

Toolmaker's lathe DC-102

Sole Agents
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MACHINE TOOLS and EQUIPMENT
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Working Instructions DC-102 Toolmaker's lathe

TRANSPORT

For the transport, the machine remains completely assembled together. When receiving the machine, clean all grease-covered parts with a cloth soaked in kerosene.

ACCURACY OF THE MACHINE

Before leaving our works, the lathe is tested with regard to accuracy in accordance with the accompanying test report. It has no errors greater than the values permitted according to Prof. G. Schlesinger's "Testbook for Machine Tools". This accuracy, however, is to a large extent dependent on the accuracy with which the precisely scraped lathe-bed is set up and levelled. (See sheet 2).



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Geschr. 25556 *Däp*
Gepr.

Nr.
PD-50-81

Sheet
No.
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Bench lathes DC-102 DD-102 DR-102 DZ-450

SETTING UP THE MACHINE

The lathe must be set up or erected in such a way that no twisting stresses can be caused in the lower part or in the bed. Check and level the bed accurately longitudinally and transversely by means of a precision spirit level.

If any errors are found when checking, proceed as follows:

a) Lathe mounted on box stand, item No. 610 and 611

Loosen the four locknuts of the through-going fixing screws B. Re-adjust and level with these four fixing screws B. Tighten moderately the locknuts of the four fixing screws B.

The alignment of the centres must be checked with a checking arbor and a dial gauge. Preferably, first overhung in the headstock, and then between the centres.

b) Lathe fixed on a workbench (wooden bench)

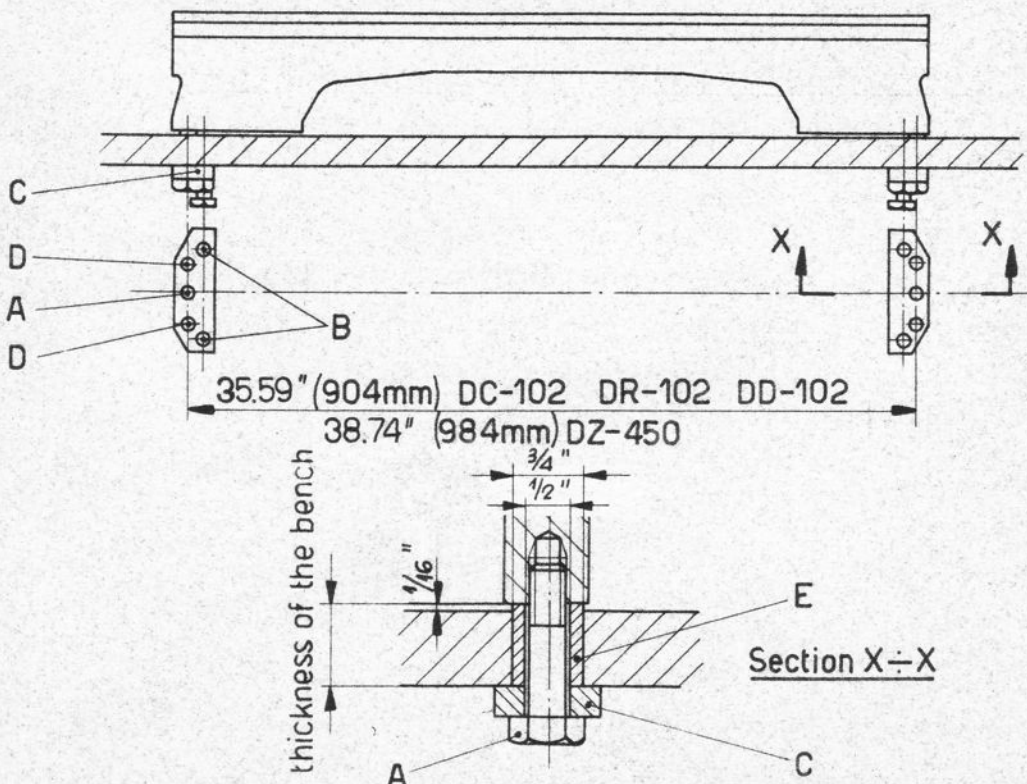
Fix the two cast-iron fixing plates onto the bench from below with the four wood screws D. After inserting two bushes E which must agree with the thickness of the bench, place the bed in position, and fix it moderately with the two fixing screws A.

