MUBEA
BS 90

Operating Instructions

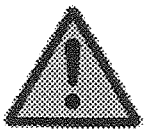
Manufacturer: **MHR UND BENDER**
Maschinenbau GmbH
Postfach 340
D- 57427 Attendorn

Introduction

In this user manual you will find all the information required for the installation, startup, operation and maintenance of your reinforcing steel cutting machine BS 90.

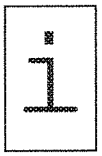
Before you start working with the BS 90, please read this user manual thoroughly.

Safety instructions and important notes that must be observed by all means are identified by the following symbols:



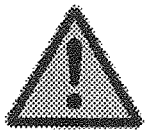
This symbol identifies safety instructions that must be heeded by all means, since otherwise persons may be injured or even killed. Furthermore, if they are not heeded, the machine and its functions may be severely damaged.

This symbol identifies a warning against hazardous electric voltage.



This symbol identifies notes with information facilitating your works or the understanding of the procedure described.

For representation purposes, some of the illustrations do not depict the prescribed safety fixtures. When working with the machine, however, these safety fixtures must absolutely be installed!



When working with the BS 90, the safety fixtures must be installed by all means!

Customer service: ☎ *(02722) 62-297*

Spare parts and accessories: ☎ *(02722) 62-297*

9 Spare Parts Lists

1

General Information

1 GENERAL INFORMATION

1.1 Technical Specifications

Machine type: BS 90
Machine number:
Model:
Sound level: 75 db (A)

1.1.1 Mechanical Specifications

Weight: 435 kg
Gross weight (packed seaworthy: 590 kg
Dimeensions (L x W x H): 1115 x 450 x 710

1.1.2 Electrical Specification

Motor type: 4 AP 100 L-4
Motor power: 3 kW
Power consumption: 6,37 A
Operating voltage: 400V Y; 50 cls
Rpml: 1430 min $^{-1}$

1.1.3 Ratings

The following table lists the ratings of the BS 90

Anzahl der Stäbe Number of bars Nombre de Barres	∅ 1 mm	∅ 2 mm	∅ 3 mm	∅ 4 mm	□ 1 mm	□ 2 mm	□ 3 mm	□ 4 mm	Flach- stahl mm
Betonstahl 850 N/mm²	28	20	16	14	24	18	14	12	75 x 8
Reinforcing steel 650 N/mm²	32	22	18	16	28	20	16	14	75 x10
Fers a beton 450 N/mm²	40	28	20	18	34	24	20	16	75 x14
Schnitte Cuts per min min $^{-1}$ Coupes	60								

1.2 General Description

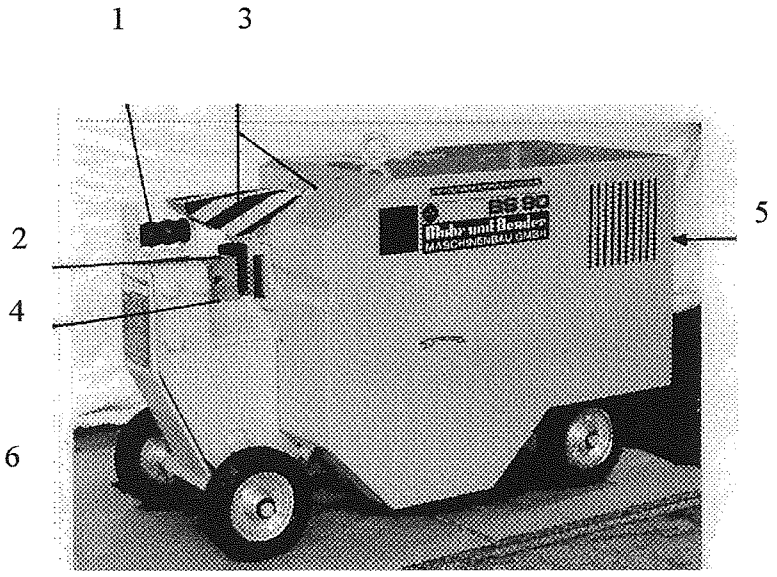
The Reinforcing Steel Cutting Machine BS 90 is a heavy-duty machine constructed in a robust and failure-immune style.
The double-edged blades are manufactured of high-grade tool steel. The adjustable-steady in the form of a planar cam guides the rods to their correct cutting position.
The operating elements of the machine are described in Section 1.3.

The scope of delivery includes:

- Reinforcing steel cutting machine BS 90
- 1 concrete steel blade
- 1 tool kit

Supplementary special equipment can be ordered from Muhr und Bender.

For more detailed information, please revert to our customer service.



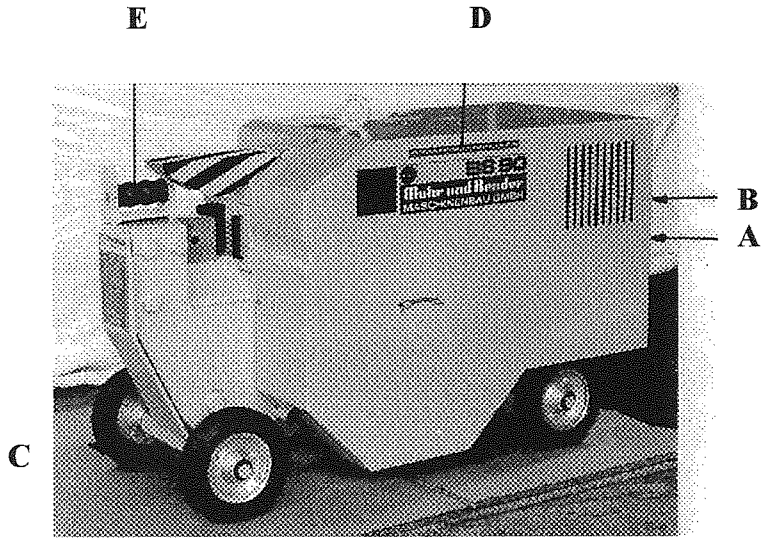
[BS90-1]

Legend:

1	Material support roller	5	Power connection
2	Steady	6	Foot switch
3	Protective cover		
4	Blade		

1.3 Operating Elements

Overview of the positions of the operating elements described in detail on the following pages:



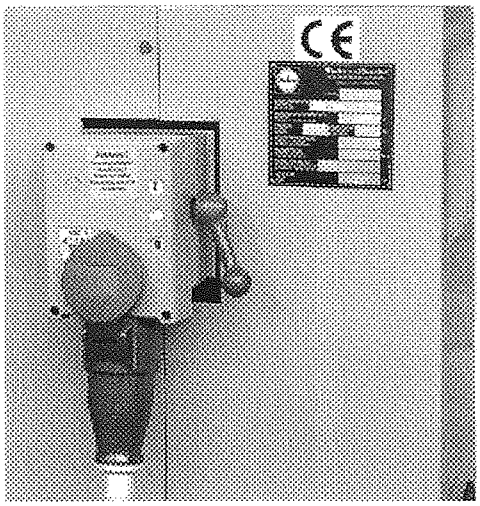
[BS90-2]

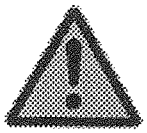
Legend:

A Power connection
B Power switch
C Foot switch
D Lubrication
E Material rollers

Power Connection (A)

The BS 90 is connected via the connector supplied.





The connection to the power supply must be performed by an electrician!

[BS90-5]

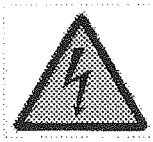
Power switch (B)

Positions:

I	On
O	Off

In the "Off" position, all the machine's phases are disconnected from the power supply.

[BS90-5]

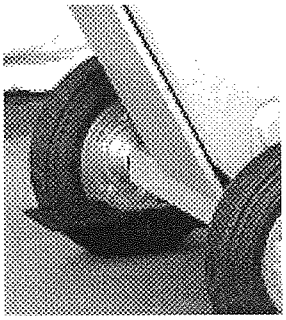


In the "Off" position, the supply lines still carry voltage. For this reason, the machine must be disconnected from the external power supply whenever repair works are to be performed on the electrics.

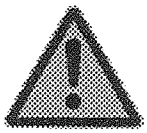
Foot switch (C)

The BS 90 is equipped with a foot switch that sends the signal for initiating the cutting process.

The shear slide will automatically perform a shearing movement. The foot switch must be actuated for each cut.



[BS90-16]



The safety fixtures must not be removed. Prior to switching the machine on, they must always be checked for completeness and proper attachment.
Damaged safety fixtures must be replaced.

Lubrication (D)

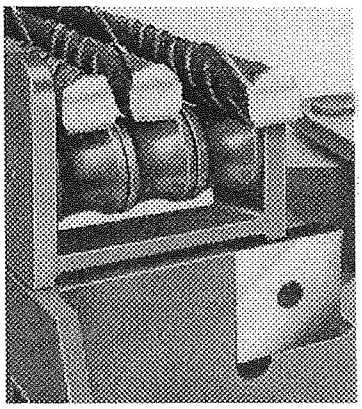
The machine is equipped with a centralized oil lubrication.

The machine is lubricated using the manual lubrication pump (refer to Chapter 6.4 "Lubrication").

[BS90-3]

Material Rollers (E)

The material can be pulled slightly forward via the material transport rollers - not in the blade opening - since this can easily damage the cutting edges, especially when ripped bars are cut.



[BS90-8]

2

Safety Instructions

2. SAFETY INSTRUCTIONS

2.1 General Notes

This User Manual contains general notes that must be observed for the installation, startup, operation and maintenance of the machine.
For this reason it must be read by mechanical engineers and the skilled personnel involved prior to the machine's installation and startup.

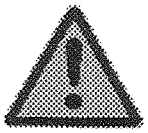
The User Manual must be available at the machine's operation site at all times.

The machine operator has the permanent obligation to observe the overall technical condition of the machine (externally visible defects and damage, modification of the operating behaviour).

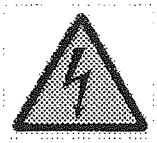
The operator is obliged to immediately report any changes on the machine or its operational behaviour that may impair safety.

For operating the machine, the local safety instructions and regulations for preventing accidents must equally be observed.

The Identification of Instructions and Notes in the User Manual



This symbol identifies safety instructions that must be heeded by all means, since otherwise persons may be injured or even killed.
Furthermore, if they are not heeded, the machine and its functions may be severely damaged.



This symbol identifies a warning against hazardous electric voltage.

This symbol identifies notes with information facilitating your work or the understanding of the procedure described.

Dangers

When operated by untrained personnel or when used improperly or for purposes not complying with its design and intended field of application, this machine may be a hazard.

Danger Zone

When cutting long reinforcing steel rods, a danger zone is created. This danger zone must be sufficiently safeguarded against unauthorized access. A clearance distance must be kept to other machines, devices and other obstacles.

Use

The machine has been designed and constructed for a specific purpose.

If the machine is used in a way in which it was not intended to be used (misused), the manufacturer takes no liability for any consequential damage. The risk lies solely with the operator.

Refrain from any procedures impairing the safety of the operator or the machine.

Warning and Notice Signs on the Machine

Warning and notice signs directly affixed to the machine, such as arrows indicating the direction of rotation, must be observed by all means and must be kept in perfectly legible condition.

2.2 Obligations of the Operator

Qualification and Training of the personnel

The personnel performing the installation, startup, maintenance and inspection operations must be appropriately qualified for these procedures.

If the personnel is not sufficiently qualified, it must be trained and instructed accordingly.

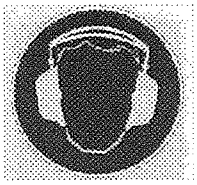
In addition, ensure that the personnel reads the present User Manual and completely understands the information contained therein.

Dangers arising from the Non-Observance of the Safety Instructions

If the safety instructions are not observed, persons, the environment and the machine may be endangered.

Non-observance of the safety instructions leads to the loss of all claims for damage.

Noise Protection



The sound level of the machine is below 75 dB (A). For this reason, hearing protectors are not mandatory.

Due to environmenal influences, e.g. on a construction site in combination with other machines, however, this value can be exceeded. In this case, the operating personnel must wear appropriate hearing protectors.

The operator is responsible for the availability of appropriate hearing protectors and must make sure that the personnel uses them.

Unauthorized Modification and Manufacture of Spare Parts

Modification or rebuilding of the machine is impermissible.

Originally supplied spare parts and accessories guarantee the operator's safety.

The use of other parts voids all liability of Muhr und Bender for any consequential damage. .

Impermissible Misuse

The machine's operational safety can be guaranteed only if the machine is operated in a way that corresponds to the purpose it has been designed and constructed for and in keeping with Section 2.3 of this User Manual.

The performance data specified in Section 1.1.3 must not be exceeded.

