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## HEAVY DUTY SLAB SAW INSTRUCTIONS FOR 18", 20", 24", 30" & 36" BLADE SIZES



### INTRODUCTION

This series of saw units are similar in design. The different size units have different dimensions and pulley sizes, but the sawing operation of each remains basically the same.

Drawing part numbers are used in the instructions to help the reader identify the saw parts referred to. Numbers are enclosed in (Parenthesis).

### DESCRIPTION

These ruggedly built slab saws are made with enclosed heavy welded steel chassis and inspection window. Separate welded inner frame eliminates warp. One-piece vise carriage, mounted on solid key stock and channel iron guide, provides the rigidity necessary for fast cuts with heavy loads.

Vise carriage moves silently on 1-1/2" steel V-Way Guide. A quick return, split pliers, allows the carriage to be manually returned to any position.

Power feed has six speeds. The over-running clutch automatically adjusts to the hardness of the rock and the changing length of the cut as the blade progresses through the rock.

The cross feed will permit 8" of material to be slabbed without re-clamping. One turn of the spin knob moves the vise crosswise 1/16"; and can produce 20 to 22 uniform slabs.

The precision 1" arbor ball bearings are heavy duty, double neoprene sealed, and greased for life.

Accessories include motor mount, arbor nut wrench, safety hood support, slab catcher and adjustable floor leveler. It also comes with operating instructions, and Guarantee.

### INSTALLATION

**Safety:** Before plugging your saw unit into your electrical supply, read the Covington Safety Demand Sheet.

When you raise the saw hood, always be sure that the safety catch engages properly before releasing the weight of the hood.

**Saw Level:** To level your saw, adjust the leveling bolt on the end of the leg next to the motor.

## **INSTALLATION (Continued)**

**Blade Mounting:** Hold the blade flanges together face to face and make sure they are square and flat. The blade should fit the shaft snugly. Make sure there is no dirt between the flange and the blade. Secure the blade with the threaded blade flange and tighten moderately with the spanner wrench.

**Blade Alignment:** Measure the distance between the leading edge of the vise and the leading edge of the blade. Mark the measured spot on the blade. Move the vise back and measure the leading edge with the back part (measured spot) of the blade. The distance should be the same.

**Coolant Mixture:** Diamond saw blades are never run dry and always used with a coolant to prevent heat build-up. The coolant also washes out the fine rock cuttings. Water alone, or with detergent, is not a good coolant and water in any form eventually causes rust on steel parts. If the saw will not be used for an extended period of time, the blade should be removed and stored.

The saw is the “Immersion Type” wherein the diamond blade runs in a reservoir of cooling fluid. Allow the coolant mix to stand up 1/4" to 3/8" on the bottom of the blade when standing still. The shield in back of the blade prevents coolant from being thrown all over.

For sawing rocks with a hardness (MOHs Scale) of 5 or under, use Covington Koolerant # 1 (add 9 parts water). Mix well before pouring into the saw reservoir.

For sawing rocks with a hardness (MOHs Scale) of 6 or higher, use Covington Koolerant # 2 (use 9 parts odorless kerosene, regular kerosene, or a light form of oil). Mix well before pouring into the saw reservoir.

## **PREPARATION**

**Load Vise:** Move the vise carriage away from the blade and clamp rock between the vise jaws tightly. Further secure the rock with wood wedges if necessary.

**# 1 Bulldog Vise:** Vise is designed so that the jaws will conform to and hold the rock securely. The Quick Nuts adjust the vise immediately to any size or shape rock.

**# 2 Rigid Grip Vise:** The vise jaws are built for free operation- no binding in opening or closing. To operate, pull the bushing between the pliers (65) toward you, squeeze the pliers and close vise. Push the bushing between the split pliers to lock in the closed position and tighten vise by turning the handle counter-clockwise. To cut maximum size rocks, clamp the width of the rock so that it lies flat in the vise.

## **PREPARATION (Continued)**

**Cut-Off Switch:** The main cut-off switch (31) is activated by a steel rod (114) running from a convenient pull knob on the right front of the tank to the main switch box on the rear of the tank. The rod runs parallel to the right side of the vise table. Pull the rod knob to start the saw and push it in to stop.

