TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS LIST

FOR

**DRILLING MACHINE, RADIAL,
SLIDING RAM
MODEL 15-127
(ROCKWELL INTERNATIONAL)
(NSN 3413-00-618-6013)**

HEADQUARTERS, DEPARTMENT OF THE ARMY

MAY 1980

Technical Manual

No. 9-3413-227-14&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, *23 May 1980*

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS LIST FOR DRILLING MACHINE, RADIAL, SLIDING RAM MODEL 15-127 (ROCKWELL INTERNATIONAL) (NSN 3413-00-618-8013)

REPORTING OF ERRORS

You can help improve this manual by recommending improvements using, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in the back of this manual. Mail your form direct to Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A reply will be furnished direct to you.

NOTE

This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom this drilling machine is issued.

Manufactured by: Rockwell International
131 Park Street N.E.
Vienna, VA 22180

Procured under Contract No: DAAA09-78-M-7825

This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 3103, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INSTRUCTIONS FOR REQUISITIONING PARTS

NOT IDENTIFIED BY NSN

When requisitioning parts not identified by National Stock Number, it is mandatory that the following information be furnished the supply officer.

1 - Manufacturer's Federal Supply Code Number - 7F371

2 - Manufacturer's Part Number exactly as listed herein.

3 - Nomenclature exactly as listed herein, including dimensions, if necessary.

4 - Manufacturer's Model Number - Model 15-127

5 - Manufacturer's Serial Number (End Item)

6 - Any other information such as Type, Frame Number, and Electrical Characteristics, if applicable.

7 - If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field in accordance with AR 725-50.

Complete Form as Follows:

(a) In blocks 4, 5, 6, list manufacturer's Federal Supply Code Number - 7F371 followed by a colon and manufacturer's Part Number for the repair part.

(b) Complete Remarks field as follows:
Noun: (nomenclature of repair part)
For: NSN: 3413-00-618-6013
Manufacturer: Rockwell International

Model: 15-127
Serial: (of end item)

Any other pertinent information such as Frame Number, Type, Dimensions, etc.

INTRODUCTION

STANDARD EQUIPMENT

All Models include 65-86, 3 floor stand, head, jack shaft assembly, ram, cradle, column, table, raising mechanism, belt guards, 41-772 motor pulley, 49-287 V-belt (31 1/8" OC), 49-105 V-belt (30 1/8" OC), motor and controls.

FOR THREE PHASE OPERATION

No. 15-127 Ram Type Radial Drill Press Complete. 6" spindle travel model with No. 2 M.T. spindle, 42" column, 65-863 floor stand, and standard equipment as listed. Also includes 1/2 HP, 230 460 V, 1725 RPM. 60 hertz, three phase motor with 24 V push button station, magnetic starter, transformer and 3 leg overload protection, mounted and wired for 230 V, un-less 460 V is specified 829 lbs.

No. 15-128 Ram Type Radial Drill Press Complete. Same as No. 15-127, expect wired for 200 V 829 lbs.

NOTE: You can easily convert your No. 2 M.T. Spindle Unit to a 1/2" key chuck model simply by removing the spindle adapter and replacing it with a key chuck.

MACHINE DATA

Overall Dimensions:

Height ..... 86" (2184 mm)
Width ..... 33" (838 mm)
Front to Rear ..... 58" (1473 mm)

Capacities:

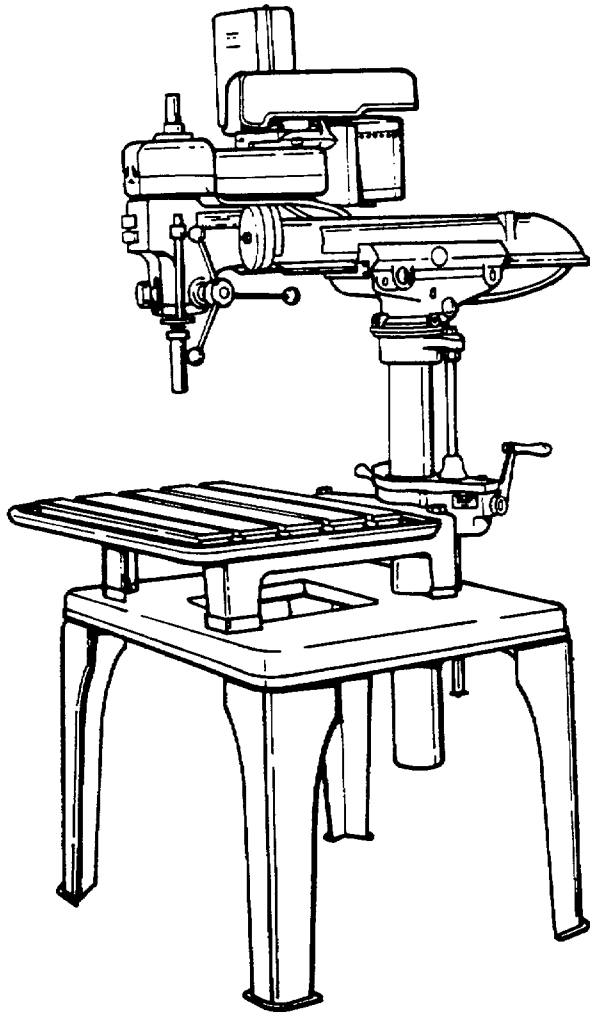
Key Chuck ..... 0 to 1/2" (0 to 12.7 mm)
Diameter Hole in Cast Iron ..... 1/2" (12.7 mm)
in Steel ..... 3/8" 9.5 mm)
Column to C_L of Spindle:
Maximum (Ram Forward) ..... 31" (787 mm)
Minimum (Ram Back) . ..... 13" (330 mm)
Spindle to Table 3/16" to 24 3/16" (177 79 x 514.36 mm)

Vertical Travel of Head
Using Raising Mechanism ..... 10" (254 mm)
Column ..... 3 3/4" (95 25 mm) Diameter
Table:
Ground Work Surface 2 ..... 26" [660 mm) Wide x 18" (457 mm) Deep
Has Four Parallel 1/2" (12.7 mm) T-Slots on 4" (101.6 mm) Centers
1 3/4" (44.45 mm) Coolant Through All Around With 1/2" (12.7 mm) Pipe Tap
Quill:
Stroke ..... 6" (152 mm)
Diameter ..... 1 13/16" (46 mm)
Spindle Speeds 16
Spindle Speeds:
With 1725 RPM Motor 175, 365, 380;600, 695, 765, 1030 1250, 1380, 1450, 2200, 2300, 2800, 4000, 2800 4000, 4750, 8200 RPM
Head Tilts 90° ..... 45 Left, Vertical, 45° Right

ACCESSORY (STANDARD EQUIPMENT)

Floor Stand For all Ram Type Radial Drill Presses. 216 lbs.

DRILLING MACHINE, RADIAL, SLIDING RAM



SAFETY SUGGESTIONS

As with all Drilling Machines there is a certain amount of hazard involved with the operator and his use of the machine. Using the machine with the respect and caution demanded as far as safety precautions are concerned will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or completely ignored, personal injury to the operator can develop.

There are also certain applications for which this machine was designed. **It is strongly recommended** 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.

WARNING

1. KNOW YOUR MACHINE. Read the owner's manual carefully. Learn the tools applications and limitations, as well as the specific potential hazards peculiar to it.

2. KEEP GUARDS in PLACE and in working order.

3. MAKE SURE wiring codes and recommended electrical connections are followed and that machine is properly grounded.

4. REMOVE ADJUSTING KEYS AND WRENCHES. Form a habit of checking to see that keys and adjusting wrenches are removed before turning on the machine.

