



BARRANCA DIAMOND

# HP14 Slab Saw

## OWNER'S MANUAL & PARTS LIST



Revision 201	01.2022
Manual Part No. 167671	

**Caution:** Read all safety and operating instructions before using this equipment. This manual **MUST** accompany the equipment at all times.

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## INTRODUCTION

We at Barranca Diamond Products want to thank you for selecting the Barranca Diamond HP14 Slab Saw (part # 8302014). We are certain that you will be pleased with your purchase. Barranca Diamond takes pride in producing top quality and dependable products for both hobbyist and commercial lapidary users throughout the world.

Operated correctly, your HP14 Slab Saw should provide you with years of quality service. In order to help you, we have included this owner's manual. This owner's manual contains information necessary to operate and maintain your HP14 Slab Saw safely and correctly. Please take the time to familiarize yourself with the HP14 Slab Saw by reading and understanding this manual.

If you should have questions concerning your HP14 Slab Saw, please feel free to call Barranca Diamond at (310) 523-5867 or toll free (800) 630-7682.

### NOTE THIS INFORMATION FOR FUTURE USE:

MODEL NUMBER:	
SERIAL NUMBER:	
PURCHASE PLACE:	
PURCHASE DATE:	

**WARRANTY:** For your (1) one year warranty to be effective, complete the online Product Registration as soon as possible. Visit [www.mkdiamond.com/registration/](http://www.mkdiamond.com/registration/)

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## **SAFETY PRECAUTIONS**

Read and follow all safety, operating and maintenance instructions. Failure to read and follow these instructions could result in injury or death to you or others. Failure to read and follow these instructions could also result in damage and/or reduced equipment life. In order to prevent injury, the following safety precautions should be followed at all times!

### **READ OWNER'S MANUAL BEFORE USE**

Before using this equipment, ensure that the person operating this machine has read and understands all of the instructions in the manual. Precaution is the best insurance against accidents. Read and understand all safety precautions, messages, warnings and hazard symbols. You are responsible for your own safety.

### **ALWAYS USE SAFETY GLASSES**

Safety glasses should always be worn when working around power tools. In addition, a face, dust mask or respirator should be worn if a cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses and may not prevent eye injury - they are NOT safety glasses.

### **USE PROPER APPAREL**

Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry that may be caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair. Hand protection (plastic gloves) and a shop bib are recommended during sawing to prevent stains to clothing. Avoid prolonged exposure of skin to the sawing lubricant and wash skin immediately after contact. Do not touch the work material until the motor is off and the machine has come to a complete stop.

### **ALWAYS USE HEARING PROTECTION**

To reduce the possibility of hearing loss, always use hearing protection when operating power equipment.

### **KEEP GUARDS IN PLACE**

In order to prevent injury, never operate the saw without the guards in place!

### **REMOVE ADJUSTING KEYS AND WRENCHES**

Form a habit of checking to see that keys and adjusting wrenches are removed from the power tool before it is turned on.

### **ELECTRICAL SHOCK**

Never touch electrical wires or motor components while the motor is running. Exposed, frayed or worn electrical wiring and plugs can be sources of electrical shock that could cause severe injury or burns.

### **DISCONNECT TOOLS**

Power tools should always be disconnected before servicing or when changing accessories, such as blades, bits, cutters and the like.

**REDUCE THE RISK OF UNINTENTIONAL STARTS**

Make sure the ON/OFF switch is in the OFF position before plugging in a power tool.

**ROTATING OR MOVING PARTS**

Keep hands, feet, hair, and clothing away from all moving parts to prevent injury. Never operate the motor with covers, shrouds or guards removed.

**MAINTAIN TOOLS WITH CARE**

Keep tools clean for the best and safest performance. Always follow maintenance instructions for lubricating and when changing accessories.

**KEEP WORK AREA CLEAN**

Cluttered work areas and benches invite accidents.

**DO NOT USE IN DANGEROUS OR HAZARDOUS ENVIRONMENTS**

Do not operate equipment in dangerous or hazardous environments. Do not use power tools in damp or wet locations nor expose them to rain. Always keep the work area well lit. Always work in a well ventilated area.

**KEEP CHILDREN AWAY**

All visitors and children should be kept a safe distance from the work area. Keep power cords disconnected when tool is not in use.

**MAKE THE WORKSHOP KID-PROOF**

Make the workshops kid-proof by using padlocks, master switches and by disconnecting all power cords.

**USE THE RIGHT TOOL**

Do not force a tool or an attachment to do a job that it was not designed to do.

**SECURE WORK**

Clamps or a vise should be used to hold work whenever practical. Keeping your hands free to operate a power tool is safer.

**DO NOT FORCE THE TOOL**

A power tool will do a better job and operate more safely at the feed rate for which it was designed.

**USE THE RIGHT TOOL TO SERVICE THE SAW**

Do not force a tool or an attachment when servicing or operating the Slab Saw. Use the correct tools for service or adjustments.

**DO NOT OVERREACH**

Keep proper footing and balance at all times by not overreaching.

**DO NOT OPERATE A TOOL WHEN TIRED**

When tired, take a break and relax.

**DIRECTION OF FEED**

Always feed work into a blade or cutter in the direction shown in this manual. All blades, grinding wheels or polishing belts should always be installed such that rotation is in the direction of the arrow imprinted on the blade, wheel or belt.

**ONLY OPERATE AT THE PROPER SPEED**

Severe personal injury and damage to the motor or equipment can result if operated at speeds above maximum.

**NEVER LEAVE A TOOL RUNNING UNATTENDED – TURN POWER OFF**

Do not leave a tool until it comes to a complete stop. Always turn the tool off, and disconnect the power cord to its source, when leaving the work area or when work is finished. Do not leave extension cords attached to the power cord or power receptacle (wall outlet) when leaving the work area.

**CHECK FOR DAMAGED OR WORN PARTS**

Before using a power tool, check for damaged parts. A guard or any other part that is damaged should be carefully checked to determine if it would operate properly and perform its intended function. Always check moving parts for proper alignment or binding. Check for broken parts and mountings and all other conditions that may affect the operation of the power tool. A guard, or any damaged part, should be properly repaired or replaced.

**USE RECOMMENDED ACCESSORIES AND PARTS**

Consult the owner's manual for recommended accessories and parts. Using improper parts and accessories may increase the risk of personal and/or bystander injury.

**USE THE PROPER EXTENSION CORD**

If using an extension cord, make sure it is in good condition first. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage that will result in a loss of power and overheating. Table 1 on page 8, shows the correct AWG (American Wire Gauge) size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

**USE THE PROPER POWER SOURCE**

This tool is only to be used with a 120 volt 60 HZ power source. Ensure power source is at least 15 amps and 110 to 120 volts. Low voltage current can adversely effect electric motor performance and overall life.

**USE THE RECOMMENDED COOLING AND LUBRICATING FLUIDS**

Never operate a tool dry that requires coolant or lubricant. This can lead to shortened tool life, tool damage and personal injury.

**MAINTAIN TOOLS WITH CARE**

Keep the diamond blade sharp, the sawing lubricant clean and reservoir filled to the correct level for the best and safest performance. Always follow the maintenance instructions for sharpening the blade, lubricating and servicing the Slab Saw.

## SILICA DUST WARNING

Grinding/cutting/drilling of masonry, concrete, metal and other materials with silica in their composition may give off dust or mists containing crystalline silica. Silica is a basic component of sand, quartz, brick clay, granite and numerous other minerals and rocks. Repeated and/or substantial inhalation of airborne crystalline silica can cause serious or fatal respiratory diseases, including silicosis. In addition, California and some other authorities have listed respirable crystalline silica as a substance known to cause cancer. When cutting such materials, always follow respiratory precautions.

Use appropriate NIOSH-approved respiratory protection where dust hazard may occur. Paper masks or surgical masks without a NIOSH approval number are not recommended because they do little to protect the worker. For more information about respirator programs, including what respirators have received NIOSH approval as safe and effective, please visit the NIOSH website at:  
<http://www.cdc.gov/niosh/topics/respirators>

Observe OSHA regulations for respirator use (29 C.F.R. §1910.134 and §1503.1). Visit <http://www.osha.gov> for more information.

## CALIFORNIA PROPOSITION 65 MESSAGE

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contain chemicals known (to the State of California) to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead, from lead-based paints
- Crystalline silica, from bricks and cement and other masonry products
- Arsenic and chromium, from chemically treated lumber

For further information, consult the following sources:

<http://www.osha.gov/dsg/topics/silicacrystalline/index.html>  
<http://www.cdc.gov/niosh/docs/96-112/>  
<http://oehha.ca.gov/prop65/law/P65law72003.html>  
<http://www.dir.ca.gov/Title8/sub4.html>  
<http://www.P65warnings.ca.gov>

Your risk from these exposures varies depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles. Where use of a dust extraction device is possible, it should be used. To achieve a high level of dust collection, use an industrial HEPA vacuum cleaner. Observe OSHA 29 CFR part 1926.57 and 1926.103.

