

# INSTRUCTIONS AND PARTS LIST FOR ATLAS No. 53 DRILL PRESS-BENCH MODEL

May, 1946  
Drill Press Bulletin No. 53DP-2  
Replaces Bulletin No. 53DP-1

After unpacking the drill press, clean it thoroughly. Use kerosene to remove the rust preventive coating from all machined surfaces, such as: tops of the table and base, column, etc. Allow the kerosene to set for a while; then wipe off with a kerosene soaked cloth.

Next, and very IMPORTANT, lubricate the drill press head as shown in the diagram.

## MOUNTING MOTOR

A  $\frac{1}{3}$  or  $\frac{1}{2}$  H.P. 1740 R.P.M. ball bearing motor is recommended to operate this drill press.

Mount the motor on the motor bracket and place the motor pulley on the motor shaft with the large step away from the motor. Tighten pulley to motor shaft with set screw. Line-up the motor and spindle pulleys with a straight edge and fasten motor securely in position.

The motor should rotate in a clockwise direction when viewed from the pulley end. If an Atlas motor is used and it rotates in the wrong direction, reverse according to instructions shown on motor.

When bolting the drill press to the bench, place shims where required so that the base makes good contact with the bench top, thereby preventing the base from being sprung.

## IMPORTANT — LUBRICATION

USE S.A.E. No. 20 MACHINE OIL

- A. Upper Spindle Pulley Bearing—Oil frequently.
  - B. Quill Bearings—Oil frequently. (Note: Spindle must be in lowest position to uncover oil hole).
  - C. Pinion Shaft Hub Bearing — Oil occasionally.
  - D. Lower Quill Bearing—Oil frequently.
- Quill Surface—Oil should frequently be applied to the outside surface of this quill.

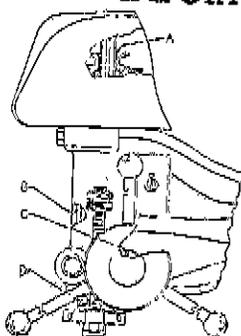


Fig. 1

## SPEEDS

Using a 1740 R.P.M. motor the following speeds can be obtained, starting from the lowest pulley step and going up: 580, 1300, 2440, and 5200.

If the motor pulley is lowered one step, the following three additional speeds can be obtained: 1000, 1750, and 3300. When motor pulley is raised one step: 760, and 4000. In this way a total of 9 different speeds can be had.

## ADJUSTMENTS AND CONTROLS

(1) **QUILL LOCK**—The quill is locked in place by means of coordinate clamps actuated by the small clamp handle located on the front of the drill press head.

(2) **SPINDLE STOP GAUGE**—The two knurled nuts on the spindle stop gauge can be set at any desired position and locked. In this way a definite amount of spindle travel can be obtained, permitting any number of holes to be drilled to the same depth. The gauge is graduated from 0 to 3" in  $\frac{1}{16}$ " divisions.

(3) **SPINDLE ADJUSTMENT**—If longitudinal (end) play develops in the spindle it may be eliminated as follows:

- a. Remove the two lock nuts on the feed stop gauge.
- b. Remove spring housing cap by turning it  $\frac{1}{4}$ " counterclockwise and pull out.
- c. Remove the feed handle from the pinion shaft.
- d. Remove the pinion shaft.
- e. By pulling downward, remove the spindle-quill unit from the head.

f. Loosen set screw in collar located directly above the quill, and while forcing the spindle up against the other end of the quill, tighten the collar up against the inner race of the quill bearing. **DO NOT MAKE THIS ADJUSTMENT TOO TIGHT.**

g. Put the spindle-quill unit back into the head and reassemble the other parts in reverse order from the way they were removed.

(4) **QUILL RETURN SPRING TENSION ADJUSTMENT**—To INCREASE the tension, turn spring housing cap  $\frac{1}{4}$ " clockwise and pull out  $\frac{1}{4}$ "; then turn a half or full turn (as required) counterclockwise and reinsert. To DECREASE the tension, repeat as above, but turn clockwise instead.



