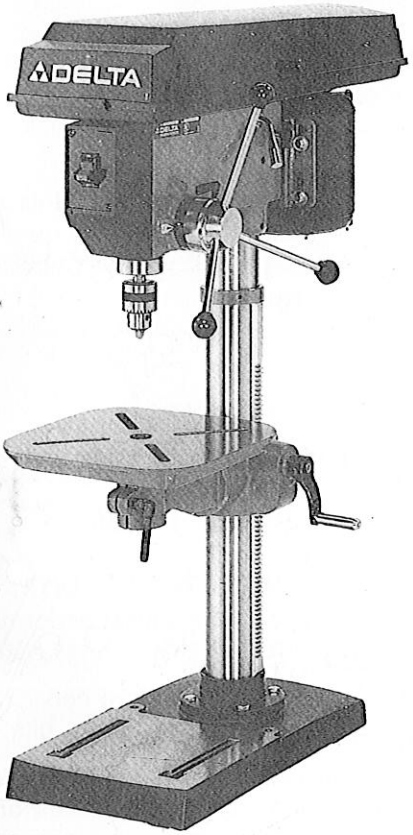
INSTRUCTION MANUAL

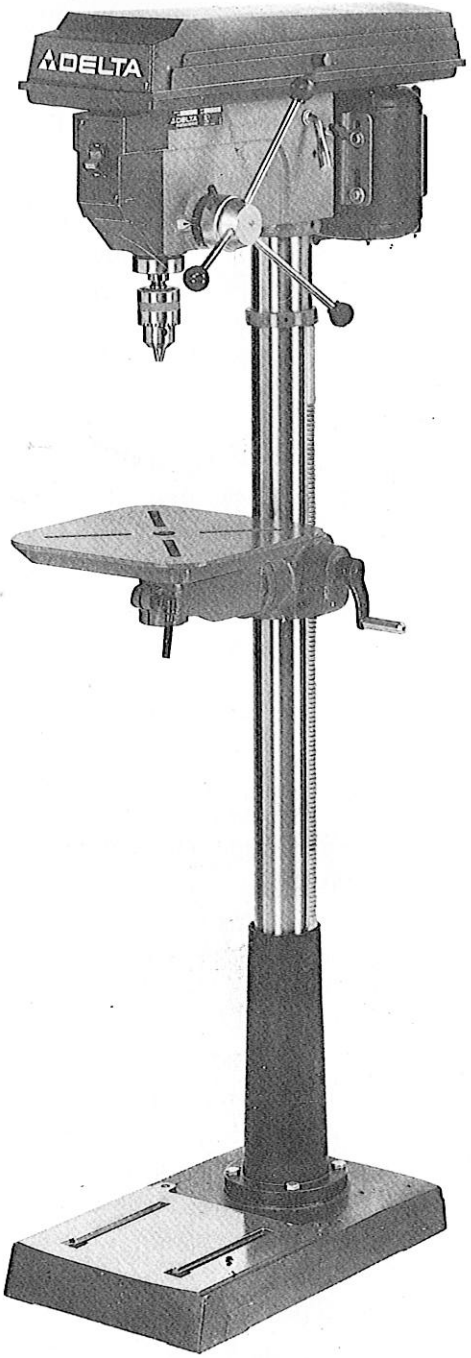


14" Bench Drill Press

The Serial No. and Model No. plate is attached to the right side of the drill press head. Locate this plate and record the Serial No. and Model No. in your manual for future reference.

SERIAL NO. R 9150

MODEL NO. 14-040



16 1/2" Floor Drill Press

Part No. 1312040
Dated 2-1-90

DELTA

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

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 WEAR EYE PROTECTION. Refer to ANSI Z87.1 Standard for appropriate recommendations. 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. Consult the owner's manual for 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 DRILL PRESSES

1. **BE SURE** drill bit or cutting tool is securely locked in the chuck.

2. **BE SURE** chuck key is removed from the chuck before turning on power.

3. **ADJUST** the table or depth stop to avoid drilling into the table.

4. **SHUT OFF** the power, remove the drill bit or cutting tool, and clean the table before leaving the machine.

5. **CAUTION:** When pratical, use clamps or a vise to secure workpiece to keep the workpiece from rotating with the drill bit or cutting tool.

6. WARNING: For Your Own Safety — Don't wear gloves when operating a drill press.

UNPACKING AND CLEANING

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

ASSEMBLING THE DRILL PRESS

14' BENCH DRILL PRESS ONLY

1. Assemble column (A) to the base (B) using the four screws (C) as shown in Fig. 2. Loosen set screw (D) and remove ring (E) and raising rack (F).