## ELECTRICAL REQUIREMENTS AND GROUNDING INSTRUCTIONS

In order to prevent electrical shock and injury, the following electrical safety precautions and symbols should be followed at all times!

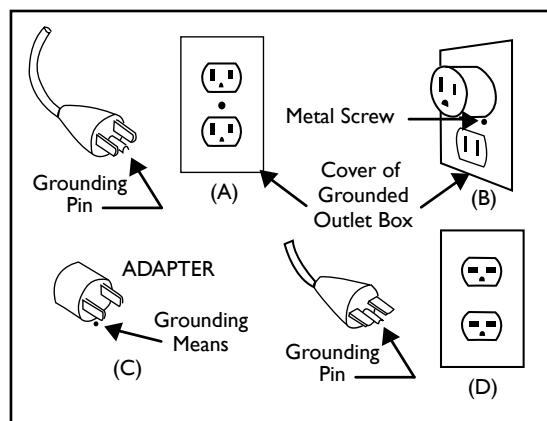


### WARNING

In case of a malfunction or breakdown, grounding provides a path of least resistance for electrical current to reduce the risk of electric shock. This tool is equipped with an electric cord which has 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 connections of the equipment-grounding conductor can result in a risk of electric shock. The equipment-grounding conductor is the insulated conductor that has an outer surface that is green, with or without yellow stripes. 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 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.
- Repair or replace a damaged or worn cord immediately.

This tool is intended for use on a circuit that has an outlet that looks like the one shown in Sketch A. The tool has a grounding plug that looks like the plug illustrated in Sketch A. A temporary adapter, which looks like the adapter illustrated in sketches B and C, may be used to connect this plug to a 2-pole receptacle as shown in Sketch B, if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green-colored rigid ear, plug, and the like, extending from the adapter, must be connected to a permanent ground, such as a properly grounded outlet box.



Circuit and Adapter Information

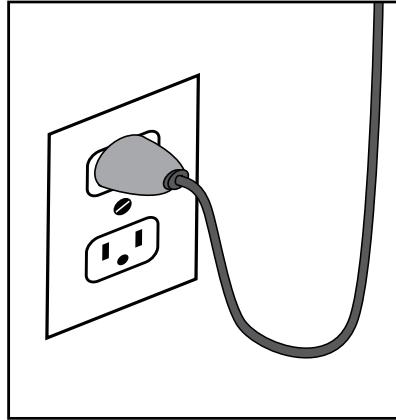
**NOTE:** Use of a temporary adapter is not permitted in Canada.

**NOTE:** If permanently connected this tool should be connected to a grounded metal permanent wiring system; or to a system having an equipment - grounding conductor.

**ELECTRICAL REQUIREMENTS AND GROUNDING INSTRUCTIONS (continued)**

To avoid the possibility of the appliance plug or receptacle getting wet, position the saw to one side of a wall-mounted receptacle. This will prevent water from dripping onto the receptacle or plug. A "drip loop," shown in Figure 2, should be arranged by the user to properly position the power cord relative to the power source.

The "drip loop" is that part of the cord below the level of the receptacle, or the connector, if an extension cord is used. This method of positioning the cord prevents the travel of water along the power cord and coming in contact with the receptacle.



If the plug or receptacle gets wet, **DO NOT** unplug the cord. Disconnect the fuse or circuit breaker that supplies power to the tool. Then unplug and examine for presence of water in the receptacle.

Use only extension cords that are intended for outdoor use. These extension cords are identified by a marking "Acceptable for use with outdoor appliances; store indoors while not in use." Use only extension cords having an electrical rating not less than the rating of the product. Do not use damaged extension cords. Examine extension cords before using and replace if damaged. Do not abuse extension cords and do not yank on any cord to disconnect. Keep cords away from heat and sharp edges. Always disconnect the extension cord from the receptacle before disconnecting the product from the extension cord.

To reduce the risk of electrocution, keep all connections dry and off the ground. Do not touch the plug with wet hands.

Use of undersized extension cords result in low voltage to the motor that can result in motor burnout and premature failure. Barranca Diamond warns that equipment returned to us showing signs of being run in a low voltage condition, through the use of undersized extension cords will be repaired or replaced totally at the customer's expense. There will be no warranty claim.

To choose the proper extension cord:

- Locate the length of extension cord needed in the table below.
- Once the proper length is found, move down the column to obtain the correct AWG size required for that length of extension cord.

MOTOR SPECS			EXTENSION CORD LENGTH			
Motor	Voltage	Amps	25'	50'	100'	200'
168504	115V 1 Ph	7.2	16 ga	14 ga	10 ga	8 ga

**SAFETY LABEL LOCATIONS**

Safety labels contain important safety information. Please read the information contained on each safety label. These labels are considered a permanent part of your saw. If a label comes off or becomes hard to read, contact Barranca Diamond or your dealer for a replacement.



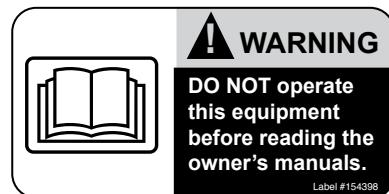
Part # 164202

**A**

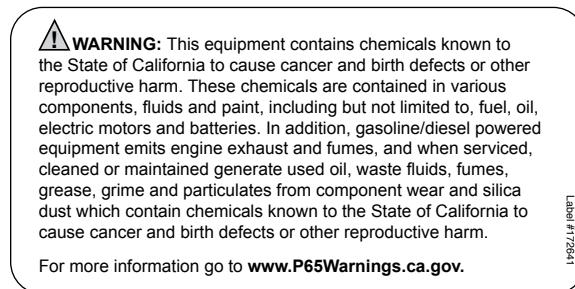
Part # 155587

**B**

Part # 171239

**C**

Part # 154398

**D**

Part # 172641

**E**

Decal/Label	Location	Description
A	Base	Warning - Dust Control
B	Hood & Belt Guard	Caution - Guards in place
C	Hood	QR Code for Manuals & Safety Information
D	Hood	Warning - Read and Follow Operating Instructions
E	Hood	Warning - Silica Prop 65

<b>Motor</b>	ABB (Baldor)
<b>Horsepower</b>	1/2 Hp
<b>Voltage</b>	110V / 60 Hz
<b>Amperage</b>	8
<b>Motor RPM</b>	1725 RPM Fixed
<b>Motor Arbor Diameter</b>	1 inch
<b>Duty</b>	Continuous
<b>Blade Capacity</b>	12"-14"
<b>Oil Capacity</b>	2.4 Gal.
<b>Max. Vise Opening</b>	5-3/4"
<b>Power Feed Motor</b>	Dayton Shaded Pole AC Gear motor
<b>Horsepower</b>	1/50 HP
<b>Motor Voltage</b>	115V/60Hz
<b>Motor RPM</b>	6 RPM (full load) Fixed
<b>Torque</b>	150 inch-lbs.
<b>Rotation</b>	Clockwise facing the shaft
<b>Motor Arbor Diameter</b>	5/16 inch
<b>Weight</b>	170 lbs.
<b>Part Number</b>	8302014

## MOTOR

Motor arbor bearings are sleeve-bushing type and permanently sealed.

## FEED MECHANISM

Power Feed Threaded Rod 23.5" long x 3/8-24 fine LH (left hand) threaded rod stainless steel  
 Power Feed Clutch Block: 2 piece: lower bronze block half-threaded 3/8-24 fine thread with mounting clearance hole and upper brass friction block (unthreaded).  
 Maximum rock material vise capacity: 6 inches  
 Cross Feed Index Movement per Revolution of Handle: 1/16 inch  
 Power Feed In-Feed Vice Advancement Rate: approximately 3/16 inch per minute

## LUBRICATING SYSTEM

Saw lubricant (petroleum or synthetic lubricant) requires that the reservoir tank be filled with 2-1/5 gallons filled to cover the 1/4" to 3/8" of the diamond blade kerf (outside cutting edge).

## CONTENTS

Barranca Diamond HP14 Slab Saw (part # 8302014).  
 301 Supreme notched rim blade 14" x 0.060 x 1 (part # 166070 or 303C Professional continuous rim blade 14" x 0.070 x 1 (part # 156727).

## UNPACKING AND ASSEMBLY

Your HP14 Slab Saw has been shipped from the factory thoroughly inspected, tested and ready for use after the saw has been prepared.

## PRE-START INSPECTION & SET UP

After removing your HP14 Slab Saw from the shipping crate, place the saw on a flat surface such as a secure bench top or table, or optional stand (part # 166153).

## RECOMMENDED CUTTING OILS

Never run a diamond blade dry as this can immediately damage your blade. Use one of the oils/coolants recommended below. Coolant should be kept clean and below 100° F. Sludge should be removed periodically and replaced with fresh coolant so that your cuts will be clean and your blades will not be damaged.