2.3 Proper and Correct Use

The proper and correct use of the machine is restricted to cutting reinforcing steel.l.

The performance data of the machine must not be exceeded (refer to Section 1.1.3 "Ratings".

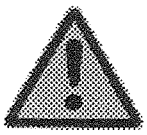
Any use other than the above-described or exceeding it is regarded as improper use or misuse.

The operating place of the operator is on the front (operation side) of the reinforcing steel cutting machine.

2.4 Misuse

The following is regarded as improper use (misuse):

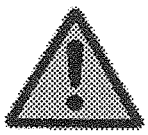
- Any application differing from the use stated above or any application exceeding it.
- The non-observation of the notes and instructions on safety.
- When malfunctions or defects that may impair safety are not eliminated before continuing the operation of the machine.
- Any manipulation of the machine facilities that serve for trouble-free functioning and operation, unlimited use and active and passsive safety of the machine.
- If the machine is not operated in technically integer condition, in consideration of safety and hazards and under observation of the pertinent instructions outlined in the User Manual e.g.
    * wrong direction of rotation of the motor, e.g. due to incorrect electrical connection
    * machine not installed solidly



Misuse of the machine voids all liability and warranty of the manufacturer!

2.5 Safety instructions

General Notes



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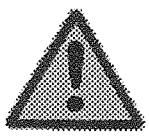
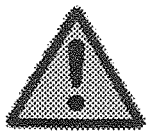
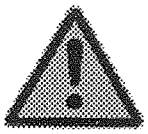


Works on the electrics must be performed by an electrician!

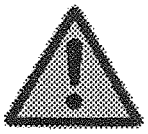


Any special tools used must be designed as safe tools.

Instructions Relating to the Protective Covers



Protective Covers must be mounted before the machine is operated!

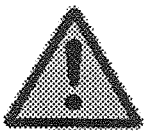


Safety fixtures must not be removed!
Prior to switching the machine on, they must always be checked for completeness and proper mounting. Damaged safety fixtures must be replaced.

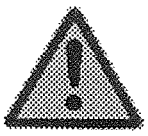
Instructions Relating to the Power Switch

In the "Machine Off" position, the supply lines still carry voltage. For this reason, the machine must be disconnected from the external power supply whenever repair or maintenance works are to be performed.

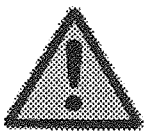
Instructions Relating to Blades and Tools



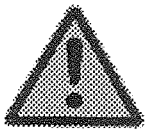
Blades and tools must be reground in due time.
Blunt cutting edges affect the machine performance and produce unclean cuts.



Worn blades and tools must not be used.



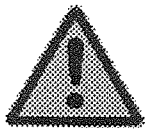
Periodically check the blades and tools for blunt or jagged cutting edges.



The blade clearance must be checked with each change of the blade.

Unclean cuts leave burrs and jagged spikes on the workpiece and thus increase the risk of injury.

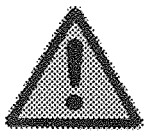
Safety Fixtures



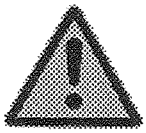
Safety fixtures must not be removed. Prior to switching the machine on, they must always be checked for completeness and proper mounting. Damaged safety fixtures must be replaced.

Safety fixtures on the front of the machine.

Notes on Transporting the Machine

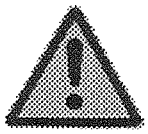


When transporting the machine, ensure that cables and supply lines are not bent or jammed.

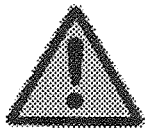


The lifting power of the crane, straps, ropes and lifting equipment must be rated for the weight of the machine (refer to the section on Technical Specifications).

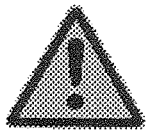
Never step under hanging loads.



Do not place the straps around the machine housing.

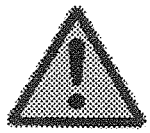


To prevent damage, transport the machine only with a board platform screwed to its bottom.

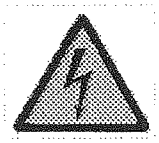


Tighten the ring bolt thoroughly.

Notes on Installing the Machine

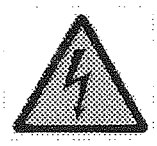


When installing the machine, ensure that cables and supply lines are not bent or jammed.



The connection to the power supply must be performed by an electrician.

Notes on Maintenance and Cleaning of the Machine



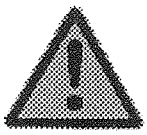
Disconnect the power switch prior to performing any maintenance procedures.

3

Startup and Shutdown

3. STARTUP / SHUTDOWN

3.1 Transport

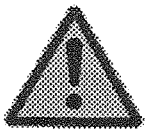


When transporting the machine, ensure that cables and supply lines are not bent or jammed.

3.1.1 Transport by crane

- Ensure that the ring bolt is tightened thoroughly.
- Transport the machine only at the ring bolt provided for this purpose.

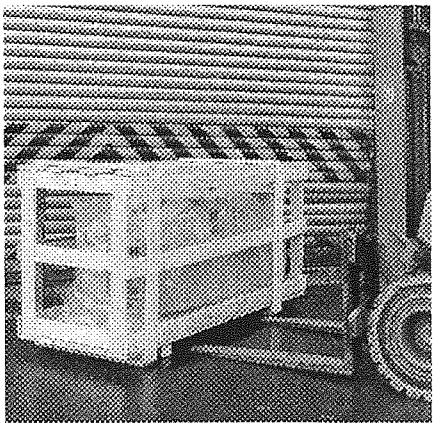
[BS90-1c]

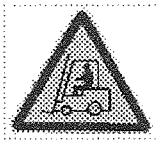


The lifting power of the crane, ropes, chains and lifting equipment must be rated for the weight of the machine (refer to Section 1.1 "Technical Specifications").
Never step under hanging loads.
Always tighten ring bolts thoroughly.

3.1.2 Transport by Fork Lift

- Screw the machine onto a stable board platform so that it can be lifted with the fork lift when positioned in longitudinal direction.
- Lift the machine in longitudinal direction only to prevent the machine from tilting.

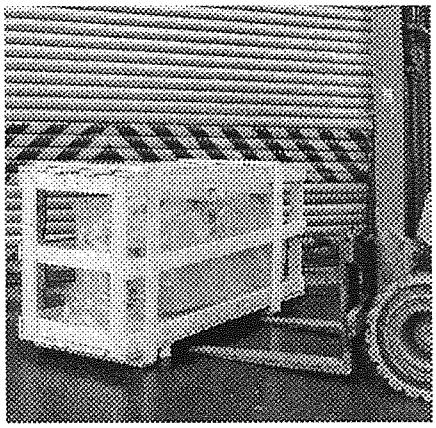




To prevent damage, transport the machine by fork lift only with a stable board platform screwed to its bottom.

3.1.3 Transport by Truck or Train

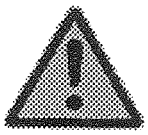
Screw the machine onto a solid board platform so that it is stable (in Germany, the moving company is responsible for fastening the machine thus prepared properly on the freight car or truck; please check the applicable local laws for information on this topic).



3.2 Installation

The machine has a standard operating height. For this reason, the operating height need not be adjusted by means of platforms or subbases.

Before installing the machine, check whether the floor of the installation site is sufficiently level and solid.



When installing the machin, ensure that cables and supply lines are not bent or jammed.

3.3 Power Connection

The connection to the power supply must be performed by an electrician!

- Check the mains voltage at the installation site!
- The machine is equipped with an undervoltage no-close release. The machine can thus be switched on only if voltage is applied.

Power Connector

- Connect the power coupling to the power connector of the machine.

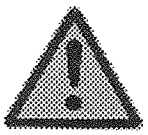
3.4 Final Inspection Prior to Startup

- Check the machine for stability.
- Check the motor's direction of rotation.
- If required, have an electrician correct the direction of rotation (refer to Chapter 9, "Circuit Diagrams").

Works on the electrics must be performed by an electrician!

3.5 Mechanical Aspects

- Check the machine for stability.
- Check the safety fixtures for completeness, safe attachment and functioning.
- Verify that the working slide of the machine works properly and that all tools have been adjusted correctly. For this purpose, the Start and Stop switches of the motor must be actuated briefly - with the foot switch closed - to enable engagement of the clutch.
- To move the slide, turn the flywheel in the direction indicated by the arrow and simultaneously engage the clutch.
- Lubricate the machine.



The safety fixtures must not be removed.
Prior to switching the machine on, they must always be checked for completeness and proper attachment.
Damaged safety fixtures must be replaced.

3.6 Shutdown

- Switch off the machine.
- Disconnect the power plug.

No further measures are required for the shutdown.

4

Operation

4. OPERATION

4.1 Preparatory Procedures

* Check the safety fixtures for safe attachment and functioning

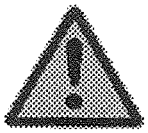
* Verify that the tools are undamaged and in good condition, that they are mounted safely and that their cutting edges are sharp.

4.2 Switching on the machine

* Set the power switch (A) to "I".

4.3 Operating the Reinforcing Steel Cutting Machine

4.3.1 Notes on Safety

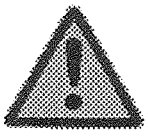


Worn blades and tools must not be used.
Periodically check the blades and tools for blunt or jagged cutting edges.

4.3.2 Single-Stroke Safeguarding Device

The single-stroke safeguarding device prevents a repetition of the cutting stroke even if the clutch remains in its engaged position.

Every actuation of the foot switch always triggers one single cutting stroke only.

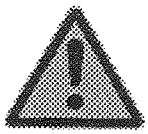


If the single-stroke safeguarding device is defective it is possible that the cutting machine performs cutting strokes repeatedly!

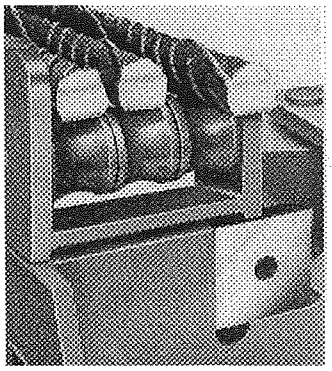
4.3.2 Using the Reinforcing Steel Cutting Machine

- Observe the pertinent safety regulations
- Switch on the machine (refer to section 4.2).
- Verify the the steady is adjusted correctly for the thickness of the material to be cut. If required, adjust the steady to an optimum position according to Section 5.
- Place the material on the material support roller and position it correctly.

[BS90-1c]

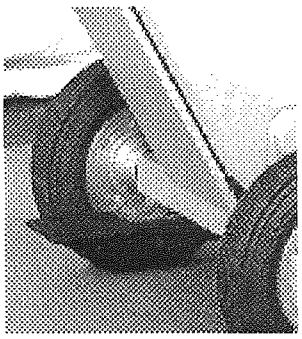


Pull the material over the transport roller, not through the blade opening, since this may damage the cutting edges.



[BS90-8]

- Actuate the foot switch to trigger the cutting stroke.
- After initiating the cutting stroke, release the foot switch. The shearing slide will performone cutting stroke and then idle in its home position.
- Periodically check the cutting clearance (refer to Section 5).



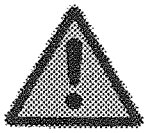
[BS90-1b]

5

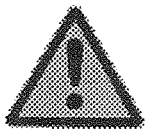
Adjustment Procedures

5. ADJUSTMENT PROCEDURES

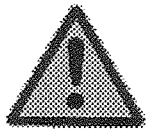
5.1 Reinforcing Steel Cutting Machine



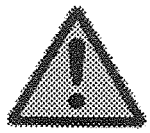
The safety fixtures must not be removed.
Prior to switching the machine on, they must always be checked for completeness and proper attachment.
Damaged safety fixtures must be replaced.



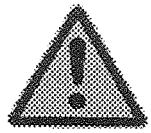
The machine is not electrically dead! Perform maintenance and adjustment procedures only when the power switch is in its "Off" position and secured against unauthorized access.



Worn blades and tools must not be used.



The steady must be adjusted such that the material is as perpendicular as possible to the blades.

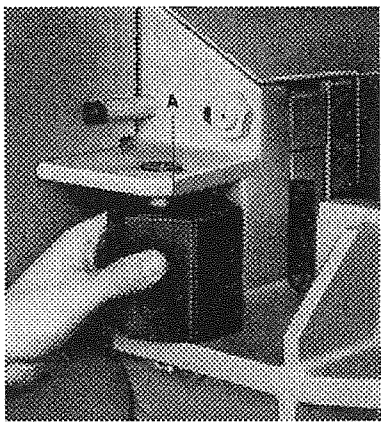


The blade clearance must be checked with each change of the blade.