Then accurately set and level the bed longitudinally and transversely with the four fixing screws B.

All four screws B must then take part in the fixing.

Tighten moderately the locknuts of the four fixing screws B.

The alignment of the centres must be checked with a checking arbor and dial gauge. Preferably, first overhung in the headstock, and then between centres.



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Sheet No. 2

HEADSTOCK WITH PLAIN BEARINGS, No. 212

The spindle can be locked in 12 positions by the rotary knob on the rear portion of the bearing. For very accurate diviving work, the eccentrically supported index pin is adopted. It has to be set onto the suitable circle of holes (48, 60, 100) and clamped with the set screw.

Both headstock bearings must be amply lubricated periodically with a good mineral oil, free from acids (viscosity about 3-4⁰E at 50⁰C).

The re-adjusting of the bearings requires a certain amount of care and should only be carried out by men skilled in such work. The desired radial and axial play of the front bearing can be adjusted accurately by the threaded ring A, which is located behind the front taper bearing and is secured by two set screws, the bearing being touched up on the front face, if necessary. When doing so, take care that the contact surfaces remain strictly plane. The rear cylindrical bearing can be re-adjusted by tightening the threaded ring C on the side of the stepped pulley, and then at the same time the threaded ring E at the left must be loosened and possibly the insert F may have to be machined.

Maximum speed about 2500 rpm.

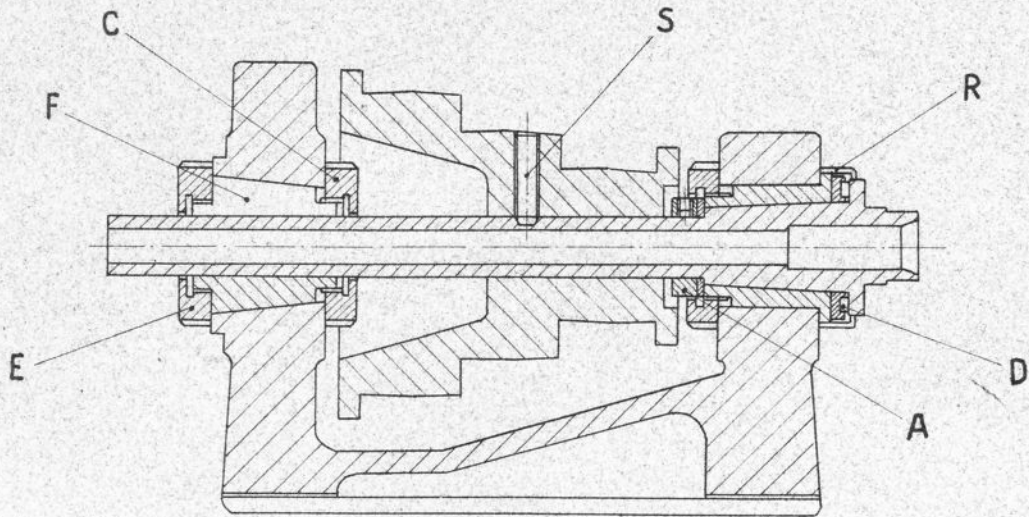
Motor speeds, rpm.									
3000									
Initial speeds of the individual drive in rpm.									
250			1560						
Headstock speeds in rpm.									
140	250	440	885	1560	2750				



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DISMANTLING

Remove pressed-on guard ring R; loosen the screw S in the stepped pulley, and push the stepped pulley to the left. After having loosened the threaded ring A which is secured by two set screws, the spindle can be taken out at the right.

