BARRANCA DIAMOND

BD10 Power Feed Trim Saw

Owner's Manual and Operating Instructions

Revision 110	02.2015
Manual Part # 169351	

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

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Thank you for selecting the Barranca Diamond BD10 Trim Saw. We are certain that you will be pleased with your purchase. Barranca Diamond takes pride in producing top quality products for hobbyists and commercial lapidary users throughout the world.

This owner's manual contains information necessary to operate and maintain your BD10 Trim Saw safely and correctly. Operated correctly, your BD10 Trim Saw should provide you with years of service. Please take the time to familiarize yourself with the BD10 Trim Saw by reading and reviewing this manual.

If you should have questions concerning your BD10 Trim Saw, please call Barranca Diamond at:
(310) 523-5867 or Toll Free: (800) 365-0085.

TABLE OF CONTENTS

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 with out 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.

DO NOT USE IN DANGEROUS PLACE
Do not use power tools in damp or wet locations nor expose them to rain. Always keep the work area well lighted.

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. Use a GFCI (Ground Fault Circuit Interrupter Switch) with the unit. Attach GFCI to the main motor power cord plug (male) and keep plugged into the power receptacle outlet source.

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 saw 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 lighted. 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 SAW CORRECTLY
Do not force saw, 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 SAW
A power tool will do a job better and safer operating at the rate for which it was designed.

USE THE RIGHT TOOL TO SERVICE THE SAW
Do not force saw or an attachment when servicing or operating this power tool. Use the correct tools for service or adjustments.

DO NOT OVERREACH
Keep proper footing and balance at all times.

DO NOT OPERATE SAW 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 SAW RUNNING UNATTENDED – TURN POWER OFF
Do not leave a tool until it comes to a complete stop. Always turn the saw 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. The table on page 8, shows the correct AWG size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

USE A GROUND FAULT CIRCUIT INTERRUPTER
Use of a Ground Fault Circuit Interrupter between the end of power cord and wall outlet is required at all times.

USE THE PROPER POWER SOURCE
If saw is 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.

If saw is to be used with 220 volt 50/60Hz power source ensure power source is at least 10 amps.

USE THE RECOMMENDED COOLING AND LUBRICATING FLUIDS
Never operate a tool that requires coolant or lubricate dry. This can lead to shortened tool life, tool damage and personal injury.

MAINTAIN SAW 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 BD10.

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, 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

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.

WARNING

Sawing, grinding and drilling generate dust. Excessive airborne particles may cause irritation to eyes, skin and respiratory tract. To avoid breathing impairment, always employ dust controls and protection suitable to the material being sawed or drilled; See OSHA (29 CFR Part 1910.1200).

ELECTRICAL REQUIREMENTS AND GROUNDING INSTRUCTIONS

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

In case 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 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 of the table below. The tool has a grounding plug that looks like the plug illustrated in the table below. 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, lug, and the like, extending from the adapter, must be connected to a permanent ground such as a properly grounded outlet box.

Note: Use of a temporary adapter is not permitted in Canada

To reduce the risk of electrocution, keep all connections dry and off the ground.

A Ground Fault Circuit Interrupter (GFCI) should be used on the circuit(s) or outlet(s) to be used for this power tool. Receptacles are available having built-in GFCI protections and should be used for this measure of safety.

When using an extension cord, the GFCI should be installed closest to the power source, followed by the extension cord and lastly, the saw.

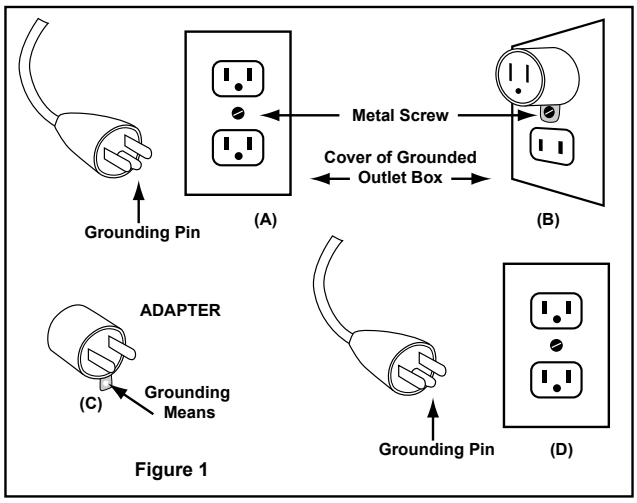
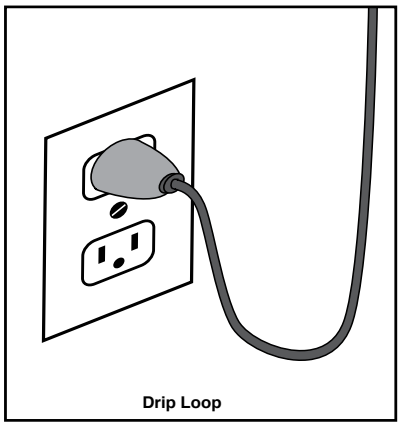


Figure 1

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 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.


Drip Loop

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 extensions 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 disconnection the product form 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 under size 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 customers expense. There will be no warranty claim.

To choose the proper extension cord,
- Locate the length of extension cord needed in 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.

EXTENSION CORD LENGTH							
Nameplate Amperes	**115V**	25'	50'	75'	100'	150'	200'
	250V	50'	100'	150'	200'	300'	400'
0 - 5		16	16	16	14	12	12
5.1 - 8		16	16	14	12	10	•
8.1 - 12		14	14	12	10	•	•
12.1 - 15		12	12	10	10	•	•
15.1 - 20		10	10	10	•	•	•

Main Motor	Leeson A4SI7DR56
Horsepower	1/3 HP
Motor Voltage	115 volt/60Hz / 220 volt/50Hz
Amperage	5.8 Amps / 3.5 Amps
Motor RPM	1725 RPM Fixed / 1425 RPM
Blade Shaft	5/8"
Duty	Continuous
Motor Arbor Bearings	Ball Bearings, permanently sealed
Arbor Diameter	5/8"
Blade Capacity	8", 9" or 10" diameter
Dimensions L x W x H	27" x 17" x 19"

Power Feed Motor	REX
Horsepower	1/15 HP
Motor Voltage	110 volt/60Hz / 230 volt / 50/60Hz
Motor RPM	5 RPM (full load) Fixed
Torque	50 inch-lbs.
Rotation	Clockwise facing the shaft
Motor Arbor Diameter	5/16"
Motor Arbor Bearings	Sleeve-bushing type, permanently sealed

Shipping Weight	80 lbs. crated (70lbs. uncrated)
Depth of Cut	3" manual feed, 2-5/8" with vise
Oil Capacity	10" Blade, 0.31 gallon; 8" blade 0.62 gallon

POWER FEED TOGGLE SWITCH CONTROL POSITIONS

1. **ON/POWER FEED** Position – Provides power from the main motor to the blade arbor and power feed motor.
2. **OFF** Position – Both power feed and main motors off.
3. **MANUAL FEED** position - Provides power from the main motor to the blade arbor.

