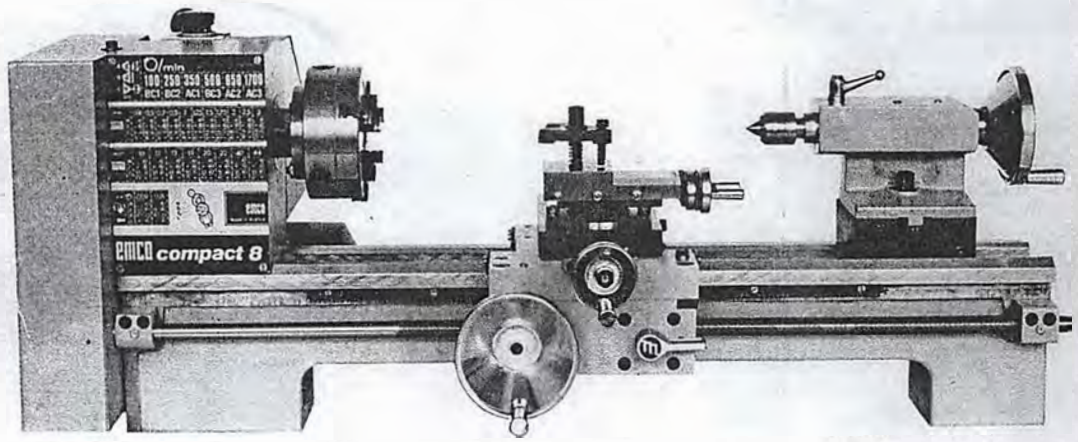
Instruction book

Service parts

EMCO compact 8



ENGLISH

Edition 76 04 Ref. Nr. EN 2 490

Maier
A-5400 Ha

SAFETY PRECAUTIONS WHEN TURNING

When using in workshop: Observe accident prevention instructions.

In private workplace: Safety plugs (prevention against starting up by children etc.)

Wear eye protection.

Have hair covered and do not have loose floppy sleeves.

Do not grip moving machine parts.

Only service the machine when it is isolated from electrical supply.

Do not remove the drive cover, and when working make sure it is always closed.

When working with bars, tubes etc. which extend beyond the tailstock, the protruding, rotating part must be covered by a stationary guard.

Always use a wire hook or similar implement for removal of swarf. Never use bare hands .(Information is given on WVS sheet No. 36 ''Guard against injury from turnings and borings.'')

Do not fit or remove turning tools when the spindle is rotating.

Never measure the work when it is rotating.

Always remove the chuck key (even when the machine is switched off).

Do not leave the machine when it is switched on.

Do not use your hand to slow down the workpiece or chuck.

INDEX

The Standard Equipment includes:

Vee Bed

Headstock

Saddle-, Cross-, Top-Slides

Tailstock

Reduction Gear

Automatic feed with quadrant and 6 change wheels

Driving Pin with nut

Driver

Centre MT3

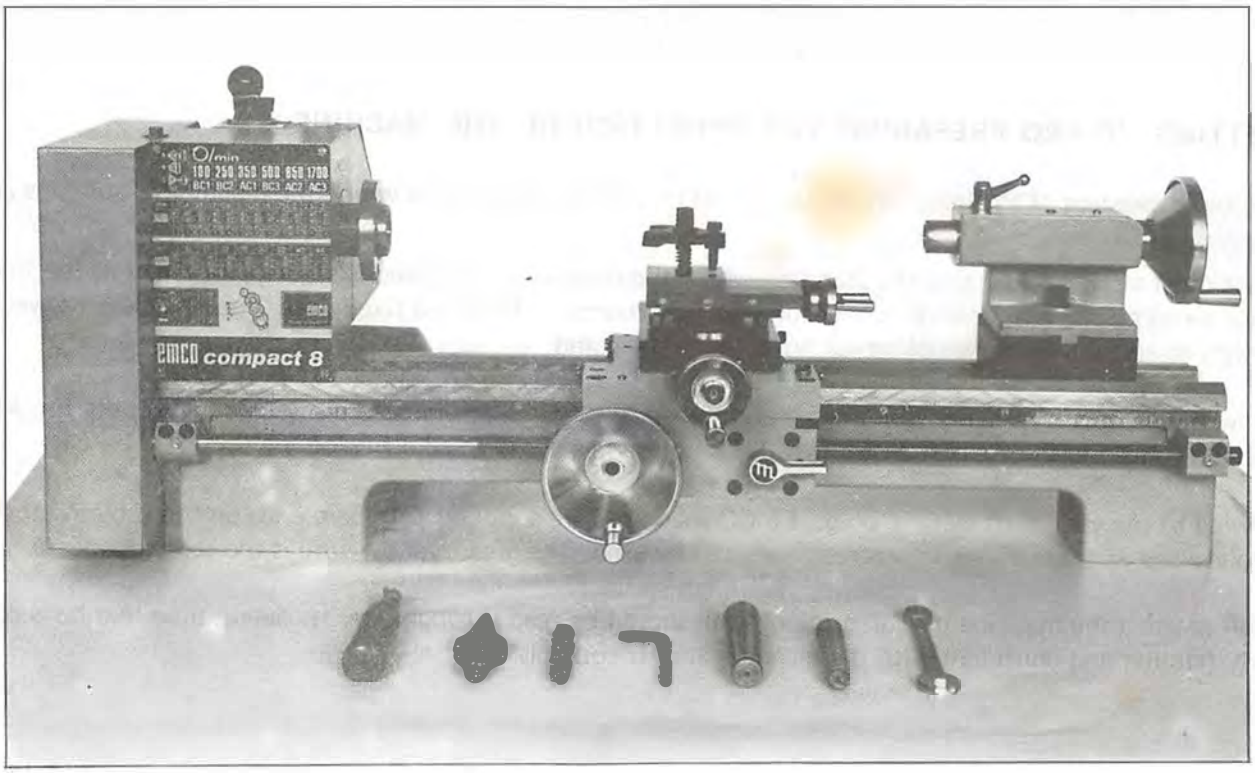
Centre MT2

Single Tool Holder (Clamp)

Electrical Equipment with motor etc.

Servicing Tools (Allen key SW 5, ring spanner 10 - 13, grease gun)

Service Manual



TECHNICAL DATA OF THE COMPACT 8

Centre height	105 mm
Distance between centres	450 mm
Max. dia. over slide	118 mm
Required floor space	940 x 500 mm
Weight	58 kg

Headstock: spindle nose DIN 55021
morse taper No. 3
hollow spindle (inside dia.) 20 mm
spindle bearings: 2 adjustable precision taper roller bearings

Spindle speeds: 100, 250, 350, 500, 850, 1700 revs/min.

Feeds with leadscrew: 0,09 mm/rev.
0,18 mm/rev.

Thread pitches: metric 0,4 - 3mm
inch 10 - 44 thread/inch
module 0,2 - 0,7

Tailstock:

spindle diameter	26mm
spindle travel	40mm
morse taper	MT2

Tailstock travel:

forward	12 mm
backward	8 mm

Motor: single phase a. c.
speed 1375 rpm
capacity 0,5 PS

SETTING UP AND PREPARING FOR OPERATION OF THE MACHINE

To avoid twisting of the bed, care should be taken that the location to which the machine is bolted is absolutely flat and level.

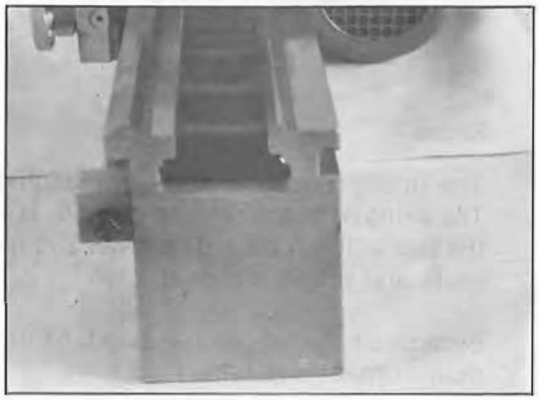
Care must also be taken that the stand on which the machine is mounted is securely fastened to the floor, thus avoiding swing and working inaccuracies. The machine should be fixed with 2 hex-headed screws (M 10, length to suit the thickness of table) firmly onto the stand.

Now the protecting oil film (for storage and transport) should be removed by washing with paraffin. After washing, clean with dry, soft cloth. Finally oil the slide ways with acid-free oil.

Owing to the variety of electric plugs, EMCO machines are supplied with bare ends on the cables,without plugs. Only plugs with built-in fuse protection should be used. The green/yellow wire is the earth connection!

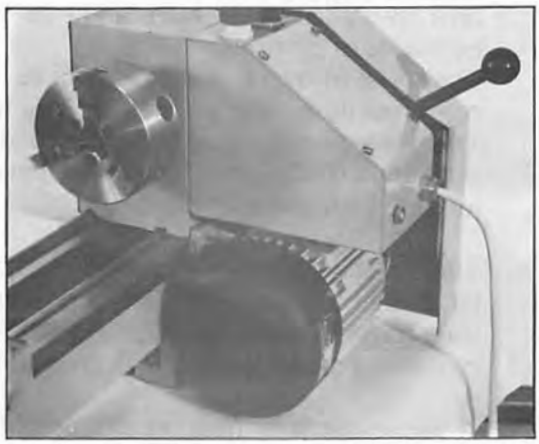
Before using the machine the instruction book should be read throughly by its operator so that he is completely familiar and confident with the machine and its controls.

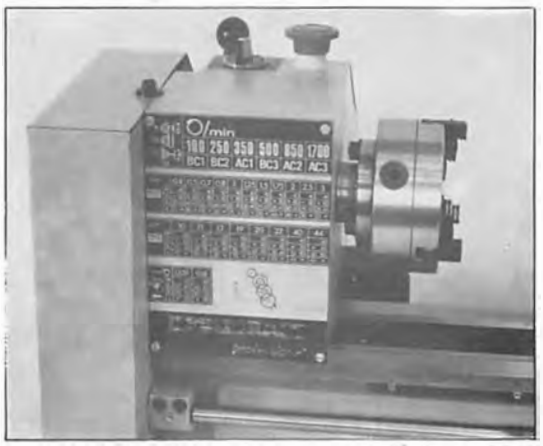
GENERAL DESCRIPTION



Lathe Bed

The lathe bed is made of high-grade cast iron. By combining high Cheeks with strong cross ribs, a bed with low vibration and rigid qualities is produced.
The two precision-ground Vee slideways give an accurate guide for the carriage and the tailstock. The carriage and tailstock travel on individual Vees. The main drive motor is mounted to the rear of the bed. The quick traverse rack and the leadscrew are mounted on the front.





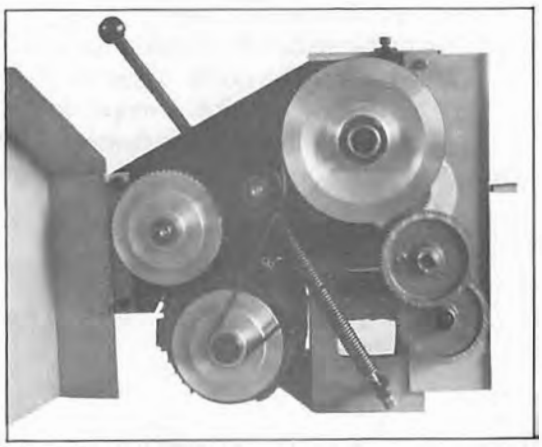
Headstock

The headstock is cast from high-grade low-vibration cast iron. It is bolted to the bed. In the head the large-size main spindle is mounted on 2 precision taper roller bearings. On the rear end of the headstock the reduction gear base plate is fitted, on which the belt drive block and idler are mounted. The spindle is hollow with a 20mm bore.

A quick change of the belt can be made by easing the tension on the idler. The idler can be moved easily from outside by means of a strong lever.

The type of drive shown has the great advantage that it is noiseless at all speeds.
The complete drive unit is totally enclosed for safety reasons by a cover.

On the rear of the headstock the E-housing is mounted. It contains the forward and reverse switch for the motor and the condenser, completeley wired and enclosed.



Slides

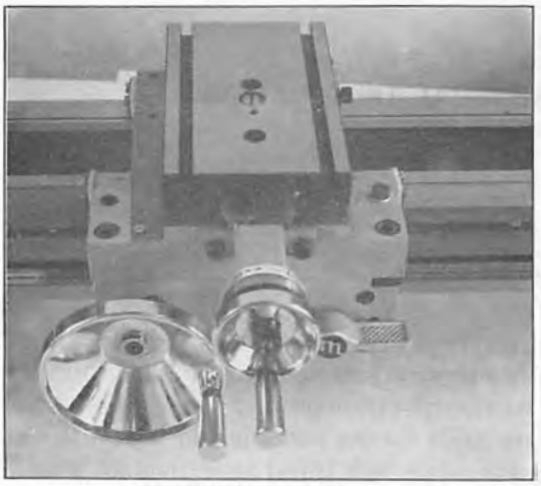
The strong carriage is made from high-quality cast iron. The siling parts are smooth ground. It fits the Vee on the bed without play. The lower sliding parts can be easily and simply adjusted.

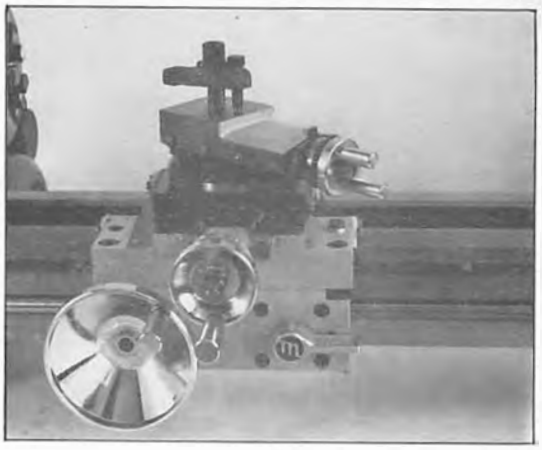
Because of the substantial length of the carriage, maximum contact is obtained.

The cross-slide is mounted on the carriage and moves on a dovetailed slide which can be adjusted for play by means of gibstrips.
The travel of the cross slide is effected by means of the conveniently positioned cross spindle handwheel. There is a graduated collar on the handwheel (1 graduation = 0,025 mm). The cross spindle nut is adjustable from the outside.

The top slide, which is mounted on the cross slide, can be rotated through 360°. The top slide and the cross slide travel in a dovetail slide and have gibs, adjustable nuts and a graduated collar (1 graduation = 0,025mm).

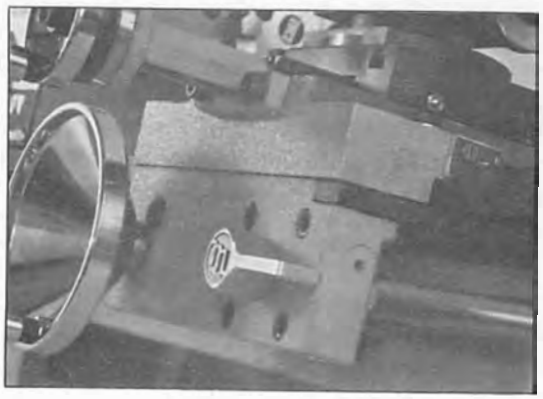
A strong clamp is fitted on the top slide.

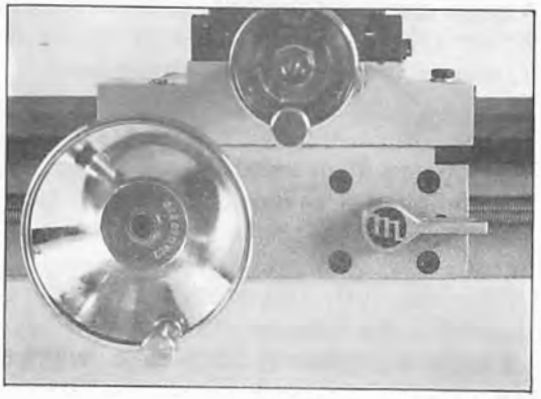




Carriage Apron

The carriage apron is made of cast iron and mounted on the long slide. In the apron the two-piece half-nut is fitted (free of play). The half-nut guides can be adjusted from the outside.
The half-nut can be engaged by use of a conveniently placed lever. The quick- travel of the long slide is by means of a rack which is mounted on the bed, and a pinion, operated by a handwheel. The large handwheel is mounted on the carriage and is within easy reach.

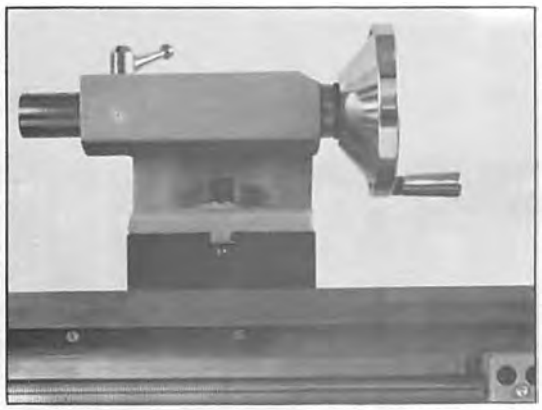




Tailstock

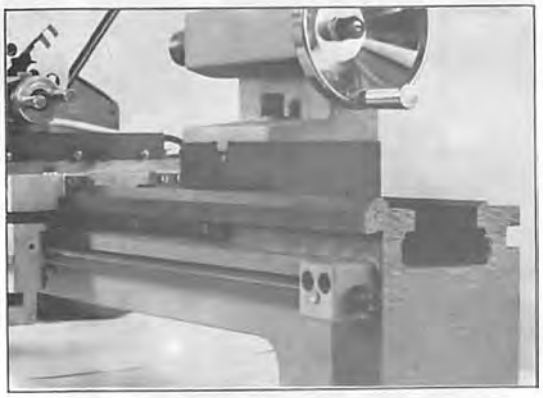
The tailstock slides on a Vee and can be clamped in any position by means of a heavy screw. The tailstock is made from a vibration-free ribbed iron casting. The slideways are fine ground. The tailstock has a heavy-duty barrel with inside taper socket MT2 and a graduated scale.

The barrel can be clamped in any position by means of a clamping lever. The barrel is moved axially by means of a handwheel mounted on the rear end of the tailstock.



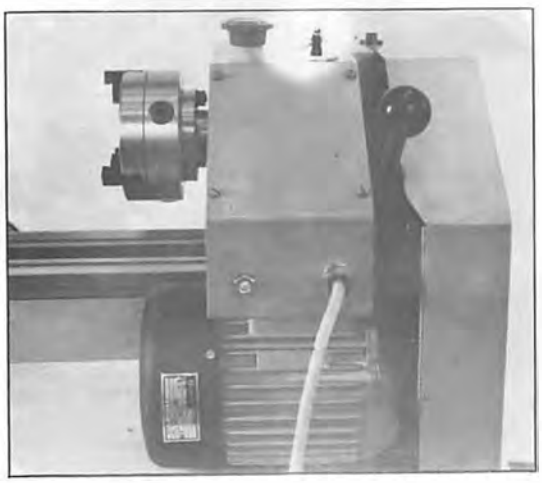
Leadscrew

The strongly made leadscrew is carried in two bearings and is mounted on the front of the machine bed. The axial movement is controlled by the right hand bearing. By means of an accessible nut the bearings is easily adjustable. On the left hand end of the leadscrew there is a connection for an automatic feed and screw cutting attachment.



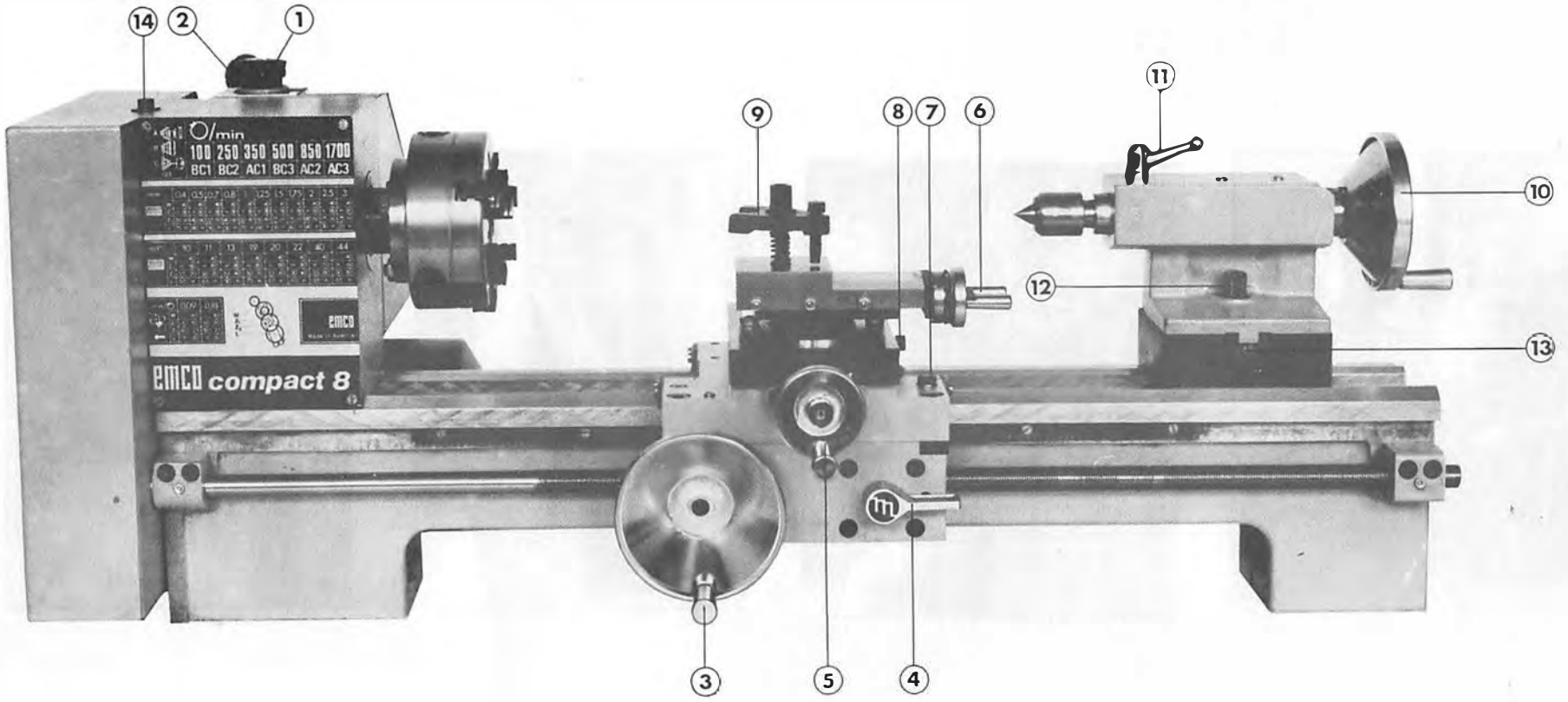
Drive and Electrical Equipment

The main drive is by a single phase a. c. motor, mounted at the rear of the lathe bed. The power is transmitted by a special Vee belt to the main spindle. For the main spindle speed 100 rpm a slipping clutch is fitted to the pulley on the reduction gear spindle, to protect the drive and the motor against overload. The necessary condenser and motor switch are fitted in an E-housing mounted at the rear of the headstock casting.



