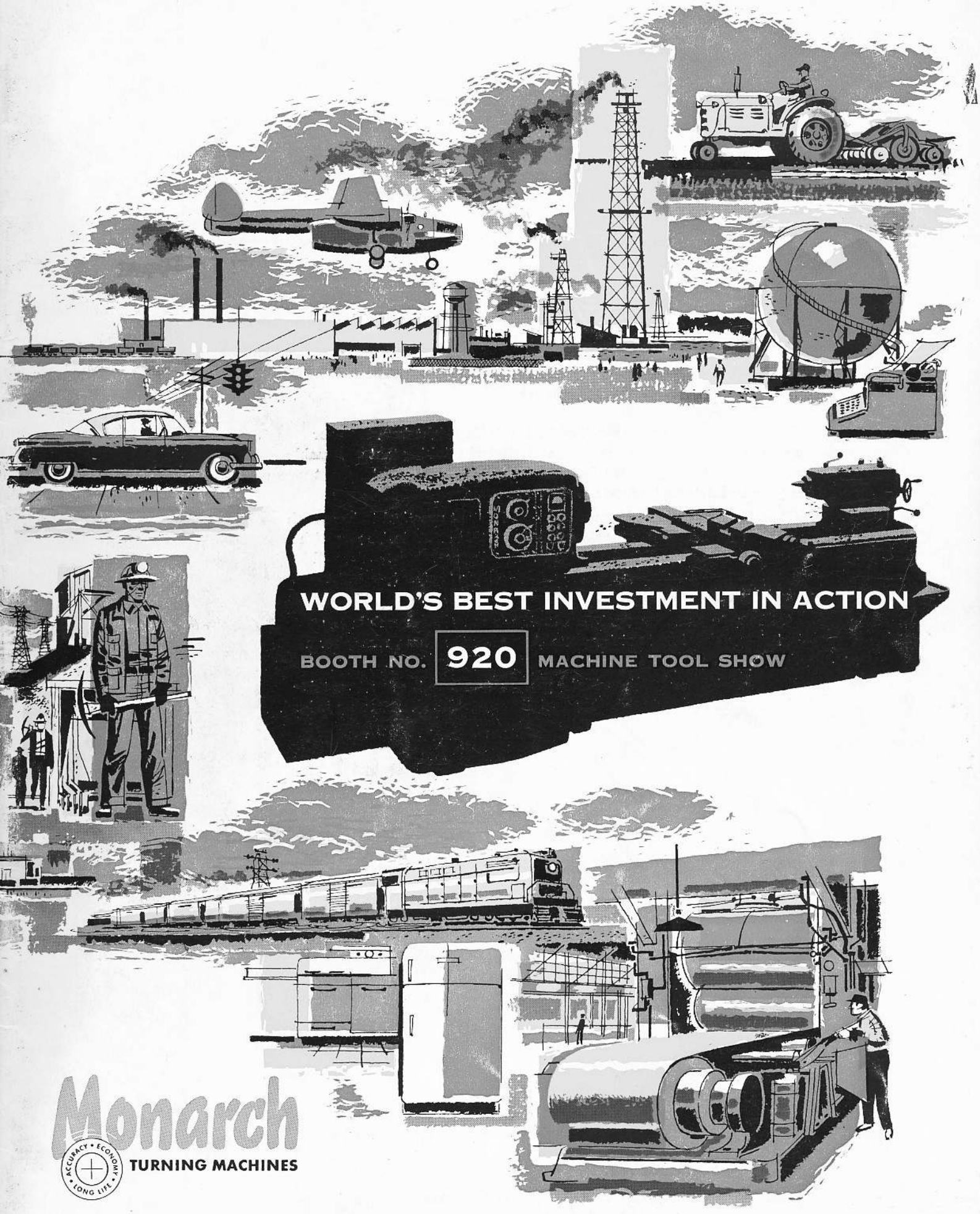

WORLD'S BEST INVESTMENT IN ACTION
BOOTH NO. 920 MACHINE TOOL SHOW
Monarch
ACCURACY • ECONOMY • LONG LIFE
TURNING MACHINES

WELCOME TO THE MONARCH EXHIBIT

We are happy you have taken the time to visit the Machine Tool Show . . . particularly our part of it.

For many months our design engineers have been working to make your coming here worthwhile. Now, you be the judge as to whether they have succeeded.

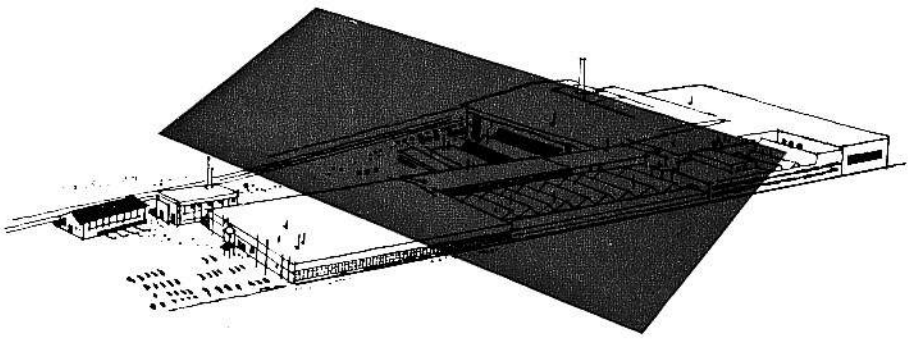
Such an array of impressive new designs has probably never before been exhibited by a single lathe manufacturer. Not warmed-over models of yesteryear. Not a few gadgets added here and there to give the appearance of new design.

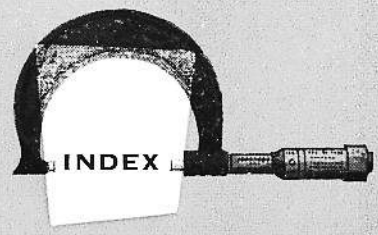
Instead you will see the result of fresh thinking right from the floor up on one new Monarch after another. Practical thinking that will enable you to reduce turning costs substantially. Bold thinking that will set the pace in lathe performance for years to come.

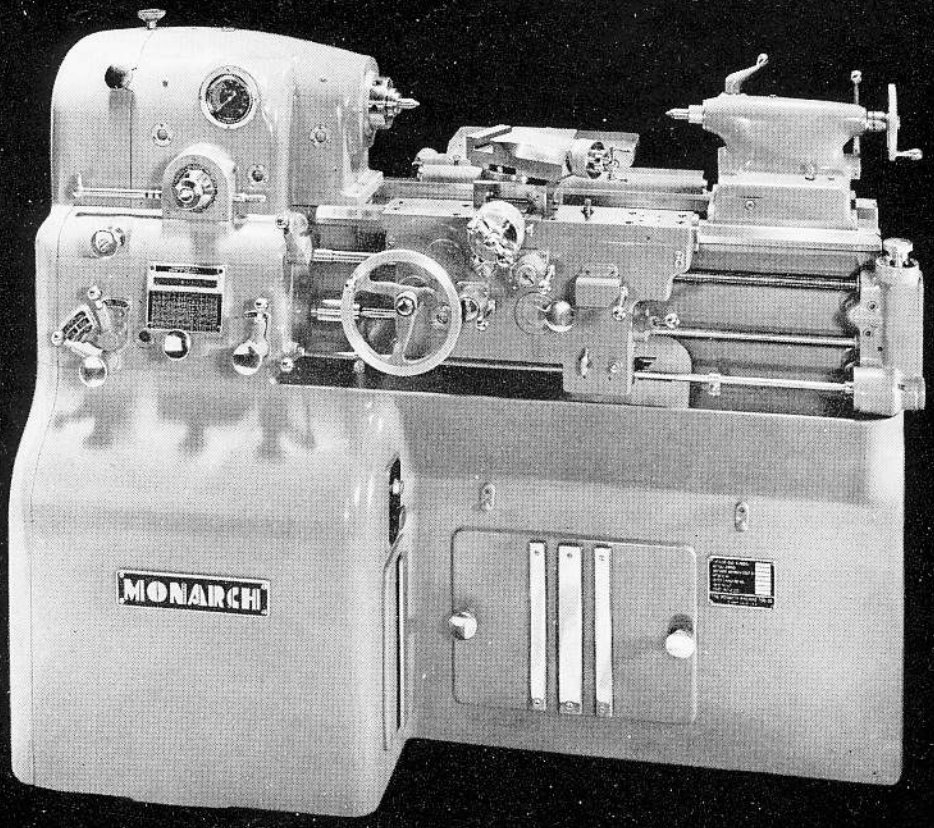
The Monarch line has become so broad it is not practical to have each model represented here. Therefore this booklet will familiarize you with *every* model we offer. It includes the outstanding new designs you will see plus many other lathes capable of delivering a "better turn faster", as proved by thousands of users.

Put it up to our Sales Engineers to show you how Monarch lathes will help put a crimp in rising costs. And after the Show, remember a welcome awaits you at the Monarch plant in Sidney, Ohio.

Visit us. Like many others in the past, you will see the finest machine tool plant in the world producing the lathes by which all others are judged.







Recommended Use. A versatile, high speed, precision lathe for the toolroom. It turns, faces, bores and threads a vast variety of work to the degree of accuracy demanded by master toolmakers.

Major Features. Available with speed ranges, through open belt, up to 40 to 4000 R.P.M. Through a built-in speed reducer, this speed may be reduced to 6½ to 650 R.P.M.

All electric drive direct to spindle through multiple "V" belts. No gears in headstock.

D. C. variable speed main drive motor secures its power through an electronic unit which utilizes almost any source of A.C. Absence of revolving equipment in the power supply minimizes vibration at all speeds, practically eliminates noise, improves speed regulation regardless of load and maintains better torque at the lower speeds.

For thread chasing up to 100% faster, has exclusive combination of electric leadscrew reverse and variable reverse speed control.

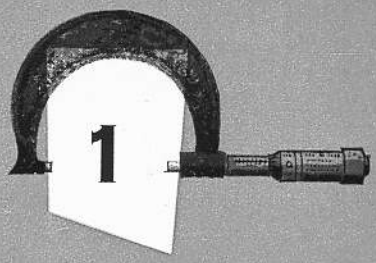
The only small lathe available with anti-friction bearing taper attachment.

Easy, fatigue-free operation. Base design lets operator work close in comfort. He gets production—not backaches.

Totally enclosed, automatically lubricated end gearing and gear box.

Flame hardened and ground ways for both carriage and tailstock. Bed all in one piece—no inserts.

Swing over bed	12½"
Swing over cross slide	7¼"
Length between centers	20"
Floor space	29" W x 64" L
Hole through spindle	1 13/32"
American standard Camlock spindle nose	3"—D-1
Spindle speed range (standard)	4 to 2500 R.P.M.
Range of threads per inch (60)	3 to 184
Range of feeds per revolution (50)	.0005" to .016"
Motor size	3 H.P.
Net weight, with average accessory equipment, including all electrical equipment	2900 lbs.



SPECIFICATIONS

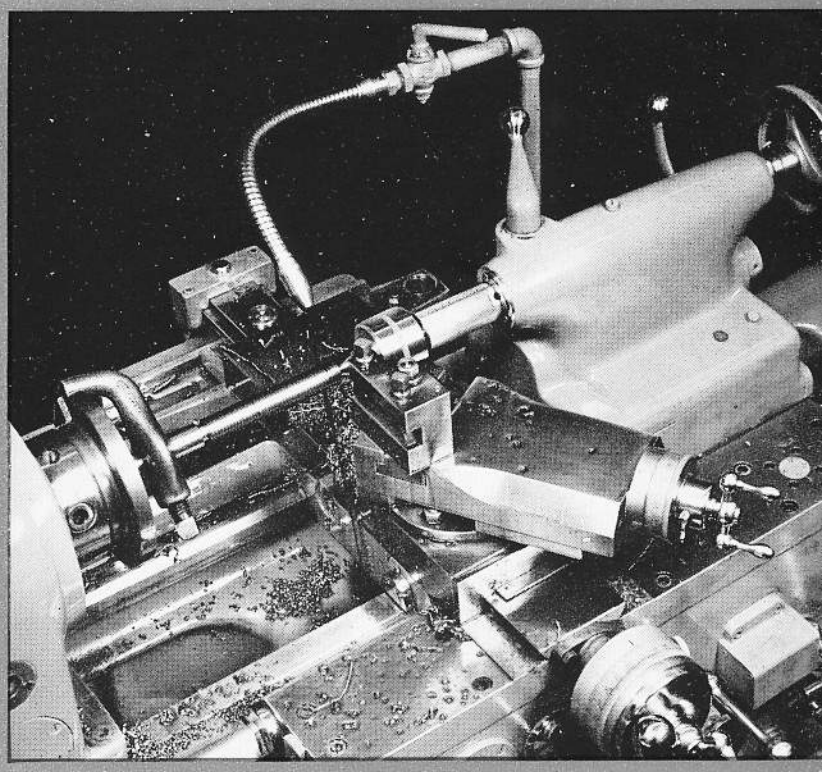
SENSITIVE PRECISION TOOLMAKER'S LATHE—

10" MODEL EE

The machine illustrated on the opposite page is equipped with electric leadscrew reverse which is not standard equipment but is a great saver of time when chasing threads. Variable reverse speed control should always be specified for use with electric leadscrew reverse. The combination of these two features has increased production as much as 100% on many threading jobs.

The 10" Model EE can be made still more versatile by the use of many other available attachments. The ones most commonly employed are: taper turning attachment, follow rest, multiple index face plate, multiple positive length stop, micro-gaging dial, collet attachment and various types of collets, chucks and Metric transposing gears.

Should it be wished to use the machine for small lot production, the famous Monarch "Air-Gage Tracer" may be factory applied as additional equipment.



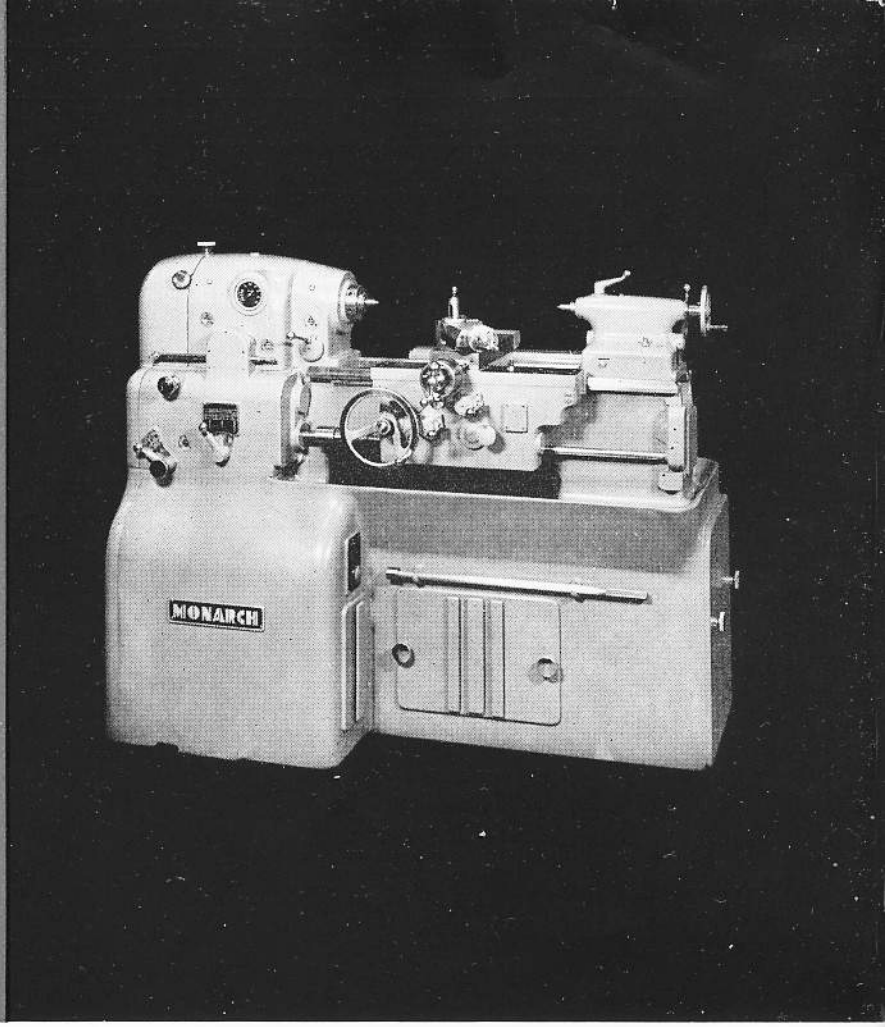
Recommended Use. This is a fast, accurate, high speed machine of wide adaptability for the production turning, boring and facing of small work pieces. An extraordinarily large choice of equipment and accessories makes it possible for the user to select the combination which will enable him to secure the utmost in productivity on *his* work.

Major Features. Available with speed ranges, through open belt, up to 40 to 4000 R.P.M. Through a built-in speed reducer this speed may be reduced to 6½ to 650 R.P.M. All electric drive direct to spindle through multiple "V" belts. No gears in headstock.

D.C. variable speed main drive motor secures its power through an electronic unit which utilizes almost any source of A.C.

Totally enclosed, automatically lubricated end gearing and gear box.

Flame hardened and ground ways for both carriage and tailstock. Bed all in one piece —no inserts.

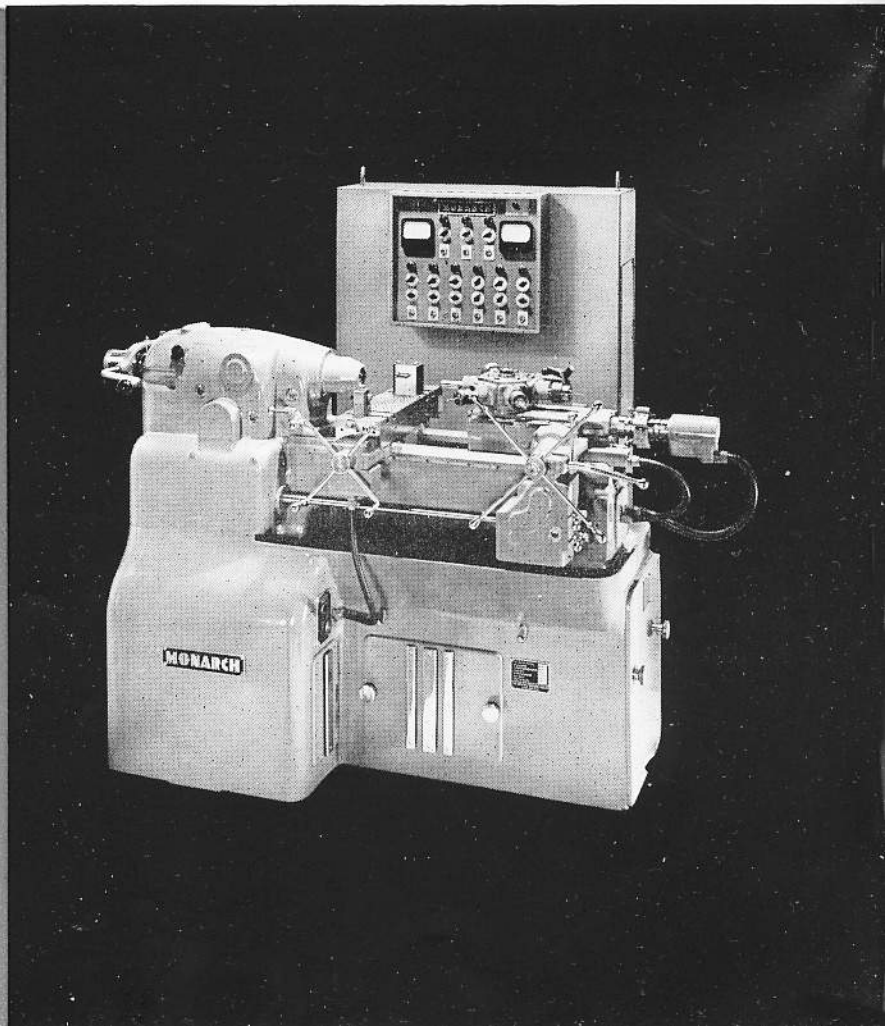


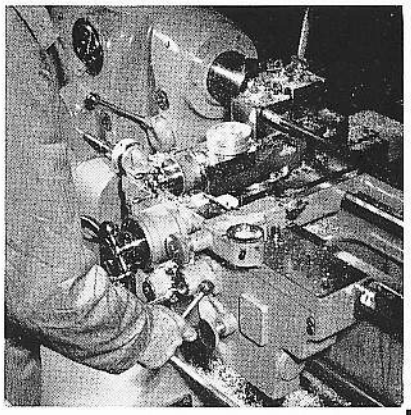
Recommended Use. For small screw machine work in quantities of 25 to 2000 or more pieces. Machining such parts, it sets a new standard of productivity, ease and quickness of set-up and repetition of close accuracy on both first and second operation work.