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Bench lathes DC-102 DR-102 DD-102 DZ-450

CROSS SLIDE, No. 216, 217 and 510

VERTICAL SLIDE, No. 250

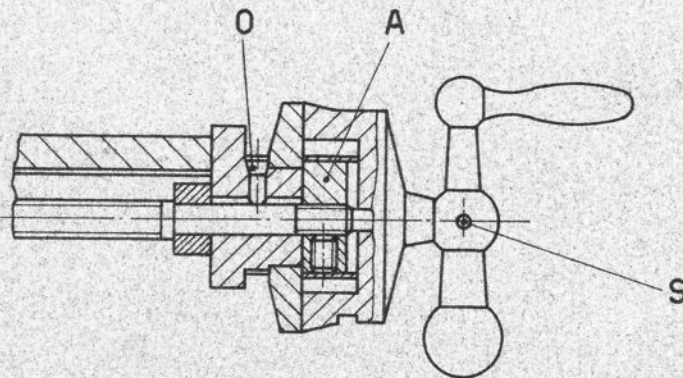
INTERCHANGEABLE LEVER-OPERATED SLIDE, No. 272

SLOTTING ATTACHMENT, No. 270

All slides can be taken to pieces quickly and easily. They should be thoroughly cleaned once a week and at the same time lubricated with a mineral oil free from acids and having a viscosity of 3-4° E at 50° C. (Clean well behind the wedge guide, but do not lubricate).

By screwing out the conveying spindles or by loosening the flange of the lever-operated slide, the slide guideways are rendered easily accessible. The flange bearing of the conveying spindles is lubricated through an oil-hole O, protected by a displaceable spring ring.

The play of the slide guides can be adjusted along the wedge guide by means of the threaded pins. In order not to stress the conveying spindles laterally, the bearing flange should be loosened and then screwed tight again in the foremost position. Any play that develops in the conveying-spindle bearings can be eliminated with the screw-nut A which is secured with a set screw. The screw-nut A can be rendered accessible as follows: Take out the taper pin S and remove the crank, intermediate bush and dividing drum. If the conveying spindles and nuts have become much worn, these parts must be replaced by new ones. The same elements can be used for the longitudinal slide and the cross slide.



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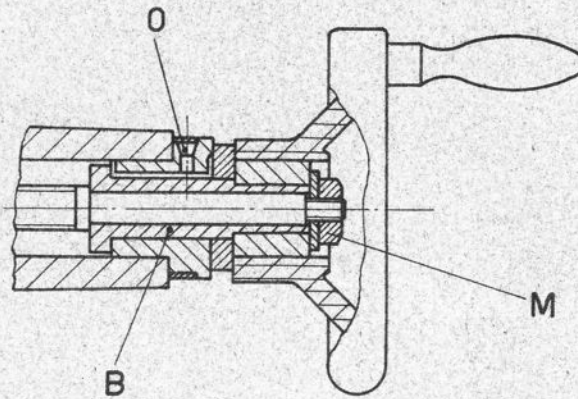
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TAILSTOCK, No. 218

The tailstock spindle sleeve can be screwed out completely for cleaning and for lubricating the bore and also the conveying nut. The oilhole O, protected by a movable spring-ring, serves for lubricating the conveying-spindle bearing. For lubricating, use a mineral free from acids and having a viscosity of 3-4° E at 50° C.

Any axial play that develops may be removed by means of the threaded nut M and the bush B. If conveying spindle and nut have become much worn, they must be replaced by new ones.



LEVER TAILSTOCK, No. 320

The oil fittet on the body of the tailstock serves for lubricating the spindle-sleeve guide. For lubricating, use a mineral oil free from acids and having a viscosity of 3-4° E at 50° C. In order to obtain different drilling depths, especially by means of the turret head, items No. 320 and 322, the stop-ring can be moved by hand into four different notches.