CONTROLS

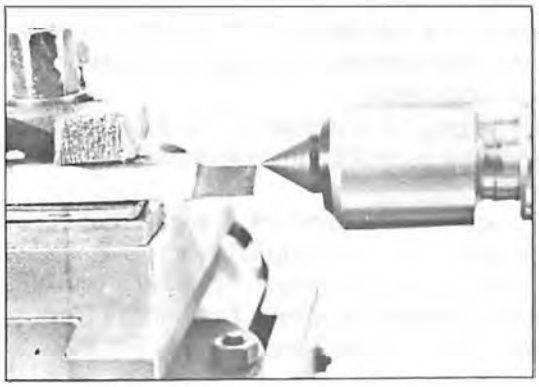
1 Main switch for motor (forward and reverse)
2 Lever for tensioning and loosening the Vee belt
3 Long travel handwheel
4 Half-nut lever
5 Cross slide handwheel
6 Top slide handwheel
7 Long travel clamping screw
8 Cross travel clamping screw
9 Tool clamp
10 Tailstock barrel handwheel
11 Tailstock barrel clamping lever
12 Tailstock locking screw
13 Tailstock cross adjustment
14 Fixing screw for drive cover

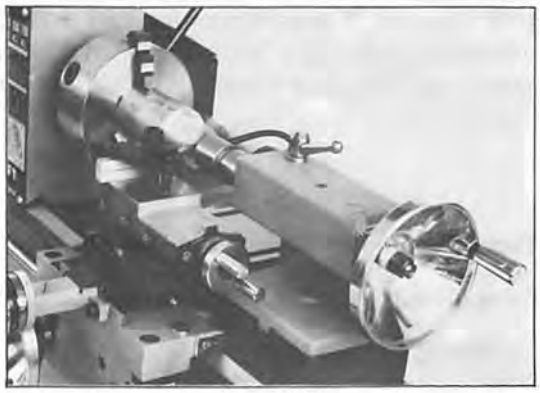


WORKING WITH THE COMPACT 8

Setting the Turning Tool

The cutting angle is only correct when the cutting edge is in line with the centre axis of the work piece. The correct height of the tool can be achieved by comparison with the point of the centre mounted in the tailstock. The correct height can be obtained by use of shims under the tool. When turning, the tool has a tendency to bend under pressure. The greater the overhang, the bending. For the best results, the overhang should be kept to a minimum of 10mm.





Manual Turning

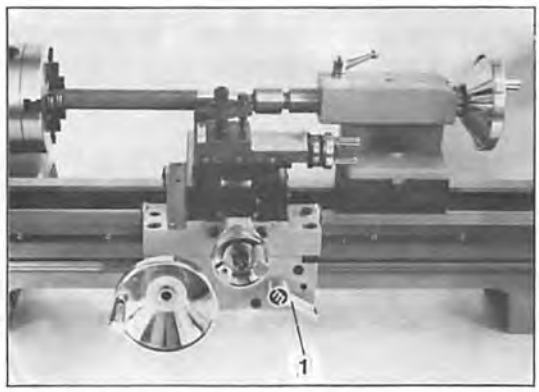
The long travel-, cross travel-, top slide-handwheels can be hand operated for longitudinal or cross feeding.

Longitudinal Turning with Auto-Feed

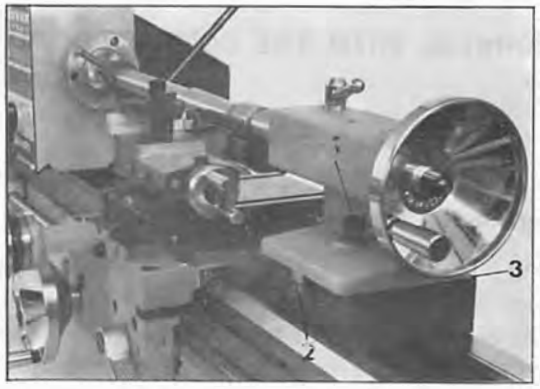
Two automatic feeds are available (rough = 0,18mm/rev., fine= 0,09mm/rev.). These can be obtained by altering the gear wheel combinations (see Table).

mm/U	0,09	0,18
W	40	40
Z_1	30 80	60 80
Z_2	80 25	80 25
L	H 80	H 80

By moving the half-nut lever 1 downward, the half-nut is engaged with the leadscrew and the automatic feed is in operation.



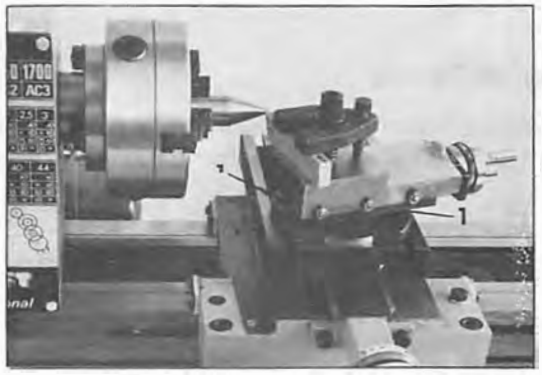
Taper Turning Using Tailstock Set-Over



Work to a side angle of 5^{0} can be turned by setting over the tailstock (the angle depends on the length of the workpiece).
If the smaller diameter of the taper is at the tailstock end, the tailstock must be moved towards the lead-screw.
To set over the tailstock, slacken the locking screw 1.
Unscrew the front adjusting screw 2.
Screw in the rear adjusting screw 3 until the required taper has been reached. Tighten the front screw to lock the tailstock in position.

The workpiece must be held between two centres and driven by driving plate and driver.
After taper turning the tailstock is returned to its original position. The zero position of the tailstock is checked by turning a test piece, with constant adjustment until the piece is absolutely cylindrical.

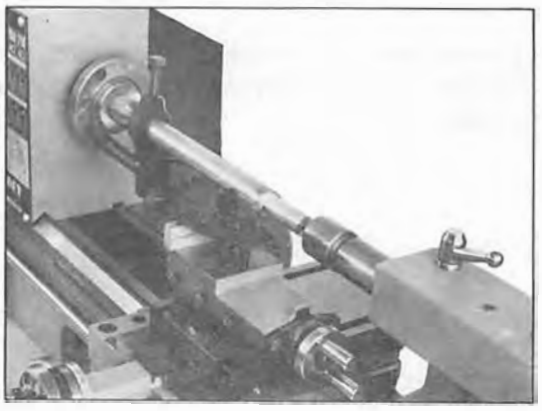
Taper Turning by Setting the Top Slide



By angling the top slide, tapers can be turned.

Swivelling the top slide:
After loosening the two screws 1, the top slide can be swivelled.
A graduated scale permits accurate adjustment of the top slide. This method can only be used for short tapers.

Turning Between Centres



For turning between centres it is necessary to remove the chuck from the spindle. It is held by three hex-headed nuts M8.

The centre MT 3 is fitted into the spindle nose, the driving pin is inserted in one of the three holes and locked by a nut.

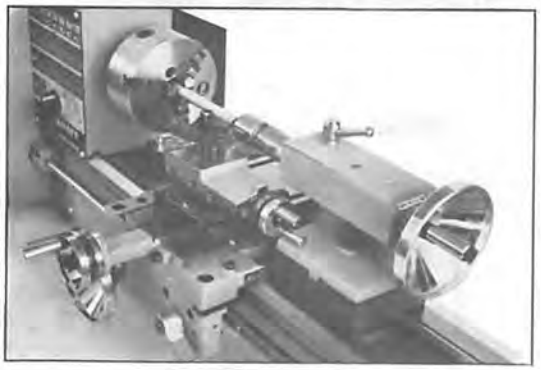
Fit revolving centre into the tailstock, mount work-piece, fitted with driver, between the centres.

Screw Cutting (with change wheels)

By changing the combination of gear wheels, it is possible to cut metric, inch and module threads.

For R. H. threads it is necessary for the carriage to travel in the direction of the headstock (normal rotating direction of the workpiece with closed half-nut) during trial runs.

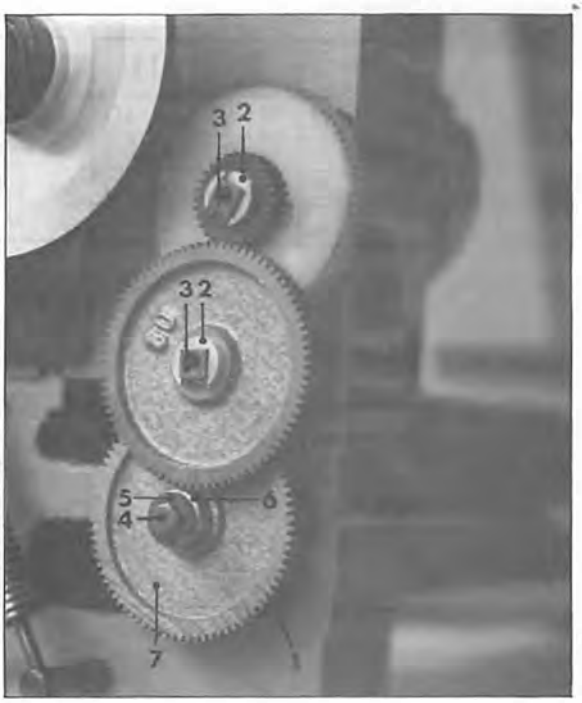
When fitting the change gears and the special bolt, make sure that the teeth mesh properly and do not bottom.



As an aid in mounting, a strip of paper should be placed between the meshing teeth and only removed when the special bolt is tightened. This will ensure that the wheels have the correct engagement.

It is essential that the half-nut should remain closed throughout the screwing operation, so that the tool always returns to the correct starting position. The tool should be withdrawn by use of the cross slide and the carriage returned to the starting position by reversing the motor.

An exeption is the cutting of metric threads, using the leadscrew. In this case, after each cut the half-nut can be opened and the carriage returned to the starting position by use of the handwheel, i. e. 1,5 - 0,5.



Example of mounting the gear wheels for 1mm metric thread

1. After loosening the screw 1, swing the quadrant forward.
2. Remove both washers 2 and loosen the special bolt 3.
3. Remove the hex-headed screw and the safety washer 5 from the leadscrew. Now take off the distance bush 6 and gear wheel 7.
4. Fit the bush and gear wheel (teeth = 75) on the leadscrew, secure with hex–headed screw and safety washer.
5. Mount the gear wheel, teeth = 40, on the bottom bolt and gear wheel, teeth = 80, on the top bolt. Next the gear wheel teeth = 50 is fitted to the bottom bolt and the distance bush fitted to the top bolt.The gears are brought into mesh as previously described and secured in place by the bolt and washer.
6. Swing the quadrant backward until it is correctly positioned with the leadscrew and fix with the screw 1.

THREAD CUTTING TABLES

Metric

mm	0,4	0,5	0,7	0,8	1	1,25	1,5	1,75	2	2,5	3
W	40	40	40	40	40	40	40	40	40	40	40
Z_1	H 80	H 80	H 80	H 80	H 80	H 80	H 80	H 80	H 80	H 80	H 80
Z_2	30 60	40 60	35 60	40 60	50 40	50 40	75 60	70 60	80 60	75 60	75 60
L	75 H	80 H	50 H	50 H	75 H	60 H	50 H	40 H	40 H	30 H	25 H

Inch

n/1"	10	11	13	19	20	22	40	44
W	40	40	40	40	40	40	40	40
Z_1	H 80	H 80	H 80	H 80	H 80	H 80	H 50	H 60
Z_2	55 20	50 20	65 40	50 30	55 40	50 40	55 80	50 80
L	65 H	65 H	50 H	75 H	65 H	65 H	65 H	65 H

Module

Mod	0,2	0,25	0,3	0,5	0,6	0,7
W	40	40	40	40	40	40
Z_1	H 60	H 75	H 80	H 80	H 80	H 80
Z_2	55 75	55 60	55 50	55 30	55 25	55 20
L	70 H	70 H	70 H	70 H	70 H	75 H

Explanation of the Thread Cutting Tables

The gearwheels and distance bushes shown on the right-hand row, are always fitted first, i. e. before the left row. The crossing lines show the gearwheels which mesh.

mm = threads metric
mod = threads module
W = main spindle
Z_1 = 1st intermediate shaft
Z_2 = 2nd intermediate shaft
L = leadscrew
H = distance bush

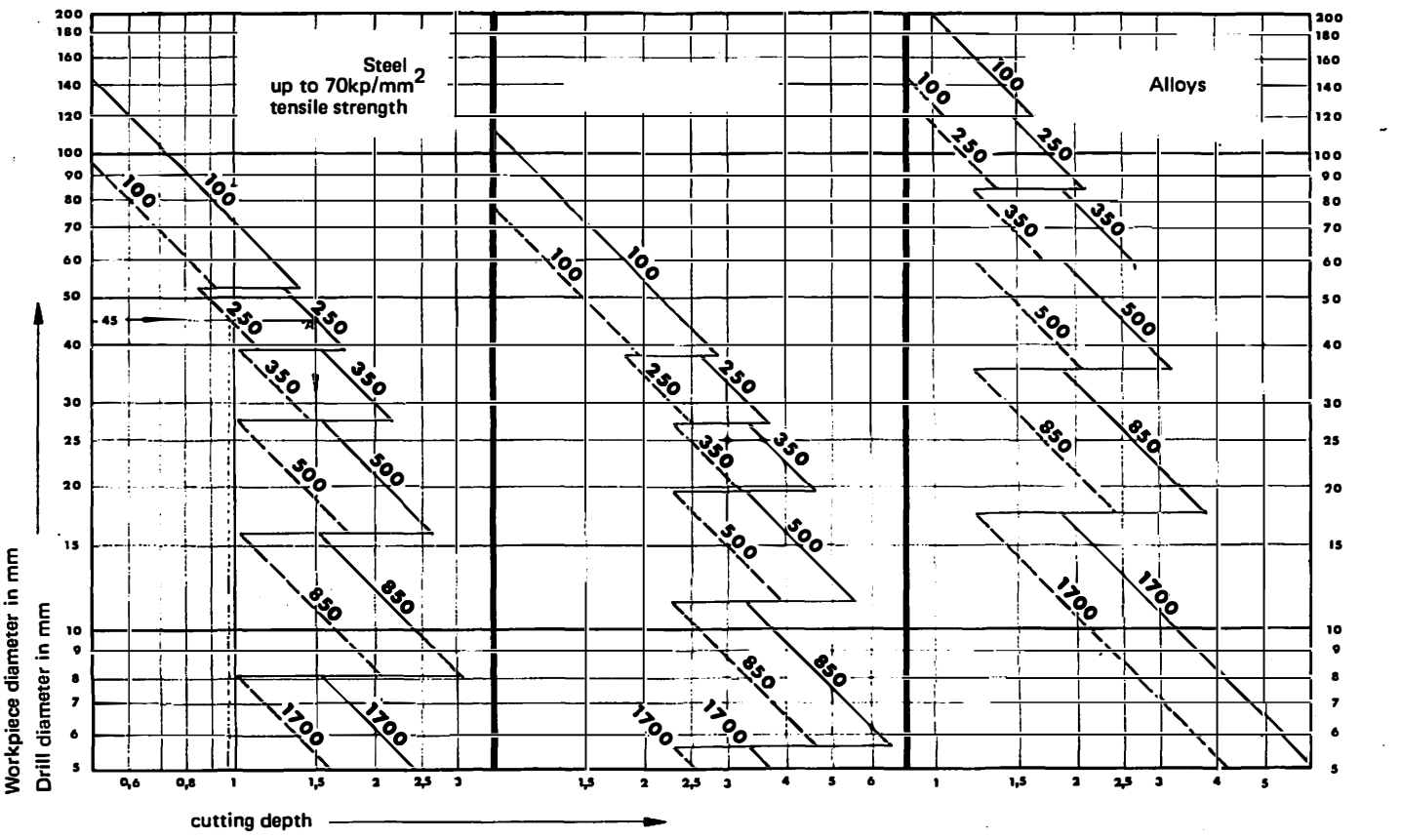
Choosing the correct operating speed

Example:

Rough turning of a steel shaft 70kp/mm^2, shaft diameter 45mm, chosen feed 0,09mm/rev.
With these values one can find from the diagram the speed and the maximum permissible cutting depth to be used. The cutting depth is the amount that the cross slide can be fed relative to the suface of shaft.
In the diagram for "Steel up to 70kp/mm^2 tensile strength", going along the line "workpiece diameter 45mm" to the right until the point where the heavy 45^0 line crosses (Point "A"), the figure 250 gives the speed - 250revs/min. By taking a vertical line from Point A downwards, the maximum cutting depth of approx. 1,5 mm is obtained.
The dotted lines in the diagram give the equivalent depth of cut when using the 0,18mm/rev. feed. (For the above example the cutting depth would be 0,97mm).
The heading "drill diameter in mm" is for boring.
As an example:
A bore of 10mm (drill fitted in tailstock, the workpiece in the chuck) requires a spindle speed of 850revs/min.

! NOTE ! The values of depth of cut shown in the diagram are the results of long trials and experience.

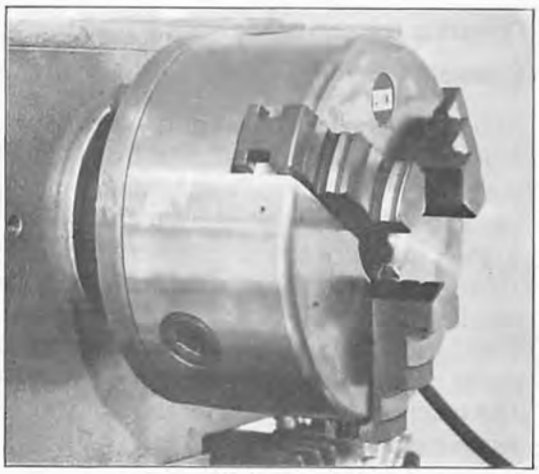
Slipping Clutch: To avoid the overloading of the drive, a safety-slipping clutch is fitted.
Overloading the drive (rattling noise) means the depth of cut is too deep and should be reduced (check with the values given in the table).



LATHE ACCESSORIES

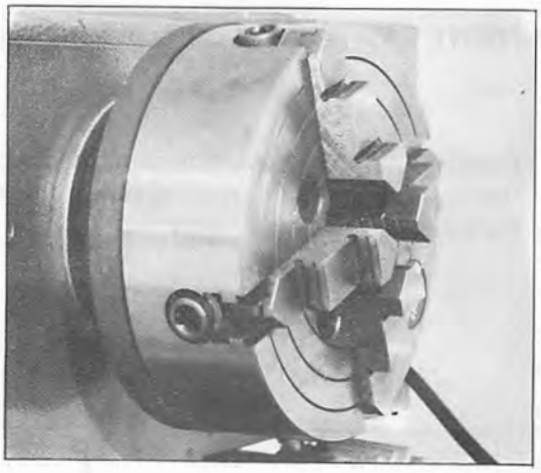
Universal Lathe Chuck, 3 or 4 jaw design

Using these Universal Chucks, cylindrical or symmetrically profiled work pieces (round stock, triangular, square, hexagonal, octagonal or twelve-cornered stock) can be clamped.
NOTE: New lathe chucks have very tightly fitting jaws. This is of vital necessity to ensure accurate clamping and a long service life. Due to repeated opening and closing the jaws adjust themselves automatically and their operation becomes progressively smoother. For greasing, we recommend Molykote Paste G.



4-Jaw Independent Chuck (Ø 150mm)

This special chuck has 4 independently adjustable chuck jaws. These permit the holding of asymmetrical components and enable the accurate setting up of cylindrical components.

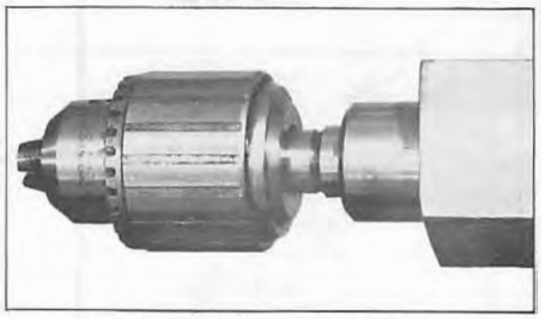


Drill Chuck

With its three self-centring jaws it is used for holding centring drills and twist drills.

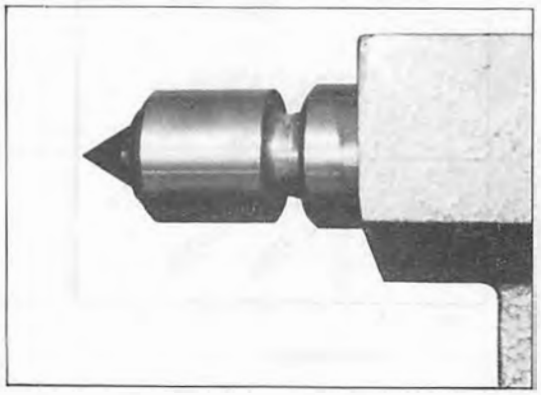
Morse taper arbor

The arbor is necessary for mounting the drill chuck in the tailstock or vertical attachment spindle. It has a No. 2 morse taper.



