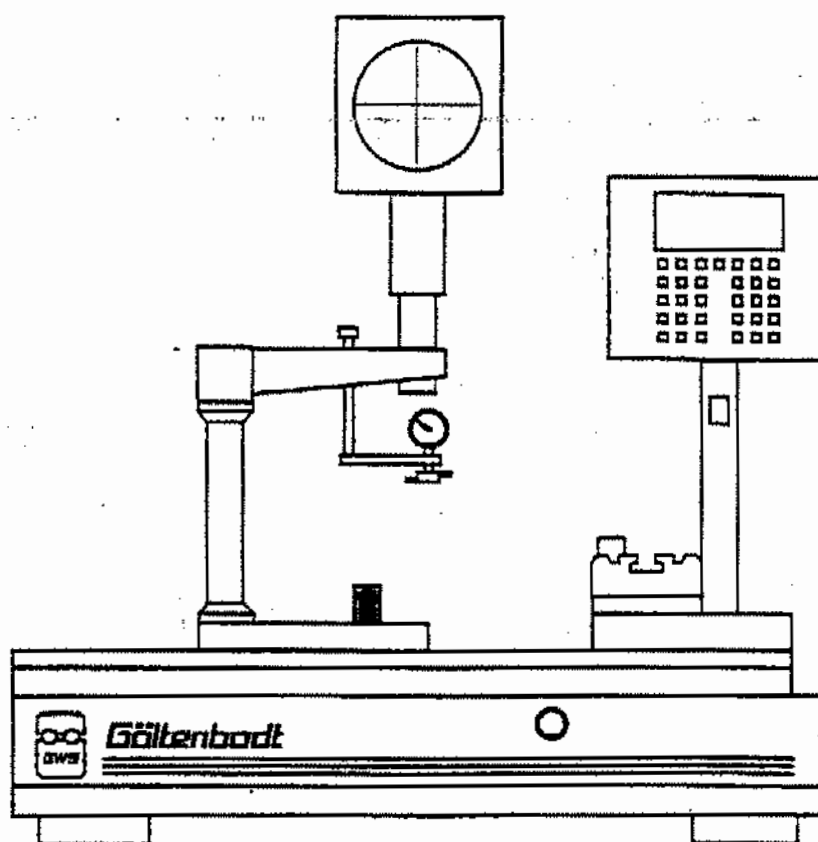




# Instruction Manual



## GWS - Tool Presetter VTH 320 - 000



## Table of contents

	Page
0.1 Transport.....	3
0.2 Installation.....	4
0.3 Transport and Installation.....	5
<b>1 Introduction.....</b>	<b>6</b>
<b>2 Technical Description.....</b>	<b>8</b>
2.1 GWS Tool Presetter.....	8
2.2 Electronic control T1000.....	9
2.3 Layout.....	10
<b>3 Operation of GWS Tool Presetter VTH 320-000.....</b>	<b>11</b>
3.1 Switch on.....	11
3.2 Calibration.....	12
3.3 Profile projector.....	13
<b>4 Function of Control T1000.....</b>	<b>14</b>
4.1 Display function.....	14
4.2 Description of Key functions.....	15
4.3 Rear Panel T1000.....	16
<b>5 Operating GWS-System.....</b>	<b>17</b>
5.1 Zero point for GWS-Tool Presetter VTH 320-000.....	17
5.2 Axis definition ( SWAP).....	18
5.3 Zero point for Y axis..(centre height).....	19
5.4 Zero point for X- and Z axis.....	20
5.5 GWS- Change adaptor storage.....	21
5.5.1 For cross slide working.....	21
5.5.2 For end working.....	22
5.5.3 For modular system.....	23
5.6 Reference table for change adaptors.....	24
5.7 GWS Change adaptors.....	25
5.8 GWS Change adaptors.....	25
5.9 Change adaptor saving.....	25
5.10 Tool values saving.....	26
5.11 Tool adjustment in Play back mode.....	26
5.12 Tool preset with stored values.....	27
5.13 Retrieve tool number.....	27
5.14 Delete tool.....	27
5.15 Sub functions.....	28

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<b>6</b>	<b>Data .....</b>	<b>30</b>
6.1	Cursor.....	30
6.2	Dialog Mode.....	30
6.3	Data output.....	32
6.3.1	Output options.....	32
6.3.2	Printing labels.....	36
6.4	Interface description.....	37
6.5	Printer settings.....	38
<b>7</b>	<b>Dictionary for T 1000 control.....</b>	<b>39</b>
<b>8</b>	<b>Service Notes</b>	<b>41</b>
8.1	Maintenance plan.....	41
8.2	Faults / Causes / Repairs.....	41
8.3	Wiring diagram.....	42
8.4	Changing the bulb.....	43
8.5	Changing the green glass filter.....	43
8.6	Parts list.....	44
<b>9</b>	<b>Microscope measurement device (optional).....</b>	<b>45</b>
9.1	General notes.....	45
9.2	Technical description.....	46
9.3	Fitting instructions.....	46
9.4	Function microscope measuring device.....	49

## 0.1 Transport

The consignment must be checked for transport damage.

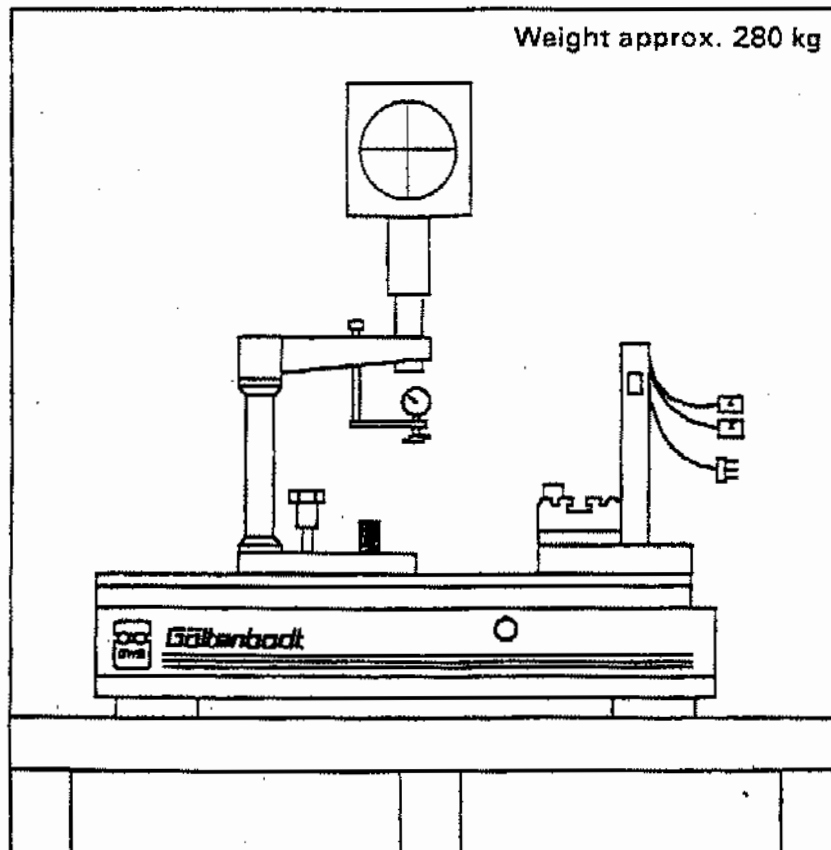
Internal transport must be carried out only with appropriate transport media.

After removing the screwed lid and side parts of the transport case, the GWS presetter can be moved to its location on the pallet using appropriate lifting or transport media.

The GWS presetter is screwed to the pallet. The screws are inserted from below. M12 ring bolts (DIN 580) can be screwed into these threaded holes which are accessible from the top beneath caps. The GWS presetter can now be placed in its final location using a crane.

If preferred, use 4 bolts M24 with threaded holes behind the front and back cover plate. The cover plate is held magnetically.

The GWS presetter can be definitively positioned by a fork lift if the forks have the correct dimensions. Max. width 420 mm, thickness 40 mm.



The GWS VTH 320-000 presetter in its transport case

## 0.2 Installation

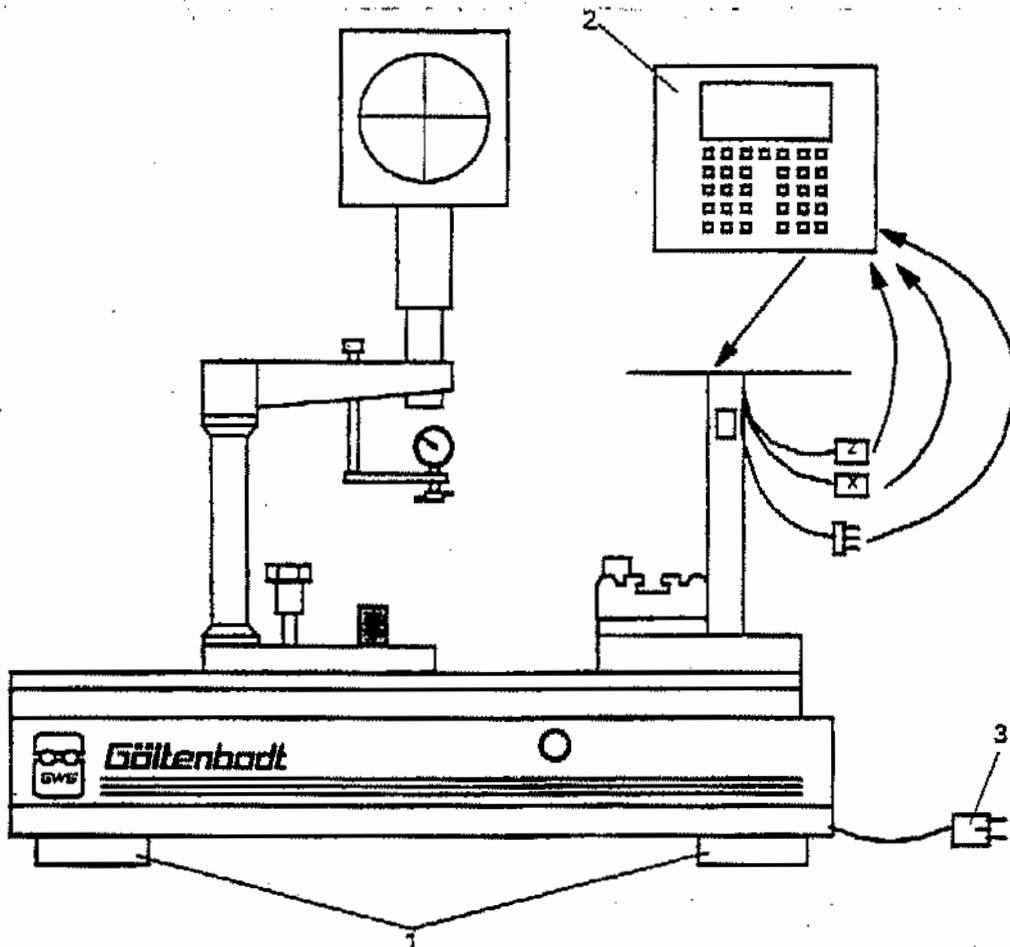
The GWS presetter should be positioned and levelled using a precision level. This is done by turning the feet of the machine (1).

The transport fixings on the compound slide rest (see over) should be removed and retained.

The T1000 measurement electronics system (2) should be positioned on the plate and fastened with screws.

Connect the mains plug, X and Z axis plugs on the back of the measurement electronics system, and connect the power (3) 220 V.

Operation is described in Chapter 3.



Assembling the GWS VTH 320-000 Presetter

### 0.3 Transport Fixings

For transport, the compound slide rest is attached with transportation fixings. This protects the guides and bearings of the compound rest.

