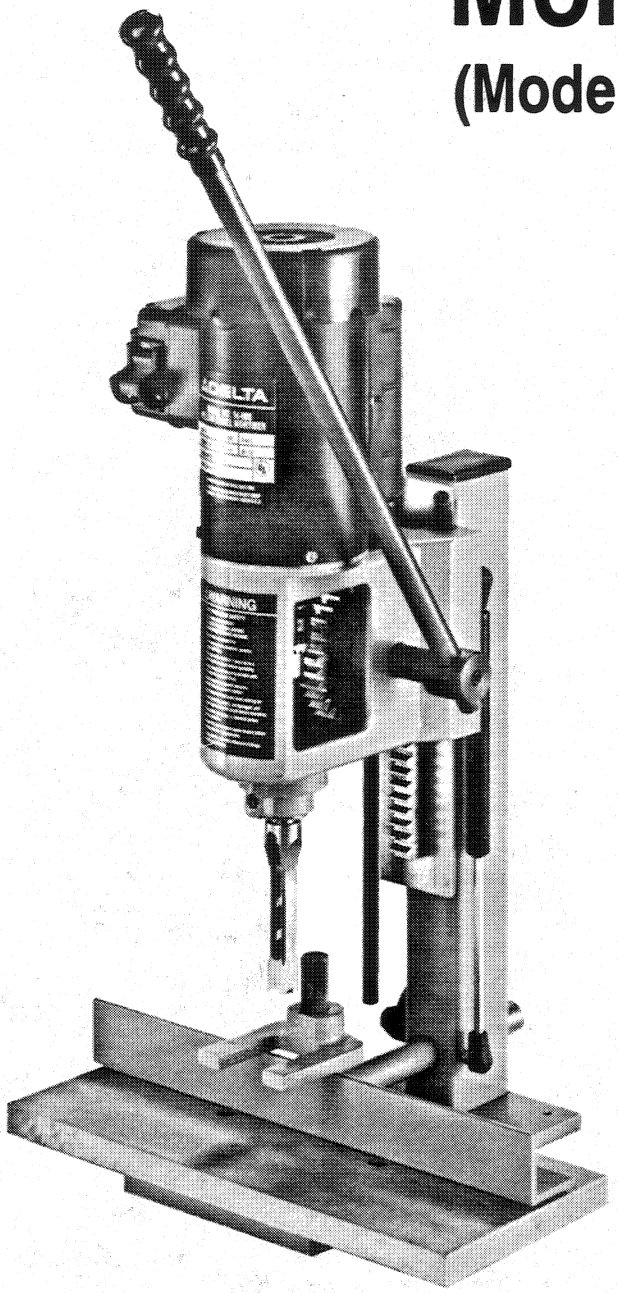
Hollow Chisel Mortiser

(Model 14-600)

INSTRUCTION MANUAL



DATED 4-1-91

PART NO. 1344241

DELTA

TABLE OF CONTENTS

SAFETY RULES

As with all machinery there are certain hazards involved with operation and use of the machine. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

This machine was designed for certain applications only. Delta Machinery strongly recommends that this machine NOT be modified and/or used for any application other than for which it was designed. If you have any questions relative to its application DO NOT use the machine until you have written Delta Machinery and we have advised you.

DELTA INTERNATIONAL MACHINERY CORP.
MANAGER OF TECHNICAL SERVICES
246 ALPHA DRIVE
PITTSBURGH, PENNSYLVANIA 15238
(IN CANADA: 644 IMPERIAL ROAD, GUELPH, ONTARIO N1H 6M7)

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

1. FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE TOOL. Learn the tool's application and limitations as well as the specific hazards peculiar to it.

2. KEEP GUARDS IN PLACE and in working order.

3. GROUND ALL TOOLS. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle, the adapter lug must be attached to a known ground. Never remove the third prong.

4. REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on."

5. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.

6. DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.

7. KEEP CHILDREN AND VISITORS AWAY. All children and visitors should be kept a safe distance from work area.

8. MAKE WORKSHOP CHILDPROOF - with padlocks, master switches, or by removing starter keys.

9. DON'T FORCE TOOL. It will do the job better and be safer at the rate for which it was designed.

10. USE RIGHT TOOL. Don't force tool or attachment to do a job for which it was not designed.

11. WEAR PROPER APPAREL. No loose clothing, gloves, neckties, rings, bracelets, or other jewelry to get caught in moving parts. Nonslip foot wear is recommended. Wear protective hair covering to contain long hair.

12. ALWAYS USE SAFETY GLASSES. Wear safety glasses (must comply with ANSI Z87.1). Everyday eyeglasses only have impact resistant lenses; they are not safety glasses. Also use face or dust mask if cutting operation is dusty.

13. SECURE WORK. Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.

14. DON'T OVERREACH. Keep proper footing and balance at all times.

15. MAINTAIN TOOLS IN TOP CONDITION. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

16. DISCONNECT TOOLS before servicing and when changing accessories such as blades, bits, cutters, etc.

17. USE RECOMMENDED ACCESSORIES. The use of improper accessories may cause hazards.

18. AVOID ACCIDENTAL STARTING. Make sure switch is in "OFF" position before plugging in power cord.

19. NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.

20. CHECK DAMAGED PARTS. Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function - check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

21. DIRECTION OF FEED. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.

22. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF. Don't leave tool until it comes to a complete stop.

23. DRUGS, ALCOHOL, MEDICATION. Do not operate tool while under the influence of drug, alcohol or any medication.

24. MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY while motor is being mounted, connected or reconnected.

25. WARNING: The dust generated by certain woods and wood products can be injurious to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.

ADDITIONAL SAFETY RULES FOR HOLLOW CHISEL MORTISERS

1. **WARNING:** Do not operate your mortiser until it is completely assembled and installed according to the instructions.

2. **IF YOU ARE NOT** thoroughly familiar with the operation of mortisers, obtain advice from your supervisor, instructor, or other qualified person.

3. **MAKE CERTAIN** the machine is fastened to a supporting surface to prevent it from tipping over during operation.

4. **NEVER** turn the mortiser "ON" before clearing the table of all objects (tools, scrap pieces, etc.).

5. **ALWAYS** keep hands, fingers, and hair away from the rotating bit.

6. **DO NOT** attempt to mortise material that does not have a flat surface, unless a suitable support is used.

7. **ALWAYS** clamp workpiece securely to table with holddown to prevent lifting.

8. **ALWAYS** support workpiece securely against fence to prevent rotation.

9. **BE SURE** drill bit is sharp, not damaged, and properly secured in the chuck before operating.

10. **MAKE SURE** chuck key is removed before starting machine.

11. **NEVER** start the mortiser with the drill bit or chisel pressed against the workpiece.

12. **NEVER** perform layout, assembly, or set-up work on the table while the mortiser is operating.

13. **ADJUST** the depth stop to avoid drilling into the table.

14. **ALWAYS** stop the machine before removing scrap pieces from the table.

15. **SHUT OFF** the power, remove the drill bit and chisel, and clean the table before leaving the machine.

16. **WARNING:** For your own safety - Don't wear gloves when operating the machine.

17. **SHOULD** any part of your mortiser be missing, damaged, or fail in any way, or any electrical component fail to perform properly, shut off switch and remove plug from power supply outlet. Replace missing, damaged, or failed parts before resuming operation.

18. Additional information regarding the safe and proper operation of this product is available from the National Safety Council, 444 N. Michigan Avenue, Chicago, IL 60611, in the Accident Prevention Manual for Industrial Operations and also in the Safety Data Sheets provided by the NSC. Please also refer to the American National Standards Institute ANSI 01.1 Safety Requirements for Woodworking Machinery and the U.S. Department of Labor OSHA 1910.213 Regulations.

