



9" Disk Style Brush Chippers Model 1290

Machine Serial # _____
Engine Model & Spec # _____
Engine Serial # _____
PTO/Clutch Model & Spec # _____
Clutch Serial # _____
Purchase Date _____
Dealer _____

Carlton

J.P. Carlton Company
Div. D.A.F. Inc.
121 John Dodd Road
Spartanburg, SC 29303
Ph. (864) 578-9335
Fax (864) 578-0210
www.stumpcutters.com

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CALIFORNIA

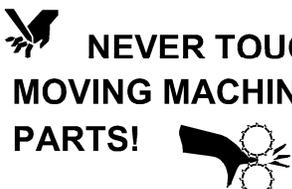
Proposition 65 Warning

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

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⚠ DANGER

**NEVER TOUCH
MOVING MACHINE
PARTS!**



0700301

⚠ DANGER

NEVER climb, ride on, or hang from this machine in any position or manner while it is in operation, running, or being transported.

PERSONAL INJURY IS PROBABLE!

0700303

⚠ DANGER

NEVER reach into this area with hands or other objects severe injury, including amputation, could occur.

NEVER attempt to service belts or other machine parts until all machine parts have come to a complete stop.
ALWAYS REMOVE KEY BEFORE SERVICING MACHINE.

0700302

⚠ DANGER

**AIRBORNE CHIPS
DISCHARGED FROM
MACHINE MAY BE
HAZARDOUS**



NEVER turn discharge spout in the direction of spectators or structures.
NEVER allow anyone to be in or in front of discharge area.
DISCHARGE SPOUT should be secured completely during transport or operation using clamps, pins, or bolts.

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⚠ DANGER

DANGER - REACHING OR KICKING INTO THE FEED HOPPER AREA WHILE MACHINE IS RUNNING WILL CAUSE SEVERE INJURY OR DEATH!

DANGER - FEED ROLLERS PULL WOOD INTO CHIPPER CUTTING AREA AND CAN'T TELL A DIFFERENCE IN BODY PARTS AND WOOD!

NEVER PUSH OR LAY SHORT PIECES OF WOOD, BRANCHES, OR BRUSH INTO THE FEED ROLLER AREA WITH YOUR HAND OR FOOT. USE A WOODEN PADDLE TO PUSH SHORT PIECES OF MATERIAL INTO FEED WHEELS OR LAY IT ON TOP OF LARGER PIECES OF MATERIAL.

ALWAYS BE PREPARED TO STOP OR TO REVERSE THE FEED SYSTEM AND BE IN A POSITION TO DO SO.

OSHA, ANSI AND THE MANUFACTURER HAVE SPECIFIC SAFETY AND OPERATION PROCEDURES - FOLLOW THEM TO PREVENT SEVERE INJURY OR DEATH!

ALL OWNERS AND OPERATORS MUST READ AND UNDERSTAND THE SAFETY AND OPERATING PROCEDURES PROVIDED ON OR WITH THIS MACHINE (DECALS, MANUALS, ETC.)

0700327

⚠ DANGER



NEVER perform service between feed wheels without upper feed wheel being raised, blocked, and chained. YOKE LOCK PIN MUST BE IN POSITION.

YOKE BLOCK



YOKE LOCK PIN

NEVER depend on the hydraulic cylinder to hold the upper feed wheel in raised position. The hydraulic cylinder is not a secure method to hold the wheel. Raise the upper feed wheel using the lift cylinder high enough to fit the yoke lock pin in the yoke block.

NEVER PERFORM SERVICE WITHOUT ENGINE TURNED OFF AND KEY REMOVED.

0700305

⚠ DANGER



MUST FOLLOW THESE GUIDELINES WHEN RUNNING VINE TYPE MATERIAL THROUGH CHIPPER!

NEVER lay vine type material in front of feed hopper!

NEVER allow yourself or your clothing to become tangled in or tripped by vine type material. SEVERE INJURY COULD OCCUR!

DANGER - OPERATOR MUST BE TETHERED TO SAFETY SWITCH WHILE MACHINE IS FEEDING!

ALWAYS cut vine type material into shorter, easier to handle pieces, approximately 4 to 5 feet!

STOP automatic feed system and run short pieces of vine type material through chipper using manual start/stop controls and a wooden push paddle!

STAY ALERT! Stand near feed control handle and be prepared to use if necessary!

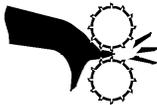
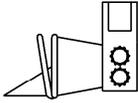
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DANGER

**INJURY OR DEATH CAN BE PREVENTED!
OPERATE THIS MACHINE ONLY IF:**



- All personnel are completely trained and understand the operating and shut down procedures.
- ANSI Z133 AND OSHA 29-1910 STANDARDS, concerning personal safety gear and proper clothing, are observed.
- Operators stay alert and are prepared to operate the feed control bar.
- Safety guards and covers are installed and tightened properly.
- Factory supplied or approved parts are installed.
- All safety and machine controls are fully functional.
- Operator reads and fully understands all decals.
- Decals are properly installed, visible, and readable.
- Chipper hood is not opened when machine is running.

BE SAFE! Always read and follow all safety instructions and operating procedures provided in manuals, on decals, video, and ANSI Z133 and OSHA 29-1910 standards. Always keep hands, feet and all other body parts out of feed hopper when feed wheels or machine are running .

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⚠ WARNING



**USE CAUTION IN
EXTREME COLD!
FROZEN BATTERY
WILL EXPLODE!**

NEVER JUMP START A BATTERY IN FREEZING TEMPERATURES. INSPECT BATTERY FOR SIGNS OF FROST BEFORE STARTING IN EXTREME COLD. MOVE EQUIPMENT TO A HEATED, WELL VENTILATED AREA TO ALLOW BATTERY TO THAW BUT NOT NEAR FIRE, SPARKS, OR OTHER SOURCES OF IGNITION.

BATTERY FUMES ARE EXPLOSIVE. NEVER USE JUMPER CABLES OR RECHARGE BATTERY UNLESS IN AN OPEN OR WELL VENTILATED AREA AND AWAY FROM ALL SOURCES OF IGNITION. BATTERY ACID CAN CAUSE SEVERE BURNS. KEEP AWAY FROM EYES, SKIN, AND CLOTHING.

ALWAYS REMOVE BATTERY BEFORE WELDING ON EQUIPMENT. FOLLOW PROCEDURES FOR WELDING AND GROUNDING BEFORE STARTING TO WELD ON THIS MACHINE OR EQUIPMENT DAMAGE AND POSSIBLY SEVERE PERSONAL INJURY WILL OCCUR.

0700314

⚠ WARNING



FLAMMABLE FUEL

THIS MACHINE USES DIESEL FUEL AND HYDRAULIC OIL.

NEVER FILL TANK WHILE ENGINE IS HOT, RUNNING, OR IN A CONFINED AREA. DANGER OF FIRE OR EXPLOSION EXIST.

LEAVE ROOM IN THE TANK FOR EXPANSION FROM HEAT - NEVER FILL TANK COMPLETELY FULL.

KEEP MACHINE AWAY FROM FIRE, SPARKS, AND OTHER SOURCES OF IGNITION DURING USE AND STORAGE.

NEVER PUT MACHINE IN STORAGE WITH FUEL IN THE TANK.

ALWAYS STORE FUEL IN APPROVED (RED) CONTAINERS AND AWAY FROM SOURCES OF IGNITION.

0700316

⚠ WARNING



LOUD NOISE! FLYING DEBRIS!



**HEARING AND EYE PROTECTION
MUST BE WORN WHILE IN
OPERATION!**

PROTECT YOUR HEARING AND SIGHT AND WEAR APPROVED SAFETY AND PERSONAL PROTECTION EQUIPMENT. OSHA AND ANSI SAFETY STANDARDS SHOULD BE FOLLOWED CLOSELY.

0700315

⚠ WARNING

**SEVERE ENGINE DAMAGE
WILL OCCUR IF THIS
ENGINE IS OPERATED AT
AN ANGLE GREATER
THAN 25°**

PROPER ENGINE OIL LEVEL
MUST BE MAINTAINED TO
ACHIEVE MAXIMUM ANGLE OF
OPERATION OF 25°
(SEE ENGINE OWNER'S MANUAL
FOR PROPER OIL LEVEL)

0700075A

⚠ WARNING



KEEP AWAY FROM PRESSURIZED LEAKS

Pressurized leaks are not always visible. Check for pressurized leaks using cardboard or wood. Never use a finger, hand or other body part to check for leaks.

Injuries from pressurized leaks penetrating the skin will lead to serious health problems or death. CONSULT A PHYSICIAN IMMEDIATELY IF PENETRATION OCCURS, SURGICAL REMOVAL REQUIRED.

Release pressure from line before loosening, removing or replacing any hydraulic hoses or equipment.

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NOTICE

**REGULARLY ADJUST
AND GREASE
PTO/CLUTCH PER
MANUFACTURER'S
MANUAL**

0700309

NOTICE

DECALS SHOULD BE PROPERLY
MAINTAINED AND REPLACED. IT
IS THE DUTY OF THE OWNER OF
THIS EQUIPMENT TO KEEP
DECALS IN GOOD CONDITION.

REPLACEMENT DECALS MAY
BE PURCHASED FROM
J. P. CARLTON CO.

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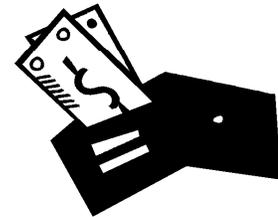
NOTICE

**NEVER ENGAGE OR DISENGAGE CLUTCH AT HIGH
ENGINE SPEEDS IN EXCESS OF 1200 RPM!**

FOLLOW PTO/CLUTCH MANUFACTURER'S MANUAL FOR PROPER
MAINTENANCE PROCEDURES AND LUBRICATION SCHEDULES. DO NOT
OPERATE THIS EQUIPMENT UNLESS PROPER SERVICE IS PERFORMED.
BE SURE TO FOLLOW THE PROCEDURES FOR YOUR BRAND AND MODEL
AS SERVICE AND OPERATION VARIES BY BRAND AND MODEL. NEW
PARTS AND EQUIPMENT MAY REQUIRE SERVICE SOONER AND MORE
OFTEN.

**WELL TRAINED OPERATORS
DON'T COST YOU MONEY!**

POOR MAINTENANCE PRACTICES WILL COST
YOU MONEY, MAKE SURE ANYONE WHO
OPERATES THIS MACHINE IS FAMILIAR WITH
THE MAINTENANCE AND LUBRICATION
PROCEDURES. A WELL MAINTAINED AND
CORRECTLY ADJUSTED CLUTCH SHOULD
PROVIDE MANY YEARS OF SERVICE WITH
LITTLE COST. LACK OF PROPER
MAINTENANCE AND LUBRICATION WILL CAUSE
THE CLUTCH TO FAIL PREMATURELY.



0700312

NOTICE

IMPORTANT MAINTENANCE

- REPLENISH RADIATOR COOLANT DAILY WHEN ENGINE IS OFF AND COLD. KEEPING THE ENGINE COOL AIDES IN LONG ENGINE LIFE. READ AND FOLLOW ENGINE MANUAL FOR COOLANT TYPE AND OTHER ADDITIVES.
- CLEAN ENGINE COOLING SYSTEM REGULARLY. (SUCH AS COOLING FANS, AIR COOLED ENGINE SHROUD, AND FILTER SCREENS, ETC.)
- BLOCKED FINS WILL KEEP RADIATOR FROM COOLING ENGINE SUFFICIENTLY. PRESSURIZED WATER SHOULD BE USED ONCE OR TWICE DAILY TO CLEAN RADIATOR FINS COMPLETELY. ALL DEBRIS MUST BE REMOVED FROM FINS. USING AIR PRESSURE WILL NOT CLEAN COMPLETELY.

ENGINE WILL OVERHEAT AND FAILURE WILL OCCUR IF RADIATOR AND COOLING EQUIPMENT ARE NOT MAINTAINED OR SERVICED CORRECTLY OR IF NEGLECTED.

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NOTICE

LUBRICATION AND HYDRAULICS CHECKLIST

ONLY TEXACO STARPLEX II GREASE OR EQUIVALENT SHOULD BE USED.

FOLLOW THE GUIDELINES IN THE LUBRICATION SECTION AND CHART IN THE MANUAL.

PTO/CLUTCH AND ENGINE SHOULD BE SERVICED AS SPECIFIED IN THE OWNER'S MANUALS FOR EACH.

REPLACE HYDRAULIC FILTER AFTER FIRST 10 HOURS OF OPERATION AND EACH 400 HOURS AFTERWARD.

HYDRAULIC TANK SHOULD ALWAYS BE KEPT 7/8 FULL. INCORRECT OIL TEMPERATURE OR PRESSURE MAY CAUSE CAVITIES TO FORM IN PUMP THUS CAUSING FAILURE AND EXPENSIVE REPAIRS.

PREMATURE FAILURE MAY OCCUR IF HYDRAULICS ARE NOT ALLOWED TO CIRCULATE SLOWLY A MINIMUM OF 5 MINUTES TO WARM UP IN COLD WEATHER.

TIGHTEN BELTS PROPERLY, LOOSE BELTS CAUSE SLIPPING AND HYDRAULIC POWER LOSS AND OVERLY TIGHT BELTS CAUSE BROKEN PUMP SHAFTS. CHECK MANUAL FOR PROPER BELT TENSION.

FAILURE DUE TO POOR HYDRAULIC AND BEARING MAINTENANCE IS VISIBLE AND WILL VOID WARRANTY!

REFER TO MANUAL FOR MORE INFORMATION

0700310

NOTICE

SERVICING BELTS AND BEARINGS

ALWAYS TURN OFF ENGINE AND REMOVE KEY BEFORE SERVICING! ALLOW ALL PARTS TO COME TO A COMPLETE STOP AND COOL BEFORE TOUCHING!

- New belts stretch and get loose. After 2 hours of operation, check tension and tighten belts.
- Check tension and retighten every 4 hours of operation until tension stays consistent.
- See manual for instruction and proper tension.
- Thereafter, check belt tension every month until belts need replacing.

AT LEAST ONCE A MONTH:

- CHECK AND TIGHTEN BOLTS AND LOCK SETSCREWS ON ALL BEARINGS.
- CHECK AND TIGHTEN SCREWS ON ALL BELT PULLEY BUSHINGS.

REFER TO MAINTENANCE SECTION

0700311

NOTICE

REPLACEMENT KNIFE AND HARDWARE SHOULD BE FACTORY APPROVED

ALWAYS use correct torque when retightening or replacing chipper knife or other hardware as specified in manual.

REPLACE chipper knife bolts and nuts that have been tightened numerous times - tighten no more than 5 times.

ALWAYS replace chipper knife, holders, bolts, and nuts with factory issued or approved parts for this machine (see manual).

ONLY sharpen chipper knife as specified in manual. Never go below minimum width.



INSTALL chipper knife hardware correctly.
The nut goes next to the chipper disc/drum with the flat side of the nut next to the disc/drum.

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CHIPPER LIMITED WARRANTY

J. P. Carlton Co. Inc., hereafter referred to as the "Manufacturer", warrants each new Carlton Chipper to be free of defects in workmanship and material for a period of one year.

This warranty takes effect upon delivery to the original retail purchaser. The manufacturer at its 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 consequential damages.

This warranty will be valid *only* if the chipper is operated in a manner recommended by the manufacturer. The following examples would void warranty:

1. The chipper has been abused. (Such as over extending size limits, not following routine maintenance recommendations, etc.)
2. The machine is involved in or damaged by an accident.
3. Repairs or attempted repairs were made without prior written authorization. Including, but not limited to, repairs made due to normal wear or not using manufacturer approved replacement parts.
4. Chipper damaged by foreign materials. (Such as wire, metals of any kind, etc.)

The owner is responsible for all regular maintenance as explained in the operator's manual. Neglect in regular maintenance or failure to replace normal wear items such as knives, anvil, lubrication oils, filters, belts, bearings, etc. may void warranty.

This warranty is expressly in lieu of any other warranties, expressed or implied, including any implied warranty or merchantability of fitness for a particular purpose and of any non-contractual liabilities including product liabilities based upon negligence or strict liability. J. P. Carlton Co. Inc. will not be liable for consequential damages resulting from breach of warranty.

IT IS NECESSARY TO RETURN THE WARRANTY VALIDATION FORM AND NOTIFY J. P. CARLTON CO. INC. IN WRITING WITHIN TEN (10) DAYS FROM DELIVERY DATE TO VALIDATE THIS WARRANTY.

NOTE: This warranty applies only to new and unused equipment or parts thereof manufactured by J. P. Carlton Co. Inc. ANY MACHINES USED FOR LEASE OR RENTAL – WARRANTY IS LIMITED TO 90 DAYS FROM FIRST DAY OF INITIAL SERVICE.

NOTICE: All power units and associated components are NOT warranted by J. P. Carlton Co. Inc. or their dealers. It is the customer's responsibility to return the machine to the local engine distributor.

Information phone numbers to find your local engine & parts service centers:

- Honda 1-770-497-6400
- Kohler Engines..... 1-800-544-2444
- Briggs & Stratton Engines 1-800-233-3723
- Lombardini 1-770-623-3554
- Deutz Engines..... 1-800-241-9886
- John Deere Engines 1-800-533-6446
- Caterpillar 1-877-636-7658
- Kubota 1-847-955-2500
- Kawasaki Engines..... 1-616-949-6500
- Wisconsin Engines 1-800-932-2858
- Onan Engine..... 1-800-888-6626

In order to process any claims, it is the owner's responsibility to report claims properly to the manufacturer or the authorized dealer from whom the equipment was purchased. It is necessary to include the following information on any and all request for warranty:

- | | |
|-------------------------------|----------------------------------|
| 1. Dealer from whom purchased | 5. Engine make and serial number |
| 2. Date of delivery | 6. Length of time in use |
| 3. Serial number of unit | 7. Date of failure |
| 4. Model number of unit | 8. Nature of failure |

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EXPLANATION OF LIMITED WARRANTY

The manufacturer will not reimburse the customer or dealer labor cost incurred for installing “bolt-on” or “slip-on” items, such as pumps and motors, bearings, belts, pulleys, etc. The manufacturer will provide replacement parts at no cost to the customer for defective parts during the warranty period. Defective parts must be returned to J. P. Carlton Company. 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 cost to servicing dealer. It is the customer’s responsibility to deliver the machine to the dealer’s facility, unless other arrangements have been agreed to between the selling dealer and the customer.

The manufacturer may elect, at its discretion, to reimburse reasonable labor cost to customer or dealer for major defect repairs. Prior approval must be obtained from J. P. Carlton Company Inc.

IMPORTANT NOTICE

1. AIR FILTER MAINTENANCE IS CRITICAL ON CHIPPERS. DIRT INGESTION WILL NOT BE WARRANTED BY THE ENGINE MANUFACTURER OR BY J. P. CARLTON COMPANY.
2. OIL AND OIL FILTER MAINTENANCE ARE CRITICAL ON CHIPPERS. STARVING THE ENGINE FOR OIL WILL NOT BE WARRANTED BY THE ENGINE MANUFACTURER OR BY J. P. CARLTON COMPANY.
3. IF THE CHIPPER IS EQUIPPED WITH A CLUTCH, THE MAINTENANCE AND ADJUSTMENT ARE CRITICAL; FOLLOW THE CLUTCH MAINTENANCE AND ADJUSTMENT SECTIONS IN THIS MANUAL. J. P. CARLTON CO. DOES NOT WARRANT THE CHIPPER CLUTCH. READ THE CLUTCH MANUAL FOR THE MANUFACTURER’S WARRANTY.

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Warranty Validation Form

Congratulations on your purchase of a Carlton Chipper. This product has been designed and manufactured to provide years of profitable service while minimizing maintenance and downtime. Please take the time now to complete this warranty validation form. This information is necessary for Carlton to instate your warranty.

Return Form To: J. P. Carlton Company, Div. D.A.F. Inc.
121 John Dodd Road; Spartanburg, SC 29303; Phone: 1-864-578-9335

Purchaser Information:

Company Name: _____ Street Address: _____
City: _____ State: _____ Zip Code: _____
Telephone: _____ Contact Name: _____

Machine Information:

Model Number: _____ Engine Model: _____
Serial Number: _____ Serial Number: _____

Dealer Information:

Dealer Name: _____ Street Address: _____
City: _____ State: _____ Zip Code: _____
Telephone: _____ Contact Name: _____

1. _____ Customer has been instructed on the operation and safety of this chipper.
2. _____ Customer understands it is the chipper owners' responsibility to train all operators on all aspects of operator safety and operation of this chipper.
3. _____ Customer has been instructed that every person within a 100 foot radius of the chipper while in operation must be wearing personal safety equipment as specified in the Safety Section of this manual.
4. _____ Customer has been instructed on positioning the discharge chute away from the direction of people and/or property because of the danger of airborne chips.
5. _____ Customer has been **warned that no one should ever reach, kick or lean into the feed intake chute.** Customer has been informed that at least one operator must be in position, at all times, to activate the feed control bar to shut down and reverse the feed wheels any time material is being fed or the feed wheels are running.
6. _____ Customer has been instructed to feed short brush or vine-like material on top of longer material or to use the push paddle, not to reach or kick this material into the chipper feed intake chute.
7. _____ Customer has been warned not to operate the chipper with the chipper hood open or unlocked. The chipper hood must be pad locked and must not be able to come open during operation.
8. _____ Customer has been instructed on the procedures to follow before performing maintenance of any kind on the chipper: turn engine off and remove ignition key; disconnect battery cable; allow the cutter disk to come to a complete stop (which will take several minutes); install cutter disk lock; and allow all parts to cool completely. If working between feed wheels, raise upper feed wheel using the hydraulic lift, insert yoke pin and put wooden block between feed wheels.
9. _____ Customer has been instructed on normal maintenance and lubrication schedules and procedures and has been advised that failure to perform periodic maintenance may void the warranty. Oil and air filters must be maintained properly or the warranty will be voided.
10. _____ Customer has been advised that the engine or power unit that is used on this machine is warranted by the engine manufacturer and **NOT J. P. Carlton Company**. All engine warranty issues should be addressed to the local engine dealer.
11. _____ Customer has been advised that maintenance and adjustment on the clutch are critical. Customer has been advised that J. P. Carlton Co. does not warrant the clutch and the only warranty that applies is in the clutch manufacturer's manual. Contact the clutch manufacturer with warranty issues.
12. _____ All operation and warning decals are properly displayed on equipment and have been reviewed with the customer. All safety devices have been inspected and found to be working properly at this time.
13. _____ Customer has received and reviewed all operators' manuals, warranties, safety instructions, and parts.
14. _____ Customer fully understands all information that has been provided, both written and verbal.

I have inspected this equipment and find it in good working condition. To the best of my knowledge, the customer and his personnel are aware of the above procedures.

Date: _____ Signed: _____
Dealer Representative

The equipment has been thoroughly checked by the above named dealer, and I am satisfied with his instructions.

Date: _____ Signed: _____
Customer

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MISCELLANEOUS

AUTO-FEED PLUS® MANUAL	
E-Z LUBE® MAINTENANCE	
BACK	

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Congratulations on your purchase of a new Carlton® Professional Chipper! Carlton® has built its reputation on the superior performance and reliability of their stump grinders and you can be assured your new chipper has the same performance and reliability. A machine is not profitable if it's broken-down and we do our absolute best to help you avoid costly downtime. Each machine has been designed for durability and assembled to last for years of trouble-free operation. In this, we take pride.

The Carlton® 1290 chipper is our standard duty 9-inch capacity disk style chipper. From the ground up, the components and weldments are the strongest on the market.

Read this manual carefully and TAKE RESPONSIBILITY for thoroughly familiarizing yourself with the controls and the concepts behind the operation of this machine before attempting to operate it. Slowly experiment with the controls and gradually work yourself up to the full capabilities of this machine. The Carlton® 1290 chipper is a durable and profitable professional chipper. Read the chipper manual, the safety and operational decals on the chipper, and all other operation and safety materials provided for the engine and other components. Use proper safety precautions. Follow the instructions and use common sense and your "OX" will perform like its namesake. If getting more work done in a day, with less trouble, is your idea of good business, then you'll love your new Carlton® Chipper.

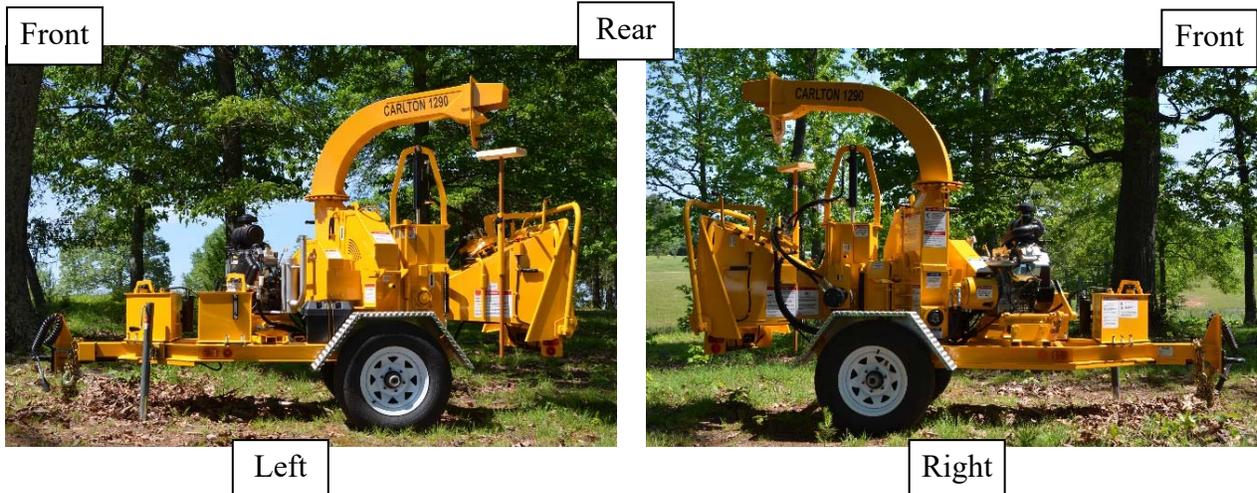
We welcome your suggestions on how we might better build our machines. We solicit any and all questions concerning the safe operation or proper servicing of your new chipper.

Please feel free to write to us with any comments.
We'll enjoy hearing from you!

The J. P. Carlton Company constantly strives to create the best professional tree equipment available in the industry. Therefore, the material in this manual is correct at the time of publication. Carlton® reserves the right to make improvements, modifications, and even discontinue features as we deem necessary to meet our goal. Carlton® also reserves the right to discontinue models without any prior notification or obligation.

Inspect your new Carlton® Chipper as soon as you receive it. Any damages incurred during shipment are not warranted and, therefore, are not covered repairs. You should have the truck driver verify or acknowledge any damages caused during shipment. If not, contact the truck lines as soon as possible with your complaint.

Any reference made to the right, left, front, or rear in relationship to the chipper is illustrated in the following pictures. Please refer to these any time you call your dealer or J. P. Carlton for parts or assistance.





