



O P E R A T I N G I N S T R U C T I O N S
A N D S P A R E P A R T S L I S T

Mubea Punch

Machine Configuration:

MODEL KL 33

Serial No.:

Motor Type:

Motor Rating:

Voltage:

O P E R A T O R ' S M A N U A L

Page

3 - 4	General
5 - 7	Clutch and Clutch Operation
7 - 8	Machine Lubrication
8 - 14	The Punch
15	Manual Lubrication Chart
16	Foundation Plan
17	Accessory tools

S P A R E P A R T S L I S T

Fig. 1	Machine body, complete
Fig. 2	Flywheel shaft, complete
Fig. 3	Excentric shaft, complete with brake
Fig. 4	Punch slide with drive lever
Fig. 5	Punch housing, complete
Fig. 6	Clutch control, complete
Fig. 7 am.	Punching tool with stripper
Fig. 8	Electrical system
Fig. 9	Guards



FIVE NORTH
HELLE
GARFIELD AVE.
e (213) 771-242

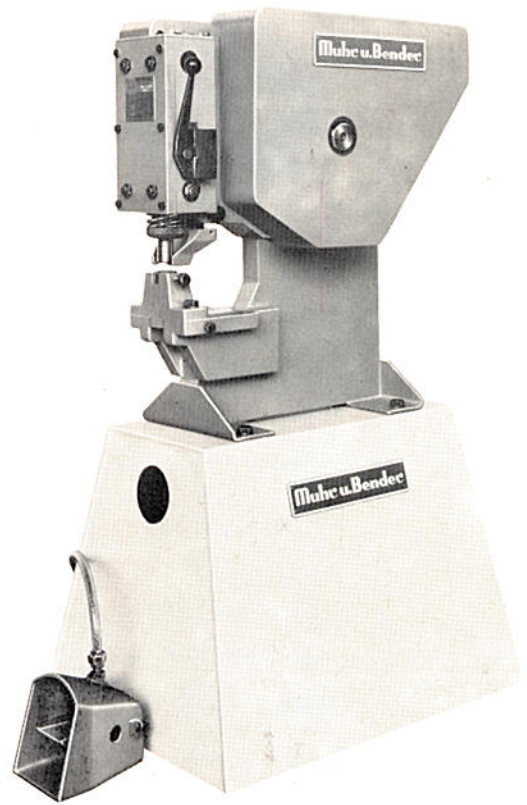
MAIN DISTRIBUTOR
SON, INC.
GATEWAY CALIF 90280
Telex 574860 Hellerger

You have made a good selection, as you will see very soon. Decades of experience and the latest state of the art in the field of punch and shear production have been combined in this genuine MUBEA machine. Many satisfied customers confirm again and again that everyday work with this machine will demonstrate its outstanding advantages.

We would urge you to read carefully these operating instructions and to observe them so that you, too, may be able to exploit all of these advantages.

Since experience has shown this machine to have an extremely long service life it will, of course, become necessary to replace wear parts now and then. When this time has come it is important to order genuine MUBEA spares; only these will allow the assurance of long service life and uniform production quality. The same applies when you wish to expand the application range of your machine by adding additional tools.

Practical experience will very soon convince you that MUBEA machines especially can be supplemented effectively, lending them multi-purpose capabilities and, at the same time, economical operating characteristics.



At the end of these operating instructions you will find a complete list of parts designations and numbers in order to provide you with an idea of the parts used to make this machine and of their interaction. These parts numbers will be used frequently in the text, and in all of these cases you can make reference to the part list.

If, however, you should still have questions or if you are unable to carry out certain jobs, please consult us: our consulting service is always available to you.

One other point: take care of your machine as it deserves for its value. These instructions include some advice in this respect.

GENERAL

Transportation

When moving the machine by crane, suspend it from the eye provided for this purpose.

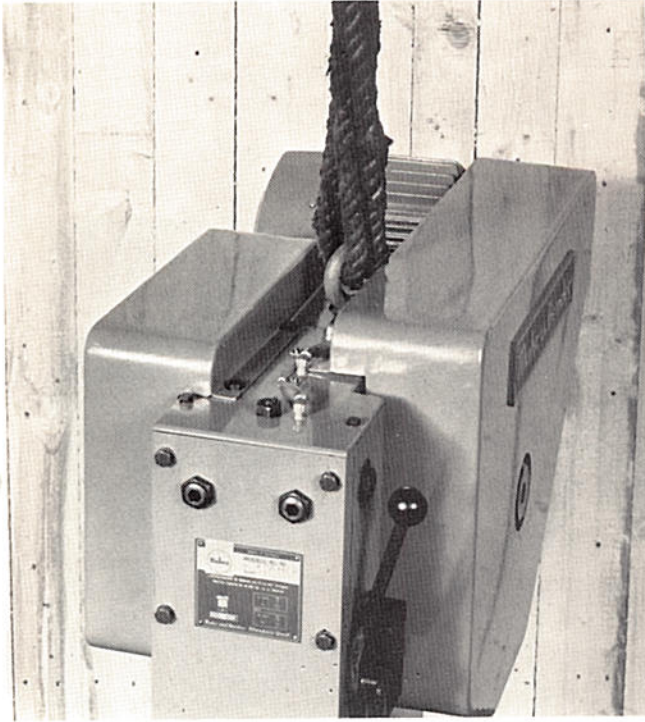


Fig. 1: Moving the machine by crane

When moving the machine by truck, bolt it to heavy planks and secure against tipping over. The weight of your machine is indicated in the enclosed prospectus.

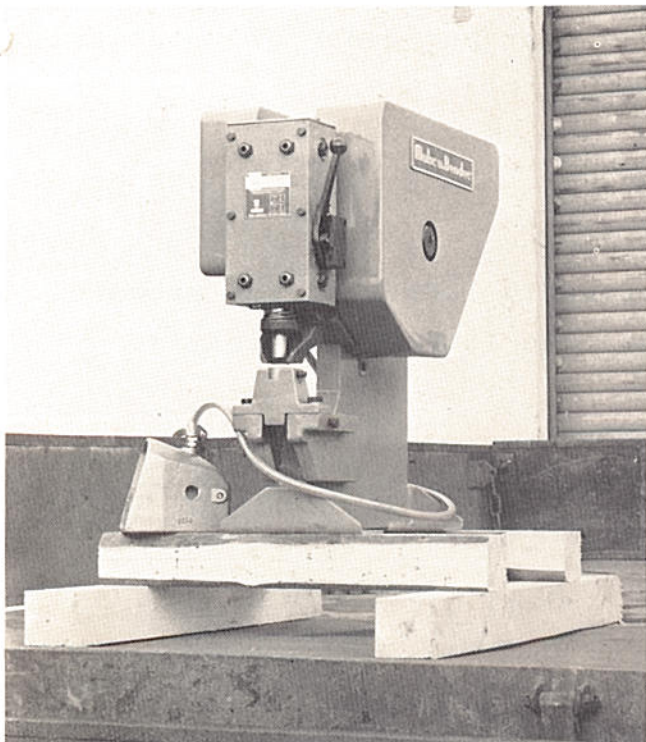


Fig. 2: Moving the machine by truck

Installation

Machines purchased with a steel base can be set up on any smooth factory floor without further mounts (the steel base or rotary base can be procured from us at any time. This will eliminate the foundation work which would otherwise become necessary).