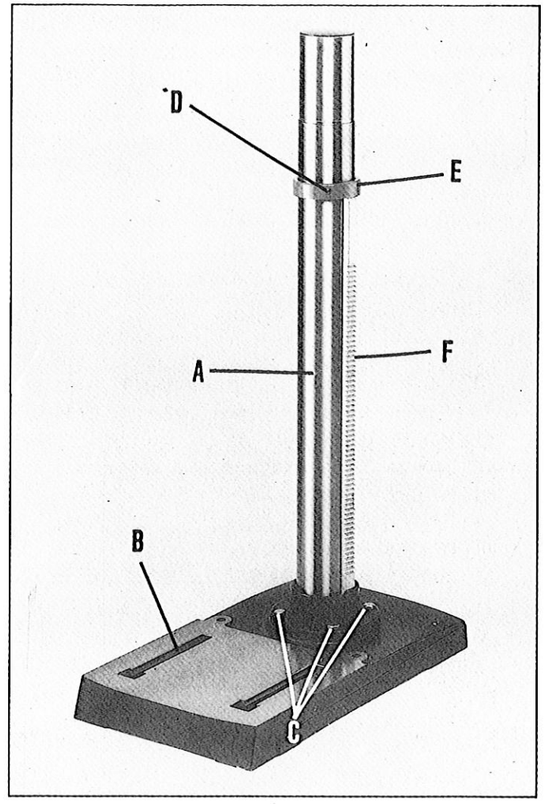


Fig 2

2. Assemble worm gear (G) to hole (H) in table bracket, as shown in Fig. 3.

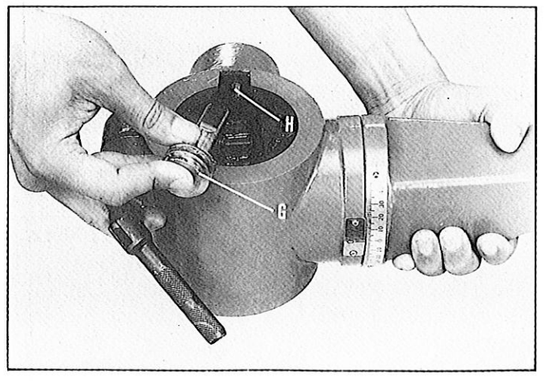


Fig 3

3. Place rack (F) in position in table bracket, as shown in Fig. 4 and slide rack and table bracket onto column (A).

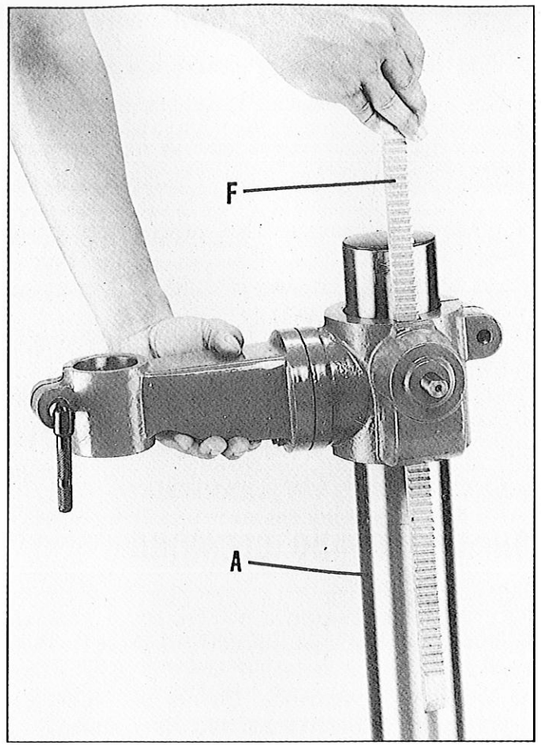


Fig 4

4. Position table bracket all the way down on the column. Reassemble ring (E) and tighten set screw (D), Fig. 5.

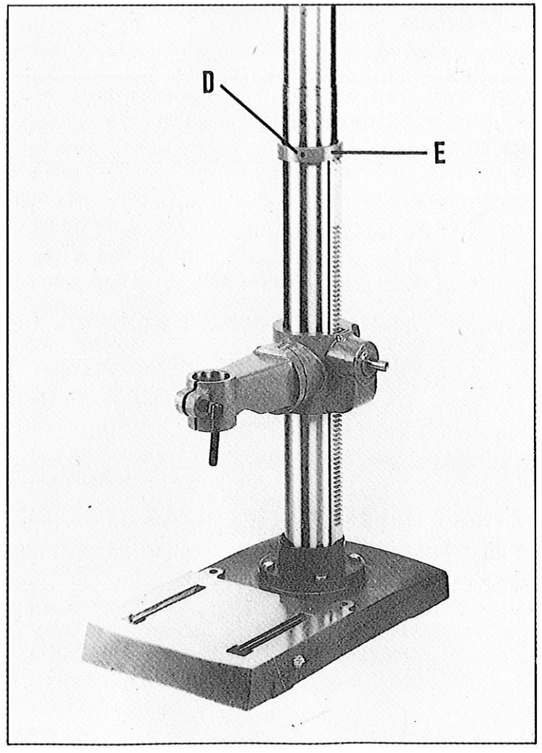


Fig 5

16½" DRILL PRESS ONLY

5. Assemble column (A) to the base (B) using the four screws (C), as shown in Fig. 6. Note: Table bracket (D) is shipped assembled to the column, as shown.

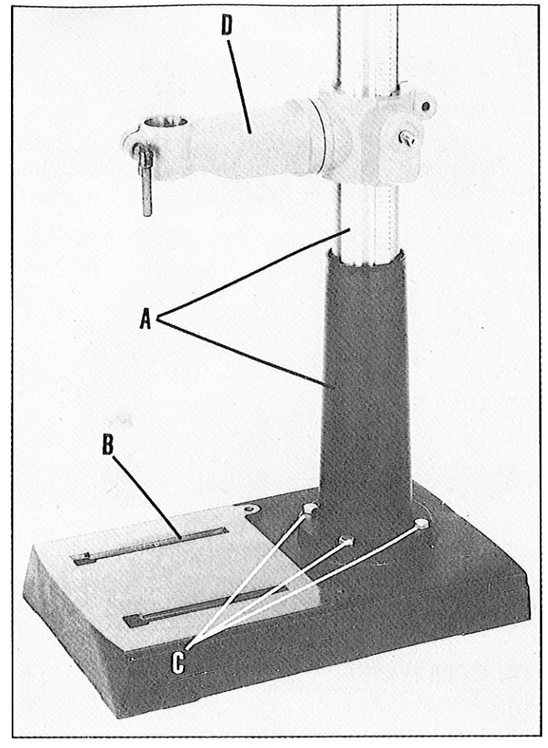


Fig 6

14" AND 16½" DRILL PRESSES

6. Assemble table (G) to table bracket, as shown in Fig. 7, and lock in place using the table rotating lock screw (H).

7. Assemble table raising handle (J), and table bracket lock screw (K), as shown in Fig. 7.

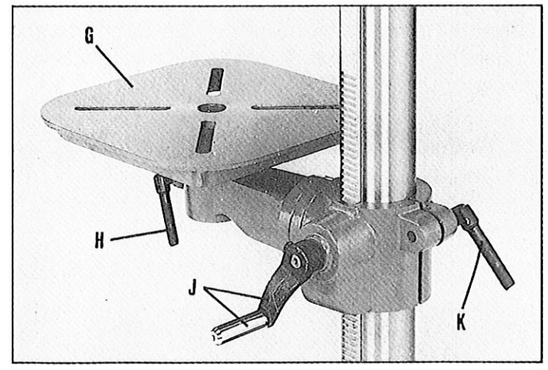


Fig 7

8. Place the drill press head (L) onto the column as far as it will go. Align the head and table to the drill press base and tighten the two head locking screws (M), as shown in Fig. 8.

