bar, turn the chipper drum a full revolution. This is to ensure the anvil and knives have proper clearance. If the chipper drum is jammed with debris or frozen in place, DO NOT attempt to start the engine and engage clutch until the chipper drum rotates freely.

9) Check the condition of your knives, knife wedge, anvil, floor plate and attaching hardware:
Grind, file, or replace your knives to keep them sharp. Check the knife wedge, anvil, floor plate, and all attaching hardware. Replace if necessary.

10) Properly torque the knife mounting hardware:
All knife mounting hardware must be factory approved. Knife mounting hardware must be replaced after maximum of 4-5 knife rotations/changes to insure safe clamping ability.

Torque set, AT ALL TIMES to:

See TORQUE CHART on page 23.

11) Chipper hood is closed and secured:
After closing chipper hood, reinstall and torque the chipper hood bolts.

12) Grease chipper bearings daily:
Use an EP-2 Lithium type grease only for chipper bearings. Purge chipper bearings with grease. You can not over grease these bearings. This type of bearing is designed with a relief system that will not allow over greasing. In other words, you can not hurt the bearing seals by pumping in too much grease. Most of the failures related to bearings are diagnosed as “Contamination”. Contamination is caused by improper lubrication. Wipe off excess grease. **Excessive grease will attract dirt.**

13) Check / adjust the chipper drive belt tension:
The belts will need to be tightened several times in the first few days of operation. A loose belt will slip and then glaze over. Once they slip you must replace them. See pages 28 - 29 for procedures.

14) Check blowers flexible air hose:
Check the blowers flexible air hose and replace if damaged or leaking.

15) Check for any fluid leaks:
Inspect for any oil, fuel, hydraulic oil, or engine coolant leaks. Check all hoses, fittings, lines, and tanks. DO NOT use fingers or skin to check for hydraulic leaks. Repair or replace any damaged or leaking components.

16) Check the fuel level:
Check the fuel level, running out and repriming is time consuming. Do not over fill, and you must leave fuel expansion space in the top of the tank.

17) Check engine oil and coolant level:
Follow the engine manufacturer manual recommendations for fluid levels. You MUST follow specific ENGINE MFG. manual recommendations for radiator coolant, additives, lubrication, correct engine speed, ETC.

18) Check radiator, debris screen:
Thoroughly clean radiator fins at least once a day and twice in excessive conditions. Make sure debris is not packed between fins. Use pressurized water spray to clean. Do not rely on air pressure. The radiator will only appear to be clean. A partially plugged radiator will not allow the engine to cool properly. Clean cooling fan, shroud on air cooled engines, and the debris screen (if so equipped). Improper service, maintenance, or neglect will cause overheating problems and engine failure.

19) Check air cleaner or precleaner:
Clean or replace element following engine manual recommendations. Also, check and clean the vacuator valve.

20) Check clutch:
Check for proper lubrication, and engagement tension adjustment, frequently adjust and lubricate per PTO clutch manufacturer’s manual. Bandit Industries, Inc. does not warranty clutch failures.

21) Check tires:
Check tires for wear, weather checking and damage. Replace if damaged.

22) Inspect axle dust caps:
Inspect axle dust caps and replace if damaged or leaking.

DAILY START UP & MAINTENANCE (cont.)

23) Check the infeed hopper and around machine:
Check in the infeed hopper for any foreign objects and around the entire machine for tools, cans, saws, etc. All tools not in use should be stored in a tool box.

24) Block the tires and tongue:
Before operation block the tires and tongue for stability. Do not rely on tongue jack for operational stabilization.

25) Check the discharge direction:
Make sure the discharge is pointed in a safe direction and bolted into place.

26) Review all safety procedures on decals, from manual, and from video.

27) Make sure all safety equipment is being worn:
Make sure you are wearing all of your safety equipment: hard hat, face shield, gloves, eye protection, ear protection, etc. per ANSI and OSHA standards.

28) Remember to check EVERYTHING on the checklist.

WEEKLY MAINTENANCE

1) Check anvil clearance, tightness, and wear:
Measure the anvil clearance. The clearance should be .028" (.7 mm) to .032" (.8 mm) from each knife. Check the anvil hardware, make sure the bolts are at the proper tightness. The anvil is a normal wear item, if it is worn you can rotate it to a new working edge. Refer to pages 34 - 36 for the exact checking of anvil clearance procedure.

2) Check alternator and fan belts on engine:
As applicable adjust and maintain per the engine manufacturer's manual.

3) Check wheel lug nuts:
Keep lug nuts tight, retorque, replace if needed.

4) Check and retighten tank mount bolts:
Check and retighten the fuel tank mount bolts.

5) Lubricate all steel friction areas:
Lubricate all steel friction areas including, but not limited to pivoting, hinged, sliding, rotating areas on the machine (i.e. folding pan, discharge flipper, etc.)

MONTHLY MAINTENANCE

1) Check towing hitch:
Check for excessive damage or wear. Replace if needed. Keep pintle ring greased to reduce wear.

2) Check discharge and infeed hopper wear:
Check for wear on discharge, infeed hopper, and discharge direction adjustor; build up, repair or replace as needed.

3) Check chipper bearings and chipper sheave:
Check, retighten all bearing bolts, bearing lock collars, and also belt sheave bushings to correct torques.

4) Check condition of flywheel and bushing:
Check the condition of flywheel and fan blades for secure welds, excessive wear and impact cracks. If a problem is found contact the chipper manufacturer or an authorized Bandit dealer. Also, check and / or retighten the flywheel bushing bolts to correct torque.

5) Tire air pressure:
Fill each tire to rated capacity on tire.

6) Check wheel bearings:
Check and grease or oil wheel bearings per axle manufacturer's instructions.

7) Check and adjust brakes (if equipped):
Check and adjust brakes as needed per axle MFG. manual.

8) Lubricate "Bandit" lever throttle cable:
If the machine is equipped with a "Bandit" lever throttle system, lubricate inner throttle cable and cable ends with a cable lube or SAE 10W/30 oil. Replace throttle cable if it doesn't operate smoothly.

BOLT TORQUE CHART

(THESE TORQUES ARE BASED ON DRY, CLEAN THREADS)

DESCRIPTION	BOLT SIZE	TORQUE (FT.-LBS.)	TORQUE (Nm)
Chipper Bearing	5/8" - 11 NC	180	245
Anvil / Cutter Bar	5/16" - 18 NC	15	20
Anvil Mount / Pressure Bar	3/4" - 10 NC	180	245
Floor Plate	5/16" - 24 NF	19	26
Knife Adjusting Set Screw	3/4" - 16 NF	4 - 5	5 - 7
Knife Wedge	1/2" - 13 NC	100 - 110	135 - 149
Chipper Base Hold Downs	5/8" - 11 NC	125	169
Engine Hold Downs	5/8" - 11 NC	125	169
Chipper Hood	1/2" - 13 NC	75	102
Drum Head Shaft Keyless Bushing		61	83
Flywheel Shaft Keyless Bushing		61	83
Engine Sheave Bushing "E"	1/2" - 13 NC	60	81
Chipper Sheave Bushing "E"	1/2" - 13 NC	60	81
Flywheel Sheave Bushing "F"	9/16" - 12 NC	75	102
Hitch Mount Bolts	5/8" - 11 NC	220	298

Before tightening bolts be sure you have the correct size bolt for the correct amount of torque.
Use only factory approved knives and hardware.

BASIC WHEEL TORQUE REQUIREMENTS (per mfg.)

KEEP LUG NUTS PROPERLY TIGHTENED, CHECK NEW UNIT BEFORE OPERATION, CHECK AGAIN AFTER 20-25 MILES (32-40 km) AND REGULARLY CHECK AT LEAST WEEKLY.

5 & 6 Lug Hubs (1/2" - 20 Studs) .....90 - 120 ft.-lbs. Torque (122 - 163 Nm)
8 Lug Hubs (1/2" - 20 Studs) .....90 - 120 ft.-lbs. Torque (122 - 163 Nm)
8 Lug Hubs (9/16" - 18 Studs) .....110 - 120 ft.-lbs. Torque (149 - 163 Nm)
8 Lug Hubs (5/8" - 18 Studs) .....190 - 210 ft.-lbs. Torque (258 - 285 Nm) (Cone Nut)
8 Lug Hubs (5/8" - 18 Studs) .....275 - 325 ft.-lbs. Torque (373 - 441 Nm) (Flange Nut)
10 Lug Hubs (3/4" - 16 Studs) .....450 - 500 ft.-lbs. Torque (610 - 678 Nm)
(Consult axle manufacturers manual shipped with each machine for specific axle-stud-wheel combination lug nut torques.)

DAILY START UP & MAINTENANCE CHECK LIST

Each day before starting your machine these checks must be made:

		O.K.	Repaired
1)	Check the safety decals and engine gauges, replace if damaged.	☐	☐
2)	Check, maintain, and service all safety equipment for proper operation: pusher tool, etc.	☐	☐
3)	Check entire machine for loose nuts, bolts, and components.	☐	☐
4)	Check all guards to make sure they are tight and securely in place.	☐	☐
5)	Make sure hood hinge operates correctly, is not damaged, and is lubricated.	☐	☐
6)	Open chipper hood and check for any foreign objects in chipper housing or knife pockets.	☐	☐
7)	Check the condition of chipper drum assembly.	☐	☐
8)	Carefully rotate the chipper drum with a pry bar or wood bar to insure proper anvil clearance. If chipper drum is jammed with debris or frozen in place, do not attempt to start engine and engage clutch until chipper drum rotates freely.	☐	☐
9)	Check the condition of your knives, knife wedge, anvil, floor plate, and attaching hardware.	☐	☐
10)	Properly torque knife mounting hardware.	☐	☐
11)	After closing and bolting the chipper hood, make sure the chipper hood is tight and secure.	☐	☐
12)	Grease chipper bearings (purge) daily.	☐	☐
13)	Check and/or adjust belt tension on chipper and hydraulic pump belt drives.	☐	☐
14)	Check blower flexible air hose for damage or leaks.	☐	☐
15)	Check all hoses, fittings, lines, and tanks for damage and fluid leaks.	☐	☐
16)	Check fuel level. (Running out and repriming is time consuming).	☐	☐
17)	Check engine oil, coolant levels, and correct engine speed. Follow ENGINE MANUFACTURER'S manual specs.	☐	☐
18)	Check radiator and debris screen. Clean as necessary. Clean cooling fan and shroud on air cooled engines.	☐	☐
19)	Check air cleaner, precleaner and vacuator valve. Clean as necessary.	☐	☐
20)	Check clutch for proper engagement tension and lubrication, frequently adjust and grease per PTO manufacturer's manual recommendations.	☐	☐
21)	Check condition of the tires.	☐	☐
22)	Inspect and replace any axle dust caps that are damaged or leaking.	☐	☐
23)	Check infeed hopper and around the entire machine for any foreign objects, tools, cans, saws, etc.	☐	☐
24)	Block tires and tongue for stability before operation. Do not rely on tongue jack.	☐	☐
25)	Make sure discharge is pointed in safe direction.	☐	☐
26)	Review all safety procedures on decals, from manual, and from video.	☐	☐
27)	Wear all applicable safety equipment: hard hat, face shield, gloves, eye protection, ear protection, etc.	☐	☐
28)	Remember to check EVERYTHING on the checklist.	☐	☐

WEEKLY CHECK LIST

		O.K.	Repaired
1)	Check anvil clearance, tightness, and wear.	☐	☐
2)	Check alternator and fan belts on engine.	☐	☐
3)	Check and retighten wheel lug nuts.	☐	☐
4)	Check and retighten fuel tank mount bolts.	☐	☐
5)	Lubricate steel friction areas: pivoting, hinged, sliding, & rotating areas (i.e. folding pan, discharge flipper, etc).	☐	☐

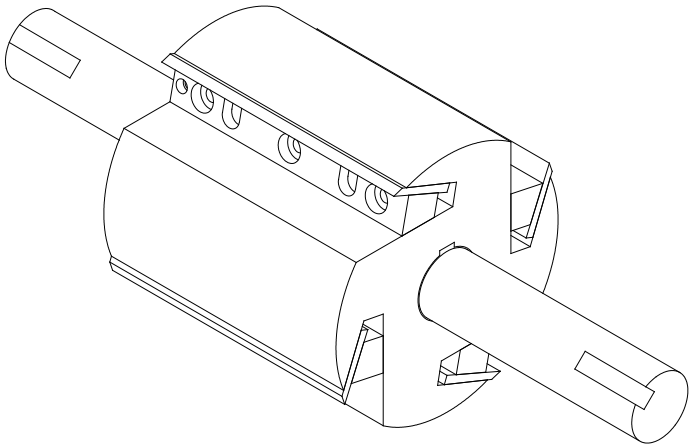
MONTHLY CHECK LIST

		O.K.	Repaired
1)	Check towing hitch for wear, keep pintle ring greased.	☐	☐
2)	Check discharge, and infeed hopper for wear.	☐	☐
3)	Check, retighten all bearing and chipper sheave bolts.	☐	☐
4)	Check the condition of flywheel and retighten bushing bolts.	☐	☐
5)	Check and fill tires to rated pressure.	☐	☐
6)	Check and grease or oil wheel bearings, follow axle MFG. instructions.	☐	☐
7)	Check and adjust brakes, follow axle MFG. instructions (if equipped).	☐	☐
8)	Lubricate “Bandit” lever throttle cable.	☐	☐

⚠ WARNING

WHEN YOU CHANGE CHIPPER KNIVES

CHECK CHIPPER DRUM ASSEMBLY FOR CONDITION OF KNIFE WEDGE BOLT THREADS, TORQUED BOLTS, EXCESSIVE WEAR AND IMPACT CRACKS. IF PROBLEM FOUND CONTACT CHIPPER MANUFACTURER, OR AUTHORIZED CHIPPER DEALER.