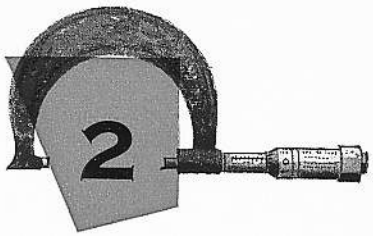
Major Features. Spindle has an infinitely variable range—both forward and reverse—from 40 to 4000 R.P.M. All electric drive to spindle through multiple "V" belts. No gears in headstock. D.C. variable speed main drive motor secures its power through an electronic unit.

Preselected, automatic, electronic speed and feed change. Up to 9 different speeds and 6 different feeds may be preselected with the result that the most efficient speed and feed are used for each operation. Feed and speed indicators permit quick selection of the correct speed and feed for each turret position and correct speed for each cross slide position.

Electronically controlled feed motor eliminates gear box and makes available an infinite number of feeds within the range.





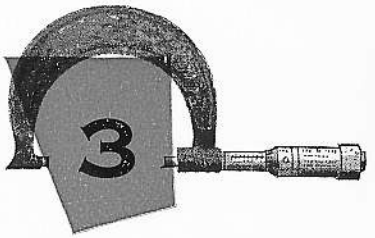


PRECISION MANUFACTURING LATHE—10″ MODEL EE

SPECIFICATIONS

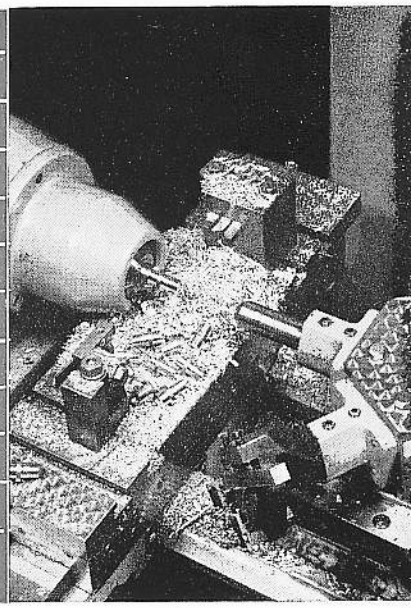
Swing over bed	12½″
Swing over cross slide	7¼″
Length between centers	20″
Floor space	29″ W x 64″ L
Hole through spindle	1 13/32″
American standard Camlock spindle nose	3″—D-1
Spindle speed range (standard)	4 to 2500 R.P.M.
Range of feeds per revolution (6)	.002″ to .012″
Motor size	3 H.P.
Net weight, base lathe only, including all electrical equipment	2515 lbs.

THE SPEEDI-MATIC—A Fast, Precision Hand Screw Machine



SPECIFICATIONS

Swing over bed	12½″
Floor space	48″ W x 74″ L
Hole through spindle	1 13/32″
American standard Camlock spindle nose	3″—D-1
Spindle speed range	40 to 4000 R.P.M.
Travel of cross feed slide, either direction	2⅞″
Width of cross feed slide	5½″
Work travel of ram	4″
Infinitely variable feed range	⅛″ to 16″ per min.
Collet capacity	⅞″
Motor size	3 H.P.
Net weight, with average accessory equipment, including all electrical equipment	4200 lbs.



PRECISION LATHE—SERIES EE, MODEL 1000

Recommended Use. Both a manufacturing and a toolmaker's lathe. On manufacturing operations it slashes both set-up time and turning time with no sacrifice of its basic accuracy. In the toolroom, the Series EE is a precision lathe for master toolmakers with a completely new standard in amount of work output.

Major Features. Powered by a variable speed main drive motor, D.C. being provided by a rectifier system. There are four infinitely variable speed ranges—forward or reverse. High range direct through multiple "V" belts. Other three ranges are geared.

All-electric speed control convenient to operator at apron. Shift from one speed range to another takes place automatically within a few seconds when range selector switch is reset.

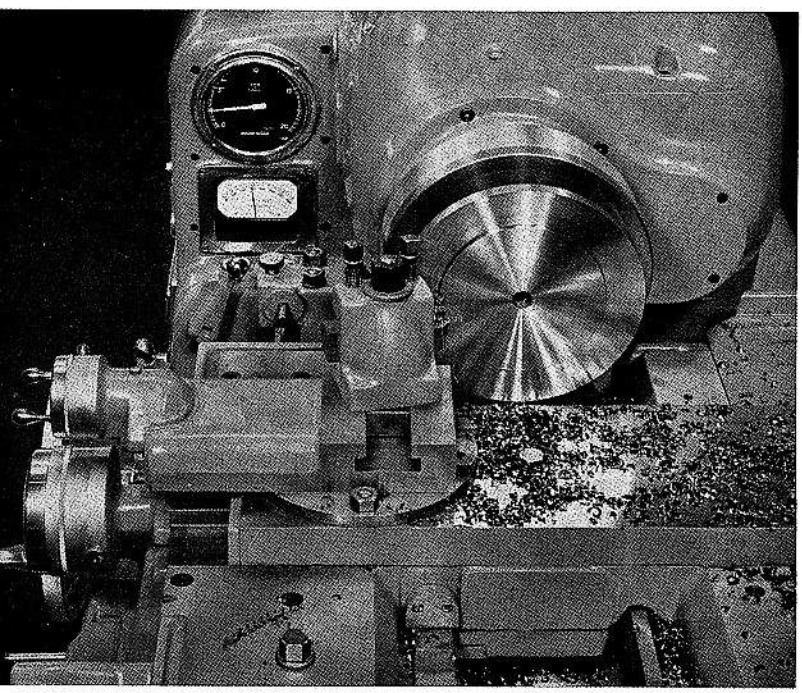
Combined mist and liquid, filtered lubrication in headstock. This provides complete lubrication with a wide margin of safety even at the highest speed.

Built-in constant surface cutting speed automatically and steplessly increases or decreases spindle R.P.M. to maintain a predetermined peripheral cutting speed. A must for many precise facing operations. Also used to great advantage on step shaft work.

Tailstock clamped and unclamped by hydraulic power which, in addition, clamps and unclamps the spindle. Repositioning on bed is by the slightest push or pull. Spindle travel is by means of hydraulic power with fingertip control. One handwheel controls a fast traverse movement, the other a slow feed movement.

Totally enclosed, automatically lubricated end gearing and gear box.

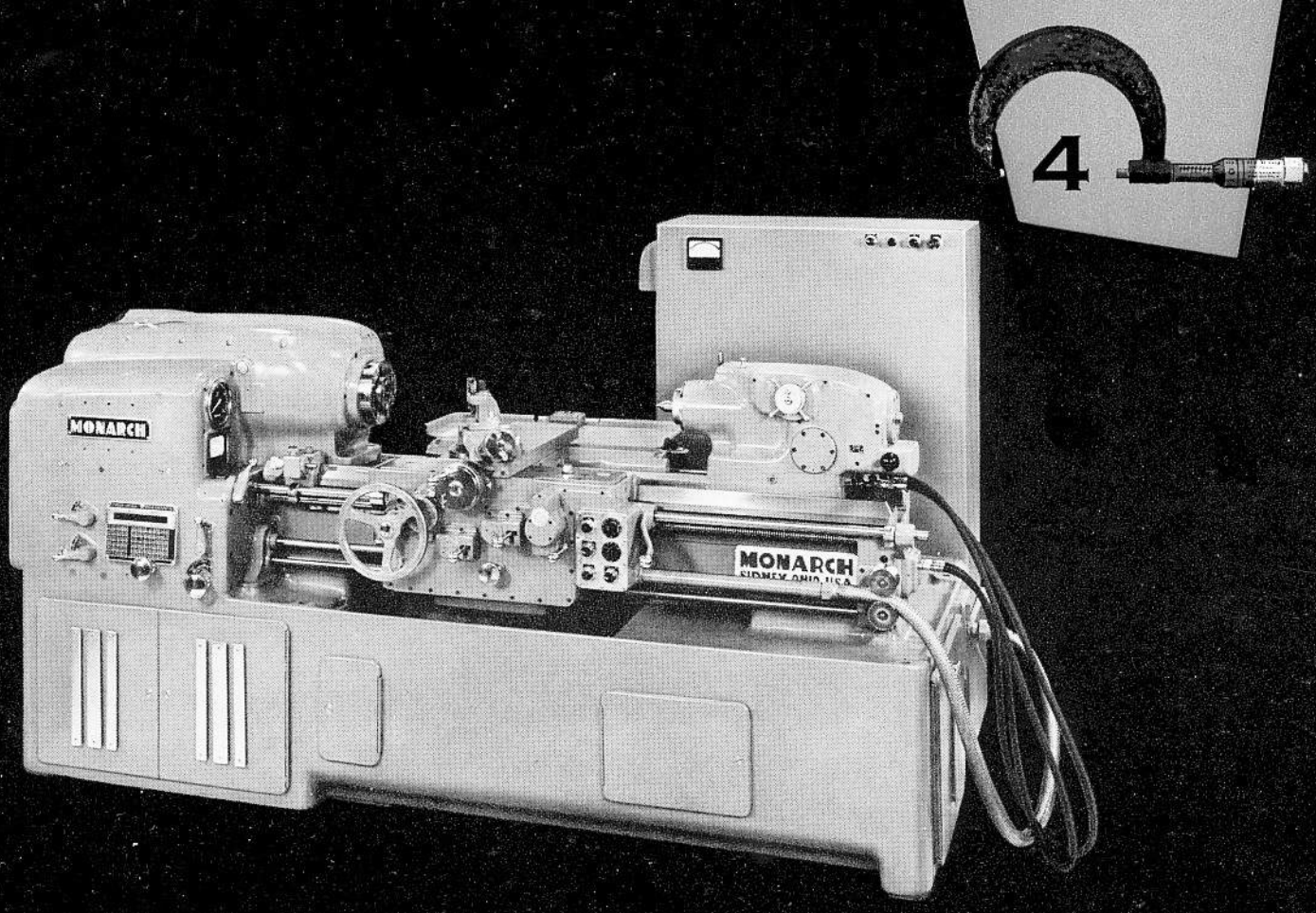
Four-way power rapid traverse to the carriage and cross slide cuts tool adjust time 50% on the average. Flame hardened and ground bed ways for both carriage and tailstock.



Built-In Constant Surface Cutting Speed. This feature becomes operative at the flick of a switch. With it, the operator is *always* using the most efficient surface cutting speed. Both finish and accuracy are improved. So is tool life. Constant surface cutting speed is recommended particularly on facing operations. It can also be used advantageously on multiple diameter shaft work.

The importance of using the most efficient surface cutting speed in lathe operations cannot be overemphasized. There has always been recognition of this fact but in actual practice the difficulty or impossibility of securing the proper surface cutting speed over all diameters of a work piece has led to compromises.

Using constant surface cutting speed, all the operator needs do is set the Series EE at the desired surface cutting speed and from that point on the machine takes over, giving him that speed *exactly* without further thought on his part.



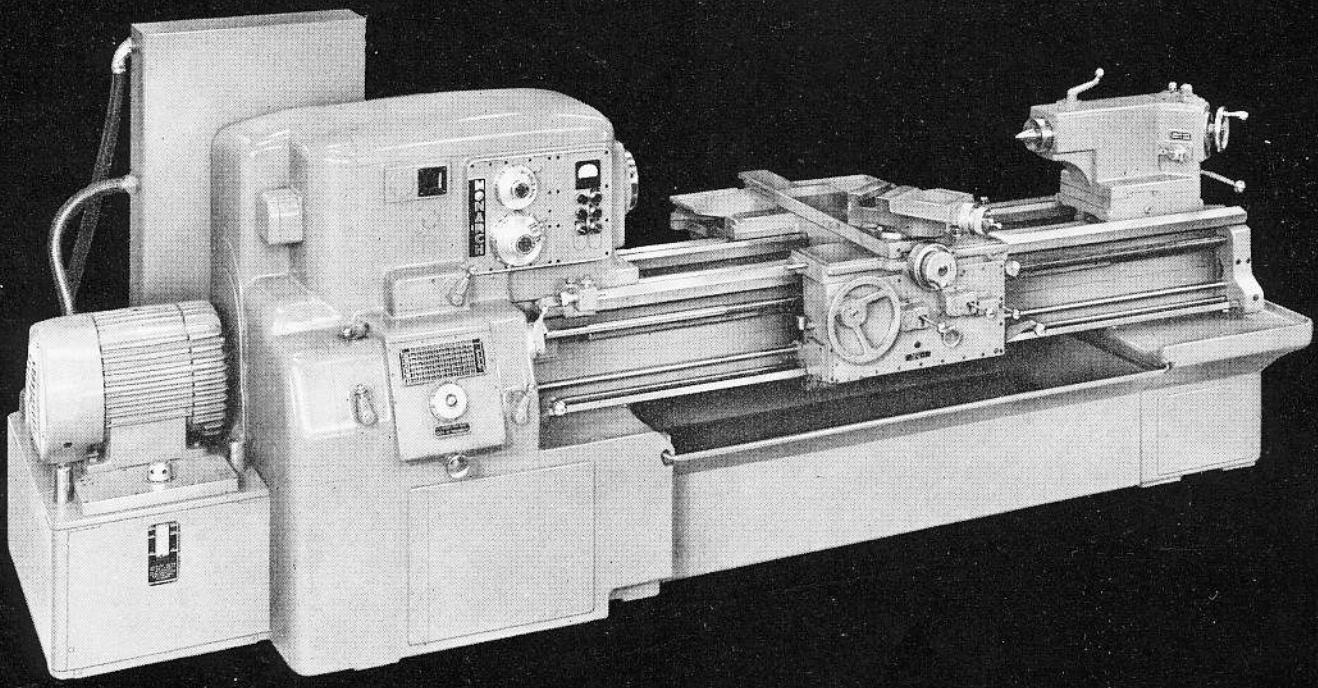
Flexibility Unlimited. Within the range of the machine, it's difficult to find a lathe job which the Series EE cannot handle efficiently. Equipped for all-around dual purpose operation (as illustrated above) this lathe includes built-in constant surface cutting speed, apron controlled leadscrew reverse, gear box with 66 thread and feed changes, hydraulic tailstock, taper attachment, direct length reading dial, follow rest, steady rest, face plate, dog plate and indicator carriage stop.

However, the machine is available with any desired equipment combination, plus substitution of a simplified gear box for the regular gear box and a simplified two speed tailstock for the hydraulic tailstock.

A considerable amount of other optional equipment is available. Included are such items as micrometer carriage stop, spindle nose chucks and collets, multiple indexing face plate, turrets and connected compound and plain block rear rest.

SPECIFICATIONS

Swing over bed	15½"
Swing over cross slide	9"
Length between centers	30" and 54"
Floor space	62" W x 101" L
Hole through spindle	1 13/16"
American standard Camlock spindle nose	6"—D-1
Spindle speed range	25 to 2000 R.P.M.
Range of threads per inch (66)	2 to 120
Range of feeds per revolution (66)	.001" to .066"
Motor size	20 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	10,250 lbs.



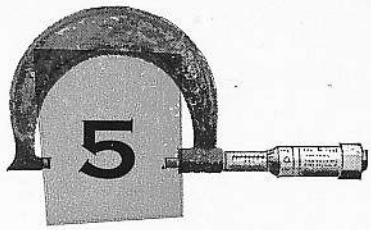
Recommended Use. An entirely new concept of lathe design featuring the Monarch Dyna-Shift drive headstock. Its chief advantages are (1) automatic machine calculation of necessary spindle speed to secure desired surface cutting speed, (2) speed preselection to maintain work surface cutting speed on successive diameters and (3) 36 spindle speeds in such a wide range as to take care of all turning needs. Net result is more work, longer tool life and incredibly easy operation.

Major Features. Headstock provided with two large dials; one for the work diameter setting, the other for the surface speed setting. The machine automatically and instantaneously calculates the spindle speed while movement of a single lever causes the shift to take place hydraulically and begins spindle rotation.

Using preselection feature, operator can set up any number of speeds and preselect the next speed to be used while the machine is in operation. It's so quick and easy for him to do this that he is certain to take advantage of the increased output possible instead of turning successive diameters using one compromise speed as is so commonly the procedure everywhere.

Work start and stop levers have three positions—RUN, BRAKE and JOG. There is finger-touch shifting as these levers do nothing but open valves. Hydraulic power does the work of clutching, braking and jogging.

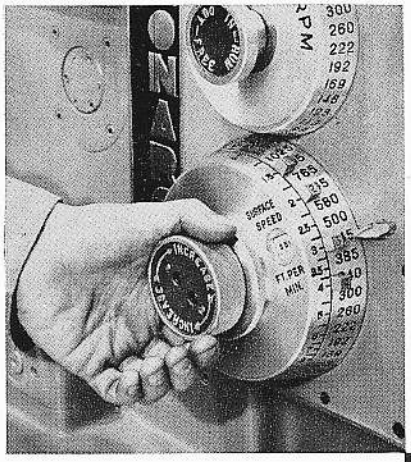
All spindle drive gears are of the helical type. Spindle has an American standard 6″ type D-1 Camlock nose. Spindle and all shafts are hardened, have ground threads and rotate on anti-friction bearings. Center bearing support is provided for spindle and long intermediate shaft.

