

**AXMINSTER**

*Engineer*  
SERIES

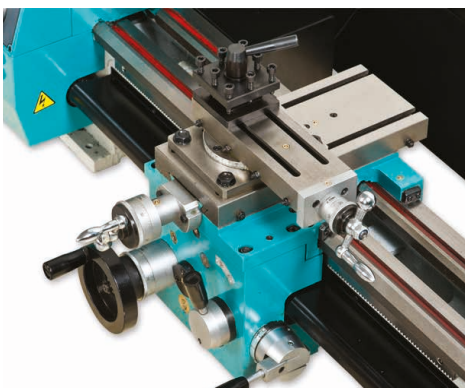


Code 505189

Original Instructions

# SC4

# Metal Bench Lathe



## Cert No: SC4

Axminster Tool Centre Ltd  
Axminster Devon  
EX13 5PH UK

**axminstertools.com**

declares that the machinery described:-

Type	<b>Metal Bench Lathe</b>
Model	<b>SC4</b>

Signed



**Andrew Parkhouse**  
Operations Director

Date: **10/04/2020**

## EU Declaration of Conformity

This machine complies with the following directives:

2006/42/EC  
2014/30/EU  
EN 55014-1: 2017  
EN 55014-2: 2015

EN 61000-3-2: 2014  
EN 61000-3-3: 2013

conforms to the machinery example for which the  
EC Type-Examination Certificate No TA 385203409  
has been issued by **Shanghai SIEG Machinery Co., Ltd**  
at: No. 555 CaoFeng Rd., South to No. 17 Bridge of Caoan Rd., SHANGHAI CHINA  
and complies with the relevant essential health and safety requirements.

## **IMPORTANT SAFETY INSTRUCTIONS**

***READ ALL INSTRUCTIONS AND WARNINGS BEFORE USING THIS TOOL.***

### **Operator**

COMMON SENSE AND CAUTION ARE FACTORS WHICH CANNOT BE BUILT INTO ANY PRODUCT. THESE FACTORS MUST BE SUPPLIED BY THE OPERATOR. PLEASE REMEMBER:

1. When using electric tools, machines or equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury.
2. Keep work area clean. Cluttered areas invite injuries.
3. Consider work area conditions. Do not use machines or power tools in damp, wet or poorly lit locations. Do not expose equipment to rain. Keep work area well lit. Do not use tools in the presence of flammable gases or liquids.
4. Keep children away. All children should be kept away from the work area.
5. Guard against electric shock. Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerator enclosures.
6. Stay alert. Never operate equipment if you are tired.
7. Do not operate the product if under the influence of alcohol or drugs. Read warning labels on prescriptions to determine if your judgment or reflexes might be impaired.
8. Do not wear loose clothing or jewelry as they can be caught in moving parts.
9. Wear restrictive hair covering to contain long hair.
10. Use eye and ear protection. Always wear.
  - ANSI approved chemical splash goggles when working with chemicals.
  - ANSI approved impact safety goggles at other times.
  - ANSI approved dust mask or respirator when working around metal, wood, and chemical dusts and mists.
  - A full face shield if you are producing metal or wood filings and/or chips.
11. Keep proper footing and balance at all times.
12. Do not reach over or across running machinery.
13. Always check that adjusting keys and wrenches are removed from the tool or machine before starting it.
14. Do not carry any tool with your finger on the start button or trigger.
15. When servicing. Use only identical replacement parts.

### **Before Operation**

1. Be sure the switch is OFF when not in use and before plugging in to wall outlet.
2. Do not use inappropriate attachments in an attempt to exceed the tool's capacity. Approved accessories are available from the dealer or machine maker.
3. Check for damaged parts. Before using any tool, any part that appears damaged should be carefully checked to determine that it will operate properly and perform its intended function.
4. Check for alignment and binding of all moving parts. Broken parts or mounting fixtures and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician.
5. Do not use the tool if any switch does not turn off and on.

## Operation

1. Never force the tool or attachment to do the work of a larger industrial tool. It is designed to do the job better and more safely at the rate for which it was intended.
2. Do not carry the tool by its power cord.
3. Always unplug the cord by the plug. Never yank the cord out of the wall outlet.
4. Always turn off the machine before unplugging.

**IF YOU QUESTION THE SAFE CONDITION OF THE MACHINE, DO NOT OPERATE IT!**

## Electrical Grounding Instructions






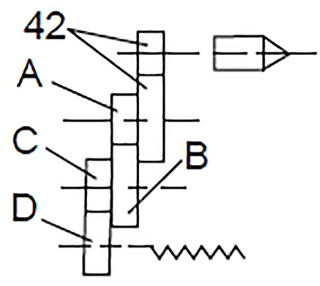



This machine has a three-prong plug(can choose), the third (round) prong is the ground. Plug this cord only into a three-prong receptacle. Do not attempt to defeat the protection the ground wire provides by cutting off the Ground prong. Cutting off the ground will result in a safety hazard and void the warranty.

**DO NOT MODIFY THE PLUG IN ANY WAY. IF YOU ARE NOT SURE ABOUT THE CONNECTIONS, CALL A QUALIFIED ELECTRICIAN.**

<b><u>SPECIFICATIONS</u></b>	Code	505189
	Model	SC4
	Rating	Engineer
	Power	1.0 kW
	Spindle Speed	150-2,000rpm
	Spindle Bore	20 mm
	Spindle Taper	MT3
	Taper Headstock	MT3
	Taper Tailstock	MT2
	Max Diameter over Bed	210 mm
	Centre Height	105 mm
	Distance Between Centres	410 mm
	Cross Slide Travel	100 mm
	Top Slide Travel	70 mm
	Thread Pitch Range	0.25-3.0 Metric, 8-24 tpi imperial
	Overall L x W x H	1,000 x 550 x 400 mm
	Weight	125kg

The item marked (\*) has different choice, see the label in front of the machine or ask information to your dealer.

# SCREW THREAD CUTTING CHART

mm 		0.25	0.3	0.35	0.4	0.45	0.5						
A	C	30	60	30	60	35	60	40	60	30	60	30	
B	D	120	120	100	120	100	120	100	120	100	80	80-120	
mm 		0.6	0.7	0.75	0.8	1	1.25						
A	C	30	50	70	45	50	80	50	50				
B	D	100-100	100	100	80-120	100	100	80-100	100-80				
mm 		1.5	1.75	2	2.5	3							
A	C	45	49	50	50	45							
B	D	100-60	120-56	120-50	120-40	120-30							
1"/n 		8	9	10	11	12	14						
A	C	50	127	50	127	50	127	50	127	30	127		
B	D	100	40	100	45	100	50	100	55	100	60	120	35
1"/n 		16	18	20	24								
A	C	30	127	30	127	30	127	30	127				
B	D	120	40	120	45	120	50	120	60				
		mm 						0.045		0.126			
A	C	30	60	50	70								
B	D	120	120	100	100								

## **UNPACKING & PREPARING FOR USE**

Upon receipt, carefully unpack the lathe and inspect to ensure that no damage was suffered in transit and to account for all parts. Should any damage be apparent, or parts are missing, please contact your dealer immediately.

