



POWER TOOLS AND HANDPIECES

Operating Instructions for Flexible Shaft Machines SERIES C-300 SERIES S-300



FOR YOUR OWN SAFETY:

- Read operating instructions before using your **GROBET USA™** power tool
- Always wear eye protection while using power tools

ASSEMBLY INSTRUCTIONS

Always make sure your power tool is unplugged during assembly. After identifying all the components of your power tool, it should be assembled in the following manner:

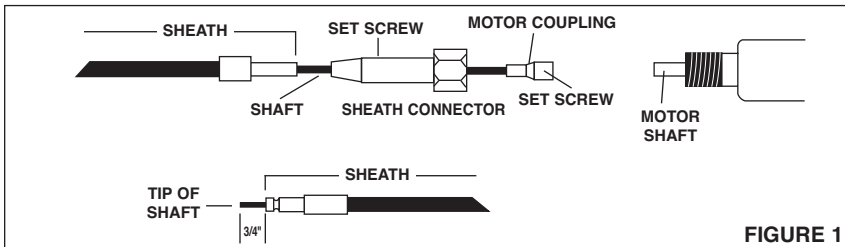
ASSEMBLY AND ADJUSTMENT OF FLEXIBLE SHAFT, SHEATH AND HANDPIECE

Proper assembly and adjustment of the flexible shaft and sheath are critical for the correct operation of your **GROBET USA®** power tool. The shaft and sheath adjustment should be checked and adjusted as necessary, even if you received them assembled and attached to the motor.

Please follow the directions below to assemble and adjust the shaft and sheath and to attach the handpiece.

Assembly:

1. Remove the sheath connector from the motor (see figure 1). This has a LEFT hand thread and must be turned CLOCKWISE to remove.
2. Loosen the set screw on the flexible shaft motor coupling and slide the shaft coupling onto the motor shaft. Motor coupling has "D" shape and must align with flat on motor shaft. Tighten the set screw onto the flat in the motor shaft.
3. Put the motor connection back on the motor by sliding it up the flexible shaft and tightening.
4. Now slide the sheath over the flexible shaft with the plain sheath fitting (not the grooved fitting) going toward the motor and into the sheath connector.



Adjustment:

5. Before attaching handpiece, shaft and sheath adjustment must be carefully checked. Place the entire unit on a flat surface with shaft and sheath extended straight. Adjust the exposed tip of the flexible shaft so that it extends $\frac{3}{4}$ " beyond the sheath, as shown in diagram above. This is done by moving the sheath in or out of the motor connection. When the correct adjustment is made, tighten the set screw in the motor connection.

Attaching Handpiece:

6. Finally, attach the handpiece by pushing it on the grooved QD (quick disconnect) fitting on the sheath. Be sure that the keyed tip of the flexible shaft is properly lined up with the slot in the handpiece shaft connector by looking into the rear of the handpiece before pushing it on. If it is not in line, turn the shaft tip or the handpiece to the correct position for alignment. Then snap the handpiece into place.

CONNECTING THE FOOT SPEED CONTROL

Connect the **GROBET USA™** foot control to the motor by inserting the plug on the end of the motor power cord into the socket of the shorter power cord on the foot control. Plug the longer power cord from the foot control into a proper power outlet.

WARNING: Do NOT plug your Flexible Shaft Machine motor into an electrical outlet without first connecting it to the foot control or other speed-limiting device. Doing so will immediately engage the motor at a high, uncontrolled speed which is potentially dangerous.

OPERATION

READ ALL THE SAFETY INSTRUCTIONS IN THIS MANUAL BEFORE OPERATING ANY GROBET USA® POWER TOOL. PROPER EYE AND FACE PROTECTION MUST BE WORN TO PROTECT YOU FROM INJURIES CAUSED BY FLYING DEBRIS, CHIPS OR SPARKS WHICH MIGHT RESULT FROM THE WORK BEING PERFORMED.

DO NOT BEND SHAFT AT TIGHT ANGLE. Shafts and sheaths last longer when they are not bent during use. If used at tight angles or if loops are present, wear will occur at the points of greatest friction. There is no way to completely avoid wear, and under normal conditions, a flexible shaft machine may require several replacement shafts and sheaths during its lifetime. (Follow shaft and sheath assembly instructions in the Assembly Section of this manual.)

DO NOT FORCE THE TOOL. Let the speed of the tool do the work. Avoid using too much pressure. Generally, slower speeds are better for rougher, heavier work or when greater control over the accessory is required for precise, delicate work. Higher speeds are used for buffing, cutting and polishing.

ALWAYS FOLLOW THE MANUFACTURERS' RPM RECOMMENDATIONS WHEN SELECTING ACCESSORIES.

Voltage Decreases: Never operate a power tool during a perceptible power decrease. Turn off tool and unplug until full power is restored.

**ALWAYS WEAR PROPER EYE AND FACE PROTECTION
WHENEVER YOU OPERATE A GROBET USA™ POWER TOOL**

MAINTENANCE

It is very important to routinely clean and lubricate your **GROBET USA**[®] power tool. Dirt and improper lubrication are the most common causes of poor operation and excessive wear. **GROBET USA**[®] offers a maintenance kit for each series of power tools.

ALWAYS DISCONNECT YOUR POWER TOOL WHILE UNATTENDED OR BEFORE CLEANING OR SERVICING

1. Lubrication of Motor Bearings:

All **GROBET USA**[™] Flexible Shaft Machine motors are pre-lubricated at the factory for smooth, trouble-free operation and additional lubrication is not required.