UNPACKING AND CLEANING

Carefully unpack the mortiser and all loose items from the carton. Remove the protective coating from the machined surfaces of the mortiser. This coating may be removed with a soft cloth moistened with kerosene. Do not use acetone, gasoline, or lacquer thinner for this purpose. Fig. 2 illustrates the mortiser and all loose items removed from the carton.

A - Mortising Machine

B - Hydraulic Cylinder

C - Raising and Lowering Handle

D - Table

E - Hardware for Assembling Table

F - Fence

G - Holddown

H - Chuck Key

J - Wrench

K - Fence Locking Handle

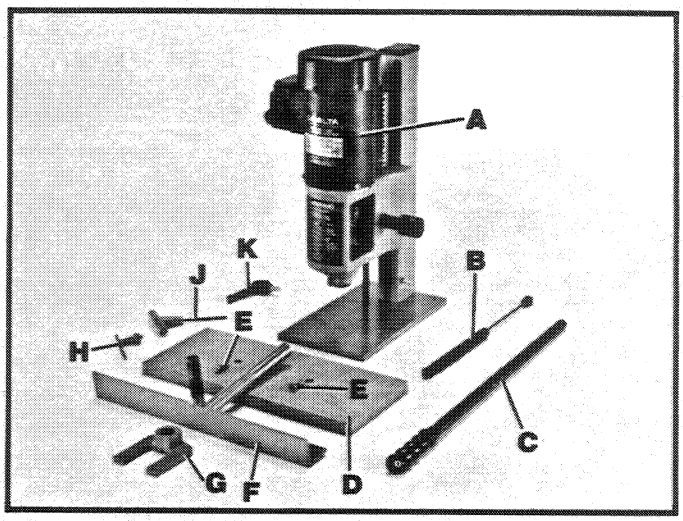


Fig. 2

ASSEMBLING THE MORTISER

1. **WARNING: MAKE CERTAIN THE MACHINE IS DISCONNECTED FROM THE POWER SOURCE DURING THE COMPLETE ASSEMBLY PROCEDURE.**

2. Insert raising and lowering handle (A) Fig. 3, into hole in pinion shaft (B). Raise head (C) to the up position and lock handle (A) in pinion shaft by tightening screw with wrench (D), as shown.

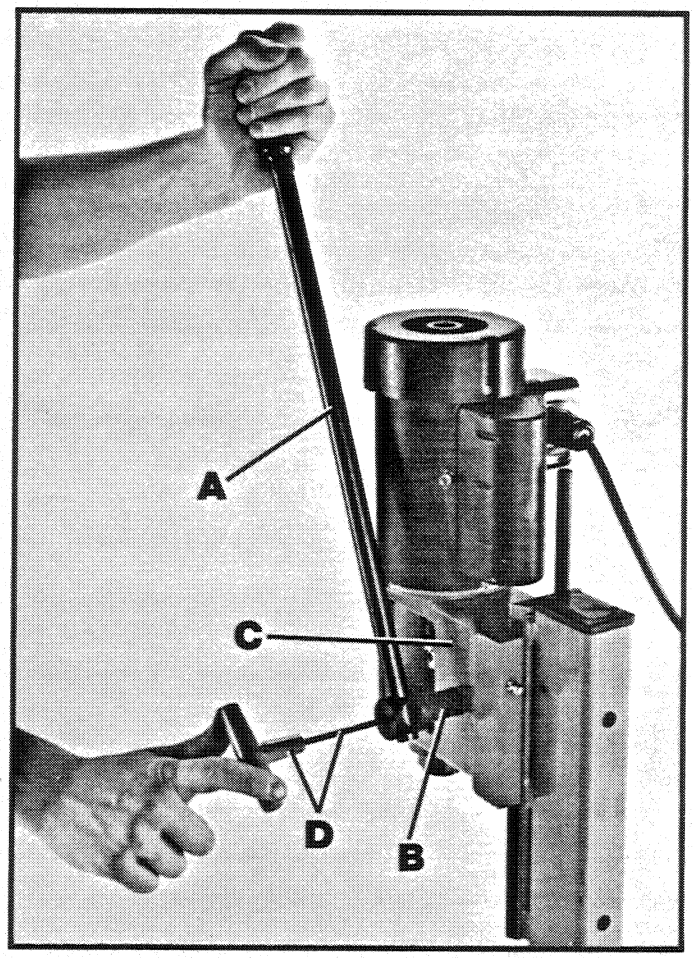


Fig. 3

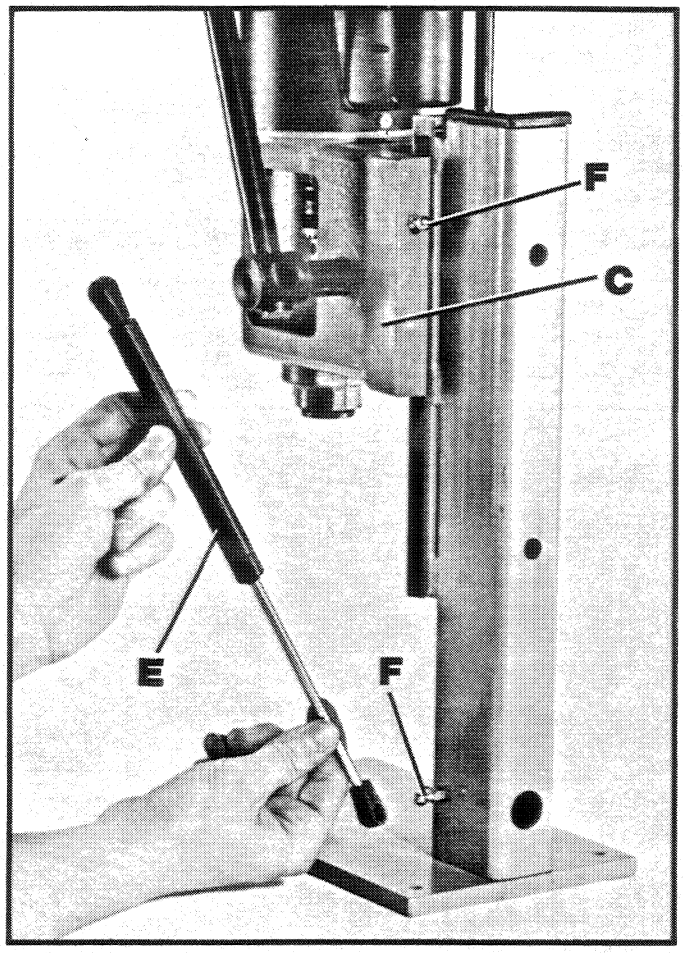


Fig. 4

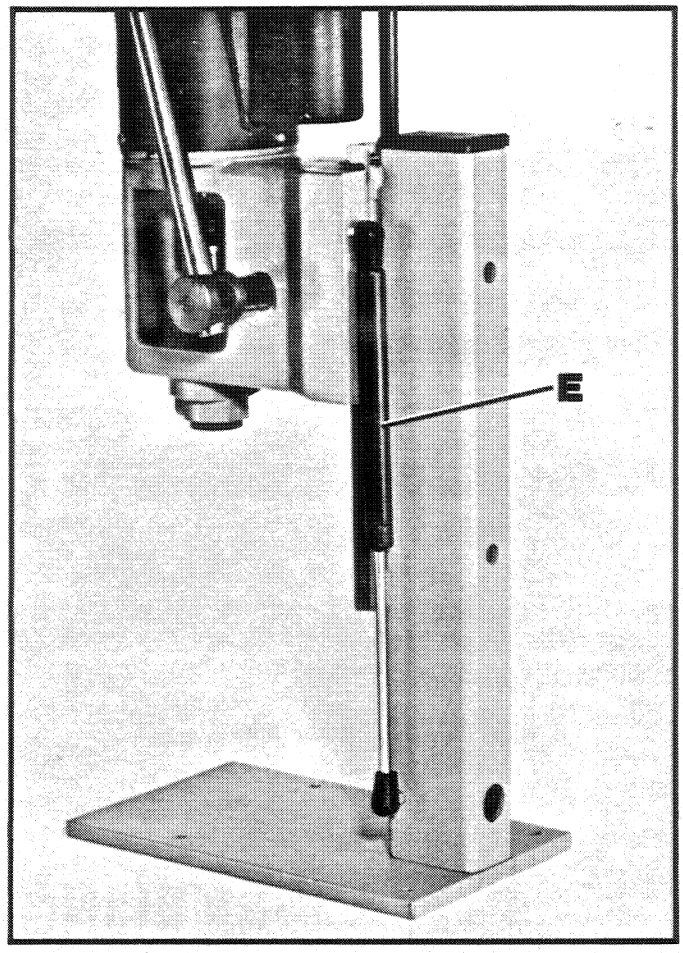


Fig. 5

3. Make sure the head (C) Fig. 4, is held in the up position and assemble the hydraulic cylinder (E) to the two fittings (F), one located on the column and the other on the back of the head.

