LEVELING THE LATHE
INSTURCTIONS COMPLETELY BEFORE BEING COMPLETED.

1. Mount cabinet on a concrete floor or base whenever possible.
2. Position cabinet on a concrete floor or base whenever possible.
3. Mount cabinet in accordance with section 3.

PNEUMATIC INSTALLATION

- Then mount and level the lathe.
- Next level the pedestal cabinet or bench.
- First install pedestal cabinet or bench before mounting the lathe.

To Do It Right:

- Anchored or pinch.
- Once is impossible if the lathe bed is out of level as little as one thou.
- Essential for accurate work and long service life. Suitable for all lathe.

Instructions for Mounting and Leveling the Lathe
Levelling the Lathe

1. Screw down the four leveling screws, raising the lathe so that the lathe legs are no longer touch the cabinet top. Approximate 1/4" clearance is sufficient — see Fig. 7.

2. Use a precision machinists spirit level to level the leveler head on top of the Y-ways — about three inches in front of the crossstock. The crossstock is mounted on bearings, not cast iron and will require frequent leveling to maintain accuracy.

3. Using a bubble level on a 4'0" shim is placed under one end of the level, make sure level does not rest on a point or cast iron. Note: LeveL-40 casts iron fixture below leveling lever.

4. Leveling the screws must be level with the level.

5. Level the crosshead until it is level, see Fig. 7. Compensate for variations of bubble readings by turning the leveler head of the machine.

6. Now tighten the four mounting bolts securely.
LATHE COUNTERSHAFT

CAUTION — Always stop motor before changing spindle gears. It may be necessary to remove spindle from pulley. Lower back-gear lock pin — pull out lock pin. Lower back-gear pulley to disengage bull gear. Lower back-gear pulley in direct drive. Lower back-gear pulley in back-gear drive.

LATHE COUNTERSHAFT

PRODUCE BETTER WORK. With the lathe before you start a job — it will save time and

intends and feeds — engage the power gears — get accustomed to the controls — set up different

in back-gear get the "feel" of the controls — play with different

Maintenance and Controls

DO NOT OPERATE THE LATHE — until you are thoroughly familiar with all the controls and their functions (read carefully the instructions), then operate the lathe.
17. Check winding and power cross feeds.

| 91000 |
| 10000 |
| 571000 |
| 500000 |
| 910000 |
| 1000000 |
| 5710000 |

When cutting even numbered threads engage the half-nut lever at any one of the markings on the

Tread nut. For each cut, so that the cutting tool will enter the work face, disengage the power cross feeds, raise the half-nut lever, and advance the tool to the point where it

The threading drill is used in threading cutting. In

The lathe is now ready to cut threads on feed.

Select the pitch in which the face on the tool is 20 times greater than the pitch of the thread to be cut on the

If more than two seconds or more are required on the

The three above positions are the center, left and

Next, check the center for position of the helix.

Select the rack lever and move the quill up into position

In between the lathe is advanced to the thread of feed.

To make sure there is quick-change gear box

When selecting a hand feed, "In" or "Out", use

1. Disengage the carriage feed controls for

THREADS AND FEEDS ARE OUTLINED BELOW:

SEQUENCE OF ENGAGING CONTROLS:

16. Controls used to obtain a thread or feed.

| 11000 |
| 10000 |
| 91000 |
| 100000 |
| 910000 |
| 1000000 |
| 9100000 |

When threading odd numbered threads engage the half nut lever at the

The thread of each of the threads, engage the half nut lever at the

The threads in positions 1 through 4 are engaged on the carriage feed head. The

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1. Disengage the carriage feed controls for

THREADS AND FEEDS ARE OUTLINED BELOW:

SEQUENCE OF ENGAGING CONTROLS:

16. Controls used to obtain a thread or feed.
1. Headstock spindle

2. Remove spindle lock screw in collet "C".
3. Slacken spindle with wrench.
4. Push spindle with a piece of wood. Remove key from collet "C". Slide spindle out of lathe.
5. Loosen lock screw in collet "C" and remove collet "C".
6. Remove spindle from headstock.
7. Remove gear at position of graduated lines.
8. Remove spindle nut.
9. Remove spindle from headstock.
10. Remove spindle nut.
11. Remove spindle from headstock.
12. Remove spindle nut.
13. Remove spindle from headstock.

