

**No. 27-100**

**DELTA<sup>®</sup>-MILWAUKEE, AMMCO**

*7" "Precision Shaper  
for Metalworking"*

*Instruction Manual*

PM-1737



PM-1737

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27-B: Metal Shaper Instruction Manual

## No. 27-100 DELTA-MILWAUKEE 7" PRECISION SHAPER for Metalworking OPERATING AND MAINTENANCE INSTRUCTIONS

### HOLDING WORK IN SHAPER

The table is designed so that work can be set up in the shaper with comparative ease. The table has three 5/16" slots on the top; also two 5/16" slots and a "V" slot one side and three 5/16" slots on the opposite side. All these slots are drilled for clamping purposes. These slots are most generally used when the size of the work prohibits the use of the vise.

The vise is fastened to the table by means of a stud bolt. The vise is on a swivel base which is graduated from 0° to 90° right and left. There is a key way in the base of the vise which when used in conjunction with a key and key way in the table, the vise can be rotated 90° at a time with exact precision.

When using the vise, care should be taken to set the work high enough in the vise so the tool bit will not strike the vise before the work is completed. There are different methods by which work can be set up in the vise. If the work is plain and of a regular shape, parallel bars are usually used under the work. If work is of an irregular nature, a surface gauge can be easily applied to line up the surface to be machined, whether work is held in vise or clamped on table.

### STROKE ADJUSTMENT

The removal of the cover plate on the left side of the shaper gives access to the stroke adjustment. (Fig. 5) A scale is stamped on the crank arm which represents inches stroke of the shaper ram. To set the stroke, the shaper is turned by hand until the crank shoe comes to its top position. Loosen the clamp nut (Fig. 6) which is located on the eccentric which moves the feed mechanism. It is on the opposite side of the shaper from the cover plate. With the nut loose, the shoe will move with comparative ease. Set the indicating mark on the shoe opposite the desired number on the crank arm. A stroke of 7-3/4" can be obtained by setting the indicator mark on the maximum mark. To determine the stroke desired, measure the work. Allow 1/4" to 3/8" extra for tool clearance. This tool clearance will allow the clapper box time to bring the tool to its cutting position before the ram starts on its cutting stroke.

### LOCATING RAM POSITION

After making the stroke adjustment, it may be necessary to locate the ram so that the tool will cover the work. To do this, loosen the ram block handle S20-5 (Fig. 5) in the upper slotted part of the ram. This will allow the ram to move to the position desired. To find this position, turn the shaper by hand until the ram is at its extreme feed position. Set the ram so that the tool clears the work from 1/4" to 3/8". After the proper position of the ram is reached, tighten the ram block handle.

### TOOL HEAD

The tool head (Fig. 4) is fastened to the ram on a swivel. It will rotate 90° to the right and left of its upright position. To make this setting; loosen the lock nut S10-5 directly behind the tool head. The tool head can be set at any angle desired. When operating the shaper with the tool head in its upright position, do not lower it more than 3/8" from its central position. Any shaper will do better work if this precaution is observed. It centralizes the load and maintains a better balance throughout the machine. It also prevents the tool head from striking the ram V-ways in the main frame when the tool head is set over from its upright position. This is usual shaper practice.

### TOOLS AND TOOL HOLDERS

Various types of tools and tool holders can be used in the shaper. With the removal of the tool post, special tool holders can be installed. These tool holders vary in size according to the size and type of work that is to be shaped. They are easily adapted to the cutting of internal key ways, female ends of couplings, unions, etc. With the aid of these tools the shaper can be used as a slotter.

### CLAPPER BOX

A swivel clapper box S10-3 (Fig. 4) is mounted on the tool head. The purpose of this box is to allow the tool to clear the work on the return stroke of the ram. Clearance can be obtained by proper adjustment of the swivel. When the cut is on a horizontal plane, the clapper box should be in its central or upright position. This position

will allow the tool to lift directly upward and thus clear the work. If the cut is on a vertical plane and the feed is from the tool head down, the clapper box should be adjusted so the top of the box will be away from the work.

By shifting or tilting the clapper box this allows a double movement of the tool on the return stroke of the ram, up and away from the work, whichever the case may be.

#### TABLE ADJUSTMENT

The table is raised and lowered by means of a ball crank S25-32 (Fig. 5) located on the right hand side of the shaper (Fig. 2). The table is held secure by two locks. One is a gib lock, located on the left hand side of the shaper. The other is on the traveling foot rest S25-17 (Fig. 1) to the front of the shaper. Loosen both of these locks and the table can be raised or lowered by turning the ball crank to the right or left.

The height of the table should be such as not to compel the tool head to be adjusted more than  $3/8$ " either way from its central position only on short stroke work when the tool head does not strike the main frame. This is usual shaper practice. After the proper height is obtained, tighten the gib lock and secure the traveling foot rest in contact with the base.

#### THE FEED

The feed is a reversible and adjustable type. One tooth on the ratchet is equal to a cross feed of .003". By adjusting the position of the T-bolt S80-16 (Fig. 6) in the Feed Adjusting Lever S80-3 (Fig. 7) a feed varying from .003" to .018" can be obtained.

