



**EVERETT INDUSTRIES, INC.**

**SEVERIT / with EVERETT**



# **ABRASIVE CUT-OFF MACHINES & WHEELS**

OPERATING INSTRUCTIONS

# Operating Instructions

## FOR EVERETT 8" & 10" ABRASIVE CUTOFF MACHINES

### FORWARD

Operating techniques outlined in the guide are basic. Skill and techniques develop as the operator gains knowledge of the cutoff machine.

Your safety and the safety of others depends upon care and judgment in the operation of this machine. A careful operator is good insurance against an accident.

Most accidents, no matter where they occur, are caused by someone's failure to observe and follow simple and fundamental rules or precautions. For this reason most accidents can be avoided by recognizing hazards and taking steps to avoid them before an accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

This information is not intended to cover all possible operating conditions. The user should contact Everett Industries in the event operating conditions or situations are encountered which are not dealt with in these operating instructions.

### SAFETY INSTRUCTIONS

American National Standards Institute, ANSI, Safety Code Number B7.1 is the approved safety code for the use, care and protection of abrasive wheels according to the Occupational Safety and Health Administration, (O.S.H.A.), U.S. Department of Labor. Everyone using abrasive wheels and machinery must be familiar with this code and fully comply with it to insure against unsafe working conditions.

1. READ MACHINE OPERATING INSTRUCTIONS. NEVER START MACHINE WITHOUT COMPLETE UNDERSTANDING OF ITS OPERATION.
2. USE REINFORCED WHEELS ONLY.
3. RING TEST AND INSPECT EACH WHEEL BEFORE INSTALLING. DO NOT USE WHEEL IF CRACKED OR FRACTURED.
4. WEAR FULL FACE SHIELD WHEN OPERATING MACHINE.
5. MAKE SURE ALL SAFETY GUARDS ARE IN PLACE BEFORE STARTING MACHINE.
6. MAKE SURE WORK PIECE IS HELD FIRMLY IN VISE BEFORE STARTING MACHINE.
7. OPERATE WITHIN RATED MACHINE CAPACITY.
8. DO NOT OVER FEED CUTOFF WHEELS.
9. NEVER USE CUTOFF WHEELS FOR GRINDING.
10. ALWAYS KEEP WHEEL GUARD IN DOWN POSITION EXCEPT WHEN CHANGING WHEEL.
11. KEEP HANDS CLEAR OF CUTTING AREA.
12. OBSERVE ALL COMMON SENSE SAFETY PRACTICES.
13. SET UP MAINTENANCE PROCEDURES FOR CARE AND CLEANING OF MACHINE.
14. COMPLY WITH ANSI SAFETY CODE B7.1.

Applications for copies should be addressed to:

American National Standards Inst. Inc.  
25 West 43rd Street 4th Floor  
New York, New York 10036

COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), U.S. DEPT. OF LABOR,  
(Standards are printed in the Federal Register) Applications for copies should be addressed to:  
U.S. Government Printing Office  
732 N. Capitol Street NW  
Washington, DC 20401

**FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS  
CAN RESULT IN SERIOUS BODILY INJURY.**

**"WARRANTY:** All Everett products are warranted against defective materials and workmanship, conditioned as follows. If a product is returned to Everett by the original purchaser prepaid within 1 year after delivery to the original purchaser and is judged by Everett to be defective, the product will be repaired, replaced or credited. This warranty is exclusive and in lieu of all other warranties of quality, whether written, oral, or implied (including any warranty of merchantability or fitness for purpose). Everett will not be liable for any consequential damages and **no claims will be allowed for repairs to Everett products by the purchaser or any third party.**"



**EVERETT INDUSTRIES, INC.**

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### SETTING UP MACHINES

All machines should be leveled and secured to work stand or table.

### ELECTRICAL CONNECTIONS

All electrical connections should be made by an experienced electrician in accordance with all applicable local and national electrical codes.

### GROUNDING INSTRUCTIONS

1. All grounded, cord connected tools:

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided – if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Use only extension cords that have grounding plugs and receptacles that accept the tools plug.

Repair or replace damaged or worn cord immediately.

### SINGLE PHASE

If your new unit is wired for operation on **110 volt single phase**, you must install adequate fuses in your electrical system to avoid blowing a fuse when the machine is first started. We recommend delayed action, "Fusetron" type, rated for 40 amps.

If your unit is wired for 220 volt, single phase, use delayed action fuses rated for 20 amps.

Voltage changes can be made as diagramed on the motor nameplate.

If your machine slows down or stalls, check your voltage and make certain your wire is heavy enough. A long extension cord or wires that are too small will reduce the motor power. Wires should be at least #10 or larger.

Remove wheel nut and flange before testing for rotation. After connecting power line, check the direction of spindle rotation. It should be counter-clockwise standing on the right side of the machine. If it is rotating clockwise, interchange any two sets of leads. (SEE MOTOR NAMEPLATE IF SINGLE PHASE).

### OPERATION

1. Secure workpiece in vise.
2. After slowly making contact between wheel and material, apply steady even pressure until the cut is complete.