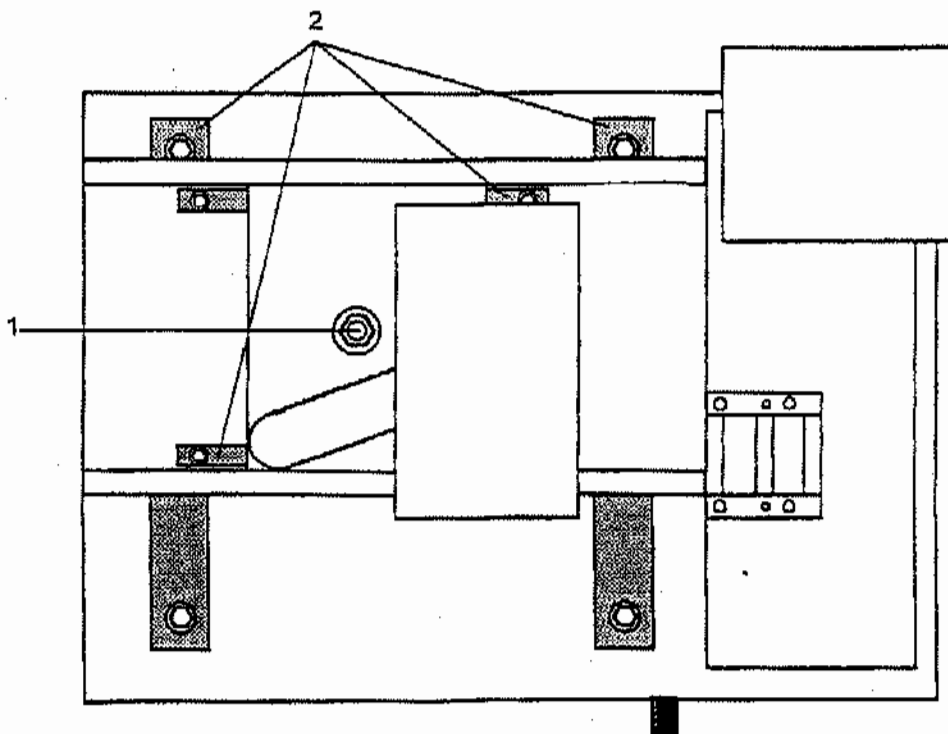
Removing the transport fixings:

- release hexagonal nuts on transport fixing (1). Unscrew bolts and remove transport fixing.
- release the screws, painted red, of the fixing strips (2). Remove fixing strips.

Note: When transporting the presetter to another location, the transport fixings must be replaced.

Fitting transport fixings:

- push transport fixing (1) into the compound rest and tighten bolt.
- insert fixing strips (2) so that the screw holes line up with the pin holes. Tighten screws until the strips lie against the compound rest. Tighten screws a further half turn; the ball cage can move freely.
- Tighten transport fixing (1) with hexagonal nut until the spring is under tension. Secure with lock nuts.



# 1 Introduction

The GWS VTH 320-000 presetter allows you to preset and measure GWS tooling systems for single and multispindle automatic lathes and other tooling systems.

The use of high quality materials and the latest precision production technology makes the GWS VTH 320-000 presetter a high quality machine.

The ergonomic arrangement of the controls guarantees comfortable and non-tiring operation of your presetter.

The following general notes should be observed:

- Proper operation of the machine is essential for safe use. Read the operating instructions before using the machine for the first time.
- The GWS presetter is a two-axis measuring instrument designed for workshop use. Careful handling will extend its life and ensure precision measurements.
- The GWS presetter should not be exposed to:
  - direct sunshine or heat sources
  - excessive temperature fluctuations
  - vibrations, dust, moisture etc.
- Collisions with tools and axis limiters should be avoided.
- Before using for the first time, check that the mains voltage in question conforms to the machine voltage, and modify if necessary. The machine may only be connected to a properly installed shock-proof socket.
- The machine is not designed for unsupervised permanent operation, and should be switched off when not in use.
- Remove plug before opening the machine.  
Adjustments should be made by trained staff only.  
The manufacturer bears no liability for damage caused by unauthorized interference with the machine. Such actions also invalidate all guarantee claims.
- Disconnect the power before changing the bulbs.  
Allow bulbs to cool to avoid risk of burns.

The machine-specific control electronics and the measurement and analysis software will facilitate your measurement and adjustment work.

An extensive range of accessories allows versatile application.

The design of the GWS VTH 320-000 presetter meets the present Accident and VDE Guidelines.

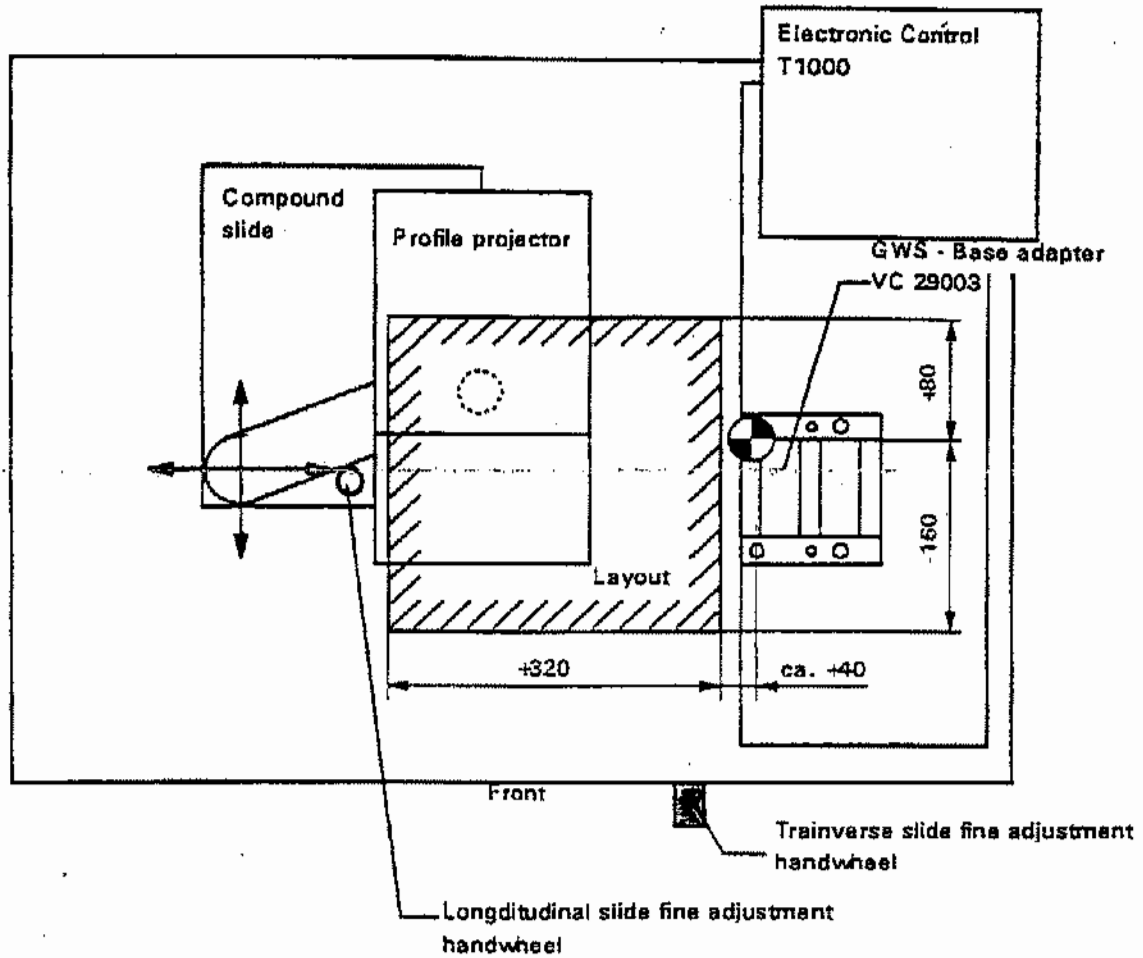
Incorrect use of the GWS VTH 320-000 presetter invalidates the guarantee.



## 2.2 Electronic Control T1000

- Operating panel with LCD
- 99 adaptor zero point
- T - Number in adaptor mode
- 600 Tool memory positions
- Expanded to 4 x 1000 memory positions available as option
- 20 Digit Alpha - numeric tool numbers
- Read out accuracy 0.001mm
- Play back function
- Incremental function
- Fix focus ( measurement hold ) function
- Axis swap X / Z - Z / X
- Mathematical sign change function
- Radius / Diameter change function
- Inch / metric change function
- Absolute / Off set change function
- Language selection English - German - French - Spanish - Italian
- RS 232 continuous read out
- RS 232 PC Printer - DNC
- ACR connection

### 2.3 Layout



Zero point for GWS Presetter VTH 320 - 000



Area covered by the GWS Base adaptor from the zero point

### 3 Operation of GWS VTH 320-000 Presetter

#### 3.1 Switching On

It is assumed that the GWS presetter has been properly installed.

The GWS presetter is switched on by activating the main switch (Fig. 1).

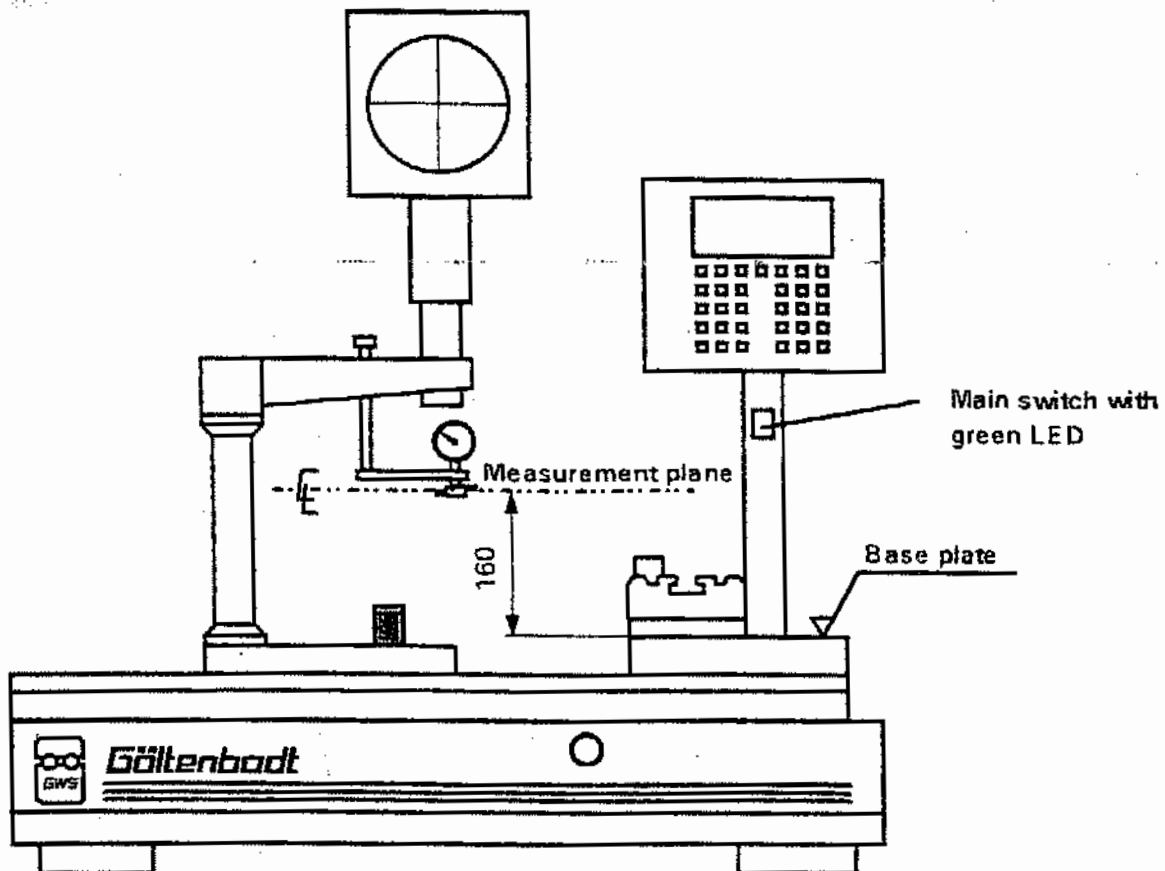


Fig. 1: GWS VTH 320-000 presetter

After switching on, the following display appears (Fig. 2):

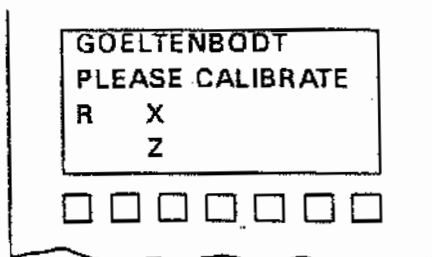


Fig. 2: Display

## 3.2 Calibration

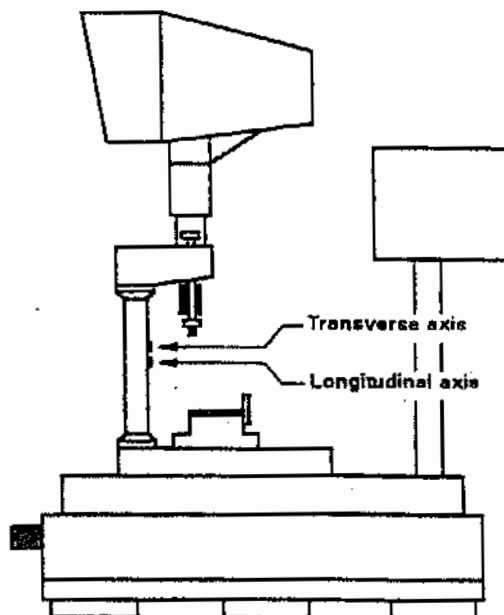
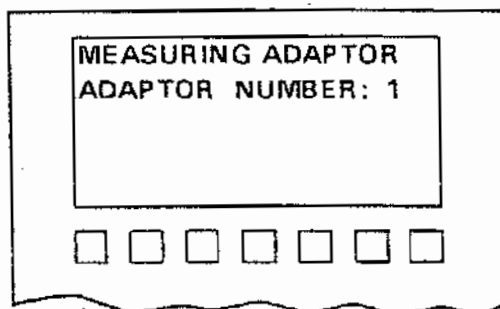
The calibration process creates the correlation between the measuring system and the T1000 measurement electronics system.