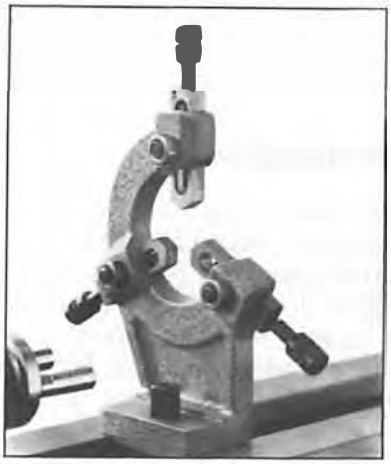
Live centre

The live centre is mounted on 3 ball bearings. Its use is highly recommended for turning at speeds in excess of 500 rpm.



Fixed steady

The fixed steady serves predominantly as a support for shafts on the free tailstock end. For many operations the tailstock cannot be used as it obstructs the turning tool or the drilling tool, and therefore must be removed from the machine. It is then the fixed steady which functions as end support ensuring a chatter-free running of the machine. The fixed steady is mounted on the bedway and secured from below in the desired position by means of a locking plate. The sliding fingers require continuous lubrication at the contact points with the workpiece to prevent their premature wear.

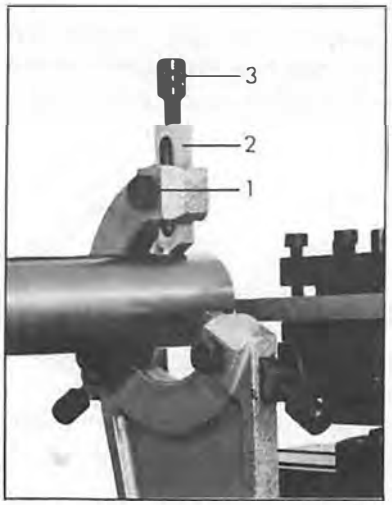


Travelling steady

The travelling steady is mounted on the saddle and thus follows the movement of the turning tool. As the centre part of the travelling steady is always level with the height of the tool, only two sliding fingers are required, as the place of the third is taken by the turning tool. The travelling steady is used for turning operations on long, slender workpieces. It prevents "springing" of the workpiece under the pressure of the turning tool.
The sliding fingers are set similarly to those of the fixed steady, free of play, but not binding. They should be adequately lubricated during the operation.

Setting the steady

1. Slacken the three laterally located hexagonal nuts 1.
2. Unscrew the knurled screws 3 and advance the sliding fingers 2 by hand. Open the sliding fingers sufficiently wide until the fixed steady can be moved with its fingers around the workpiece. Secure the fixed steady in its position.
3. By turning the knurled screws into position, the sliding fingers can be set to the workpiece. They must be applied free of play but must not be too tight. Tighten the hexagonal nuts. Lubricate the sliding points with machine oil.
4. When after prolonged operating time the jaws show wear, the tips of the fingers can be remilled or filed.

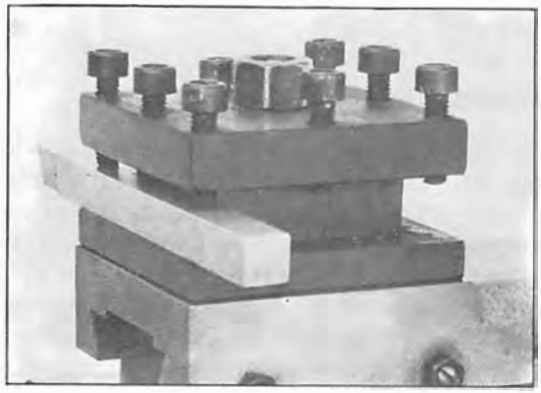


Box with turning tools

This box contains 6 ground turning tools:
1 roughing tool (roughing cuts)
1 side cutting tool RH (for finish turning)
1 parting-off tool (for grooving and parting-off)
1 inside turning tool (for boring)
1 internal thread cutting tool, 60^{o} thread angle
1 external thread cutting tool, 60^{o} thread angle

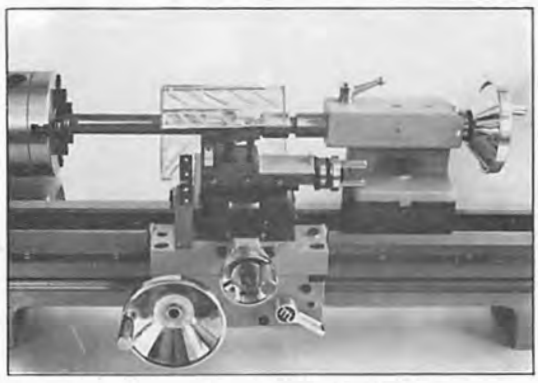
Four-way Tool Post

It is mounted on the top slide and allows four tools to be clamped. Any of the tools can be swung into the cutting position. It is essential to loosen the hex headed nut before swinging the tool. Thereafter tighten.



Chip Guard

Travels with the tool and protects the operator from flying turnings. It is also sufficient protection against damage from a tool breaking in use.



Change Gears for the COMPACT 8

This accessory consists of 8 gear wheels and a distance ring.
With these wheels the following threads can be cut: Metric from 0,4mm-3mm, module from M 0,2 - 0,4, and inch from 44 threads per inch to 10 threads per inch.
For detailed instructions of mounting and using see pages 11 and 12.

Cabinet stand

Assembly of cabinet stand:

Put up left(A) and right (B) stand. Screw both angle irons (C) with 2 bolts each (M8 x 12 DIN 933) to stand A respectively B.

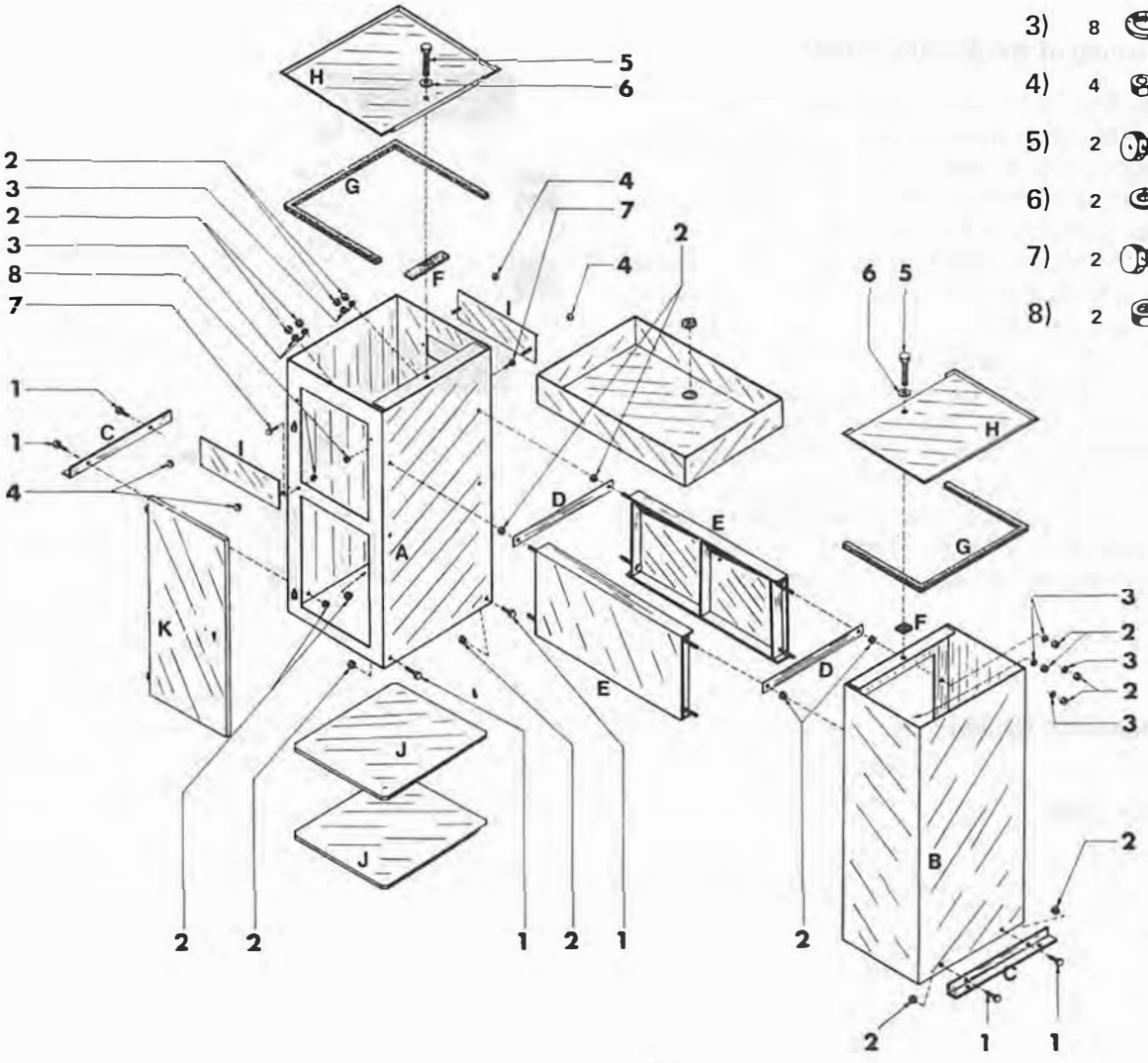
Bolt steel flats (D) and mid-portions (E) together (4 nuts M8). Bolt assembled mid-portions (E) to both stands (A and B) (8 nuts M8, DIN 934 and 8 lock washers DIN 127).
Screw supporting bolts for inserts (J) in place (2 bolts M5 x 8, 2 bolts M8 x 12 DIN 933, nuts on inside of stand).

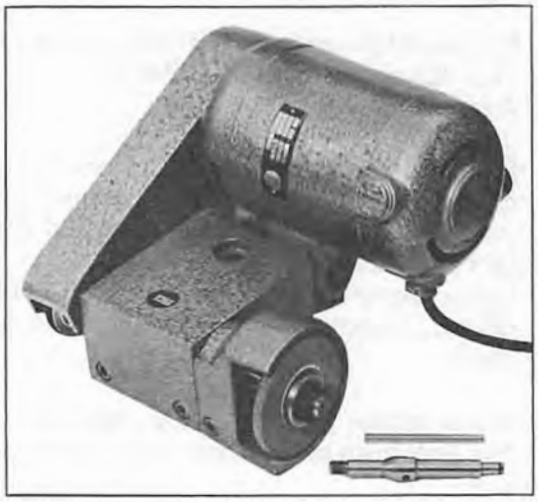
Put on rubber pads (F), rubber packings (G) and trays (H). Bolt both cover plates (I) to left stand (2 nuts each).
Fit inserts (J) into left stand (A). Mount cabinet door on hinges. Mount machine in position and bolt it with 2 bolts M 10 x 35 DIN 933 to cabinet stand.

Hold down rubber packing with left hand.

Then bend rubber packing with right hand upward and press it bit by bit onto the rim of the cabinet stand.
NOTE: When mounting the rubber packing, do not stretch it!

1)	6	M8 x 12	DIN 933
2)	18	M8	DIN 934
3)	8	A8	DIN 127
4)	4	M6	DIN 934
5)	2	M10x35	DIN 933
6)	2	B10,5	DIN 125
7)	2	M5x8	DIN 933
8)	2	M5	DIN 934





Toolpost Grinder

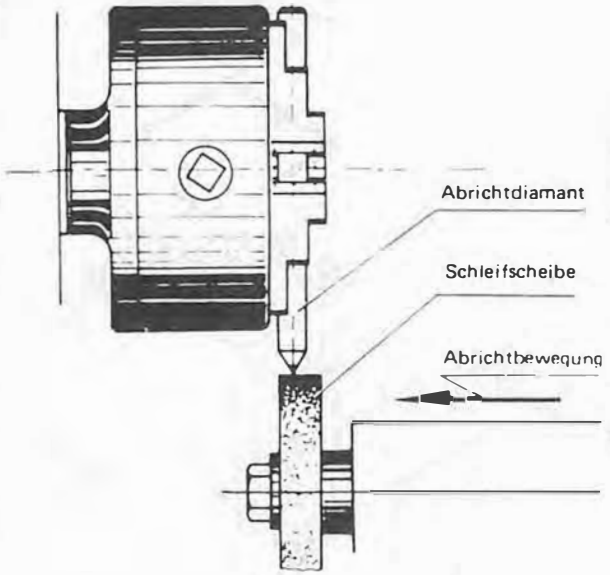
This attachment is an independent unit with its own motor (150 W capacity) and fits on the top slide in place of the tool holder. It can be used for both internal and external grinding. The grinding spindle runs on precision bearings. Care should be taken to avoid damaging this spindle.
Shifting of the belt gives three speeds, 4500, 8000 and 12.000 rpm.

Working with the toolpost grinder

The motor and grinding wheel spindle have three belt pulleys each. By shifting the belt, 3 speeds can be obtained: 4500, 8000 and 12.000 rpm. The belt should only be moderately tightened to avoid unnecessary power consumption and wear.

Dressing and truing of the grinding wheel

To obtain a perfect finish on the workpiece to be ground, it is essential to true the grinding wheel with a truing diamond prior to every grinding operation. Clamp the truing diamond on the lathe chuck (see sketch) so that the diamond will be level with the height of the centres and pointing forward. To prevent the lathe chuck from turning during the truing operation, engage the lowest headstock gear. Set and run the toolpost grinder at 4500rpm.
Move the revolving grinding wheel close to the point of the truing diamond - just touching. Feed 0,05mm with the cross support and carry out the truing operation with the saddle. This operation should be repeated until the grinding wheel is completely clean over its entire periphery. Never apply more than 0,05mm, otherwise the truing diamond can be damaged.



Feeds and Speeds for Grinding

Cutting Speed:	15 - 25m/sec
Grinding wheel speed:	
External grinding:	4500rpm
Internal grinding:	8000 or 12.000rpm
Surface speed of the workpiece:	10 - 15m/minute

Mounting on the lathe

The toolholder is removed and the grinder set up on the top slide so that the fixing screws on the top slide are through the slots; when the grinder is correctly adjusted it is tightened in place with washers and nuts.

External grinding

For most external grinding the 60mm dia. grinding wheel, grain 80, hardness grade M, is used. The grinding wheel is bolted to the arbor at the toolpost grinder, trued and should remain in this position until it becomes worn out. The locating arbor with the mounted grinding wheel is clamped in the spindle by means of a draw-in tube. To grind the workpiece, the toolpost grinder with rotating grinding wheel (4500 rpm) is fed in to the slowly revolving workpiece until a slight grinding spark formation occurs. The longitudinal slide rest of the toolpost grinder is then moved into the initial position. Apply a feed of maximum 0,1mm with the cross slide and engage the automatic feed. The grinding operation will proceed automatically.

Internal grinding

Replace the external grinding arbor by the internal grinding arbor. Smaller grinding wheels can be mounted on the front end of the grinding arbor (6mm dia.) and secured by means of an M3 screw. Very small grinding wheels (below 15mm) have a cast-in M3 type screw and can be screwed direct into the grinding arbor. If they are equipped with cylindrical shanks, a suitable Lorch-Schmidt watchmaker's collet of type B8 can be inserted into the spindle and clamped. These small grinding wheels also require dressing by the truing diamond.Adjust for a spindle speed of 8000 or 12.000rpm internal grinding. The grinding operation is similar to that of external grinding.

Taper grinding

For taper grinding move the toolpost grinder with the top slide into the desired angular position. Adjust with the cross slide. The feed for the longitudinal movement is controlled by turning the top slide handwheel.

NOTE!

An increase in operating temperature can occur during the first few hours, but this will not harm the spindle. The temperature will automatically drop after a few hours.

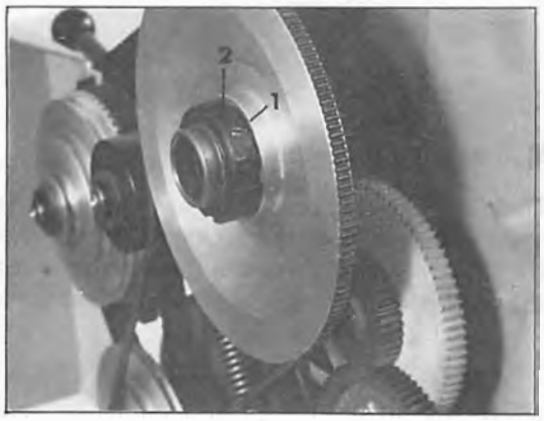
Cleaning and servicing

The quill is of a dust-tight design and all bearings are lubricated for life. In spite of this, the dust clinging to the toolpost grinder should be wiped off after use. When re-setting the toolpost grinder from external to internal grinding or viceversa, the taper socket must be cleaned meticulously.

BEARING AND SLIDE ADJUSTMENT

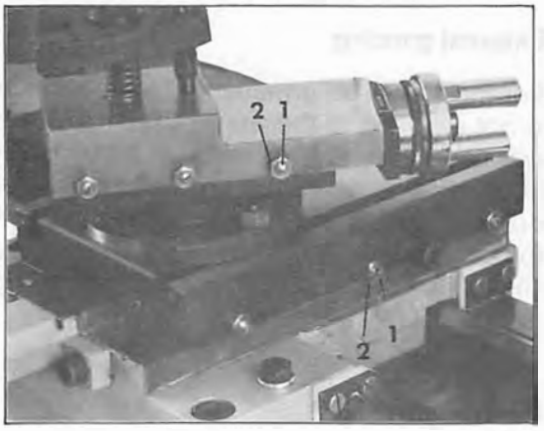
Adjustment of main spindle bearings

The mainspindle bearings are correctly adjusted at the works. If end play becomes evident after considerable use, the bearings can be adjusted by slackening the grub screw (1) in the slotted nut (2) on the back end of the spindle and tightening the slotted nut with a "C" spanner until all end play is taken up, but with the spindle still revolving freely. (Excessive preloading will damage the bearings). Tighten grub screw.



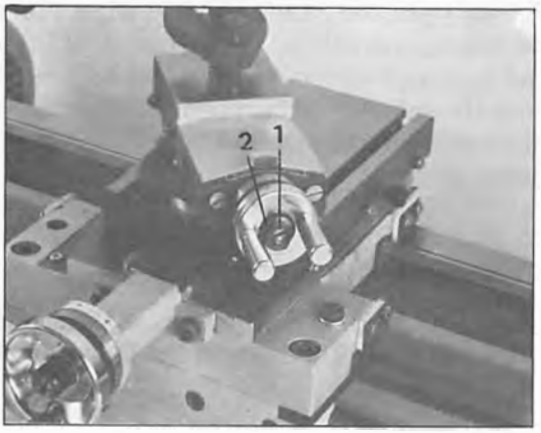
Adjustment of cross and top slides

Each slide is fitted with a gib strip which can be adjusted with 3 screws (3) fitted with lock nuts. The gib strip is adjusted with the screws until the slide moves freely without play, after which the lock nuts are tightened.



Adjustment of feed screw end float

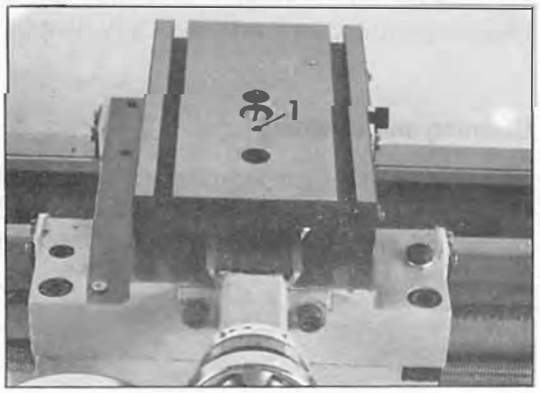
When one of the two slides develops end float, slacken the screw (1) in the relevant handwheel and adjust the nut until all play has been taken up.
Re-lock the nut with the screw.



Adjustment of feed screw backlash in nuts

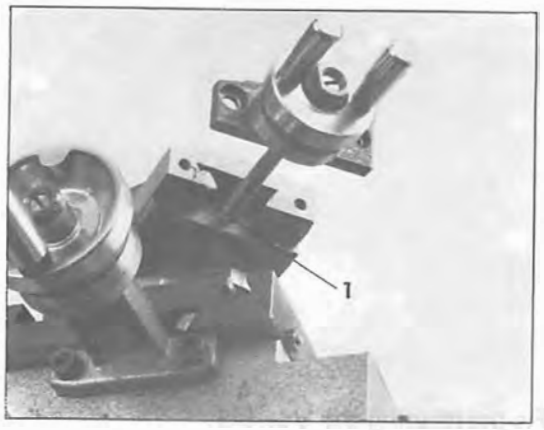
Cross slide spindle

Remove the top slide and adjust screw 1 until the backlash between the spindle and nut is eliminated.



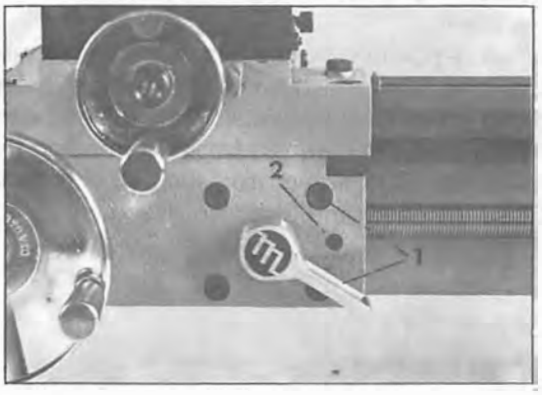
Top slide spindle

Remove the 2 screws holding the spindle bracket in position and unscrew the spindle. Adjust the screwed ring (1) until all backlash has been eliminated.