Discoloration on dry cuts may indicate a cutting speed that is too slow or a wheel grade that is too hard. For wet cuts, discoloration may indicate cutting too fast for a wheel grade that is too hard.

### CAPACITY

Do not exceed machine capacity:

8" Machine • 1" Solids, 1-1/2" Pipe • 10" Machine, 1-1/2" Solids, 2" Pipe

### DRY CUTTING — USING THE PROPER WHEEL

Always use Everett fiberglass reinforced cutoff wheels. Everett wheels are designed especially for Everett abrasive cutoff machines — "Sever it with Everett" — to get longer wheel life and quality cuts. Machine warranty valid if Everett wheels are used. **EVERETT WHEELS ARE PRICED LOWER, LAST LONGER, CUT BETTER.** For cutting ferrous materials — iron, steel, etc., use the Everett #45FG internally reinforced or the Everett #45FGE externally reinforced wheel for all general purpose cutting. This wheel grade is the result of thousands of test cuts and will assure you of economical and efficient cuts on pipe, angle, channel, solids, stainless, etc.

### DRY CUTTING SPEEDS

Fast cutting will insure maximum wheel life and cleaner cuts. Dry cutting time should be approximately 5 seconds per square inch of material cut.

### WET CUTTING

**Because most wet cutting wheels cannot be reinforced, use them with extreme caution on well guarded machines. OTHER WHEEL GRADES ARE AVAILABLE FOR PARTICULAR APPLICATIONS.**

### WET CUTTING SPEEDS

Because wet cutting is primarily recommended for **quality** of cut, rather than speed, slower wheel feeds **MUST** be used. Wet cutting speeds may vary depending on machine horsepower, wheel grade, material shape and hardness, and wheel feed.

# Operating Instructions

## FOR EVERETT 12" to 26" ABRASIVE CUTOFF MACHINES

### FOREWORD

Operating techniques outlined in this guide are basic. Skill and techniques develop as the operator gains experience with the cutoff machine.

Your safety and the safety of others depends upon care and judgement in the operation of this and all machines. A careful operator is good insurance against an accident.

Most accidents, no matter where they occur are caused by someone's failure to observe and follow simple and fundamental instructions and precautions. For this reason most accidents can be avoided by recognizing hazards and taking steps to avoid them before an accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

The material contained in this booklet is not intended to cover all possible operating conditions. The user should contact Everett Industries in the event operating conditions or situations are encountered which are not dealt with in these operating instructions.

### SAFETY INSTRUCTIONS

Observe American National Standards Institute, A.N.S.I., Safety Code Number B11.9-1975 "Safety Requirements For The construction, Care and Use of Grinding Machines" and B7.1- 2000. "Safety Code For The Use, Care And Protection of Abrasive Wheels", as well, which is included in Occupational Safety and Health Act, O.S.H.A. regulations. Copies of the A.N.S.I. standards may be purchased from  
American National Standards Institute  
25 W. 43rd St., Fourth Floor  
New York, NY 10036

Everyone using abrasive wheels and machines must be familiar with these instructions and fully comply with the above and any other applicable safety codes for safe operation.

1. READ MACHINE OPERATING INSTRUCTIONS. NEVER START MACHINE WITHOUT COMPLETE UNDERSTANDING OF ITS OPERATIONS.
2. USE ONLY REINFORCED ABRASIVE CUT-OFF WHEELS.
3. RING TEST AND INSPECT EACH WHEEL BEFORE INSTALLING. DO NOT USE WHEEL IF CRACKED OR FRACTURED.
4. WEAR FULL FACE SHIELD WHEN OPERATING MACHINE.
5. BE SURE ALL SAFETY GUARDS ARE IN PLACE BEFORE STARTING MACHINE.
6. BE SURE WORK PIECE IS HELD FIRMLY IN VISE BEFORE STARTING MACHINE.
7. OPERATE WITHIN RATED MACHINE CAPACITY.
8. DO NOT OVER FEED CUTOFF WHEELS.

9. NEVER USE SIDE OF CUTOFF WHEELS FOR GRINDING.

10. ALWAYS KEEP WHEEL GUARD IN DOWN POSITION.

11. KEEP HANDS CLEAR OF CUTTING AREA.

12. OBSERVE ALL COMMON SENSE SAFETY PRACTICES.

13. SET UP MAINTENANCE PROCEDURES FOR CARE AND CLEANING OF MACHINE. OBSERVE LOCK-OUT/TAG-OUT PROCEDURES FOR MAINTENANCE AND WHEEL CHANGES.

14. COMPLY WITH A.N.S.I. SAFETY CODE B7.1 2000, A.N.S.I. B 11.9-1975, O.S.H.A. and all other applicable safety codes and regulations.

O.S.H.A. regulations are printed in the CODE OF FEDERAL REGULATIONS, TITLE 29-LABOR, PARTS 1900 thru 1910. Copies of the federal regulations can be purchased from;

U.S. Government Printing Office  
Superintendent of Documents  
Washington, D.C. 20402

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**FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS CAN RESULT IN SERIOUS BODILY INJURY.**

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### SETTING UP MACHINES

All machines should be leveled and secured to work stand or floor.