To do this, the push buttons (Fig. 3) on the column of the compound rest must be activated, the clamps on the transverse and longitudinal axes released and the compound rest moved over the reference marks for the transverse and longitudinal measuring system (Fig. 4).

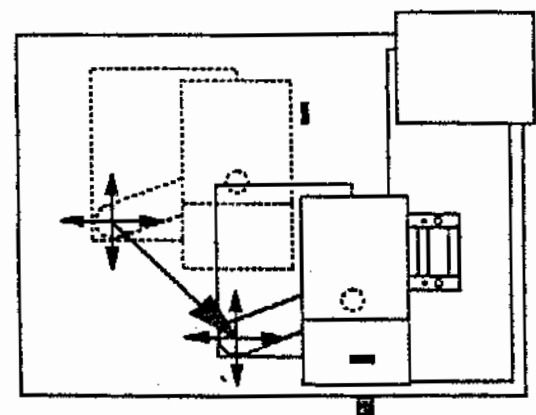
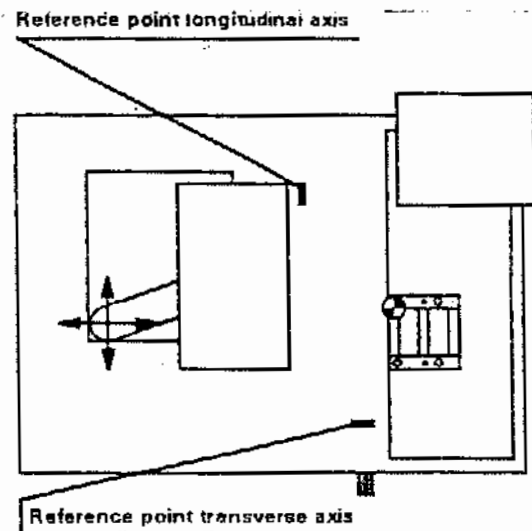
This calibration process sets the axis references for Adaptor 1.

Transverse axis = X axis, longitudinal axis = Z axis.

The GWS presetter is calibrated when the following display appears:



**Fig. 3: Push buttons for transverse and longitudinal axis release**



**Fig. 4: Calibration process**

### 3.3 Assessing Contours with the Profile Projector

A contour is assessed visibly using the profile projector (1) (Fig. 5). The tool cutting edge (3), which lies in the centre line between the light source (4) and the projector, is shown in 20 times magnification as a shadow outline (8) on the focusing screen (2) of the projector. The adjusting dial (5) is turned to the left or right by  $\pm 2.5$  mm to sharpen the image of the measurement object.

The moving projector screen (360) is used to determine angles and radii on the cutting edge of the tool.

Measurement points are shown as X and Z coordinates.

The rough setting (6) and fine setting (7) of the X and Z axes are used for assessment. The cutting edge screening principle (Fig. 6) is used: the shadows of the cutting tool either lie against the cross hairs such that a thin light slit can still be seen, or lie directly on the projector screen.

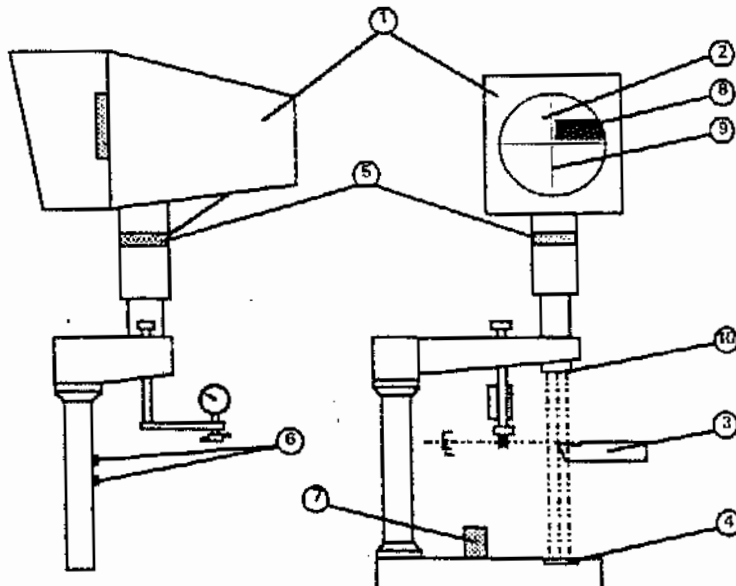


Fig. 5: Profile Projector screening

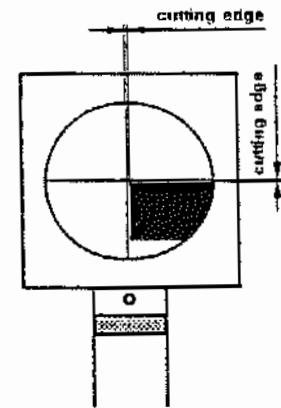


Fig. 6: Cutting edge

## 4 Function of T1000 Measurement Electronics System

### 4.1 Control Panel and Display

The flat keypad (Fig. 7) can be used firstly for functions and secondly for entering alphanumeric characters.

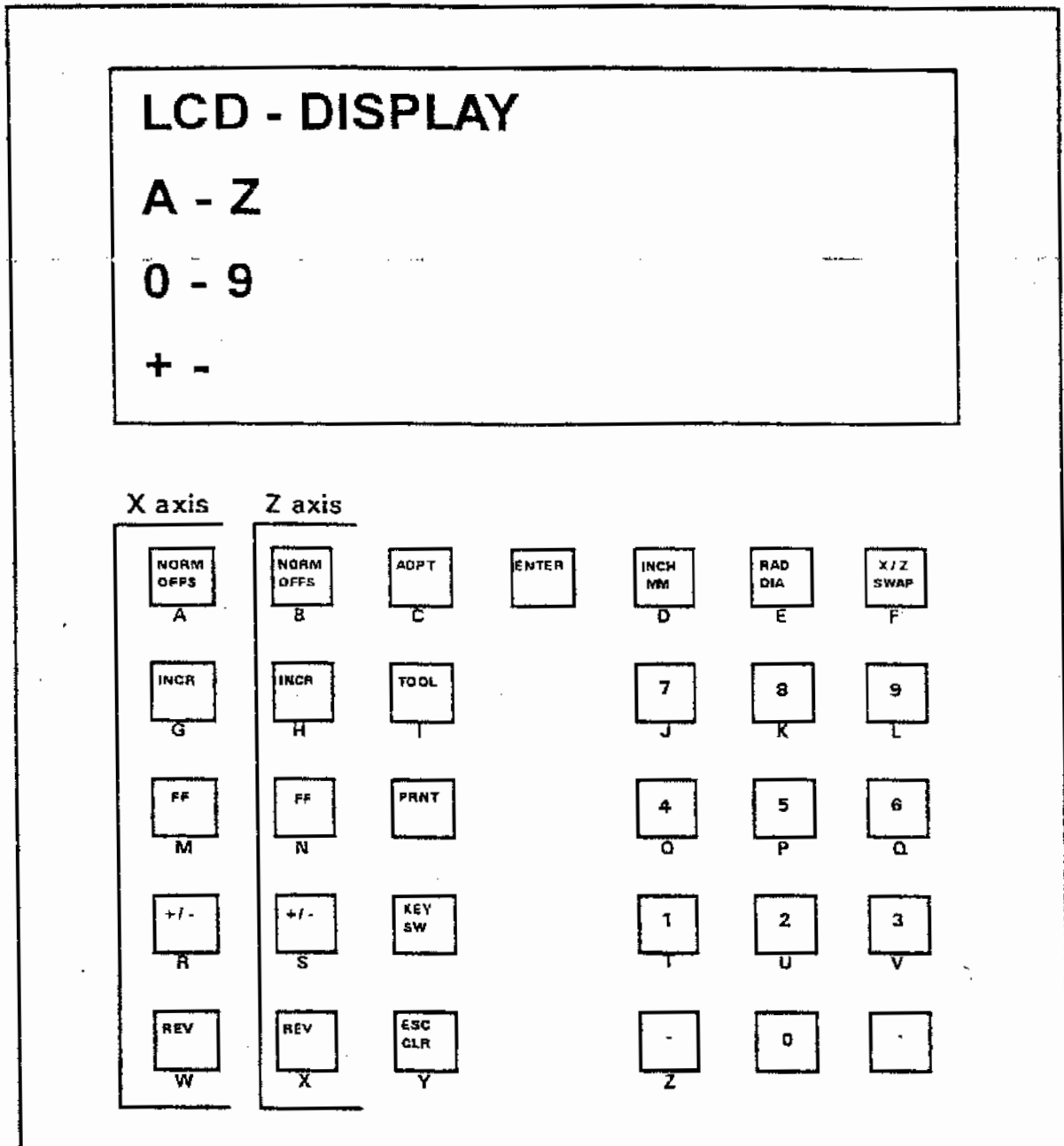


Fig. 7: Control panel with display (T1000 measurement electronics system)

## 4.2 Description of Function Keys

### KEY FUNCTION



Confirm input



Select adaptor number



Select tool number



Print key



Alpha numeric change over



Escape and Clear key



Change from absolute mode to measuring mode in X and Z axis separately, relative value between nominal to actual. This function is only active in tool mode. The LCD display will indicate " O " in OFFS and " A " in NORM after the dimension



Incremental measuring mode , active in X and Z axis separately. The LCD display will indicate " I " after the dimension.



Axis freeze function to hold measured axis value and output together with other axis value.



Mathmatic



Reverse active only when memorising adaptors. The LCD display will indicate " < " after the dimension.



Axis swap function to change X / Z - Z / X Active only in adaptor mode. The LCD display will indicate " \* " after the dimension.