### **Shell Diala Ax**

Non-hazmat replacement oil for electrical transformer cooling. Excellent lubricating properties for blades and saw parts. Flushes sludge from rock easily, degreases easily, and sludge settles in saw tank well. In Southern California, Shell Diala Ax can be purchased from Dion and Sons, Inc ([www.dionandsons.com](http://www.dionandsons.com)).

### **Chevron Texaco Bright-Cut**

A chlorine-free cutting oil with reduced sulfur and fat content. Light in color and low in odor.

### **Hyvolt II**

Electrical transformer cooling oil. A highly refined petroleum product, available from some non-Shell oil distributors, typically only in 55 gallon drums. Same properties and performance as Shell Amber Neutral 100.

### **Chevron Superla #5**

Food grade mineral oil. Non-hazardous lubricating oil for bakeries, breweries and food processing machinery. Good lubricating properties, degreases and settles sludge well. Can go rancid over time (1 year or less).

### **AVATEC 80**

Food grade mineral oil, excellent for slab sawing in all our slab saws.

### **Texaco ALMAG**

Pure petroleum based machining cutting oil. Good for slab sawing but very strong odor. Often the cheapest priced oil available but odor is tough to eliminate.

### **Roc Cut**

Roc Cut from Diamond Pacific is a new synthetic water soluble cutting additive with rust inhibitors. Mix 30 to 1 (water to Roc Cut).

### **Roc-Oil**

Roc-Oil from Diamond Pacific is an oil coolant for heavy duty cutting. Provides excellent blade protection and will not cause rust to your blade or saw.

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### **Under NO circumstances should any of the following fluids be used in any of our lapidary saws:**

#### **Automotive Antifreeze Coolant**

Ethylene glycol based automotive antifreeze and its vapors are considered hazardous and toxic. Propylene glycol based antifreeze is nontoxic but has practically no lubricating properties; it functions as a coolant only and its use will lead to rapid blade wear and dulling.

#### **Automotive Transmission Fluid**

Does not have adequate lubricating properties for our saws; vapors are considered hazardous and toxic.

#### **Water**

A good coolant but has no lubricating properties and causes rust and degradation of exposed iron and steel parts. Causes rapid blade dulling and premature wear. Use of water voids the warranty on all Barranca Diamond saws.

#### **CNC Machining Fluids**

Water soluble synthetic coolants (i.e. Valenite or Cimtool) are often mixed in a 20:1 blend with water. Fluid vapors are considered hazardous. These fluids do not have adequate lubricating or rust inhibiting properties for the cast iron and steel parts in our slab and trim saws.

#### **Diesel, Heating Oil and Kerosene**

Very flammable with a low flash point. At least 3 of our commercial cutting customers in Arizona and Pacific Northwest have burned down their shops using these fluids. Can be very tough to degrease the residue and aroma out of the cut slabs. These fluids are cheap, but very hazardous to use. Diesel is a benzene compound which is carcinogenic. All these fluids can cause severe skin rashes and other ailments.

Check the four motor mounting nuts, ensure they are tight and the motor is secure. The v-belt is adjusted and tensioned at the factory. However if the motor mounts become loose during shipping, be sure to readjust the v-belt such that no more than  $1/2$ " of belt deflection occurs when the belt is depressed by fingertip pressure at the middle of the belt (Photo 1). Refer to page 15 for instructions.

### MOUNTING THE BLADE

The HP14 Slab Saw is supplied with a 301 Supreme notched or 303 Professional continuous rim lapidary diamond blade. Attach the blade securely to the 1" arbor with 2 steel flanges one on either side of the blade (Photo 2). A left hand thread bolt secures the flanges and blade to the arbor shaft. Turn bolt head clockwise to loosen, counter-clockwise to tighten. When installing the blade do not over tighten the arbor bolt.

### CAUTION

Diamond Blades improperly used are dangerous. Comply with American National Standards Institute Safety Code, B7.1 and, Occupational Safety and Health Act covering Speed, Safety Guards, Flanges, Mounting Procedures, General Operating Rules, Handling, Storage and General Machine Conditions.

### SAW LUBRICANT

The 301 Supreme notched rim or 303 Professional continuous lapidary diamond blade is manufactured to cut in either a petroleum, mineral, or synthetic oil. Water or water based coolants never should be used in the HP14 saw tank under any circumstances as the steel arbor shaft, cast iron vise and carriage/jaw can severely rust in addition to poor sawing performance, frequent blade dulling, short blade life as well.

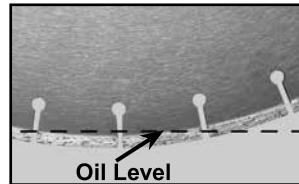


Photo 3

Oil Lever Indicator



Photo 3A

Fill the tank reservoir with approximately 2.2 gallons of petroleum or synthetic lubricant, to cover the top of the oil level indicator (Photo 3A). The bottom edge of the diamond blade (kerf) should be immersed to a depth of  $1/4$ " to  $3/8$ " (Photo 3). Do not overfill the oil reservoir, as excess fluid will result in unnecessary splashing and spraying of fluid while sawing. This may cause damage to the arbor and motor due to drag friction of excess fluid in the tank. Always place the saw hood in the down position (closed) to keep cutting lubricant fluid from being sprayed excessively outside the saw area. The blade splash director is attached inside the hood to direct lubricating saw oil onto the blade. This enhances blade lubrication and flushes rock and mud into the reservoir.

### START UP

Connect the power cord from the rear motor to a 120 volt 60 Hz 15 amp power source. If an extension cord is used, ensure that it is matched to the power extension cord specifications from Table 1 on page 9.

A power up test should be performed. Because of the threads on the bronze clutch block, it may be necessary to disengage the clutch by tapping or shaking the 3/8-24 stainless steel threaded rod by hand to assist in clutch disengagement at the 12 o'clock position (Photo 4). This start up test can be performed with or without saw lubricant (oil) in the oil reservoir.



Photo 4

Once the rock vise is placed in the far back position, lock the engagement lever in the 3 o'clock position (Photo 5). Now close the hood and pull the ON/OFF knob to the ON position to start the main motor and power feed.

Due to the slow speed (6 RPM) rotation of the power feed motor, the rock vise will travel slowly at an approximate rate of 3/16 of an inch per minute toward the blade. If both the power feed/vise is moving toward the blade and the blade is turning, this indicates the saw is functioning properly.

The HP14 Slab Saw uses a clutch engagement system, the clutch handle raises (engages at the 3 o'clock position) and lowers (disengages at the 12 o'clock lever position) the threaded (3/8-24) bronze clutch block against the 3/8-24 threaded LH (left hand) rod which is turned by the power feed motor. Above both the power feed threaded rod and bronze thread clutch block is an unthreaded brass locking block which locks together with the screw rod to propel the rock vise assembly and rock material into the rotating diamond blade during sawing. The rock vise is comprised of the lower carriage attached to 3/4" diameter shaft rails with a clutch housing and the upper jaws where the rock material is fastened securely with wood blocks (Photo 6).

### SAWING MODE

To begin saw cutting of rock material into slabs, secure the material in the rock vise by opening the vise jaws wide enough to place the material into the wooden jaws and retightening the jaws with the crank screw on the rock vise. The vise should be positioned in such a location close to the diamond blade (but not touching) (Photo 7).

Once the vise is positioned closest to the blade, turn the crank screw on the cross feed to move the vise to its desired position. Continue to laterally move the vise to the desired slab thickness to be cut by turning the cross feed handle clockwise or counterclockwise (Photo 8). Adjust the vise to begin the next slab cut by disengaging the clutch. Because of the threads on the bronze clutch block, it may be necessary to disengage the clutch by tapping or shaking the 3/8-24 stainless steel threaded rod by hand to assist in clutch disengagement.

Once the material is tight in the vise and the hood is closed, pull the On/Off knob to the **ON** position. The rock vise and material will move forward along the round rails into the blade and the slab will be cut from the vise. The vise will proceed to move along the power feed rods until the automatic shut off collar (adjustable) is engaged by the rock vise and the shut off collar on the 1/4 inch rod located under the rail (Photo 9).

Once the rod mounted collar is engaged the toggle switch will shut off by moving the toggle to the pushed in or power **OFF** position. The shut off collar can be adjusted to any position along the length of the 1/4 inch rod by loosening the thumb screw attached to the collar and sliding the collar to the desired position and retightening. After the slab has been cut and the power feed is shut down automatically, the user can reposition the rock vise to the next position in front of the blade. Adjust the vise to begin the next slab cut by disengaging the clutch and sliding the rock vise to a position in front of the blade again. Once the clutch is engaged by turning the lever to the 3 o'clock position, the next slab can be cut.



