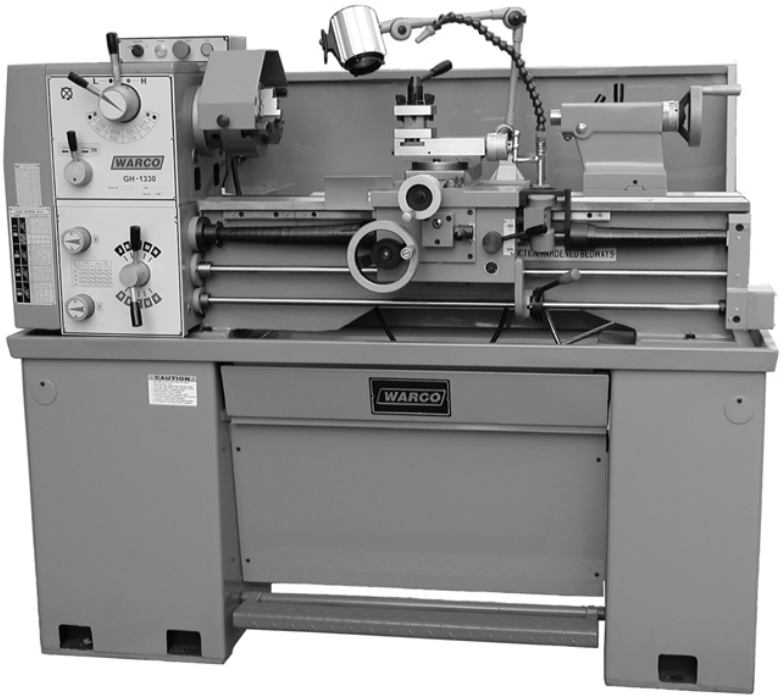
OPERATOR'S MANUAL

GH1330 GEAR HEAD LATHE



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! WARNING

1 **Read and understand the entire instruction manual before operating machine.**

2 **This manual is intended to familiarize you with the technical aspects of this lathe. It is not, nor was it intended to be, a training manual.**

3 **This machine is designed and intended for use by trained and experienced personnel only. If you are not familiar with the proper safe use of lathe, do not use this machine until proper training and knowledge has been obtained.**

4 Always wear approved safety glassed /face shields while using this machine.

5 Make certain the machine is properly grounded.

6 Before operating the machine, remove tie, rings, watches, other jewelry, and roll up sleeves above the elbows. Remove all loose clothing and confine long hair. Do not wear gloves.

7 Keep the floor around the machine clean and free of scrap material, oil and grease.

8 Keep machine guards in place at all times when the machine is in use. If removed for maintenance purpose, use extreme caution and replace the guards immediately

9 Do not over reach. Maintain a balanced stance at all times so that you do not fall or lean against blades or other moving parts.

10 Make all machine adjustments or maintenance with the machine unplugged from the power source.

11 Replace warning labels if they become obscured or removed.

12 Use the right tool. Don't force a tool or attachment to do a job which it was no designed for.

13 Make certain the motor switch is in the OFF position before connecting the machine to the power supply.

14 Give your work undivided attention. Looking around, carrying on a conversation, and " horse-play" are careless acts that can result in serious injury.

15 Keep visitors a safe distance from the work area.

16 Use recommended accessories; improper accessories may be hazardous.

17 Make a habit of checking to see that keys and adjusting wrenches are removed before turning on the machine

18 Never attempt any operation or adjustment if the procedure is not understood.

19 Keep fingers away from revolving parts and cutting tools while in operation.

20 Never force the cutting action.

21 Do no t attempt to adjust or remove tools during operation.

22 Always keep cutters sharp.

23 Always use identical replacement parts when servicing.

24 Failure to comply with all of these warnings may cause serious injury.

SPECIFICATIONS: **GH1330**

Capacities:

Swing Over Bed	330mm	13”
Swing Over Cross Slide	198mm	7 3/4”
Swing Through Gap	476mm	8 7/8”
Length of Gap	205mm	8 1/8”
Distance Between Centers	750mm	30”

Headstock:

Hole Through Spindle	38mm 1 1/2”
Spindle Nose	D1-4
Taper in Spindle Nose	M.T.5
Spindle Taper Adapter	M.T.3
Number of Spindle Speeds	8
Range of Spindle Speeds	70-2000r.p.m.

Gearbox:

Number of Metric Threads	27
Range of Metric Threads	0.45~10mm
Number of Inch Threads	36
Range of Inch Threads	3 1/2~80T.P.I.
Lead Screw Pitch	22 x 3mm
Feed Rod Diameter	20mm

Compound and Carriage:

Toolpost Type	4-Way	
Maximum Tool Size	16x16mm	5/8”x5/8”
Maximum Compound Slide Travel	72mm	2 7/8”
Maximum Cross Slide Travel	160mm	6 5/16”
Maximum Carriage Travel	430mm	17”

Tailstock:

Tailstock Spindle Travel	92mm	3 3/4”
Diameter of Tailstock spindle	32mm	1 1/4”
Taper in Tailstock Spindle	M.T.3	

Miscellaneous:

Width of Bed	187mm	7 3/8”
Main Motor	2HP, 3Ph, 440V	
Height	1360mm	53 1/2”
Length	1650mm	65”
Width	750mm	30”
Net Weight (approx.)	460KGS	1015lbs.
Shipping Weight (approx.)	560KGS	1230lbs.

TABLE OF CONTENTS

WARNING

Read and understand the entire contents of this Manual before attempting set-up or operation!

Failure to comply may cause serious injure!

CONTENTS OF SHIPPING CONTAINER

1 Lathe
1 Steady Rest (mounted on lathe)
1 Follow Rest (mounted on lathe)
1 6” Three Jaw Chuck (mounted on lathe)
1 8” Four Jaw Chuck
1 10” Face Plate
1 Halogen Lamp
1 Coolant Pump
1 Full Length Splash Guard
1 Chip Tray
1 Tool Box

Fig. 1

Tool Box Contents (refer to Fig. 1):

1 No. 1 Flat Blade Screwdriver
1 No. 1 Cross Point Screwdriver
6 Hex Socket Wrench (2.5, 3, 4, 5, 6, 8mm)
3 Open End Wrench (9-11, 10-12, 12-14,17-19mm)
1 Oil Gun
2 No.3 Morse Taper Dead Center
1 No.5 to No.3 Spindle Sleeve
7 Change Gears (m=1.25, Z=35, 42, 42, 44, 48, 55, 120/127T)
1 Chuck Key
1 Key for Cam Locks
1 Tool Post Wrench

Uncrating and Clean-up

1. Finish removing the wooden crate from around the lathe.

2. Unbolt the lathe from the shipping crate bottom.

3. Choose a location for the lathe that is dray, has good lighting and has enough room to be able to service the lathe on all four sides.

4. With adequate lifting equipment, slowly raise the lathe off the shipping crate bottom. **Do not lift by spindle**. Make sure lathe is balanced before moving to sturdy bench or stand.

5. To avoid twisting the bed, the lathe's location must be absolutely flat and level. Bolt the lathe to the stand (if used). If using a bench, through bolt for best performance.