The adjustment in the Feed Adjusting Lever is made by loosening the Knurled Nut S80-15 (Fig. 6) and moving the T-bolt up to decrease feed or down to increase feed.

To reverse feed, turn the knurled knob on top of the ratchet dog S80-18 (Fig. 7) one-half turn. By turning this knob, feed of the table in either direction may be had.

For best operation, the feed should take place during the return stroke of the ram. If it does not, loosen the eccentric clamp nut (Fig. 6) and move the eccentric to the opposite end of the elongated hole, being sure to tighten the clamp nut afterwards.

#### IMPORTANT

When the crossrail is changed, it is necessary to correct the length of linkage operating the feed pawl. This is done by loosening the knurled screw S80-17 (Fig. 7) that clamps the feed rod sleeve and resetting the pawl lever and feed adjusting lever approximately parallel to each other after the crossrail has been changed.

#### FEED SAFETY FACTOR

When the table has traveled its maximum length in either direction, it runs off the crossrail feed screw, S25-21 (Fig. 2).

To re-engage the feed nut, push the table against the threads of the crossrail feed screw and at the same time turn the cross feed ball crank by hand until the threads on the crossrail feed screw engage the cross feed nut.

#### CUTTING SPEEDS

Cutting speeds varying from 40 to 180 strokes per minute can be obtained by shifting the belt to the desired position on the pulley.

#### LUBRICATION

All moving parts and bearings are supplied with oil holes and oilers. Care should be taken to keep the shaper lubricated with a good grade of machine oil. This will insure better operation and a longer life of the machine.

#### IMPORTANT

1. Do not run this machine until properly oiled.
2. Be careful when operating shaper and be sure the tool does not strike front of ram V-ways when feeding down.
3. Keep the surface clean under the foot rest.
4. Do not attempt heavy cuts. Use speed and small cuts.
5. Use fine feed for smoothest finish.

#### DIVIDING HEAD

The dividing head is an attachment used when the work calls for some accurate dividing, such as - equally spacing of keys on a shaft, teeth on a ratchet or in the shaping of a spline shaft. The dividing head is fastened to the top of the table. Its position is located by the key which aligns the dividing head parallel with the table.

The dividing head (Fig. 11) is equipped with dividing plates S55-9 or S55-10 which will cover the average line of work done on the shaper.

The work is placed between the centers of the dividing head. For example: If a hex is to be cut on a bolt, there are six faces that will have to be cut. There are four sets of holes in the plates. One set has 36 holes in the circle and the other has 30. A multiple of both 30 and 36 is 6. Therefore, if the group of 30 holes is used the work will be rotated 5 holes for each face or if the group of 36 holes is used, the work will be rotated 6 holes for each face. If a square is to be cut, the group of 36 holes can be used because 36 is a multiple of 4. Dividing 36 by 4 gives 9. Therefore, the work will be rotated 9 holes for each surface. Spline shafts and key ways are cut by the same method. In some cases, the width and

shape of the tool will have to be considered.

### ROTARY TABLE

The Rotary Table (Fig. 9) is fastened to the table in the same manner as the vise and dividing head. The base is located on the table by the key ways and key. The table is graduated from 0° to

360°. It also has an index pin for indexing in 12 holes located in work table. This attachment is adaptable to the cutting of slots and grooves that intersect at different angles. The work is clamped on the table by means of bolts whose heads fit in the "T" grooves which are conveniently located on the plate.

## Table 1. REPLACEMENT PARTS

IMPORTANT: Give both the Part Number and the Description of each item when ordering from this list; also the Serial Number of the machine on which the parts are to be used.

### NO. 27-100 7" METAL WORKING SHAPER

Amco Part No.	Delta Part No.	Description	No. Req'd.
<u>RAM (Fig. 5)</u>			
S5-1		Ram .....	1
<u>TOOL HEAD (Fig. 4)</u>			
S10-1	—	Tool Head Holder.....	1
S10-2	—	Tool Slide .....	1
S10-3	—	Clapper Box.. ..	1
S10-4	—	Clapper .....	1
S10-5	—	Tool Head Clamp Bolt.....	1
S10-6	—	Tool Head Clamp Shoe.....	1
S10-7	—	Tool Slide Gib Screw.....	5
S10-8	—	Tool Slide Gib .....	1
S10-9	—	Tool Head Screw .....	1
S10-11	—	Tool Slide Collar .....	1
S10-12	—	Tool Slide Collar Spring .....	1
S10-13	—	Tool Slide Ball Crank .....	1
S10-14	—	Ball Crank Handle .....	1
S10-15	—	Tool Slide Graduated Collar .....	1
S10-16	—	Clapper Box Swivel Screw .....	1
S10-17	—	Clapper Box Lock Screw .....	1
S10-18	—	Clapper Box Lock Screw Washer .....	1
S10-19	—	Tool Post .....	1
S10-20	—	Tool Post Ring .....	1
S10-23	—	Tool Slide Collar.....	1
S10-24	—	Tool Head Lock Screw.....	1
420-P	—	1/8" dia. x 5/8" lg. pin.....	1
SP-291	SP-2430	#5 x 2" lg. Taper Pin.....	1
SP-288	SP-7072	#00 x 1" lg. Taper Pin.....	1
SP-254	SP-1005	3/8-16 Hex Jam Nut—11/16" across flats.....	1
SP-387	—	5/16-18 x 1 1/4" Lg. Mac-It tool post Screw.....	1
<u>MAIN FRAME (Figs. 2 &amp; 5)</u>			
S15-1	—	Main Frame .....	1
S15-4	—	Cover Plate .....	1
S15-6	—	Cover Plate Knob .....	1
S15-7	—	Latch .....	1
S15-8	—	Latch Knob Spring .....	1
S15-12	—	Ram Oil Seal (R.H.) .....	1
S15-13	—	Ram Oil Seal (L.H.) .....	1
S15-14	—	Oil Seal Felt Washer (R.H.) .....	1
S15-15	—	Oil Seal Felt Washer (L.H.) .....	1
S15-16	—	Bull Gear Shank Bushing .....	1

