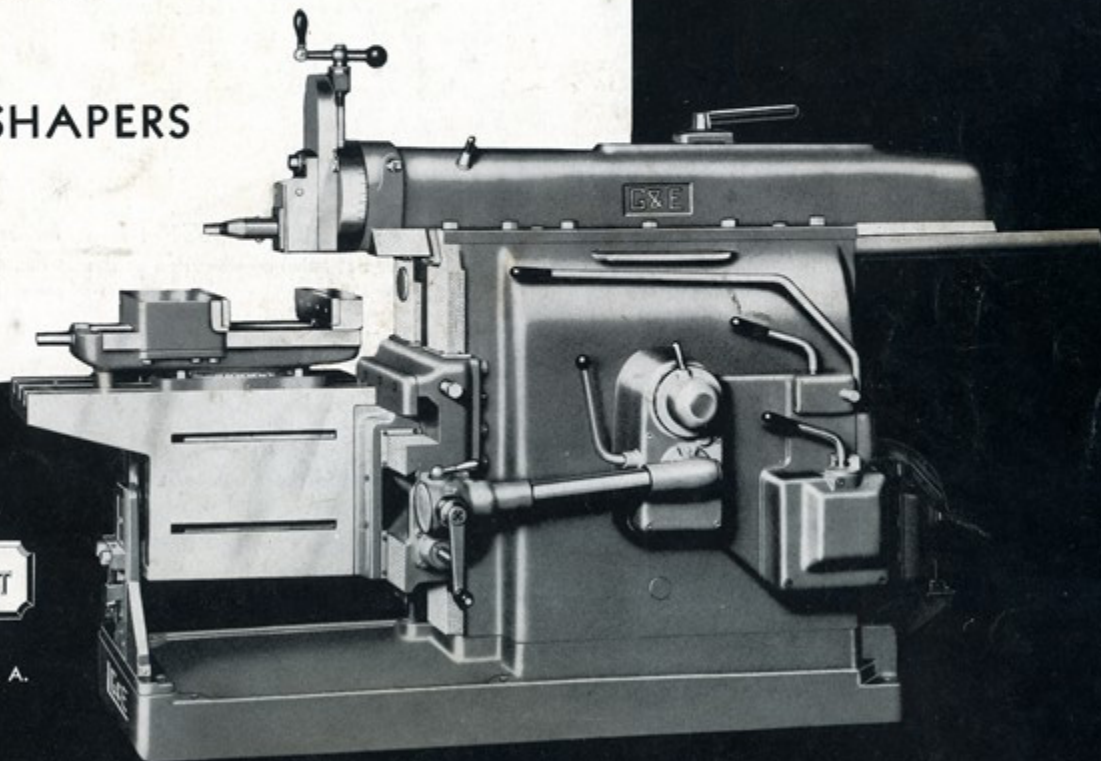


# OPERATING INSTRUCTIONS

FOR  
TOOL ROOM  
AND  
INDUSTRIAL SHAPERS



NEWARK (IRVINGTON), N. J., U. S. A.

## • SETTING UP MACHINE •

GOULD & EBERHARDT shapers are shipped with all the finished surfaces coated with grease to prevent moisture and dirt from getting on the machine in transit. All surface grease should be removed with kerosene. DO NOT use naphtha or benzine. Clean ram ways, attach rear ram guard, and coat all finished surfaces with oil.

The shaper must be set level and secured to a concrete foundation or good solid wood floor to obtain the best results. An accurate spirit level should be used on the work table to make sure the machine is level. Remove table front support (when furnished) and attach an indicator to the table so that as it is moved horizontally the parallelism of the front of the base

may be observed. If foundation is uneven, use steel shims adjacent to the bolt holes to obtain parallelism of base and table. Be sure that the base rests equally at all bolt hole points before tightening the bolts.

