OPERATING INSTRUCTIONS AND PARTS LIST FOR

CRAFTSMAN SIX-INCH METAL CUTTING BENCH LATHE

MODEL NUMBER 101.07301

This is the Model Number of your lathe. It will be found on the plate on the rear side of the bed. Always mention this Model Number when communicating with us regarding your lathe or when ordering parts.

This list is valuable. It will assure your being able to obtain proper parts service at all times. We suggest you keep it with other valuable papers.

SEARS, ROEBUCK AND CO.

ASSEMBLY AND OPERATING INSTRUCTIONS FOR CRAFTSMAN SIX-INCH METAL TURNING LATHE

DESCRIPTION

This lathe is designed to be run by a 1/3 H.P. 1740 R.P.M. motor. We strongly recommend motors of the type shown in our catalog.

After removing the lathe from the crate, clean it thoroughly. Remove the rust-proof coating from the bed ways with a cloth soaked in kerosene.

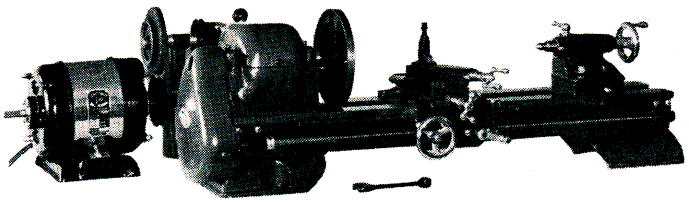


Fig. 1

Floor legs and table boards make an ideal stand for the lathe. If the lathe is to be mounted on a bench, use one that is solidly built, well braced and with a good dry lumber top at least two inches thick. The precision of any lathe, regardless of size depends a great deal upon the rigidity of the base under the lathe.

LEVELLING THE LATHE—Important—See mimeographed sheets. Mount the countershaft on the bench, making sure the countershaft is parallel with the spindle and the pulleys are in line. Have the rockershaft handle in off-tension position when mounting the countershaft.

OPERATION AND CONTROLS

The following controls should be tested until the operator is thoroughly familiar with their use.

(1) The large handwheel on the front of the carriage propels the carriage along the bed.

(2) The ball-crank is used for cross-feeding and the two-handle crank operates the compound rest. Both are graduated in thousands of an inch. The compound feed can be turned in a complete circle, by simply loosening the two Allen set screws, and is graduated in degrees from 0° to 180° so that any angle can be cut.

(3) The lever on the right front side of the carriage operates the half-nut mechanism. When this lever is moved into the downward position, it engages the half-nut with the lead screw causing the carriage to travel along the bed. CAUTION: Before engaging the half-nut with the lead screw, be sure that the square head cap screw on the right top side of the carriage is loose, otherwise the carriage is locked and serious damage may result to the half-nut mechanism.

(4) The lever with the small knob, located at the headstock end of the lathe, is the reverse gear tumbler lever. This lever is used to reverse or stop the rotation of the lead screw. Three holes are drilled in the headstock providing three positions for the lever. The center hole is neutral and the upper and lower holes are either forward or reverse positions, depending upon the gear set-up.

(5) The belt tension lever located on the countershaft regulates the tension of the spindle belt. To tighten the belt move the lever backward. Move forward to loosen the tension, thereby allowing the belt to be easily changed to the different pulley steps.

(6) The handwheel on the tailstock operates the tailstock ram. To advance the ram, turn the handwheel in a clockwise direction.

(7) The small lever at the top of the tailstock is the tailstock ram clamp handle. It locks the ram in place when tightened. Note: Before attempting to move the ram, loosen the ram clamp.

ADJUSTMENTS

(1) SPINDLE BEARING ADJUSTMENT: If any looseness develops in the spindle bearings it may be removed as follows: Loosen fillister head machine screw in left bearing cap one-half turn. Then tighten right bearing cap screw until a slight drag is felt when the spindle is rotated by hand. Retighten left bearing until all looseness disappears.

SPINDLE END PLAY: Should end play develop, remove it by tightening the collar on the end of spindle after loosening set screw. Turn collar to a snug fit, but not so tight that the spindle turns hard by hand. Retighten set screw.

CAUTION: Do not confuse spindle end play for loose bearings. When turning wood or using speeds over 1250 R.P.M., loosen the bearing screws between 1/8 and 1/4 turn. A tight bearing is essential for metal turning, but not satisfactory for higher speeds for wood working. When changing back to lower speeds, do not forget to tighten the bearing cap screws again.

(2) ADJUSTMENTS OF THE CARRIAGE: If any horizontal play develops between the carriage and the bed it can be taken up by screwing the four gib screws up tighter against the gib. These screws should be tightened just enough to give a firm sliding fit between the carriage and bed.

Bearing plates on the carriage, which bear on the under side of both the front and the back of the bed ways, anchor the carriage firmly to the bed in a vertical direction. The bearing plates have laminated shims for adjustment of possible wear.