4. Fig. 5 illustrates the hydraulic cylinder (E) assembled to the mortiser. The hydraulic cylinder (E) keeps the head in the up position.

5. Assemble table (G) Fig. 6, to base using the two screws (H) as shown.

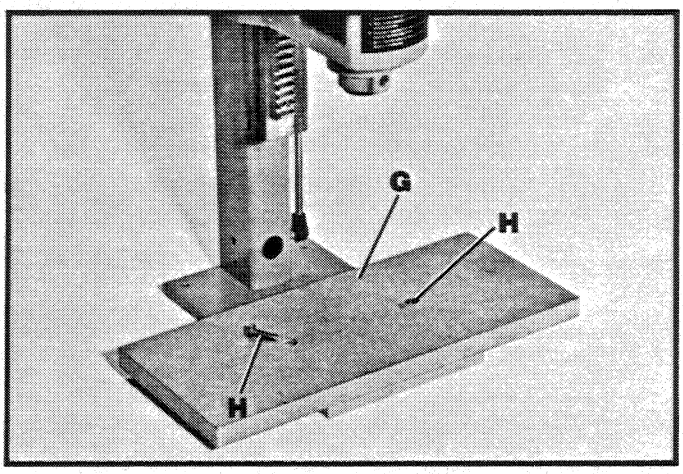


Fig. 6

6. Insert bar of fence assembly (J) Fig. 7, through hole in column, as shown.

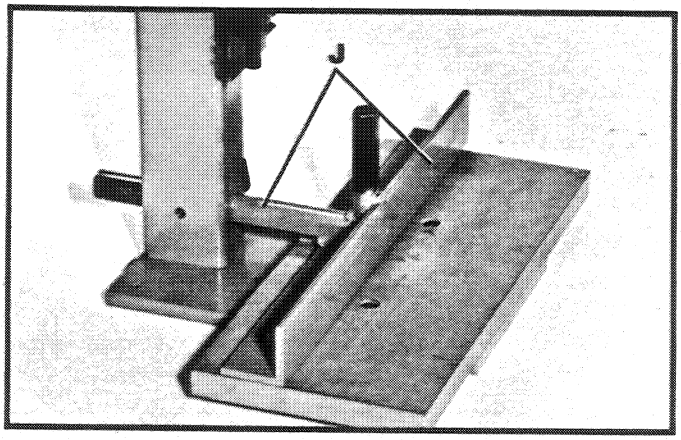


Fig. 7

7. Remove screw (K) Fig. 8, and spring (L) from handle (M) and remove handle (M) from stud (N). Do not lose spring (L).

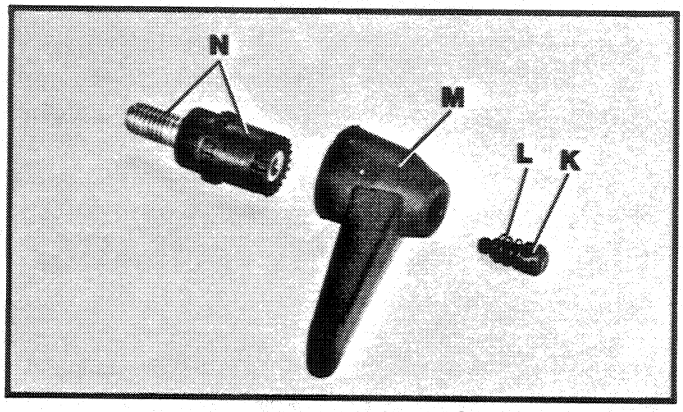


Fig. 8

8. Thread stud (N) Fig. 9, into hole on side of column and against flat (O) on fence bar.

9. Reassemble handle (M) Fig. 9, on stud (N) and replace screw (K) and spring (L).

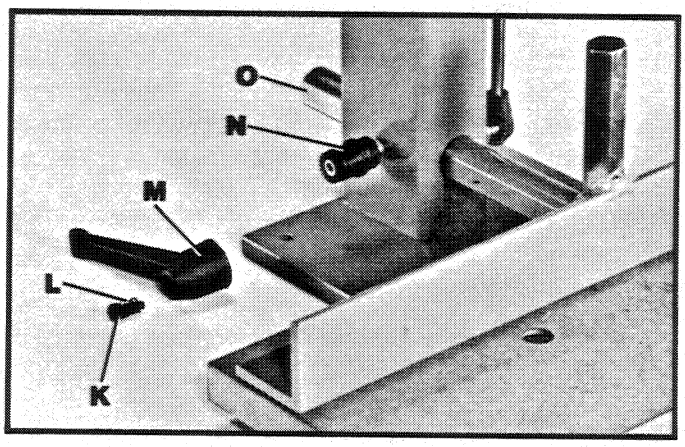


Fig. 9

10. Fig. 10 illustrates the handle (P) assembled. **NOTE:** Handle (P) is spring loaded and can be repositioned on the serrated nut located underneath the handle by pulling out on the handle and repositioning it on the serrated nut.