**Table 1. REPLACEMENT PARTS (Continued)**

IMPORTANT: Give both the Part Number and the Description of each item when ordering from this list;  
also the Serial Number of the machine on which the parts are to be used.

Armco Part No.	Delta Part No.	Description	No. Req'd.
<u>MAIN FRAME (cont'd)</u>			
S15-17	_____	Drive Shaft Bushing (large) .....	1
S15-18	_____	Drive Shaft Bushing (small) .....	1
S15-21	_____	Base .....	1
S15-22	_____	Adjusting Stroke Name Plate .....	1
S15-23	_____	Elevating Crank Shaft .....	1
S15-24	_____	Elevating Screw .....	1
S15-25	_____	#L-110 Miter Gears .....	2
S15-26	_____	Elevating Screw Collar .....	1
S15-27	_____	Crank Shaft Collar .....	1
S15-28	_____	Oil Wick .....	1
	CBL-431	Name Plate .....	1
	SP-2482	Serial Plate .....	1
	SP-2252	Drive Screws for name & serial plates .....	4
S15-32	_____	Ram Guard .....	1
S15-36	_____	Ram Gib Screw .....	6
S15-37	_____	Ram Gib .....	1
S15-38	_____	Oilite Bushing .501" I.D. x .628" O.D. x 7/8" lg. ....	2
828-P	_____	Pin, 1/4" dia. x 7/8" lg. ....	2
SP-206	SP-769	Socket Head Cap Screw—1/4-28 x 3/4" lg. ....	2
SP-212	SP-208	Socket Hd. Cup point set screw, 1/4-20 x 1/4" lg. ....	1
SP-217	SP-205	Socket Hd. Cup point set screw, 5/16-18 x 1/4" lg. ....	1
SP-222	SP-207	Socket Hd. Cup point set screw, 5/16-18 x 1/2" lg. ....	1
SP-239	SP-650	Hex Hd. Cap Screw, 3/8-16 x 7/8" lg. ....	6
SP-249	SP-1214	Semi-Finished Hex. Full Nut, #10-32 .....	6
SP-282	SP-1712	S. A. E. Heavy Kant Link Lock Washer, 1/4" hole .....	2
SP-285	SP-1704	Kant Link Split Lock Washer, 3/8" x 1/8" x 3/32" .....	6
SP-287	SP-7073	Taper Pin, #00 x 3/4" lg. ....	2
SP-288	SP-7072	Taper Pin, #00 x 1" lg. ....	1
SP-307	SP-3008	Self Tapping Screw, #6-32 x 7/16" lg., Rd. Head .....	6
SP-314	SP-7074	#501 Gits Oiler .....	8
SP-315	SP-7075	#414 x 4" lg. Gits Oiler .....	1
SP-316	SP-7076	#504 Gits Oiler .....	1
<u>DRIVE UNIT (Fig. 5)</u>			
S20-1	_____	Ram Block .....	1
S20-2	_____	Rocker Arm .....	1
S20-3	_____	Crank .....	1
S20-5	_____	Ram Block Handle .....	1
S20-6	_____	Ram Block Stud .....	1
S20-7	_____	Ram Block Washer .....	1
S20-8	_____	Ram Block Bushing .....	2
S20-9	_____	Bull Gear .....	1
S20-11	_____	Bull Gear Shank .....	1
S20-12	_____	Bull Gear Collar .....	1
S20-13	_____	Bull Gear Collar Felt Wick .....	2
S20-14	_____	Crank Clamp .....	1
S20-15	_____	Crank Stop Pin .....	2
S20-16	_____	Drive Pinion .....	1
S20-18	_____	Hand Knob .....	1
S20-19	_____	Rocker Arm Shoe .....	1
S20-20	_____	Rocker Arm Shoe Screw .....	1
S20-21	_____	Rocker Arm Washer .....	1

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also the Serial Number of the machine on which the parts are to be used.