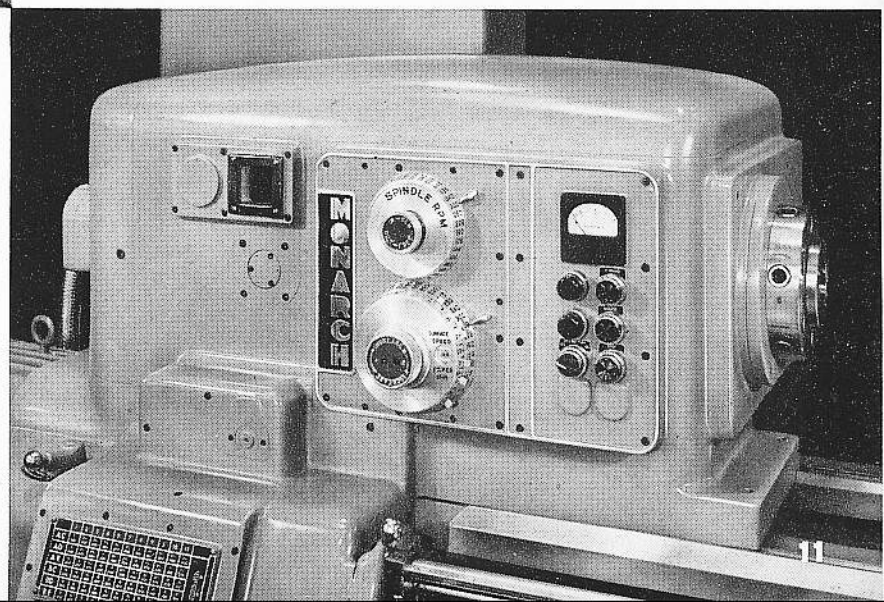


SPECIFICATIONS

	MODEL 100	MODEL 101	MODEL 1100	MODEL 1101
Clearance diameter	16"	20"	16"	20"
Swing over cross slide	10"	13"	10"	13"
Length between centers		30", 54", 78", 102", 126" and 150"		
Floor space—base length	53" W x 122" L	53" W x 122" L	53" W x 122" L	53" W x 122" L
Hole through spindle	2 1/16"	2 1/16"	2 1/16"	2 1/16"
American standard Camlock spindle nose	6"—D-1	6"—D-1	6"—D-1	6"—D-1
Number of spindle speeds	36	36	36	36
Spindle speed range	14 to 1750 R.P.M.	14 to 1750 R.P.M.	14 to 1750 R.P.M.	14 to 1750 R.P.M.
Range of threads per inch (66)	2 to 120	2 to 120	2 to 120	2 to 120
Range of feeds per revolution (66)	.0013" to .082"	.0013" to .082"	.0013" to .082"	.0013" to .082"
Motor size	10 H.P.	10 H.P.	10 H.P.	10 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	6110 lbs.	6185 lbs.	6405 lbs.	6480 lbs.

PRESELECTOR DYNA-SHIFT LATHES—SERIES 62



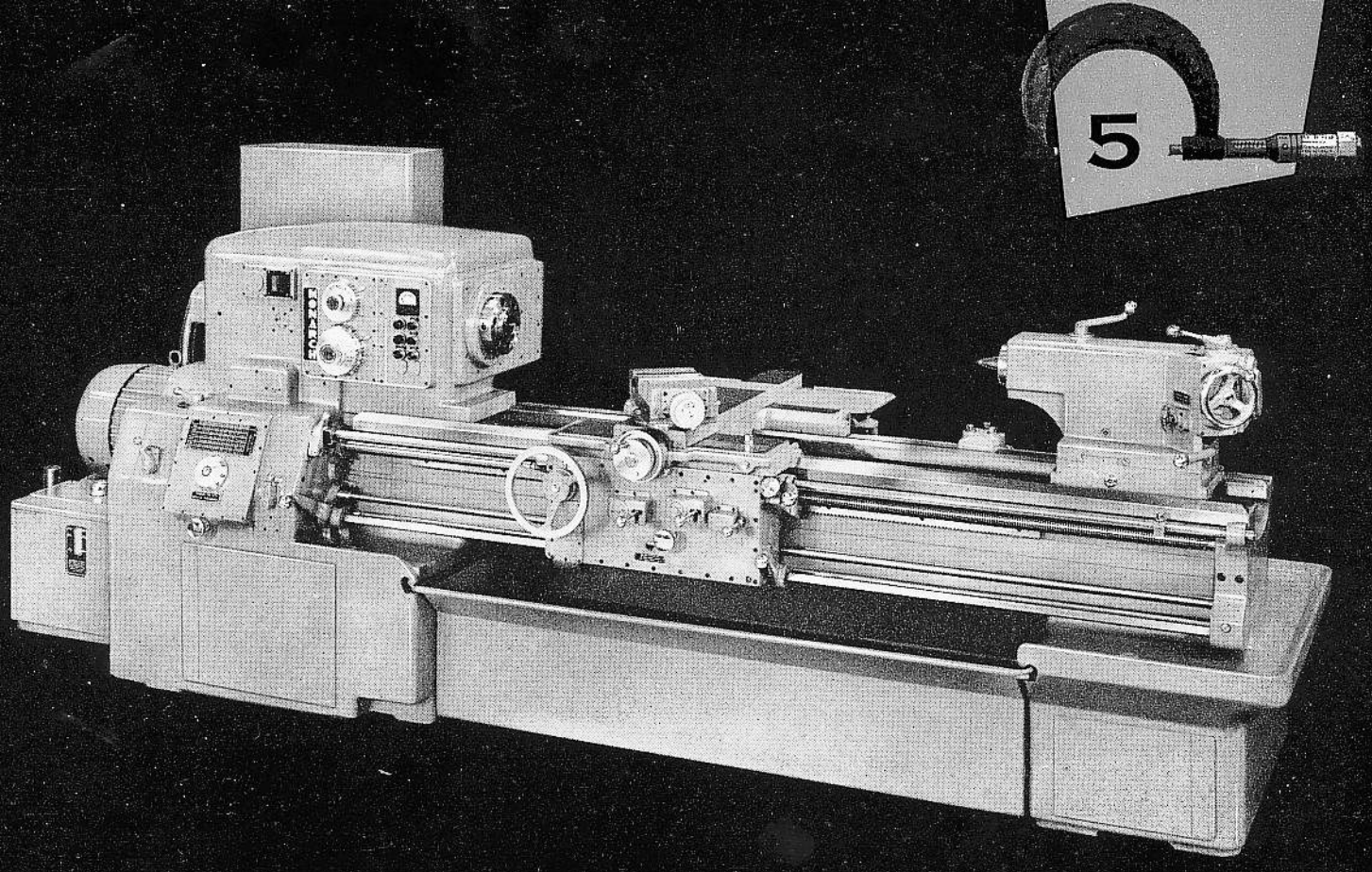


SPECIFICATIONS

	MODEL 130	MODEL 131	MODEL 1130	MODEL 1131
Clearance diameter	20"	24"	20"	24"
Swing over cross slide	13"	16"	13"	16"
Length between centers	30", 54", 78", 102", 126", 150", 174" and 198"			
Floor space—base length	55" W x 132" L	55" W x 132" L	55" W x 132" L	55" W x 132" L
Hole through spindle	2 1/16"	2 1/16"	2 1/16"	2 1/16"
American standard Camlock spindle nose	6"—D-1	6"—D-1	6"—D-1	6"—D-1
Number of spindle speeds	36	36	36	36
Spindle speed range	14 to 1750 R.P.M.	14 to 1750 R.P.M.	14 to 1750 R.P.M.	14 to 1750 R.P.M.
Range of threads per inch (66)	2 to 120	2 to 120	2 to 120	2 to 120
Range of feeds per revolution (66)	.001" to .068"	.001" to .068"	.001" to .068"	.001" to .068"
Motor size	20 H.P.	20 H.P.	20 H.P.	20 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	8810 lbs.	9010 lbs.	9220 lbs.	9420 lbs.

SPECIFICATIONS

	MODEL 160	MODEL 161	MODEL 1160	MODEL 1161
Clearance diameter	25"	28"	25"	28"
Swing over cross slide	16"	19"	16"	19"
Length between centers	48", 72", 96", 120", 144", 168", 192", and 216"			
Floor space—base length	56" W x 156" L	56" W x 156" L	56" W x 156" L	56" W x 156" L
Hole through spindle	2 1/16"	2 1/16"	2 1/16"	2 1/16"
American standard Camlock spindle nose	6"—D-1	6"—D-1	6"—D-1	6"—D-1
Number of spindle speeds	36	36	36	36
Spindle speed range	14 to 1750 R.P.M.	14 to 1750 R.P.M.	14 to 1750 R.P.M.	14 to 1750 R.P.M.
Range of threads per inch (66)	2 to 120	2 to 120	2 to 120	2 to 120
Range of feeds per revolution (66)	.001" to .068"	.001" to .068"	.001" to .068"	.001" to .068"
Motor size	20 H.P.	20 H.P.	20 H.P.	20 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	9420 lbs.	9620 lbs.	9970 lbs.	10170 lbs.



Lubrication of all headstock gears and bearings is by means of a high pressure mist spray system.

Tailstock is the quick clamping, anti-friction type. Hardened and ground spindle is so designed that it may be used for drilling and reaming just as proficiently as a dead center spindle.

There are two tailstock spindle speed ranges—a fast one for quick positioning, a slow one for drilling and locating. Lubrication system in tailstock base feeds oil under pressure to all points where it is needed.

End gearing and gear box are totally enclosed and automatically lubricated.

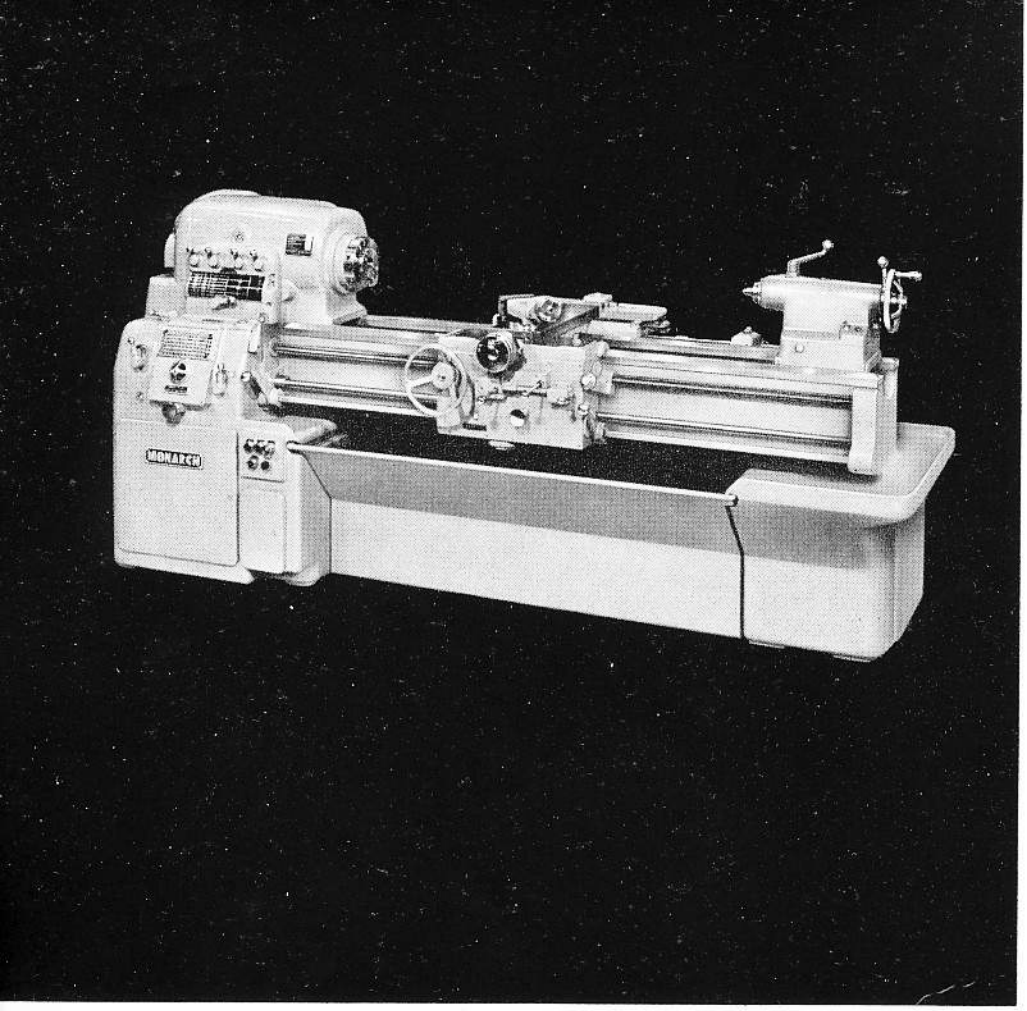
Series 62 machines are supplied with either one of two leadscrew reverse methods. This may be accomplished by a lever at the front of the headstock or may be apron controlled, the latter method being employed generally on machines used in the toolroom.

Filtered and metered automatic force feed lubrication, under all operating conditions, supplied to apron parts, carriage bearing on bed ways and compound rest bottom slide bearing on carriage.

On longer bed machines the leadscrew and all rods are continuously supported by traveling carriers which are automatically picked up or dropped off by movement of apron.

Power rapid traverse to both the carriage and the cross slide is apron controlled through the regular longitudinal and cross feed friction levers. This feature alone cuts tool adjust time 50% on the average.

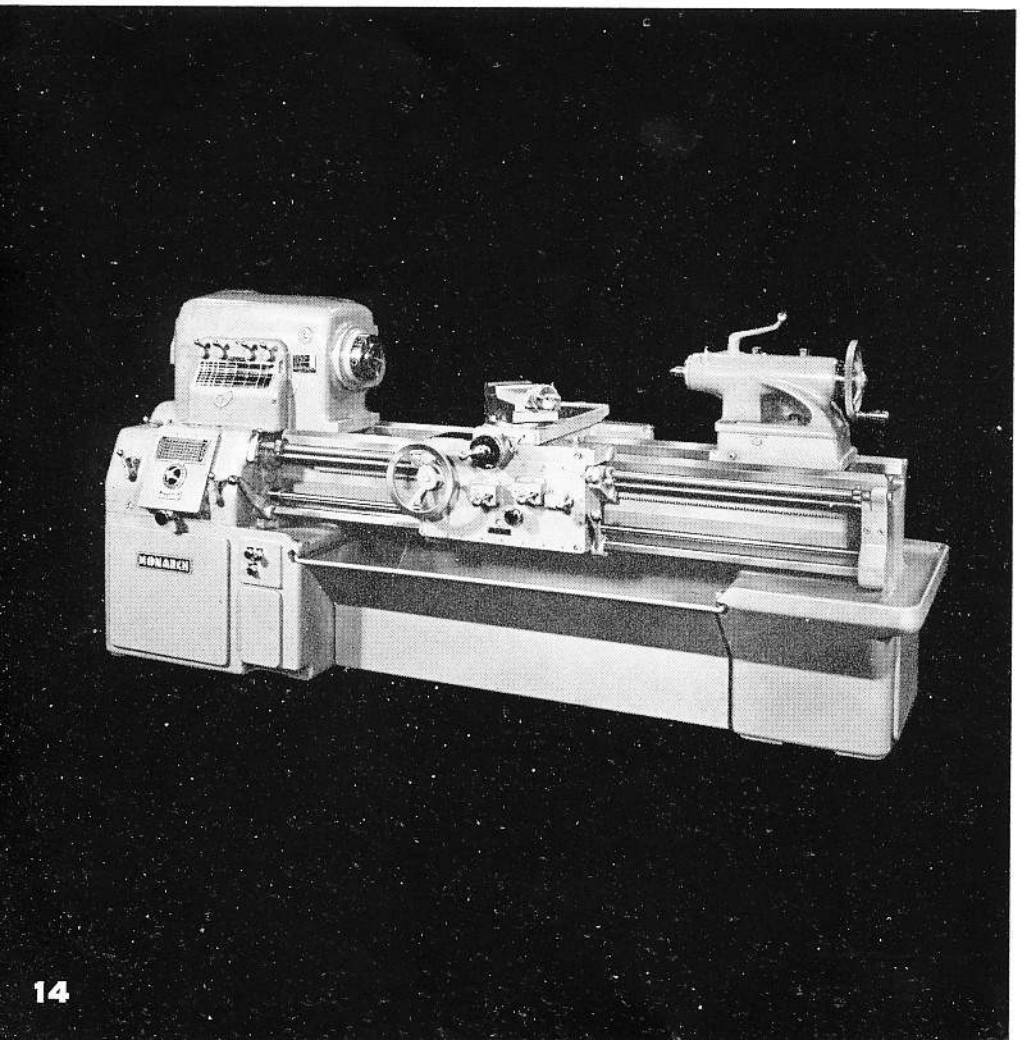
Flame hardened and ground ways for both carriage and tailstock. Bed all in one piece—no inserts.



Recommended Use. The Series 61 is offered in a full range of engine lathes and toolmaker's lathes. Both types are available with plus-swing. An outstanding advantage to the user is the power rapid traverse which cuts tool adjust time 50% on the average. There's nothing quite like it for rapid tool positioning, for quick tool retraction, for fast carriage return.

Major Features. Headstock is helical geared with speed changes made by sliding heavy sided jaw clutches. This method of manual change is quick and positive and years of satisfactory performance have proved the design superior when speed change is secured manually.

Headstock spindle and long intermediate shaft have center bearing support. Lubrication of the headstock is combined pump and splash.



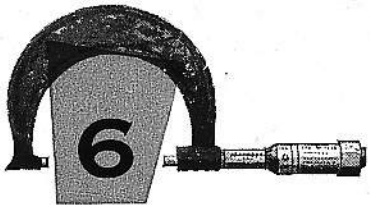
Quick clamping type tailstock furnished on all 13″ machines and on 16″ and 20″ Toolmaker's Lathes. On all 16″ and 20″ machines, plunger pin in right front carriage wing is engaged in tailstock base to reposition tailstock on bed by means of power rapid traverse.

Totally enclosed, automatically lubricated end gearing and gear box.

Leadscrew reverse operated by lever at front of headstock on engine lathes. Toolmaker's lathes have leadscrew reverse operated by lever at right hand side of apron, in which case stops on reverse rod provide close control in both directions of carriage travel.

Power rapid traverse to both the carriage and cross slide is apron controlled through regular longitudinal and cross feed friction levers.

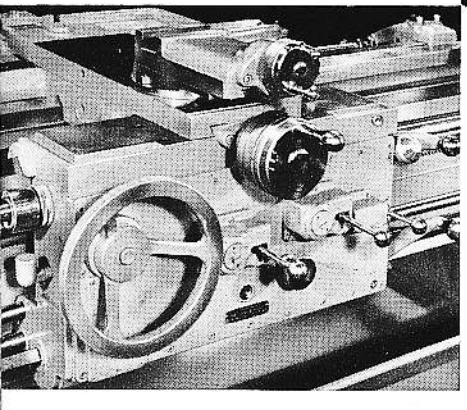
Flame hardened and ground ways for both carriage and tailstock. Bed all in one piece—no inserts.



ENGINE AND TOOLMAKER'S LATHES—SERIES 61

SPECIFICATIONS
ENGINE LATHES

	13"	16"	20"
Swing over bed	15½"	18½"	22½"
Swing over cross slide	9¾"	10½"	13¾"
Length between centers	30" to 126"	30" to 174"	48" to 216"
Floor space—base length	41" W x 98" L	44" W x 98" L	44" W x 122" L
Hole through spindle	1 5/16"	1 5/16"	1 5/16"
American standard Camlock spindle nose	6"—D-1	6"—D-1	6"—D-1
Number of spindle speeds	16	16	16
Spindle speed range (standard)	19 to 800 R.P.M.	17 to 700 R.P.M.	17 to 700 R.P.M.
Range of threads per inch (66)	2 to 120	2 to 120	2 to 120
Range of feeds per revolution (66)	.0017" to .103"	.0014" to .084"	.0014" to .084"
Motor size	5-7½ H.P.	7½-15 H.P.	10-20 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	5050 lbs.	7750 lbs.	8360 lbs.



SPECIFICATIONS
TOOLMAKER'S LATHES

	13"	16"	20"
Swing over bed	15½"	18½"	22½"
Swing over cross slide	9¾"	10½"	13¾"
Length between centers	30" to 126"	30" to 174"	48" to 216"
Floor space—base length	41" W x 98" L	44" W x 98" L	44" W x 122" L
Hole through spindle	1 5/16"	1 5/16"	1 5/16"
American standard Camlock spindle nose	6"—D-1	6"—D-1	6"—D-1
Number of spindle speeds	16	16	16
Spindle speed range (standard)	19 to 800 R.P.M.	17 to 700 R.P.M.	17 to 700 R.P.M.
Range of threads per inch (66)	2 to 120	2 to 120	2 to 120
Range of feeds per revolution (66)	.0017" to .103"	.0014" to .084"	.0014" to .084"
Motor size	5-7½ H.P.	7½-15 H.P.	10-20 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	5345 lbs.	8160 lbs.	8910 lbs.