The pulley shaft on the machine must revolve at the speed specified on the plate attached to the pulley guard and in a counter clockwise direction viewing the pulley side of the machine. If the motor is improperly wired, or the belt improperly attached, the pulley will run in the wrong direction, lubrication system will not function, and machine may be damaged mechanically or thru lack of oil. The feed selector handle should be positioned at zero feed until the correct rotating direction of the pulley is determined.

## • OPERATION •

**BEFORE STARTING, BE SURE THE RAM WAYS ARE WIPED CLEAN AND ARE WELL OILED TO PREVENT SCORING.** The machine is started by pulling the clutch control away from the machine and is stopped by pushing this lever toward the machine.

To adjust the length of stroke, stop the machine so that the zero mark on the stroke indicator is upward. Apply the crank handle to the stroke length control and turn clockwise to increase and counter-clockwise to decrease the length of stroke. A dial indicates the length of stroke.

The ram is positioned by first loosening the ram clamp and then revolving the ram positioning control by means of the crank handle. This can be done while the machine is in motion. After making adjustment tighten ram clamp.

The tool head is unclamped by applying the crank handle to the head lock and turning counter-clockwise. The tool head can then be swiveled and set to any desired position in 120 deg. Turn the handle clockwise to clamp and lock the head. A tool slide lock is provided to prevent the tool slide from creeping.

It is essential for accurate shaping that the vise be set square with the ram. The vise should be accurately aligned and squared by clamping a square against the solid jaw and indicating the blade with a dial indicator attached to the tool head.

When cleaning chips off the vise or table, always brush them away from and not toward the frame to prevent chips from getting inside the machine.

Each shaper is given a thorough running test before shipping and is very carefully inspected for accurate operation. It is advisable, however, to run the machine at slow speed for several hours before using.

To raise or lower the table and crossrail, first loosen table front support, then loosen clamping strap nut on operator's side of machine and revolve the rail clamp one turn counter-clockwise. Do not loosen the other strap bolts as they are adjusted to hold the crossrail slideably to the frame.

Apply hand crank to table vertical position control and adjust table until work is as high as possible consistent with safety so as to minimize overhang of the tool.



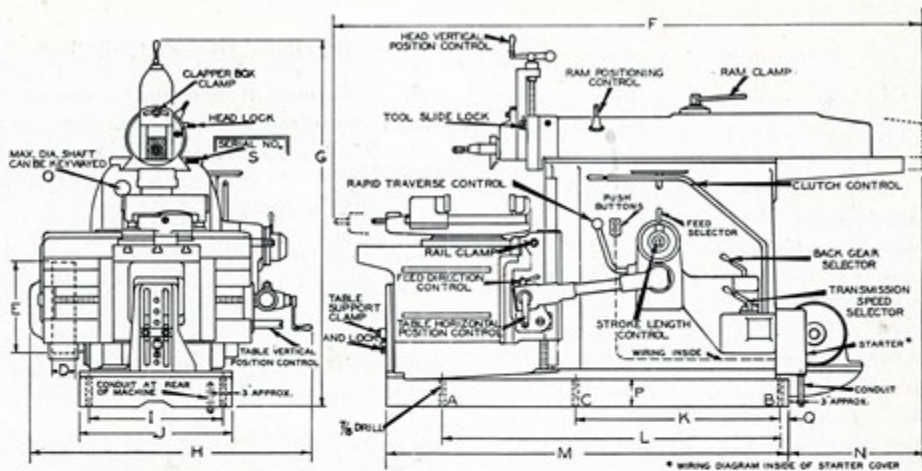
OPERATION (Con.)

When table is in position, clamp the strap nut on the operator's side of the machine and revolve the rail clamp clockwise to clamp the strap on the opposite side of the machine.

On machines equipped with a front support, always use both the support and the stress block. After clamping the front support, insert the stress block directly under the table on the inside of the front support. If the table is set at or near its lowest position, or if machine is equipped with a universal table, the stress block will not fit beneath the table and should be applied to the clamp outside of the support.

Eight speeds to the ram are obtained by means of the transmission speed and the back gear selectors. To engage the back gears, push downward on the back gear selector to release the lock and then move selector about 90 deg. Always disengage the clutch control when shifting gears or when changing from single gear to back gear.