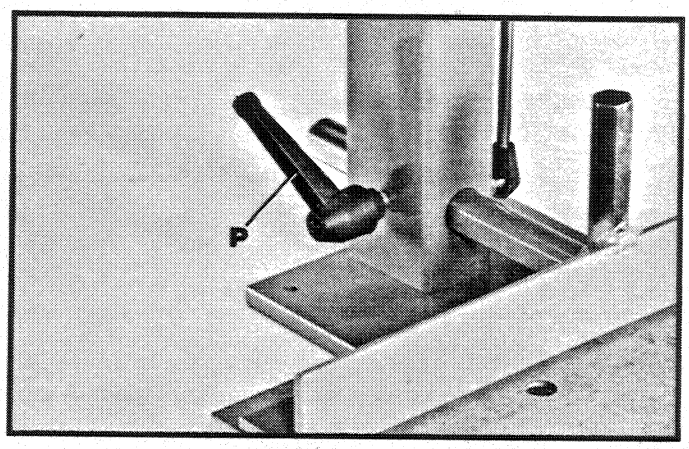


Fig. 10

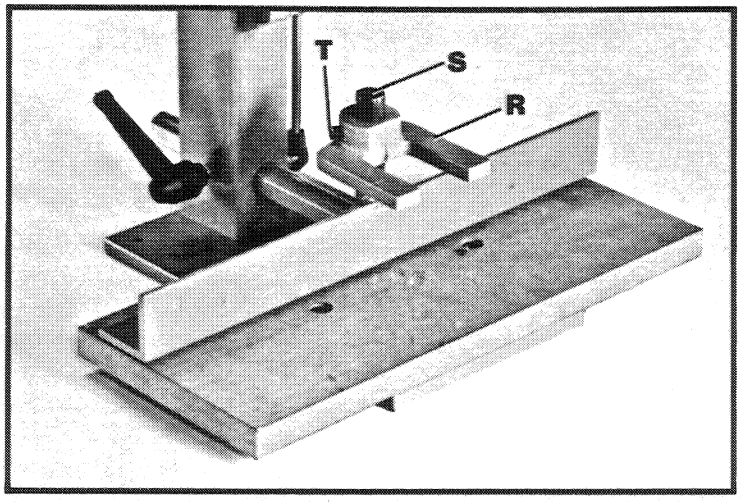


Fig. 11

11. Assemble the holddown (R) Fig. 11, on the vertical post (S) of the fence assembly and tighten set screw (T).

ASSEMBLING CHISEL AND BIT

1. **WARNING: WHEN ASSEMBLING CHISEL AND BIT, MAKE CERTAIN THE MACHINE IS DISCONNECTED FROM THE POWER SOURCE.**

2. Insert bit (A) Fig. 12, into chisel (B) and insert chisel and bit up through hole in head assembly. **NOTE:** The opening (C) in the side of the chisel should always be to the right or left, never to the front or rear. The opening (C) allows chips to escape during operation.

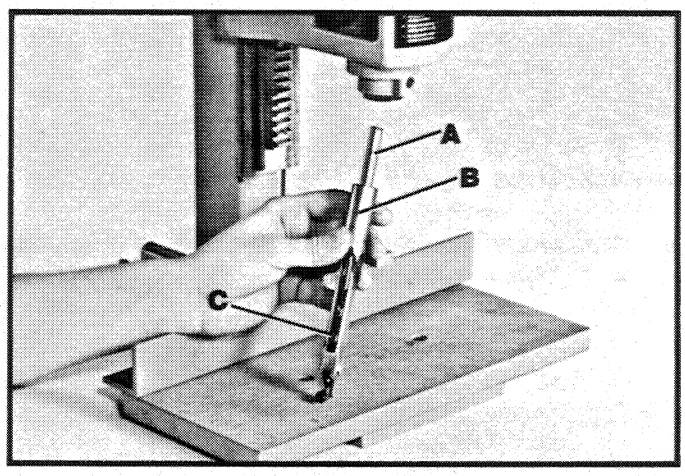


Fig. 12

3. Push chisel (B) Fig. 13, up as far as possible into the head and lower chisel approximately $^{1}/_{16}$". Tighten screw (D) with wrench (E) to hold chisel in position.

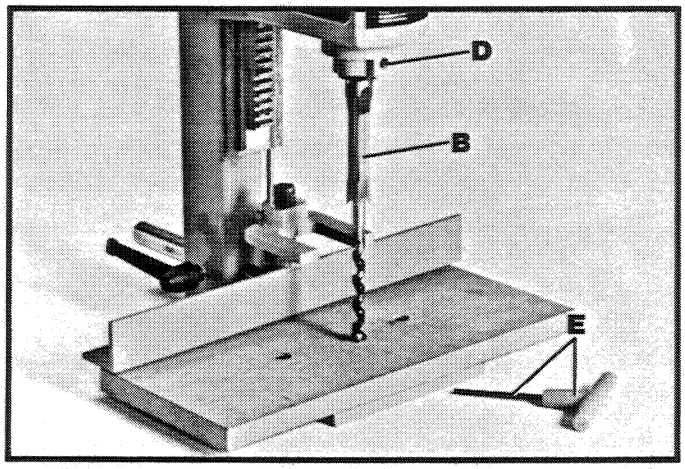


Fig. 13

4. Push bit (A) Fig. 14, up through chisel as far as it will go and lock bit in chuck using chuck key supplied.

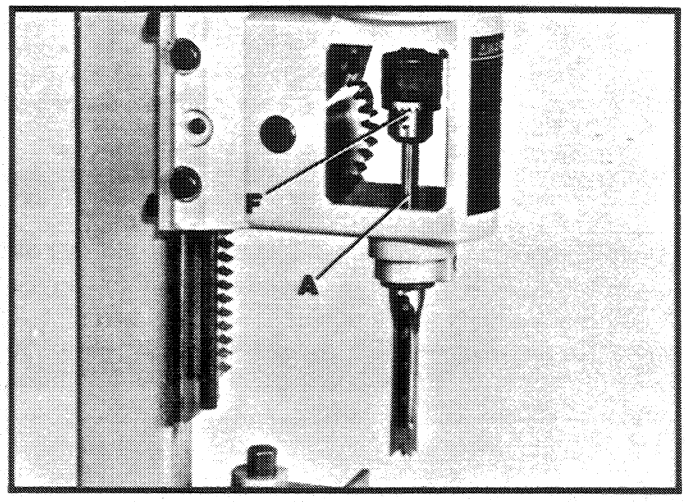


Fig. 14

5. Loosen set screw (D) Fig. 15, and push chisel (B) up into the head and tighten screw (D). **NOTE:** Chisel (B) was lowered approximately $^1/_{16}$" in **STEP 3**. The flat portion of the bit should be adjusted to a minimum of $^1/_{16}$" away from the bottom of the chisel, as shown in Fig. 15. For certain types of wood it may be necessary to increase this distance up to a maximum of $^3/_{16}$" clearance. This method assures having proper clearance between the cutting lips of the bit and the points of the chisel.

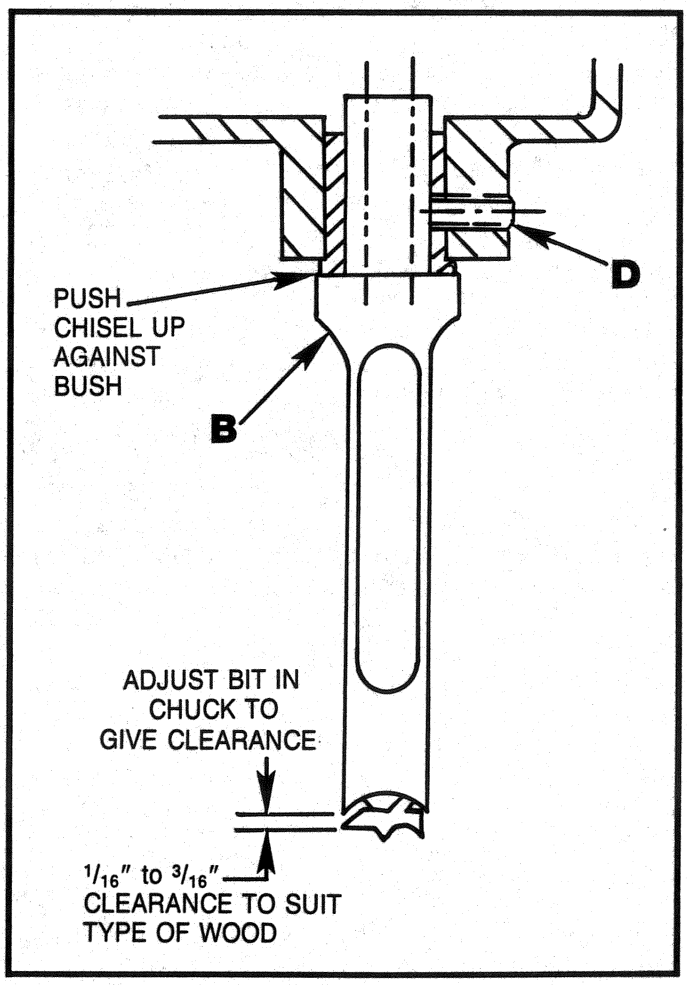


Fig. 15

CONNECTING MORTISER TO POWER SOURCE

POWER CONNECTIONS

A separate electrical circuit should be used for your tools. This circuit should not be less than #12 wire and should be protected with a 20 Amp time lag fuse. If an extension cord is used, use only 3-wire extension cords which have 3-prong grounding type plugs and 3-pole receptacles which accept the tools plug. For distances up to 1000 feet use #12 wire. For distances up to 150 feet use #10 wire. Have a certified electrician replace or repair damaged or worn cord immediately. Before connecting the motor to the power line, make sure the switch is in the "OFF" position and be sure that the electric current is of the same characteristics as stamped on motor nameplate. All line connections should make good contact. Running low voltage will injure the motor.