Amco Part No.	Delta Part No.	Description	No. Req'd.
<u>VICE (Fig. 8)</u>			
S30-1	_____	Vise Body .....	1
S30-2	_____	Vise Base .....	1
S30-3	_____	Vise Jaw .....	1
S30-4	_____	Vise Jaw Plates .....	2
S30-5	_____	Vise Soft Jaws .....	2
S30-7	_____	Vise Screw Washer .....	1
S30-9	_____	Hold Down Bolt .....	1
S30-10	_____	Hold Down Bolt Washer .....	1
S30-12	_____	Vise Jaw Screw .....	1
S30-13	_____	Vise Jaw Screw Collar .....	1
S30-14	_____	Wire Snap Ring .....	1
SP-204	SP-612	Socket Head Cap Screw, $\frac{1}{4}$ -20 x $\frac{5}{8}$ " lg. ....	4
SP-245	SP-715	Fillister Hd. Cap Screw, $\frac{1}{4}$ -20 x $\frac{1}{2}$ " lg. ....	4
SP-246	SP-729	Fillister Hd. Cap Screw, $\frac{1}{4}$ -20 x $1\frac{1}{4}$ " lg. ....	2
SP-247	SP-743	Fillister Hd. Cap Screw, $\frac{1}{4}$ -20 x $2\frac{1}{2}$ " lg. ....	2
SP-255	SP-1004	Hex. Jam Nut, 7/16"-14, $\frac{3}{4}$ " across flats. ....	2
SP-257	SP-1006	Hex. Jam Nut, $\frac{1}{2}$ "-13, $\frac{7}{8}$ " across flats. ....	1
SP-303	SP-2615	Gib Hd. Key, 5/16" sq. x 2" lg. ....	1
SP-317	SP-2486	#521 Gits Oiler .....	1
<u>INDEX CENTERS (Figs. 10 &amp; 11)</u>			
S55-1	_____	Base .....	1
S55-2	_____	Index Head .....	1
S55-3	_____	Driver .....	1
S55-4	_____	Spindle .....	1
S55-5	_____	Spindle Key .....	1
S55-6	_____	Spindle Shoe .....	1
S55-7	_____	Index Head Center .....	1
S55-8	_____	Dead Center .....	1
S55-9	_____	Index Plate 48 - 28 .....	1
S55-10	_____	Index Plate 36 - 30 .....	1
S55-11	_____	Indexing Pin .....	1
S55-12	_____	Washer .....	1
S55-13	_____	Stud .....	1
S55-14	_____	Knurled Screw .....	1
S55-15	_____	Knurled Nut .....	1
S55-16	_____	Dog ( $2\frac{1}{2}$ " long) .....	1
S55-17	_____	Pin .....	1
S55-18	_____	Dog (2" long) .....	1
S55-19	_____	Special Jam Nut .....	1
S55-20	_____	Special Cap Screw .....	2
S60-5	_____	T-Bolt .....	1
300-A28	_____	Pin Wrench .....	1
SP-223	SP-207	Socket Head Flat Point Set Screw, 5/16-18 x $\frac{1}{2}$ " .....	1
SP-227	SP-10	Socket Head Set Screw Wrench for 5/16" screw. ....	1
SP-234	SP-162	Headless Flat Point Set Screw, #10-24 x $\frac{5}{8}$ " .....	2
SP-299	SP-7080	Groov-Pin, Type 2, $\frac{1}{8}$ " dia. x $\frac{7}{8}$ " lg. ....	1
<u>ROTARY TABLE (Fig. 9)</u>			
S60-1	_____	Base .....	1
S60-2	_____	Index Head .....	1
S60-3	_____	Indexing Pin .....	1
S60-4	_____	Stud .....	1
SP-233	SP-163	#10-24 x $\frac{1}{4}$ " lg. Headless Flat Point Set Screw. ....	1
SP-251	SP-1023	$\frac{1}{4}$ "-20 Hex Semi-Finished Full Nut .....	8

**Table 1. REPLACEMENT PARTS (Continued)**

IMPORTANT: Give both the Part Number and the Description of each item when ordering from this list;  
also the Serial Number of the machine on which the parts are to be used.