The feed selector controls the amount of feed. A plunger locks and indicates the feed selected. The feed may be changed whether the machine is running or idle. A feed direction control is provided at the crossrail. Setting this control away from the machine, feeds the table toward the operator. Setting the control in the opposite direction, feeds the table away from the operator. The feed is disengaged by setting the control in the midway position.



S—Serial Number is stamped here. Please refer to this number in all correspondence regarding the machine.

• GENERAL DIMENSIONS APPLYING TO DIAGRAMS •

Subject to change without notice

Size Machine	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
14" Plain T. R.	3 1/2"	12"	72"	57"	48"	18 1/2"	21"	29 1/4"	—	42"	15"	0"	3 3/4"	1 1/4"
16" Plain T. R.	3 1/2"	12"	73"	57"	48"	18 1/2"	21"	29 1/4"	—	42"	16"	0"	3 3/4"	1 1/4"
16" T. R.	3 1/2"	12"	73"	57"	48"	18 1/2"	21"	29 1/4"	45 3/4"	51 1/2"	16"	0"	3 3/4"	1 1/4"
16" Plain Ind.	4"	14"	83 1/2"	60"	48"	21 1/2"	24"	32"	—	50"	19"	2 1/2"	4 3/4"	1 1/4"
16-20" Plain Ind.	4"	14"	85 1/2"	60"	48"	21 1/2"	24"	32"	—	50"	21"	2 1/2"	4 3/4"	1 1/4"
16" Ind.	4"	14"	83 1/2"	60"	48"	21 1/2"	24"	32"	53 1/4"	59"	19"	2 1/2"	4 3/4"	1 1/4"
16-20" Ind.	4"	14"	85 1/2"	60"	48"	21 1/2"	24"	32"	53 1/4"	59"	21"	2 1/2"	4 3/4"	1 1/4"
20" Ind.	4"	14"	93"	61"	48"	21 1/2"	24"	32"	55 3/4"	61 1/2"	26"	2 1/2"	4 3/4"	1 1/4"
20-24" Ind.	4"	14"	95 1/2"	61"	48"	21 1/2"	24"	32"	55 3/4"	61 1/2"	28"	2 1/2"	4 3/4"	1 1/4"
24" Ind.	5"	16"	105"	68"	56"	25"	28"	38 3/4"	68 1/4"	75"	26 1/2"	3"	5"	1 1/2"
28" Ind.	5"	16"	108 1/2"	68"	56"	25"	28"	38 3/4"	68 1/4"	75"	28 1/2"	3"	5"	1 1/2"
32" Ind.	5"	16"	121"	68"	56"	25"	28"	38 3/4"	68 1/4"	75"	37"	3"	5"	1 1/2"
32" Hvy. Ind.	5"	16"	122 1/2"	73"	56"	31"	34"	44"	75 1/2"	85"	35"	3"	6"	1 1/2"
36" Ind.	5"	16"	134 1/2"	73"	56"	31"	34"	44"	75 1/2"	85"	43"	3"	6"	1 1/2"

Rapid power traverse is always available whether the machine is running or idle, as long as the pulley is rotating. Traverse is engaged by pulling outward on the rapid traverse control. Releasing the control disconnects the traverse and automatically reinstates the feed. The direction of the rapid traverse is always opposite to the direction of the feed set.

Always place feed direction control in neutral when positioning work table horizontally by hand, to avoid damaging feed mechanism.

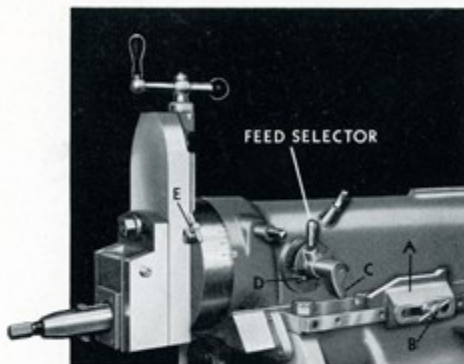
### POWER DOWNFEED

#### • TO TOOL HEAD •

After the stroke length and the ram position have been set and the tool slide lock (E) is released, the power downfeed can be set.