(3) The gibs on the cross feed slide and the compound feed slide should be adjusted at regular intervals. The cross feed gib should always fit snugly, because the cross slide is in almost continual use.

(4) The ball and crank handles on the cross feed screw and the compound feed screw can be adjusted for play with the two nuts on the hubs of the handles. To adjust, tighten the inner nut and lock the outer nut. An extremely tight fit is likely to result in a jerky feed—the turning force keeps these slides firm against the screw, and play in the handles does not affect the accuracy of the work. A nice working, snug fit is ideal.

(5) On the tailstock, two gib screws are provided, one on each end of the gib which regulates the tightness of the tailstock between the bed ways. These two screws should be adjusted evenly so that both ends of the gib will bear against the way with the same amount of pressure.

The tailstock can be set over 9/16" for turning tapers. This is done by simply adjusting the two headless screws after loosening the tailstock clamp nut.

PROPER CUTTING SPEEDS

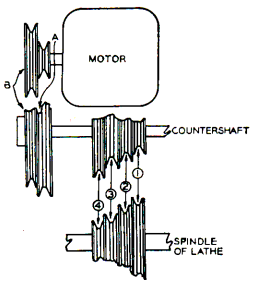


Fig. 3

Spindle Speed in Revolutions per Min. DIRECT CONE DRIVE				
Motor Belt Position	Spindle Belt Position 1	2	3	4
A	365	550	820	1250
B	940	1925	2125	3225

BACK GEAR DRIVE				
Motor Belt Position	Spindle Belt Position 1	2	3	4
A	54	82	122	187
B	140	287	317	481

Much of the success in metal cutting depends upon the choice of the cutting speeds. Too slow a speed not only wastes time, but leaves a rough finish—too high a speed burns the tool. The chart above shows the different speeds available and the set-up for each.

READING THE GEAR CHART

To simplify gear set-ups the three different gear bracket positions have been assigned letters. These designations will be found in Figure 1 on the Threading Chart as positions A, B, and C.

"Back position" means the position TOWARD the headstock. "Front position" is the position AWAY FROM the headstock.

One representative set-up is given in detail below.

GEAR SET-UP FOR 36 THREADS PER INCH (See Figure 3)

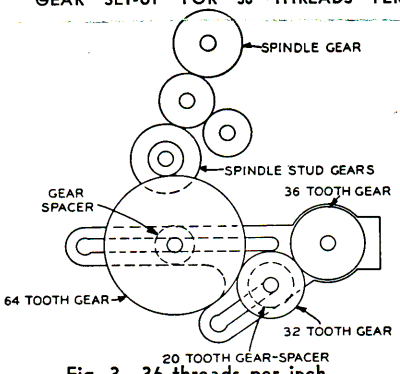


Fig. 3—36 threads per inch

(1) Place 36 tooth gear on front position of screw stub.

(2) Place 20 tooth gear and 32 tooth gear on sleeve and mount in Position C on gear bracket with 32 tooth gear in front position. Tighten so that 32 tooth gear meshes with gear in screw position. The 20 tooth gear is a spacer

(3) Place 64 tooth gear and a steel spacer on sleeve and mount in Position A on gear bracket with 64 tooth in front position. Tighten so that 64 tooth gear meshes with 32 tooth gear in Position C.

(4) Swing entire gear bracket upward and tighten so that the 64 tooth gear meshes with the 16 tooth spindle gear.

When setting up the gear train be sure to allow sufficient clearance between two meshing gears. Gear clearance does not reduce the accuracy of a thread cutting operation because all the back lash in the gears is taken up in one direction.

MOUNTING THE WORK

Whenever practicable, the work is held between centers. There are two steps in mounting work between centers: Locating the center points at each end of the work, and countersinking and drilling the ends to accommodate the lathe centers.

On round work, centers are usually located with either the hermaphrodite caliper or the center head attachment for a steel square. On the centering of square, hexagon and other regular-sided stock, lines are scribed across the ends from corner to corner. The work is then center punched at the point of intersection. A little chalk rubbed over the end of the work before scribing makes the marks easily seen.

After the ends have been countersunk, the work is mounted between centers. Be sure that the "tail" or bent portion of the lathe dog fits into the face plate slot without resting on the bottom of the face plate slot.

Bring the tailstock up close to the end of the stock and lock in place. Turn the tailstock center into the countersunk hole and lock in such a position that the play is taken up between centers but not so tight that the work will not freely rotate. PLACE PLENTY OF WHITE LEAD AT POINT OF BEARING ON TAILSTOCK CENTER.

Much of the work to be turned or threaded on the lathe is not of a size or shape which permits mounting between centers. In such cases it is customary to mount the work on a face plate or hold it in a chuck, a device with jaws which grips the work rigidly while it is being machined

If only one chuck is to be purchased, it should be the four-jaw independent chuck. The four-jaws are adjusted separately and are reversible so that work of any shape can be clamped from the inside or the outside.

