

**Monarch Series K  
Lathe Specifications**

16" x 54"

Swing over bed and carriage wings ..... 16"  
Swing over cross slide ..... 10"  
Distance between centers ..... 54"  
Floor space ..... 40" x 116"

**Headstock**

Hole through spindle ..... 1 13/32"  
Spindle bearings, tapered roller ..... Precision Center, Morse taper ..... No. 4  
Cam lock spindle nose ..... D-1-6"  
Number of speeds ..... 16  
Spindle speed range, rpm: 28, 37, 48, 63, 76, 100, 129, 168, 205, 273, 345, 452, 546, 720, 914, 1200

**Gear Box**

Leadscrew dia. and threads per inch ..... 1 1/4"-4 thd.  
Range of threads per inch ..... 1 1/2 to 92  
Range of feeds per revolution ..... .0011"- .070"  
Thread and feed changes ..... 48  
Threads cut: 1 1/2, 1 5/8, 1 3/4, 2, 2 1/4, 2 1/2, 2 3/4, 2 7/8, 3, 3 1/4, 3 1/2, 4, 4 1/2, 5, 5 1/2, 5 3/4, 6, 6 1/2, 7, 8, 9, 10, 11, 11 1/2, 12, 13, 14, 16, 18, 20, 22, 23, 24, 26, 28, 32, 36, 40, 44, 46, 48, 52, 56, 64, 72, 80, 88, 92

**Tailstock**

Spindle diameter ..... 2 3/8"  
Spindle travel ..... 5 1/2"  
Center, Morse taper ..... No. 4

**Carriage and Compound**

Carriage length ..... 20"  
Carriage bridge width ..... 6"  
Compound rest top slide travel ..... 2 1/2"  
Lathe tool shank size for round tool post ..... 5/8" x 1 3/8"  
Standard size tool bit ..... 3/8"

**Bed**

Width ..... 12"

**Main Drive Motor**

1800 rpm, 220/440 volt, ball bearing with reversing starter, 110 volt push button start-stop-reverse control...  
..... 5 hp standard  
..... 7 1/2 hp optional

**Net Weight**

With average accessory equipment including all electrical equipment...  
..... 3725 lbs.  
Domestic shipping weight, as above ..... 4165 lbs.

**Standard Equipment**

**Round Tool Post**

Heat treated with step ring and rocker.

**Dog Plate**

10" diameter, dual slots for small and large dogs.

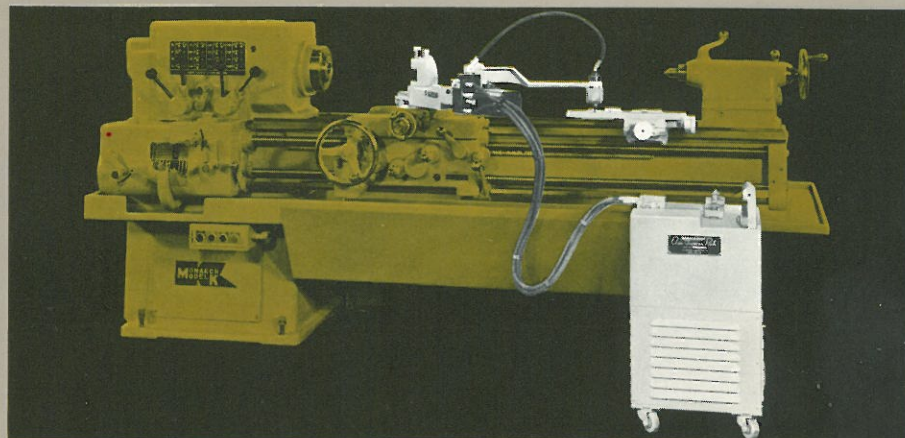
**Monarch Air-Tracer Pak**

Completely self-contained "Air-Gage Tracer" unit for field application to Monarch lathes, without reduction of swing capacity.

Removal of regular compound rest permits quick attachment of tracer slide assembly to cross slide. This assembly consists of hydraulically powered tool slide, swiveling tracer arm and swivel base. The combination of swiveling design and slide speeds up to 50" per minute assures extreme versatility. A convenient two-position handle on the slide mounted air-hy-

draulic servo valve provides manual control.

Template support is clamped to front bed "V". Longitudinal and cross adjustment of template position are secured by means of micrometer dials. A portable and completely self-contained power unit stands at front of machine. On top of this unit are storage brackets to which tracer slide assembly and tracer support are attached when not in use. Casters on unit make it easily portable.