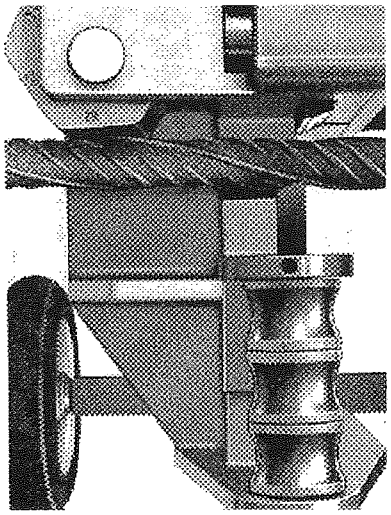
5.1.1 Steady

- Lift up the steady (A).
- Turn the steady to the desired position.
- Let the steady lock into place.

The steady must be adjusted such that the material is as perpendicular as possible to the blades.



[BS90-11]



[BS90-12]

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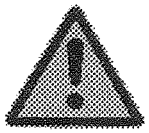
6

Maintenance

6. MAINTENANCE

6.1 Cleaning the machine

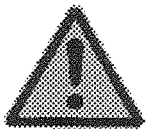


Disconnect the power switch prior to performing any maintenance procedures! The machine is not electrically dead. Perform maintenance and adjustment procedures only when the power switch (A) is in its "Off" position and secured against unauthourized access.

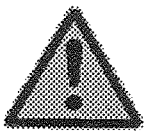
- The BS 90 cutting machine must be cleaned daily.
- Remove scale and corrosion.

When the machine is shut down for an extended period of time, grease the shearing slide and blades to prevent corrosion.

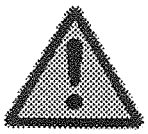
6.2 Blades



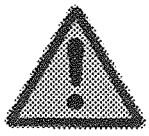
Periodically check the blades and tools for blunt or jagged cutting edges.



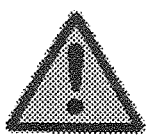
Blades must be replaced in due time. Blunt cutting edges affect the machine performance and produce unclean cuts.



Unclean cuts leave burrs and jagged spikes on the workpiece and thus increase the risk of injury.



The safety fixtures must not be removed. Prior to switching the machine on, they must always be checked for completeness and proper attachment.
Damaged safety fixtures must be replaced.



Warning and danger signs must not be removed.
Damaged, scratched or illegible warning or danger signs must be replaced with new ones.

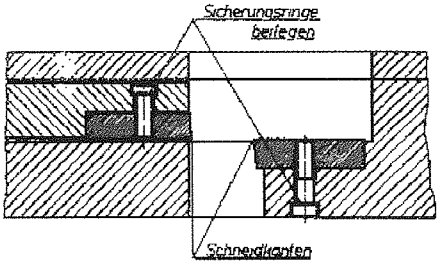
For all works within the range of the cutting tools, the power to the machine must be switched off via the power switch (A).
Secure the power switch with a padlock!

The machine is not electrically dead. Perform maintenance and adjustment procedures only when the power switch (A) is in its "Off" position and secured against unauthorized access.

The blades are suitable for cutting all types of reinforcing steel up to a strength of 850 N/mm² (refer to chapter 1, General Information, Section 1.1.3).

Prestressing wire cannot be cut!

When replacing the blades, be sure to mount the new blades correctly. The cutting edges must slide past each other (refer to the illustration).



It is also important to ensure smooth bearing surfaces. If these are damaged, they must be flattened before mounting the new tool.

Be sure to use blades originally provided by MUBEA only.

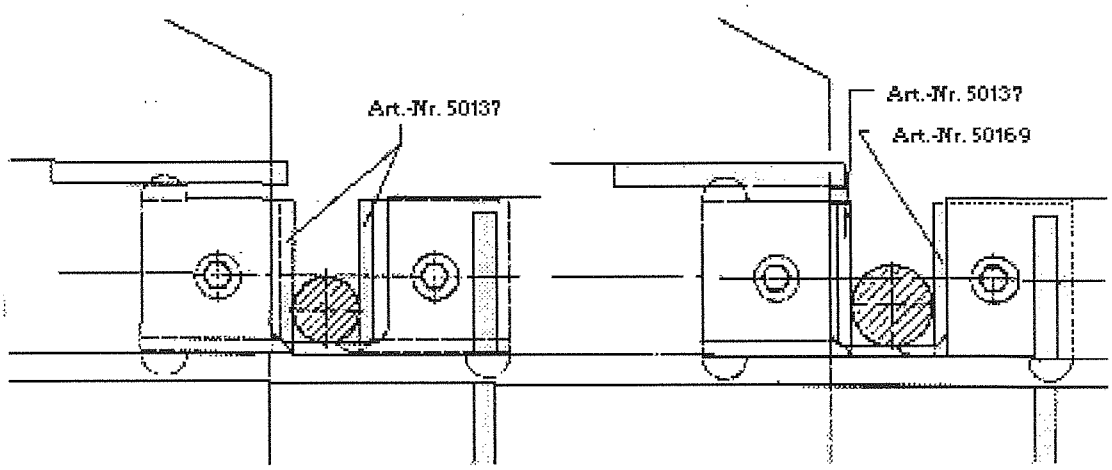
Only the blade surfaces are reground to ensure an identical blade clearance (the gap between the two blades).

The removal and mounting of the blades is very easy:

- First, remove the blade screw in the body.
- Take out the stationary blade.
- Rotate the flywheel until slide is up front.
- Remove the blade screw and take out the moving blade.

For inserting and mounting the blade, follow the reverse procedure.

The following illustration shows the insertion and mounting of the blades for various material diameters.



Material up to Ø 32 mm

Material from Ø 32 - 40 mm

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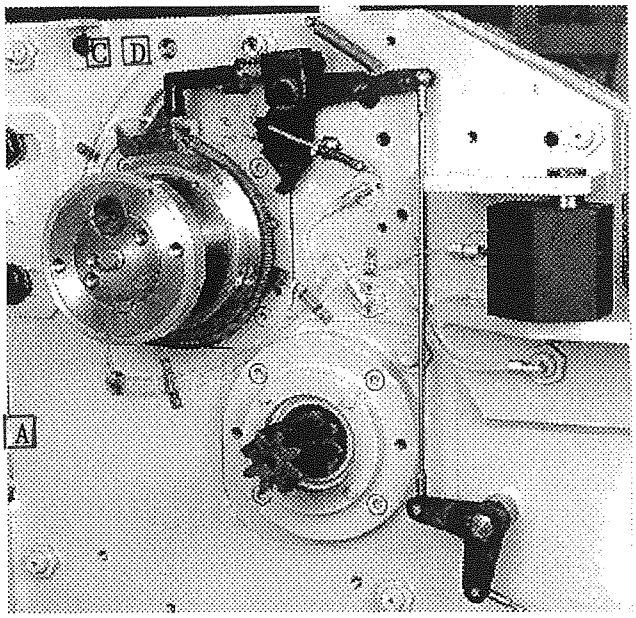
6.3 Clutch

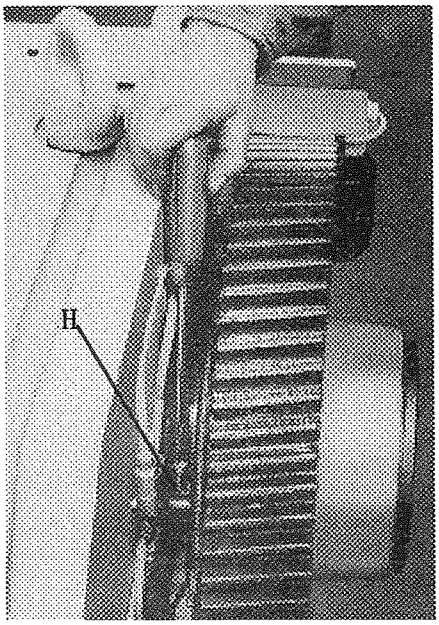
The machine is equipped with a robust and reliable rolling key clutch.

With the clutch disengaged, the eccentric shaft (A) is in the rear deadcenter position of the slide, while the clutch disk rotates on its shaft journal.



When the engaging device is actuated, the rolling key stop (C) is released. The tensile force of the spring (D) pulls the rolling key to the engagement position and thus interlocks the eccentric shaft (A) and the clutch disk.

Since the rolling key stop (B) swivels back when the engagement device is released, the rolling key will be disengaged after a full rotation of the eccentric shaft, while the clutch disk continues to rotate.



If you hear a clicking sound after an extended operating period, the eccentric brake must be adjusted.

The adjustment screw of the brake can be accessed through the opening on the top of the clutch-disk protective cover (see the figure on the left).

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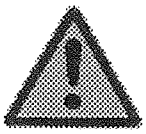
If - for any reason (power failure, blown fuse of the like) - the cutting machine stops during the cutting operation, the **motor must be switched off immediately**.

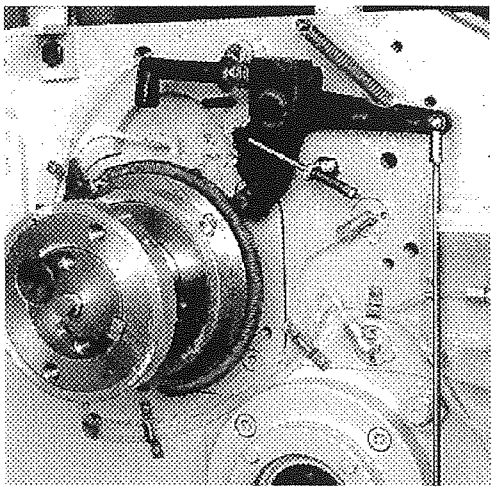


In the "Machine Off" position, the supply lines still carry voltage. For this reason, the machinemust be disconnected from the external power supply whenever repair or maintenance works are to be performed.

If material is in the feed opening of the blades when the machine is switched off, the machine is under extreme compressive strain.

To relieve the machine of this strain, first remove the protective covers and then rotate the flywheel in reverse direction; this measure also rotates the clutch disk in reverse direction. The rolling key will be pressure-relieved and can be swiveled out. When it is in this position, hold the rolling key at its strap, switch on the motor and let the flywheel and transmission accelerate to full speed. After the rolling key is released, it will lock into place and the cutting operation can be terminated.

If the machine stopped due to overload (material cross sections too large, material strength too high), the machine must be chekked for damage.



If it operates flawlessly, it can be smoothly operated manually by rotating the flywheel with the cutting slide engaged. If you feel any sluggishness during this operation, the machine must be checked by a MUBEA mechanical engineer.

6.4 Lubrication

All lubricating points of the machine are combined on one single lubricating strip.

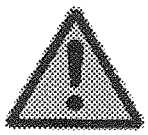
Lubrication instructions/Recommended Lubricants

The following lubricants (oils) are suitable for your cutting machine:

Brand/Designation	Viscosity
ARAL-Deganit B 220	220 mm²/s at 40° C
SHELL-Tonna Oil T 220	220 mm²/s at 40° C
MOBIL OIL AG-VACTRA Oil Nr.4	212 mm²/s at 40° C
ESSO AG-MILLCOT K 220	230 mm²/s at 40° C
BP-Energol HP - C 220	220 mm²/s at 40° C

Lubrication Intervals:

To guarantee trouble-free operation and minimum wear, each lubricating point must be filled with 2 pump strokes of lubricant (approx. 1,5 cm³) twice per day.



When lubricated, the machine must be at a standstill.

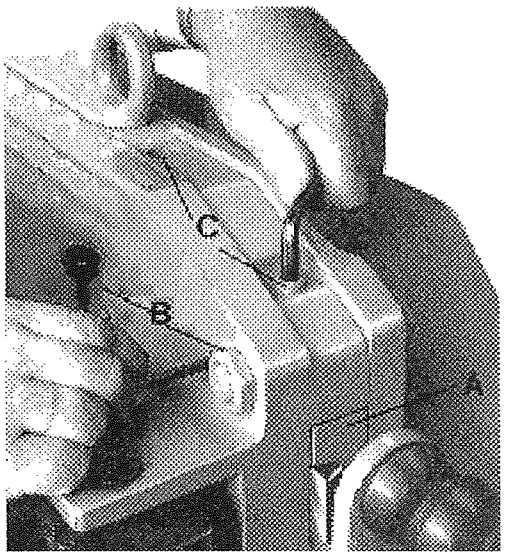
If the running noise of the gearwheels increases they (clutch wheel and intermediate gear) must be greased with gearwheel grease ESSO SURETT FLUID 4k.

6.5 Adjusting the Slide Guide

The slide (Fig. 16, Position A) of the reinforcing steel cutting machine moves on guide rails made of a special material. The slide guide can be adjusted on the face side of the machine as well as in traverse direction. This guarantees for a clearance-free movement.