	13"	16"	20"
Swing over bed	15½"	18½"	22½"
Swing over cross slide	9¾"	10½"	13¾"
Length between centers	30" to 126"	30" to 174"	48" to 216"
Floor space—base length	41" W x 98" L	44" W x 98" L	44" W x 122" L
Hole through spindle	1⅝"	1⅞"	1⅞"
American standard Camlock spindle nose	6"—D-1	6"—D-1	6"—D-1
Number of spindle speeds	16	16	16
Spindle speed range (standard)	19 to 800 R.P.M.	17 to 700 R.P.M.	17 to 700 R.P.M.
Range of threads per inch (66)	2 to 120	2 to 120	2 to 120
Range of feeds per revolution (66)	.0017" to .103"	.0014" to .084"	.0014" to .084"
Motor size	5-7½ H.P.	7½-15 H.P.	10-20 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	4850 lbs.	7550 lbs.	8160 lbs.

SPECIFICATIONS
ENGINE LATHES

Recommended Use. A complete range of lathes in either of two types—engine lathes for small or medium lot manufacturing operations and toolmaker's lathes with that extra versatility so desirable in toolroom work. Both types also available with plus-swing.

Major Features. Headstock is helical geared with speed changes made by sliding heavy sided jaw clutches. This method of manual change is quick and positive and years of satisfactory performance have proved the design superior when speed change is secured manually.

Headstock spindle and long intermediate shaft have center bearing support. Lubrication of the headstock is combined pump and splash.

Quick clamping type tailstock furnished on all 13" machines and on 16" and 20" Toolmaker's Lathes. On all 16" and 20" machines, plunger pin in right front carriage wing is engaged in tailstock base to reposition tailstock on bed by means of apron handwheel.

Totally enclosed, automatically lubricated end gearing and gear box.

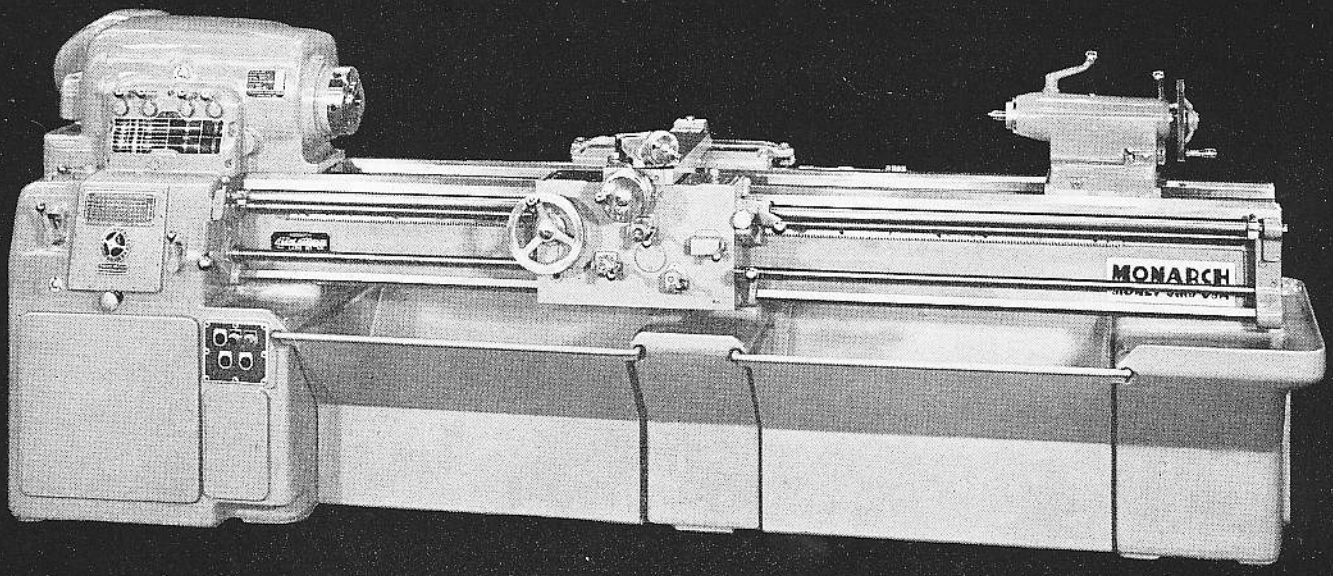
Leadscrew reverse operated by lever at front of headstock on engine lathes. Toolmaker's lathes have leadscrew reverse operated by lever at right hand side of apron, in which case stops on reverse rod provide close control in both directions of carriage travel, either when threading or feeding.

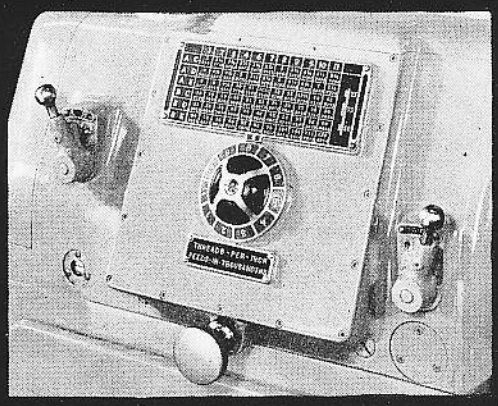
Flame hardened and ground ways for both carriage and tailstock. Bed all in one piece—no inserts.

	13"	16"	20"
Swing over bed	15½"	18½"	22½"
Swing over cross slide	9¾"	10½"	13¾"
Length between centers	30" to 126"	30" to 174"	48" to 216"
Floor space—base length	41" W x 98" L	44" W x 98" L	44" W x 122" L
Hole through spindle	1⅝"	1⅞"	1⅞"
American standard Camlock spindle nose	6"—D-1	6"—D-1	6"—D-1
Number of spindle speeds	16	16	16
Spindle speed range (standard)	19 to 800 R.P.M.	17 to 700 R.P.M.	17 to 700 R.P.M.
Range of threads per inch (66)	2 to 120	2 to 120	2 to 120
Range of feeds per revolution (66)	.0017" to .103"	.0014" to .084"	.0014" to .084"
Motor size	5-7½ H.P.	7½-15 H.P.	10-20 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	5145 lbs.	7960 lbs.	8710 lbs.

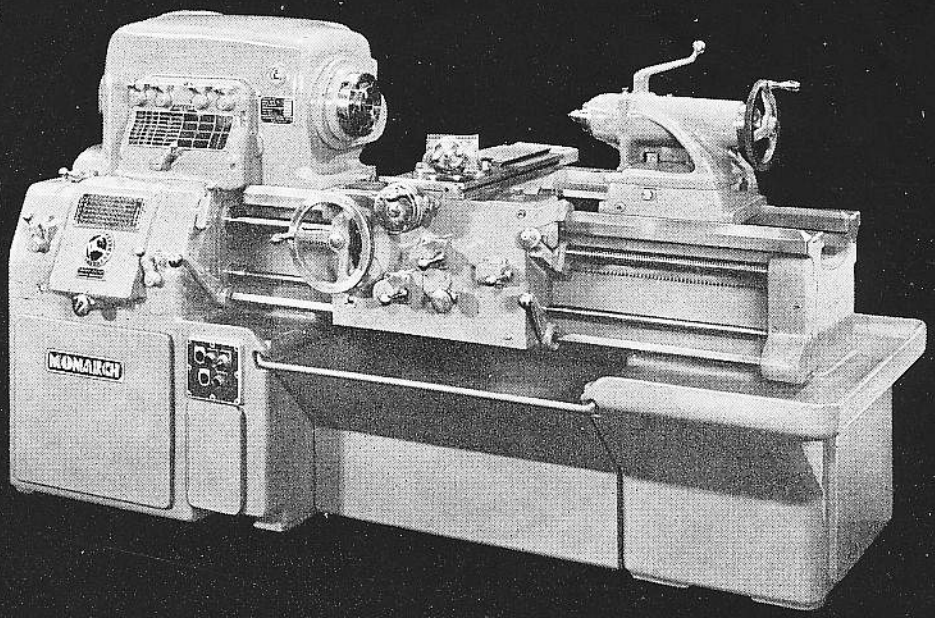
SPECIFICATIONS
TOOLMAKER'S LATHES

ENGINE AND TOOLMAKER'S LATHES —SERIES 60





The wide range of feed and thread changes provided by the Series 60 gear box includes the frequently required 27 threads per inch. Although the over-all thread range is 2 to 120 on a standard machine, a 1 to 60 range may also be supplied.



Recommended Use. Here is a completely different approach to the problem of heavy duty metal turning. The Series 80, with its Dyna-Shift drive headstock, provides (1) automatic machine calculation of necessary spindle speed to secure desired surface cutting speed and (2) 36 spindle speeds in a ratio of 125 to 1 which range is so wide as to take care of all turning needs. These features (plus many others, including a unique design of power rapid traverse) account for a rate of metal removal not possible heretofore.

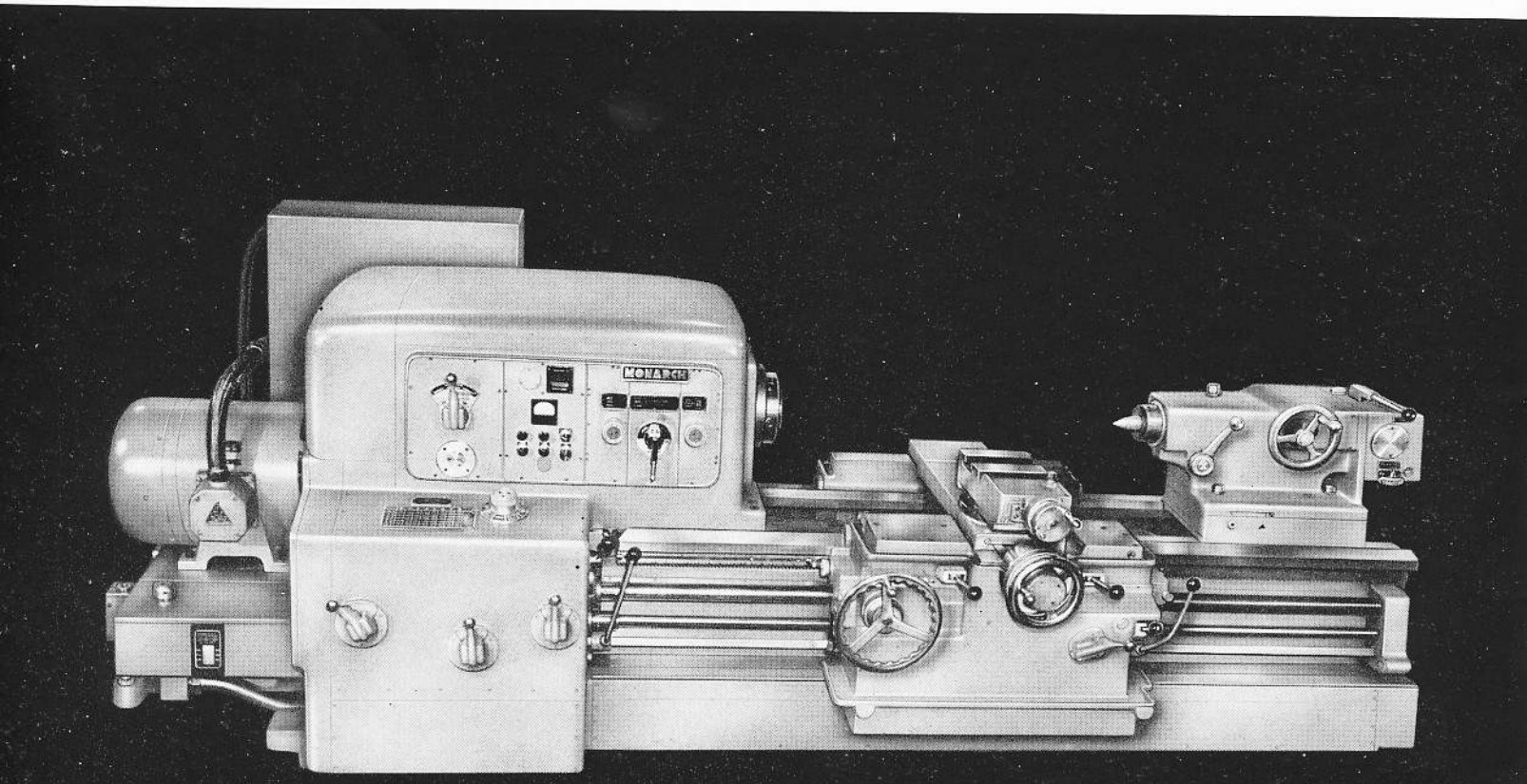
Major Features. Headstock provided with two large dials; one for the work diameter setting, the other for the surface cutting speed setting. The machine automatically calculates the required spindle speed and hydraulically shifts to that speed. A safety interlocking valve provides free spindle rotation and a run setting so the spindle can be started, stopped or jogged by the work start and stop levers.

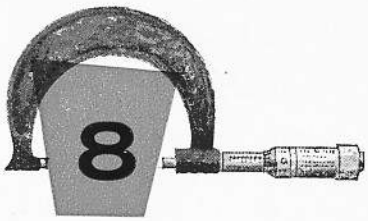
These levers have three positions—RUN, BRAKE and JOG. There is finger-touch shifting as these levers do nothing but operate valves. Hydraulic power does the work of clutching, braking and jogging.

Tailstock spindle, of the anti-friction bearing type, has two ratios of lateral movement—a traverse ratio with generous power and speed for fast positioning; a feeding ratio with plenty of power for drilling operations plus sensitive control for accurate positioning.

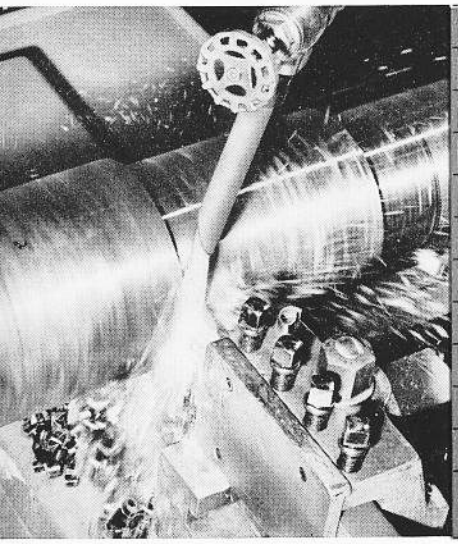
Hydraulically powered, variable speed, rapid traverse moves the carriage right or left and the cross slide in or out. Controls are arranged so that any one of these movements may be made to take place separately or any combination of a carriage movement and a cross slide movement may take place simultaneously. Final manual positioning is practically eliminated by this feature.

Flame hardened and ground ways for both carriage and tailstock. Bed all in one piece—no inserts.





DYNA-SHIFT HEAVY DUTY LATHES—SERIES 80

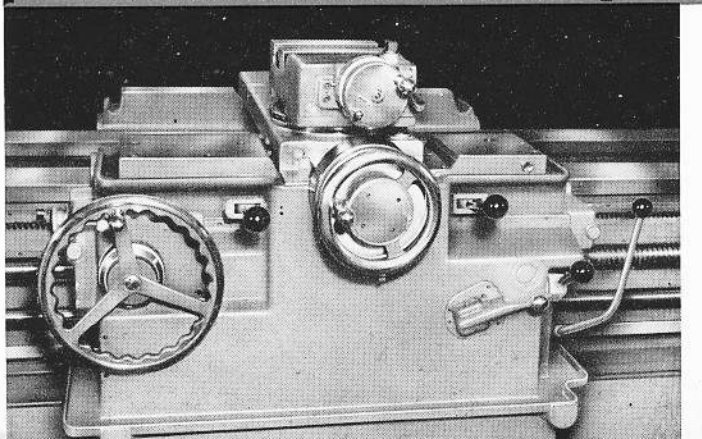


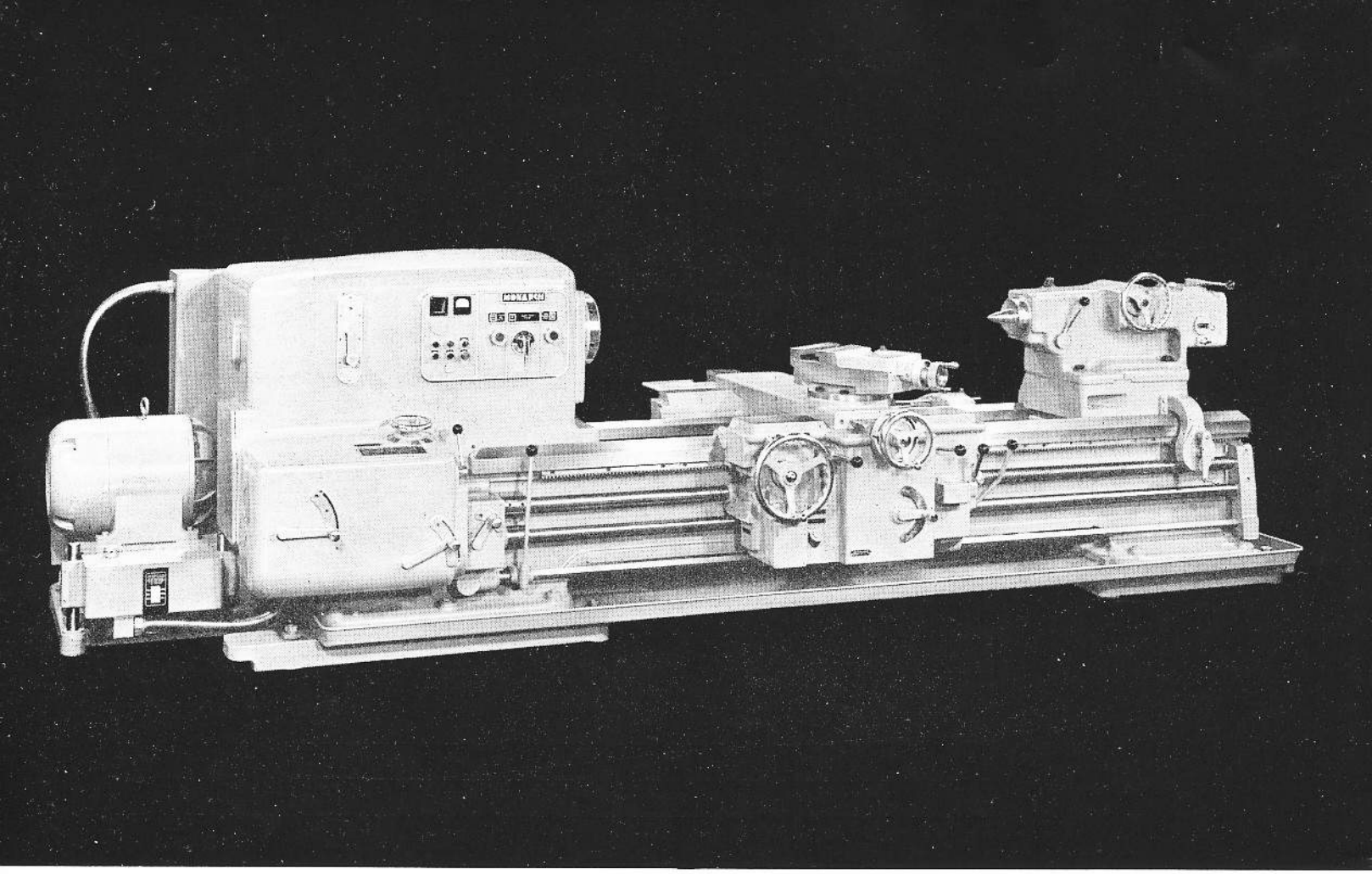
SPECIFICATIONS

	MODEL 1600	MODEL 1601
Clearance diameter	26"	30"
Swing over cross slide	16"	20"
Length between centers	48" to 240"	48" to 240"
Floor space—base length	72" W x 179" L	72" W x 179" L
Hole through spindle	3 1/16"	3 1/16"
American standard Camlock spindle nose	8"—D-1	8"—D-1
Number of spindle speeds	36	36
Spindle speed range	10 to 1250 R.P.M.	10 to 1250 R.P.M.
Range of threads per inch (48)	1/2 to 28	1/2 to 28
Range of feeds per revolution (48)	.003" to .1683"	.003" to .1683"
Motor drive capacity equivalent to	45 H.P.	45 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	15,000 lbs.	16,000 lbs.