The machine is very heavy. With an assistant, lift it onto a sturdy surface or workbench. Remove all traces of preservative with a good quality solvent. then lightly oil all machined surfaces.

You will notice that, for transit purposes, the cross slide feed handle has been mounted in reverse. Remove it, by unscrewing the hex socket head screw securing it, and mount it the correct way round. Then turn all feed handles to ensure they move freely, evenly and smoothly.

Attach the plastic handles to the rims of the manual feed and tailstock feed hand wheels respectively, ensuring the nuts are tight and the handles spin freely about the bolts, without excessive end play.

The carriage/saddle, cross-slide and compound slide adjustments are all factory set to ensure smooth movement in both directions. However, if the adjustments have been upset during transit (indicated by stiff or erratic movement), refer to 'Settings and Adjustments' for the methods of adjustment.

All hex keys and wrench necessary to carry out the various adjustments are supplied together with a chuck key for the 3-Jaw chuck and a spare fuse. The fuse holder is located on the main control panel.

The three external jaws for the 3-Jaw self centering chuck, extend the capacity of the chuck, and are discussed in greater detail under 'Accessories'.

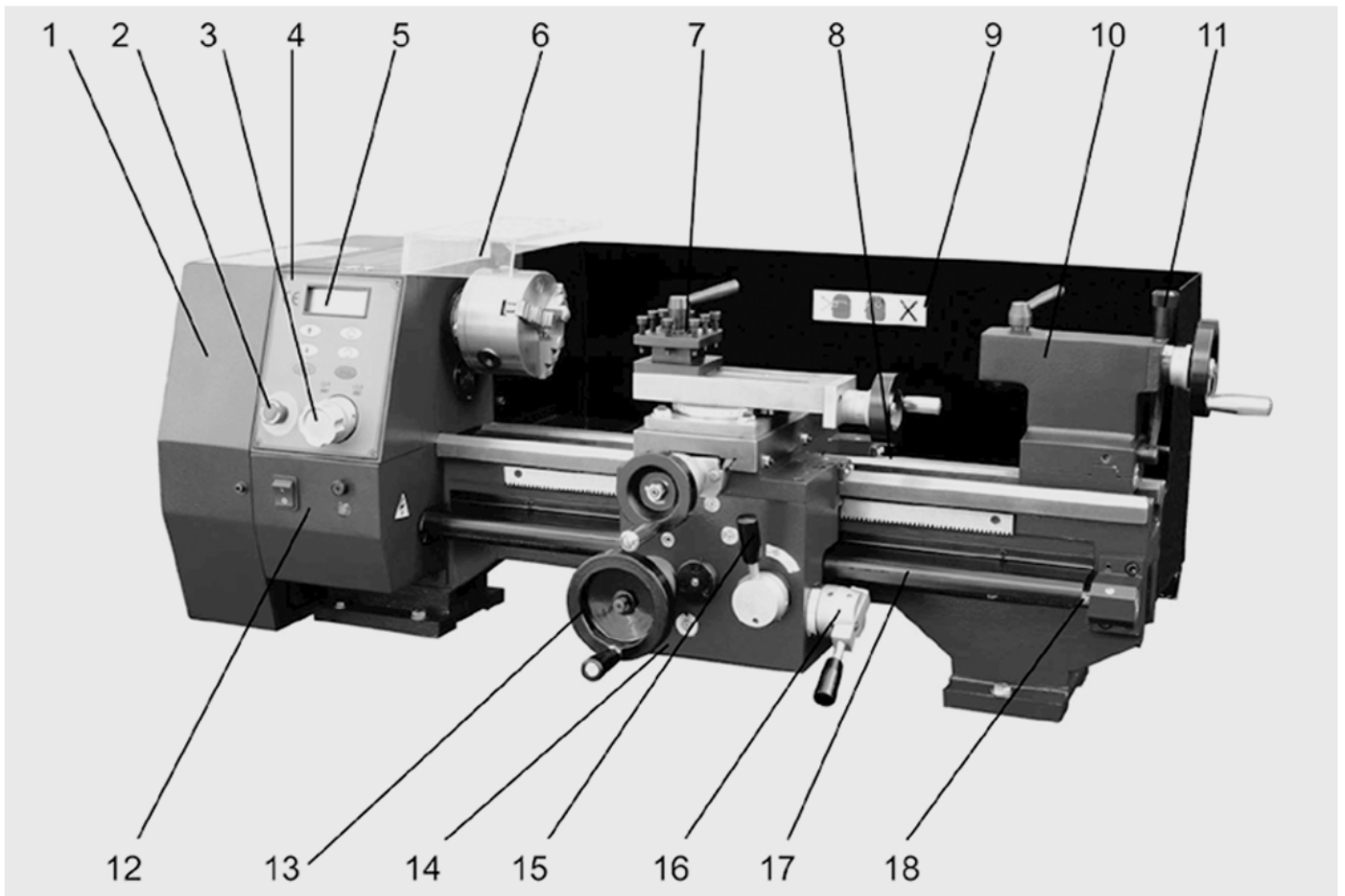
## **PACKING LIST**

No.	Descriptions	Q'ty
1	Bench lathe	1
2	Instruction Manual	1
3	L Hex. End Wrench S 2.5; 3; 4; 5; 6.	Each 1
4	Double end Wrench 8*10; 14*17; 17*19.	Each 1
5	Key for 3-jaw chuck	1
6	Spindle dead center	1
7	Tailstock dead center	1
8	Change gear set	1 set

## **ACCESSORY'S**

4	Spanner Set	Change Wheel Gears Comprising of:	
1	Main Chuck Key	1 127 Teeth	2 50 Teeth
4	External Jaws	2 100 Teeth	1 49 Teeth
4	Internal Jaws	1 80 Teeth	1 45 Teeth
	Set of Allen Keys	1 70 Teeth	1 40 Teeth
1	2MT Dead Centre	1 56 Teeth	1 35 Teeth
1	3MT Dead Centre	1 55 Teeth	

## FEATURES



### **Legend**

1. Change gear Cover	11. Quick locking handle
2. Emergency stop switch	12. Spindle box cover
3. Control handle	13. Apron handle
4. Touch panel	14. Apron
5. Spindle speed display	15. Handle
6. Chuck guard with power off	16. X or Y axis auto feeding change handle
7. Tool rest	17. Cover for leadscrew
8. Bed way	18. Leadscrew
9. Splash guard	
10. Tailstock	

## 1. THE HEADSTOCK

The brushless motor provides a direct drive to the Spindle via an internal tooth type belt. Spindle speed is variable, and is regulated by the touch buttons located on the main control panel.