Blade Arbor Bearings: Permanently sealed 5/8" OD shaft ball bearings press fit into aluminum housing (must be ordered with aluminum housing as an arbor assembly when bearings are worn out.)

Blade Arbor Flanges: Aluminum, 2" OD x 5/8" bore.

Power Feed Threaded Rod: 18" long x 3/8"-24 left hand thread stainless steel rod.

Power Feed Clutch Block: Two piece: silicon bronze half-threaded 3/8"-24 thread friction block.

Rock Vise Capacity: 3-1/4". (Maximum opening between clamping studs)

Cross Feed Index Movement per Revolution of Handle: 1/16".

Power Feed In-Feed Vice Advancement Rate: approximately 3/16 of an inch per minute.

Blade Lubricant Requirements: 0.31 gallon of oil to adequately cover the bottom of a 10” blade and 0.62 gallon for an 8” blade (Fig. 2).

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 and Amber Neutral 100

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).

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).

Smokey's EZ Cut

Synthetic water based cutting agaent (mix ratio 2oz per gallon).

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.

Water

Water is not recommended as a cutting fluid as it is a coolant only and does not promote good cutting performance and can shorten blade life and often requires frequent blade sharpening. However, it can be used if a water soluble synthetic agent/additive such as Smokey's EZ Cut or Diamond Pacific Roc Cut is used to extend blade life and promote improved sawing. Even with additives, frequent blade sharpening may be required. These additives have rust inhibiting properties but oxidation can still result over time as mist and heat can cover the blade arbor threaded shaft and jam nut with water during and after sawing. For this reason, if water with or without an additive is used as a cutting fluid, the user is advised to use water displacing WD-40 sprayed on the blade core and shaft/nut after every cutting session to inhibit rust formation.

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 proprieties for our saws; vapors are considered hazardous and toxic.

CNC Machining Fluids

Water soluable 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.

CONTENTS

In the shipping crate, you will find one Barranca Diamond BD10 Trim Saw assembly (saw, motor, baseboard, spray hood and ten inch lapidary diamond blade).

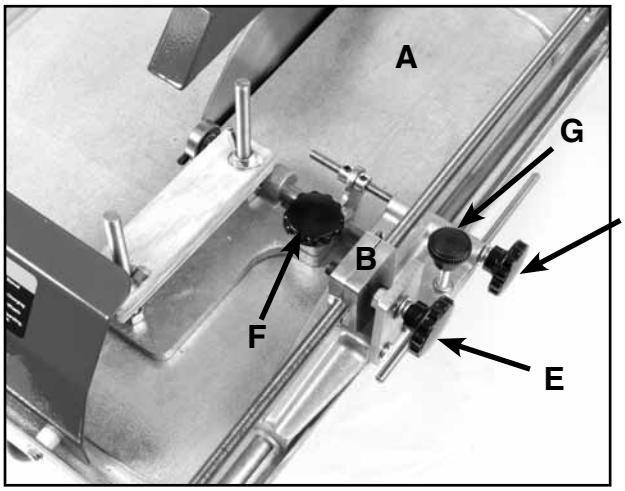
UNPACKING AND ASSEMBLY

Your BD10 Trim Saw has been shipped from the factory thoroughly inspected and tested. Remove the crating material (wood and plastic) from the baseboard and around the saw. Remove the spray hood from the saw and remove the protective covering.

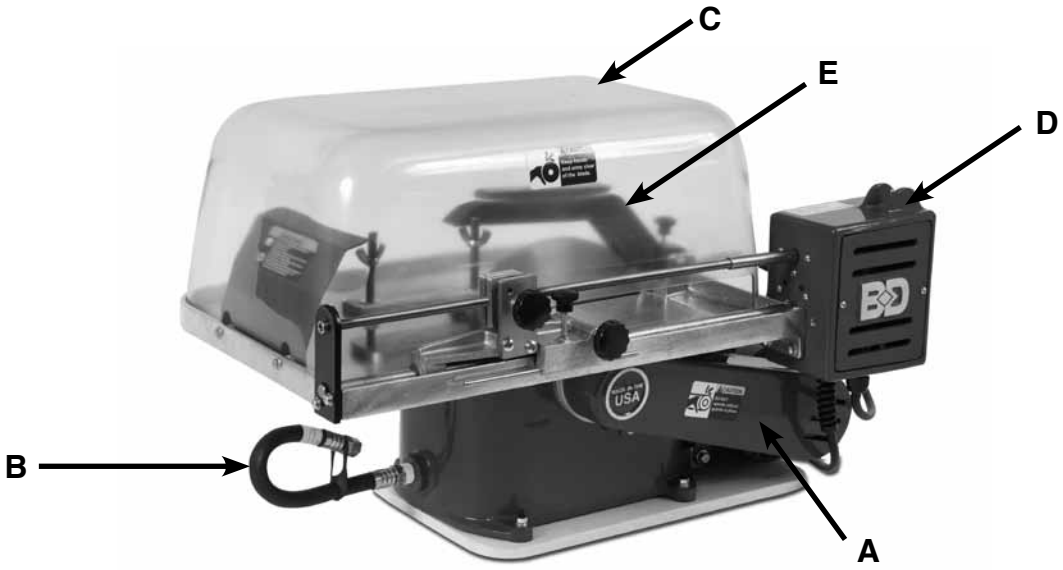
TRANSPORT

For ease of transport, place the hood over the saw table and tape the hood to the table. All sawing lubricant should be removed from the reservoir during transport of the saw.

COMPONENT LOCATION



A. Table
B. Clutch Plates
C. Rock Vise
D. Crossfeed adjustment knob
E. Clutch plate engagement locking knob
F. Vise rotation locking knob
G. Shut off rod adjustment



A. Belt Guard
B. Drain Hose
C. Hood
D. Power Toggle Switch
E. Blade Guard

PRE-START INSPECTION

Place the BD10 Trim Saw on a flat surface such as a bench top or table. Set the toggle power switch to the **MIDDLE/OFF** position (Fig. 1).