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Individual drive TV-45

INDIVIDUAL DRIVE TV-45, No. 408-419, Works No.: 2293

The headstock is driven horizontally from the individual drive TV-45. Built within this are the motor and also the toothed-wheel reduction gear (1:6). The latter is actuated by means of the lever on the casing. With the lever in the middle position, the gear remains disengaged. (Idling position). The shifting operation may be facilitated, if necessary, by a light pull on the headstock driving belt. The gear may only be shifted when at rest. The tightness of the headstock driving belt can be finely regulated as desired by means of the tightening screw. The rapid tightening lever in the base-plate serves for changing the belt quickly from one step to another, as well as for relieving the belt pull. The tightness of the belt between motor and gearing can be re-adjusted at the upper pulley (gearing). By loosening the threaded pins and simultaneously adjusting the countersunk screws (as uniformly as possible along the whole periphery), the Vee-belt can be tightened or loosened.

As gear oil, we recommend the following makes:

(In alphabetical order)

Caltex Oil	Regal AZ	2.9°E at 50° C
Esso Standard	Teresso 43	2.8°E at 50° C
Shell	Vitrea 27	3° E at 50° C
Vacuum Oil (Mobil Oil)	DTE light	2.8°E at 50° C

When working 8 hours daily, the ball bearings of the motor should be thoroughly cleaned once every 2 years and provided with fresh grease.

Initial speeds of the individual drive: 250 / 1560

Vee-belt: Motor/Gearing: profile 13 x 8 mm, inner length **650** mm

Flat belt: Individual drive/Headstock 30 x 3 mm, inner length 1140 mm

~~Flat belt:~~ Individual drive/Headstock: profile 13 x 8 mm, inner length 1120 mm

Motor for 240 switchings per hour.



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TEST SHEET FOR TOOLMAKERS' LATHE DC-102

Works number:

Height of centres: 102 mm Distance between centres: 400 mm

2293

Measuring operation	Admis. error	Error found	Fig.	
BED				
Bed straight in longitudinal direction (Only upwards curvature admissible)	0 + 0.02 mm 1000 mm	+0.015	1a	
Bed straight in transverse direction	+ or - 0.02 1000 mm	+0.02	1b	
WORKING SPINDLE				
Centre running true	0.01 mm	0.004	2a	
Spindle nose, running true	0.005 mm	0.002	2b	
Inner cone for collet, running true	0.01 mm	0.003	2c	
Axial play of spindle	0.01 mm	0.006	2d	
Radial deflection of spindle bearing measured at the end of an arbor at 200 mm distance	0.01 mm	0.007	3a	
Spindle axis parallel to the bed in the vertical plane at 200 mm	0 + 0.01 mm	+0.008	4a 4b	
The same in the horizontal plane	0 + 0.01 mm	+0.006	4c 4d	
COMPOUND SLIDE REST				
Upper part of slide rest longitudinal guiding parallel to spindle in vertical plane (measured along slide movement)	0.02 mm	0.01	5a	
TAILSTOCK				
Spindle sleeve parallel to the bed in vertical direction, measured on sleeve travel	0 + 0.01 mm	+0.002	6a 6b	
The same in horizontal direction	0 + 0.01 mm	+0.003	6c 6d	
Centre line parallel to the bed in vertical direction, measured with 300 mm long testing arbor between the centres	0 + 0.01 mm	+0.01	7a	
The same in the horizontal direction	0 + 0.01 mm	+0.004	7b	
ACCURACY OF THE WORKING MACHINE				
Lathe turns circular	0.005 mm	0.003		
Lathe turns facing (only hollow) to 200 mm diameter	0.01 mm	0.008	8	
Solothurn, 19.12.62		The checker:		
		Countersigned by:		
Remarks:				
The lathe has been tested with the belt normally tight				

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