Mounting work in the four-jaw chuck is largely a matter of centering. Determine the portion of the rough work that is to run true, then clamp the work as closely centered as possible, using as a guide the concentric rings on the face of the chuck. Test for trueness, marking the high spots with chalk rested against the tool post or a tool bit mounted in the tool post. The chuck jaws should be adjusted until the chalk or tool bit contacts the entire circumference of the work.

Boring operations require only slightly different tools and methods than those for external turning. With the round tool shank parallel to the lathe center line, set the boring tool into the work with the shank below the center line. Then by putting the cutting edge on exact center line, the correct amount of back rake is provided. The general rules for the use of the external tools apply to boring tools. For maximum rigidity, choose the largest possible boring tool. Take several light cuts rather than a heavy one when boring.

CUTTING TOOL BITS

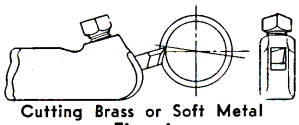
It is wise for the unskilled worker to purchase already formed tools for the particular operations he wishes to perform. Tool bits are not expensive and the purchase of a set of these will probably prove the cheapest and most satisfactory way out in the long run.

ANGLE OF TOOL TO WORK

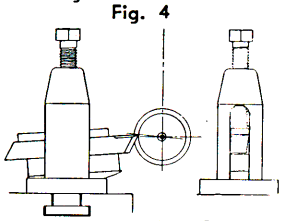
The angle of the cutting tool to the work varies according to hardness of the metal being cut. The accompanying drawings show in general the proper angles to be used for the different classes of metals. Refer to these drawings before taking a cut until you are sure you know the proper angle for each metal.

CUTTING SPEEDS

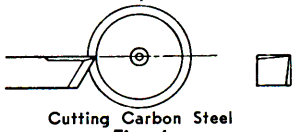
The speed a cut is taken varies according to the kind of metal being cut and the kind of cut—whether roughing or finishing. Brass may be cut faster than steel and a light cut faster than a heavy one.



Cutting Brass or Soft Metal
Fig. 4



Cutting Mild Steel or Cast Iron
Fig. 5



Cutting Carbon Steel
Fig. 6

SETTING THE TOOL TO THE WORK

Cuts, especially heavy ones, should always be made toward the headstock. In this way most of the pressure is toward the live center which revolves with the work. Cutting toward the tailstock puts a heavy additional pressure on the tailstock center and is quite likely to damage the center.

The type of tool holder, and the way it is set into the work, should always be such that it tends to swing away from the work on heavy cuts. When cutting at an angle with the compound rest, the tool should be set at a right angle to the surface of the cut, not at a right angle to the center line of the lathe.

Facing cuts represent different cutting relations and tool angles, and tools should preferably be special ground, for that purpose. Smoother cutting and a finer finish can be obtained generally by cutting toward the outside—that is, feeding from the center of work out.

If the tool is ground properly, the point of the tool will not have to be set above or below the center line of the work, but should be set on the center line.

INDEXING

The spindle pulley is provided with 60 indexing holes which may be engaged by means of the knurled pin on the upper right end of the headstock. These indexing holes are useful for such operations as spacing, fluting, reeding, serrating, sprocket and spoke-spacing, etc.

INDEXING TABLE

Divisions Desired	1	2	3	4	5	6	10	12	15	20	30	60
No. of Spaces	60	30	20	15	12	10	6	5	4	3	2	1
Degrees of Arc	360	180	120	90	72	60	36	30	24	18	12	6

THREADING*

Only the operation connected with the cutting of the 60 degree thread will be described.

After the work has been properly prepared for threading, set the compound rest at a 29 degree angle so that the tool bit faces in the direction the carriage will travel. Mount the tool holder in the tool post so that the point of the tool is exactly on the lathe center line—tighten the tool post screw just enough to hold the tool holder. Then use a center or thread gauge to set the tool point at an exact right angle to the work. Tap lightly on the back of the tool holder when bringing into position. With the tool point at an exact right angle to the work, recheck center line position and tighten tool post screw.

Check the change gear assembly and the tumbler gear lever so that the carriage will move in the proper direction. Adjust belts for a speed of 54 R.P.M.

Set the compound rest approximately in the center of its ways and advance the cross feed so that it is set at 0 with the tool close to the work. With the point of the tool about an inch to the right of the start of the thread, advance the tool with the compound rest so that the first cut will be about .003 inch.

Start the lathe and engage the half-nut lever on the carriage. Apply plenty of lubricant to the work. When the tool point has traveled the desired length along the work, raise the half-nut lever, back out the cross feed a turn or two, and return the carriage by hand to the starting point. Advance the cross feed to its original position at 0, advance the compound rest for the desired depth of cut, and engage the half-nut lever for the second cut. All feeding is done with the compound rest. Follow the same routine on all succeeding cuts.