Fig. 1. OFF position

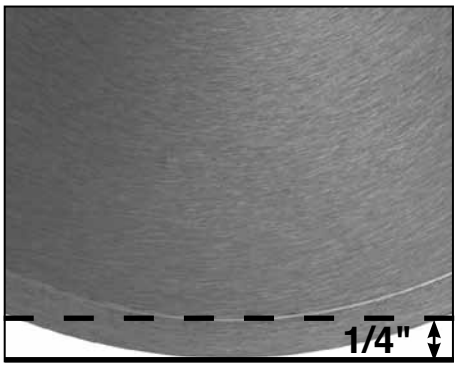


Fig. 2. Cutting lubricant level should cover the bottom 1/4" of the blade

FILL RESERVOIR

NOTE: The blade is manufactured to cut in either a petroleum, mineral or synthetic water soluble oil saw lubricant. Although water can be used with the BD10 Trim Saw, it is not recommended as the steel arbor shaft can rust. In addition, poor sawing performance and short blade life can result. If water must be used, it is recommended that a rust inhibitor such as Tool Cool (8 oz. Tool Cool to 1 gallon water) be added.

Prior to operating the BD10 Trim Saw, ensure the sludge plug is secure. Then you must fill the oil reservoir so that the lubricant fluid covers the bottom 1/4" of the blade (Fig. 2). 0.31 gallon of oil will adequately cover the bottom of a 10” blade and 0.62 gallon will be sufficient for an 8” blade. Do not overfill the oil reservoir as excess fluid will result in unnecessary spraying of fluid while sawing and possibly cause damage to the arbor and motor. Periodically, check the oil level and add oil as some oil is lost due to misting and evaporation while sawing.

To add lubricant, loosen wingnut under table on the table lock down rod. Remove washer (Fig. 3). Ensure wingnut is aligned with slot (Fig. 4). Lift table up. Ensure sludge plug is securely pushed in before filling (Fig. 5).

Fig. 3. Unlock table

Fig. 4. Lifting table

Fig. 5. Secure sludge plug

START UP

Inspect the belt tension. Check the four motor mounting bolts (Fig. 6) to ensure they are tight and the motor is secure. The V-belt is adjusted and tensioned at the factory. If belt needs adjustment, loosen nut (Fig. 8). Tighten or loosen screw (Fig. 9) until belt is properly tensioned. There should be no more than 1/2" of belt deflection when the belt is depressed by fingertip pressure (Fig. 7).

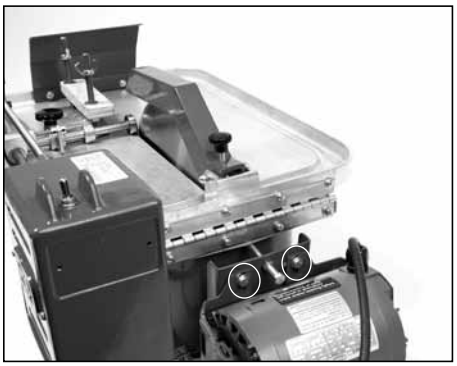


Fig. 6. Motor mounts bolts

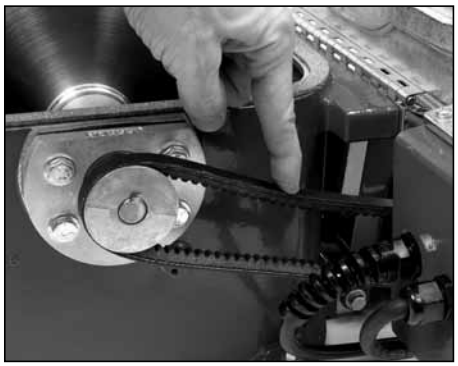


Fig. 7. V-belt correctly tensioned

Fig. 8. Loosen nut

Fig. 9. Adjust screw

START UP

When you have confirmed that the belt is properly tensioned and the motor mounting bolts are secured. You are ready to proceed. Be sure the proper amount of lubricant is in the reservoir. Check to ensure that the toggle power switch is in the **MIDDLE/OFF** position.

To perform a power up test on the BD10, first disengage the vise clutch by turning the knob counterclockwise to loosen the clutch plate (Fig. 10). Move the vise to the front (operator's) end of the saw table (Fig. 11).

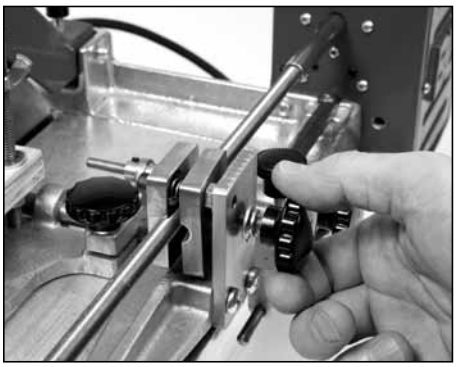


Fig. 10. Loosen clutch plate

Fig. 11. Rock vise

START UP

Lock the clutch plates by turning the knob clockwise (Fig. 12). Be sure to securely tighten the knob on the vise as well (Fig. 17). Now engage the power feed toggled **RIGHT/ENGAGED FEED** position and main motor to begin advancing the vise and rotating the blade (Fig. 13). The power feed motor will slowly move the vise toward the blade (approximately 3/16 of an inch per minute). The saw hood does not need to be placed over the saw table during this power test. Once you have confirmed the vise is moving toward the blade and the blade is turning, this indicates the saw is functioning properly. The saw can be turned off by flipping the toggle switch to the **MIDDLE/OFF** position (Fig. 14).

Fig. 12. Lock clutch plate

Fig. 13. Power feed toggle

Fig. 14. OFF Position

SLAB SAWING MODE

To begin slabbing of rock material, turn the toggle switch to the **MIDDLE/OFF** (Fig. 14) position and secure the material in the rock vise by opening the vise jaws wide enough to fit the material to be cut (Fig. 15). Retighten the jaws with the wing nut screws on the rock vise (Fig. 16). The material in the vise should be positioned close to (but not touching) the diamond blade. Disengage (loosening) the clutch plate by turning the knob counter-clockwise (Fig. 10). Move the vise forward toward the blade.