**Automatic Cut-Off Feature:** Position the vise carriage to that point of travel where the unit is to be turned off. It must not be past the blade flange. A steel collar (109) and a thumb screw, located on the rear portion of the “cut-off” switch rod (114) is then slipped forward until it is in position against the rod guide (80) which is located on the vise carriage immediately below the cross feed turn handle. Tighten the thumbscrew and return the carriage to a starting position for cutting.

## **OPERATION**

After loading the vise, adjust the cross feed (84) to align where you want to cut and move the carriage (76) so that the blade does not quite touch the rock.

Raise the idler pulley (50-55) to loosen the belt and install the belt on the combination of pulleys for the desired starting speed. Refer to the Power Feed Chart, page 5.

Move the shaft collar (109) on the switch rod (114) and lock it where it will automatically shut off the machine at the point you want.

Close the hood.

Start the motor by pulling the knob out on the switch rod. The rock will be sawed automatically. This can be viewed through the inspection window.

Stop the cut after a depth of 1/4" to 3/8" has been reached. Back the carriage away and restart the cut. This will relieve the cut of miss-alignment caused by rough exterior surface. However, this may not be necessary if the material to be cut is smooth and uniform.

## **MAINTENANCE**

**Lubrication:** Un-painted parts such as threaded rod, shafts and steel V guide inside the saw should be greased to prevent rust.

After every 200 hours of use, remove the power feed gearbox cover (46) and check the oil level in the gear case. Using 10-30 motor oil, refill to a 3/8" level of oil and lubricate the feed worm drive shaft bearings (42).

Oil the electrical motor (20) once a year with 10-30 motor oil.

## **MAINTENANCE (Continued)**

Do not oil or grease the saw arbor bearings. The bearings are sealed and greased for life.

**Blade:** Sharpen the blade occasionally to prevent glazing over. This can be done by making several cuts into an old 220 grit silicon grit wheel, a silicon carbide stick made for that purpose, or a soft, porous, red brick. The blade should be reversed periodically. Should your blade glaze over while cutting large difficult pieces of jade or hard jasper, it is necessary to dress the blade continuously during cutting. Stopping and starting while in the middle of a cut almost always leaves a blade mark. It should be noted that using a continuous dresser would shorten the life of the blade.

**Carriage Side Caps (110-112):** To adjust, loosen the bottom center nut under the crossbar and adjust the top center nut to take up the looseness. Next, tighten the bottom center nut to lock the bolt. If the carriage does not slide properly by hand, you may have to re-adjust. Adjust the other cap in the same manner.

**Carriage (82) & Vise (89) Hold-down bolts:** To adjust, loosen lock nut and turn hold-down bolt so it has a 1/32" clearance; then lock nut.

**Cross-Slide of Vise:** To adjust, loosen lock nuts (68) and screw bolts in to take up slack. Adjust bolts so they do not bind; then tighten the lock nuts.

**Motor Stall-Out:** If the motor stalls out while cutting hard gemstone material, first reduce power feed speed to match blade cutting ability (by changing pulley size combinations). If the problem persists, re-adjust the power feed clutch.

**Power Feed Overrunning Clutch: (34-40):** Refer to power feed-left side view. First remove the outer adjusting Jam-nut (41). Next, loosen the inner adjusting nut and re-tighten enough to prevent open space between the washers installed between the nut and the bronze gear. Back inner nut off one-half to three quarter turn. Secure nut in place (lock) with outer jam nut.

**Test with motor off:** The outer nut and threaded shaft should turn together when moved by a wrench.

## **HELPFUL HINTS & HARMFUL ERRORS**

One of the most common mistakes is to force the blade into the material to be cut faster than the diamond rim erodes (eats) its path through the material. The general rule is "The harder the material (or the thicker the same material), the slower the power feed." The results of this mistake can be seen when the blade does not cut straight or becomes dished and bent.

## **HELPFUL HINTS & HARMFUL ERRORS (Continued)**

Preventative measures can be taken, but there is no substitute for good judgment. Check the blade for alignment and the arbor for loose bearings. Ascertain the coolant solution permits the blade to “flush” itself. Dress the blade when it appears that it has glazed over. Run your fingertips around the rim of the blade when it is not running. You should be able to feel the exposed diamond. No amount of skill can make a blade with too little diamond cut properly. Our “Triple-Charged” blade is well worth the added cost for the additional diamond on the rim.