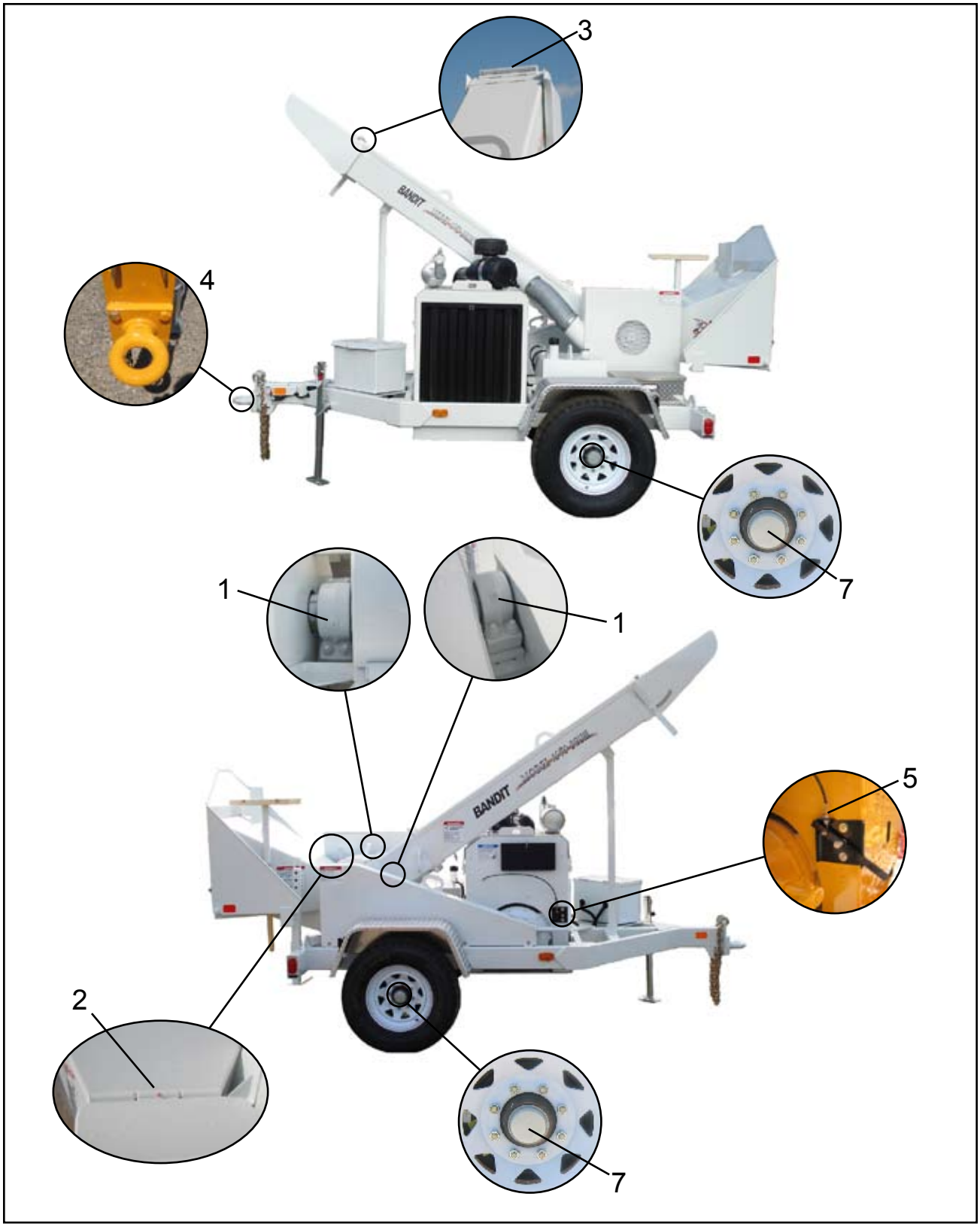
LUBRICATION CHART

		CHECK			
#	DESCRIPTION	DAY	WEEK	MONTH	PROCEDURE
1	Chipper Drum Bearings	X			Purge bearings daily - wipe off excess
2	Hood Hinge	X			1 to 2 shots of grease - wipe off excess
3	Steel Friction Areas: pivoting, hinged, sliding, rolling		X		Lubricate (i.e. discharge flipper, folding pan, etc)
4	Pintle Eye Ring			X	Grease to reduce wear
5	Bandit Throttle Cable			X	Lubricate inner cable & ends SAE 10W/30
6	Clutch	→			Grease per MFG's instructions
7	Wheel Bearings	→			Grease or oil per MFG's instructions

A right angle grease fitting may need to be used to grease some of the lubrication points. This type of grease fitting can be obtained from most local automotive parts stores.

NOTICE Use as a reference only, locations may vary depending on options or component manufacturer. Lubrication point instructions are described on the machine, in the Lubrication & Coolant Section and Maintenance Section of this manual, or component manufacturer's manual.

LUBRICATION CHART



NOTICE Use as a reference only, locations may vary depending on options or component manufacturer. Lubrication point instructions are described on the machine, in the Lubrication & Coolant Section and Maintenance Section of this manual, or component manufacturer's manual.

BELT TENSION

GENERAL RULES FOR TENSIONING

1. Check tensioning during the first 2 through 48 hours of run-in operation especially.
2. Over tensioning or under tensioning shortens belt and bearing life.
3. Keep belts free from foreign materials that may cause the belt to slip.
4. Make V-drive inspection on a periodic basis. Never use belt dressing as this will damage the belt and cause early failure.
5. Belts should never be forced over the sheave. Allow enough room for belts to slip on.
6. Always make sure sheaves are aligned properly.

TENSIONING PROCEDURE

Main Drive Belts

Follow all pre-maintenance shut down procedures. Locate the center of the belt span between the sheaves. Push or pull on the belt until the belt has deflected 11/16" (17.5 mm). Record the push or pull force. The force should be 21 to 22 lbs./belt (9.5 to 10 kg/belt). Adjust the belt tension if the force falls outside of this range. If belts are not properly adjusted belts will slip, glaze over, and be ruined. This is NOT covered by warranty.

1) Remove beltshield.
2) To adjust the belt tension, loosen the four chipper base mounting bolts (item 1) and then the jam nuts (item 2) on the base adjuster bolts.
3) Adjust the belt tension with the base adjuster bolts (item 3). Turn both adjuster bolts an equal amount.
4) Check the alignment of the engine sheave and chipper sheave with a string or straight edge. If needed, align the sheaves with the base adjuster bolts.
5) Torque the four chipper base mounting bolts (see Torque Chart for the correct torque).
6) Recheck the belt tension and alignment, if readjustment is needed go back to step 2.
7) Reinstall beltshield.

NOTICE lbs./belt (kg/belt) is per 1 belt. If equipped with 4 groove poly band belt, lbs./belt (kg/belt) must be multiplied by 4. If equipped with two 3 groove poly band belts, lbs./belt (kg/belt) must be multiplied by 3 for each poly band belt.

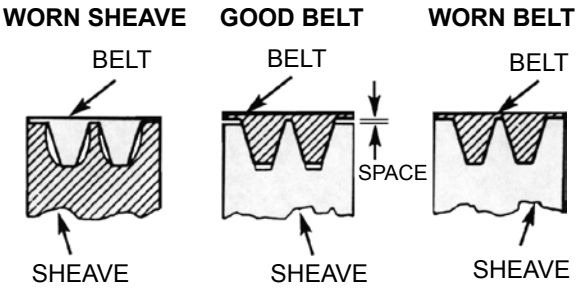
NOTICE It is a good practice to rotate the belts during tensioning. Then recheck deflections. The belts may need to be tightened again.

DO NOT IGNORE THIS MAINTENANCE RULE!

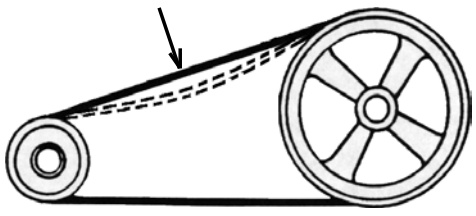
New belts stretch very soon and must be adjusted several times in the first few hours of operation. Adjust after one hour of operation, then every four hours until the belts quit stretching.

Failure to do this will cause the belts to burn and fly off. **THIS FAILURE IS NOT COVERED BY WARRANTY!**

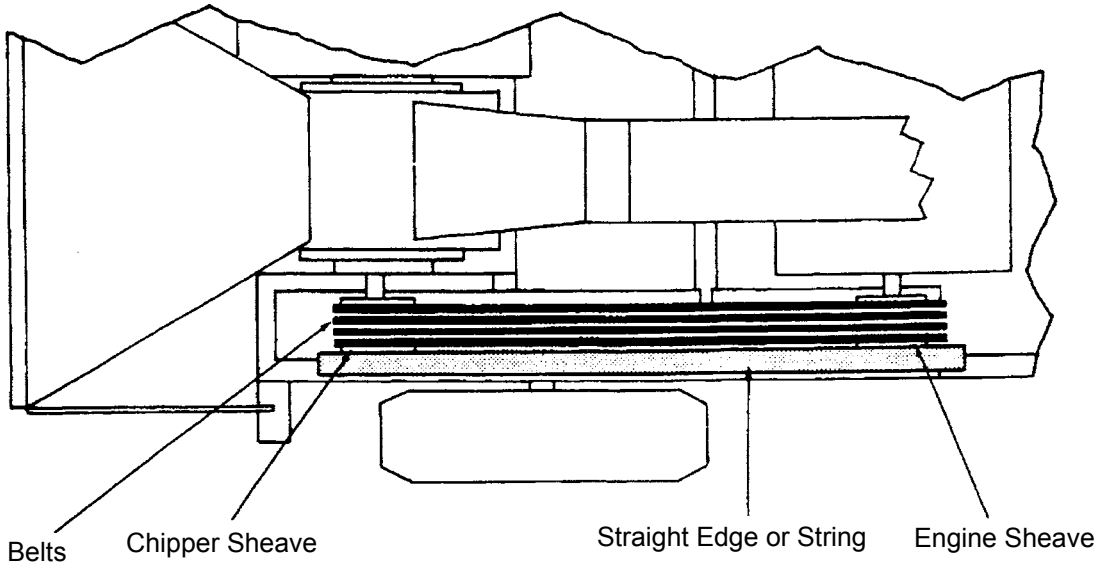
Worn or misaligned belts and sheaves in the power train causes belt slippage, thus power loss. Keep the power train working for you, not against you, by checking for needed adjustment or replacement.

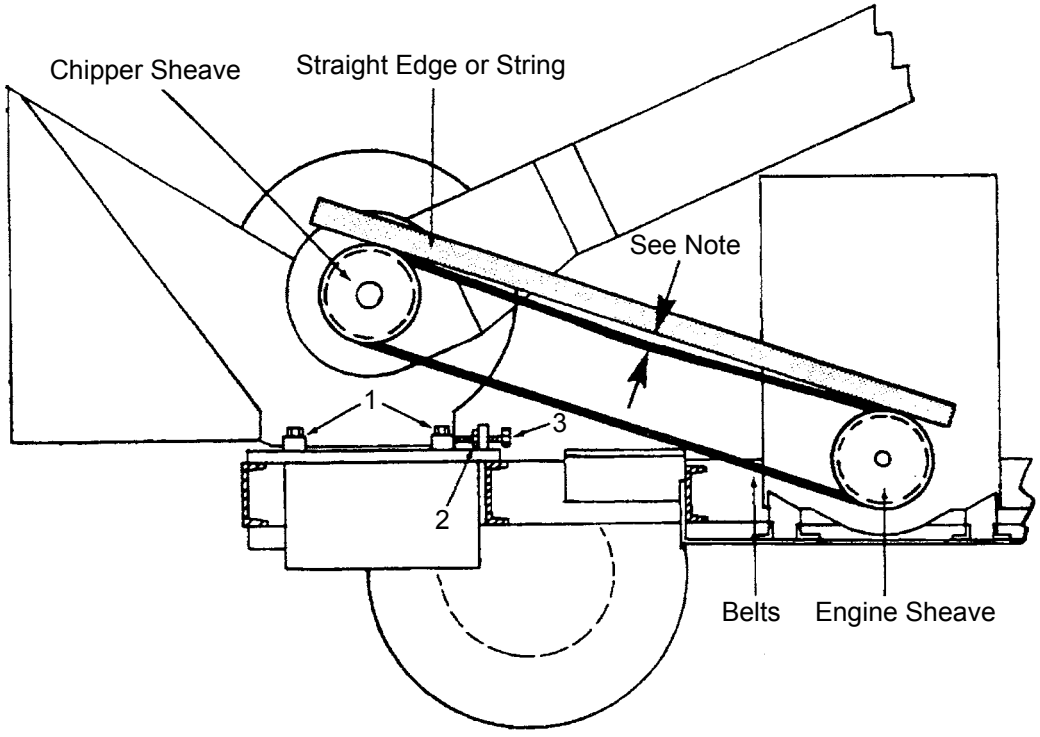


Main Drive belts maximum of 11/16" deflection with 21 to 22 lbs. of force.



BELT TENSION





Note: 11/16” (17.5 mm) deflection at 21-22 lbs. (9.5 - 10 kg) per belt.

MAINTENANCE

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. Operating the engine at speeds lower than full R.P.M.'s causes your chipper to plug. **Always run the chipper at full engine speed.** 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. Before attempting any type of maintenance disengage clutch, turn off engine, wait for the drum to come to a complete stop, use extreme care and do not allow the chipper drum to turn, disconnect battery, and make sure the ignition key is in your possession.

2. Make sure the chipper drum is **NOT** turning and then unbolt and open the hinged portion of the chipper hood.

3. Using gloved hands and some type of raking tool, dig the chips out of the chipper housing.

4. If the discharge chute is plugged, use a raking tool to pull the majority of chips out of the open outlet end of the chute. Then, two people must remove the chute. Do not attempt this with one person, because the chute can fall causing injury. If used properly, a hoist can be used to assist in the removal of the chute.

5. Never allow one person to turn the chipper drum when someone else is working inside the chipper housing. More than likely, the chipper drum will turn hard then loosen causing it to turn faster. If another person is anywhere near the chipper drum, they may be injured.

6. Never turn the chipper drum by hand. Always use a pry bar or wood bar. This will prevent the person turning the drum from being injured should the drum break loose.

7. Reinstall the discharge chute, mount securely and point it in a safe direction away from anything.

8. Never leave the chipper hood open and try to start the engine in order to engage the chipper drum 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 chipper drum turning very fast 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 drum turns freely, close the chipper hood and secure it, start engine, properly engage clutch and throttle to full speed. Insert a small branch into the chipper drum. If the chips discharge properly, the chipper is clear and normal operation may resume.

PAINT CARE

To help keep up the appearance of your Bandit Equipment and reduce the possibility of surface rust follow these steps:

1) The machine should be washed on a regular basis with a non-abrasive mild detergent and then rinsed thoroughly. Do not pressure wash sensitive areas like: decals, gauges, electronic devices, autofeed control, etc.
2) If a stone chip, paint scratch, or paint crack occurs - it should be repaired immediately. Simply sand the edges of the damaged paint area, mask off the surrounding area and apply primer and paint to the dry, clean, and warm surface. This will help keep the damaged area from spreading or getting worse.
3) If you are unable to sand and mask the area, there are containers of primer and paint available. A small brush can be used to touch up the area.
4) Also, primer and most colors of paint are available in aerosol spray cans to simply spray over the effected area after it is cleaned, dry, and warmed. This method is not as reliable as the process in step #2.

It is also reported that some equipment owners polish their machine at least yearly, and keep good mud flaps on their towing trucks.

TIRE WEAR DIAGNOSTIC CHART

Wear Pattern		Cause	Action
	Center Wear	Over Inflation	Adjust pressure to particular load per tire catalog
	Edge Wear	Under Inflation	Adjust pressure to particular load per tire catalog
	Side Wear	Not Hauling Trailer Level Bent Axles Wide Tires Wheel Bearings	Must be hauled parallel to ground Replace as needed Characteristic of wide flotation tires Adjust or replace
	Cupping	Out-Of-Balance Wheel Bearings	Check bearing adjustment and balance tires Adjust or replace
	Flat Spots	Wheel Lock Up & Tire Skidding	Avoid sudden stops when possible and adjust brakes.

The wear pattern and tread life of tires involves many variables that the user has control of, but DOES NOT fall under faulty manufacture or design.

The following is a list of some causes supplied by tire suppliers and axle manufacturers:

- Misalignment - from rough roads, pot holes, excessive speeds and hitting curbs.
- Tire Width - the wider the tire for flotation, the more uneven the tire wear.
- Tire Air Pressure - to much or too little, for the load.
- Vehicle Hitch Height - if trailer is not level with ground, axle camber is misaligned.
- Maintenance - wheel bearing lubrication and adjustment. Follow axle MFG. instructions.
- Brakes - uneven or misadjusted brakes cause irregular brake activation.

RECOMMENDED BRAKE ADJUSTMENT PROCEDURE PER AXLE MANUFACTURER.

The proper clearance between the shoe and drum surfaces will be set up initially from our factory to assure proper operation during the normal break in period. No further adjustment will be necessary until the vehicle completes the recommended break in period of 200 miles (322 km).

Since all brakes of this type must be burnished or ”run in” before their full effectiveness can be achieved, the MFG. maintenance manuals call for readjustment after the first 200 miles (322 km) of operation. This usually allows ample time for the burnishing to take place. Readjustments are not necessary for brakes fitted with self-adjustment features although periodic inspection is suggested.

The following shows the correct adjustment for the MFG. brakes of 12 1/4” diameter.

NOTICE Clearances that are too small will result in excessive drag and overheating while too much clearance can render the brake nonfunctional.

AXLE SIZE	SIZE	TYPE	DIAMETRAL CLEARANCE	CLICKS TO BACK OFF
7000 LBS.	12 1/4” X 2.5”	Elec. or Hyd.	.040” (1 mm)	7 TO 13

For additional brake adjustment procedures consult the axle manufacturer manual.