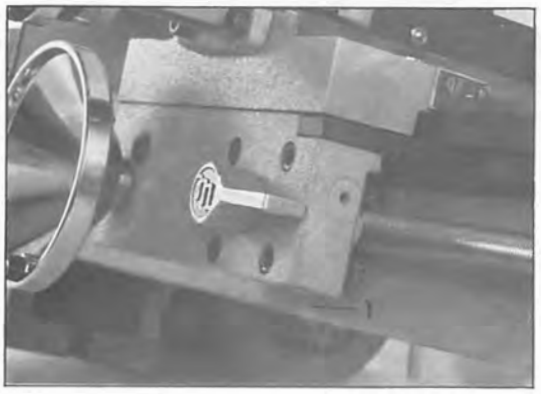
Adjustment of half-nut guide

Loosen the two screws (1) on the right hand side of the apron and adjust the control screw (2) until both half-nuts move freely without play. Tighten both screws again.



Adjustment of leadscrew backlash

Loosen the grub screw No. 1 which is on the underside of the apron until - with the half-nuts engaging the lead screw-backlash is eliminated.

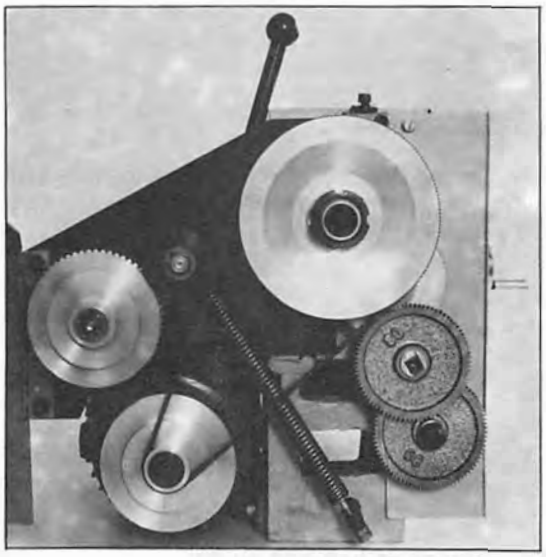


Replacing the shear pin in the leadscrew

If the shear pin breaks due to overoad or abuse, it must be replaced.

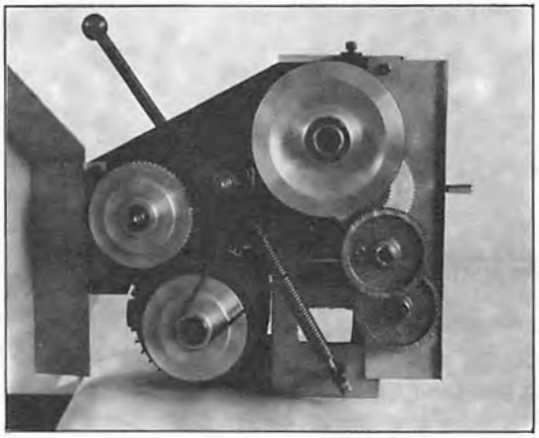
NOTE! Make sure that only EMCO shear pins are fitted.

Inorder to knock out the broken pin, the hex headed screw must be loosened and the pinion removed. Take off the sleeve and knock the broken pin out of the sleeve and leadscrew. Replace the sleeve, line up the holes and fit new pin. Reassemble.

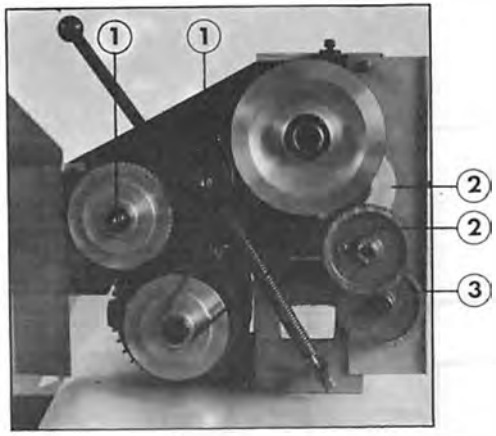


Re-positioning the Vee-Belt

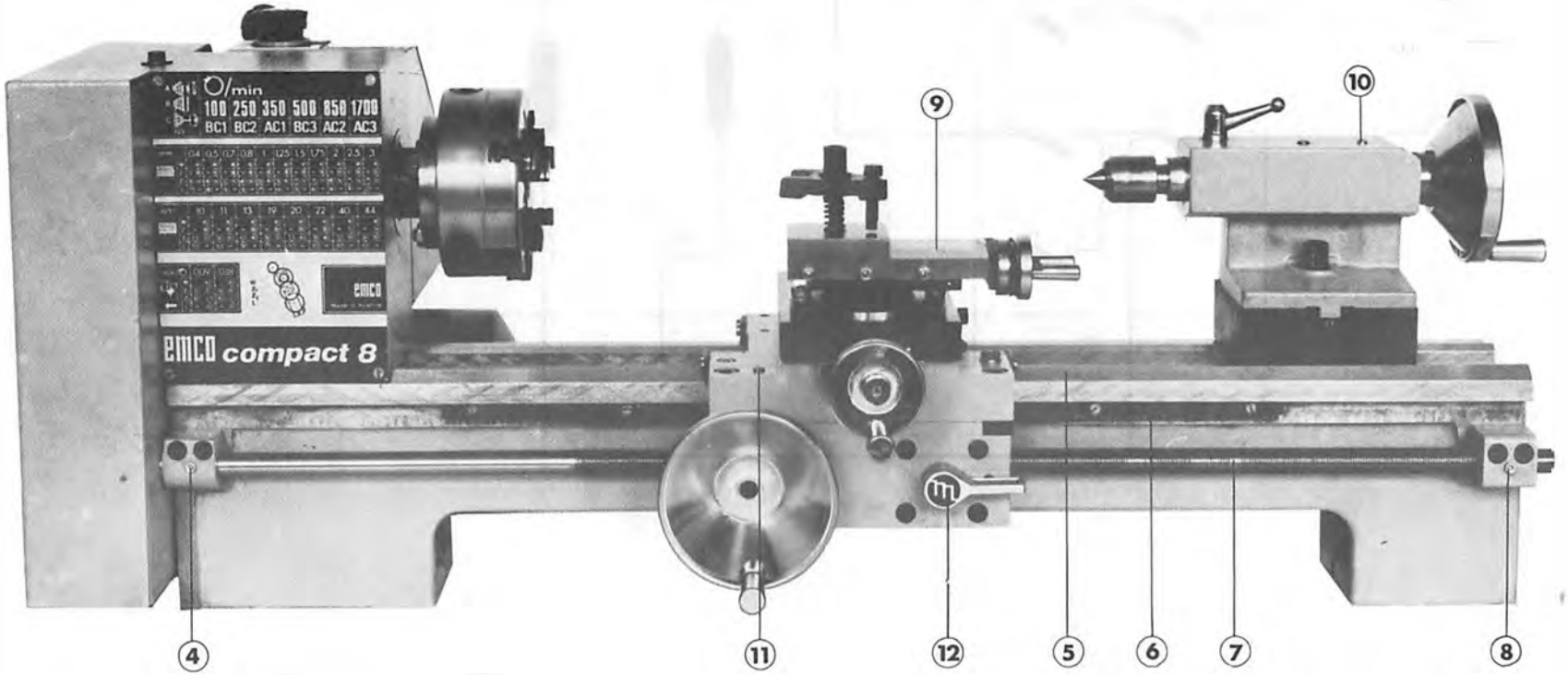
Loosen the screw on top of the headstock and open the cover.
When re-positioning the belt it is necessary to slacken the idler. That is achieved by moving the lever in the direction of the headstock. Now the belt can be positioned on the required stage. By moving the lever in the direction of the motor, the belt is tensioned.
Close the cover and secure with screw.



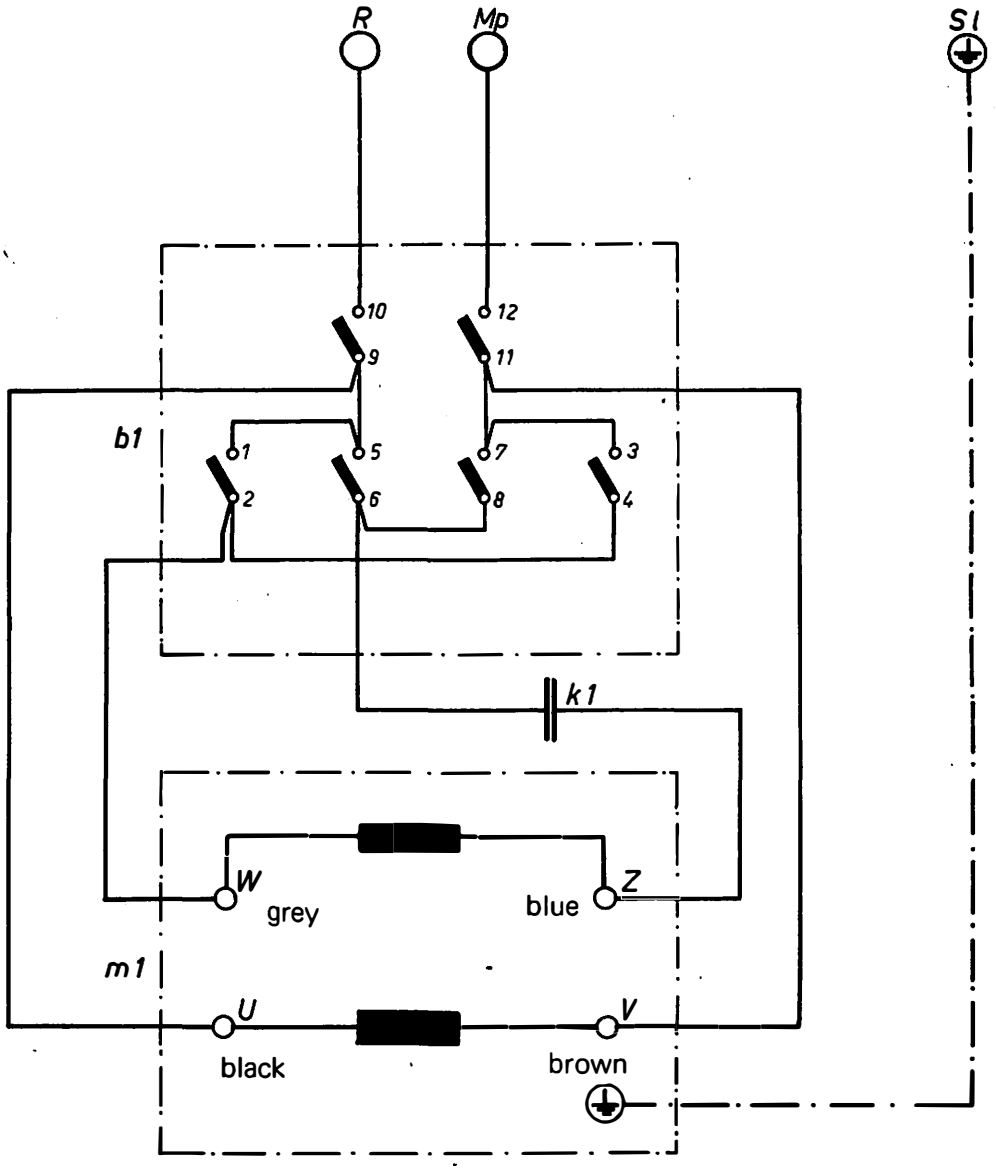
LUBRICATION PLAN



No.	Interval	Position	Grease	Oil
	Prior to starting up			
1	"	Grease nipple	●	
2	"	Feed gear: change gears		●
3	"	Teeth - oil		●
4	"	Left hand bearing of leadscrew	●	
5	"	Bed ways: clean and oil		●
6	"	Rack: grease over complete length	●	
7	"	Leadscrew: clean and oil over complete length		●
8	"	Right hand bearing of leadscrew	●	
9	"	Top slide: guides and screw		●
10	Every 1000 working hours	Tailstock barrel (grease nipple)	●	
11	"	Carriage: grease nipple	●	
12	"	Fed by carriage grease nipple No.11		



Wiring Diagram "EMCO COMPACT 8"



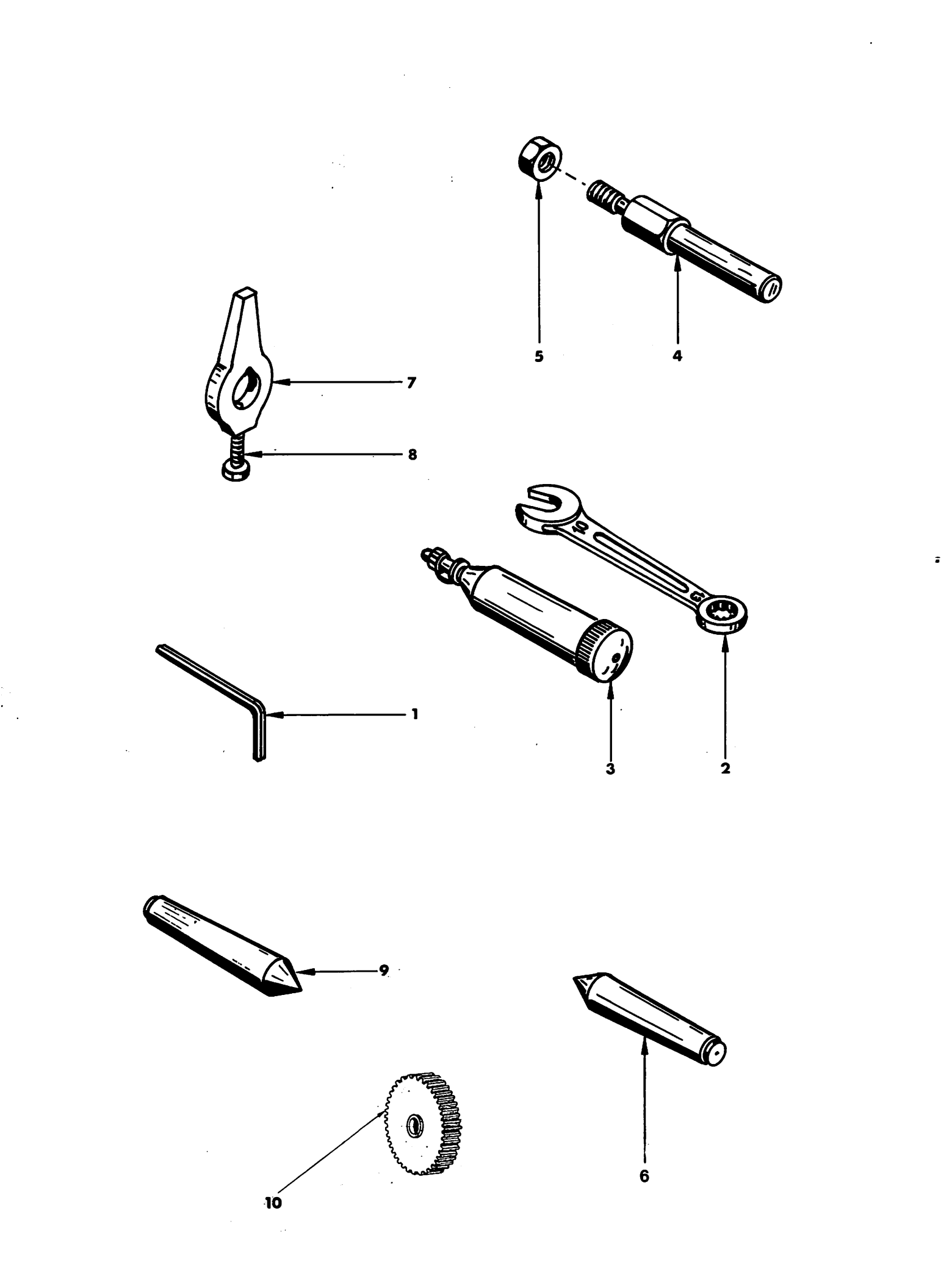
b1 Motor switch
k1 Condenser
m1 Motor

Motor switch diagram

b1	1 2	3 4	5 6	7 8	9 10	11 12
forward	–	x	x	–	x	x
–	–	–	–	–	–	–
0	–	–	–	–	–	–
–	–	–	–	–	–	–
reverse	x	–	–	x	x	x

