

**Treat Enterprises**  
**Cameron Micro Drill Presses**  
**19401 Rawhide Road, Sonora, CA 95370**  
**209-532-7201 or 800-369-7769**

**INSTRUCTION SHEET FOR CAMERON MICRO DRILL PRESS**  
**ULTRA-PRECISION AND SUPER-SENSITIVE SMALL HOLE DRILLING MACHINE**  
**READ CAREFULLY BEFORE OPERATING MACHINE**

This Precision Drill Press is shipped partially disassembled in a compact, well-padded carton to assure delivery in good condition and requires a few minutes for assembly.

**STEPS IN ASSEMBLING THE PRECISION DRILL PRESS**

**INSTALLING MOTOR**

Insert the shank of motor mount bracket into the socket at rear of drill press head casting. Place 'V' belt over pulleys and slide motor to snug belt. (Note: If the belt is run too tightly, it will reduce power and cause undue vibration.) A properly adjusted belt will bow out considerably due to centrifugal force when running at highest pulley speed. Full driving power with maximum smoothness is attained with this belt adjustment.

**INSTALLING SPOKED FEED WHEEL**

1. Loosen column lock at rear of pinion hub bearing, then raise drill press head to the top of the travel and re-tighten column lock.
2. Slip the spoked feed wheel hub onto the pinion shaft and align the unthreaded handle hole of the hub with the angular hole of the pinion shaft to permit entry of the unthreaded handle through both the hub and the pinion shaft.
2. Tighten the set screw at end of pinion shaft on groove of handle then screw remaining two handles into hub.

**INSTALLING DEPTH STOP**

- 1.) Loosen column lock at rear of pinion hub bearing, then lower drill press head to approximately one inch from top of column and re-tighten column lock.
- 2.) Remove the hexagon nut and bumper pad from the threaded depth stop assembly and insert lower threaded end through hole of depth stop casting, located at top rear of the column.
- 3.) Replace bumper pad with hexagonal socket downward, then screw the nut back onto the threaded shank. Screw the threaded depth stop into the head casting until it contacts the motor mount bracket casting, back out threads one turn, and tighten lock nut and position bumper pad onto lock nut. (On models equipped with dial depth indicator, the indicator post should be adjusted radially so that the indicator rod will contact center of drill press column.)

**CAUTION—When using the dial depth gauge, it is important to adjust the knurled stop nuts so as to limit the drill head travel, thus preventing the indicator rod from bumping and causing damage to the delicate stops within the indicator.**

**ADJUSTING HEAD BALANCE SPRING**

The head balance spring is adjustable to suit particular requirements by loosening the three screws of the friction lock ring at left side of head casting one-half turn and turning spring tensioner casting with screwdriver inserted into slot at center of casting. (Counter-clockwise rotation increases spring tension.)

## **CARE AND MAINTENANCE**

### **DO NOT OVER LUBRICATE. DO NOT USE “3 IN 1 OIL”**

This supersensitive drill press is a fine piece of equipment and should be treated with care. Sliding members should be wiped clean and lubricated periodically. Spindle bearing cup should be filled every 12 hours of continuous operation with a good quality, non-gumming light **mineral oil**. Available at your local drug store.

The two motor bearings should also be oiled every 40 hours with the same oil.

### **TO REMOVE SPINDLE END PLAY**

- 1.) Hold spindle pulley while loosening the lock screw at top of spindle pulley.
- 2.) Hold drill chuck with one hand and turn pulley clockwise until proper adjustment is obtained, tighten lock screw and check to make sure that spindle turns freely. If spindle does not turn freely, screw pulley counter-clockwise, push on end of pulley with thumb to loosen and re-adjust to proper setting.

## **MOTOR**

The motor has been designed and built to provide long trouble free service with proper care. The only requirement other than keeping the bearings properly lubricated is to check the length of the brushes periodically after approximately 500 hours of use. The brushes should be replaced with **FACTORY SUPPLIED BRUSHES** when they become less than ¼” in length.

## **OPERATION**

Anyone familiar with the use of drill presses should be able to drill holes to the most exacting requirements after a brief period of practice to get the feel of the machine.