6. Clean all rust protected surfaces using a mild commercial solvent, kerosene or diesel fuel. Do not use paint thinner, gasoline or lacquer thinner. These will damage painted surfaces. Cover all cleaned surfaces with a light film of 20W machine oil.

7. Remove the end gear cover. Clean all components of the end gear assembly and coat all gears with a heavy, non-slinging grease.

8. Using a engineer's precision level on the bedways, check to make sure lathe is level side to side and front to back. Loosen mounting bolts, shim and tighten mounting bolts if necessary. The lathe must be level to be accurate.

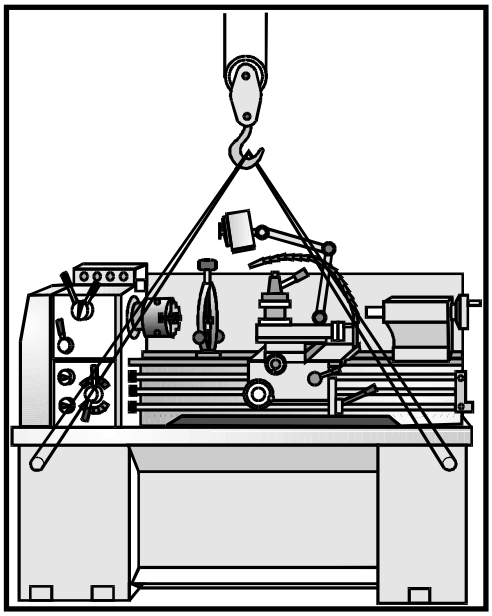

Fig. 2

Chuck Preparation (Three Jaw)

WARNING

Read and understand all directions for chuck preparation!

Failure to comply may cause serious injure and /or damage to the lathe!

1. Support the chuck while turning three camlocks 1/4 turn counter-clockwise with the chuck key enclosed in the tool box.

2. Carefully remove the chuck from the spindle and place on an adequate work surface.

3. Inspect the camlock studs. Make sure they have Not become cracked or broken during transit. Clean all parts thoroughly with solvent. Also clean the spindle and camlocks.

4. Cover all chuck jaws and scroll inside the chuck With #2 lithium tube grease. Cover the spindle Camlocks and chuck body with a light film of 20W oil.

5. Lift the chuck up to the spindle nose and press onto the spindle. Tighten in place by turning the cam locks 1/4 turn clockwise. The index mark (A, fig. 3) on the camlock should be between the two indictor arrows (B, Fig. 3). If the index mark is not between the two arrows, remove the chuck and adjust the camlock studs by either turning out one full turn (if cams will not engage) or turning in one full turn (if cams turn beyond indicator marks).

6. Install chuck and tighten in place.

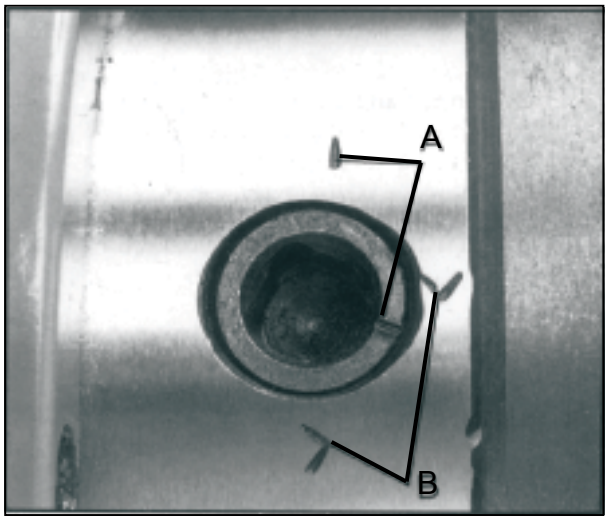

Fig. 3

Lubrication

CAUTION

Lathe must be serviced at all lubrication points and all reservoirs filled to operating level before the lathe is placed into service!
Failure to comply may cause serious damage!

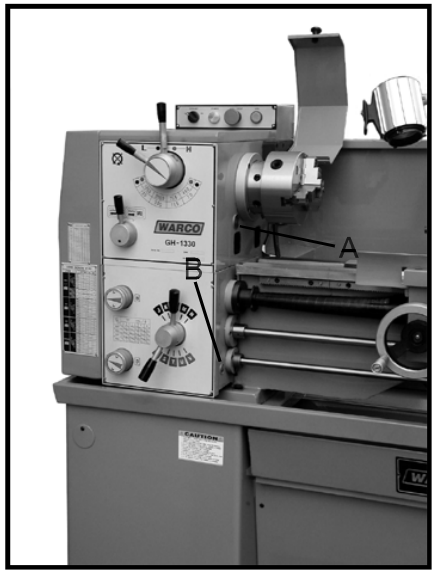

Fig. 4

1. **Headstock** – Oil must be up to indicator mark in oil sight glasses(A, Fig.4). Top off with Shell Turbo T-68 or equivalent. Drain oil completely (A, Fig.5) and refill after the first three months of operation. Then, change oil in the headstock annually.

2. **Gearbox**–Oil must be up to indicator mark in oil sight glass (B, Fig.4). Top off with Shell Turbo T-68 or equivalent. Fill by removing plug(B, Fig.5) with an 8mm hex wrench. To drain, remover drain plug(C, Fig.5) with an 8mm hex wrench. Drain oil completely and refill after the first three months of operation. Then, change oil in the gearbox annually.

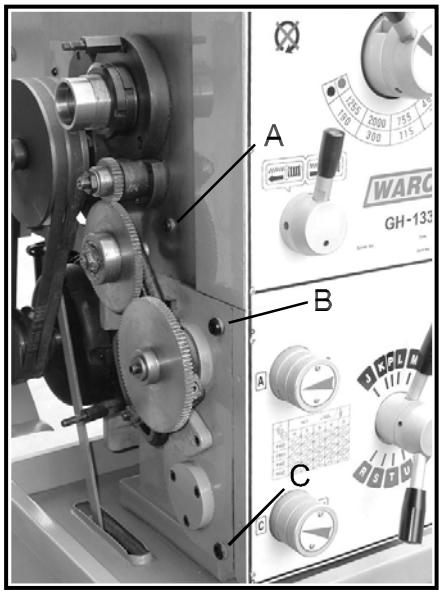

Fig. 5

3. **Apron** – Oil must be up to indicator mark in oil Sight glass (front of apron – A, Fig. 6). Top off with Shell Turbo T-68 or equivalent. Remove oil cap (B, Fig.6) on right side of apron to fill. To drain, remove drain plug on bottom of apron. Drain oil completely and refill after the first three months of operation. Then, change oil in the apron annually.

4. **Cross Slide** – Lubricate four oil ports (A, Fig.7) with 20W machine oil once daily.

5. **Compound Rest** – Lubricate three oil port (B, Fig.7) with 20W machine oil once daily.

6. **Carriage** – Lubricate two oil ports(C, Fig.7) with 20W Machine oil once daily.

7. **Thread Dail Indicator** – Lubricate one oil port (D, Fig.7) with 20W machine oil once daily.