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

6. KEEP VISITORS AWAY. All visitors should be kept a safe distance from work area.

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

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

9. WEAR PROPER APPAREL. No loose clothing or Jewelry should be worn as it may get caught in moving parts.

10. USE SAFETY GLASSES. Also use face or dust mask if cutting operation is dusty.

11. SECURE WORK. Use clamps or a vise to hold work, when practical. It is safer than using your hand and frees both hands to operate machine.

12. DON'T OVERREACH. Keep your proper looting and balance at all times.

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

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

15. USE RECOMMENDED ACCESSORIES. Use of improper accessories may be hazardous.

16. AVOID ACCIDENTAL STARTING. Make sure switch is off before plugging in cord.

17. BE SURE drill bit or cutting-tool is securely held in the spindle.

18. ADJUST the table or depth stop to avoid drilling into the table.

UNPACKING AND CLEANING

The drill press is shipped complete in one carton with the ram and drill press head positioned on the table for ease in handling. Instructions for assembling the ram and lead to the cradle will follow. The drill press stand is shipped in a separate carton.

Carefully unpack the drill press and stand from the cartons. Remove the protective coating from the machined surfaces. This coating may be removed with a soft cloth moistened with kerosene (do not use acetone, gasoline or lacquer thinner for this purpose). After cleaning, cover all unpainted surfaces with a good quality paste wax.

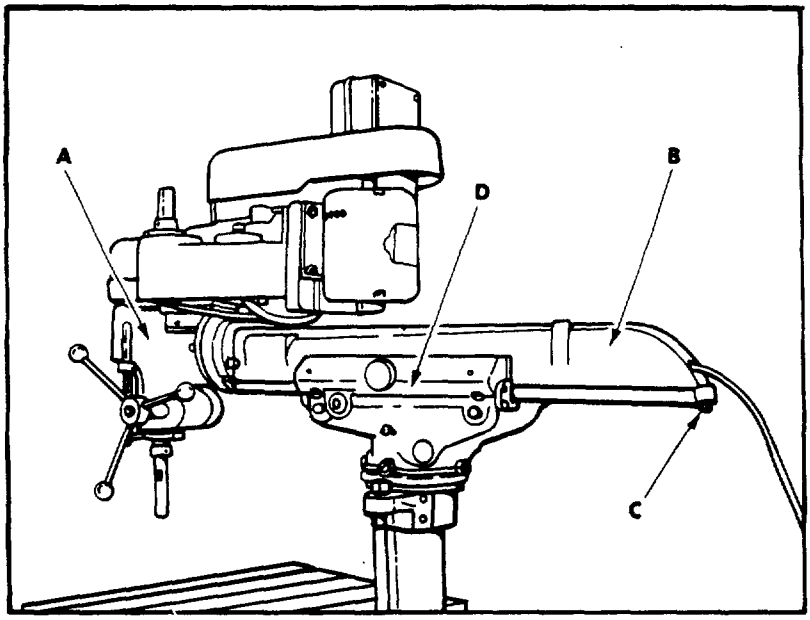


Figure 1

ASSEMBLE RAM TO CRADLE

The ram (B) and drill press head (A) fig. 1, are shipped assembled and is positioned on the table for ease in handling. To assemble the ram to the cradle, proceed as follows:

1. Remove the stop screw and nut (C) fig. 1.

2. The drill head (A) and ram assembly (B) should be slid into position in the cradle (D), as shown in fig. 1. IMPORTANT: One end of the cradle (D) is indicated as the front end and the drill head (A) must be at this end. Also care should be taken to prevent jarring the ball bearings in the cradle when sliding the ram into position.

3. Guide the ram (8) carefully in the cradle (0) making sure that it is properly seated and that it slides freely.

4. After assembling, replace the stop screw and nut (C) fig. 1.

ASSEMBLING STAND

1. Fasten the four legs (A) to the stand base (B) using the twelve 1/2"-13 X 1-1/4" hex head screws (C) and flat washers (D), as shown in fig. 2.

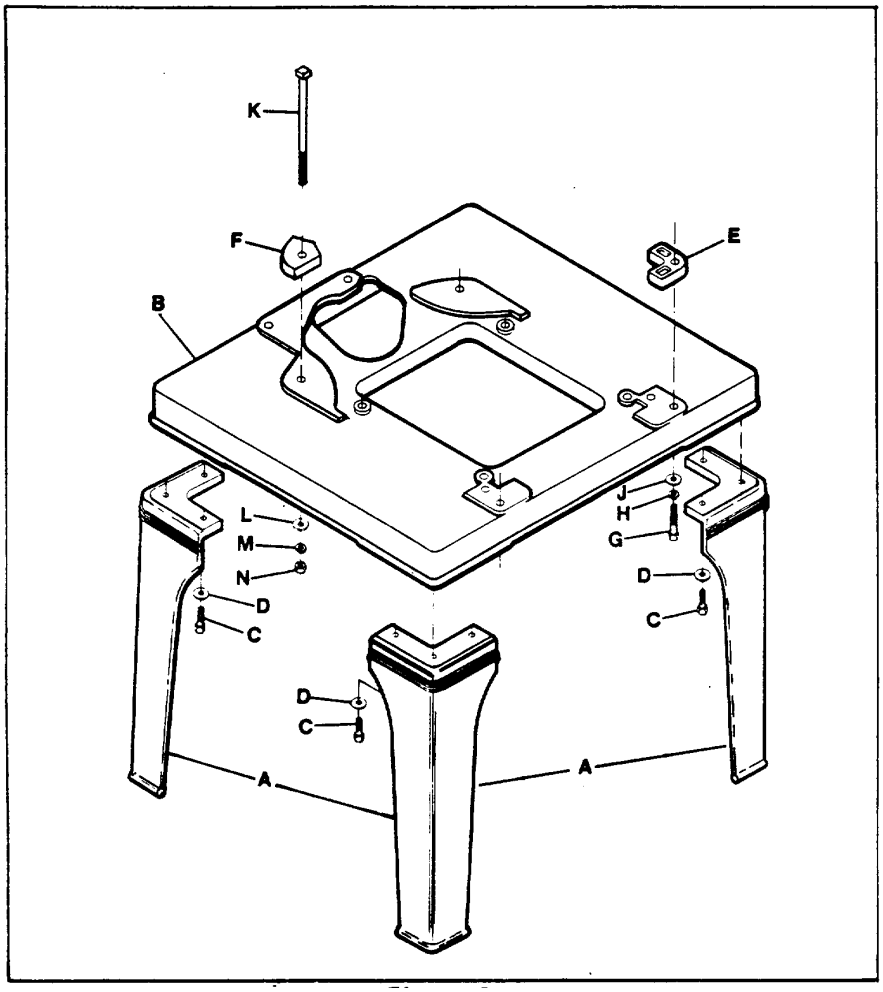


Figure 2

ASSEMBLING DRILL PRESS TO STAND

1. Place the two front spacers (E) and two rear spacers (F) in position on top of the stand base, as shown in fig. 2.

2. Place the drill press on the four spacers (E) and (F) making sure the holes in the bottom of the drill press base line up with the holes in the four spacers.

3. Using the two 1/2-13 X 2-1/4" hex head screws (G), lockwashers (H) and flat washers (J), fasten the front end of the drill press base to the stand. The holes in the bottom front of the drill press base are threaded.

4. Place the two flat washers (L) on the two 1 2"-13 X 9" square head bolts (K) and insert the bolts down through the top of the drill press base through the holes in the spacers (F) and through the holes in the rear of the stand. Fasten in place using the lockwasher (M) and jam nut (N), fig. 2.