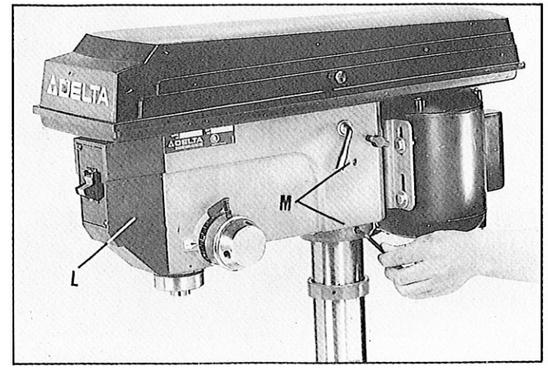


Fig 8

9. Thread the three pinion shaft handles (N) into the three holes located in the pinion shaft, as shown in Fig. 9.

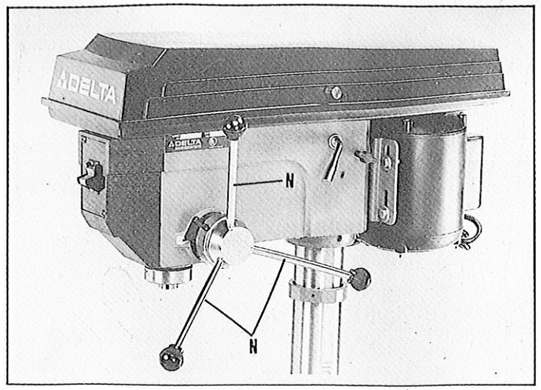


Fig 9

14" BENCH DRILL PRESS ONLY

10. IMPORTANT: Make certain the bottom of spindle (O) Fig. 10 and the tapered hole in chuck (P) are clean and free of any grease, lacquer or rust preventive coatings. NOTE: Household over cleaner can effectively remove any substance from the spindle and chuck, however, carefully follow the manufacturer's safety rules concerning its use.

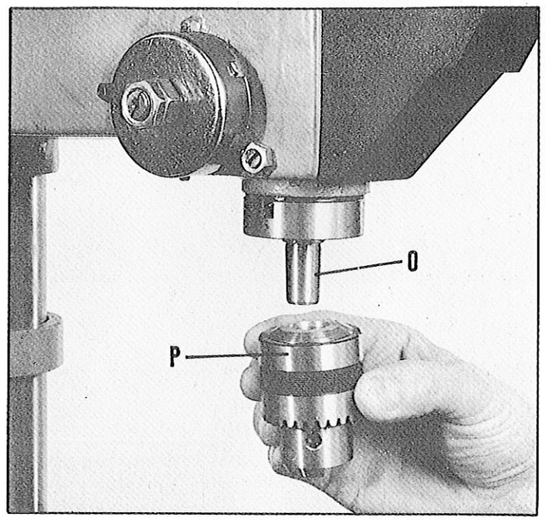


Fig 10

11. Open the chuck jaws as wide as possible by turning chuck sleeve (R) Fig. 11.

12. Holding chuck (P) Fig. 11, carefully drive the chuck onto the spindle (O) with a block of wood and conventional hammer, or a mallet as shown. This will seat the chuck (P) properly on the spindle (O). IMPORTANT: To avoid damage to the chuck, do not drive the chuck directly onto the spindle with a metal hammer.

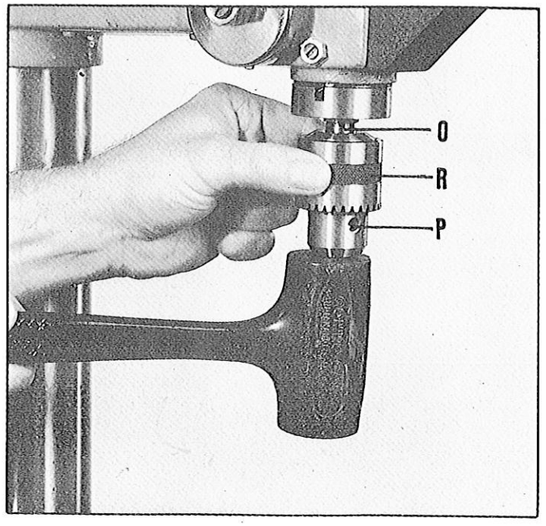


Fig 11

16½" DRILL PRESS ONLY

13. IMPORTANT: Make certain the tapered hole in the bottom of spindle (T) Fig. 12, and the taper on spindle adapter (U) are clean and free of any grease, lacquer or rust preventive coatings. NOTE: Household oven cleaner can effectively remove any substance from the spindle and spindle adapter, however, carefully follow the manufacturer's safety rules concerning its use.

14. Push spindle adapter (U) Fig. 12, up into spindle (T) making certain the tang (V) engages and locks with the mating slot inside spindle (T).

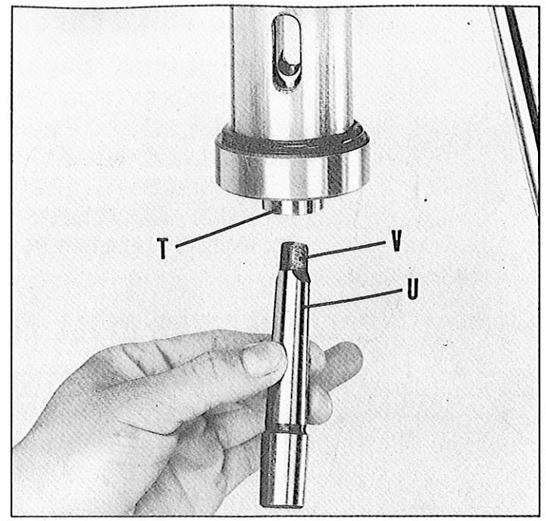


Fig 12

15. Make certain the bottom of spindle adapter (U) Fig. 13, and tapered hole in chuck (W) are cleaned as noted in Step 13, and push chuck (W) up onto the spindle adapter (U) as far as it will go.