Ammco Part No.	Delta Part No.	Description	No. Req'd.
<b><u>DRIVE UNIT (Cont'd)</u></b>			
S20-22	————	Rocker Arm Shoe Cap .....	1
S20-23	————	Rocker Arm Shoe Felt Washer .....	1
S20-24	————	Rocker Arm Shaft (long) .....	1
S20-25	————	Rocker Arm Shaft (short) .....	2
S20-26	————	Rocker Arm Links.....	2
S20-27	————	Rocker Arm Shaft Collar .....	2
S20-30	————	Drive Shaft .....	1
S20-32	————	Bull Gear Lock Nut.....	4
S20-37	————	Crank Clamp Nut.....	1
S85-16	————	Fibre Washer.....	1
412-P	————	Pin, 1/8" dia. x 3/8" lg.....	3
SP-219	SP-206	Socket Hd. Cup-point set screw, 5/16-18 x 5/16" lg.....	4
SP-220	SP-231	Socket Hd. Cup-point set screw, 5/16-18 x 3/8" lg.....	3
SP-245	SP-715	Fillister Hd. Cap Screw, 1/-20 x 1/2" lg.....	4
SP-262	SP-564	Round Hd. Machine Screw, #6-32 x 3/8" lg.....	2
SP-289	SP-2421	Taper Pin, #0 x 3/4" lg.....	1
SP-293	SP-2107	Steel Cotter Keys, 1/8" dia. x 3/4" lg.....	4
SP-297	SP-7077	Groov-pin, Type 2. 1/16" dia. x 3/8" lg.....	1
SP-314	SP-7074	#501 Gits Oiler.....	1
SP-321	————	Step Cone Pulley, 4 step-5/8" bore.....	1
<b><u>CROSSRAIL AND TABLE (Figs. 1-2 &amp; 5)</u></b>			
S25-5	————	Table Support Bracket (Bottom) .....	1
S25-6	————	Cross Feed Nut .....	1
S25-12	————	Cross Feed Ball Crank .....	1
S25-13	————	Table Gib .....	1
S25-14	————	Top Guide Gib .....	1
S25-15	————	Table Support Shank .....	1
S25-16	————	Table Support Knob .....	1
S25-17	————	Handle to Shank Knob .....	2
S25-20	————	Cross Feed Gear .....	1
S25-21	————	Cross Feed Screw .....	1
S25-23	————	Cross Feed Thrust Collar .....	2
S25-24	————	Elevating Screw Nut .....	1
S25-27	————	Table .....	1
S25-28	————	Spring Washer.....	1
S25-30	————	Gib Locking Collar.....	1
S25-31	————	Locking Collar Knob.....	1
S25-32	————	Locking Knob Handle.....	1
S25-34	————	Crossrail .....	1
S25-45	————	Crossrail Gib.....	1
S10-14	————	Ball Crank Handle.....	1
S15-11	————	Table Gib Screw.....	4
S15-36	————	Ram Gib Screw.....	4
308-P	————	Pin, 3/32" dia. x 1/4" lg.....	2
SP-205	SP-238	Socket Head Cap Screw, 1/4-20 x 3/4" lg.....	2
SP-231	————	Headless Cup-point set screw, #8-32.....	1
SP-236	SP-608	Hex Head Cap Screw, 5/16-18 x 7/8" lg.....	2
SP-245	SP-715	Fillister Head Cap Screw, 1/4-20 x 1/2" lg.....	3
SP-249	SP-1214	Hex Semi-finished full nut, #10-32.....	4
SP-253	SP-1030	Hex Semi-finished jam nut, 5/16-18.....	2
SP-287	SP-7073	Taper Pin, #00 x 3/4" lg.....	1
SP-288	SP-7072	Taper Pin, #00 x 1" lg.....	1
SP-357	SP-7078	Groov-pin, Type 3, 5/32" dia. x 1 1/8" lg.....	1

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Ammco Part No.	Delta Part No.	Description	No. Req'd.
<b>FEED MECHANISM (Positive Drive Type) (Figs. 6 &amp; 7)</b>			
S80-2	_____	Layshaft Fixed Lever .....	1
S80-3	_____	Feed Adjusting Lever .....	1
S80-4	_____	Feed Pawl Lever .....	1
S80-6	_____	Feed Rod .....	1
S80-7	_____	Feed Rod Sleeve .....	1
S80-8	_____	Feed Sleeve Bushing .....	1
S80-9	_____	Eccentric Strap .....	1
S80-10	_____	Feed Eccentric .....	1
S80-11	_____	Feed Drive Layshaft .....	1
S80-14	_____	Shoulder Pin .....	2
S80-15	_____	T-Bolt Lock Nut .....	1
S80-16	_____	T-Bolt .....	1
S80-17	_____	Rod Clamp Screw .....	1
S80-18	_____	Pawl Lever Knob .....	1
S80-19	_____	Feed Pawl .....	1
S80-20	_____	Feed Pawl Spring .....	1
S80-21	_____	Threaded Bushing .....	1
S80-23	_____	Wear Washer .....	1
S80-24	_____	Feed Layshaft Bracket.....	1
S80-26	_____	Feed Rod Clamp.....	1
SP-208	SP-762	Socket Head Cap Screw, 5/16-18 x 5/8" lg.....	4
SP-230	SP-164	Headless Cup-point Set Screw, #6-32 x 3/16" lg.....	1
SP-261	SP-744	Fillister Head Machine Screw, #6-32 x 1/4" lg.....	1
SP-275	_____	Brass Washer, #6S.....	1
SP-290	SP-2424	Taper Pin, #0 x 1" lg.....	2
SP-292	SP-2102	Cotter Pin, 1/16" dia. x 1/2" lg.....	2
SP-314	SP-7074	Gits Oil Hole Cover, #501.....	1
SP-345	SP-7079	Groov-pin, Type 2, 1/16" dia. x 1/2" lg.....	1
<b>COUNTERSHAFT AND BELT GUARD ASSEMBLY (Fig. 3)</b>			
S85-1	_____	Countershaft and Motor Support.....	1
S85-3	_____	Countershaft Foot Pad.....	1
S85-8	_____	Motor Support Shaft.....	1
S85-9	_____	Countershaft Shaft.....	1
S85-10	_____	Foot Pad Stud.....	1
S85-16	_____	Fibre Washer.....	2
S95-1	_____	Belt Guard Anchor.....	2
S95-2	_____	Belt Guard Spring.....	2
S95-3	_____	Belt Lock Screw.....	2
S95-4	_____	Belt Guard.....	1
S95-6	_____	Hinge Pin .....	2
S95-7	_____	Knob Stud.....	1
S95-9	_____	Belt Guard, Small.....	1
420-P	_____	Pin, 1/8" dia. x 5/8" lg.....	2
SP-204	SP-612	Socket Head Cap Screw, 1/4-20 x 5/8" lg.....	2
SP-212	SP-208	Socket Head Cup-point Set Screw, 1/4-20 x 1/4" lg.....	3
SP-235	SP-607	Hex Head Cap Screw (milled thread) 5/16-18 x 3/4" lg.....	4
SP-238	SP-649	Hex Head Cap Screw (milled thread) 5/16-18 x 1" lg.....	2
SP-254	SP-1005	Hex Jam Nut, 3/8-16.....	1
SP-259	SP-1404	Wing Nut, 3/8-16.....	1
SP-278	SP-1604	Wrought Iron Washer, 5/16".....	4
SP-279	SP-1605	Wrought Iron Washer, 3/8".....	1
SP-283	SP-1766	Lock Washer, Internal type 12, 5/16".....	2