The Spindle is provided with an internal No.3 Morse taper to accommodate a center for use with a face plate or turning clamp.

The 3-jaw, self Centering Chuck is mounted on the Spindle Flange. To remove the chuck, simply remove the three securing nuts to the rear of the flange allowing it to be pulled free together with the three mounting studs.

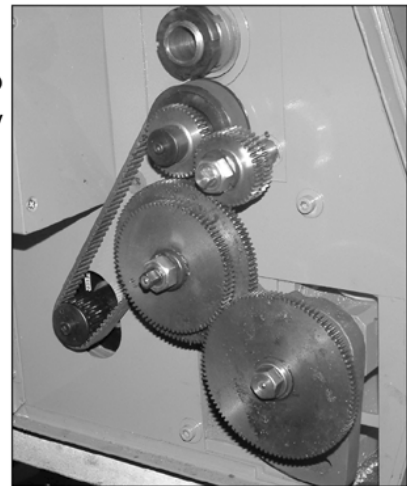
Three external jaws are also supplied which extend the capacity of the chuck. Their uses and method of assembly is described under 'Accessories'



## 2. THE RUNNING GEAR

The Running Gear is protected by a cover, which is removed by unscrewing the securing hex screws in front of the change gear cover.

The gear train, shown in the picture to the right, transmits drive to the Lead Screw. The Lead Screw acts as a worm and by Operating the Auto Feed lever, which engages a nut with the lead screw, drive is transmitted to the carriage/saddle and consequently the cutting tool, thereby providing a power feed for thread cutting or general turning operations. The rotational speed of the lead screw, and hence the rate of feed of the cutting tool, is determined by the gear configuration. This is explained in greater detail under "Screw cutting".



### 2a. SCREW CUTTING

For selection of the required thread pitch please refer to the chart on the gear train cover, select the correct gears from the change wheel set and mount them in the correct sequence. (See fig 1 & 1a)

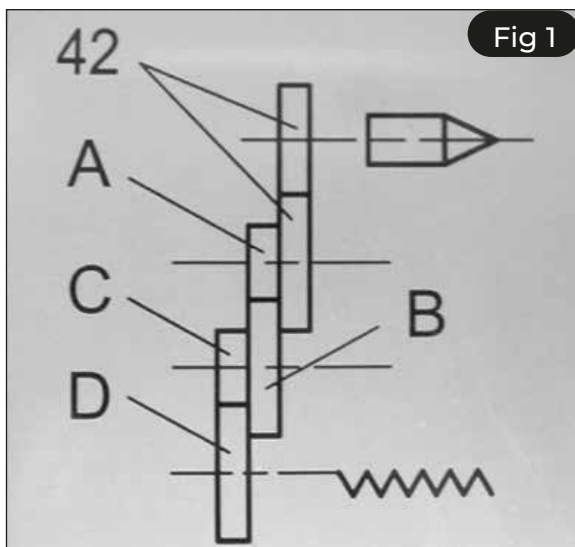


Fig 1

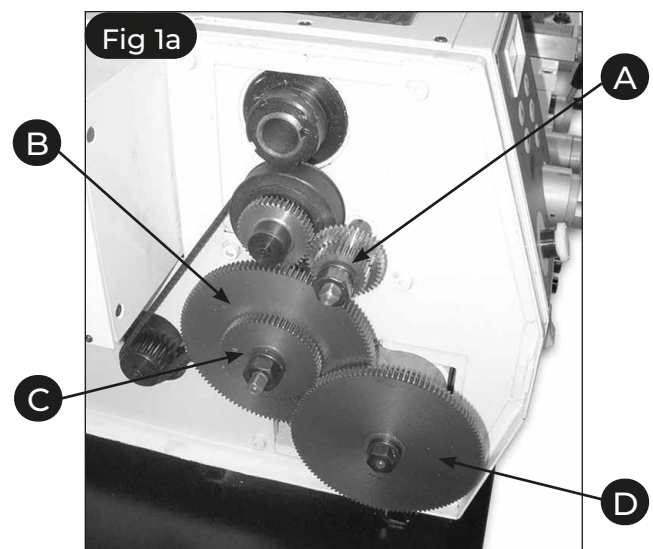


Fig 1a



## 2a. SCREW CUTTING CONTINUED

The "C/B" axis is adjusted via the pivoting bracket and clamp bolt as shown. (See figs 2 & 2a)

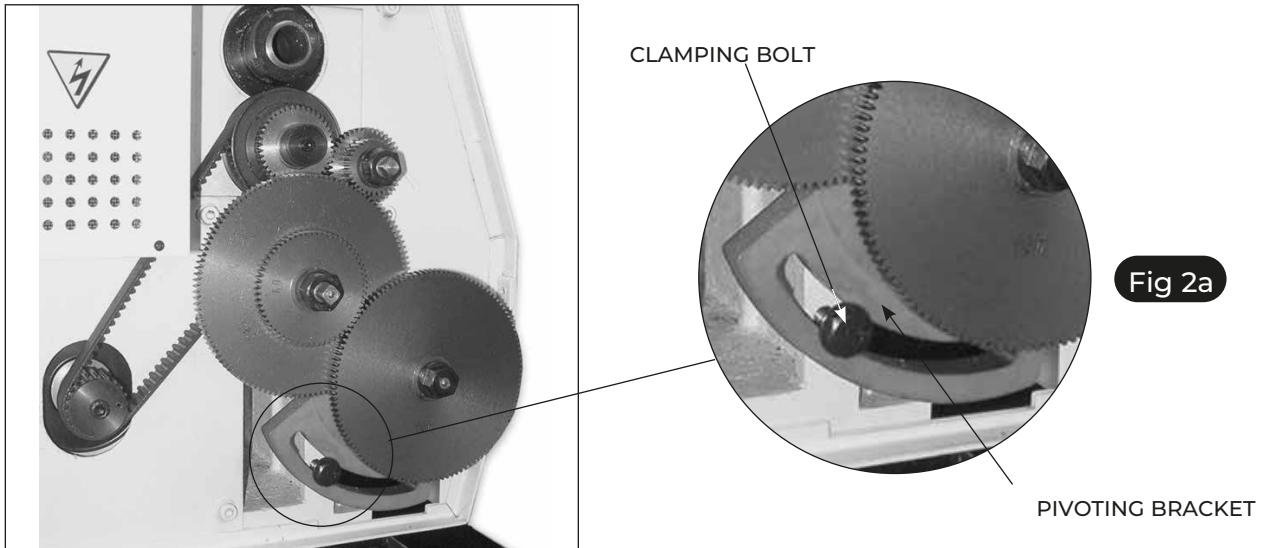
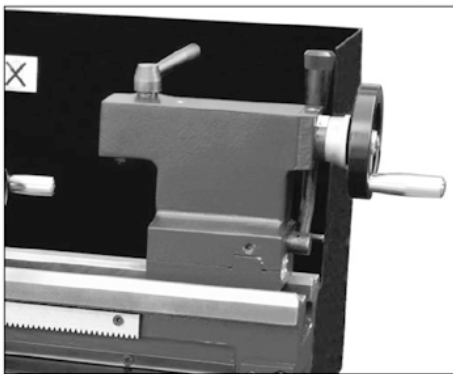