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9

### CLUTCH ADJUSTMENT AND REPLACEMENT

The HP14 Slab Saw uses a friction clutch block (bronze 1/2 threaded) and stainless steel threaded drive screw rod engagement-disengagement system to propel the cast iron carriage/vise. The clutch is comprised of a lower carriage mounted bronze half threaded (3/8-24) fine left hand threaded block and an upper brass non-threaded block with adjusting set screws and a center mounting screw.

The lower bronze 1/2 threaded block is disengaged by turning the 1/4" rod lever handle to the 12 o'clock position (Photo 10) which is attached to a cam with a machined recess that drops the bronze 1/2 threaded block into this recess. Because of the threads on the clutch bronze block, it may be necessary to disengage the clutch by tapping or shaking the 3/8-24 stainless steel left hand threaded rod to assist in clutch disengagement (Photo 11).

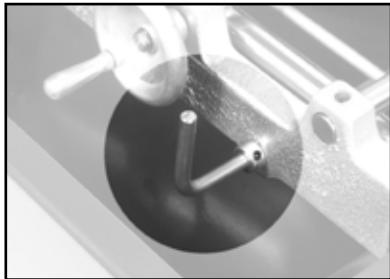


Photo 10

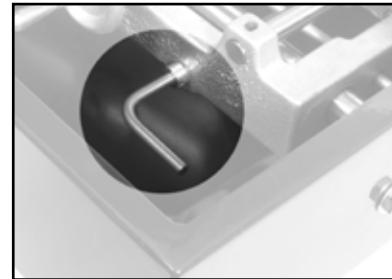


Photo 11

If the feed is not engaging (advancing the carriage/vise forward) when the lever is turned to the 3 o'clock position, this indicates either:

- The clutch block threads are worn out (flattened or stripped threads).
- The clutch needs adjustment.
- The feed rod is not turning (i.e. power feed motor non-operable or coupling is loose).

If the clutch engagement is not functioning (i.e. not advancing the carriage vise system forward), it is recommended that adjustments to the clutch be made as follows:

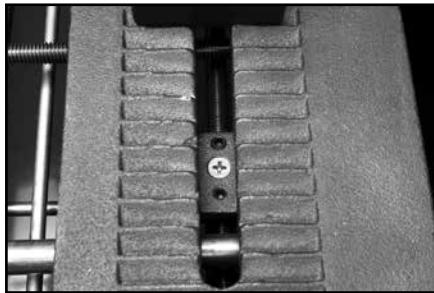


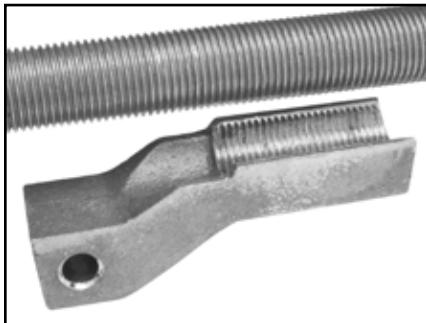
Photo 12

### CLUTCH ADJUSTMENT

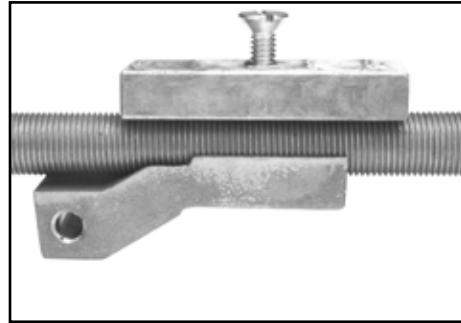
The clutch system is comprised of a lever to cam assembly that raises and lowers a bronze clutch shoe. Should the clutch not fully engage and move the carriage, loosen the phillips head screw below the vise table inside of the carriage and tighten the two allen head screws to depress the bronze pressure block (Photo 12). Adjust set screws in one-half turn increments. Be sure to retighten countersink screw after each adjustment. Re-engage the clutch and restart saw to check if feed is working properly. If not, readjust set screws another 1/2 turn, retighten countersink screw and restart saw to check feed.

**NOTE:** Over time, some bowing or flexure of the main stainless drive threaded rod (3/8-24 fine left hand thread) may occur, resulting in dragging of the half threaded bronze clutch block against this thread rod when the user moves the carriage-vise along the rails by hand. This dragging is normal and adjustment of the clutch may not be necessary for this condition.

This adjustment will help the clutch block shoe to snugly engage the stainless steel feed screw by applying pressure to the brass pressure block below the carriage casting. Should you have trouble with this adjustment call Barranca Diamond at (800) 630-7682 for factory assistance in clutch adjustment.



**Feed screw & clutch block shoe**



**Brass pressure block, feed screw & clutch block shoe**

Periodically, it will be necessary to replace the bronze clutch block shoe once the 3/8"-24 threads are flattened or stripped. You may purchase the clutch block and pressure block direct from the factory. See parts lists on pages 20 and 21 to order correct parts by part number and description of part(s).

Repeat this process if necessary to readjust the engage/disengagement clutch to improve positive feed movement of the carriage-vise system. If the gap between the shoe and pressure block is too tight the clutch will not engage correctly. It will need to be adjusted so that the pressure block position is repositioned by turning the set screws counterclockwise to raise the block away from the feed rod.

#### **LUBRICATING OIL REPLACEMENT**

The ^ Slab Saw requires periodic routine maintenance to remove and discard properly the build up of rock mud "sludge" and dirty lubricating fluid (oil) from the oil reservoir pan. It will be apparent to the user from the condition of the oil that the lubricating fluid is dirty and needs to be changed and solid sludge removed from the oil pan if a thick and viscous oil residue builds up on the saw vise/carriage, and inner tank walls. The liquid oil can be removed rapidly using the drain pipe attached to the bottom drain hole at the base of the oil reservoir (Photo 13).

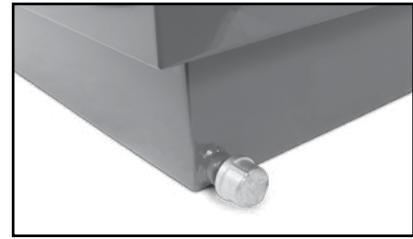


Photo 13

A five gallon bucket or collection container can be placed under the outlet cap of the pipe and the cap removed with a pipe wrench or channel locks to let the free oil flow into the bucket for proper disposal. The sludge residue will likely not flow into the drain pipe upon removing the cap from the drain pipe. Therefore, a portion of the sludge (solids) can be removed with a scoop, large spoon or spatula when the slab saw oil lubricant is drained. Once the majority of the liquid oil has been drained, remove the blade from its shaft. With a spatula or spoon, scoop out the sludge/mud to clean out the build up of sludge. Once the sludge is removed, wipe clean the inside of the tank with disposable rags or towels. Refill the cutting lubricant to the proper level (1/4 to 3/8" of blade kerf immersed in cutting oil).

Be sure to check the fluid level of the cutting lubricant inside of the oil reservoir after every 2 to 3 hours of use as the fluid will be absorbed onto the rock slabs, combined with rock mud (sludge), and lost due to heat, misting and evaporation as well.

## V-BELT MAINTENANCE

The HP14 Slab Saw blade arbor is powered by a v-belt from the motor attached to the rear of the oil reservoir.

The belt tension should be checked periodically. Belt tension should be such that 1/2" of deflection is measured by finger touch. If the belt tension should become too loose, poor sawing performance, belt slipping and damage may result. If the belt is too tight (i.e. no deflection) the electric motor and blade arbor bearings may be overheated and wear out prematurely or the motor may shut off due to overheating.

If it is necessary to service this belt, unplug the HP14 saw from its power source and remove the fasteners that secure the belt guard housing to the saw table. Depress the belt in the middle between both the motor and blade arbor pulleys to see if there is 1/2 inch of deflection once the belt is pushed down (Photo 14).

Belt tension can be adjusted by turning the hex head bolt to pivot motor base in or out (Photo 15). Loosen locking nut. Turn bolt clockwise to increase belt tension. Or turn bolt counter-clockwise to loosen belt tension. When correct tension is achieved, retighten locking nut. Be sure to replace and securely attach the belt guard.



Photo 14

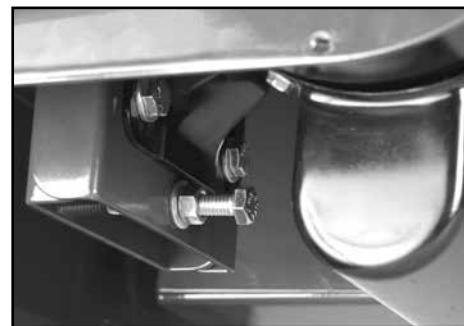


Photo 15

## POWER FEED SYSTEM AND VISE MAINTENANCE

The power feed system AC gear motor (6 RPM) is mounted inside of the rectangular box attached to the rear of the HP14 slab saw (Photo 16).

The set screw that fastens the power feed motor to the stainless steel screw feed rod should be checked prior to use to determine if it has loosened (Photo 17).