Fig. 2

(5) **TABLE ADJUSTMENT**—To tilt the table, pull out the knurled handle located directly beneath the table. If the table is tilted 90 degrees right or left, the pin can be reinserted. For intermediate angles the table must be locked in place by tightening the hex nut.

(6) **DRILL PRESS CHUCK**—To remove the drill press chuck, use the wedge provided. Place wedge between knurled collar and chuck. See Fig. 2. While holding the chuck with the left hand, hit the wedge with a sharp hammer blow.

**IMPORTANT**—Never abuse your drill press chuck. Do not strike it with a hammer, bump it, or drop it at any time.

When replacing the chuck to the spindle, make sure that the tapers on the spindle and in the chuck are scrupulously clean. This is very IMPORTANT.

## REPLACEMENTS

Should the following replacements ever become necessary, the following installation procedure should be followed:

### (1) QUILL BUMPER REPLACEMENT:—

- a. Remove the spindle-quill unit from the head as described under section 3 of "Spindle adjustment."
- b. Remove old bumper and force new bumper into position by means of a long, slim rod. Make sure the bumper seats itself properly before re-installing the spindle quill unit into the head.

### (2) FLEXIBLE SPINDLE DRIVER REPLACEMENT:—

- a. Loosen and remove the hex head cap screw which secures the pulley guard to the drill press head. Remove guard.
- b. By pulling upward, remove the pulley unit from the head.
- c. Loosen and remove the four round head screws which secure the bearing plate to the pulley. Remove plate. Refer to Fig. 3.

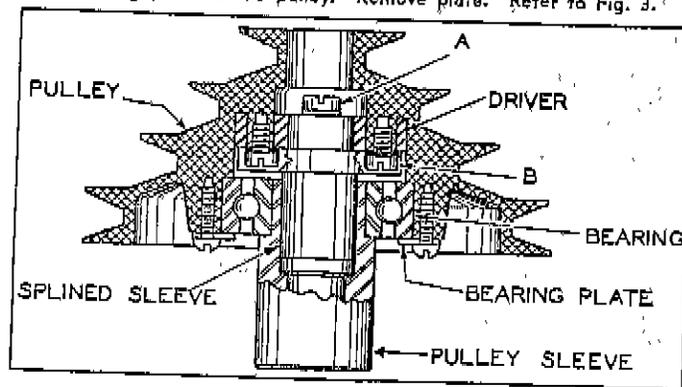


FIG. 3

d. Remove the bearing and spindle sleeve. This can be accomplished by lightly clamping the spindle sleeve between PADDED vise jaws and pulling upward on the pulley. If the bearing will not come out, heat the pulley slightly. If the sleeve should come out and not the bearing, heat the pulley and bump it lightly and flatly against a wood table top. **DO NOT** employ a prying method of removal.

e. Loosen the two fillister head machine screws "B" and remove the splined sleeve and driver. Be sure to also remove the washers.

f. Disassemble the driver from the splined sleeve by loosening screws "A". Also remove the washers. These may be embedded into the driver, but should be pried out.

g. Install new driver, making certain to use a washer under each screw. Proceed reassembling in vice versa manner from disassembling.

(Continued on page 4)

## DRILLING

The proper speed for drilling depends upon: (1) The material to be drilled, (2) the size of the hole, (3) the kind of drill. Generally speaking, the harder the material and the larger the drill, the slower should be the speeds.

Make sure that the drill runs true when starting—it may be necessary to countersink the work. Small drills should be fed into the work carefully since they are designed to be run at very high speeds. Avoid too high a speed, especially with the larger drills—excessive speed wears off the drill corners, draws the temper of the drill, and may even burn or break the drill tip.

Note: When drilling brass, aluminum, lead and other soft materials which cause the drill to "hog-in", reduce the rake angle of the cutting edge by grinding the drill as shown in Figure 4. This reduced rake angle is also desirable when drilling very hard materials because it lessens the strain on the drill. This change makes drilling easier and results in a more accurately drilled hole.

Lubrication: A cutting compound is essential when drilling practically any metal. The following compounds will give best results:

- Hard, tough steels—turpentine or kerosene.
- Softer steels—lard oil or equivalent.
- Aluminum and other soft alloys—kerosene.
- Brass—drill dry or use paraffin oil.
- Die castings—drill dry or use kerosene.
- Cast iron—drill dry.