Fig. 15. Open rock vise

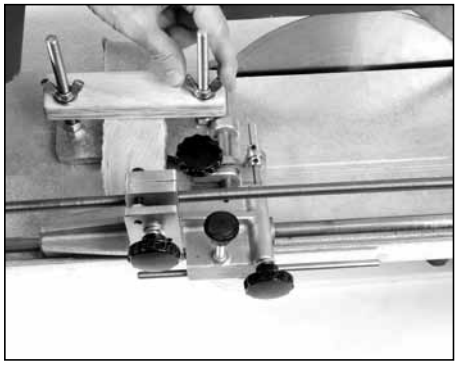


Fig. 16. Material positioned in vise near blade prior to cutting

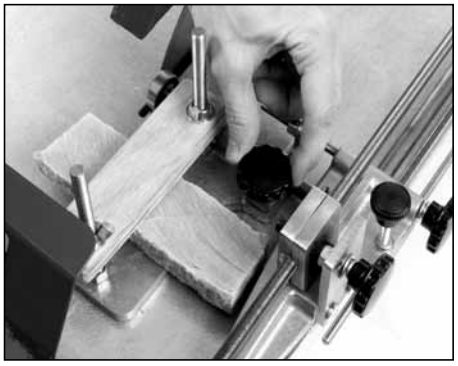


Fig. 17. Vise adjustment

Once the vise is positioned close to the blade, loosen the knob on the vise (Fig. 17) and laterally move the vise to the desired slab thickness to be cut by turning the cross-feed knob (Fig. 18) clockwise or counter-clockwise. Retighten the knob on the vise.

Fig. 18. Vise cross-feed locking

SLAB SAWING MODE

At this point, the clutch should be engaged by turning the knob clockwise (Fig. 12). The hood may be placed over the table to contain spray and misting. Slabbing of material can now be initiated by engaging the power feed and blade by moving the toggle switch to the **RIGHT/ENGAGED FEED** position (Fig. 13). The rock vise and material will move forward into the blade and the slab will be cut from the vised material. The vise will proceed to move along the power feed rail until the automatic feed shut-off rod is engage by the powerfeed box contact switch. Once the shut-off-rod encounters contact, the powerfeed box will shut off by contact with the switch. Before pulling the vise back, move the power toggle switch to the **MIDDLE/OFF** position (Fig. 14).

WARNING: If you do not move the toggle switch to the **MIDDLE/OFF** position before moving the vise back, the motor and blade will restart.

Fig. 19. Shut-off adjustment knob

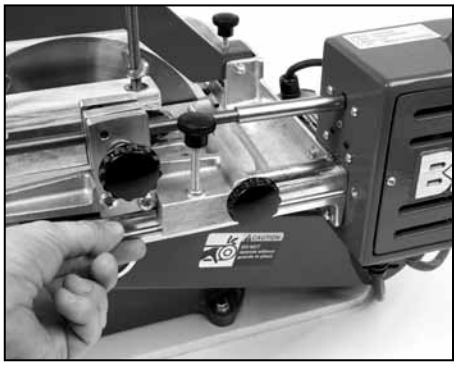


Fig. 20. Shut-off rod

The shut-off rod can be adjusted to any position along the length of the 1/4" rod by loosening the knob on the carriage (Fig. 19) and sliding the rod to the desired position (Fig. 20) and retightening adjustment knob. 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. Move the power toggle switch to the **MIDDLE/OFF** position. 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 reengaged by turning the knob clockwise, the next slab can be cut.

Position the plastic splash hood onto the table (Fig. 21) so that spray from the cutting fluid (oil or water) during sawing will be contained and drain back into the reservoir. Excess cutting fluid that builds up on the table during slab or trim sawing will drain back into the reservoir through the blade slot and drain hole adjacent to the slot. Rock chips and debris from sawing should be removed from the table area periodically to prevent interfering with free movement of the vise over the table during automatic or manual feeding.

Fig. 21.

TRIM SAWING MODE

Slabbing of rock material to uniform thicknesses using the BD10 Trim Saw is best performed using the automatic power feed mode. However, manual trimming of slabs to desired shapes (preforming) can be achieved using the saw in the **LEFT/MANUAL FEED** position (Fig. 22).

Fig. 22. Manual feed position

To use this mode, first place the toggle in the **MIDDLE/OFF** position (Fig. 9) and flip the vise assembly over the cross feed rail by removing the knob on hinged portion of the vise (Fig. 23) and rotating the vise so that it pivots off the saw table (Fig. 24). At this point the saw is ready to be used in the manual mode (with only the blade motor activated) for manual trimming of slabs by placing the toggle in the **LEFT/MANUAL FEED** position.

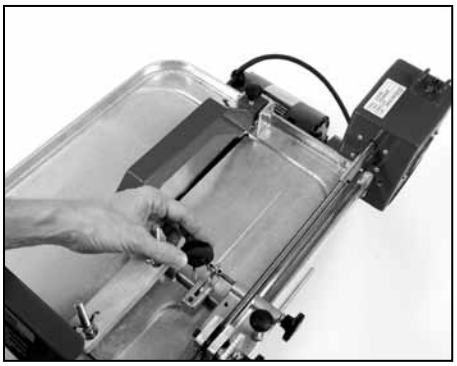


Fig. 23. Loosen vise

Fig. 24. Rotate vise up

The rock slab to be trimmed should rest flat and firmly on the saw table in front of the blade prior to moving the toggle switch to the **LEFT/MANUAL FEED** position. The user should use light but firm pressure to cut the slab in the manual mode letting the blade do the work and not force the slab into the blade.

The blade guard height can be adjusted by turning the thumb knob at the rear mounting position of the guard. Under no circumstances should the blade guard be removed. While the blade guard will reduce excessive splash and spray of cutting fluid during rock trimming, it is advised to wear personal protective gear (safety glasses, gloves and a shop bib) during manual mode trimming.

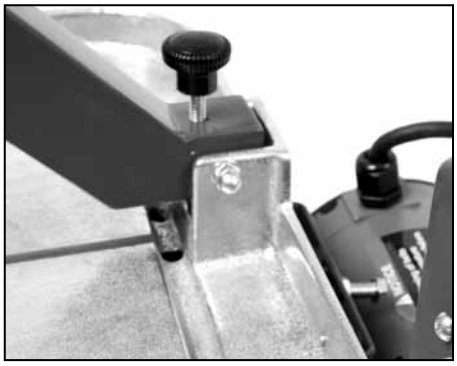


Fig. 25. Blade guard adjustment

CUTTING LUBRICANT REPLACEMENT

The BD10 Trim Saw requires periodic routine maintenance to remove the build up of rock mud (sludge) and dirty lubricating fluid from the reservoir. It will be apparent to the user that the lubricating fluid is dirty and needs to be changed if the oil residue on the saw table after cutting is thick and dark with rock sludge build up. The oil liquid can be removed rapidly using the drain hose at the base of the oil reservoir (Fig. 26).