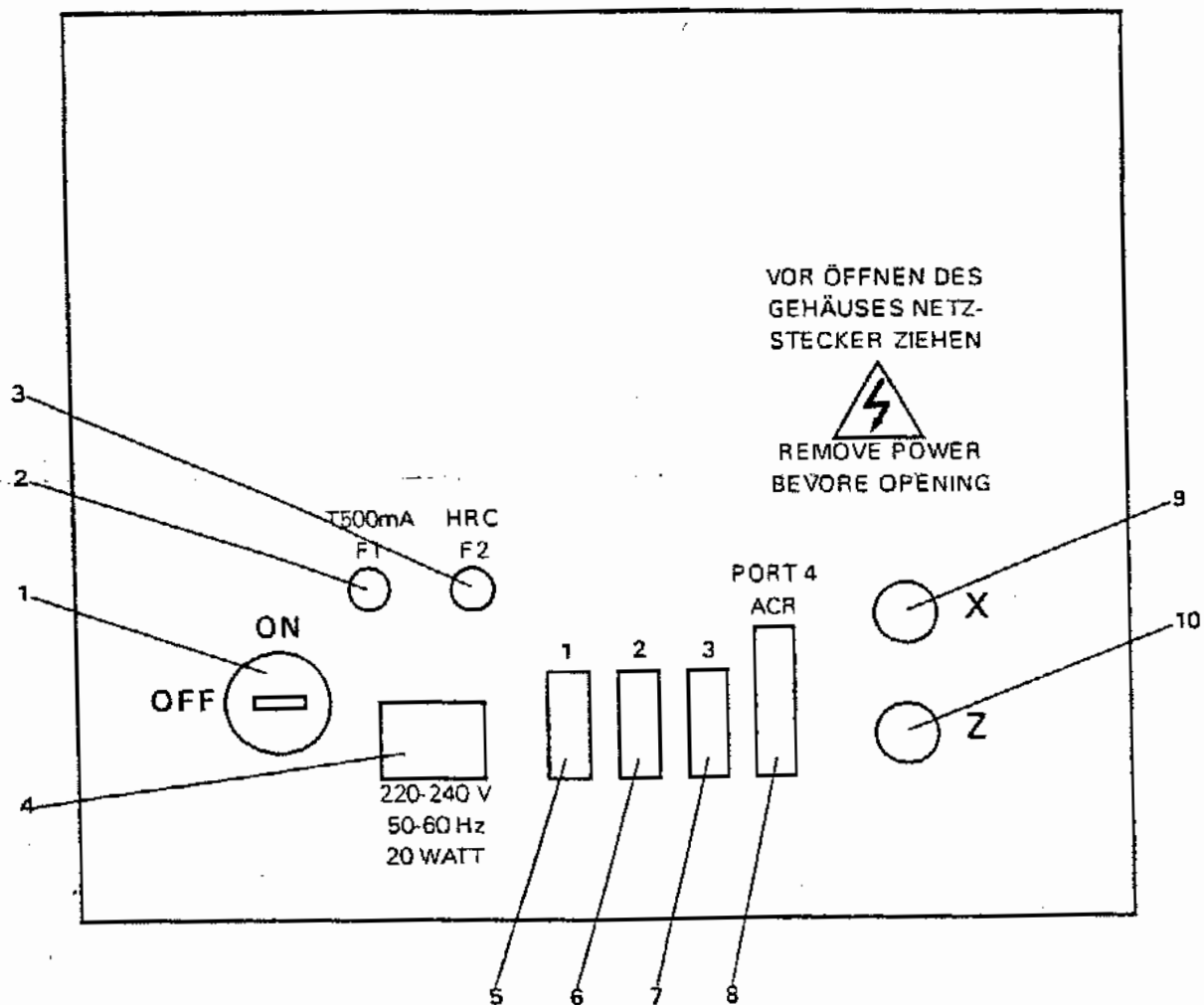


Radius / Diameter change over only in X axis. The LCD display will indicate " R " or " D " after the dimension.



Inch / Metric change over. The LCD display will will indicate " in " or " mm " after the dimension.

### 4.3 Rear Panel



- |    |                                       |                            |
|----|---------------------------------------|----------------------------|
| 1  | Memory Lock                           |                            |
| 2  | Fuse No 1                             | ( 500mA / 5 x 20mm )       |
| 3  | Fuse No 2                             | ( 500mA / 5 x 20mm )       |
| 4  | Mains connection                      | 220 - 240 VAC / 50 / 60 Hz |
| 5  | Interface RS 232                      | 9 PIN Port 1 Laser printer |
| 6  | Interface RS 232                      | 9 PIN Port 2               |
| 7  | Interface RS 232                      | 9 PIN Port 3               |
| 8  | Interface RS 232                      | 12 PIN ACR                 |
| 9  | X - Axis measuring system connection. |                            |
| 10 | Z - Axis measuring system connection  |                            |

## 5. Using the GWS System

### 5.1 Zero Point of GWS VTH 320-000 Presetter

The zero point of the GWS presetter is defined on the GWS base adapter on the column centre and stop (Fig. 8).

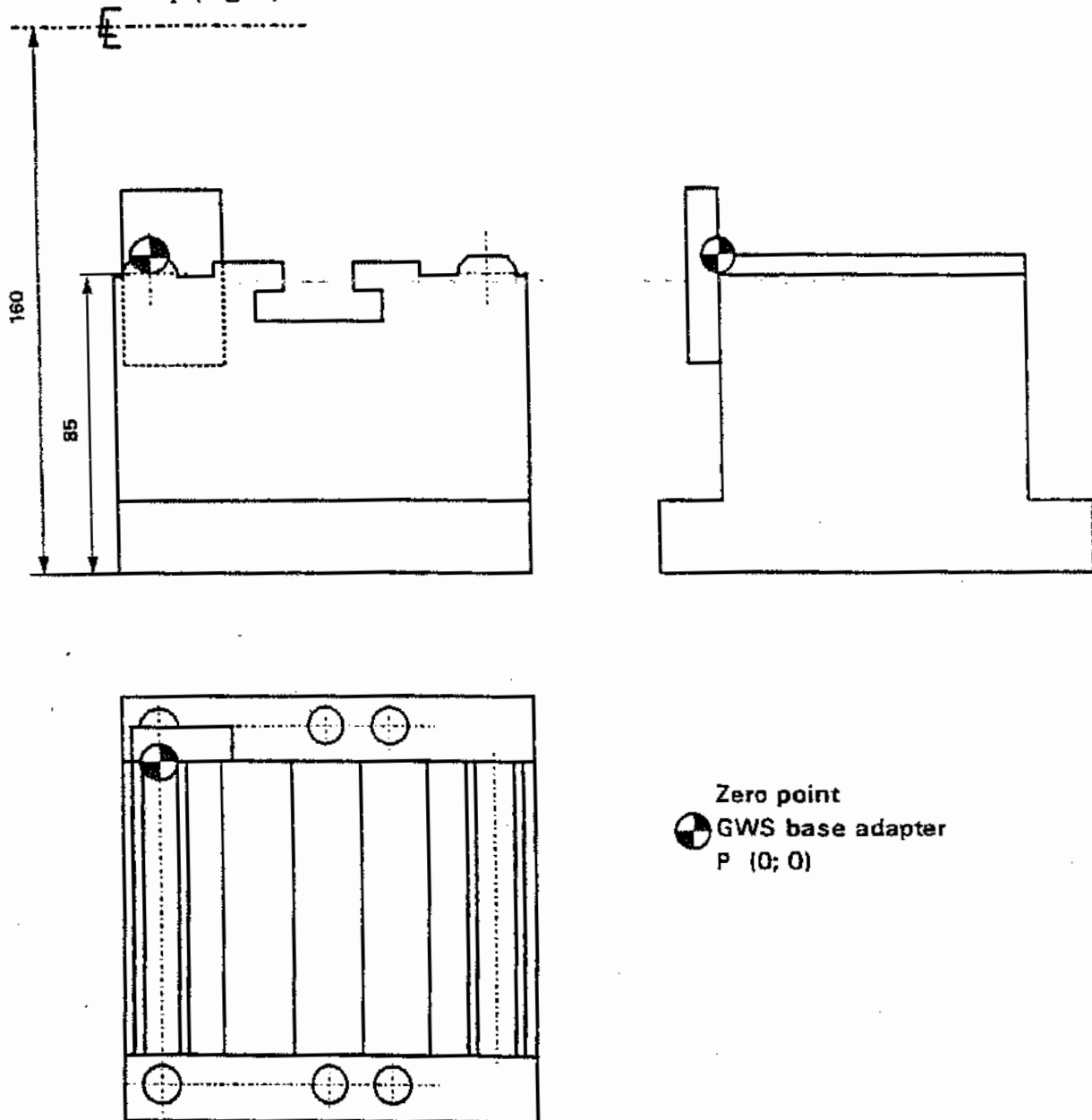


Fig. 8: Zero point definition

## 5.2 Axis Definition

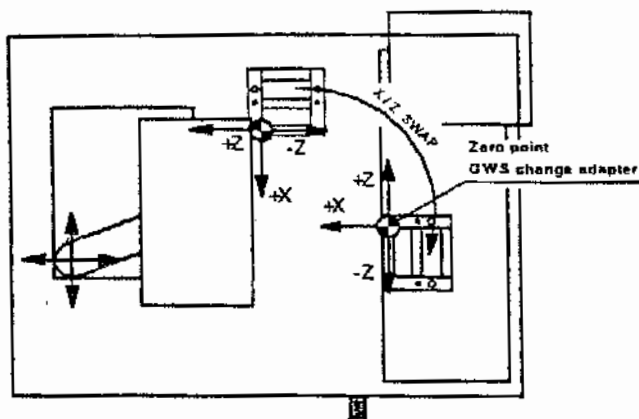
The X and Z axes of the GWS system on the GWS VTH 320-000 presetter are defined according to the GWS system application.

The SWAP function of the GWS VTH 320-000 presetter offers axis-change measurement of tools from the corresponding change adapter.

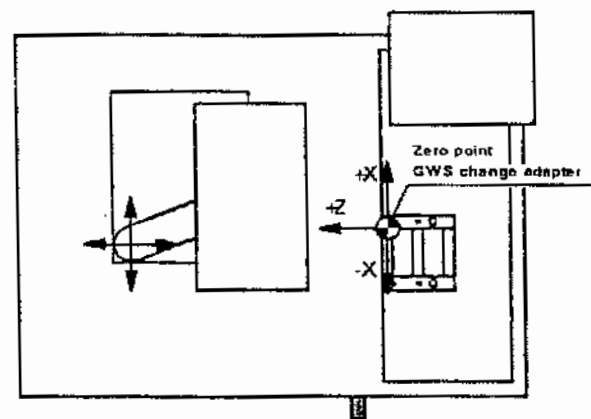
The SWAP function corresponds to a positive 90° rotation in the X and Z planes. The measurement values of the axes are swapped. This axis swap is marked by the SWAP star "∗".

It must be ensured that this SWAP star is allocated according to the GWS change adapters as described below:

- transverse carriage tool measurement: with SWAP "∗"
- longitudinal tool measurement :without SWAP "∗"
- tailstock sleeve tool measurement: without SWAP "∗"



Axis definition, transverse axis  
(with SWAP "∗")



Axis definition, longitudinal carriage  
and tailstock sleeve tools  
(without SWAP "∗")

### 5.3 Zero Point Adjustment for Y Axis (Centre height)

The zero point adjustment for the Y axis is made using the GWS Calibration Piece and the measurement dial gauge on the GWS presetter.

To do this, the dial gauge foot is placed on the GWS Calibration Piece and the zero of the adjustment ring moved to cover the pointer of the dial gauge (Fig. 9).

The dial gauge is thus zeroed to the centre line.

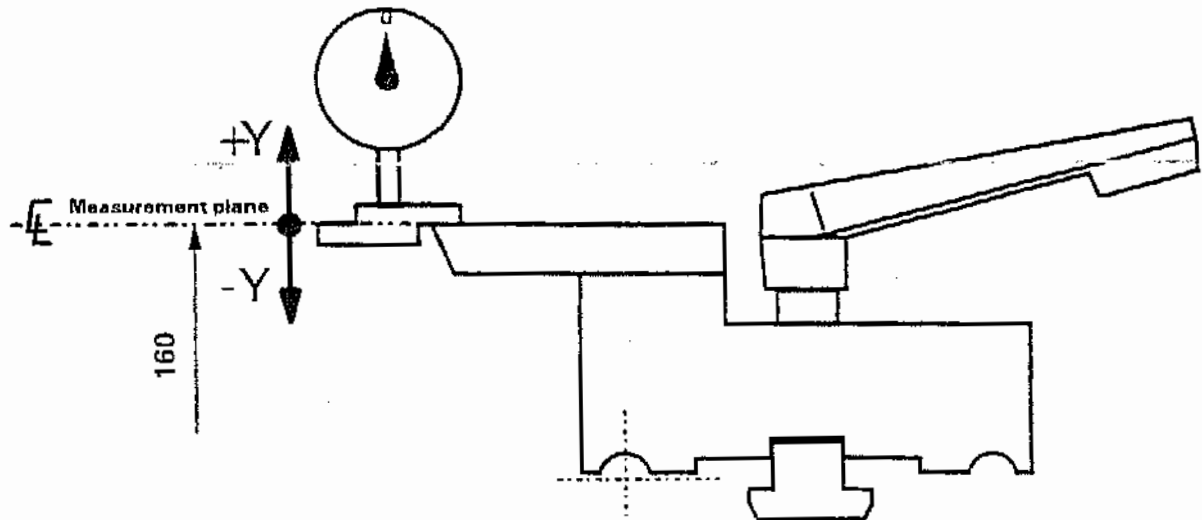


Fig. 9: Zero point adjustment for Y axis

## 5.4 Zero Point Adjustment for X and Z Axes

The zero point adjustment is made using the GWS Calibration Piece and the stored adapter value of Adaptor 1.