ELECTRICAL CONNECTIONS

WARNING

Make sure the electrical characteristics are the same between the motor nameplate and the power source and make sure the power circuit the drill press will be used on is properly fused and that the wire size is correct, as shown in fig. 3. MAKE SURE THE DRILL PRESS is PROPERLY GROUNDED.

WIRE AND FUSE SIZE

THREE PHASE			
200-230 VOLTS		460 VOLTS	
WIRE SIZE	TIME LAG FUSE*	WIRE SIZE	TIME LAG FUSE*
14	15	14	15

Figure 3

If the motor on your machine is wired for 230V single phase, the power cord is equipped with a plug that has two flat, current-carrying prongs in tandem, and one round or "U"-shaped longer ground prong. This is used only with the proper mating 3-conductor grounding type receptacle, as shown in fig. 4. When the three-prong plug on your machine is plugged into a grounded 3-conductor receptacle, the long ground prong on the plug contacts first so the machine is properly grounded before electricity reaches it.

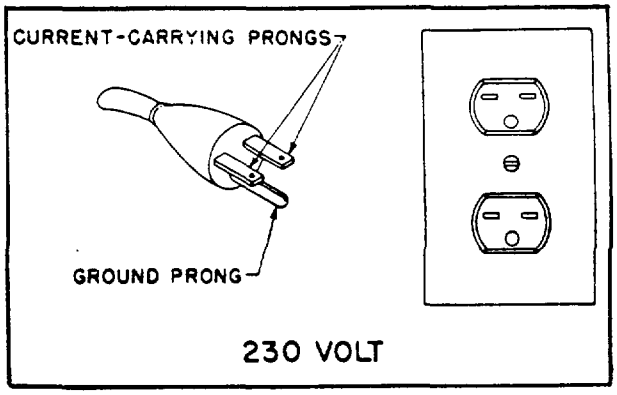


Figure 4

WARNING

If the motor on your machine is wired for 200V, 230V, or 460V three phase, the necessary wiring from the starter to the power source should be completed by a competent electrician.

WARNING

IN ALL CASES, MAKE SURE THE RECEPTACLE in QUESTION is PROPERLY GROUNDED.

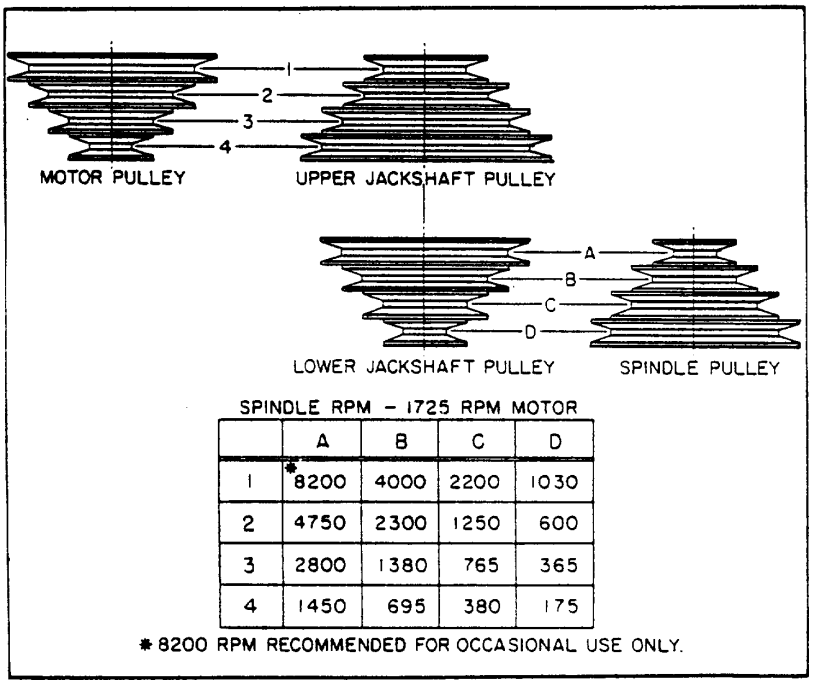
OPERATING CONTROLS AND ADJUSTMENTS

MOTOR AND SPINDLE SPEEDS

The motor shipped with your machine is a 1/2 H.P. 1725 RPM motor.

With a 1725 RPM motor, spindle speeds of 175, 365, 380, 600, 695, 765, 1030, 1250, 1380, 1450, 2200, 2300, 2800, 4000, 4750 and 8200 RPM are available.

Refer to fig. 5, for the belt positions on the spindle, motor, and upper and lower jackshaft pulleys to obtain the above listed speeds.



SPINDLE RPM – 1725 RPM MOTOR

	A	B	C	D
1	*8200	4000	2200	1030
2	4750	2300	1250	600
3	2800	1380	765	365
4	1450	695	380	175

* 8200 RPM RECOMMENDED FOR OCCASIONAL USE ONLY.

Figure 5

CHANGING SPINDLE SPEEDS AND ADJUSTING BELT TENSION

1. Disconnect the drill press from the power source.

2. When changing the position of the belt on the spindle pulley and the lower jackshaft pulley (A) fig. 6, simply loosen lock handle (8) and pivot the motor (C) forward to release belt tension. Position the belt (D) on the desired steps of the spindle and lower jackshaft pulleys and move the motor back until proper belt tension is obtained. Then tighten lock handle (B) fig. 6.

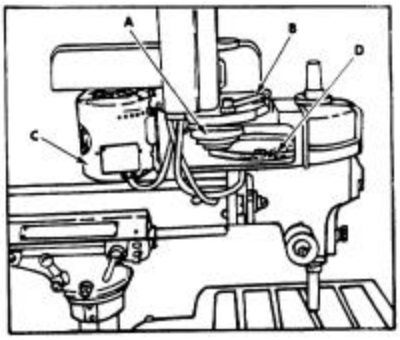


Figure 6

3. When changing the position of the belt on the motor pulley (A) and upper jackshaft pulley (B) fig. 7, raise the belt and pulley guard (F), loosen the two screws (one of which is shown at (C) fig. 7 that attach the motor plate to the jackshaft bracket, and push in the motor plate (D) to release belt tension. Position the belt (E) on the desired steps of the motor and upper jackshaft pulleys and pull out the motor plate until proper belt tension is obtained. Then tighten the two screws (C) fig. 7.

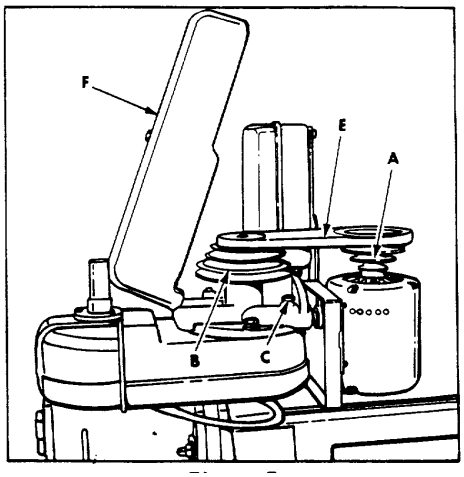


Figure 7

SPINDLE AND QUILL ADJUSTMENTS

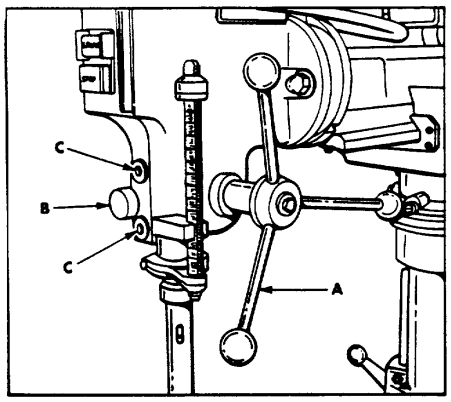


Figure 8

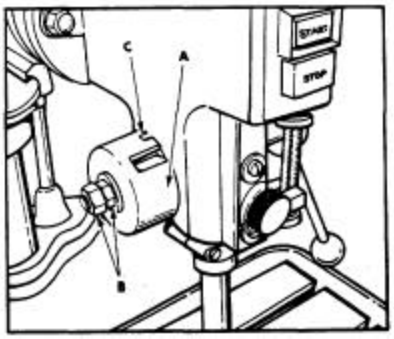


Figure 9

The spindle is raised or lowered by means of the three spoke hand lever (A) fig. 8. The quill can be locked at any desired point in its travel, by tightening the quill locking knob (B) fig. 8. This is an especially desirable feature for set-up of tooling for production type operations.