Do not attempt to make large holes in a small piece or in thin material without first clamping the work securely to the table. For maximum accuracy, raise the table high enough so that the spindle does not run entirely out of the quill in going through the work. When drilling the larger holes, much better results are obtained by using our new slow-speed attachment shown in Fig. 5. This attachment provides a low speed of 200 R.P.M. It can be attached or detached in less than two minutes.

DRILLS: After the drill point is dulled for the first time, its effectiveness depends entirely upon how it is reground. For clean, accurate drilling, the operator must resharpen the drill properly. The cone-shaped surface at the end of the drill is called the "point", and the edge at the extreme tip end is the "dead center".

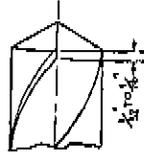


Fig. 4

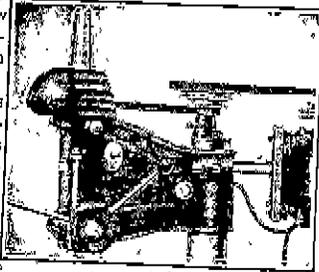


Fig. 5

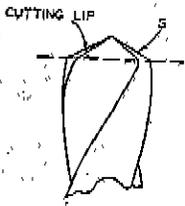


Fig. 6

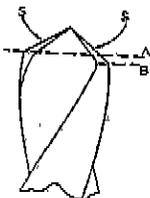


Fig. 7

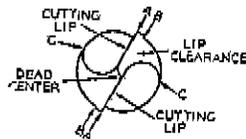


Fig. 8

In order to penetrate the work, the cutting edge must have the correct cutting angle and "lip clearance" at the center of the drill (Fig. 6). Fig. 6 shows a drill ground with no lip clearance. The portion of the drill behind the cutting lip is bearing on the metal being cut and prevents the cutting lip from biting in. The cutting lip and heel "S" are in the same plane. This drill will cut very poorly, if at all. Fig. 7 shows how the "heel", the part directly back of cutting angle, must be ground away.

THE PROPERLY GROUND DRILL: Two rules are especially important when grinding drill points. 1. The lip clearance angle (Fig. 9A) should be between 12 and 15 degrees. 2. The two cutting edges must be of equal length and angle. In Figs. 9A, 9B, 9C, the properly ground drill points is shown. Refer to these figures when grinding a drill—they will aid in grinding drills which will cut true-sized holes with a minimum of drill wear.



Fig. 9A



Fig. 9B  
Fig. 9C



Fig. 9C

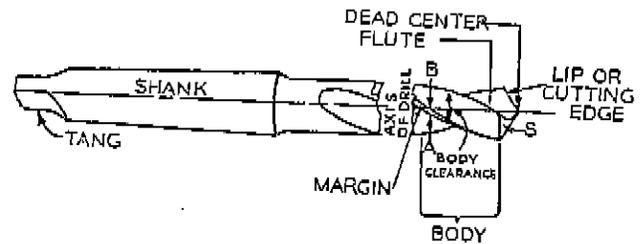


Fig. 10

REAMING: When a hole must be accurate to within .002 inch or less, it is first drilled a few thousandths of an inch undersize and then hand-reamed or reamed with the drill press to the finish-diameter. For best results, follow the same rules in reaming as for drilling. Use slow speeds, feed in evenly and be sure there are no burrs on the reamer teeth.

A reaming allowance between .010 and 1/64 inch is usually sufficient for machine-reaming holes with diameters of 1 inch or less—an allowance of 1/64 or 1/32 inch is recommended for machine-reaming holes between 1 and 2 inches in diameter. .003 to .005 inch is usually allowed for hand reaming operations.

## SPECIAL ADAPTERS

CAUTION! In using the drill press for any purpose other than drilling, it is necessary to make use of special chucks and adapters.

In using the various types of mortising bits, router bits, etc., the operator MUST use a router bit adapter rather than the Jacobs' chuck. On those drills, equipped with a tapered spindle, it is necessary to remove the Jacobs chuck and the threaded collar immediately above it.