Use our foundation plan for masonry foundation work (plan is enclosed). Tighten anchoring bolts firmly when the grouting compound has set.

Check that the machine is vertical.

We supply an undercarriage to existing machines as well as a steel base. If you already have one, please take care to place it on a plane surface and to lock the wheels.

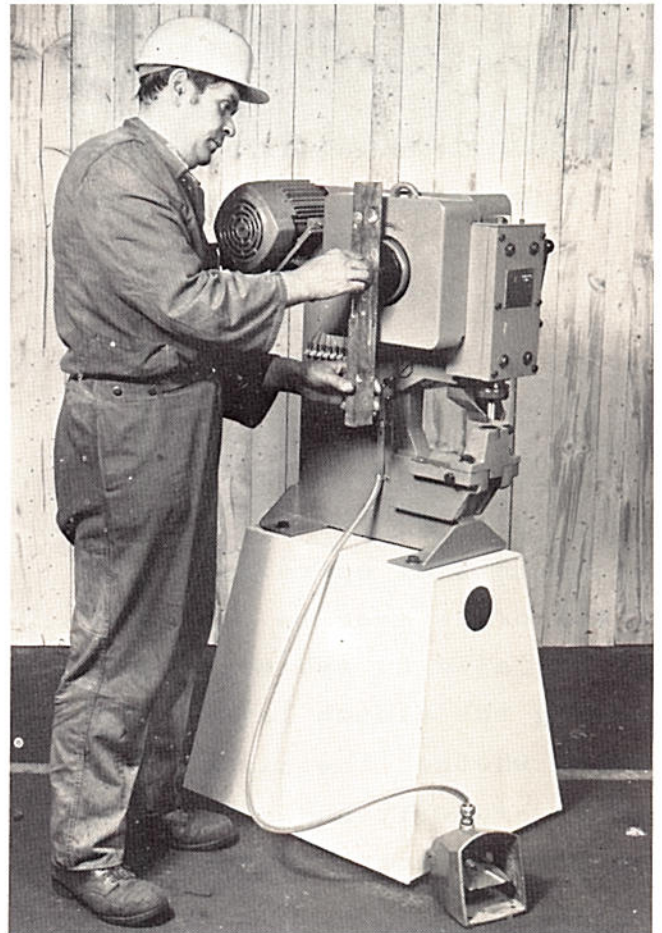


Fig. 3: Checking the machine for true mounting

Electrical Connections and Initial Operation

This machine was supplied to you in ready-to-connect condition, as you can see from the tag on the motor. The drive motor has been wired for the operating voltage specified by you. Just insert the power cable into the receptacle on the machine - that's all.

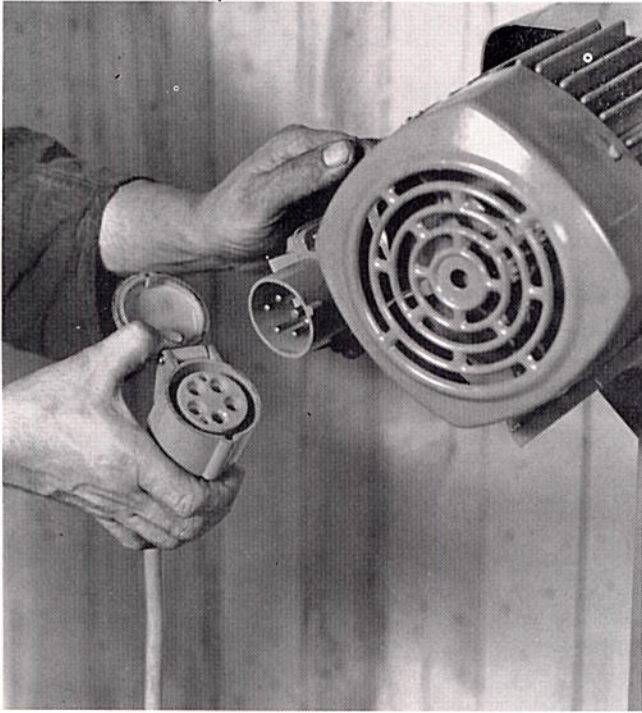


Fig. 4: Connecting the power lead

Prior to initial operation, turn over the drive gear in the direction indicated by the arrow, actuating the clutch lever and checking whether the slide operates properly and whether the tools are correctly positioned and adjusted.

Now energize the drive motor briefly. If the drive gear fails to turn in the direction of the arrow, two phase leads must be switched.

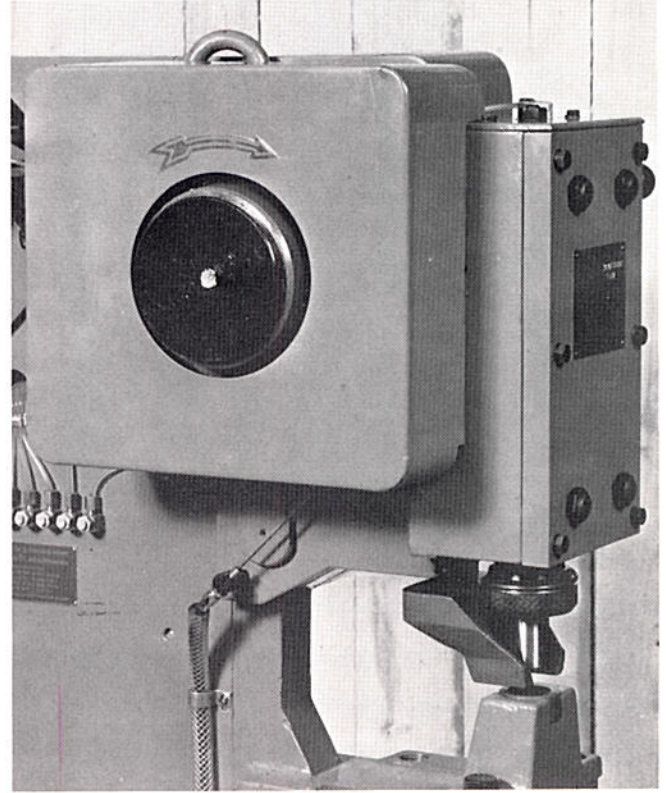


Fig. 5: Checking the drive gear for proper sense of rotation

Thoroughly lubricate the machine (refer to lubrication chart).

CLUTCH AND CLUTCH OPERATION

1. Clutch

This machine is equipped with the well-proven Mubea rolling key clutch system which is rugged and reliable.

When the clutch is disengaged the excentric shaft will be at rest when the slide is in its upper dead position, while the drive gear rotates on its stub shaft.

2. Rolling Key Positions

When the engaging lever 479 is operated by the foot clutch control the rolling key stop 461 will swing away, releasing the stop latch 241. The tension spring 239 will pull the rolling key 240 into its engaged position, positively connecting the excentric shaft 220 to the drive gear 229. The rotating drive wheel will now entrain the excentric shaft, moving the slide.

When the engaging lever 479 is released the rolling key stop 461 will swing back to its original position.

After one complete revolution of the excentric shaft the rolling key will be disengaged again and the excentric shaft will stop in its upper dead position - the drive gear will continue to run without load.