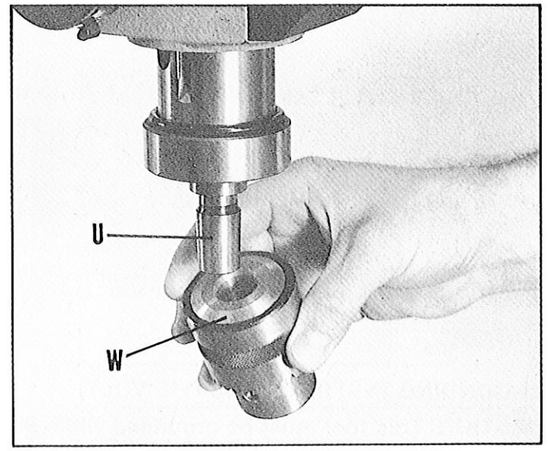


Fig 13

16. Open the chuck jaws as wide as possible by turning chuck sleeve (X) Fig. 14.

17. Holding the chuck (W) Fig. 14. carefully drive the chuck onto spindle adapter with a block of wood and conventional hammer, or a mallet as shown. This will seat the chuck (W) properly on the spindle. IMPORTANT: To avoid damage to the chuck, do not drive the chuck directly onto the spindle adapter with a metal hammer.

14" AND 16½" DRILL PRESSES

18. Your drill press is shipped with the belt installed, however the belt must be properly tensioned before use by following the instructions under CHANGING SPINDLE SPEEDS AND ADJUSTING BELT TENSION later on in this manual.

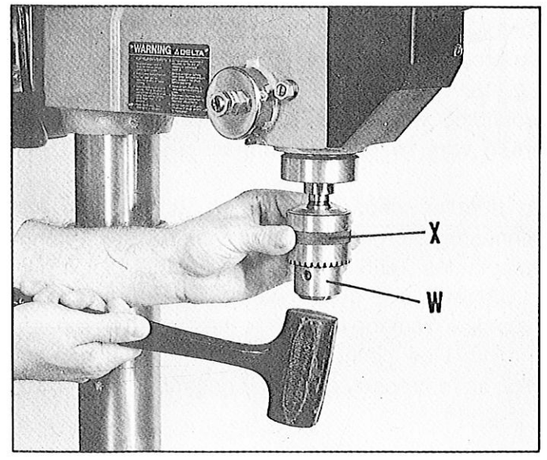


Fig 14

FASTENING DRILL PRESS BASE TO BENCH OR FLOOR

IF DURING OPERATION THERE IS ANY TENDENCY FOR THE DRILL PRESS TO TIP OVER, SLIDE OR WALK ON THE SUPPORTING SURFACE, THE DRILL PRESS BASE MUST BE SECURED TO THE SUPPORTING SURFACE WITH FASTENERS THROUGH THE TWO HOLES LOCATED IN THE DRILL PRESS BASE.

CONNECTING DRILL PRESS TO POWER SOURCE

POWER CONNECTIONS

A separate electrical circuit should be used for your tools. The 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 100 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 on low voltage will damage the motor.

GROUNDING INSTRUCTIONS (115 VOLT)

CAUTION: This tool must be grounded while in use to protect the operator from electric shock. The motor is shipped wired for 115 Volt, Single Phase and is equipped with an approved 3-conductor cord and 3-prong grounding type plug to fit the proper grounding type receptacle, as shown in Fig. 15. The green conductor in the cord is the grounding wire. **CAUTION: Never connect the green wire to a live terminal.**

An adapter, shown in Fig. 16, is available for connecting 3-prong grounding type plugs to 2-prong receptacles. THIS ADAPTER IS NOT APPLICABLE IN CANADA. The green-colored rigid ear, lug, etc., extending from the adapter is the grounding means and must be connected to a permanent ground such as to properly grounded outlet box, as shown in Fig. 16.

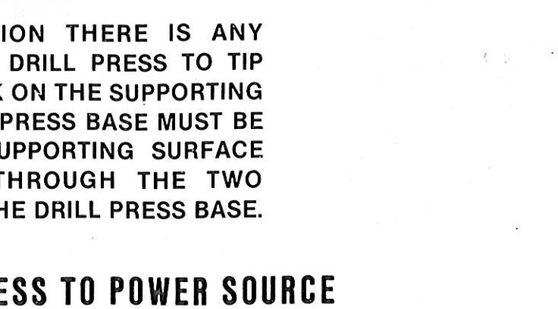


Fig 15

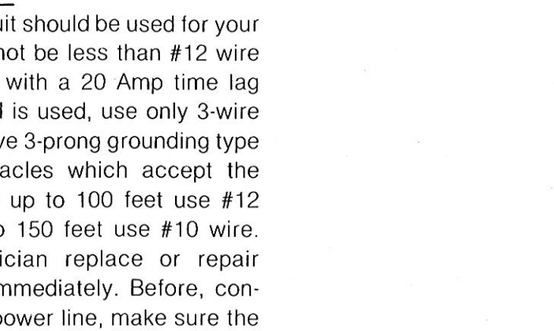


Fig 16

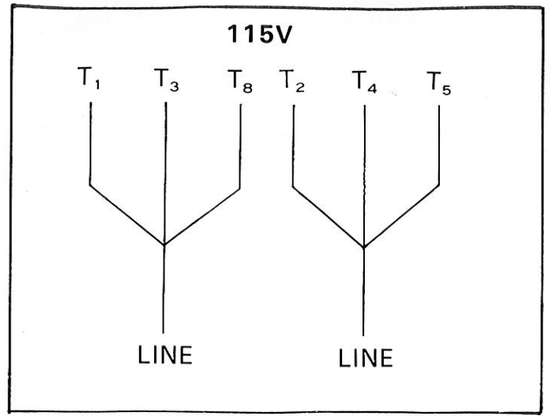


Fig 17

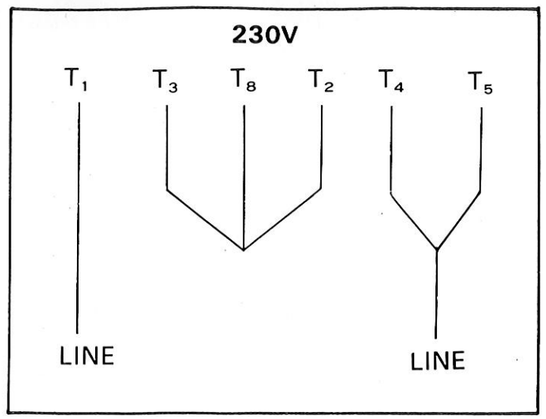


Fig 18

GROUNDING INSTRUCTIONS (230 VOLT)

If it is desired to operate this tool at 230 Volt, single phase operation, the following instructions must be followed:

1. Disconnect the machine from the power source.

2. This drill press is supplied with six motor leads that are connected for 115 Volts, as shown in Fig. 17. Reconnect these six motor leads for 230 Volt operation, as shown in Fig. 18.