WARNING
Be sure to remove all settings to ensure accurate settings and prevent injury.
RE-ASSEMBLY SPINDLE ASSEMBLY

1. Place counterfort shaft in bearing and secure with countershaft lock screw.
2. Secure lock screw in position and the cap screw heads face downward.
3. Turn the spindle (see Figure 24, page 12) so pins are in a horizontal position and the cap screw heads face upward.
4. Now slide shift yoke over the ship ring pins and yoke collar on to hold collar in place.
5. Make sure shift yoke is in contact with the shift yoke pin and shift yoke is secure to position. Lock in this position by locking collar on to shift yoke pin and collar is secure to position.
6. Replace counterfort shaft lock screw, plate, and yoke.

BLIND COUNTERSHAFT SPINDLE

1. Place shift yoke and lock screw in correct position.
2. Secure shift yoke to lock screw and plate.
3. Replace countershaft spindle assembly in machine.
4. Reassemble parts. Make sure that lock screws are secure.
5. Clean bore of pulley hub and clutch ring with a clean cloth.
6. Replace counterfort shaft lock screw, plate, and yoke.

ADJUSTMENT

1. Tighten clutch adjusting screw at correct distance from counterfort clutch slipper.
2. Adjust drive belt tension.
3. Remove the lock screw that is just ahead of the pulley and replace it.
4. Place a feeler gauge between the clutch and the pulley and adjust the lock screw to the correct position.
5. Place a feeler gauge between the pulley and the clutch and adjust the lock screw to the correct position.
6. Place a feeler gauge between the clutch and the pulley and adjust the lock screw to the correct position.

GRENARD 24. Inserting the shift yoke.
HEADSTOCK ASSEMBLY 990-038
IMPORTANT

16

Quick Change Gear Train
SPINDLE THREADS: Gear teeth, lead screw threads, etc.

KEEP YOUR LATHE CLEAN

- Spindle threads, gear teeth, lead screw threads, etc.
- Wipe the bed and all polished parts with a clean dry rag or frequent mineral spirits. Use a brush to clean oil and dirt from the slides.
- Do not use soap, compounds or grease on any part of the machine.
- Keep all parts clean and lubricated.
- Oil all parts as per manufacturer's instructions.

RACK LEADSCREW BEARING
TAILSTOCK - LEADSCREW -

- Oil rack through hole in guard.
- Oil all parts as per manufacturer's instructions.
- Remove cap and fill with oil.
- Clean rack and lead screw with a brush.
- Lubricate with a medium grade multipurpose grease.

TAPER CHUCK

- Oil all parts as per manufacturer's instructions.
- Clean rack and lead screw with a brush.
- Lubricate with a medium grade multipurpose grease.

GEAR TRAIN QUICK-CHANGE

- Oil all parts as per manufacturer's instructions.
- Clean rack and lead screw with a brush.
- Lubricate with a medium grade multipurpose grease.

CARCAGE

- Oil all parts as per manufacturer's instructions.
- Clean rack and lead screw with a brush.
- Lubricate with a medium grade multipurpose grease.

GERALD QUICK-CHANGE

- Oil all parts as per manufacturer's instructions.
- Clean rack and lead screw with a brush.
- Lubricate with a medium grade multipurpose grease.

COUNTERSHAFT

- Oil all parts as per manufacturer's instructions.
- Clean rack and lead screw with a brush.
- Lubricate with a medium grade multipurpose grease.

BACK GEARS HEADSTOCK AND

- Oil all parts as per manufacturer's instructions.
- Clean rack and lead screw with a brush.
- Lubricate with a medium grade multipurpose grease.

CODE

A - OIL DAILY WITH S.A.E. NO. 20 OIL.
B - OIL WEEKLY WITH S.A.E. NO. 20 OIL.
C - OIL MONTHLY WITH S.A.E. NO. 20 OIL.
D - KEEP CLEAN AND WELL OILED AT ALL TIMES.
E - LUBRICATE WITH A MEDIUM GRADE MULTIPURPOSE GREASE AT ALL TIMES.