Available Machine Features:

- 35 HP gas engine
- Auto-Feed® Plus system
- Reversing auto feed
- Direct drive hydraulic pump
- 360° adjustable swivel discharge w/adjustable deflector
- Axle 5200# cap
- Electric brakes, optional
- Front jack stand – 7000# Cap, Screw type
- AR400 anvil
- 15" Tires rated 1760 pounds @ 50 PSI
- Tapered roller bearings
- 1-1/2" thick cutter disk
- 2 knives
- 12" x 9" throat opening
- 41" wide feed intake opening
- Feed Roller - 10 1/2" x 12"
- Engine Key start
- High capacity battery
- Marine battery box
- Epoxy primer
- Dupont Imron® paint
- Double wire braid hoses
- Lockable tanks

**We Pride Ourselves
in the strength and quality of each and every machine**



General:

Weight: -----2930 Pounds
Length:-----132 inches
Height:-----93 inches
Width:-----67 inches
Tires:-----205/75R15 Ld Rng C 1760 #
 @ 50 PSI
Axle:-----Dexter Torflex 5200-Pound Cap
Brakes:-----Electric Available as Option
Hitch:-----5" Height Adjustable 2" Bulldog
Fuel Capacity:-----12 Gallons
Battery:-----29HVD 650 CCA
Jack Stand:-----7000 # Cap Screw Type Swing Up

Engine:

(Varies depending on selection of engine make & model)

Manufacturer:-----Vanguard 35 HP V-Twin
Number of Cylinders: Two
Bore:-----85.5 mm
Stroke:-----86.5 mm
Displacement:-----993cc
Maximum RPM:-----3600 RPM
Horsepower:-----35 HP
Torque:-----53 Ft Lbs
Cooling Medium:----Forced Air
Air Cleaner:-----Two Stage Dry Type
Oil Filter:-----Full Flow Spin On
Oil Capacity:-----2.3 Quarts
Oil Type:-----Briggs
Electrical:-----12 Volt
Gauges:-----None
Clutch:-----Sliding Positive Lock Engagement

Bearings:

Disk Bearings:-----2 7/16 inches Tapered Roller
Feed Roller Bearings: 2 inch Ball
Disk Shaft:-----3 1/2 inch Removable
Feed Roller Shaft:----2 inches Engagement
Feed Lift:-----1 inch Flanged Ball

Chipper Disk:

Wheel Diameter:-----30 inches
Wheel Thickness:----1-1/2 inches
Disk Balance:-----Precision High Speed Balanced
Wheel Speed:-----1440-RPM Nominal
Number of Knives:---2
Knife Dimensions:----10-3/16" x 4 x 1/2"
Anvil:-----4" x 8-7/8" x 1/2" AR400
Chip Throwers:-----Two 3/8" x 4" x 4" x 11" long

Cutting Dimensions:

Throat Opening:-----12" x 9"

Hydraulic System:

Hyd Pump Displcmnt: .329 in cu/rev
Hyd Pump Drv Systm:Direct Drive off Engine Mount
Flow:-----5.33 GPM
System Relief:-----2500 PSI
Oil Tank Capacity:---8 Gallons
Oil Type:-----AW32
Valve:-----Series Type
Hose:-----16,000 PSI Burst - Exceeds SAE
 100R2
Oil Filter:-----10-Micron Return with Suction
 Strainer

Drive System:

Engine Sheave:-----6/3V5.6
Disk Sheave:-----6/3V14.0
Drive Belt:-----6 Band 6/3V750

Feed System:

Feed Motor:-----Top- 32.7 in cu
Flow:-----5.41 GPM
Hydraulic Drive:----Live – Driven off engine
Autofeed:-----Digital Fully Adjustable
Feed Rate:-----100 Feet Per Minute
Feed Roller:-----10 1/4" x 11.5"
Springs:-----Two 15" Tight Wound Powder
 Coated
Slide Bearings:-----Two 1" Flange Mount
Lift Cylinder:-----2" x 10" with 1" attachment
Discharge:-----360 Adjustable Swivel w/Deflector

Frame:

Main Trailer Tongue:-2" x 4" with 1/4" wall
Main Trailer Frame:--C4 X 5.4 Channel
Engine Mount:-----Sliding Positive Lock Engagement
Infeed Chute:-----10 Gauge with
Folding Infeed Tray: -10 Gauge with 1" tube frame
Folding Tray Lock:---3/16" thk.
Discharge Chute:-----10 gauge neck with 14-gauge
 discharge
Discharge Lock:-----3/4" Spring Loaded Pin
Fuel Tank:-----10 gauge with baffles rubber mtd
Hydraulic Tank:-----10 gauge with baffles rubber mtd
Battery Box:-----Marine Battery Box
Fenders:-----10 gauge checker plate
Feeder Bar:-----1 1/2" OD x 1/8" wall - removable
Radiator Guards:----None
Light Brackets:-----3/16" with hidden wiring
Axle Mounts:-----1/2" Plate
Hitch Plate:-----3/4" Plate adjustable 9" Up/Down

Before operating the chipper, read this manual, the engine manual, and all the safety decals on the machine. Know all parts of the machine and their functions, especially the shut down procedures in case of emergency. No inexperienced person may operate the chipper. Inexperience may cause injury. It is the owner's responsibility to ensure all operators are trained and fully understand all safety and operational aspects of the chipper.

This machine was built with safety in mind. The guards and other safety devices only work when kept in place and secured properly. Safety decals are placed on the machine as reminders of how to operate the machine safely, pay attention to the instructions.

SAFETY FIRST ALWAYS!

This is the **Safety-Alert Symbol**. This symbol is placed on the machine and in the manual to alert the operator to the potential for bodily injury or death. The operator should pay close attention to the instructions whenever they see this symbol.

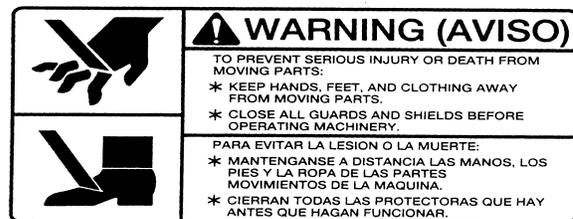


The **Safety-Alert Symbol** will be accompanied by one of the following words:
DANGER, WARNING, or CAUTION

- A **DANGER** symbol means that if the instructions are not followed the possibility of serious personal injury or death is probable.
- A **WARNING** symbol means that if the instructions are not followed there is a possibility of serious personal injury or death.
- A **CAUTION** symbol means there is an unsafe condition or practice that may cause personal injury or property damage.

PERSONAL PROTECTION:

- ❖ All personnel must wear eye and ear protection, hard hat, short fitted gloves without cuffs, long sleeve shirt, long pants without cuffs, and over the ankle work boots with skid resistant soles.
- ❖ Do not wear loose-fitting clothing.
- ❖ Tie long hair back.
- ❖ Do not wear jewelry or long dangling clothing; i.e. neckties, long belts, or chains.
- ❖ Stay away from feed wheels.
- ❖ Keep away from moving parts.
- ❖ Only run in a well ventilated area because of carbon monoxide poisoning.



P/N 070000A



P/N 0700008



P/N 0700010

JPC10

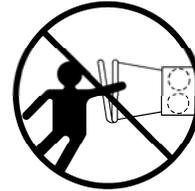
Be Safe and Practice Safe Operation using the following guidelines.

⚠ DANGER



- **Any** individual operating this chipper **must** first read and understand this manual, the engine and other component manuals supplied with the chipper, and all safety and operational decals on machine.
- **DO NOT** permit children to operate machinery or to play near machinery during operation.
- **DO NOT** allow spectators to stand and watch chipper in operation.
- **DO NOT** allow people to pass by discharge zone while chipper is in operation.
- Keep hands, feet, legs, clothing, hair and all other body parts away from feed intake wheels, chipper knives, and other moving parts.
- Do not hang from, ride, sit, stand, lay, or climb anywhere on this chipper while it is in operation, running, or being transported.
- Do not move, position, or transport this chipper with the engine running.
- Keep away from pressurized leaks. Never check for leaks using hand or finger, use cardboard or wood. Pressurized fluid can penetrate the skin and cause injury or even death. Seek immediate medical attention if penetration occurs. Always wear eye protection.
- **DO NOT** operate any machinery while under the influence of alcohol or drugs (prescription, over the counter, or otherwise).
- **DO NOT** modify or change any part without written approval from J. P. Carlton Company.

⚠ DANGER



- Operator must be tethered to safety switch while machine is feeding.
- No one should ever reach, lean, or kick into the feed intake chute when the chipper or the engine is running. Feed wheels will pull in anything in the path of operation and **will** cause **severe** personal injury if a person is pulled into feed intake wheels.
- Always load shorter pieces of wood or brush on top of longer pieces or use push paddle, **never** reach into the feed intake chute to load these pieces.



- Stay clear of discharge zone when running chipper. Never allow anyone to stand near or to walk close to the discharge zone, even if being discharged into a bin or truck.
- Airborne debris may cause severe injury. If inspection of chipped material is required, shut down the chipper and the engine first.
- Discharge spout should not be pointed toward people, buildings, or other personal property that may be injured or damaged. Airborne debris is as dangerous as any powerful projectile.
- Never position, adjust, or move the discharge chute while the chipper or the cutter disk is running.

⚠ DANGER

- Always have at least 2 operators at the job site running the chipper. One to be tethered to safety switch while loading the brush into the feed wheels and the other to maintain the feed control bar in case of an accident.
- Always feed trees and brush butt end first and walking to the right side of the chipper, material being fed should be to the operator's left side. The material being fed tends to kick to the left and could injure anyone on that side.
- Never lean over material being loaded into the feed wheels; especially small diameter, short length material that is still long enough to be fed into the feed wheels alone. The material is not heavy enough to hold down when the feed wheels first grab it and will kick up hitting the operator in the chin or head causing injury.

⚠ DANGER

- **KEEP CUTTER DISK HOOD CLOSED WHILE CHIPPER IS RUNNING.** Always make sure the cutter disk hood bolts are tight before starting chipper. The cutter disk hood must be closed and contact made between stop and safety switch.
- Never open the cutter disk hood while engine is running. After the engine is turned off, allow the cutter disk to come to a complete stop before opening the cutter disk hood. This will take several minutes.
- Never run the chipper or the engine with the cutter disk hood open or unlocked at any time or for any reason.
- If the cutter disk hood or hinge is damaged, replace immediately.

⚠ DANGER



- Operator must be tethered to safety switch while machine is feeding.
- Never lay vine type material in front of feed intake chute.
- Never allow yourself or your clothing to become tangled in or tripped by vine type material. SEVERE INJURY COULD OCCUR.
- Always cut vine type material into shorter, easier to handle pieces, approximately 4 to 5 feet.
- Don't feed the vines into the chipper unless they have been cut!!!
- STOP automatic feed system and run vine type material through using manual start/stop controls and a wooden push paddle.

⚠ WARNING

- Always have the trees and brush cut to size for the chipper before the chipper arrives at the job site.
- It is very dangerous to run a chain saw and the chipper at the same time.
- If a tree gets jammed and has to be trimmed, shut down the chipper first.

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- ◆ The engine is turned off.
- ◆ The ignition key is removed.
- ◆ Positive battery cable is disconnected.
- ◆ The clutch is disengaged.
- ◆ Feed control bar is in neutral.
- ◆ All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop.
- ◆ All machine parts have had sufficient time to cool down.
- ◆ The cutter disk lock pin is installed in the disk lock tube.
- ◆ No operator is in position at the controls to accidentally start machine.
- ◆ At least 2 people are at the site where maintenance is performed.

More accidents occur while performing maintenance than any other time! Use extra caution.

Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

⚠ WARNING

- Keep a well-stocked First Aid Kit with the chipper at all times.
- Keep a full Fire Extinguisher with the chipper at all times.

⚠ DANGER



LOCK PIN TUBE

- **YOKE LOCK PIN MUST BE IN LOCK PIN TUBE** before performing maintenance between the feed wheels. Use the hydraulic lift valve to raise upper feed wheel high enough to insert yoke lock pin as shown above.
- **Chipper must be attached to tow vehicle before raising the upper feed wheel.** This will stabilize the chipper during service to keep it from turning over and causing severe injury to workers and damage to the chipper.
- Upper feed wheel springs must be disconnected to raise feed wheel using jack.
- See the Service Cutter System Section for further instruction.



- Stop engine, remove key, and disconnect battery cable when repairing or adjusting machine or drive belts.
- Keep engine in good condition, service as instructed in engine manual. Do not touch engine while running or hot (serious burns may result).
- Allow all machine parts to cool sufficiently before servicing or making adjustments. Hot machine parts can cause severe burns.

⚠ WARNING

- During operation of the chipper, all people within a 100-foot radius should wear protective equipment, including eye and ear protection and hard hats.
- If unusual noise or vibration occurs, stop engine immediately and correct the problem before continuing operation, consult authorized dealer if necessary.
- Keep all guards in place and properly secured during operation. Never operate the chipper with guards missing or loose.
- Keep all safety devices working properly and all other machine parts in good condition.
- Never leave the controls unattended while in operation. Be sure machine is not capable of operation when left unattended. Remove key and disconnect battery, if necessary.
- **DO NOT OPERATE THE ENGINE AT AN ANGLE GREATER THAN 25° OR SEVERE ENGINE DAMAGE WILL OCCUR. PROPER ENGINE OIL LEVEL MUST BE MAINTAINED TO ACHIEVE MAXIMUM ANGLE OF OPERATION OF 25°. (See Engine Owner's Manual for proper oil level.)**

⚠ CAUTION

- Do not operate chipper in dim lit, dark, or concealed areas. Do not operate or run machine or engine in enclosed area due to carbon monoxide poisoning hazard.
- Keep machine clean and clear of debris to eliminate fire hazard. It is especially important to clean any oil or fuel spills to prevent the danger of fire.
- Keep safety and instructional decals clean and replace any that are damaged, difficult to read, or missing. Decals may be purchased from J. P. Carlton or an authorized dealer.
- Remove all foreign objects from the chipper before starting, i.e. jackets, gloves, tools, etc.



- Gasoline, diesel fuel and their vapors are highly flammable and explosive. **Handle with care.** Only use approved (red) fuel containers for storage.
- Do not store machine with fuel inside tank or fuel containers near any open flames, sparks, or other sources of ignition.
- Do not store equipment with fuel in the tank for long periods.
- Battery fumes are explosive. Recharge battery in an open area away from fire, sparks, or other sources of ignition.
- Use caution in extreme cold! Frozen battery will explode! Allow battery to thaw in heated area away from fire or sparks.
- Battery acid can cause severe burns. Keep away from eyes, skin, and clothing.
- Remove battery before welding on equipment.

⚠ CAUTION

- If operating chipper uncoupled from tow vehicle, the tires and tongue must be blocked. Use but do not depend on jack stands to hold machine steady.
- Always store tools safely away from moving machine parts, especially the feed intake wheels.
- There should be no obstacles in the path of operation behind the chipper or around the chipper to allow trip free movement of all personnel.
- Keep unauthorized persons away from the chipper operation area.



It is vital that the owner and operators inspect the chipper each day before operation. This inspection will help identify potential problems that may arise during the workday. The operators must get in the habit of performing this inspection each and every day. By performing this inspection each day, the operators will help minimize downtime and costly repairs. This inspection will also help to minimize risks associated with the operation of this brush chipper.

SAFETY:

DO NOT PERFORM MAINTENANCE OF ANY KIND (including routine inspections) ON THIS MACHINE UNLESS:

- **The engine is turned off.**
 - **The ignition key has been removed.**
 - **The engine belt is disengaged and the lock is in position. (see Machine Control section)**
 - **All moving parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop.**
 - **The cutter disk lock pin is installed in the disk lock tube.**
 - **All machine parts have cooled completely.**
 - **There is no operator at the controls to accidentally start the machine.**
 - **At least 2 people are at the site where the maintenance is to be performed.**
-
- **Inspect Decals making sure all are in place, secure, and legible. (Not all decals are shown here; just a small representation)**



- Make sure all personnel are equipped with all applicable safety equipment:
 - Eye protection
 - Hearing protection
 - Hard hat
 - Short, fitted gloves
 - Long sleeve shirt
 - Long pants
 - Over the ankle work boots with skid resistant soles

PERSONAL PROTECTION:

- ❖ All personnel must wear eye and ear protection, hard hat, short fitted gloves without cuffs, long sleeve shirt, long pants without cuffs, and over the ankle work boots with skid resistant soles.
- ❖ Do not wear loose-fitting clothing.
- ❖ Tie long hair back.
- ❖ Do not wear jewelry or long dangling clothing; i.e. neckties, long belts, or chains.
- ❖ Stay away from cutter disk.
- ❖ Keep away from moving parts.
- ❖ Only run in a well ventilated area because of carbon monoxide poisoning.



BECAUSE OF MACHINE VIBRATION, ALL EQUIPMENT ATTACHED USING SCREWS OR BOLTS AND NUTS SHOULD BE CHECKED REGULARLY FOR TIGHTNESS. ALL SCREWS, BOLTS, AND NUTS NEED TO BE INSPECTED FOR TIGHTNESS AND WEAR. ALL SCREWS, BOLTS, AND NUTS THAT WON'T STAY TIGHTENED OR THAT HAVE WORN, CHIPPED, OR MISSING THREADS SHOULD BE REPLACED.

- Inspect bolts, hydraulic fittings, wiring harnesses, hoses, and equipment for tightness, wear, or leakage. Replace if necessary. DO NOT inspect for hydraulic leaks with your hand or finger.

****FLUID UNDER PRESSURE CAN PENETRATE THE SKIN AND CAUSE SEVERE INJURY. CHECK FOR LEAKS USING A BOARD OR CARDBOARD; DO NOT USE HAND OR FINGER. SEEK IMMEDIATE MEDICAL ATTENTION IF SKIN IS PENETRATED. ALWAYS WEAR EYE PROTECTION.****



- Check air pressure in tires daily. Inflate to tire manufacturers recommended maximum inflation pressure for temperature and climate.
- Inspect tires for wear.
- Inspect axle caps, replace if necessary. Grease axles as suggested by manufacturer. (Dexter Axle information provided in back of manual.)



- Inspect hitch and hitch bolts. (Bulldog hitch shown; Pintle hitch also available.)



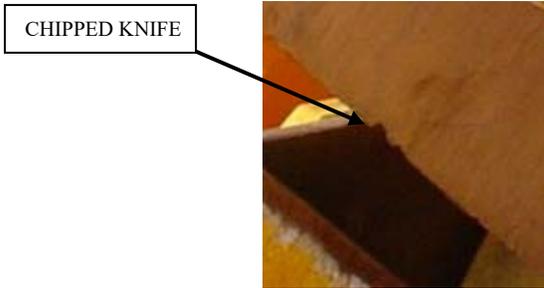
- Make sure all guards are in place and properly secured.



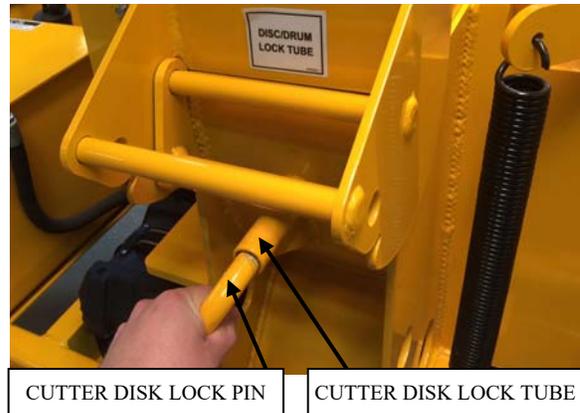
- Check tail and brake lights for proper operation.



- Inspect cutter disk knives and anvil for wear. Do not operate the machine without a full set of undamaged knives in place. Worn or chipped knives will cause improper operation of the chipper. (See Servicing Cutter Disk Section to change or sharpen knives and anvil.)



- Cutter disk must rotate freely. This will help insure there are no foreign objects inside the cutting chamber and there is ample knife to anvil clearance. (The cutter disk lock pin will have to be pulled out of cutter disk lock tube to check rotation. Replace pin after checking rotation to perform further inspections.)



- When inspections of cutter disk are complete, close cutter disk hood and tighten the hood bolts. Make sure hood will not open. Check cutter disk hood and hinges for damage and fit, replace immediately if there is any damage or misalignment.



- Inspect the inside of the infeed chute. Check to make sure there are no foreign objects inside the infeed chute. Anything that is inside of the infeed chute may go through the chipper. There should never be anything or anyone inside the infeed chute when starting the chipper, damage or injury could occur.





- Check and maintain proper engine oil, fuel tank, and hydraulic oil tank levels. Make sure engine is cool before checking. Replenish engine oil, fuel, and hydraulic oil every morning before starting the machine so there is no danger of fire from hot machine parts or sparks. Do not fill fuel or hydraulic oil tanks more than 7/8 full to allow for heat expansion.

**NEVER REFUEL OR ADD OIL:
WHILE ENGINE IS RUNNING,
WHILE IN AN ENCLOSED AREA, OR
WHILE ENGINE IS HOT.**



- Inspect air filters for dirt and damage, clean or replace as necessary. Open clamp and remove end to remove air filters. Use caution to not allow engine to ingest dirt and debris when changing or inspecting air filters.

**REPLACE WITH MANUFACTURER
RECOMMENDED AIR FILTERS ONLY.**



The proper repair or replacement procedures, if required, are further illustrated in the Maintenance or Service Sections of this manual. Other periodic inspections and maintenance are covered in other sections of this manual.

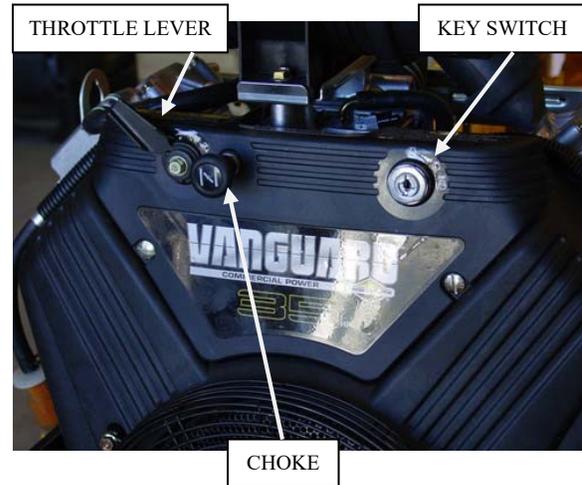
It is imperative that all operators are familiar with all controls of the chipper. This will make for a much more productive and safer work period. (The actual controls may differ depending on the engine supplied with your chipper.)

ENGINE CONTROLS:

- The Vanguard engine is started using the key switch located on the engine. The switch has 3 positions: Stop, Run, & Start. (The engine supplied with your chipper may be different, refer to the engine manual for starting information.)
- The engine also has Choke and Throttle controls. For further information about engine operation and service, please read the engine manual supplied with the chipper.

DO NOT OPERATE THE ENGINE AT AN ANGLE GREATER THAN 25° OR SEVERE ENGINE DAMAGE WILL OCCUR. PROPER ENGINE OIL LEVEL MUST BE MAINTAINED TO ACHIEVE MAXIMUM ANGLE OF OPERATION OF 25°. (See Engine Owner's Manual for proper oil level.)

- The Auto-Feed monitors the engine RPM and controls the feed system based on this information. The Auto-Feed is calibrated when installed in the chipper with a high and low RPM setting for the feed wheels to operate. When the engine RPM is low and the Auto-Feed is on, the hydraulics will not work. If large diameter wood is being chipped and the engine RPM drops below the Auto-Feed Low setting, the Auto-Feed will stop the feed wheels. After the engine RPM is high enough to handle the force required to chip this material without causing the engine to lug down, the Auto-Feed restarts the feed wheels.
- The Auto-Feed control is calibrated to automatically come on when the chipper is started. If you need to turn on the Auto-Feed Plus control, press and hold the right button down for 2 seconds and release.
- The Auto-Feed must be turned off to operate the hydraulics at low engine RPM or idle. When the Auto-Feed is on the hydraulics only work when the engine RPM is high. To operate the feed wheels at low engine RPM, turn off the Auto-Feed by pressing and holding the left button for 2 seconds and release.
- Read the Auto-Feed manual supplied at the end of this chipper manual if programming is required.



AUTO-FEED OFF
(PRESS AND HOLD FOR 2 SECONDS TO TURN OFF)

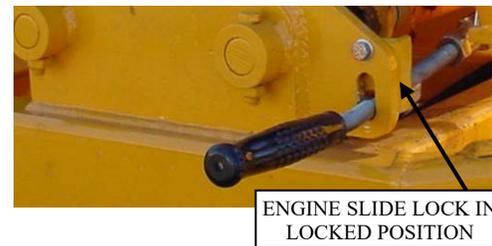
AUTO-FEED ON
(PRESS AND HOLD FOR 2 SECONDS TO TURN ON)

ENGAGEMENT HANDLE & ENGINE SLIDE LOCK

- The cutter disk is disengaged when the engagement handle is pushed forward and the engine slide lock is in the locked position.
- After disengaging the cutter disk, allow several minutes for the disk to come to a complete stop before performing any maintenance or service to the machine, even routine inspections.



- Make sure the engine slide lock is in the locked position when the cutter disk is disengaged. This is to prevent the cutter disk from accidentally becoming engaged and is an important safety feature.



- To engage the cutter disk, lift the engine slide lock and pull the engagement handle back.



- Engage and disengage the cutter disk with the engine at idle or just above idle. **ALWAYS ENGAGE OR DISENGAGE THE CUTTER DISK WITH THE ENGINE AT IDLE.** Engagement or disengagement of the cutter disk at elevated engine speeds can cause severe engine damage. This type of damage will not be covered by the engine warranty.



CUTTER DISK DOOR LOCKOUT

- The cutter disk door lockout is a safety device that prevents the cutter disk from being engaged if the cutter disk door is not closed or not secured properly. If the switch is not threaded into the cap, cutter disk cannot be engaged.



DISCHARGE FLAP

- There is an adjustable flap on the end of the discharge chute. This flap is adjustable in the vertical direction to help control the height and distance of the chips being discharged. To adjust the flap pull down on the handle spring lock and rotate the flap up or down to desired position. **NEVER ADJUST THIS FLAP WHILE THE CHIPPER IS IN OPERATION OR WHILE THE CHIPPER DISK IS SPINNING!**



SWIVEL DISCHARGE

- Carlton Chippers are equipped with a rotating discharge chute. To rotate the chute to the desired position
 1. Pull down and unlock the rotation lock pin.
 2. Use the handle on the end of the chute (the discharge flap adjustment handle shown above) and pull or push the chute in a safe direction to discharge chips or to position the chute for towing.
 3. Release the lock pin making sure it engages in one of the locking slots on the discharge chute securing the chute in desired position.



ALWAYS MAKE SURE THE DISCHARGE IS POINTED IN A CLEAR DIRECTION FOR DISCHARGE OF CHIPS.

FEED CONTROL BAR

- The feed control bar is located on three sides of the infeed chute; across the top and down each side.
- The feed control bar has three distinct positions:
 - To feed material, **PULL** the feed control bar back towards rear of the machine. In this position the feed wheels are engaged and will pull material into the chipper
 - In the middle position the bar is in the stop position. With the bar in this position the feed wheels are stopped and do not rotate.
 - To reverse material, **PUSH** the feed control bar forward towards the front of the machine. This position reverses the feed wheels and attempts to back material out of the chipper.
- **ALWAYS VERIFY CORRECT FUNCTION OF THE FEED CONTROL BAR BEFORE BEGINNING TO CHIP MATERIAL**
- **NO ONE SHOULD EVER REACH, LEAN, OR KICK INTO THE FEED INTAKE CHUTE WHEN MACHINE OR ENGINE IS RUNNING**



FEED CONTROL BAR



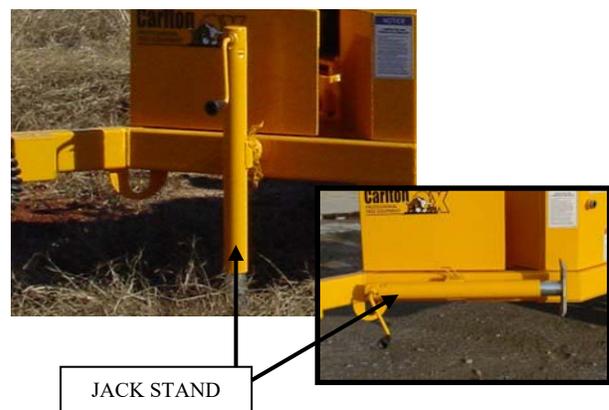
FEED CONTROL BAR - FORWARD FEED MODE



FEED CONTROL BAR - REVERSE FEED MODE

FRONT JACK STAND

- Use the front jack stand anytime the chipper is removed from the tow vehicle for storage or rest.
- This chipper cannot be operated as stand-alone. The chipper must be attached to the tow vehicle and the tires chocked when in use.
- The front jack stand can be attached and stored on the left front side of the chipper, as shown.



JACK STAND

BRAKES & REAR LIGHTS

- The chipper's lights are connected to the tow vehicle actuator to be activated by the tow vehicle operation.

See the Machine Wiring section of this manual for wiring diagram.



SAFETY:

- **NEVER ALLOW INEXPERIENCED DRIVERS TO TOW MACHINERY.**
- **ALWAYS MAKE SURE THE TRUCK HITCH AND THE CHIPPER HITCH ARE OF MATCHING STYLE AND SIZE.**
- **ALWAYS MAKE SURE THE TOW VEHICLE AND THE CHIPPER ARE ON LEVEL GROUND AND THE WHEELS ARE CHOCKED BEFORE CONNECTING OR DISCONNECTING THE CHIPPER.**
- **MAKE SURE THE TOW VEHICLE IS OF ADEQUATE SIZE AND HAS THE TOWING CAPABILITY TO SAFELY TOW THE CHIPPER.**
- **NEVER TOW A MACHINE WHILE IT IS RUNNING.**

- Make sure the truck hitch and the chipper hitch are of matching style and size and not worn.
- Check all hitch bolts to make sure they are tight on the chipper and the truck.
- Make sure the hitch on the chipper and the ball on the truck are greased for smoother pivots and to reduce the wear on both parts.
- Make sure the tow vehicle is of adequate size and has the towing capacity to safely tow the chipper. Make sure the truck hitch is heavy enough and built strong enough to tow the equipment.