8. **Handwheel –**Lubricate one oil ports(E, Fig.7) on the apron Hand wheel with 20W machine oil once daily.

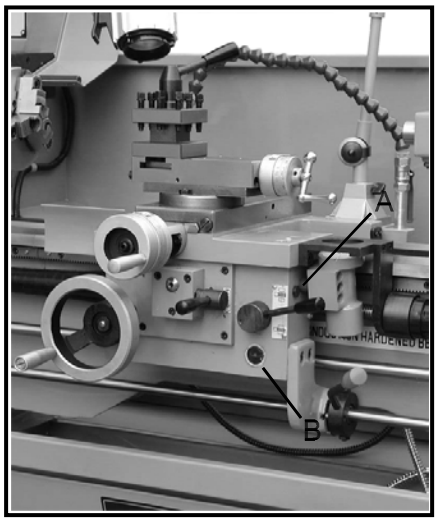

Fig. 6

9. **Cross and longitudinal feed selector-** Lubricate one ball oiler (F, Fig.7) on the apron top with 20W machine oil once daily.

10. **Leadscrew & Feed Rod** – Lubricate three ball oilers on leadscrew feed rod bracket (located at the right end of the lead and feed rod – A, Fig.8) with 20W machine oil once daily.

11. **Tailstock** – Lubricate three oil ports (B, Fig. 8) with 20W Machine oil once daily.

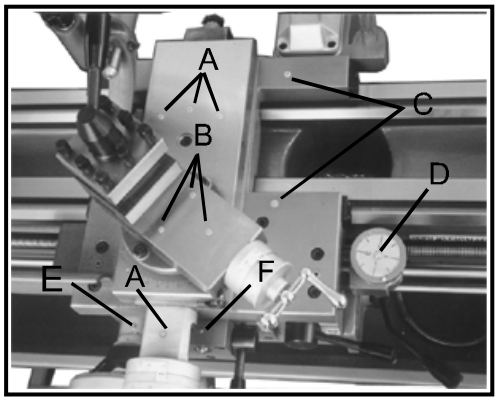

Fig. 7

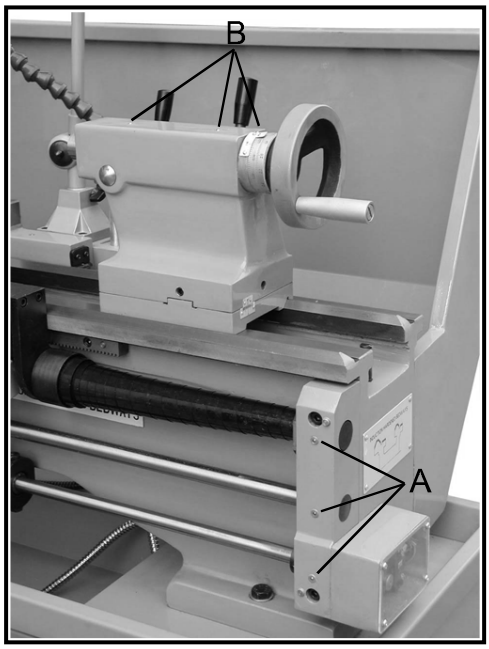

Fig. 8

Electrical Connections

WARNING

All electrical connections must be completed by a qualified electrician!

Failure to comply may cause serious injury and or damage to the machinery and property!

The 1330 gear-head floor lathe is rated at 2HP, 3PH, 440V only. Confirm power available at the lathe's location is the same rating as the lathe.
Make sure the lathe in properly grounded.

The following is wiring diagram of the lathe. (Fig. 9)

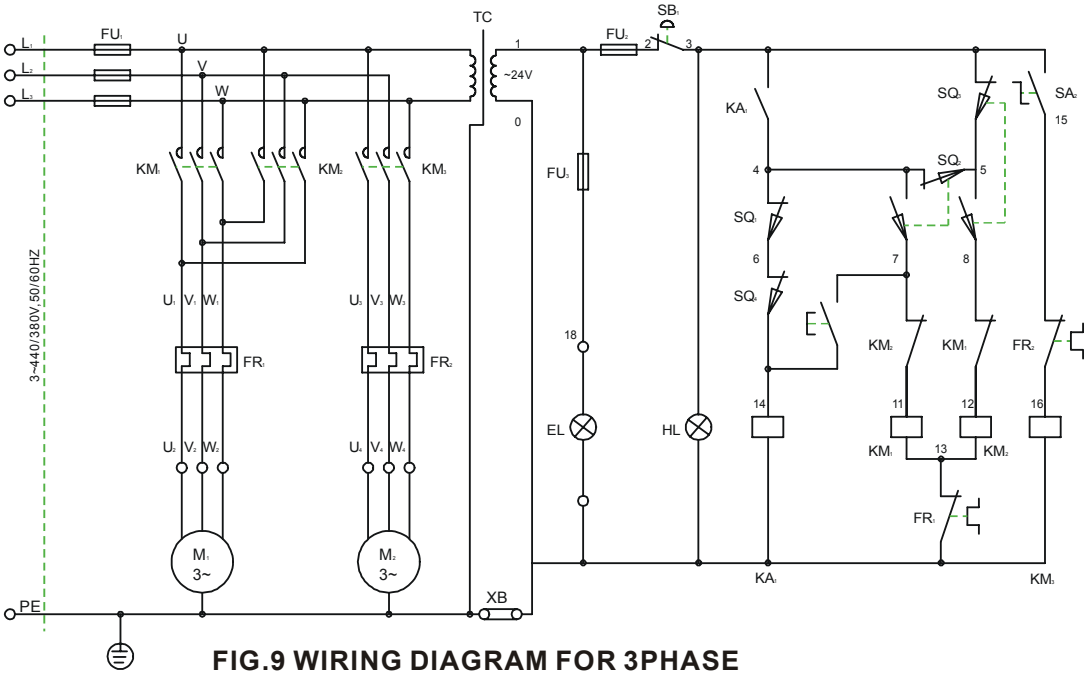

FIG.9 WIRING DIAGRAM FOR 3PHASE

General Description

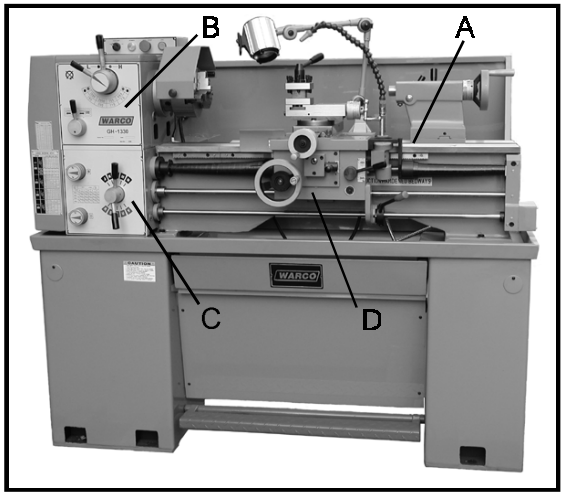

Fig. 10

Lathe Bed

The lathe bed (A, Fig. 10) is made of high-grade cast iron. By combining high cheeks with strong cross ribs, a bed with low vibration and high rigidity is realized. Two precision ground vee slideways, reinforced by heat hardening and grinding are an accurate guide for the carriage and headstock. The main drive motor is mounted to the rear of the bed.