**Standard Air-Tracer Pak**

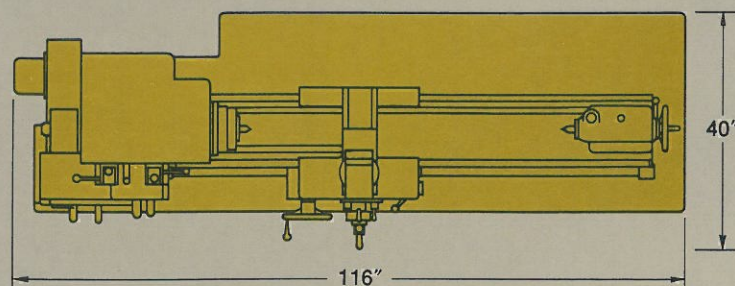
Hydraulic tool slide stroke ..... 4"  
Maximum diameter change with tool slide set at 45° ..... 5 1/2"  
Tool slide speed up to ..... 50" per minute

Hydraulic tool slide swivels ..... 90° between parallel to and perpendicular to work axis

Maximum template length ..... 18"  
Template adjustment, in and out ..... 3"  
Template adjustment, longitudinal ..... 1"  
Hydraulic pump motor ..... 110 v., 60 cycle, single phase

Air supply, to be furnished by customer ..... 60 psi minimum

**Floor Space Requirements**



For additional information, Contact:  
The Monarch Machine Tool Company  
Sidney, Ohio



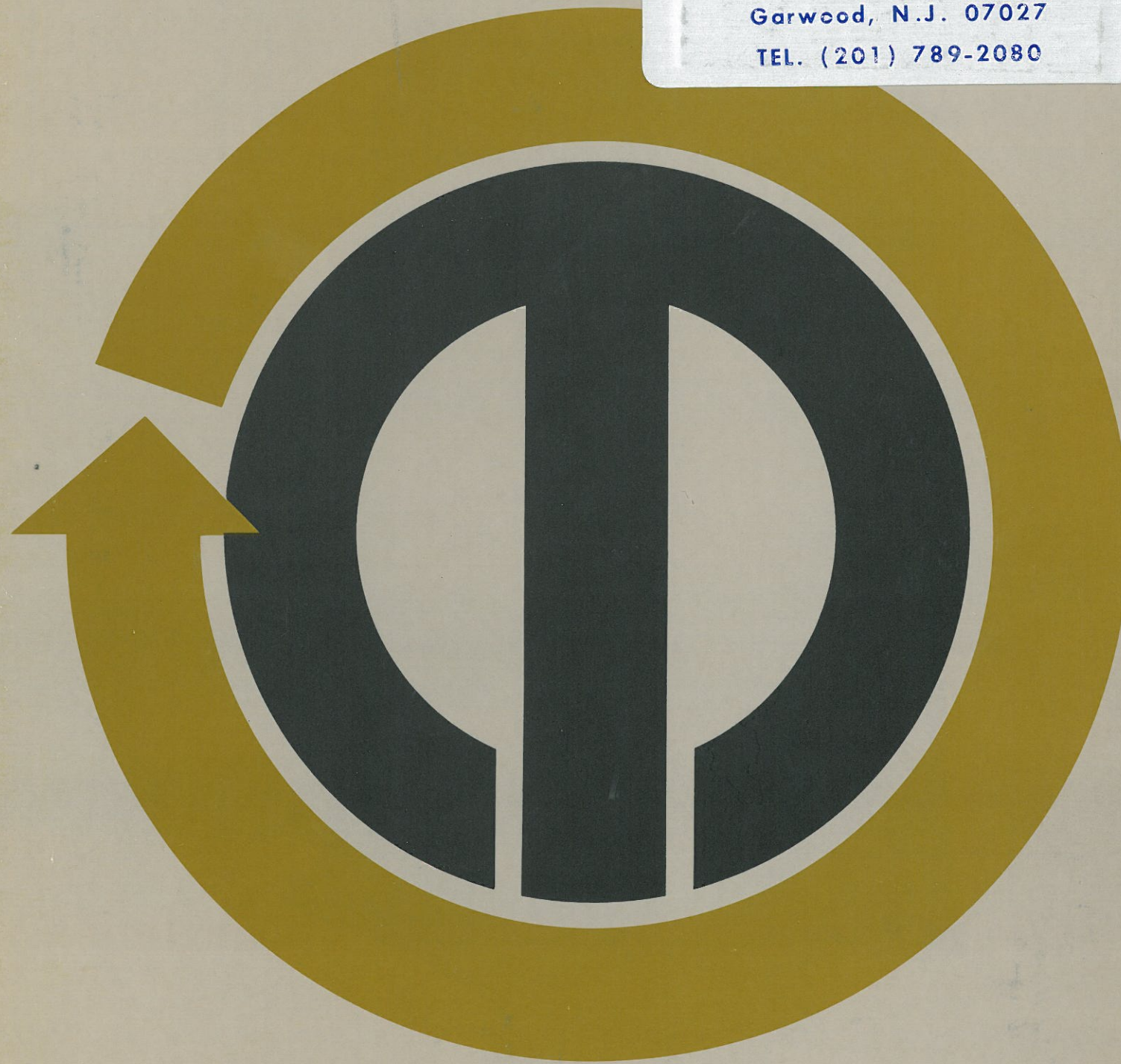
**Monarch  
Series K  
Lathe**

GRUNOW MACHINERY CO.

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# Monarch Series K Lathe

High capacity, low cost, solidly built Monarch Series K lathes are field-proven, profit-making additions to any size shop. The Series K has many features you would expect only on lathes costing much more. It is Monarch's answer to your search for a machine combining economy with reliability, capacity and accuracy.

5 HP main drive (7½ HP optional) supplies more than enough power for the toughest jobs. Motor is mounted on adjustable plate for belt tension.

48 standard feeds and threads selected by levers. Compound gearing permits chasing odd threads.