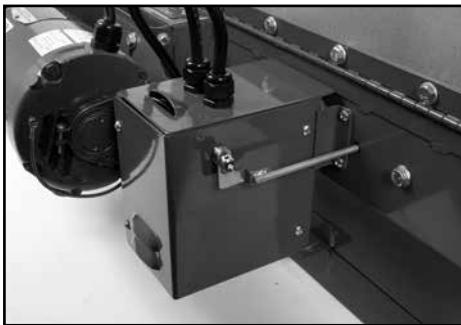


Photo 16



Photo 17

This rod set screw can be tightened with a US standard allen wrench. Periodically clean any build up of grime, grit, metal or debris with a common industrial cleaning solvent (i.e.. WD-40 or ZEP orange) and clean the threads with a toothbrush or wire brush. Periodically apply a thin coat of lubricating grease (wheel bearing or lithium grease) to the 3/8-24 LH stainless steel threaded rod to prevent the threads from becoming prematurely worn.

If the threads on both the stainless steel screw feed rod and bronze clutch block become worn or "flattened" the clutch block will not securely engage with the screw rod and it may disengage while sawing and operating the automatic power feed and vise. A replacement bronze clutch can be obtained from Barranca Diamond customer service at (800)-630-7682. The rock vise assembly has cross feed threads attached to an indexing or crank handle to horizontally adjust the vise so that slab thickness is accurately controlled to a desired thickness before each slab is cut. The cross feed threaded rod should be periodically cleaned with a solvent and toothbrush and lubricated with wheel bearing or lithium grease to allow for ease of rotation of the cross feed crank handle.

Should the wooden jaws on the vise become worn, replacement jaws can be made from 3/4 inch plywood or 3/8 inch thick peg board material.

#### BLADE ARBOR ASSEMBLY AND PULLEY

The HP14 Slab Saw is equipped with a 1 inch diameter arbor shaft with 3-1/2" OD x 1 inch bore steel flanges. Should the blade shaft arbor bearings wear out, they will cause poor sawing performance and overheating of the shaft.

Periodically, check the tightness flanged bearing housing mounting bolts to make sure they are securely tightened to the main saw tank wall. Periodically the blade arbor bearings should be lubricated with a good quality wheel bearing grease dispensed through a zerk fitting grease gun. Do not over lubricate the bearings while dispensing grease else the bearing seals can be damaged. One or two pumps with a grease gun is sufficient. (Photo 18).

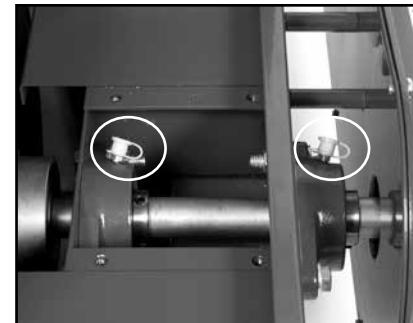


Photo 18

Should the 6 inch OD pulley on the blade arbor (3/4" bore) or motor shaft (3-1/2" x 5/8") need to be removed or replaced, loosen the set screw on the hub of each pulley with a US standard allen wrench to remove the pulley from the shaft. In some cases, a pulley puller tool may be required to press off the pulley from the blade or motor shaft.

#### ELECTRIC MAIN MOTOR MAINTENANCE

The HP14 Slab Saw is equipped with a ABB Baldor 1/2 or 3/4 HP 1725 RPM single phase 120 volt 60 Hz 9.6 amp motor. The motor shaft has sealed ball bearings and requires no lubrication. The motor is protected from thermal damage due to overheating with an automatic shut off switch. Once the motor overheats it will automatically shut off and restart itself once its internal components cool down and the red restart button is pushed (Photo 19).

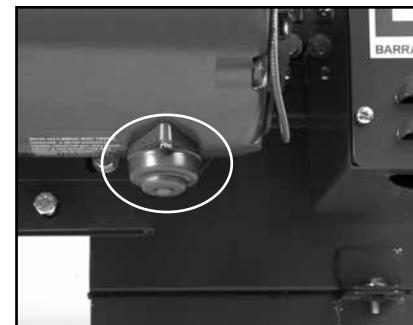


Photo 19

#### DIAMOND BLADE MAINTENANCE

Periodically, the diamond blade on the HP14 Slab Saw will need to be resharpened, should slow or poor sawing performance occur. Dull or "glazed over" diamond cutting segment or kerf will either not cut thus stalling the saw, or overheat and shut off the motor.

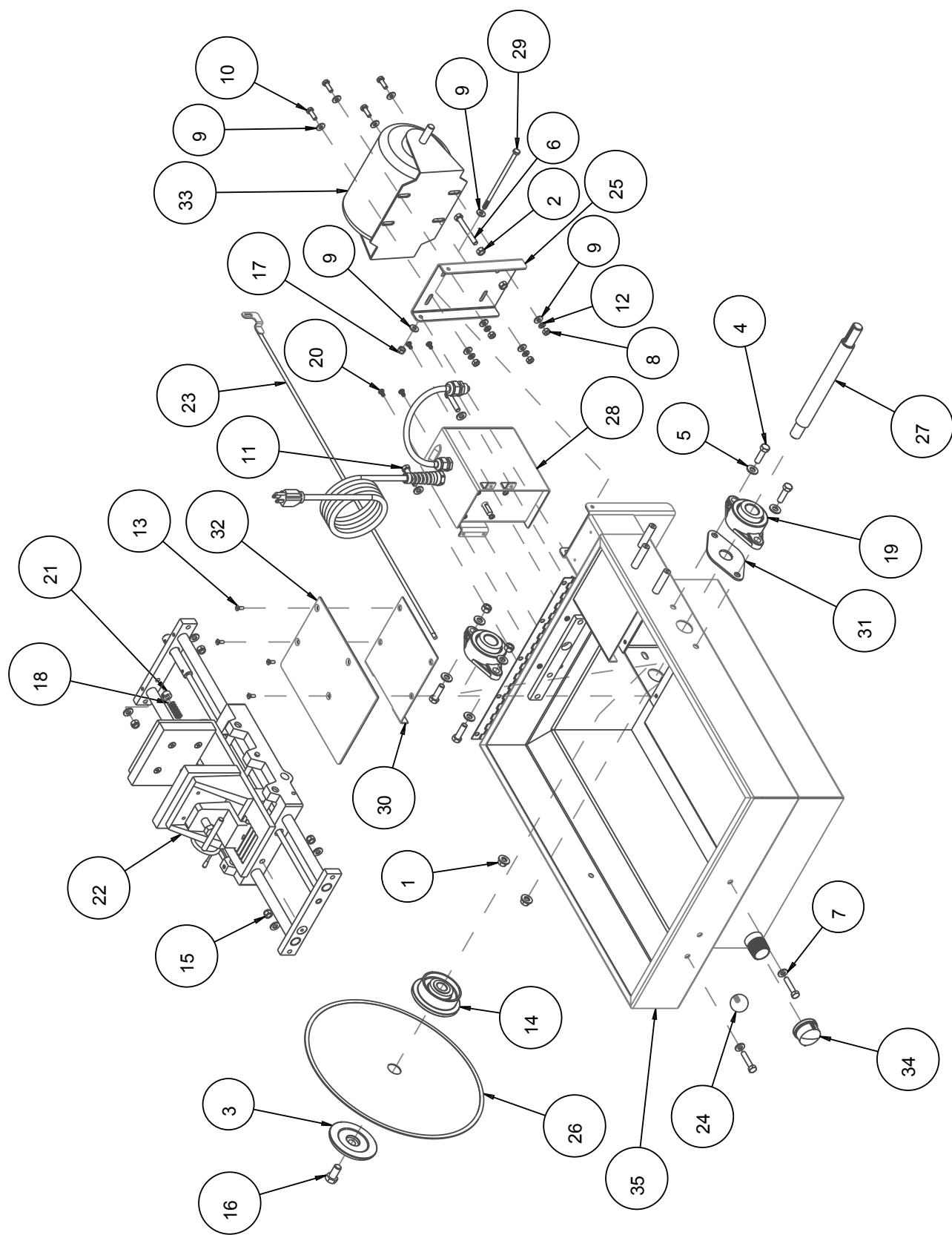
A dull blade can possibly permanently damage the blade or "dish" the core beyond repair. Once the saw begins to labor or struggle to cut gemstones, the user is advised to obtain a sharpening stick, green or white silicon carbide block material (60 to 100 grit size) and resharpen the blade.

Resharpening can be performed either with the automatic power feed (stick secured in vise) or manually with power feed disengaged and a few slabs cut from a sharpening stick. If no sharpening stick is available use an abrasive material such as cinder block or brick to remove the glazing over the diamonds on the edge of the cutting kerf part of the blade.

Eventually all diamond blades wear out and must be replaced with a new blade.