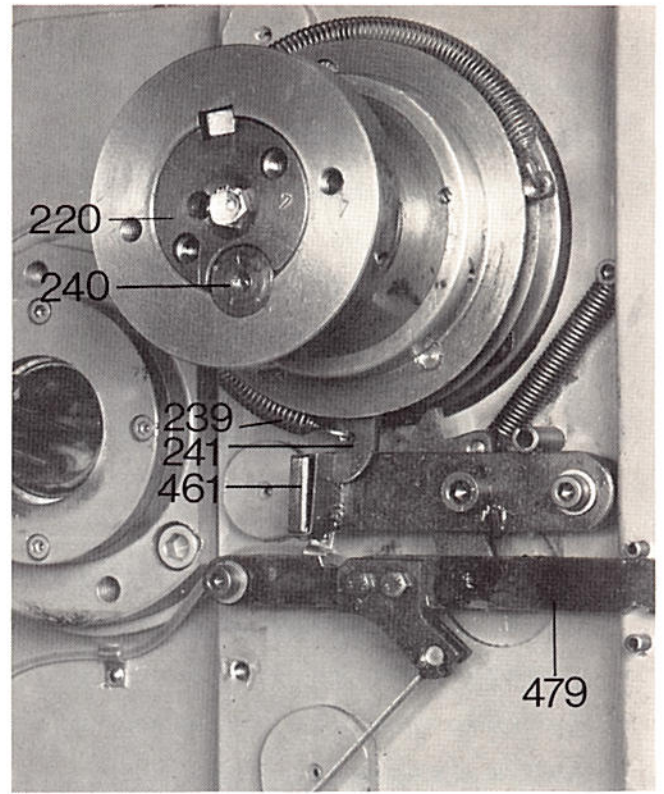


Fig. 6: Rolling key in disengaged position

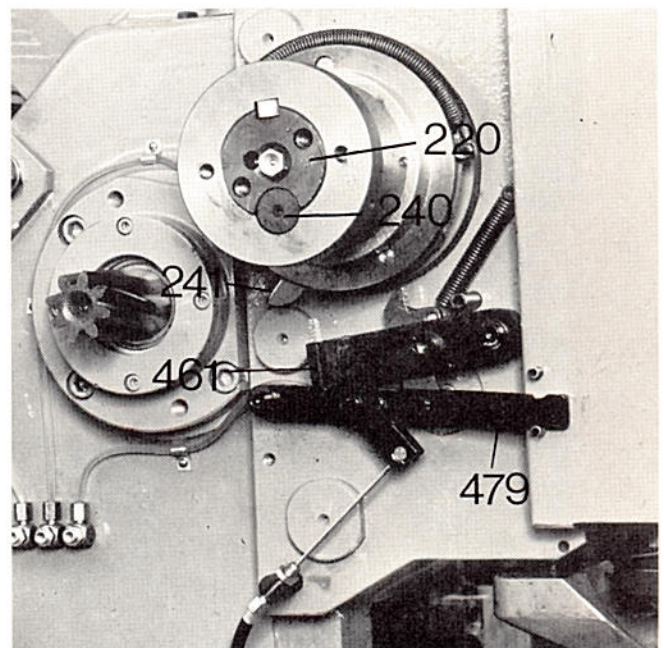


Fig. 7: Rolling key in engaged position

3. Single-Stroke or Afterstroke Safety

The single-stroke or afterstroke safety installed in the clutches is absolutely dependable and built to meet industrial safety regulations. This single-stroke safety will prevent the repetition of an operating stroke even if the engaging lever is retained in its operating position. If it is intended to operate the machine continuously the single-stroke safety must be rendered ineffective by removing the disengaging bolt 247 b (refer to Fig. 8).

When the single-stroke safety has been rendered ineffective the machine can be operated in single-stroke and continuous stroke operation.

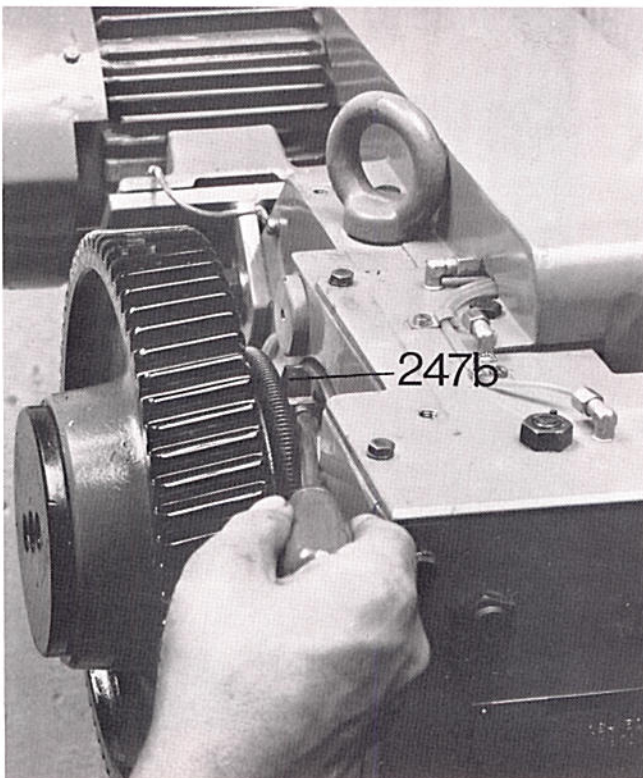


Fig. 8: Removing the disengaging bolt

4. Ticking Noise of Rolling Key

If you hear a ticking noise made by the rolling key after extended operation, readjust the excentric brake 248 by tightening the cheese head screw 256.

The ticking noise can be caused by excessive slide play, too: check the slide rails and adjust as necessary (refer to "Readjusting the Slide Rails").

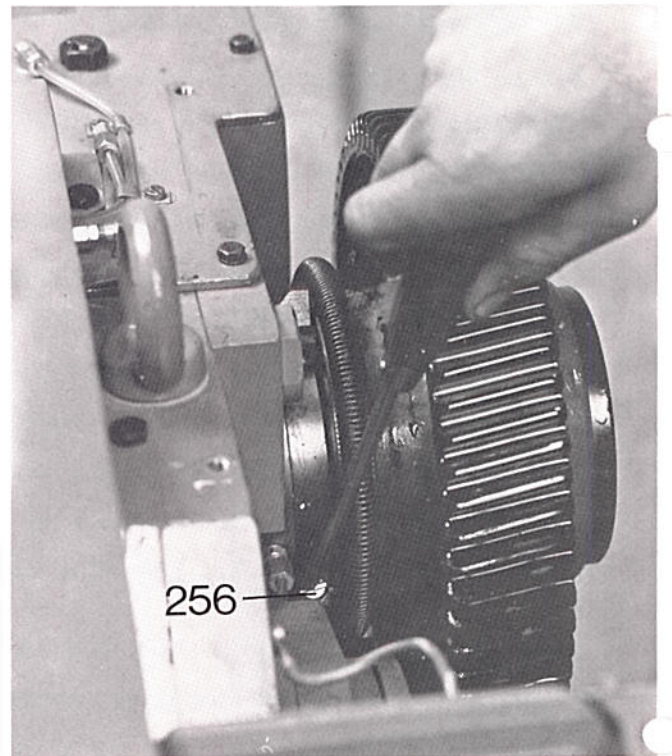


Fig. 9: Readjusting the excentric brake

5. Clutch Operation under Load

If the machine stops during a stroke for any reason (power failure, fuse blown), the motor must be turned off immediately. If any material is retained in the stamping tool the machine will be exposed to high compressive stress. In order to relieve it the flywheel and with it the drive gear is turned back. This will release the rolling key of load so that it can swing away.