Fig 2a

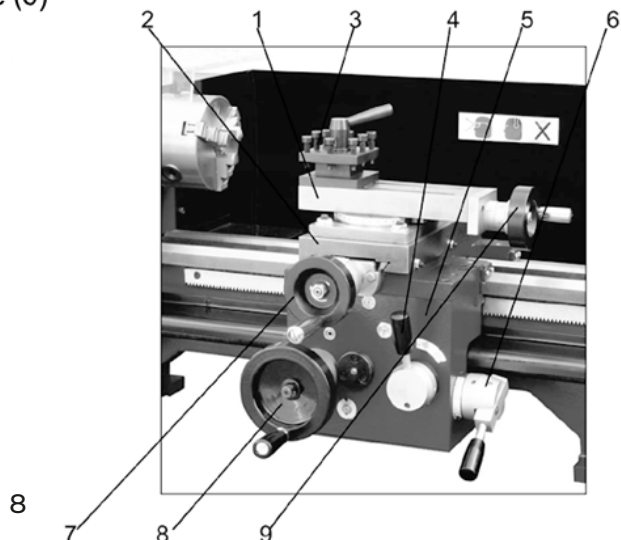
## 3. THE TAILSTOCK



The Tailstock may be moved along the bed to any desired position and is secured in position by a quick lock handle (behind the tailstock and at the right end). The Tailstock spindle carries an internal No.2 Morse taper for use with the Center provided. A Revolving Live Center and Drill Chuck are also available from your dealer. (See Accessories)

## 4. THE CARRIAGE/SADDLE

The Saddle carries the Cross-Slide (1) onto which is mounted the Compound Slide (2) with Tool post (3), allowing intricate and delicate operations to be performed. It may be driven by the Lead screw, via a driver nut, to provide automatic feed when the Auto Feed lever (4), mounted on the Apron (5), is operated. On the right side of the apron, we provide a crossslide auto feeding or longitudinal auto feeding control handle (6)



## 4. THE CARRIAGE/SADDLE

The position of the tool is effected by turning the cross-slide feed handle (7), which moves it across the lathe, and the carriage/saddle or manual feed handle (8), which moves it longitudinally. Additionally the compound slide feed handle (9) may be used to move the tool by small amounts at right angles to the cross-slide. The slide may be set at an angle to the cross-slide so that short tapers or bevels may be cut.

The cross-slide and compound slide feeds are provided with a scale. These are used to move the tool by precise amounts – one division being equivalent to (0.02mm). As the feed handle is turned, so does the scale. The scale on the cross-slide feed may also be held stationary whilst the handle is turned, allowing the scale to be 'zeroed'.

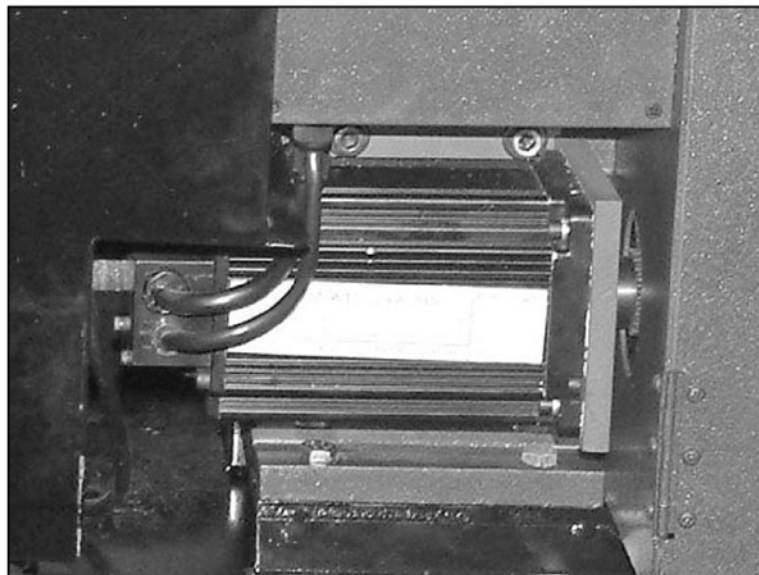
The tool post carries 8 square head screws which are used to secure a cutting tool in any desired position. Four tool bits may be mounted for quick and easy changes.

The tool post is rotated by slackening the lever on its top a sufficient amount so the post can be lifted slightly and then turned to the desired position.

ALWAYS ensure the post, and hence the tool, is secured by tightening the lever firmly before attempting to cut.

## 5. THE MOTOR

Disassembly of the motor is not recommended. We use the new type brushless motor, the motor has sufficient power and is secured behind the bed way. For all other servicing and repairs, please contact your dealer.



## **INSTALLATION**

### **CAUTION!**

**DO NOT USE THE MACHINE UNTIL INSTALLATION IS COMPLETED AND ALL PRELIMINARY CHECKS HAVE BEEN MADE IN ACCORDANCE WITH THIS MANUAL.**

### **MOUNTING THE LATHE**

The lathe should be mounted onto the purpose made stand or on a sturdy workbench of sufficient height so that you do not need to bend your back to perform normal operations. The machine is very heavy, so get assistance from another person when moving the machine.

Provide adequate overhead lighting so that you will not be working in your own shadow.

We strongly recommend that the machine be firmly bolted to a sturdy workbench using the tapped holes used to secure the feet to the lathe. This is to provide added stability and consequently, safety.

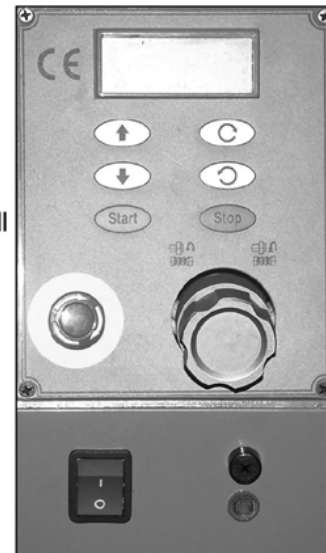
Alternatively, if you do not wish for a permanent installation, you may secure the lathe to a 30 mm thick plywood board with a minimum recommended dimension, the mounting holes being centralized on the board. When the lathe is in use, the board should be clamped to workbench using with G- clamps.

### **STARTING PROCEDURE**

#### **A. DURING INSTALLATION – INITIAL START**

Be sure the cross-slide is well away from the chuck, and the automatic feed lever is in its disengaged position, (i.e. lever is UP). Insert the electric plug into the wall socket.