LUBRICATION & COOLANT

1) Engine:
Follow original equipment manufacturer's requirements for both changing oils and filters, refer to engine manual specifications.

2) Engine Coolant:
Refer to engine manufacturer's manual specifications.

3) Clutch:
Follow original equipment manufacturer's requirements for both greasing and adjusting. Frequently, adjust and lubricate per PTO manufacturer's manual.

4) Wheel Bearings:
Follow axle manufacturer's instructions for greasing or oiling wheel bearings.

5) Hood Hinge:
Make sure the hood hinge operates correctly, and is lubricated daily. Must replace hinge if damaged.

6) Steel Friction Areas:
Lubricate all steel friction areas including, but not limited to pivoting, hinged, sliding, and rotating areas weekly. (i.e. folding pan, discharge flipper, etc.)

7) Pintle Eye Ring:
Keep greased monthly to reduce wear and extend the normal life of your pintle eye ring.

8) Chipper Bearings:
Use an EP-2 Lithium type grease only for all bearings. Purge chipper bearings daily with grease you can not over grease these bearings. The bearings are designed with a relief system that will not allow over greasing. In other words, you can not hurt the bearing seals by pumping in too much grease. Wipe off excess grease. **Excessive grease will attract dirt.**

Most of the failures related to bearings are diagnosed as "Contamination". Contamination is caused by improper lubrication.

Especially important is proper lubrication when the chipper is setting idle. The bearings must be fully purged when shut down. Then the bearings must be again fully purged each thirty (30) days and the machine allowed to run for approximately 10 minutes. Then fully purged again before the machine is put back into operation. Failure to do this will ruin the bearings. Bearings corrode when the machine is setting idle.

The second largest cause of bearing failure is operating them at high speeds when the grease is cold. This causes the bearing race to turn on the shaft. Naturally this ruins the bearing as well as the shaft. Allow the bearings to turn at slower speeds for at least five minutes. Also check the bearing lock collar set screws or bearing locknut for tightness each 30 days. Loose set screws or locknut allows the race to turn on the shaft. Failed bearings diagnosed as contamination or cold starts at high speed are not covered by warranty of the bearing manufacturer.

9) "Bandit Lever Throttle Cable (if equipped):
If the machine is equipped with a "Bandit" lever throttle system, lubricate inner throttle cable and cable ends with a cable lube or SAE 10W/30 oil every month. Replace throttle cable if it doesn't operate smoothly.

CHIPPER KNIVES & ANVIL

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the drum to come to a complete stop, use extreme care and do not allow the chipper drum to turn, disconnect battery, and make sure the ignition key is in your possession.

⚠ DANGER

DO NOT remove the hood bolts until the chipper drum has came to a complete stop. The chipper drum will coast for several minutes after the engine is shut down. Always wait at least several minutes. DO NOT operate the machine with the chipper hood open under any circumstances.

⚠ DANGER

Never turn the chipper drum by hand, always carefully use a pry bar or wood bar. This will help prevent the person turning the drum from being injured should the drum break loose.

A sight hole in the chipper belt shield has been provided. If chipper belts are moving do not open chipper hood. Do not stick fingers in sight hole.

⚠ DANGER

Do Not under any circumstance attempt to rotate the chipper drum while someone is inside the infeed hopper. They may become seriously injured, Do Not Do This!

⚠ WARNING

The drum head is equipped with heavy duty 3/8" (9.5 mm) thick single edge chipper knives. These knives must be kept sharp. Never allow the knives to wear beyond the absolute minimum of 2 3/8" (60.3 mm) from the edges of the knife.

⚠ DANGER

Chipper knives are sharp and can be dangerous. It is always necessary for your protection to be extra careful and wear proper hand protection when handling knives.

⚠ DANGER

The knives must be securely fastened and torqued in position. If one comes loose or breaks during operation, someone or something may get injured.

⚠ WARNING

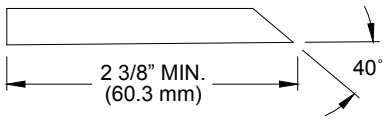
Failure to clean the wedge bar and drum recess thoroughly can prevent proper seating of the wedge bar and knife in the recess. Gap setting will be difficult to obtain and knives can become loose in operation. A loose knife can result in violent discharge through the discharge chute or kick back from the infeed hopper. Equipment damage and/or serious injury to personnel can result.

⚠ WARNING

Knives should be replaced in sets. These sets are determined by the amount of resharpening done to the knives. It should be reinstalled with another knife of comparable usage. It helps to keep the drum balanced, and it helps maintain chip quality.

NEVER allow these knives to wear beyond absolute specified minimum distance.

3/8" x 3" (9.5 mm x 76.2 mm) Chipper Knife
Models 1290 / 1690



Prior to work on the chipper knives or anvil, perform the following.

1. Before attempting any type of maintenance disengage clutch, turn off engine, wait for drum to come to a complete stop, use extreme care and do not allow the chipper drum to turn, disconnect battery, and make sure the ignition key is in your possession.
2. Disconnect the flexible air hose that connects the discharge chute with the rotor fan housing.
3. Remove the bolts that fasten the discharge chute to the hinged discharge transition. Slide the exhaust chute forward to clear the exhaust transition.
4. Remove the bolts that secure the drum cover and discharge transition to the drum housing.
5. Pivot the drum cover backwards and the discharge transition forward.
6. Visually inspect the knives and anvil for sharpness of cutting edges to determine if rotation of anvil or replacement of knives is required.
7. The anvil to knife clearance should be checked on a weekly basis or as knives are changed. To check the anvil clearance the pre-maintenance shut down procedures must be taken. Once all safety procedures are completed the anvil to knife clearance can be checked.

FLOOR PLATE & ANVIL

FLOOR PLATE

1. Refer to Figure 1 on page 35, item 11. The floor plate is secured by item 2. To replace, remove the bolts from item 11, remove the floor plate and install a new one. Pull towards the infeed hopper then tighten bolts to specified torque.

ANVIL AND KNIVES

A chipper with a dull anvil or knives which will not self feed or chip properly requires attention. To maintain, remove the knives and anvil, replace with new or reground knives, rotate or replace the anvil and adjust the clearance.

1. Check the condition of the knives.
2. Grind or file knives, rotate the anvil to an unused edge and adjust the clearance.
3. Remove the knives and anvil, replace with new or reground knives, rotate or replace the anvil, and adjust the clearance.

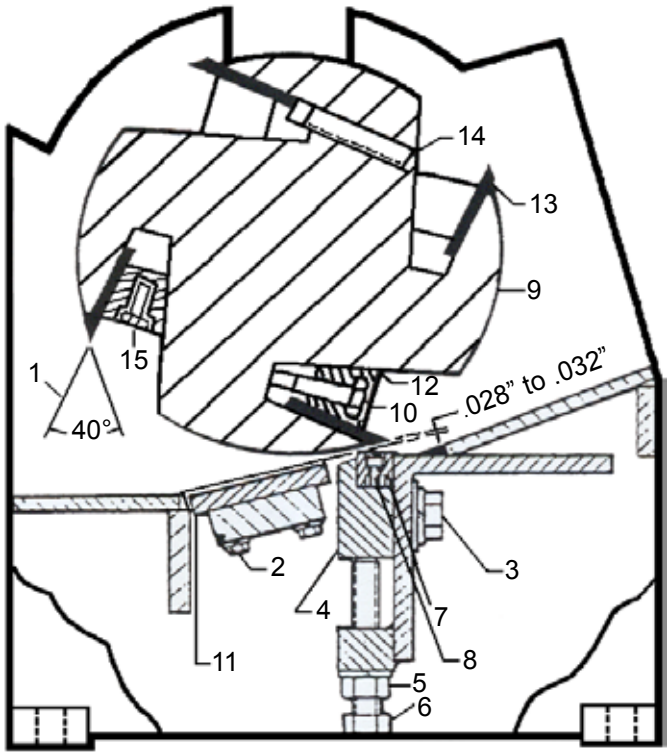
ANVIL ROTATION

The anvil or cutter bar has four (4) cutting edges. If the anvil is dull, a sharp edge can be rotated into position by:

1. Refer to Figure 1 on page 35. Use a socket wrench to remove the hex head bolts, item 3, which bolt through the channel into the anvil mount/pressure bar, item 4. Do not use adjustable wrenches, the hex head of the bolt can be rounded, limiting the useful life of the bolts.
2. Loosen the jam nuts, item 5, on the underside of the anvil mount/pressure bar and back out the adjusting bolts, item 6, a fraction of a turn. Put on a pair of gloves to protect your hands from sharp edges. Reach under and behind the anvil mount/pressure bar, hold the anvil mount/pressure bar with one hand and keep it from falling. Continue loosening the adjusting bolts until the anvil mount/pressure bar can be removed.
3. Clean the anvil mount/pressure bar and anvil, item 4 and item 7, of accumulated sap and chip dust, being careful of the sharp edges.
4. Remove the anvil bolts, item 8, rotate the anvil to place a sharp edge in the cutting position. Replace bolts, item 8, and return the anvil mount/pressure bar to its normal location behind the channel assembly, using the reverse of the procedure described above. Thread the locking bolts, item 3, through the channel into the anvil mount/pressure bar and snug the bolts up, do not tighten.
5. Adjust the height of the anvil so the cutting edge is approximately .028” - .032” (.7 - .8 mm) from the knife edges. (Clearance must be checked on all four of the cutting knives.)

   Center the anvil mount/pressure bar end to end with respect to the drum. When properly positioned, tighten the locking bolts, item 3, and recheck the height to ensure it did not move during the bolt tightening operation. Tighten the jam nut, item 5, on adjusting bolts and check the gap again. Readjust if necessary.
6. Check anvil to knife clearance and adjust if necessary. See “Changing Chipper Knives”.

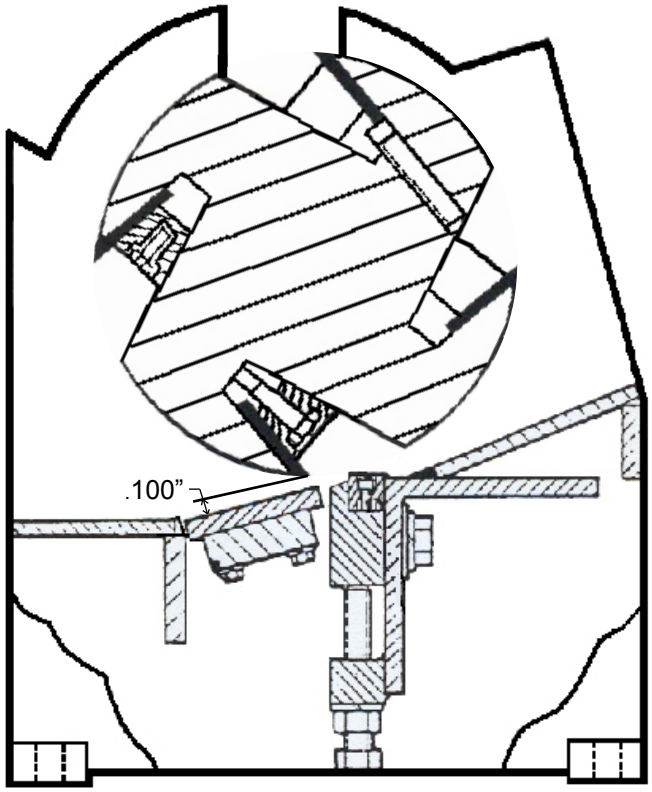
Figure 1



1. Knife Angle
2. Floor Plate Bolt
3. Bolt For Anvil Mount / Pressure Bar
4. Anvil Mount / Pressure Bar
5. Jam Nut
6. Adjusting Bolt
7. Anvil / Cutter Bar
8. Anvil Bolt
9. Drum / Cutter Head
10. Wedge Bar Bolt
11. Floor Plate
12. Wedge Bar
13. Knife
14. Knife Adjusting Studs
15. Plug For Wedge Puller Hole

16 Wedge Puller Bolt (Not Shown)

Figure 2



Approximately .100" (2.5mm) Floor Plate Gap For Setting First Knife When Replacing Knives And Anvil.

CHANGING CHIPPER KNIVES (PRE S/N 1042)

If the chipper knives are dull, they must be removed and replaced with knives which have been reground or replaced with new knives. See “Knife Grinding and Filing” for grinding instructions on page 40 and refer to Figure 1 on page 35.

1. With the drum assembly exposed, remove the knives at the front of the drum first (the knife closest to you). Changing the chipper knives is a two person job. One person, using a wooden block, holds the chipper knife in place while the other person removes the wedge bar bolts, item 10.

2. Remove item 15 from the wedge bar. Thread item 16 into wedge and tighten until the wedge loosens.

3. Put on a pair of gloves to protect your hands from sharp edges. Remove the wedge bar and knife, items 12 and 13, from the drum, handling both with care. Remove the bolt from the wedge bar. Clean the wedge bar of accumulated sap and chip dust and remove any burrs or raised areas on its surface using a fine file or emery cloth. Clean the inside of the drum recess from which the knife and wedge bar were removed. Check for excessive wear, impact cracks, and elongated bolt holes. If a problem is found, contact your local dealer or Bandit Industries.

4. Remove the two knife adjusting studs, item 14, from the bottom of the recess in the drum and coat them with Never-Seez or comparable anti-seize lubricant before reinstalling them.

5. Place a sharp knife, item 13, into the drum with its cutting edge positioned as shown in Figure 1 on page 34. Allow the bottom edge of the knife to rest on the two adjusting studs. Center the knife end to end in the recess. Insert the wedge bar behind the knife. Insert the wedge bar bolts into their proper holes and tighten snug (tight enough to keep the knife from falling out when drum is turned).

6. If replacing the chipper knives only, skip to step 7. If the anvil and knives are being replaced, adjust the first knife to a gap of approximately .100” (2.5 mm) from the floor plate as shown in Figure 2 on page 34. Then set the anvil to a gap of approximately .032” (.8 mm) from the first knife. Skip to step 7 for the rest of the knives. Do Not under any circumstance attempt to rotate the chipper drum while someone is inside the infeed hopper. They may become seriously injured, Do Not Do This!

7. Align the knife’s cutting edge and the anvil’s cutting edge. Use a .032” (.8 mm) thick metal shim for initial setting of the gap between these two cutting edges. Determine a rough estimate of the gap, then return the drum to its former position. Do Not under any circumstance attempt to rotate the chipper drum while someone is inside the infeed hopper. They may become seriously injured, Do Not Do This! Final tightening of the knife adjusting studs will reduce the setting to the secured .028” - .032” (.7 - .8 mm) gap.

8. With the knife adjusting studs adjusted in accordance with step 5, initial gap between the cutting edges should be greater than .032” (.8 mm). The object of the adjusting procedure is to reduce the gap to a uniform .028” - .032” (.7 - .8 mm) across the full width of the drum. The gap is reduced by turning the adjusting studs clockwise, from the underneath the knife, driving the knife out of the recess. Each complete turn of the adjusting studs will raise the knife .062” (1.6 mm). As the knives are raised they will tend to become more tightly wedged into the drum because of their tapered shape. If the gap must be decreased significantly from its original measurement, it may be necessary to loosen the wedge bar bolts, and the wedge bar, one or more times during the adjusting procedure.

If the adjusting studs are turned too far, producing a gap which is less than .028” (.7 mm), they must be backed out an appropriate distance, the wedge bar loosened, and the knife driven back with a soft mallet or hammer and block of wood until it once more makes firm contact with adjusting studs. The knife can then be raised to the correct height.

9. After each knife height adjustment, turn the drum and measure the gap, then return the drum to its former position. Repeat the procedure until a .032” (.8 mm) gap is obtained across the full width of the drum.