2. Lubrication & Cleaning of Flexible Shaft:

The flexible shaft should be lubricated after every 50 hours of use. Expose the shaft by removing the handpiece and then the sheath. Apply a light film of shaft grease along the entire length of the shaft. Replace the sheath according to instructions in the Assembly and Adjustment Section of this manual. After every 200 hours, the shaft should be thoroughly cleaned with a solvent and lubricated.

3. Replacement of Motor Brushes:

The motor brushes should be checked for wear periodically. When new, they are approximately $\frac{3}{4}$ " long. They should be replaced when they have worn to $\frac{1}{4}$ ". To remove the brushes, disconnect motor power cord and unscrew the brush caps. Be sure that the contour of the brush matches the armature when replacing them.

4. Replacement of Worn Shafts and Sheaths:

Be sure to disconnect your power cord before servicing. Shafts and sheaths last longer when they are not bent during use. If used at sharp angles or if loops are present, wear will occur at the points of greatest friction. There is no way to completely avoid wear, and under normal conditions, a flexible shaft machine may require several replacement shafts and sheaths during its lifetime. Follow replacement instructions in Assembly and Adjustment Section of this manual.

GENERAL SAFETY RULES

WARNING! Read and understand all instructions. Failure to follow all instructions listed below, may result in electric shock, fire and/or serious personal injury.

WORK AREA

Keep your work area clean and well lit. Cluttered benches and dark areas invite accidents.

Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Power tools create sparks which may ignite the dust or fumes.

Keep bystanders, children and visitors away while operating a power tool. Distractions can cause you to lose control.

ELECTRICAL SAFETY

Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. If the tools should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.

Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way. Double insulation eliminates the need for the three wire grounded power cord and grounded power supply system.

Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is grounded.

Don't expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.

Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.

When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W". These cords are rated for outdoor use and reduce the risk of electric shock.

PERSONAL SAFETY

Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.

Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.

Avoid accidental starting. Be sure switch is off before plugging in. Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.

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GENERAL SAFETY RULES

PERSONAL SAFETY *continued*

Remove adjusting keys or switches before turning the tool on. A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.

Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control of the tool in unexpected situations.

Use safety equipment. Always wear eye protection. Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

TOOL USE AND CARE

Use clamps or other practical way to secure and support the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.

Do not force tool. Use the correct tool for your application. The correct tool will do the job better and safer at the rate for which it is designed.

Do not use tool if switch does not turn it on or off. Any tool that cannot be controlled with the switch is dangerous and must be repaired.

Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.

Store idle tools out of reach of children and other untrained persons. Tools are dangerous in the hands of untrained users.

Maintain tools with care. Keep cutting tools sharp and clean. Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.

Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.

Use only accessories that are recommended by the manufacturer for your model. Accessories that may be suitable for one tool, may become hazardous when used on another tool.

SERVICE

Tool service must be performed only by qualified repair personnel. Service or maintenance performed by unqualified personnel could result in a risk of injury.

When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual. Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of electric shock or injury.

WARRANTY

LIMITED WARRANTY

All **GROBET USA™** **SERIES C-300**, and **SERIES S-300** motors are guaranteed to be free of defects in material or workmanship under normal use for a period of 1 year after purchase. During the warranty period, any motor found to be defective will be repaired or replaced at our option. This warranty does not cover misuse, or ordinary wear of bearings, armature, and motor brushes. Original owner/user **must complete and return** the enclosed **Limited Warranty / Motor Registration** card to be eligible for this warranty.

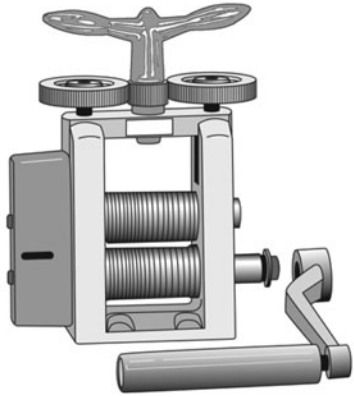
Units returned under warranty found to be misused or damaged by the original owner/user will be repaired or replaced at the owner's expense.

All implied warranties, including but not limited to warranties of fitness and merchantability, are hereby limited in duration to a period of 1 year from date of purchase, and **GROBET USA®** will not be responsible for any special or consequential damages.

LOOK FOR THESE PRODUCTS



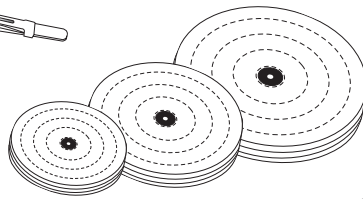
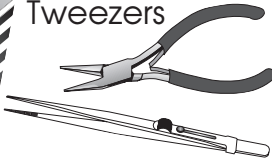
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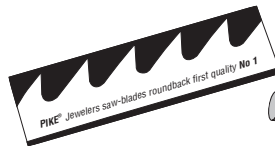
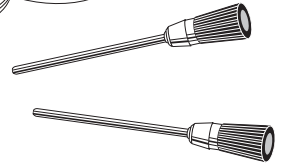
Rolling Mills



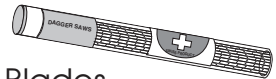
Pliers
and
Tweezers



Brushes and Buffs



Swiss Saw Blades



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