On the face side, the following adjustment procedures need to be performed:

- Loosen the setscrews (B) on the left side of the machine.
- Tighten the pressure screws (C) by clockwise rotating them from above until you can feel a clear resistance, then loosen them again by 1/8th of a turn to the left.
- Retighten the setscrew (B).



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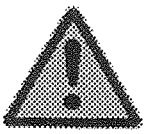
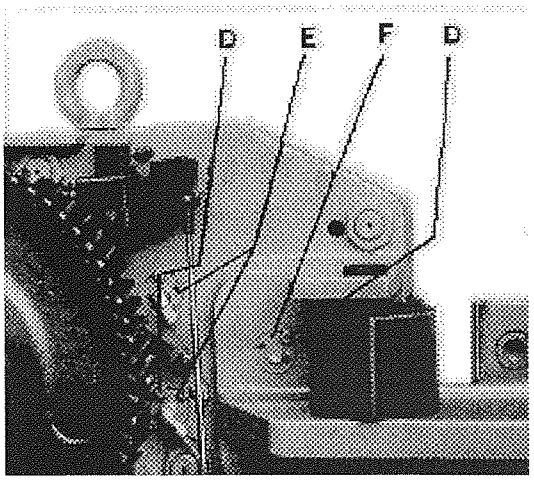


The safety fixtures must not be removed!
Prior to switching the machine on, they must always be checked for completeness and proper attachment. Damaged safety fixtures must be replaced.

In the *"Machine Off"* position, the supply lines still carry voltage. For this reason, the machine must be disconnected from the external power supply whenever repair or maintenance works are to be performed.

The adjustment in traverse direction is performed on the left side of the machine (refer to Fig. 17) by performing the following steps:

- Remove the locking screws (D).
- Tighten the dowel pins (E and F) by clockwise rotating them until you can feel a clear resistance, then loosen them again by 1/8th of a turn to the left.
- Pin the setscrews (D) and tighten them.



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7

Malfunctions and Corrective Maintenance

Malfunctions and Corrective Maintenance

Malfunction	Cause	Corrective Maintenance
Motor does not run	Power supply interrupted	Plug the power connector, set the power switch to „ON“
	Protective motor switch tripped	Let the motor cool down, activate the protective motor switch
	Foot switch is not operating properly	Have an electrician find and correct the malfunction
	Fuse in supply line tripped	Replace fuse, revert to an electrician, if required
	Motor starting contactor defective	Have an electrician find and correct the malfunction
Motor switches off after a brief period of operation	Protective motor switch not set correctly or defective	Have an electrician check and - if required - replace the protective motor switch
	The limits of the machine's power range were exceeded	Use material with a lower tensile strength/with a lower rod diameter
	Motor damaged	Have the motor repaired or replaced
Shearing slide does not move on actuation of the foot switch	Foot switch is not operating properly	Have an electrician find and correct the malfunction
Shearing slide moves but the workpiece is not being cut	The limits of the machine's power range were exceeded	Use material with a lower tensile strength/with a lower rod diameter
	Extremely excessive blade clearance	Set the blade clearance to the specified value
	Cutting edges extremely worn or damaged	Replace the blades

8

Wiring diagrams and drawings (included in the switch box)

9

Spare part lists

ERSATZTEILLISTE Modell BS 90 – 30051

	Baugruppe
Körper, kpl.	30021 001 00
Schwungradwelle, kpl.	30021 002 00
Exzenterwelle, kpl.	30021 003 00
Druckstück, kpl.	30021 004 00
Scherenschlitten, kpl.	30021 005 00
Handeinrückung, kpl.	30021 006 00
Betonstahlmesser, kpl.	30051 001 00
Gegenhalter, kpl.	30021 008 00
Elektrische Einrichtung, kpl.	30051 002 00
Handschmierung, kpl.	30021 010 00
Schutzhaube, kpl.	30051 003 00
Zubehörwerkzeuge, kpl.	30019 012 00
Fußeinrückung, kpl.	30021 014 00

PARTS LIST Model BS 90 – 30051

	Assembly
Machine body, complete	30021 001 00
Flywheel shaft, complete	30021 002 00
Eccentric shaft, complete	30021 003 00
Pressure piece, complete	30021 004 00
Shear slide, complete	30021 005 00
Hand engagement, complete	30021 006 00
Reinforcing steel knife, complete	30051 001 00
Counter-holder, complete	30021 008 00
Electric system, complete	30051 002 00
Hand lubrication, complete	30021 010 00
Guard, complete	30051 003 00
Tool kit, complete	30019 012 00
Foot engagement, complete	30021 014 00

LISTE DES PIECES DE RECHANGE Modèle BS 90 – 30051

	Groupe
Bâti compl.	30021 001 00
Arbre de volant compl.	30021 002 00
Arbre excentrique compl.	30021 003 00
Pièce de pression compl.	30021 004 00
Coulisseau de cisaillage compl.	30021 005 00
Embrayage à main compl.	30021 006 00
Lames pour fer à béton compl.	30051 001 00
Contre-support compl.	30021 008 00
Partie électrique compl.	30051 002 00
Graissage manuel compl.	30021 010 00
Capôt de protection compl.	30051 003 00
Outils accessoires compl.	30019 012 00
Embrayage à pédale compl.	30021 014 00

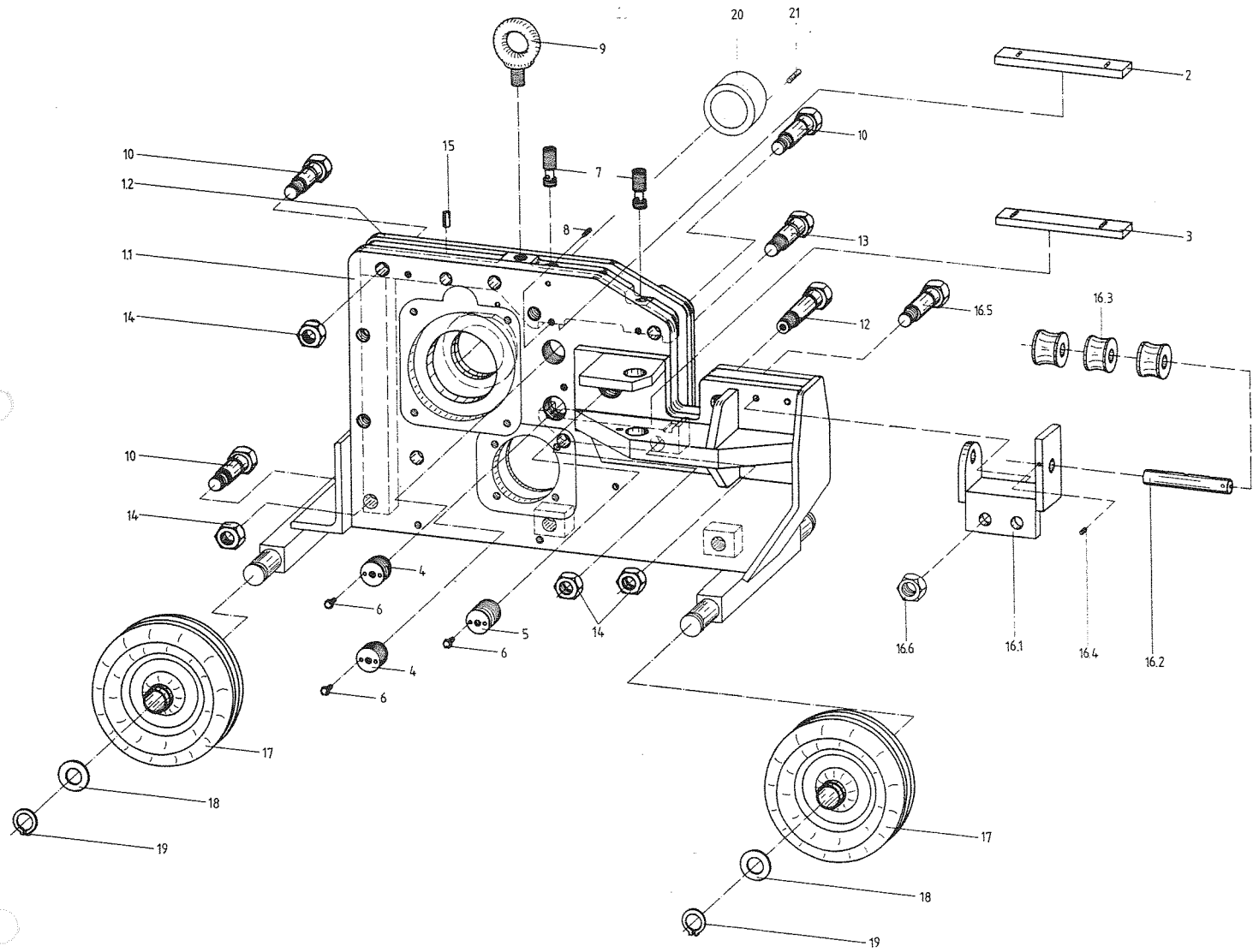
Mubea

Muhr und Bender
MASCHINENBAU GMBH

D-5952 Attendorn · Postfach 340 · Telefon (02722) 62-1
Telex 876706-0 mu d · Teletex 27223512 · Telefax (02722) 62-499

Körper, komplett
Machine body, complete
Bâti compl.