Adaptor 1 (GWS base adaptor and GWS Calibration Piece) of the VTH 320-000 presetter is factory-measured and set by Göltenbodt to coordinates X -5.000 mm, Z 53.000 mm.

The zero point of the GWS VTH 320-000 presetter is defined at the front column centre and the inside stop of the GWS base adaptor (see p. 16, Fig. 8).

### Procedure

- Place GWS Calibration Piece on GWS base adaptor.
- Move measurement point of GWS Calibration Piece to the cross hair position.
- Set key switch to ON.
- Press ADPT key.
- Enter Adaptor number 1.
- Confirm with ENTER.
- Enter coordinate value for X axis (X = -5.000) (0.1967")
- Confirm with ENTER.
- Enter coordinate value for Z axis (X = +53.000) (2.0866")
- Confirm with ENTER.
- Press ADPT key.
- Set key switch to OFF.

**The zero point adjustment must be made several times per day!**

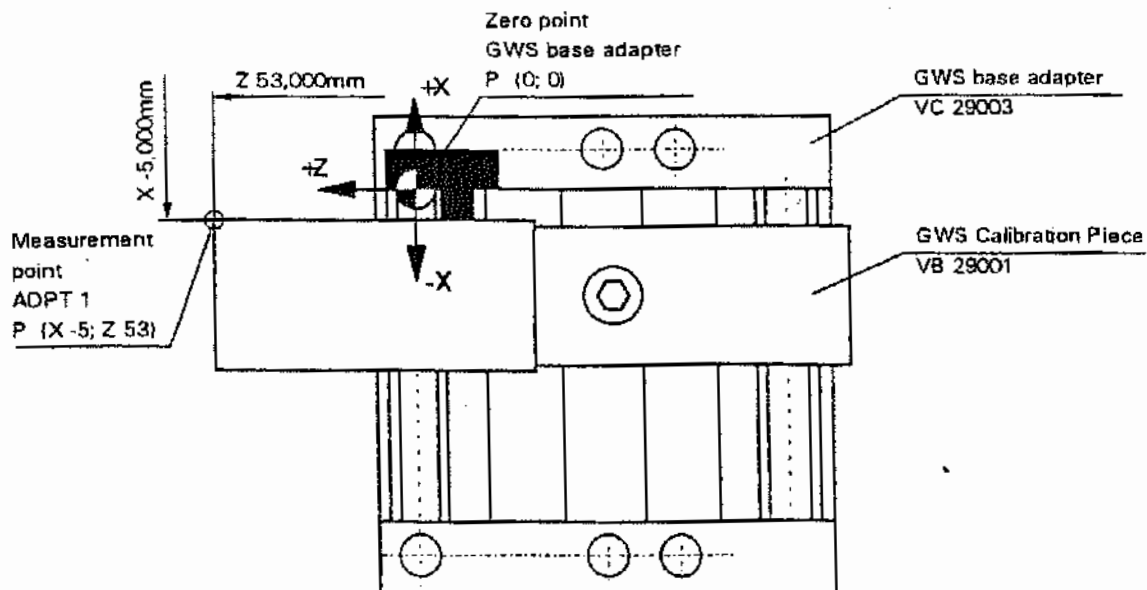


Fig. 10: Zero point adjustment for X and Z axes

## 5.5 Save GWS Change Adaptor

### 5.5.1 For Cross Slide Tools

#### Requirement:

The GWS presetter is calibrated. The compound rest stands in the zero point adjustment position (see p. 20) and the GWS change adapter to be saved is mounted on the GWS base adapter.

The table on Page 24 gives the adjustment dimensions for the GWS change adapters.

#### Procedure:

- Press ADPT key and enter Adapter 1.
- Confirm with ENTER.
- Move compound rest to adjustment dimension (see p. 24).
- Set key switch to ON.
- Press ADPT key and enter adapter number to be saved.
- Confirm with ENTER.
- Enter coordinate value for X and Z axes ( $X = 0 / Z = 0$ ).
- Confirm each entry with ENTER.
- Press SWAP key. The SWAP "\*" appears in the display depending on transverse carriage allocation.
- (for position A only) Press REV key to reverse sign for the Z axis. The sign "<" appears after the measurement value "Z".
- Confirm with ENTER.
- Press key ADPT.
- Set key switch to OFF, adapter is saved.

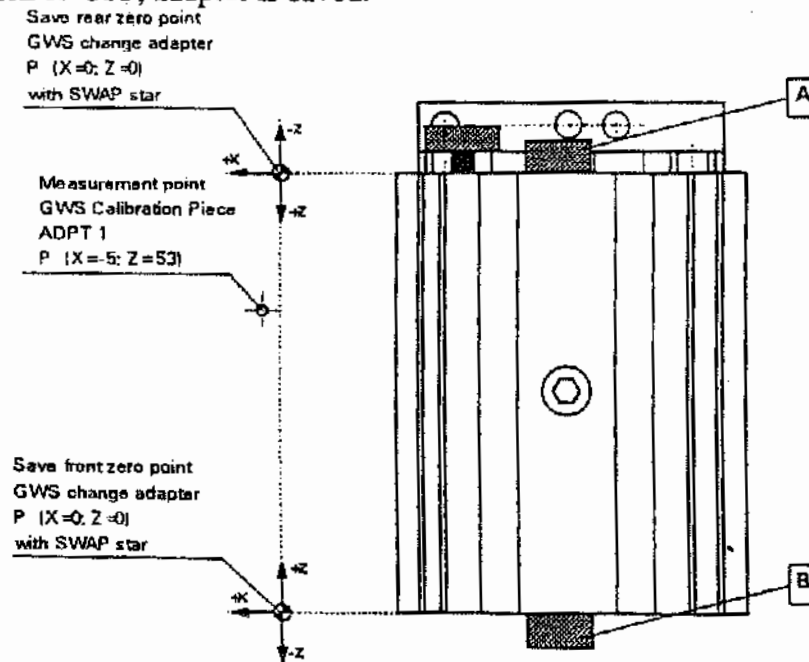


Fig. 11: Zero points on GWS change adapter for transverse (cross slide) tools

## 5.5.2 For Longitudinal Tools ( Turning endworking )

### Requirement:

The GWS presetter is calibrated. The compound rest stands in the zero point adjustment position (see p. 20) and the GWS change adapter to be saved is mounted on the GWS base adapter.

The table on Page 24 gives the adjustment dimensions for the GWS change adapters.

### Procedure:

- Press ADPT key and enter Adapter 1.
- Confirm with ENTER.
- Move compound rest to adjustment dimension (see p. 24).
- Set key switch to ON.
- Press ADPT key and enter adapter number to be saved.
- Confirm with ENTER.
- Enter coordinate value for X and Z axes ( $X = 0 / Z = 0$ ).
- Confirm each entry with ENTER.
- If the SWAP star appears in the display, press SWAP key. Depending on the longitudinal carriage allocation, no SWAP star may appear.
- Press ADPT key.
- Set key switch to OFF, adapter is saved.

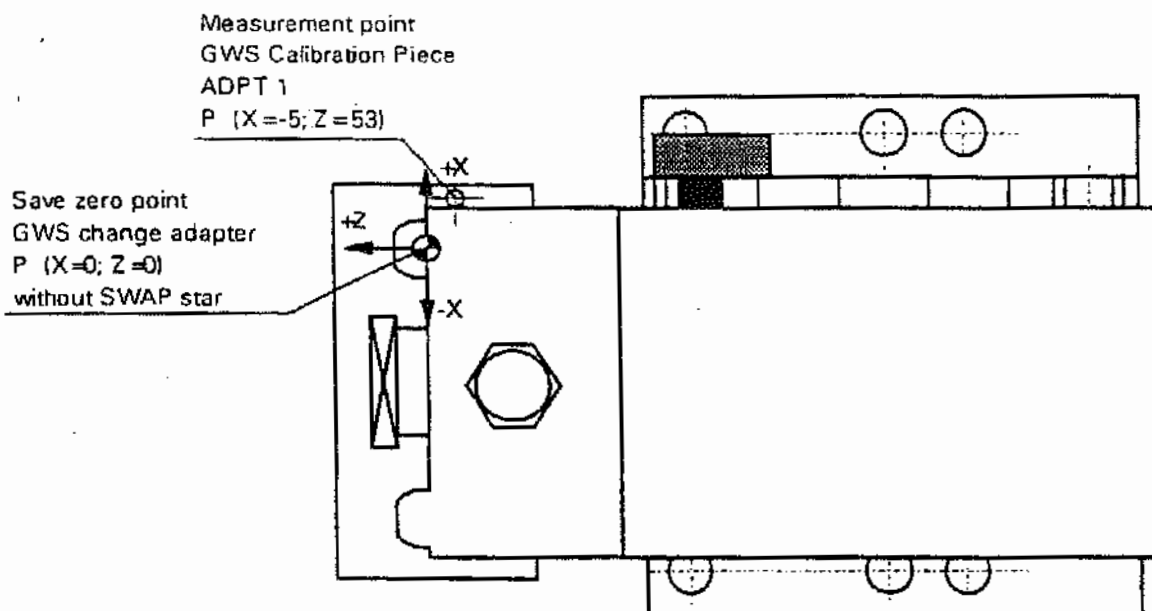


Fig. 12: Zero point on GWS change adapter for longitudinal tools

### 5.5.3 For Tailstock Tools (Drilling)

#### Requirement:

The GWS presetter is calibrated. The compound rest stands in the zero point adjustment position (see p. 20) and the GWS change adapter to be saved is mounted on the GWS base adapter.

The table on Page 24 gives the adjustment dimensions for the GWS change adapters.

#### Procedure:

- Press ADPT key and enter Adapter 1.
- Confirm with ENTER.
- Move compound rest to adjustment dimension (see p. 24).
- Set key switch to ON.
- Press ADPT key and enter adapter number to be saved.
- Confirm with ENTER.
- Enter coordinate value for X and Z axes ( $X = 0 / Z = 0$ ).
- Confirm each entry with ENTER.
- If the SWAP star appears in the display, press SWAP key. Depending on the longitudinal carriage allocation, no SWAP star may appear.
- Press ADPT key.
- Set key switch to OFF, adapter is saved.