After considerable use, play may develop between the quill and the head casting due to wear. To compensate for wear between the quill and head, proceed as follows:

1. Make sure the quill locking knob (B) fig. 8, is loose.

2. Remove two screws and washers (C) fig. 8.

3. Tighten the two quill adjusting screws (A) fig. 9, which are located directly underneath the two screws and washers. It is not necessary to tighten these screws too much.

4. Rotate pilot wheel to test movement of quill and play. If there is a slight "drag", quill adjusting screws have been adjusted too tight. Back off quill adjusting screws slightly. If the quill still has play, slightly tighten quill adjusting screws.

5. When making this adjustment, make sure the stop rod (B) fig. 9, moves freely up and down.

6. After proper adjustment has been made, replaced screws and washers (C) fig. 8.

DRILLING HOLES TO DEPTH

When drilling one or two holes to a predetermined depth, the calibrations on the face of the depth stop rod (A) Fig. 10, can be used.

When drilling a number of holes to a predetermined depth, or if a me-e exact setting is required, proceed as follows:

1. Loosen thumb screw (B) fig. 10, and raise the locking sleeve (C). Turn the micro-nut (D) to the desired position on the stop rod (A).

2. Lower the locking sleeve (C) so it will engage micro-nut (D) fig. 10. Lock sleeve (C) in place with thumb screw (B) if drill press is operated in other than vertical position.

3. When locking sleeve (C) is in place on the micro-nut (D) fig. 10, the micro-nut cannot be turned. When a change in depth is required, the locking sleeve (C) must be raised, and while it is raised, turn the micro-nut (D) the necessary calibration marks. Each mark represents .002". Then lower the locking sleeve (C).

4. The use of the micro-set stop nut will maintain the same hole depth, no matter how many holes are to be drilled. However, we recommend that the hole depth be checked whenever a drill has to be sharpened or changed.

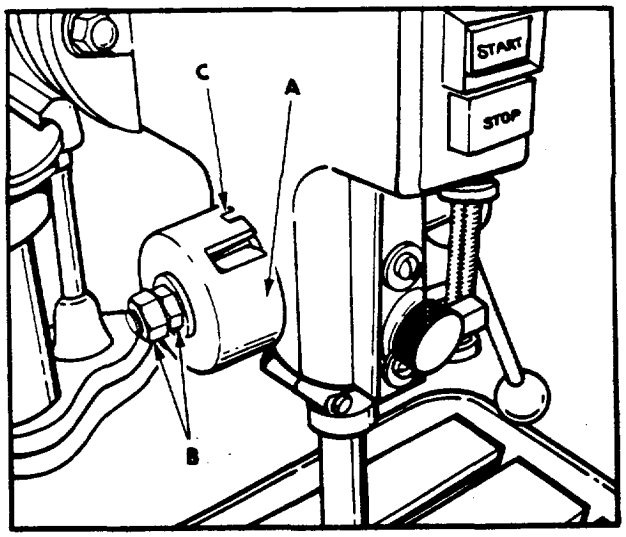


Figure 11

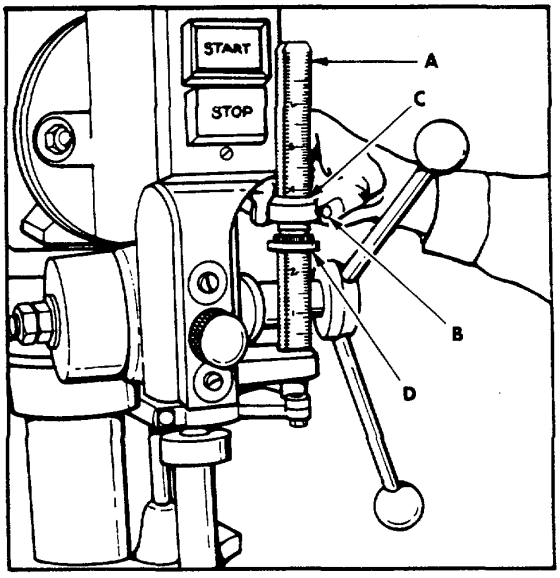


Figure 10

ADJUSTING SPINDLE RETURN SPRING

For the purpose of automatically returning the spindle upward after a hole has been drilled, a spring is provided enclosed in the case (A) fig. 11, and is located on the left side of the drill press head. This spring has been properly adjusted at the factory and this adjustment should not be disturbed unless absolutely necessary.

If it should become necessary to adjust it, proceed as follows:

1. Back off the two nuts (B) fig. 11. NOTE: Do not remove the inside nut from the shaft. The nuts (B) should be backed off just far enough so that the spring housing (A) can be disengaged from the roll pin (C) in the head casting.

2. With a firm hold on the spring housing (A) fig. 11, disengage it from the pin (C) in the drill press head, by pulling the housing straight out, and turn the housing counterclockwise to increase or clockwise to decrease tension. Be sure the pin in the drill press head is engaged with one of the other slots in the spring housing before releasing grip.

3. Retighten the two nuts (B) fig. 11. NOTE: Do not over-tighten the inside nut against the spring housing (A) as this may cause binding of the pinion shaft.

4. The tension of the spring can be tested by turning pilot wheel counterclockwise. Be sure quill is not locked while testing.

RAISING OR LOWERING RAM AND DRILL HEAD

The ram and drill head is raised or lowered by loosening the lock handle (A) fig. 12, and turning the elevating crank (B). This mechanism is carefully tested at the factory, but if knocked or jarred during shipment it may be misaligned. This misalignment will cause the crank to operate stiffly and impose an unnecessary strain on the gears. The trouble can be eliminated simply by loosening the nut (C) fig. 12, on top of the elevating screw, and turning the crank until the screw aligns itself. Tighten the nut (C) securely after correct alignment has been attained.

WARNING

DO NOT FORCE THE ELEVATING CRANK.

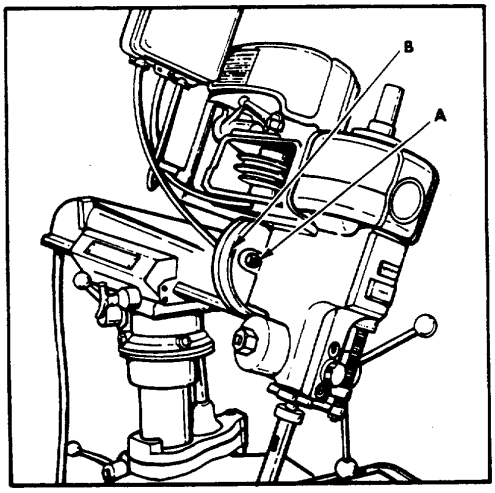


Figure 13

OPERATING THE RAM

The ram (A) fig. 14, can be moved in or out in the carriage (B) to provide a maximum distance of 31" from the center line of the spindle to the column and a minimum distance of 13".