Loosen hand screw (B) and position cam (A) so that when the ram is at the end of the return stroke, lever (C) will have traveled not more than one or two inches on the horizontal portion of the cam. Then tighten (B). Feeding occurs on the return stroke as lever (C) rides on cam (A).

To prevent damaging downfeed mechanism, cam (A) is provided with a safety lobe which locks lever (C) horizontally when cam is located too far forward allowing lever to pass beyond the cam. To reset lever (C), pull out pin (D) which will permit returning lever to vertical position. Then reposition cam so that lever



does not travel more than an inch or two on the horizontal portion.

The feed selector controls the amount of downfeed. A plunger locks and indicates the feed selected. The feed may be changed while the machine is running or idle. For manual operation of tool slide, lever (C) must be vertical and not in contact with cam (A).

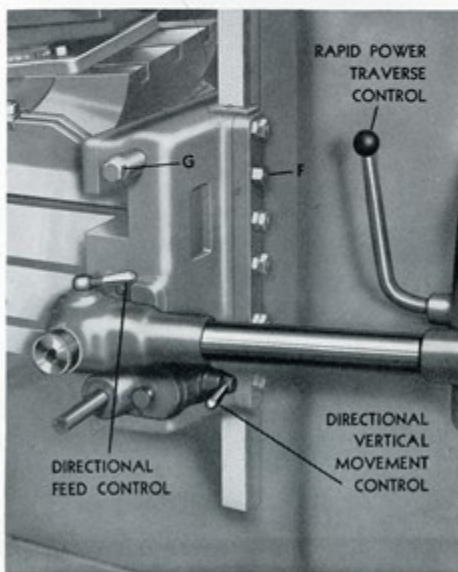
Always move the cam (A) to its extreme rear position on frame when not in use, when changing the stroke length, or positioning ram.

### POWER RAPID

#### • VERTICAL TRAVERSE •

On machines equipped with the power rapid vertical traverse unit, the table can be raised or lowered by power. First loosen table front support clamp and stress block, then loosen clamping strap nut (F) on operator's side of machine and revolve rail clamp (G) one turn counter-clockwise. Do not loosen the other strap bolts as they are adjusted to hold the crossrail slideably to the frame.

Raise directional vertical movement control to raise table and lower control to lower table, then pull outward on the rapid power traverse control. Releasing the control disconnects the traverse mechanism. The directional feed control must be maintained in neutral while using the power rapid vertical traverse. When feeding, the vertical traverse is not used and the control must remain in neutral. Reset table front support and adjust stress block.