GROUNDING INSTRUCTIONS

CAUTION: THIS TOOL MUST BE GROUNDED WHILE IN USE TO PROTECT THE OPERATOR FROM ELECTRIC SHOCK.

In the event 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 connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. 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 type plugs and 3-hole receptacles that accept the tool's plug, as shown in Fig. 16.

Repair or replace damaged or worn cord immediately.

This tool is intended for use on a circuit that has an outlet and a plug that looks like the one shown in Fig. 16. A temporary adapter, which looks like the adapter illustrated in Fig. 17, may be used to connect this plug to a 2-pole receptacle, as shown in Fig. 17, 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. **THIS ADAPTER IS NOT APPLICABLE IN CANADA.** 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, as shown in Fig. 17.

CAUTION: IN ALL CASES, MAKE CERTAIN THE RECEPTACLE IN QUESTION IS PROPERLY GROUNDED. IF YOU ARE NOT SURE HAVE A CERTIFIED ELECTRICIAN CHECK THE RECEPTACLE.

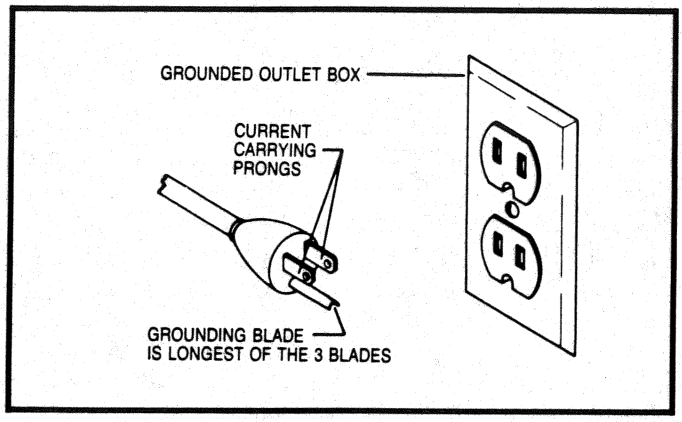


Fig. 16

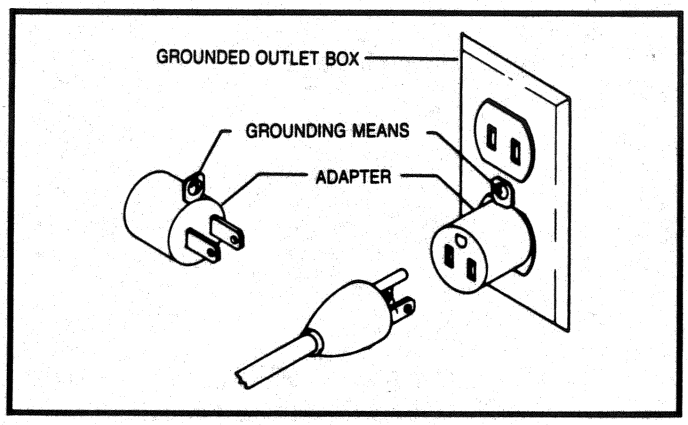


Fig. 17

FASTENING MORTISER TO SUPPORTING SURFACE

This machine must be fastened to a supporting surface to prevent it from tipping during operation. Two holes (A) Fig. 18, are supplied in the rear of the base plate for this purpose.

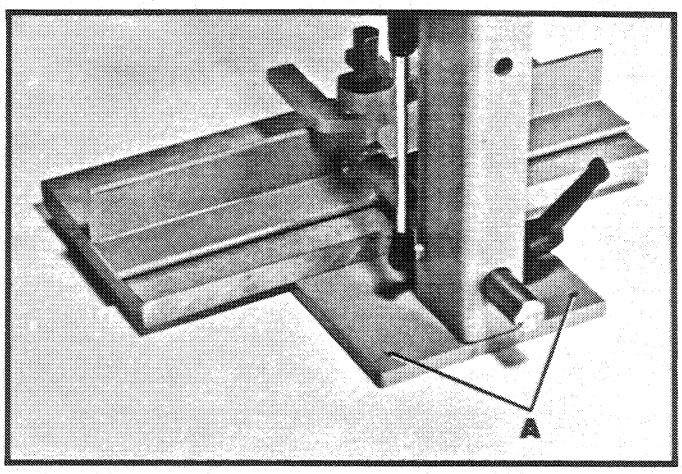


Fig. 18

OPERATING CONTROLS AND ADJUSTMENTS

SWITCH

The switch (A) Fig. 19, is located on the side of the motor. To turn the mortiser "ON" move the switch to the up position. To turn the mortiser "OFF" move the switch to the down position.

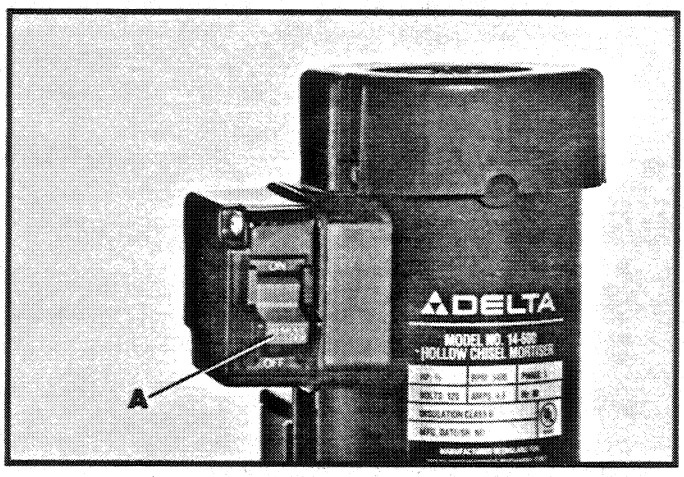


Fig. 19

LOCKING SWITCH IN THE "OFF" POSITION

We suggest that when the mortiser is not in use, the switch be locked in the "OFF" position. This can be done by grasping the switch toggle (B) and pulling it out of the switch, as shown in Fig. 20. With the switch toggle (B) removed, the switch will not operate. However, should the switch toggle be removed while the mortiser is operating, the switch can be turned "OFF" once, but cannot be restarted without inserting the switch toggle (B).

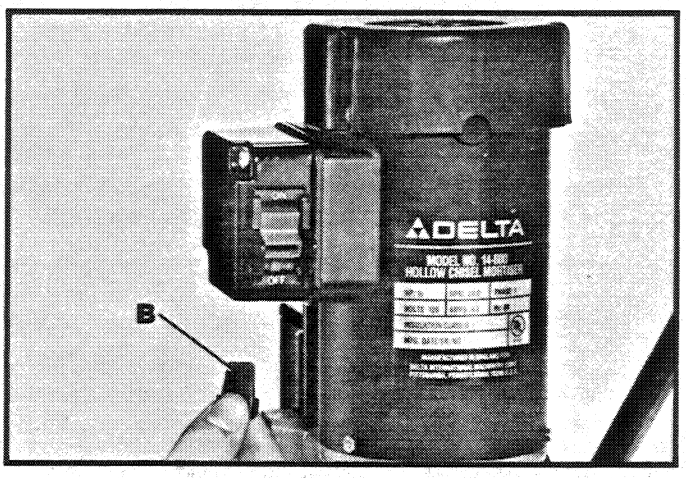


Fig. 20

RAISING AND LOWERING THE HEAD

The head (A) Fig. 21, is raised and lowered by means of the lever (B). Two sets of through holes are provided in the pinion shaft (C) enabling you to position lever (B) for maximum leverage during operation.