Press the power switch to "I" position, at the same time the green lamp will illuminate. Then release the Emergency stop switch. The top display will show "0000" (this show the spindle speed rpm). First press the "start" button and press the "↑" button the spindle speed will increase, if you press the "↓" button the spindle speed will decrease. If you need to change the spindle rotation direction press the Forward or Reverse button respectively. Need stop the machine can press the "stop" button or the Emergency stop switch.



Notice: on the main panel you can find a knob, some times when we use the added Milling function we need to stop the spindle rotation you can turn the knob to right the position, when need the spindle running turn it to left position.

**Note: The chuck guard must be in the lower position as there is a interlock switch proventing the machine operating with the guard in the raised position.**

## **LATHE MAINTENANCE**

Your C4 bench lathe is a precision tool. In order to maintain this precision and prolong its useful life, it is advised that you follow the recommended daily and periodic maintenance tables printed below.

### **Daily and Periodic Maintenance**

#### **Daily Pre-use**

1. Using an oil can with a narrow nozzle, oil all the oil points on the machine, incl. A) Saddle (4), B) tailstock (2), C) traverse slide (1), D) compound slide (2), E) leadscrew gearbox (2), and F) leadscrew end bearing (1).
2. Move the traverse and compound slides to give access to their drive shaft threads and lightly coat with oil, work the oil up the threads to lubricate the thread followers.
3. Spray-oil the slides and the lathe bed, exercise the saddle and the slides to spread the oil to all surfaces, both hidden and visible.
4. Spray up under the rack cover to lubricate the rack. (G)
5. Apply oil to the change gears and their axle mountings. (H)

#### **Daily after-use**

1. Clean all swarf and chips away from the machine bed, slide surfaces, and the tool post.
2. Exercise the slides and ensure no swarf etc., is lodged in the drive shaft tunnels.
3. If you have been using 'suds' make sure the machine is thoroughly dried off. Clear the suds tray of all swarf and chips, especially around the drain.
4. Check the tool, ensure it is usable the next time, if not re-sharpen or replace the tool tip.
5. Lightly oil spray all the machine beds and surfaces, and the tailstock barrel.
6. Clean and lightly oil any tools you may have been using (centres, drill chucks, spanners chuck keys etc, and put them away.
7. Switch off the power supply. Disconnect the plug.
8. Cover the machine over with a dust cloth.