The adapter is placed on the taper, and the threaded collar is then replaced. There is a small flange on the inner side of this collar which will hold the adapter securely in position on the tapes. (See Fig. 11.)

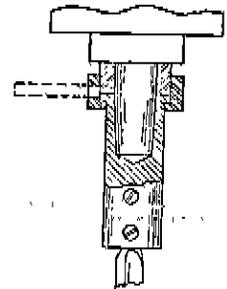


Fig. 11

If the Jacobs chuck is used with any type of cutter where there is a thrust coming from the side, the chuck will be pulled off the taper. This can be quite dangerous. Then, too, most of these operations are done at a high speed, and a router bit adapter is much lighter and is preferable for the higher speed. The adapter grips the cutter shank all the way around instead of at just three points.

## ATTACHMENTS

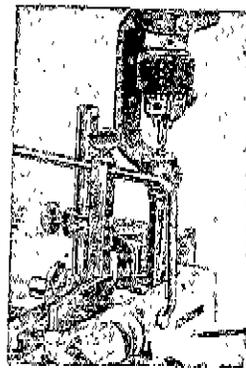


Fig. 12

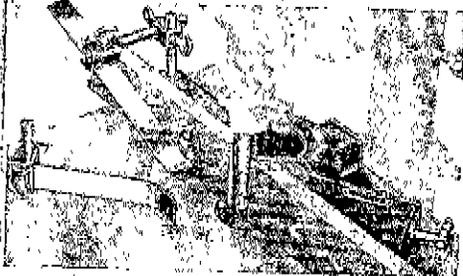
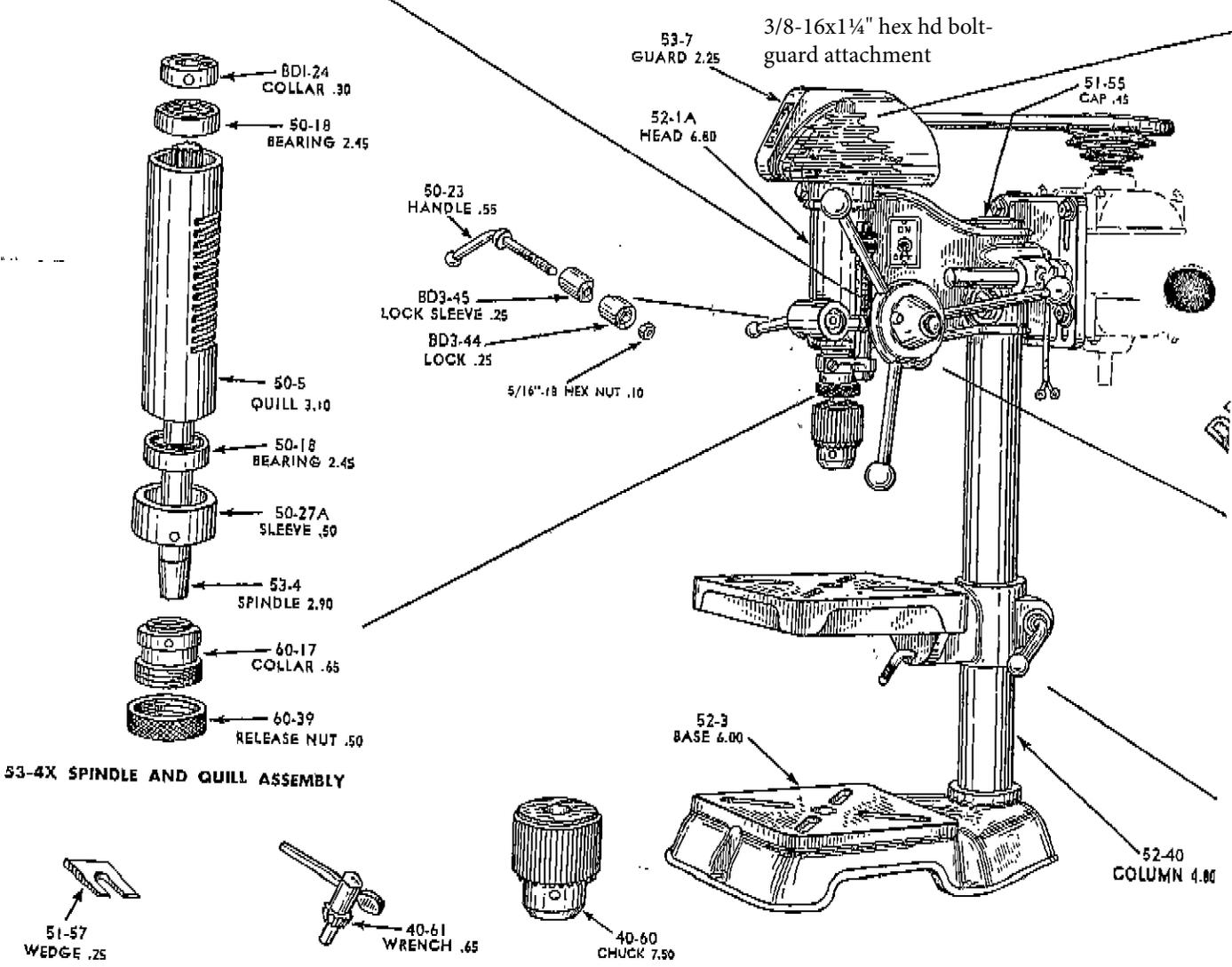
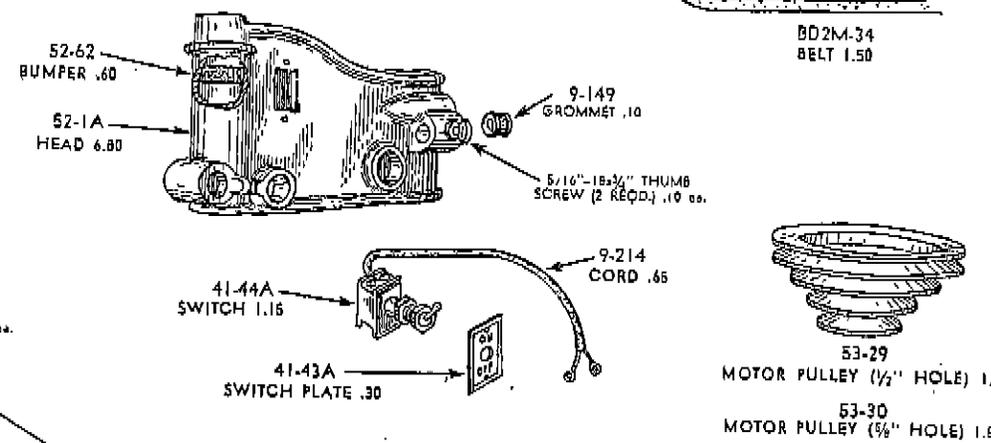
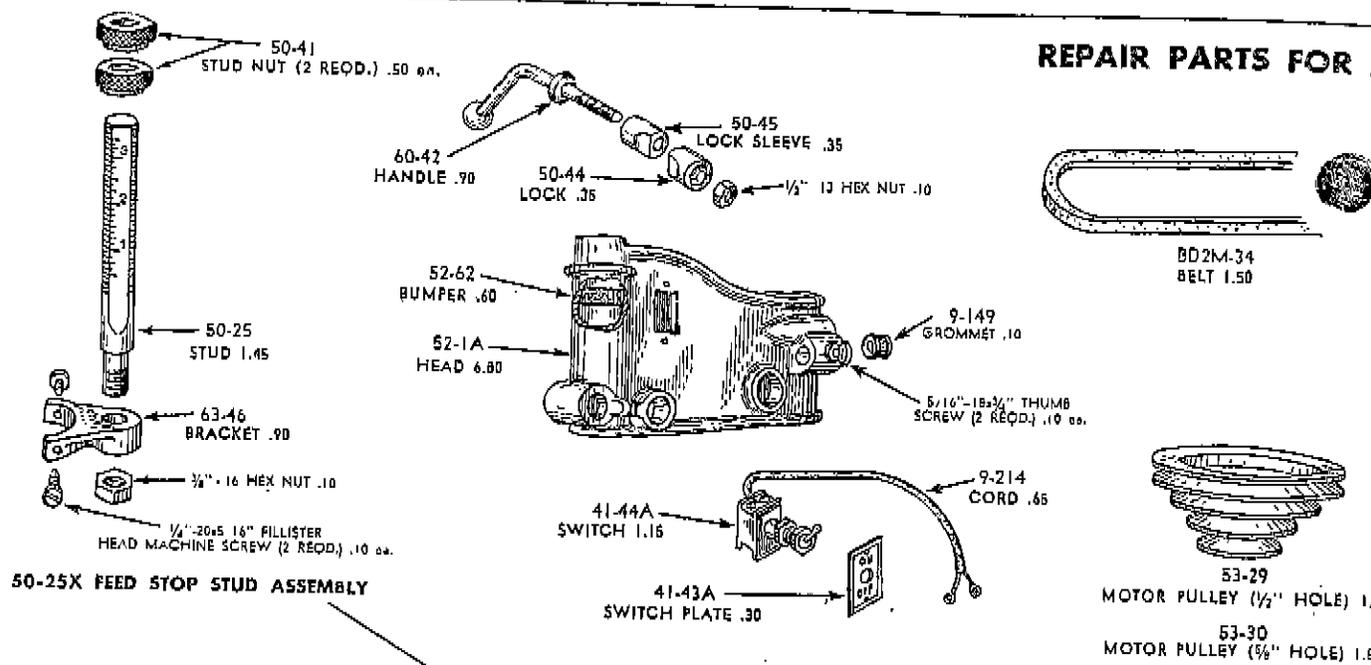