Headstock

The headstock (B, fig. 10) is cast from high grade, low vibration cast iron. It is bolted to the bed by four screws with two adjusting screws for alignment. In the head, the spindle is mounted on two precision taper roller bearings. The hollow spindle has Morse Taper#5 with a 1-3/8" bore.

Gear Box

The gear box (C, Fig. 10) is made from high quality cast Iron and is mounted to the left side of the machine bed.

Apron

The apron (D, Fig. 10) is mounted to the carriage. In the apron a half nut is fitted. The half nut gibs can be adjusted from the outside. The half nut is engaged by use of a lever. Quick travel of the apron is accomplished by means of a bed-mounted rack and pinch, operated by a hand wheel on the front of the apron.

Carriage

The carriage (A, Fig. 11) is made from high quality cast iron. The Sliding parts are smooth ground. The cross-slide is mounted on the carriage and moves on a dove-tailed slide which can be adjusted for play by means of the gibs.

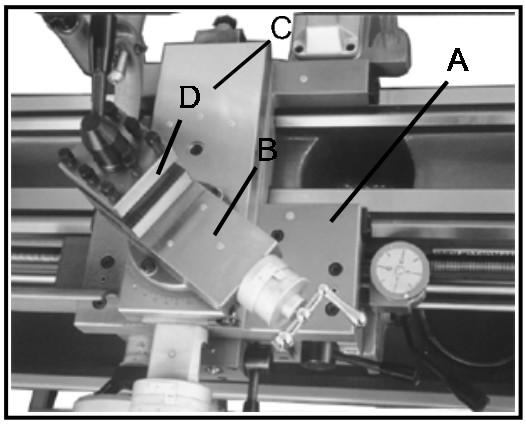

Fig. 11

The top slide (compound – B, Fig. 11), which is mounted on the cross slide(C, Fig. 11), can be rotated through 360°. There is a calibrated dial below the rest to assist in placement of the compound to the desired angle. The top slide and the cross slide travel in a dovetail slide and have adjustable gibs. A four-way tool post is fitted on the top slide

Four Way Tool Post

The four-way tool post (D, Fig. 11) is mounted on the top slide and allows a maximum of four tools to be

mounted simultaneously. Remember to use a minimum of two clamping screws when installing a cutting tool.

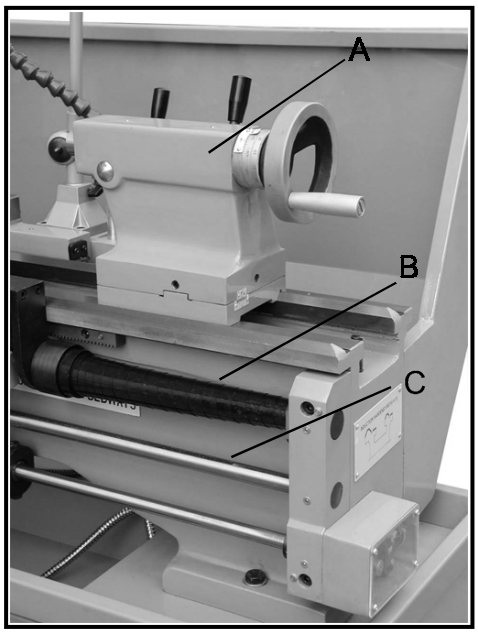

Fig. 12

Tailstock

The tailstock (A, Fig. 12) slides on a v-way and can be locked at any location by a clamping lever. The tailstock has a heavy-duty spindle with a Morse Taper #3.

Leadscrew and Feed Rod

The leadscrew (B, Fig. 12) and feed rod (C, Fig. 12) are mounted on the front of the machine bed. They are connected to the gearbox at the left for automatic feed and lead and are supported by bushings on both ends. Both are equipped with brass shear pins.

Steady Rest

The steady rest (A, Fig.13) serves as a support for shafts on the free tailstock end. The steady rest is mounted on the bedway and secured from below with a bolt, nut and locking plate. The sliding fingers require continuous lubrication at the contact points with the workpiece to prevent premature wear.

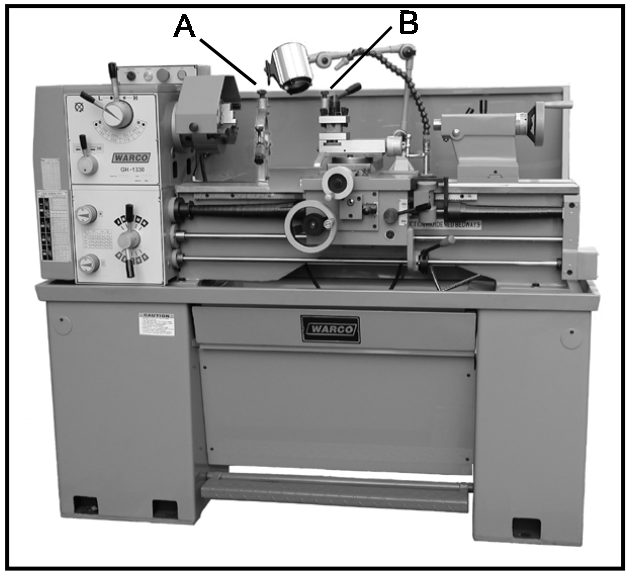

Fig. 13

To set the steady rest:

1. Loosen three hex socket cap screws.
2. Loosen knurled screw and open sliding fingers until the steady rest can be moved with its fingers around the workpiece. Secure the steady rest in position.
3. Set the fingers snugly to the workpiece and secure by tightening three hex socket cap screws. Fingers should be snug but not overly tight. Lubricate sliding points with lead based grease.
4. After prolonged use, the fingers will show wear. Remill or file the tips of the fingers.

Follow Rest

The traveling follow rest (B, Fig. 13) is mounted on the saddle and follows the movement of the turning tool. Only two fingers are required as the turning tool takes the place of the third. The follow rest is used for tuning operations on long, slender workpieces. It prevents flexing of the workpiece from the pressure of the cutting tool.

The sliding fingers are set similar to the steady rest, free of play, but not binding. Always lubricate adequately with lead based grease during operation.

Controls

1. **Control Panel** – located on top of gearbox.

   A. **Coolant On-Off Switch** (A, Fig. 14) - turns coolant pump on and off.

   B. **Power Indicator Light** (B, Fig.14) – lit whenever lathe has power.

   C. **Emergency Stop Switch** (C, Fig.14) – depress to stop all machine functions. (Caution: lathe will still have power). Twist to re-set.