RULES FOR THE USE OF THE THREADING DIAL

When cutting on even-numbered thread such as 8, 10, 12, 14, etc., (per inch), engage the half-nut lever when the stationary mark on the threading dial is in line with any one of two opposing marks on the rotating dial.

When cutting any other threads (9, 11, 13 and 27 per inch) engage the half-nut lever when the stationary mark on the threading dial is in line with the same mark on the rotating dial.

Precautions: Never disengage the half-nut lever in the middle of the thread without first backing out the tool with the cross-feed.

LUBRICATION CHART

See Fig. 7

NOTE: Oilless Bronze Bearings are used in the headstock of this lathe and lubrication takes place by oil seepage through the porous bushing wall thus assuring a filtered lubricant.

DO NOT DRILL HOLES THRU THE BUSHINGS.

Use No. 10 motor oil or equivalent throughout unless otherwise specified.

1. Place a few drops of oil on the rockershaft bearings and cam every time the lathe is in use.
2. Countershaft Bearings—Oil every time lathe is used.
3. Motor Bearings—Sleeve type motors have two oil cups which should be filled once a week with S.A.E. No. 10 motor oil or equivalent. Ball bearing motors have a sealed-in type bearing—every six months the small headless screw in these bearings should be removed and a moderate quantity of automotive cup grease forced around the bearings.
4. Left and Right Headstock Bearings—Oil every time the lathe is used.
5. Spindle Pulley—Every time the lathe is used in back gear, remove the small screw in the bottom of the second step of the idler pulley and oil freely. Replace screw.
6. Spindle Thrust Bearing—Oil every time lathe is used.
7. Back Gears and Change Gears—A small amount of grease, preferably graphite grease, applied to the gear teeth will aid in obtaining smoother, more quiet operation.
8. Change Gear Bearings—Put a few drops of oil on the change gear bearings each time lathe is used.
9. Lead Screw Bearings (left and right)—Put a few drops of oil in the oil hole of the bearing every time the lathe is used.
10. Carriage Traverse Gear Bracket—Every time lathe is used put a few drops of oil in oil hole on top of gear bracket on back of carriage apron.
11. Carriage Handwheel Bearing—Put a few drops of oil in oil hole every time lathe is used.
12. Half-nut Lever Bearing—Put a few drops of oil in the oil hole every time lathe is used.
13. Lead Screw — About once a month clean the lead screw threads with kerosene and small stiff brush and apply a small amount of oil.
14. Rack (on bed, under front way)—About once a month apply a small amount of cup grease to the rack after cleaning with kerosene and a small stiff brush.
15. Place a few drops of oil between the handwheel and screw bearing whenever using lathe.
16. Tailstock Ram—Keep the outside surface of the tailstock ram well oiled.
17. Lathe Bed Ways—Keep the lathe bed ways oiled at all times and free from chips. Wipe off the ways before using and cover with fresh oil. Always leave a generous film of oil on the ways when the lathe is not in use. The lathe should be completely covered when not in use.
18. Compound Slide Screw—Every time lathe is used put a few drops of oil between the graduated collar and bearing plate and on the threads.
19. Cross Slide Screw—Put a few drops of oil in the oil hole above the front cross slide screw bearing after removing the small screw. Replace the screw. This should be done every time the lathe is used. Clean the cross slide screw regularly with a small stiff brush. Oil the screw threads by running compound rest back and forth.
20. Cross Slide Ways—Clean regularly and apply a liberal quantity of oil to the ways whenever the lathe is used.
21. Compound Slide Ways—Clean regularly and apply a liberal quantity of oil to the ways whenever the lathe is used.
22. Thread Dial—Once a week put a few drops of oil around the rim of the thread dial.
23. Back Gear Spindle—Every time the back gears are used, remove the small screw in the center of the back-gear spindle and oil freely. Replace screw.
24. Back Gear Eccentrics (right and left)—Oil occasionally.

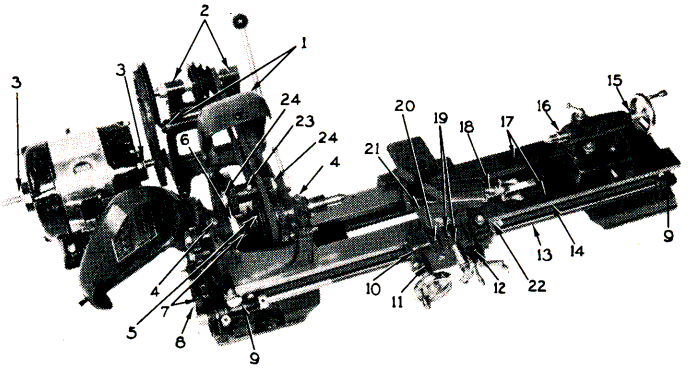


Fig. 7

NOTE: For more complete information regarding the operation of metal-cutting lathes refer to the Sears' Manual of Lathe Operation listed in our Catalog. A complete line of accessories are available for this lathe. Write for information.