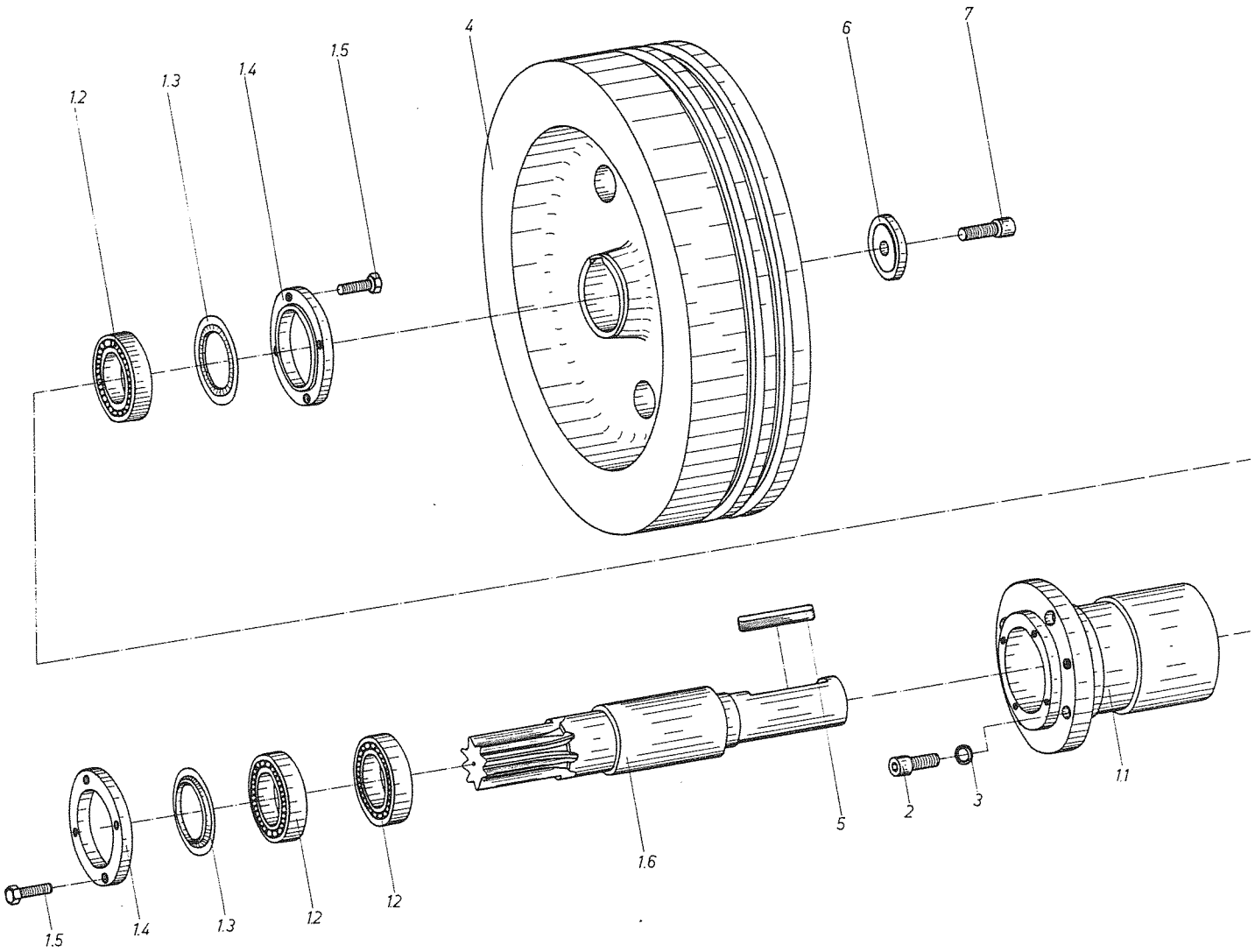
30021 001 00



Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1.1	30021 001 01	1	Körperplatte, komplett	Machine frame, front side, complete	Plaque d'assemblage compl.
1.2	30021 001 13	1	Deckplatte, komplett	Cover plate, complete	Couvercle compl.
2	30021 001 17	1	Gleitstück, oben	Gib, top	Glissière, superieure
3	30021 001 18	1	Gleitstück, unten	Gib, lower	Glissière, inferieure
4	30021 001 19	2	Führungsstopfen, kurz	Guide plug, short	Bouchon de guidage court
5	30021 001 20	1	Führungsstopfen, lang	Guide plug, long	Bouchon de guidage long
6	907 513 1100	3	Sechskantscheidschraube	Hex. cutting screw	Vis 6 pans
7	30019 001 20	2	Druckschraube	Pressure screw	Vis de pression
8	900 913 4300	2	Gewindestift	Slotted set screw	Goujon fileté
9	900 580 1500	1	Ringschraube	Eye bolt	Vis circulaire
10	900 610 4100	5	Paßschraube	Adjusting screw	Vis
11	30021 001 21	1	Paßschraube	Adjusting screw	Vis
12	900 610 4200	2	Paßschraube	Adjusting screw	Vis
13	30021 001 22	1	Paßschraube	Adjusting screw	Vis
14	900 936 3100	9	Sechskantmutter	Hex. nut	Ecrou hexagonal
15	901 481 3100	1	Spannstift	Roll pin	Goupille élastique
16	30021 001 23	1	Auflagerolle, komplett	Support roller, complete	Rouleau de support compl.
16.1	30021 001 24	1	Lagerbock, komplett	Bearing support, complete	Support porte-rouleaux
16.2	30019 001 27	1	Achse	Axle	Axe
16.3	30019 001 28	3	Führungsrolle	Feed roller	Rouleau de guidage
16.4	900 914 2300	1	Gewindestift	Slotted set screw	Vis sans tête
16.5	900 610 4300	2	Paßschraube	Adjusting screw	Vis
16.6	900 936 3100	2	Sechskantmutter	Hex. nut	Ecrou hexagonal
17	810 600 4330	4	Rhombusrolle	Lozenged roller	Rouleau Rhombus
18	901 440 5100	4	Blanke Scheibe	Bright washer	Disque
19	900 471 3400	4	Sicherungsring	Circlip	Anneau de sécurité
20	30021 001 28	1	Buchse	Bush	Coussinet
21	900 551 5400	1	Gewindestift	Slotted set screw	Vis sans tête

Schwungradwelle, komplett
Flywheel shaft, complete
Arbre de volant compl.

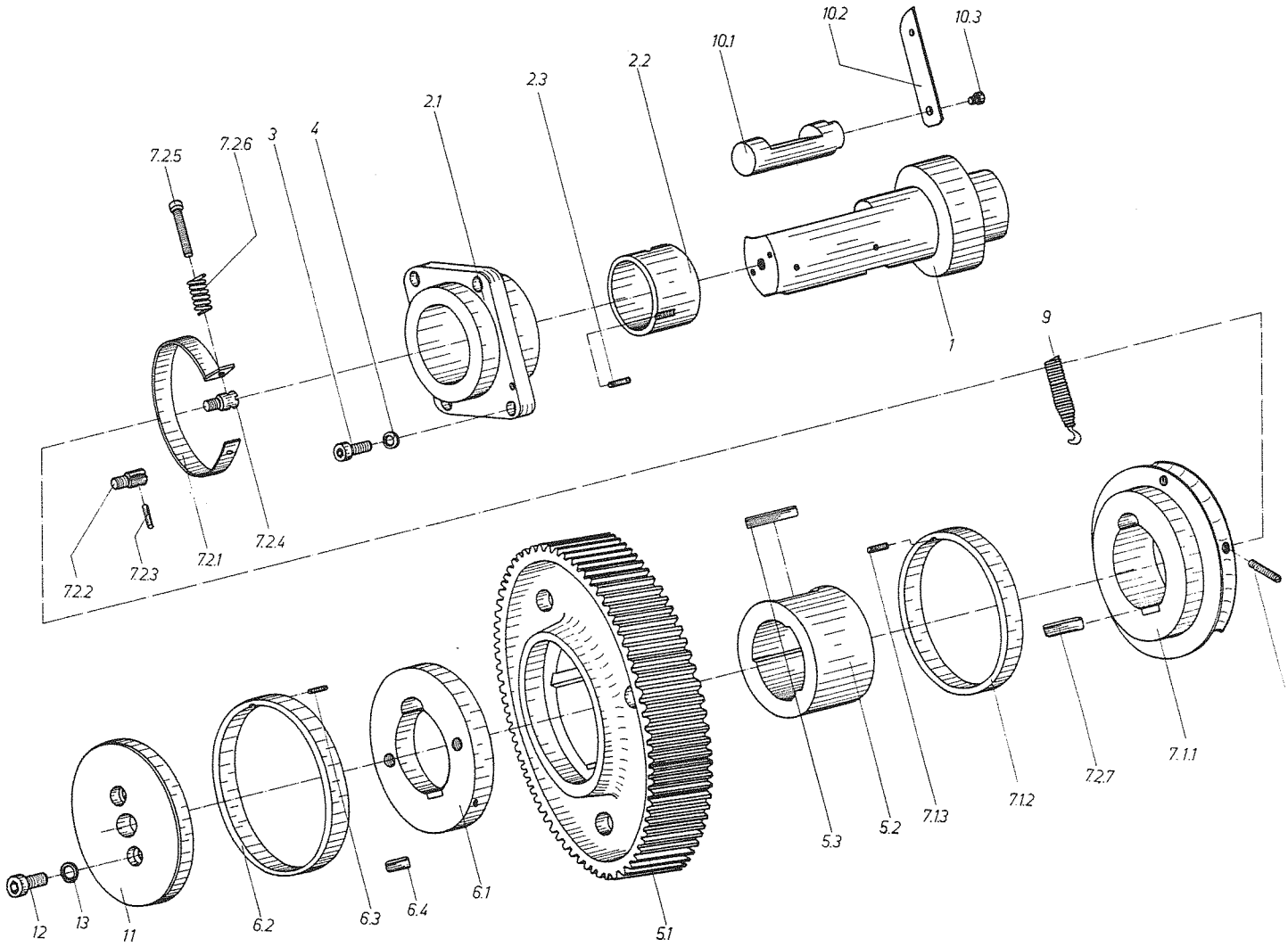
30021 002 00



Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	30021 002 01	1	Lagergehäuse, komplett	Bearing housing, complete	Corps de palier, compl.
1.1	30021 002 02	1	Lagergehäuse	Bearing housing	Corps de palier
1.2	900 625 1400	3	Ring-Rillenlager	Deep groove ball bearing	Roulement rainuré à billes
1.3	810 600 0070	2	Nilos-Ring	Bearing seal	Bague »Niles«
1.4	05010 011 02	2	Lagerdeckel	Bearing cover	Couvercle de palier
1.5	900 933 2080	8	Sechskantschraube	Hex. screw	Vis à tête hexagonal
1.6	30021 002 03	1	Schwungradwelle	Flywheel shaft	Arbre de volant
2	810 600 1040	4	Zylinderschraube IP	Slotted head screw IP	Vis à tête cylindrique fendue IP
3	810 600 0020	4	DUBO-Sicherung	DUBO-Washer	Piéce de sécurité
4	30021 002 04	1	Schwungrad	Flywheel	Volant
5	906 885 5400	1	Paßfeder	Key	Ressort de contact
6	30021 002 05	1	Deckscheibe	Cap	Pastille
7	906 912 4030	1	Zylinderschraube	Slotted head screw	Vis à tête cylindrique fendue

Exzenterwelle, komplett
Eccentric shaft, complete
Arbre excentrique compl.