   D. **Jog Switch** (D, Fig.14) – depress and release to advance spindle momentarily.

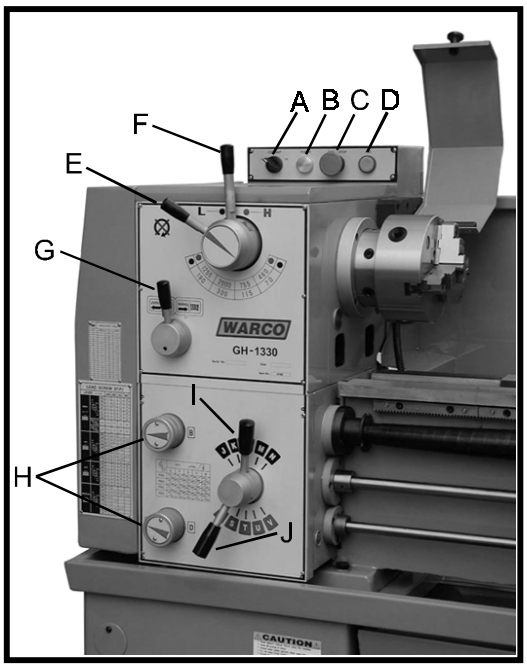

Fig. 14

2. **Four Step Speed Selector Lever** (E, Fig.14) – located on the front of the headstock at the top. Use to select one of four spindle speeds in either high or low range.

3. **High/Low Speed Selector Lever (H – L)** (F, Fig. 14) –located on front of headstock at the top. Move to the left for low speed range. Move to the right for high speed range.

4. **Feed Direction Selector** (G, Fig.14) – located on the front lower left corner of the headstock. Arrows above the handle indicate saddle travel direction when the chuck is rotating in the forward direction or counter-clockwise as viewed from the front of the chuck.

5. **Feed Rate Selectors Knobs** (H, Fig.14) – located on front left side of the gearbox. Use to set desired feed or lead rates.

6. **Feed Rod / Leadscrew Selector Lever** (I, Fig.14) –located on the front right side of the gearbox. Position “P” is for the feed rod. Others are for the feed screw.

7. **Feed Rate Selectors Lever** (J, Fig.14) – located on the front right side of the apron. Use for setting up for feeding and threading..

8. **Carriage Lock** (A, Fig.15) – hex socket cap screw located on top rear of carriage body. Turn clockwise and tighten to lock. Turn counter-carriage. Caution: carriage lock screw must be unlocked before engaging automatic feeds or damaged to lathe may occur.

9. **Compound Rest Lock** (B, Fig.15) – set crew located on side of compound rest. Turn clockwise to lock and counter-clockwise to unlock

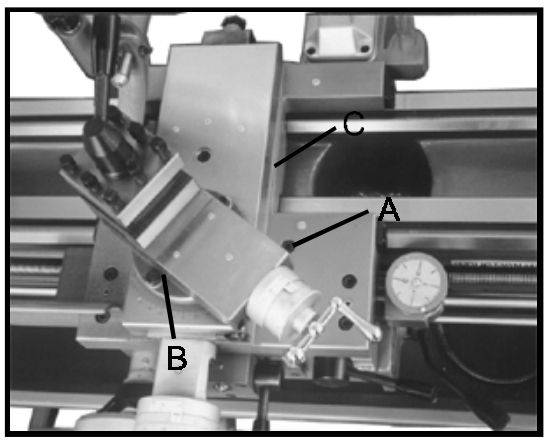

Fig. 15

10. **Cross Slide Lock** (C, Fig. 15) – set screw located on

side of cross slide body. Turn clockwise and tighten to lock. Turn counter-clockwise and loosen to unlock. **Caution**: cross slide lock screw must be unlock before engaging automatic feeds or damage to the lathe may occur.

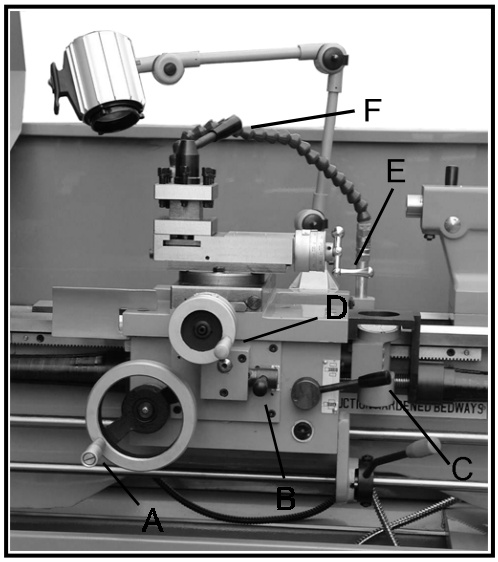

Fig. 16

11. **Longitudinal Traverse Hand Wheel** (A. Fig. 16) – located on the apron assembly. Rotate hand wheel clockwise to move the apron assembly toward the tailstock (right). Rotate the wheel counter-clockwise to move the apron assembly toward the headstock (left).

12. **Feed Selector** (B, Fig. 16) - located in the center front of the apron assembly. Push lever to the left and up activates the crossfeed function. Pull lever to the right and down activates the longitudinal function.

13. **Half Nut Engage Lever (Thread Cutting)** – (C, Fig. 16) located on front of the apron. Move the lever down to engage. Move the lever up to disengage.

14. **Cross Traverse Handwheel** (D, Fig. 16) – located above the apron assembly. Clockwise rotation moves the cross slide toward the rear of the machine.

15. **Compound Rest Traverse Handwheel** (E, Fig. 16) –Located on the end of the compound slide. Rotate clockwise to move or position.

16. **Tool Post Clamping Lever** (F, Fig. 16) – located on top of the tool post. Rotate counter-clockwise to loosen and clockwise to tighten.

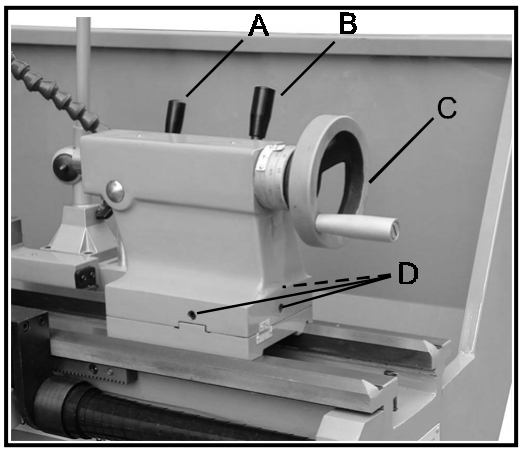

Fig. 17

17. **Tailstock Quill Clamping Lever** (A, Fig. 17) – located on the tailstock. Lift up to lock the spindle. Push down to unlock.

18. **Tailstock Clamping Lever** (B, Fig. 17) – located on the tailstock. Lift up lever to lock. Push down lever to unlock.

19. **Tailstock Quill Traverse Handwheel** (C, Fig.17) – located on the tailstock. Rotate clockwise to dvance the quill. Rotate counter-clockwise to retract the quill.

20. **Tailstock Off-Set Adjustment** (D, Fig. 17) – three set screws located on the tailstock base are used to off-set the tailstock for cutting tapers. Loosen lock screw on tailstock end. Adjust side screws until amount of offset is indicated on scale. Tighten lock screw.

21. **Foot Brake** (A, Fig. 18) – located between stand pedestals. Depress to stop all lathe functions.