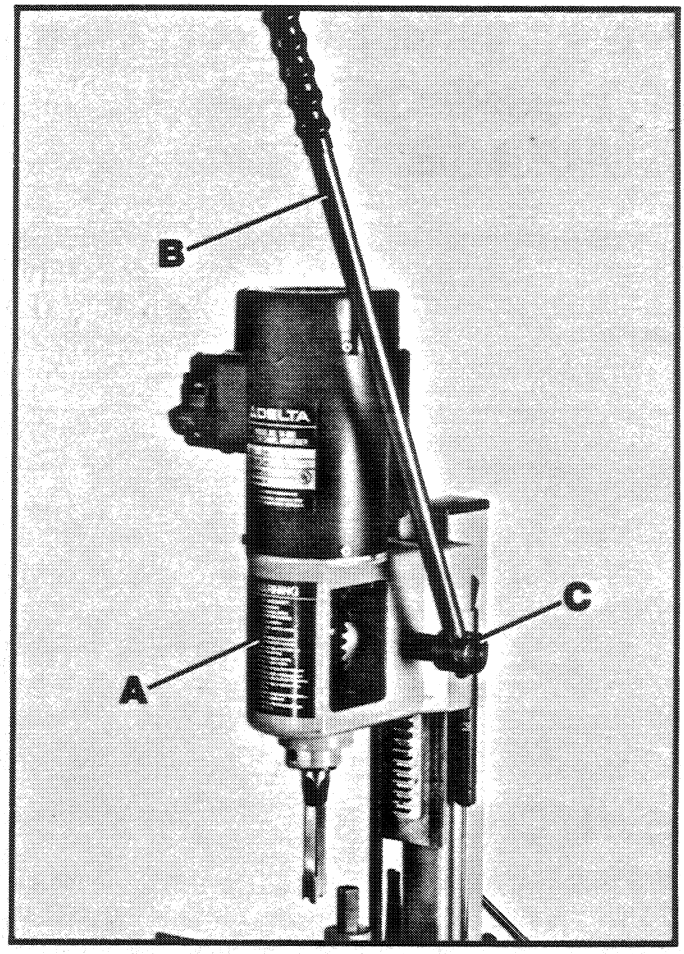


Fig. 21

ADJUSTING DEPTH STOP ROD

A depth stop rod (A) Fig. 22, is provided to limit the depth of the chisel (B). To adjust the depth stop rod (A), loosen screw (C) and lower head until the bottom of the chisel (B) is at the desired depth. Lower depth stop rod (A) until it contacts base plate (D) and tighten screw (C).

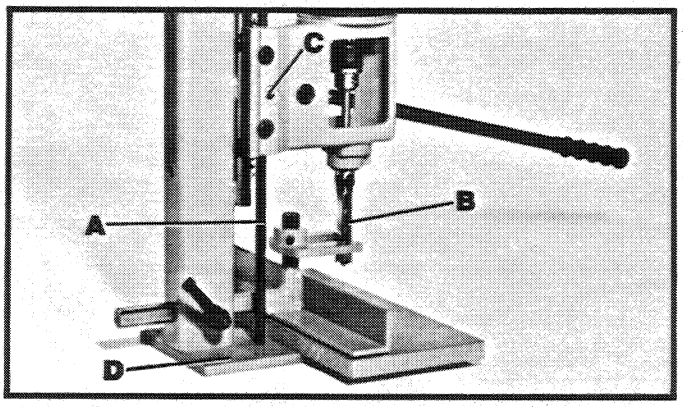


Fig. 22

ADJUSTING FENCE

The fence (A) Fig. 23, can be moved in or out by loosening lever (B), sliding fence to the desired position and tightening lever (B). **NOTE:** Lever (B) is springloaded and can be repositioned by pulling out on the lever and repositioning it on the serrated nut located underneath the lever.

ADJUSTING HOLDDOWN

The purpose of the holddown (C) Fig. 23, is to prevent the workpiece (E) from lifting as the chisel (D) is raised up, out of the hole. The holddown (C) should be adjusted so it just touches the top of the workpiece (E) and allows the workpiece to slide left or right. The holddown (C) can be turned upside down to accommodate thicker workpieces. To adjust the holddown (C), loosen screw (F), position holddown, and tighten screw (F).

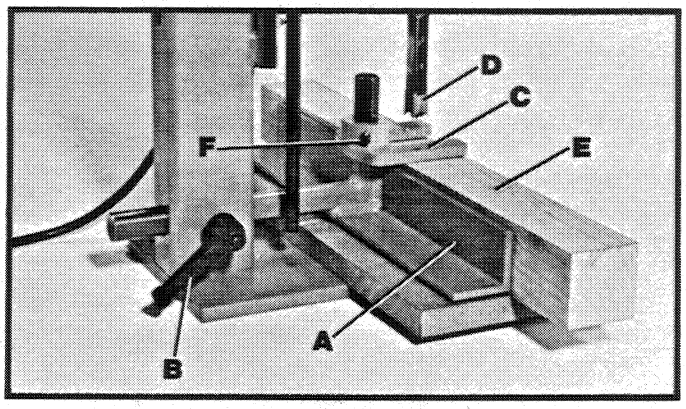


Fig. 23

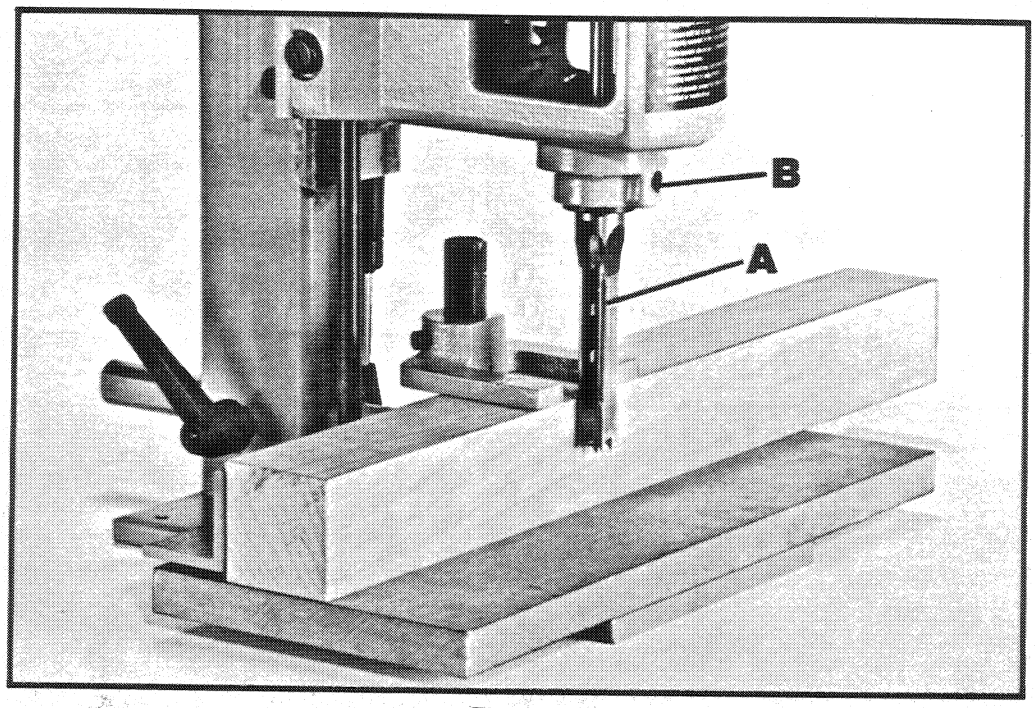


Fig. 24

ADJUSTING CHISEL PARALLEL TO WORKPIECE

The chisel (A) Fig. 24, can be adjusted parallel to the workpiece by loosening screw (B) and rotating chisel until the back surface of the chisel is touching workpiece. Then tighten screw (B).