Although most holes can be drilled by feel, the dial depth gauge may be used to your advantage when drilling extremely small holes. It provides the means for letting the operator know when the drill contacts the work piece to start the cut and the depth of cut which may safely be taken before withdrawing it to clear the flutes of cuttings.

The motor should be loosened when belt position changes are made in order to retain proper setting and to prevent damage to belt which could occur if belt were stretched over pulley edges.

As the weight or shape of the workpiece does not affect the sensitivity of drill feed feel, small holes may be accurately and safely drilled in large or otherwise awkward parts by the use of blocks or other external supports.

Parallel intersecting holes having a considerable degree of overlap may be readily drilled from solid material with a sharp conventionally ground drill.

The drill column and head are also readily mountable on other types of existing equipment and may be advantageously utilized in converting or building numerous types of specialized equipment.

Sound judgment should be exercised in selecting spindle speeds for drilling with this drill press due to the possibility of running small drills at speeds which cause the cutting edges of drills made of high speed steel to travel at speeds considerably greater than desirable for proper drilling. This can result in friction-burn dulling of the drill tip. As few machines are capable of running anywhere near fast enough for small drills, it is general practice to run machine spindles at the highest available speed when drilling small holes. However, this is not the case with this precision drill press. For more specific information, refer to machinist’s handbooks.

## **DRILL PRESS WITH STANDARD SINGLE SPEED MOTOR**

This precision drill press is equipped with the standard single speed motor and has three spindle speeds of 9,500 R.P.M., 17,000 R.P.M. and 30,000 R.P.M. through the use of a ‘V’ belt and three groove motor pulley and three groove spindle pulley.

## **OPTIONAL TWO SPEED MOTOR**

When equipped with the two-speed motor, this drill press has six spindle speeds: 7,500 R.P.M, 9,500 R.P.M., 14,000 R.P.M., 17,000 R.P.M, 24,000 R.P.M and 30,000 R.P.M.

Speeds of 7,500 R.P.M., 14,000 R.P.M. and 24,000 R.P.M. are available by use of the three-step pulley the motor switch at the low speed position.

Speeds of 9,500 R.P.M., 17,000 R.P.M. and 30,000 R.P.M. are available by use of the three-step pulley with the motor switch at the high-speed position.

**NOTE: The two-speed motor may become hot during continued usage of the low speed setting.**

## **OBTAINING OTHER SPEEDS WITH EITHER MOTOR**

The speed of the motor may also be regulated by the use of accessory devices such as resistors, rheostats, electronic speed control devices, etc. A constant torque electronic feedback type speed control unit (available through suppliers of power transmissions equipment) provides slow steady speeds with full motor power for drilling plastics without softening and for drilling larger holes in metal.

## **CAUTION: Using a speed control device with a two-speed motor.**

**NOTE! Always run the motor with the switch at the high position when using accessory devices for controlling the motor speed of two-speed motors.**

The spindle, pulleys and motor are dynamically balanced for smooth running. However, imbalance of drill chucks may cause perceptible vibration at higher spindle speeds. The variable degree of imbalance of a drill chuck is dependent upon the variable relationship of its rotating sleeve with its inner body member. Therefore, a chuck may run more smoothly with one size of drill than another.

When production drilling holes not over 1/16", it is advisable to use the 0 to 1/16" drill chuck, as the 0 to 1/16" capacity chuck has been found to have approximately one third the imbalance as the larger capacity chucks.

## **TO REMOVE CHUCK**

We recommend using a pair of chuck wedges for removal of chuck from taper. Chuck should be removed by inserting chuck wedges, holding a block on one side and gently tapping the other until the wedges come together. Be sure to catch the chuck, as it will fall. To accomplish this position use one hand to hold the block and to catch the chuck as it falls. Or, put the slotted table under where the chuck will fall. **Do not turn chuck counter-clockwise, as this would unscrew spindle pulley from right handed spindle shaft, thereby losing the precisely made thrust adjustment.**

## **INSTALLING A CHUCK**

Screw jaws into chuck body and tap onto spindle lightly with small wood block or mallet after cleaning chuck and spindle tapers and wringing chuck onto spindle by twisting clockwise. Then insert a ground pin into the chuck and tighten clockwise. Using a .0001" indicator set at the top of the pin, rotate chuck to the four clock positions (12-3-6-9) and gently tap chuck at each high position until the indicator shows it is within tolerance.