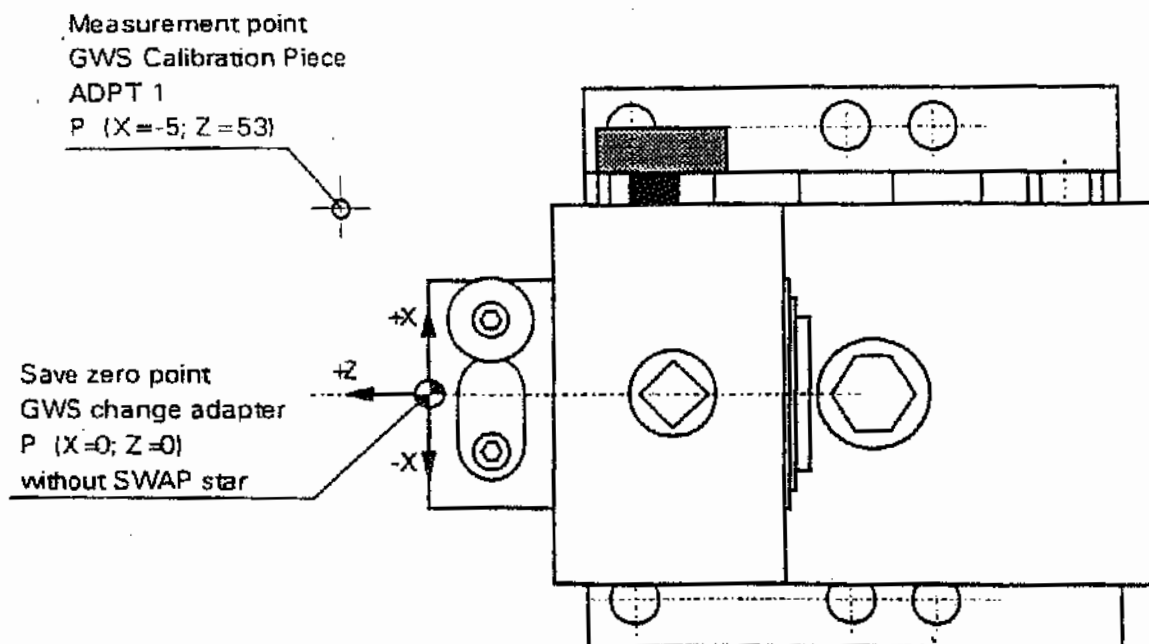


Fig. 13: Zero points on GWS change adapter for tailstock tools

## 5.6 Dimension Table for GWS Change Adapters

The GWS change adapters are listed in the dimension table below.

The adapters are classified by GWS tool application area. The adjustment dimensions are defined by Göltenbodt and may be applied by the user.

In order to save the individual GWS change adapters, the adapter for the GWS Calibration Piece (Adpt 1) must first be retrieved. Using this adapter, the system is then moved to the adjustment dimension for the relevant GWS change adapter and saved with zero values under the allocated adapter number in the X and Z axes.

Ident No.:	Adjustment Dimension		Adpt No.:
	X-axis*	Z-axis	
VB 29001 Calibration Piece	-5,0	53,0	1
VM 25001	-6,0 /-56,0	50,0	
VM 36001	-6,0 /-86,0	50,0	
VM 43001	-6,0 /-91,0	50,0	
VM 44001	34,0 /-126,0	50,0	
VM 60001	-6,0 /-146,0	50,0	
VM 02001	-15,0	50,0	
VM 03001	-5,0	50,0	
VM 06001	-31,0	50,0	
VM 06002.03	-16,0	53,0	
VM 07001	-6,0 /-56,0	50,0	
VM 08001.01	-16,0	57,0	
VM 09001	-6,0	53,0	
VM 10001.01	-16,0	57,0	
VM 10002.00	-34,5	50,0	
VM 11001.06	-16,0	57,0	
VM 50001.01	-10,0	50,0	
VU 29005.01	-46,0	50,0	
VU 29005.02	-46,0	50,0	
VU 29005.03	-46,0	61,0	
VU 29005.04	-46,0	66,0	

\* Values relate to the respective stops.

## 5.7 Retrieve GWS Change Adapter

Press ADPT key.  
Enter required adapter number.  
Confirm with ENTER.

## 5.8 Delete GWS Change Adapter

The adapter zero points can be deleted from the memory individually by overwriting.

**Procedure:**

- Set key switch to ON.
- Press ADPT key.
- Enter adapter number to be deleted.
- Confirm with ENTER.
- Enter zero for X and Z axes.
- Confirm with ENTER.
- Set key switch to OFF.

The selected adapter position is now deleted from the memory.

## 5.9 Save Adapters with Reversed Sign and Axis Swap

When saving the adapter zero point, the sign and measurement axes can be mixed up.

If the sign of the X or Z axis is to be changed, during the save process for an adapter, after confirming the X and Z axes, press the REV key for the axis to be changed (before pressing the ADPT key).

The sign "<" appears after the changed measurement value.

If the X and Z axes have been mixed up, during the save process for an adapter, after confirming the X and Z axes, press the SWAP key (before pressing the ADPT key).  
The sign "\*\*" appears after the measurement value.

## 5.10 Saving Tool Values to Preset Plan

### Requirement:

The input values from the present plan are available.  
The associated GWS change adapter is saved.

### Procedure:

- Set key switch to ON.
- Press TOOL key.
- Enter tool ident. number (max. 20 alphanumeric characters).
- Confirm with ENTER.
- Enter corresponding adapter number.
- Confirm with ENTER.
- Enter X coordinate value.
- Confirm with ENTER.
- Enter Z coordinate value.
- Confirm with ENTER.
- Set key switch to OFF.

### Note

If the tool already saved has other values, the tool need not be deleted. The stored value can be overwritten.

## 5.11 Tool Adjustment In Play-Back Process

### Requirement:

With the GWS change holder set in the machine, the adjustment values should now be entered on the presetter and saved.  
The tool cut is shown in the projector screen.

### Procedure:

- Set key switch to ON.
- Press TOOL key.
- Enter tool ident. number (max. 20 alphanumeric characters).
- Confirm with ENTER.
- Enter corresponding adapter number.
- Confirm with ENTER.
- Confirm coordinate values for X and Z without entering new values.
- Set key switch to OFF.

## 5.12 Tool Preset With Stored Values

### Requirement:

A GWS change holder is already saved. Another GWS change holder with an identical cut should be preset to the stored dimensions.

The key switch must be set to OFF.

### Procedure:

- Press TOOL key.
- Enter tool ident. number.
- Confirm with ENTER.
- Press NORM/OFFS key for X and Z axes; "0" appears in the display.
- Move compound rest until X and Z measurement values read zero.
- Set tool until cutting edge is corresponds to the projector cross hair.
- Tool is now set.

The GWS change holder is now preset and ready for production.

## 5.13 Retrieve Cutting Tool

Press TOOL key.

Enter tool ident. number.

Confirm with ENTER.

## 5.14 Delete Tools

- Set key switch to ON.
- Press TOOL key.
- Enter tool ident. number to be deleted.
- Press CLR key.
- Confirm deletion with ENTER.
- Set key switch to OFF.

## 5.15 Subfunctions

The subfunctions can be used as secondary functions as required during tool measurement.

Allocation of a subfunction has no effect on the stored adapter or tool values.

### Sign Reversal

Possible only in ADAPTER and TOOL measurement functions.

Using the +/- keys, the sign can be changed to the relevant measurement axis during tool measurement.

This sign change overwrites only the sign filed with the adapter zero point and is not therefore saved.

This is shown by "S" in front of the relevant axis.

### Radius - Diameter

Possible only in memory and ADAPTER and TOOL measurement functions.

The measurement value for the transverse axis can be used to display the radius or diameter value by pressing the RAD/DIA key.

Display:	R = radius value
Display:	D = diameter value

The allocation is self-locking.

### Switching from "mm" to "inch" Display

Possible only in memory and measurement functions: ADAPTER and TOOL.

The normal display of coordinates in "mm" can be changed to "inches".

Display:	e.g.	Z -12.854 mm
	or	Z -0.5061 inch

The allocation is self-locking.

## **Incremental Measurement - Chain Function**

Possible only in memory and measurement function: TOOL.

By pressing the INCR key, the relevant axis display can be set to "ZERO" within the measurement field at any point. Further measurements can be carried out from this "zero point".

The character "I" after the measurement value shows that the measurement was taken using the chain measurement function.

### **Note: Incremental values are relative values**

The values displayed do not relate to the adapter zero point. Therefore no incremental values may be shown on adhesive labels or other data carriers.

## **Fixed Measurement Value**

Possible only in measurement functions: ADAPTER and TOOL.

Using the FF key, the measurement value of an axis can be fixed in the display despite continued movement in this measurement axis.

The character "F" indicates the fixed measurement value for the axis concerned.

## **Difference - Absolute Value Measurement**

Possible only in TOOL measurement function.

Using the NORM/OFFS keys, the actual measurement value of the tool can be displayed as the comparative measurement value between Nominal and Actual. This comparison can be set only when the relevant tools have already been saved with the theoretical tool data.

The character "O" after the measurement value shows that a comparative measurement (tool offset) has been taken.

## 6. Data Processing

### 6.1 Cursor

The cursor position is shown as a flashing rectangle on the display. New values can be entered. Inputting data moves the cursor to the right.

The display shown can be changed, the cursor flashes over the character which is to be changed. As soon as a new character is entered, it replaces the previous one (figure or letter) and all subsequent characters are deleted.

Inputting is completed when the ENTER key is pressed. The cursor then moves to the next line or next mask.

Pressing the PRNT key moves the cursor back one position. This allows correction of an incorrect entry if this has not yet been confirmed by ENTER.

The input function can be quit by pressing ESC/CLR. The original display reappears.

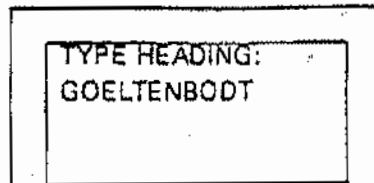
### 6.2 Dialog Mode

If the PRNT key is pressed at the same time as the preset machine is switched on, the T1000 measurement electronics system switches to "dialog mode". The display shows questions which must be answered in sequence, either by confirming with "ENTER" or by entering new values.

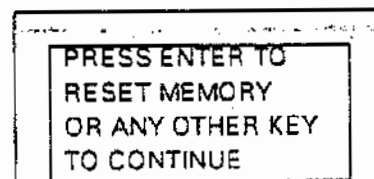
Display 1: Select language

1 ENGLISH	5 ESPANOL
2 DEUTSCH	
3 FRANCIOS	
4 ITALIANO	

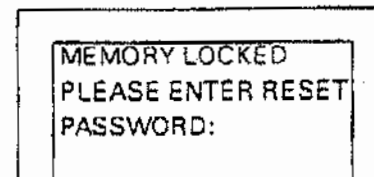
- Select language required by corresponding number.

**Display 2: Enter header line**

- Switch from numeric to alphanumeric keypad by pressing KEY/SW key.
- Enter text for header line.
- Confirm with ENTER or accept existing text.

**Display 3: Delete complete memory**

- Pressing any key quits dialog mode. The memory contents are not deleted. The GWS preset machine prompts for calibration.
- If ENTER is pressed, the following display appears:



The password is: AXF-276

Entering the password irrevocably deletes the entire memory contents.

Pressing any key quits dialog mode. The memory contents are not deleted. The GWS preset machine prompts for calibration.

## 6.3 Data Output

### 6.3.1 Output Options

Pressing the PRNT key (not possible in TOOL measurement function) retrieves the "output options". The following display appears:

```
OUTPUT OPTIONS:
1.ADAPTOR LIST
2.TOOL LIST
3.SET PARAMETERS
```

Select required option by corresponding number.

#### 1. Output stored memory via interface to external units

Display:

```
SELECT:
FIRST ADAPTOR NO:
```

- Enter first adapter number (1-99)
- Confirm with ENTER.

Display:

```
SELECT:
LAST ADAPTOR NO:
```

- Enter last adapter number (1-99)
- Confirm with ENTER.

Display:

```
PRINTER READY?
ANY KEY TO CONTINUE
```

- Check printer, press any key to continue
- Adapter list is printed out.

Display:

```
PRINTING ADPT LIST
PLEASE WAIT
```

The adapter list is saved  
in its output form.

**2. Output values of stored tools via interface to external data carrier**

Display:

```
SELECT:
FIRST TOOL NUMBER:
```

- Enter first tool number
- Confirm with ENTER.

Display:

```
SELECT:
LAST TOOL NUMBER:
```

- Enter last tool number
- Confirm with ENTER.

Display:

```
PRINTER READY ?
ANY KEY TO CONTINUE
```

- Check printer, press any key to continue
- Tool list is printed out.

Display:

```
PRINTING TOOL LIST
PLEASE WAIT
```

The tool list is saved in its output form.

### 3. Determining Interface Parameters Port 1 and Port 2

Data output can be on-line to a printer, or on-line to a PC etc.

It is possible to connect a printer and PC to one port or each output unit to its own allocated port.

Recurrent additional information (max. 10 digits) can be entered on the label print-out which can be supplemented to be specific to each label.

Display:

```
DESCRIPTION OF
ADDITIONAL LINE:
```

- Enter additional information (max. 10 digits)
- Confirm with ENTER.