### **TANK COOLANT LEVEL**

The saw is the “Immersion Type” wherein the diamond blade runs in a reservoir of cooling fluid. The coolant mix should stand up 1/4" to 3/8" on the bottom of the blade.

The formula for determining the amount of fluid needed is stated as follows in inches, Length X Width X Depth divided by 231 (cubic inches per gallon).

Approximate amount of fluid needed to fill a tank to the proper level:

18" Saw	8-1/2 gal.
20" Saw	11 gal.
24" Saw	12-1/2 gal.
36" Saw	34 gal.

### **POWER FEED**

The saw is equipped with a variable speed power feed capable of delivering the proper feed speed for the rock hardness encountered. The feed is also equipped with an over-running clutch (34-40) designed to stop the carriage travel any time the rock is being fed to the blade at a rate too fast for efficient cutting action.

Slower feed speeds are recommended for cutting hard rock. Also a slower speed is recommended when cutting a much thicker stone of the same material. It is wise to keep a record of power feed speeds used to cut materials of different hardness.

Changes in the feed speeds are accomplished by changing pulley size combinations between the 2" - 3" step pulley (12) on the blade shaft and the 4" - 5" - 6" (or 3" - 4" - 5") step pulley (57) on the power feed drive shaft (48). The idler assembly (50-55) permits a fast belt change and helps retain the belt in place on the pulleys.

## PULLEY COMBINATIONS

<b>FOR 18" &amp; 20" Saws</b>		
POWER FEED SPEED	BLADE PULLEY	POWER FEED DRIVE SHAFT PULLEY
<b>1<sup>st</sup> SLOW</b>	<b>2"</b>	<b>5"</b>
<b>2<sup>nd</sup></b>	<b>2"</b>	<b>4"</b>
<b>3<sup>rd</sup></b>	<b>3"</b>	<b>5"</b>
<b>4<sup>th</sup></b>	<b>2"</b>	<b>3"</b>
<b>5<sup>th</sup></b>	<b>3"</b>	<b>4"</b>
<b>6<sup>th</sup> FAST</b>	<b>3"</b>	<b>3"</b>

<b>FOR 24", 30" &amp; 36" Saws</b>		
POWER FEED SPEED	BLADE PULLEY	POWER FEED DRIVE SHAFT PULLEY
<b>1<sup>st</sup> SLOW</b>	<b>2"</b>	<b>6"</b>
<b>2<sup>nd</sup></b>	<b>2"</b>	<b>5"</b>
<b>3<sup>rd</sup></b>	<b>3"</b>	<b>6"</b>
<b>4<sup>th</sup></b>	<b>2"</b>	<b>4"</b>
<b>5<sup>th</sup></b>	<b>3"</b>	<b>5"</b>
<b>6<sup>th</sup> FAST</b>	<b>3"</b>	<b>4"</b>

<b>ESTIMATED POWER FEED SPEED PER HOUR</b>		
SAW SIZE	SLOW	FAST
<b>18"</b>	<b>8"</b>	<b>24"</b>
<b>20"</b>	<b>8"</b>	<b>24"</b>
<b>24"</b>	<b>6"</b>	<b>15"</b>
<b>30"</b>	<b>5"</b>	<b>12"</b>
<b>36"</b>	<b>4"</b>	<b>9"</b>

<b>BLADE R. P.M WITH 1725 R. P.M. MOTOR</b>				
BLADE SIZE	MOTOR PULLEY	BLADE PULLEY	BLADE R.P.M.	BLADE S.F.P.M.
<b>18"</b>	<b>2-1/2"</b>	<b>6"</b>	<b>675</b>	<b>3181</b>
<b>20"</b>	<b>2-1/2"</b>	<b>6"</b>	<b>675</b>	<b>3534</b>
<b>24"</b>	<b>2-1/2"</b>	<b>8"</b>	<b>505</b>	<b>3173</b>
<b>30"</b>	<b>2-1/2"</b>	<b>10"</b>	<b>400</b>	<b>3142</b>
<b>36"</b>	<b>2-1/2"</b>	<b>10"</b>	<b>400</b>	<b>3770</b>