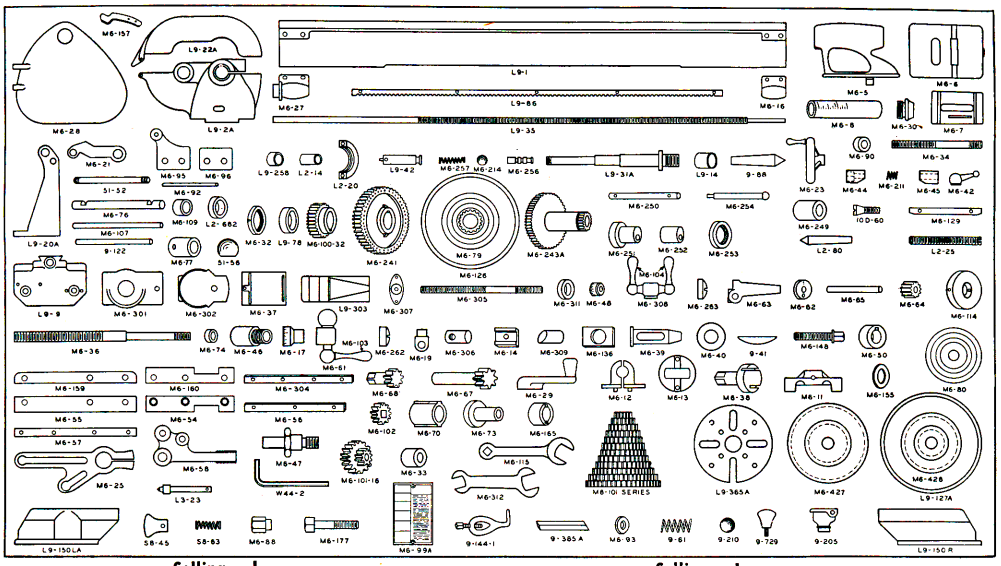
* Complete information for thread cutting and coil winding operations are contained in the "Threading Information" booklet supplied with this Lathe.

HOW TO ORDER PARTS FOR CRAFTSMAN METAL CUTTING BENCH LATHE, MODEL NO. 101.07301

All parts listed here must be ordered through any Sears Retail or Mail Order store. When ordering, always give the following:

1. Part number in this list.
2. Part name and price in this list.
3. Model number 101.07301, and which will be found on the plate on the rear side of the bed.

ALL PARTS ARE SHIPPED PREPAID



Part No.	Part Name	Selling Price Each
	BED ASSEMBLY	
L9-1	Bed 30"	$35.35
L9-150R	Bench Leg (right)	3.80
L9-150LA	Bench Leg (Left)	3.00
M6-328	Rack Screw (5 reqd.) ea.	.15
	HEADSTOCK ASSEMBLY	
L9-2A	Headstock	$11.35
L2-14	Spindle Bushing (left)	.50
L9-14	Spindle Bushing (right)	.45
L9-22A	Headstock Cover	2.55
L9-31A	Head Spindle	13.15
M6-32	Head Spindle Adjusting Collar	.75
L9-42	Index Pin	.35
9-61	Spring	.15
L9-78	Spindle Gear Spacer	.65
M6-79	Spindle Pulley and Back Gear	3.65
9-88	Center No. 2 Morse Taper	2.40
S10F-91	Ball Thrust Bearing	2.10
M6-100-32	Spindle Gear	.65
9-205	Oiler (2 req.) ea.	.20
9-210	3/16" Ball	.15
M6-214	1/8" Ball	.15
M6-241	Spindle Back Gear—large	3.65
M6-243A	Back Gear with Bushings	3.00
M6-249	Back Gear Bushing (2 req.) ea.	.35
M6-250	Back Gear Shaft	.65
M6-251	Back Gear Eccentric (right)	.40
M6-252	Back Gear Eccentric (left)	.35
M6-253	Back Gear Set Collar (2 req.) ea.	.55
M6-254	Eccentric Handle	.80
M6-255	Back Gear Washer (4 req.) ea.	.15
M6-256	Back Gear Lock Pin	.55
M6-257	Back Gear Plunger Spring	.15
L9-258	Spindle Pulley Bushing (2 req.) ea.	.35
9-729	Bakelite Knob	.25
	TAILSTOCK ASSEMBLY	
M6-5	Tailstock	$ 6.50
M6-6	Tailstock Base	3.85
M6-7	Tailstock Clamp	.45
M6-8	Tailstock Ram	5.15
M6-23	Handwheel (with handle)	2.00
M6-30	Tailstock Screw Bearing	1.15
M6-34	Tailstock Ram Screw	1.00
M6-42	Tailstock Ram Lock Handle	.65
M6-44	Tailstock Ram Lock Sleeve (lower)	.20
M6-45	Tailstock Ram Lock Sleeve (upper)	.20
10D-60	Tailstock Base Gib Adjusting Screw (2 req.) each	.25
L2-80	Center, No. 1 Morse Taper	1.95
M6-90	Tailstock Ram Screw Thrust Nut	.20
M6-129	Tailstock Gib	.65
	CARRIAGE AND RACK ASSEMBLY	
M6-9	Carriage	$16.65
M6-11	Carriage Traverse Gear Bearing	.55
M6-12A	Split Nut (1 pr.)	.85
M6-13A	Split Nut Guide	.40
M6-14	Carriage Clamp	.55
M6-17	Carriage Graduated Collar	1.05
M6-19A	Carriage Slide Nut	1.15
M6-23	Hand Wheel (with handle)	2.00
M6-29	Split Nut Lever	.65
M6-36A	Carriage Slide Screw (Illus. as M6-36)	1.80
M6-38	Split Nut Cam	.40
M6-46	Carriage Slide Screw Bearing	1.25