HITCH AVAILABLE IN 2" OR 2 5/16" COUPLER OR 2 1/2" PINTLE RING, PICTURED AT RIGHT.



- Adjust both the truck hitch and chipper hitch so the chipper sits as close to level as possible when connected to the truck. A proper amount of tongue weight is required to allow the machine to tow properly. Too little tongue weight will result in wandering, fishtailing, or axle damage.



CHIPPER SHOULD RIDE AS CLOSE TO LEVEL AS POSSIBLE WHEN TOWING

- Connect safety chains to a secure position on the tow vehicle. Crisscross safety chains for support in the event of hitch failure. Chains may be twisted to shorten to compensate for excessive length. If the tongue should contact the ground at highway speeds, the machine may dig in and catapult the machine into traffic. **USE YOUR SAFETY CHAINS.**



- Connect chipper lights to the tow vehicle. Observe light operation to insure correct electrical connections.



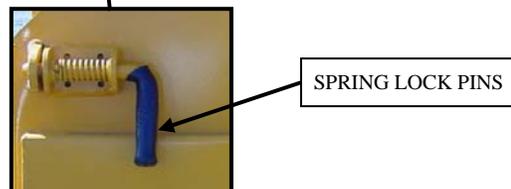
- Secure the jack stand to the machine for towing.



- The chipper infeed tray must be closed and locked when towing.



- Close the tray and make sure the spring lock pins are in position and the tray is secured.



- Make sure the discharge chute is over the chipper front for towing. Position the deflector, on the end of the discharge chute, down when towing to reduce the chance of debris flying out of the chute.

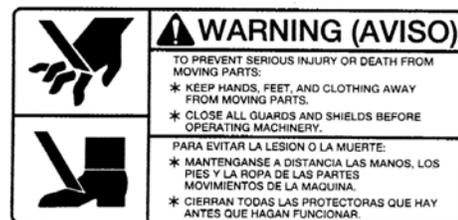


- Always chock the wheels when the chipper is parked, even when attached to the tow vehicle. Make sure the chock blocks have been removed before towing the chipper.
- Towing will affect handling, allow for extra stopping distances.
- Start and stop gradually.
- Tow at a safe, reasonable speed. Obey posted speed limits.
- Slow down over rough terrain.

STARTING – READ THIS MANUAL, THE ENGINE OWNERS' MANUAL, THE CLUTCH MANUAL, AND ALL SAFETY DECALS ON CHIPPER BEFORE STARTING.

SAFETY:

- **DO NOT ALLOW CHILDREN OR OTHER SPECTATORS TO STAND AND WATCH THE CHIPPER IN OPERATION. ALL OPERATORS MUST WEAR RECOMMENDED PROTECTIVE EQUIPMENT.**
- **DO NOT ALLOW ANYONE TO BE IN CHIP DISCHARGE ZONE WHILE MACHINE IS RUNNING.**
- **NEVER REACH OR KICK INTO THE INFEED CHUTE FOR ANY REASON.**
- **KEEP CHIPPER HOOD CLOSED WHILE MACHINE IS RUNNING. ALWAYS MAKE SURE CUTTER DISK HOOD HAS LATCH PIN IN POSITION AND LOCKED WITH A PADLOCK, AND IS NOT CAPABLE OF BEING OPENED.**
- **AN OPERATOR MUST ALWAYS BE IN POSITION AND BE PREPARED TO OPERATE THE FEED CONTROL BAR TO REVERSE OR STOP THE FEED WHEELS IF NECESSARY.**
- **ALWAYS BE ATTENTIVE AND AWARE OF THE CHIPPERS OPERATION AND NEVER ALLOW YOURSELF OR ANYONE TO BECOME PULLED INTO THE FEED WHEELS.**
- **ALWAYS LOAD SHORT PIECES OF BRUSH ON TOP OF LONGER PIECES OF WOOD AND BRUSH. NEVER FEED LONG VINE TYPE MATERIAL INTO CHIPPER. ALWAYS CUT INTO SHORT PIECES TO FEED VINE TYPE MATERIAL. THIS MATERIAL COULD TANGLE AND WRAP AROUND SOMEONE OR SOMETHING AND PULL IT INTO THE CHIPPER.**
- **NEVER OPERATE MACHINERY WHILE UNDER THE INFLUENCE OF ALCOHOL OR DRUGS, (PRESCRIPTION, OVER THE COUNTER OR OTHERS).**



START-UP PROCEDURES:

- Check all fluids before starting.
- Daily Checklist must be completed before starting.
- Cutter disk **must be disengaged** before starting (see Machine Control section).
- Cutter disk hood and all other guards must be in place and secured properly before starting.
- All personnel must be wearing protective equipment: eye and ear protection; hard hat; short fitted gloves without cuffs; long sleeve shirt; long pants without cuffs; and over the ankle work boots with skid resistant soles.
- Use wheel chocks to block the chipper tires so that the chipper doesn't move, shift, or roll during operation.

ALWAYS KEEP A FIRST AID KIT AND A FIRE EXTINGUISHER WITH CHIPPER

LOWER THE INFEED TRAY

- During transportation the infeed tray will be closed and locked using the spring lock pins attached. At the job site, pull the pins in and lower the tray.



- There are two removable lock pins located at the back of the infeed frame; there is a pin on each side of the frame.
- Once the tray is fully lowered, remove the pins and lock the tray into position as shown in these pictures. Make sure there is no brush or other obstruction between the tray and the hopper so that the tray will lower fully.
- Locking the tray will prevent the tray being jerked closed by the brush being chipped and causing damage and possible injury.



AIM DISCHARGE CHUTE

- Carlton Chippers are equipped with a rotating discharge chute. To rotate the chute to the desired position
 1. Pull down and unlock the rotation lock pin.
 2. Use the handle on the end of the chute and pull or push the chute in a safe direction to discharge chips.
 3. Release the lock pin making sure it engages in one of the lock grooves on the discharge chute securing the chute in desired position.

ALWAYS MAKE SURE THE DISCHARGE IS POINTED IN A CLEAR DIRECTION FOR DISCHARGE OF CHIPS. NEVER ROTATE DISCHARGE CHUTE WHILE CHIPPER IS IN OPERATION OR WHILE THE CUTTER DISK IS SPINNING.



- Stay clear of discharge zone when running chipper. Never allow anyone to stand near or to walk close to the discharge zone, even if being discharged into a bin or truck.
- Airborne debris may cause severe injury. If inspection of chipped material is required, shut down the machine first.
- Discharge spout should not be pointed toward people, buildings, or other personal property that may be injured or damaged. Airborne debris is as dangerous as any powerful projectile.
- Never position, adjust, or move the discharge chute while the chipper or the cutter disk is running.

- There is an adjustable flap on the end of the discharge chute. This flap is adjustable in the vertical direction to help control the height and distance of the chips being discharged. To adjust this flap pull down on the handle and rotate the flap up or down to desired position.

NEVER ADJUST THIS FLAP WHILE CHIPPER IS IN OPERATION OR WHILE THE CUTTER DISK IS SPINNING.

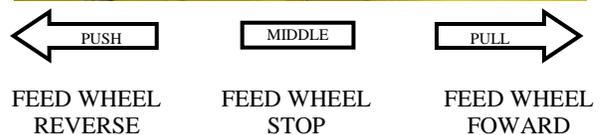
START ENGINE

- The Key Switch is located on the Vanguard engine.
- Key switch has 3 positions
 - Stop, Run and Start
- Start engine at idle speed and allow sufficient time for oil to circulate before proceeding.
- The Vanguard engine is equipped with a throttle and choke. See engine manual for correct operation and starting procedures. (See engine manual for detailed instruction and service requirements. Be sure to follow the engine manual instructions for cold weather operation.)



DO NOT OPERATE THE ENGINE AT AN ANGLE GREATER THAN 25° OR SEVERE ENGINE DAMAGE WILL OCCUR. PROPER ENGINE OIL LEVEL MUST BE MAINTAINED TO ACHIEVE MAXIMUM ANGLE OF OPERATION OF 25°. (See Engine Owner's Manual for proper oil level.)

- Test the controls for proper operation, especially the feed control bar. (The engine speed must be high enough for the Auto-Feed to engage the hydraulics or the Auto-Feed must be off. Press down the left button and hold for 2 seconds to turn Auto-Feed® off.)
 - **Pull** feed control bar to the rear of the machine to test **forward** (pulling) feed wheel motion.
 - Push feed control bar to the **middle** position to test **off** position. (feed wheels should not turn at all)
 - **Push** feed control bar all the way toward the front of the machine to test the **reverse** feed wheel motion.



TURN AUTO-FEED PLUS ON

- The Auto-Feed monitors the engine RPM and controls the feed system based on this information. The Auto-Feed is calibrated when installed in the chipper with a high and low RPM setting for the feed wheels to operate. When the engine RPM is low and the Auto-Feed is on, the hydraulics will not work. If large diameter wood is being chipped and the engine RPM drops below the Auto-Feed Low setting, the Auto-Feed will stop the feed wheels. After the engine RPM is high enough to handle the force required to chip this material without causing the engine to lug down, the Auto-Feed restarts the feed wheels.
- The Auto-Feed control is calibrated to automatically come on when the chipper is started. If for some reason you need to turn on the Auto-Feed control, press and hold the right button down for 2 seconds and release.
- Read the Auto-Feed manual supplied at the end of this chipper manual if programming is required.



AUTO-FEED OFF
(PRESS AND HOLD FOR 2
SECONDS TO TURN OFF)

AUTO-FEED ON
(PRESS AND HOLD FOR 2
SECONDS TO TURN ON)

ENGAGE CUTTER DISK

- The cutter disk is to be engaged and disengaged at low engine speeds only. **ALWAYS ENGAGE OR DISENGAGE THE CUTTER DISK WITH THE ENGINE AT IDLE.** Engagement or disengagement of the cutter disk at elevated engine speeds can cause severe engine damage. This type of damage will not be covered by the engine warranty.
- Raise the engine slide lock and pull back on the engagement handle to engage the cutter disk.



ENGINE SLIDE
LOCK RAISED

ENGAGEMENT HANDLE SHOULD BE PULLED ALL
THE WAY BACK TO THIS POSITION TO ENGAGE THE
CUTTER DISK.

INCREASE ENGINE SPEED

- Once the cutter disk has been fully engaged, the engine can be run at full speed. Use the throttle to increase engine speed.
- The engine should always be run at high RPM while material is being chipped. This will help keep the discharge chute from clogging. High engine speed increases the throwing power.



PERSONAL SAFETY

- All personnel **MUST** be wearing protective equipment: eye and ear protection; hard hat; short fitted gloves without cuffs; long sleeve shirt; long pants without cuffs; and over the ankle work boots with skid resistant soles.



FEED MATERIAL

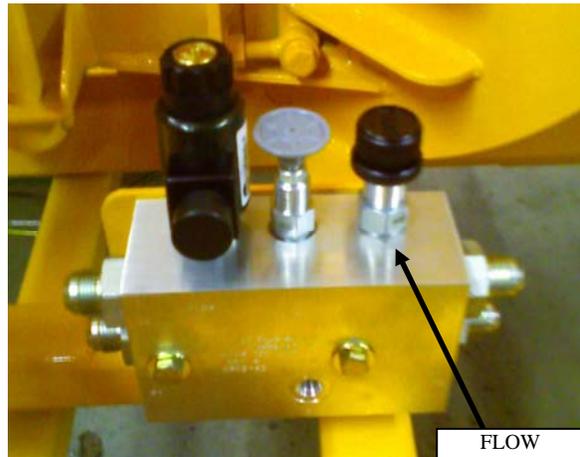
- Operator must be tethered to safety switch will machine is feeding.
- You are now ready to start feeding material into the chipper. Always feed material butt end first.
- **Always have at least two operators at the job site.** One to load the trees and brush into the chipper and one to always stand and operate the feed control bar. It is imperative to have someone operate the feed control bar in case of an accident where someone is pulled into the feed wheels.
- Always have the trees and brush cut to size for the chipper before the chipper arrives at the job site.
- It is very dangerous to run a chain saw and the chipper at the same time.



- If a tree gets jammed and has to be trimmed, shut down the chipper.
- Always feed trees and brush walking to the right side of the chipper, material being fed should be to the operators' left side. When the material is being fed into the feed wheels it tends to kick to the left and an operator could be injured if loading the material from the left side.
- Start feeding smaller diameter trees and brush first and work your way up to the full capacity of the chipper, which is 9" diameter material. Feed pieces long enough for the feed wheels to pick up without endangering yourself by reaching into the infeed chute. **No one should ever reach or kick into the infeed chute for any reason when the feed wheels or engine are running.** Feed shorter pieces of brush and limbs on top of longer material. Machine is equipped with a feed compensated flow control that allows the operator to control the flow to the feed wheels. Factory setting is the flow control completely turned clockwise. Counterclockwise will slow feed wheels down.
- Pay close attention to feeding the small diameter material that is long enough, 6' or shorter, to be fed into the feed wheels but doesn't have enough weight to be held down when the wheels first grab onto it. This material could kick straight up and hit the operator causing injury. Hold the material away from the body using both hands and never lean over the material in case the feed wheels cause it to kick up.
- Do not hold onto or try to force the material through the chipper. Once the material has been grabbed by the feed wheels and is being chipped, release it and let the chipper do its job. When the chipper feed wheels are feeding the material, turn away from the material and walk away to get more material.



ALWAYS FEED MATERIAL FROM THE RIGHT SIDE
AND BUTT END FIRST



- Keep an eye on the surrounding area and don't allow anyone to come up too close to the chipper or to be in the chip discharge area. Maintain a clear area of at least 100 ft. in every direction around the chipper.
- **Do not lean, reach, or kick past the safety zone when feeding material.**



SHUT DOWN PROCEDURES

- With engine RPM still high, push the feed control bar to the middle (off) position. Feed wheels should not be turning.
- Push the throttle over into the low position so that the engine can slow down (idle) and the cutter disk can be disengaged.

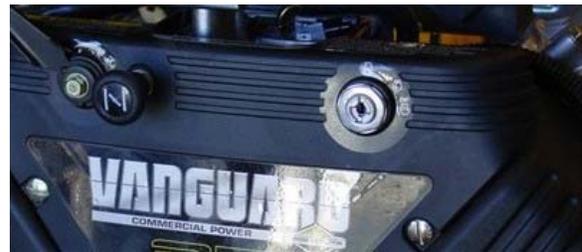


- Once the engine has had time to slow down to idle, disengage the cutter disk by pushing the engagement handle forward as far as it will go. Make sure the engine slide lock is in position to prevent the cutter disk accidentally being engaged. **ALWAYS ENGAGE OR DISENGAGE THE CUTTER DISK WITH THE ENGINE AT IDLE.**



CAUTION: Chipper disk will continue to spin even though it is disengaged!

- Allow the engine to idle for 5 minutes. This allows the engine to cool.
- When the cutter disk has been fully disengaged and the engine has had time to cool down, you can turn the ignition key to the off position.
- Allow the cutter disk and belt to come to a complete stop, which will take several minutes.
- **Remove the ignition key.**



- The chipper infeed tray must be closed and locked when towing.
- First the lock pins behind the infeed chute frame will have to be removed and put back into their storage position. Make sure there is no other obstruction, such as limbs, bark, or leaves, in between the infeed chute and the tray.
- Close and lock the infeed chute. Make sure the spring lock pins are in position and the tray is secured.



STORED POSITION OF LOCK PINS;
ONE ON EACH SIDE OF INFEED CHUTE

**NEVER STORE OR TRANSPORT
ANYTHING INSIDE THE CLOSED
INFEED CHUTE!**



SPRING LOCK PINS

- Secure the discharge chute. Pull down the spring lock pin and use flap adjustment handle to position the chute over the chipper front. When discharge is in position, release the pin in the closest groove to lock. Make sure the discharge chute is locked in position.
- The flap on the end of the discharge chute needs to be lowered as far as possible so that no debris comes out during travel.



Remove the wheel chocks before moving the chipper.



⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- ♦ The engine is turned off.
- ♦ The ignition key has been removed.
- ♦ The positive battery cable has been disconnected.
- ♦ The engine slide assembly is in the disengaged position and the engine slide stop is locked.
- ♦ The feed control bar is in neutral.
- ♦ All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop.
- ♦ All machine parts have had sufficient time to cool down.
- ♦ The cutter disk lock pin is installed in the disk lock tube.
- ♦ No operator is in position at the controls to accidentally start machine.
- ♦ At least 2 people are at the site where maintenance is performed.

More accidents occur while performing maintenance than any other time! Use extra caution.

NEVER perform maintenance with the engine running, not even with the belt(s) disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

ENGINE

- The air filters, the radiator screens and fans, and the oil and fuel filters are extremely important in chipper operation. (For all other engine maintenance follow the engine manufacturer's manual.)

AIR FILTERS – MAIN & SAFETY

- Inspect the main and safety air filters daily.
- Do not tap or hit the main air filter on ground to clean it. Do not wash the main air filter. Follow the engine manual for cleaning the main air filter. Replace the air filter after it has been cleaned 6 times, or is damaged or cannot be cleaned.

NOTICE

Never run the engine without the air filter installed or with a damaged air filter. Replace air filters if there is damage to the pleats, gaskets, or seals. The air filter is used to prevent airborne debris from getting into the engine. If dirt is allowed to get into the engine it will greatly reduce engine life and/or cause damage. Never service the air cleaner with the engine running.

- Do not clean the safety filter. Replace the safety filter if dirty or when the main air filter has been **cleaned 3 times**.
- When cleaning or changing the air filters, place tape over the air inlet hole to reduce the chance of any dirt getting inside the engine. Use a clean dry cloth to wipe down the inside of the air cleaner housing and cover.
- Check the general condition of the air cleaner housing and components. Make sure there are no dents, cracks, or other damage to these parts that could allow unfiltered air to enter the engine.



OIL & OIL FILTER

- Change engine oil and filter after the first 50 hours of operation and then every 100 hours thereafter. Follow the engine manufacturer owner's manual for changing the oil & filter. Only use engine manufacturer recommended oil filter. Some engine manufacturers require special break-in oil to be run for a certain period of time. Refer to engine manual supplied with your chipper.
- Check fuel level daily and replenish as necessary. Carlton chipper fuel tanks are equipped with lockable cap covers.



FUEL FILTER

- Replace the fuel filter every 500 hours of operation or 6 months. Follow the engine owner's manual on how to remove the filter. Make sure to clean the area around the fuel filter before removing any parts; do not take a chance on contaminating the fuel line. Do not leave spilled fuel on the machine; spilled fuel on hot engine parts can cause fires.



FEED CONTROL BAR

- Before starting to chip any wood, always test the feed control bar. Make sure the reverse, stop, and forward feed positions work properly.
- Contact Carlton or an authorized dealer immediately if the control bar doesn't work properly in any of the three positions.



**ALWAYS VERIFY CORRECT
FUNCTION OF THE FEED
CONTROL BAR BEFORE
CHIPPING ANY MATERIAL.**

- Grease the feed control bar every 30-40 hours of operation as needed. There is a grease fitting on the end of each side of the feed control bar.



- Apply a light coating of oil to the feed control linkage **weekly**.



HITCH

- Make sure the bolts on the chipper hitch are tightened. Torque the 5/8" bolts and nuts to 230 ft.-lbs. Also, make sure the hitch bolts on the tow vehicle are tightened properly.
- Check the bolts and nuts for wear. If bolt or nut threads are chipped or worn down, or if the bolts and nuts won't stay tight after tightening them, the bolts and nuts need to be replaced. Check the bolt holes for wear also. If the holes are stretched or distorted, the hitch will need to be replaced.
- The 9" chipper is equipped with a Bulldog hitch. (Pintle hitch also available.)



LIGHTS & WIRING

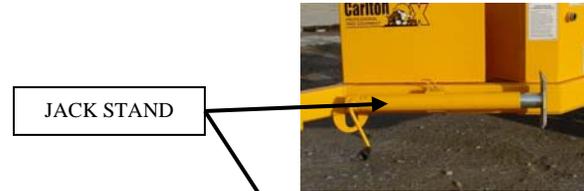
- Check lighting wire connections for damage, and loose or broken wires.
- Make sure the lights are working properly at all times when towing.

See the Machine Wiring section of this manual for wiring diagram.



JACK STAND – FRONT

- Check the lock pins to make sure they are fitting properly and in good shape. Replace any pins that are worn, bent or damaged in any way.
- Check general condition of the jack stand. Make sure the holes are not worn or elongated. Check the bottom of the jack to make sure it will sit level on level ground. Replace the jack stand if it is warped, has unusual wear, or if it won't hold position when supporting the chipper.
- Grease the jack stand as necessary.



TIRES AND AXLES

- Check air pressure in tires daily. Inflate tires as necessary. Keep tire air pressure adjusted based on the temperature and the load.
- When towing, make sure the chipper is sitting as close to level as possible to ensure proper tire wear and axle alignment.
- Check lug nuts for proper tightness. Tighten when necessary. Replace lug nuts if the threads are worn, chipped, or missing.
- Check tire rims for damage that could cause improper air pressure. If rims are damaged beyond repair, replace.
- See Dexter information for E-Z Lube® or Nev-R-Lube® Axles supplied in this manual. Remember to inspect axles regularly.
- Check and replace dust caps as needed.



FRAME

- Periodically check the chipper frame and other permanent parts for cracks, bends, failed welds, or other damage that needs repair. Repair as necessary or contact an authorized dealer.



- All of Carlton’s machines are built to be rugged performers. Our design goals are sturdiness, simplicity and reliability.
- A regularly scheduled maintenance program will pay big dividends in machine life, performance, and avoided downtime.
- Check grease fittings regularly and replace any that are clogged or missing.
- Below you will find a Lubrication Schedule that will give you the recommended frequency for lubrication.
- Next you will find specific locations of the grease points.
- Use a hand operated grease gun.

Lubrication Schedule

- Use **Texaco® Starplex II** grease.
- **Always clean tip of grease gun fitting and grease fitting on machine before attaching hose to prevent dirt from being forced into machine parts.**

CARLTON MODEL 1290	8 HRS	30-40 HRS	100 HRS	300 HRS	500 HRS	SPECIAL COMMENTS
FEED WHEEL ROLLER BEARINGS (2)	■					ONE PUMP OF GREASE DAILY ON EACH BEARING
FEED WHEEL CONTROL BAR (2)	■					GREASE AS NECESSARY
CUTTER DISK BEARINGS (2)	■					PURGE BEARINGS, DAILY, UNTIL NEW GREASE IS SEEN
FEED WHEEL LIFT BEARING (2)		■				2 PUMPS OF GREASE WEEKLY
ENGINE SLIDE ASSEMBLY (6)		■				1 - 2 SHOTS EVERY 15 - 20 HOURS
ENGAGEMENT HANDLE (2)		■				1 - 2 SHOTS EVERY 15 - 20 HOURS
WHEEL AXLE BEARING (2)						SEE DEXTER INFORMATION FOR E-Z LUBE OR NEV-R-LUBE AXLES (ENCLOSED IN MANUAL)
DISCHARGE CHUTE SWIVEL PLATES				■		EVERY 3 MONTHS GREASE THE SWIVEL PLATES
ENGINE REFER TO ENGINE MANUFACTURERS MANUAL FOR PROPER ENGINE SERVICING						

1290-B (K.L.3/18)

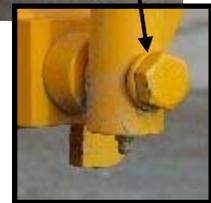
CHIPPER – LEFT SIDE



CUTTER DISK BEARING
GREASE FITTING
* PURGE BEARINGS
DAILY, UNTIL NEW
GREASE IS SEEN



EQUIPPED WITH DEXTER
AXLES, EITHER E-Z LUBE®
OR NEV-R-LUBE® – SEE
DEXTER INFORMATION
ENCLOSED IN MANUAL



FEED CONTROL BAR
GREASE FITTING
* GREASE AS NECESSARY
EVERY 30-40 HOURS OF
OPERATION



FEED WHEEL BEARINGS
GREASE FITTING
* 1 PUMP OF GREASE
DAILY ON EACH
BEARING

CHIPPER – RIGHT SIDE



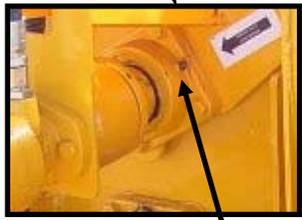
EQUIPPED WITH DEXTER AXLES, EITHER E-Z LUBE® OR NEV-R-LUBE® – SEE DEXTER INFORMATION ENCLOSED IN MANUAL

SWIVEL PLATES GREASE FITTING
* GREASE EVERY 3 MONTHS AS NEEDED

CUTTER DISK BEARING GREASE FITTING
* PURGE BEARINGS DAILY, UNTIL NEW GREASE IS SEEN



FEED CONTROL BAR GREASE FITTING
* GREASE AS NECESSARY EVERY 30-40 HOURS OF OPERATION



FEED WHEEL BEARING GREASE FITTING
* 1 PUMP OF GREASE DAILY ON EACH BEARING



ENGINE SLIDE GREASE FITTING (6 PLACES-3 EACH SIDE)
* 1-2 PUMPS OF GREASE EVERY 15-20 HOURS OF OPERATION



ENGAGEMENT HANDLE GREASE FITTING (2 PLACES)
* 1-2 PUMPS OF GREASE EVERY 15-20 HOURS OF OPERATION

DO NOT PERFORM ANY INSPECTION OR SERVICE ON THE CHIPPER WITHOUT MAKING SURE: THE CUTTER DISK IS DISENGAGED AND HAS COME TO A COMPLETE STOP; THE CUTTER DISK LOCK PIN IS INSTALLED; THE ENGINE HAS BEEN TURNED OFF, THE IGNITION KEY HAS BEEN REMOVED AND THE BATTERY CABLE HAS BEEN DISCONNECTED; THE FEED WHEELS HAVE BEEN RAISED; AND THERE ARE AT LEAST TWO OPERATORS AT THE SITE.

FOLLOW PROPER MAINTENANCE PROCEDURES IN SERVICE SECTIONS TO REPAIR OR REPLACE PARTS OR CONTACT YOUR DEALER.