Headstock provides 16 speeds from 28 to 1200 rpm thru helical gears imparting smooth transmission of power.

Headstock automatically lubricated.

Hardened camlock spindle for rigid workpiece support.

Precision lead screw mounted in anti-friction radial and thrust bearings.

Compound rotates through full 360°.

Optional apron controlled lead screw reverse facilitates rapid, accurate thread chasing (not shown).

Convenient operator controls.

Automatic metered lubrication to apron, carriage, and cross slide.

Start—stop—reverse spindle control lever.

Optional large capacity reservoir type chip pan.

Tailstock spindle has drift slot for easy drill or center ejection.

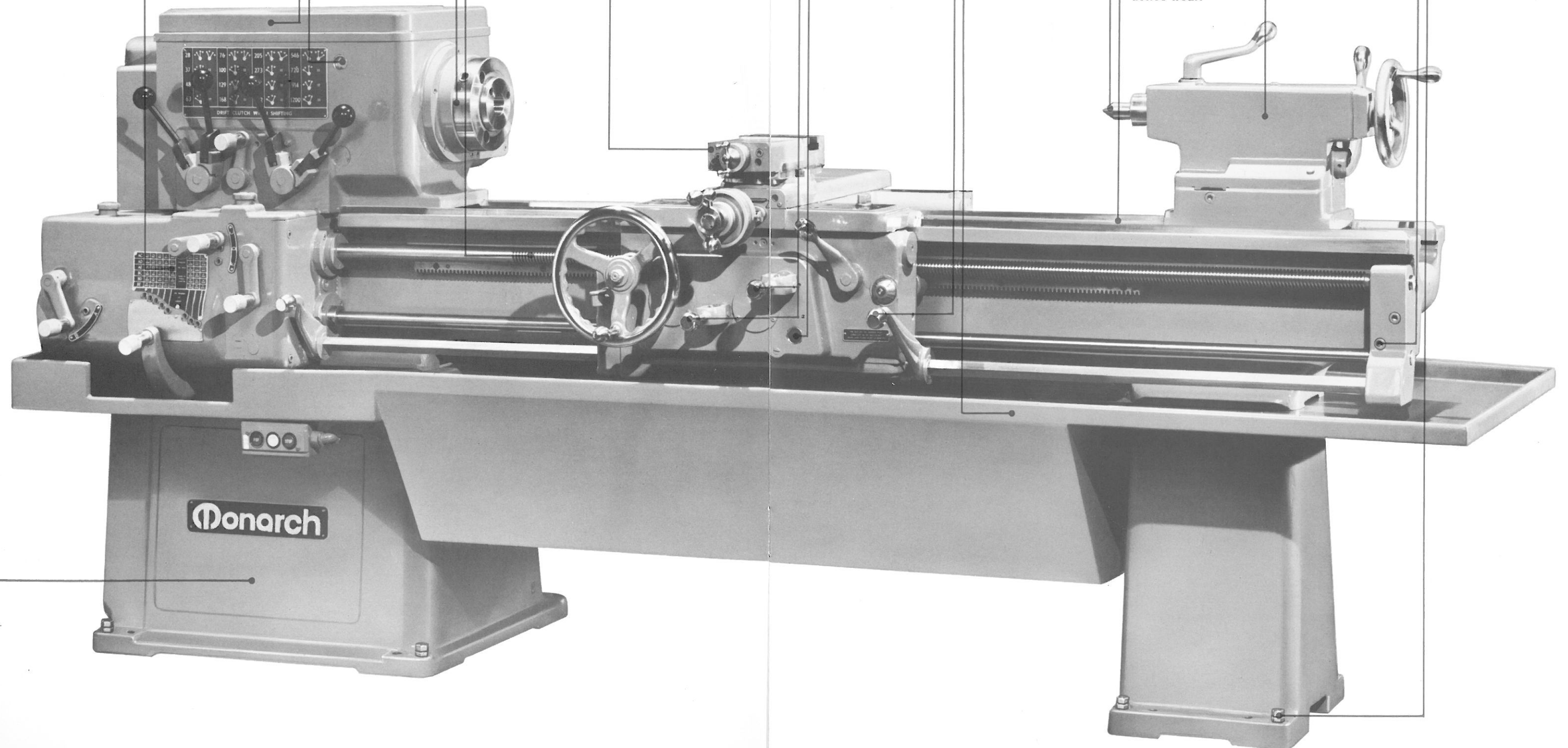
Graduated scale aids drilling.

One piece bed with four flame hardened bedways dampens vibration, defies wear.

Rigid, quick-clamping tailstock with hardened spindle.

Permanently lubricated lead-screw and feed rod support.

Leveling screws easily accessible.