Since the excentric shaft will be stationary at some point, the stop latch 241 must be retained manually: energize the motor again, permit the flywheel and gears to run up to full rpm again, and release the rolling key. The key will engage again and the stamping job can be finished.

If the machine stopped as a result of overload (too large a cross-section of the material, or excessive strength), the first task is to determine if the machine will still run properly or whether it was damaged. The machine is shut down and turned over manually by operating the engaging control (refer to section on "Initial Operation").

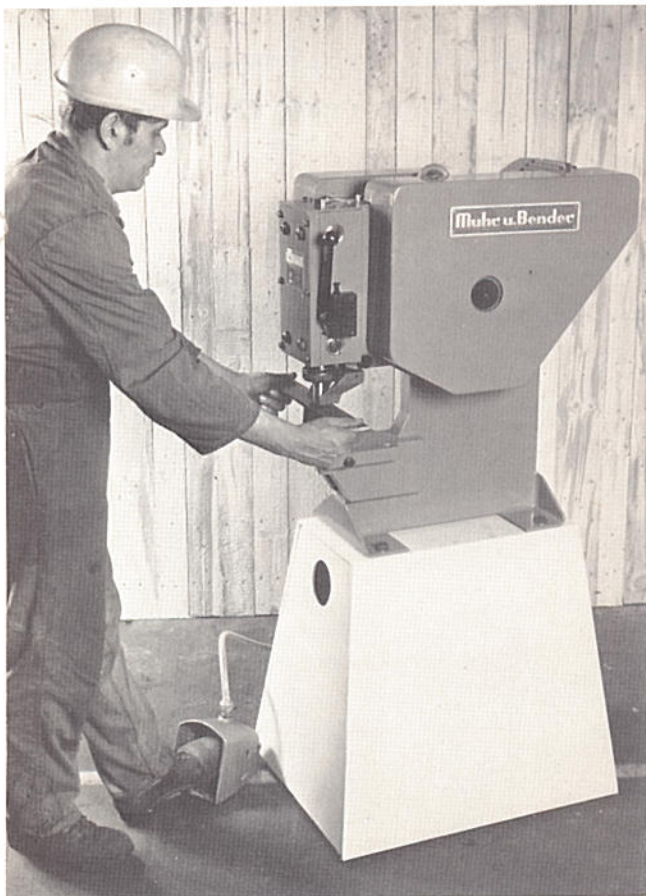


Fig.10: Clutch operation

6. Clutch Operation

This machine is supplied with foot-operated Bowden control exclusively so that the operator can always hold the material in both hands.

MACHINE LUBRICATION

a) Lubricants

This machine is always lubricated with oil. The same oil type can be used for all lubrication points.

The following alternate oil types can be used:

Manufacturer: DEUTSCHE SHELL

Brand name: Tonna Oel,
viscosity 13^o E at 50^o C

Manufacturer: MOBIL OIL A.G.

Brand name: VACTRA Oil No. 4,
viscosity 12.8^o E at 50^o C

Manufacturer: ESSO A.G.

Brand name: MILLCOTT K-70,
viscosity 14.5^o E at 50^o C

Manufacturer: BP A.G.

Brand name: ENERGOL HP 60-C,
viscosity 12^o E at 50^o C

Manufacturer: BV-ARAL

Brand name: BS 114,
viscosity 15^o E at 50^o C

Manufacturer: Rheinpreußen

Brand name: RHP - KH 150,
viscosity 15^o E at 50^o C

Manual Lubrication

Lubrication is effected by means of the oil gun supplied with the machine. The lubrication chart must be followed, and care must be taken to inject the prescribed quantities of oil at regular intervals.

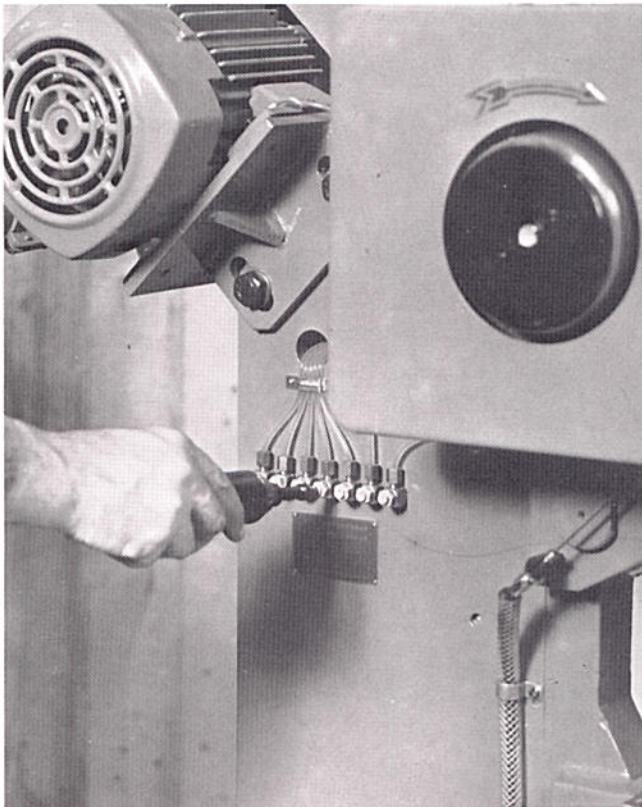


Fig.11: Lubrication by means of oil gun

The grease on the gears will be consumed at certain time intervals. This is noticed by the increased level of gearing noise. When this takes place the gears must be lubricated with the appropriate gear grease (SINIT III by ARAL).

THE PUNCH

1. General

The Mubea punch has particular design advantages far exceeding the level of a simple punch in that it can perform many jobs that used to require an excentric press.

The chucking surface of the extra-long punch slide 370 has a large, almost square cross-section. This will make it easy to install large and far-projecting tools since the slide can absorb even the tilting forces as a result of its extra length.

Even complicated punching and notching jobs can be carried out precisely by means of the different special-purpose tools such as multiple dies, follow-up dies, and guided cutters from the Mubea tooling division.

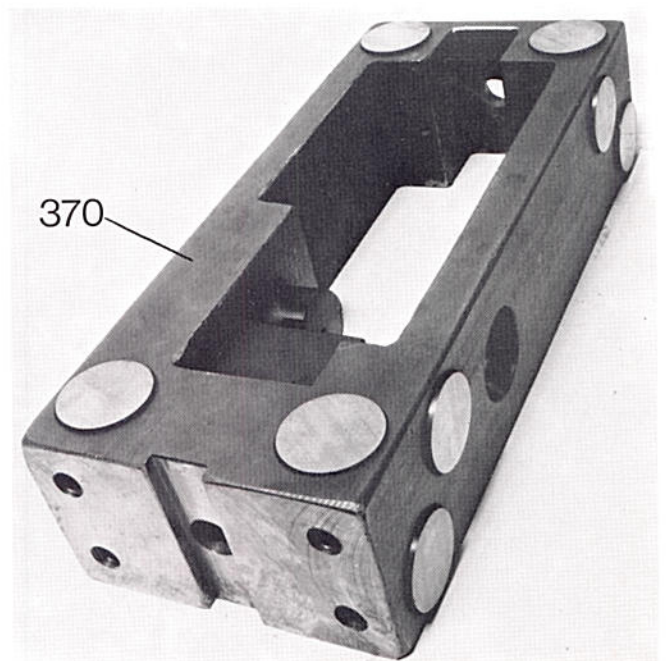


Fig.12: Punch slide

2. Slide Rail Adjustment

The slide rails must be adjusted if the punch slide 370 is no longer guided securely. When the spotter lever is operated the punch must be able to dip freely into the die.