COMPLAINT	CAUSE	CORRECTION
Discharged chips are not correct size: too large or too fine	<ul style="list-style-type: none"> Knives have lost their edge Knife anvil worn Check for wear in the throat/base area (non-cutting areas) Knife angle is not correct Material being chipped is very small, dry, or rotting 	<ul style="list-style-type: none"> DO NOT operate chipper with dull knives or with mismatched knives (see Servicing Cutter System section) Rotate, repair, or replace (see Servicing Cutter System section) Outer, non-cutting edges that are exposed to chipper knives must be built up with weld to maintain surface to original integrity Make sure knives are ground at correct angle (see Servicing Cutter System section) This type of material does not produce good chip quality
Cutter disk knife hits anvil	<ul style="list-style-type: none"> Anvil to knife clearance is not correct Check the chipper bearing retainer cap for tightness 	<ul style="list-style-type: none"> See Servicing Cutter System section for adjustment Retighten bolts or setscrews as tight as possible
Discharge chute clogs or chips are not discharging properly	<ul style="list-style-type: none"> Lugging engine on large material Obstruction in discharge chute Chipping rotting material that has little substance can also plug the discharge chute 	<ul style="list-style-type: none"> Keep engine speed up and use feed control bar to reverse material if engine lugs down, check Auto-Feed Plus setting and adjust (see Auto-Feed Plus Manual) Any object that protrudes inside the chute may cause clogging; replace discharge chute, if necessary Use care when running this type of material; “flush” the discharge chute using other material with more substance



COMPLAINT	CAUSE	CORRECTION
Auto-Feed not working properly or at all	<ul style="list-style-type: none"> • Faulty or broken wiring • Settings not correct 	<ul style="list-style-type: none"> • Repair or replace wires – wiring diagram enclosed in this manual • Reset following Auto-Feed manual instructions enclosed in this manual
Chipper bearings are overheating	<ul style="list-style-type: none"> • Bearings are dry • Check the chipper bearing retainer cap for tightness • Bearings worn out • Setscrews on sheave side bearing not tight 	<ul style="list-style-type: none"> • Grease bearings daily using Texaco® Starplex II grease • Retighten bolts or setscrews as tight as possible • Replace • Tighten
Feeding material causes feed wheels to slow down or stop	<ul style="list-style-type: none"> • Dull knives • Relief valve is worn or dirty • Hydraulic pump has excessive wear • Feed wheel motor(s) not working properly • Feed wheel springs to tight 	<ul style="list-style-type: none"> • Replace knives (see Servicing Cutter System section) • Clean or replace; reset pressure • Replace • Check & replace • Adjust
Feed wheel doesn't turn or turns too slow to feed material	<ul style="list-style-type: none"> • Feed wheel motor not working properly • Safety switch not in position • Relief valve opens too easily or stuck open • Feed wheel valve (control valve) worn & leaking internally • Feed wheel relief pressure off • One or more hoses may be crimped or leaking • Hydraulic oil level low • Pump has excessive wear • Feed wheel binding • Control lever improperly shifting valve • Worn or dirty flow divider 	<ul style="list-style-type: none"> • Reverse hoses at flow divider - if same motor still doesn't turn, motor is probably bad; if other motor is now the one not turning, the flow divider is probably bad. Repair or replace • Make sure the safety switch is attached properly • Valve needs to be cleaned or replaced; reset pressure • Check & Replace • Reset pressure to 2500 PSI • Replace (see Servicing Hydraulics section) • Keep oil level about 7/8 full • Replace pump • Check bearings, lubricate properly • Readjust; valve must open completely • Clean or replace



COMPLAINT	CAUSE	CORRECTION
Engine won't turn over	<ul style="list-style-type: none"> • Battery is dead • Cutter disk is engaged • Cutter disk hood safety switch is not in position 	<ul style="list-style-type: none"> • Recharge or replace battery • Disengage the cutter disk and lock the engine slide lock • Cutter disk hood lock pin and safety switch must be in position for the engine to start
Hydraulic oil overheating and causing chipper to operate slower than normal	<ul style="list-style-type: none"> • Pump has excessive wear or not working properly • Hose crimped or leaking • Relief valve opens too easily or stuck open • Feed wheel binding • Hydraulic tank oil level is too low, hydraulic oil is contaminated, or hydraulic filter is dirty • Hydraulic oil viscosity is wrong for atmospheric temperature 	<ul style="list-style-type: none"> • Check & replace pump, if necessary • Replace (see Servicing Hydraulics section) • Valve needs to be cleaned or replaced; reset pressure • Check bearings, lubricate properly • Keep oil tank about 7/8 full; follow proper maintenance schedule and change oil and filter as suggested (see Servicing Hydraulics section) • Contact JP Carlton or local dealer for recommended oil type for the situation
Hydraulic pump making loud noise or a lot of noise (pump is cavitated)	<ul style="list-style-type: none"> • Hydraulic oil viscosity is wrong for atmospheric temperature • Oil operating temperature too low • Pump has excessive wear 	<ul style="list-style-type: none"> • Contact JP Carlton or local dealer for recommended oil type for the situation • Allow system to warm up • Replace pump

Any other problems contact your local dealer or J. P. Carlton Co.

ONLY USE QUALIFIED PERSONNEL TO WORK ON HYDRAULIC SYSTEMS FOR REPAIRS OR REPLACEMENT OF PARTS!!

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- ◆ The engine is turned off.
- ◆ The ignition key has been removed.
- ◆ The positive battery cable has been disconnected.
- ◆ The engine slide assembly is in the disengaged position and the engine slide stop is locked.
- ◆ The feed control bar is in neutral.
- ◆ All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop.
- ◆ All machine parts have had sufficient time to cool down.
- ◆ The cutter disk lock pin is installed in the disk lock tube.
- ◆ No operator is in position at the controls to accidentally start machine.
- ◆ At least 2 people are at the site where maintenance is performed.

More accidents occur while performing maintenance than any other time! Use extra caution.

Never perform maintenance with the engine running, not even with the belt(s) disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

WARNING:

- **RELEASE HYDRAULIC PRESSURE BEFORE PERFORMING ANY SERVICE TO HYDRAULIC LINES OR OTHER COMPONENTS.**
- **FLUID UNDER PRESSURE CAN PENETRATE THE SKIN AND CAUSE SEVERE INJURY. SEEK IMMEDIATE MEDICAL ATTENTION IF SKIN IS PENETRATED. CHECK HOSES AND FITTINGS USING A BOARD OR CARDBOARD; DO NOT USE HAND OR FINGER. ALWAYS WEAR EYE PROTECTION.**

HYDRAULIC OIL & FILTER

- This Carlton chipper has an in-tank hydraulic filter and a level/temp gauge. Check hydraulic oil daily, before and during use. Use AW-32 hydraulic oil same as supplied by the manufacturer.
- Carlton chippers are equipped with lockable cap guards.



- Check hydraulic oil level daily. This Carlton chipper is equipped with a gauge that shows the level of oil and the temperature of the oil. When filling the tank with oil, the window of the gauge will also fill with oil, as the level gets higher in the tank. Never fill the oil tank above the **BLACK** line at the top of the gauge. Do not run the machine with the oil level below the **RED** line at the bottom of the gauge.
- On a new chipper, change the hydraulic oil filter when the chipper has been operating for 10 hours. Replace with the same type of in-tank filter element supplied originally, available through Carlton or Carlton dealers. From this point on, change the filter every 200 hours of operation.
- Change hydraulic oil every 500 hours of operation or at least once a year depending on use. Flush the hydraulic tank when changing the hydraulic oil. Replace oil if it has a burnt odor or if it is contaminated. Replace oil if the chipper has been stored for a long period of time (all winter).
- Drain the hydraulic tank using the drain plug located on the bottom of the tank. Dispose of used oil according to state regulations.



HOSES AND FITTINGS

- Inspect hoses and fittings for leaks, tightness, wear, or damage. Replace any hoses and fittings that need replacing.
- **FLUID UNDER PRESSURE CAN PENETRATE THE SKIN AND CAUSE SEVERE INJURY. CHECK HOSES AND FITTINGS USING A BOARD OR CARDBOARD; DO NOT USE HAND OR FINGER. SEEK IMMEDIATE MEDICAL ATTENTION IF SKIN IS PENETRATED. ALWAYS WEAR EYE PROTECTION.**
- The overall pressure setting is 2500 PSI, set at the factory. Do not adjust the pressure setting. If you feel the pressure needs adjusting, contact J.P. Carlton or your local Carlton dealer.

ONLY USE QUALIFIED PERSONNEL TO WORK ON HYDRAULIC SYSTEMS FOR REPAIRS OR REPLACEMENT OF PARTS!!

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- ◆ The engine is turned off.
- ◆ The ignition key has been removed.
- ◆ The positive battery cable has been disconnected.
- ◆ The engine slide assembly is in the disengaged position and the engine slide stop is locked.
- ◆ The feed control bar is in neutral.
- ◆ All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop.
- ◆ All machine parts have had sufficient time to cool down.
- ◆ The cutter disk lock pin is installed in the disk lock tube.
- ◆ No operator is in position at the controls to accidentally start machine.
- ◆ At least 2 people are at the site where maintenance is performed.

More accidents occur while performing maintenance than any other time! Use extra caution.

Never perform maintenance with the engine running, not even with the belt(s) disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

INSPECT/CHANGE KNIVES

- Cutter disk knives need to be kept sharp and free of chips to keep the chipper running smoothly. Visually inspect knives daily for dull edges, chips, and other damage. Dull or chipped knives do not cut well adding stress to the engine and requiring more power to cut through the wood. This can cause heat to build up and cause knife failure.
- Check the knives if the wood chips are too large, if the material will not feed properly, or if the engine lugs down.
- **Always wear leather gloves when handling knives. Edges are extremely sharp and could cause severe injury.**



CUTTER SYSTEM

DANGER: Make sure the ignition key has been removed and machine can't be started before servicing any part of the chipper.



- Remove the hood bolts and lock pin from the cutter disk hood and open.
- The cutter disk lock pin will have to be removed to rotate the cutter disk and inspect the knives. Use extra care when rotating the cutter disk to prevent injury. **Always wear leather gloves when performing any service on the cutter disk system.**

DANGER – KNIVES ARE EXTREMELY SHARP

- Inspect knives. If knives are still in good shape, proceed with other inspections or maintenance. To change knives, follow these procedures.
- Install the cutter disk lock pin. Rotate the cutter disk slowly to line up holes and insert the pin.
- Remove the bolts and nuts holding each knife in place on the cutter disk. There are two knives 180° from each other on the wheel.
- Inspect the bolts and nuts carefully for worn, chipped, or stripped threads.
- Do not remove and replace knife bolts and nuts more than 3 times before replacing with new bolts and nuts.
- **Knife bolts are of a particular design and nuts are security lock nuts. DO NOT USE ANY OTHER STYLE OF BOLTS AND NUTS. You must purchase these bolts and nuts from Carlton or an authorized dealer.**



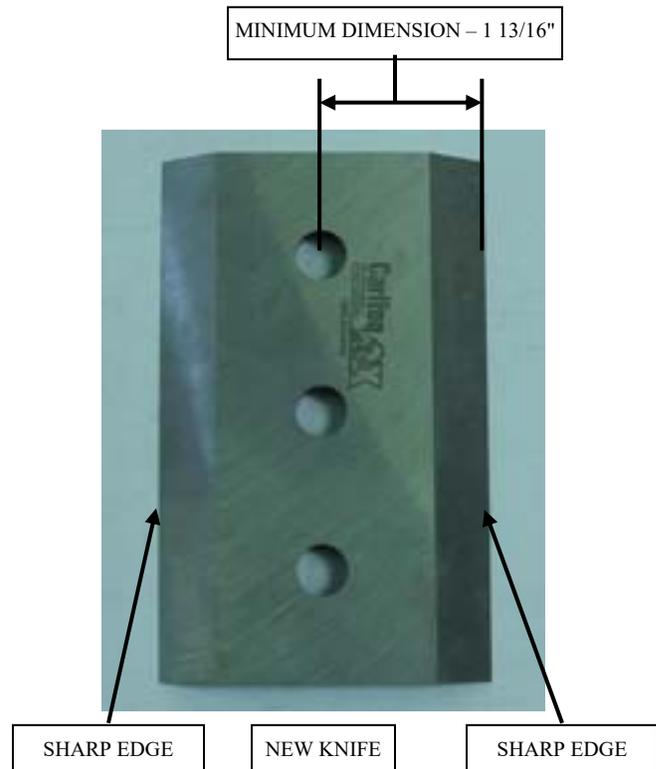
DANGER: Do not open the cutter disk hood until the cutter disk has come to a complete stop. Do not perform service on the cutter disk or knives without installing the disk lock pin.



- After knives have been removed, clean the pocket to remove any debris that may keep the knife from seating properly.

**DANGER – KNIVES ARE
EXTREMELY SHARP**

- Inspect both edges of knives; **wear leather gloves while handling knives.** If knives still have one good edge, rotate each knife and reassemble. Both knives should be the same distance from center of hole to outside edge to properly adjust anvil clearance and balance cutter disk.
- Inspect knife bolt holes for cracks or distortion. Check knife for distortion using a straight edge and a light, replace the knife if distorted. Replace knives if any problems are found.
- If both edges are worn or chipped, have knives ground to sharpen.
- **Never** use knives that are below 1-13/16" from center of hole to outside edge of knife. Keep sets of knives together that are ground to the same distance from center of hole to outside edge. This will keep the cutter disk balanced reducing chipper vibration and improving cutting. There are two knives 180° from each other on the same side of the wheel.
- **ONLY** have knives sharpened by an authorized dealer using the proper equipment.
- **Improper sharpening may affect knives hardness resulting in knife failure.**
- If knives are too narrow to grind, replace with a complete set of new knives.
- Knives are hardened steel made to Carlton's specifications. Use only Carlton chipper knives as replacements.



- Reassemble knives in the pocket making sure they seat flat.
- Tighten knife bolts and torque the nuts to 90 ft. lbs.
- Do not over tighten knife bolts. Torque only to the recommended amount. Knives that are overly tight can crack or bow around the hole. This could cause chipped material to pack between the knife and cutter disk causing knife failure. Check knife for distortion using a straight edge and a light, replace the knife if distorted.



CHECK/ADJUST CLEARANCE

ALWAYS CHECK AND SET KNIFE TO ANVIL CLEARANCE AFTER REMOVING AND REPLACING KNIVES OR ANVIL.

- Disconnect feed wheel springs on both sides of the chipper before raising the feed wheel.
- Raise the feed wheel using the hydraulic lift valve until it has been raised high enough to insert the yoke lock pin. (Machine must be running to use hydraulics.)
- Insert yoke lock pin into yoke lock tube to secure feed wheel.
- Turn machine off.

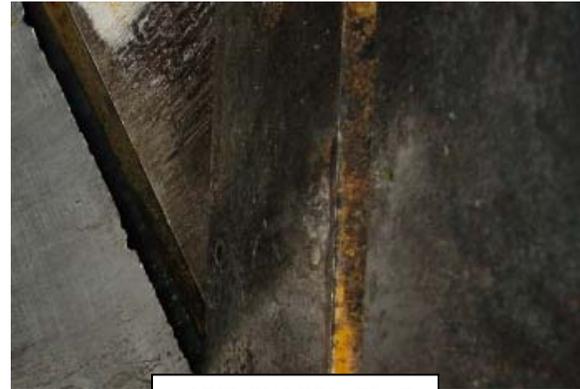


When working with the feed wheel, the yoke lock pin must be inserted in the yoke lock tube after the feed wheel has been raised.

CUTTER SYSTEM

- Inspect the anvil working edge for wear or damage before you check the clearance. If the anvil needs to be changed to a new work surface or to be replaced, follow the instructions in Anvil Replacement later in this section. The anvil has four working edges that can be used before replacing.
- Check the clearance between the knives and the anvil. The clearance for the knife to anvil should be between .045" and .065" (1.14 – 1.65 mm). Use a feeler gage that measures within that range. The gage should fit easily between the knife and the anvil without force and without too much free space on either side. Check clearance at the top and bottom of each knife assembly.

FEELER
GAGE



ANVIL WORKING EDGE



CHECKING KNIFE/ANVIL CLEARANCE

- One person will need to be in the infeed chute area to check the clearance between the anvil and the knives. While another person is outside to make the adjustments and to turn the cutter disk. The disk will have to be rotated fully to check both knife settings at top and bottom of each knife.
- **This is one time that the cutter disk lock pin will not be in position so extreme care needs to be taken for safety. Before allowing anyone to be in the infeed chute, make sure there is no obstruction or binding in the cutter disk by turning it by hand from the outside first. If the cutter disk does not turn freely, find and remove the obstruction and then proceed.**



ROTATE CUTTER DISK TO CHECK FOR BINDING

CUTTER SYSTEM

- If clearance needs to be adjusted, loosen the anvil bolts; just loose enough to be able to move the anvil with the adjuster bolts.
- Loosen the nuts on the adjustment bolts that are on the far side of the plate (as shown). There are two adjustment bolts.
- Using the nuts on the inside of the plate, turn the nuts up toward the machine to move the anvil closer to the knife. This will shorten the clearance if it was too wide. Make slight adjustments on each bolt as the clearance is being checked.
- Or, you will need to loosen the nuts on the inside of the plate and turn the outside nuts down if the clearance is too narrow for the feeler gage to go in easily. This will move the anvil farther away from the knife.



- After the clearance has been set, tighten the anvil bolts (1/2"-13, Grade 8) and torque to 75 ft. lbs.
- Retighten the nuts on the adjustment bolts that were loosened earlier.
- Recheck the anvil/knife clearance to make sure nothing changed when tightening the bolts.
- Checking and setting the clearance by the knife that is the closest to the anvil will be the best place to start.
- Both knives must be checked. Clearance should be .045" - .065" (1.14 – 1.65 mm) on each knife at top and bottom.



CUTTER SYSTEM

- After clearance has been set and all bolts and nuts have been tightened properly, remove the yoke lock pin and put it back in its holder.



REMOVE YOKE LOCK PIN

- Turn on machine. Using the hydraulic lift valve, lower the upper feed wheel down to its working position.
- Reconnect the upper feed wheel springs on both sides of the chipper.



LOCK PIN HOLDER

- **ALWAYS REMEMBER TO CLOSE THE CUTTER DISK HOOD AFTER SERVICING CUTTER DISK.**
- **TIGHTEN HOOD BOLTS.**
- Check condition of cutter disk hood. Make sure the hinges are not damaged and that the hood closes completely with no gaps or openings; check both sides.

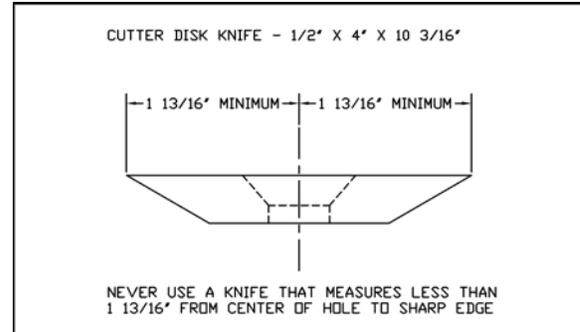


HOOD BOLTS

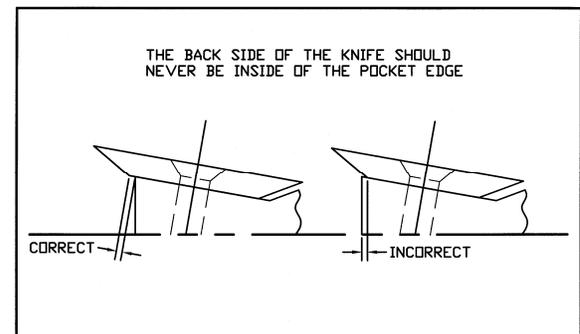
CUTTER SYSTEM

SHARPEN KNIVES

- Have knives ground by a qualified grinder.
- Grind knives at 29° to 31°.
- Before and after grinding the knife-edge, check the width of the knife from the center of the hole to the sharp edge of the knife. Never use a knife with this measurement below 1 3/4".



- **Three factors for a good cutting system are:**
 1. **Never use a knife with the distance from the cutting edge to the center of the bolt hole less than 1 3/4".**
 2. **Always use knives in sets of two with the dimension from the cutting edge to the center of the bolt hole as close as possible to each other.**
 3. **Never use a knife if the back edge is inside the knife pocket edge.**



KNIVES

PART NO	DESCRIPTION	QTY
0900123	10 3/16" x 4" x 1/2" Knife	2
0900125	1/2" Knife Bolt – Special Design – Purchase from JP Carlton or Dealer	8
0900126	1/2" Security Lock Nuts – Purchase from JP Carlton or Dealer	8

CUTTER SYSTEM

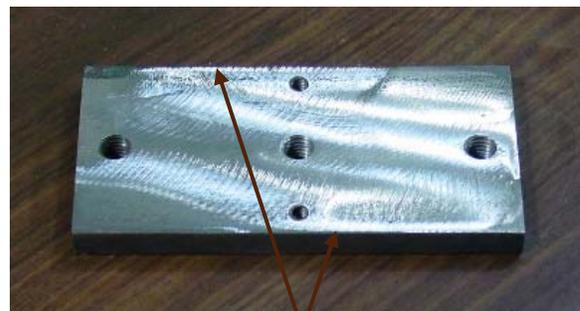
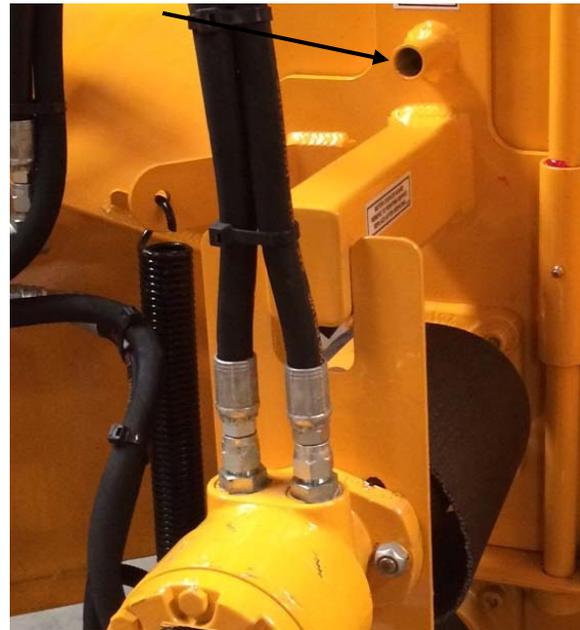
DANGER:

- **TURN ENGINE OFF**
- **REMOVE IGNITION KEY**
- **DISENGAGE CLUTCH**
- **PUT FEED CONTROL BAR IN NEUTRAL**
- **ALLOW CUTTER DISK TO COME TO A COMPLETE STOP**
- **ALLOW ALL PARTS TO COOL COMPLETELY**
- **INSTALL CUTTER DISK LOCK PIN**



ANVIL REPLACEMENT

- **THE UPPER FEED WHEEL MUST BE RAISED AND HAVE YOKE LOCK PIN IN YOKE LOCK TUBE BEFORE WORKING BETWEEN FEED WHEELS.** (See information earlier in this section for raising the upper feed wheel)
- Check the anvil for wear when knives have been changed and clearance is being set. The anvil has four working edges that can be used before having to be replaced. Rotate the anvil to a new working edge unless all edges are worn and the anvil needs replacing.
- **Do not** grind the anvil to get more life. There is only a certain amount of adjustment available for clearance and if the anvil is ground you will lose that adjustment capability.
- The anvil is hardened steel made to Carlton's specifications. Use only Carlton anvils as replacements or damage may occur. Purchase the new anvil from Carlton or an authorized dealer.



THE ANVIL HAS FOUR WORKING EDGES. TWO OF THESE EDGES ARE SHOWN ABOVE. FLIP THE ANVIL OVER FOR THE OTHER TWO EDGES.

- To rotate to a new edge or to replace the anvil, remove the anvil bolts and adjuster bolts. There are three anvil bolts, two with adjuster bolts attached.
- First, remove the nut on the outside of each adjuster bolt and loosen the inside nut. Then remove the anvil bolts.



REMOVE OUTSIDE NUT ON ADJUSTER BOLT



REMOVE ANVIL BOLTS & WASHERS

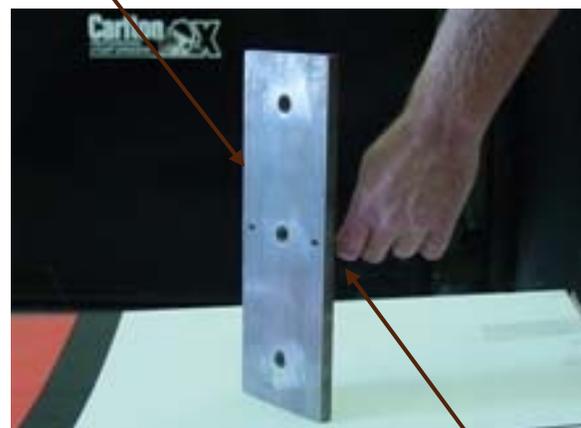
- Keep all hardware together for easier replacement.
- Replace any worn or damaged bolts, nuts or other hardware at this time.
- Use the handle on the anvil to rotate the anvil 90° and pull it through the slot.



REMOVE ANVIL – ROTATE 90° & PULL THROUGH OPENING

- Remove the handle from the anvil and turn the anvil to a good working edge. The working edge that was being used is on the back opposite side from the handle.
- Replace the handle either in the same hole on the other side of the anvil or remove the setscrew and insert the handle in the hole on the opposite side of the anvil. Use LocTite® Red 262 on the handle when replacing and torque jam nut to 25 ft. lbs. (5/16"-18 bolt).

CURRENT WORKING EDGE



HANDLE

CUTTER SYSTEM

- A setscrew must always be in the hole next to the working edge to keep debris out of the hole (see picture at right). Insert the setscrew on the handle side of the anvil to prevent clogging the wrench slot. Use LocTite® Red 262 on the setscrew when replacing to keep the setscrew from working out of hole or damage will occur because of tight tolerances.
- Replace with a new anvil if all working edges are worn or damaged. **Do not** grind the anvil to get more life. There is only a certain amount of adjustment available for clearance and if the anvil is ground you will lose that adjustment capability.
- Use the handle and put the anvil back through the slot. Rotate the anvil back 90° to insert the anvil bolts.
- Make sure the hardware is replaced in the correct order. The lock washer will go on first, closest to the head of the bolt, and then a flat washer for the top and bottom bolts. Put the adjuster eyebolt on last for the top and bottom bolts.
- The middle anvil bolt has the lock washer and then two flat washers put on in that order.
- It may be a good idea to insert the middle bolt first to hold the anvil in place while putting in the bolts with the adjuster bolts. The adjuster bolts must be inserted through the slot provided to make clearance adjustments. A flat washer goes between the nut on the adjuster bolt and the plate on both sides.



REPLACE ANVIL –
PUT THROUGH
OPENING &
ROTATE BACK 90°



CUTTER SYSTEM

- Tighten the anvil bolts loosely. Put a flat washer and a nut back on the outside of each adjuster bolt. Do not tighten the nut until clearance has been set.
- ALWAYS CHECK & SET KNIFE TO ANVIL CLEARANCE AFTER REMOVING AND REPLACING KNIVES OR ANVIL.
- Go back to the CHECK/ADJUST CLEARANCE information earlier in this section.
- After the clearance has been set, tighten the anvil bolts (1/2"-13, Grade 8) and torque to 75 ft. lbs.
- Retighten the nuts on the adjustment bolts.
- Recheck the anvil/knife clearance to make sure nothing changed when tightening the bolts.
- Both knives must be checked. Clearance should be .045" - .065" (1.14 – 1.65 mm) on each knife at top and bottom.

ALWAYS REMEMBER TO CLOSE THE CUTTER DISK HOOD AFTER SERVICING CUTTER DISK.

SERVICING CUTTER DISK HOOD

- Inspect cutter disk hood for fit and damage daily. Check for cracks around welds.
- Check hood hinge making sure hood closes completely with no gaps or openings.
- Check tightness of hood bolts.
- If any problems are discovered, contact Carlton or your local dealer for repair or replacement.



THE CUTTER DISK HOOD IS ONE OF THE MOST IMPORTANT PIECES OF SAFETY EQUIPMENT ON THIS CHIPPER. MAKE SURE IT IS KEPT IN GOOD WORKING CONDITION.



BELTS AND SHEAVES

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- ◆ The engine is turned off.
- ◆ The ignition key has been removed.
- ◆ The positive battery cable has been disconnected.
- ◆ The engine slide assembly is in the disengaged position and the engine slide stop is locked.
- ◆ The feed control bar is in neutral.
- ◆ All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop.
- ◆ All machine parts have had sufficient time to cool down.
- ◆ The cutter disk lock pin is installed in the disk lock tube.
- ◆ No operator is in position at the controls to accidentally start machine.
- ◆ At least 2 people are at the site where maintenance is performed.

More accidents occur while performing maintenance than any other time! Use extra caution.

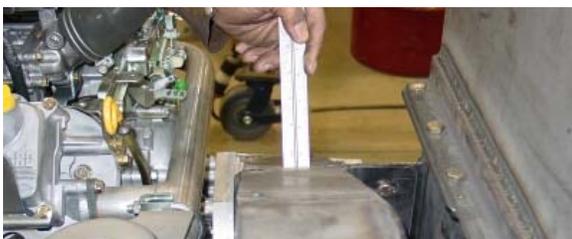
Never perform maintenance with the engine running, not even with the belt(s) disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

BELT TENSION

CHECK BELT TENSION

- New belts will stretch and become loose as machine runs. Check belt tension often when belt is new.
- Belt should deflect 1/2" when a force of 12-14 ft. lb. is applied to new belt or 10-12 ft. lb. to used belt. Check belt tension using slot on belt guard.



⚠ DANGER

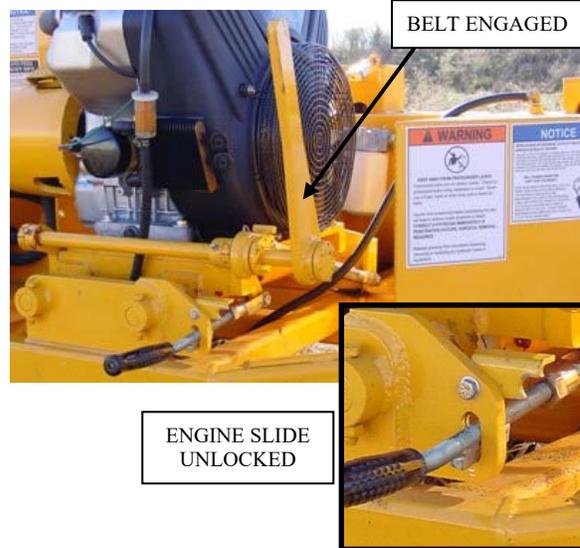
NEVER reach into this area with hands or other objects severe injury, including amputation, could occur.

NEVER attempt to service belts or other machine parts until all machine parts have come to a complete stop. ALWAYS REMOVE KEY BEFORE SERVICING MACHINE.