10. Confirm that the knife is centered in the drum, tighten the dry wedge bar bolts with a torque wrench to 100 - 110 ft.-lbs. (135 - 149 Nm). Hit the wedge bar with a heavy mallet in the area of the wedge bar bolts to seat the wedge bar. Repeat this cycle three times. Tighten the wedge bar bolts and then hit the wedge bar with the mallet. This insures solid seating to the wedge bar and will stabilize the knife gap. Torque the knife adjusting studs, item 14, to 4 - 5 ft-lbs. (5 - 7 Nm) against the bottom of the knife which will reduce the gap to the final .028” - .032” (.7 - .8 mm) gap.

11. Repeat steps 1 through 9 for each of the other three knives.

12. When all four knives have been adjusted, confirm the following:

A. All four gaps are a uniform .028” - .032” (.7 - .8 mm) across the full width of the drum.

B. All wedge bar bolts in each wedge bar are tightened to 100 - 110 ft.-lbs. (135 - 149 Nm). (Bolts Must Be Dry).

C. All knife adjusting studs are tight against the bottoms of their respective knives with 4 - 5 ft-lbs. (5 - 7 Nm) of torque.

D. The drum can turn freely without any interference between the knives and anvil or knives and drum housing.

13. Pivot the discharge transition up to its normal position. Close the chipper hood back to its normal position and reinstall the three (3) bolts. Reinstall the discharge chute and blower hose.

14. Start the engine, engage the clutch and allow the cutter head to rotate at full RPM for 3 to 5 minutes. Then stop the engine and remove the ignition key. When the chipper drum has come to a complete stop, open the hood up and repeat step 12 above. Remake any adjustments that may have changed during the test turn.

CHANGING CHIPPER KNIVES (STARTING S/N 1042)

Only Bandit knives, wedges, and hardware are recommended for use in your Bandit chippers. Only then can you be assured of a quality product that fits and performs the best to the standards of excellence that is expected from the Bandit chipper.

⚠ DANGER

Chipper knives are sharp and can be dangerous. It is always necessary for your protection to be extra careful and wear proper hand protection when handling knives. Before changing knives make sure all shut down procedures are followed.

1. If the machine is S/N 1042 or after or the old knives (knives adjusted with studs in the drum head) are replaced with knives with set screws (see Figure 3), follow all pre-maintenance shut down procedures.
2. Before attempting any type of maintenance disengage clutch, turn off engine, wait for drum to come to a complete stop, use extreme care and do not allow the chipper drum to turn, disconnect battery, and make sure the ignition key is in your possession.
3. Disconnect the blower hose that connects the discharge chute with the rotor fan housing.
4. Remove the bolts that fasten the discharge chute to the hinged discharge transition. Slide the exhaust chute forward to clear the exhaust transition.
5. Remove the bolts that secure the drum cover and discharge transition to the drum housing.
6. Pivot the drum cover backwards and the discharge transition forward.
7. Carefully rotate the drum head with a pry bar or wood bar until one pocket is facing up and engage the clutch to keep the drum head from rotating.
8. Remove the chipper knife wedge from the knife pocket (see Figure 1).
9. If installing chipper knives with set screws (see Figure 3), insert the knife gauge (see Figure 2) into the pocket of the drum head until the bottom of the gauge is flush on the bottom of the pocket. Slide the knife stop down until it touches the knife tip, tighten the knife stop bolt, and remove the gauge from the head (see Figure 4). The knife adjustment set screws may have to be fine tuned, depending on the condition of the knife the knife gauge was set to. If the knife gauge was preset from Bandit, skip to the next step.
10. If equipped, adjust the knife adjustment studs until they are flush with the bottom of your pocket (see Figure 5). The knife adjustment studs are no longer needed to set the knife. If the drum head does not have the knife adjustment studs, go to the next step.
11. Remove the old knife.
12. Clean the knife wedge bar and knife pocket.
13. With the setting on the knife gauge, the new knife can be set. Place the knife tip of the new knife against the knife stop of the gauge, apply Loc-Tite 241 (blue), and adjust the knife set screws until they are flush the bottom of the knife gauge (see Figure 6).
14. Install the new knife and the knife wedge. Torque the knife wedge bolts to 100-110 ft.-lbs. (135-149 Nm).
15. Check the knife to anvil clearance to be .028” to .032” (.7 to .8 mm). If the clearance is not within those measurements, adjust the knife set screws so that it is.
16. Repeat steps 7 through 15 for each knife pocket.
17. Once all the knives have been adjusted, confirm the following:
    A. All the knives have a clearance of .028” to .032” (.7 to .8 mm) to the anvil.
    B. All knife wedge bar bolts are torqued to 100-110 ft.-lbs. (135-149 Nm).
    C. The drum can turn freely without any interference between the knives and anvil or knives and drum housing.
18. Pivot the discharge transition up to its operating position. Close the chipper hood to its closed position and install and torque the bolts. Install the discharge chute and air hose.
19. Start the engine, engage the clutch, and allow the drum head to rotate at full RPM for 3 to 5 minutes. Then disengage the clutch, turn off the engine and remove the ignition key so that it is your possession. After the drum head has come to a complete stop, open the chipper hood and repeat step 17. Make any adjustments that may have changed during the test turn.

Figure 1

Figure 2

Figure 3

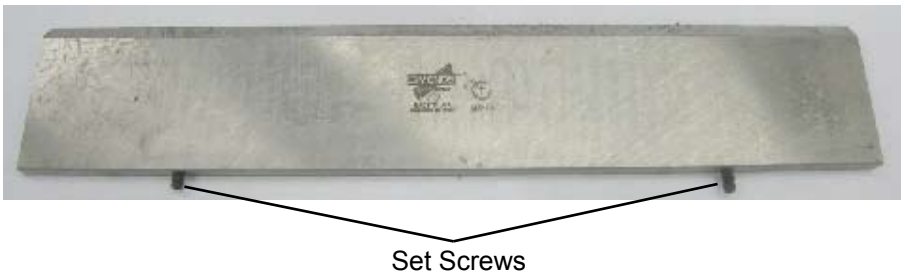


Figure 4

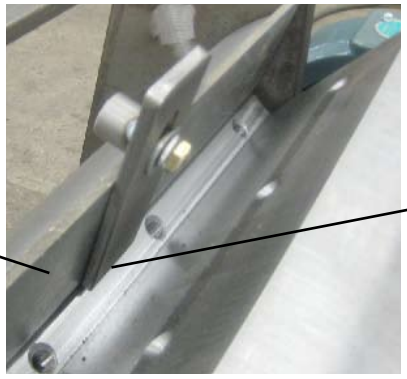


Figure 5

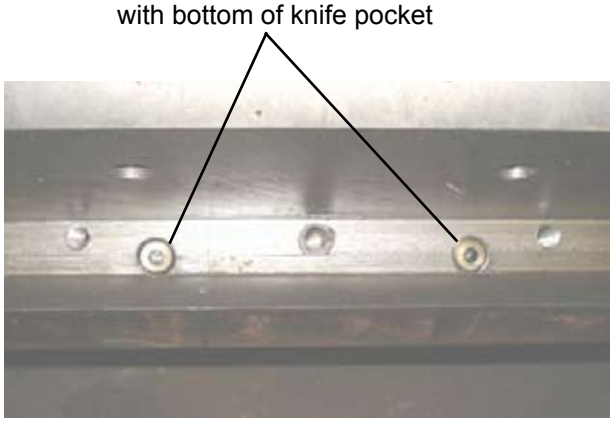
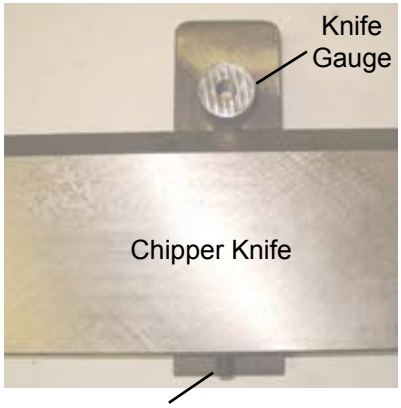


Figure 6



KNIFE GRINDING AND FILING

Only Bandit knives, wedges, and hardware are recommended for use in your Bandit chippers. Only then can you be assured of a quality product that fits and performs the best to the standards of excellence that is expected from the Bandit chipper.

Chipper knives MUST be kept sharp at all times for the ultimate chipper and knife performance. The main cause of poor cutting performance is dull knives.

Dull Knives Cause:

- Excessive waste of engine horsepower
- Bad quality chips; chunks, slivers, etc.
- Excessive strain on knives and mounting hardware
- Excessive strain on chipper drum bearings and total machine
- Excessive chipping vibration damaging the machine
- Excessive strain on drives, PTO's, engines, etc.
- Increase the probability of the discharge plugging and decreases the throwing distance
- Loss of time and money

The Dulling Of Chipper Knives Is Caused By:

- Poor quality knives
- Improper anvil / cutter bar to knife clearance
- Force feeding wood faster than chipper will accept
- Dirt, grit, or foreign material on the wood
- Chipper knives ground at wrong angle
- Improper care of knives and knife hardware

These are just a few factors, there are other situations that can lead to the dulling of chipper knives.

NOTICE

Many times a chipper knives cutting edge/point can be brought back to a good edge with a #10 Flat Bastard Mill File. This can reduce the amount of regrinding.

Typical Knife Grinding Angles:
Knives = 40° Angle

Knives should be replaced in sets. These sets are determined by the amount of resharpening done to the knives (knife width). Regrinding knives reduces the width of the knife. Knife replacement should be done in sets of the same width knives. That will reduce chipping vibration and increase chipping performance.

NOTICE

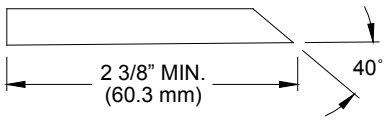
- Keep knives sharp.
- Keep knife angle correct when grinding.
- Do not over grind so knife is narrower than allowed width, or you will pack wood and break knives.
- Use correct knife size, knife quality, knife mounting hardware, and torque knife mounting hardware to the specified torque.
- Replace knife mounting hardware after (5) times of tightening.

⚠ CAUTION

Do not grind the knives in a direction which produces a radius, or hollow grind, on the surface of the knife. Strength and life of the cutting edge is reduced.

- For maximum chipper efficiency, the original cutting angle must be maintained when the knives are sharpened. The knives should be machine ground to produce a flat, straight edge.
- Do not sharpen the knives with a hand held power grinder. The knife angle can't be held and heat will distort the metal.
- Sharpening techniques should be the same as those employed for any high carbon steel cutting edge. Use a coolant and exercise care not to draw temper or crack the cutting edges by excessive heating.
- Knives may be sharpened repeatedly as long as their original width is not reduced to less than the specified minimum width. If a knife measures less than the specified minimum width after sharpening, it must be discarded.
- Inspect the knives after grinding to ensure the knives are free of cracks.
- Maintain spare sharpened knives to avoid downtime for knife sharpening.

3/8" x 3" (9.5 mm x 76.2 mm) Chipper Knife
Models 1290 / 1690



TROUBLE SHOOTING CHIPPER PROBLEMS

1) **Chipper Makes Poor Quality Chips or Does Not Feed Properly.**
   A. Knives have lost their edge. File, grind or replace knives. **DO NOT** operate the Bandit with dull knives.
   B. Knife anvil / cutter bar worn or needs adjustment. Rotate, repair or replace.
   C. Chipper drum is not operating properly.
   D. The throat/base opening is a high-wear area. The anvil / cutter bar takes much of this wear but other areas wear as well. Attention must be paid to any areas where outer, noncutting edges of chipper knife are exposed. These areas must be built up with weld to maintain the original integrity.
   E. Knives are at the wrong angle. Knives must be ground at a 40° angle.
   F. Material being chipped is very small, dry or rotting. This type of material does not produce good chip quality.
2) **Chipper Knife Hits Anvil.**
   A. Check the anvil / cutter bar clearance at both sides of the knife by using a feeler gauge, the clearance should be .028" to .032" (.7 - .8 mm) from all knives.
   B. Check the chipper bearing bolts for tightness (SEE TORQUE CHART).
3) **Discharge Plugs or Does Not Throw Chips Properly.**
   A. Lugging engine on large material - keep engine RPM up.
   B. Knives are dull or worn to minimum size.
   C. Obstruction in discharge chute. Patches welded into the chute can cause obstruction of chip flow. Anything causing an obstruction will cause the chute to plug.
   D. Chipping rotting material that has little substance can also plug the discharge chute.
   E. Check blower.
4) **Chipper Bearings Running Too Hot.**
   A. Improper lubrication - purge bearings once a day with EP-2 Lithium type grease.
   B. Chipper drum operating at too high RPM's. DO NOT exceed recommended RPM's. Operating speed of drum should be approximately 2400 rpm's
   C. Bearings worn out (REPLACE).
   D. Set screws on bearings are loose.

NOTICE

USE CORRECT KNIFE AND HARDWARE

DO NOT use a size or style chipper knife, bolt or nut other than factory approved for this chipper - see manual.

DO NOT over torque or under torque knife bolts and nuts - see manual.

DO NOT resharpen knife more than minimum width - see manual.

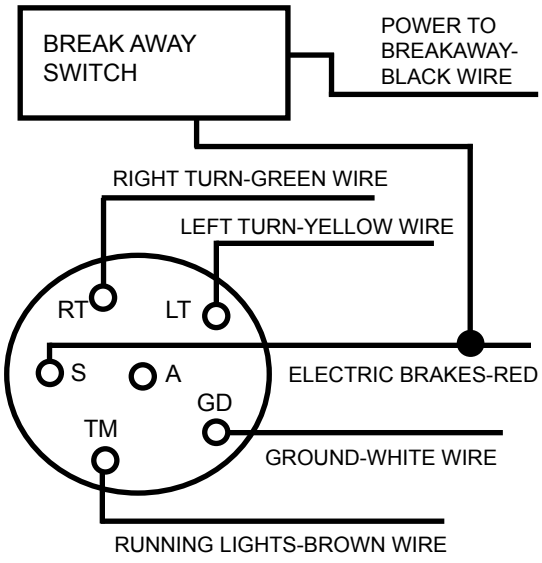
DO NOT use a knife bolt or nut which has been tightened over (5) times - replace.

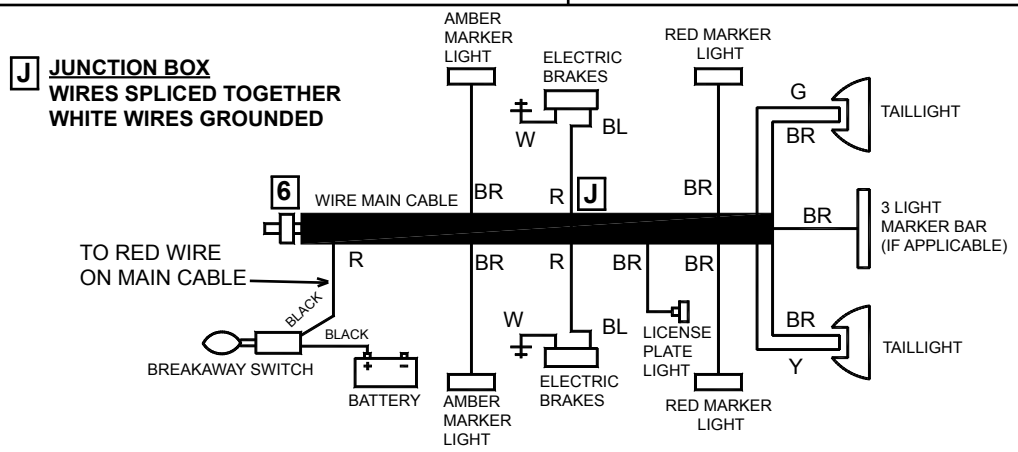
DO NOT improperly install the knife nuts. Flat surface of nut goes toward the chipper disc.