Fig. 13

A complete line of attachments are available for your drill press. Shaping (Fig. 13), Mortising (Fig. 12), Routing, Drum Sander, etc. Refer to our catalog for complete details.

**REPAIR PARTS FOR**

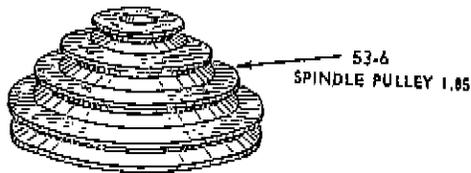


**ATLAS PRESS COMPANY**

**ORDER!**  
 IMPORTANT: Order all repair parts by PART notice. A minimum charge of \$0.25 will be made.  
 NOTE: Standard parts, such as bolts, nuts, washers should be purchased locally.

ALWAYS GIVE SERIAL AND MODEL PLATE. PLATE LOCATED ON FRONT

# AS No. 53 DRILL PRESS



53-6  
SPINDLE PULLEY 1.85

8-32x1/4" ROUND HEAD  
MACHINE SCREW (2 REQD.) .10 ea.

53-64  
DRIVER .70

1/4" INTERNAL SHAKEPROOF  
LOCK WASHER (2 REQD.) 10 ea.

53-63  
DRIVER .90

1/4" INTERNAL SHAKEPROOF  
LOCK WASHER (2 REQD.) 10 ea.

8-32x1/4" ROUND HEAD  
MACHINE SCREW (2 REQD.) .10 ea.

60-31  
BEARING 3.50

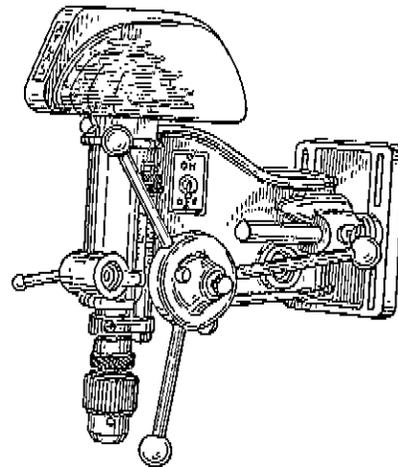
No. 8 INTERNAL SHAKEPROOF  
LOCK WASHER (4 REQD.) .10 ea.