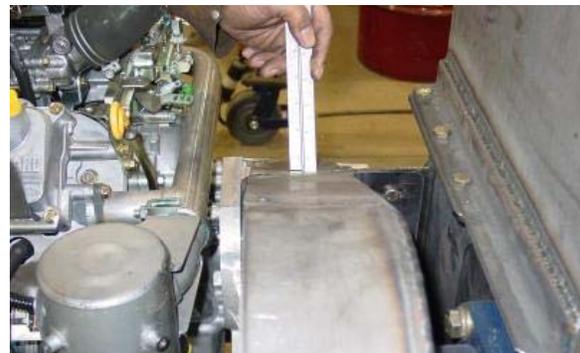
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BELTS AND SHEAVES

- **ENGINE MUST BE OFF AND IGNITION KEY REMOVED BEFORE CHECKING BELT TENSION.**
- **ALL PARTS MUST BE COMPLETELY STOPPED.**
- **THE CUTTER DISK LOCK PIN MUST BE INSTALLED IN THE DISK LOCK TUBE.**
- The belt must be engaged to check tension. Unlock the engine slide stop and raise the slide lock handle. Then pull the engagement handle back as far as possible and engage the belt.



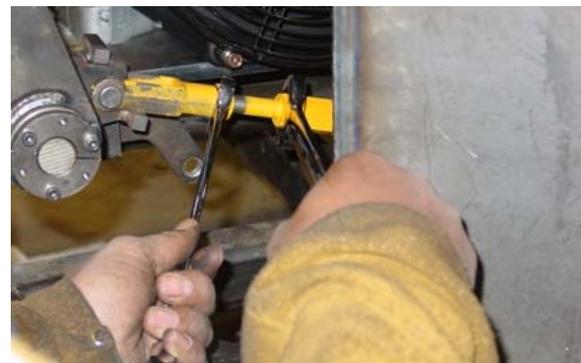
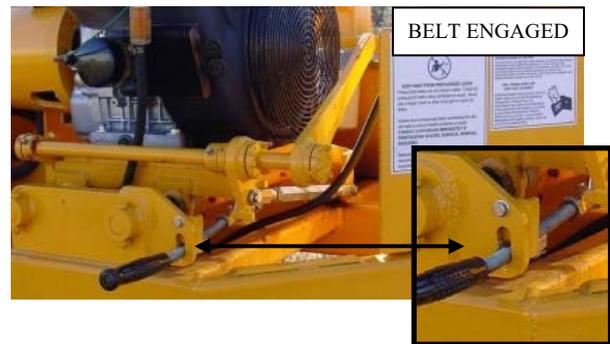
- Insert a screwdriver or metal bar (a metal ruler would be good) through the slot to check belt tension.
- Make a mark on the screwdriver or metal when it touches the belts without any force applied and then apply force as specified and make another mark.
- Measure the distance between the two marks. If the measurement is more than 1/2", the belt tension needs to be adjusted. If the measurement is much less than 1/2", the belt tension is too tight.
- **Do not** over tighten the engine belt. Overly tight belts will cause damage to the engine and cutter disk bearings.



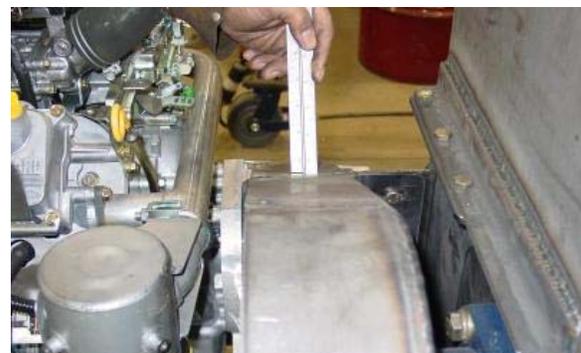
BELTS AND SHEAVES

ADJUST BELT TENSION

- If belt tension needs to be adjusted, the clevis on the engine slide must be adjusted.
- The belt must be disengaged. Disengage belt by pushing the engagement handle forward till the engine slide stop goes back into position.
- To apply more belt tension, loosen the jam nut slightly and turn the clevis counter-clockwise to increase the assembly length. Turn only one rotation at a time and then recheck the belt tension.
- To recheck the tension, engage the belt. Check belt tension using a screwdriver or metal bar inserted into the slot on the belt guard and measure belt tension as described earlier in the CHECK BELT TENSION section
- If belt tension still needs adjusting, repeat the adjustment procedure and tension check procedure until tension is correct. Remember to disengage the belt before each adjustment and then engage the belt to check tension.
- **Do not** over tighten the engine belt. Overly tight belts will cause damage to the engine and cutter disk bearings.



HOLD JAM NUT WITH ONE WRENCH AND ADJUST CLEVIS USING ANOTHER WRENCH. TURN COUNTER-CLOCKWISE TO TIGHTEN BELT TENSION AND CLOCKWISE TO LOOSEN BELT TENSION.



BELTS AND SHEAVES

- If belt tension is too tight, relieve the excess tension by performing the same procedure except turn the clevis clockwise to shorten the linkage and reduce belt tension. Always make slight adjustments and then recheck tension.
- Normally a slight adjustment is all that's necessary to adjust belt tension. If you find you have to make several adjustments to get the proper tension, the belt may be worn and need to be replaced. To replace belt, go to REPLACING ENGINE BELT section.
- When the belt tension is adjusted, the engine slide lock handle will also have to be adjusted. This locks the engine in the disengaged position so that the cutter disk can't accidentally be engaged.
- Loosen the jam bolt next to the clevis.
- When adjusting the engine slide lock, turn the handle clockwise to shorten the length of the engine slide lock if the engagement linkage was lengthened. The engagement linkage would be lengthened to put more tension on the belt. Lengthen the engine slide lock, by turning handle counter-clockwise, if the engagement linkage was shortened.



LOOSEN THE JAM NUT AND ADJUST THE SLIDE LOCK HANDLE

ALWAYS REMEMBER TO REPLACE BELT GUARD COVER BEFORE STARTING MACHINE. ROTATING BELTS AND SHEAVES ARE DANGEROUS AND COULD SEVERELY INJURE SOMEONE.



BELTS AND SHEAVES

CHECK BELT GUARD

- Check and retighten bolts daily.
- Check condition of bolt and nut threads when belt guards are removed or if a bolt won't tighten or won't stay tightened.
- Replace any bolts or nuts that are worn or damaged. Replace bolts or nuts with stripped threads.
- ALWAYS REMEMBER TO REPLACE BELT GUARD COVER BEFORE STARTING MACHINE. ROTATING BELTS AND SHEAVES ARE DANGEROUS AND COULD SEVERELY INJURE SOMEONE.



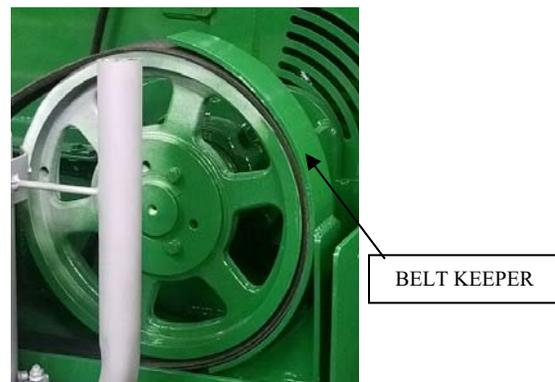
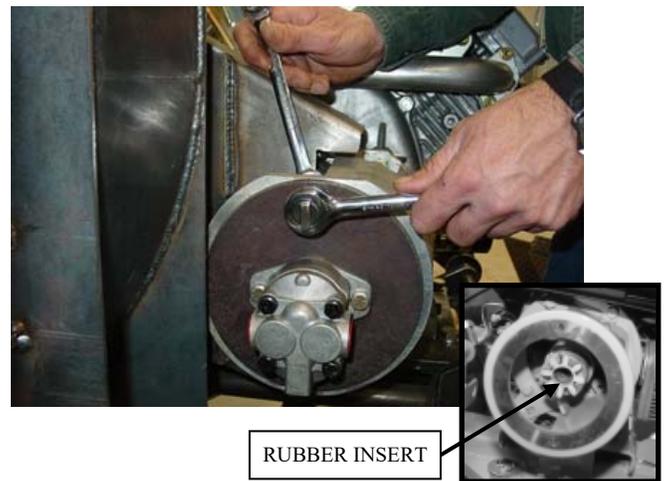
REPLACING ENGINE BELT

- **ENGINE MUST BE OFF AND IGNITION KEY REMOVED BEFORE CHECKING BELT TENSION.**
 - **ALL PARTS MUST BE COMPLETELY STOPPED.**
 - **THE CUTTER DISK LOCK PIN MUST BE INSTALLED IN THE DISK LOCK TUBE.**
-
- Replace belt when it is worn or regularly needs adjustment.
 - If equipped with more than one belt, replace belts as a complete set. Old or worn belts will not tension the same as new belts and will slip.
 - Remove belt guard bolts and remove belt guard cover.



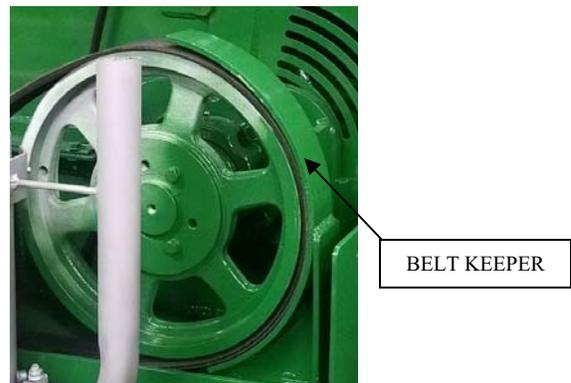
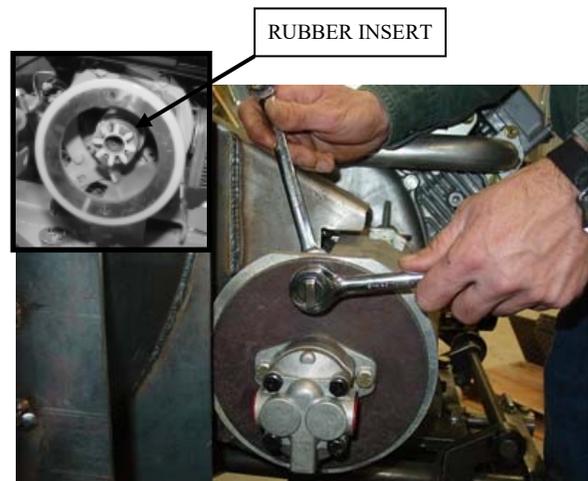
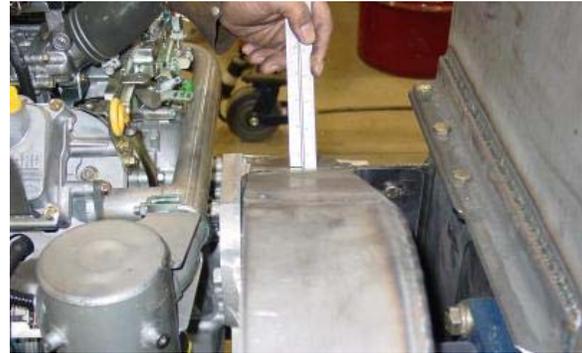
BELTS AND SHEAVES

- Belt should be disengaged. If it isn't, disengage by pushing the engagement handle forward till the engine slide stop goes back into position. Engine slide must be locked when the belt is disengaged. Belt will be loose when disengaged.
- Remove pump drive. **Only remove the bolts at 12 o'clock and 6 o'clock.** Remove the pump plate with the pump still attached, not necessary to remove and cap hoses.
- When you pull the pump off, the pump coupler and a rubber insert will come off with it. Take note of the insert and do not lose it.
- Loosen belt keeper to remove belts.
- Remove old belt and install new belt.
- Never pry new belts onto the sheave!



BELTS AND SHEAVES

- When just replacing the belt, it will not be necessary to check sheave alignment. The belt engagement adjustment is a straight and parallel operation that will not take sheaves out of alignment.
- Go back to the **BELT TENSION** section and check and adjust belt tension. You may need to reduce belt tension a good amount for a new belt if the old belt had been adjusted several times.
- Remember new belts will stretch and become loose as machine runs. Check belt tension often when belts are new.
- Replace the pump drive making sure the rubber insert is in place.
- Adjust and retighten the belt keeper. Keep 1/4" spacing between belt and belt keeper.



**ALWAYS REMEMBER TO
REPLACE BELT GUARDS
BEFORE STARTING MACHINE.
ROTATING BELTS AND SHEAVES
ARE DANGEROUS AND COULD
SEVERELY INJURE SOMEONE.**



BELTS AND SHEAVES

REPLACING SHEAVE OR BUSHING

- If it becomes necessary to replace a sheave or bushing, replace only one at a time. Never remove both sheaves at the same time.
- This section covers removing and replacing the cutter disk sheave. Follow the same procedure for removing the engine sheave.
- Remove belt guard bolts and remove guard.
- Mark position of bushing on shaft before removing sheave to check bushing position when replaced.
- Remove belts as described in REPLACING BELTS section.
- Remove the three bolts holding the sheave to the bushing.
- Screw a 1/4"-20 bolt into each of the three threaded holes to push sheave off bushing. Screw bolts in equally to prevent damaging the bushing or the sheave, especially if you plan to use either one again.
- Remove the sheave and replace with new sheave.



BELTS AND SHEAVES

- Replace bolts in the sheave and tighten lightly.
- Check the mark you made earlier next to the bushing. If bushing was not moved in replacing the sheave, tighten screws.
- If bushing is replaced or moved on the shaft, realign the sheaves using a 2-foot straight edge across the engine and cutter disk sheaves.
- Go to REPLACING ENGINE BELT section to replace belt and adjust tension.



**ALWAYS REMEMBER TO
REPLACE BELT GUARD COVER
BEFORE STARTING MACHINE.
ROTATING BELTS AND SHEAVES
ARE DANGEROUS AND COULD
SEVERELY INJURE SOMEONE.**



FEED WHEEL MOTOR

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- ◆ The engine is turned off.
- ◆ The ignition key has been removed.
- ◆ The positive battery cable has been disconnected.
- ◆ The engine slide assembly is in the disengaged position and the engine slide stop is locked.
- ◆ The feed control bar is in neutral.
- ◆ All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop.
- ◆ All machine parts have had sufficient time to cool down.
- ◆ The cutter disk lock pin is installed in the disk lock tube.
- ◆ No operator is in position at the controls to accidentally start machine.
- ◆ At least 2 people are at the site where maintenance is performed.

More accidents occur while performing maintenance than any other time! Use extra caution.

Never perform maintenance with the engine running, not even with the belt(s) disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

There is a special tool required to separate the motor and coupling once it is off the machine, contact J. P. Carlton or your local dealer to purchase the puller. The part number for this is 21240138.



FEED WHEEL MOTOR

WARNING:

- **RELEASE HYDRAULIC PRESSURE BEFORE PERFORMING ANY SERVICE TO HYDRAULIC LINES OR OTHER COMPONENTS.**
- **FLUID UNDER PRESSURE CAN PENETRATE THE SKIN AND CAUSE SEVERE INJURY. SEEK IMMEDIATE MEDICAL ATTENTION IF SKIN IS PENETRATED. CHECK HOSES AND FITTINGS USING A BOARD OR CARDBOARD; DO NOT USE HAND OR FINGER. ALWAYS WEAR EYE PROTECTION.**

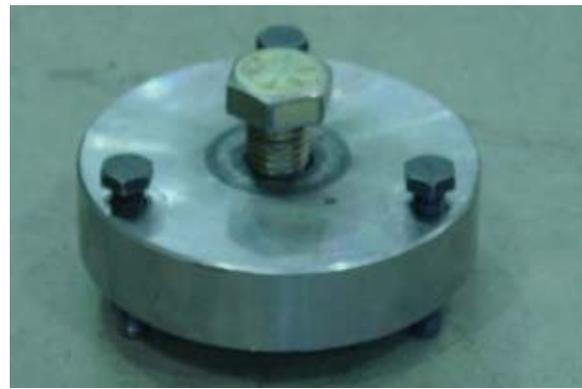
The pictures shown in this section may not look exactly like your machine, but the information given and the process for servicing the feed wheels is correct.

- Before changing feed wheel motor, release the hydraulic pressure. Mark the location of each hose, possibly with an R and L for right and left hoses. Then disconnect the hydraulic hoses and cap the ends of hoses and the connections on the motor.
- Remove the rubber guard that covers the feed wheel coupling and bushing by removing the two 3/8" bolts. Be sure to keep all parts and hardware together to make reassembly easier.
- Remove the three bolts (3/8") from the bushing and screw these bolts back into the three threaded holes in the bushing to push the motor assembly off the bushing. Screw these bolts in a little at a time to take the assembly off without applying more pressure to one side than the other.



FEED WHEEL MOTOR

- When the motor assembly is off the machine, move it to a workbench for easier access. Then, remove the 1" nut that is inside the coupling. You may need to use a vise to hold the motor steady while you break the nut loose since it was put on with LocTite® 262 (red) and then tightened to 150 ft. lbs. **CAUTION: Always wear eye protection when working on hydraulic components.**
- There is a special tool required to separate the motor and coupling once it is off the machine, contact J. P. Carlton or your local dealer to purchase the puller. The part number for this is 21240138.
- Attach the separating tool to the coupler as shown and screw the three bolts from the bushing into the tool in the outside holes. Screw the bolts into the coupling as far as they will go. Now turn the bolt in the center of the tool to pull the coupling off the feed wheel motor.
- Remove the torque arm held on with two 1/2" bolts.



FEED WHEEL MOTOR

- Replace with new motor. Clean the threads on the motor, the 1" nut, and the coupling with degreaser before beginning to replace all the parts.



- Attach the torque arm to the new motor using the 1/2" bolts that were removed. Tighten the bolts and torque to 120 ft. lbs.



LINE UP KEY WITH KEYWAY ON COUPLING

HIT COUPLING WITH RUBBER MALLET TO SEAT

- Put the coupling onto the motor and line up key and keyway – always use new key. Use a rubber mallet to seat the coupling. Strike the coupling a couple of times. Apply LocTite® 262 (red) to the 1" nut and screw in place. Torque the nut to 150 ft. lbs. Strike the coupler again a couple of times with the rubber mallet to finish seating and torque the nut to 150 ft. lbs. again.



FEED WHEEL MOTOR

- Return the feed wheel motor assembly to the machine and tighten the bolts in the bushing. Tighten each bolt a little at a time to pull the coupling into place as straight as possible. Try not to pull one side on faster than the other or damage may occur to the bushing and the coupling. When bolts are screwed in all the way, torque the bolts to 35 ft. lbs.



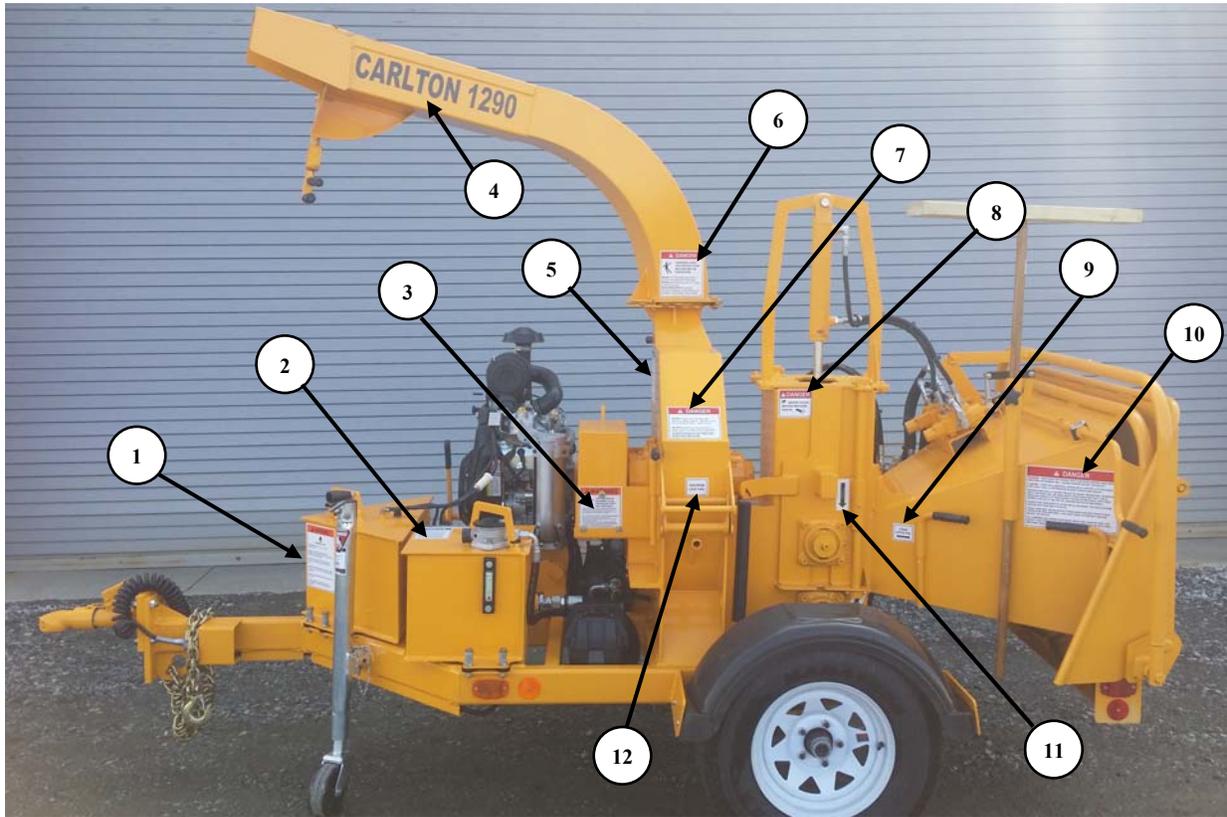
- Replace the rubber guard and bolt into place using the two 3/8" bolts that were removed. Tighten the bolts.



- Reconnect the hydraulic hoses making sure to connect them in the right order, see markings made when hoses were removed. If hoses are reversed, the feed wheels will work in reverse. Change hoses if this happens to make feed wheels turn correctly.



CHIPPER – LEFT SIDE



ITEM #	PART #	DESCRIPTION
1	0700316	FLAMMABLE FUEL
2	0700310	NOTICE – HYDRAULICS/LUBRICATION
3	0700314	WARNING – FROZEN BATTERY
4	0700128	CARLTON – 1290
5	0700313	NOTICE – CHIPPER KNIFE
6	0700304	DANGER – AIRBORNE CHIPS
7	0700302	DANGER – SERVICING NEVER REACH
8	0700301	DANGER – MOVING PARTS
9	0700324-1	YOKE – LOCK PIN
10	0700327	DANGER – FEED HOPPER
11	0700321	GREASE DAILY
12	0700323-1	DISK – LOCK TUBE

CHIPPER – RIGHT SIDE



ITEM #	PART #	DESCRIPTION
1	0700317	WARNING – PRESSURE LEAKS
2	0700301	DANGER – MOVING PARTS
3	0700324-2	YOKE – LOCK HOLE
4	0700303	DANGER – NEVER RIDE ON, ETC.
5	0700313	NOTICE – CHIPPER KNIFE
6	0700309	NOTICE – DECAL MAINTENANCE
7	0700311	NOTICE – BELT/BEARING MAINTENANCE
8	0700128	CARLTON – 1290
9	0700310	NOTICE – HYDRAULICS/LUBRICATION
10	0700315	WARNING – HEARING/EYE PROTECTION
11	0700301	DANGER – MOVING PARTS
12	0700320	AUTO-FEED ON/OFF INFO
13	0700306	DANGER – VINE TYPE MATERIAL

CHIPPER – REAR

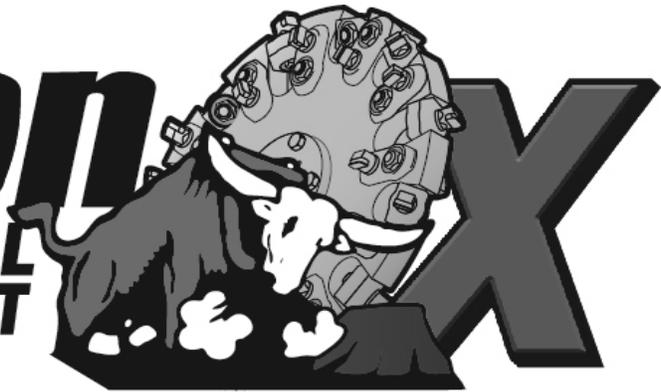


ITEM #	PART #	DESCRIPTION
1	0700318	PUSH – REVERSE
2	0700128	CARLTON – 1290
3	0700171	CARLTON PROFESSIONAL TREE BLUE

BLANK SHEET

Parts Book

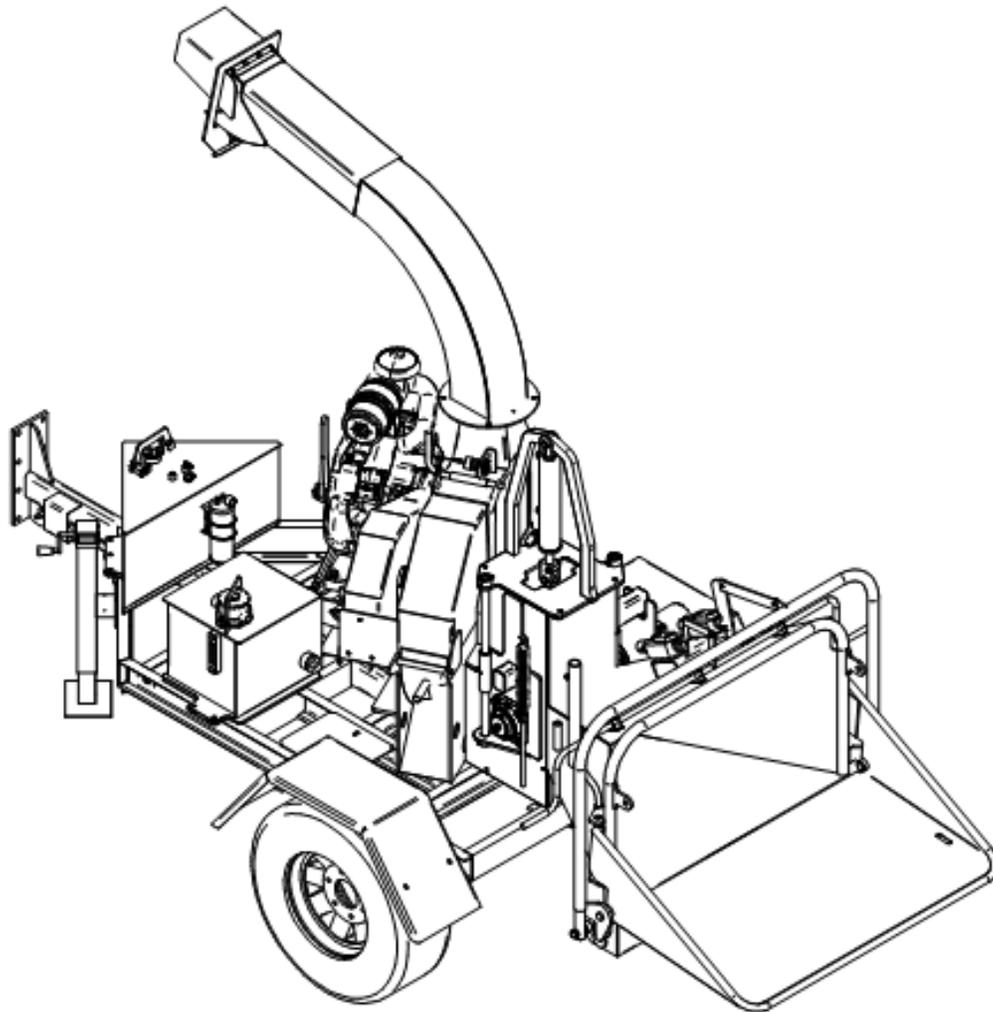
Carlton
PROFESSIONAL
TREE EQUIPMENT

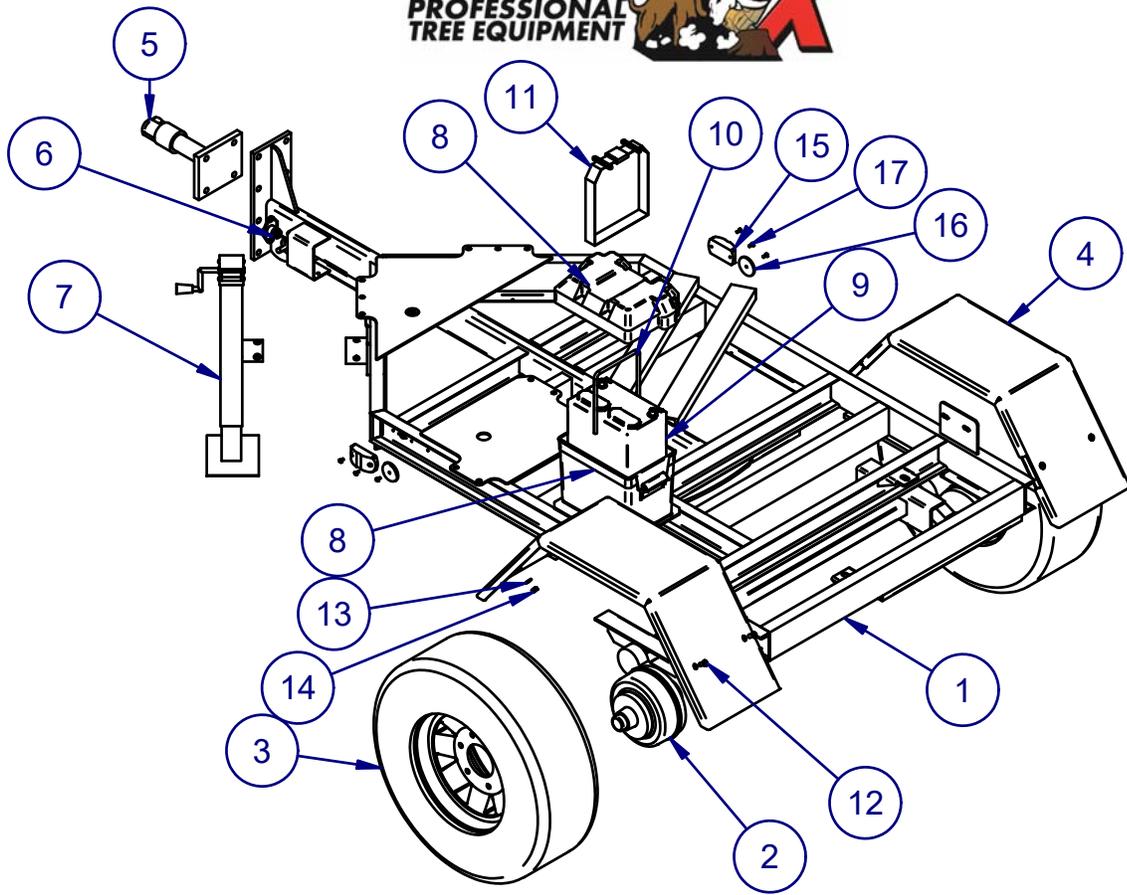


Carlton

J.P. Carlton Company
Div. D.A.F. Inc.
121 John Dodd Road
Spartanburg, SC 29303
Ph. (864) 578-9335
Fax (864) 578-0210
www.stumpcutters.com