TYPICAL ELECTRICAL WIRING DIAGRAMS

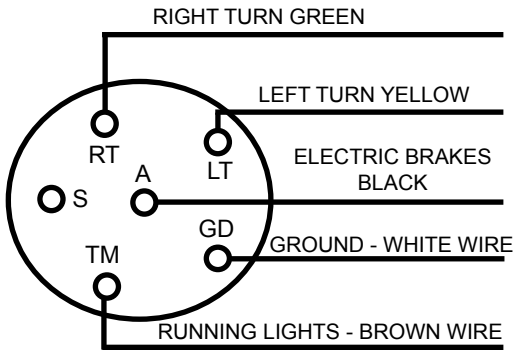
WIRING FOR STANDARD 6 PRONG PLUG AND 6 WIRE MAIN CABLE EFFECTIVE ON MACHINES BUILT AFTER 11/01/04

6 Wire Main Cable Color Code
Red R (Brakes & Breakaway Switch)
White W (Ground)
Green G (Right Turn)
Yellow Y (Left Turn)
Brown BR (Running Lights)
Black BL (Power to Breakaway Switch)





6 WIRE MAIN CABLE COLOR CODE (OLD STYLE)



OLD STYLE

6 Wire Main Cable Color Code
Black BL (Brakes)
White W (Ground)
Green G (Right Turn)
Yellow Y (Left Turn)
Brown BR (Running Lights)
Red R (Breakaway Switch)

REPLACEMENT PARTS SECTION

Depending on what replacement parts you are ordering
the following information will be needed:

CHIPPER COMPONENTS	ENGINE COMPONENTS	CLUTCH COMPONENTS
Serial Number	Brand	Brand
Model Number of Chipper	Engine Serial Number	Serial Number
	Engine Spec. Number	Assembly Number of Clutch

NOTICE

When ordering any replacement parts you should have the serial number (S/N) and model of the machine to ensure that you receive the correct replacement part. See page 6 for typical serial number & work order number locations.

NOTICE

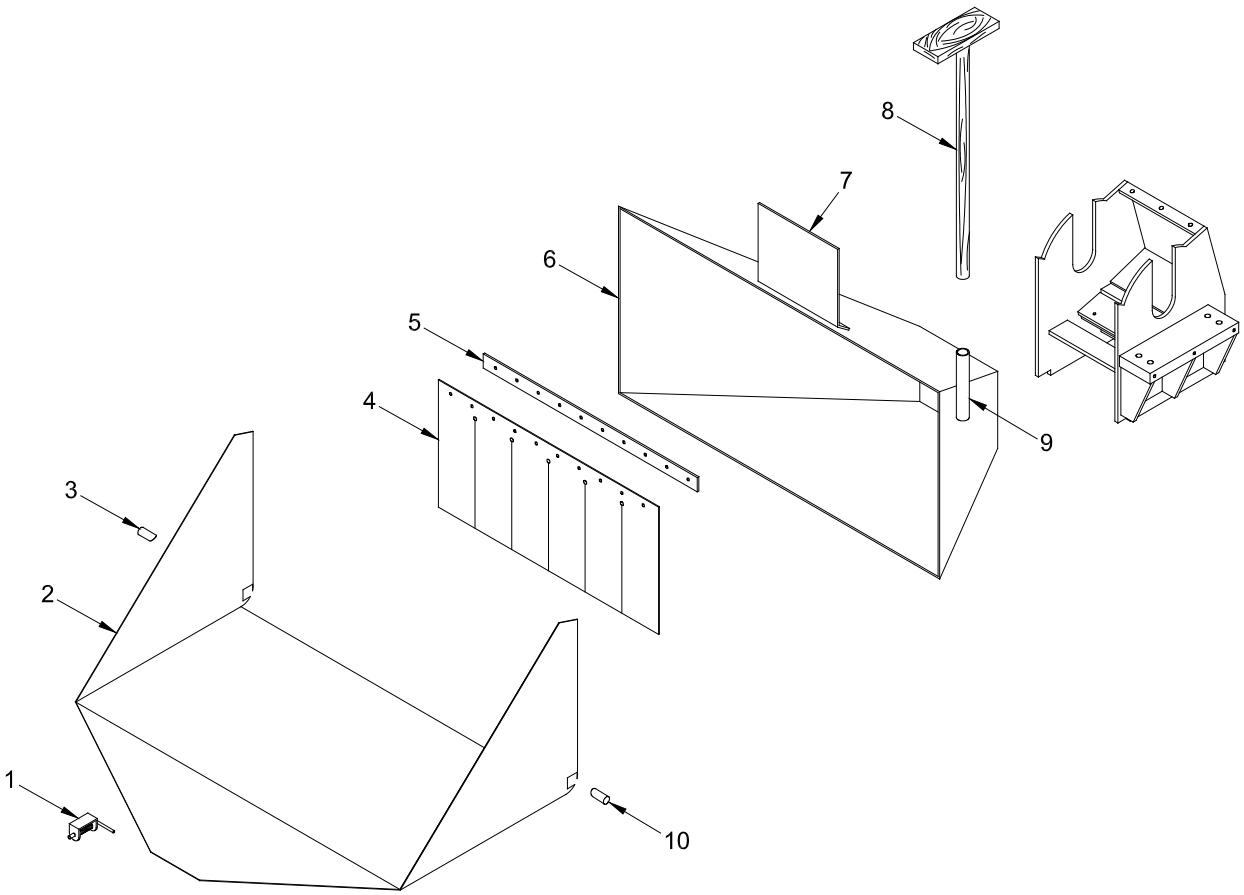
All nuts, bolts, washers, and many other components can be ordered by physical description.

NOTICE

Some of the components shown in this section are for optional equipment and may not apply to every machine.

NOTICE

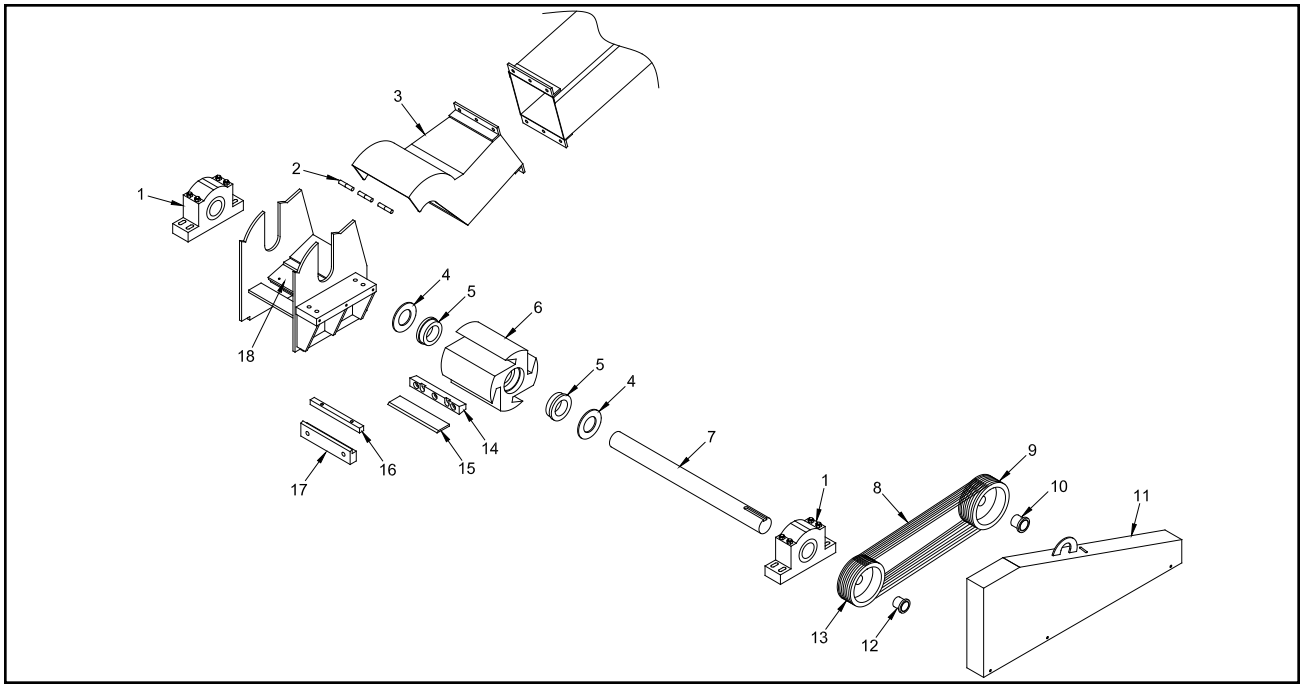
Bandit Industries Inc. reserves the right to make changes in models, size, design, installations and applications on any part without notification.



NOTICE Parts may not be exactly as shown.

LOCATION	MODEL 1290 PART NUMBER	MODEL 1690 PART NUMBER	DESCRIPTION
1 a.	900-4901-83	900-4901-83	Folding Pan Spring Lock - 1/2” Diameter Pin
b.	900-7900-93	900-7900-93	Rubber Cap For Spring Lock - 1/2” Diameter
2.	712-2000-01	712-2000-01	Folding Pan For Infeed Hopper
3.	712-1002-74	712-1002-74	Folding Pan Pivot Pin (Road Side)
4.	712-1001-00	712-1001-00	Flexible Curtain
5.	716-1000-74	716-1000-74	Mount For Flexible Curtain
6.	712-0500-16	716-0500-16	Infeed Hopper Assembly
7.	712-1001-44	712-1001-44	Decal Plate
8.	980-0507-42	980-0507-42	Wooden Push Paddle
9 a.	980-0122-55	980-0122-55	Wooden Push Paddle Mount
b.	900-4914-18	900-4914-18	Plastic Knob (Not Shown)
10.	712-1002-75	712-1002-75	Folding Pan Pivot Pin (Curb Side)

START S/N 1042



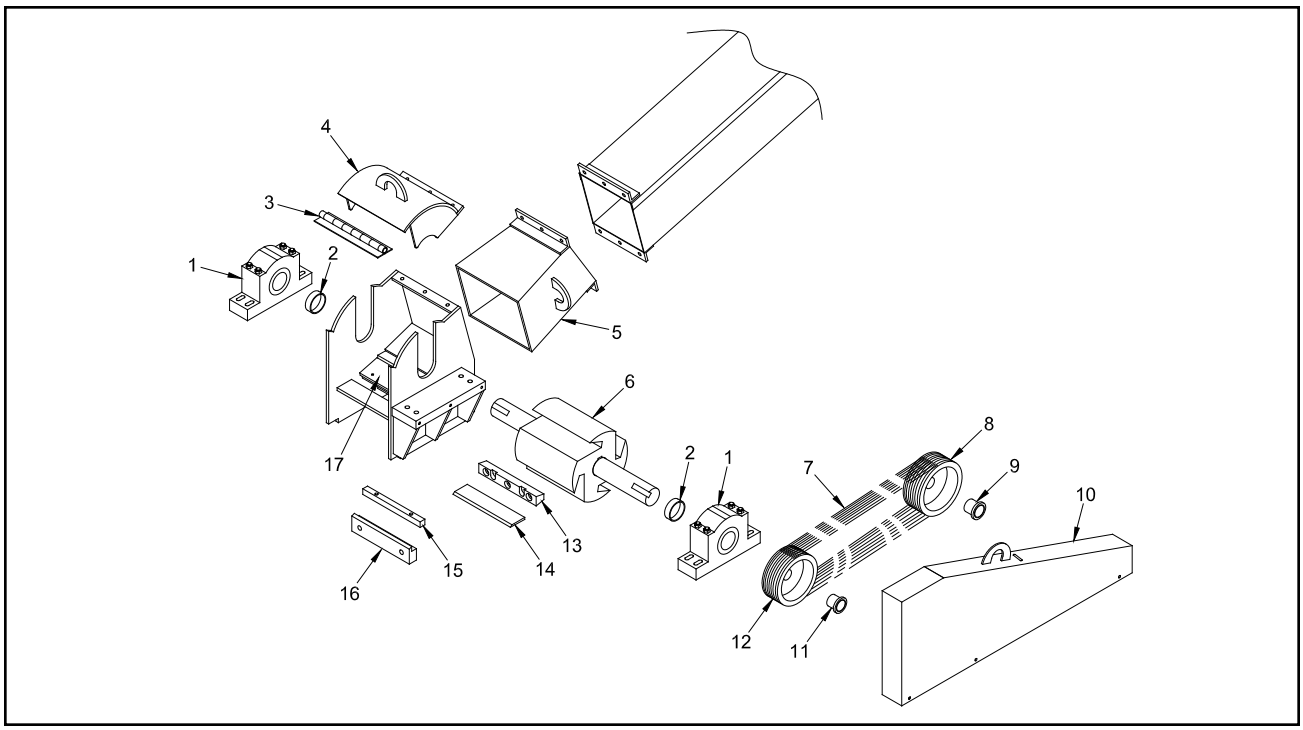
LOCATION	MODEL 1290 PART NUMBER	MODEL 1690 PART NUMBER	DESCRIPTION
1 a.	900-1902-70	900-1902-70	Chipper Bearing
b.	N/A	712-1000-10	Chipper Bearing Assembly (S/N 1009 Only)
c.	N/A	900-1914-74	Bearing Housing Only (S/N 1009 Only) (Not Shown)
d.	N/A	900-1914-75	Bearing Cartridge Only (S/N 1009 Only) (Not Shown)
e.	N/A	900-1914-76	Bearing Lock Nut & Adapter Sleeve (S/N 1009 Only) (Not Shown)
f.	N/A	900-1914-77	Bearing Aluminum Seal Ring(S/N 1009 Only)(Not Shown)
g.	900-4907-00	900-4907-00	5/8"-11NC x 4 1/2" Bolt (Not Shown)
h.	900-4903-39	900-4903-39	5/8"-11NC Automation Lock Nut (Not Shown)
i.	900-4901-32	900-4901-32	5/8" Mill Carb Washer - 2 Per Bolt (Not Shown)
2.	900-4913-20	900-4913-20	Chipper Hood Hinge (Start S/N 1046)
3.	712-2000-31	716-2000-00	Discharge Transition Hood Ass'y(Includes #2) Start S/N 1046)
4.	712-300018	712-300018	Drum Ends (Start S/N 1042)
5.	900-1914-42	900-1914-42	Keyless Bushing (Start S/N 1042)
6 a.	712-3000-88	716-300020	Chipper Drum Head Only (Includes #14) (Start S/N 1042)
b.	712-1000-14	716-1000-13	Chipper Drum Ass'y With Bearings (Includes 1a, 4-7, & 14)
7.	712-3000-92	712-300043	Chipper Shaft Only (Start S/N 1042)
8.	**	**	Chipper Belts
9.	**	**	Engine Sheave
10.	**	**	Engine Sheave Bushing
11.	712-200012	712-200012	Beltshield Assembly (Starts S/N 1045)
12.	**	**	Chipper Sheave Bushing
13.	**	**	Chipper Sheave
14.	See Page 48-49	See Page 48-49	Chipper Knife Wedge
15.	See Page 48-49	See Page 48-49	Chipper Knife
16.	See Page 50	See Page 50	Anvil / Cutter Bar
17.	See Page 50	See Page 50	Anvil Mount / Pressure Bar
18.	See Page 50	See Page 50	Floor Plate

**** Components vary with engine options order by physical description or machine S/N.**

NOTICE Parts may not be exactly as shown.