## NOTES

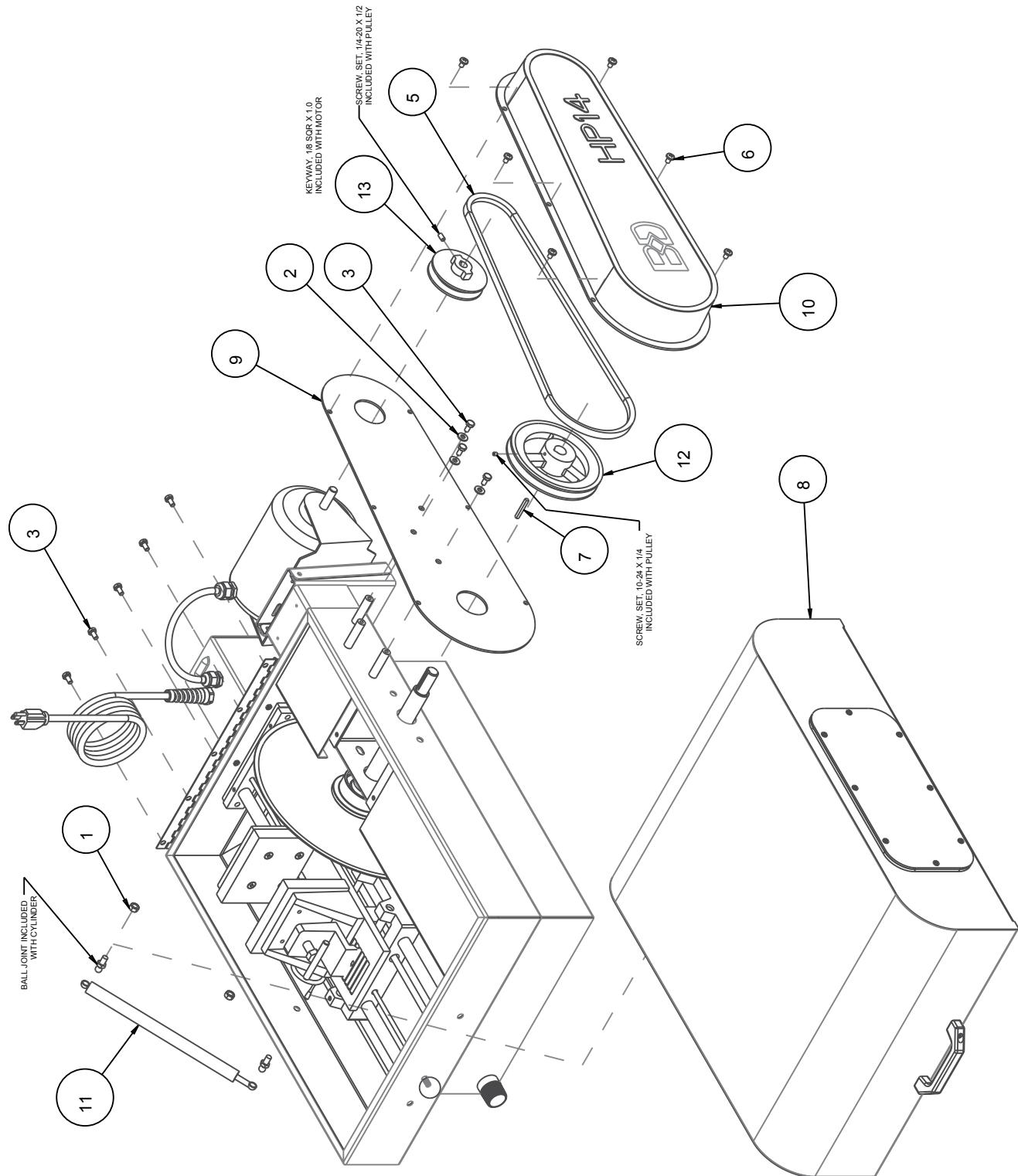
## HP-14 SLAB SAW P/N 8302014



## HP-14 SLAB SAW P/N 8302014

Item	Part Description	P/N	Qty.
1	NUT, HEX, 3/8-16	101188	4
2	NUT, HEX 5/16-18	101196	1
3	FLANGE, OUTER, 3-5/8"	132290	1
4	SCREW, 3/8-16 X 1-1/4 HEX HEAD CAP	150774	4
5	WASHER, FLAT, SAE 3/8	150923	8
6	SCREW, HEX HD, TAP, 5/16-18X2-1/2	151748	1
7	WASHER, FLAT, SAE, 5/16	151754	8
8	NUT, HEX, 1/4-20	151893	4
9	WASHER, FLAT, SAE, 1/4	151915	10
10	SCREW, HEX HD 1/4-20 X 3/4	152370	4
11	SCREW, 5/16 - 18 X 1 - 1/2 HEX HEAD MACHINE	152467	4
12	WASHER, LOCK, SPLIT 1/4	152591	4
13	SCREW, FLAT HD, #10-32 X 1/2	154541	4
14	FLANGE, ARBOR, INNER, 3-5/8"	154640	1
15	NUT, HEX, NYLK, 5/16 - 18	158289	4
16	SCREW, 1/2-13 X 1 HEX HEAD, LEFT HAND	159203	1
17	NUT, HEX, NYLK, 1/4-20	159857	1
18	SPRING, 1/2 X .040 X 1.75"	160697	1
19	BEARING, FLANGE, 2-BOLT, 1" SHAFT	161363	2
20	SCREW, PAN HEAD PHILLIPS 10 -32 X 3/8"	161875	4
21	COLLAR-SHAFT	162312	1
22	ASSEMBLY, VISE	165507	1
23	WELDMENT, ON/OFF LEVER	165511	1
24	KNOB, 1-1/4" BALL 1/4-20 THREAD	165514	1
25	MOUNT, MOTOR	165560	1
26	MK-301 14 X 065 X 1 GEMKING	166070	1
27	SHAFT, BLADE	166133	1
28	ASSEMBLY, FEED MOTOR, 120V	166147	1
29	HEX CAP SCREW 1/4 - 20 X 5 - 1/2"	166262	1
30	COVER, ARBOR HOUSE	166712	1
31	GASKET, BEARING	167049	1
32	COVER, ARBOR HOUSE	167360	1
33	MOTOR, 1/2 HP, 120V/60HZ, 1725RPM	168504	1
34	CAP, PIPE, 1" TNPT, GI	170878	1
35	WELDMENT, TANK	172356	1