Adjustment is made as follows:

First, the counter-nuts 343 are released by turning them counter-clockwise. Using an hexagonal pin spanner, the set screws 342 and through them the self-lubricating slide disks 338 are adjusted.

The slide disks will be adjusted properly if the slide 370 descends and rises easily when the spotter lever 589 is operated. This spotter lever will return to its initial position when it is released. The counter nuts 343 must be tightened securely after making the correct adjustment.

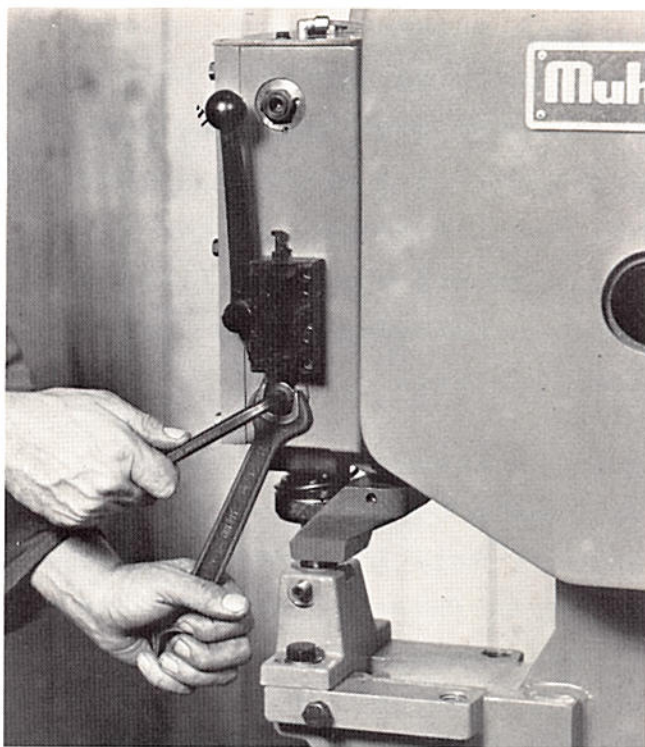


Fig.13: Lateral slide rail adjustment



Fig.14: Adjusting the slide rails on the face side

3. Punch Saddle

Mubea punching machines have been designed so that the punch saddle 1201 is supported securely. This has the advantage that the saddle cannot yield or tilt, a decisive advantage from the point of tool life.

Care was taken to provide a generously dimensioned saddle support. This has the advantage that even far-projecting tools are supported dependably, reducing wear as much as possible.

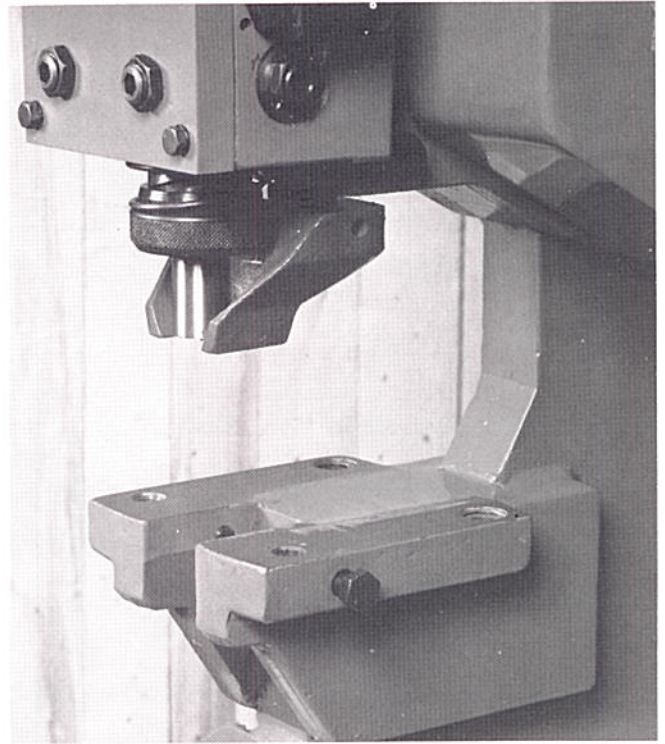


Fig.16: Saddle adapter

4. Standardized Mubea Punches and Dies

Mubea punches and dies are available in four standard sizes which will fit any machine:

Size I: up to 15 mm diam.

Size II: from 15 mm to 30 mm diam.

Size III: from 30 mm to 40 mm diam.

Size IV: from 40 mm to 50 mm diam.

Punches and dies up to Size II can be fitted to the standard machine configuration.

Refer to Special-Purpose Tools for punches and dies exceeding this standard range.

We supply special flange dies with inclined surface to match the flange slope of channels or I-beams when holes are to be punched in the flanges. In addition, this operation requires a special punching device.