### ELECTRICAL CONNECTIONS

All electrical connections should be made by a licensed electrician in accordance with all applicable local, state and national electrical codes. Remove wheel nut, and flange before testing for rotation. Observe lockout-tagout during this test. After connecting power to the control panel or starter, check the direction of spindle rotation. Rotation should be counter-clockwise standing on the right side of the machine. If it is rotating clockwise, interchange any two sets of leads. (SEE MOTOR NAMEPLATE IF SINGLE PHASE).

### DRY CUTTING --

#### USING THE PROPER WHEEL

Always use Everett fiberglass reinforced cutoff wheels. Everett wheels are designed especially for Everett abrasive cutoff machines -- "Sever it with Everett" -- to get longer wheel life and quality cuts. **EVERETT WHEELS ARE PRICED LOWER, LAST LONGER, CUT BETTER.** For cutting ferrous materials -- iron, steel, etc., use the Everett #45FG internally reinforced or the Everett #45FGE externally reinforced wheel for all general purpose cutting. This wheel grade is the result of thousands of test cuts and will assure you of economical and efficient cuts on pipe, angle, channel, solids, stainless, etc..

### DRY CUTTING SPEEDS

Fast cutting will insure maximum wheel life and cleaner cuts. Dry cutting time should be approximately 5 seconds per square inch of material cut.

### WET CUTTING

**Because most wet cutting wheels cannot be reinforced, use them with extreme caution on well guarded machines.** OTHER WHEEL GRADES ARE AVAILABLE FOR PARTICULAR APPLICATIONS.

Wet Cutting time should be approximately 30 seconds per square inch of material cut. Contact the factory for wheel grade recommendations.

## WET CUTTING SPEEDS

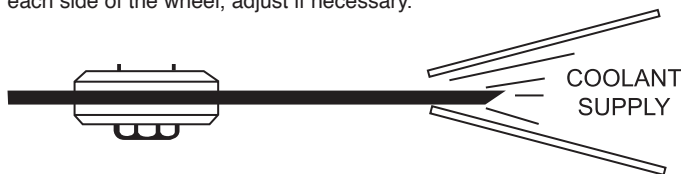
Wet cutting is primarily recommended for **quality** of cut, rather than speed. Slower wheel feeds **MUST** be used. Wet cutting speeds may vary depending on several factors, including, horsepower, wheel grade, material composition, shape, hardness, oscillation and wheel feed. We recommend a starting speed of approximately 30 seconds per square inch of material cut. Use this reference speed as a starting point and adjust this speed to your conditions.

## COOLANT SUPPLY FOR WET MACHINES

1. The coolant tank and pump are shipped on a separate skid from the machine. After unpacking, place the pump and tank on the floor on the right side facing the machine, with the pump to the front. (Exception - place them on the left side of a 20"-22" Wet Mitering machine). A wiring "harness" is provided and is wired into the electrical control panel. The user **MUST** make final electrical connection between the "harness" and the coolant pump motor. After the electrical connection is made, make sure rotation of pump motor is correct (A directional arrow is provided). Interchange any two sets of leads if it is not. Also connect the hose from the pump to the control valve on the machine and tighten the hose clamp.

2. It is essential that coolant applied during wet cutting be directed to both sides of the cut in equal volume, otherwise the wheel will wear unevenly, leaving a chisel-like cutting edge on the wheel, causing it to "lead off" in the cut, or possibly break.

3. On 20"-22" and 26" Wet Machines equipped with a water box, adjust the two hinged sides of the water box approximately 1/8" from wheel (roughly the thickness of a wheel) so coolant is equally distributed on each side of the wheel, adjust if necessary.



This shows improper distribution of coolant supply wheel wears unevenly -- cuts lead off to one side.



When coolant is directed evenly on both sides of the wheel, edge remains square and makes square cuts.

4. On the 14"-16" Wet Machine and 20"-22" Wet Mitering Machine, water is supplied to each side of the wheel using an adjustable manifold. Proper flow adjustment is essential to quality cuts.

5. **A rust inhibitor only should be added to the coolant system.** We recommend using FUCHS# 2001. The correct mixture for abrasive cutting is 100 parts water to one (1) part rust inhibitor. A 'start-up' supply has been included with your machine. Fill the tank with water and add the rust inhibitor. Make sure the discharge hose is directed from the coolant pan into the coolant tank. **Coolant made for use on milling machines or band saws is not recommended because it will cause wheel loading, heat buildup, poor cuts and wheel breakage.**

## NON FERROUS CUTTING

For cutting non ferrous materials — we recommend a steel blade with an oil mist spray lubricant for thin wall cross sections (this optional accessory can be furnished on most saws) and flood coolant for heavy cross sections.

## OPERATING YOUR EVERETT ABRASIVE CUTOFF MACHINE

1. Observe all lockout-tagout and safe operating practices while installing or changing wheels.

2. To install wheel, raise or open wheel guard and remove arbor nut and flange with supplied wrench. Inspect wheel before placing wheel on arbor shaft and replace flange and arbor nut. Hold wheel with left hand and tighten nut with wrench using a quick jerking motion to set the nut. Lower or close and lock wheel guard.