3. The 115 Volt, single pole, on/off switch (A) Fig. 18A, must be replaced with a 230 Volt, double pole, on/off switch (B), available from Delta as part no. 438-01-017-0141. The two leads (C) that are connected to the single pole switch (A) must be connected to the two terminals (D) on the double pole switch (B). Remove wire nut (E) and fasten two 1/4" disconnect terminals (available from an electrical supply house) to the two wires (F). Connect the two wires (F) to the two terminals (G) on the double pole switch (B).

4. The 115 Volt power cord plug must be replaced with a 230 Volt power cord plug. The 230 Volt plug has two flat current-carrying prongs in tandem, and one round or "U" shaped longer ground prong, as shown in Fig. 19. This plug is used only with the proper mating 3-conductor grounding type receptacle, as shown in Fig. 19.

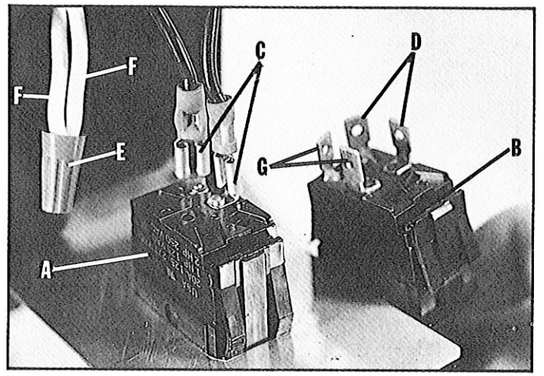


Fig 18 A

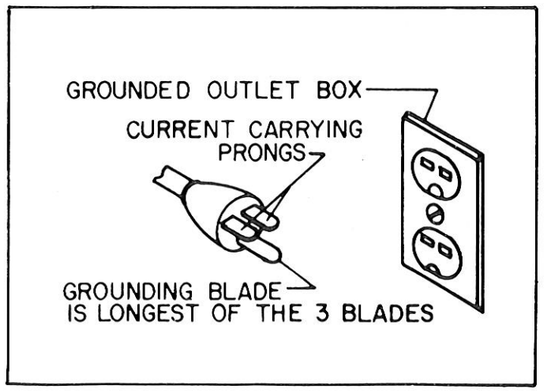


Fig 19

IMPORTANT: IN ALL CASES (115 OR 230 VOLTS) MAKE CERTAIN THE RECEPTACLE IN QUESTION IS PROPERLY GROUNDED. IF YOU ARE NOT SURE, HAVE A REGISTERED ELECTRICIAN CHECK THE RECEPTACLE.

SPINDLE SPEEDS

Five spindle speeds of 460, 870, 1155, 1670 and 2500 RPM are available with the 14" Bench Drill Press and twelve spindle speeds of 250, 360, 410, 540, 590, 650, 1090, 1280, 1450, 1820, 2180 and 3000 RPM are available with the 16½" Drill Press. Fig. 20 illustrates which steps of the pulleys the belt must be placed to obtain the five speeds available for the 14" Bench Drill Press and Fig. 21 illustrates which steps of the pulleys the belt must be placed to obtain the twelve speeds available for the 16½" Drill Press.