## Table 1. REPLACEMENT PARTS

IMPORTANT: Give both the Part Number and the Description of each item when ordering from this list;  
also the Serial Number of the machine on which the parts are to be used.

Ammco Part No.	Delta Part No.	Description	No. Req'd.
<b>COUNTERSHAFT AND BELT GUARD ASSEMBLY (Cont'd)</b>			
SP-292	SP-2102	Cotter Keys, 1/16" dia. x 1/2" lg.....	2
SP-314	SP-7074	Gits Oil Hole Cover, #501.....	2
SP-320	_____	Ball, #95 with 3/8-16 insert.....	1
SP-321	_____	Step Cone Pulley, 4 step-3/8" bore.....	1
SP-322	Cat.#5600-B	Pulley, 6" diameter, 3/8" bore.....	1
SP-324	_____	Vee Belt, 27".....	2
SP-364	_____	Motor, 1/3 H.P., 1725 RPM, 110 volt, 60 cycle, 1 phase.....	1
SP-355	_____	Switch, Bulletin 600.....	3
SP-384	SP-1026	Hex Semi-finished nut, 3/8-16.....	1
SP-814	_____	Bearings, plain bronze, .626" I.D. x .815" O.D. x 1" lg.....	4
SP-824	Cat.#5200-B	Pulley, 2" diameter, 3/8" bore.....	1

CONSULT YOUR DELTA DEALER FOR PRICES OF REPLACEMENT PARTS, ACCESSORIES AND TOOLS  
TO FACILITATE HANDLING WE SUGGEST ORDERING ALL PARTS THROUGH YOUR DELTA DEALER

Foreign distribution is through TAUCO EXPORT CORPORATION, 38 Pearl Street, New York 4, N. Y.,  
to Puerto Rico and the Canal Zone and to all foreign countries except Canada and the Philippine Islands.



Distribution in the United States, its possessions except Puerto Rico and the Canal  
Zone, and in Canada and the Philippine Islands is by authorized Delta Dealers.