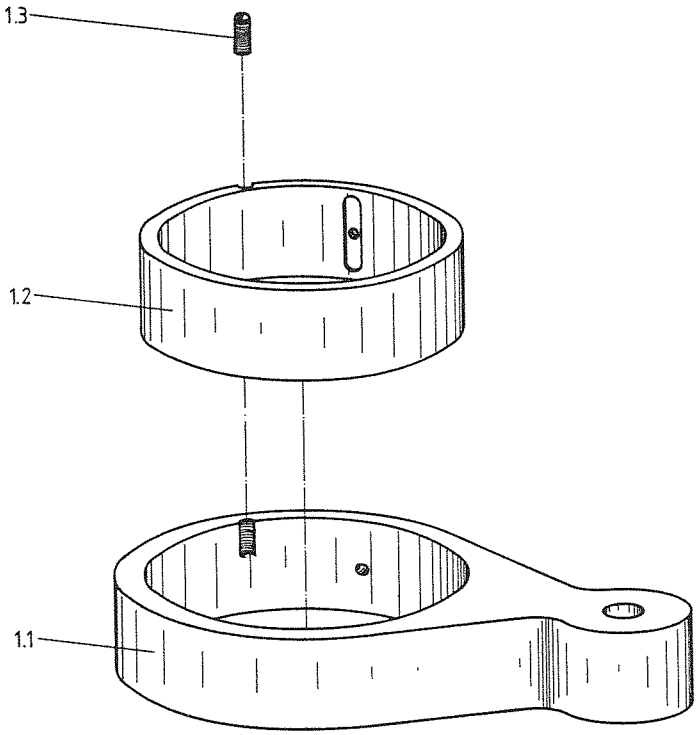
30021 003 00

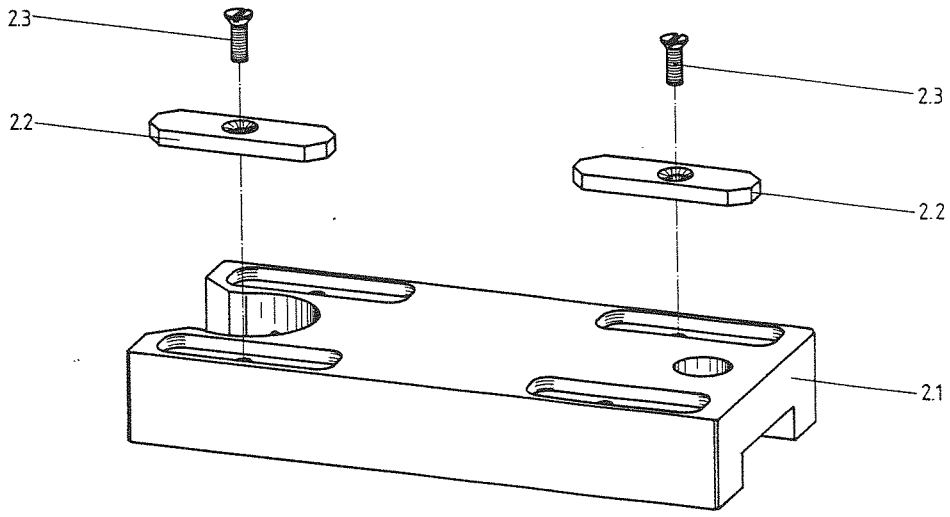


Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	30021 003 01	1	Exzenterwelle	Eccentric shaft	Arbre excentrique
2	30021 003 02	1	Flanschlager, komplett	Flanged bearing housing, complete	Palier à bride compl.
2.1	30021 003 03	1	Flanschlager	Flanged bearing housing	Palier à bride
2.2	30021 003 04	1	Buchse für Flanschlager	Bush for flanged bearing housing	Coussinet pour palier à bride
2.3	900 551 5400	1	Gewindestift	Slotted set screw	Vis sans tête
3	810 600 1170	4	Zylinderschraube IP	Slotted head screw IP	Vis à tête cylindrique fendue IP
4	810 600 0020	4	DUBO-Sicherung	DUBO-Washer	Pièce de sécurité
5	30021 003 05	1	Kupplungsrad, komplett	Gear, complete	Roue d'accouplement compl.
5.1	30021 003 06	1	Kupplungsrad	Gear	Roue d'accouplement
5.2	05010 012 08	1	Kupplungsnabe	Hub	Moyeu d'embrayage
5.3	906 885 5700	2	Paßfeder	Key	Clavette
6	30021 003 07	1	Kupplungsring, außen, komplett	Outer coupling ring, complete	Bague d'acouplement, ext. compl.
6.1	05010 012 11	1	Kupplungsring, außen	Outer coupling ring	Bague d'accouplemet, ext.
6.2	05010 012 12	1	Buchse	Bushing	Douille
6.3	900 551 5400	2	Gewindestift	Slotted set screw	Vis sans tête
6.4	906 885 3100	1	Paßfeder	Key	Clavette
7	30021 003 08	1	Innenkupplung, komplett	Inner coupling, complete	Embrayage interieur compl.
7.1	30021 003 09	1	Kupplungsring, innen, komplett	Inner coupling ring, complete	Bague d'accouplement, int. compl.
7.1.1	30021 003 10	1	Kupplungsring, innen	Inner coupling ring	Bague d'accouplement, int.
7.1.2	05010 012 12	1	Buchse	Bushing	Douille
7.1.3	900 551 5400	2	Gewindestift	Slotted set screw	Vis sans tête
7.2	30021 003 11	1	Exzenterbremse, komplett	Eccentric brake, complete	Frein excentrique compl.
7.2.1	05010 015 01	1	Bremsband, komplett	Brake band, complete	Bande de frein compl.
7.2.2	05010 015 04	1	Gabelbolzen	Yoke pin	Boulon à fourche
7.2.3	900 007 0600	1	Zylinderstift	Straight pin	Goupille cylindrique
7.2.4	05010 015 05	1	Gewindebolzen	Set screw	Boulon fileté
7.2.5	900 084 5600	1	Zylinderschraube	Slotted head screw	Vis à tête cylindrique à 6 pans creux
7.2.6	05010 015 06	1	Druckfeder	Pressure spring	Ressort de pression
7.2.7	906 885 3500	1	Paßfeder	Key	Clavette
8	05010 012 15	1	Schaftschraube	Shaft bolt	Vis à tige
9	05010 012 16	1	Zugfeder	Tension spring	Ressort de traction
10	30021 003 12	1	Drehkeil, komplett	Rolling key, complete	Clavette tournante compl.
10.1	05010 012 17	1	Drehkeil	Rolling key	Clavette tournante
10.2	05010 013 16	1	Anschlagleiste	Rolling key lever	Regle de butée
10.3	900 912 2030	1	Zylinderschraube	Slotted head screw	Vis à tête cylindrique à 6 pans creux
11	05010 012 19	1	Deckscheibe	Cap	Pastille
12	810 600 1180	2	Zylinderschraube IP	Slotted head screw IP	Vis à tête cylindrique à 6 pans creux IP
13	810 600 0030	2	DUBO-Sicherung	DUBO-Washer	Pièce de sécurité

Druckstück, komplett	**30021 004 00**
Scherenschlitten, komplett	**30021 005 00**
Pressure, piece, complete	**30021 004 00**
Shear slide, complete	**30021 005 00**
Pièce de pression compl.	**30021 004 00**
Coulisseau de cisaillage compl.	**30021 005 00**

30021 004 00
30021 005 00

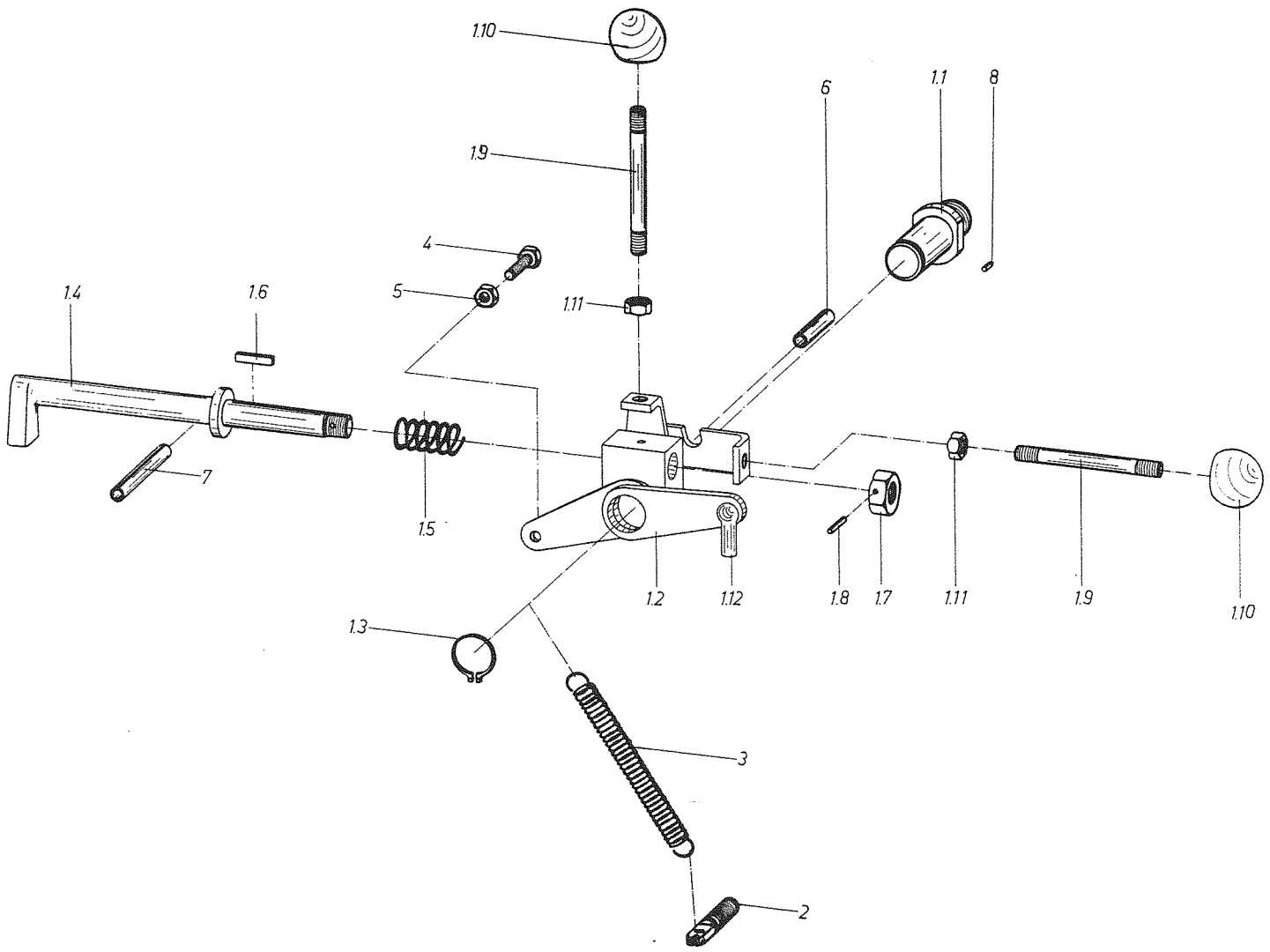




Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	30021 004 00	1	Druckstück, kpl.	Pressure piece, complete	Pièce de pression compl.
1.1	30021 004 01	1	Druckstück	Pressure piece	Pièce de pression
1.2	30021 004 03	1	Buchse	Bushing	Douille
1.3	900 551 5400	1	Gewindestift	Socket set screw	Vis sans tête
2	30021 005 00	1	Scherenschlitten, kpl.	Shear slide, complete	Coulisseau de cisaillage compl.
2.1	30021 005 01	1	Scherenschlitten	Shear slide	Coulisseau de cisaillage
2.2	30021 005 02	4	Führungsstück	Gib	Guide
2.3	900 963 3200	4	Senkschraube	Countersunk screw	Vis à tête fendue

Handeinrückung, komplett
Hand engagement, complete
Embrayage à main compl.

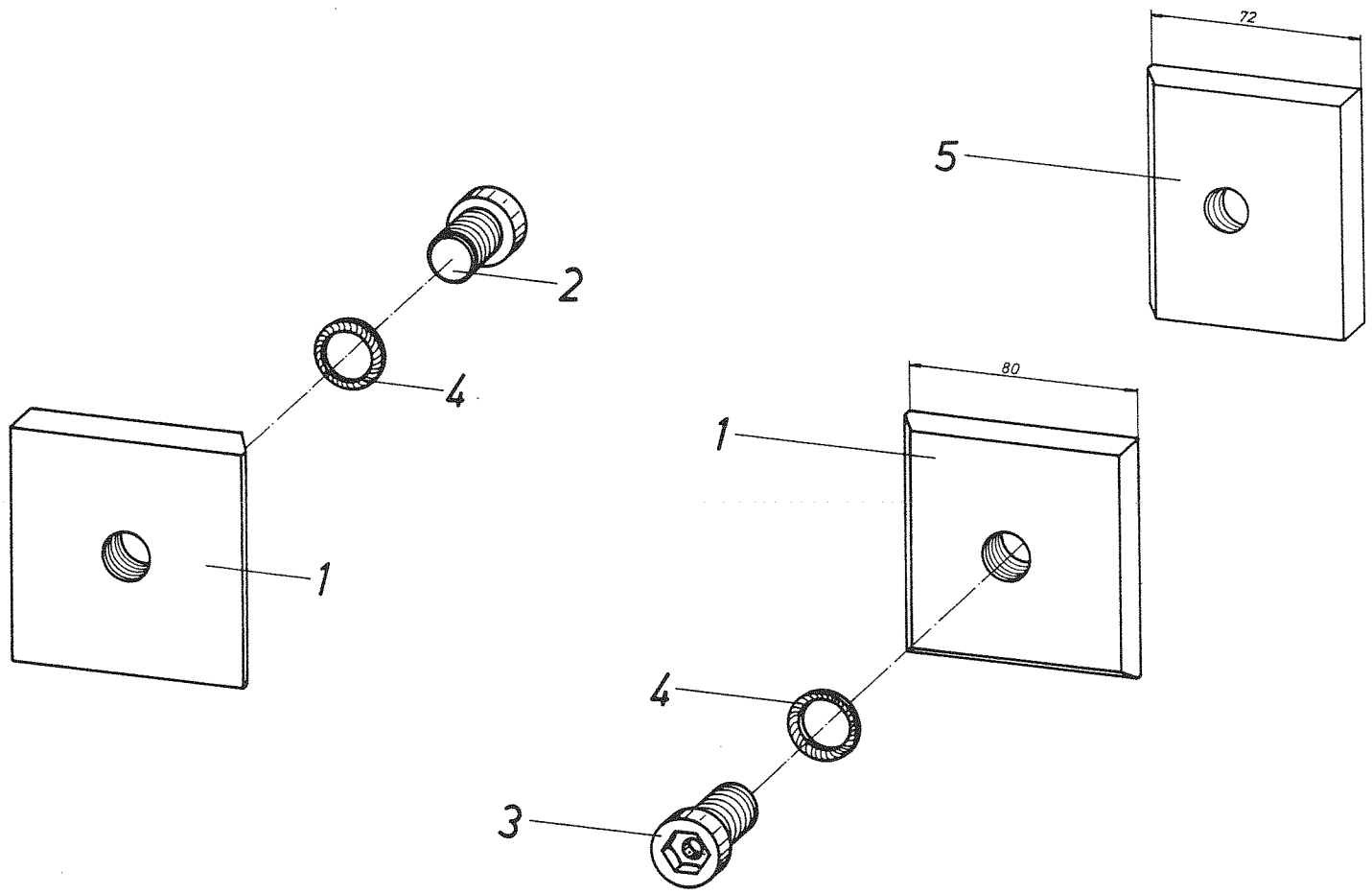
30021 006 00



Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	30021 006 01	1	Einrückhebel, komplett	Handlever, complete	Levier d'embrayage compl.
1.1	30019 006 02	1	Drehbolzen	Pivot shaft	Axe
1.2	30021 006 02	1	Aufnahmehebel, komplett	Trip arm lever, complete	Bras de butée levier compl.
1.3	900 471 3100	1	Sicherungsring	Retaining ring	Bague de sécurité
1.4	30021 006 05	1	Anschlagarm	Trip arm	Bras de butée
1.5	05010 041 06	1	Druckfeder	Pressure spring	Ressort de pression
1.6	810 600 0150	1	Zapfenfeder	Spring	Clavette
1.7	900 934 3500	1	Sechskantmutter	Hex. nut	Ecrou hexagonal
1.8	901 481 0700	1	Spannstift	Roll pin	Goupille élastique
1.9	30019 006 09	2	Einrückstange	Engagement rod	Tige d'embrayage
1.10	900 319 6100	2	Kugelknopf	Ball knob	Boiton spherique
1.11	900 934 2500	2	Sechskantmutter	Hex. nut	Ecrou hexagonal
1.12	971 802 0500	1	Winkelgelenk	Angle joint	Articulation d'equerre
2	05029 045 02	1	Gewindestift	Eye screw	Vis sans tête
3	05011 045 03	1	Zugfeder	Tension spring	Ressort de traction
4	900 933 2570	1	Sechskantschraube	Hex. cap screw	Vis à tête hexagonal
5	900 934 2500	1	Sechskantmutter	Hex. nut	Ecrou hexagonal
6	901 481 4500	2	Spannstift	Roll pin	Goupille élastique
7	901 481 4900	1	Spannstift	Roll pin	Goupille élastique
8	901 481 0400	1	Spannstift	Roll pin	Goupille élastique

Betonstahlmesser, komplett
Reinforcing steel knife, complete
Lames pour fer à béton compl.