IMPORTANT - LUBRICATION BEFORE OPERATING

LUBRICATION CHART

CAUSING 5300 SERIES 12-INCH LATHE
IMPORTANT

The parts illustrated on this page are for lathes with serial numbers between 000674 and
The parts illustrated on this page are for lathes with serial numbers between 000728 and
HEADSTOCK ASSEMBLY 990-038
(LESS 556-016 AND 041-012)

IMPORTANT
The parts illustrated on this page are for lathes with serial numbers between 000200 and 000581.
BED AND LEADScrew ASSEMBLY

The parts illustrated on this page are for lathes with serial numbers between 000200 and...
HOW TO REMOVE BACK GEARS

(See Figure 19)

1. Remove headstock spindle — see instructions "HOW TO REMOVE HEADSTOCK SPINDLE", page 11.
2. Place back-gear lever in the OUT position.
3. Loosen lock screws in collars "G" and "H" — see Figure 19.
4. Drive out groove pin "F" that holds back-gear shaft to eccentric sleeve.
5. IMPORTANT: Mark the position of the back-gear lever clamp on the right eccentric sleeve, then loosen clamp screws. Marking position of clamp will make it easier to position clamp in its original place on the eccentric sleeve when parts are replaced.
6. Now, with a brass rod or drift, drive out the back-gear shaft and eccentric sleeve through front of headstock.
7. Remove back-gears from headstock.

RE-ASSEMBLING THE BACK-GEARS

1. Lightly file all burrs from the back-gear shaft.
2. Replace the left back-gear eccentric sleeve and collar "G" — hole in eccentric should be straight down.
3. Slide back-gear shaft, with right eccentric sleeve, through front of headstock, replacing collar "H", back-gear lever clamp and back-gears. Continue sliding shaft through headstock and into left eccentric sleeve.
4. Line up groove pin hole in left eccentric with shaft and replace groove pin "F".
5. Replace headstock spindle — see RE-ASSEMBLING THE HEADSTOCK SPINDLE, steps 1 through 3.
6. Now position the back-gears to line up with the spindle gears and tighten collars "G" and "H" lightly against sides of headstock.
7. Place back-gear lever in the out position. Line up marks on clamp and right eccentric sleeve and tighten clamp screws.
8. Assemble remainder of headstock spindle parts — steps 4 through 14.
9. Run lathe in back-gear drive to check the mesh of the back-gears. If lathe runs noisy, or if there's too much play between the gears, stop motor and shift right eccentric sleeve — see BACK-GEAR ADJUSTMENT, below.

BACK-GEAR ADJUSTMENT

To adjust gear mesh, or gear play, between the back-gears and spindle-gears, shift back-gear lever upward to the OUT position. Next loosen back-gear lever clamp screws — see Figure 20. Remove cap in right end of headstock, and with a screwdriver turn the eccentric sleeve slightly. Tighten clamp screws, and check gear mesh by placing lever in back-gear position. Repeat adjustment if necessary until gears are in proper mesh.

REMOVING HORIZONTAL COUNTERSHAFT SPINDLE ASSEMBLY

1. Remove motor belt and loosen lock screw in countershift pulley and remove pulley.
2. Remove the two lock screws and roll pin that holds clutch lever in shift yoke — see Figure 21.
3. Next loosen the lock screw in clutch lever located directly under hood.
4. Remove clutch lever. It may be necessary to drive it out — use a ½" brass rod and hammer. Catch the shift yoke, and collar as lever is removed.
5. Loosen the nuts on the two rear countershift hanger adjusting screws (Figure 22) and then loosen adjusting screws just enough to remove complete countershift spindle assembly.

20. When replacing the back-gear shaft, make sure shaft is positioned as shown.
22. Loosen the rear adjusting screws on each hanger to remove countershift spindle assembly.
TAILSTOCK
[See Figure 18]

Tailstock is securely locked to the bed with the lever-controlled bed lock located on the rear of the tailstock. Graduations on the ram simplify accurate boring and drilling. Ram is locked in place with the lock handle located on top of tailstock. Before inserting the center in the tailstock ram, clean both tapers thoroughly with a dry cloth.