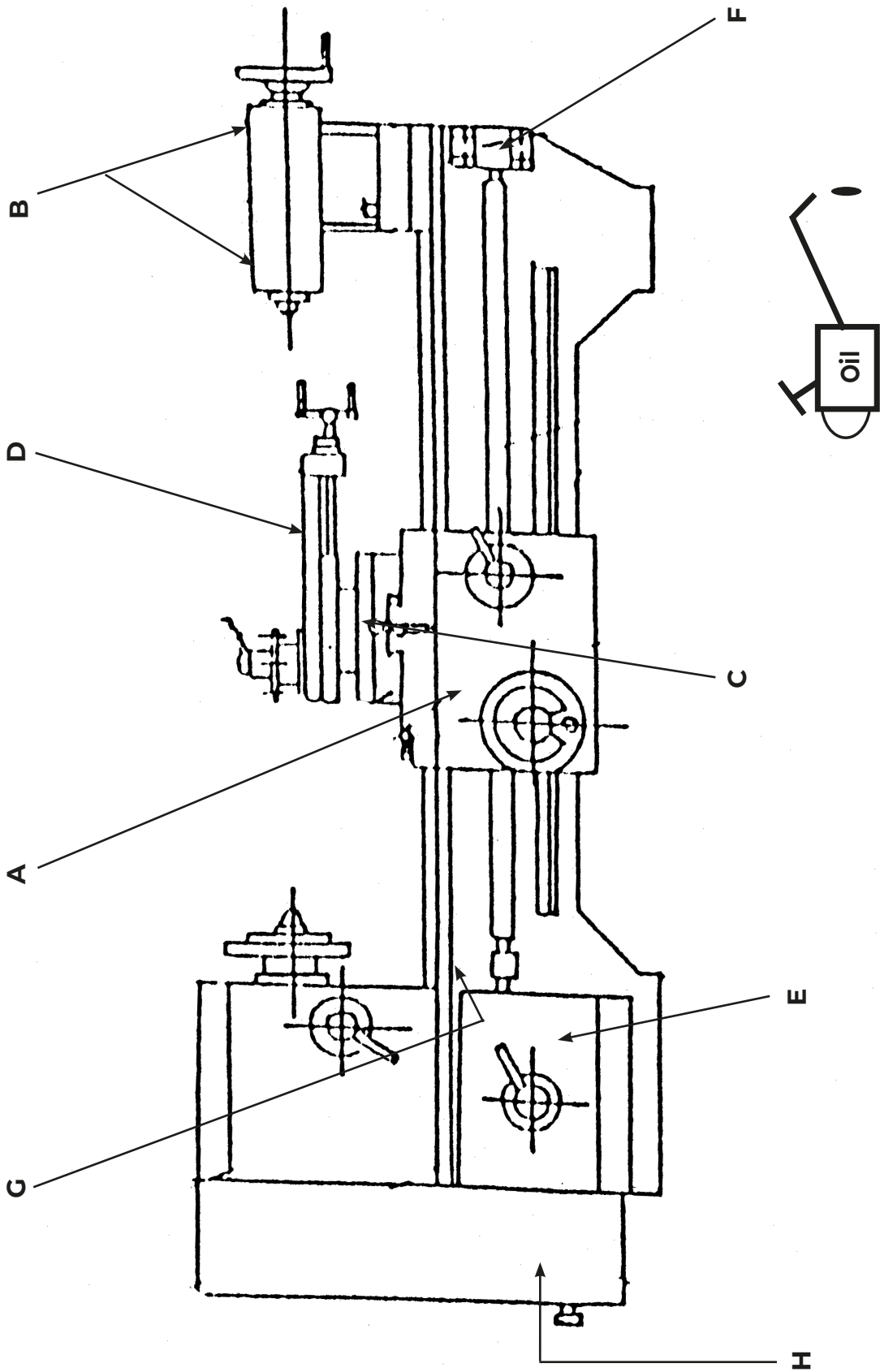
#### **Weekly**

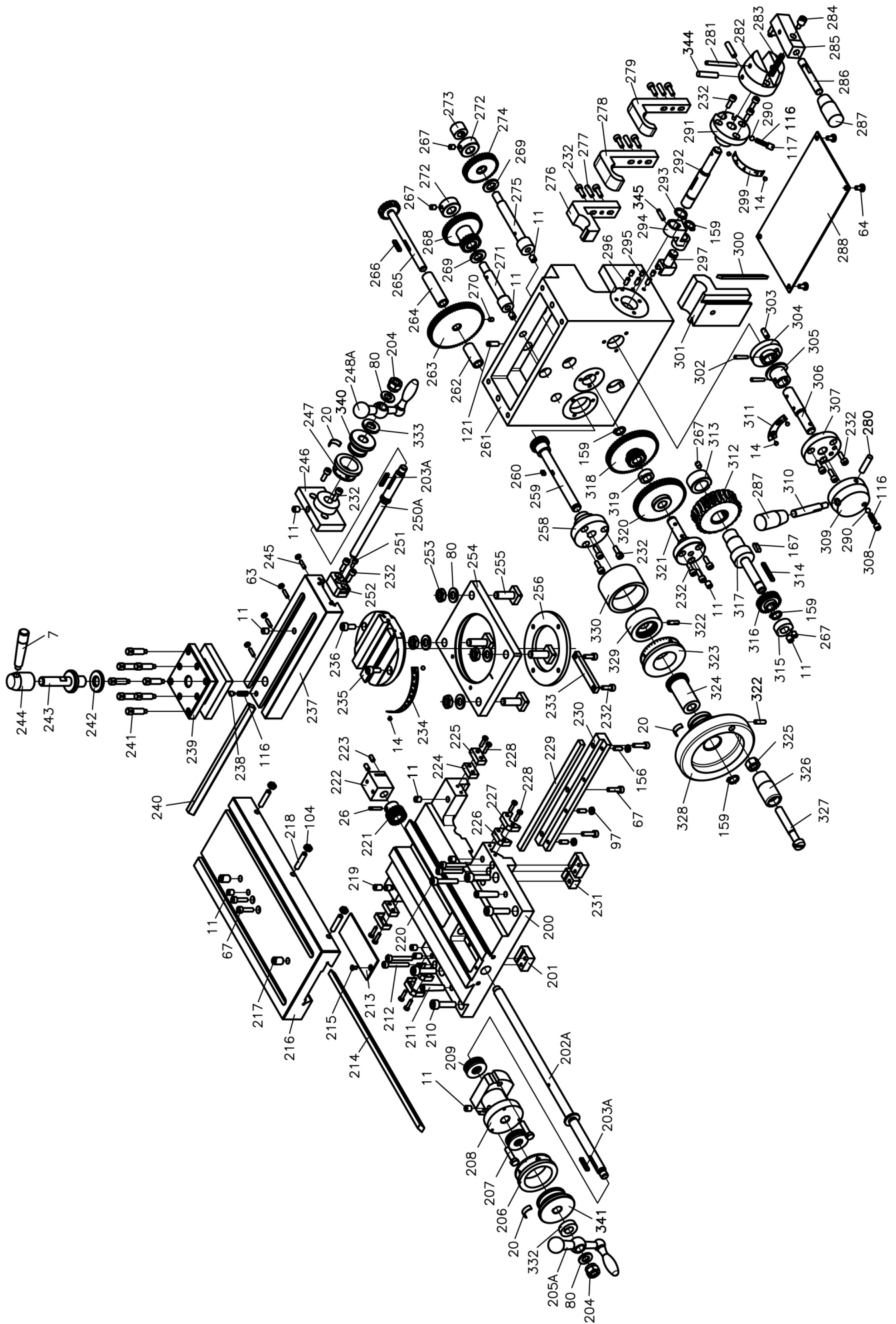
- a) Check the belt tension.
- b) Check the tautness of the slides.
- c) Check the level of the suds reservoir. (if you are using suds).

#### **Accessories**

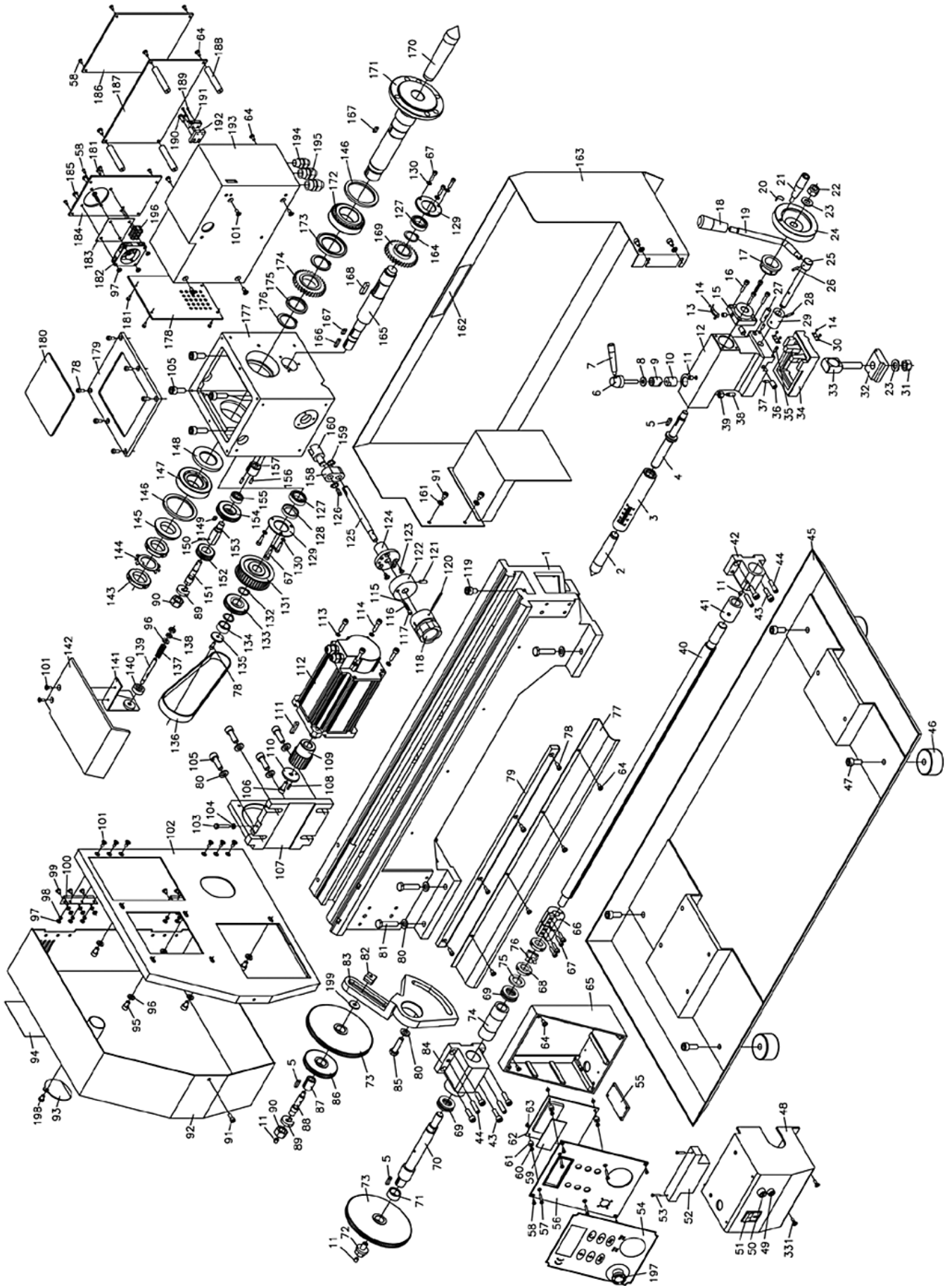
See the range of accessories in our catalogue for use with your C4 lathe.