3. 26" machines are equipped with a "drive pin" in the outer flange. The drive pin helps prevent wheel slippage should the machine operator not tighten the arbor nut securely. The inner flange has a recessed hole to receive the drive pin. To install 26" wheel, place wheel on arbor shaft and visually line up drive pin hole in the wheel with recessed drive pin hole in inner flange. Then replace outer flange, making sure the drive pin goes into the drive pin hole -in the wheel and recessed hole in flange. Prior to tightening arbor nut, make sure the drive pin is in contact with the drive pin hole in the wheel to insure against slippage, by rotating wheel clockwise until contact is made. Tighten arbor nut, close and lock wheel guard door.

4. Adjust down stop so that wheel passes thru wheel slot in vise but does not touch the bottom of the vise. The wheel, if allowed to touch the vise, will cut the vise as easily as it cuts your material. Lower the stop as wheel wears.

5. When holding material in the vise it is very important that the material does not move while being cut. Keep steady pressure on the vise until cut is completed and the wheel is returned to full up position. When cutting long lengths use an Everett outboard support to keep the material level with vise. **CAUTION: DO NOT ALLOW THE WORK SUPPORTS TO RAISE THE MATERIAL ABOVE VISE HEIGHT.** This condition can cause the material to pinch and break the wheel.

The Everett adjustable outboard support is an easy, inexpensive way to support long lengths of materials to be cut.

Ball-bearing rollers, set at the same angle as our 'V' vise, eliminate the need to readjust for cutting different shapes.

A unique slotted sleeve and locking handle prevents scoring the adjustable height shaft when locking in place.



6. To start your cut, bring cutting wheel onto the material gradually and apply steady even pressure until the cut is complete. Recommended cutting speeds to start are 5 seconds per square inch of material dry cutting, and 30 seconds per square inch wet cutting.

## FREE CONSULTATION SERVICE

The factory can advise proper techniques, wheel grades and other information made available over more than 40 years of experience. Please feel free to take advantage of this service.

## WHEEL STORAGE

Store wheels flat in a cool, dry location on a hard flat surface — never store on edge.

## MAINTENANCE

"Common Sense" maintenance is all your new Everett cutoff machine should need. Keep it clean, including the inside of the wheel guard,

spark guards, and cabinet base. Check for worn or damaged parts, i.e., when changing the wheel, check the flanges for wear as well as “scoring” or “under cutting” of arbor shaft. Check vise, making sure it’s not cut in two, causing possible tolerance and safety problems. If parts are worn or damaged, timely replacement will insure safe, efficient, long term operation of your machine.

## WHEEL LOADING

Wheel LOADING is a problem that can affect the outcome of all abrasive cutoff applications, wet or dry. It occurs when metal particles from the material being cut adhere to the cutting edge of the wheel, even though the machine spindle speed and horsepower, cutting speed and wheel grade, have been taken into account. Once started, this loading process usually gets worse rather than better, and can lead to a number of additional, unwanted results if nothing is done to DRESS (or unload) the wheel.

The first of the “unwanted results” to be noticed is a lot of smoke, followed by burned, crooked cuts, pinched or broken wheels, and undue strain on the belts, arbor bearings and motor. At this point, the machine is most often blamed for all these problems, when in fact, it is a loaded wheel.

The SOLUTION to this problem is, in fact, quite simply to **DRESS THE WHEEL!** How is this accomplished? Place a piece (or pieces) of used broken up wheel securely in the vise, and then carefully and slowly bring the loaded wheel into contact with this FREE wheel dresser until the loading is gone and a brand new cutting edge is present, (in effect a new wheel). Or, as an alternative, purchase a vise mounted diamond wheel dresser, and dress the wheel, carefully using the procedure described above.

Once the wheel is dressed, and the basic operating and cutting instructions are followed, cooler, cleaner, quality cuts will result.

## Operating Instructions

### MACHINES EQUIPPED WITH OSCILLATION

1. The oscillation feature moves the wheel back and forth while cut is being made, reducing the area of contact between wheel and material, This results in improved quality of cut, less heat buildup, less burr and increased wheel life.

2. Oscillation is controlled by a three position selector switch **L** located on the push button control station marked “OSCILLATION”, “OFF”, “AUTO”, “ON”. For “AUTOMATIC” operation, that is the oscillator turns on and off with the main motor, turn the selector knob **L** to the center. For “HAND” or manual on-off operation, turn the selector knob **L** to the right. **The left position is “OFF”.**

**NOTE:** If the wheel wedges in the cut it is sometimes possible to release the wheel by moving to the “HAND” operation on the selector switch and raising the wheel to the up position without the main drive motor running.

3. The oscillation motor (part 12638) is a 1/3 H.P. gearmotor. It is filled with 90W gear oil. Use any high quality SAE 90 oil if required.

4. If the wheel loads up, you are either feeding too slow, have too much coolant, the wrong type of coolant (see COOLANT SUPPLY FOR WET CUTTING), or too hard of a wheel. A loaded wheel cutting Wet can be dressed by turning the water off for a few seconds while cutting in order to dress the wheel.