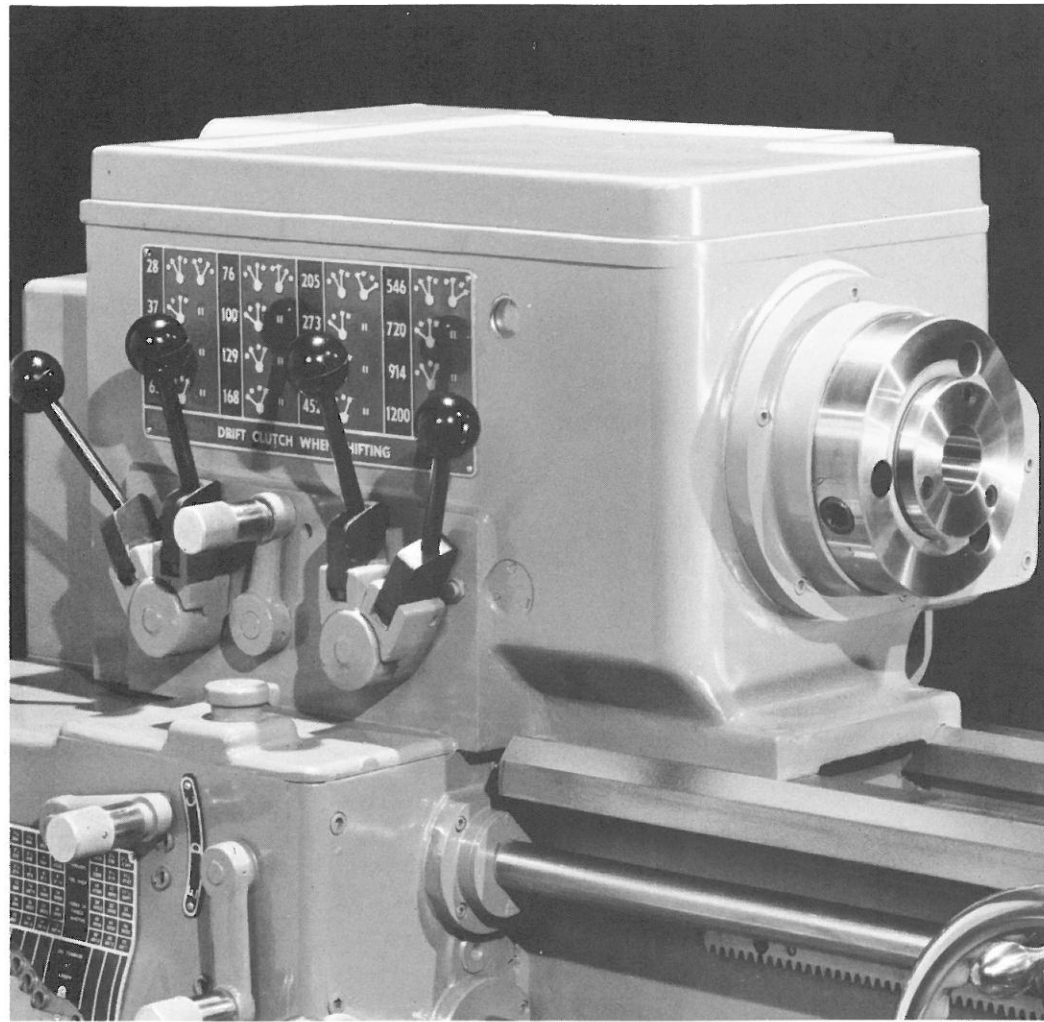
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## Headstock

The Series K headstock is powered through a massive gear train offering 16 speeds from 28 to 1200 rpm. Heat treated, precision finished, helical gears insure positive power transmission smoothly and quietly . . . now and for years to come.

The rigid, through hardened spindle, with its ASA 6" D-1 cam lock spindle nose, rotates on three precision bearings. Overhang is cut to a minimum. You can mount chucks, face plates, dog plates, fixtures extremely close to the front spindle bearings. And there are no threads to clean or maintain. No keys to line up. Just wipe off the locating taper.

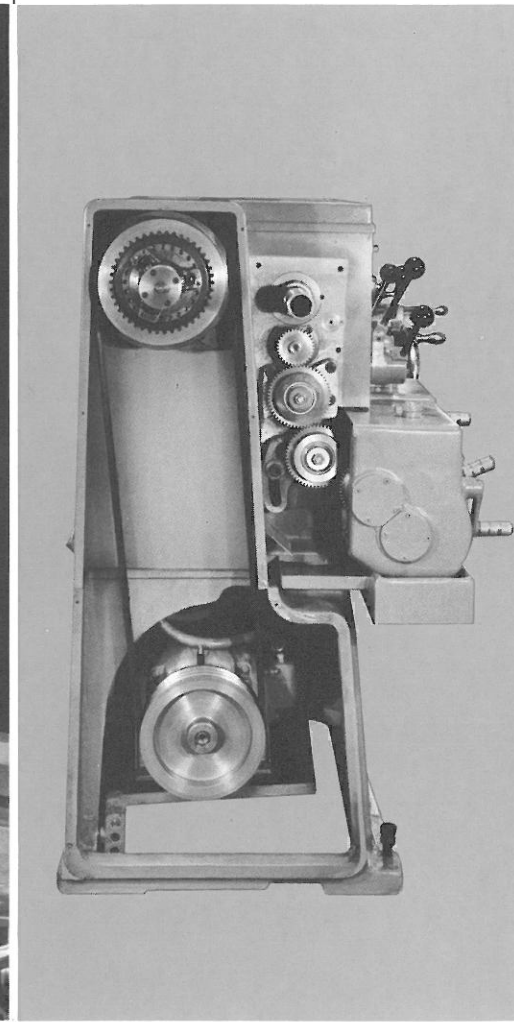
Proper lubrication of a Monarch K lathe does not depend on the operator's memory. A combined pump and splash system provides metered, pressurized lubrication to all bearings. Lubrication is easily checked at all times by a visual gauge.