Display:

```
PORT ALLOCATIONS
PC/LISTING PORT
LABEL PRINTING PORT
```

- Choose interface for PC/list format (1 or 2)
- Confirm with ENTER.
- Choose interface for label printer (1 or 2)
- Confirm with ENTER.

Display:

```
LABEL PARAMETERS
LABEL OFFSET
BLANK LINES
T NUMBER ? (0/1)
```

- Set left margin (0-59 | 0=left / 59=right)
- Confirm with ENTER.
- Set line switch (0-99 | empty lines between labels)
- Confirm with ENTER.
- Give printout tool ident. number (0=no, 1=yes)
- Confirm with ENTER.

Display:

```
PORT PARAMETERS
FOR PORT 1
BAUD RATE
```

- Set baud rate (standard value: 9600 baud)
- Confirm with ENTER.

Display:

```
PORT PARAMETERS
FOR PORT 1
DATA BITS
```

- Enter number of data bits (standard setting: 8)
- Confirm with ENTER.

Display:

```
PORT PARAMETERS
FOR PORT 1
STOP BITS
```

- Enter number of stop bits (standard setting: 1)
- Confirm with ENTER.

Display:

```
PORT PARAMETERS
FOR PORT 1
PARITY
0=NONE,1=ODD,2=EVEN
```

- Define parity setting (standard setting: 0)
- Confirm with ENTER.

Display:

```
PORT PARAMETERS
FOR PORT 1
HANDSHAKE
0=NONE,1=RTS,2=XON
```

- Define handshake setting (standard setting: 0)
- Confirm with ENTER.

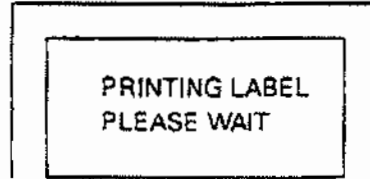
The parameters are now requested for Port 2. The procedure is the same as for Port 1.

## 6.3.2 Printing Labels

Label printing is possible only in the TOOL measurement function.

If the tool has been set and measured, by pressing the PRNT key the tool values can be output via the interface. The following display appears:

Display:



The label format is printed out according to the parameter settings.

## 6.4 Interface Description

The data outputs for Port 1 and Port 2 follow the standard:

IBM PC AT 9-pin D RS232 serial.

### Pin Allocation for Interfaces Port 1 and Port 2:

Pin 1	DCD
Pin 2	RXD
Pin 3	TXT
Pin 4	DTR
Pin 5	Grd
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS

### Parameter Factory Settings

Baud	9600
Data bits	8
Stop bits	1
Parity	none
Handshake	none

### Listing Printout Format

Preset to 66 lines of 80 characters and 4 empty lines for paper feed over perforations for continuous stationery.

### Label Printout Format

5 lines of 20 characters.

Labels are aligned on the printer used and the corresponding line feed interval set (see 6.3.1 Set Parameters).

## 6.5 Printer Setting

### Pin Allocation for Printer

Pin 1	TXD
Pin 2	RXD
Pin 3	RTS
Pin 4	CTS
Pin 5	DSR
Pin 6	Grd
Pin 7	DCD
Pin 8	DTR

Connection: 25 pole sub-D pin  
Port: serial socket

### DIP Switch Settings on EPSON LX400

1	off
2	off
3	off
4	off
5	off
6	off
7	on
8	on

Other printers must be configured according to the relevant operating instructions.

## 7 Dictionary for T 1000 control

The following are always in the respective language.

English	Deutsch	Espaniol	Francios
axis names X Z	axis names X Z	axis names X Z	axis names X Z
imperial "in"	imperial "in"	imperial "in"	imperial "in"
metric "mm"	metric "mm"	metric "mm"	metric "mm"
radius "rad"	radius "rad"	radius "rad"	radius "rad"
diameter "dia"	diameter "dia"	diameter "dia"	diameter "dia"
option set "*"	option set "*"	option set "*"	option set "*"
normal ""	normal ""	normal ""	normal ""
offset "0"	offset "0"	offset "0"	offset "0"
increment "1"	increment "1"	increment "1"	increment "1"
"RE CALIBRATE"	"RE CALIBRATE"	"CALIBRAR OTRA VEZ"	"ETALONNER"
"ANY KEY TO CONTINUE"	"WEITER MIT BEL TASTE"	"TECL PARA CONTINUAR"	"ETALONNER"
"OTHER KEY CONTINUES"	"ANDERE TASTE"	"OTRAS TECL CONTINUAM"	"AVEC UNE TOUCHE"
"PLEASE CALIBRATE"	"BITTE KALIBRIEREN"	"POR FAVOR CALIBRAR"	"ETALONNER S. V.P."
"VERSION SAFE"	"VERSION SAFE"	"VERSION SAFE"	"VERSION SAFE"
"VERSION IS"	"VERSION IS"	"VERSION IS"	"VERSION IS"
"TYPE HEADING"	"KOPFZEILE EINGEBEN"	"INTRODUZIR CABEZA"	"DEFINIR EN-TETE"
"PRESS ENTER TO"	"ZUM SPEICHER-RESET"	"PULSAR-ENTER-PARA"	"POUR RESET MEMOIRE"
"RESET MEMORY"	"ENTER DRÜCKEN"	"RESETER LA MEMORIA"	"PRESSER-ENTER"
"OR ANY OTHER KEY"	"ODER WEITER MIT"	"O OTRAS TECLAS"	"OU CONTINUER AVEC"
"TO CONTINUE"	"BELIEBIGER TASTE"	"PARA CONTINUAR"	"AUTRE TOUCHE"
"MEMORY LOCKED"	"SPEICHER GESICHERT"	"MEMORIA PROTEGIDA"	"MEMOIRE PROTEGEE"
"PLEASE ENTER RESET"	"BITTE RESET PASSWORT"	"CONFIRMAR RESET"	"ENTER MOT DE PASSE"
"PASSWORD:"	"PASSWORT:"	"PASSWORD:"	"MOT DE PASSE:"
"MEMORY BEING RESET"	"EINGEBEN"	"MEMORIA RESETADA"	
"MEMORISE ADAPTOR"	"ADAPTER SPEICHERN"	"MEMORIZAR ADAPTADOR"	"MEMORISER L'ADAPTER"
"ADAPTOR MEASUREMENT"	"MESSEN MIT ADAPTER"	"MEDIR CON ADAPTADOR"	"MESURER AVEC L'ADAPT"
"ADAPTOR NUMBER"	"ADAPTER NUMMER"	"NUMERO DE ADAPTADOR"	"DONNER NO D'ADAPT"
"ENTER ADAPTOR NO.:"	"ADAPTER NUMMER"	"TECLEAR NR ADAPTADOR"	"NO D'ADAPTEUR:"
"HIT ADPT TO CONFIRM"	"ABSCHLUSS MIT -ADPT-"	"CONCLUIR CON -ADPT-"	"CONFIRMER AVEC ADPT"
"CANNOT CALIBRATE"	"KALIBRIERFEHLER"	"ERROR DE CALIBRACION"	
"SELECTED ADAPTER"	"ADAPTER NICHT"	"ADAPTADOR ELEGIDO"	"L'ADAPTEUR N'EST PAS"
"NOT MEMORISED"	"GESPEICHERT"	"NO ESTA EN MEMORIA"	"EN MEMOIRE"
"MEMORISE TOOL"	"WERKZEUG SPEICHERN"	"MEMORIZAR HERRAM"	"MEMORISER L'OUTIL"
"TOOL MEASUREMENT"	"WERKZEUG VERMESSEN"	"MEDIDA CON HERRAM"	"MESURER L' OUTIL"
"TOOL NO: ADPT"	"WZG-NR: ADPT"	"NR HERRAM: ADPT"	"NO D'OUTIL: ADPT"
"ENTER TOOL NUMBER"	"WERKZEUG NUMMER"	"TECLEAR NR DE HERRAM"	"NO D'OUTIL:"
"ENTER-CREATES TOOL"	"ABSCHLUSS MIT -ENTER-"	"ENTER-CLEAR HERRAM"	"CONFIRMER AVEC ENTER"
"ENTER-CLEAR TOOL"	"LÖSCHEN MIT -ENTER-"	"ENTER-BORRA HERRAM"	"EFFACER AVEC ENTER"
"OUTPUT OPTIONS:"	"AUSGABE OPTIONEN:"	"OPCIONES OUTPUT"	"OFFRE D'OPTIONS"
"1. ADAPTOR LIST"	"1. ADAPTERLISTE"	"1. LISTA ADAPTADORES"	"1. LISTE D'ADAPTEURS"
"2. TOOL LIST"	"2. WERKZEUGLISTE"	"2. LISTA HERRAMIENTAS"	"2. LISTE D'OUTILS"
"3. SET PARAMETERS"	"3. SET PARAMETERS"	"3. PARAMETROS DE SET"	"3. SERIE PARAMETERS"
"SELECT:"	"EINGABE:"	"SELECCIONAR:"	"SELECTIONNER"
"FIRST ADAPTOR NO.:"	"ERSTER AD NR"	"PRIMER NR ADAPTADOR"	"PREMIER NO D'ADPT"
"LAST ADAPTOR NO.:"	"LETZTER AD NR"	"ULTIMO NR ADAPTADOR"	"DERNIER NO D'ADPT"
"PRINTING ADPT LIST"	"ADAPTERLISTE DRUCKEN"	"IMPRIMIR LISTA ADAPT"	"IMPRIMER LISTE ADPT"
"TYPE T NUMBER:"	"T-NUMMER:"	"TECLEAR CORECTOR T:"	"T-NUMERO"
"ADAPTOR"	"ADAPTER"	"ADAPTADOR"	"ADAPTEUR"
"PRINTING LABEL"	"ETIKETT DRUCKEN"	"IMPRIMIR ETIQUETA"	"IMPRIMER ETIQUETTE"
"PLEASE WAIT"	"BITTE WARTEN"	"UNMOMENTO POR FAVOR"	"ATTENDRE S.V.P."
"SELECT:"	"EINGABE:"	"SELECCIONAR:"	"SELECTIONNER"
"FIRST TOOL NUMBER:"	"ERSTE WZG: NUMMER:"	"PRIMER NR DE HERRAM:"	"PREMIER NO D'OUTIL:"
"LAST TOOL NUMBER:"	"LETZTE WZG NUMMER:"	"ULTIMO NR DE HERRAM:"	"DERNIER NO D'OUTIL:"
"PRINTING TOOL LIST"	"DRUCKE WERKZEUGLIST"	"IMPRIMIR LISTA HERRA"	"IMPRIMER LISTE OUTIL"
"PRINTER READY"	"DRUCKER BEREIT ?"	"IMPRESORA LISTA ?"	"IMPRIMANTE PRETE"
"DESCRIPTION OFF"	"ZUSATZ ZEILE"	"DESCRIPCION DE LA"	"DEFINIR LA LIGNE"
"ADDITIONALE"	"BESCHREIBUNG"	"LINE ADICIONAL"	"ADDITIONNELLE"
"PORT ALLOCATIONS"	"SCHNITTSTELLEN"	"INTERFACES"	"INTERFACES TRANSMIS"
"PC/LISTEN PORT"	"PC/LISTEN-PORT"	"PUERTA/PC LISTADOS"	"PORT POUR LISTES/PC"
"LABEL PRINTER PORT"	"ETIKETTEN DRUCKER"	"PUERTA IMPRESORA ETI"	"IMPRIMANTE ETI:"
"LABEL PARAMETERS"	"ETIKETTEN PARAMETER"	"PARAMETROS ETIQUETA"	"PARAMETERS ETIQUETTE"
"LABEL OFFSET"	"LINKER RAND SETZEN"	"COLOCAR BORDE IZQUIER"	"OFFSET ETIQUETTE"
"BLANK LINES"	"ZEILENSCHALTUNG"	"ESPACIADO VERTICCAL"	"SAUF DE LIGNE"
"T NUMBER ? (0/1)"	"T: NUMMER ? (0/1)"	"NUMERO T ?"	"T NUMERO (0/1)"
"PORT PARAMETERS"	"PORT PARAMETER"	"PARAMETROS PUERTA"	"PARAMETERS DE PORT"
"FOR PORT"	"FUER PORT"	"PARA PUERTA"	"POUR PORT"