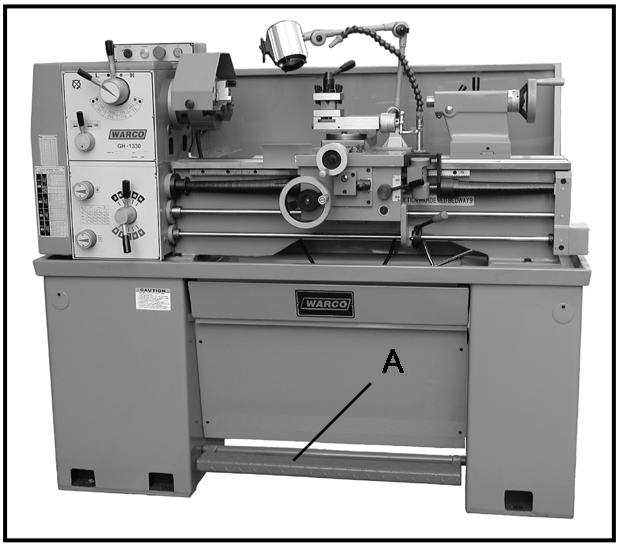

Fig. 18

Break-In Procedure

During manufacture and testing, the lathe has been operated in the low R.P.M. range for three hours.

To allow time for the gears and bearings to bread-in and run smoothly, do not run the lathe above 755 R.P.M. for the first six hours of operation and use.

Operation

Feed and Thread Selection

1. Reference the feed and thread tables (A, Fig. 19) found on the gearbox and end cover.
2. Mover levers (B,C,D&E, Fig.19) to the appropriate detent position according to the chart.

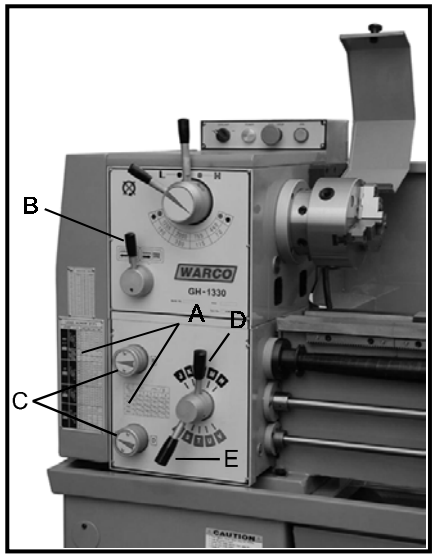

Fig. 19

Change Gear Replacement

Note: the 32T x 85T x 100T gears are installed in the end gear compartment when delivered from the factory. This combination will cover the feed chart. The 35, 42, 44, 48, 55 and 120/127 tooth gears found in the toolbox are used as indicated on feed and thread tables. (A, Fig. 19)

1. **Disconnect the machine from the power source.**
2. Move the end cover on the left end of the headstock.
3. Loosen nuts (A, B &C, Fig. 20)
4. Move quadrant out of the way and hold in place temporarily by tightening nut. (B, Fig. 20)
5. Remover hex socket cap screws (A and/or D and/or E, Fig.20), depending on which gear is to be changed.
6. Install new gear(s) and tighten in place with a hex socket cap screw.
7. Loosen nut (B&C, Fig. 20), move quadrant back so teeth mesh on gears, and tighten nuts (A, B &C, Fig. 20). **Caution: Make sure there is a backlash of .05~.08mm between gears.**

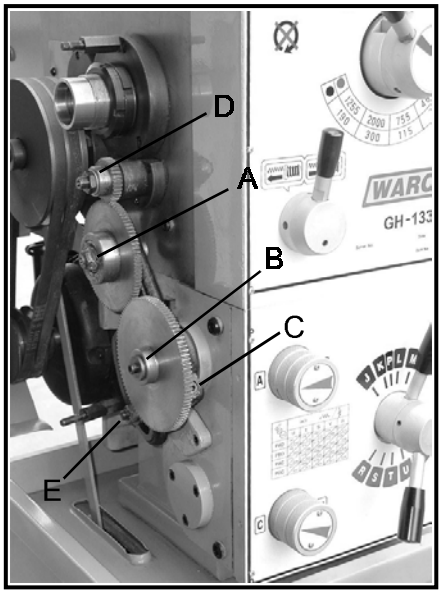

Fig. 20

Setting the gear too tight will cause excessive noise and wear.

8. Close the cover and connect the machine to the power source.

Automatic Feed Operations and Feed Changes

1. Move the forward/reverse selector (A, Fig. 21) up or down depending on desired direction.
2. Set the carriage feed/thread selector (B, Fig. 22) to the “P” position to start the feed rod rotating.

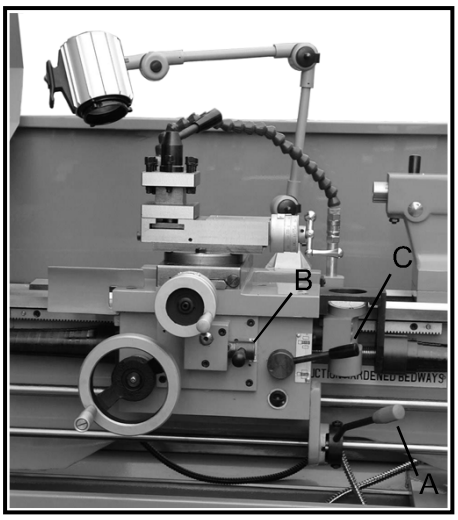

Fig. 21

Powered Carriage Travel

Push lever (B, Fig. 21) to the right and down to engage cross feed. Pull lever to the left and up to engage longitudinal feed.

Thread Cutting

1. Set feed rate selectors (A &C, Fig. 22) in proper position for the correct feed rate of the thread pitch to be cut.
2. Move carriage feed/thread selector (B, Fig. 22) lever to the proper position (lead screw will start to rotate).
3. Engage the half nut lever (C, Fig. 21).
4. To cut inch threads, refer to the chart above. The half nut lever and the threading dial are used to thread in the conventional manner. The thread dial chart specifies at which point a thread can be entered using the thread dial.
5. To cut metric threads, the half nuts must be left continually engaged once the start point has been selected and the half nut is initially engaged (thread dial cannot be used).

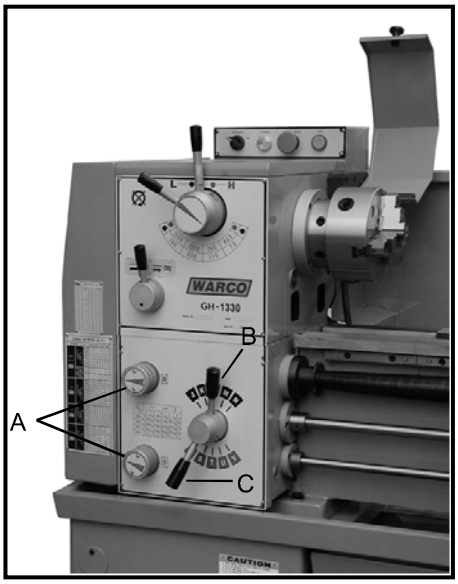

Fig. 22

Feeds Chart

32 / 85 / 100	MM/r U	T	S	V	R
PAD	1.019 / 0.275	0.972 / 0.262	0.891 / 0.243	0.594 / 0.160	0.534 / 0.144
PBD	0.510 / 0.138	0.486 / 0.131	0.446 / 0.122	0.297 / 0.080	0.267 / 0.07
PAC	0.255 / 0.069	0.243 / 0.066	0.223 / 0.061	0.149 / 0.040	0.134 / 0.036
PBC	0.127 / 0.034	0.122 / 0.033	0.111 / 0.030	0.074 / 0.020	0.067 / 0.018