Tailstock can be set over 1" for taper turning by first loosening the bed clamp and then adjusting the screws on front and back of tailstock base.

MOUNTING CHUCKS AND FACE PLATES

1. Carefully wipe face of chuck hub and threads (or face plate) clean of dirt and chips.
2. Carefully wipe spindle threads and shoulder clean of any dirt and chips.
3. Oil lathe spindle threads with a light film of clean oil — chuck or face plate will thread more freely on spindle.
4. Tighten belt, or place lathe in back gear to hold spindle firmly in position.
5. Screw chuck or face plate on spindle, turning it rapidly as it nears spindle shoulder so it will seat firmly against spindle shoulder face. Make sure threads are not crossed — chuck or face plate should thread on spindle easily.

TO REMOVE CHUCK OR FACE PLATE

1. To remove chuck, rotate chuck until wrench hole is on top. Lock spindle by engaging back gears without pulling out lock pin. Now place chuck wrench in chuck and pull. If chuck doesn’t release, tap BASE OF WRENCH lightly with a mallet. Remove chuck carefully so as not to damage spindle threads. Disengage back gears.
2. To remove face plate, lock spindle by engaging back gears without pulling out lock pin, tap slot in face plate with a lead or brass hammer in a counterclockwise direction. Remove face plate carefully so as not to damage spindle threads. Disengage back gears.

CAUTION — Do not turn power on with the spindle locked — never remove chuck or face plate while lathe is running.

Service and Adjustments

SPINDLE BEARING ADJUSTMENT

If the spindle turns too freely, or if play is noticeable when spindle is pushed back and forth, adjust the bearing as follows:

1. Loosen lock screw in take-up collar "A" (Figure 19) and tighten collar until all spindle play has been removed.
2. To determine correct bearing preload, give spindle pulley a sharp spin with your hand — pulley should rotate about one turn. If it doesn’t, adjust collar "A", then recheck.

CAUTION — Do not tighten collar too tightly — spindle should rotate freely.
FEED REVERSE LEVER
The feed reverse lever, or lead screw direction lever, is located on left side of headstock, Figure 11. Lever has three positions. Center position is neutral and disengages gear train. Upper position moves carriage toward tailstock. Lower position moves carriage toward headstock. This lever should not be moved while lathe is operating at high speeds — it may strip the gears or result in serious damage to the lathe. It is possible to quickly reverse lead screw at lower speeds if desired.

11. Lathe headstock and controls.

AUTOMATIC APRON
Figure 12 gives the names and positions of the carriage controls. The carriage handwheel moves the carriage along the lathe bed. The cross feed and compound slide ball cranks move the carriage slide and tool rest in and out.

The carriage lock screw is used to lock the carriage to the bed — use it for facing or cut-off operations only.

12. Controls on the lathe carriage.

IMPORTANT — Use the half-nut lever for threading only — never for feeds. It will prolong the life of the lead screw, and preserve its accuracy for threading operations.

The power feed lever controls the operation of both power longitudinal and power cross feeds — the half-nut lever engages the half-nuts with the lead screw.

13. THREADING
Place feed lever at the horizontal position. Shift half-nut lever upwards to engage half-nuts with lead screw. Use the half-nuts for threading only — never for feeds.

14. POWER CROSS FEED
To engage power cross feed, place half-nut lever in the down position — the feed handle cannot be moved until half-nut lever is in this position. Move feed handle downward to the vertical position.

15. LONGITUDINAL FEED
To engage longitudinal feed, first make sure half-nut lever is in the down position. Shift feed lever sideways to the right about ¼", and then upwards to the vertical position.
MOUNTING THE MOTOR ON HORIZONTAL COUNTERSHAFT LATHES

1. Mount motor base assembly to the lathe bed with the three screws furnished.

2. Slide pulley on motor with large step next to motor.

3. Mount motor on motor base and fasten in place with the four bolts furnished.

4. Place belt over pulleys and shift motor until pulleys are aligned and belt is straight, then tighten motor mounting bolts.

5. Adjust spring to obtain proper belt tension — see Figure 8. Belt should be just tight enough to prevent slipping.

Oiling the Lathe

Use the lubrication chart furnished with the lathe as a guide for locating the oiling positions.