### HYDRAULIC POWER HEAD MACHINES

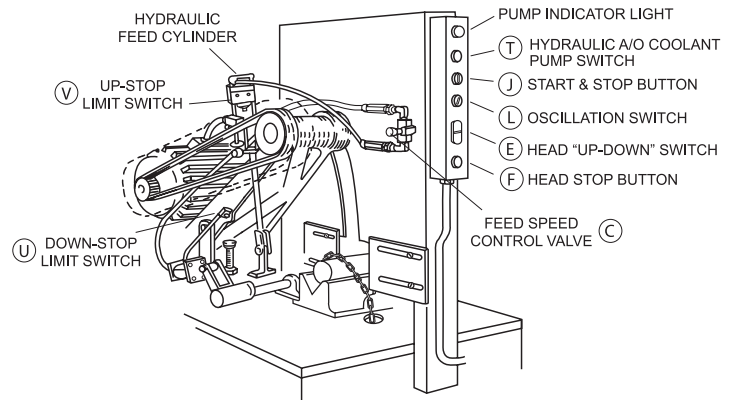
**CAUTION:** DOUBLE CHECK ARBOR SHAFT ROTATION (counter clockwise) from flange end before proceeding with the check list below, **with wheel, outer flange, and arbor nut removed from arbor shaft** jog Start Stop Button **J** on then off, and visually observe direction. **Change any 2 sets of leads if rotation is not counter clockwise.**

**CAUTION:** MAKE DRY RUNS WITH NO MATERIAL IN VISE AND MOTOR OFF. (Do not touch Start Stop Button **J** until all adjustments are made.)

### CHECK SAW ACTION WITH CHECK LIST BELOW

1. Install wheel on arbor shaft - according to instructions on previous page.

#### ABRASIVE CUT-OFF MACHINES WITH HYDRAULIC FEED



FEED SPEED CONTROL VALVE **C** IS LOCATED AT TOP FRONT OF ROCKER ARM ON 16 & 20 DRY MACHINE.

2. Start hydraulic pump by turning switch **T** “ON”, if wet machine turn switch to “HYD” position. This will start hydraulic pump only, coolant is not wanted at this time.

3. Turn “FEED SPEED CONTROL VALVE” **C** full counter clockwise, Push “HEAD UP-DOWN” switch **E** “DOWN”, allowing wheel to move in a downward direction. Control down speed by adjusting “FEED SPEED CONTROL VALVE” **C**. Allow wheel to slowly proceed down until it comes to about 1/8” to 1/16” of reaching bottom of the vise. Stop downward travel by pushing “HEAD STOP” button **F**. Do this quickly to prevent possible damage to vise and wheel.

4. Manually adjust DOWN STOP SCREW up until “DOWN STOP LIMIT SWITCH” **U** is activated. This adjustment will energize the up hydraulic solenoid and automatically reverse the motion, sending the wheel in the upward direction. Upward motion can also be achieved by pushing “HEAD UP - DOWN” switch **E** “UP”.

**NOTE:** The “DOWN STOP SCREW” adjustment must be made (lowering the screw) as wheel wears to compensate for its smaller diameter and whenever a new wheel is placed on machine (raising the screw to prevent cutting into the machine). If the machine is equipped with an electronic wheel wear compensator, refer to operating instructions for compensator adjustment.

5. When traveling up, the “UP-STOP LIMIT SWITCH” **V** is activated. The hydraulic valve shifts to neutral and the upward travel stops. Movement of the head can be stopped at any time by pressing the “HEAD STOP” button.

If the “UP - STOP LIMIT SWITCH” **V** is not positioned properly, the hydraulic cylinder may bottom out before the switch is activated, the valve will not shift to neutral and the up solenoid may burn out and require replacement before the head can go up in the next cycle.

**NOTE:** After dry runs are completed and the size material you are cutting has been selected, the “UP STOP LIMIT SWITCH” **V** may be moved down to a point where the wheel clears the material you are cutting by a safe amount. This procedure eliminates “cutting air” and waiting for the wheel to reach the work piece during each cycle.

6. Push "HEAD UP - DOWN switch" **E** "DOWN" and adjust "FEED SPEED CONTROL VALVE" **C** to correct rate of feed. Use the rate of 1 square inch of solid material in 5 to 8 seconds cutting dry. Go slower if material has a tendency to discolor or burn, or if wet cutting using the rate of 30 seconds per square inch.

7. Now cycle machine through the cutting cycle several times to make sure all switches are functioning properly and that the wheel visually travels to proper depth to cut through material but not deep enough to cut into vise. This will also help you become familiar with control operation.

8. During these test runs push "HEAD STOP" button **F** while wheel is traveling to become acquainted with this built-in safety feature. Activating this button will shift the hydraulic valve to neutral and stop motion. Also at any time during down stroke, you can reverse direction by pushing "HEAD UP - DOWN" switch **E** "UP".

**YOU ARE NOW READY TO MAKE TEST CUTS.** We suggest starting with solid material 2" in diameter or smaller until everyone connected with the machine operation is familiar with all procedures.