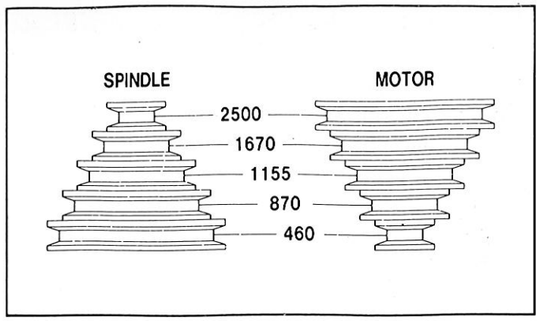


Fig 20

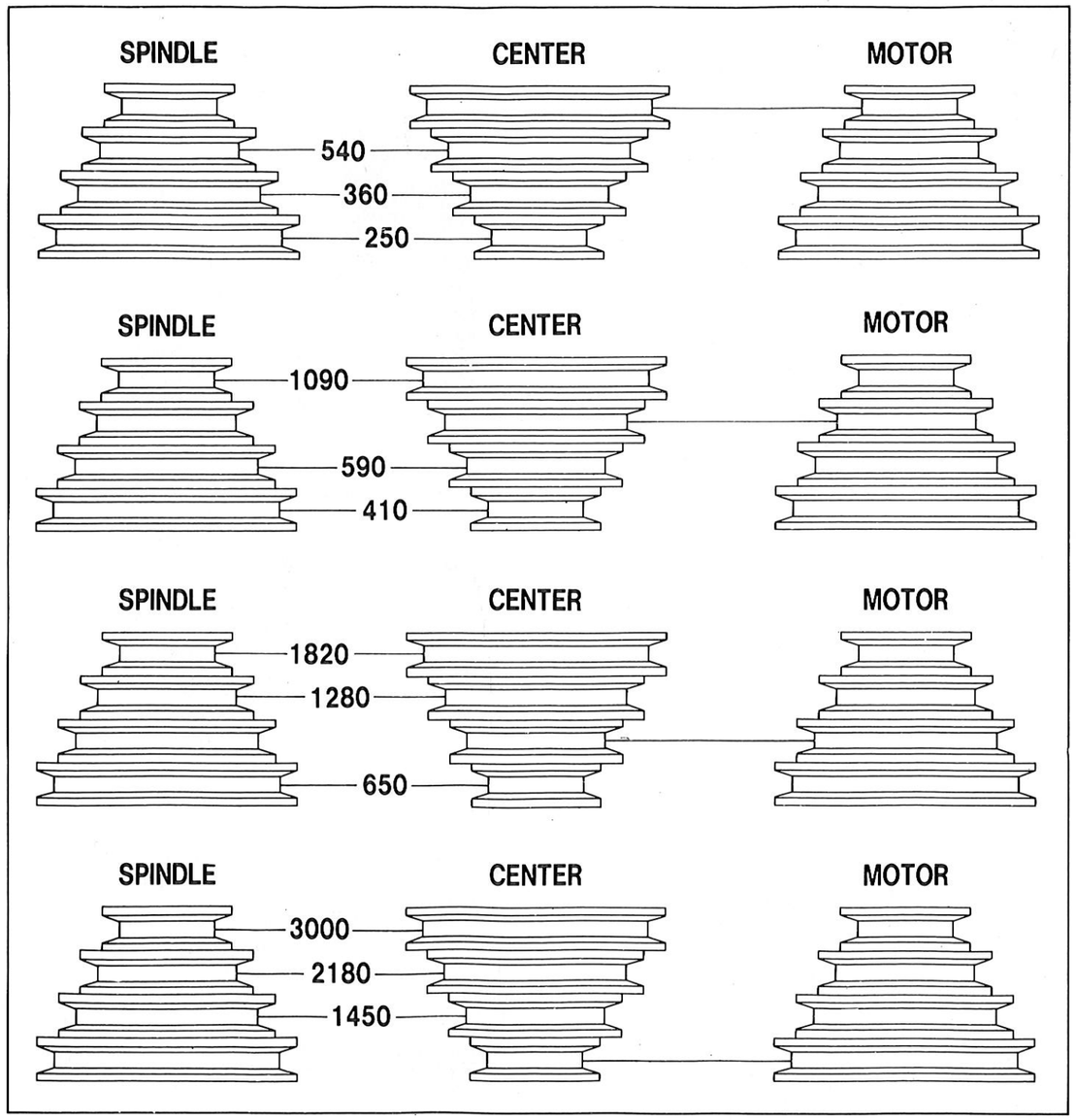


Fig 21

CHANGING SPINDLE SPEEDS AND ADJUSTING BELT TENSION

14" BENCH DRILL PRESS ONLY

1. Disconnect the drill press from the power source.

2. Lift up the belt and pulley guard (A) Fig. 22.

3. Release belt tension by loosening tension lock knob (B) Fig. 22, and moving tension lever (C) forward.

4. Position the belt (D) on the desired steps of the motor and spindle pulleys, as shown in Fig. 22.

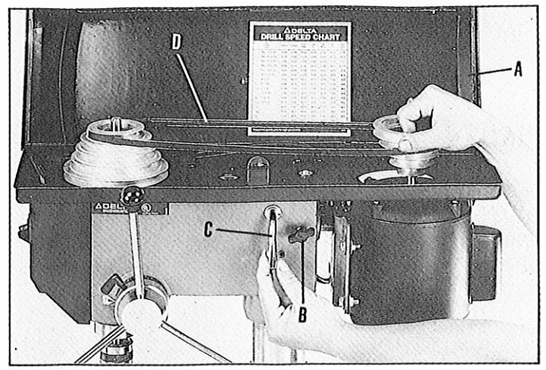


Fig 22

5. After the belt is positioned on the desired steps of the motor and spindle pulleys, move tension lever (C) Fig. 23, to the rear until the belt is properly tensioned and tighten tension lock knob (B). The belt should be just tight enough to prevent slipping. Excessive tension will reduce the life of the belt, pulleys and bearings. Correct tension is obtained when the belt (D) can be flexed about 1" out of line midway between the pulleys using light finger pressure.

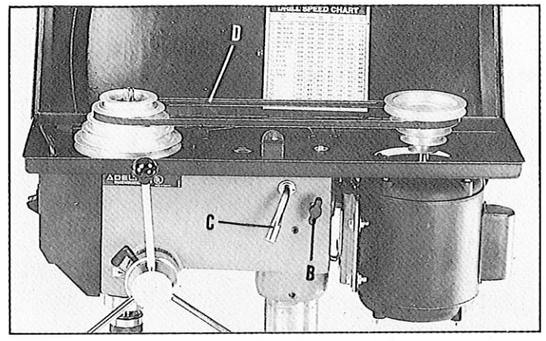


Fig 23

16½" DRILL PRESS ONLY

1. Disconnect the drill press from the power source.

2. Lift up the belt and pulley guard (A) Fig. 24.

3. Release belt tension by loosening tension lock knob (B) Fig. 24, and moving tension lever (C) forward.

4. Position the two belts (D) on the desired steps of the motor, center and spindle pulleys, as shown in Fig. 24.

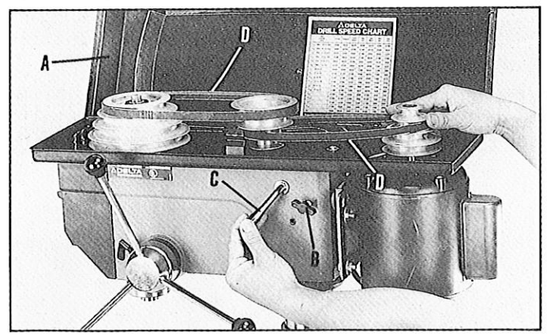


Fig 24

5. After the belt is positioned on the desired steps of the motor, center and spindle pulleys, move tension lever (C) Fig. 25, to the rear until the belts are properly tensioned and tighten tension lock knob (B). The belts should be just tight enough to prevent slipping. Excessive tension will reduce the life of the belt, pulleys and bearings. Correct tension is obtained when the belts (D) can be flexed about 1" out of line midway between the pulleys using light finger pressure.

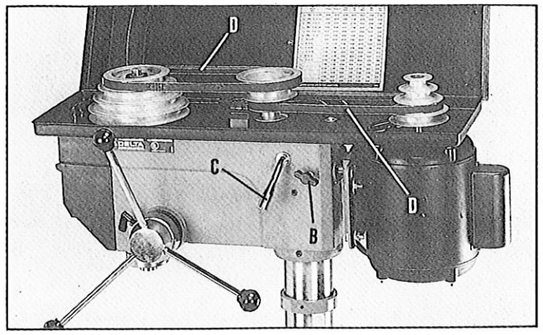


Fig 25

SWITCH

The switch (A) Fig. 26, is located on the front of the drill press head. To turn the drill press "ON" move the switch to the up position. To turn the drill press, "OFF" move the switch to the down position.