## Maindrive

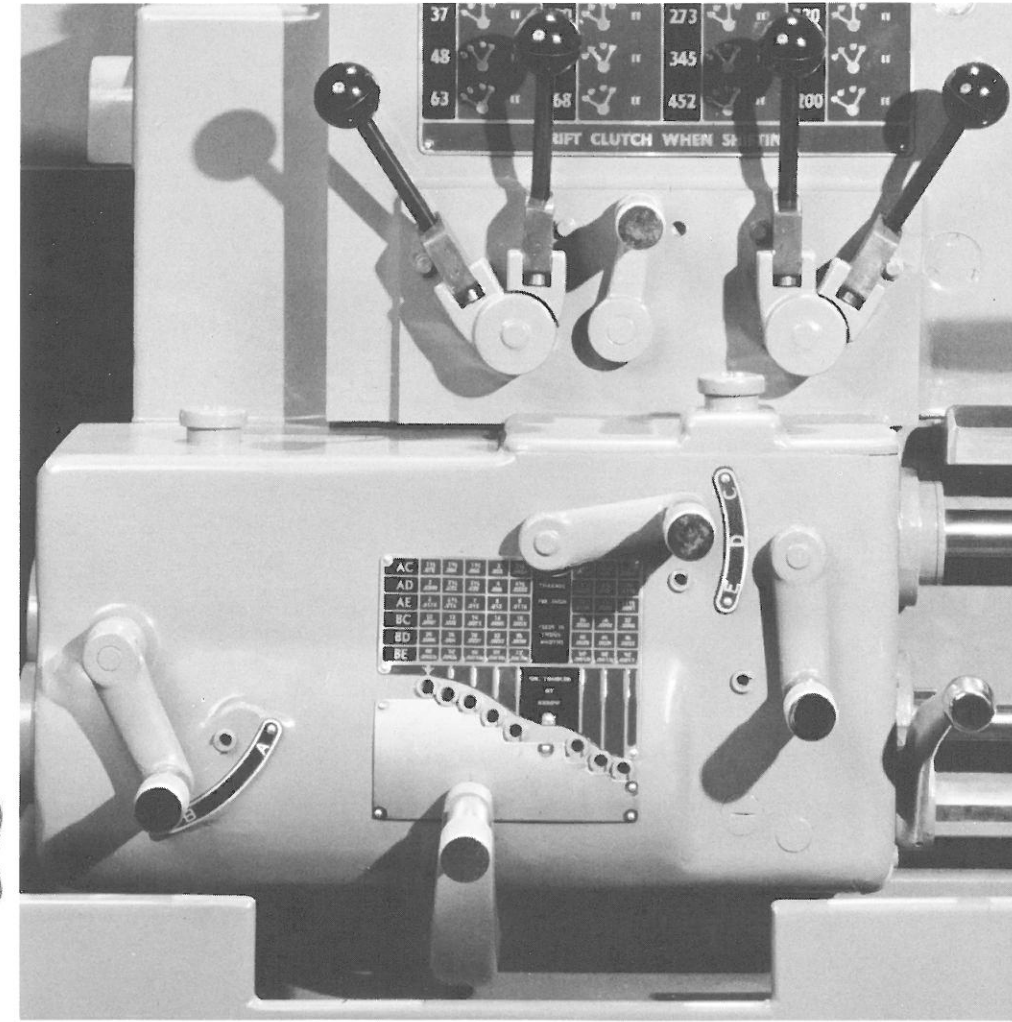
The main drive motor is 5 hp (7½ optional), 1800 rpm at 220/440 volts. It is a ball bearing motor with a reversing starter.

110 volt push button operates start-stop-reverse control. The motor is mounted inside the motor cabinet leg on a hinged plate adjustable to maintain proper drive tension to the balanced multiple v-belts. The plate type clutch and multiple disc brakes are controlled by levers positioned for maximum operator convenience: one close to the headstock, one at the apron. These levers provide the sensitive operator control desirable for starting, braking and jogging the spindle.