60-26  
BEARING PLATE .50

8-32x1/4" ROUND HEAD MACHINE  
SCREW (4 REQD.) .10 ea.

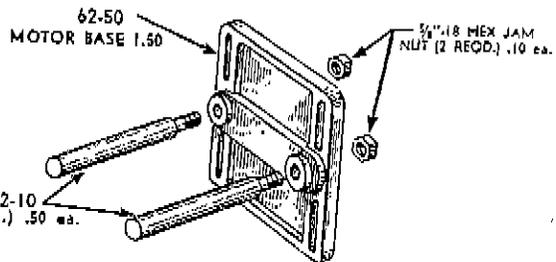
53-19  
SLEEVE 2.65

53-6X SPINDLE PULLEY ASSEMBLY



53-TX DRILL PRESS HEAD ASSEMBLY COMPLETE.....\$37.20

FURNISHED COMPLETE AS SHOWN WITH MOTOR MOUNTING  
BRACKET, BELT, PULLEY, AND SWITCH. LESS MOTOR  
AND COLUMN

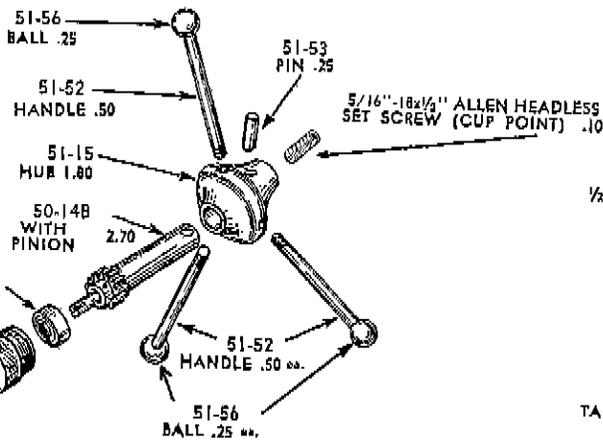


62-50  
MOTOR BASE 1.50

3/8"-18 HEX JAM  
NUT (2 REQD.) .10 ea.

BD2-10  
PIN (2 REQD.) .50 ea.

62-50X MOTOR BASE ASSEMBLY



51-56  
BALL .25

51-53  
PIN .25

51-52  
HANDLE .50

5/16"-18x1/2" ALLEN HEADLESS  
SET SCREW (CUP POINT) .10

51-15  
HUB 1.80

50-14B  
SHAFT WITH  
PINION 2.70

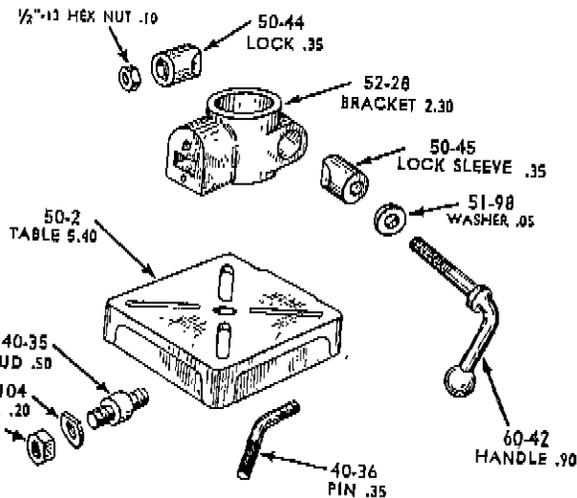
50-21A  
SPRING .55

BD1-22  
CAP .65

51-52  
HANDLE .50 ea.

51-56  
BALL .25 ea.

50-14BX SPINDLE FEED ASSEMBLY



1/2"-13 HEX NUT .10

50-44  
LOCK .35

52-28  
BRACKET 2.30

50-45  
LOCK SLEEVE .35

51-98  
WASHER .05

50-2  
TABLE 5.40

40-35  
STUD .50

BD3-104  
WASHER .20

3/8"-18 HEX NUT .10

40-36  
PIN .35

60-42  
HANDLE .90

50-2X TABLE ASSEMBLY

PRICE LIST

Prices are subject to change without notice. Do not include postage or express charges. Do not omit part numbers.

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