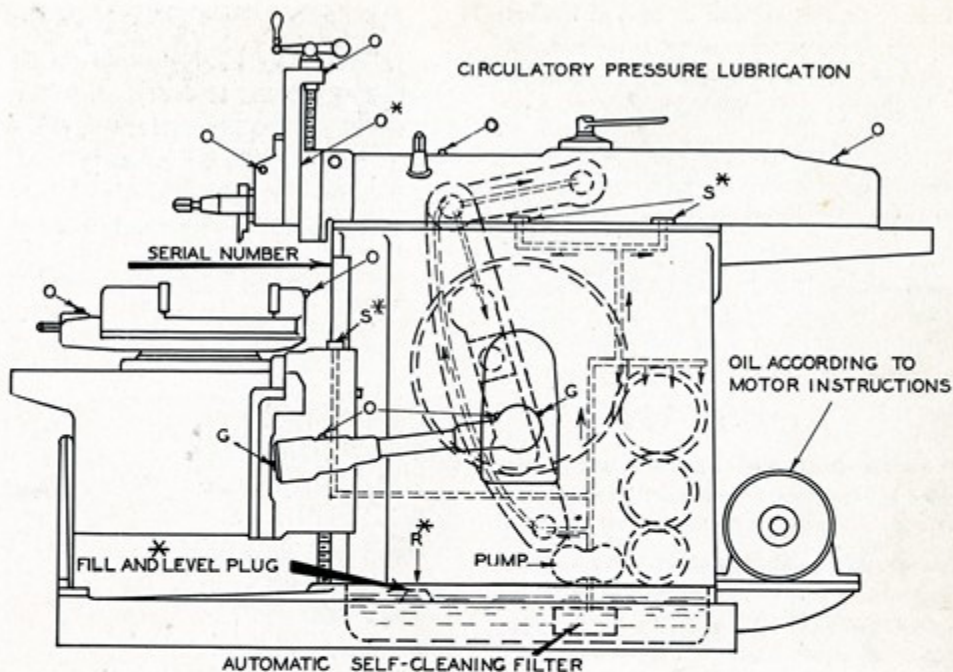




## • LUBRICATION •

The sustained accurate service of which this machine is capable depends upon the proper lubrication and attention given to its bearings and the working parts. As far as practical, lubrication has been made automatic.

Each machine is equipped with a circulatory pressure oiling system which automatically supplies oil to all essential moving and rotating parts, including the crank pin block, ram guide-ways, crossrail, and the transmission gears. The oil is pumped from the main reservoir in the base through an oil filter and is distributed to the various outlets through several pressure lines (see diagram). A filter-cleaning mechanism is connected with the clutch control so that starting and stopping the machine automatically cleans the filter. A drop in pressure will be observed through the sight oilers and indicates lack of oil in the base, cleaning mechanism not working, or sediment covering the filter cartridge. The oil reservoir in the base should be checked weekly and cleaned out about twice a year. Wipe off filter cartridge when cleaning reservoir.



R—Reservoir. Check weekly. Use oil 450/600 seconds S.U. viscosity at 100° F.  
Clean out twice a year.

O—Oil cups or grooves. Same oil as above.

G—Grease cups or housings. Use soft grease.

S—Sight oilers. To regulate loosen or tighten wick.

\*—See opposite side of machine.

Sight oilers are provided at each of the four corners of the ram guideways in the frame to constantly lubricate the ram bearing. Another sight oiler is provided at one end of the cross-rail for lubricating the ways, raising screw, and feed screw. Oil flows through wick packing from the oilers to the bearing surfaces. If the flow is excessive, remove the transparent caps and pack the wicking tighter. Loosening the wicking will increase the oil flow. Allow motor to run until oil flows in all sight oilers before engaging the clutch control to operate the machine.

The main reservoir is in the base of the machine and is filled by removing the fill and level plug shown on the oiling diagram. Always keep reservoir filled to bottom of plug. The following approximate amounts of lubricating oil are required and should be put into the machine before starting:

Machine	Gallons
14" and 16" Tool Room Shapers	4
16", 16-20", 20" and 20-24" Industrial Shapers	4 1/2
24", 28", 32", 32" heavy and 36" Industrial Shapers	7 1/2

## • OIL SPECIFICATIONS •

We recommend using a highly refined straight mineral oil of 450/600 seconds Saybolt Universal Viscosity at 100 deg. F., if scoring of the rams is to be avoided. It is particularly important not to use the ordinary grade of "machine" oil or red engine oil generally found in

machine shops as this is usually from 200/400 seconds viscosity at 100 deg. F., is entirely too light, and not sufficiently refined. The following oils of reputable manufacturers are suggested, although other good oils of these specifications may be suitable.