Part No.	Part Name	Selling Price Each
M6-54	Carriage Bearing Plate (front)	.85
M6-55	Carriage Bearing Plate (rear)	.85
M6-57	Carriage Gib	.75
M6-61	Ball Crank, with Handle	1.15
9-61	Spring	.15
M6-62	Threading Dial	.35
M6-63	Threading Dial Body	.60
M6-64A	Threading Dial Pinion	.85
M6-65	Threading Dial Shaft	.15
M6-67	Carriage Handwheel Shaft and Pinion	1.55
M6-68	Carriage Traverse Pinion and Shaft	1.25
M6-74	Carriage Screw Thrust Washer	.15
L9-86	Carriage Traverse Rack	2.65
M6-93	Handwheel Washer	.15
M6-102	Carriage Traverse Gear	1.00
M6-103	Ball Crank Handle	.40
M6-155	Threading Dial Washer	.15
M6-159	Carriage Shim (rear)	.25
M6-160	Carriage Shim (front)	.25
M6-177	Carriage Lock Screw (2 req.) ea.	.55
9-210	3/16" Ball	.15
M6-262	Cross Feed Ball Crank Nut	.40
	COMPOUND REST ASSEMBLY	
M6-37	Carriage Feed Screw Guard	$ .85
M6-48	Graduated Collar	1.05
M6-56	Cross Feed Gib	.55
M6-104	Ball Crank Handle (2 req.) ea.	.40
10-226	Gib Screw Nut (3 req.) ea.	.15
M6-263	Compound Ball Crank Nut	.40
M6-301	Compound Rest Swivel (lower)	9.00
M6-302	Compound Rest Swivel (upper)	4.35
M6-303	Compound Rest Tool Post Slide	5.15
M6-304	Compound Rest Tool Post Slide Gib	.55
M6-305	Compound Rest Feed Screw	.75
M6-306	Tool Post Slide Nut	.85
M6-307	Compound Rest Feed Screw Thrust Plate	.45
M6-308	Compound Rest Ball Crank (with handles)	1.00
M6-309	Compound Lock Plunger (2 req.) each	.20
M6-311	Compound Rest Feed Screw Thrust Collar	.40
W44-2	Allen Wrench 1/4"	.15
	LEAD SCREW AND FEED GEAR ASSEMBLY	
M6-16	Lead Screw Bearing (right)	$ .85
L3-23	Reverse Tumbler Plunger	.80
M6-25	Change Gear Bracket	2.85
M6-27	Screw Bearing (left)	1.45
M6-33	Tumbler Gear Bushing (2 req.) each	.20
L9-35	Lead Screw	3.80
S8-45	Reverse Tumbler Knob	.50
M6-47	Spindle Gear Stud	1.45
M6-50	Lead Screw Gear Spacer	.40
M6-58	Reverse Gear Tumbler	2.35
M6-59	Reverse Tumbler Gear — 20 teeth	.55
M6-60	Reverse Tumbler Gear — 24 teeth	.55
S8-63	Plunger Spring	.15
M6-70	Compound Gear Bushing (2 req.) each	.25
M6-73	Change Gear Stud Sleeve (2 req.) each	.75