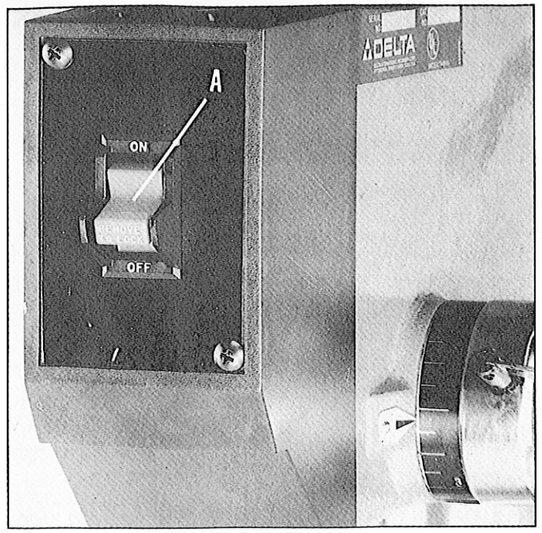


Fig 26

We suggest that when the drill press 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. 27, With the switch toggle (B) Fig. 27, removed, the switch will not operate. However, should the switch toggle be removed while the drill press is operating, the switch can be turned "OFF" once, but cannot be restarted without inserting the switch toggle (B) Fig. 27.

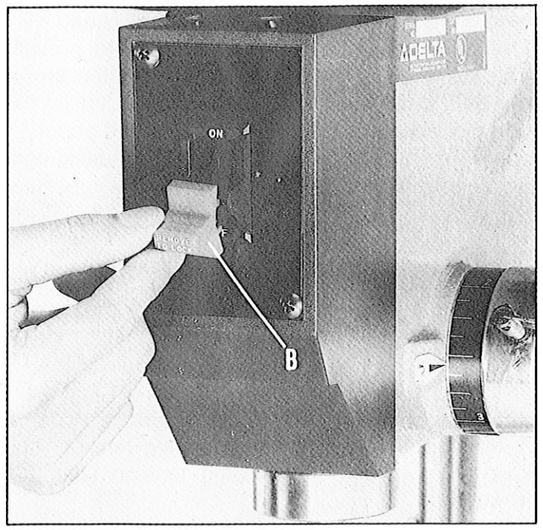


Fig 27

TABLE ADJUSTMENTS

1. The table (G) Fig. 28, can be raised or lowered on the drill press column by loosening the table clamp handle (K) and turning the table raising and lowering handle (J). After the table is at the desired height, tighten handle (K).

2. The table (G) Fig. 28, can be rotated 360 degrees on the table bracket by loosening lock handle (H).

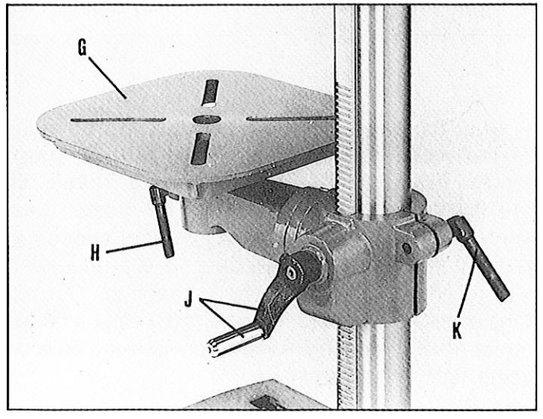


Fig 28

3. The table can be tilted right or left by pulling out and removing table alignment pin (B) Fig. 29. Note: If pin (B) is difficult to remove turn nut (C) clockwise to pull pin out of casting.

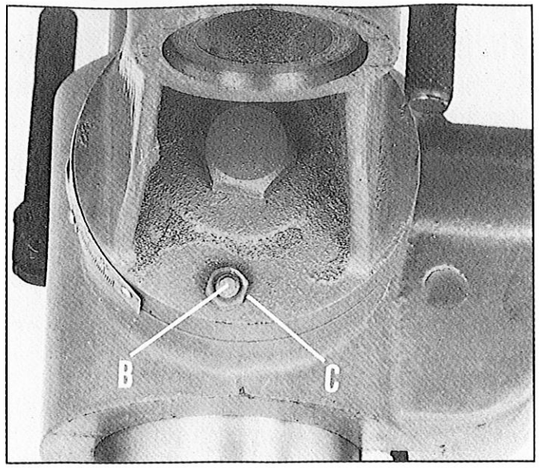


Fig 29

4. Fig. 30, illustrates the table alignment pin (B) removed. Loosen table locking bolt (D) Fig. 30, tilt table to the desired angle and tighten bolt (D). When returning table to the level position. replace table alignment pin (B). This will automatically position the table surface at 90 degrees to the spindle.

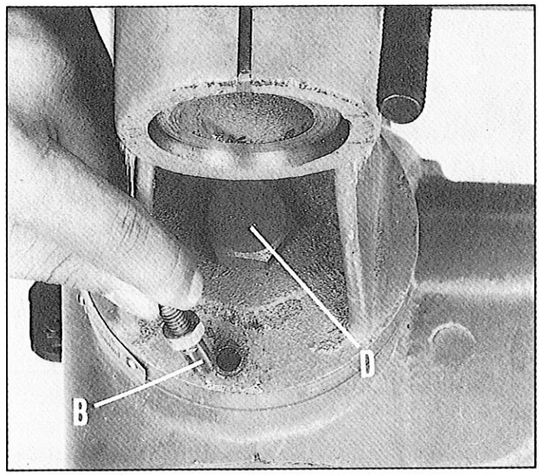


Fig 30

5. A tilt scale (E) and pointer (F) Fig. 31, are provided on the table bracket casting to indicate the degree of tilt.

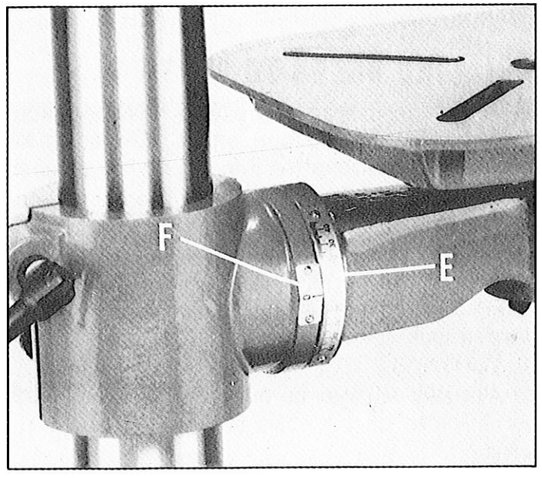


Fig 31

ADJUSTING SPINDLE RETURN SPRING

For the purpose of automatically returning the spindle upward after a hole has been drilled, a spindle return spring is provided in the spring housing (A) Fig. 32. This spring has been properly adjusted at the factory and should not be disturbed unless absolutely necessary. To adjust the return spring, proceed as follows:

1. Disconnect the drill press from the power source.

2. Loosen the two nuts (B) approximately 1/4". Do not remove nuts (B) from shaft (C) Fig. 32.

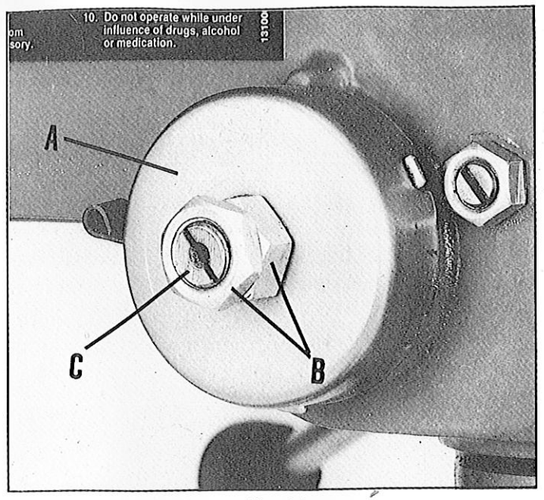


Fig 32

3. . While firmly holding spring housing (A) Fig. 33, pull out housing and rotate it until the boss (D) is engaged with the next notch on the housing. Turn the housing counter-clockwise to increase and clockwise to decrease spring tension. Then tighten the two nuts (B) Fig. 33, to hold the housing in place. Important: Nuts (B) Fig. 33, should not contact spring housing (A) when tight.

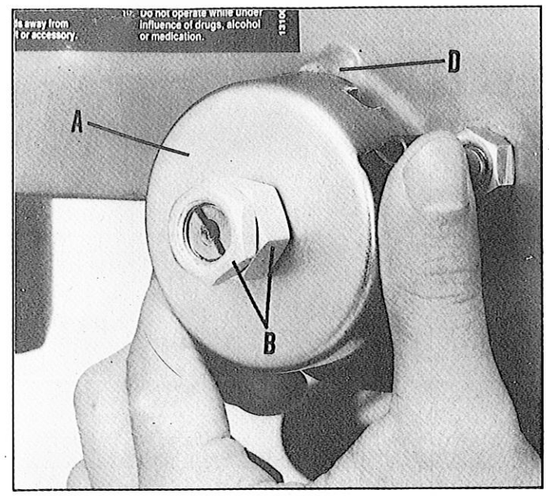


Fig 33

DRILLING HOLES TO DEPTH

Where a number of holes are to be drilled to exactly the same depth, a depth stop is provided in the pinion shaft housing (A) Fig. 34, and is used as follows:

1. Loosen lock handle (B) Fig. 34, and rotate housing (A) until the pointer (C) lines up with the depth you wish to drill on the scale (D). Then tighten lock handle (B) .

2. All holes will then be drilled to the exact depth as indicated on the scale (D) Fig. 34.

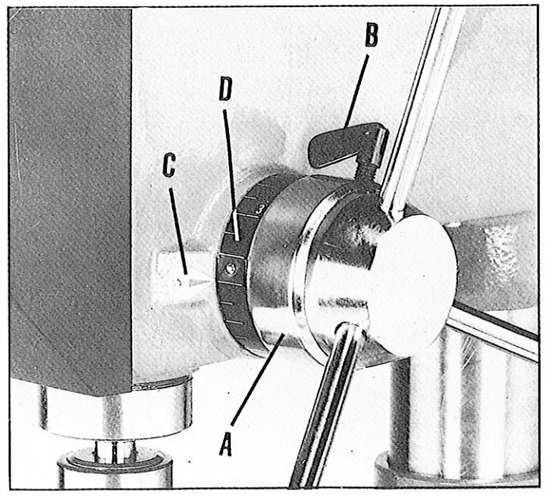


Fig 34

OPERATION

The following directions will give the inexperienced operator a start on the common drill press operations. Use scrap material for practice to get the feel of the machine before attempting regular work.

CORRECT DRILLING SPEEDS

Factors which determine the best speed to use in any drill press operations are: Kind of material being worked, size of hole, type of drill or other cutter, and quality of cut desired. The smaller the drill, the greater the required RPM. In soft materials, the speed should be higher than for hard metals.

BORING IN WOOD

Twist drills, although intended for metal drilling, may also be used for boring holes in wood. However, machine spur bits are generally preferred for working in wood; they cut a square bottom hole and are designed for removal of wood chips. Do not use hand bits which have a screw tip; at drill press speeds they turn into the wood so rapidly as to lift the work off the table and whirl it.

For through boring, line up the table so that the bit will enter the center hole to avoid damage. Scribe a vertical line on the front of the column and a matchmark on the table bracket, so that the table can be clamped in the center position at any height.

Feed slowly when the bit is about to cut through the wood to prevent splintering the bottom face. Use a scrap piece of wood for a base block under the work; this helps to reduce splintering and protects the point of the bit.

DRILLING METAL

Use clamps to hold the work when drilling in metal. The work should never be held in the bare hand; the lips of the drill may seize the work at any time, especially when breaking through the stock. If the piece is whirled out of the operator's hand, he may be injured. In any case, the drill will be broken when the work strikes the column.

The work must be clamped firmly while drilling; any tilting, twisting or shifting results not only in a rough hole, but also increases drill breakage. For flat work, lay the piece on a wooden base and clamp it firmly down against the table to prevent it from turning. If the piece is of irregular shape and cannot be laid flat on the table, it should be securely blocked and clamped.