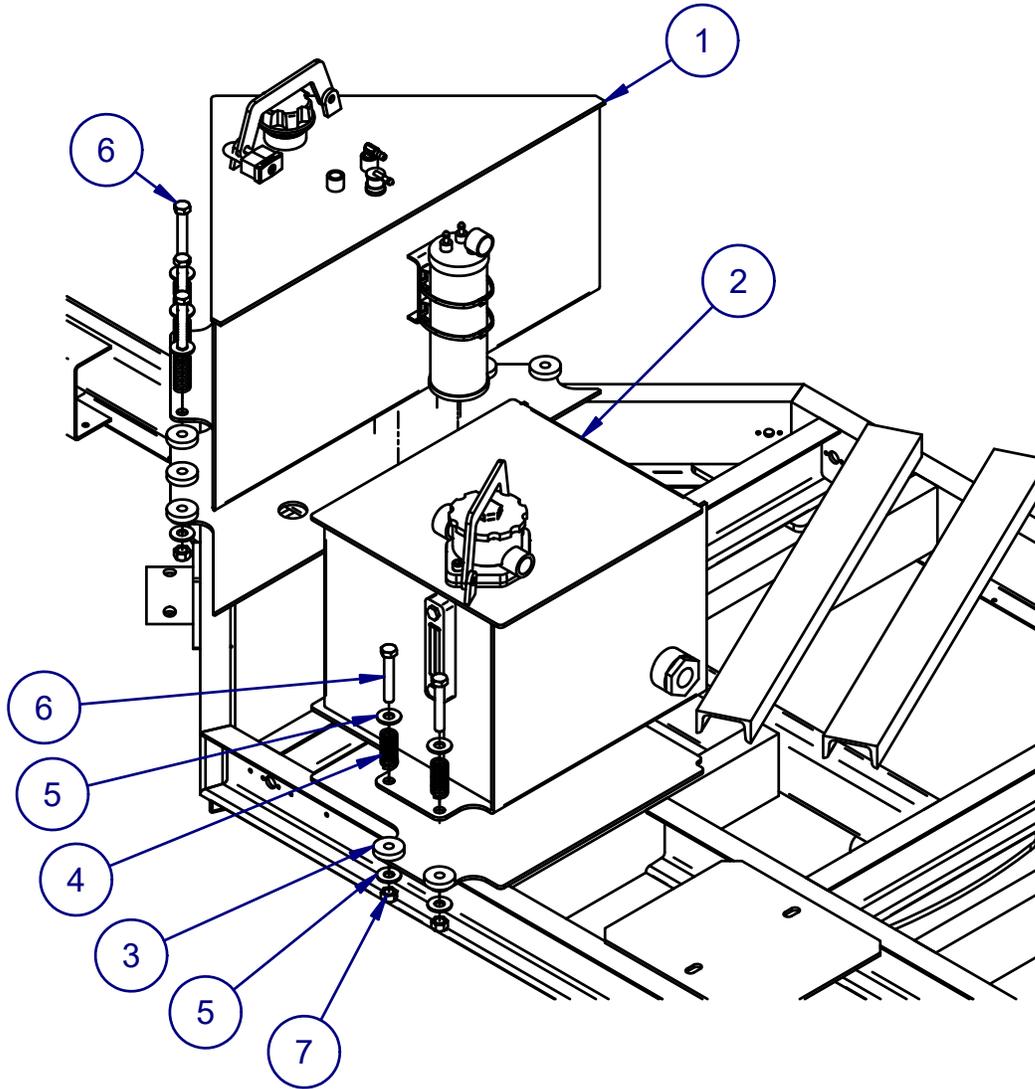
1290 CHIPPER





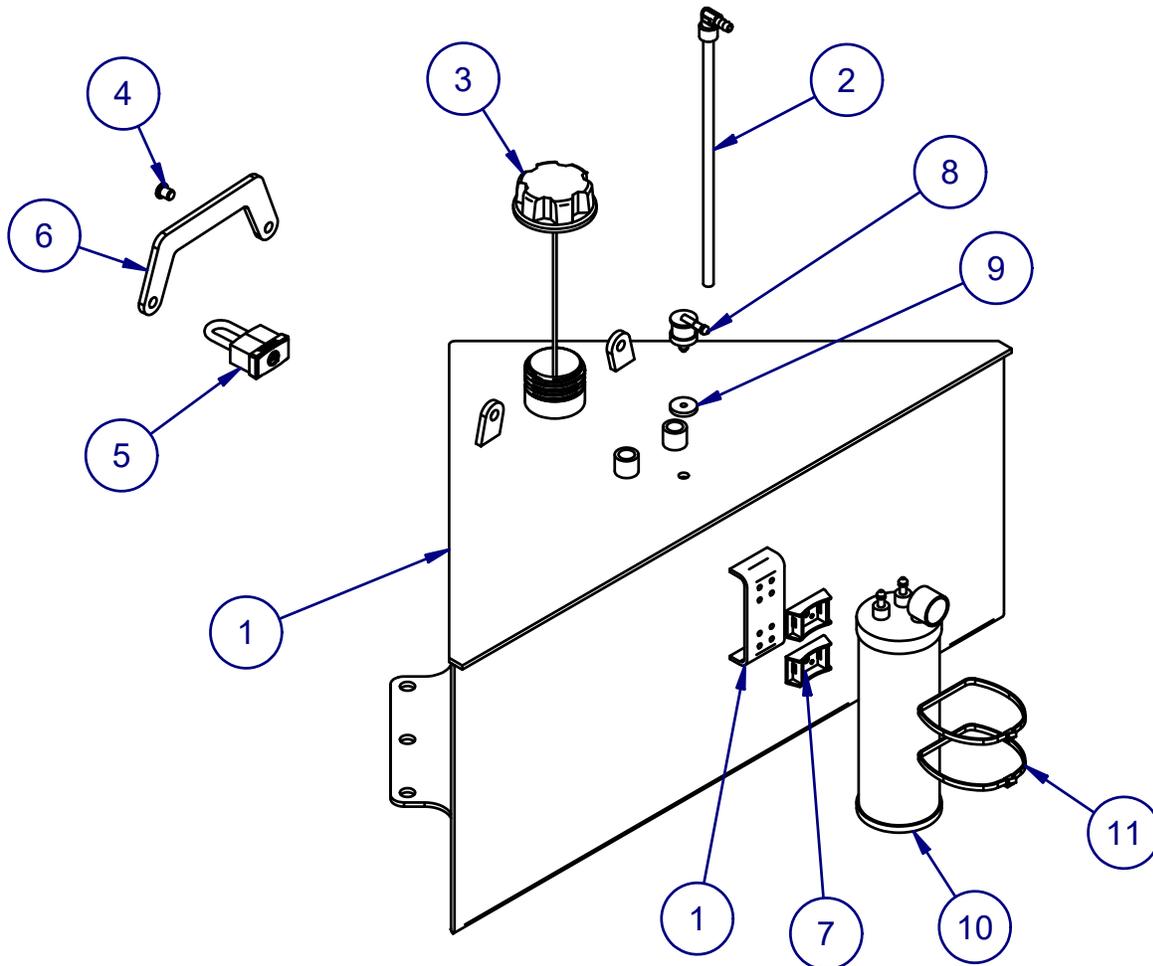
ITEM	PART	TITLE	QTY
1	21010032	WELDMNT,FRAME,ANGLED CUT,VANGUARD	1
2	0550251	TORSION FLEX AXLE - #5200	1
3	235/80R16	ST225/75D-15 LRD RIM AND TIRES	2
4	21110034	WELDMNT,ALUMINUM FENDER	2
5	20610080	WELDMNT 2" BALL RECEIVER	1
6	0350001B	6-WAY CONNECTOR PLUG - 11-605	1
7	0550003A	Trailer Jack- Tube -9" Chipper	1
8	0350032D	BATTERY BOX	1
9	0350032A	BATTERY,12V/950 CCA	1
10	0150508	BATTERY BRACKET - 3/8x7x8.25	1
11	0350032E	BATTERY BOX STRAP KIT	1
12	12F-0608	HEX SOC BUTTON C/S 3/8-16 x 1 UNC GR 8	8
13	34A-06	FLAT WASHER, 3/8 SAE GR8	8
14	29A-06	NUT,STOVER LOCK, 3/8-16 UNC GR8	8
15	0350054	Marker Light- 4" Amber Oval	2
16	0350057	REFLECTOR- AMBER 2 3/8"	2
17	0150414	RIVET-ALUMINUM W STEEL MANDREL	6

FUNCTION GROUP	
1 FRAME AND TANKS	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS 1J9WF0213J1167320	
DESCRIPTION	ISSUE
AXLE,TIRES,BATTERY,LIGHTS	R2



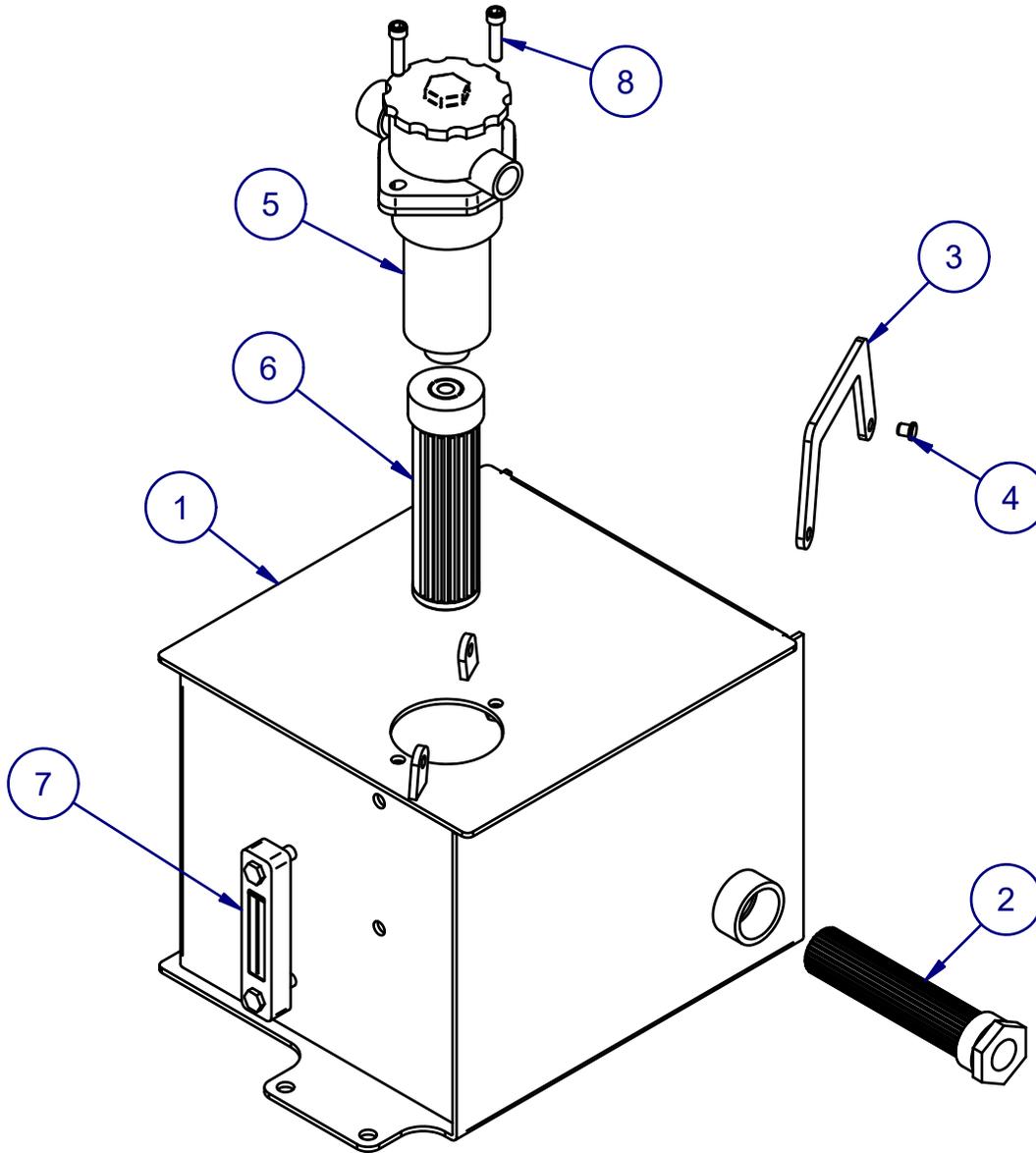
ITEM	PART	TITLE	QTY
1	20610015	ASSEMBLY,FUEL TANK	1
2	20610016	ASSEMBLY,HYDRAULIC TANK	1
3	0400236	ISOLATOR,TANKS	10
4	21840064	SPRING,FEED CONTROL LINKAGE	10
5	31A-08ZI	FLAT WASHER 1/2 USS GR 8 NARROW Z&Y	20
6	12A-0824ZI	HEX C/S 1/2-13 x 3 UNC ZINC GR 8	10
7	29A-08	NUT,STOVER LOCK, 1/2-13 UNC GR8	10

FUNCTION GROUP	
1 FRAME AND TANKS	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS 1J9WF0213J1167320	
DESCRIPTION	ISSUE
HYDRAULIC AND FUEL TANK INST.	R2



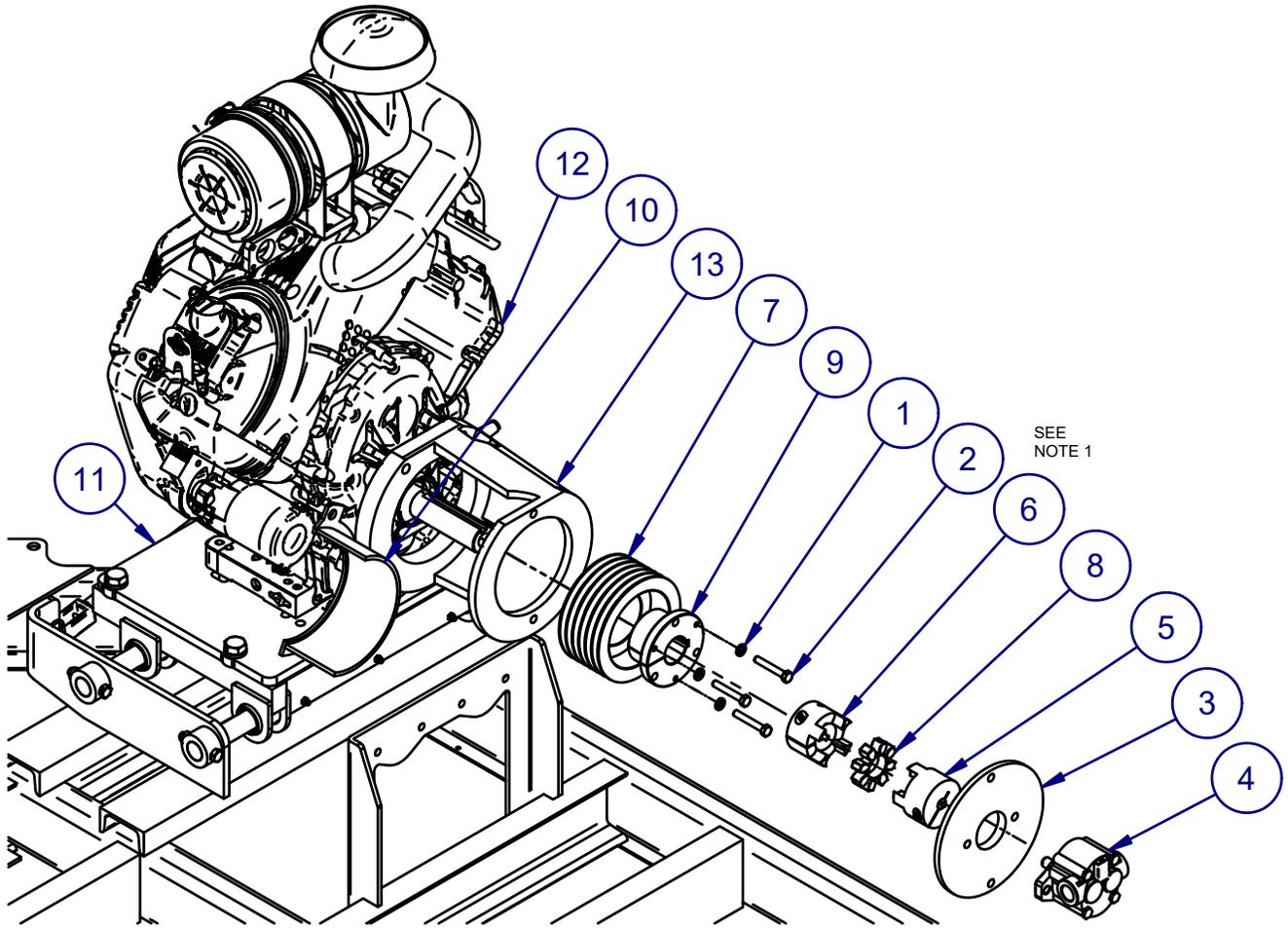
ITEM	PART	TITLE	QTY
1	20610017	WELDMENT,FUEL TANK	1
2	20610052	WELDMENT,FUEL PICK-UP TUBE	1
3	0201001	FUEL CAP,NON-VENTED	1
4	.375 MACHINED PIN	PIN,MACHINE 3/8"X1 3/32 LONG	1
5	0150608	MASTER LOCK	1
6	21210156	BRACKET,VANDADLISM,FUEL TANK	1
7	0201002C	MOUNT,CARBON CANISTER	2
8	0201002A	VALVE,SLOSH	1
9	0201002B	GROMMET,ROLL OVER VALVE	1
10	0201002	CHARCOAL CANISTER	1
11	0350016B	Black Wire Tie - 14 1/2"	2

FUNCTION GROUP	
1 FRAME AND TANKS	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
DESCRIPTION	ISSUE
FUEL TANK	R1



ITEM	PART	TITLE	QTY
1	20610018	WELDMENT, HYDRAULIC TANK	1
2	0300169	STRAINER- TANK MOUNTED LTM-15	1
3	21210154	BRACKET, VANDADLISM, HYDRUALIC TANK	1
4	.375 MACHINED PIN	PIN, MACHINE 3/8"X13/32 LONG	1
5	0300135E	HYDRAULIC IN TANK FILTER STF	1
6	0300135F	HYDRAILIC IN TANK FILTER ELEMENT	1
7	0300266A	HYDRAULIC SITE GAUGE W/TEMP	1
8	12D-0612	SHCS 3/8 X 1-1/2 NC GR 8	2

FUNCTION GROUP	
1 FRAME AND TANKS	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
DESCRIPTION	ISSUE
HYDRAULIC TANK	R1



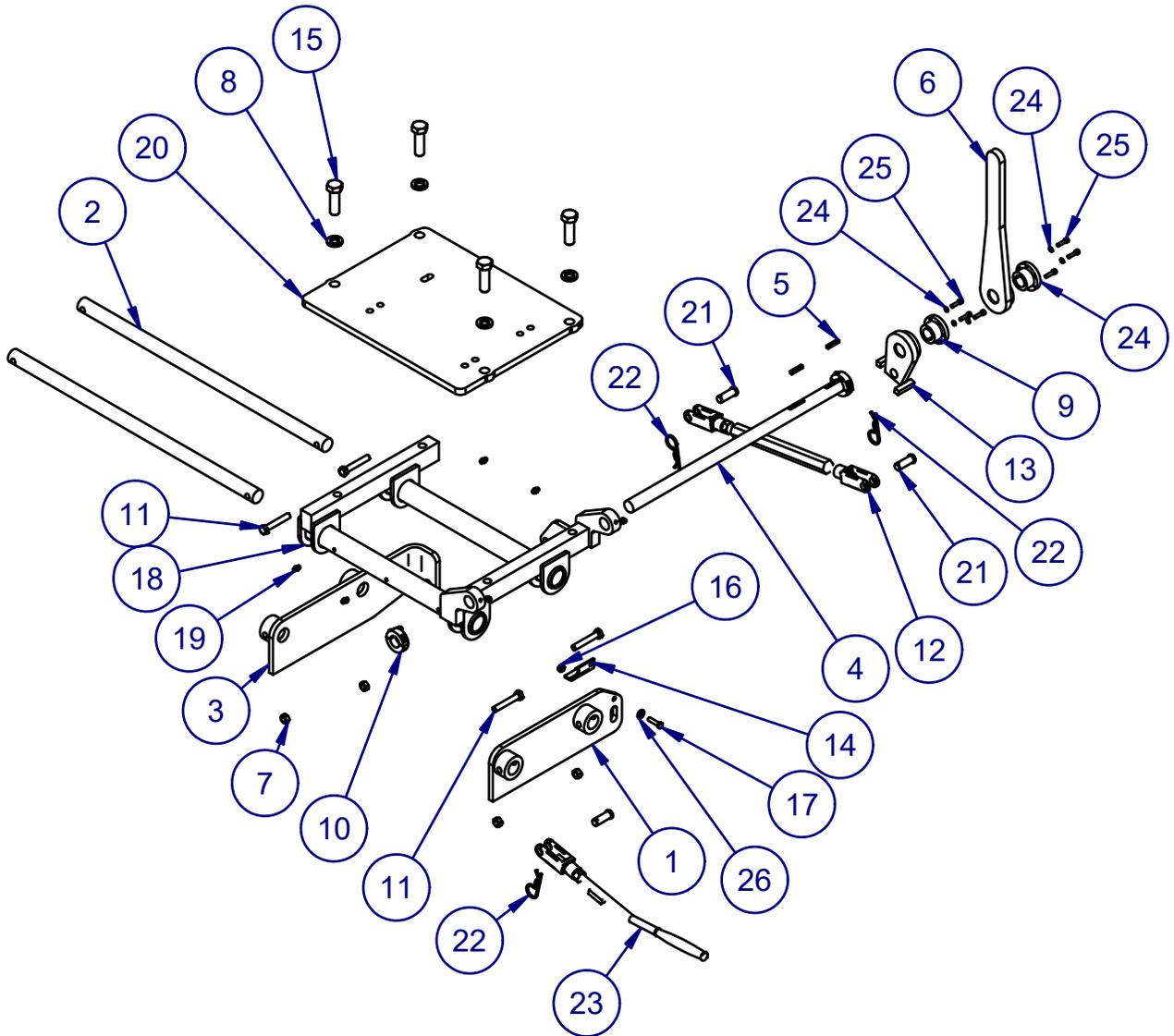
SEE
NOTE 1

ITEM	PART	TITLE	QTY
1	30A-05	LOCKWASHER 5/16" USS GR8	3
2	12A-0516	HEX C/S 5/16-18 x 2 UNC GR 5	3
3	14020067	MOUNT,CRANK SHAFT HYDRO PUMP	1
4	0300142AAA	PARKER HYD PUMP - 2500-4'S	1
5	0250132A	COUPLING 9 TOOTH A- 6" CHIPPER	1
6	0250133	COUPLING - 23/25 ENGINE	1
7	0250320	SHEAVE,ENGINE/CUTTER WHEEL	1
8	0250134	SPIDER INSERT - 23/25	1
9	0250120	BUSHING,QD INTERCHANGEABLE,SK 1- 7/16"	1
10	20620036	WELDMENT,BELT KEEPER,VANGUARD	1
11	20620002	ASSEMBLY,ENGINE SLIDE	1
12	0200140A	35HP BRIGGS VANGUARD ENGINE	1
13	20620013	CASTING,BEE HIVE	1

NOTES:

1. TORUQE 12A-0516 TO 15 FTLBS.

FUNCTION GROUP	
2 ENGINE/ELECTRICAL	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
1J9WF0213J1167320	
DESCRIPTION	ISSUE
ENGINE INSTALL	R2



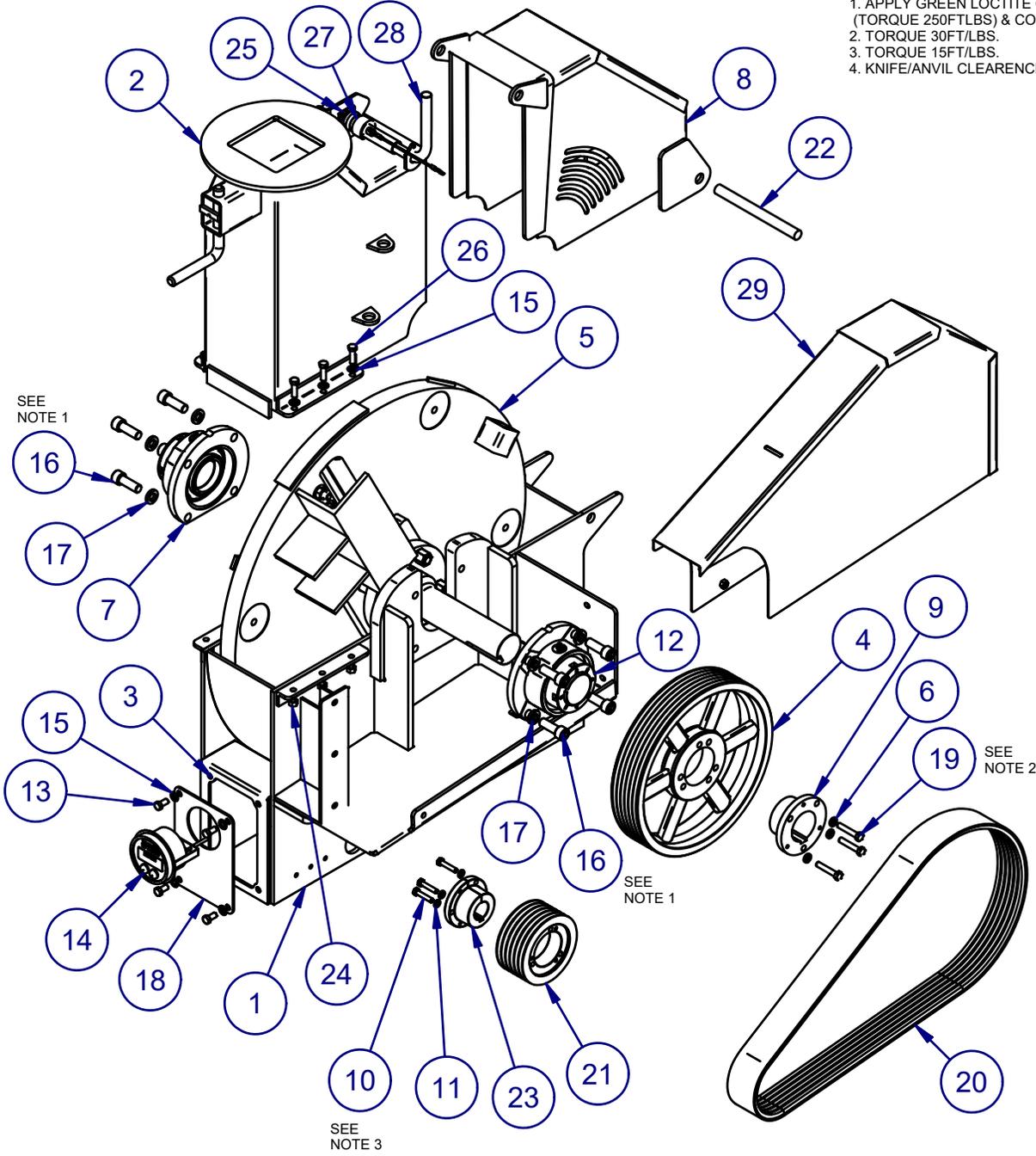
FUNCTION GROUP	
2 ENGINE/ELECTRICAL	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
DESCRIPTION	ISSUE
ENGINE SLIDE ASSEMBLY	R1