SPECIFICATIONS

	MODEL 2000	MODEL 2001
Clearance diameter	32"	36"
Swing over cross slide	20"	24"
Length between centers	48" to 240"	48" to 240"
Floor space—base length	80" W x 190" L	80" W x 190" L
Hole through spindle	3 5/16"	3 5/16"
American standard Camlock spindle nose	11"—D-1	11"—D-1
Number of spindle speeds	36	36
Spindle speed range	8 to 1000 R.P.M.	8 to 1000 R.P.M.
Range of threads per inch (48)	1/2 to 28	1/2 to 28
Range of feeds per revolution (48)	.003" to .1683"	.003" to .1683"
Motor drive capacity equivalent to	60 H.P.	60 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	17,500 lbs.	18,500 lbs.





DYNA-SHIFT HEAVY DUTY LATHES—SERIES 90

Recommended Use. Like the Series 80 Dyna-Shift Lathe, previously described, this machine also offers a completely different approach to the problem of heavy duty metal turning. The Series 90, with its Dyna-Shift drive headstock, provides (1) automatic machine calculation of necessary spindle speed to secure desired surface cutting speed and (2) 36 spindle speeds in a ratio of 125 to 1 which range is so wide as to take care of all turning needs. These features (plus many others) allow carbide tooling to be used to its fullest advantage and account for metal removal rates in excess of 100 cubic inches per minute.

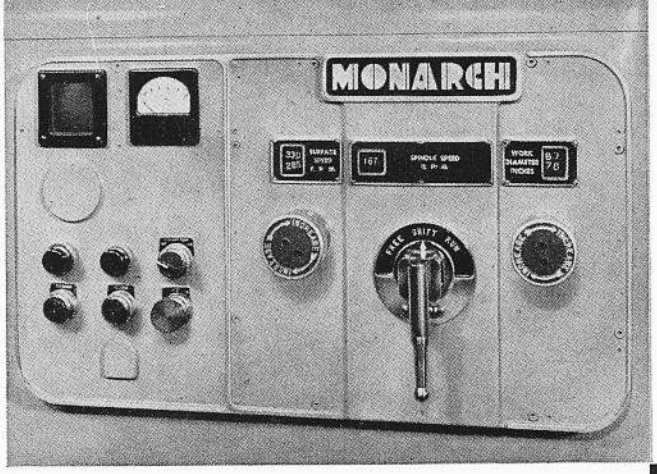
Major Features. Headstock provided with two large dials; one for the work diameter setting, the other for the surface cutting speed setting. The machine automatically calculates the required spindle speed and hydraulically shifts to that speed. A safety interlocking valve provides free spindle rotation and a run setting so the spindle can be started, stopped or jogged by the work start and stop levers.

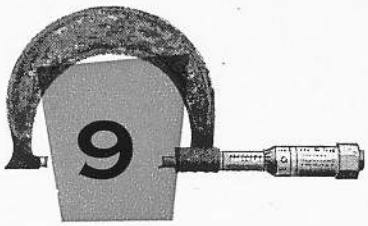
These levers have three positions—RUN, BRAKE and JOG. There is finger-touch shifting as these levers do nothing but operate valves. Hydraulic power does the work of clutching, braking and jogging.

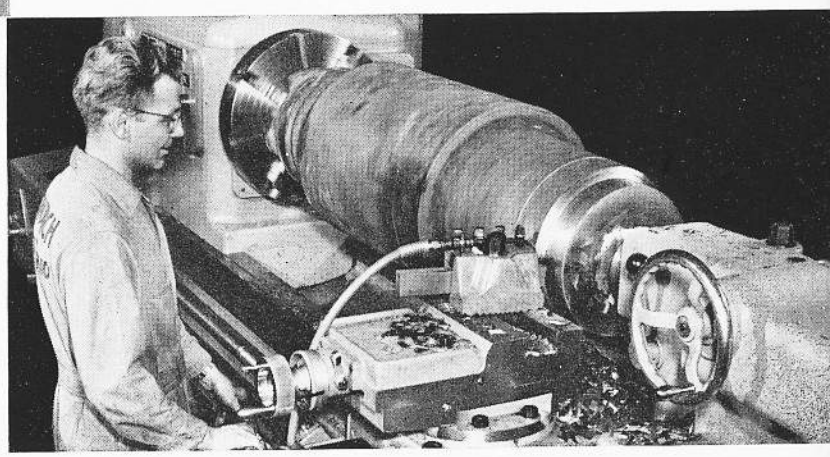
Tailstock spindle, of the anti-friction bearing type, has two ratios of lateral movement—a traverse ratio with generous power and speed for fast positioning; a feeding ratio with plenty of power for drilling operations plus sensitive control for accurate positioning.

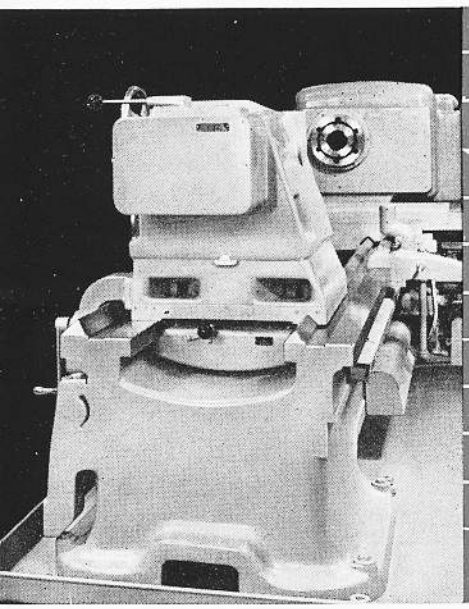
Individual motor driven carriage power rapid traverse gives traverse movement in both directions of carriage travel. This unit is also capable of inching the carriage almost exactly to the desired point on the bed.

Flame hardened and ground ways for both carriage and tailstock. Bed all in one piece—no inserts.



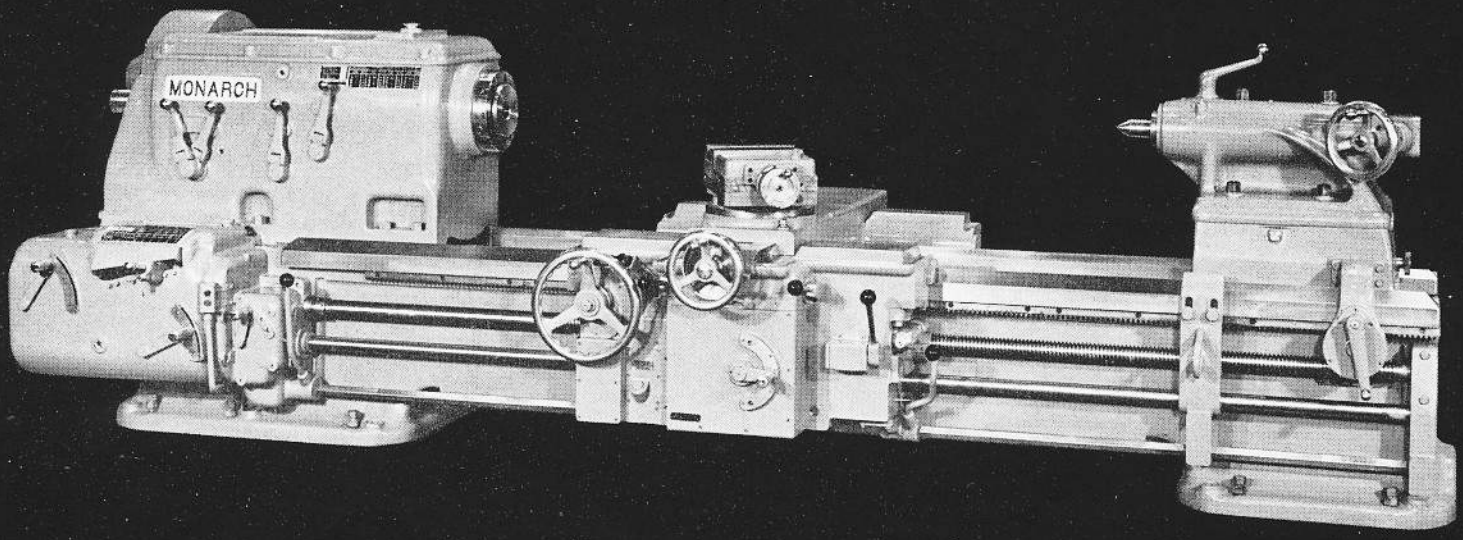


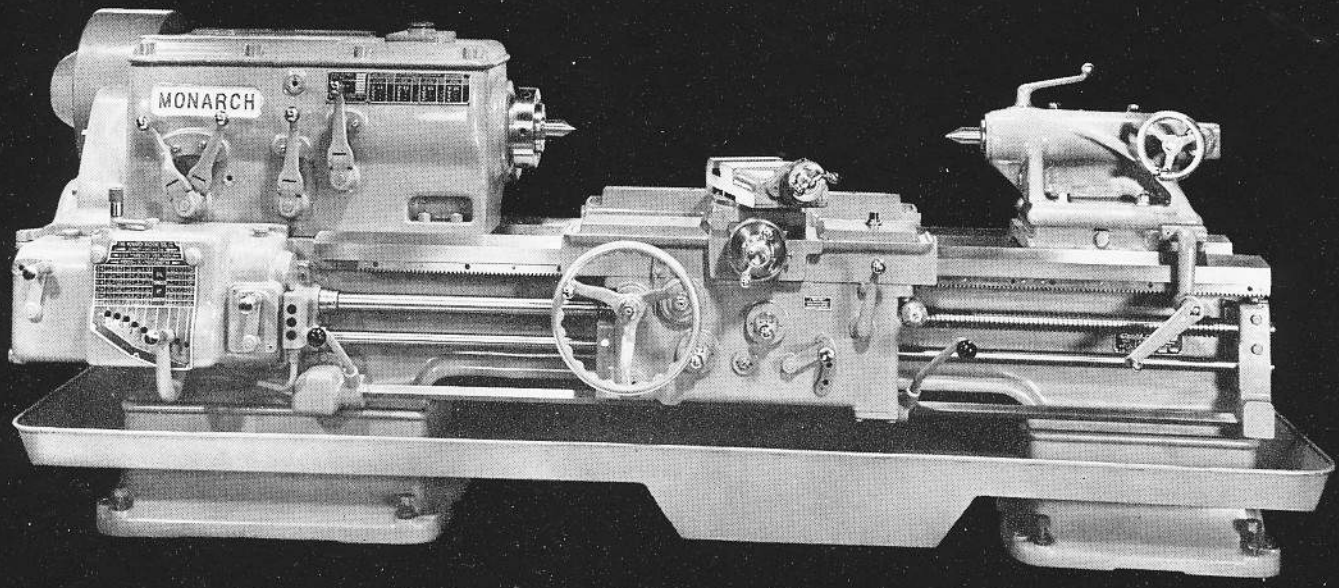


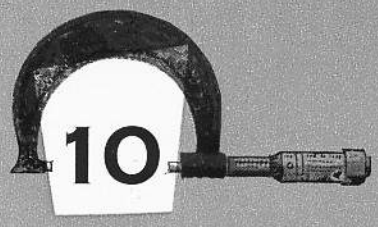


	MODEL 2500	MODEL 2501	MODEL 2502
Clearance diameter	40"	44"	48"
Swing over cross slide	25"	31"	36"
Length between centers	60" to 324"	60" to 324"	60" to 324"
Floor space—base length	88" W x 202" L	88" W x 202" L	88" W x 202" L
Hole through spindle	4 1/16"	4 1/16"	4 1/16"
American standard Camlock spindle nose	11"—D-1	11"—D-1	11"—D-1
Number of spindle speeds	36	36	36
Spindle speed range	6 to 750 R.P.M.	6 to 750 R.P.M.	6 to 750 R.P.M.
Range of threads per inch (48)	½ to 28	½ to 28	½ to 28
Range of feeds per revolution (48)	.0035" to .196"	.0035" to .196"	.0035" to .196"
Motor drive capacity equivalent to	60 H.P.	60 H.P.	60 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	26,000 lbs.	27,500 lbs.	29,000 lbs.

SPECIFICATIONS


MONARCH


MONARCH



HEAVY DUTY LATHES—

MODELS M, N AND NN

	20" MODEL M	25" MODEL N	32" MODEL NN
Swing over bed	22½"	27½"	40"
Swing over cross slide	13"	14"	25"
Length between centers	48" to 288"	48" to 288"	60" to 324"
Floor space—base length	77" W x 148" L	82" W x 162" L	90" W x 182" L
Hole through spindle	2 3/16"	2 3/16"	2 3/16"
American standard Camlock spindle nose	8"—D-1	8"—D-1	11"—D-1
Number of spindle speeds	16	16	16
Spindle speed range (standard)	11 to 500 R.P.M.	8 to 405 R.P.M.	8 to 405 R.P.M.
Range of threads per inch (48)	¾ to 46	¾ to 46	½ to 28
Range of feeds per revolution (48)	.0038" to .240"	.0038" to .240"	.006" to .363"
Motor size	15-30 H.P.	20-40 H.P.	20-40 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	10,150 lbs.	14,750 lbs.	24,250 lbs.

Recommended Use. All these lathes are built to "take it" under the most grueling operating conditions. This requires power and rigidity which they have in generous measure. They are also designed to meet today's exacting demands for high finish, close accuracy and convenience of operation.

Major Features. Headstock is helical geared with speed changes made by sliding heavy sided jaw clutches. This method of manual change is quick and positive and years of satisfactory performance have proved the design superior when speed change is secured manually.

Headstock spindle and all shafts are hardened, have ground threads and rotate on anti-friction bearings. Spindle and long intermediate shaft have center bearing support. All headstock gears hardened and either ground or shaved. Lubrication of the headstock is combined pump and splash.

Tailstock of the angular type has handwheel to front.

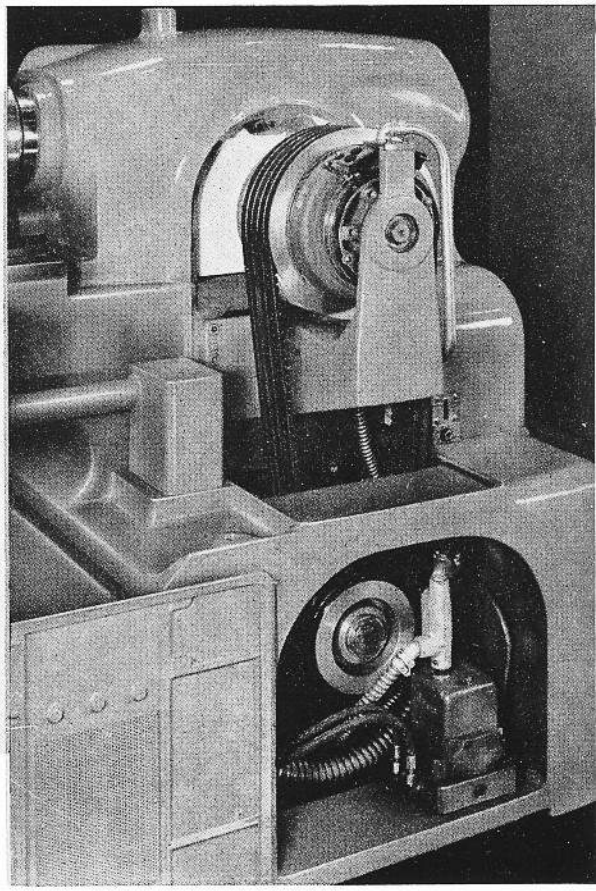
Apron has fast, fingertip controls. Filtered and metered automatic force feed lubrication to all apron parts, carriage bearing on bed ways and bottom slide bearing on carriage.

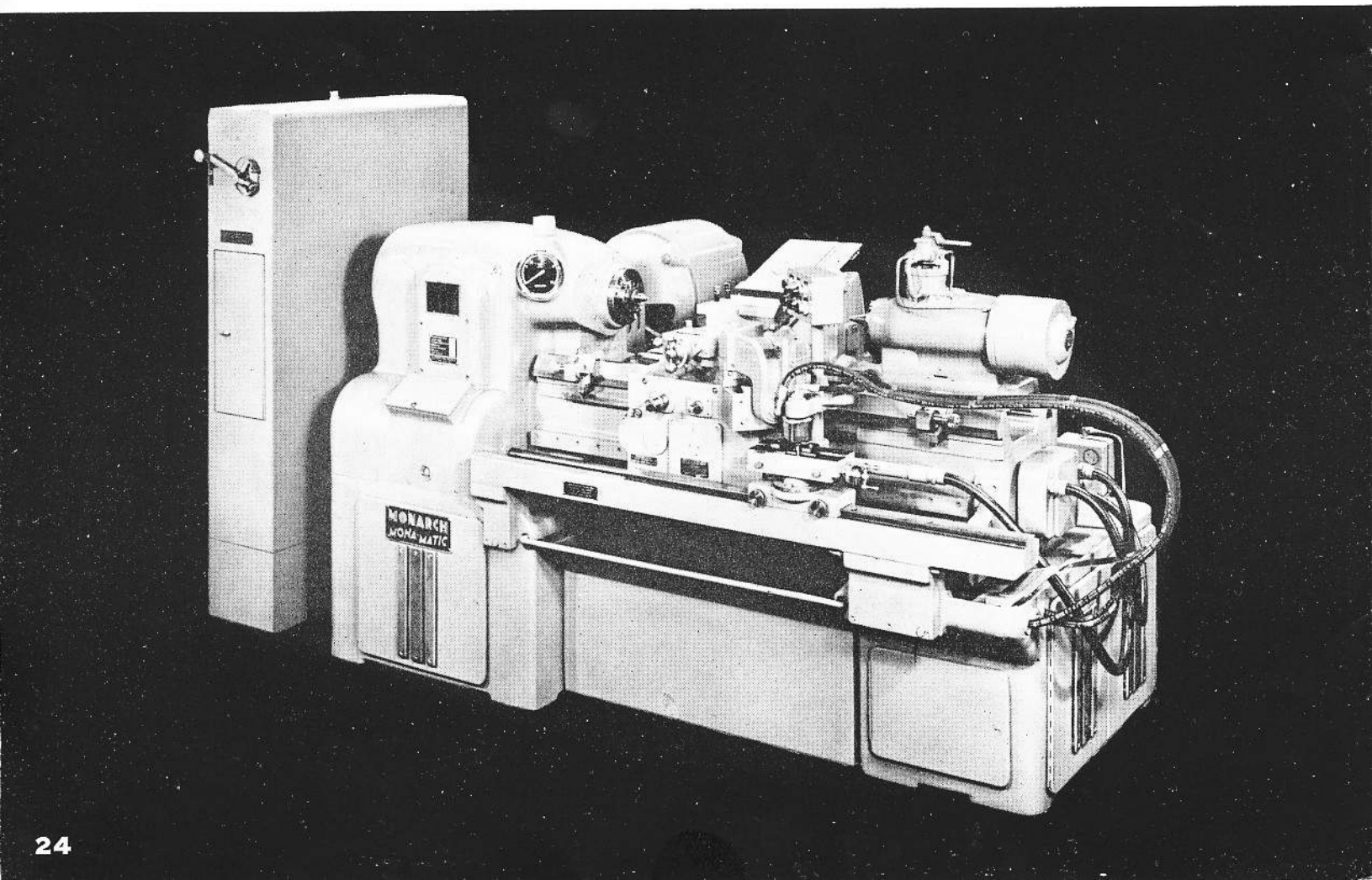
Individual motor driven carriage power rapid traverse, providing 185" per minute movement in each direction of travel, regular equipment on 25" Model N and 32" Model NN machines. Supplied optionally on 20" Model M Lathes.