To move the ram in or out, simply loosen lock knob (C), slide ram (A) to desired position, in or out, and tighten lock knob (C).

The ram (A) fig. 14, will swing a full 360 degrees around the column for drilling anywhere on or off the table. To swing the ram, loosen handle (D) fig. 14, rotate the carriage (B) to the desired angle and lock handle (D)

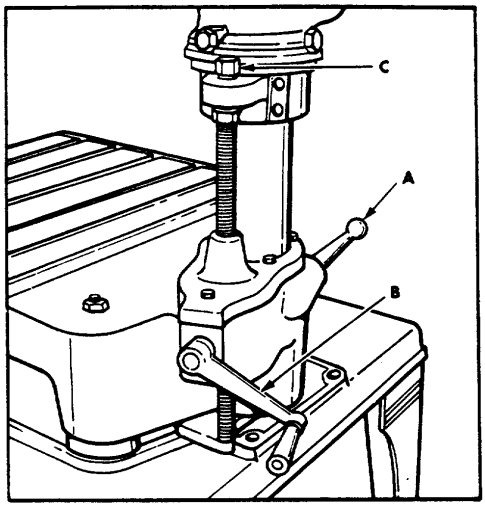


Figure 12

TILTING THE HEAD

The drill head can be tilted up to 45 degrees right and left. To tilt the head, slightly loosen the two locks, one of which is shown at (A) fig. 13, tilt the head to the desired position and tighten the two locks (A). An easy to read head tilt scale (B) and pointer permits setting of head at exact angle desired.

WARNING

THE HEAD MUST BE SECURELY HELD WHEN LOOSENING THE TWO LOCKS in ORDER THAT IT WILL NOT SUDDENLY TILT CAUSING DAMAGE TO THE MACHINE OR INJURY TO YOURSELF.

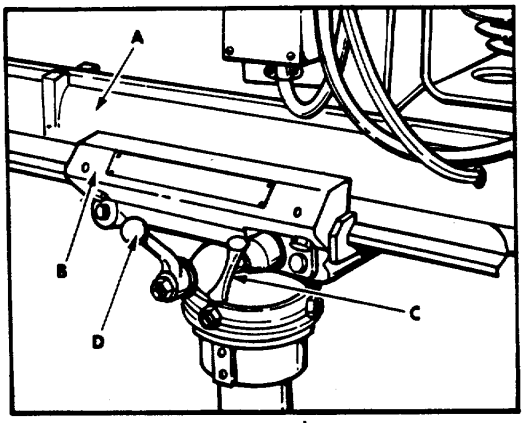


Figure 14

ADJUSTING THE RAM

The cradle (B) fig. 15, is equipped with eight ball bearings placed on an eccentric to permit take-up of wear between the ram (A) and cradle (B), and also to insure that the ram travel is parallel with the table surface. If an adjustment is ever necessary, loosen the four set screws (C) fig. 15, located above and below the four adjusting plugs (0). Four additional set screws and adjusting plugs are also located on the other end of the cradle. Adjustment is made by tightening or loosening the adjusting plugs (D). NOTE: This adjustment has been made at the factory and should not be disturbed unless absolutely necessary.

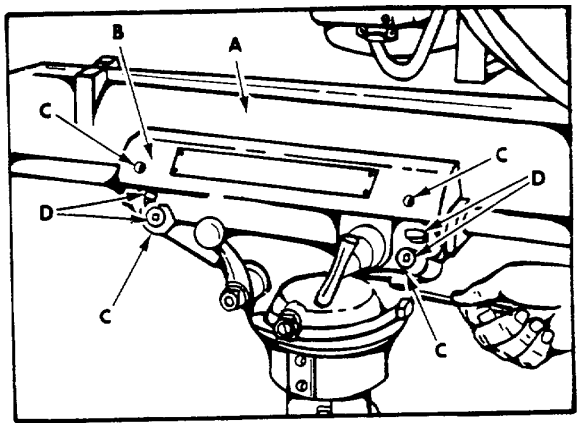


Figure 15

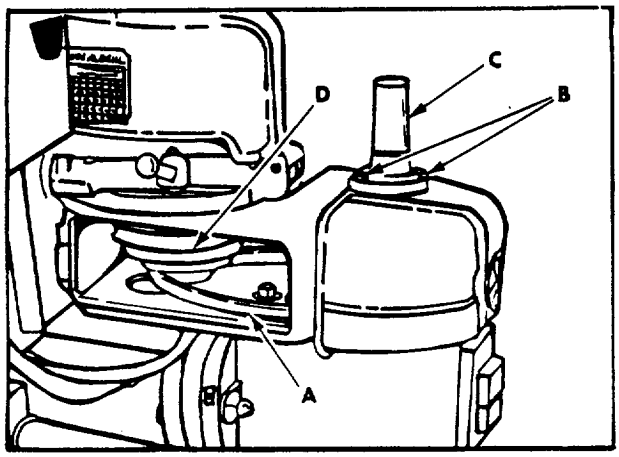


Figure 16

REPLACING LOWER JACKSHAFT AND SPINDLE PULLEY BELT

If it ever becomes necessary to replace the lower belt (A) fig. 16, proceed as follows:

1. Disconnect the machine from the power source.

2. Remove three screws (B) on cap (C) fig. 16, and remove cap.

3. Lower the spindle 4 to 5 inches and lock in place.

4. Release belt tension on the lower belt and remove belt from underneath jackshaft pulley (D) and over the top of the spindle pulley.

HOW TO USE SPINDLE ADAPTERS

One of the unique features of this Drill Press is the ease with which various spindle adapters may be used.

When removing either the chuck or the spindle adapters, we recommend the use of the spanner wrench which is available as an accessory. Turn the locking collar of the adapter or chuck with the spanner wrench while keeping the spindle from turning by either holding the V-belt or holding the chuck or adapter.

When attaching adapters to the spindle, it is very important to wipe clean both the spindle taper and taper hole in adapter. Then place the adapter on the spindle and tighten the locking collar. It in checking the spindle for accuracy, there should be a run out, we suggest that the adapter be removed and turned perhaps one quarter or one-half turn and replaced. This may reduce or eliminate the run out. It may also increase It, in which case, remove the adapter and turn it some more on the spindle.

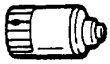
Refer to the accessory section of this manual for a list of adapters available for your drill press.

ACCESSORIES

SPINDLE ADAPTERS

Adapter with No. 1 M.T. hole, with threaded mounting collar. 2 lbs.

Adapter with No. 2 M.T. hole, with threaded mounting collar. 1 lb.

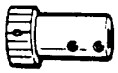


Adapter, ½" shaft and flange. *For cup, dish or straight grinding wheels. With mounting collar tapped* 1 1/16"—20. 1 lb.

NOTE: Not suitable for use with Ram Type Radial Drill Press.

Adapter with collars and threaded mounting collar for shaper cutters with ½" hole. 1 lb.

NOTE: Not suitable for use with Ram Type Radial Drill Press.



Adapter, ½" hole, with *threaded mounting collar for router* and spur bits, etc. 1 lb.

Spanner Wrench—1½" x 5¾" long, with single lug for ⅞2" hole.

Machine Spur Bits—*Production type.* Made of selected steel. Have brad point and two cutting spur lips. Approximately 6" long with ½" shank. Weight per set 3 lbs.

⅛"	½"
5/32"	9/32"
3/16"	5/16"
7/32"	11/32"

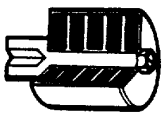
Complete set of 8 machine spur bits.