Part No.	Part Name	Selling Price Each
M6-88	Change Gear Bracket Nut	.35
M6-93	Change Gear Washer (2 req.) each	.15
M6-101-16	Compound Tumbler Gear (16 and 32 teeth)	1.35
M6-114	Lead Screw Collar (left)	.80
M6-165	Gear Spacer (3 req.) ea.	.45
M6-312	Wrench	.85
L2-682	Lead Screw Collar (right)	.40
	CHANGE GEAR ASSEMBLY	
M6-99A	Threading Chart	$ .65
M6-101-20	Change Gear (20 teeth)	.55
M6-101-24	Change Gear (24 teeth)	.55
M6-101-32	Change Gear (32 teeth) (2 req.) each	.65
M6-101-36	Change Gear—36 Teeth	.65
M6-101-40	Change Gear—40 teeth	.65
M6-101-44	Change Gear—44 teeth	.80
M6-101-46	Change Gear—46 teeth	.85
M6-101-48	Change Gear—48 teeth	.85
M6-101-52	Change Gear—52 teeth	.95
M6-101-54	Change Gear—54 teeth	.95
M6-101-56	Change Gear—56 teeth	.95
M6-101-64	Change Gear (64 teeth) (2 req.) each	1.00
	CHANGE GEAR GUARD ASSEMBLY	
M6-28	Change Gear Guard	$ 5.65
M6-92	Change Gear Guard Hinge Pin	.15
M6-95	Change Gear Guard Bracket	1.55
M6-96	Change Gear Guard Bracket Plate	.65
M6-157	Latch Spring	.20
9-729	Knob	.25
	COUNTERSHAFT ASSEMBLY	
L9-20A	Countershaft Bracket	$ 4.40
M6-21	Countershaft Hanger	4.00
51-52	Rockershaft Handle	.65
51-56	Rockershaft Handle Ball	.40
M6-76	Rockershaft	1.85
M6-77	Rockershaft Hub	1.05
M6-80	Countershaft Pulley (4 step)	2.35
M6-107	Countershaft Spindle	.85
M6-109	Countershaft Bearings (2 req.) ea.	.25
9-122	Hanger Hinge Pin	.35
M6-427	Countershaft Pulley (2 step)	1.85
L2-682	Collar (2 req.) each	.40
	TOOL POST ASSEMBLY	
M6-39	Tool Post	$ 2.45
M6-40	Tool Post Washer	.45
9-41	Tool Post Rocker	.60
M6-136	Tool Post Anchor	.80
M6-148	Tool Post Set Screw	.60
	MISCELLANEOUS	
M6-115	Combination Wrench	$ .85
L9-125	Motor Belt	1.25
L9-127A	Cone Belt	1.85
9-144-1	Lathe Dog (1" cap.)	1.45
L9-365A	Face Plate (5-1/4")	3.85
9-385A	Tool Bit	1.20
M6-428	Motor Pulley	1.45

All Prices Are Subject to Change Without Notice

NOTICE: This is NOT a packing slip. The parts shown and listed include the accessories that are not necessarily part of this tool.
NOTE: Standard parts, such as bolts, nuts, washers, etc., are not listed above as such parts can be obtained locally.

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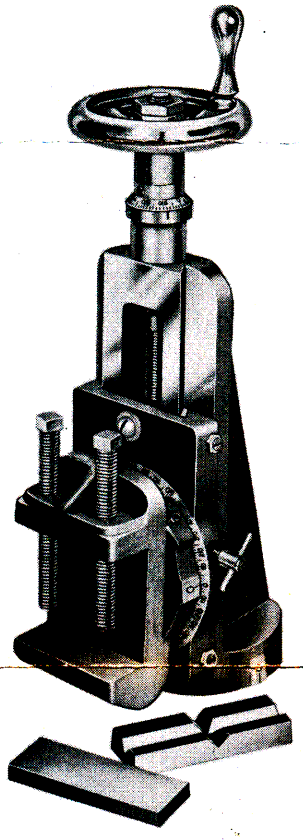
INSTALLATION and OPERATING INSTRUCTIONS

INSTRUCTIONS AND PARTS LIST FOR No. 2057 MILLING ATTACHMENT

BULLETIN 2057-1

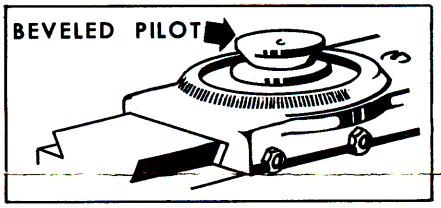
JULY, 1953

Sears No. 2057 MILLING ATTACHMENT



INSTALLATION

1 Remove the tool post slide and upper compound rest swivel by loosening the two swivel lock screws about 1/2", then lift slide and swivel off lathe.



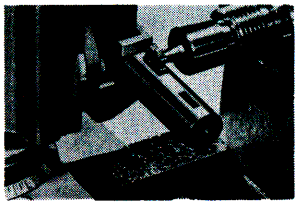
2 Remove the two mounting lock screws from the Milling Attachment.

3 Slide attachment over beveled pilot on the cross slide and lock in place with the plunger pins and lock screws. When inserting plunger pins make sure bevel matches the bevel on the pilot.

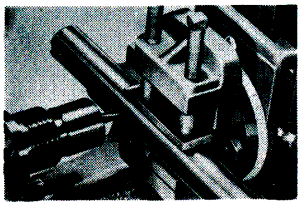
OPERATION

The Milling Attachment can be swiveled to hold work at any angle by loosening the two lock screws. Position of vise is controlled by a handwheel with micrometer graduated collar. Vise slide is graduated so vise can be swiveled to angle desired by loosening the two lock screws in the vise base.

When attachment is in position, and work is clamped in the vise, tighten the gibs on the carriage, cross slide and attachment dovetail ways.