emco compact 8

SERVICETEILE
SERVICE PARTS
PIECES DE SERVICE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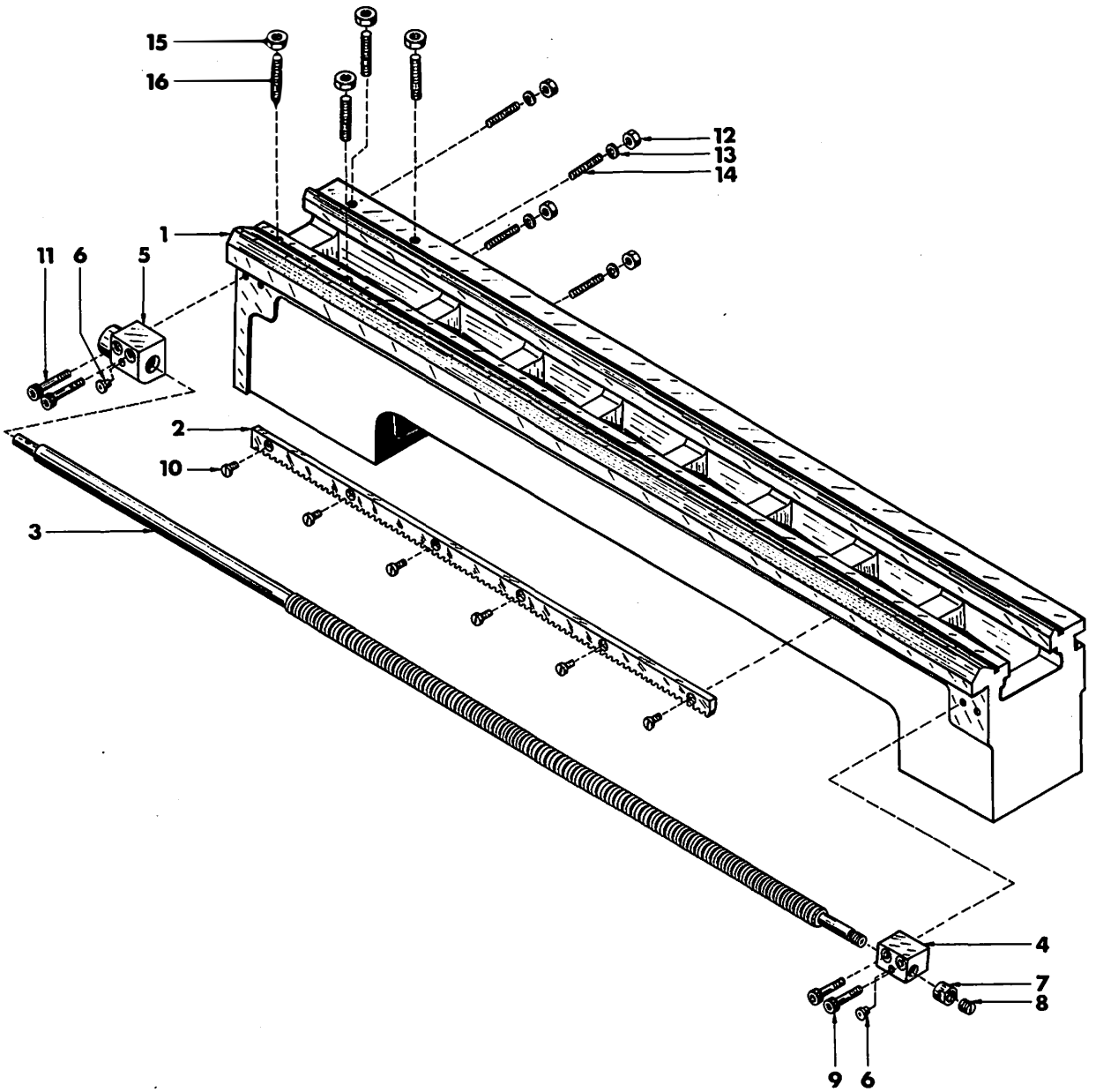
				Grundausstattung	Tools	Equipement de base
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	ZWZ 11 0500			Sechskantstiftschlüssel	Hexagonal key	Clé coudée pour 6 pans creux
2	B2A 000 470			Ring - Maulschlüssel	Key wrench	Clé combinée plate et à oeil
3	ZWZ 99 0012			Kleinfettpresse	Grease gun	Petite pompe à graisse
	B1A 140 000			G. Mitnehmer	Holding bolt	Ensemble pousse-toc
4	B1A 140 010			Mitnehmerbolzen	Holding bolt	Pousse-toc
5	ZMU 34 0800	M8 DIN 934		Sechskantmutter	Nut	Ecrou hexagonal
6	B2A 000 460			Körnerspitze MK 3	Centre MT 3	Pointe sèche CM 3
	B2A 130 000			G. Drehherz	Lathe dog	Toc de tour complet
7	B2A 130 010			Drehherz	Lathe dog	Toc de tour seul
8	ZSR 33 0840	M8x40 DIN 933		Sechskantschraube	Hexagon screw	Vis tête hexagonale
9	B2A 000 420			Körnerspitze MK 2	Centre MT 2	Pointe sèche CM 2
10	B2Z 200 070			Wechselrad z = 60	Change gear	Engrenage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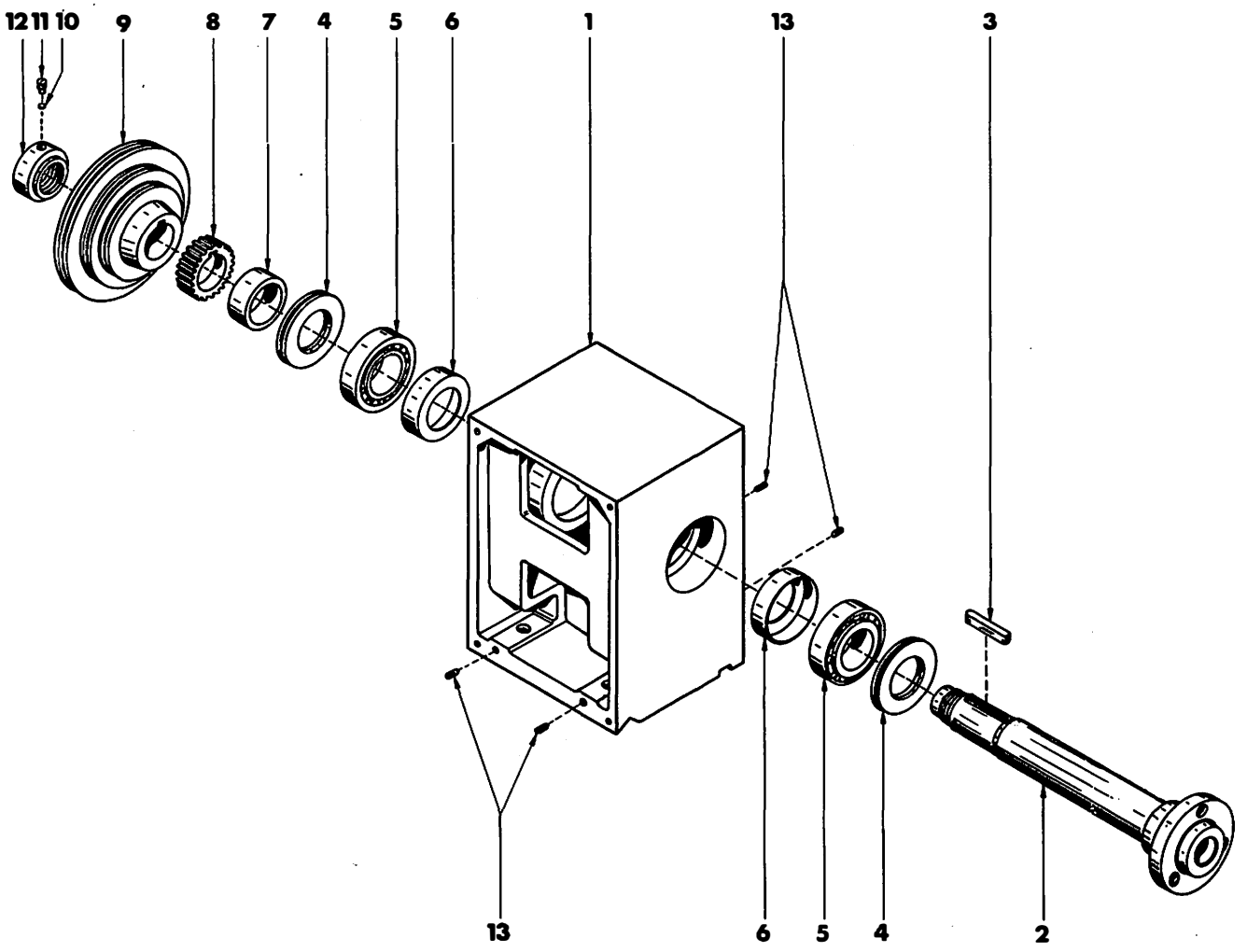
				Drehmaschinenbett	Lathe bed	Banc
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B1A 000 030			Bett	Bed	Banc nu
2	B2A 000 020			Zahnstange	Rack	Crémaillère
3	B1A 000 070			Leitspindel	Lead screw	Vis-mère
4	B1A 000 220			Spindelträger	Bearing block	Paliersupport de vismère (droite)
5	B2A 000 030/1			Leitspindelträger	Bearing block	Palier-support de vis-mère (gauche)
6	ZNP 01 1000			Schmiernippel	Grease fitting	Graisseur
7	B2A 000 100			Mutter	Nut	Écrou à 2 pans
8	ZST 51 0806	M8x6 DIN 551		Gewindestift	Set screw	Contre-vis
9	ZSR 12 0630	M6x30 DIN 912		Innensechskantschraube	Allen head screw	Vis tête cylindrique
10	ZSR 84 0410	M4x10 DIN 84		Zylinderschraube	Flat head screw	Vis tête cylindrique
11	ZSR 12 0630	M6x30 DIN 912		Innensechskantschraube	Allen head screw	Vis 6 pans creux
12	ZMU 34 0600	M6 DIN 934		Sechskantmutter	Nut	Écrou hexagonal
13	ZRG 28 0060	B6 DIN 127		Federring	Clip	Rondelle grover
14	ZSR 39 0620	M6x20 DIN 939		Stiftschraube	Stud	Goujon
15	ZMU 34 0800	M8 DIN 934		Sechskantmutter	Nut	Écrou hexagonal
16	ZSR 39 0825	M8x25DIN 939		Stiftschraube	Stud	Goujon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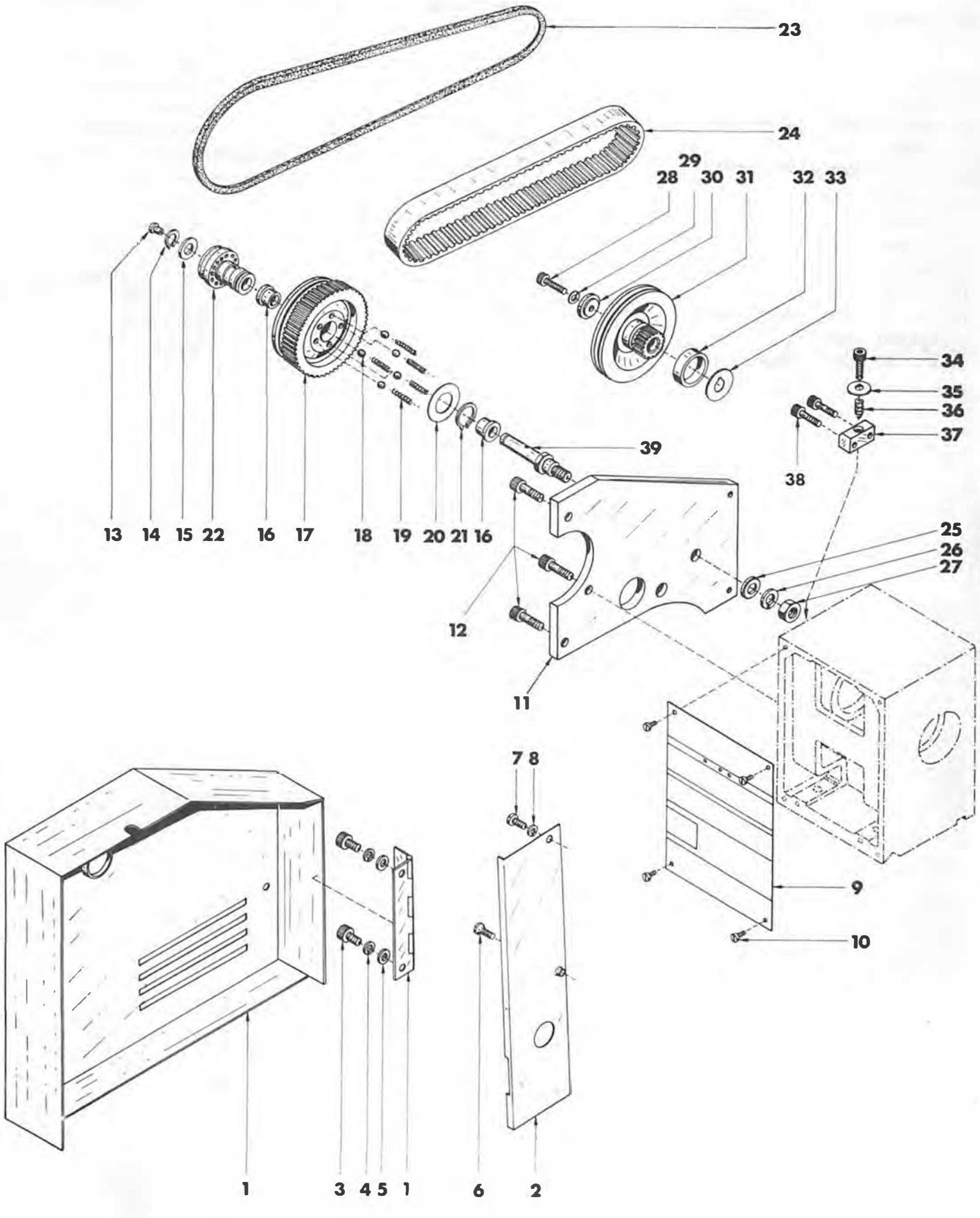
	B1A 030 000			G. Spindelstock	Headstock	Poupée fixe
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B1A 030 010			Spindelstock	Headstock	Carter de poupée fixe
2	B1A 030 020			Spindel	Spindle	Broche principale
3	ZFD 85 8536	A8x5x36 DIN 6885		Paßfeder	Key	Clavette
4	B1A 030 050			Dichtscheibe	Gasket	Disque d'étanchéité
5	ZLG 32 0076	32007XC/P6		Kegelrollenlager	Heavy taper roller bearings	Roulement à rouleaux coniques
6	B1A 030 060			Deckel	Cover	Bouchon-cuvette
7	B1A 030 040			Distanzhülse	Bushing	Entretoise
8	B1A 030 030			Zahnrad	Gear	Engrenage
9	B1A 030 070			Riemenscheibe	Pulley	Poulie de broche
10	B2A 030 060			Druckscheibe	Disc	Pastille de pointeau
11	ZST 17 0405	M4x5 DIN 417		Gewindestift	Set screw	Vis pointeau
12	B2A 030 070			Spannmutter	Nut	Écrou canelé
13	ZST 51 0410	M4x10 DIN 551		Gewindestift	Set screw	Goujon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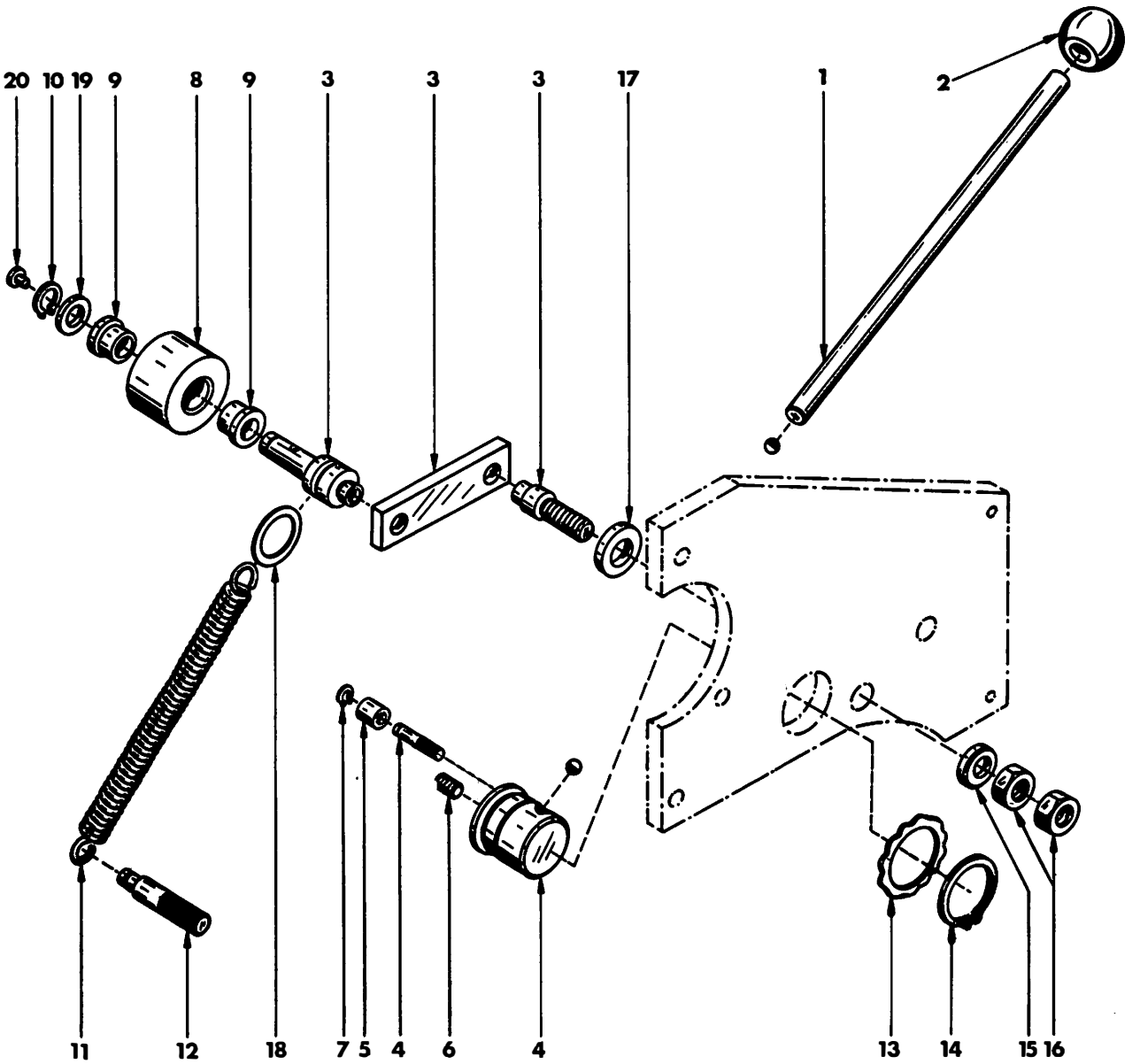
				Antrieb	Drive	Entrainement
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B1A 060 000			G. Deckel	Cover	Couvercle assemblé
2	B1A 000 060			Abdeckblech	Covermount	Tôle de couverture
3	ZSR 12 0612	M6x12 DIN 912		Zylinderschraube	Round head screw	Vis tête cylindrique
4	ZRG 28 0060	B6 DIN 127		Federring	Clip	Rondelle grover
5	ZSB 25 0640	B6,4 DIN 125		Scheibe	Washer	Rondelle plate
6	ZSR 63 0512	M5x12 DIN 963		Senkschraube	Flat head screw	Vis tête fraisée
7	ZSR 84 0508	M5x8 DIN 84		Zylinderschraube	Round head screw	Vis tête cylindrique
8	ZSB 25 0530	B5,3 DIN 125		Scheibe	Washer	Rondelle grover
9	B1A 000 180			Frontschild	Plate	Plaque frontale
10	ZSR 84 0406	M4x6 DIN 84		Zylinderschraube	Round head screw	Vis tête cylindrique
	B1A 210 000			G. Trägerplatte	Bracket plate	Plaque support assemblée
11	B1A 000 210			Trägerplatte	Bracket plate	Plaque support seule
12	ZSR 12 0820	M8x20 DIN 912		Zylinderschraube	Round head screw	Vis tête cylindrique
13	ZNP 01 1000			Schmiernippel	Grease nipple	Graisseur
14	ZRG 71 1210	12x1 DIN 471		Sicherungsring	Clips	Circlip
15	ZSB 10 2181	22x18x1		Stützscheibe	Washer	Rondelle plate
	B1A 211 000			G. Kupplung	Clutch	Embrayage assemblé
16	B2A 030 130			Bundlager	Bearing bush	Palier d'assemblage
17	B1A 000 090			Vorgelegeriemenscheibe	Countershaft pulley	Poulie de renvoi pour courroie crantée
18	ZKG 00 1060	6,0GK3 DIN 5401		Stahlkugel	Ball	Bille acier
19	B1A 000 340			Druckfeder	Feed spring	Ressort de compréssion
20	ZLG 77 2542	AS 2542		Axiallagerscheibe	Thrust bearing washer	Disque
21	ZRG 71 2512	25x1,2 DIN 471		Sicherungsring	Clip	Circlip
22	B1A 000 320			Kupplungsriemenscheibe	Belt pulley	Poulie trapézoidale de l'embrayage
23	ZRM 45 0690	Gates 5M-690		Keilriemen	Vee belt	Courroie trapézoidale
24	ZRM 51 7170	170XL 050		Zahnriemen	Drive belt	Courroie crantée
25	ZSB 25 1050	B10,5 DIN 125		Scheibe	Washer	Rondelle plate
26	ZRG 28 0100	B10 DIN 127		Federring	Clip	Rondelle grover
27	ZMU 34 1000	M10 DIN 934		Sechskantmutter	Nut	Ecrou hexagonal
28	ZSR 12 0520	M5x20 DIN 912		Zylinderschraube	Round head screw	Vis tête cylindrique
29	ZRG 28 0050	B5 DIN 127		Federring	Clip	Rondelle grover
30	B1A 000 100			Scheibe	Washer	Rondelle plate épaulée
	B1A 215 000			G. Motorriemenscheibe	Pulley	Poulie moteur assemblée
31	B1A 000 080			Motorriemenscheibe	Pulley	Poulie moteur seule
32	B1A 000 130			Anlaufring	Start sleeve	Douille entretoise
33	B1A 000 120			Anlaufscheibe	Spacer	Disque à rainure de clavette
34	ZSR 12 0620	M6x20 DIN 912		Zylinderschraube	Round head screw	Vis tête cylindrique
35	ZSB 21 0640	A6,4 DIN 9021		Scheibe	Washer	Rondelle plate
36	C3A 062 040			Druckfeder	Feed spring	Ressort de compression
37	B1A 000 050			Klemmleiste	Clamp piece	Lardon de blocage
38	ZSR 12 0622	M6x22 DIN 912		Zylinderschraube	Round head screw	Vis tête cylindriques
39	B1A 000 110			Riemenscheibenwelle	Belt pulley shaft	Arbre des poulies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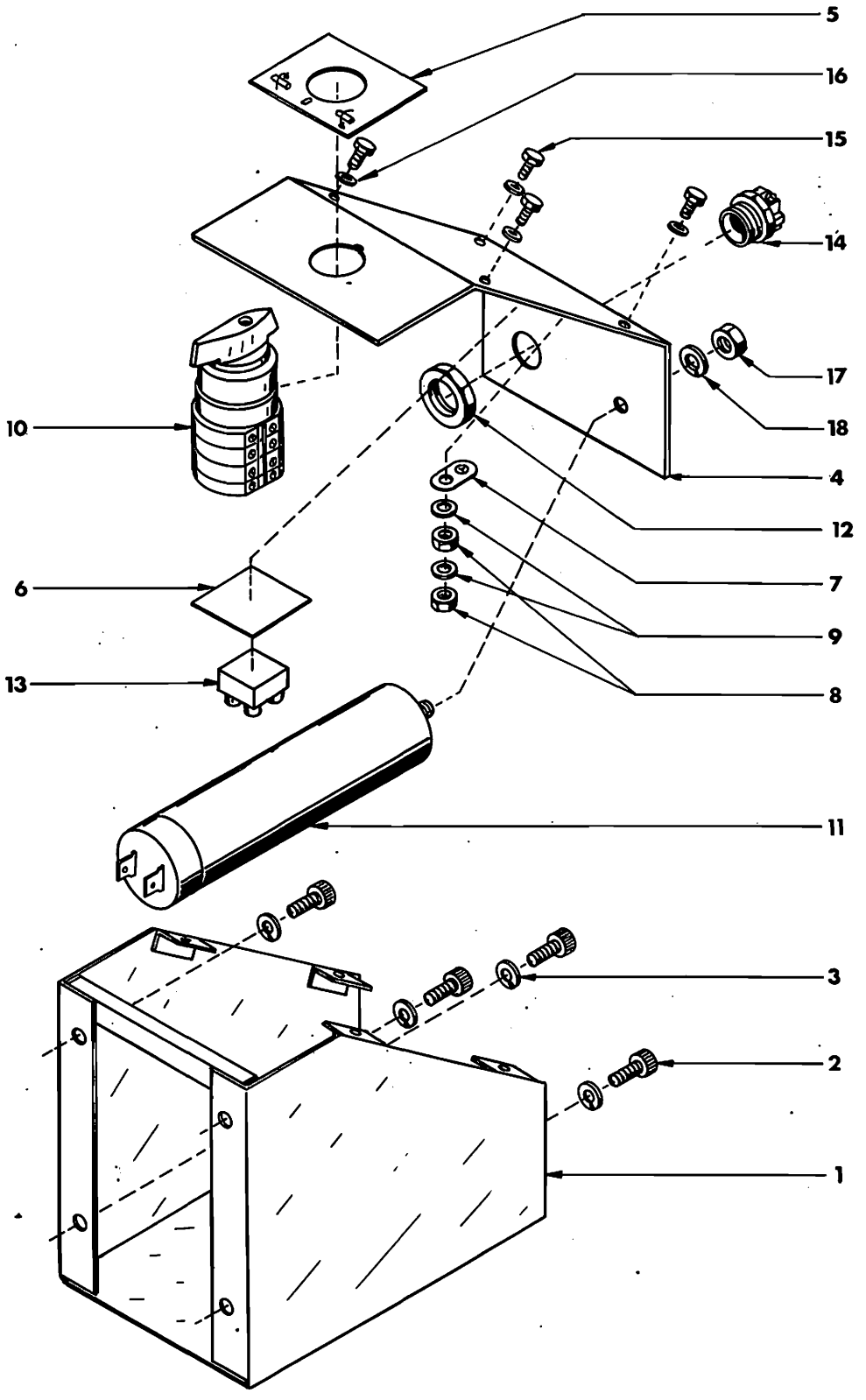
				Riemenspanner	Tensioning roller	Rouleau tendeur
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
	B1A 213 000			G. Hebel	Lever	Levier
1	B1A 000 160			Hebel	Lever	Levier
2	ZGF 20 3212	KK 32 - 12		Kugelknopf	Plastics ball	Sphère de matiere comprimée
3	B1A 190 000			G. Spannhebel	Lever	Levier
4	B1A 212 000			G. Drehbolzen	Bolt	Boulon
5	B1A 000 310			Hülse	Sleeve	Manchon
6	ZST 16 0812	AM 8x12 DIN 916		Gewindestift	Set screw	Vis pointeau
7	ZRG 71 0607	6x0,7 DIN 471		Sicherungsring	Clip	Baguè fendue
	B1A 214 000			G. Spannrolle	Roller	Rouleau
8	B1A 000 200			Spannrolle	Roller	Rouleau
9	B2A 030 130			Bundlager	Bearing bush	Elasque
10	ZRG 71 1210	12x1 DIN 471		Sicherungsring	Clip	Bague fendue
11	B1A 000 150			Zugfeder	Spring	Ressort de traction
12	B1A 000 170			Bolzen	Bolt	Boulon
13	ZSB 02 6204	6204/K2		Ausgleichscheibe	Washer	Rondelle
14	ZRG 71 3717	37x1,75 DIN 471		Sicherungsring	Clip	Bague fendue
15	ZSB 25 1050	B10,5 DIN 125		Scheibe	Washer	Rondelle
16	ZMU 34 1000	M10 DIN 934		Sechskantmutter	Nut	Ecrou
17	B1A 000 290			Scheibe	Washer	Rondelle
18	ZSB 12 2601	PS 26x37x1		Paßscheibe	Washer	Rondelle
19	ZSB 10 2181	SS 12x18x1,2		Stützscheibe	Washer	Rondelle
20	ZNP 01 1000			Schmiernippel	Grease nipple	Graisseur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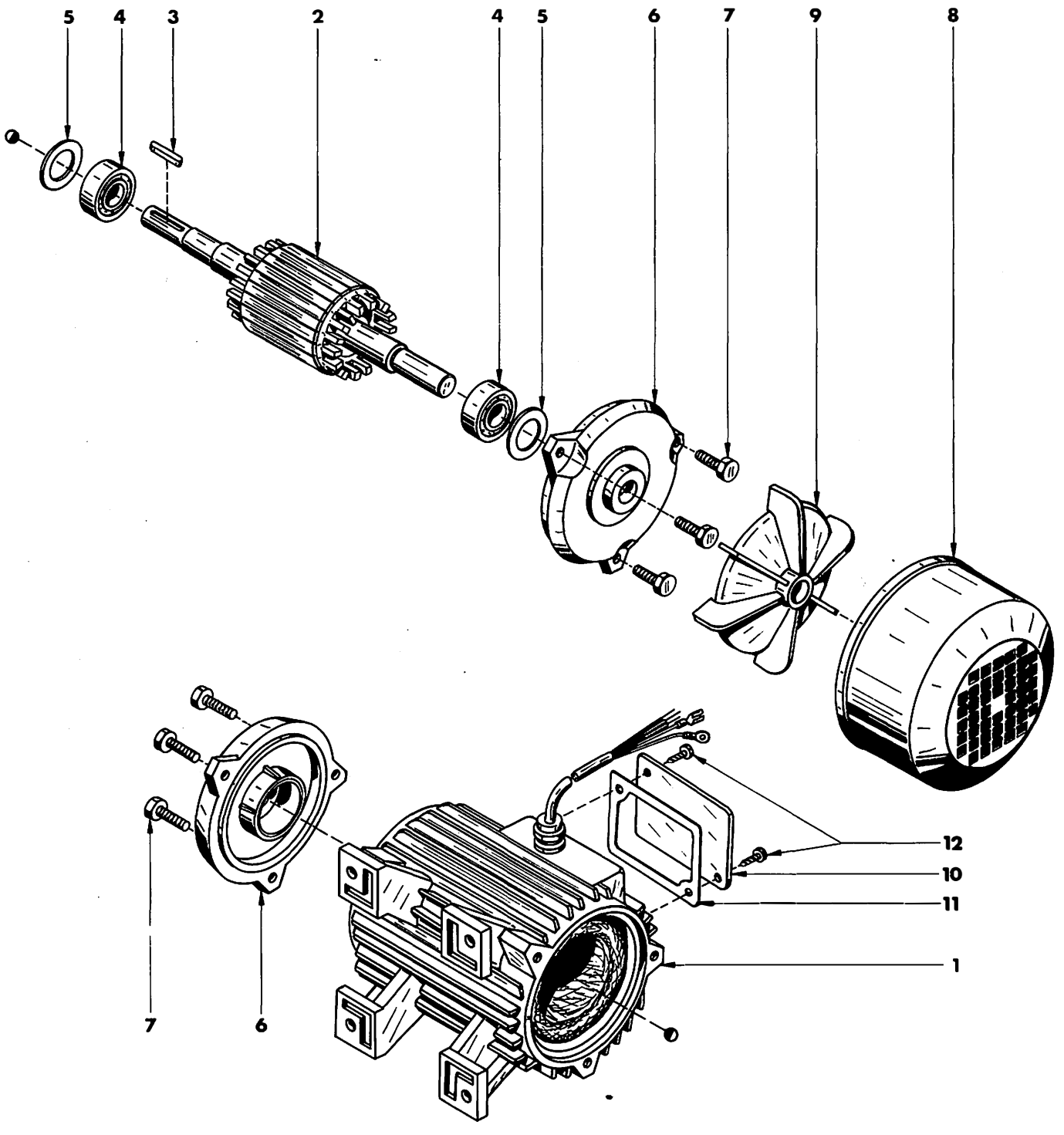
				E – Ausrüstung	Electrical equipment	Equipement électrique
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B1A 170 000			G. E–Gehäuse	E–housing	Boitier électrique assemblé
2	ZSR 12 0612	M6x12 DIN 912		Zylinderschraube	Flat head screw	Vis tête cylindrique
3	ZRG 28 0060	B6 DIN 127		Federring	Clip	Rondelle grover
4	B1A 101 000			G. E – Deckel	Roofing	Couvercle du boitier assemblé
5	B1A 100 030			Schalterschild	Switch signboard	Plaquette indicatrice pour le contacteur
6	B1A 100 020			Isolierplatte	Insulating plate	Plaquette isolate
7	H1E 100 010			Erdungsschild	Earthing plaid	Connexion pour mise à la "terre"
8	ZMU 34 0401	M4 DIN 934		Sechskantmutter	Nut	Ecrou hexagonal
9	ZSB 97 0430	A4,3 DIN 6797		Zahnscheibe	Serrated lock washer	Rondelle dentée
10	ZEL 22 3318			Nockenschalter	Cam – operated switch	Contacteur rotatif à 3 positions
11	ZKO 15 4212			Kondensator 220V	Condenser 220V	Condensateur 220 volts
12	ZPG 20 1100			Gegenmutter	Lock nut	Contre - écrou
13	ZEL 01 0002			Bruchklemme	Breakage clamp	Domino
14	ZPG 10 0003			PG – Verschraubung	Screw coupling	Passe-fil (pour câble d'alimentation)
15	ZSR 33 0508	M5x8 DIN 933		Sechskantschraube	Hexagon screw	Vis tête hexagonale
16	ZSB 98 0530	A5,3 DIN 6798		Fächerscheibe	Washer	Rondelle éventail
17	ZMU 34 0800	M8 DIN 934		Sechskantmutter	Nut	Ecrou hexagonal
18	ZRG 28 0080	B8 DIN 127		Federring	Clip	Rondelle grower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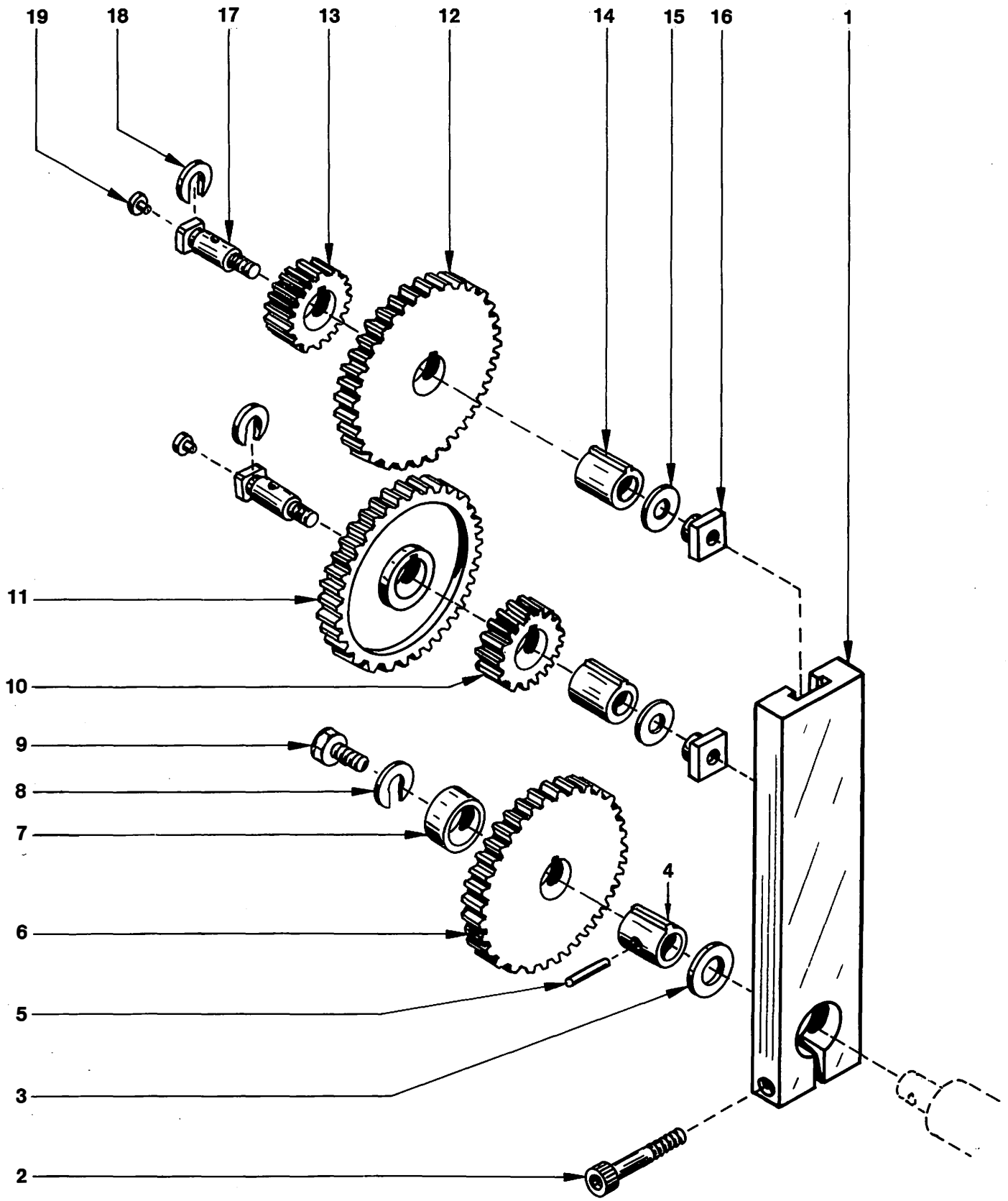
	ZMO 95 1220			Motor	Motor	Moteur
Pos	Ref. No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	ZME 95 0001			Ständer	Stator	Stator (inducteur)
2	ZME 95 0002			Läufer	Rotor	Rotor (induit)
3	ZME 95 0003			Paßfeder	Spring	Clavette
4	ZME 95 0004			Kugellager	Ball bearing	Roulement à billes
5	ZME 95 0005			Vorspannscheibe	Washer	Rondelle de précontrainte
6	ZME 95 0006			Lagerschild	Bearing bracket	Palier-flasque
7	ZSR 33 0620	M6x20 DIN 933		Sechskantschraube	Hexagonal screw	Vis tête hexagonale
8	ZME 95 0007			Lüfterhaube	End shield	Capot de ventilateur
9	ZME 95 0008			Lüfter	Fan	Ventilateur
10	ZME 95 0009			Deckel	Cover	Plaque de couverture
11	ZME 95 0010			Dichtung	Seal	Joint d'étanchéité
12	ZME 95 0011			Zylinderblechschraube	Flat head screw	Vis parker à tête cylindrique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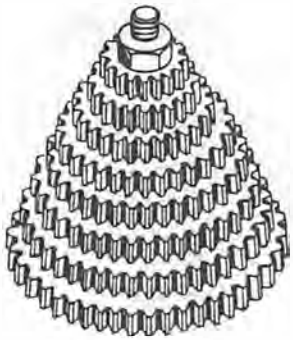
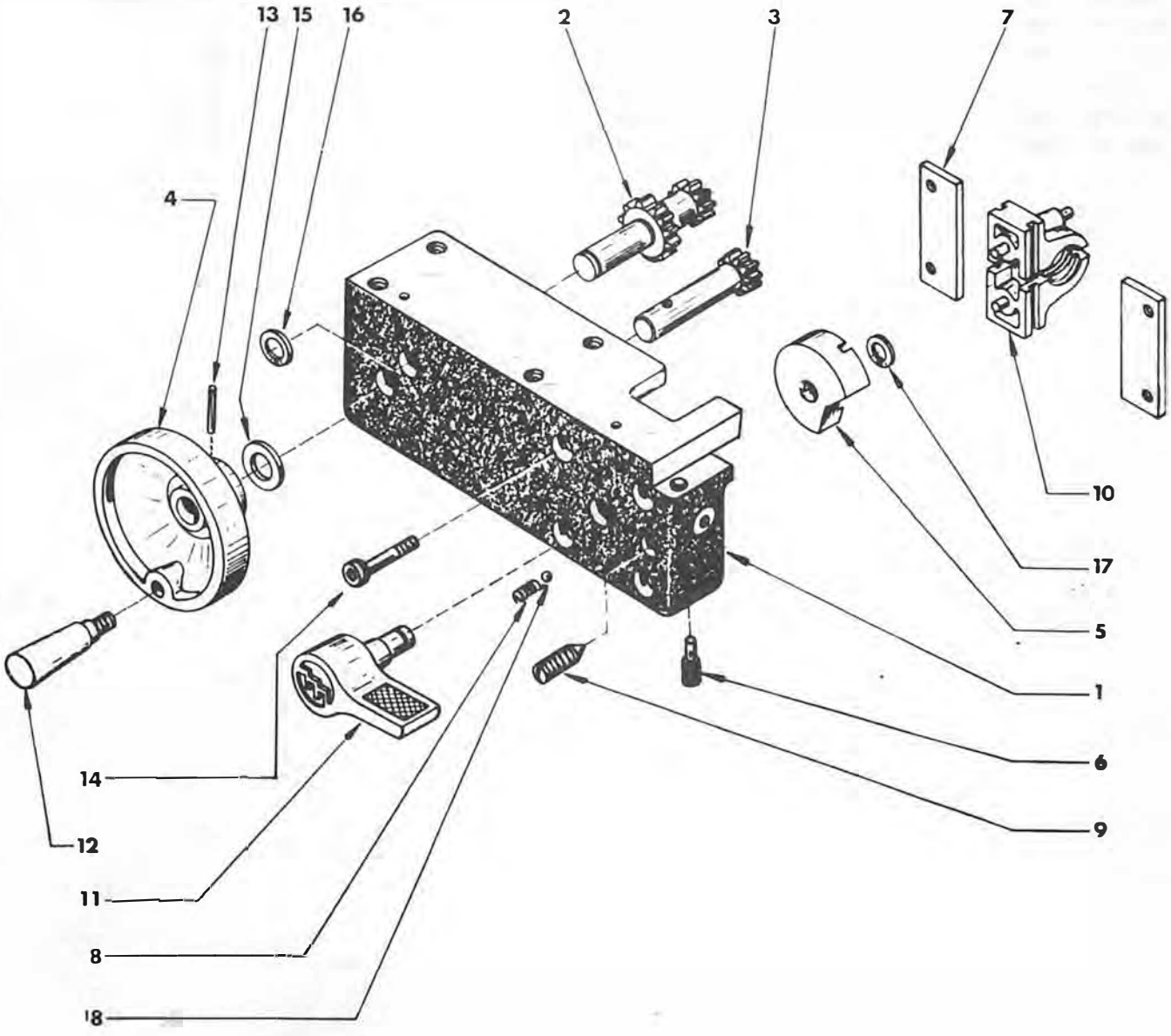
				Räderschere	Quadrant	Lyre
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B1A 000 010			Schere	Quadrant	Lyre nue
2	ZSR 12 0630	M6x30 DIN 912		Zylinderschraube	Flat head screw	Vis tête cylindrique
3	B2A 000 300			Scheibe	Washer	Rondelle plate
4	B2A 000 310			Keilhülse	Bush	Douille - clavette
5	B2A 000 350			Scherstift	Bushing	Goupille de cisaillement
6	B2A 000 270			Wechselrad 80	Gear 80	Engrenage 80 dents
7	B2A 000 280			Zwischenring	Bushing	Douille - entretoise
8	B2A 000 450			Sicherungsring	Clip	Rondelle fer à cheval
9	ZSR 33 0610	M6x10 DIN 933		Sechskantschraube	Hexagonal screw	Vis tête hexagonale
10	B2Z 200 010			Wechselrad 25	Gear 25	Engrenage 25 dents
11	B2A 000 270			Wechselrad 80	Gear 80	Engrenage 80 dents
12	B1A 000 190			Zahnrad 80	Gear 80	Engrenage 80 dents
13	B2Z 200 020			Wechselrad 30	Gear 30	Engrenage 30 dents
14	B2A 000 310			Keilhülse	Bush	Douille - clavette
15	B2A 071 020			Scheibe	Washer	Rondelle plate
16	B2A 071 040			Nutenstein	T—nut	Ecrou en T
17	B1A 000 020			Scherbolzen	Shaft	Boulon—axe
18	B1A 000 040			Scheibe	Washer	Rondelle fer à cheval
19	ZNP 01 1000			Schmiernippel	Grease fitting	Graisseur