Flame hardened and ground ways for both carriage and tailstock. Bed all in one piece—no inserts.

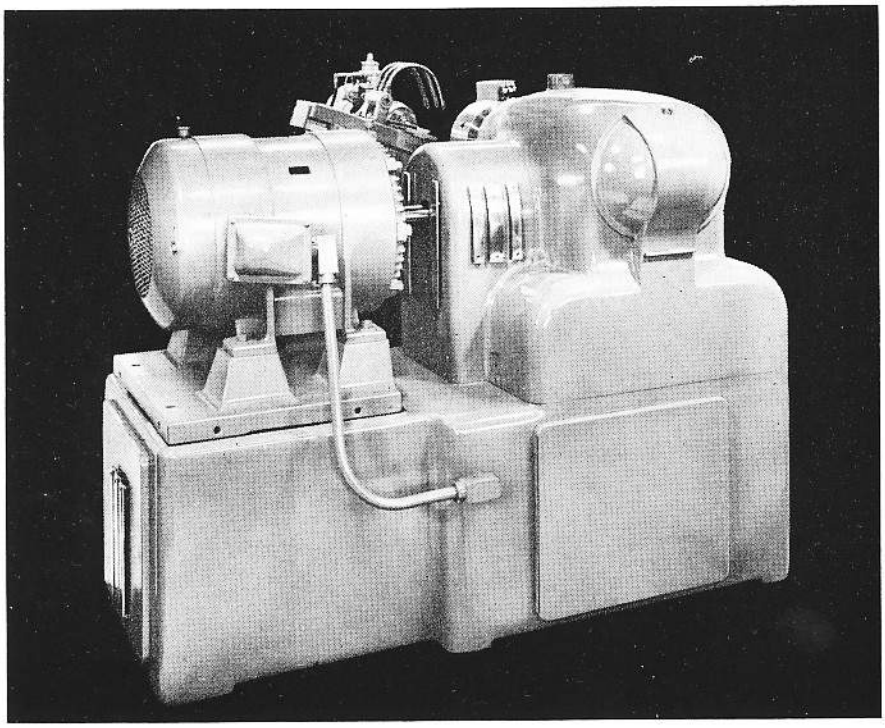
SPECIFICATIONS

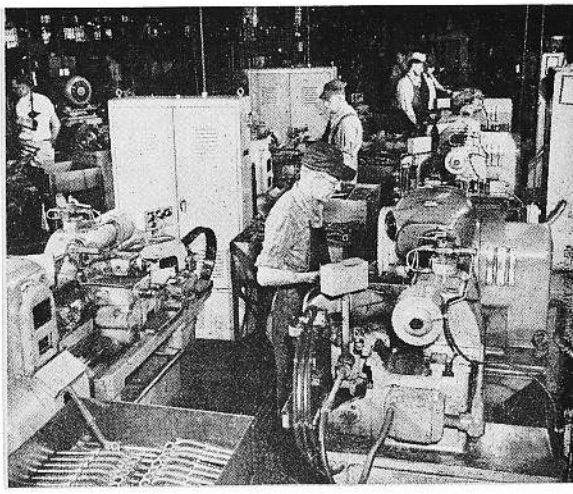
	MODEL 15	MODEL 20
Swing over bed	15"	15"
Swing over front slide	8"	8"
Swing over rear slide	7½"	7½"
Length between centers	18", 30", 42"	18", 30", 42"
Floor space—base length	44" W x 81" L	72" W x 81" L
Hole through spindle	2 3/16"	2 3/16"
Spindle speed ranges	87 to 1000 R.P.M. 177 to 2000 R.P.M. 260 to 3000 R.P.M.	155 to 900 R.P.M. 320 to 1850 R.P.M. 470 to 2700 R.P.M.
Front gear box feed range	1" to 20" per min.	1" to 20" per min.
Rear carriage feed range	¼" to 9" per min.	¼" to 9" per min.
Maximum rear carriage tool slide travel	3½"	3½"
Work drive motor size	up to 15 H.P.	up to 20 H.P.
Net weight, with average accessory equipment, including all electrical equipment—base length	8100 lbs.	9300 lbs.





MONA-MATICS—MODELS 15 AND 20





Recommended Use. A fast flexible, "Air-Gage Tracer" controlled, automatic cycle lathe with numerous cycle variations for maximum productivity on both first and second operation work. The advantages of increased output, lower tooling costs and greater accuracy inherent in this machine may be applied to both small and large lot production because of the short set-up time which seldom exceeds 20 to 25 minutes.

Major Features. The single "Air-Gage Tracer" controlled cutting tool on the front carriage turns multiple diameters, tapers, faces, radii and chamfers in one continuous cut. Simultaneously, tools on the rear slide may be used to perform necking, grooving and grinding relief cuts.

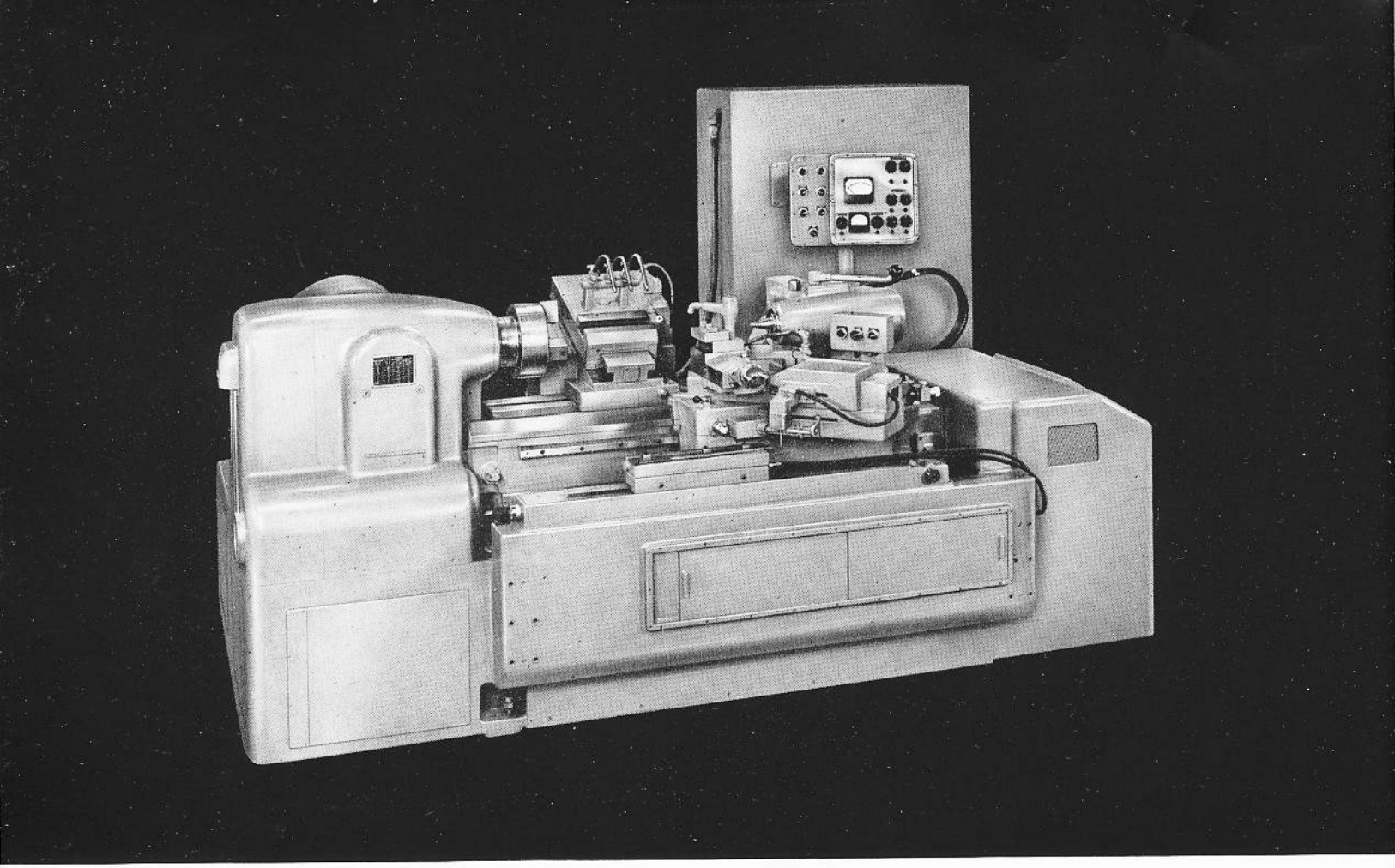
Turning cycle is completely automatic. Rear carriage cycle may be set to take place at any time during operation of the front carriage cycle.

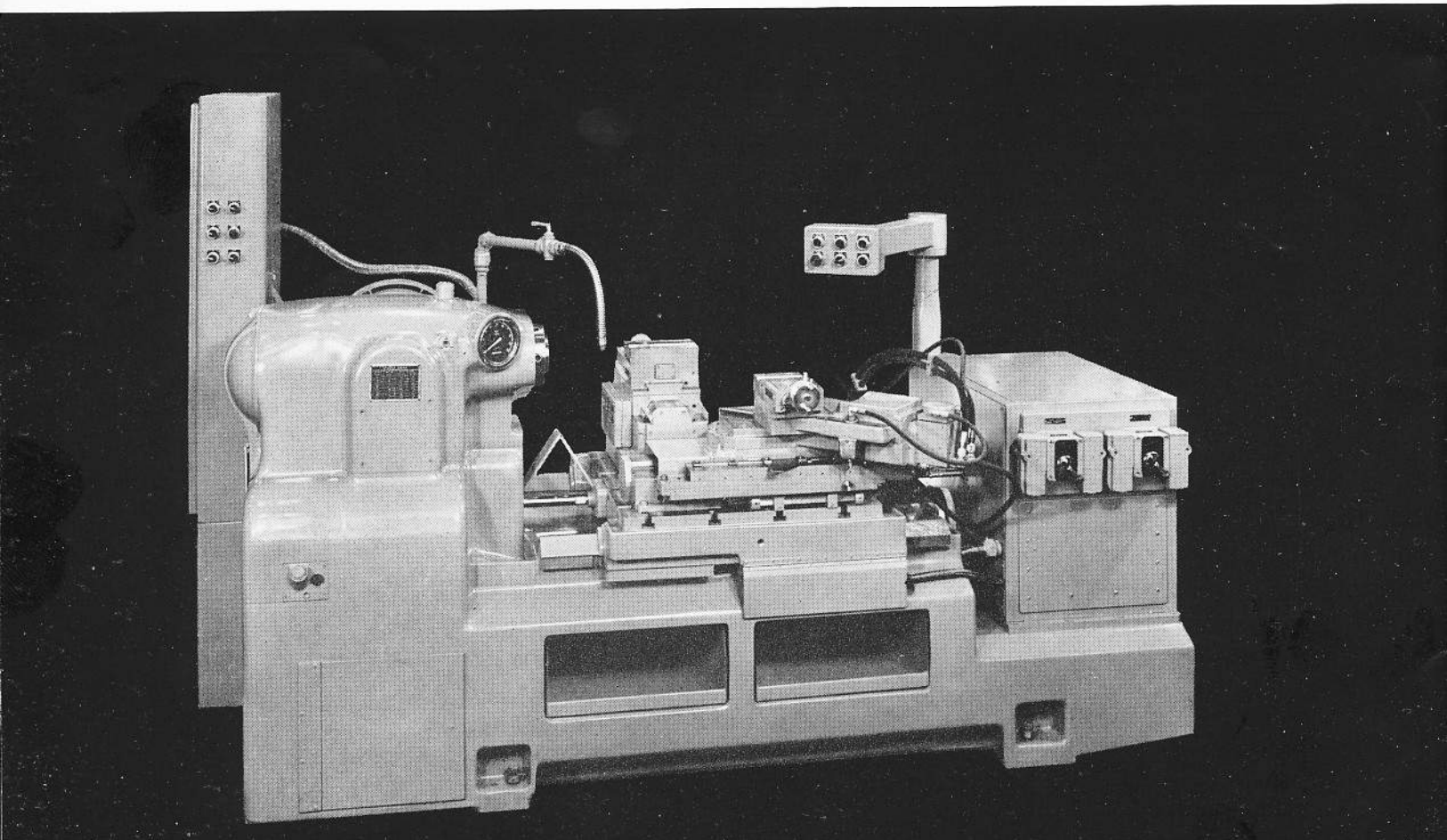
Work drive motor on Model 15 (illustrated top of opposite page) mounted in cabinet base. On Model 20 (illustrated above), this motor mounted on a sub-base which is integral with the cabinet base immediately to the rear of the headstock. Both drives are through a magnet type clutch and brake.

Power for infinitely variable carriage feed and for rapid traverse return supplied by electronically controlled motor housed in gear box compartment.

Rear carriage and slide is a completely independent unit driven by its own feed and traverse motors. Tool slide is set at angle of approximately 20° toward center.

All bed ways flame hardened and precision ground. Bed all in one piece—no inserts.





MONA-MATIC—MODEL 21

Recommended Use. A high speed, automatic cycle, "Air-Gage Tracer" controlled lathe for the production turning of a vast variety of first and second operation work. The extensive cycling possibilities of this machine give it a degree of versatility not common to production equipment and make it practical to change set-ups frequently.

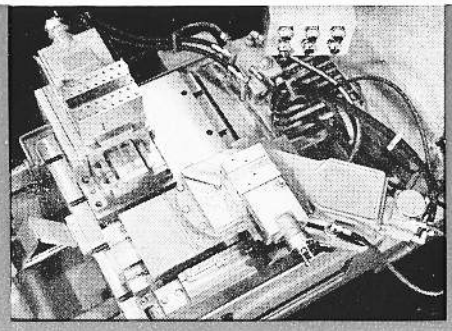
Major Features. Multi-Cycle Programmer permits a complete cycle change in a matter of minutes. Unit consists of a cam drum with a series of as many as 24 control cams, each cam having 20 different radial positions. As these cams actuate the switches which control the various cycling elements, the number of combinations which may be set up will handle practically any turning need.

Four-cut front tool cycle allows for as many as four automatic passes of the tool over the work piece. This, plus the 30 H.P. metal removing capacity of the work drive motor, accounts for a rate of metal removal no cost-conscious production man can afford to overlook. Also available with a 25 H.P. constant surface cutting speed drive.

SPECIFICATIONS

Swing over bed	20"
Swing over front slide	9"
Swing over rear slide	9"
Length between centers	18", 30", 42"
Floor space—base length	78" W x 116" L
Hole through spindle	2 3/16"
Spindle speed ranges	155 to 900 R.P.M. 320 to 1850 R.P.M. 470 to 2700 R.P.M.
Front gear box feed range	2½" to 30" per minute
Rear carriage feed range	½" to 15" per minute
Maximum rear carriage tool slide travel	4"
Work drive motor capacity equivalent to	30 H.P.
Net weight, with average tooling, including all electrical equipment—base length	12,400 lbs.

THE HYDRA-SLIDE



Recommended Use. An exceptionally, versatile, high production, chucking lathe for both first and second operation work. Chief characteristic is a fully automatic cycle which controls practically any desired combination of four different hydraulic slide movements.

Major Features. Basic unit on most of these machines is a hydraulically operated front slide unit on which is mounted the well known Monarch "Air-Gage Tracer". A hydraulically operated rear slide unit is provided with automatic, hydraulic tool relief. Both front slide and rear slide units are mounted on a platen with fast hydraulic movement to expedite work piece change.

The "Air-Gage Tracer" slide, front slide and rear slide ways are flame hardened and precision ground. When the feed is against a stop, as in the case of the platen and the rear slide, a positive type stop is used for the ultimate in accuracy of operation.

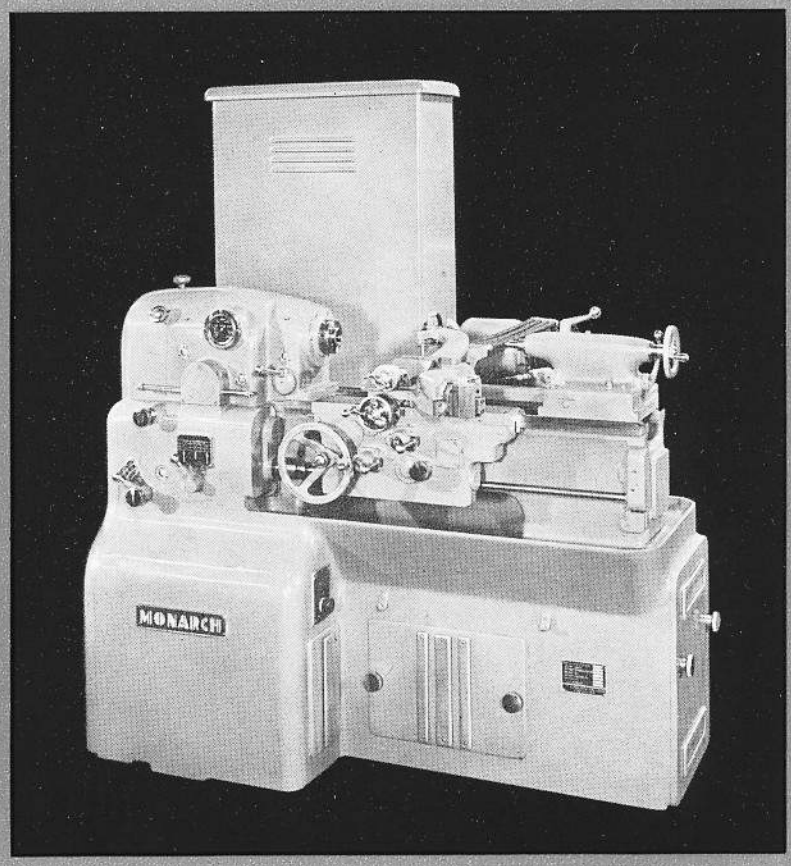
Swing over front slide unit	15"
Swing over rear slide unit	13"
Floor space	72"W x 117" L
Hole through spindle	2 3/16"
Spindle speed ranges	155 to 900 R.P.M. 320 to 1850 R.P.M. 470 to 2700 R.P.M.
Length of platen stroke	12"
Length of front slide stroke	9"
"Air-Gage Tracer" slide settings	30°, 45°, 60°
Length of rear slide stroke	4"
Motor size	15-20 H.P.
Net weight, with average accessory equipment, including all electrical equipment	9850 lbs.