	INDICATOR TABLE			
	GEAR	28T	30T	32T
	DIAL GRADUATION			
0.25				
0.50				
0.75				
1.00				
1.25				
1.50			1,3,5,7,9,11	
1.75		1,4,7,10		
2.00				1,4,7,10
2.25			1,7	
2.50			1,3,5,7,9,11	
2.75				
3.00			1,3,5,7,9,11	
3.50		1,4,7,10		
4.00				1,4,7,10
4.50			1,7	
5.00			1,3,5,7,9,11	
5.50				
6.00				1,4,7,10
7.00		1,4,7,10		
8.00				1,4,7,10
9.00			1,7	
10.00			1,3,9	
11.00				
12.00				1,4,7,10

Thread Chart

42 / 127 / 120 / 42	PITCH M.M.									32 / 127 / 120 / →	T.P.I INCH									55 / 127 / 120 / 35	MODULE									44 / 127 / 120 / 42	D.P							
	M V	K R	K V	M S	N R	L S	L T	N S	J S		N U	N S	K U	K T	L T	K V	K R	L T	L T		V	R	V	S	R	S	T	S	S			U	S	U	T	T	R	V	R
											48						48	46	52																					
A D	3.5	3.6	4.0	5.25	5.4	5.5	6.0	9.0	10.0	A D	3½	4	5¼	5½	6	9	10	5⅔	6⅓	A D	1.75	1.8	2.0	2.62	2.7	2.75	3.0	4.5	5.0	A D	7	8	10½	11	12	13⅓	18	20
B D	1.75	1.8	2.0		2.7	2.75	3.0	4.5	5.0	B D	7	8	10½	11	12	18	20	11⅓	13	B D		0.9	1.0		1.35		1.5	2.25	2.5	B D	14	16	21	22	24	26⅔	36	40
A C		0.9	1.0		1.35		1.5	2.25	2.5	A C	14	16	21	22	24	36	40	23	26	A C		0.45	0.5				0.75		1.25	A C	28	32	42	44	48	53⅓	72	80
B C		0.45	0.5				0.75		1.25	B C	28	32	42	44	48	72	80	46	52	B C			0.25							B C	56	64	84	88	96	106⅔	144	160

Adjustments

After a period time, wear in some of the moving components may need to be adjusted

Saddle

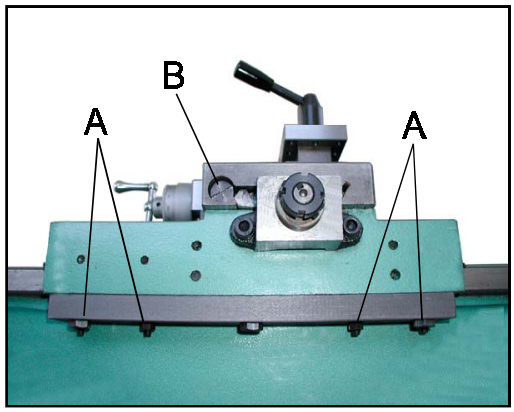

Fig. 23

1. Loosen three hex nuts (A, Fig. 23) found in the bottom rear of the cross slide and back off one full turn each.
2. Turn each of the four set screws with a hex wrench until a slight resistance is felt. Do not over tighten these screws.
3. Move the carriage with the hand wheel and determine if the drag is to your preference. Readjust the setscrews as necessary to achieve the desired drag.
4. Hold the socket screw firmly with a hex wrench and tighten the hex nut to lock the setscrew in place.
5. Move the carriage again and adjust again if necessary.
   Note: over adjustment will cause excessive premature wear of the gibs.

Cross Slide

If the cross slide is too loose, follow procedure below to tighten:

1. Loosen the rear gib screw (B, Fig. 23) approximately one turn.
2. Tighten the front gib screw a quarter turn. Turn the cross slide handwheel to see if the cross slide is still loose. If it is still loose, tighten the front screw a bit more and try again.
3. When the cross slide is properly adjusted, tighten the rear gib screw. Do not over tighten. This will cause premature wear on the gib and mating parts.

Compound Rest

Follow the same procedure as the cross slide adjustment to adjust the compound rest.

Tailstock

If the handle will not lock the tailstock, follow the procedure below:

1. Lower handle to the unlocked position.
2. Slide tailstock to an area that will allow you to reach under the tailstock.
3. Tighten tailstock clamping nut !/4 turn. Re-test for proper locking. Repeat as necessary.

Tailstock Off-Set

Follow the procedure below to offset the tailstock to cut shallow tapers:
1. Lock tailstock in position by raising locking handle(A, Fig. 24)

2. Loosen setscrew (B, Fig. 24) on right end of tailstock
3. Alternately loosen and tighten front and rear setscrews (D, Fig. 24) until desired offset is indicated on scale. (C, Fig.24)
4. Tighten setscrew (B, Fig. 24) on right end of tailstock to lock setting.

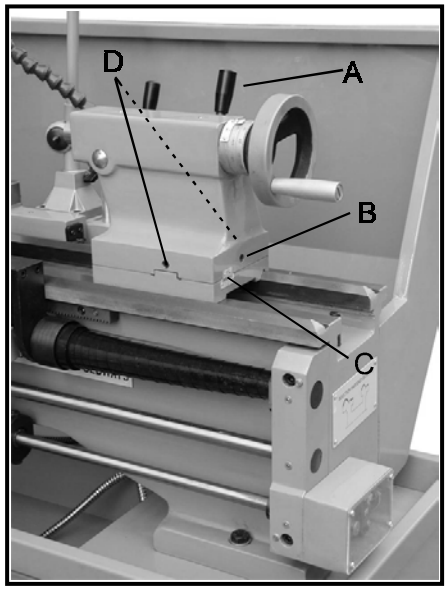

Fig. 24

Crossfeed Backlash

1. Remove the screw (A, Fig. 25) holding the nut in place.
2. Rotate the cross slide handwheel until the feed nut Reach the end of its travel.
3. Turn the socket head cap screw in the nut until backlash is acceptable. Adjust in small increments and test after each adjustment.
4. After the adjustment has been made, return the cross slide Nut to the center position and install the retaining screws.

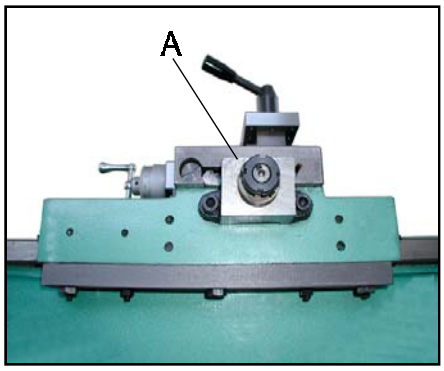

Fig. 25

Headstock Alignment

The headstock has been aligned at the factory and should not require adjustment. However, if adjustment is deemed necessary, follow the procedure below to align the headstock.