Fig. 26. Drain hose

Fig. 27. Sludge plug

A five gallon bucket or collection container can be placed under the outlet cap and the cap removed with an adjustable wrench to let the oil flow free into the bucket for proper disposal. The sludge residue will likely not flow through the drain hose and will remain inside the oil reservoir, therefore, the sludge should be removed by hand. Extract the sludge with a spatula or spoon out of the bottom tank hole. With motor side secure on table top, move hole over table edge and remove plug (Fig. 27). Sludge can be put through the hole for removal. Once the sludge is removed, wipe clean the inside of the tank with a disposable towel. Replace sludge plug and hose cap and refill with cutting lubricant to cover the bottom 1/4" of the blade (Fig. 2). Be sure to check the fluid level of the cutting lubricant inside of the oil reservoir after every 2 to 3 hours of use. The fluid will be absorbed onto the rock material, combine with rock mud (sludge) and be lost due to heat misting and evaporation.

V-BELT

The BD10 Trim Saw blade arbor is powered by an AX-27 rubber V-belt from the electric motor. The V-belt is correctly tensioned at the factory. However, if it is necessary to service the belt, unplug the BD10 Trim Saw from its power source and remove the fasteners which secure the belt guard housing (Fig. 28). If the belt tension should become too loose, poor sawing performance or slipping will result. The belt tension should be checked periodically by removing the guard and depressing the belt in the middle between the motor and blade pulleys (Fig. 29).

Fig. 28. Remove belt guard

Fig. 29. Belt tension

Fig. 30. Adjusting belt tension

There should be 1/2" of deflection once the belt is pushed down. 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. Belt tension can be adjusted by loosening the jam nut and then adjusting the hex head bolt in the center top of the motor mount plate (Fig. 30). Be sure to replace and attach the belt guard.

POWER FEED SYSTEM AND VISE

The power feed system utilizes a AC gear motor mounted inside of the rectangular box attached to the table of the BD10 Trim Saw. There is no need to service or lubricate the power feed motor unless the motor fails and the screw feed rod fails to rotate when the feed is engaged. If the set screw that fastens the power feed motor to the feed rod loosens during use or shipping, the rod will not rotate and move the vise toward the blade. This rod set screw can be tightened with a US standard Allen/hex wrench should it loosen.

POWER FEED SYSTEM AND VISE

Periodically the user should apply a thin coat of lubricating grease (wheel bearing or lithium grease) to the 3/8"- 24 screw feed rod to prevent the screw feed rod threads from becoming prematurely worn. If the threads on both the bronze clutch blocks should become worn or “flattened” the clutch block will not securely engage with the screw rod and it may disengage from the clutch block and not automatically advance the rock vise. A replacement bronze clutch blocks can be obtained from Barranca Diamond. The rock vise assembly has cross feed threads (Fig. 31) attached to an indexing or crank knob to laterally adjust the vise so that slab thickness is accurately controlled before each slab cut. These threads should be lubricated periodically with wheel bearing or lithium grease to allow for ease of rotation of the cross feed knob.

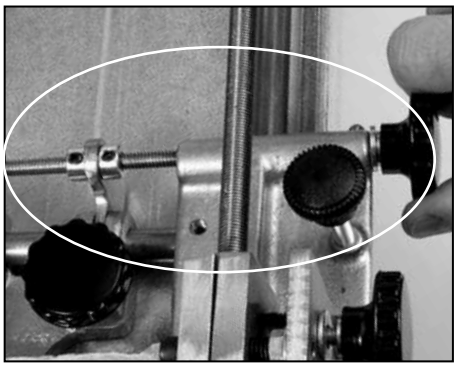


Fig. 31. Cross feed adjustment

BLADE ARBOR ASSEMBLY AND PULLEYS

The BD10 Trim Saw is equipped with a 5/8"- 11 left-hand threaded arbor shaft with sealed ball bearings mounted in an aluminum bearing arbor housing. A 2" OD x 5/8" bore die cast zinc coated pulley is mounted on the shaft outside the oil reservoir. Unusual noises emanating from the saw tank or arbor area, slower than normal cutting speeds and overheating of the shaft or belt are indications of arbor/bearing wear. Using the saw with a worn arbor/bearing assembly can result in poorly cut rock slabs not to mention permanent damage to other components of the saw. A new arbor/bearing assembly can be purchased from Barranca Diamond. It is sold only as a complete unit as the bearings are installed in the aluminum housing by the factory.

VISE

Should the wooden jaw on the upper vise become worn or start delaminating, replacement jaws can be made from 1/2" plywood.

BLADE ARBOR ASSEMBLY AND PULLEYS

Periodically, check the tightness of the four blade arbor housing mounting bolts (Fig. 32) to make sure they are securely tightened to the oil reservoir. Should the 2" OD die cast pulleys on either the motor or blade arbor shaft need to be removed or replaced, loosen the set screw on the hub of each pulley with a US standard Allen/hex wrench to remove the pulley from the shaft.

Fig. 32. Blade arbor bolts

MAIN MOTOR

The BD10 is equipped with a Baldor or Leeson 1/3 HP 1725 RPM single-phase 120 volt 60 Hz 8 amp motor. The motor shaft has sealed ball bearings and requires no lubrication. The motor is protected from thermal damage (overheating) with an automatic shut-off switch. If the motor overheats, it will automatically shut off and restart once its internal components cool down. The Leeson motors now being used have no reset button. Be sure to shut off the main motor by placing the switch lever to the **OFF** position and disconnecting the power source. After allowing the motor to cool (2 to 3 hours), restart the unit by turning the switch to **ON**. If the motor does not restart after a cool down period, remove the motor and have an authorized repair service center for Baldor or Leeson inspect the motor. Barranca Diamond can refer you to an authorized motor repair service center in your area.

Export version of BD10 Saw with a 220 volt/50Hz motor available (part # 169201).

DIAMOND BLADE

Periodically, the diamond blade on the BD10 Trim Saw will need to be resharpened should slow or poor sawing performance occur. Dull or “glazed over” diamonds will either not cut thus stalling the saw and shutting off the motor, or the rock vise and rock material will ride up the blade and possibly damage the blade or “dish” the core. Once the saw begins to labor or struggle to cut gemstones, the user is advised to use a sharpening stick and resharpen the blade. Resharpening can be performed either with the automatic power feed (stick secured in vise) or manually with the power feed disengaged and a few thin slabs cut from the sharpening stick. If no sharpening stick is available, the user could use an abrasive material such as cinder block or brick to remove the glazing over the diamonds on the rim of the blade.