CLAMP MATERIAL SECURELY IN VISE,  
Energize: "HYDRAULIC PUMP" switch **T**  
"START and STOP" button **J**  
"HEAD UP - DOWN" switch **E**

and with "FEED SPEED CONTROL VALVE" **C** regulate down speed. As the wheel wears, it is necessary to readjust the "DOWN STOP SCREW" to allow the wheel to complete the cut. Remember to readjust "DOWN STOP SCREW" up when replacing worn wheel.

**NOTE:** Air trapped in any hydraulic system can cause erratic control. If you suspect this to be a problem;

1. Make sure hydraulic oil reservoir is full. (Use a high grade ISO 46 hydraulic oil).

2. Bleed air from system. To achieve this, first raise head to full up position. Pull clevis pin keeper and clevis pin which disconnects the hydraulic cylinder rod from the base of the machine and unscrew clevis from cylinder rod. Then push "HEAD UP - DOWN" switch **E**, "UP" (retracting the rod into the cylinder) and then "DOWN" (extending the rod out of the cylinder) several times, causing the cylinder rod to travel its full length of stroke in both directions. This should force any trapped air out of the system. It may be necessary to extend the cylinder completely, close the "FEED SPEED CONTROL VALVE" **C** and cycle the "HEAD DOWN" switch and loosen, just slightly, the hose fitting on the top on the cylinder as the rod begins to retract until all air is out and then retighten the fitting before oil leaks out. Extend the cylinder and wait a few moments while the air bubbles move to the top of the cylinder and repeat. Clean any oil that may have dripped before continuing.

## PRINCIPAL OF OPERATION OF THE WHEELWEAR COMPENSATOR

The electronic wheelwear compensator, **located inside the electrical control panel**, monitors the electrical current used by the main drive motor. As the cutoff wheel moves into the cut, current (load on motor) increases and "arms" the circuit. When the cut is complete the current drops back to its idle level. This change triggers the compensator to shift the hydraulic valve to return the head to the up position.

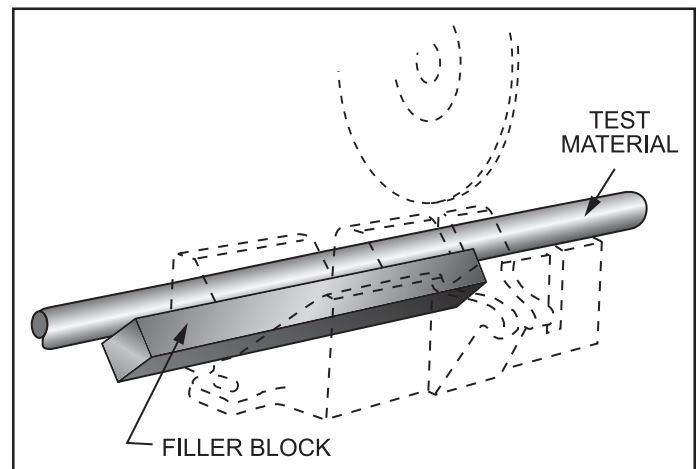
## SETTING WHEELWEAR COMPENSATOR

**USE EXTREME CAUTION** —LINE VOLTAGE IS PRESENT IN THE CONTROL PANEL WHEN THIS ADJUSTMENT IS MADE.

With the motor running adjust the knob on wheelwear sensor (inside electrical panel marked "CURRENT LEVEL RELAY") counter clockwise until "Relay On" light comes on. Now slowly turn the knob clockwise until the light **just** goes out. The compensator is adjusted before it leaves the factory; however, you may have to "fine tune" this setting.

## TRIAL SETUP

After setting the down stop, as described in the previous section, place a filler block in the vise but not extending into the wheel clearance slot. Next position and clamp some test material in the vise on top of the filler block, see drawing. The filler block will allow you to determine if the compensator, is adjusted so that the wheel returns to the up position after completion of the cut. If wheel wear compensator is not properly adjusted the down stop will return the head to the up position after the wheel travels the distance of the height of the filler block. Make a test cut to determine if the compensator is adjusted properly. If the head does not return automatically after completing the cut, manually move the head to the "Up" position by pushing switch "E" to the "UP" position. Move the test piece over to make another cut, if the test material is a solid, fine tune compensator adjustment again. If the test material is "light" and the cut was not complete when the head returned up, increase the down speed slightly.



## OPERATION OF WHEELWEAR COMPENSATOR

If you are cutting small cross sectional areas, the change in load may not be sufficient to operate the compensator circuit. It is possible on some cuts to "fine tune" the compensator by adjusting the knob clockwise slightly to just before the light comes on. If the light should come on, rotate the knob counter clockwise again and repeat. It is also possible to increase the load on the motor by increasing the cutting speed (the speed that the head moves down).

## WHEELWEAR COMPENSATOR AND OSCILLATION

Machines with oscillation also have a timer in the compensator circuit. With the oscillation turned on, the load on the motor constantly varies and sometimes the wheel is completely out of the cut bringing the current back to the "idle load" level. This would normally trigger the wheelwear compensator circuit and cause the head to return to the up position. The timer delays the response time from when the "idle" is detected until the head starts moving up.