APRON To fill oil reservoir in apron remove pipe plug on side of apron and use hole for supplying oil. Fill apron to level indicator on side of apron. Maintain this oil level at all times. Use S.A.E. No. 20 machine oil.

GEAR TRAIN Fill oil cup on reverse handle — add oil daily. Place oil in hole in end of sliding gear handle — lubricate weekly. Fill zerk fitting monthly with a light grease for quadrant gear lubrication.

GEAR BOX Apply oil frequently thru oil cups on top of gear box for general lubrication of all moving parts. Gear box bearings are sealed-for-life ball bearings and do not require lubrication.

HEADSTOCK Lubricate the spindle bearings thru the two oil cups on front of headstock. Lubricate back-gear bearings thru oiler in back gear shaft quill. To oil spindle pulley bearing, remove set screw in pulley.

COUNTERSHAFT All the ball bearings in the counter shaft are lubricated for life and permanently sealed against dust and dirt and need no further attention.

OTHER PARTS TO OIL OCCASIONALLY ARE:

1. Right lead screw bearing.
2. Tailstock Ram
3. Tailstock Screw
4. Carriage handwheel shaft
5. Leadscrew
6. Carriage and compound dovetail ways
7. Lathe bed ways
8. Felt wipers on carriage saddle and tailstock.
9. Rim of threading dial

KEEP YOUR LATHE CLEAN

Oil and dirt form an abrasive compound which can easily damage carefully fitted bearing surfaces. Wipe the bed and all polished parts with a clean oily rag at frequent intervals. Use a brush to clean spindle threads, gear teeth, lead screw threads, etc.
WORK BENCH REQUIREMENTS and INSTALLATION

1. Bench top must be semi-hard or hard wood at least 1⅛" thick, cleated or well doweled to form a rigid table. DO NOT USE SOFTWOODS OR BOARDS NOT CLEATED TOGETHER.

2. Legs should be of heavy construction — preferably 4" x 4" lumber, provided with lugs for bolting bench to floor. Overall height of bench should be about 28". See Figure 5.

3. Mount bench on a concrete floor or base if possible — if a wood floor is used, it should be well braced, capable of absorbing vibration and withstanding the load. Make sure stand rests solidly on the floor.

4. Fasten stand to concrete by marking location of mounting holes and drilling holes large enough to receive expansion bolts, or set studs or bolts in melted lead. Use lag screws or bolts to fasten bench to a wood floor.

5. Make sure a metal washer is placed between leveling screw and top when using a wood bench.

4. Level bench before mounting lathe — use a precision machinists level. Place shims as required between leg pads and floor to accurately level the top.

6. Mount the lathe. Mark and drill four 7/16" dia. holes in bench top under corresponding holes in lathe legs. Bolt lathe to top using 3/8" dia. bolts, placing a 3/8" washer between lathe leg and bench top — see Figure 4. Bolts may be inserted from either top or underneath side. Do not tighten bolts securely.

BE SURE YOU HAVE FOLLOWED THESE INSTRUCTIONS COMPLETELY BEFORE LEVELING THE LATHE.

5. Wood bench dimensions for a Clausing 5300 Series Lathe.
Do Not Operate The Lathe . . .

- **Until** it is properly mounted and leveled. Clausing lathes pass rigid inspection and operating tests before shipment — to maintain its built-in accuracy it must be properly installed.

- **Until** you are acquainted with the lathe and understand all the controls and their functions.

- **Until** you have oiled the lathe.

- **Until** you have carefully read all the instructions.

Then operate the lathe in back gear — get the “feel” of the controls — set up different threads and feeds — engage the power feeds — get acquainted with the lathe before starting a job — doing that will save time and produce better work.

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INSTRUCTIONS FOR ORDERING REPAIR PARTS

**IMPORTANT:** The following information must be furnished on all repair part orders:

1. Model Number and Serial Number of your lathe. This is found on the plate attached to the bed.
2. Part Number and Name of part.
3. Quantity required.

Parts shown coded are standard parts and should be purchased locally.

*Parts prices will be quoted on request. We reserve the right to make changes in design and specifications without notice.*