1. Using an engineer's precision level on the bedways, make sure the lathe is level side to side and front to back. If the lathe is not level, correct to a level condition before proceeding. Re-test alignment if any leveling adjustments were made.
2. From steel bar stock of approximately 50mm in diameter, cut a piece approximately 200mm long.
3. Place 50mm of bar stock into chuck and tighten chuck. Do not use the tailstock or center to support the other end.

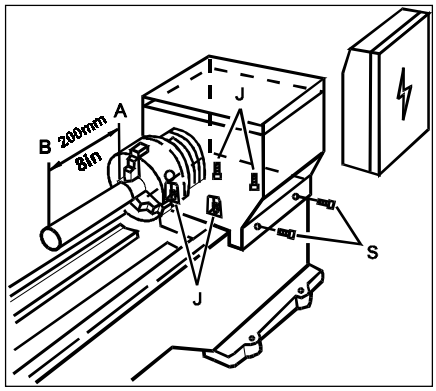

Fig. 26

4. Set and cut along 200mm of the bar stock.
5. Using a micrometer, measure the bar stock next to the chuck and at the end. The measurement should be the same.
6. If the measurements are not the same and adjustment is required, loosen the bolts (J, Fig.26) that hold the headstock to the bed. Do not loosen completely, some drag should remain.
7. Adjust two screws (S, Fig.26) located on the backside of the headstock just above the motor mount bracket and make another cut. Keep adjusting screws after each cut until the bar stock measurements are the same. Tighten all headstock screws and jam nuts on adjusting screws

Removing Gap Section

1. Locate two nuts (A, Fig. 27) in the center of the gap section.
2. Using an open end wrench, tighten the two nuts. This will cause the taper pins to release. Remove the taper pins.
3. Remove the four hex socket cap screws (B, Fig. 27) with a hex key wrench.
4. Gap section can now be removed.

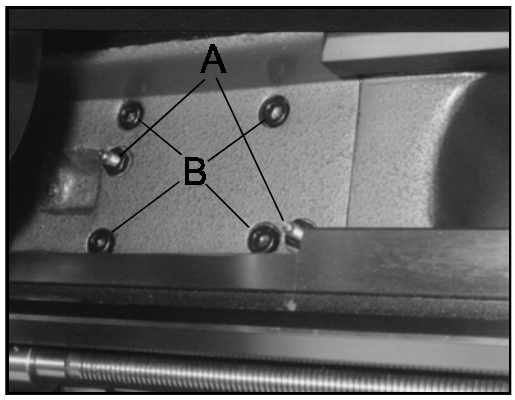

Fig. 27

Installing Removable Gap Section

1. Clean the bottom and the ends of the gap section thoroughly.
2. Set gap section in place and align.
3. Remove nuts from the taper pins.
4. Slide taper pins in their respective holes and seat using a mallet. Install nuts on the taper pins finger tight.
5. Install four socket head cap screws and tighten securely.

Lathe Test Record

Model No.:	**GH1330**
Serial No.:	

WARREN MACHINE TOOLS (GUILDFORD) Ltd.

WARCO HOUSE, FISHER LANE, GHIDDINGFOLD, SURREY GU8 4TD ENGLAND

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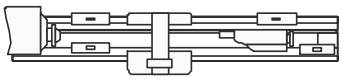
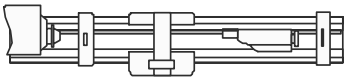
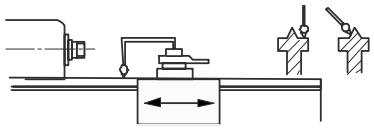
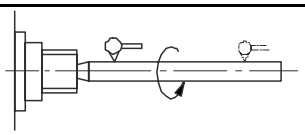
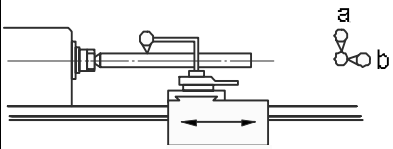
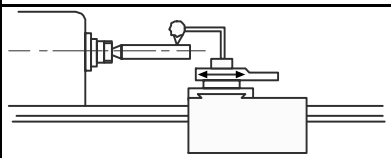
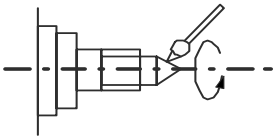
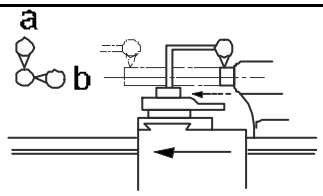
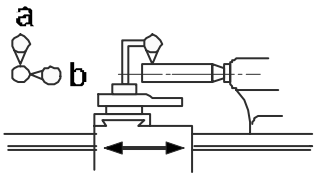
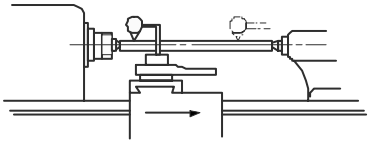
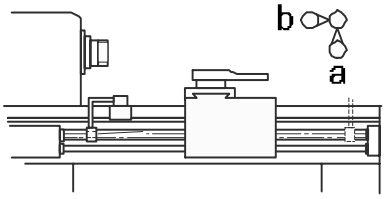
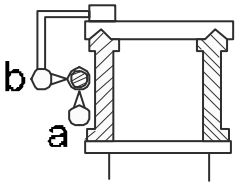
E-mail: warco@warco.co.uk http://www.warco.co.uk

NO.	INSPECTION ITEM		DIAGRAM	TOLERANCE(mm)	
				PERMISSIBLE	ACTUAL
1	Straightness of bedways	a. Longitudinal direction (In vertical plane)	a. 	0.04	
		b. Transerse direction (In vertical plane)	b. 	0.06/1000	
2	Parallelism of bedways			0.03	
3	Spindle taper hole runout	a. At or near spindle noise		0.015	
		b. 300 from spindle nose		0.03	
4	Parallelism of center line of main spindle to longitudinal motion of carriage	a. In vertical plane		0.025 IN 300	
		b.In horizontal plane		0.025 IN 300	
5	Movement of compound slide parallel with main spindle in vertical plane (Hand feed)			0.03 IN 75	
6	True running of center point of main spindle			0.015	
7	Parallelism of tailstock quill with bedways	a. In vertical plane (feed end rising)		0.02 IN 100	
		b. In horizontal plane (directed towards headstock)		0.02 IN 100	
8	Parallelism of bedways with center line of tailstock spindle hole	a. In vertical plane (feed end rising)		0.03 IN 100	
		b. In horizontal plane (directed towards headstock)		0.03 IN 100	
9	Difference in center height between headstock and tailstock (Mandrel rising towards tailstock end)			0.05	
10	Parallelism of center line of bed screw end bearing to carriage bedways	a. In vertical plane		0.15	
		b. In horizontal plane		0.15	
11	Deviations in alignment of center line of leadscrew end bearing with center line of half nut	a. In vertical plane		0.2	
		b. In horizontal plane		0.2	