Plug Cutters—

2" shank, barrel 2¼" long. Cuts plugs 2" thick and dowels 2" long.

½" dia.	¾" dia.
⅝" dia.	1" dia.
⅞" dia.	

Complete set of 5 plug cutters. 2½ lbs.

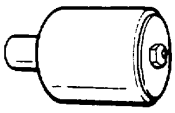


Drum, 3" dia. x 3", *with one sleeve. Fits ½" dia. shaft.* 2 lbs.

Sleeves, ½ doz. 3 x 3". 40 grit coarse garnet. ½ lb.

Sleeves, ½ doz., 3 x 3". 60 grit medium garnet. ½ lb.

Sleeves, ½ doz., 3 x 3". 50 grit al. ox. *(for metal).* ½ lb.

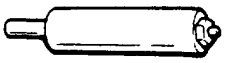


Drum, 1¾" dia. x 2", *with one sleeve. Fits ½" dia. shaft.* 1¾ lbs.

Sleeves, ½ doz., 1¾ x 2". 40 grit med. garnet. ¼ lb.

Sleeves, ½ doz., 1¾ x 2". 60 grit fine garnet. ¼ lb.

Sleeves, ½ doz., 1¾ x 2". 50 grit al. oxide *(for metal).* ¼ lb.



Drum, 11/16" dia. x 2½", with one sleeve. With ½" shank to fit hollow spindle or chuck. ½ lb.

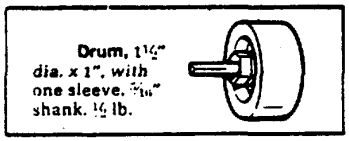
Sleeves, ½ doz., 11/16 x 2½". 50 grit med. garnet. ½ lb.

Sleeves, ½ doz., 11/16 x 2½". 80 grit fine, garnet. ½ lb.

Sleeves, ½ doz., 11/16 x 2½". 50 grit al. oxide *(for metal).* ½ lb.

NARROW SANDING DRUMS AND SLEEVES

Drums of solid rubber for use in 3-jaw chuck.



Drum, 1½" *dia. x 1", with* one sleeve. 5/16" shank. ½ lb.

Sleeves, ½ doz., 1½ x 1". 40 grit. al. oxide. ¼ lb.

Sleeves, ½ doz., 1½ x 1". 80 grit al. oxide. ¼ lb.

Drum, 2 5/16" dia. x 1", with one sleeve. 5/16" shank. ½ lb.

Sleeves, ½ doz., 2 3/16 x 1". 40 grit al. oxide. ¼ lb.

Sleeves, ½ doz., 2 3/16 x 1". 80 grit al. oxide. ¼ lb.

Drum, 3" dia. x 1", with one sleeve, 3/16" shank. ¾ lb.

Sleeves, ½ doz., 3 x 1". 40 grit al. oxide. ½ lb.

Sleeves, ½ doz., 3 x 1". 80 grit al. oxide. ½ lb.

Mortising Chisels—*Production type.* Made of selected steel. Shank of chisel is ¾ x 1½".

—¼ x ¼", mortises 1⅞" deep.

—5/16 x 5/16", mortises 1⅞" deep.

—⅜ x ⅜", mortises 3" deep.

—½ x ½", mortises 3" deep.

Mortising Chisel Bits—Of selected steel. Bit operates inside chisel.

—¼" bit x 3/16" dia. shank.

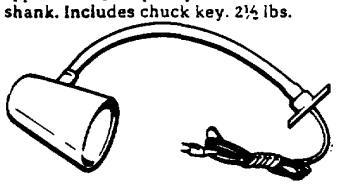
—5/16" bit x ¼" dia. shank.

—⅜" bit x 19/64" dia. shank.

—½" bit x 19/64" dia. shank.

KEY CHUCK

Drill Chuck—3-jaw type, 0 to ½" capacity, with No. 2 M.T. shank. Includes chuck key. 2½ lbs.



Lamp Attachment, for 115 V. Includes 18" flexible gooseneck, reflector and 8-foot cord with 2-prong plug. Uses standard bulb (not included) up to 75 watts. 3 lbs.

MOTOR PULLEYS

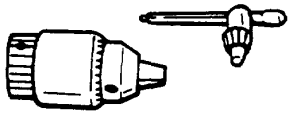
Four-Step—½" bore. 1 lb.

Four-Step—⅝" bore. 1 lb.

BELTS

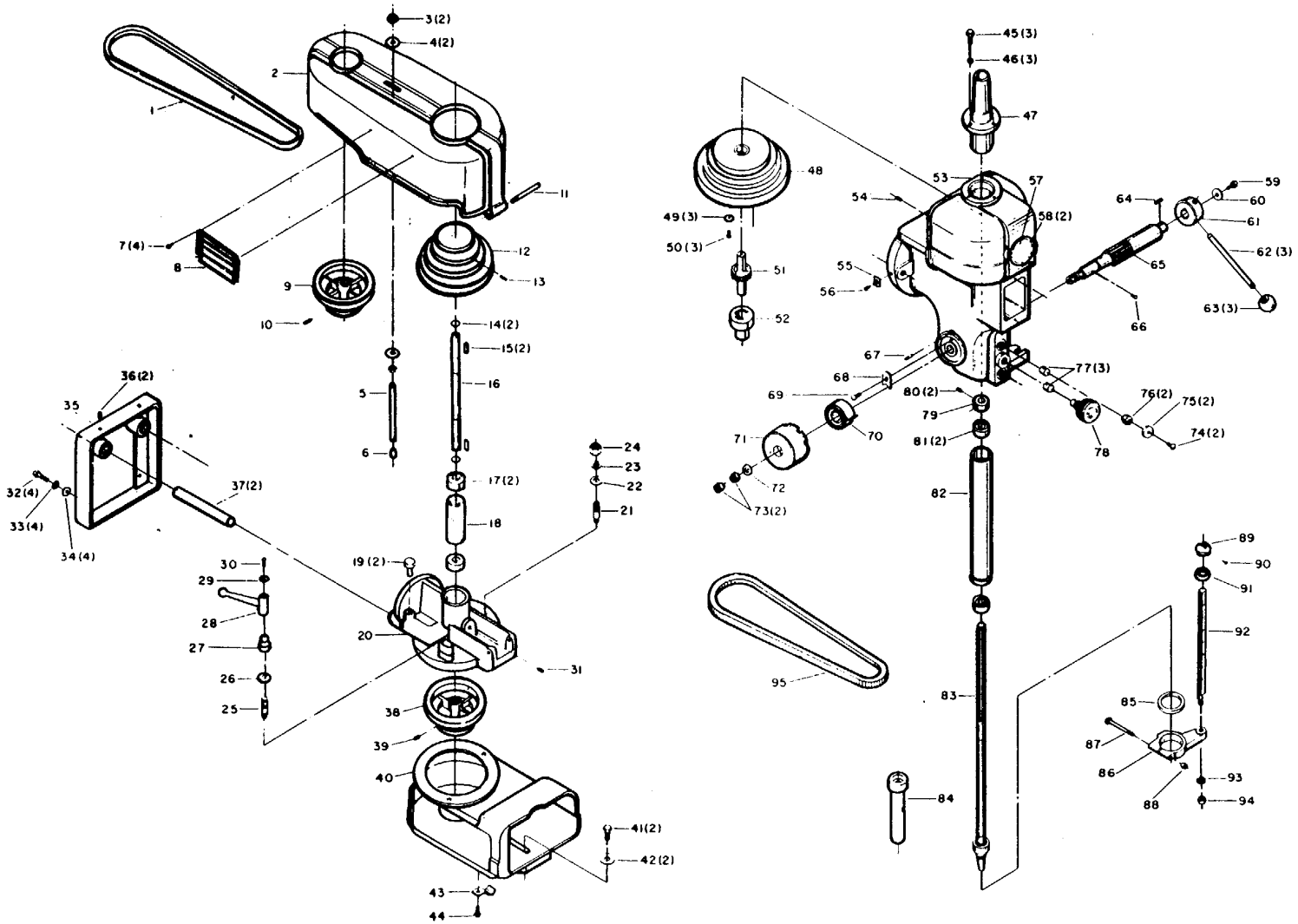
V-Belt, 31⅛" OC, for Ram Type Radial Drill Presses (rear belt). ½ lb.