Manufacturer	Trade Name of Oil	S.U.V. @ 100° F.
Atlantic Refining Co.	Eureka Oil H	500/515
Cities Service Oil Co.	Pacemaker #5	525/535
Colonial Beacon Oil Co.	Esstic 65	550/560
Gulf Oil Corporation	Gulf Seneca Oil D	500/510
E. F. Houghton & Co.	Cosmolubric #840	490/510
Imperial Oil Ltd. (Canada)	Imperial D. B. 61	500/525
Penola Inc.	Esstic 65	550/560
Pure Oil Co.	Klondyke Heavy	500/530
Shell Union Oil Corp.	Shell Carnea Oil 41	500/549
Sinclair Refining Co.	Gascon Oil C	500/510
Socony-Vacuum Oil Co.	Gargoyle Etna Extra Heavy	490/520
Standard Oil Co. (Indiana)	Stanoil #50	500/515
Standard Oil Co.'s of Ky.; La.; N. J.; and Penna.	Esstic 65	550/560
Sun Oil Co.	Solnus Heavy Medium	500/600
The Texas Co.	Texaco Texol E	500/520
Tidewater Associated Oil Co.	Tycol 119	510/530
Valvoline Oil Co.	Valvoline Product R506	500/510



## • ADJUSTMENTS •

Wear on the ram guideways is taken up by first slightly loosening the clamping bolts that hold down the left wedge (viewing front of machine) then adjusting the screws along the side of the frame. Any increased wear toward one end of the guideways may be readily compensated for by means of these screws. It is essential that this adjustment be carefully made to have the ram snug at both ends but not so tight as to bind and score.

A taper wedge is provided for wear on the guideways of the tool head. This wedge is located on the operator's side of the head and can be adjusted by loosening the top screw and tightening the lower screw.

The adjustment of the table slide upper guide to the crossrail is made by removing the strap running across the top of the rail and peeling off a lamination from the center and/or end sections of the shim. Localized wear may be compensated for by this means.

To adjust the lower guide to the crossrail, traverse table slide to the extreme left position, loosen the lock screw at the back of the slide, and turn the adjusting screw at the end of the wedge.

Adjustment means are available to compensate for wear of the clutch plate. By withdraw-

ing the plunger provided, the toggle unit can be turned in a clockwise direction until the plunger drops into the next hole, which increases the plate pressure. It may be necessary to advance the plunger several holes to obtain the proper pressure between the plates when the clutch is engaged. Excessive plate pressure will make control difficult to engage and clutch will drag.

On motor driven shapers, the motor is attached to a bracket on the rear of the machine. Screws in the bracket permit lining up the motor and adjusting tension of the V belts.

## SERIAL NUMBER

### • AND REPAIR PARTS •

The machine serial number is stamped on the frame in the front upper right-hand corner, directly below the ram guideway. (See diagram Page 3.) When referring to your shaper, always mention this serial number.

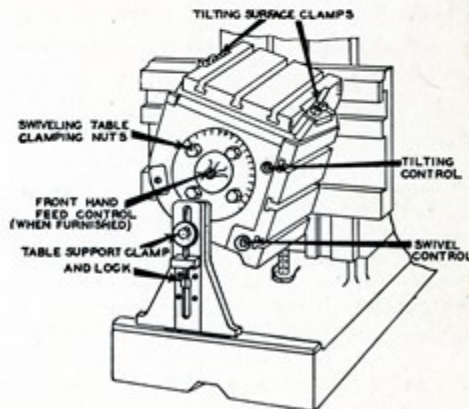
When ordering repair parts, please refer to Parts List Bulletin for instructions. It is important that the serial number be indicated to assist us in filling your order correctly.

## • UNIVERSAL SHAPERS •

The preceding instructions likewise apply to Universal Shapers arranged with swiveling tables having tilting work surfaces.

To swivel the table, first loosen table front support clamp, stress block, and the four swiveling table clamping nuts. Apply crank handle to swivel control and after positioning table to desired angular setting, tighten table clamping nuts. Reset table support and adjust stress block.

To tilt table top, loosen four tilting-surface clamping nuts and apply crank handle to tilting control. Set top at angle desired and tighten tilting surface clamping nuts.





• PRODUCTS •

METAL SHAPING MACHINES  
SPUR AND HELICAL GEAR HOBBIING MACHINES  
WORM GEAR HOBBIING MACHINES  
CONE WORM GEAR HOBBIING MACHINES  
GEAR AND RACK CUTTING MACHINES  
SPECIAL MACHINERY