ITEM	PART	TITLE	QTY
1	20620003	WELDMENT,ENGINE SLIDE MOUNT,FRONT	1
2	14040045	ROD,ENGINE SLIDE	2
3	20620007	WELDMENT,ENGINE SLIDE MOUNT,REAR	1
4	14040090	ROD,ENGAGEMENT	1
5	70A-0508.5	KEY,3/16" SQ. 1-1/16" LONG	2
6	14040083	WELDMENT,ENGAGEMENT HANDLE	1
7	29A-06	NUT,STOVER LOCK, 3/8-16 UNC GR8	4
8	30-10	LOCK WASHER 5/8" USS GR 8	4
9	0250216	BUSHING JA x 7/8	2
10	0150703A	SPLIT LOCK COLLAR- 7/8	2
11	12A-0618	HEX C/S 3/8-16 x 2-1/4 UNC GR 8	4
12	14040091	ASSY,ENGAGEMENT LINKAGE	1
13	14040049	WELDMENT,ENGINE ROD ADJUST. MOUNT	1
14	14040051	PLATE,LATCH,ENGINE SLIDE	1
15	12A-1016Z1	HEX C/S 5/8-11 x 2 UNC GR 8 Z & Y	4
16	29A-04	NUT,STOVER LOCK, 1/4-20 UNC GR8	1
17	12A-0408	HEX C/S 1/4-20 x 1 UNC GR 8	1
18	14040079	WELDMENT,ENGINE SLIDE,BRIGGS	1
19	41E-04	GREASE FITTING 1/4-28 STRAIGHT	8
20	14040074	MOUNT,ENGINE,BRIGGS	1
21	51E-08	PIN,CLEVIS,1/2"	3
22	50L-02	SNAP PIN, 1/8 X 2-3/8	3
23	14040092	ASSY,SLIDE LOCK ADJUST	1
24	30B-10	LOCK WASHER,# 10 GR 8	6
25	14B-1006	SHCS 10-24 x 3/4 UNC GR 8	6
26	34A-04	WASHER,FLAT 1/4 SAE GR 8	1

FUNCTION GROUP	
2 ENGINE/ELECTRICAL	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
DESCRIPTION	ISSUE
ENGINE SLIDE ASSEMBLY	R1

- NOTES:
 1. APPLY GREEN LOCTITE 608 ON BEARING BOLTS (TORQUE 250FT/LBS) & COLLAR SET SCREWS.
 2. TORQUE 30FT/LBS.
 3. TORQUE 15FT/LBS.
 4. KNIFE/ANVIL CLEARANCE .09375 (3/32")

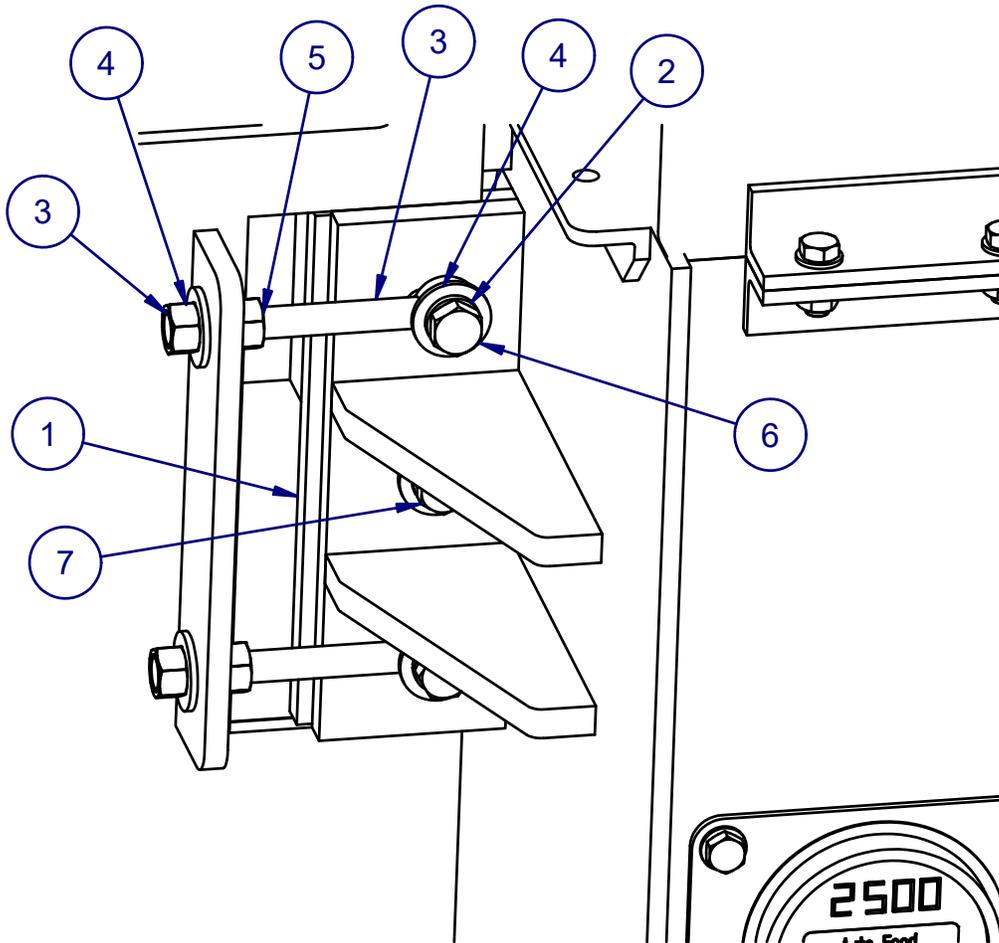


FUNCTION GROUP	
3 BASE/CUTTER ASSEMBLY	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
IJ9WF0213J1167320 AND UP	
DESCRIPTION	ISSUE
BASE/CUTTER WHEEL ASSEMBLY/GAS	R1



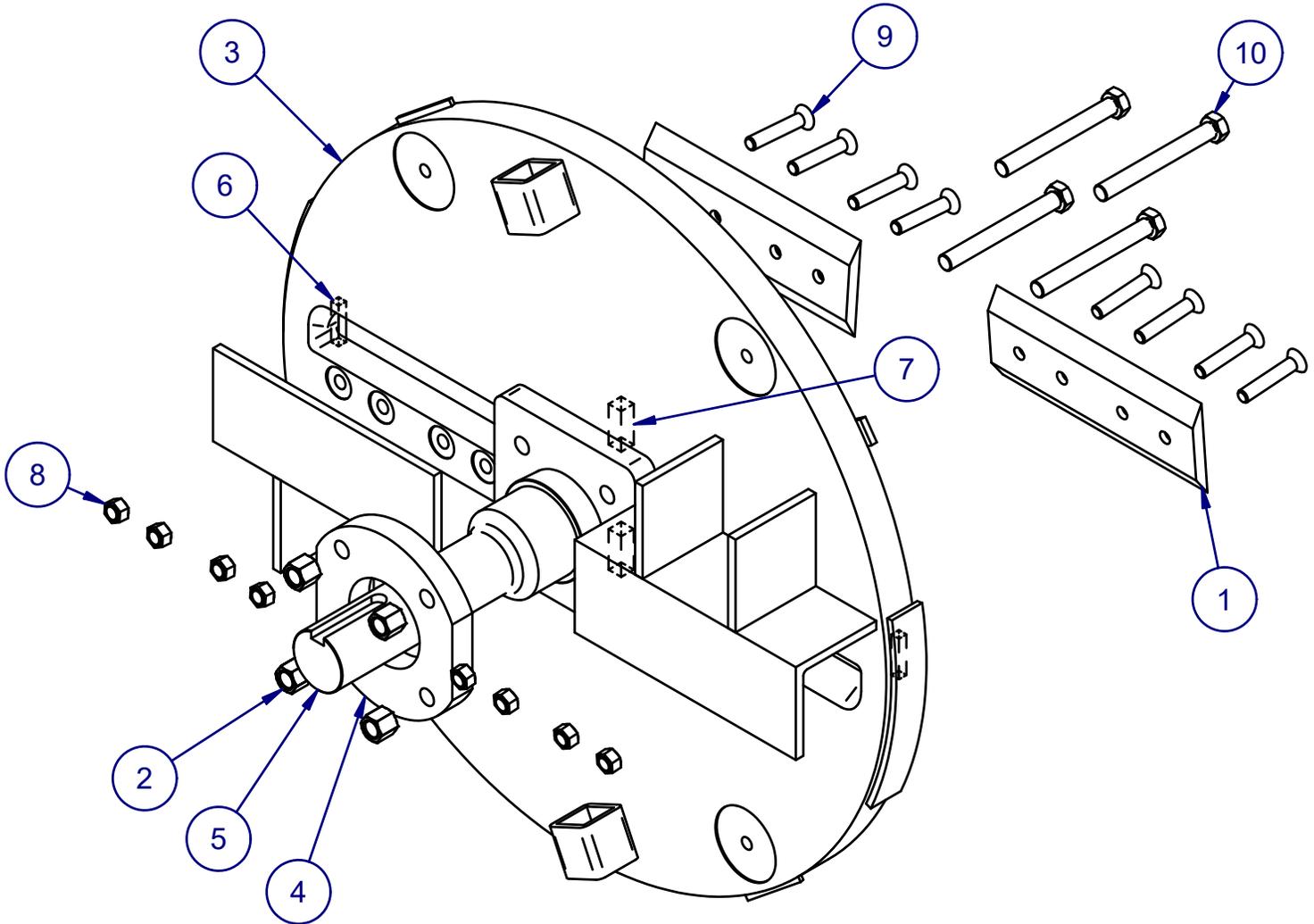
ITEM	PART	TITLE	QTY
1	21030002	WELDMNT,DISC BOX,ANGLED CUT,VANGUARD	1
2	21030006	WELDMNT,TRANSITION,ANGLED CUT	1
3	29A-06ZI	NUT,STOVER LOCK, 3/8-16 UNC GR8 Z&Y	4
4	0250321	SHEAVE 6-3V14.0	1
5	21030003	ASSY,CUTTER WHEEL	1
6	30A-06	LOCKWASHER, 3/8" USS GR8	9
7	0500165	BEARING,CUTTER WHEEL,FEED SIDE	1
8	21030058	WELDMNT,HOOD,DISC BOX,ANGLED CUT	1
9	0250127	BUSHING,QD INTERCHANGEABLE,SF 2-7/16"	1
10	12A-0512ZI	HEX C/S 5/16-18 x 1-1/2 UNC GR 5 Z&Y	3
11	30A-05	LOCKWASHER 5/16" USS GR8	3
12	0500166	BEARING,CUTTER WHEEL,ENGINE SIDE	1
13	12A-0606ZI	HEX C/S 3/8-16 x 3/4" UNC GR 8 ZINC	4
14	0900204	ELECTRONIC AUTO FEED	1
15	31A-06	FLAT WASHER, 3/8 USS GRD NARROW 5	16
16	12D-1016	SOC HD C/S 5/8-11 X 2" UNC BLCK	8
17	30A-10ZI	LOCKWASHER 5/8" USS GR8 ZINC	8
18	20640055	PLATE,AUTOFEED	1
19	12A-0616	HEX C/S 3/8-16 x 2 UNC GR 8	3
20	0400157	Belt 1290 Chipper Gas	1
21	0250320	SHEAVE,ENGINE/CUTTER WHEEL	1
22	21030039	ROUND BAR,DOOR PIN	1
23	0250120	BUSHING,QD INTERCHANGEABLE,SK 1- 7/16"	1
24	20A-06	NUT,HEX,3/8-16 UNC GR8	6
25	21220088	ASSY,SAF,DISC HOOD,SW PLUG	1
26	12A-0610ZI	HEX C/S 3/8-16 x 1-1/4" UNC GR 8 ZINC	6
27	21220089	ASSY,SAF,DISC HOOD,SW SOCKET	1
28	20630024	WELDMNT,LOCK PIN,DOOR	1
29	21030007	WELDMNT,BELT GUARD	1

FUNCTION GROUP	
3 BASE/CUTTER ASSEMBLY	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS 1J9WF0213J1167320 AND UP	
DESCRIPTION	ISSUE
BASE/CUTTER WHEEL ASSEMBLY/GAS	R1



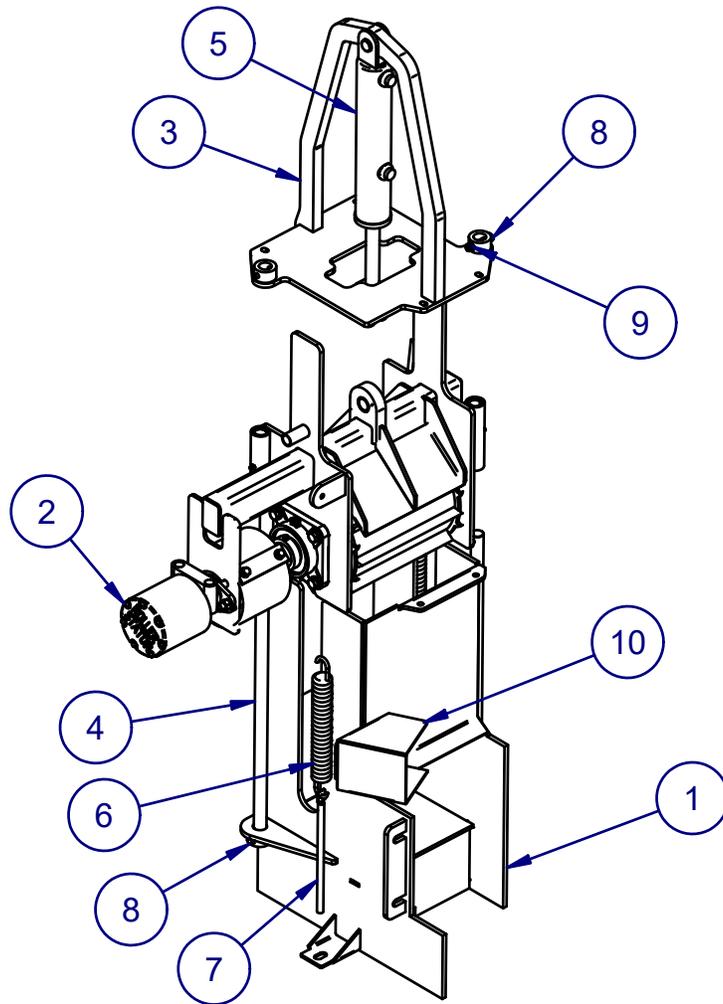
ITEM	PART	TITLE	QTY
1	21030029	ANVIL	1
2	30-08	LOCK WASHER,1/2"	3
3	0150630C	1/2-13 x 4.5" ROD END	2
4	31A-08ZI	FLAT WASHER 1/2 USS GR 8 NARROW Z&Y	7
5	20A-08	NUT,HEX,1/2-13 UNC GR8	4
6	12A-0814ZI	HEX C/S 1/2-13 x 1-3/4 UNC GR 8 Z&Y	2
7	12A-0810ZI	HEX C/S 1/2-13 x 1-1/4 UNC GR 8 ZINC	1

FUNCTION GROUP	
3 BASE/CUTTER WHEEL	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
DESCRIPTION	ISSUE
ANVIL MOUNTING	R2



ITEM	PART	TITLE	QTY
1	0900123	10 3/16" x 4" x 1/2" KNIFE I790	2
2	2IM-10ZI	NUT,HEX HIGH NUT,5/8-18 UNF GR 8 Z&Y	4
3	20930067	CUTTER WHEEL,MACHINED STAGE 3	1
4	20930073	RETAINER,CUTTER WHEEL,MACHINED	1
5	21130018	SHAFT,CUTTER WHEEL	1
6	70A-0614	KEY ,3/8 SQ. 1-3/4" LONG	2
7	70A-1014	KEY,5/8 SQ. 1-3/4" LONG	2
8	0900126	CHIPPER KNIFE BOLT NUT- 1/2"	8
9	0900125	Chipper Knife Bolt - 2 1/2"	8
10	13A-1044ZI	HEX C/S 5/8-18 x 5 1/2 UNF GR 8 Z & Y	4

FUNCTION GROUP	
3 CUTTER WHEEL/BASE	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
1J9WF0217F1167347	
DESCRIPTION	ISSUE
CUTTER WHEEL	R2

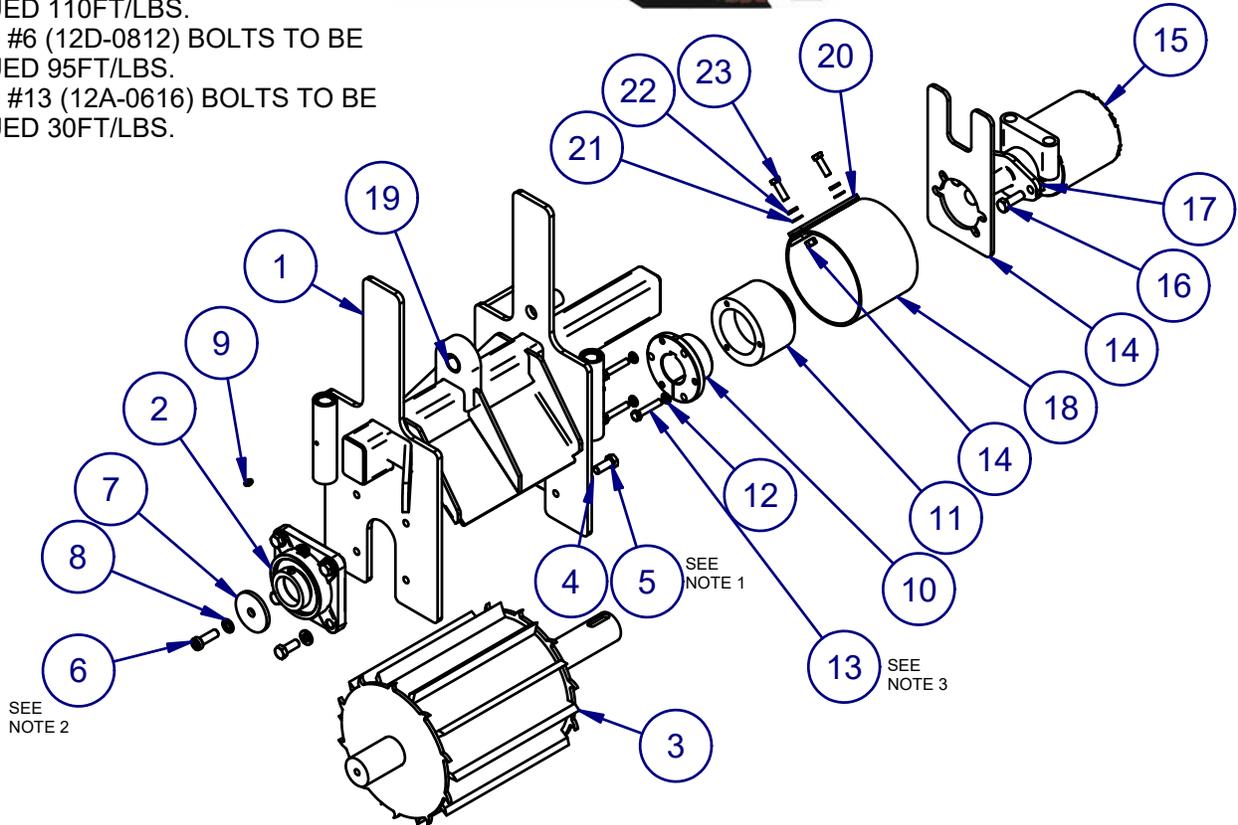


ITEM	PART	TITLE	QTY
1	21040005	WELDMENT,BTM FEED,W/O BTM FEED WHEEL	1
2	21040002	ASSY,TOP FEED SYSTEM,ANGLED CUT	1
3	21040008	WELDMENT,SLIDE FEED SYSTEM,TOP PLATE,	1
4	21040024	ROUNDBAR,SLIDE ROD	2
5	0300106A	CYLINDER-9" CHIPPER LIFT	1
6	0900110B	SPRING,LIFT	2
7	0900104	SPRING TIGHTENER FOR 250	2
8	12A-0618	HEX C/S 3/8-16 x 2-1/4 UNC GR 8	4
9	29A-06	NUT,STOVER LOCK, 3/8-16 UNC GR8	4
10	21040053	WELDMENT,BEARING COVER,DISC BEARING	1

FUNCTION GROUP	
4 FEED SYSTEM	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
1J9WF0213J1167320 AND UP	
DESCRIPTION	ISSUE
FEED SYSTEM	R3

NOTES:

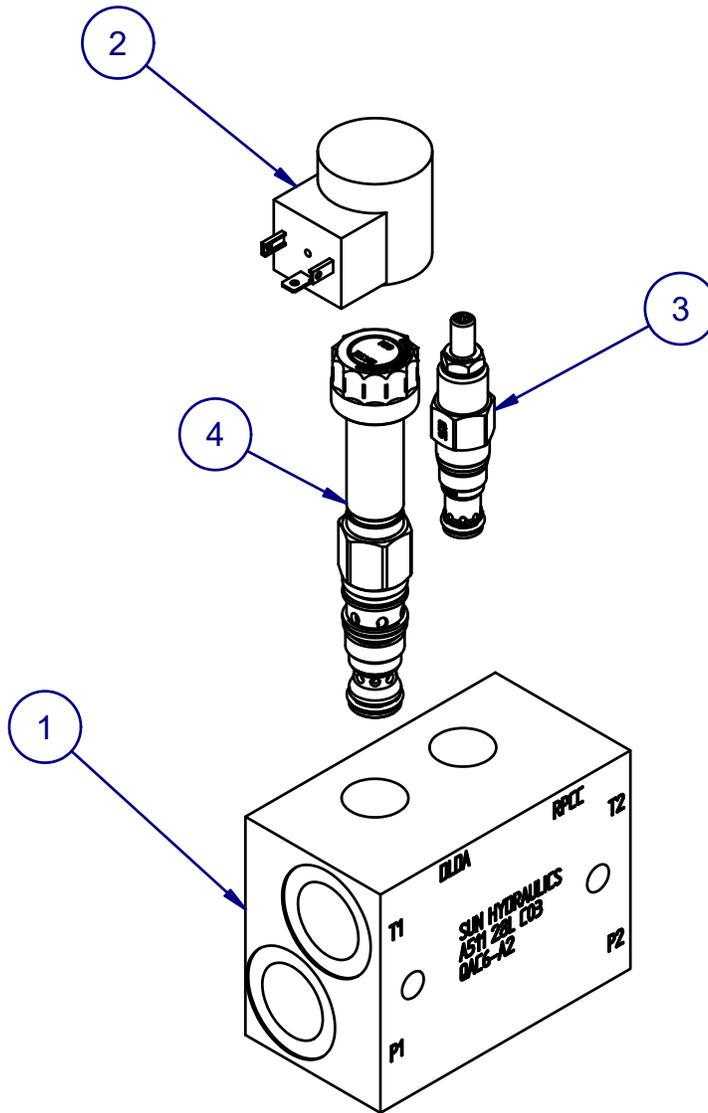
1. APPLY BLUE LOCTITE 242 TO ITEM #5 (13A-0810ZI) BOLTS TO BE TORQUED 110FT/LBS.
2. ITEM #6 (12D-0812) BOLTS TO BE TORQUED 95FT/LBS.
3. ITEM #13 (12A-0616) BOLTS TO BE TORQUED 30FT/LBS.