V-Belt, 30⅛" OC, for Ram Type Radial Drill Presses (front belt). ½ lb.



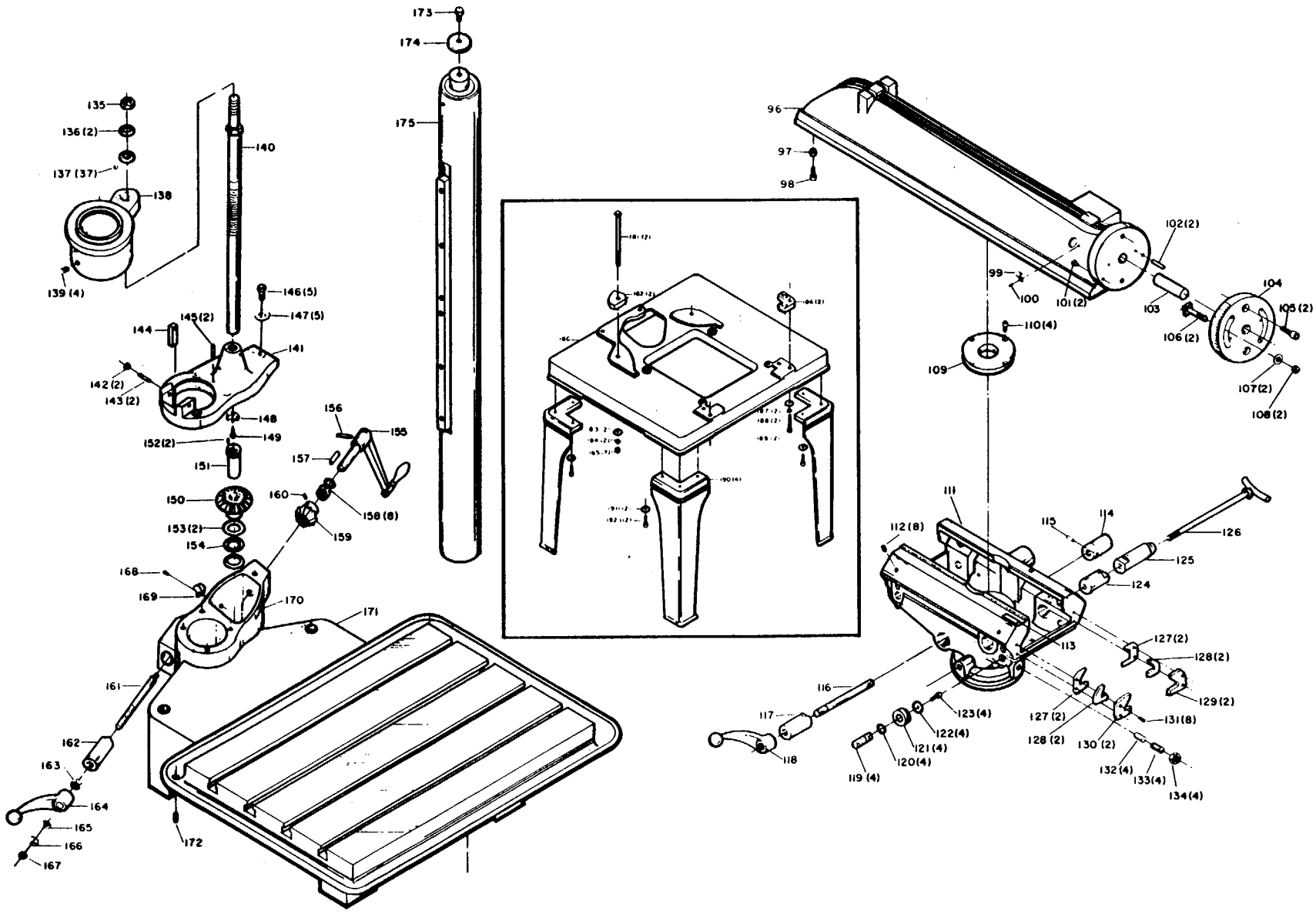
Drill Chuck—Key Chuck, 0-½" capacity, 3-jaw type, with threaded mounting collar and key. 1½ lbs.

DRILLING MACHINE, RADIAL, SLIDING RAM



Replacement Parts

Ref. No.	Part No.	Description
1	Cat #49-287	Belt
2	439-01-354-5001	Guard Assembly, including:
3	SP-5433	3/8"-16 Hex Jam Nut
4	SP-1606	7/16 x 1 x 5/64" Washer
5	211-18	Stud
6	399-8	Bumper
7	SP-2252	#2 x 3/16" Drive Screw
8	960-04-011-8315	Speed Chart
9	Cat #41-703	Pulley, including:
10	SP-1185	1/4-20 x 5/16" Soc. Set Scr.
11	291-11	Hinge Pin
12	344A16	Pulley, including:
13	SP-202	1/4 -20 x 1/2" Soc. Set Scr.
14	SP-1410	Retaining Ring
15	SP-2662	3/16 x 3/16 x 3/4" Key
16	1202600	Shaft
17	SP-5384	Bearing
18	1202601	Spacer
19	SP-5781	1/2-20 x 3/4" Hex Hd. Scr.
20	16-61	Bracket
21	214-8	Stud
22	SP-1636	17/32 x 1-1/16 x .095" Washer
23	SP-1705	1/2 Split Lockwasher
24	SP-1266	1/2 -13 Hex Jam Nut
25	214-8	Stud
26	SP-1636	17/32 x 1-1/16 x. 095" Washer
27	225-2	Locknut
28	362-1-2	Handle
29	SP-1614	9/32 x 5/8 x 1/16" Washer
30	SP-509	1/4-20 x 1/2" Rd. Hd. Scr.
31	SP-217	5/16-18 x 1/2" Soc. Set Scr.
32	SP-649	5/16-18 x 1" Hex Hd. Scr.
33	SP-2086	5/16" Split Lockwasher
34	SP-1605	3/8 x 7/8 x 1/16" Washer
	16A18	Motor Plate Assembly. consisting of:
35	439-01-072-5002	Plate
36	SP-231	5/16-18 x 3/8" Soc. Set Scr.
37	299-10	Pin
38	Cat. #41-703	Pulley Assembly, including:
39	SP-1185	1/4-20 x 5/16" Soc. Set Scr.
40	16-66	Bracket
41	SP-672	1/2-20 x 1-1/4" Hex. Hd. Scr.
42	SP-1636	17/32 x 1-1/16 x095" Washer
43	396-81	Cable Clip
44	901-05-010-7562	#10-32 x 5/16" Rd. Hd. Scr.
45	SP-626	1/4-20 x 3/4" Fixed Hd. Scr.
46	SP-1702	1/4" Lockwasher
47	1203072	Top Bearing Retainer
48	1203069	Spindle Pulley Assembly, including:
49	SP-3801	#8-32 x 3/8" Rd. Hd. Scr.
50	240-14	Special Washer
51	DP-264	Pinion Sleeve
52	1203070	Bearing Assembly
53	1203076	Head
54	SP-217	5/16-18 x 1/2" Soc. Set Scr.
55	321-12	Pointer
56	SP-558	#8-32 x 1/4" Rd. Hd. Scr.
57	960-02-012-0028	Nameplate
58	SP-2252	#2 x 3/16" Drive Screw
59	SP-605	5/16-18 x 1/2" Hex. Hd. Scr.
60	240-87	21/64 x 15/16 x 1/8" Washer
	12A15	Hub Assembly, consisting of:
61	12-15	Hub
62	211-7	Spoke
63	1201642	Knob
64	SP-2696	3/16 x 3/16 x 5/16 Key
65	1202361	Pinion Shaft
66	212-4	Spring Pin
67	SP-6861	3/16 x 5/8" Groove Pin
68	13-67	Pinion Retainer
69	SP-8015	1/4-20 x 1/2- Button Hd. Scr.
70	928-08-011-5876	Clock Spring
71	11-14	Spring Housing
72	SP-1622	21/32 x 1-5/16 x 12 ga. Washer
73	SP-1226	5/8-18 Hex Jam Nut
74	SP-509	1/4-20 x 1/2" Rd. Hd. Scr.
75	240-49	Washer
76	204-11	Quill Adjusting Scr.
77	234-6	Plug
78	211A29	Hand Knob w/Stud
79	254A34	Collar, including:
80	SP-208	1/4-20 x 1/4" Soc. Set Scr.
81	370-10-1	Bearing
82	13-3	Quill
83	1203077	Spindle (#33 Jacobs Taper)
84	Cat. #15-833	Spindle Adapter
85	904-07-060-3774	Gasket
86	13-10-1	Stop Collar
87	401-02-112-5002	1/4-20 x 2-1/4" Sq. Hd. Scr.
88	SP-1034	1/4"-20 Hex Nut
	1201859	Stop Rod Assembly, consisting of:
89	DP-561	Body
90	SP-1534	Thumb Screw
91	402-04-088-5005	Stop
92	1201858	Stop Rod
93	SP-1789	3/8" Internal Tooth Lockwasher
94	SP-5433	3/8"-16 Hex Jam Nut
95	Cat. #49-287	Belt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Replacement Parts