Eventually all diamond blades wear out and must be replaced with a new blade. New continuous rim diamond blades (303 Pro for example) should be mounted on the blade arbor so that the arrow marked on the steel core is pointing in the direction of blade rotation while in use. If the arrow cannot be found, use a hand lens or magnifying glass to inspect the rim and see the head and tail of any individual diamond. To correctly mount the blade, the head of the diamond must cut first into the rock with the tail trailing behind. For notched rim diamond blades (301 Supreme/Gemking models for example), it does not matter which way the blade is orientated on the arbor shaft.

DIAMOND BLADE INSTALLATION AND REMOVAL

To access the diamond blade for inspection or replacement, loosen the wing nut that secures the saw table to the reservoir tank and open the saw table to the up position (Fig. 33). The blade is mounted on the 5/8" blade arbor between two aluminum blade flanges (Fig. 34). A 5/8"-11 left-handed jam nut secures the flanges and blade to the arbor shaft. Hold the blade shaft with the allen key provided and use the provided 15/16" wrench to tighten or loosen the jam nut (Fig. 35). The jam nut has left handed threads and is turned counterclockwise to tighten and clockwise to loosen. **DO NOT OVER TIGHTEN THE JAM NUT!**

Fig. 33. Lift table

Fig. 34. Arbor and Flanges

Fig. 35. Loosen jam nut

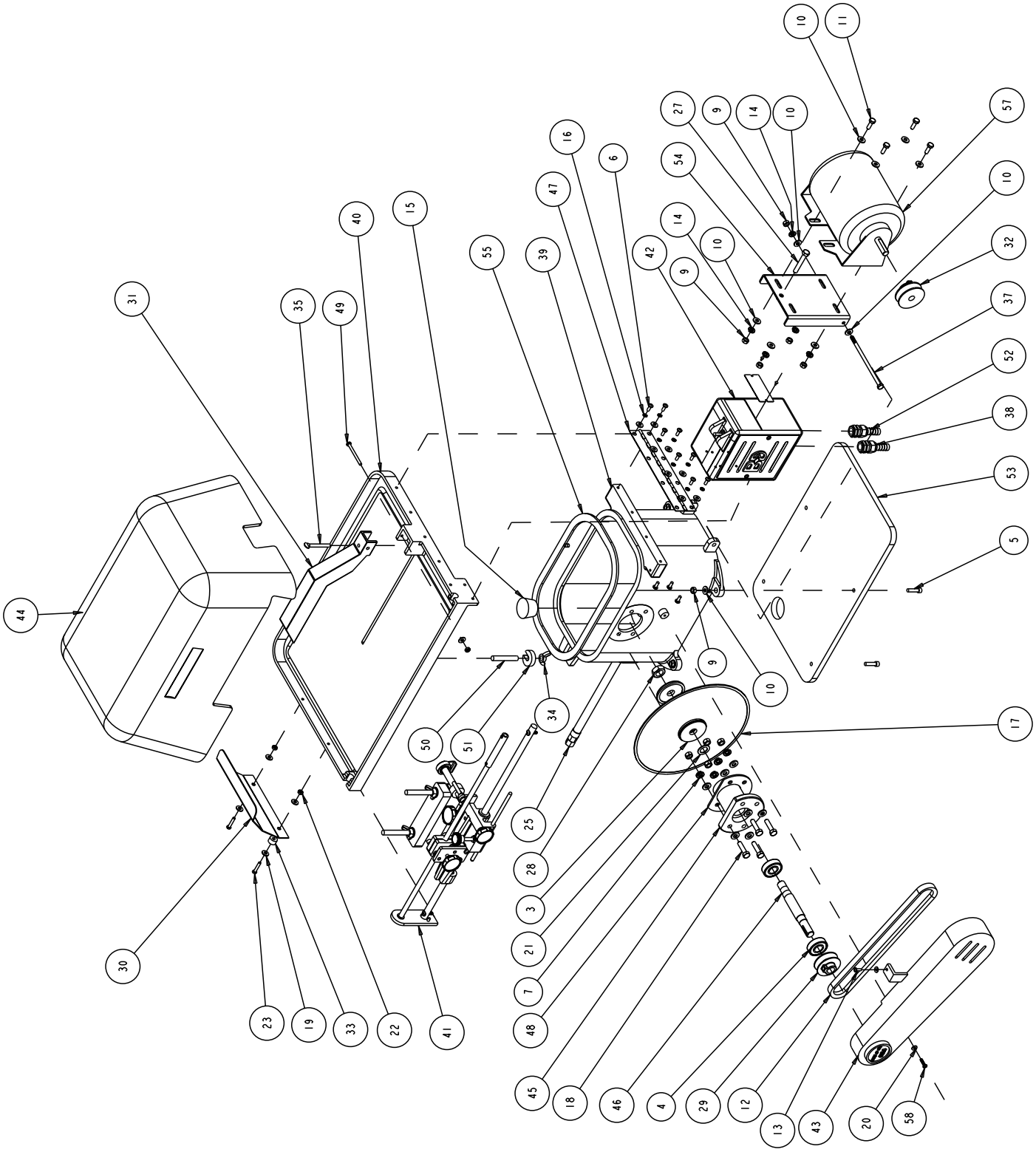
DIAMOND BLADE INSTALLATION AND REMOVAL

Close saw table and tighten the wing nut. Be sure that the proper amount of lubricant is in the reservoir before starting the saw.

NOTE: Blade flanges must always be installed with their concave or recessed side (Fig. 36) facing the blade.