## Gear Box and End Gearing

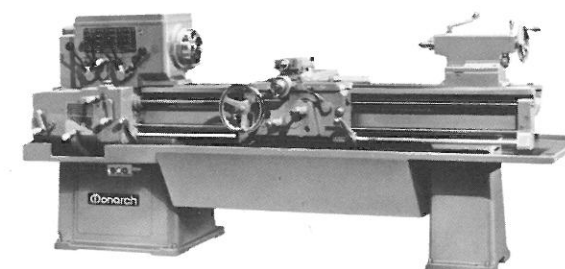
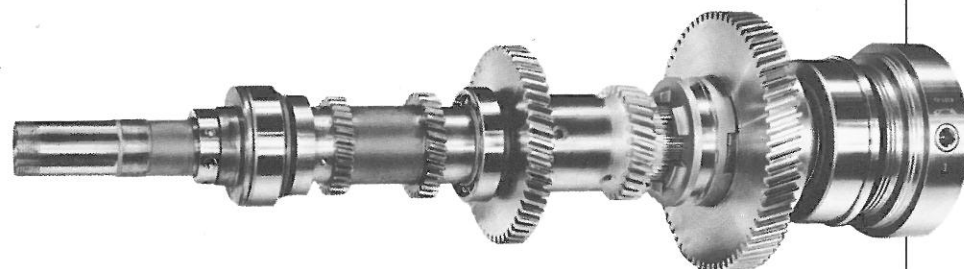
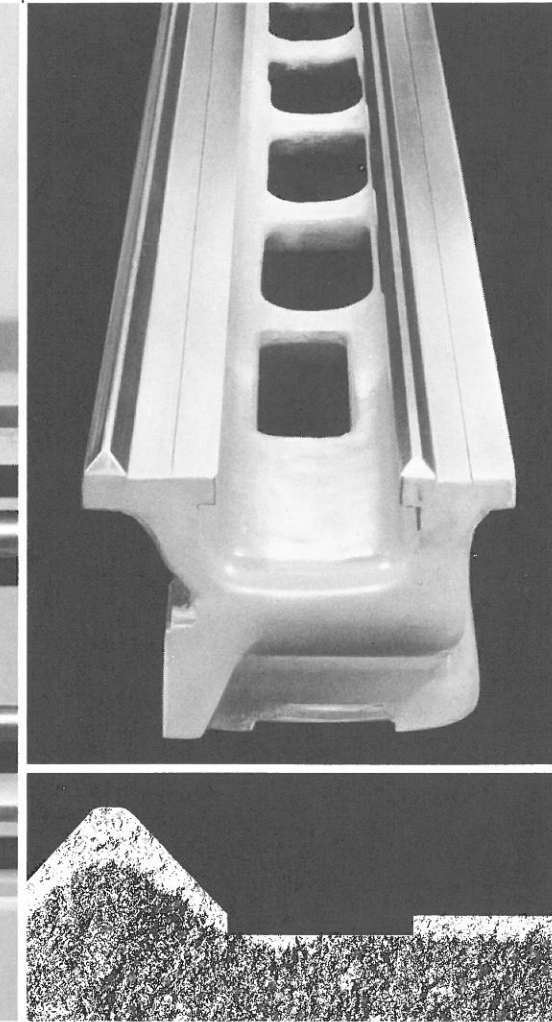
Feeds per revolution are available from .0011 to .070 inches in 48 steps; thread range provides all U.S. standard and fine threads. The end gear train has a quadrant with an idler gear train and sufficient adjustment to accept compound gearing for chasing odd leads. Gear box lubrication is centralized, with end train gears mounted in oil-seal bearings.



## Bed

The Monarch K has a one piece bed cast from alloyed iron. All four bedways (not just the carriage ways) are flame hardened to a depth of more than 1/8 inch and a Scleroscope reading of 70 to 72 Shore. The hardened surfaces blend gradually and perfectly into the tough, resilient cast iron underbody for unequalled vibration dampening and unparalleled wear resistance.

Ways are ground to an overall tolerance of .0005 inch. Since they are an integral part of the massive bed itself, the ways can never go out of adjustment. Separate leveling screws are provided for each leg.



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## Carriage, Cross Slide, Compound and Apron

For best possible wear surfaces, carriage, cross slide and compound parts are made of especially high quality cast iron with a Brinell hardness of 190 to 230. Extra heavy slides provide maximum tool support.

The compound rotates through 360° with an accurately graduated swivel. When chasing threads the cross feed chasing stop allows quick tool withdrawal and repositioning for the next cut. Compound may be used parallel to the tailstock spindle center.

Power is transmitted smoothly and uniformly to the apron by worm drive. Two independent levers control longitudinal and cross feed through large, cone-type friction clutches.

The precision leadscrew is mounted in

## Tailstock

The heavy, screw operated tailstock is quickly clamped to the bed by lever action.

The hardened and ground tailstock spindle contains a dead center and drift slot for easy tool ejection, while a graduated scale on the barrel facilitates drilling.

The tailstock base reservoir feeds oil to the hardened and ground way surfaces. Lubrication for horizontal movement of the spindle is provided by oil cups on top of the tailstock. Wipers prevent chips and dirt getting under tailstock to damage bedways.

## Accessory Equipment

### Steady rest (a)

Renewable tip plain jaws. Hinged top. 1/2 to 4 1/2-inch capacity.

### Follow rests (b)

Plain renewable tip jaws. 5/8 to 3 1/2-inch, 3/4 to 3 1/2-inch capacity.

### Heavy duty tool post (c)

Recommended for heavy stock removal. Maximum tool size is 1 x 1 inch.

### Face plate (d)

Has eight cored slots to facilitate attachment of fixtures. 13-inch diameter.

### Anti-friction center (e)

Fits tailstock for high speed turning.

### Sjogren collet chuck (f)

Fits directly on cam lock spindle nose. Maximum collet size, 1 3/8 inches.

### Turret (i)

Indexes rapidly to twelve positions and fits directly to compound. 4 1/2 inches square, one inch maximum tool height.