Ref. No.	Part No.	Description
96	16-62	Ram
97	SP-5433	3/8-16 Hex Jam Nut
98	SP-640	3/8-16 x 3/4" Hex Hd. Bolt
99	396-81	Cable Clip
100	901-02-010-7562	#10-32 x 5/16" Rd. Hd. Scr.
101	MJ-4216	Bumper
102	SP-7105	1/4 x 1-1/4" Groove Pin
103	290-29	Guide Pin
104	16-55	Flange
105	201-6	Special Screw
106	200-4	Angle Hd. Lock Stud
107	SP-1636	17/32 x 1-1/6 x . 095" Washer
108	SP-1255	1/2"-13 Acorn Nut
109	16-53	Flange
110	SP-3350	5/16-18 x 1/2" Soc. Hd. Scr.
111	16-58	Cradle
112	SP-1111	3/8-16 x 3/8" Soc. Set Scr.
113	383-11	Decal
114	230-4	Locking Plug
115	SP-6714	5/32 x 1-1/4" Roll Pin
116	213-37	Locking Stud
117	231-10	Locking Block
118	1202514	Handle
119	41-28	Eccentric
120	240-9	Spacer
121	SP-5335	Bearing
122	240-87	21/64 x 15/16 x 1/8" Washer
123	SP-605	5/16-18 x 1/2" Hex Hd. Scr.
124	232-2	Locking Plug (short)
125	233-2	Locking Plug (long)
126	211A19	Ram Locking Stud
127	41-43	Retainer
128	41-42	Felt Wiper
129	41-30-1	Holder
130	41-30-2	Holder
131	SP-509	1/4-20 x 1/2" Rd. Hd. Scr.
132	234-4	Brass Plug
133	202-11	Special Set Screw
134	SP-1226	5/8"-18 Hex Jam Nut
135	SP-9104	3/4"-16 Hex Jam Nut
136	242-12	Flange Washer
137	SP-31	3/8" Steel Ball
138	16-59	Column Collar
139	SP-1123	1/2-13 x 5/8" Soc. Set Scr.
140	41A81	Raising Screw
141	16A29	Cover, including:
142	SP-1270	3/8"-24 Hex Jam Nut
143	SP-6243	3/8-24 x 1-1/4" Soc. Set Scr.
144	42-64	Key Block
145	SP-7105	1/4 x 1-1/4" Groove Pin
146	SP-609	5/16-18 x 1-1/2" Hex Hd. Scr.
147	SP-1620	11/32 x 11/16 x 1/16" Washer
148	242-22	Special Washer
149	SP-606	5/16-18 x 5/8" Hex. Hd. Scr.
150	331A4	Gear Assembly, including:
151	222-4	Bushing
152	SP-278	#10-32 x 1/2" Soc. Set Scr.
153	0908716	Thrust Race
154	0908715	Thrust Bearing
155	364A5-1	Crank, including:
156	SP-2712	1/4 x 1-1/4" Roll Pin
157	SP-2695	3/16 x 3/16 x 1" Key
158	PLR-166	3/4 x 1-1/8 x .010 Shim Washer
159	439-01-351-5002	Gear, including:
160	SP-206	5/16-18 x 5/16" Soc. Set Scr.
161	213-38	Locking Stud
162	231-10	Locking Block
163	SP-9103	5/8"-11 Hex Jam Nut
164	362-14	Handle
165	240-85	5/8 x 1-1/8 x 3/32" Washer
166	SP-1713	5/8" Split Lockwasher
167	220-33	5/8"-11 Hex Locknut
168	901-05-010-7562	#10-32 x 5/16" Rd. Hd. Scr.
169	396-81	Cable Clip
170	383-11	Decal
171	16-65	Base
172	SP-3459	Pipe Plug
173	200-5	1/2-20 x 3/4" Hex Hd. Scr.
174	242-8	Flange Washer
175	439-01-330-5001	Column Assembly
	Cat #65-863	Stand, Consisting of:
180	390-48	Lower Base
181	SP-7851	1/2-13 x 9" Sq. Hd. Bolt
182	16-51	Spacer (Rear)
183	SP-1618	9/16 x 1-3/8 x 12 Gage Washer
184	SP-1705	1/2" Split Lockwasher
185	SP-1282	1/2"-13 Hex Jam Nut
186	16-50	Spacer (Front)
187	SP-1618	9/16 x 1-3/8 x 12 Gage Washer
188	SP-1705	1/2" Split Lockwasher
189	SP-3112	1/2-13 x 2-1/4" Hex Hd. Scr.
190	390-49	Leg
191	SP-1618	9/16 x 1-3/8 x 12 Gage Washer
192	SP-620	1/2-13 x 1-1/4" Hex Hd. Scr.

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SUPPLEMENTAL DATA SHEET

	Description	Part No.
66-369	Motor (1/2 HP, 3 Phase 230 Volt, 60 Cycle, GDP, 1725 RPM)	56T17D516
52-348	Switch (Start-Stop, Push Button Magnetic Starter Control)	50ZAE7
1086720	Transformer	BE12120-002
438-61-016-0143 (old #1225237)	Contractor	410B107247
1224235	Overload	48DC106922
SP-5384	Bearing	Z97503X1C

Description	Part No.
370-10-1 Bearing	202FS5
SP-5335 Bearing	77503
49-287 V-Belt	8000-1420

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General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

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PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.
5			

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Callouts K and Z are switched. K is the square head bolt and Z is a flat washer.

Figure 2 is referred to on page 1, but there is no figure 2.

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