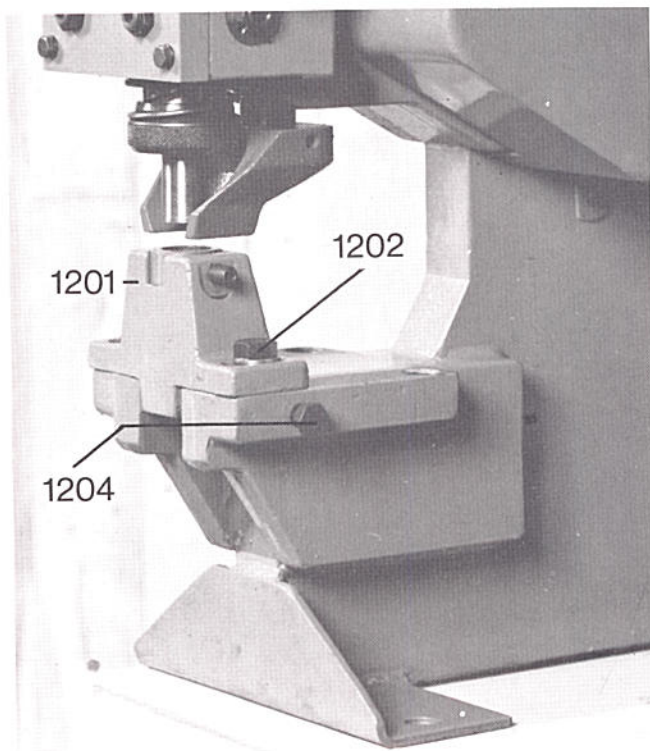


Fig.15: Saddle with saddle support

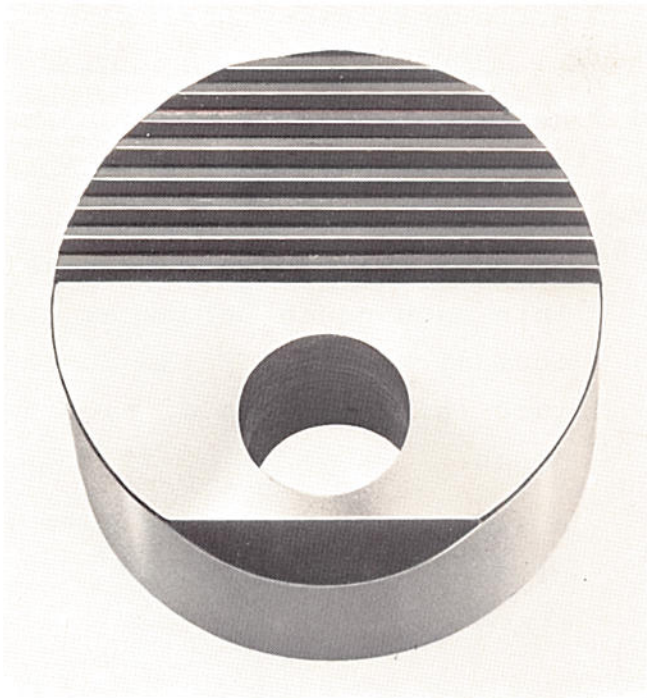


Fig.17: Flange die for I-beams

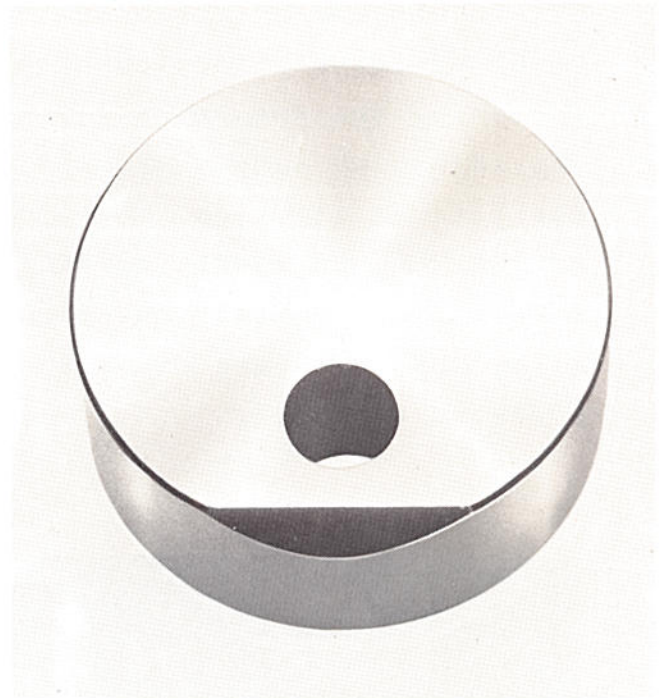


Fig.18: Excentric die for small L-bars

Excentric dies whose bore is located close to the die edge are required for punching the smaller L-, U- or I-profiles of steel stock close to the web, flange, or leg. When excentric dies are installed the punch saddle must be shifted to the rear until punch and die bore are aligned again.

Excentric dies are required when L-shaped steel stock under 45 mm leg length must be punched.

Please request our detailed catalogue on standard Mubea punches and dies.

5. Punch and Die Adjustments

Punch and die must be concentric at all times. The cutting gap should be appr. 5 % of material thickness (consequently, when punching a material of 10 mm thickness the diameter of the die bore should be 1 mm greater than the punch diameter, resulting in a cutting gap of 0.5 mm). Therefore, the thickness of the material to be punched should be stated when ordering these tools.

The saddle can be moved in the back-and-forth direction after loosening the retaining screws 1202. The adjusting screws 1204 are used for lateral fixation. These adjusting screws 1204 and saddle retaining screws 1202 are tightened securely after the punch and die have been adjusted properly.

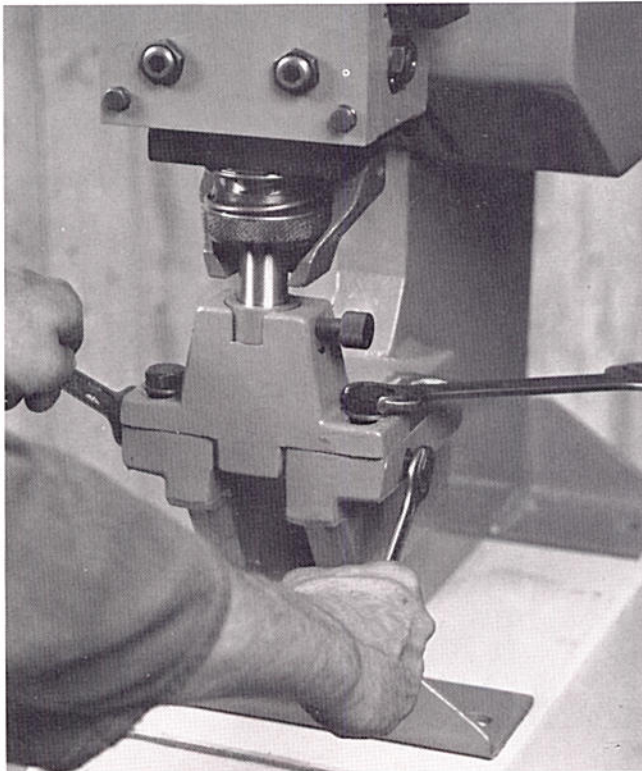


Fig.19: Punch and die adjustment

The relative position of the tools is checked periodically during punching operations by dipping the punch into the die with the aid of the spotter device.

6. Anti-Twisting Device for Shaped Punches

Rectangular, slotting, or other shaped punches must be secured against twisting. For this purpose a slot has been machined into each punch holder at the contact surface of the punch and into the face side of each shaped punch.

A wedge must be placed into this slot.

7. Stripper

The rugged stripper can be set to match any thickness of material.

For height adjustment and during any tool change the stripper must be shifted to the rear into the machine recess after loosening its arresting screw 843.

Height adjustment requires that the threaded pin 844 be loosened. Once the stripper 840 has been released, height adjustment to the desired material thickness can be accomplished. The threaded pin 844 must be tightened securely after this adjusting operation.

8. Punch Center Spotter

The punch center spotter can be used to descend the slide with the punch by operating the spotter lever 589 and centering the punch tip on a center mark punched into the material.

When this spotter device is operated the spotter lever 589 must be turned down first. When it is in its lower position the punch slide can be released by exerting a slight pressure. Subsequently the punch slide can be shifted downward by pivoting the spotter lever. However, shifting the punch slide into its upper dead position requires that a new operating stroke be initiated. When the spotter lever is released the punch will rest on the material so that it can no longer shift, excluding any punching errors; subsequently the clutch can be engaged to perform the punching stroke.

After centering, set centering lever free and engage punch.

9. Regrinding the Punching Tools

Punching tools should be reground at the face sides only to avoid changing the clearance between punch and die. Cutting edges should be wiped with oil from time to time in order to extend the tool life.

In many cases it will be simpler to order new tools: this will be more economical, and the cutting edge will be ground perfectly.