**DELTA POWER TOOL DIVISION**

Rockwell MANUFACTURING COMPANY

**MILWAUKEE 1, WISCONSIN**

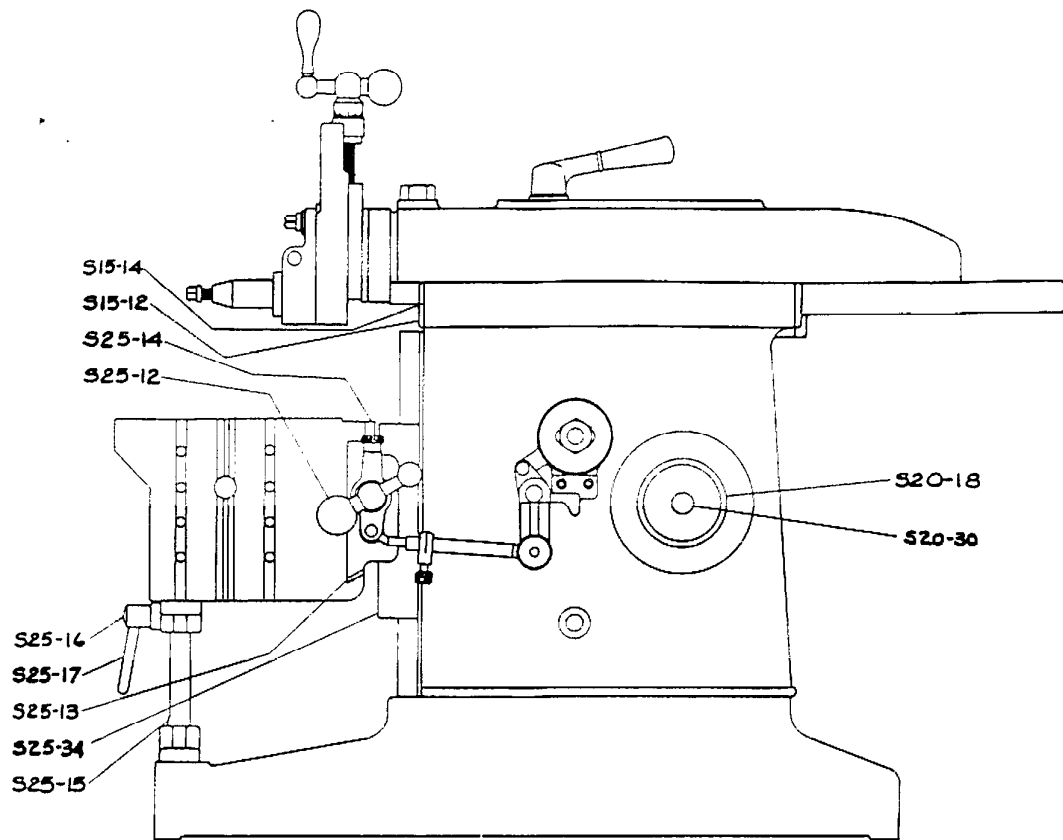
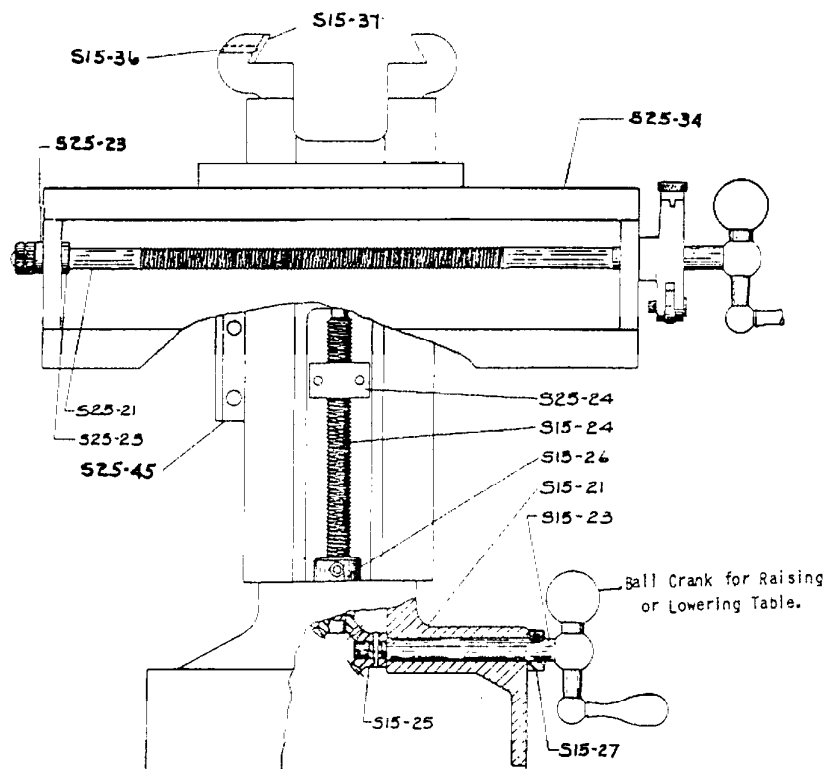


Fig. 1



FRONT VIEW OF SHAPER WITH TOOL HEAD,  
RAM, & TABLE REMOVED.

Fig. 2.