Milling a Keyway



Milling a Slot

A holding collet (Sears No. 2059) is recommended for holding the milling cutter - headstock chucks should not be used as the cutter would slip during the milling operation. Complete operating instructions are furnished with the holding collet.

When feeding the work, take light cuts, and feed in evenly and slowly - get the feel of how fast the cutter will handle the work. NEVER force the work into the cutter too fast. Depth of cut should be about 1/16" or less. A few milling operations are illustrated on this page.

The cutting speeds should be approximately 2/3 of the speed for general turning. Table of cutting speeds for milling on the lathe can be found on page 169 of the Manual of Lathe Operations.

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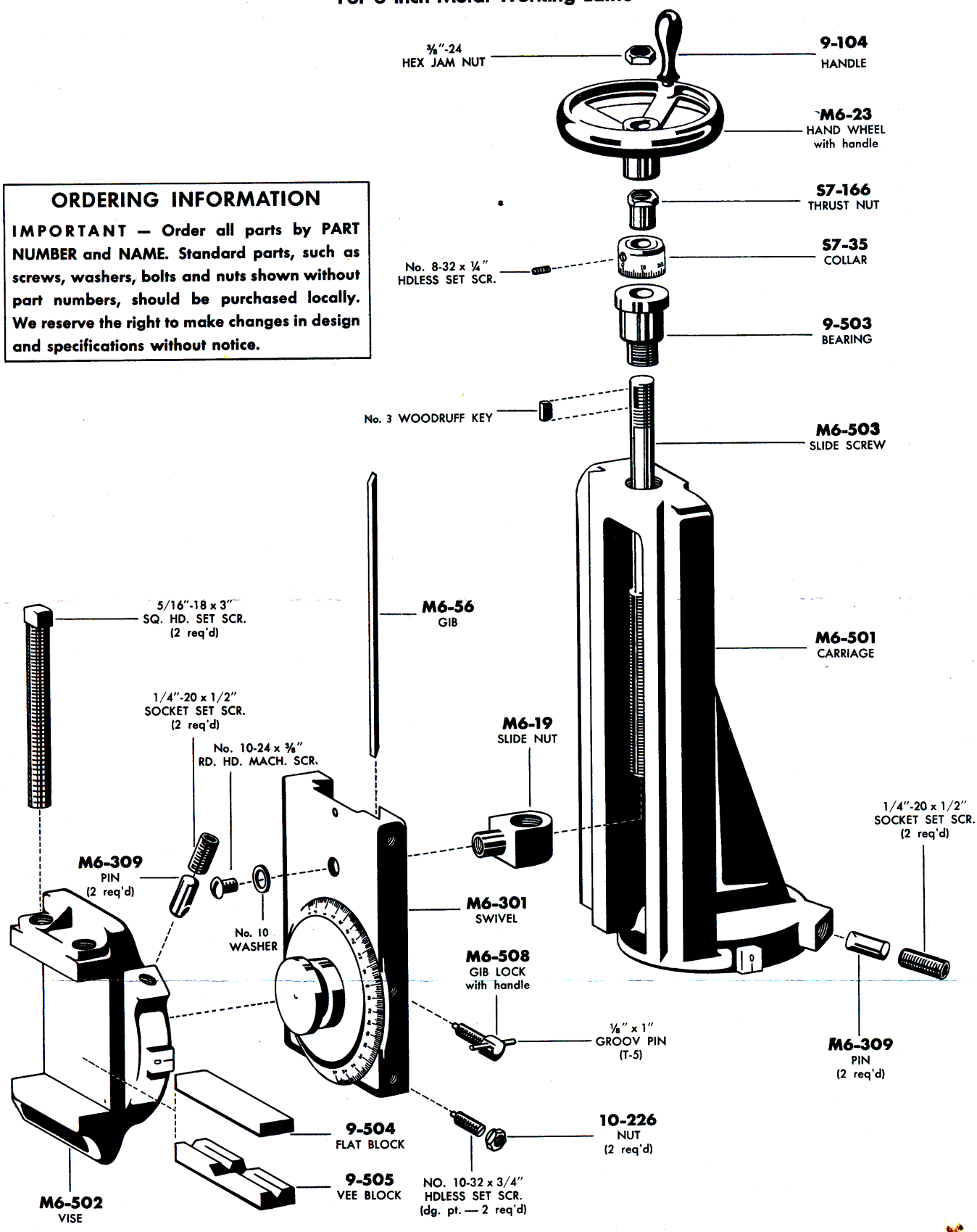
REPAIR PARTS
CRAFTSMAN No. 2057 MILLING ATTACHMENT
For 6-inch Metal Working Lathe



ORDERING INFORMATION

IMPORTANT — Order all parts by PART NUMBER and NAME. Standard parts, such as screws, washers, bolts and nuts shown without part numbers, should be purchased locally. We reserve the right to make changes in design and specifications without notice.

SEARS, ROEBUCK AND CO.