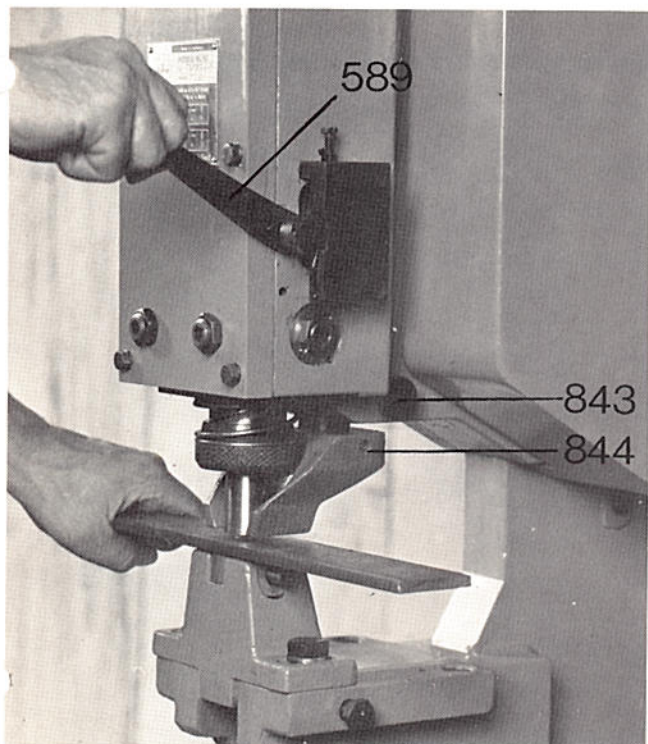


Fig.20: Punch center spotter

10. Quick-Change Device for Punches and Dies

This machine is equipped with a quick-change device for round punches and dies as a standard feature. Both tool elements can be changed rapidly and safely by a few manipulations.

This device is economical especially where small lots are processed, requiring frequent tool changes.

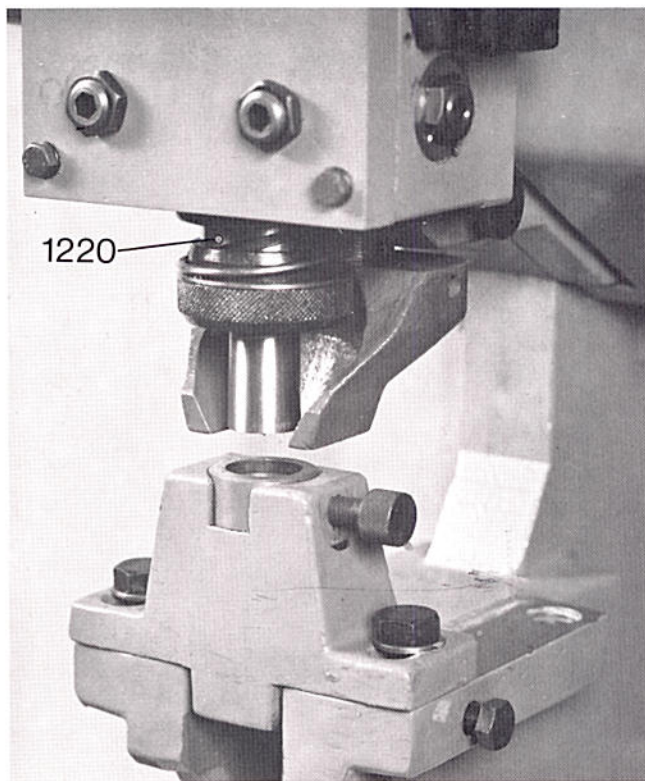








Fig.21: Quick-change device for punches and dies

Shaped punches and dies can be chucked by means of this device, too, but require a check of the cutting gap after any tool change. Often the saddle will require realignment in these cases. In addition to realignment the outer

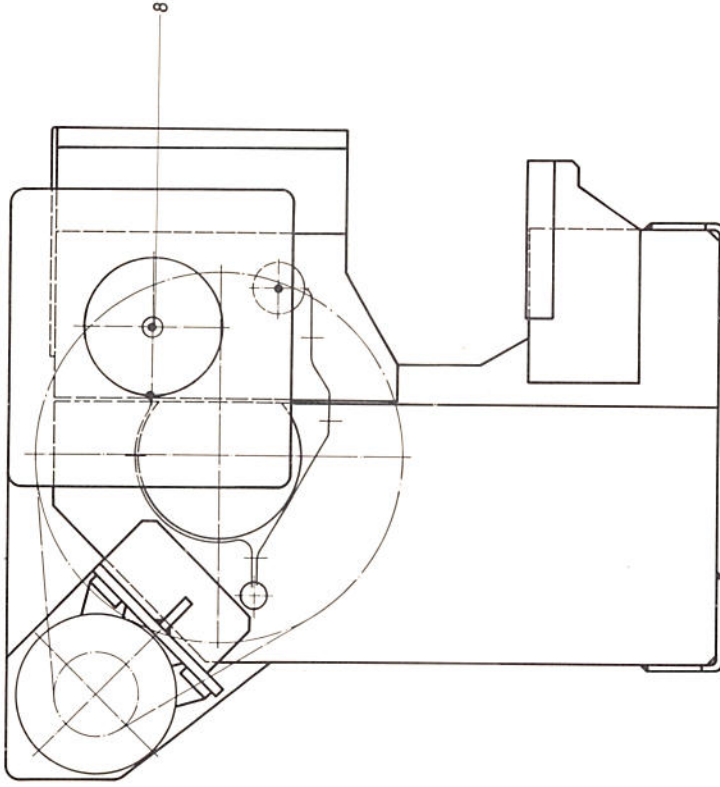
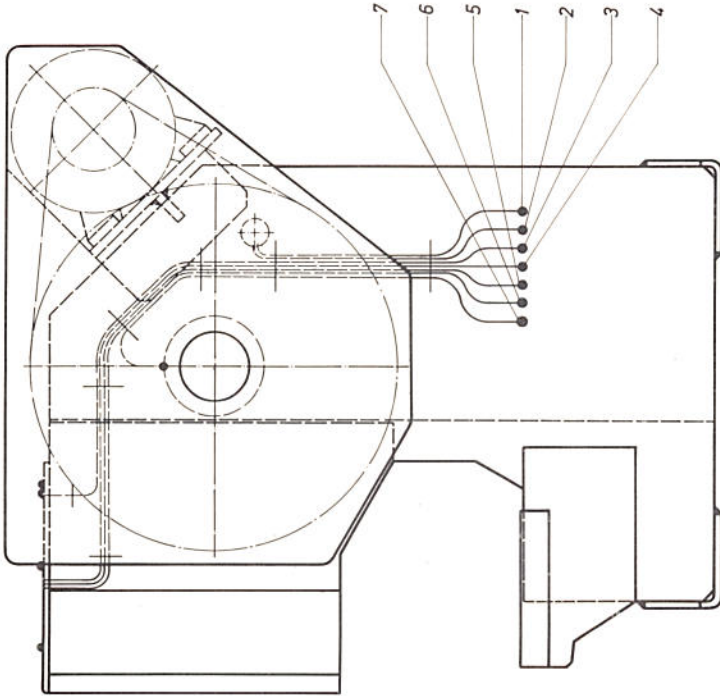
ring for the punch must be tightened after the first punching operation since the centering pin will align itself in the aligning slot only after the first punching stroke; the same will apply to box nut chucking.

Where greater lots are processed it is best to use the more rugged box nut chucking device. The conversion from the quick-change chucking device to the box nut is accomplished by loosening the threaded pin 1220 which will release the centering ring so that it can be unscrewed. After these minor manipulations the machine will be ready for mounting the box nut chucking device. Installation of the quick-change device is accomplished in the inverse order of steps. Whenever a punch cannot be chucked dependably for some reason the basic position of the centering ring must be corrected. For this purpose the threaded pin 1220 must be loosened, the centering ring very slightly adjusted and again secured by means of the threaded pin.