# LATHE MAINTENANCE (OIL LUBRICATION) POINTS)





**Parts drawing II**



## **Parts list (I)**

<b>No.</b>	<b>Description</b>	<b>Q'ty</b>	<b>No.</b>	<b>Description</b>	<b>Q'ty</b>
1	bed way	1	43	screw M6*20	6
2	tailstock center	1	44	pin 6*26	4
3	tailstock sleeve	1	45	chip tray (optional parts)	1
4	lead screw	1	46	rubber foot (optional parts)	4
5	key 4*16	3	47	screw M8*20 (optional parts)	6
6	lock shaft	1	48	protecting cover of bracket	1
7	knob	2	49	green lamp	1
8	adjust washer	1	50	fuse	1
9	lock sleeve	1	51	switch	1
10	lock nut	1	52	electric filter	1
11	oil cup 6	13	53	screw M3*16	2
12	tailstock casting	1	54	switch film	1
13	scale lable	3	55	pc board	1
14	rivet 2*4	18	56	switch label	1
15	lead screw support	1	57	screw M3*20	4
16	screw M4*20	4	58	screw ST2.9*9.5	12
17	dial	1	59	digital readout guard	1
18	handle M8*50	1	60	compression sping 0.7*4.5*7	4
19	knob	1	61	pc board stepping	4
20	speing	4	62	pc board	1
21	long handle M6*50	2	63	nut M3	8
22	lock nut M10	1	64	screw M4*8	19
23	washer 10	2	65	control box	1
24	handle wheel	1	66	joint sleeve of leadscrew	1
25	rotating shaft	1	67	screw M4*16	15
26	pin 3*16	2	68	nut M16*1.5	2
27	limit shank	1	69	ball bearing 8103	2
28	pin 3*20	1	70	leadscrew connecting shaft	1
29	elcentric sleeve	1	71	thick washer	1
30	zero position lable	2	72	bolt	1
31	nut	1	73	change gear	2
32	tailstock clamp plate	1	74	copper bush I	1
33	lock bolt	1	75	washer	1
34	stand	1	76	lock washer 16*22	1
35	screw M4*12	2	77	protecting cover of lead	1
36	screw M8*14	2	78	screw M4*10	11
37	screw M4*10	1	79	rack	1
38	screw M6*16	1	80	washer 8	15
39	nut M6	1	81	bolt M8*35	6
40	lead screw	1	82	square nut	1
41	copper bush II	1	83	support plate	1
42	bracket	1	84	bracket	1



**Parts list ( II )**

<b>No.</b>	<b>Description</b>	<b>Q'ty</b>	<b>No.</b>	<b>Description</b>	<b>Q'ty</b>
85	bolt M8*30	1	127	bearing 61903	2
86	change gear	1	128	spacer	1
87	bearing	1	129	cover	2
88	bolt	1	130	washer 4	6
89	open washer	2	131	spindle pully	1
90	nut M12	2	132	check ring 16	2
91	screw M5*8	5	133	gear	1
92	gear box cover	1	134	washer	1
93	small cover	1	135	check ring	1
94	thread and feeding lable	1	136	timing blet	1
95	screw M6*10	5	137	compression sping	1
96	washer 6	6	138	nut M6	2
97	nut M4	22	139	small shaft	1
98	spring washer M4	12	140	damp sleeve	1
99	screw M4*6	6	141	splash guard support	1
100	hinge 62*33	2	142	guard	1
101	screw M4*10	12	143	nut M27*1.5	2
102	rear plate of gear ox cover	1	144	lock washer 27*37	1
103	bolt M5*25	1	145	spacer	1
104	nut M5	4	146	oil ring	2
105	screw M8*25	6	147	bearing 30206	1
106	screw M6*16	1	148	oil ring	1
107	motor support	1	149	key 4*8	1
108	pin 3*10	1	150	pin B3*14	1
109	pully	1	151	spindle bolt	1
110	washer	1	152	gear	1
111	key 5*25	1	153	intermediate shaft	1
112	brushless motor	1	154	gear	1
113	spring washer 5	4	155	bearing 60018	1
114	screw M5*20	4	156	screw M4*12	6
115	steel ball 4	1	157	inlay block	1
116	compression sping 0.8*4*12	3	158	shifting arm	1
117	screw M6*8	2	159	check ring 10	6
118	knob	1	160	shifting block	1
119	screw M8*12	1	161	washer 5	4
120	pin 3*40	1	162	safty lable	1
121	screw M5*16	2	163	rear splash guard	1
122	finding dial	1	164	ring 21	1
123	screw M4*8	3	165	H/L gear shaft	1
124	fingding sleeve	1	166	key 4*18	1
125	small shaft	1	167	key 4*12	3
126	key 4*14	1	168	key 6*25	1