Bandit

PRE S/N 1042



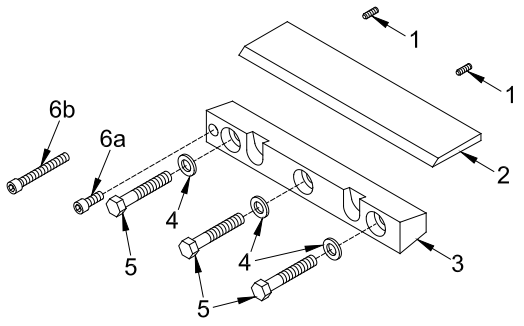
LOCATION	MODEL 1290 PART NUMBER	MODEL 1690 PART NUMBER	DESCRIPTION
1 a.	900-1902-70	900-1902-70	Chipper Bearing
b.	900-4907-00	900-4907-00	5/8”-11NC x 4 1/2” Bolt (Not Shown)
c.	900-4903-39	900-4903-39	5/8”-11NC Automation Lock Nut (Not Shown)
d.	900-4901-32	900-4901-32	5/8” Mill Carb Washer - 2 Per Bolt (Not Shown)
2.	716-1000-43	716-1000-43	Shaft Spacer (Pre S/N 1042)
3.	712-1000-38	716-1000-38	Chipper Hood Hinge (Pre S/N 1046)
4.	712-0500-33	716-0500-33	Chipper Hood Assembly (Pre S/N 1046)
5.	712-0500-10	716-0500-10	Discharge Transition Assembly (Pre S/N 1046)
6.	712-0500-28	716-0500-28	Chipper Drum Assembly (Pre S/N 1042)
7.	**	**	Chipper Belts
8.	**	**	Engine Sheave
9.	**	**	Engine Sheave Bushing
10.	712-0500-19	712-0500-19	Beltshield Assembly (Pre S/N 1045)
11.	**	**	Chipper Sheave Bushing
12.	**	**	Chipper Sheave
13.	See Pages 48-49	See Pages 48-49	Chipper Knife Wedge
14.	See Pages 48-49	See Pages 48-49	Chipper Knife
15.	See Page 50	See Page 50	Anvil / Cutter Bar
16.	See Page 50	See Page 50	Anvil Mount / Pressure Bar
17.	See Page 50	See Page 50	Floor Plate

**** Components vary with engine options order by physical description or machine S/N.**

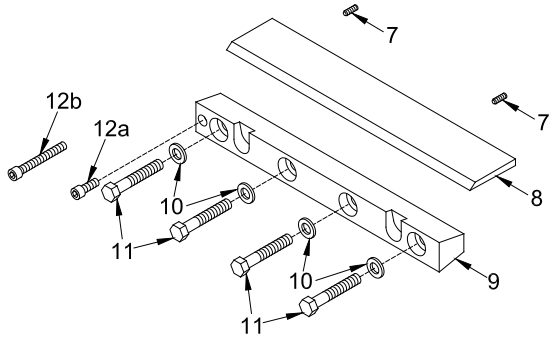
NOTICE Parts may not be exactly as shown.

Bandit

Model 1290 (Start S/N 1104)



Model 1690 (Start S/N 1042)



Part Numbers For Model 1290 Knives (Start S/N 1104)

LOCATION	PART NUMBER	DESCRIPTION
1.	900-4914-23	1/4”-20NC x 3/4” Cup Point Set Screw (Start S/N 1104)
2.	900-9908-57	3/8” x 3” x 11 15/16” Chipper Knife (Start S/N 1104)
3.	712-3000-90	Chipper Knife Wedge (Start S/N 1104)
4.	900-4906-90	1/2” Washer
5.	900-4906-77	1/2”-13NC x 3” Chipper Knife Wedge Bolt
6 a.	900-4910-55	3/8”-16NC x 1” S.H.C.S. Plug For Wedge Puller Bolt Hole
b.	900-4910-56	3/8”-16NC x 2 1/2” S.H.C.S. (Full Thread) Wedge Puller Bolt

NOTICE Torque Knife Wedge Bolts to 100 - 110 ft.-lbs. (135 - 149 Nm)

Part Numbers For Model 1690 Knives (Start S/N 1042)

LOCATION	PART NUMBER	DESCRIPTION
7.	900-4914-23	1/4”-20NC x 3/4” Cup Point Set Screw (Start S/N 1042)
8.	900-9906-20	3/8” x 3” x 15 15/16” Chipper Knife (Start S/N 1042)
9.	716-300023	Chipper Knife Wedge (Start S/N 1042)
10.	900-4906-90	1/2” Washer
11.	900-4906-77	1/2”-13NC x 3” Chipper Knife Wedge Bolt
12 a.	900-4910-55	3/8”-16NC x 1” S.H.C.S. Plug For Wedge Puller Bolt Hole
b.	900-4910-56	3/8”-16NC x 2 1/2” S.H.C.S. (Full Thread) Wedge Puller Bolt

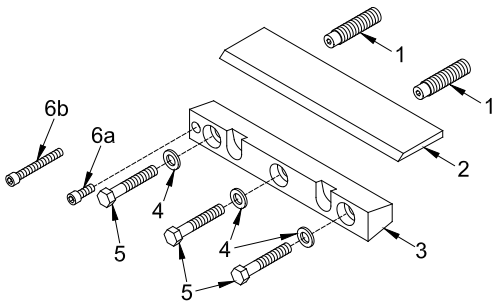
NOTICE Torque Knife Wedge Bolts to 100 - 110 ft.-lbs. (135 - 149 Nm)

Part Numbers For Miscellaneous Knife Parts

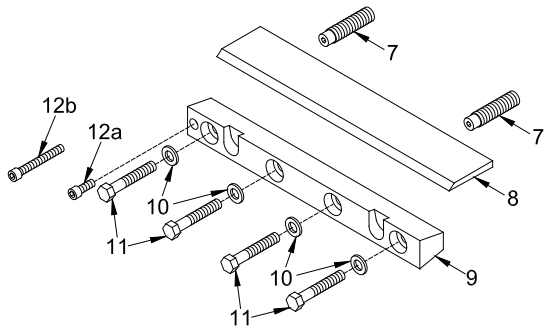
LOCATION	PART NUMBER	DESCRIPTION
13.	900-9901-68	Knife Saver Kit (Not Shown)
14.	900-9901-65	File For Knife Saver Kit Only (Not Shown)
15.	900-9901-63	Replacement Blades For Knife Saver (Not Shown)

NOTICE Parts may not be exactly as shown.

Model 1290 (Pre S/N 1104)



Model 1690 (Pre S/N 1042)



Part Numbers For Model 1290 Knives (Pre S/N 1104)

LOCATION	PART NUMBER	DESCRIPTION
1.	712-1000-04	Knife Adjusting Set Screw (Pre S/N 1104)
2.	712-1000-22	3/8" x 3" x 12" Chipper Knife (Pre S/N 1104)
3.	712-1000-03	Chipper Knife Wedge (Pre S/N 1104)
4.	900-4906-90	1/2" Washer
5.	900-4906-77	1/2"-13NC x 3" Chipper Knife Wedge Bolt
6 a.	900-4910-55	3/8"-16NC x 1" S.H.C.S. Plug For Wedge Puller Bolt Hole
b.	900-4910-56	3/8"-16NC x 2 1/2" S.H.C.S. (Full Thread) Wedge Puller Bolt

NOTICE Torque Knife Adjusting Set Screws to 4 - 5 ft.-lbs. (5 - 7 Nm)

NOTICE Torque Knife Wedge Bolts to 100 - 110 ft.-lbs. (135 - 149 Nm)

Part Numbers For Model 1690 Knives (Pre S/N 1042)

LOCATION	PART NUMBER	DESCRIPTION
7.	712-1000-04	Knife Adjusting Set Screw (Pre S/N 1042)
8.	716-1000-22	3/8" x 3" x 16" Chipper Knife (Pre S/N 1042)
9.	716-1000-05	Chipper Knife Wedge (Pre S/N 1042)
10.	900-4906-90	1/2" Washer
11.	900-4906-77	1/2"-13NC x 3" Chipper Knife Wedge Bolt
12 a.	900-4910-55	3/8"-16NC x 1" S.H.C.S. Plug For Wedge Puller Bolt Hole
b.	900-4910-56	3/8"-16NC x 2 1/2" S.H.C.S. (Full Thread) Wedge Puller Bolt

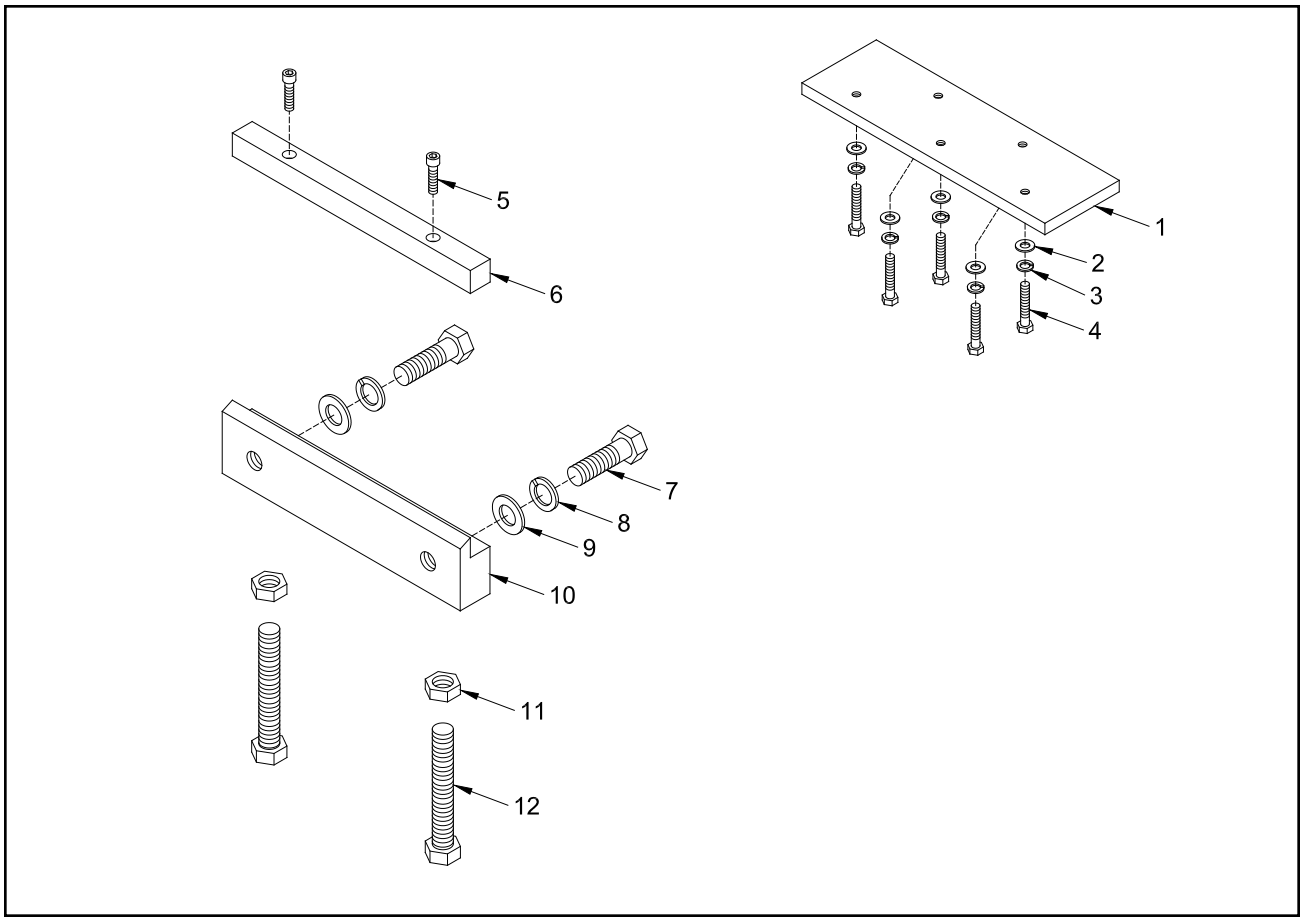
NOTICE Torque Knife Adjusting Set Screws to 4 - 5 ft.-lbs. (5 - 7 Nm)

NOTICE Torque Knife Wedge Bolts to 100 - 110 ft.-lbs. (135 - 149 Nm)

Part Numbers For Miscellaneous Knife Parts

LOCATION	PART NUMBER	DESCRIPTION
13.	900-9901-68	Knife Saver Kit (Not Shown)
14.	900-9901-65	File For Knife Saver Kit Only (Not Shown)
15.	900-9901-63	Replacement Blades For Knife Saver (Not Shown)

NOTICE Parts may not be exactly as shown.



LOCATION	MODEL 1290 PART NUMBER	MODEL 1690 PART NUMBER	DESCRIPTION
1.	712-1000-24	716-1000-24	Floor Plate
2.	900-4906-48	900-4906-48	5/16” Flat Washer
3.	900-4906-47	900-4906-47	5/16” Lock Washer
4.	900-4910-93	900-4910-93	5/16”-24NF x 1 3/4” Floor Plate Bolt
	NOTICE Model 1290 has 5 Floor Plate Bolts (as shown) and Model 1690 has 7 Floor Plate Bolts.		
5.	900-4910-77	900-4910-77	5/16”-18NC x 1 1/4” S.H.C.S. (Anvil Bolt)
6.	712-1000-06	716-1000-09	Anvil / Cutter Bar
7.	900-4902-78	900-4902-78	3/4”-10NC x 2 1/2” Pressure Bar Bolt
	NOTICE Model 1290 has 2 Anvil Mount Bolts (as shown) and Model 1690 has 3 Anvil Mount Bolts.		
8.	900-4907-17	900-4907-17	3/4” Lock Washer
9.	900-4907-19	900-4907-19	3/4” Flat Washer
10.	712-1000-05	716-1000-08	Anvil Mount / Pressure Bar
11.	900-4910-19	900-4910-19	3/4”-10NC Jam Nut
12.	900-4913-70	900-4913-70	3/4”-10NC x 5” Bolt (Full Thread) - Adjusting Bolt

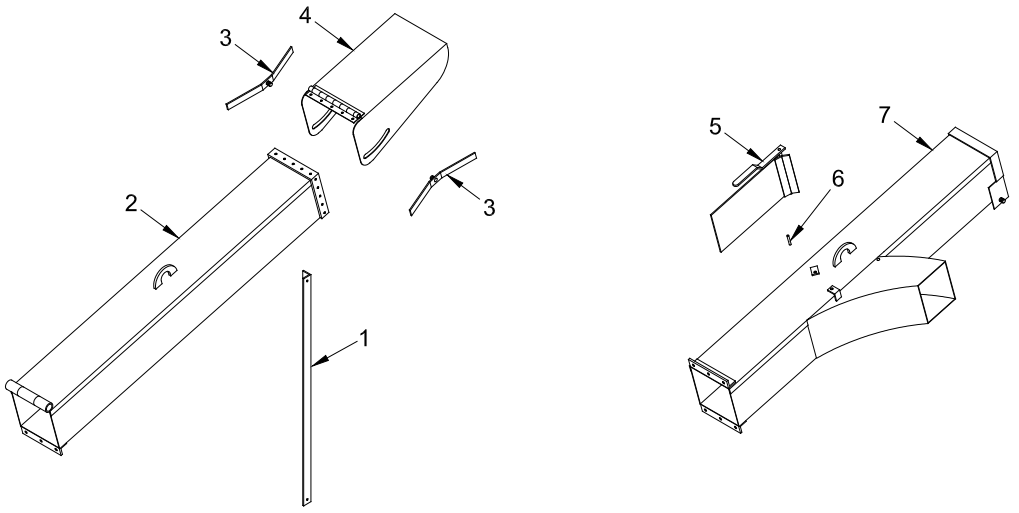
NOTICE Torque Anvil Bolts to 15 ft.-lbs. (20 Nm)

NOTICE Torque Floor Plate Bolts to 19 ft.-lbs. (26 Nm)

NOTICE Torque Anvil Mount Bolts to 180 ft.-lbs. (245 Nm)

NOTICE Parts may not be exactly as shown.