The timer is adjustable to allow for various down feed speeds and to permit the cut to be completed without the wheel cutting into the vise. **USE EXTREME CAUTION -- LINE VOLTAGE IS PRESENT IN THE CONTROL PANEL WHEN THIS ADJUSTMENT IS MADE.** As down speeds increase the timer setting should be decreased. If not, the compensator will detect cut completion but the timer will delay the response of the head returning up by up to 3 seconds.

Proper adjustments of the compensator is a correlation of:

material being cut	speed of cut
shape of material	setting of timer
load on the motor	oscillation on or off

# Arbor Shaft Assembly and/or Bearing Replacement Instructions

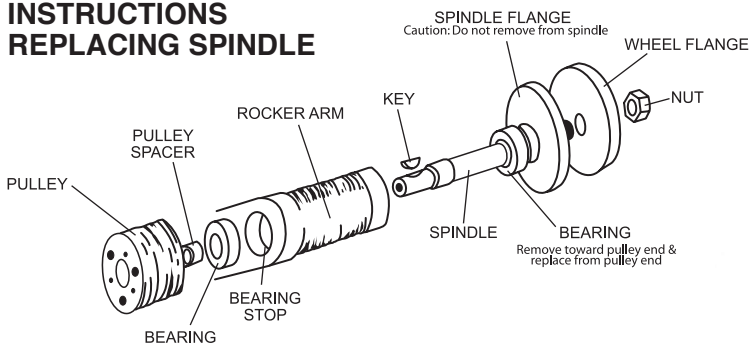
TO REMOVE ARBOR SHAFT & BEARINGS OBSERVE LOCKOUT – TAGOUT REQUIREMENTS.

1. Remove belt guard. Draw a line along the front of the motor base plate. This will serve as an alignment reference later. Loosen motor mounts and jackscrews. Remove belts.
2. Remove Pulley by:
  - a. Removing the 3 bolts in pulley bushing
  - b. Place these bolts in the tapped holes of the bushing and tighten evenly. This will push the pulley towards the rocker arm and off the taper lock bushing.
  - c. When the pulley is completely free of the bushing, remove the 3 bolts.
  - d. Remove the bushing by placing a screwdriver in the slot of the bushing and gently tap the screwdriver in until the bushing spreads open just enough to slide the bushing off of the arbor shaft, remove key.
  - e. Remove pulley spacer and save it.
  - f. Remove bearing keeper bolt located an flange side of the rocker arm (on 26" machine only).
3. Remove arbor shaft by driving left to right.

## TO INSTALL NEW ARBOR SHAFT & BEARINGS

1. Make sure rocker arm is free of abrasive dust, chips and other debris in the bearing seats and arbor area.
2. With a soft hammer or wood block to protect it, install new bearing in pulley side of rocker arm. Fit should be easy but not sloppy.
3. Again check that no contamination is in the bearing area and install arbor shaft, checking alignment when the shaft enters the opposite bearing.
4. With a soft hammer gently tap the arbor shaft (not flange) into the rocker arm partially.

## INSTRUCTIONS REPLACING SPINDLE



5. Place a pipe slightly larger than the arbor shaft, over the pulley end of the shaft and against the **inner race** of the bearing.
6. Have someone “buck” against the flange end of shaft while the bearing on the pulley side is being tapped in place. Using the pipe and a soft hammer, if necessary, tap the arbor shaft assembly back into the rocker arm.
7. Repeat Step 6 until arbor shaft is completely installed, with both bearings against the bearing stops. (Bearing stops on 26" shaft only).
8. Replace bearing keeper bolt (on 26" machine only).
9. Install pulley spacer against bearing and tighten set screw. Install key.

10. Place pulley bushing on arbor against pulley spacer. Mark the arbor shaft to indicate how far on the arbor the bushing must go to be against the pulley spacer. Accurately measuring the distance from pulley bushing to the end of the arbor shaft is another acceptable method to insure proper repositioning of the bushing. With contact between the inner race and the spacer, and the spacer and the pulley bushing, lock the arbor shaft in place preventing the shaft from moving left to right and helping maintain straight cuts.

11. Place pulley bushing into pulley. Install 3 bolts into “Clearance” holes of bushing and tapped holes of pulley. (This may be reversed on some machines, clearance in pulley, tapped holes in bushing).

12. Place pulley assembly onto arbor shaft. Be certain bushing is up to your mark on shaft and insure bushing is against spacer (or measured distance is arrived at again).

13. Remove screwdriver and evenly tighten bolts. As bolts are snugged:

- a. Place a straight edge against pulley and pick a reference point on motor pulley.
- b. Rotate arbor 1/3 turn and check with straight edge and reference.
- c. Repeat again another 1/3 revolution.
- d. Tighten appropriate bolts to true pulley with arbor shaft.

Proper approximate torque on pulley bolts.  
 Up to 20" Machine 9 FT/lbs.  
 26" Dry Machine 30 FT/lbs.  
 26" Wet Machines 60 FT/lbs.