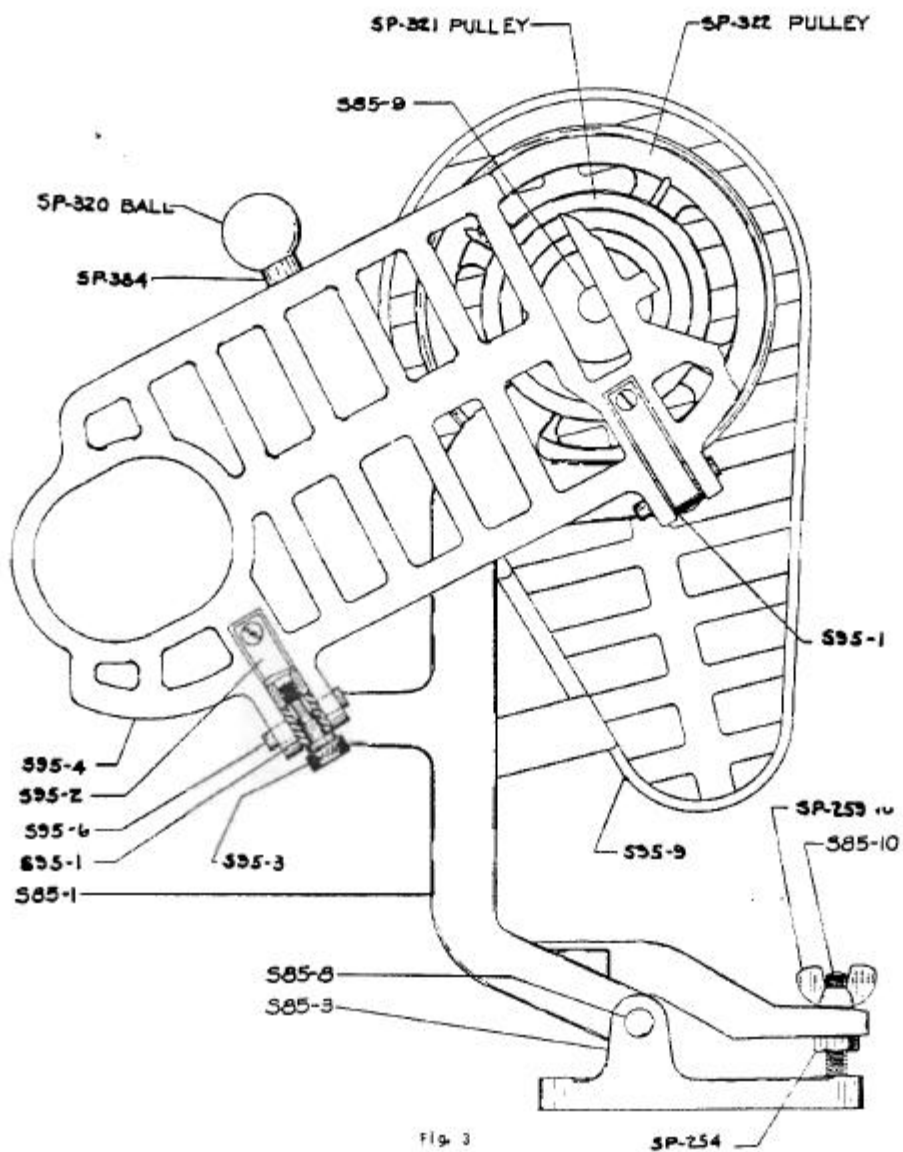


Fig. 3

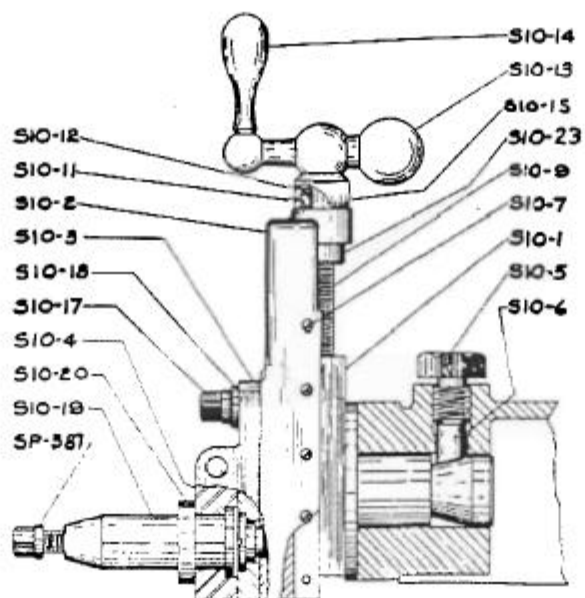
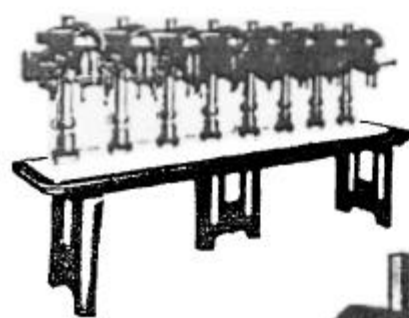


Fig. 4





# **DELTA-Milwaukee** **Machine Tools for** **the Metal Working** **Industry**



17" DRILL PRESSES  
 14" SUPER-HI D.P. COOLANT EQUIPMENT

17" POWER FEED D.P.  
 14" AND 17" MULTIPLE SPINDLE D.P.

BENCH FLOOR MODEL D.P.

14" DRILL PRESSES

COMBINATION SPOT & ARC WELDER

SPOT WELDER

ARC WELDER

MOTORS AND ACCESSORIES

BELT GRINDING POLISHING AND DEBURRING MACHINES

DUST COLLECTORS

BUTT WELDER

SURFACE GRINDER  
 TOOL & CUTTER GRINDER

CHIP BREAKER GRINDER

CARBIDE TOOL GRINDER

STANDARD TOOL GRINDER

12" DISK ABRASIVE FINISHING MACH.

6" BELT ABRASIVE FINISHING MACH.

14" METAL CUTTING BAND SAWS