SPECIAL DISCHARGE OPTIONS

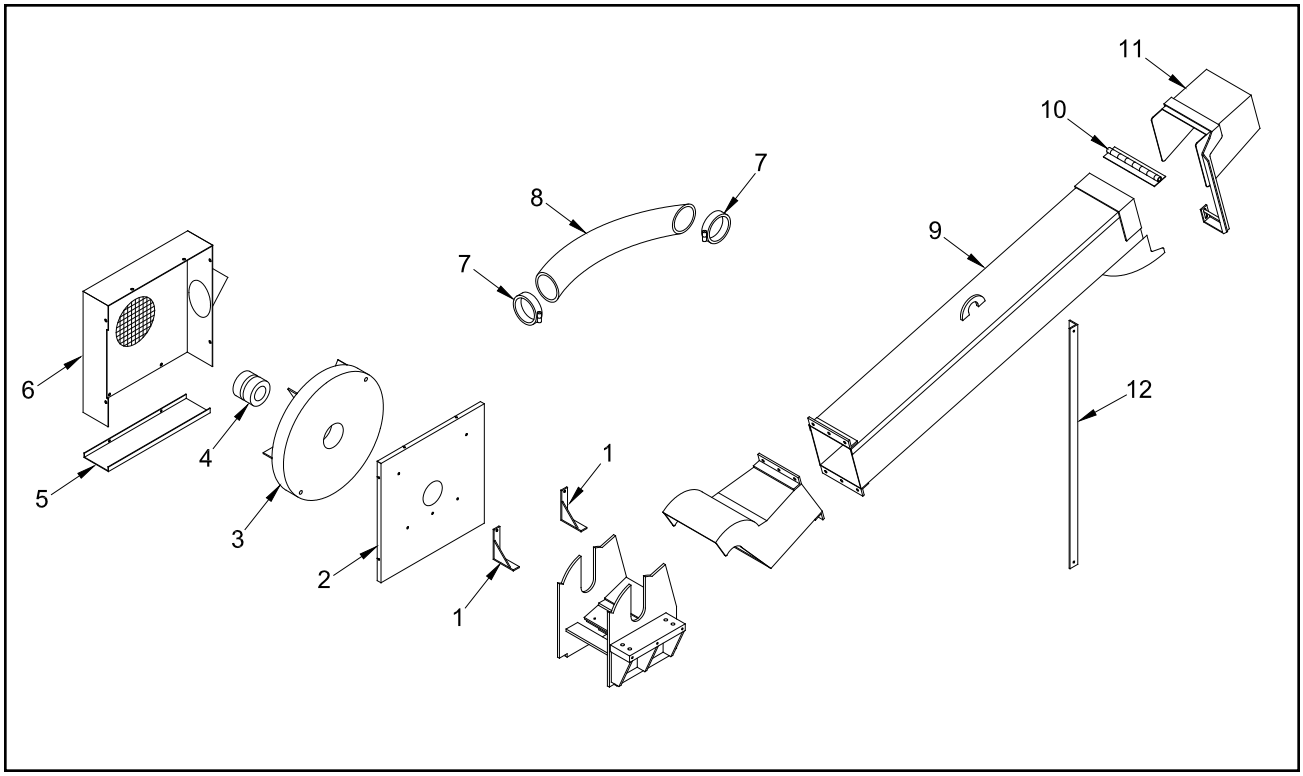


LOCATION	PART NUMBER	DESCRIPTION
1.	712-200008	Special Discharge Brace For Hinged Discharge Ass'y
2.	712-300023	Special Hinged Discharge Assembly
3.	712-1002-16	Special Lock Handle For Bolt-On Discharge Flipper
4.	712-200007	Special Discharge Flipper Assembly - Bolt-On
5 a.		Door For Side Discharge - Handle On Bottom (S/N 1040-1042, Started S/N 1050)
b.	712-1002-62	Door For Optional Side Discharge - Handle On Top (Pre S/N 1050)
6.	712-1001-82	Door Lock Pin For Optional Side Discharge
7 a.	712-2000-26	Optional Side Discharge Ass'y (Includes Flipper)
b.	712-200009	Optional Side Discharge Ass'y

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**

NOTICE Parts may not be exactly as shown.

CURRENT STYLE

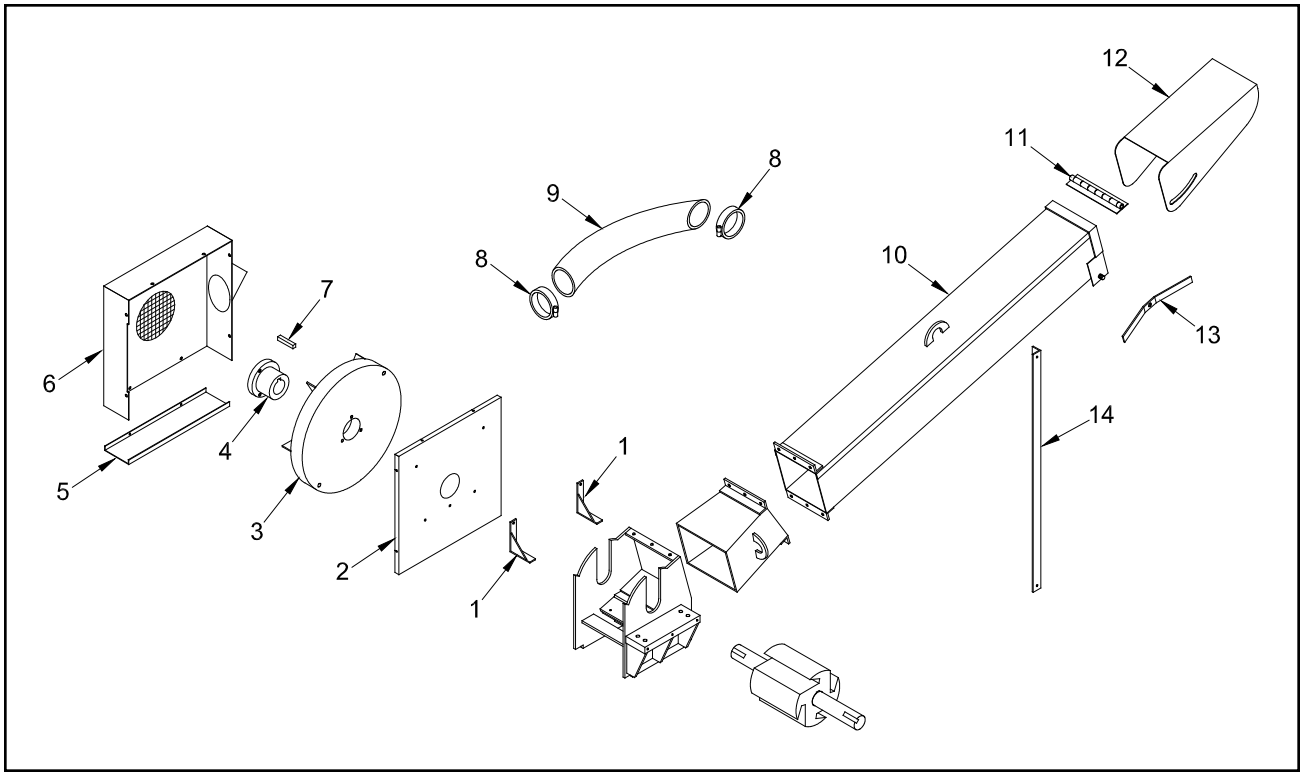


LOCATION		PART NUMBER	DESCRIPTION
1.		716-300024	Mounts For Back Flywheel Guard
2.		712-1002-68	Back Flywheel Guard
3.		712-1000-08	Flywheel Assembly (Includes #4) (S/N 1047, Start S/N 1049)
4.		900-1915-69	Bushing For Flywheel Assembly (S/N 1047, Start S/N 1049)
5.		712-1002-69	Bottom Flywheel Guard
6	a.	712-1002-67	Front Flywheel Guard
	b.	712-0500-54	Flywheel Guard Assembly (Includes 2,5, & 6)
7.		900-6901-07	Blower Hose Clamp
8.		900-9900-61	Blower Hose
9	a.	712-2000-24	Discharge Assembly (Includes 10 &11) (Starts S/N 1043)
	b.	712-2000-26	Discharge Ass'y With Side Discharge Option (Includes 10 &11) (Not Shown)
10.		712-1002-27	Discharge Flipper Hinge
11	a.	712-2000-25	Discharge Flipper Assembly (Includes #10) (Starts S/N 1042)
	b.	900-4901-83	Discharge Flipper Adjusting Spring Only
12.		712-1003-08	Discharge Brace

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**

NOTICE Parts may not be exactly as shown.

PREVIOUS STYLE

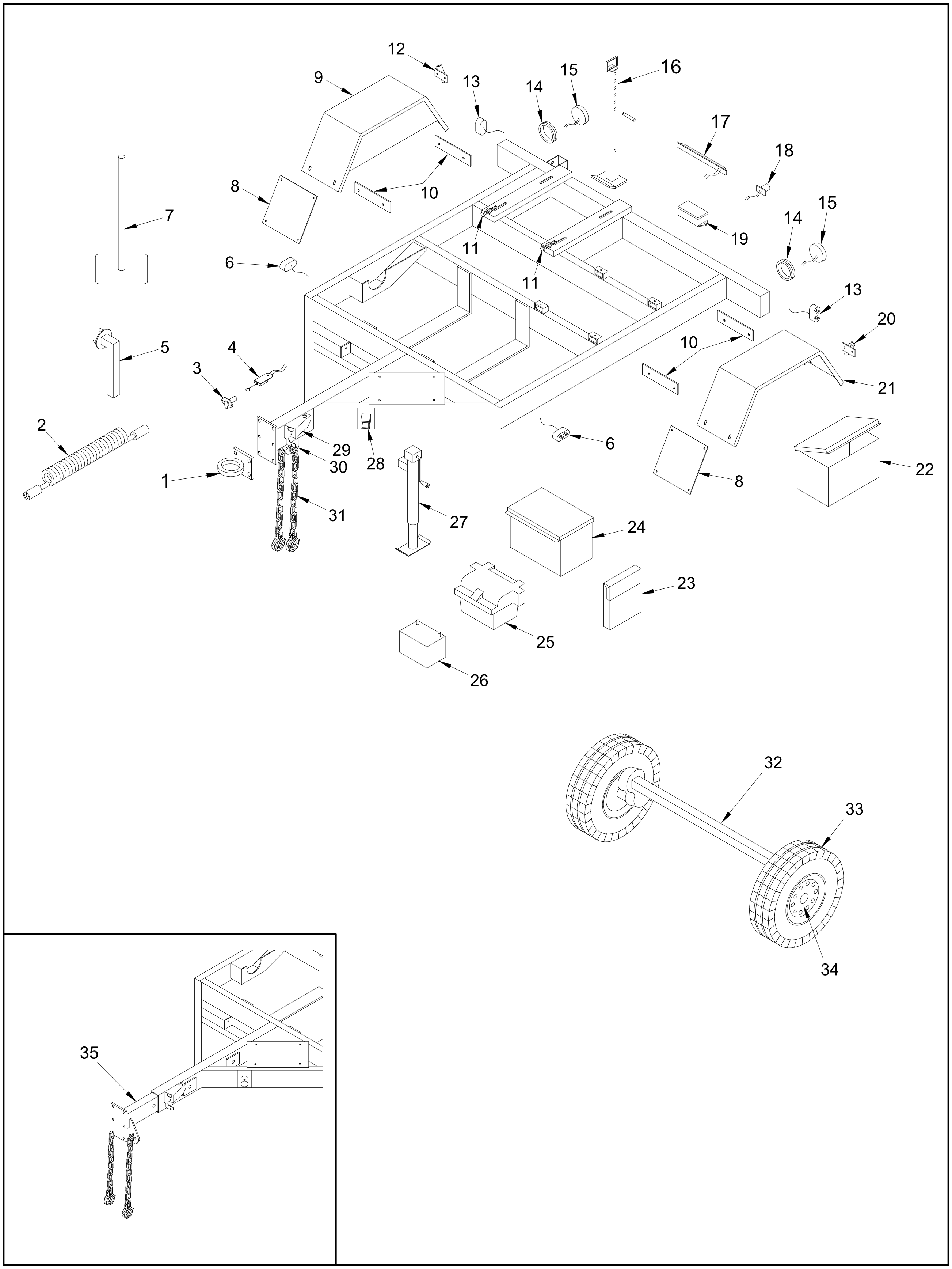


LOCATION	PART NUMBER	DESCRIPTION
1 a.	712-1001-41	Mounts For Back Flywheel Guard - Model 1290
b.	716-300024	Mounts For Back Flywheel Guard - Model 1690
2.	712-1002-68	Back Flywheel Guard
3.	712-0500-25	Flywheel Assembly (Pre S/N 1049, except S/N 1047)
4.	900-1901-82	Bushing For Flywheel Assembly (Pre S/N 1049, except S/N 1047)
5.	712-1002-69	Bottom Flywheel Guard
6 a.	712-1002-67	Front Flywheel Guard
b.	712-0500-54	Flywheel Guard Assembly (Includes 2,5, & 6)
7.	712-1001-59	Key For Flywheel Bushing
8.	900-6901-07	Blower Hose Clamp
9.	900-9900-61	Blower Hose
10.	712-0500-11	Discharge Assembly (Pre S/N 1043)
11.	712-1002-27	Discharge Flipper Hinge
12.	712-1000-49	Discharge Flipper Assembly (Pre S/N 1042)
13.	980-0505-68	Discharge Flipper Lock Handle
14.	712-1003-08	Discharge Brace

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**

NOTICE Parts may not be exactly as shown.

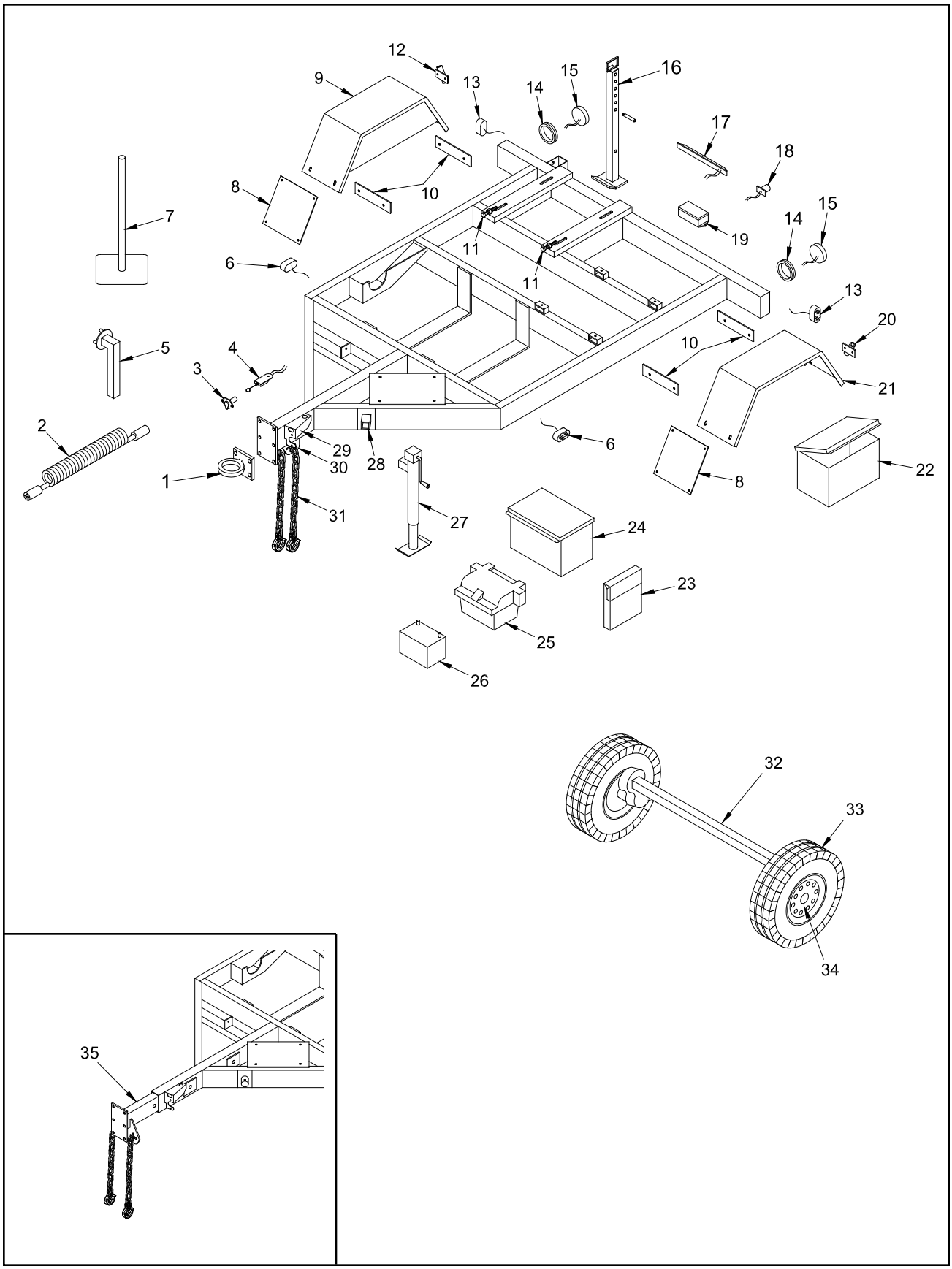
Bandit



NOTICE Parts may not be exactly as shown.