Fig. 36. Convex or recessed side of blade flange

NOTES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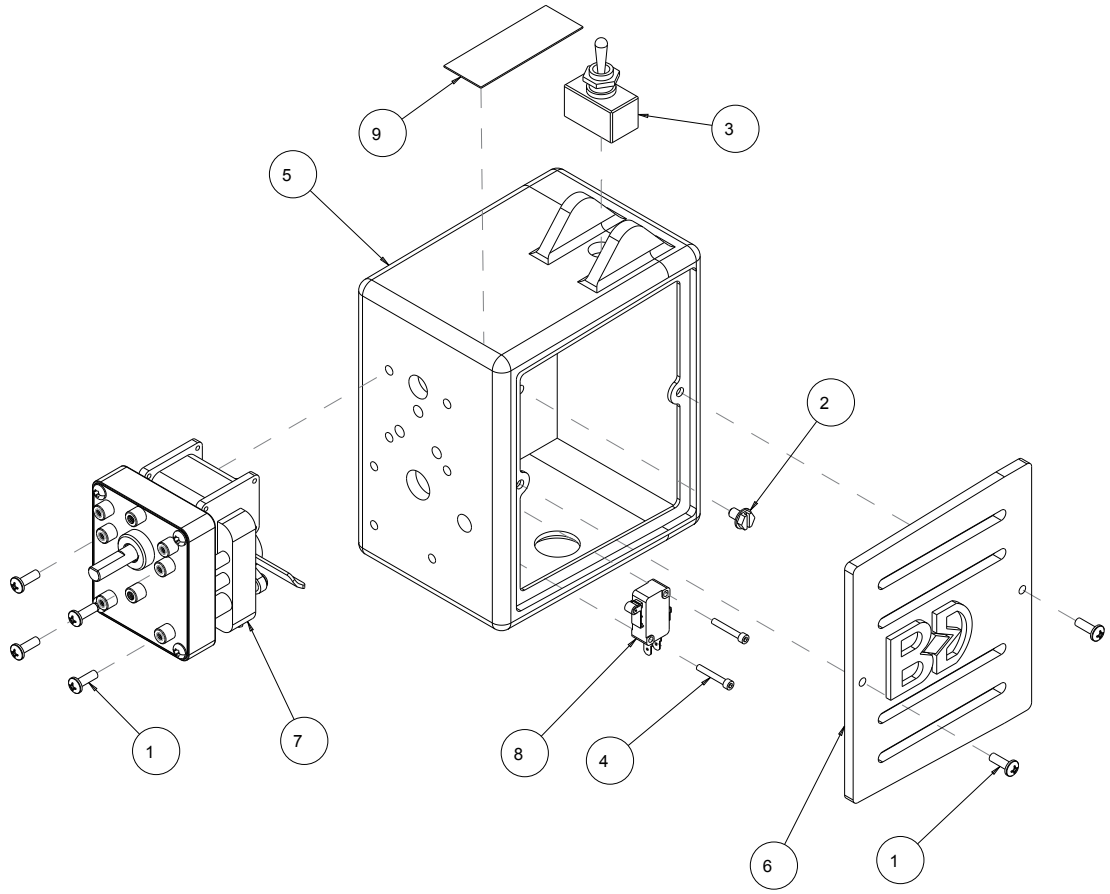
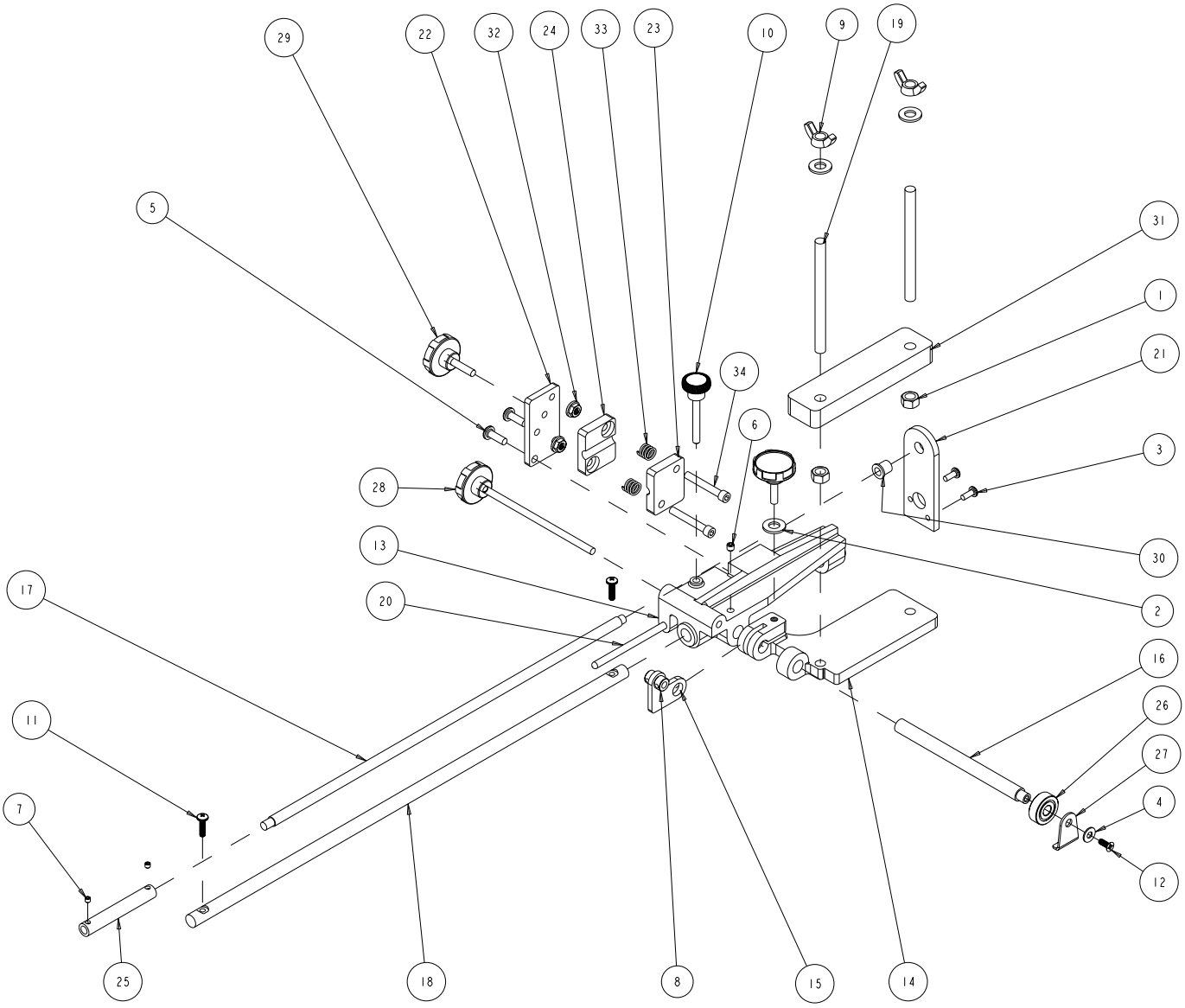
Item	Part Description	Part#	Quantity
1	Nut, Hex, 5/16 - 18	101196	4
2	Wrench, Tilesaw, 15/16 csd end	134684	1
3	Flange, Outer, 2 - 3/8	135830	2
4	Bearing, Ball, 17 x 40 x 12mm	137711	2
5	Screw, Soc HD Cap, 1/4 - 20 x 1	151049	4
6	Screw, 10 - 32 x 1/2 Pan Head Phillips Machine	151052	11
7	Washer, Lock, Split, 5/16	151747	4
8	Washer, Flat, SAE, 5/16	151754	8
9	Nut, Hex, 1/4 - 20	151893	9
10	Washer, 1/4 Sae Flat	151915	14
11	Screw, Hex HD, 1/4 - 20 x 3/4	152370	4
12	Belt, Micro-V AX-27	152404_BD10	1
13	Screw, Rnd HD, #8 - 32 x 1/2	152517	1
14	Washer, 1/4 Split Lock	152591	5
15	Plug, Rbbr Drain W/o Hole	153439-NL	1
16	Washer, #10 Split Lock	153684	8
17	Blade 10" x 5/8"	153696	1
18	Screw, 5/16 - 18 x 1 - 1/4 Hex Head Machine	153950	4
19	Washer, #10 Sae Flat	154369	13
20	Washer, flat, sae, #8	155454	2
21	Bushing, Blade 1-5.8 x .050	156269	3
22	Nut, Hex 10 - 32	156269	3
23	Screw, 10 - 32 x 1 Hex Head Cap	156270	2
24	Tag, Serial #, Blank	157500-RW	1
25	Assy, Oil Drain, 1/2NPT	157577-06	1
26	Drive Screw, #7 x 5/16 Round Head	157849	2
27	Bolt, Hex Head Tap, 5/16 - 18 x 2	157938	1
28	Nut, Hex Jam 5.8 - 11UNC LH	158577	1
29	Pulley, 2" x 5.8" Bore	161020	1
30	Guard, Splash	161023	1
31	Guard, Blade PF-10	161068	1
32	Pulley, 2" x 1/2" Bore	161070	1
33	Spacer, Nylon 3/8 LG. x 1/2 OD	161076	2
34	Nut, Wing 3/8 - 16	161715	1
35	Screw, Thunb, 1/4 - 20 x 2.0	161904	1
36	Wrench, 3/16 Hex L-Key	165118	1
37	Hex Cap Screw 1/4 - 20 x 5 - 1/2"	166262	1
38	Power Cord	167180	1
39	Tank, Comp	168789	1