### Micrometer carriage stop, (j)

### Multiple positive carriage stop (k)

Stop bracket positions at any point on front bed v. Locked by two clamp screws. Knob above bracket securely locks barrel.

An indexing cylinder with four adjustable stop screws attaches to left carriage wing for use with micrometer stop.

### Taper attachment (l)

Ball bearing slide anti-friction type with permanent, sealed in lubrication. Practically eliminates lost motion, backlash, friction. Bearing surfaces are flame hardened and ground. Vernier dial. Hinged

### Coolant system (not shown)

Drive by individual motor, coolant pump may be factory installed on new machines, or field applied to lathes having chip pan.

### Air-Tracer Pak — see back cover

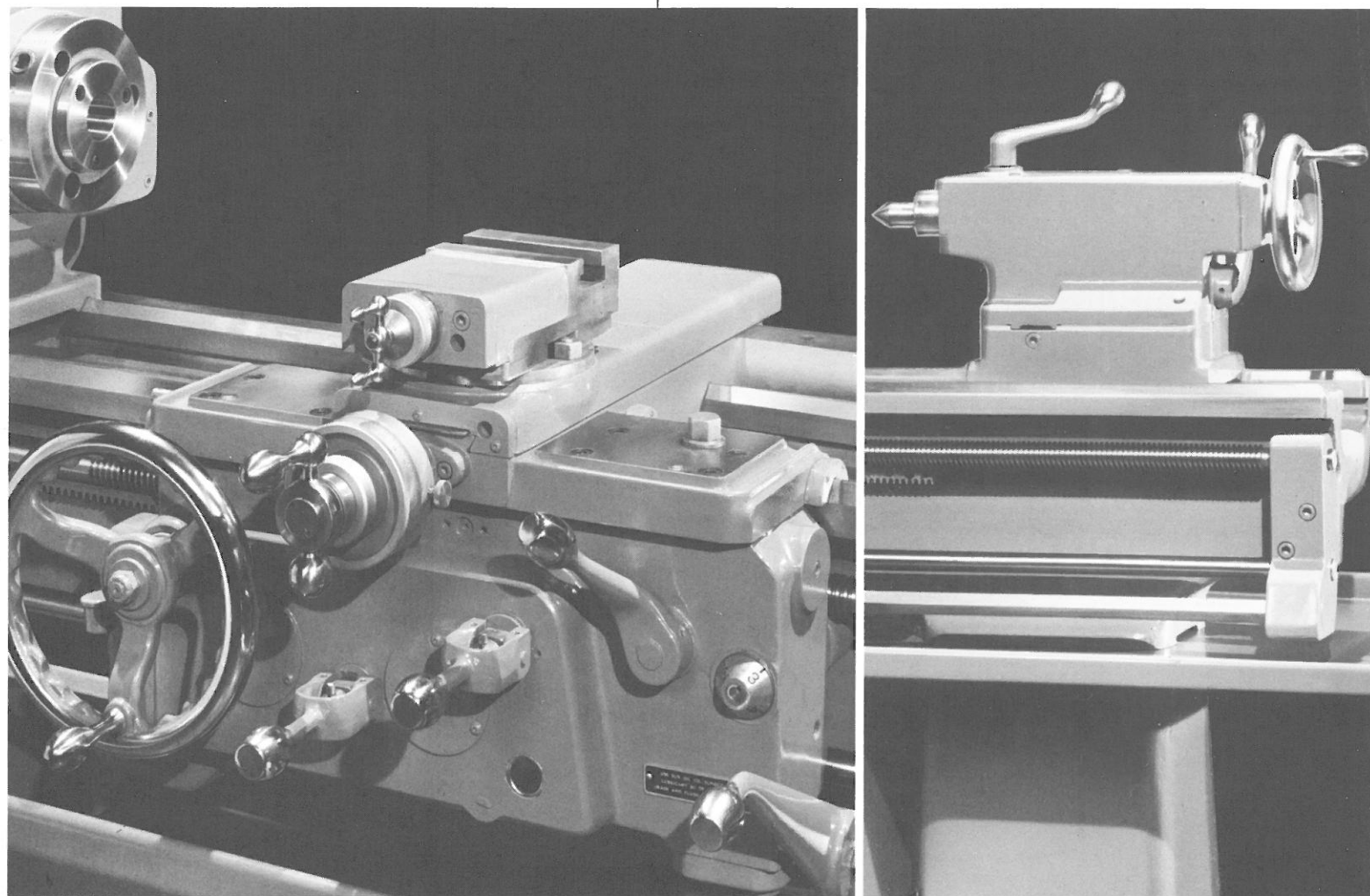
Completely self contained unit provides tracer control without loss of swing capacity.

### Apron control lead screw reverse (not shown)

Factory installed option permits reversing feed direction from operator position at apron. Facilitates accurate, rapid thread chasing without loss of lead.