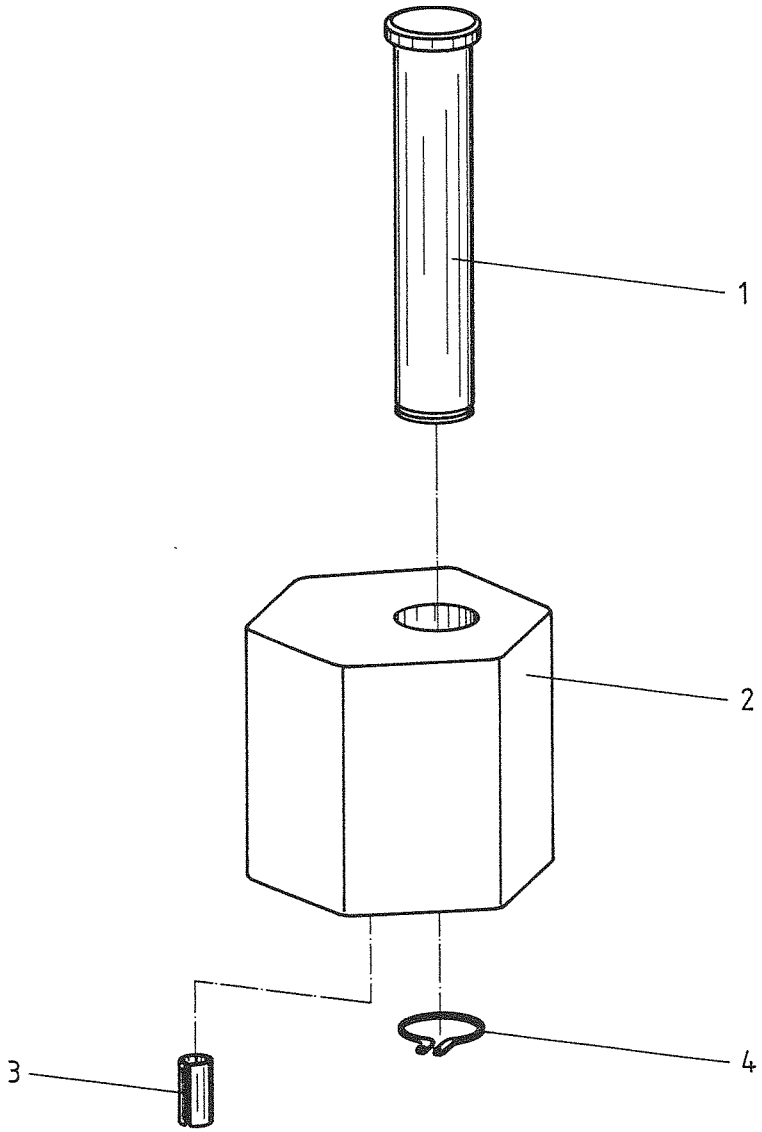
30051 001 00



Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	501 370 0000	2	Betonstahlmesser	Reinforcing steel knife	Lames pour fer à béton
2	906 912 4020	1	Zylinderschraube	Slotted head screw	Vis à tête cylindrique fendue
3	906 912 4040	1	Zylinderschraube	Slotted head screw	Vis à tête cylindrique fendue
4	05010 055 03	2	Tellerfeder	Spring washer	Rondelle ressort
5	501 690 0000	1	Betonstahlmesser	Reinforcing steel knife	Lames pour fer à béton

Gegenhalter, komplett
Counter-holder, complete
Contre-support compl.

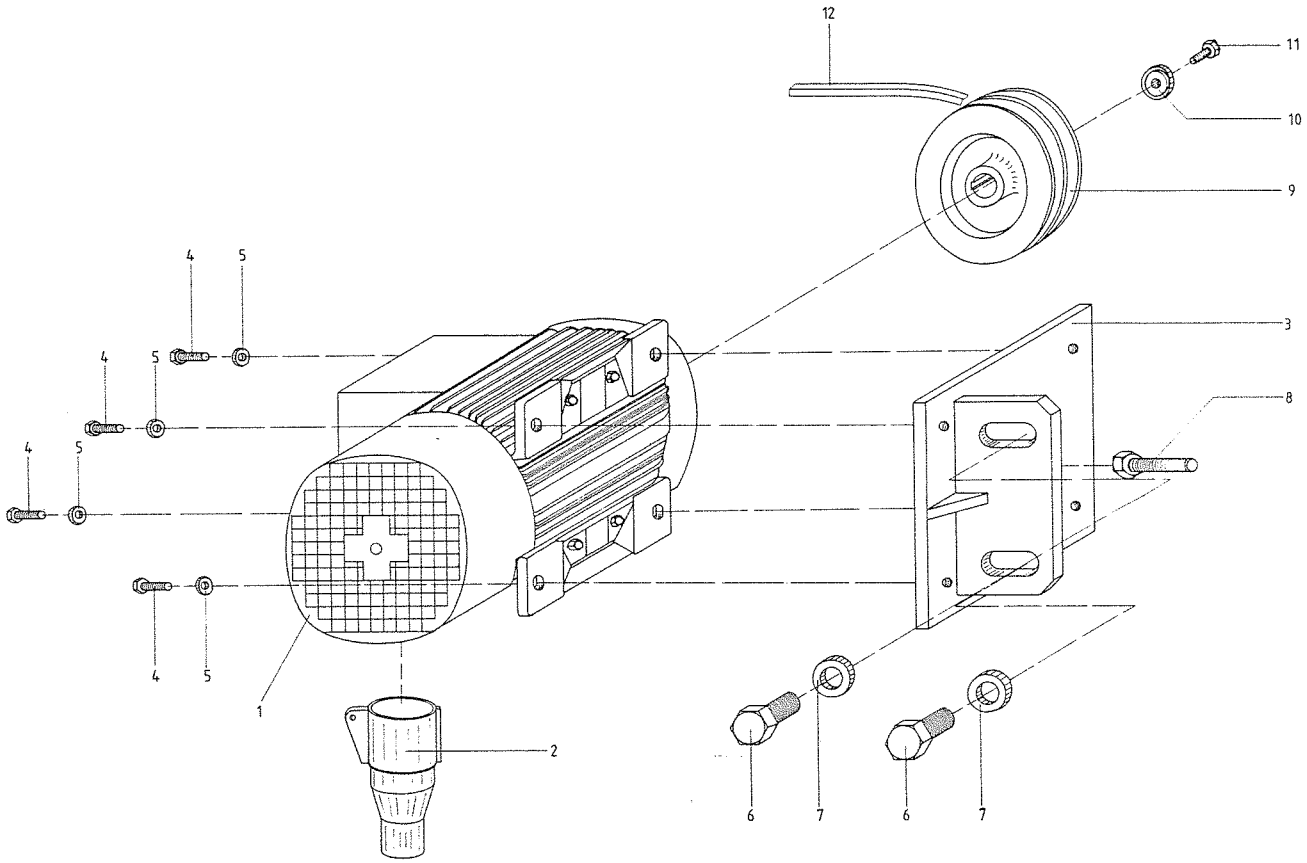
30021 008 00



Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	30021 008 01	1	Bolzen zum Gegenhalter	Bolt for counter-holder	Boulon du contre-support
2	30021 008 02	1	Gegenhalter	Counter-holder	Contre-support
3	901 481 5500	1	Spannstift	Roll pin	Goupille élastique
4	900 471 3400	1	Sicherungsring	Retaining ring	Bague de sécurité

Elektrische Einrichtung, komplett
Electric system, complete
Partie électrique compl.

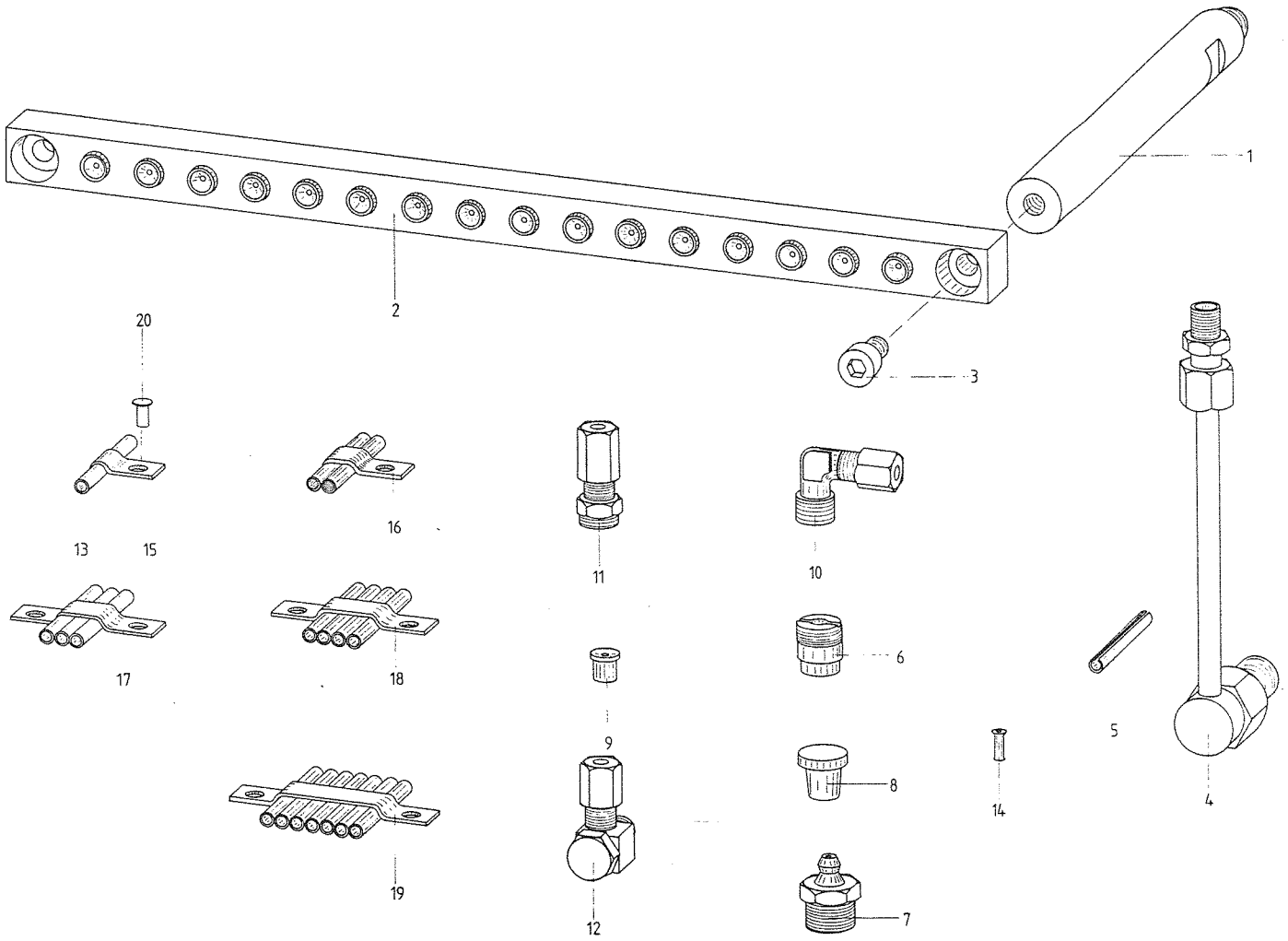
30051 002 00



Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	810 100 6880	1	Motor mit Schalter	Motor with switch	Moteur avec interrupteur
2	810 100 1150	1	CEE-Kupplungssteckdose	CEE-coupling socket	Socle de prise de couplage CEE
3	30051 002 01	1	Motorkonsole	Motor bracket	Console du moteur
4	900 933 3090	4	Sechskantschraube	Hex. cap screw	Vis à tête hexagonal
5	900 125 2700	4	Scheibe	Washer	Rondelle plate
6	900 933 4580	2	Sechskantschraube	Hex. cap screw	Vis à tête hexagonal
7	900 125 4400	2	Scheibe	Washer	Rondelle plate
8	900 933 3640	1	Sechskantschraube	Hex. cap screw	Vis à tête hexagonal
9	05010 071 01	1	Motorriemenscheibe	Vee belt pulley	Poulie moteur
10	05010 071 02	1	Deckscheibe	Cap	Pastille
11	900 933 2560	1	Sechskantschraube	Hex. cap screw	Vis à tête hexagonal
12	902 215 2920	2	Keilriemen	Vee belt	Courroie trapeziodal

Handschmierung, komplett
Hand lubrication, complete
Graissage manuel compl.