Item	Part Description	Part#	Quantity
40	Table, Comp	168791	1
41	Assembly, Vise	168792	1
42	Vise Drive Motor Assembly	168795	1
43	Guard, Belt, Comp	168804	1
44	Hood	168817	1
45	Arbor Housing Casting Comp	168825	1
46	Shaft, Arbor	168826	1
47	Hinge, Comp	168835	1
48	Gasket, Arbor	168892	1
49	Screw, Pan HD 10 - 32 x 2.0"	168893	1
50	Table, Rod	168909	1
51	Washer, Slotted 3/8"	168911	1
52	Cord, Motor	168946	1
53	Base, Comp	168949	1
54	Mount, Motor	168950	1
55	Gasket, Tank	169341	1
56	Owner's Manual, BD-10	169351	1
57	Modification, Motor	169362	1
58	Screw, Pan Head Phillips #8 - 32 x 3/4"	169946	1



Item	Part Description	Part#	Quantity
1	Screw, rnd hd, #8-32x1/2	152517	6
2	Screw, Hex HD FL 10-24x 5/16	159597	1
3	Switch, Feed Toggle, 15A, DPDT	161052	1
4	Screw, 4-40 x 3/4 socket head cap	164206	2
5	Housing Casting Comp	168797	1
6	Cover, Housing Comp	168802	1
7	Gear Motor 5 RPM	168832	1
8	Switch, Micro Snap Action	168833	1
9	Label, ON/OFF	169352	1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Item	Part Description	Part#	Quantity
1	Nut, Hex, 3/8 - 16	101188	2
2	Washer, Flat, SAE, 3/8	150923	3
3	Screw, 10 -32 x 1/2 Pan Head Phillips Machine	151052	2
4	Washer, #10 SAE Flat	154369	1
5	Screw, Pan HD, 1/4 - 20 x 1/4	157523	1
6	Screw, Soc HD Set 1/4 - 20 x 1/4	157528	1
7	Screw, Set Cup, #10 - 32 x 3/16" S.S.	161038	2
8	Collar, Shaft 1/4 x 1/2	161066	2
9	NUT, WING 3/8 - 16	161715	2
10	KNOB, 1/4 - 20 x 2 Round	165163	1
11	Screw, Pan Head Self Sealing 10 -32 x 3/4	167781	2
12	Screw, Flat HD Phillips, #10 - 32 x 1/2, 18 - 8 S.S.	168284	1
13	Carriage Complete	168794	1
14	Vise, Complete	168800	1
15	Vise Drive Mount	168806	1
16	Rod, Swing Vise	168807	1
17	Threaded Drive Rod	168809	1
18	Guide Rod	168810	1
19	Rock Adjustment Rod	168811	2
20	On/Off Rod	168812	1
21	Mount, Drive & Guide Rod	168813	1
22	Bracket, Clutch Mount	168814	1
23	Clutch Plate, Front	168815	1
24	Clutch Plate, Rear	168816	1
25	Coupler	168820	1
26	Bearing, Ball 3/8" x 1 - 1/8"	168822	1
27	Bearing Guide	168823	1
28	Knob, Vise	168869	1
29	Knob Assembly, Vise	168871	2
30	Bushing, Bronze Flanged 5/16 x 9/16 x 1/2	168873	1
31	Wood Clamp	168875	1
32	Nut, Flanged 1/4 - 20	168879	2
33	Spring, Complete	168891	2
34	Screw, Soc HD cap, 1/4 - 20 x 1 - 3/4	169707	2

BARRANCA DIAMOND LIMITED WARRANTY

Please complete the warranty registration card and return. Any problems encountered should be directed to Barranca Diamond Customer Service department at (800) 630-7682 M-F 8am - 5pm PST.

NOTE THIS INFORMATION FOR FUTURE USE:

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

Barranca Diamond warrants to the original retail purchaser for a period of 1 year 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.

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
Baldor: 1 year
Ryobi: 1 Year
Soga: 1 Year

Gas Engines Manufacturer's Warranty
Honda: 2 years

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 owners manual and website for specific information regarding the engine power rating.

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 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 equipment using its original shipping crate if possible. Secure inside the shipping crate. Ensure all parts are secured in the packaging to prevent movement. Do not ship the equipment partially exposed.

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