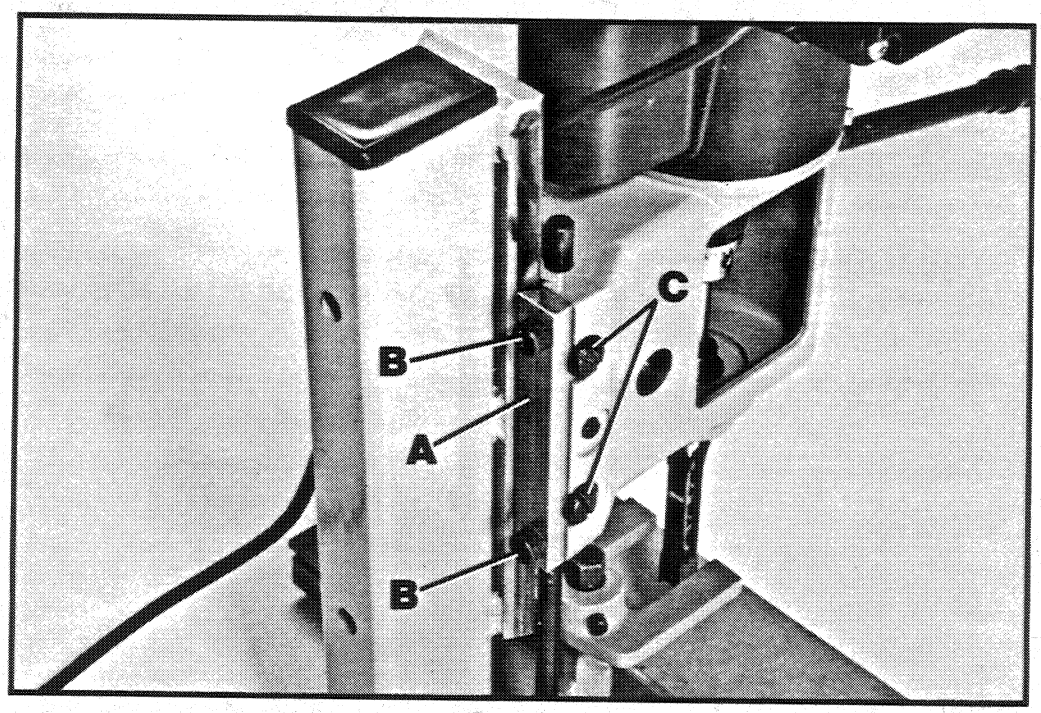


Fig. 25

ADJUSTING SLIDING FIT BETWEEN HEAD AND COLUMN

A dovetail gib (A) Fig. 25, is provided on the rear of the head to insure a good sliding fit between the head and the column when the head is raised and lowered. Adjustment is made by loosening the two screws (B) and turning adjusting screws (C). Then tighten two screws (B). **NOTE:** Correct adjustment is when a good snug sliding fit is obtained without any side movement between the gib and the column. This adjustment should not be too tight that it restricts the sliding movement or too loose that it affects accuracy.

OPERATION

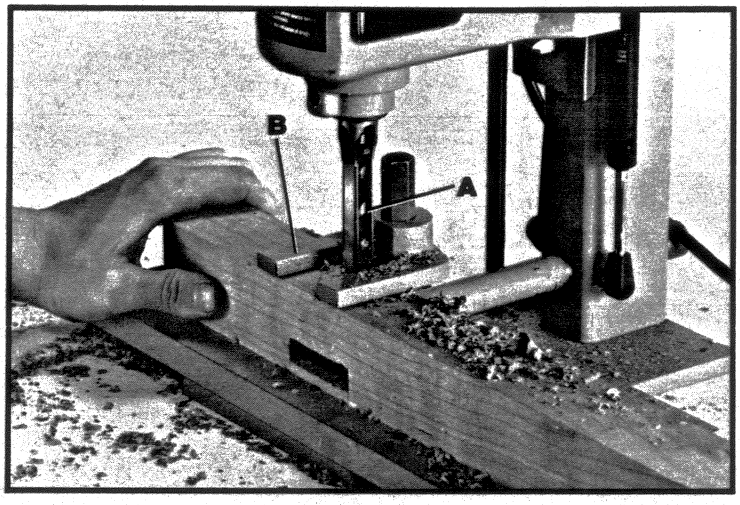


Fig. 26

1. Make sure that chisels and bits are sharp.

2. Fig. 26 illustrates a typical mortising operation. Note that the opening (A) in the chisel is to the right. This means that after the first incision is cut, the workpiece should be moved to the left for subsequent cuts. This allows chips to escape freely through the opening in the chisel.

3. Make sure the workpiece is held firmly against the fence when cutting and that the holddown (B) Fig. 26, is properly adjusted. The rate of penetration of the chisel must be fast enough to prevent burning at the tip of the bit, but not too fast as to stall the motor. You may encounter smoke from the bit or material once the chisel has engaged the material. The smoke created is a natural operating occurrence in hollow chisel mortising and is caused by material chip friction and the resins in the stock being burned off. Bluing of the chisel after initial use is not indicative of a dull chisel, but a combination of friction and resin buildup on the cutting faces of the chisel. A dull chisel can be detected by the amount of excess force required to complete a cut.

4. When performing a through mortise, a thin piece of wood should be placed between the workpiece and the table. This prevents "chip-out" at the bottom of the mortise and also prevents damage to the table.