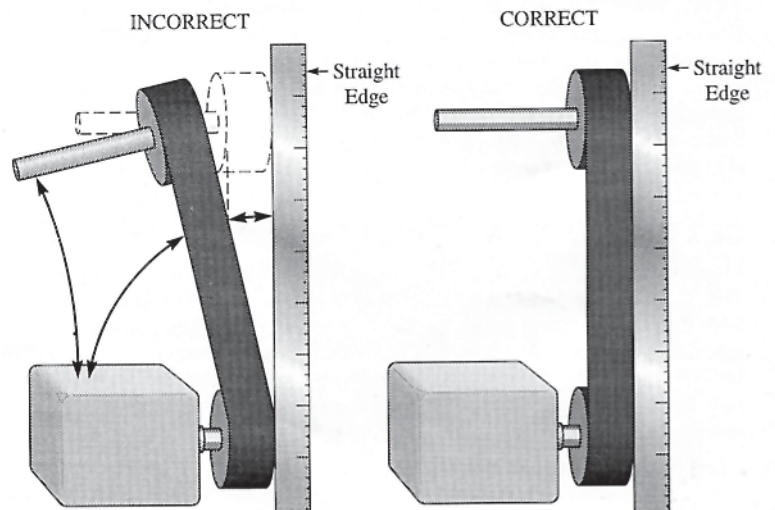
14. Motor pulley and arbor pulley should now be running true with their respective shafts. Install belt(s).

15. Position motor so that a straight edge on arbor pulley is parallel with belts.

16. Using jackscrews, tension belt(s). Be certain pulleys remain parallel and use a straight edge to keep pulleys in the same plane so that the belt will track properly. The reference line drawn in Step 1 may be used as a “Guide” for belt tension and parallelism between arbor shaft & motor shaft. For “V” belts, tension should be measured as a deflection of about 1/64”, times the center distance between the shafts, with a 2 1/2 pound force between centers **ON ONE BELT ONLY**.

17. Replace belt guard. Do not use bolts longer than 1/2 inch or belt(s) will be cut by bolt.

18. **Check belt tension after approximately 8 hours use.** Make sure belt(s) and pulley run true with motor and arbor shaft, and motor shaft and arbor shaft are parallel.



# A WORD ABOUT **EVERETT** ABRASIVE CUTOFF WHEELS

The Everett Industries plant in Warren, Ohio houses our own cutoff wheel manufacturing facility. All the wheel grades listed below, for both dry and wet cutting have been developed and extensively tested to produce quality cuts on a wide range of material alloys, sizes and shapes. By using only premium quality ingredients and exacting manufacturing methods, Everett cutoff wheels provide wheel grades designed for maximum performance on your new Everett cutoff machine.



## RESINOID BOND ALUMINUM OXIDE FOR DRY CUTTING

FIBERGLASS REINFORCED - WOVEN FIBERGLASS CLOTH IS MOLDED IN THE WHEEL FOR BREAK RESISTANCE.

- 45FG } For general purpose cutting
- 45 FGE }
- T32 FG } For cutting thin wall shapes and thin wall tubing
- T32 FGE }
- 23020FG } Designed for use on machines with POWERHEAD (automatic wheel feed) where free cutting ability is needed because of constant feed pressure
- 23020FGE }
- GTK-7FG } Excellent for high quality dry cuts on stainless tubing and other thin wall tubing
- GTK-7FGE }
- FG } Woven fiberglass cloth is molded in the center of the wheel for break resistance
- FGE } Woven fiberglass cloth is applied externally on both sides of wheel for break resistance

**WE MANUFACTURE OTHER GRADES OF WET AND DRY ABRASIVE CUTOFF WHEELS TO MEET SPECIFIC REQUIREMENTS.**

## RUBBER BONDED WHEELS FOR WET CUTTING

THE FOLLOWING RUBBER BONDED WHEELS CANNOT BE FIBERGLASS REINFORCED

- #1410 For wet metallurgical sample cutting. Also excellent for high quality wet cuts on hardened material and tubing. Available in most sizes.
- #1115 Calendered rubber wheel specially formulated for general purpose use on our 10" wet machine.
- #1329 General purpose calendered rubber wheel, designed for wet cutting solids, heavy wall shapes and tubing. Produces fine cut, excellent for use on wet, power head machines. Available in 14", 16", 20" and 26".
- #60 General purpose pressed rubber wheel, designed for wet cutting solids, heavy wall shapes and tubing. Larger grit sizes generally produce coarser cut than #1329. Available in all sizes.
- #91 Designed for cutting nonferrous shapes - copper, brass, etc., rubber bond silicon carbide. Prices same as wet cutting wheels. Available in all sizes.

*Use only on well guarded machines with extreme caution and personal protection.*



### REINFORCED WET CUTTING ABRASIVE CUTOFF WHEELS

#### Fiberglass Internally Reinforced

Woven fiberglass cloth is molded in the center of the wheel for break resistance.

- 93FG Pressed resin-rubber wheel; excellent for high quality cuts on hardened material, also metallurgical sample cutting. Available in most sizes.