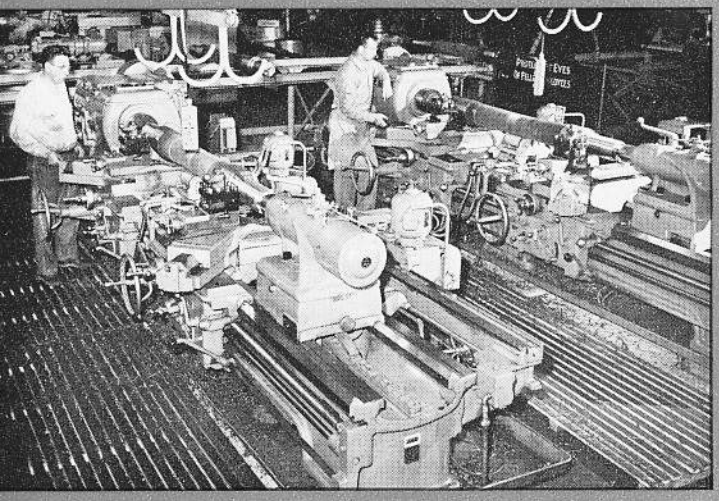
SPECIFICATIONS

Recommended Use. The Monarch "Air-Gage Tracer" provides a simple, cost-reducing duplicating means for the production turning of multiple-diameter shafts and turning, boring and facing of contours. Application may be made at the factory to any new Monarch lathe from the smallest to the largest sizes.

Major Features. Provides automatic sizing while imparting a smooth, stepless finish because of the continuous, single tool cut. Eliminates the necessity for repetitive measurements.

Having the sensitivity of air-gaging, it produces more accurate work than any other duplicating device. Movement of slide to control point repeats itself within a limit of .0001".





THE "AIR-GAGE TRACER"

Generally reduces by half the amount of stock left for grinding. Often eliminates hand polishing or grinding because of the fine finish imparted.

Eliminates the need for expensive forming tools and the cost of multiple tool set-ups. This allows a complete set-up change in as little as 15 to 20 minutes; tool change in one minute or less.

Reduces the chance for human error, thereby materially reducing the amount of spoiled work.

Air tracer pressure against the template is only about five ounces. As a consequence there is no need to harden the template to protect it against wear.

Available in the rigid type on all models of Monarch lathes, in the swiveling type on some models. Round or flat templates, with critical template adjustment in either case, may be used on all machines.

No limit on length of lathe to which "Air-Gage Tracer" may be applied. All machines so equipped may be used as manually operated lathes, the switch-over from one to the other being made in a matter of seconds.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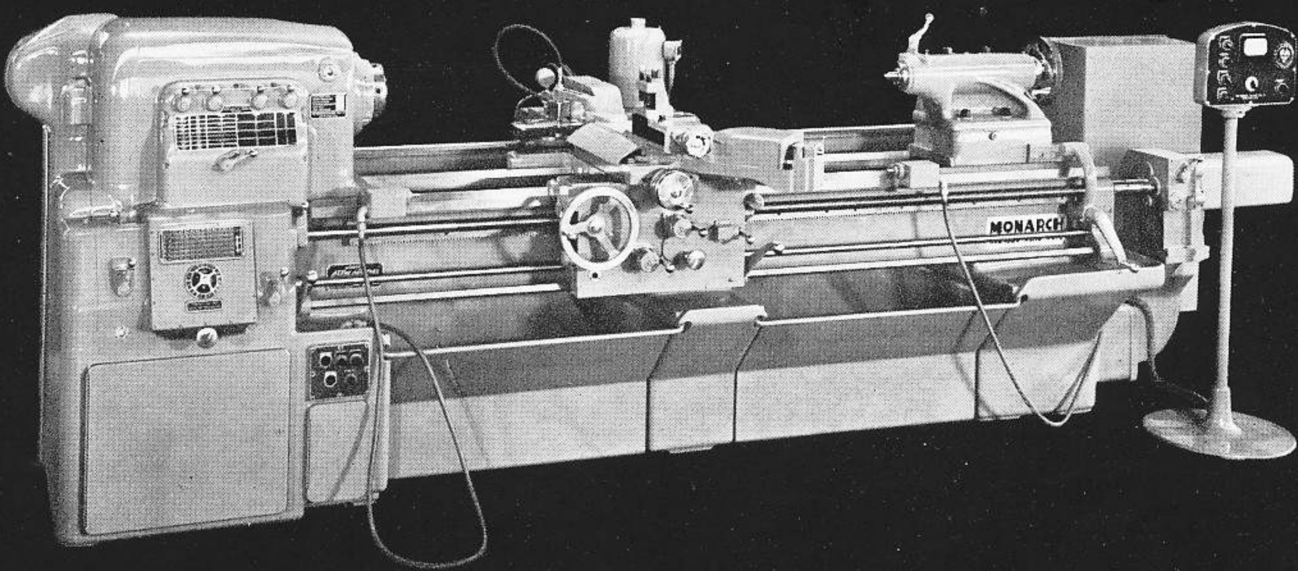
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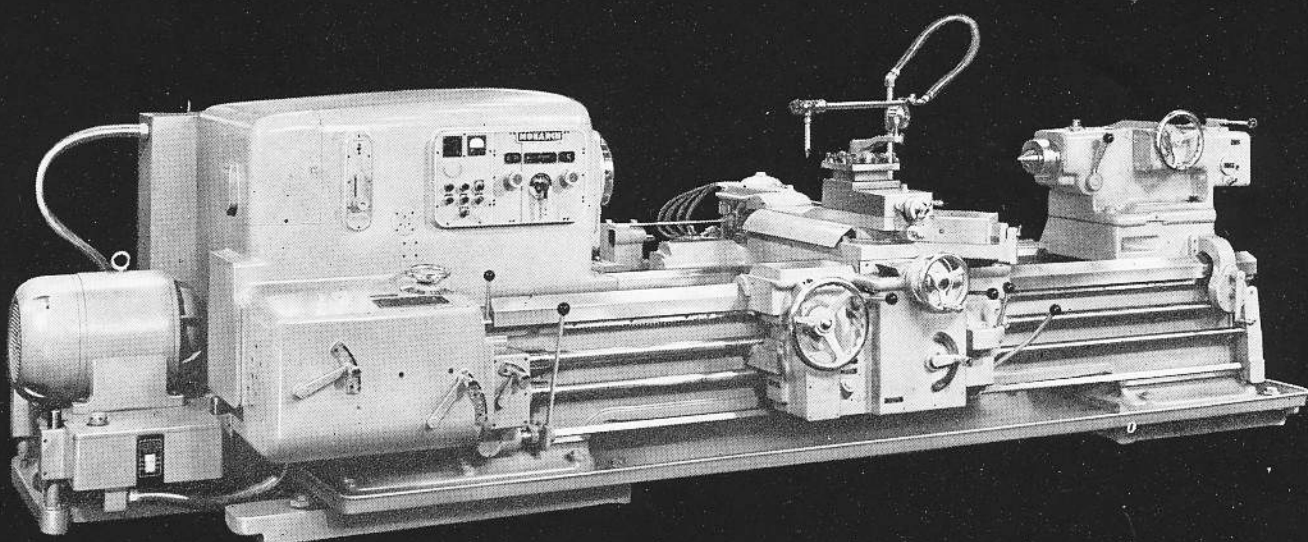

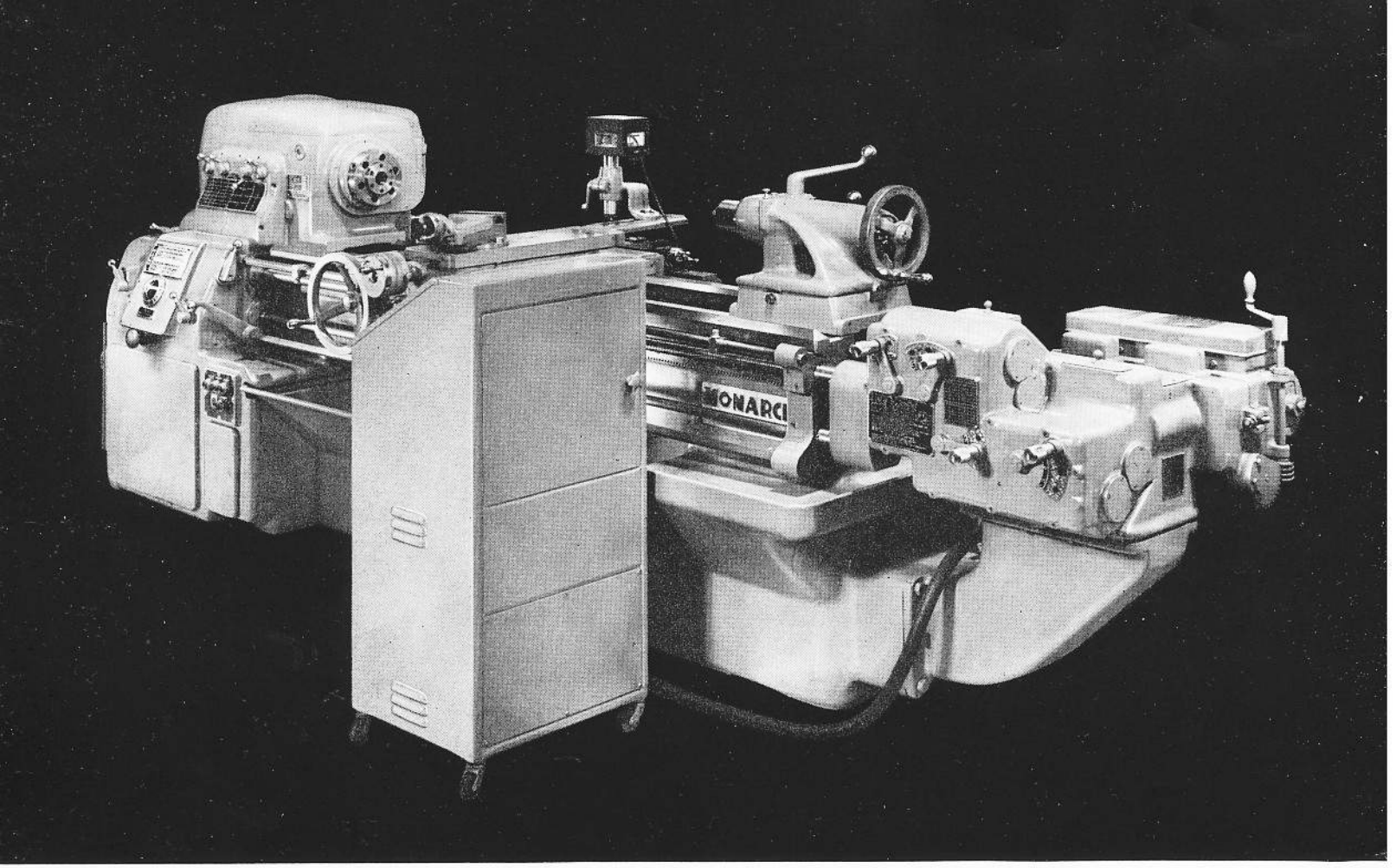
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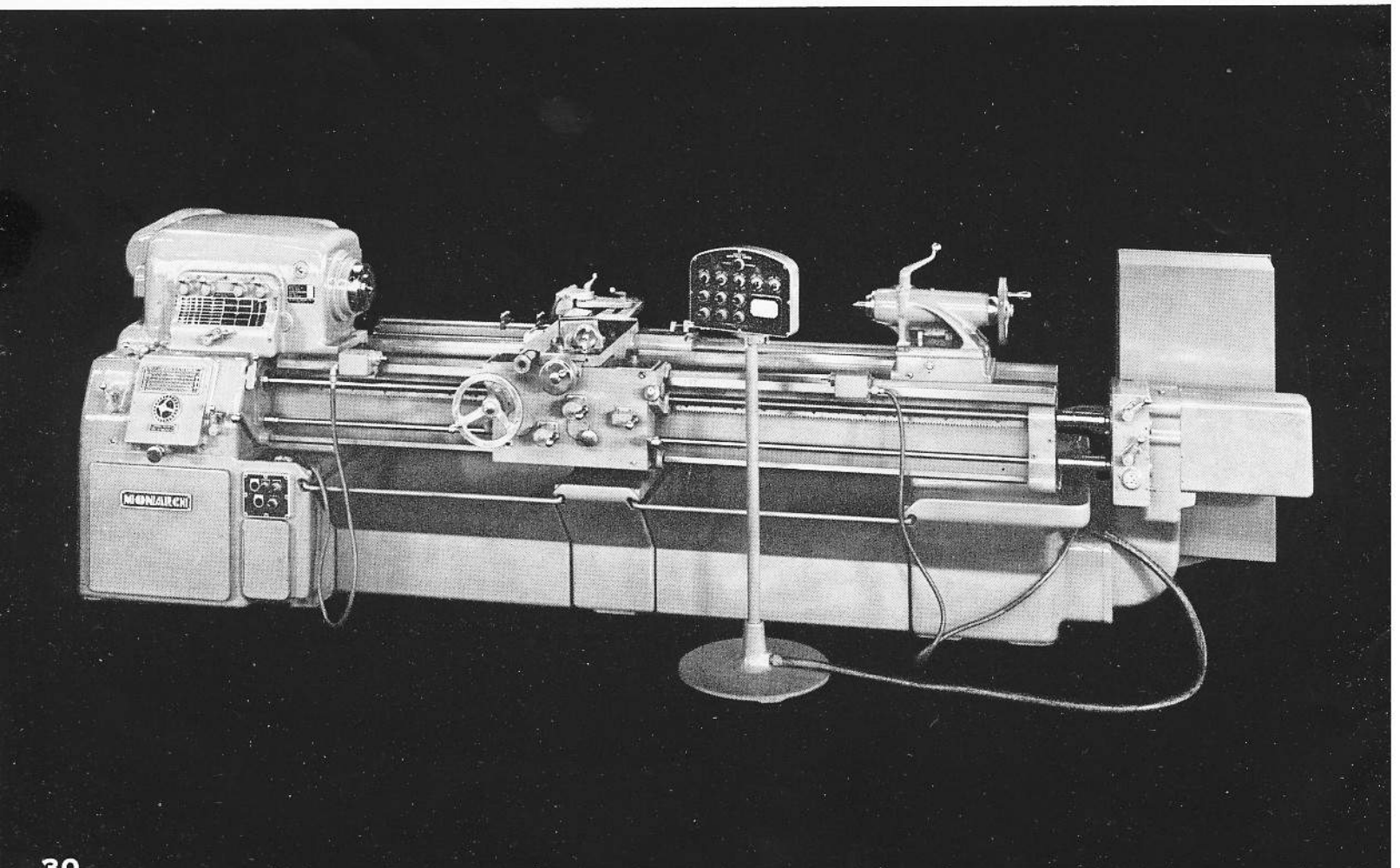
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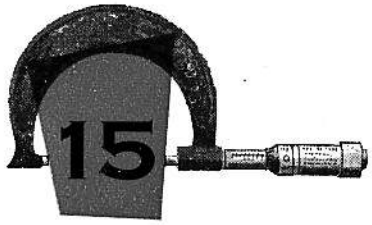


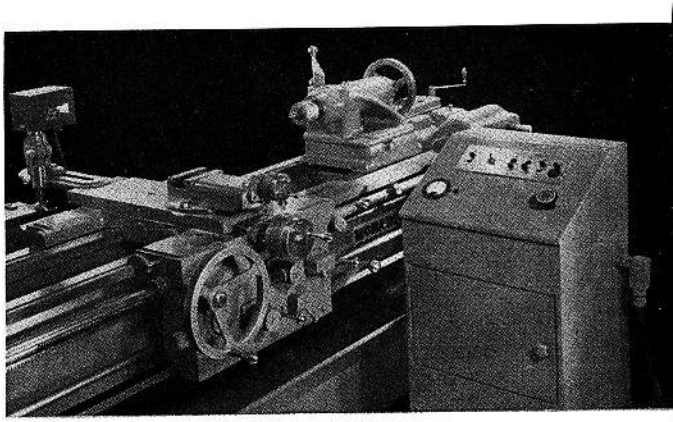
MONARCH-KELLER FORM TURNING MACHINES

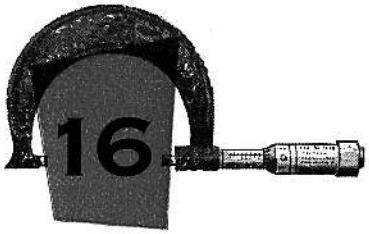
Recommended Use. Employed generally for the template controlled turning, boring and facing of intricately shaped molds, dies, punches, form rolls and similar work. May be factory applied to all sizes of Monarch lathes from 16″ swing up.

Major Features. Machine controlled electrically from control cabinet which may be positioned convenient to operator. Feed may be created toward, away from or parallel to the work center line. Operation is automatic with the controls energized but machine may be switched over to normal manual operation by a mere flick of a switch.

Small amount of D.C. electric current required by controls supplied by electronic converter in base of control cabinet. Two magnetic clutches drive the leadscrew to provide length feed and two other similar clutches drive the feed rod to provide in or out feed.

Speed of operation surpasses conventional methods by as much as 400 or 500% on some jobs. Ease and quickness of set-up make this method of turning practical for both small and large lot runs.



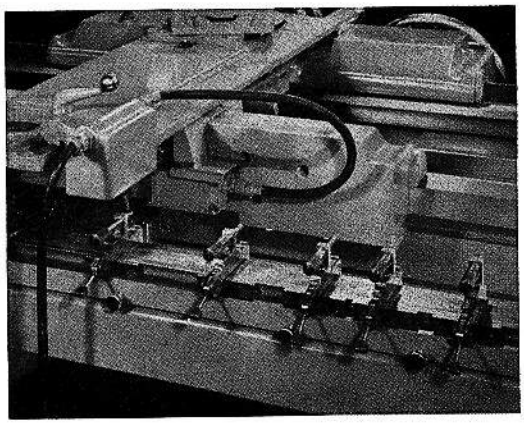


"MOTOR-TRACE" LATHES

Recommended Use. An electric motor operated, electric tracer controlled duplicating attachment which makes a Monarch lathe an automatic cycle machine for producing parts economically in quantities of two or three pieces and up. Factory applied to all models of 16″ and 20″ machines.

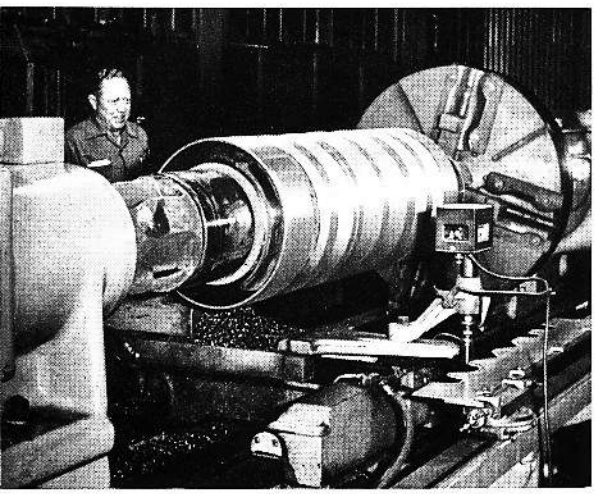
Major Features. Tracing is either from gage blocks, micrometer heads (illustrated to the right), a flat template or a modified flat template. Reason for the practicability of using four different methods of tracer control is that it is unnecessary for tracer to be in constant contact with template when straight diameter sections are being turned. Tapers, contours, radii or chamfers may be turned when tracing is from a template.

As automatic cycle is fingertip controlled from pedestal type station, one man can operate two machines easily. "Motor-Trace" controls may be disengaged in less than 30 seconds for quick conversion to conventional lathe operation. Application of this control in no way reduces the normal swing capacity of the lathe.



Maximum roll diameter body	25"
Length between centers	102", 126"
Floor space, 102" length	121" W x 285" L
Hole through spindle	2 3/16"
Flange type spindle nose	15"
Number of spindle speeds	24
Spindle speed range through spindle drive	10 to 505 R.P.M.
Spindle speed range through face plate drive	2½ to 15 R.P.M.
Tailstock quill diameter	6"
Motor size	30 H.P.
Net weight, with average accessory equipment, including all electrical equipment—102" length	31,750 lbs.