Zubehörwerkzeuge
Accessories
Outils accessoires

		KL
<i>Best. Nr. - Order Nr.</i>		
<i>Größe - Size</i>	MBN	30/33
10 x 13	24 032	1
		
19	24 008	1
24	24 009	1
60	24 017	1
		
3	24 301	1
8	24 305	1
10	24 306	1
		
-	24 501	1
		
Nr. 2	22 106	1
		
-	24 651	1

Handschmierung KL 30
Hand lubrication KL 30/33



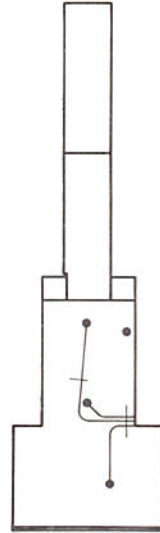
Schmierhäufigkeit
 Alle 5 Stunden
 Schmierstellen 1÷8 je 2 Pumpenhübe
 Abschmierung muß bei Stillstand der Maschine erfolgen
 Verzahnungen nach Bedarf mit SINIT III abschmieren! Lieferant: DEUTSCHE-GASOLIN

LUBRICATING PERIOD
 All 5 HOURS
 LUBRICATING SPOT 1-8 2 PUMP STROKES EACH
 LUBRICATE ONLY WHEN GLUTCHES NOT ENGAGED
 LUBRICATE TEETH OF WHEELS WITH SHELL CARDIUM COMPOUND D OR EQUIVALENT WHEN NECESSARY

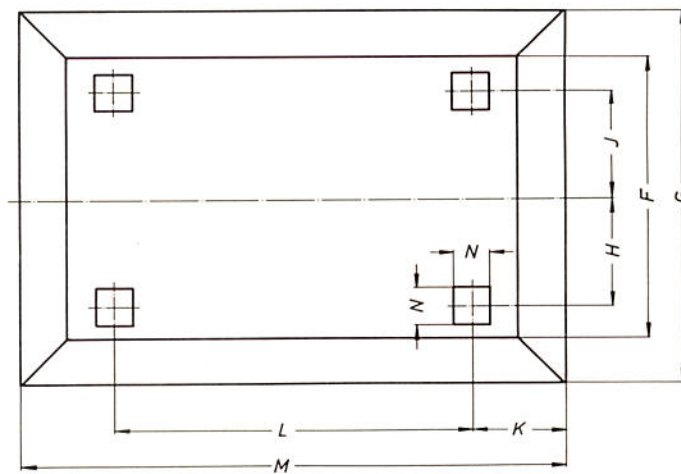
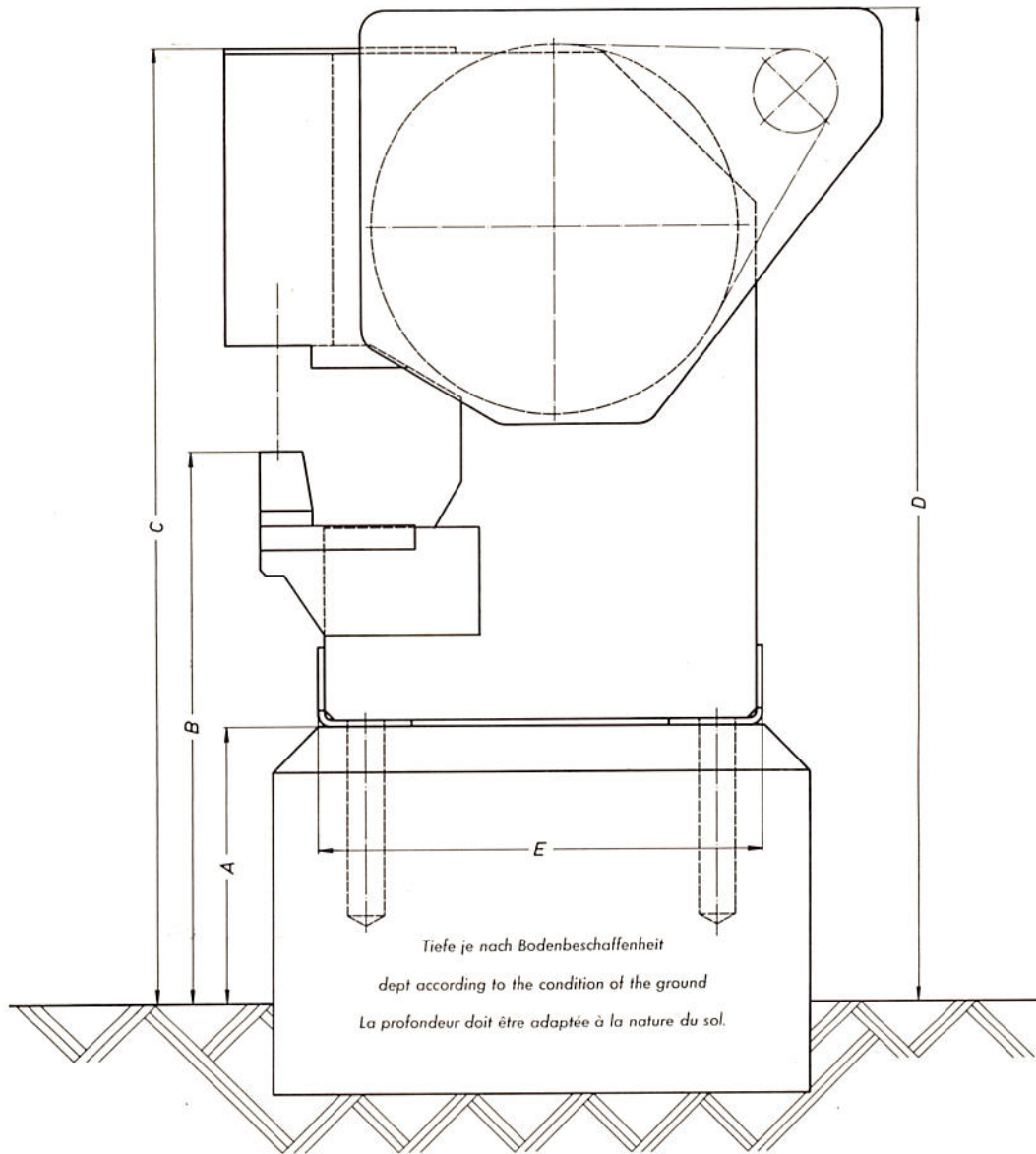
Schmierstoff
 Spezialöl BSS DEUTSCHE GASOLIN
 Viscosität 12E bei 50°C
 Tonna Öl 72 DEUTSCHE SHELL
 Viscosität 13E bei 50°C
 VACTRA OIL Nr.4 MOBIL OIL AG
 Viscosität 12,8E bei 50°C
 MILLCOT K-65 ESSO AG
 Viscosität 12,5E bei 50°C

LUBRICATING MATERIAL
 CHEVRON VISTAC
 DIL 28*
 OR EQUIVALENT

Handschmierung KL30
 Hand LUBRICATION KL30/33



Alle Schmierstellen an der Maschine sind gelb gekennzeichnet



Fundamentplan
Foundation plan
Plan de fondation

KL	A	B	C	D	E	F	G	H	J	K	L	M	N
10 mm	645	946	1377	1425	484	300	400	115	115	100	384	584	40
inch	25 ⁷ / ₁₆	37 ⁵ / ₁₆	54 ³ / ₁₆	56 ³ / ₁₆	19 ¹ / ₁₆	11 ¹³ / ₁₆	15 ³ / ₄	4 ¹ / ₂	4 ¹ / ₂	3 ¹⁵ / ₁₆	15 ¹ / ₈	23	1 ⁹ / ₁₆