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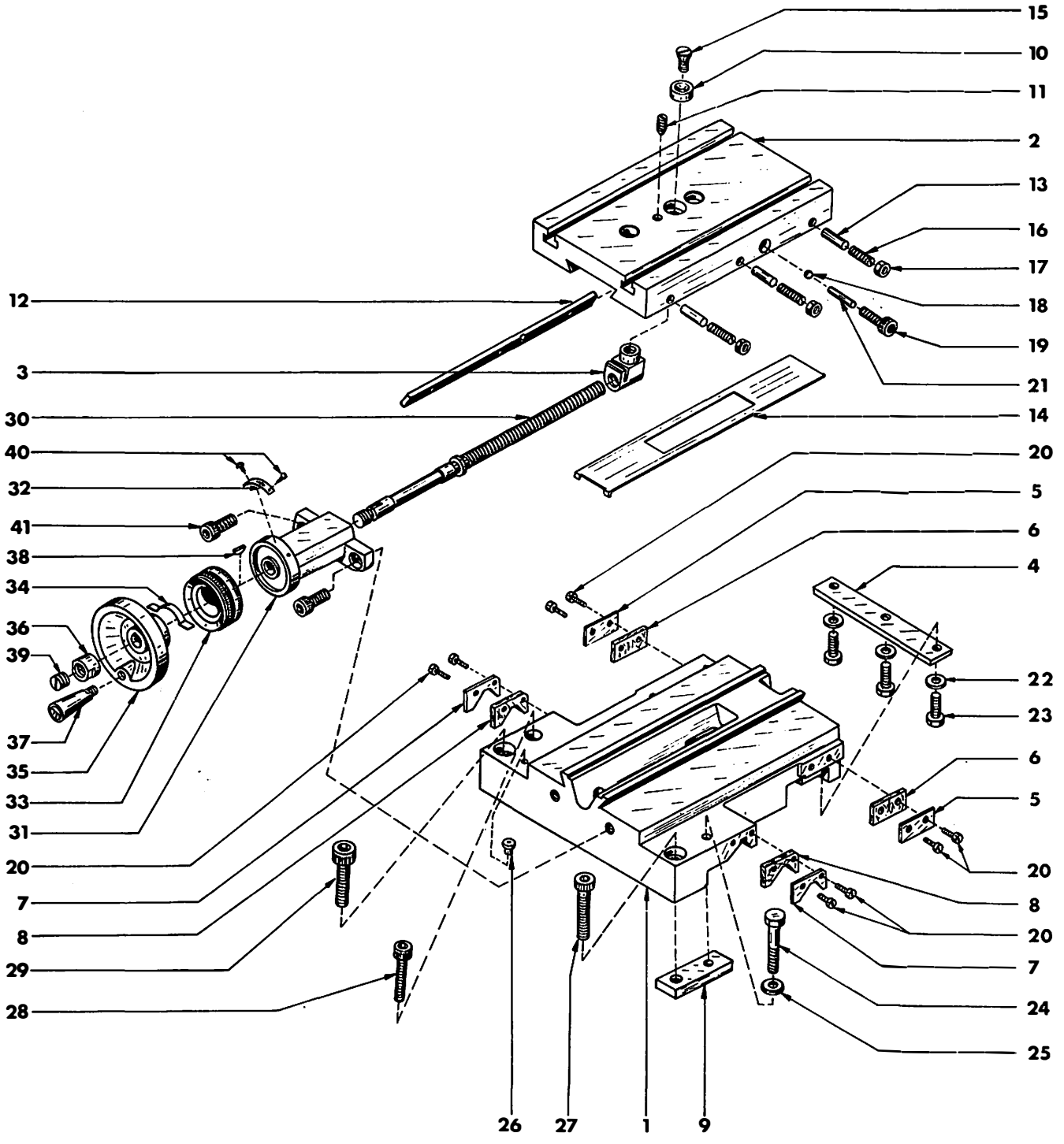
				G. Rädersatz	Set of change gears	Jeu d'engrenages assembles
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B2A 000 250			Wechselrad Z = 20	Change gear	Engrenage 20 dents
2	B2A 000 290			Wechselrad Z = 35	Change gear	Engrenage 35 dents
3	B2Z 200 030			Wechselrad Z = 40	Change gear	Engrenage 40 dents
4	B2Z 200 050			Wechselrad Z = 50	Change gear	Engrenage 50 dents
5	B2Z 200 060			Wechselrad Z = 55	Change gear	Engrenage 55 dents
6	B2Z 200 080			Wechselrad Z = 65	Change gear	Engrenage 65 dents
7	B2Z 200 090			Wechselrad Z = 70	Change gear	Engrenage 70 dents
8	B2A 000 260			Wechselrad Z = 75	Change gear	Engrenage 75 dents
9	B2A 000 280			Zwischenring	Bushing	Douille-entretoise