5. Fig. 27 illustrates the mortising operation completed.

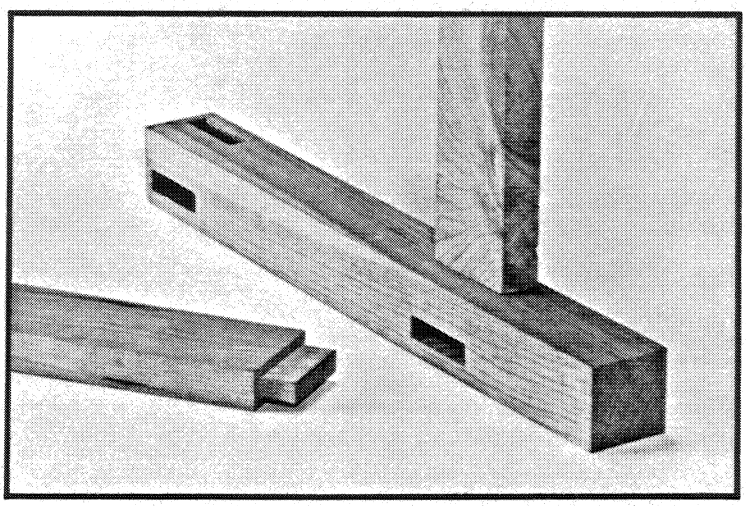
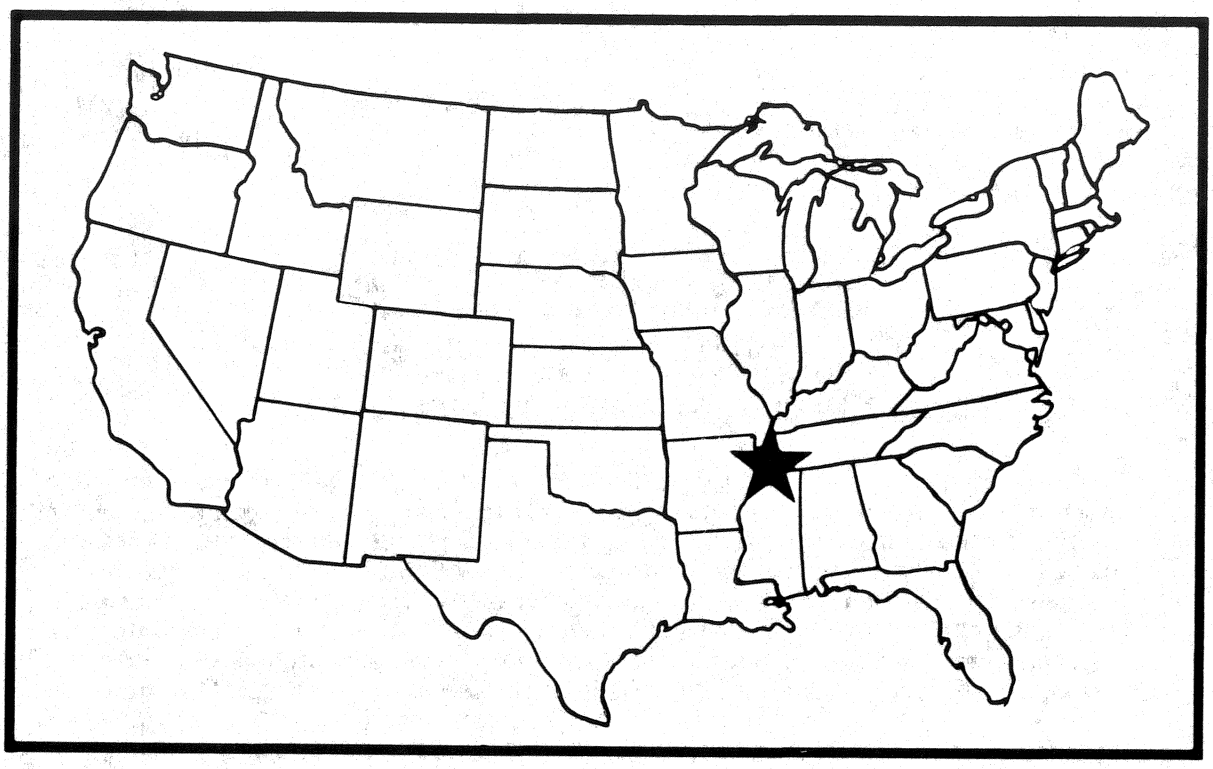


Fig. 27

DELTA

PARTS, SERVICE OR WARRANTY ASSISTANCE

All Delta Machines and accessories are manufactured to high quality standards and are serviced by a network of factory service centers and authorized service stations listed in your owner's manual. To obtain additional information regarding your Delta quality product or to obtain parts, service or warranty assistance, please call or fax Delta's toll-free 'hotline' number.



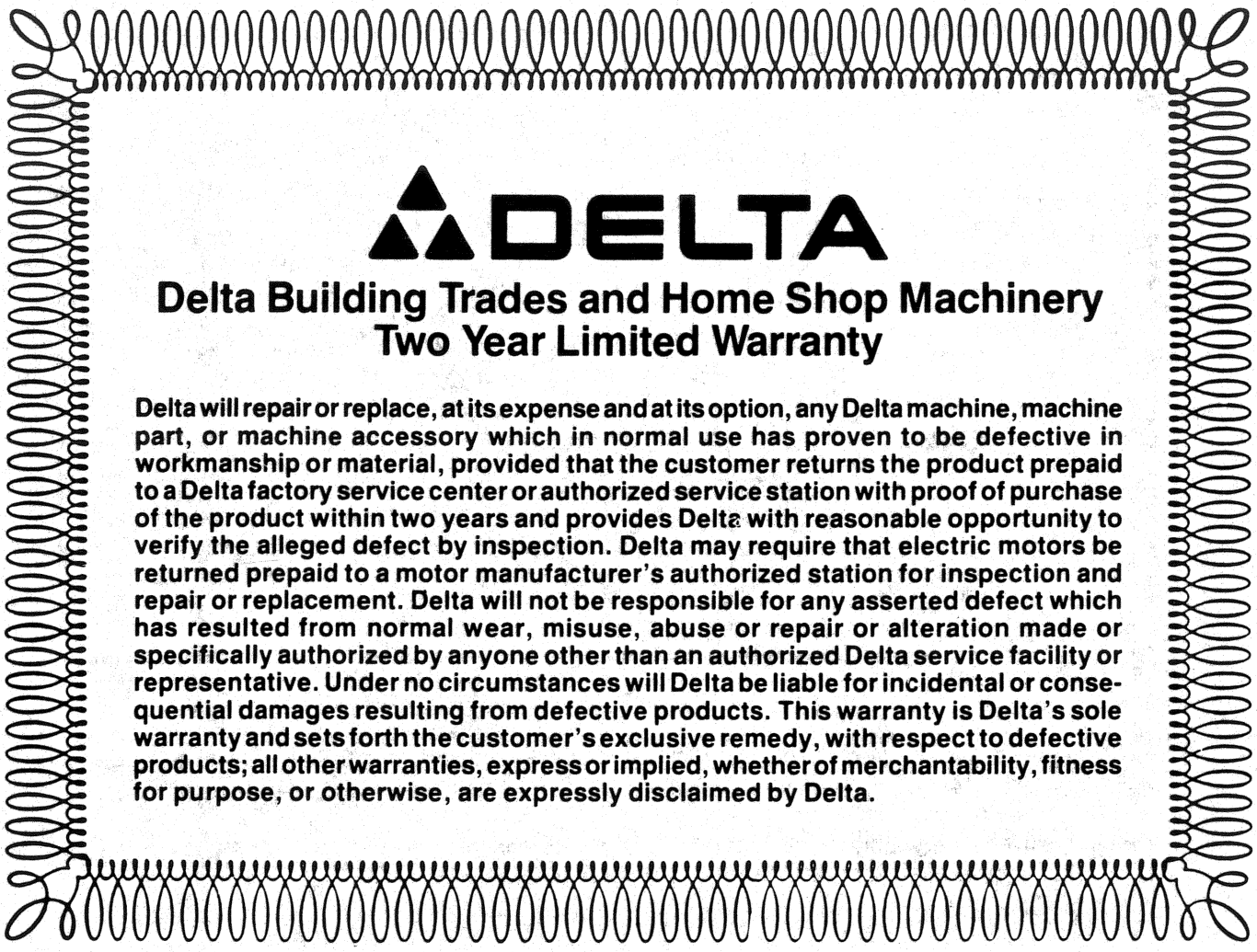
Delta maintains a modern, efficient Parts Distribution Center, maintaining an inventory of over 15,000 parts located in Memphis, Tennessee.

Highly qualified and experienced Customer Service Representatives are standing by to assist you on weekdays from 8:00 A.M. to 5:00 P.M. Memphis time.

MEMPHIS, TN 38118
4290 Raines Road
Phone: (901) 363-8800

HOTLINE

800-223-PART
FAX: 800-535-6488



DELTA

Delta Building Trades and Home Shop Machinery
Two Year Limited Warranty

Delta will repair or replace, at its expense and at its option, any Delta machine, machine part, or machine accessory which in normal use has proven to be defective in workmanship or material, provided that the customer returns the product prepaid to a Delta factory service center or authorized service station with proof of purchase of the product within two years and provides Delta with reasonable opportunity to verify the alleged defect by inspection. Delta may require that electric motors be returned prepaid to a motor manufacturer's authorized station for inspection and repair or replacement. Delta will not be responsible for any asserted defect which has resulted from normal wear, misuse, abuse or repair or alteration made or specifically authorized by anyone other than an authorized Delta service facility or representative. Under no circumstances will Delta be liable for incidental or consequential damages resulting from defective products. This warranty is Delta's sole warranty and sets forth the customer's exclusive remedy, with respect to defective products; all other warranties, express or implied, whether of merchantability, fitness for purpose, or otherwise, are expressly disclaimed by Delta.