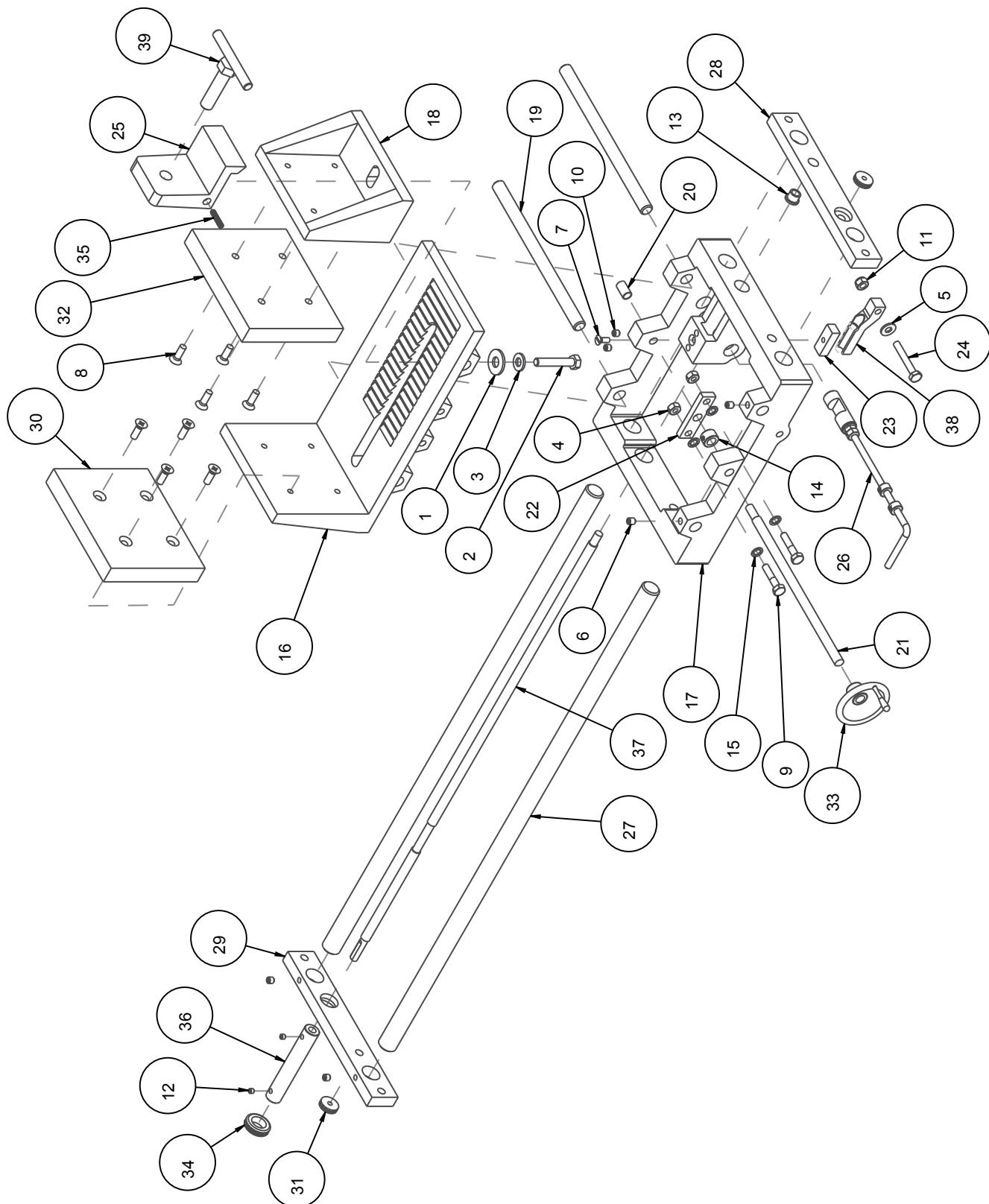
## HP-14 SLAB SAW P/N 8302014



HP-14 SLAB SAW P/N 8302014

Item	Part Description	Part#	Qty.
1	NUT, 5/16-18 HEX	101196	2
2	WASHER, FLAT, SAE, 1/4	151915	3
3	SCREW, 1/4-20 X 1/2 HEX HEAD	152608	8
4	SCREW, 1/2-13 X 1 HEX HEAD CAP, LH	159203	1
5	BELT, AX44	161418	1
6	SCREW, 1/4 - 20 X 3/8 PAN HEAD PHILLIPS MACHINE	161877	6
7	KEY, 3/16 SQR X 1-1/2	165347	1
8	ASSEMBLY, HOOD	165510	1
9	PLATE, BELT GUARD	166139	1
10	BELT GUARD, COMPLETE	166141	1
11	GAS SPRING, 20 LBS	166274	1
12	PULLEY, 6 X 3/4 BORE	166284	1
13	PULLEY, 1A35 X 1/2 BORE	168866	1

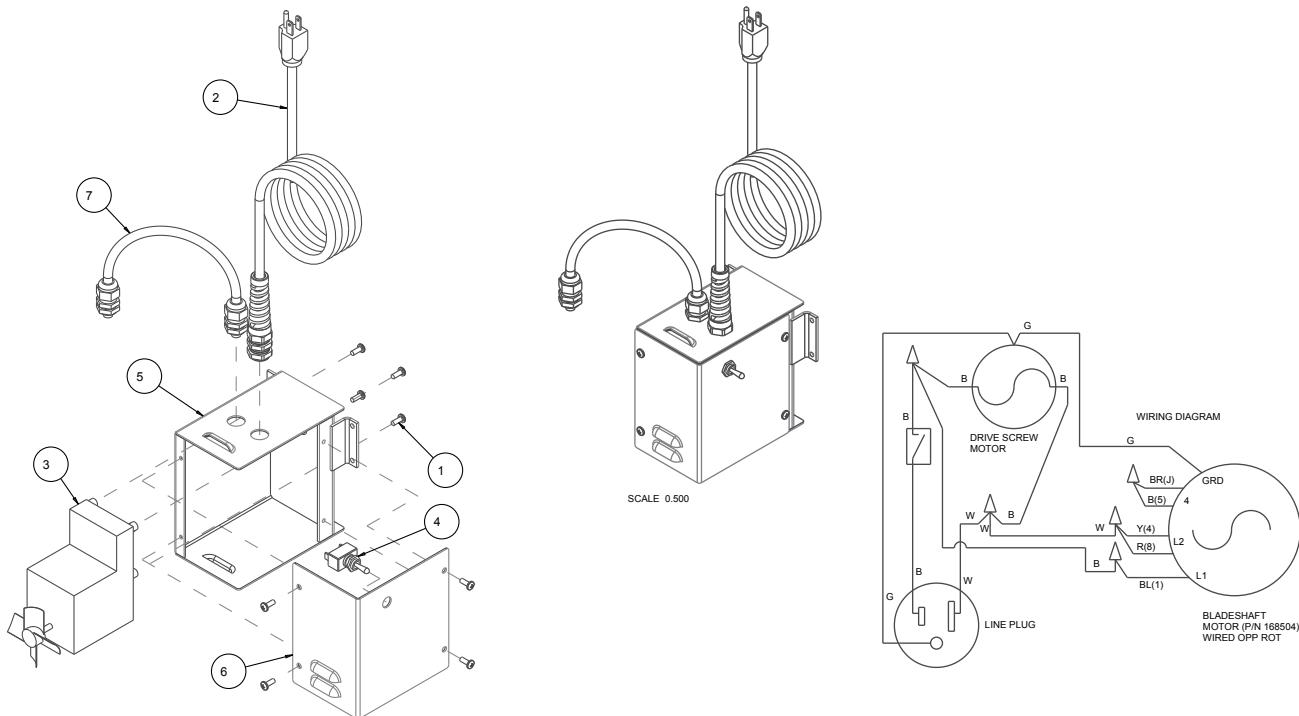
## HP-14 SLAB SAW ASSEMBLY P/N 165507



## HP-14 SLAB SAW ASSEMBLY P/N 165507

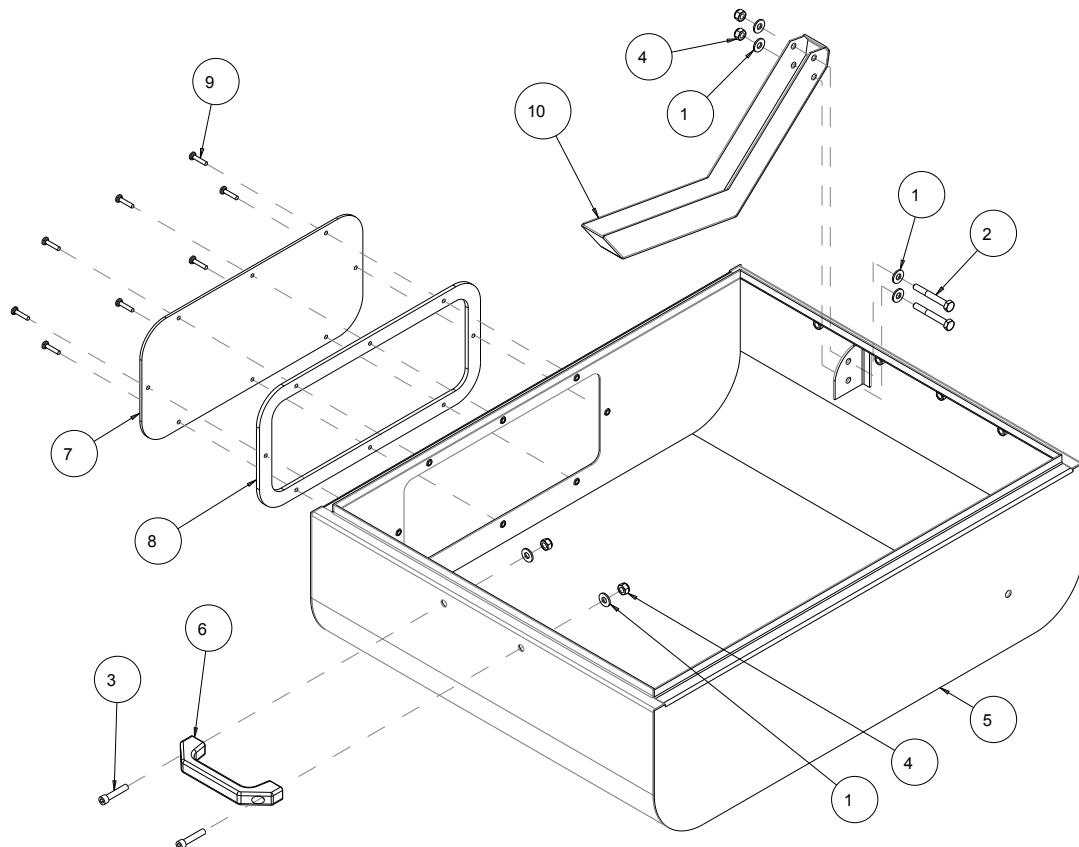
Item	Part Description	P/N	Qty.
1	WASHER, 5/16 FLAT, USS, 3/8	101360	1
2	SCREW, 5/16-18 X 1-3/4 HEX HEAD CAP	150919	1
3	WASHER, FLAT, SAE, 5/16	151754	1
4	NUT, 1/4-20 HEX	151893	2
5	WASHER, 1/4 SAE FLAT	151915	1
6	SCREW, SET CUP PT 1/4-20 X 5/16	154226	2
7	SCREW, FLAT HD #10-32 X 1/2	154541	1
8	SCREW, FLAT HD, 1/4-20 X 3/4	154657	8
9	SCREW, HEX HD 1/4-20 X 1-1/4	157145	2
10	SCREW, SET 1/4 - 20 X 1/4	157528	4
11	NUT, HEX, NYLK, 1/4-20	159857	1
12	SCREW, SET CUP, SS, #10-32 X 3/16	161038	2
13	BEARING, FLNG, 5/16" SHFT, BRNZ	161058	1
14	COLLAR, SHAFT 3/8 X 5/8	161077	1
15	WASHER, LOCK,IT, 1/4	162490	4
16	CASTING, VISE, HP-14, COMP	165525	1
17	CASTING, CARRIAGE, HP-14, COMP	165526	1
18	CASTING, JAW HP-14, COMP	165527	1
19	ROD, TRANSVERSE	165528	2
20	BEARING, SLEEVE, 5/16 X 3/8	165529	1
21	ROD, THREADED SIDE TO SIDE	165530	1
22	PLATE, SCREW, SIDE TO SIDE	165531	1
23	CUSHION, CLUTCH	165533	1
24	SCREW, HEX HD, CAP, 1/4-20 X 1-3/4	165534	1
25	CASTING, DOG HP-14 - COMP	165536	1
26	ASSY, ENGAGE, CLUTCH	165537	1
27	BAR, LONGITUDINAL	165538	2
28	SUPPORT, END	165539	1
29	SUPPORT, END	165540	1
30	CLAMP, WOOD	165541	1
31	GROMMET, 3/16ID X 3/4OD	165543	2
32	CLAMP, WOOD	165544	1
33	WHEEL, HAND, 2 -1/4" OD	165566	1
34	GROMMET, 5/8 ID X 1-1/8 OD	165567	1
35	SCREW, SET CUP, #10-24 X 7/8	166142	1
36	COUPLING, SCREW DRIVE	166474	1
37	SCREW, DRIVE, 3/8 - 24 LH	167612	1
38	CASTING, SHOE, CLUTCH, HP-14-COMP	167649	1
39	KNOB, T-HANDLE, 1/2-13 X 2	172667	1