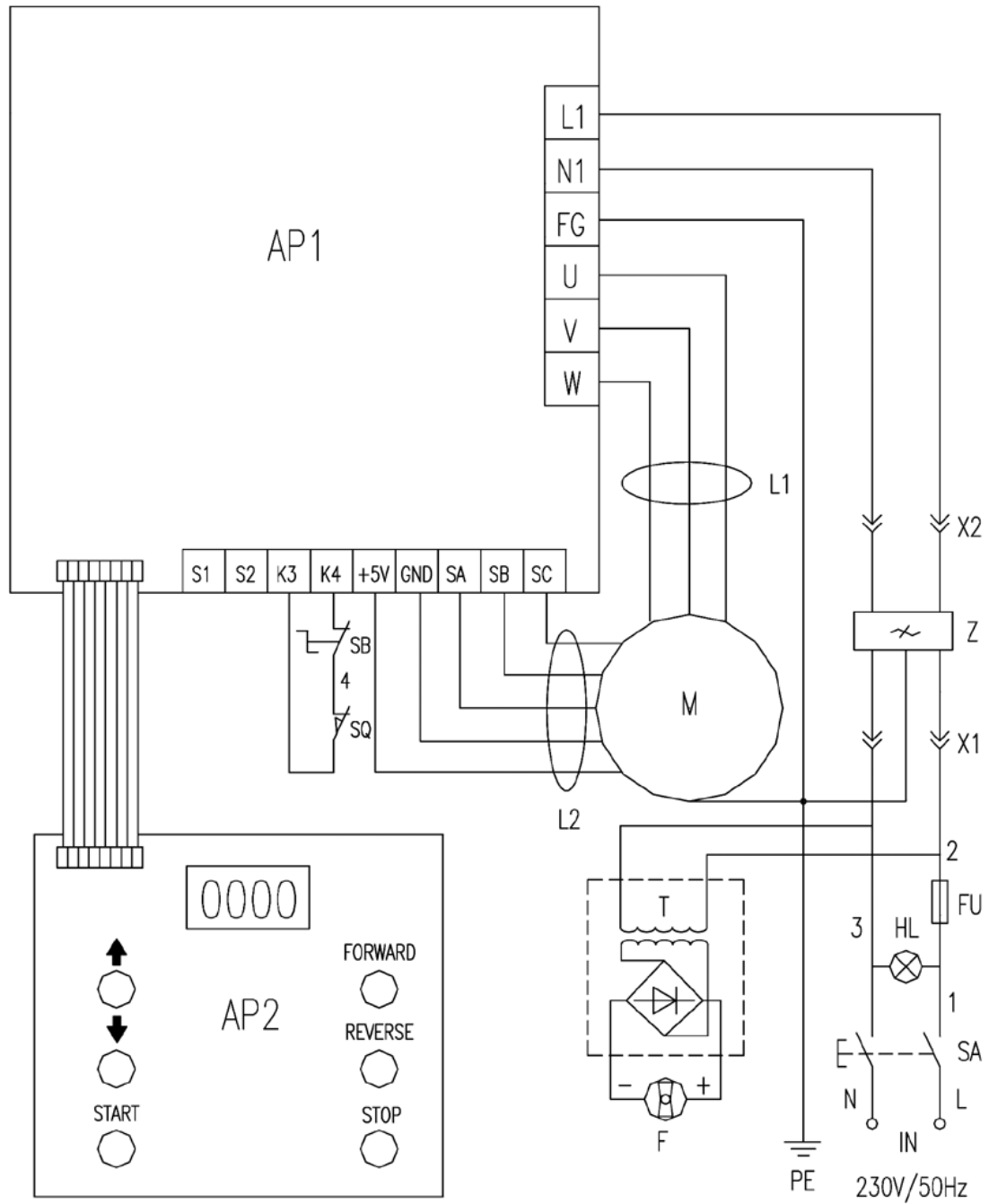
### Parts list ( III )

No.	Description	Q'ty	No.	Description	Q'ty
169	H/L gear	1	211	pin 6*30	2
170	spindle center	1	212	screw M4*30	4
171	spidle	1	213	cover	1
172	bearing 32007	1	214	gib strip	1
173	oil ring	1	215	screw M3*6	1
174	spindle gear	1	216	cross slide	1
175	spacer	1	217	screw M8*12	2
176	check ring 30	2	218	screw M5*25	3
177	head stock body	1	219	screw M6*10	2
178	cover of electric box	1	220	screw M5*30	1
179	cover	1	221	gear	1
180	rubber	1	222	nut	1
181	screw ST2.9*9.5	6	223	screw M4*8	2
182	small fan	1	224	oil-stopping felt	2
183	protect mesh	1	225	protecting panel	2
184	small cover of electric box	1	226	oil-stopping felt	2
185	screw M4*16	4	227	protecting panel	2
186	big cover of electric box	1	228	screw M3*12	8
187	pc board	1	229	gib strip	1
188	stepping	4	230	rear clamp	1
189	screw M2*10	2	231	rear clamp	1
190	screw M4*12	2	232	screw M4*12	24
191	mrico switch	1	233	finding block	1
192	bottom plate of mrico switch	1	234	angle ruler	1
193	electric box	1	235	cutter rest revolving dial	1
194	lock connect M12	1	236	screw M5*12	2
195	lock connect M16	2	237	compound rest	1
196	connection pole	1	238	positing pin	1
197	emergency stop switch	1	239	tool rest	1
198	screw M5*8	1	240	gib strip	1
199	washer	1	241	screw M6*20	8
200	saddle	1	242	adjusting washer	1
201	front clamp	2	243	fuselage	1
202	lead screw	1	244	clamping lever	1
203	key 3*10	2	245	screw M3*12	4
204	lock nut M8	2	246	leadscrew support	1
205	handle wheel	1	247	dial	1
206	dial	1	248	handle wheel	1
207	bolt M5*20	2	249	knob M6*32	1
208	bearing seat	1	250	lead screw	1
209	bearing 8100	2	251	screw M3*8	1
210	screw M6*25	4	252	nut	1

**Parts list IV**

No.	Description	Q'ty	No.	Description	Q'ty
253	nut M8	4	295	screw M4*6	3
254	stand	1	296	screw M4*8	3
255	T bolt	4	297	shifting block	1
256	rotating clamp	1	298	key 3*8	1
257	lable	1	299	cross feeding lable	1
258	shaft I sleeve	1	300	gib strip	1
259	shaft I gear shaft	1	301	half nut	1
260	key 3*6	1	302	pin 3*18	2
261	apron	1	303	pin 5*12	1
262	shaftII sleeve I	1	304	shifting dial	1
263	shaft II gear	1	305	lock wheel	1
264	shaft II sleeve II	1	306	shaft VII	1
265	shaft II gear shaft	1	307	finding flange sleeve	1
266	key 3*16	1	308	screw M6*6	1
267	screw M5*8	4	309	handle seat I	1
268	H/L gear of shaft V	1	310	bolt	1
269	washer	2	311	lable	1
270	screw M4*6	1	312	worm wheel	1
271	shaft V	1	313	shaft VI sleeve I	1
272	ring 10	2	314	key 3*28	1
273	shaft sleeve	1	315	shaft VI sleeve II	1
274	shaft IV gear	1	316	H/L gear	1
275	shaft IV	1	317	shaft VI	1
276	leadscrew support	1	318	shaft III H/L gear	1
277	pin B4*16	3	319	spacer	1
278	leadscrew supporting clasp II	1	320	shaft III gear	1
279	leadscrew supporting clasp I	1	321	shaft III	1
280	pin 4*45	2	322	screw M4*14	1
281	pin 4*40	1	323	dial	1
282	handle seat II	1	324	meshing gear of wheel	1
283	compression spring 0.8*5*30	1	325	nut M8	1
284	finding screw	1	326	handle	1
285	active handle block	1	327	screw M8*55	1
286	handle shank	1	328	handle wheel	1
287	long handle sleeve M8*40	2	329	inner gear sets	1
288	apron botton cover	1	330	protecting sleeve	1
289	Compression spring 0.6*3.5*12	1	331	screw M4*12	2
290	steel ball 5	2			
291	limit flange sleeve	1			
292	shifting knob	1			
293	check ring 12	2			
294	shifting arm	1			

# Electrical Circuit Diagram for 230V



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