SPECIFICATIONS



Recommended Use. A template controlled lathe which will turn an almost infinite variety of shapes on the roll face and will handle necks at the same set-up.

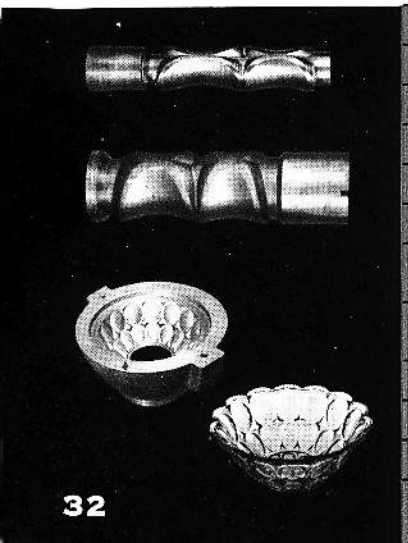
Major Features. Since forming of the contour is template controlled, there is no need to match rolls in pairs. Each roll turned from any given template is identical. One of a pair can be redressed or a new one turned with assurance it will match the other. The same template is used for both rough and finish passes.

The hundreds of form tools necessary for conventional roll turning methods are not needed. Only standard carbide round nose and facing tools are employed.

Recommended Use. This machine will reproduce—externally, internally or on a face—any design detail which can be touched by a sharp point tool. Produces intricate molds in the molded glassware industry from 12 to 15, up to as much as 100 times faster than by hand work methods. Similar savings possible in the plastics, mechanical rubber and other industries.

Major Features. Transmits master record shape to the work same size or as a scale reduction in any combination of length, width and engraved depth. Transmits master record shape to the work only once or up to as many as 520 times around the work circumference. Forms many work pieces from a simple disc record. Will machine parts with almost any continually changing shape.

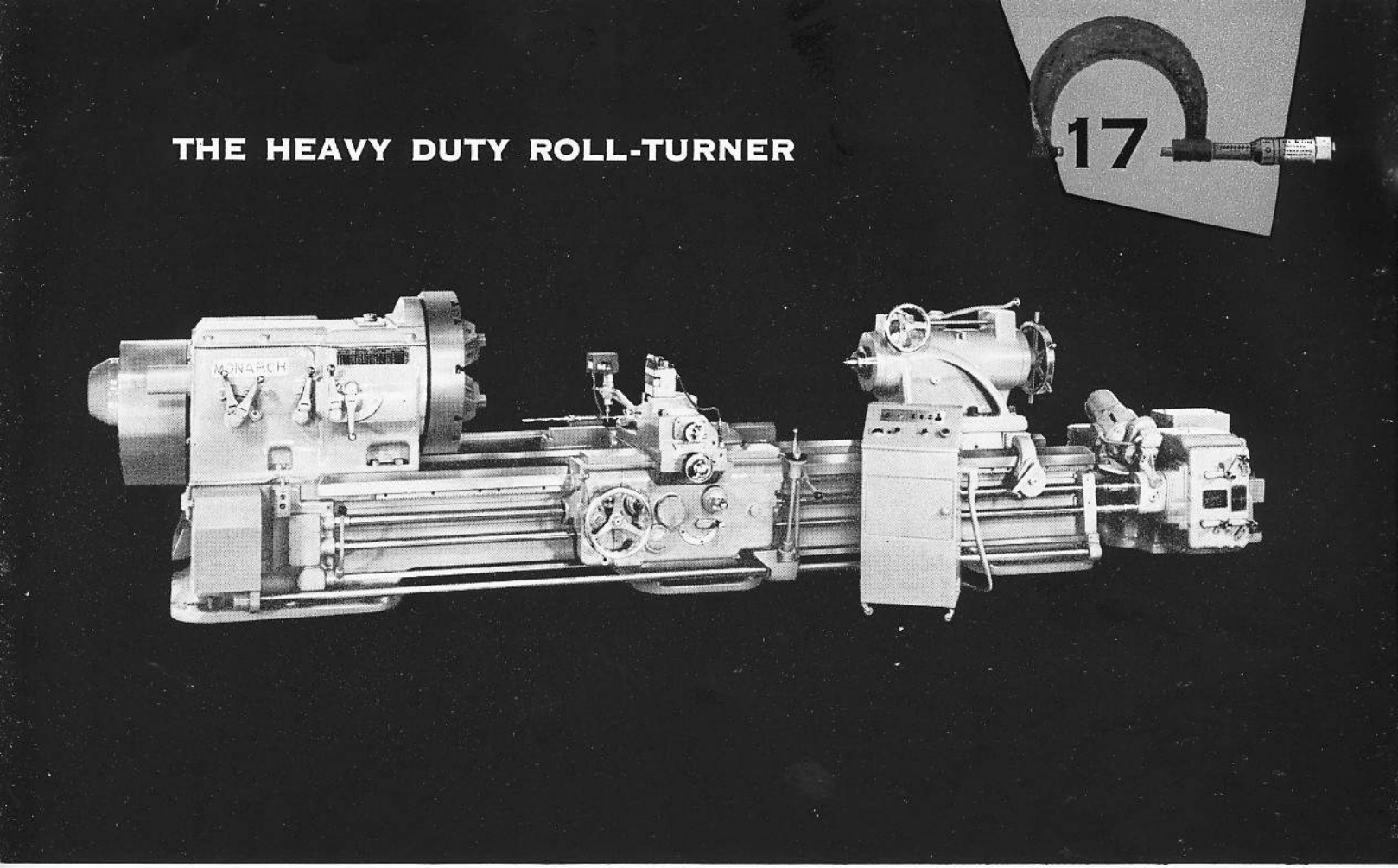
Below—steps in making a mold. From top down are the pattern, master record, mold and end product—a glass bowl.



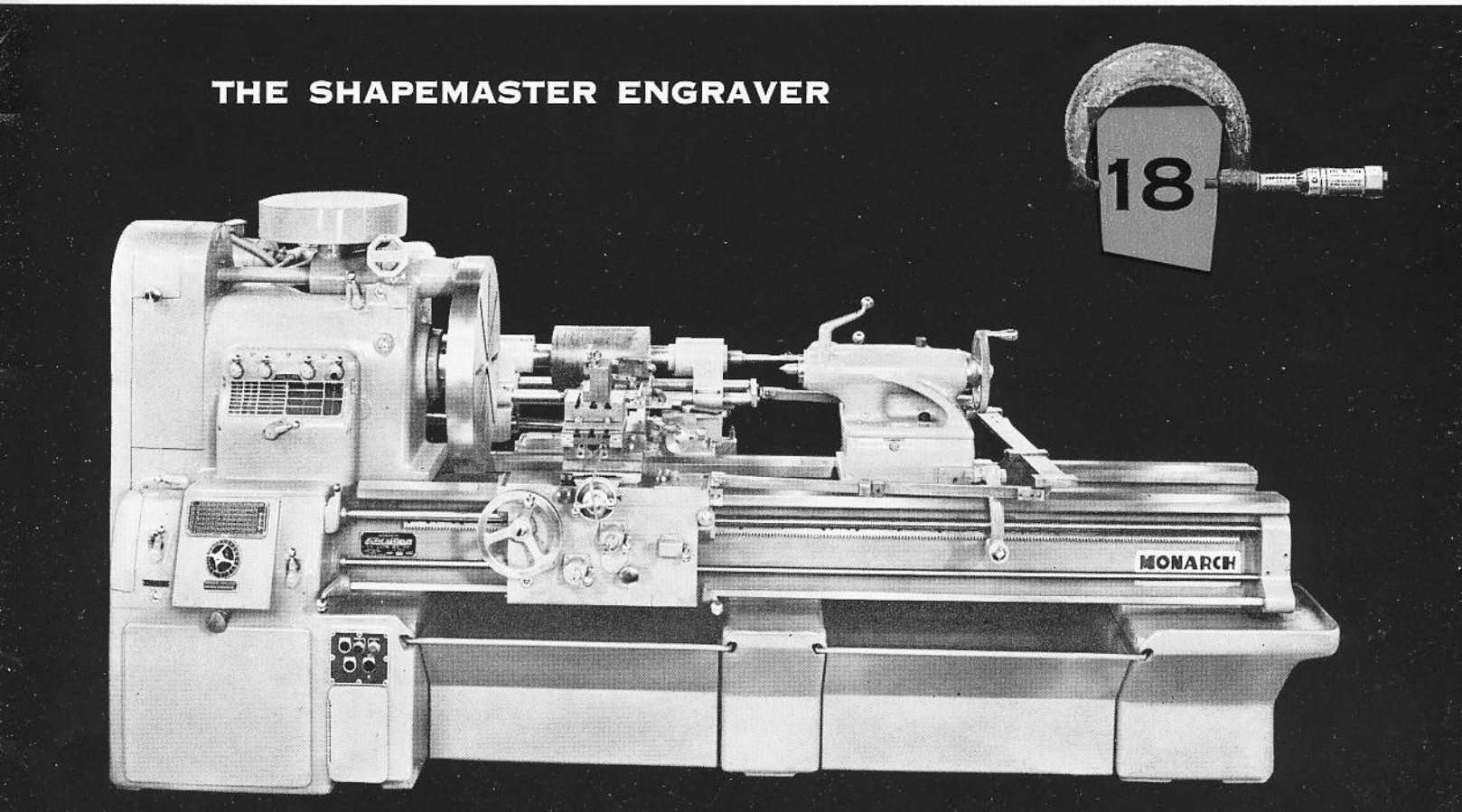
Swing over bed—without Monarch-Keller controls	26½"
Swing over bed—with Monarch-Keller controls	18½"
Swing over anti-friction tool slide	10½"
Length between centers	48"
Maximum stroke of anti-friction tool slide	2"
Maximum travel of anti-friction tool slide	10"
Maximum diameter disc or master record which can be accommodated	8"
Maximum length master record which can be accommodated	18"
Regular spindle speed range	17 to 700 R.P.M.
Spindle speed range through face plate drive	2.1 to 40 R.P.M.
Motor size	7½ H.P.

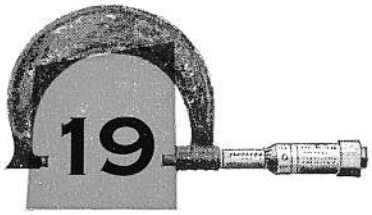
SPECIFICATIONS

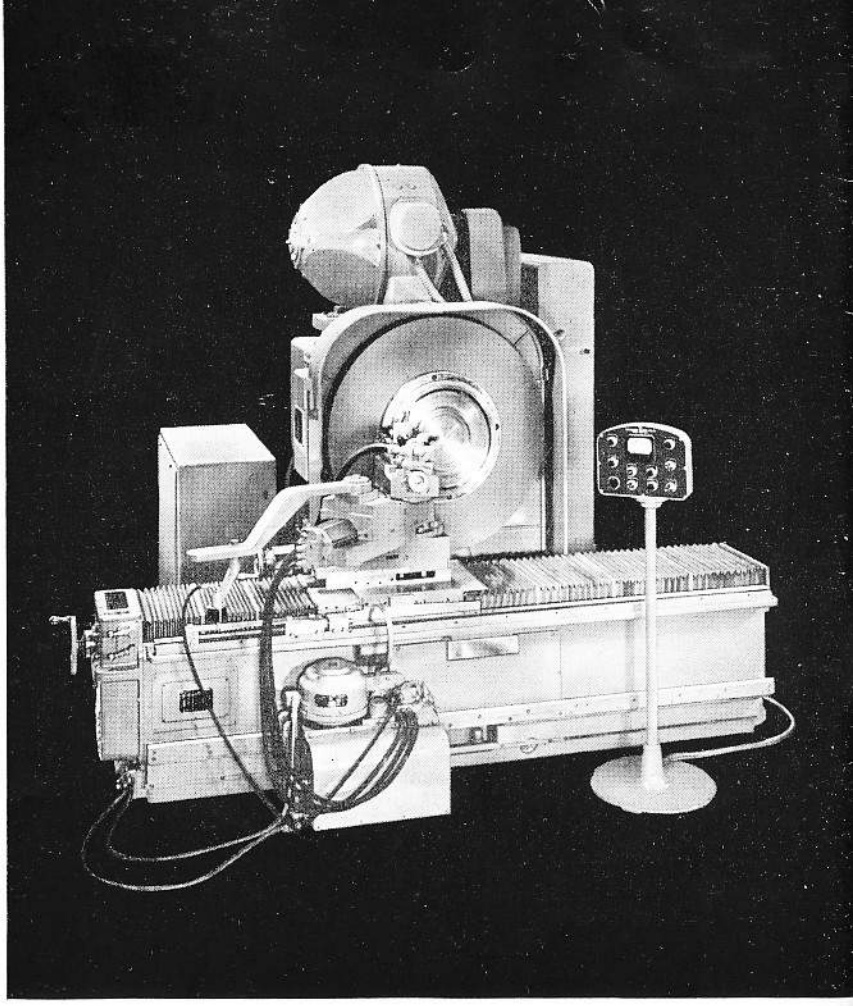
THE HEAVY DUTY ROLL-TURNER



THE SHAPEMASTER ENGRAVER





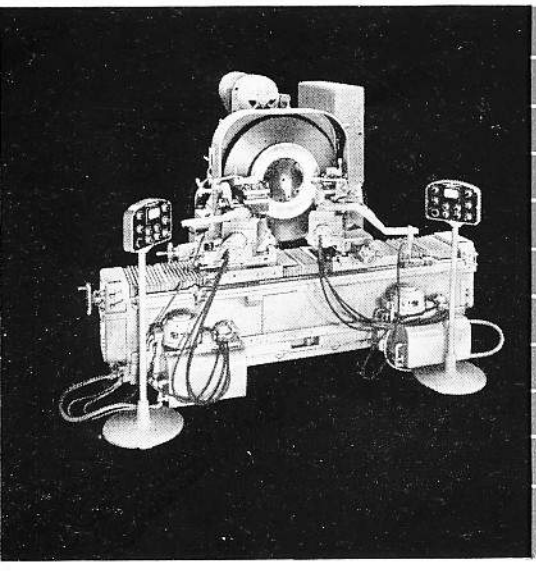


Recommended Use. A chucking type machine for the turning, boring and facing of thin-walled work pieces having large diameter and short length. Employed widely by jet engine manufacturers on such parts as discs, wheels, rings, spacers and shrouds.

Major Features. The Model F (illustrated to the right) is intended primarily for facing. Model O machine (below) is essentially for turning and boring. Both of these machines may be used for all three classes of operations.

Model F machine ordinarily furnished with one "Air-Gage Tracer" controlled slide and is provided with constant surface cutting speed which is operative on both sides of center. Two "Air-Gage Tracer" controlled slides may be used on Model O machine in which case parts may be turned and bored simultaneously.

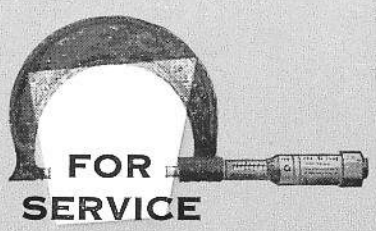
60" RIGHT ANGLE LATHES



	MODEL F	MODEL O
Swing in gap	60"	60"
Maximum turn diameter	48"	48"
Floor space	121" W x 130" L	132" W x 130" L
Hole through spindle	4¼"	2½"
Spindle nose	15"—A-1	15"—A-1
Number of spindle speeds	Infinite	16
Spindle speed range	15 to 760 R.P.M.	6 to 303 R.P.M.
Maximum power angular slide travel	12"	12"
Maximum "Air-Gage Tracer" slide travel	6⅝"	6⅝"
Motor size	15 H.P.	20 H.P.
Net weight, with average accessory equipment, including all electrical equipment	19,700 lbs.	19,400 lbs.

SPECIFICATIONS

MONARCH REPRESENTATIVES



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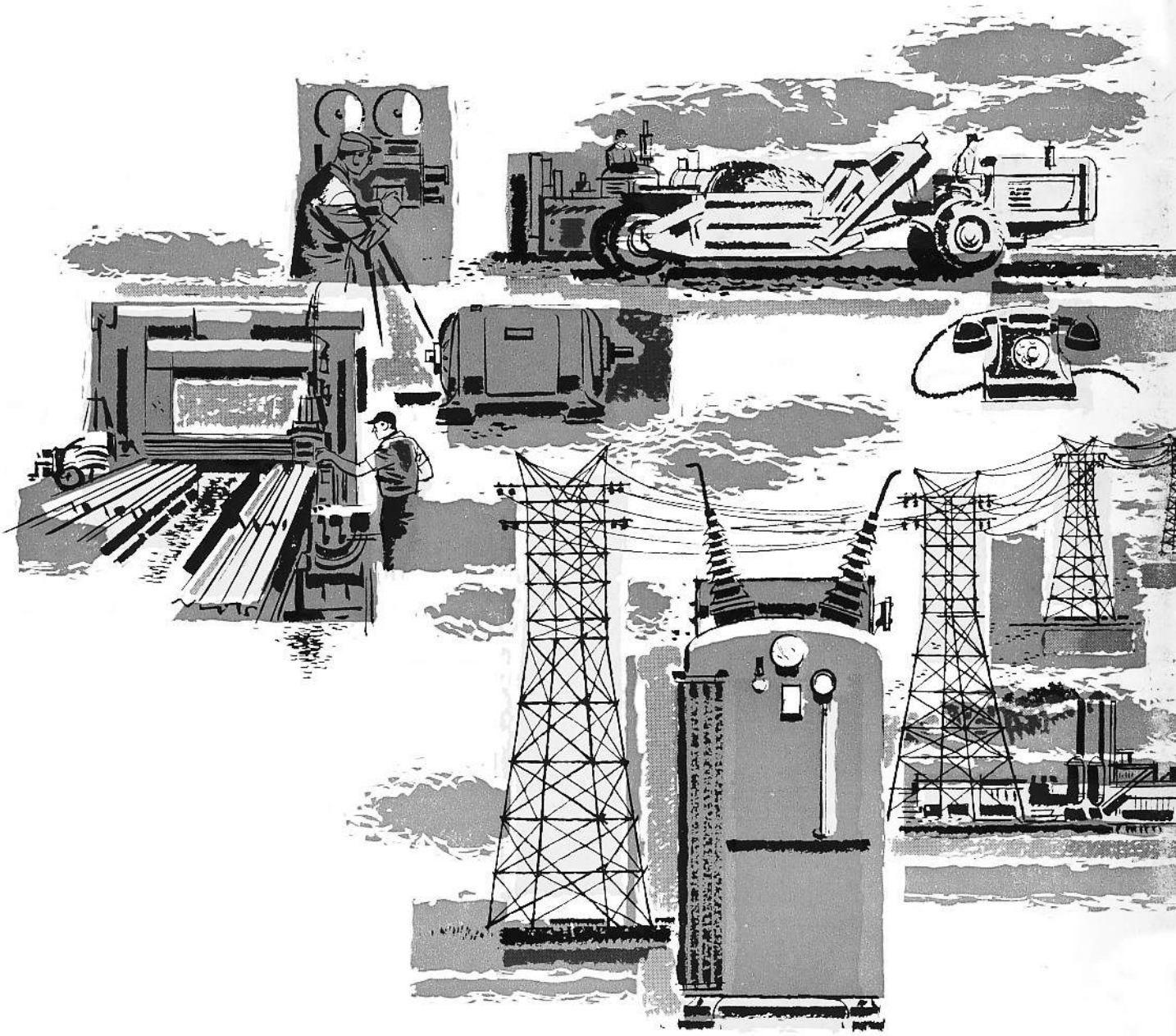

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