LOCATION	PART NUMBER	DESCRIPTION
1 a.	900-5900-13	2 1/2” Heavy Duty Pintle Ring Hitch
b.	900-5905-73	3” Heavy Duty Pintle Ring Hitch
c.	980-0505-33	2 5/16” Ball Coupler Assembly
d.	980-0501-47	2” Ball Coupler Assembly
e.	*--*	Other Hitch Options Available
2 a.	900-2916-63	Coil Cable Assembly With 6 Prong Plugs - 15’
b.	900-2904-12	6-Prong Trailer Plug Male Plug Only
3.	900-2904-13	6-Prong Trailer Plug Female Plug Only
4.	900-5900-09	Electrical Breakaway Switch
5.	980-0510-51	Optional Spare Tire Mount
6.	900-2915-97	LED Amber Marker Light
7 a.	980-200202	Optional Cone Holder (Replaces 980-0508-30)
b.	980-200215	Optional Bolt-On Cone Holder (Not Shown)
c.	980-200107	Optional Hoop Style Cone Holder (Not Shown)
d.	900-7900-86	Cap For Cone Holder (Not Shown)
8.	980-0128-91	Optional Stone Guard
9 a.	900-5904-43	Right Hand Aluminum Fender - 7,000 Lbs. Axle
b.	980-0506-83	Right Hand H.D. Steel Weld-On Fender - 7,000 Lbs. Axle
c.	980-2001-08	Right Hand H.D. Aluminum Fender - 7,000 Lbs. Axle
10.	980-0128-14	Aluminum Fender Mount
11 a.	900-4913-76	3/4”-10NC x 3 1/2” (Full Thread) Chipper Base Adjusting Bolt
b.	900-4910-19	3/4”-10NC Jam Nut - Chipper Base Adjuster
c.	900-4902-80	3/4”-10NC Heavy Hex Nut - Chipper Base Adjuster
12.	981-200034	Flag Holder (Curb Side)
13.	900-2915-98	LED Red Marker Light
14.	900-2908-75	Rubber Grommet For LED Tail Light
15 a.	900-2908-76	LED Tail Light
b.	900-2908-74	Adapter Wire For LED Tail Light (Not Shown)
16.	716-0500-18	Rear Stabilizer
17.	900-2909-93	LED 3 Light Bar
18.	900-2900-07	License Plate Light
19.	900-2902-41	Junction Box For Wiring
20.	981-200033	Flag Holder (Road Side)
21 a.	900-5904-43	Left Hand Aluminum Fender - 7,000 Lbs. Axle
b.	980-0509-23	Left Hand H.D. Steel Weld-On Fender - 7,000 Lbs. Axle
c.	980-2001-08	Left Hand H.D. Aluminum Fender - 7,000 Lbs. Axle
22 a.	900-7900-78	Aluminum Tool Box
b.	980-0508-37	Steel Tool Box (Optional)

**** Order Brake Hub And Drum Assembly According To Axle Type.**
(Grease Type, Oil Type, Never Lube Type).
NOTICE Other Fenders And Fender Stone Shields Are Optional.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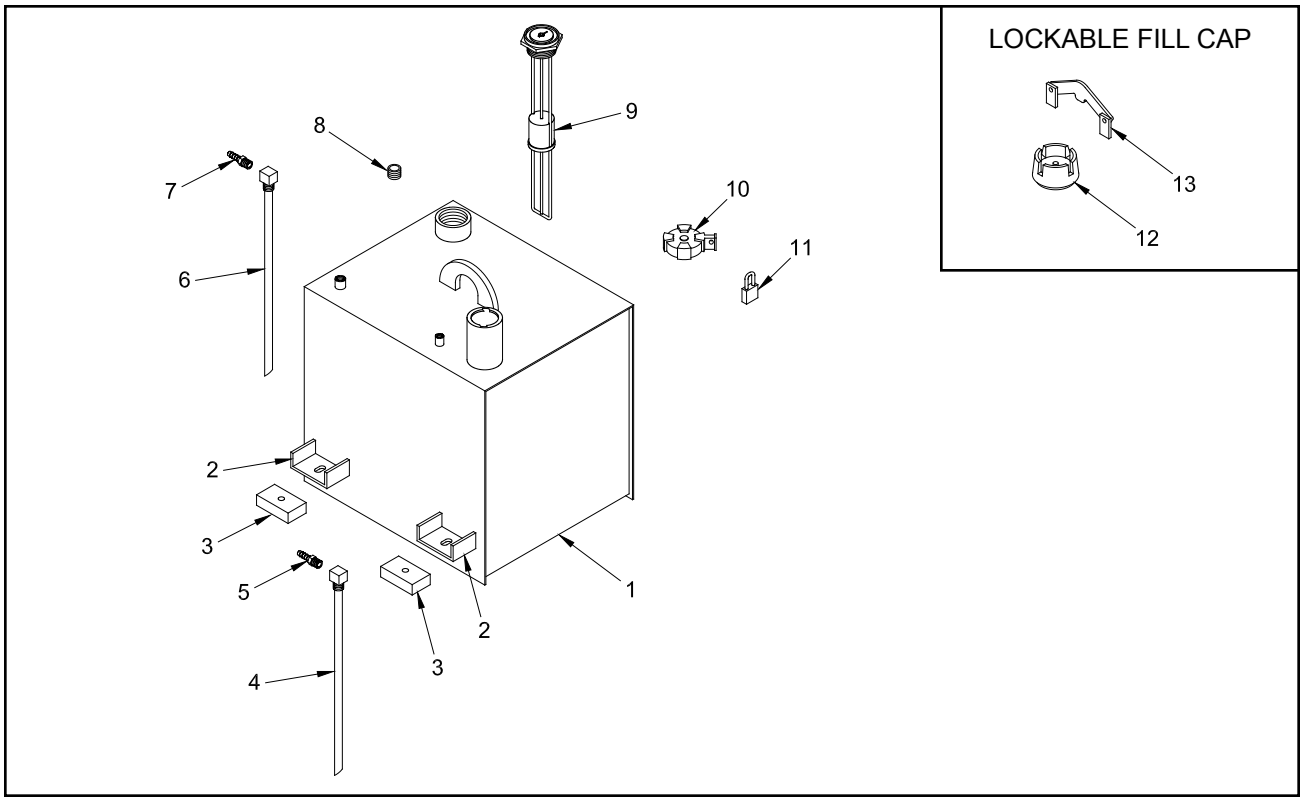
LOCATION	PART NUMBER	DESCRIPTION
23.	900-9902-07	Manual Holder
24 a.	900-7900-78B	Aluminum Battery Box For 460/660/1010 CCA Battery And Manual Holder
b.	980-0509-37	Steel Battery Box For 660/1010 CCA Battery And Manual Holder
c.	980-0509-89	Steel Battery Box For 460 CCA Battery And Manual Holder
25 a.	900-7900-08	Plastic Battery Liner Box for 660/1010 CCA Battery
b.	900-7900-01	Plastic Battery Liner Box for 460 CCA Battery
26 a.	900-6900-02	660 CCA Battery
b.	900-6900-01	460 CCA Battery
27 a.	900-5908-44	5,000 Lbs. Side Crank Jack - Zinc (Starting S/N 952)
b.	900-5906-10	2,000 Lbs. Side Crank Jack - Zinc (Replaces 900-5903-79) (Through S/N 951)
28 a.	900-5905-71	Pivot Mount For 5,000 Lbs. Jack - Square (Starting S/N 952)
b.	910-1001-29	Pivot Mount For 2,000 Lbs. Jack - Round (Through S/N 951)
29.	980-300106	Trailer Plug Receptacle Mount
30.	980-0121-31	Safety Chain Holder
31 a.	900-4912-71	Safety Chain With Hooks and Spring Latches for Standard Tongue
b.	900-4912-38	Safety Chain With Hooks and Spring Latches for Telescopic Tongue
c.	900-4905-77	Hook For Safety Chain
32 a.	900-5909-51	7,000 Lb. Torflex Axle Assembly (Electric Brake)
b.	900-5903-84	7,000 Lb. Torflex Axle Assembly (No Brake)
c.	900-5903-82	7,000 Lb. Torflex Axle Assembly (Hydraulic Brake)
33 a.	900-5904-20	245/75R-16” Tire and White Spoke, 8-Bolt Rim
b.	900-5904-18	245/75R-16” Tire Only
c.	900-5904-22	16” x 6” White Spoke, 8-Bolt Rim Only
34.	**	Brake Hub and Drum Assembly
35.	712-0500-74	Telescopic Tongue Assembly
36 a.	980-0508-25	Optional Wheel Chock Holders Aluminum Bolt-On (Not Shown)
b.	980-0508-26	Optional Wheel Chock Holders Metal Weld-On (Not Shown)
37.	900-5902-32	Optional Rubber Wheel Chock (Not Shown)
38.	900-5900-62	Optional Safety Flags For Fenders (Not Shown)
39.	900-7900-48	Optional Mud Flap (Not Shown)
40 a.	900-9904-94	Optional Vice (Not Shown)
b.	980-300113	Optional Weld-On Vice Mount (Not Shown)

**** Order Brake Hub And Drum Assembly According To Axle Type.**
(Grease Type, Oil Type, Never Lube Type).
NOTICE Other Fenders And Fender Stone Shields Are Optional.



LOCATION	PART NUMBER	DESCRIPTION
1.	712-0500-85	23 1/2 Gallon Rectangle Fuel Tank Assembly - Overlap Seams
2.	980-0123-07	Tank Mount - Welded To Tank
3.	900-7900-14	Rubber Mounting Pad
4.	900-3909-00	Return Drop Pipe - Cut To 18” (Approx.) With A 45° Angle On The Bottom
5.	900-3909-01	Return Hose Barb
6.	900-3926-84	Suction Drop Pipe - Cut To 18” (Approx.) With A 45° Angle On The Bottom
7.	900-3926-79	Suction Hose Barb
8.	900-3922-60	Magnetic Drain Plug
9 a.	900-2903-94	Rochester Sight Gauge For 23 1/2 Gal. Fuel Tank - Overlap Seams (Starting S/N 940)
b.	900-2903-93	Rochester Sight Gauge For 23 1/2 Gal. Fuel Tank - Seam Welded (Through S/N 939)
c.	900-2903-55	Face For Sight Gauge Only
10 a.	900-3941-31	Fuel (Diesel) Locking Fill Cap - Green (Replaces 900-3917-71)
b.	900-3941-30	Fuel (Gasoline) Locking Fill Cap - Black (Replaces 900-3917-71)
c.	900-3935-06	Keeper For Fuel & Hydraulic Locking Fill Cap (Not Shown)
11 a.	900-4912-40	Padlock For Tank With Short Shackle For Locking Cap
b.	P812	Key For Padlock (Not Shown)
12 a.	900-3917-71	Fill Cap Only No Dipstick (Steel Tank)
b.	900-3907-66	Fill Cap With Dipstick (Steel Tank)
13.	980-0506-85	Fill Cap Lock Assembly For Steel Tank

NOTICE Components vary with fuel type.
Specify gas or diesel when ordering fuel tank components.

NOTICE Tank assemblies vary with options.
Specify all options when ordering.

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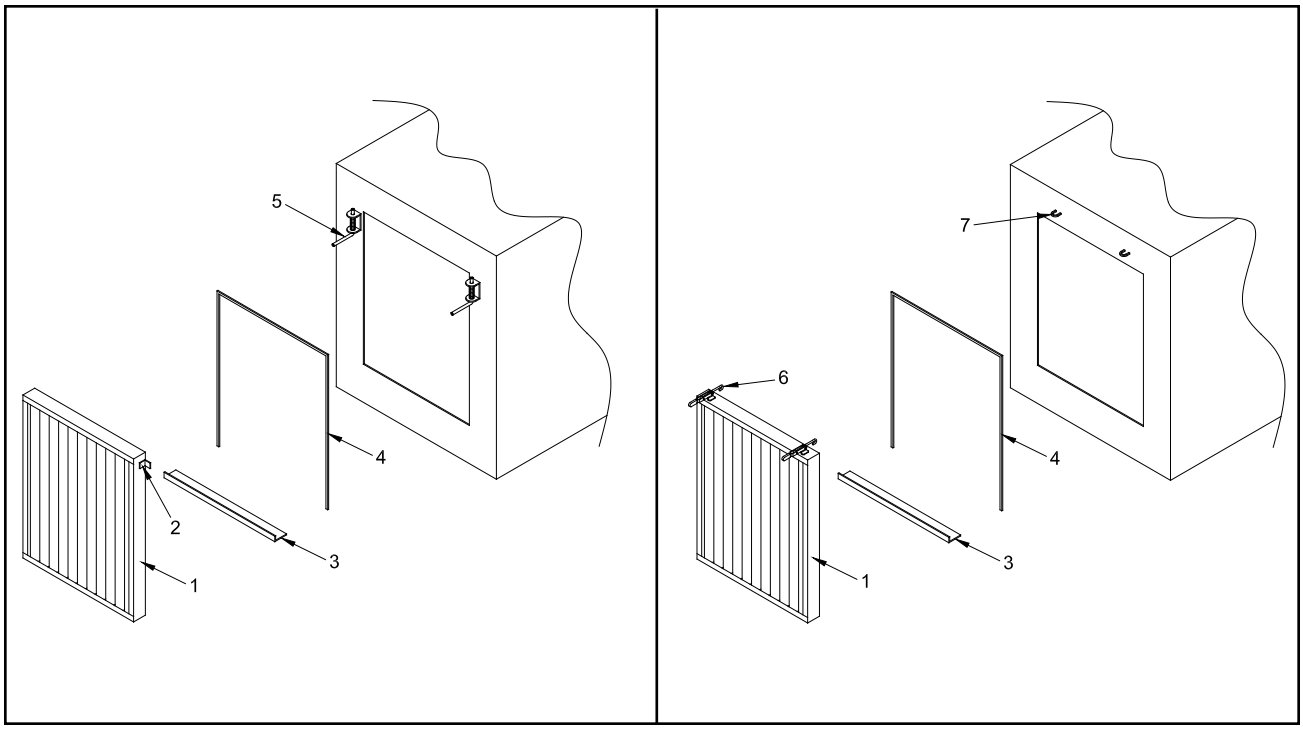

LOCATION	PART NUMBER	DESCRIPTION
1.	980-0508-17	Bandit H.D. Foldaway Radiator Screen Ass'y (specify latch type)
2.	980-0122-86	Spring Lock Tab Foldaway Radiator Screen
3.	*-*	Mount Tray For Foldaway Radiator Screen
4.	900-7900-57	Weather Strip
5 a.	900-4901-83	Spring Lock Plunger
b.	900-7900-93	Rubber Cap For Spring Lock - 1/2" Diameter
6.	900-4901-61	Hook Pull Clamp
7.	980-0128-77	Lock Tab For Hook

***-* Will Vary Depending On Engine And Component Options. Order By Serial Number Of Chipper Or Physical Description.**

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SERVICE RECORD

DATE	DESCRIPTION	AMOUNT