## ASSEMBLY FEED MOTOR P/N 166147



Item	Part Description	P/N	Qty.
1	SCREW, PAN HD, #10 - 32 X 1/2	151052	8
2	CORD, POWER, 14/3 115V	153419	1
3	GEARMOTOR, 115V 60HZ 6RPM	161586	1
4	SWITCH, TOGGLE, 20A/125V SPST	161956	1
5	WELDMENT, LEFT SIDE PANEL	166265	1
6	WELDMENT, FRONT PANEL	166266	1
7	CORD, 14/3 SJOOW MOTOR	169088	1

## ASSEMBLY HOOD P/N 165510



Item	Part Description	P/N	Qty.
1	WASHER, FLAT, SAE, 1/4	151915	6
2	SCREW, HEX HD 1/4 - 20 X 2	158282	2
3	SCREW, SOC HD CAP, 1/4 - 20 X 1 - 1/4	159336	2
4	NUT, HEX, NYLK, 1/4 - 20	159857	4
5	WELDMENT, HOOD	165520	1
6	HANDLE, PULL	165923	1
7	WINDOW	166151	1
8	GASKET, WINDOW	166213	1
9	PAN HEAD PHILLIPS 8 - 32 X 3/4" SEALING	166257	8
10	GUARD, BLADE	166770	1

**BARRANCA DIAMOND LIMITED WARRANTY**

Barranca Diamond warrants to the original retail purchaser for a period of 90 days except as noted, from the date of purchase all products covered by this Warranty to be free of defects in materials and workmanship.

This Warranty shall not apply to any parts that have been subjected to misuse or improper service, that had been damaged in transit or handling, or that have been altered or repaired by unauthorized representatives. This Warranty does not cover defects caused by or resulting from misuse, abuse, neglect or damage caused by accident or the failure to provide reasonable maintenance. This Warranty is void if the product or any of its individual components is altered or modified by the purchaser or if the product is used in a manner or with a blade not recommended by the manufacturer.

Any claim arising under this Warranty must be submitted by the original purchaser within the warranty period specified above, and shall include proof of purchase. During said warranty period Barranca Diamond shall, at its option, either replace or repair, at no charge to the original purchaser, any parts or components that are found to be defective by Barranca Diamond. Barranca Diamond shall not be responsible for or obligated to pay for freight or other transportation related costs or expenses in connection with any defective products or components that are either returned to Barranca Diamond's facility or any authorized repair station and/or any replacement products or components that are shipped from Barranca Diamond pursuant to this Warranty.

Parts and labor needed to maintain products and the replacement of components due to normal wear and tear are the purchaser's responsibility and are not covered by this Warranty. All products or components replaced under warranty become the property of the manufacturer. All replacement parts will be considered to be part of the original product and any warranty on such parts will expire coincidentally with the original Warranty. Barranca Diamond will pay for parts and labor in connection with warranty repairs conducted by Barranca Diamond or its authorized repair centers. Replacement part(s) installed by anyone else will be provided without a charge for such replacement part(s), but this Warranty will not apply to labor charges in connection therewith.

IN NO EVENT SHALL ANY LIABILITY UNDER THIS WARRANTY EXCEED THE REPLACEMENT COST OF ANY DEFECTIVE PRODUCT OR COMPONENT THEREOF, AND BARRANCA DIAMOND SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR ANY OTHER DAMAGE OR LOSS NOT EXPRESSLY ASSUMED AS SET FORTH HEREIN.

The foregoing constitutes an expressed warranty on the terms set forth above and is the only warranty or warranties applicable to the products it covers. All other warranties, including, without limitation, the implied warranty of merchantability and/or fitness for a particular purpose or use being denied. This limited warranty is expressly in lieu of all other warranties, whether expressed or implied.

**WARRANTY:** For your (1) one year warranty to be effective, complete the online Product Registration as soon as possible. Visit [www.mkdiamond.com/registration/](http://www.mkdiamond.com/registration/)

**SPECIFICS APPLICABLE TO LIMITED WARRANTY OF DIAMOND BLADES AND CORE BITS****Laser Welded Blade and Bit Warranty**

If the laser weld between the segment and the steel core or barrel fails during normal use, the blade or bit will be replaced free of charge. Blades and bits damaged due to careless or improper use are not covered under this warranty.

**Brazed Blade, Bit, and Cup Wheel Warranty**

If the brazed bond between the segment and the core, barrel, or cup fails within the first .050 of segment wear, the blade, bit, or cup will be replaced free of charge. Blades, bits, and cup wheels damaged due to careless or improper use are not covered under this warranty.

**Continuous Rim Blade Warranty**

If the bond between the rim and the core fails during normal use, the blade will be replaced free of charge. Blades and bits damaged due to careless or improper use are not covered under this warranty.

**Exclusions**

Barranca Diamond does not warrant the following components, which carry their own manufacturer's warranty for the indicated periods:

***Electric Motors Manufacturer's Warranty***

ABB Baldor: 1 year

Ryobi: 1 Year

Soga: 1 Year

***Gas Engines Manufacturer's Warranty***

Honda: 2 years

**REPLACEMENT PARTS**

Replacement parts for this tool may be ordered from your Barranca Diamond distributor or directly from Barranca Diamond. Please have the following information ready before calling:

- Model and serial number of the machine
- Date of purchase
- Description of parts being ordered (see attached parts list)

**RETURN MATERIALS PROCEDURE**

To expedite the service relative to the return of a product purchased through Barranca Diamond, please have the following information available:

- Model and serial number of the machine
- Date of purchase
- Distributor's name

Then please call Barranca Diamond at (310) 523-5867 or toll free at 800-630-7682 to obtain a Return Goods Authorization number (RGA) authorizing the return.

Please Note:

- Ensure your item(s) are prepaid to the destination
- Return items must have been purchased within the previous twelve (12) months
- Follow the packaging instructions in the following section
- Be sure to include the RGA number, return address and your phone number on or within the return shipping box.

**PACKAGING INSTRUCTIONS**

Ship the saw using its plywood shipping crate. Use wood screws to fasten the baseboard to the 1/2" plywood crate bottom so as to secure it inside the shipping crate.

**Engine Power Information**

Engine power ratings are calculated by the individual engine manufacturer and the rating method may vary among engine manufacturers. Barranca Diamond Products makes no claim, representation or Warranty as to the power rating of the engine on this equipment and disclaims any responsibility or liability of any kind whatsoever with respect to the accuracy or the engine power rating. Users are advised to consult the engine manufacturer's owner's manual and website for specific information regarding the engine power rating.

## NOTES

**HP14 Slab Saw**  
OWNER'S MANUAL & PARTS LIST



**BARRANCA DIAMOND**

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