ITEM	PART	TITLE	QTY
1	21040004	WELDMENT, TOP FEED, ANGLED CUT	1
2	0500152	FB 2" LINKBELT-FEEDWHEEL, CHIP	2
3	20640003	WELDMENT, FEED WHEEL/TOP	1
4	30A-08	LOCKWASHER 1/2"	8
5	13A-0810ZI	HEX C/S 1/2-20 x 1-1/4 UNF GR 8 ZINC	8
6	12D-0812	SOC HD C/S 1/2-13 X 1-1/2" UNC BLK	1
7	21240075	WASHER, FEED WHEEL BEARING	1
8	30-08	LOCK WASHER, 1/2"	1
9	0150601	GREASE FITTING 1/4-28 STRAIGHT	2
10	0250124	BUSHING - 65/75 ENGINE - SF 2"	1
11	1200188	COUPLER, FEED WHEEL HUB	1
12	30-06	LOCK WASHER, 3/8"	3
13	12A-0616	HEX C/S 3/8-16 x 2 UNC GR 8	3
14	20640079	WELDMENT, FEED WHEEL BRKT, TOP	1
15	0300039	2512HD BOTTOM FEED MOTOR WHITE	1

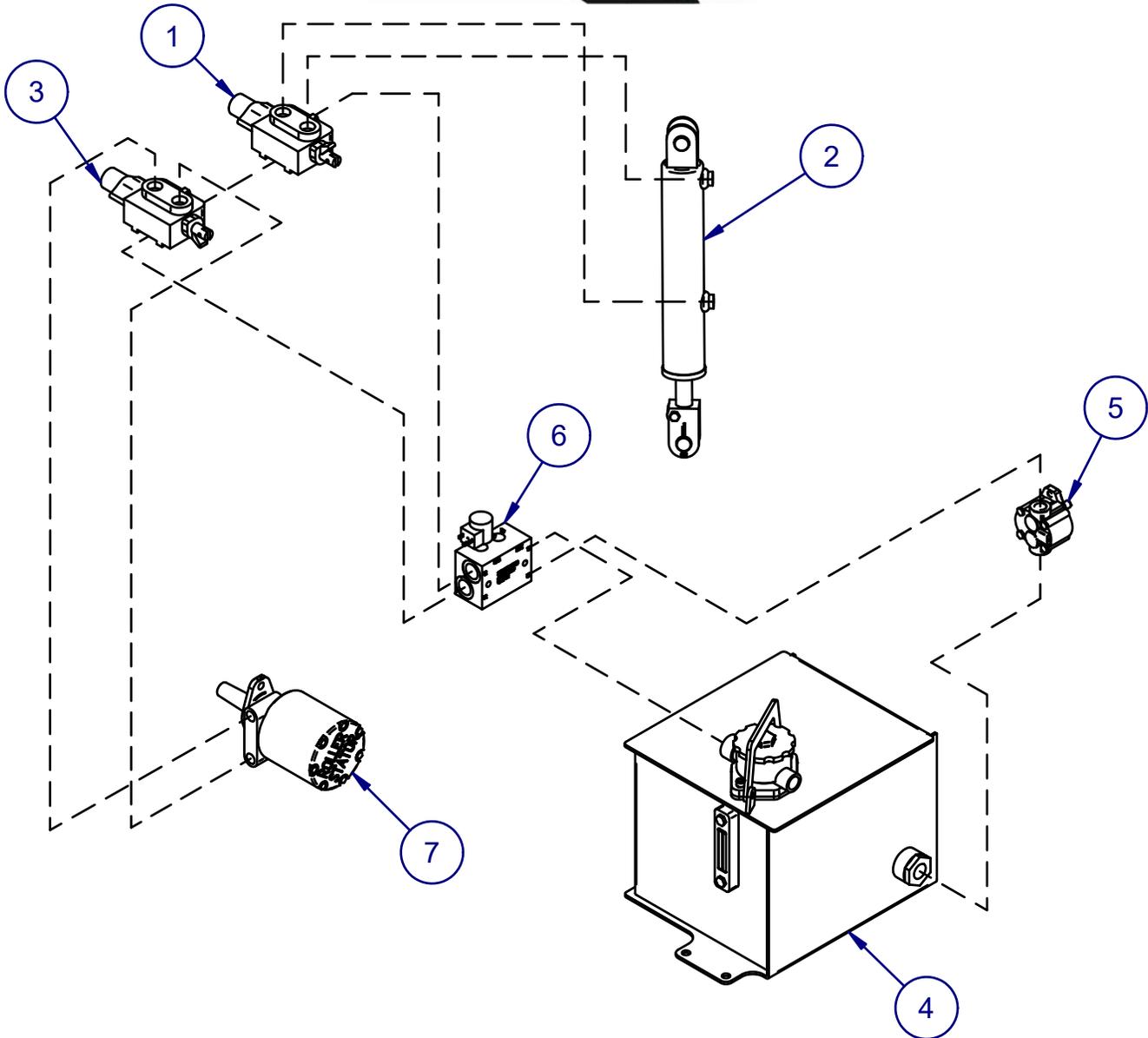
ITEM	PART	TITLE	QTY
16	12A-0812ZI	HEX C/S 1/2-13 x 1-1/2 UNC GR 8 Z&Y	2
17	20A-08	NUT, HEX, 1/2-13 UNC GR8	2
18	20640081	COVER, PVC, FEED WHEEL COUPLER, 6"	1
19	0150801	BUSHING, HARDENED, 1"	1
20	21240090	WASHER, FEED WHEEL COUPLER COVER MOUNT	1
21	31A-06	FLAT WASHER, 3/8 USS GRD NARROW 5	2
22	30A-06	LOCKWASHER, 3/8" USS GR8	2
23	12A-0610ZI	HEX C/S 3/8-16 x 1-1/4" UNC GR 8 ZINC	2

FUNCTION GROUP	
4 FEED SYSTEM	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
1J9WF0213J1167320 AND UP	
DESCRIPTION	ISSUE
FEED WHEEL ASSEMBLY	R3



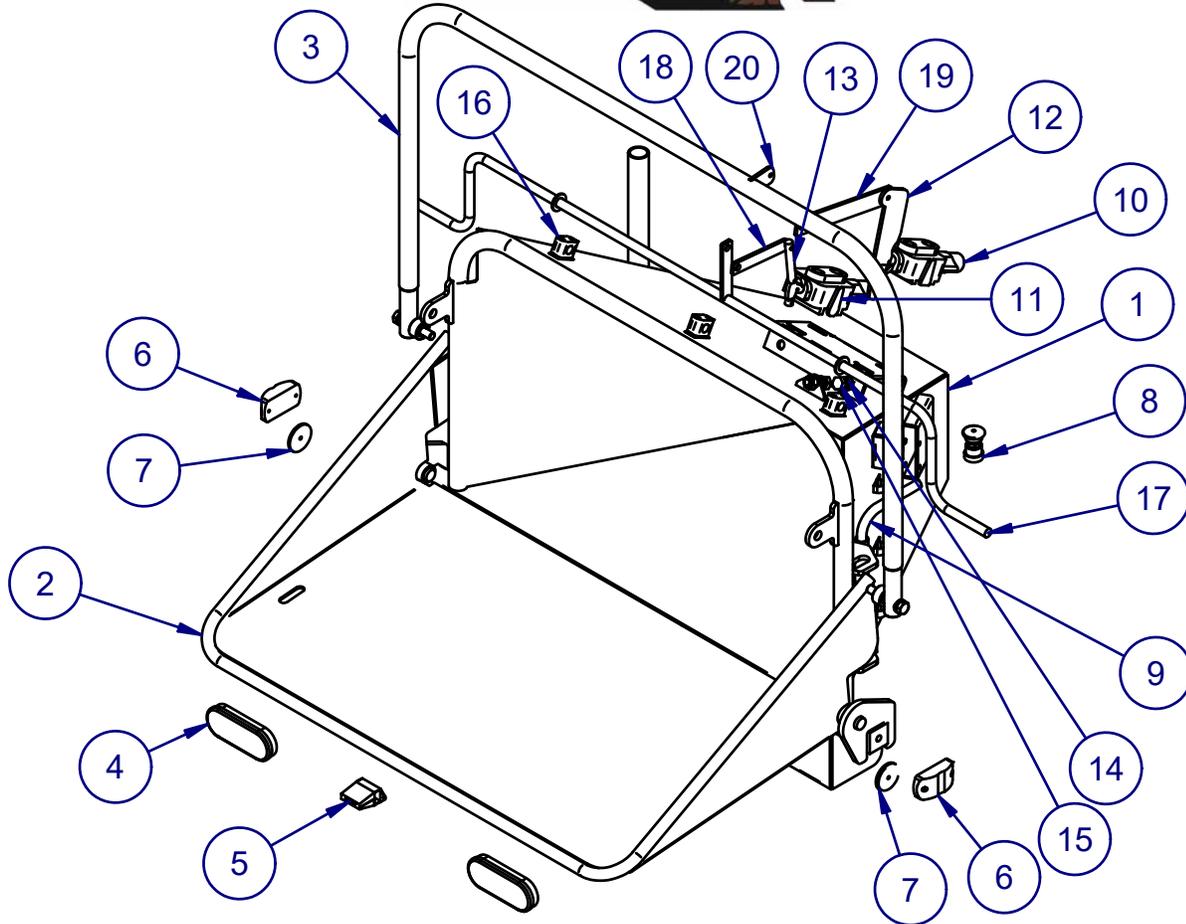
ITEM	PART	TITLE	QTY
1	0300173	AUTOFEED BODY 6" CHIPPER	1
2	0300121B	SOLENOID STOP VALVE	1
3	0300121D	PISTON RELIEF VALVE- RPCC-LAN	1
4	0300121B1	Sun Solenoid Coil - 770-212	1

FUNCTION GROUP	
4 FEED SYSTEM	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS 1J9WF0217F1167347	
DESCRIPTION	ISSUE
AUTO FEED HYDRAULIC BLOCK	R2



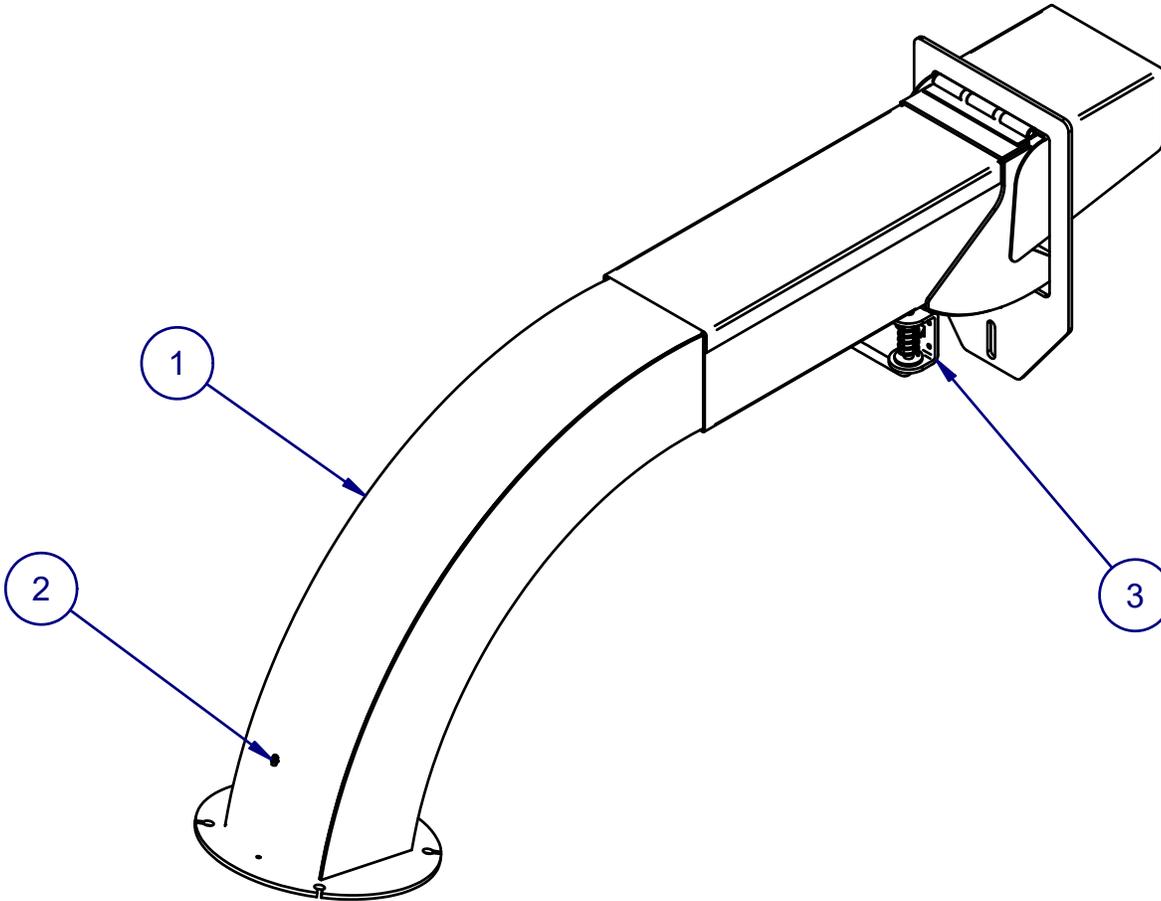
ITEM	PART	TITLE	QTY
1	0300036	Energy Lift Cylinder Valve	1
2	0300106A	CYLINDER-9" CHIPPER LIFT	1
3	0300035	Energy Feed Wheel Valve	1
4	20610016	ASSEMBLY, HYDRAULIC TANK	1
5	0300142AAA	PARKER HYD PUMP - 2500-4'S	1
6	0300173	AUTOFEED BLOCK	1
7	0300039	2512HD BOTTOM FEED MOTOR WHITE	1

FUNCTION GROUP	
4 FEED SYSTEM	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
DESCRIPTION	ISSUE
HYDRAULIC SCHEMATIC 1290	R2



ITEM	PART	TITLE	QTY
1	21050002	WELDMNT,INFEED	1
2	21050003	WELDMNT,FOLDING END TABLE	1
3	21050062	ASSY,CONTROL BAR	1
4	0350008A1	Tail Light- 12" Chipper	2
5	0350008B	TAG LIGHT	1
6	0350055	Marker Light- 4" Red Oval	2
7	0350056	REFLECTOR - RED 2 3/8"	2
8	0350058A	E-STOP- 1 NO 1 NC- KUBOTA 6"	1
9	20650005	TUBING,FOLDING END TABLE/DOOR LOCK	2
10	0300035	Energy Feed Wheel Valve	1
11	0300036	ENERGY LIFT CYLINDER VALVE	1
12	21250092	BRACKET,CONTROL BAR LINKAGE	1
13	21250170	HANDLE,VALVE	1
14	20A-10Z1	NUT,HEX,5/8-11 UNC GR 8 Z&Y	4
15	10A-1016Z1	BOLT,HEX C/S 5/8-11 x 2 UNC GR8 Z&Y	2
16	0300300A	HOSE CLAMP	3
17	21050004	WELDMNT,FEED LIFT CONTROL ARM	1
18	21250148	FLATBAR,FEED LIFT CONTROL BAR LINKAGE/VALVE	1
19	21250101	FLATBAR,CONTROL LINKAGE	1
20	21250093	MOUNT,FEED WHEEL CONTROL,LINKAGE	1

FUNCTION GROUP	
5 INFEED SYSTEM	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
1J9WF0213J1167320 & UP	
DESCRIPTION	ISSUE
INFEED SYSTEM	R2



ITEM	PART	TITLE	QTY
1	20660002	WELDMENT, DISCHARGE SYSTEM	1
2	41E-04	GREASE FITTING 1/4-28 STRAIGHT	1
3	0150607	Spring Latch Assembly- 1/2"	1

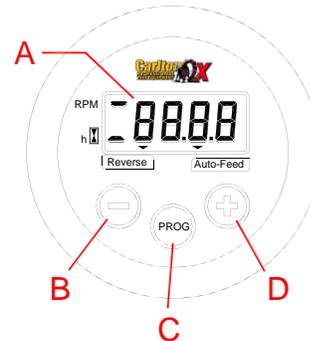
FUNCTION GROUP	
6 DISCHARGE SYSTEM	
BUSINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
1J9WF0114F1167453 AND UP	
DESCRIPTION	ISSUE
DISCHARGE/CHIP REFLECTOR	R1

BLANK SHEET

JP Carlton Auto-Feed Operation Instructions

This Digitally Controlled AutoFeed is designed to Start and Stop material based on parameters set by the operator, Monitor Engine RPM's and if equipped Reversing.

- A. Back-lit display for visualizing: RPM, Working hours, "auto-feed" function ON, AND "reverse" status ON.
- B. Setting key: it allows to decrease the value of the parameter being set
- C. Program key: to enter the parameters setting for calibrations (PPR).
- D. Setting key: it allows to increase the value of the parameter being set



Setting up the Auto-Feed:

Activating/Deactivating: Press key (-) minus for at least 3 seconds to de-activate the "auto-feed" function and until the sequence below is displayed:

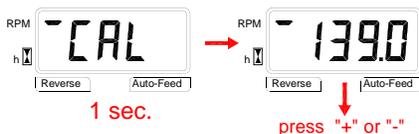


Press key (+) plus for at least 3 seconds to Activate the "auto-feed" function and until the sequence below is displayed:



Calibration CAL: This is set by the factory on all new machines. To enter the programming phase, with the power **off** press key PROG, and keep it pressed while cutting "ON" the power. Nothing is displayed for 10 seconds. After this interval, the first parameter CAL (number of pulses/revolution for engine RPMs counting) is displayed. After 1 second the current programmed values will be displayed (for instance 139.0 pulses/rev): The parameter is changed by using key "+" or "-"; See Below

Reference table 1 for recommended settings.



Autofeed Settings for Carlton Chippers Table 1

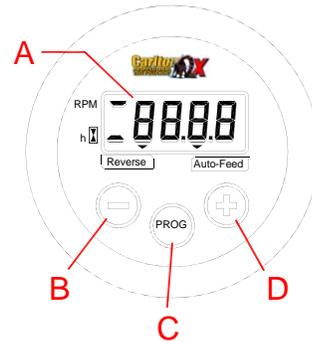
Engine Make	Engine Model	HP Rating	High Setting	Low Setting	CAL
Vanguard	Big Block V Twin	35 HP	3360	3060	98
Kubota	D1105T	33 HP	2300	2000	12
Kohler	CH740	27HP	3330	2900	97.4
Kubota	V3300T	88 HP	2300	2150	12
Kubota	V3800T	99HP	2300	2150	12
John Deere		99 HP	2440	2240	129
John Deere		140 HP	2440	2240	129
John Deere	6068T	173 HP	2440	2240	129
John Deere	6068H	250 HP	2440	2240	129

JP Carlton Auto-Feed Operation Instructions

This Digitally Controlled AutoFeed is designed to Start and Stop material based on parameters set by the operator, Monitor Engine RPM's and if equipped Reversing.

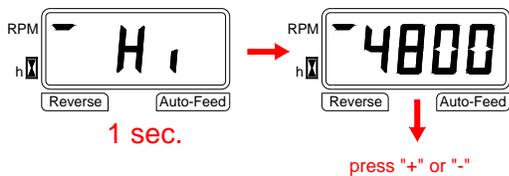
Setting High/Low RPM, Type and Reversing:

This is set by the factory on all new machines. With the monitor "ON" keep key PROG pressed for at least 2 seconds and until the first parameter "HI" (i.e. RPMs minimum permitted value) is displayed. After an interval of 1 second the current programmed value is displayed (ex. 4800RPM). The parameter is changed by using key "+" or "-"; switching key "PROG" allows to go to next parameter "LO" (i.e. RPMs minimum permitted value). It is displayed with same procedure. Press "PROG" sets the Low and goes to setting the Type which is always "0". Press "PROG" sets the Type and then goes to setting the Back (activation time of the reverse solenoid valve in milliseconds which is defaulted "300". Press "PROG" again and this will store all the setting and now the set-up is complete.

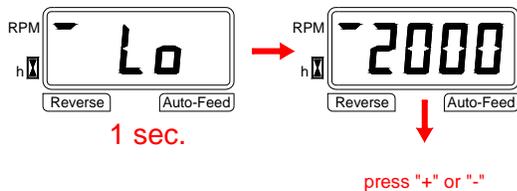


Reference table 1 for recommended settings.

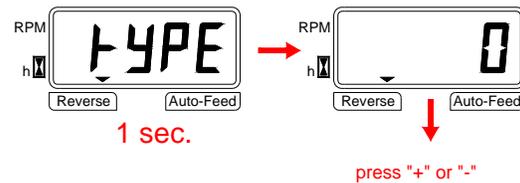
High setting screen



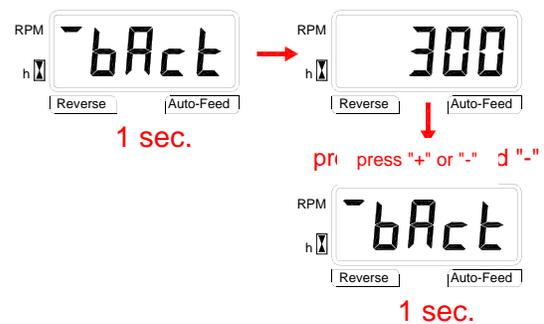
Low setting screen



Type setting screen

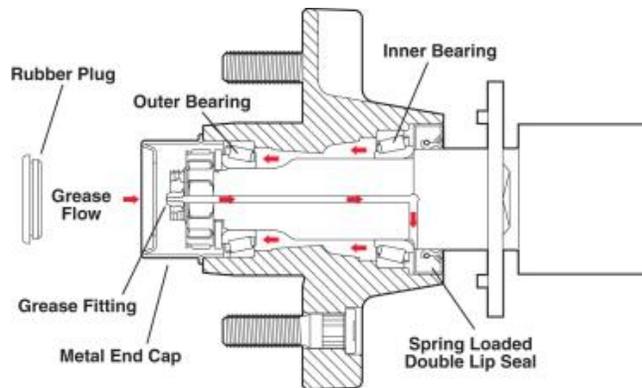
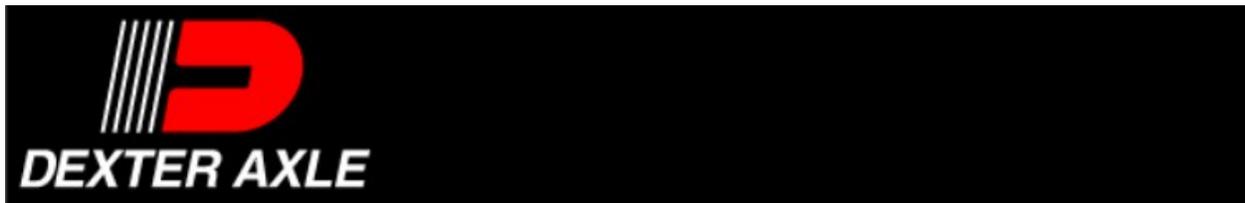


Back setting screen



Storing Data setting screen





Axles equipped with Dexter's E-Z Lube feature can be periodically lubricated without removing the hubs from the axle. This feature consists of axle spindles that have been specially drilled and assembled with grease fittings in their ends. When grease is pumped into the fitting, it is channeled to the inner bearing and then flows back to the outer bearing and eventually back out the grease cap hole.

1. Remove the rubber plug from the end of the grease cap.
2. Place a standard grease gun onto the grease fitting located in the end of the spindle. Make sure the grease gun nozzle is fully engaged on the fitting.
3. Pump grease into the grease fitting. The old, displaced grease will begin to flow back out the cap around the grease gun nozzle.
4. When the new, clean grease is observed, remove the grease gun, wipe off any excess, and replace the rubber plug in the cap.

The E-Z Lube feature is designed to allow immersion in water. Axles not equipped with E-Z Lube are not designed for immersion and bearings should be repacked after each immersion. If hubs are removed from an axle with an E-Z Lube feature, it is imperative that the seals be replaced before bearing lubrication. Otherwise, the chance of grease getting on brake linings is greatly increased.

NOTE: The convenient lubrication provisions of the E-Z Lube must not replace periodic inspection of the bearings.



CAUTION

Do not mix Lithium, calcium, sodium or barium complex greases due to possible compatibility problems. When changing from one type of grease to another, it is necessary to insure all the old grease has been removed.

If your axles are equipped with oil-lubricated hubs, then your lubrication procedure is to periodically fill the hub with high quality hypoid gear oil to the level indicated on the clear plastic oil cap. The oil can be filled through the rubber plug hole in the cap.

Recommended Wheel Bearing Lubrication Specifications

Grease:

Thickener Type	Lithium Complex
Dropping Point	230°C (446°F) minimum
Consistency	NLGI No. 2
Additives	EP, Corrosion & Oxidation Inhibitors
Base Oil	Solvent Refined Petroleum Oil
Base Oil Viscosity	@40°C (104°F) 150cSt(695 SUS) Min.
Viscosity Index	80 Minimum
Pour Point	-10°C (14°F) Minimum

Approved Sources:

Mobil Oil	Mobilgrease HP
Exxon/Standard	Ronex MP
Kendall Refining Co.	Kendall L-427
Ashland Oil Co.	Valvoline Val-plex EP Grease
Pennzoil Prod. Co.	Premium Wheel Bearing Grease 707L

Oil:

SAE 90 Hypoid Gear (Hypoid Rear Axle Oil)
Use only with hubs equipped with oil option.

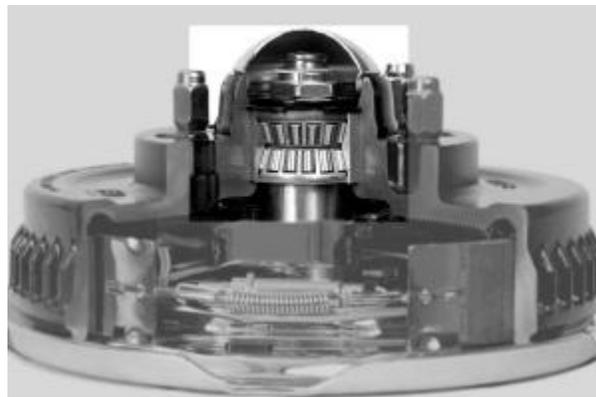
Approved Sources:

Union Oil Co.	Union MP, Gearlube - LS
Exxon Co. USA	Gear Oil GX 80W-90
Mobil Oil Corp..	Mobilube SHC 75W-90
Pennzoil Prod. Co.	Multipurpose Gear Lubricant 4092,
.....	Multipurpose Gear Lubricant 4096



Maintenance Schedule

Item	Function Required	Weekly	3 Months or 3000 Miles	6 Months or 6000 Miles	12 Months or 12000 Miles
Brakes	Test that they are operational.	<i>At Every Use</i>			
Brake Adjustment	Adjust to proper operating clearance.		●		
Brake Magnets	Inspect for wear and current draw.			●	
Brake Linings	Inspect for wear or contamination.				●
Brake Controller	Check for correct amperage & modulation.			●	
Brake Cylinders	Check for leaks, sticking.				●
Brake Lines	Inspect for cracks, leaks, kinks.				●
Camshaft Bushings	Check for wear and breakage.			●	
Anchor Pins & Rollers	Lubricate with approved grease.			●	
Slack Adjuster Lubrication	Lubricate with approved grease.			●	
Trailer Brake Wiring	Inspect wiring for bare spots, fray, etc.				●
Breakaway System	Check battery charge and switch operation.	<i>At Every Use</i>			
Hub/Drum	Inspect for abnormal wear or scoring.				●
Wheel Bearing & Cups	Inspect for corrosion or wear. Clean & repack..				●
Seals	Inspect for leakage. Replace if removed.				●
Springs	Inspect for wear, loss of arch.				●
Suspension Parts	Inspect for bending, loose fasteners, wear.			●	
Hangers	Inspect Welds.				●
Wheel Nuts and Bolts	Tighten to specified torque values.		●		
Wheels	Inspect for cracks, dents or distortion.			●	
Tire Inflation Pressure	Inflate tires to mfg's. specifications.	●			
Tire Condition	Inspect for cuts, wear, bulging, etc.		●		



Product Features

- No need to pull the hubs to repack the bearings OR replace the seals when checking the brakes.
- Pre-set adjustment means installation is easy and human error is virtually eliminated in bearing adjustment.
- Pre-lubricated at the bearing factory providing resistance to contamination.
- Sealed for life, which means increased durability and reliability and no more bearing maintenance.
- 5 year or 100,000 mile warranty against defects in material and workmanship.



MODEL	TYPE	ENGINE	HP	FUEL	CUTTING DEPTH	CUTTING HEIGHT	CUT SWING	Number of TEETH	WHEEL DIAMETER	WHEEL THICKNESS	TONGUE EXTENSION	WEIGHT (lbs)
900H	Walk-Behind	Honda	13	Gas	9"	21"	N/A	12	12.25"	5"	N/A	220
SP2000	Walk-Behind	Kohler	27	Gas	24"	27"	N/A	16	19"	5"	N/A	700
SP5014	Self-Propelled	Kohler	27	Gas	14"	34"	50° arc	20	21"	1"	N/A	1,580
	Self-Propelled	Briggs-Vanguard	35	Gas	14"	34"	50° arc	20	21"	1"	N/A	2,010
	Self-Propelled	Kubota	54	Gas	14"	34"	50° arc	20	21"	1"	N/A	2,446
SP5014TRX	Self-Propelled	Briggs-Vanguard	35	Gas	14"	34"	50° arc	20	21"	1"	N/A	2,215
SP7015	Self-Propelled	Kohler	74	Diesel	15"	43"	70° arc	32	26.5"	1"	N/A	4,160
	Self-Propelled	Kubota	71	Diesel	15"	43"	70° arc	32	26.5"	1"	N/A	4,200
SP7015TRX	Track-Mounted	Kohler	74	Diesel	15"	43"	70° arc	32	26.5"	1"	N/A	5,380
	Track-Mounted	Kubota	71	Diesel	15"	43"	70° arc	32	26.5"	1"	N/A	5,380
8018TRX	Track-Mounted	Kubota Turbo	99	Diesel	18"	43"	80° arc	32	26.5"	1"	N/A	7,340
HURRICANE	Track-Mounted	John Deere Turbo	140	Diesel	25"	72"	360°	64	36"	1-1/2"	N/A	10,100
	Track-Mounted	John Deere Turbo	175	Diesel	25"	72"	360°	64	36"	1-1/2"	N/A	12,500
	Track-Mounted	John Deere Turbo	250	Diesel	25"	72"	360°	64	36"	1-1/2"	N/A	12,500
7500	Tow-Behind	Deutz Turbo	78	Diesel	24"	46"	92° arc	48	31"	1-1/2"	60"	4,400



MODEL	TYPE	ENGINE	HP	FUEL	Throat Opening	Number of Knives	WHEEL/DRUM DIA	WHEEL THICK/DRUM WIDTH	Height	Width	Length	WEIGHT (lbs)
660	Disc	Kohler	27	Gas	6" x 6"	2	26	1-1/2"	87"	56"	124"	1,740
1260	Disc	Briggs-Vanguard	35	Gas	12" x 6"	2	26	1-1/2"	89"	65"	132"	2,620
1290	Disc	Briggs-Vanguard	35	Gas	12" x 9"	2	26	1-1/2"	89"	65"	132"	2,930
1712	Disc	Kubota	84	Diesel	17" x 12"	2	30"	1-1/2"	93"	67"	186"	5,830
1712D	Drum	Kubota	84	Diesel	17" x 12"	2	20-3/4"	20"	93"	67"	186"	6,920
2012	Disc	John Deere Turbo	140	Diesel	20" x 12"	4	40"	2"	100"	82"	186"	7,760
		Kubota	84									7,040
2015	Drum	John Deere Turbo	140	Diesel	20" x 15"	2	24"	27"	100"	82"	211"	6,820
2518	Drum	John Deere Turbo	140	Diesel	25" x 18"	4	37"	31-3/4"	100"	82"	211"	10,220
			170									11,670
2018	Disc	John Deere Turbo	140	Diesel	20" x 18"	6	55"	2"	108"	82"	240"	12,200
			170									12,800
			250									13,160