	B4A 010 000/1			G. Schloßplatte	Apron	Tablier assemble
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B2A 010 010/1			Schloßplatte	Apron casting	Tablier nu
2	B2A 010 020			Zwischenrad	Gear	Pignon double intermédiaire
3	B2A 010 030			Ritzel	Shaft gear	Pignon du volant
4	B4A 010 010			Handrad	Hand wheel	Volant
5	B2A 010 050			Schloßscheibe	Locking cam	Verrou de la noix
6	B2A 010 060			Nachstellschraube	Adjusting screw	Vis-pointeau de réglage
7	B2A 010 070			Führungsschiene	Guide	Languettes de guidage
8	B2A 010 080			Druckfeder	Feed spring	Ressort de compression
9	B2A 010 090			Einstellschraube	Adjusting screw	Vis-pointau de réglage
10	B2A 011 000			Gr. Schloßmutter	Half nut	Noix = 2 demi-noix
11	B2A 012 000			Gr. Schloßhebel	Handle	Levier d'enclenchement assemblé
12	B2A 013 000			Gr. Kegelgriff	Handle	Manneton assemblé
13	ZHL 81 0322	3x22 DIN 1481		Spannhülse	Grooved pin	Goupille fendue
14	ZSR 12 0630	M6x30 DIN 912		Innensechskantschraube	Allen head screw	Vis tête six pans creux
15	ZFD 93 2001	20x10,2x0,9 DIN 2093		Tellerfeder	Spring washer	Rondelle assiette
16	ZRG 21 0100	WR 10		Sprengring	Clip	Rondelle grower
17	ZRG 21 0080	WR 8		Sprengring	Clip	Rondelle grower
18	ZKG 00 1040	4,0GK3 DIN 5401		Stahlkugel	Ball	Bille acier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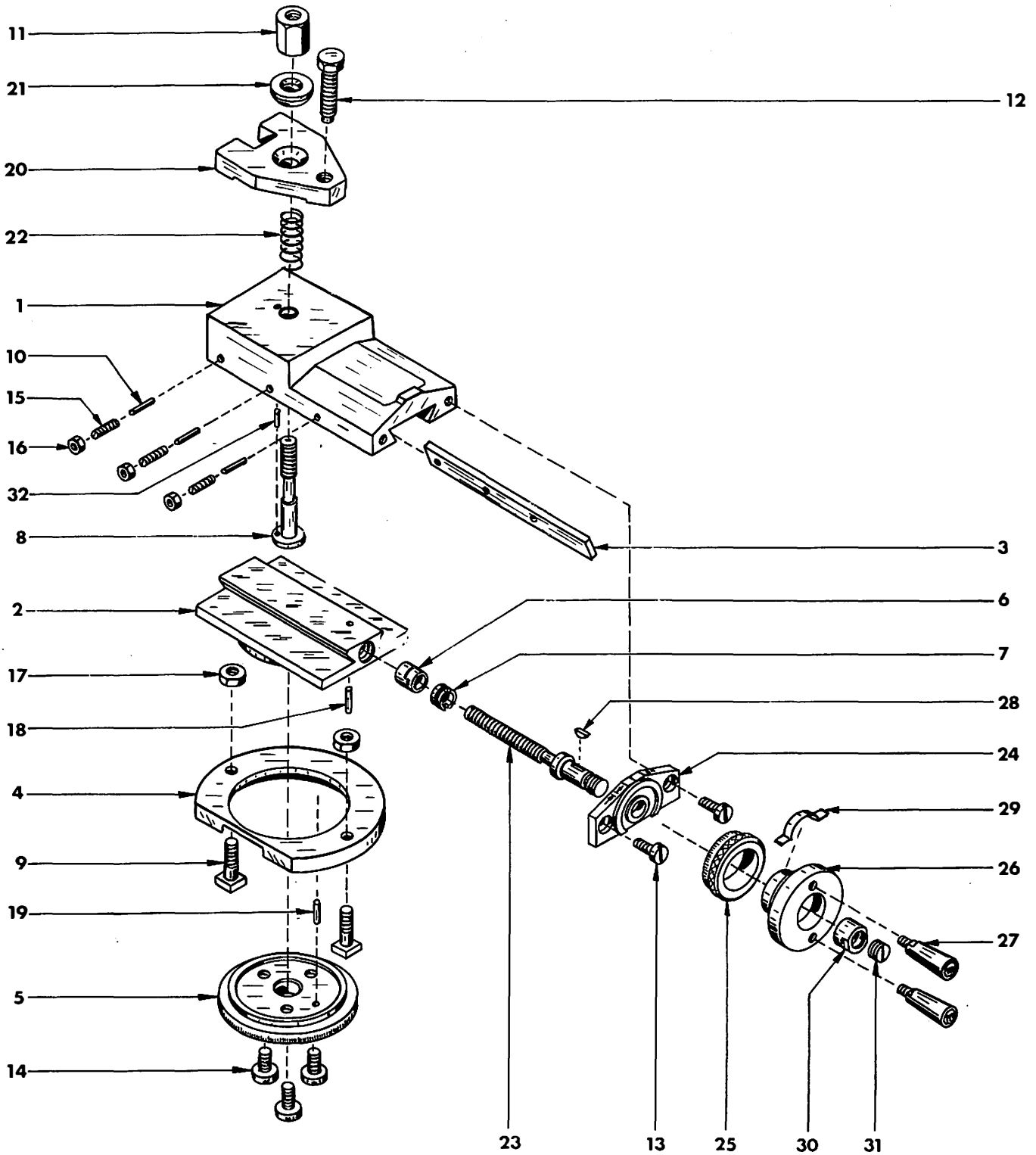
				Längs- und Querschlitten	Saddle and Cross Slide	Trainard et chariot transversal
Pos	Ref. No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B4A 000 110/1			Schlitten	Carriage	Trainard nu
2	B4A 000 120			Querschlitten	Cross-slide-table	Transversal nu
3	B2A 000 130			Quermutter	Cross-slide-nut	Noix du transversal
4	B2A 000 180			Bettleiste	Gib	Languette de guidage
5	B4A 000 170			Abstreifer	Cover mount	Plaquette couvre-racleur
6	B4A 000 180			Abstreiffilz	Way cover	Racleur en feutre
7	B4A 000 190			Abstreifer	Cover mount	Plaquette couvre-racleur
8	B4A 000 200			Abstreiffilz	Way cover	Racleur en feutre
9	B2A 000 660			Klemmstück	Binding piece	Plaque de blocage
10	B2A 000 150			Senkscheibe	Bushing	Douille fraisée
11	B2A 000 140			Nachstellschraube	Adjusting screw	Vis-pointau de réglage
12	B2A 000 210			Einstelleiste	Gib	Lardon de réglage
13	B2A 000 220			Druckstift	Stud	Cheville de pression
14	B4A 000 240			Deckblech	Cover mount	Tôle de recouvrement
15	ZSR 63 0612	M6x12 DIN 963		Senkschraube	Flat head screw	Vis tête fraisée
16	ZST 51 0412	M4x12 DIN 551		Gewindestift	Set screw	Vis de réglage
17	ZMU 34 0400	M4 DIN 934		Sechskantmutter	Nut	Contre-écrou
18	ZKG 00 2316	3/16GK3 DIN5401		Stahlkugel	Ball	Bille acier
19	ZSR 12 0616	M6x16 DIN 912		Innensechskantschraube	Allen head screw	Vis tête 6 pans creux
20	ZSR 84 0408	M4x8 DIN 84		Zylinderschraube	Flat head screw	Vis tête cylindrique
21	ZST 08 0512	548x12 DIN 7		Zylinderstift	Flat screw	Cheville
22	ZSB 25 0530	B5,3 DIN 125		Scheibe	Washer	Rondelle plate
23	ZSR 33 0516	M5x16 DIN 933		Sechskantschraube	Hexagon head screw	Vis tête hexagonale
24	ZSR 31 0635	M6x35 DIN 931		Sechskantschraube	Hexagon head screw	Vis tête hexagonale
25	ZSB 25 0640	B6,4 DIN 125		Scheibe	Washer	Rondelle plate
26	ZNP 01 1000			Schmiernippel	Grease fitting	Graisseur
27	ZSR 12 0835	M8x35 DIN 912		Innensechkantschraube	Allen head screw	Vis tête 6 pans creux
28	ZSR 12 0630	M6x30 DIN 912		Innensechskantschraube	Allen head screw	Vis tête 6 pans creux
29	ZSR 12 0830	M8x30 DIN 912		Innensechskantschraube	Allen head screw	Vis tête 6 pans creux
	B4A 020 000			G. Querspindel	Lead screw	Broche de commande du transversal
30	B4A 020 010			Querspindel	Lead screw	Broche de commande du transversal
31	B4A 020 020/1			Querspindelträger	Lead screw mount	Support-palier de broche transversale
32	B2A 000 060			Skalenschild	Plate	Plaquette graduée
33	B4A 020 030			Skalenring	Micrometer collar	Vernier
34	B2A 000 080			Bogenfeder	Spring	Lame ressort courbe
35	B2A 000 070			Handrad	Handwheel	Volant
36	B2A 000 100			Mutter	Nut	Ecrou 2 pans
37	B2A 013 000			Gr. Kegelgriff	Handle	Manneton
38	ZFD 88 0337	3x3,7 DIN 6888		Scheibenfeder	Key	Clavette demi-lune
39	ZST 51 0806	M8x6 DIN 551		Gewindestift	Set screw	Vis-pointau de réglage
40	ZNA 76 0144	1,4x4 DIN 1476		Kerbnagel	Rivet	Rivet
41	ZSR 12 0816	M8x16 DIN 912		Innensechskantschraube	Allen head screw	Vis tête 6 pans creux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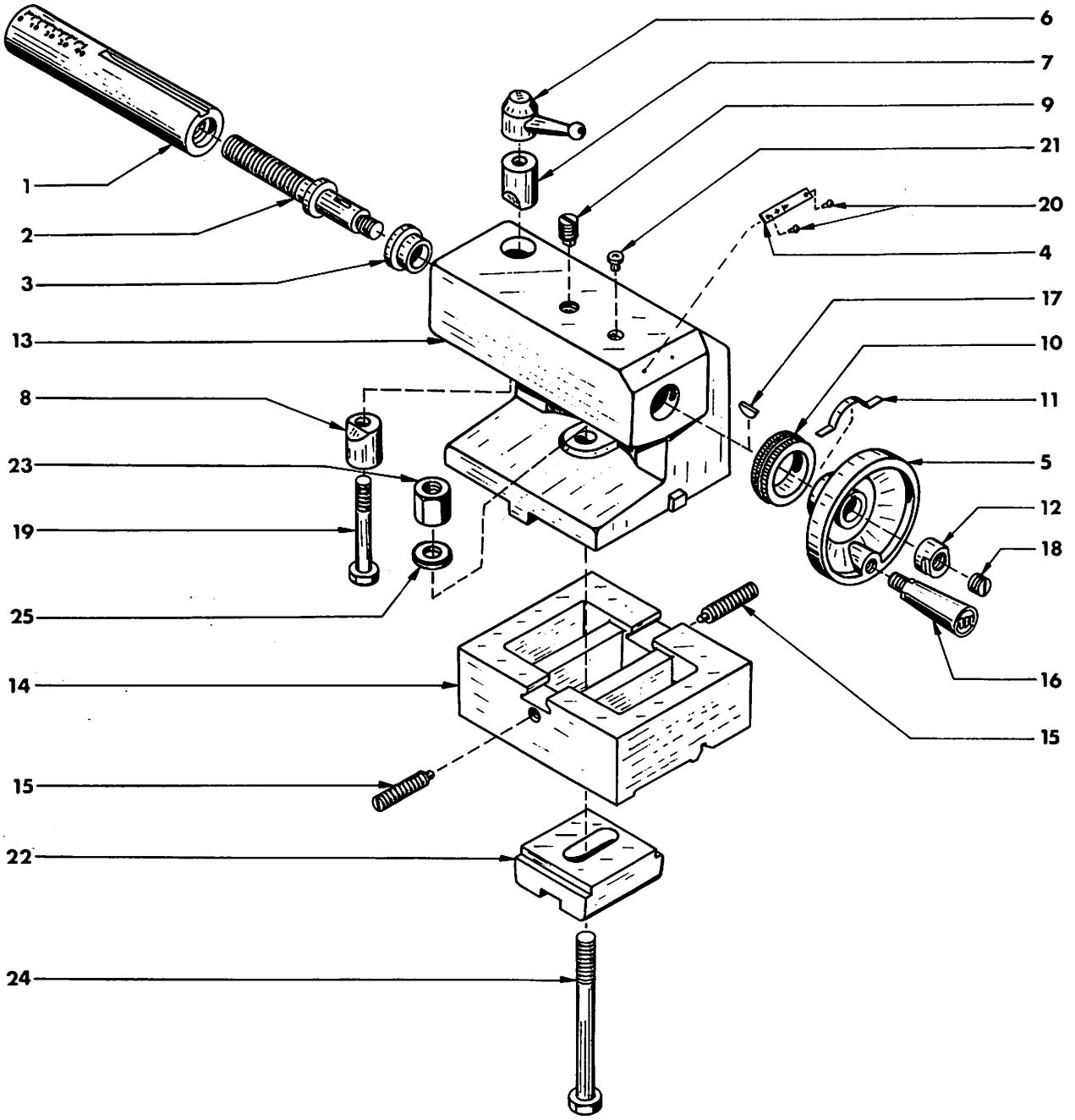
	B4A 050 000/1			G. Obersupport	Compound	Chariot supérieur
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B4A 050 010/1			Obersupport	Compound	Chariot supérieur nu
2	B2A 050 020			Oberplatte	Swivel base	Support-glissière
3	B2A 050 030			Einstelleiste	Gib	Lardon de réglage
4	B2A 050 041			Klemmring	Clamping ring	Bague de blocage
5	B2A 050 050			Skalenring	Micrometer collar	Embase graduée
6	B2A 050 060			Obermutter	Lead screw nut	Noix
7	B2A 050 070			Einstellschraube	Adjusting screw	Bague-écrou de réglage
8	B4A 050 080			Schraube	Screw	Boulon de fixation du porte-outil
9	B2A 050 090			Nutenschraube	T-nut screw	Boulon en T
10	B2A 050 100			Druckstift	Stud	Cheville
11	B2A 040 100			Sechskantmutter	Nut	Ecrou hexagonal
12	ZSR 61 0830	AM8x30 DIN 561		Sechskantschraube	Hexagon head screw	Vis à tête hexagonale
13	ZSR 84 0512	M5x12 DIN 84		Zylinderschraube	Flat head screw	Vis tête cylindrique
14	ZSR 84 0610	M6x10 DIN 84		Zylinderschraube	Flat head screw	Vis tête cylindrique
15	ZST 51 0410	M4x10 DIN 551		Gewindestift	Set screw	Vis-pointau de réglage
16	ZMU 34 0400	M4 DIN 934		Sechskantmutter	Nut	Contre-écrou
17	ZMU 34 0600	M6 DIN 934		Sechskantmutter	Nut	Ecrou hexagonal
18	ZHL 81 0212	2x12 DIN 1481		Spannhülse	Lock pin	Goupille fendue
19	ZHL 81 0312	3x12 DIN 1481		Spannhülse	Lock pin	Goupille fendue
20	B4A 050 110			Spannklaue	Tool clamp	Bride de serrage d'outil
21	B4A 050 120			Ballenscheibe	Washer	Rondelle sphérique
22	B4A 050 130			Druckfeder	Spring	Ressort de compression
	B2A 051 000			G. Oberspindel	Lead screw	Broche du chariot supérieur assemblée
23	B2A 051 010			Oberspindel	Lead screw	Broche nue
24	B2A 051 020			Oberspindelträger	Lead screw mount	Palier-support de broche
25	B2A 020 030			Skalenring	Micrometer collar	Vernier
26	B2A 051 030			Handrad	Handwheel	Volant
27	B2A 051 040			Kegelgriff	Handle	Manneton
28	ZFD 88 0337	3x3,7 DIN 6888		Scheibenfeder	Key	Clavette demi-lune
29	B2A 000 080			Bogenfeder	Spring	Lame ressort courbe
30	B2A 000 100			Mutter	Nut	Ecrou 2 pans
31	ZST 51 0806	M8x6 DIN 551		Gewindestift	Set screw	Vis de réglage
32	ZHL 81 0308	3x8 DIN 1481		Spannhülse	Lock pin	Goupille fendue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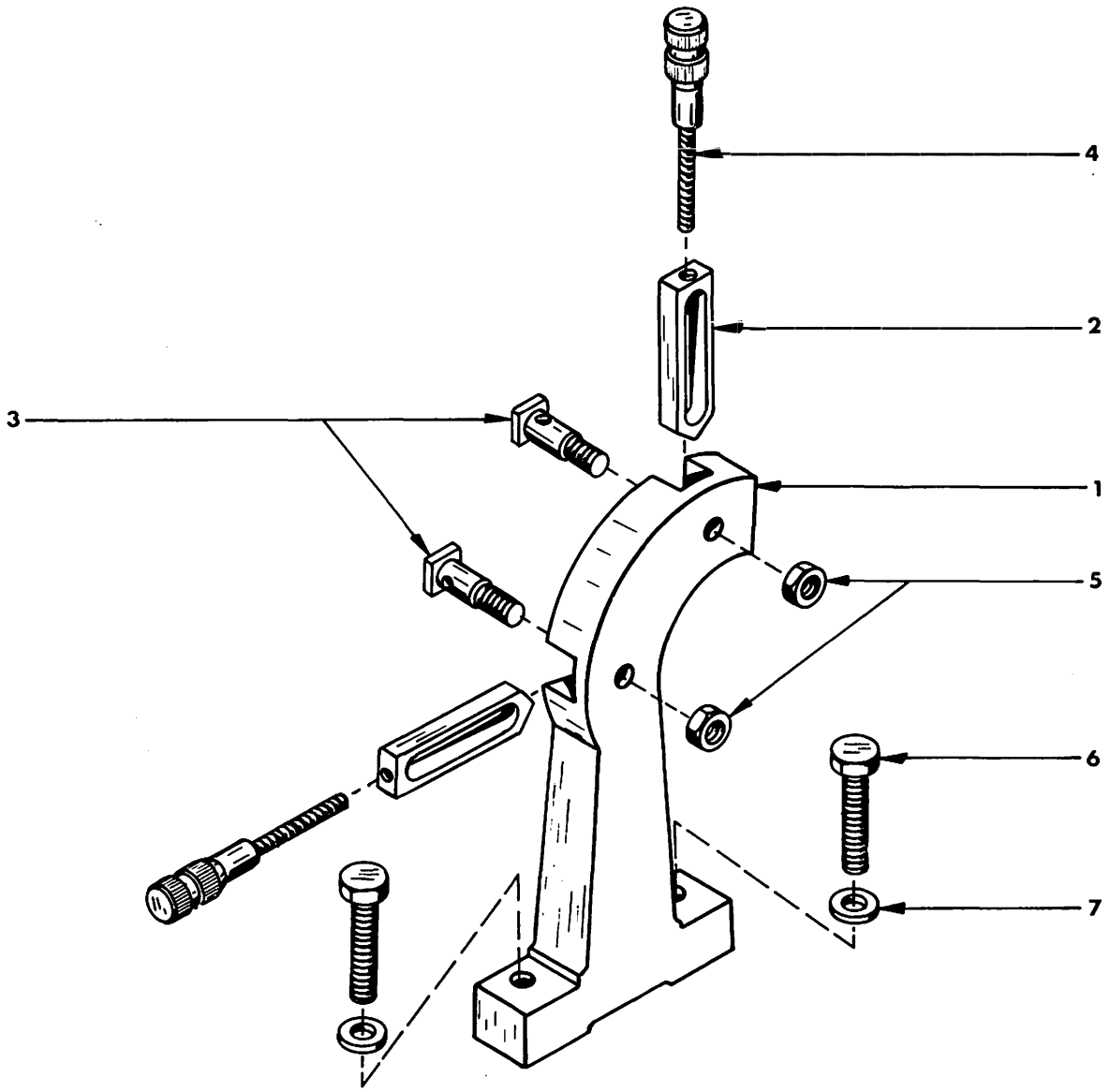
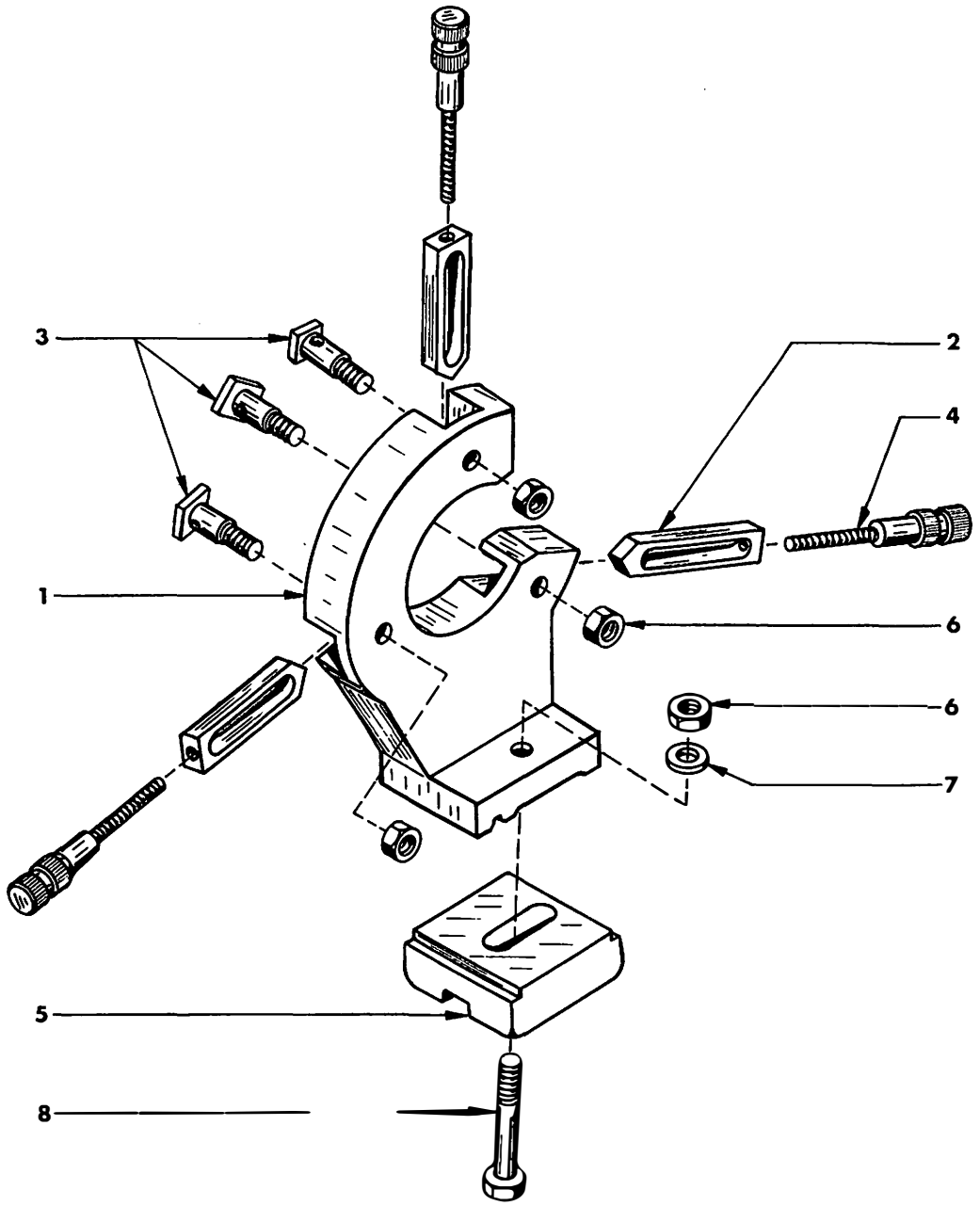
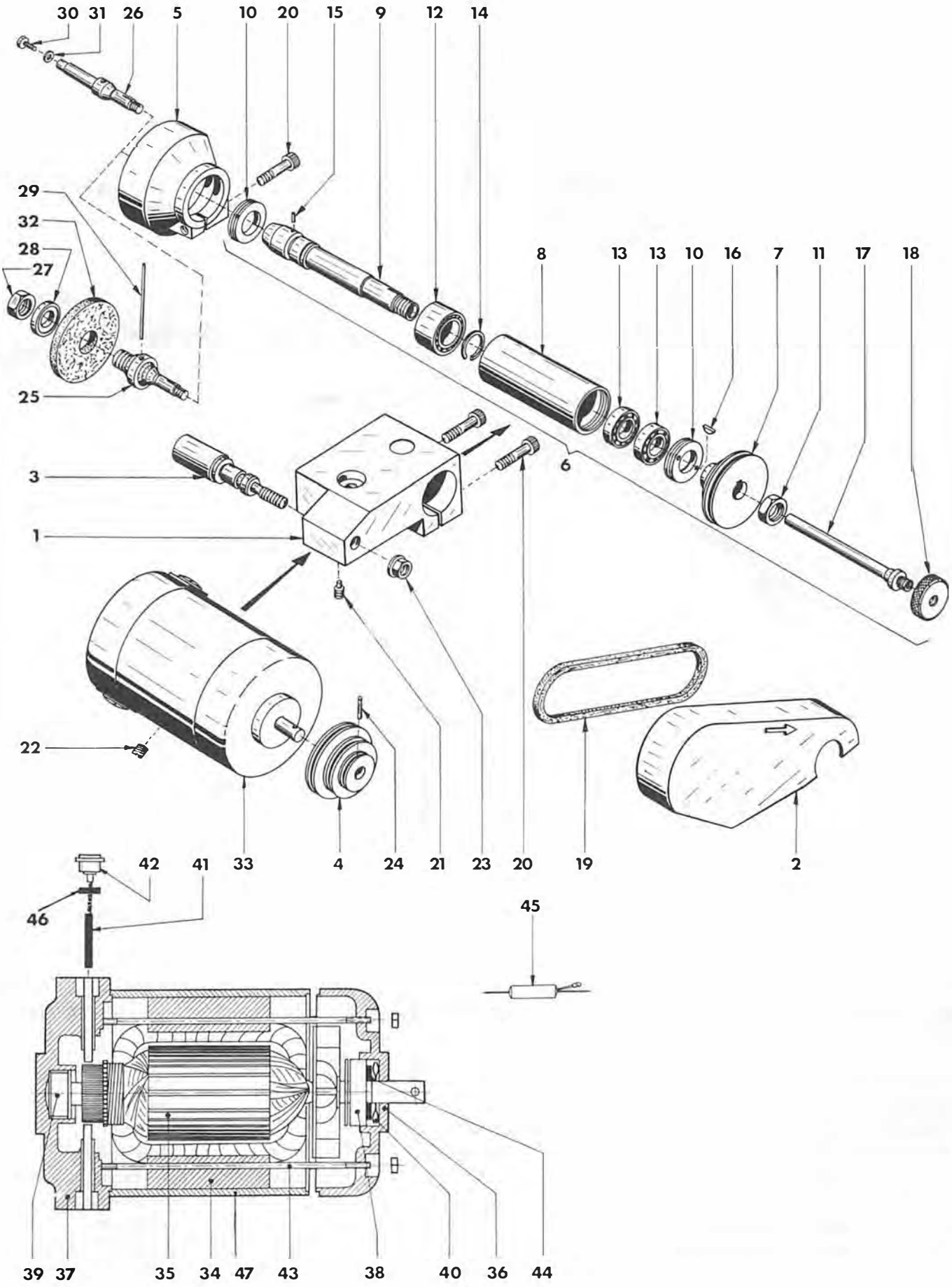
	B4A 040 000/1			G. Reitstock	Tailstock	Poupee mobile assemblée
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B2A 040 010			Reitstockpinole	Tailstock ram	Canon
2	B2A 040 020			Triebschraube	Lead screw	Broche
3	B2A 040 030			Bundbüchse	Bushing	Douille d'assemblage
4	B2A 000 060			Skalenschild	Plate	Plaquette graduée
5	B4A 040 010			Handrad	Handwheel	Volant
6	B2A 040 050			Knebelgriff	Lever	Levier de blocage du canon
7	B2A 040 060			Klemmbacke	Clamp	Mors de blocage supérieur
8	B2A 040 070			Klemmstück	Binding piece	Mors de blocage inférieur
9	B2A 040 080			Führungsschraube	Guide pin	Vis de guidage
10	B2A 000 090			Skalenring	Micrometer collar	Bague du vernier
11	B2A 000 080			Bogenfeder	Feed spring	Lame ressort courbe
12	B2A 000 100			Mutter	Nut	Ecrou 2 pans
	B4A 041 000			G. Reitstockplatte	Tailstock base	Embase de la contre-poupée assemblée
13	B2A 041 010/1			Reitstock	Tailstock	Corps de la contre-poupée nue
14	B4A 041 020			Reitstockplatte	Tailstock base	Embase nue
15	ZST 17 0630	M6x30 DIN 417		Gewindestift	Set screw	Vis de réglage antérieure ou postérieure
16	B2A 013 000			G. Kegelgriff	Handle	Manneton
17	ZFD 88 0337	3x3,7 DIN 6888		Scheibenfeder	Key	Clavette demi-lune
18	ZST 51 0806	M8x6 DIN 551		Gewindestift	Set screw	Vis de réglage
19	ZSR 31 0650	M6x50 DIN 931		Sechskantschraube	Hexagonal screw	Boulon tête hexagonale
20	ZNA 76 0144	1,4x4 DIN 1476		Kerbnagel	Rivet	Rivet
21	ZNP 01 1000			Schmiernippel	Grease fitting	Graisseur
22	B2A 040 090			Klemmplatte	Clamping plate	Plaque de blocage
23	B2A 040 100			Sechskantmutter	Nut	Ecrou hexagonal
24	ZSR 31 0890	M8x90 DIN 931		Sechskantschraube	Hexagonal screw	Boulon tête hexagonale
25	ZSB 25 0840	B8,4 DIN 125		Scheibe	Washer	Rondelle plate