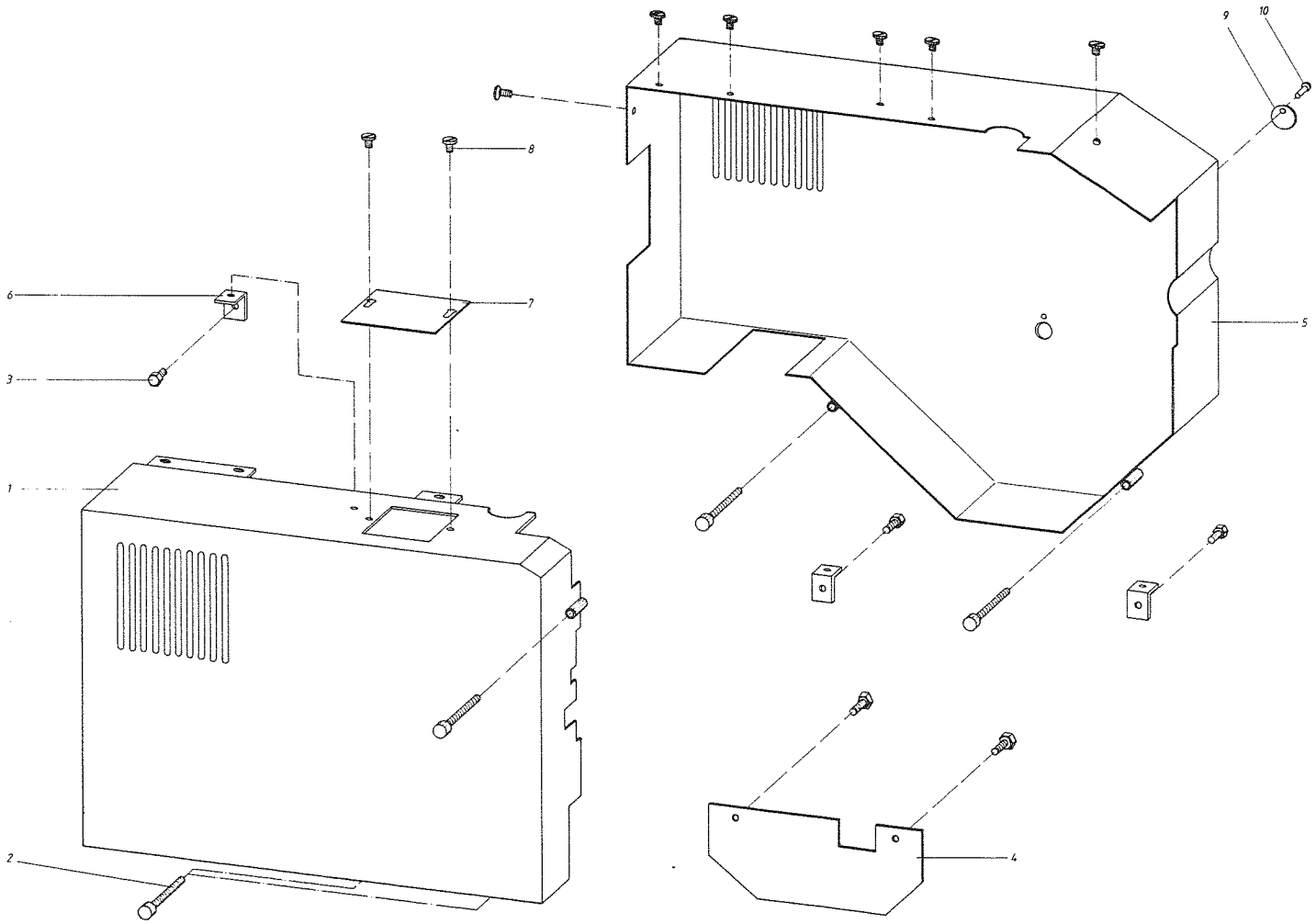
30021 010 00



Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	30021 010 01	2	Stehbolzen	Stud bolt	Boulon fileté
2	811 100 1890	1	Schmiernippelleiste	Lubricating nipple strip	Listeau de graisseurs
3	900 912 2030	2	Zylinderschraube	Socket head screw	Vis à tête cylindrique à 6 pans creux
4	811 100 1600	1	Drehanschluß	Rotary fitting	Raccord articulé
5	901 481 1700	2	Spannstift	Roll pin	Goupille élastique
6	811 100 0090	2	Einschraubwiderstandsventil mit Dichtring	Screwed resistance value with packing ring	Soupape à résistance filetée avec rondelle de joint
7	811 100 0070	1	Hydraulischer Schmiernippel	Hydraulic lubrication nipple	Graisseur pour système hydraulique
8	811 100 0080	1	Gummikappe	Rubber cap	Capuchon en caoutchouc
9	811 100 0100	1	Einschlagnippel	Drive-in nipple	Graisseur à enfoncer
10	811 100 0030	10	Winkel-Einschraubverschraubung	Elbow connector	Graisseur d'equerre
11	811 100 0050	4	Gerade Einschraubverschraubung	Straight connector	Raccord droit
12	811 100 0840	1	Schwenkverschaubung	Swivel connector	Raccord pivotant
13	811 100 0620	8,5 m	Tecalan-Rohr 4/2	Tecalan tubing, 4/2	Tube Tecalan 4/2
14	811 100 0600	16	Einsteckhülse 4/2	Sleeve 4/2	Sleeve 4/2
15	972 571 1100	1	Befestigungsschelle	Clip	Clip
16	972 571 1300	4	Befestigungsschelle	Clip	Clip
17	972 573 1000	1	Befestigungsschelle	Clip	Clip
18	972 573 1200	2	Befestigungsschelle	Clip	Clip
19	972 573 1800	3	Befestigungsschelle	Clip	Clip
20	810 600 0140	17	POP-Blindniet	»POP« blind rivet	Rivet

Schutzhaube, komplett
Guard, complete
Capôt de protection compl.

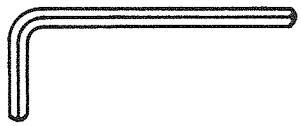
30051 003 00



Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	30051 003 01	1	Schutzhaube für Kupplungsrad	Coupling wheel guard	Capôt de protection pour la roue d'embrayage
2	900 912 3100	5	Zylinderschraube	Socket head screw	Vis à tête cylindrique à 6 pans creux
3	900 933 3030	5	Sechskantschraube	Hex. cap screw	Vis à tête hexagonal
4	30051 003 02	1	Abdeckung	Covering	Couverture
5	30051 003 03	1	Schutzhaube für Schwungrad	Flying wheel guard	Capôt de protection pour roue volant
6	30019 011 05	3	Winkel	Angle	Cornières
7	30019 011 06	1	Deckblech	Cover	Tôle de protection
8	900 084 4100	10	Zylinderschraube	Socket head screw	Vis à tête cylindrique à 6 pans creux
9	05050 091 07	1	Abdeckscheibe	Cover	Pastille
10	810 600 0140	1	POP-Blindniet	»POP«-blind rivet	Rivet

Zubehörwerkzeuge, komplett
Tool, kit, complete
Outils accessoires compl.

30019 012 00

Größe	Artikel-Nr.	BS 90
		
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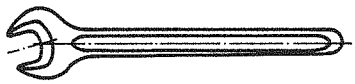
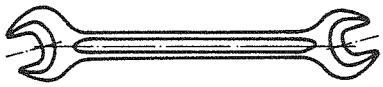
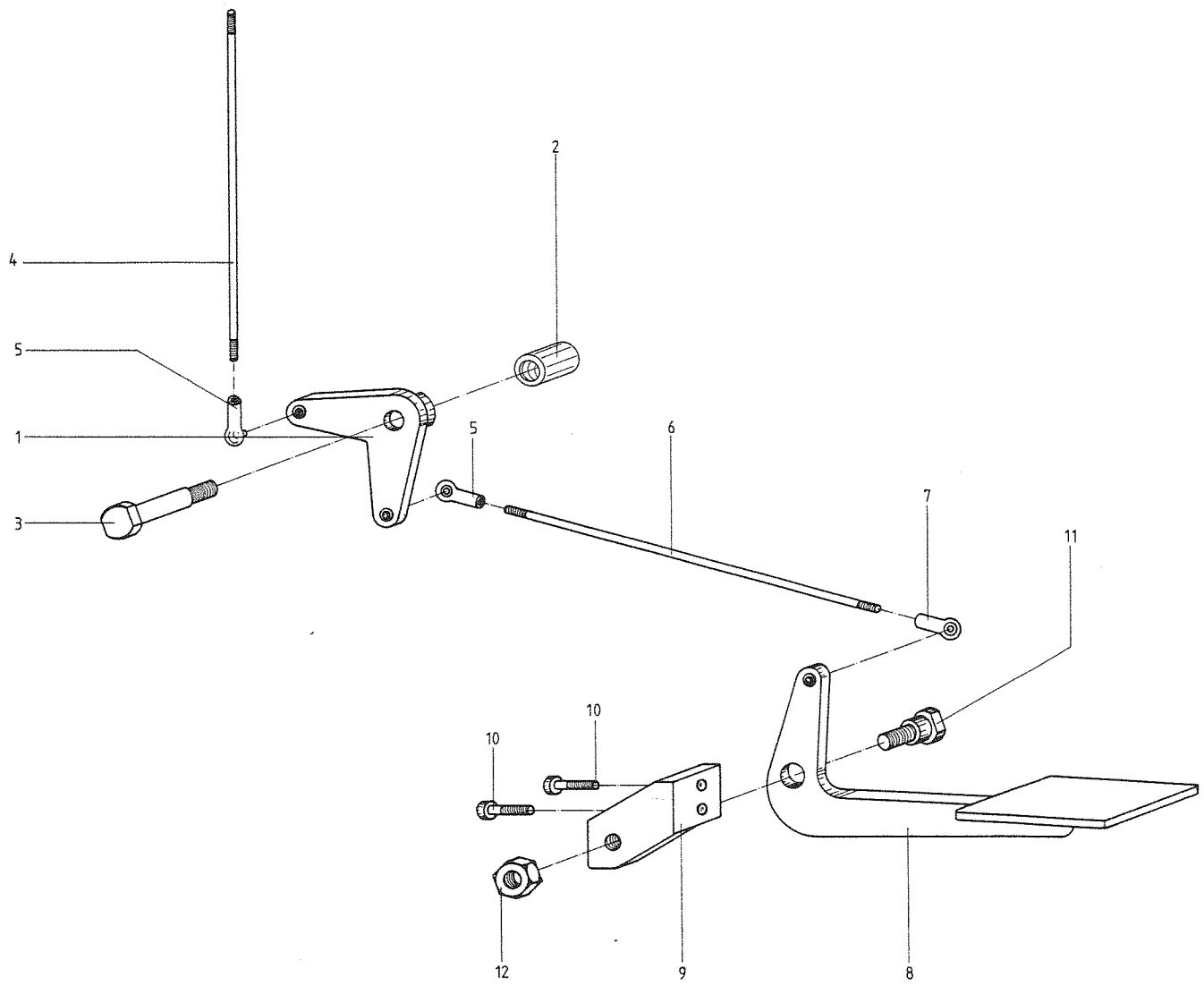
8	900 911 2600	1
14	900 911 3200	1
		
13	900 894 2400	1
30	900 894 4000	1
		
17 × 19	900 895 3200	1
		
–	810 600 0740	1
		
Nr. 2	811 100 1090	1
Putzlappen		
–	810 600 0260	1

Fußeinrückung, komplett
Foot engagement, complete
Embrayage à pédale compl.

30021 014 00



Pos. Item Rep.	Artikel-Nr. Part No. Article-No.	Stck./Masch. Piece/Page Pièce-Mach.	Benennung	Denomination	Désignation
1	30019 014 01	1	Gelenkhebel	Angle lever	Levier d'articulation
2	30019 014 02	1	Scheibe	Washer	Rondelle plate
3	901 445 2100	1	Bolzen	Bolt	Axe
4	30021 014 02	1	Zugstab	Connecting rod	Tige de traction
5	971 802 0500	2	Winkelgelenk	Angle joint	Articulation d'equerre
6	30021 014 01	1	Zugstab	Connecting rod	Tige de traction
7	971 802 0100	1	Winkelgelenk	Angle joint	Articulation d'equerre
8	30019 014 05	1	Fußhebel, komplett	Foot pedal, complete	Levier au pied compl.
9	30019 014 08	1	Hebelhalter	Pedal bracket	Porte levier
10	906 912 2050	2	Zylinderschraube	Socket head screw	Vis à tête cylindrique à 6 pans creux
11	30019 014 09	1	Gewindebolzen	Pivot pin	Boulon avec fileté
12	900 934 3100	1	Sechskantmutter	Hex. nut	Ecrou hexagonal