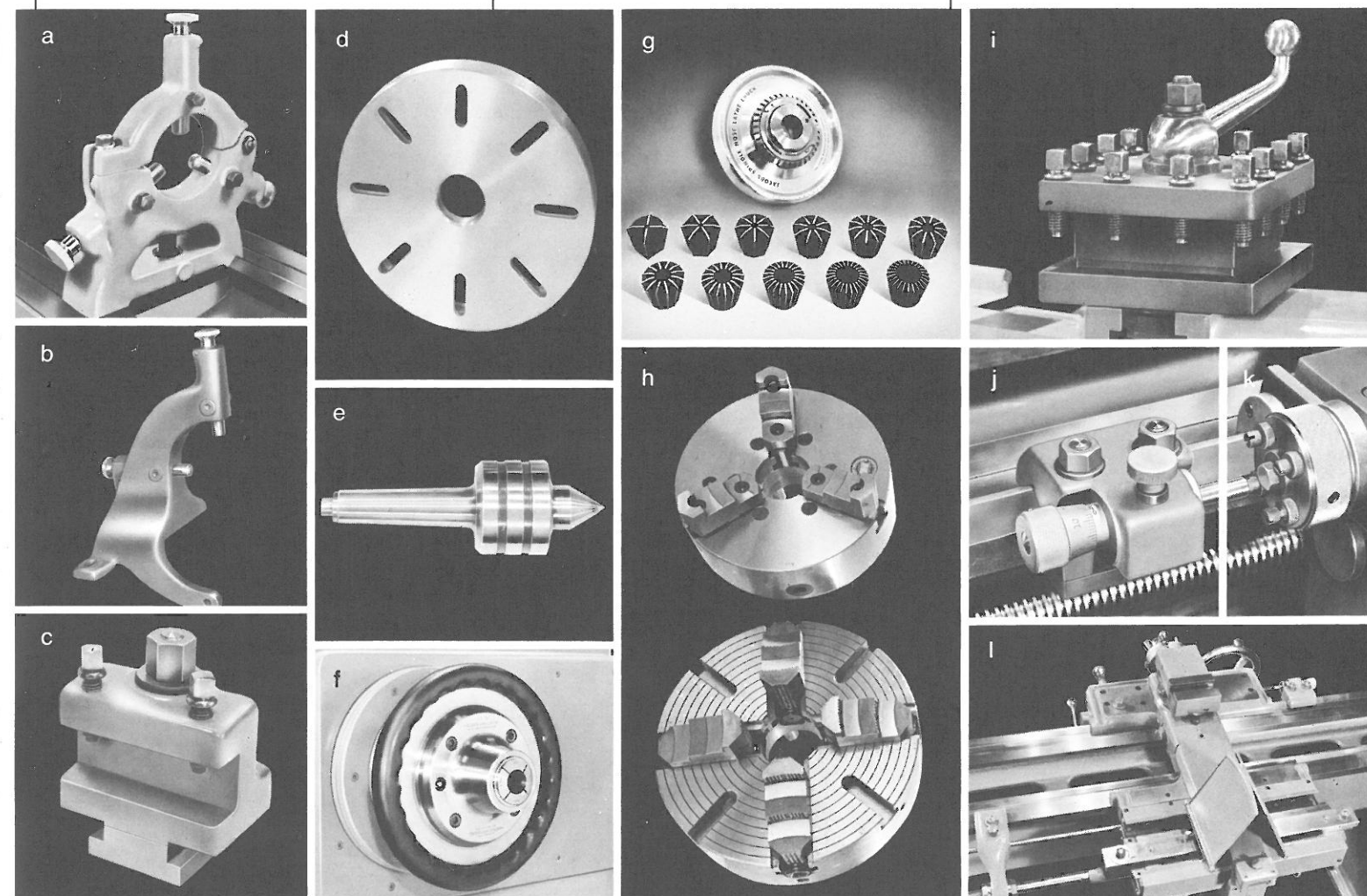
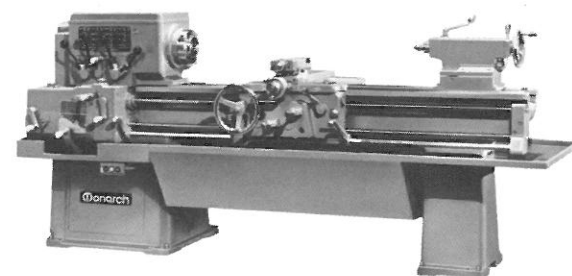
### Metric transposing gears (not shown)

Attach to quadrant for chasing metric threads.



anti-friction combination radial and thrust bearings. Leadscrew accuracy is preserved by the fact that no contact is made with it when the feed rod is used for feeding.

Metered oil is automatically fed to all moving parts of the apron, the carriage bearing on the bed, and to the compound rest bottom slide bearing on the carriage.



### Jacobs collet chuck (g)

With 11 rubber-flex collets, 1/16-inch to 1 3/8-inch capacity.

### Mechanical chucks (h)

Three-jaw universal type with steel body and two-piece reversible jaws have 8-inch, 10-inch capacity. Four jaw independent type with steel body and reversible jaws have 10-inch, 12-inch capacity.

slide covers 4-inch maximum taper turning per foot, 18° maximum included angle, 12-inch maximum length at one setting.

### Chip pan — pages 2 & 3

Generous size pan is designed for easy chip removal from rear of lathe. Also serves as coolant pan.

### Tool cabinet (not shown)

Reinforced, welded steel. Ample space for chucks, rests, plates, wrenches, collets. 22 x 22 x 40 inches.

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