				G. Lauflünette	Follower rest	Lunette a suivre
Pos	Ref. No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B4Z 230 010/1			Lauflünette	Housing	Corps
2	B2Z 230 020			Gleitbacke	Jaw	Touche
3	B2Z 230 030			Nutschraube	Screw	Boulon en T
4	B2Z 230 040			Stellschraube	Thumb screw	Vis tête moletée
5	ZMU 34 0800	M8 DIN 934		Sechskantmutter	Nut	Ecrou hexagonal
6	ZSR 33 0625	M6x25 DIN 933		Sechskantschraube	Hexagonal screw	Vis tête hexagonale
7	ZSB 25 0640	B6,4 DIN 125		Scheibe	Washer	Rondelle plate



				G. Stehlünette	Steady rest	Lunette fixe
Pos	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B4Z 240 010/1			Stehlünette	Housing	Corps
2	B2Z 230 020			Gleitbacke	Jaw	Touche
3	B2Z 230 030			Nutschraube	Screw	Boulon en T
4	B2Z 230 040			Stellschraube	Thumb screw	Vis tête moletée
5	B2A 040 090			Klemmplatte	Clamping plate	Contre-plaque de blocage
6	ZMU 34 0800	M8 DIN 934		Sechskantmutter	Nut	Ecrou hexagonal
7	ZSB 25 0840	B8,4 DIN 125		Scheibe	Washer	Rondelle plate
8	ZSR 31 0850	M8x50 DIN 931		Sechskantschraube	Hexagonal screw	Boulon tête hexagonale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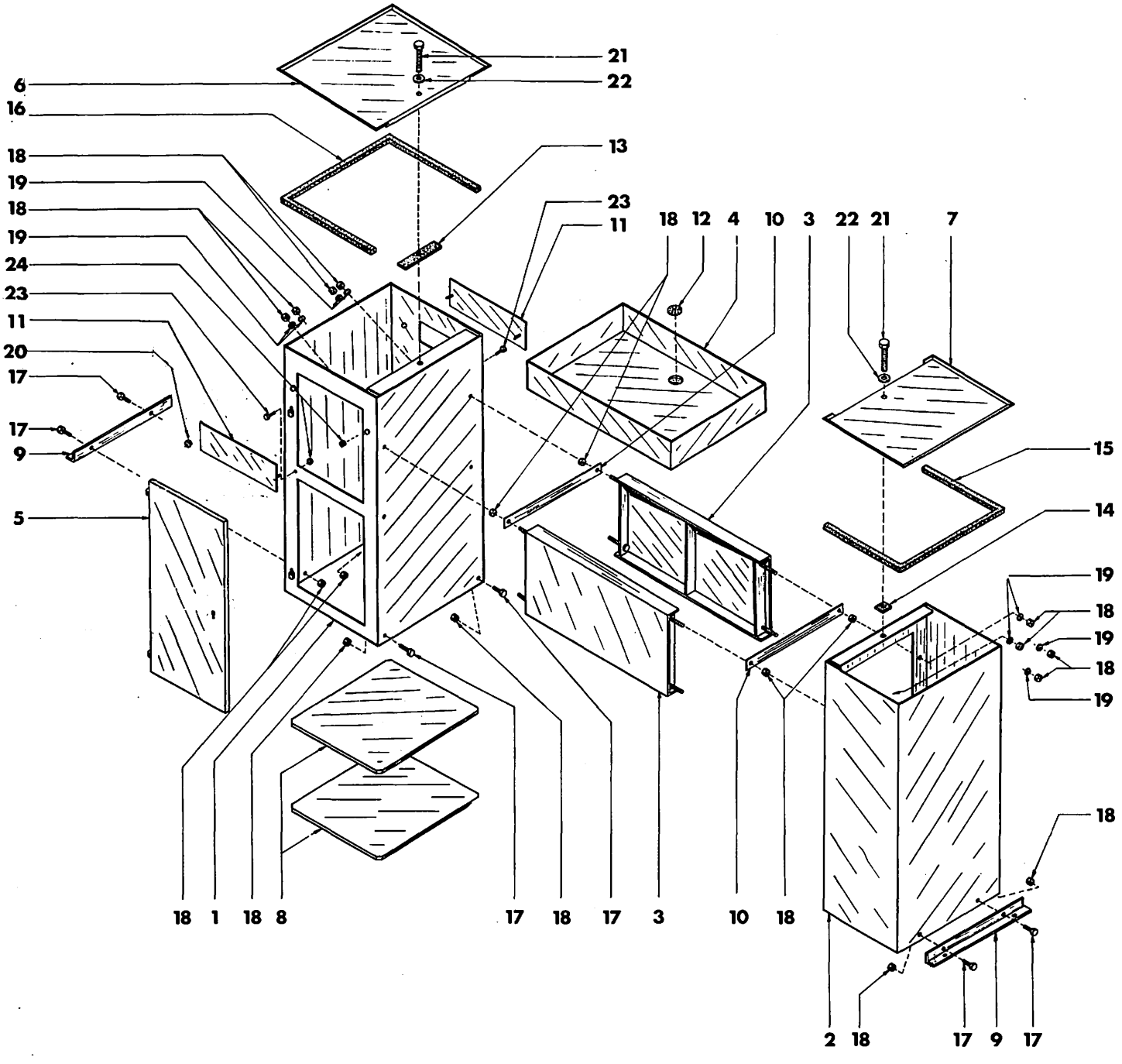
				Supportschleifapparat	Tool post grinder	Rectifieuse adaptable
Pos	Ref. No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	SOB 000 010/1			Körper	Housing	Corps
2	SOA 000 020/1			Riemenschutz	Cover	Protecteur de courroie
3	SOA 000 030			Motorbolzen	Bolt	Boulon d'articulation du moteur
4	SOA 000 040			Riemenscheibe	Pulley	Poulie du moteur
5	SOA 000 070			Scheibenschutz	Guard	Protecteur de meule
6	SOA 010 000			G. Schleifpinole	Quill	Broche de rectification assemblée
7	SOA 010 010			Riemenscheibe	Pulley	Poulie de la broche
8	A2Z 280 010			Spannzangenpinole	Quill	Fourreau de la broche
9	A2Z 280 020			Spindel	Tapered arbor	Broche
10	A2Z 280 030			Verschraubung	Screw joint	Ecrou de fermeture
11	A2Z 040 060			Mutter	Nut	Ecrou
12	ZLG 80 4903	NA 4903/C 152 NA		Nadellager	Needle bearing	Roulement à aiguilles
13	ZLG 00 1307	E 13 K7		Kugellager	Ball bearing	Roulement à billes
14	ZRG 21 0170	WR17		Sprengring	Spring washer	Circlip
15	ZST 06 0156	1,5 M6x6 DIN7		Zylinderstift	Pin	Cheville cylindrique
16	ZFD 88 0226	2x2,6 DIN 6888		Scheibenfeder	Key	Clavette demi-lune
	A2Z 281 000			G. Anzugspindel	Draw bar	Tige de rappel assemblée
17	A2Z 280 050			Zugrohr	Draw bar	Tige de rappel seule
18	A2Z 280 060			Spannrad	Draw bar wheel	Volant de serrage
19	ZRM 05 0352	352x5x3		Keilriemen	V-belt	Courroie trapézoidale
20	ZSR 12 0630	M6x30 DIN 912		Innensechskantschraube	Allen head screw	Vis BTR
21	ZST 17 0612	M6x12 DIN 417		Gewindestift	Set screw	Vis pointau
22	ZST 16 0808	AM8x8 DIN 916		Gewindestift	Set screw	Vis pointau
23	ZMU 31 0800	M8 DIN 6331		Sechskantmutter	Nut	Ecrou hexagonal
24	ZHL 81 0220	2x20 DIN 1481		Spannhülse	Pin	Goupille fendue
25	SOA 000 050			Dorn	Tapered arbor	Tasseau porte-meule extérieure
26	SOA 000 060			Spindel	Tapered arbor	Tasseau porte-meule intérieure
27	A2A 040 060			Mutter	Nut	Ecrou
28	A2A 090 020			Gegenscheibe	Washer	Contre-flasque
29	A2Z 410 050			Zylinderstift	Pin	Tige cylindrique
30	ZSR 84 0310	M3x10 DIN 84		Zylinderschraube	Flat head screw	Vis tête cylindrique
31	ZSB 25 0320	A3,2 DIN 125		Scheibe	Washer	Rondelle plate
32	ZWZ 55 0016			Schleifscheibe	Grinding wheel	Meule extérieure
33	ZMO 50 0 */1			Motor	Motor	Moteur
34	ZME 15 1 *			Stator	Stator	Inducteur (stator)
35	ZME 15 0 *			Rotor	Rotor	Induit (rotor)
36	ZME 15 0004/1			Lagerschild	Bearing end plate	Flasque-palier
37	ZME 15 0005/1			Lagerschild	Bearing end plate	Flasque-palier
38	ZLG 62 0000	6200		Rillenkugellager	Ball bearing	Roulement à billes
39	ZLG 06 0800	608 EL8		Rillenkugellager	Ball bearing	Roulement à billes
40	ZME 15 0008			Ausgleichscheibe	Washer	Rondelles de compensation
41	ZME 15 0000			Kohlebürste	Brush	Charbon
42	ZME 15 0001			Kohlenhalter-Kappe	Brush cap	Capuchon de charbon
43	ZME 15 0010			Schraube	Clamping screw	Goujon d'assemblage
44	ZME 15 0009			Filz	Felt washer	Joint en feutre
45	ZME 15 0007			Kondensator	Condensor	Condensateur
46	ZME 15 0002			Dichtung f. Kappe	Packing	Joint d'étanchéité pour le capuchon de charbon
47	ZME 15 0003/1			Statorgehäuse	Casing of Stator	Cage du moteur

*) Bei Bestellung bitte Spannung angeben. In your orders please indicate voltage. A la commande specifier le voltage.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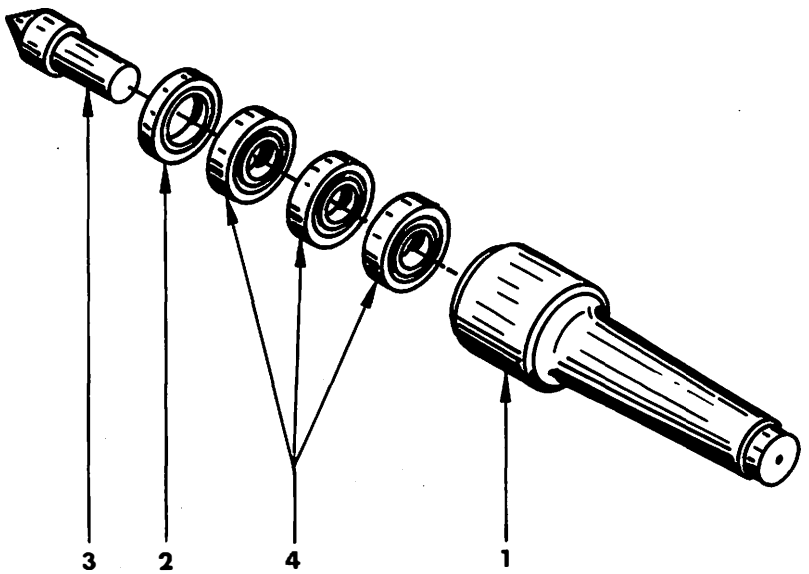
				G. Maschinenständer	Machine stand	Socle-armoire
Pos	Ref. No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B2Z 360 010			Linker Ständerfuß	Table leg left	Fût de gauche
2	B2Z 360 020			Rechter Ständerfuß	Table leg right	Fût de droite
3	C4Z 220 030			Mittelteil	Mid-section	Panneau de jonction
4	C4Z 220 040			Spanwanne	Chip tray	Bac à copeaux
5	C4Z 220 050			Tür	Door	Porte
6	B2Z 360 030			Linke Tasse	Holder	Plateau de gauche
7	B2Z 360 040			Rechte Tasse	Holder	Plateau de droite
8	B2Z 360 070			Einlageplatte	Insert	Etagères
9	C4Z 220 110			Winkel	Angle plate	Cornières
10	C4Z 220 140			Auflageblech	Face plate	Barrettes de tôle
11	C4Z 220 161			Deckel	Cover	Caches
12	C4Z 220 150			Abflußgitter	Sink grid	Crépine
13	C4Z 220 090			Gummieinlage	Rubber packing	Insert en caoutchouc
14	C4Z 220 100			Gummieinlage	Rubber packing	Insert en caoutchouc
15	B2Z 360 050			Moosgummi	Sectional strandrubber	Bande de caoutchouc mousse
16	B2Z 360 060			Moosgummi	Sectional strandrubber	Bande de caoutchouc mousse
17	ZSR 33 0812	M8x12 DIN 933		Sechskantschraube	Hexagon head screw	Vis tête hexagonale
18	ZMU 34 0800	M8 DIN 934		Mutter	Hexagon nut	Ecrou hexagonal
19	ZRG 27 0080	A8 DIN 127		Federring	Spring washer	Rondelle grower
20	ZMU 34 0600	M6 DIN 934		Mutter	Hexagon nut	Ecrou hexagonal
21	ZSR 33 1035	M10x35 DIN 933		Sechskantschraube	Hexagon head screw	Vis tête hexagonale
22	ZSB 25 1050	B10,5 DIN 125		Scheibe	Washer	Rondelle plate
23	ZSR 33 0508	M5x8 DIN 933		Sechskantschraube	Hexagon head screw	Vis tête hexagonale
24	ZMU 34 0500	M5 DIN 934		Mutter	Hexagon nut	Ecrou hexagonal
	C4Z 220 170			EMCO-Folie	EMCO	Etiquette "EMCO"



				G. Rollkörner	Revolving center	Pointe tournante
Pos.	Ref.No.	DIN		BENENNUNG	DESCRIPTION	DESIGNATION
1	B2Z 260 010			Körper	Tapered shank	Corps
2	B2Z 260 020			Abdeckring	Cover	Bague de fermeture
3	B2Z 260 030			Körner	Center	Pointe
4	ZLG 06 0800	608 EL8		Rillenkugellager	Ball bearing	Roulements à billes