"TOOL MEMORY IS FULL" "MEMORY LOCKED" "PLEASE UNLOCK" "OR PRESS ANY KEY"	"WZG-SPEICHER VOLL" "SPEICHER GESICHERT" "BITTE ÖFFNEN" "ODER WEITER MIT BELIEBIGER"	"MEMORIA HERRAM LENA" "MEMORIA PROTEGIDA" "POR FAVOR ABRIR O" "PULSAR CUALQUIER TECLA PARA CONTINUAR"	"MEMOIRE PROTEGEE" "OUVRIR MEMOIRE S.V.P." "OU CONTINUER" PRESSER UNE TOUCHE"
"alpha on" "alpha off"	"alpha on" "alpha aus"	"alpha on" "alpha off"	"alpha on" "alpha inactif"

## Italiano

axis names X Z imperial "in" metric "mm" radius "rad" diameter "dia" option set "+" normal offset "0" increment "I"	"O ALTRI TASTI PER" "CONTINUARE" "MEMORIA PROTETTA" "CONFERMARE RESET" "PASSWORD" "MEMORIA RESETTATA" "MEMORIZZARE ADATT" "MISURA ADATTATORE" "NUMERO ADATTATORE" "INSERIRE NR ADATT" "CONCLUDERE CON ADPT" "ERRORE CALIBRAZIONE" "ADATT SELEZIONATO" "NON IN MEMORIA" "MEMORIZZARE UTENSILE" "MISURA UTENSILE" "UTENSILE NR: ADPT" "INSERIRE NR UTENSILE" "-ENTER- CREARE UT"	"-ENTER- CANCELLA UT" "OPZIONI OUTPUT" "1. LISTA ADATTATORI" "2. LISTA UTENSILI" "3. PARAMETRI SET" "SELEZIONARE:" "PRIMO NR ADATTATORE:" "ULTIMA NR ADATTATOR" "STAMPA LISTA ADATT" "INSERIRE NR T: "ADATTATORE" "STAMPA ETICHETTA" "PREGO ATTENDERE" "SELEZIONARE:" "PRIMO N UTENSILE:" "ULTIMO N UTENSILE:" "STAMPA LISTA UT" "STAMPA PRONTA ?"	"DESCRIZIONE DELLA" "LINEA ADDIZIONALE" "LOCAZIONI PORTA" "PC/PORTA LISTATI" "PORTA STAMP ETICHET" "PARAMETRI ETICHETTE" "OFFSET ETICHETTA" "SALTO LINEE" "NUMERO T ? (0/1)" "PARAMETRI PORTA" "PER PORTA" "MEMORIA UT SATURA" "MEMORIA PROTETTA" "PREGO SBLOCCARE" "PREMERE UN TASTO PER CONTINUARE" "alpha on" "alpha off"
---	--	---	---

The following is always in "ENGLISH"

"NVRAM CHECKSUM WRONG"  
"BAUD RATE"  
"DATA BITS"  
"STOP BITS"  
"PARITY"  
"HANDSHAKE"  
"0=NONE, 1=ODD, 2=EVEN"  
"0=NONE, 1=RTS, 2=XON"  
"AXIS: ACR INVALID"  
"ACR OFF - ADI ACR ON"  
"ANY KEY FOR ACR OFF"  
"ACR ON - ADI ACR OFF"  
"ANY KEY FOR ACR ON"  
"ADI ERROR:ESC=NO ADI"  
"OTHER KEY TO RETRY"  
"BYTES OK"  
"TIMED OUT - ANY KEY"  
"WAITING FOR TX SPACE"  
"PRESS ESC TO EXIT"  
"PORT OUT OF RANGE"  
"ERROR"  
"CONTACT KOMEQ"  
"ERROR DETAILS"

## 8. Service Notes

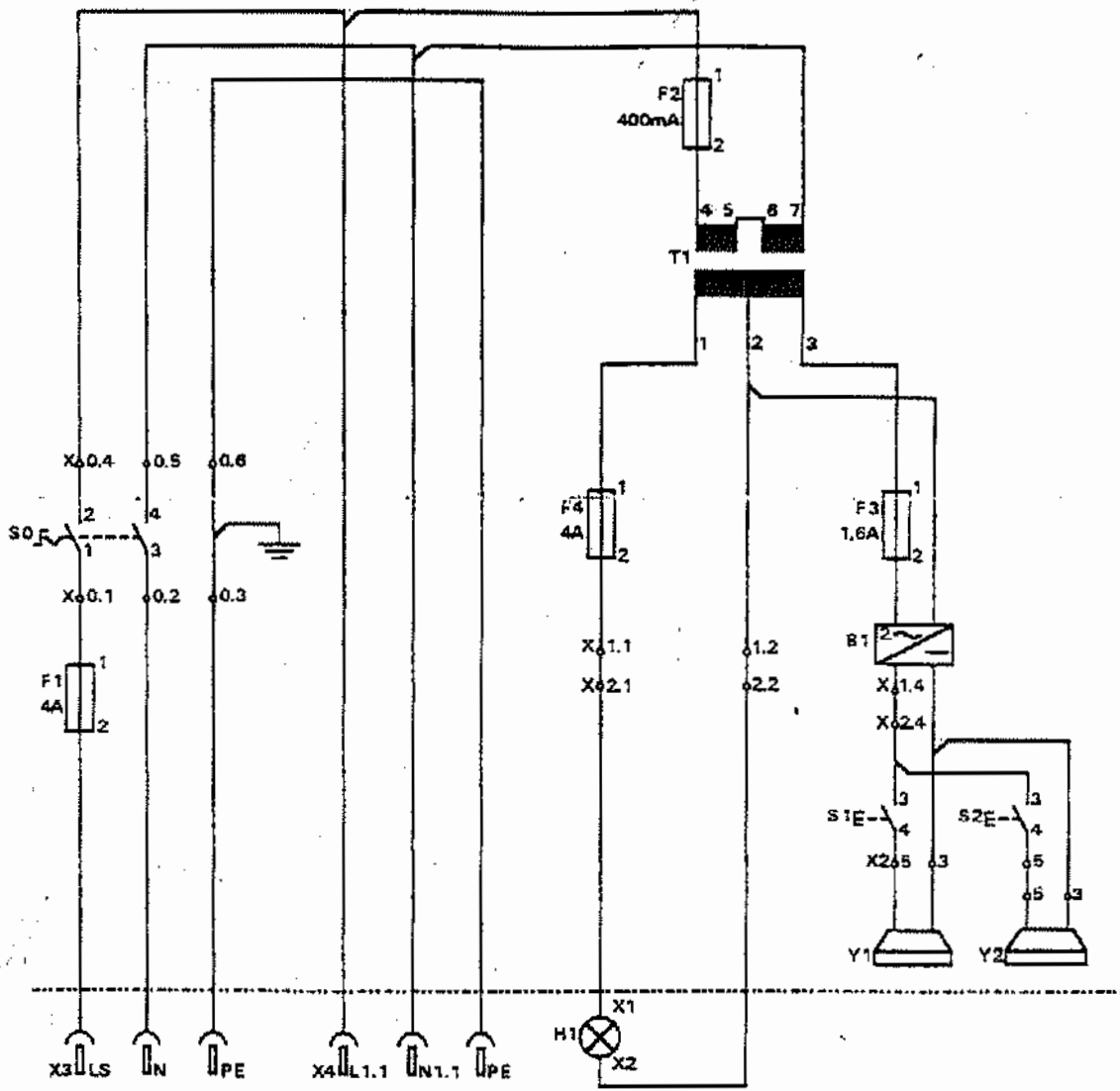
### 8.1 Maintenance Plan

Interval	Action	Equipment
Daily	Clean columns of GWS system, then oil lightly.	Petroleum Ether Spindle oil.
Daily	Clean green filter glass of light source.	Window cleaner, do not use oily cleaners.
Daily	Clean focusing screen of profile projector.	Window cleaner, do not use oily cleaners or solvents.
Weekly	Clean GWS presetter generally.	Do not use compressed air.
Monthly	Clean guide systems and oil lightly.	Spindle oil Do not use grease.

### 8.2 Faults/Causes/Repair

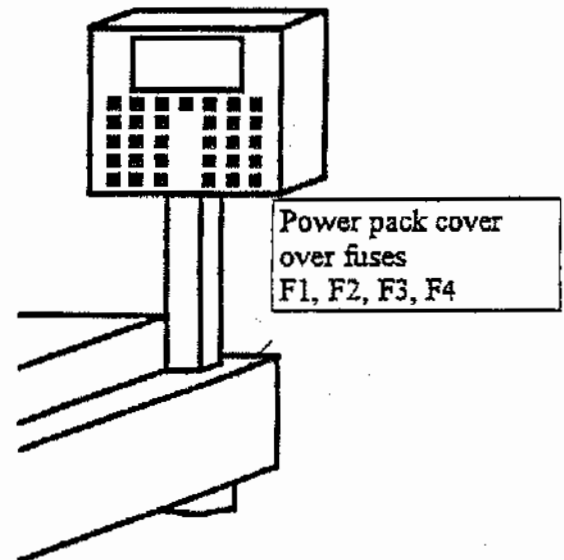
Fault	Cause	Repair
Measurement axes cannot be calibrated.	Connection between measurement standard and control broken.	Connections and lines faulty.
T1000 display does not light.	Fuse F1 faulty or fuse T1000 faulty.	See Chapter 8.3 or Chapter 4.3.
Halogen bulb does not light.	Bulb faulty or fuse F4 faulty.	See Chapter 8.4 or Chapter 8.3.
Axes cannot be released.	Fuse F3 faulty.	See Chapter 8.3.

### 8.3 Wiring Diagram



#### Components

B1	24 V power pack
F1	Fine-wire fuse 5x20 mm 4A
F2	Fine-wire fuse 5x20 mm 400mA
F3	Fine-wire fuse 5x20 mm 1.6A
F4	Fine-wire fuse 5x20 mm 4A
H1	Halogen bulb 12V/20W
S0	Main switch
S1	Release key Z axis
S2	Release key X axis
T1	Transformer 110/220V prim. -> 12/24V sec.
X3	Cold machine plug / power
X4	Cold machine plug / T1000 control
Y1	Magnet Z axis
Y2	Magnet X axis



## 8.6 Parts List

Indent No.	Description
VTH 320 - 000	GWS - Tool setter
VTH 320 - 510	
VTH 320 - 520	Collar
VTH 320 - 530	Linear bearing segment
VTH 320 - 540	Fine adjustment handwheel
VTH 320 - 550	Concertina guard cross axis
VTH 320 - 560	Concertina guard Longitudinal axis
VTH 320 - 570	Light source
VTH 320 - 580	Condensor
VTH 320 - 590	Lamp holder
VTH 320 - 600	Halogen lamp 12V / 20W
VTH 320 - 610	Skirt
VTH 320 - 620	Green Filter
VTH 320 - 630	Profil projector
VTH 320 - 640	Projector screen
VTH 320 - 650	Anti - glare screen
VTH 320 - 660	Dial gauge
VTH 320 - 670	
VTH 320 - 680	Control panel
VTH 320 - 690	Main column
VTH 320 - 700	Main switch
VTH 320 - 710	Transformer 220v / 240v - 12V
VTH 320 - 720	Axis clamp magnetic
VTH 320 - 730	Measuring scale longitudinal
VTH 320 - 740	Measuring scale cross axis
VTH 320 - 750	Measuring Microscope (optional)

## 8.4 Changing the Bulb

Note: Only use halogen bulbs 12V/20W.

- Switch off power.
  - Raise light source cover after removing fixing screws.
  - Release holder screw (1) for bulb holder.
  - Withdraw bulb holder (7) forwards towards the tool holder.
  - Allow bulb to cool to avoid risk of burns. Remove faulty bulb.
  - Place new bulb in screw cap (5).
- Take care not to touch bulb with fingers as the grease residue will burn into the bulb glass.
- Replace bulb holder.
  - Move bulb holder axially until the light falls centrally onto the projector light inlet. Set helix parallel to light emission plane.
  - Tighten holder screw (1).

### Adjust Light Intensity

- Release holder screw (3).
- Move condenser (2) up or down until the correct illumination is achieved.
- Tighten holder screw.

## 8.5 Changing Green Filter Glass

- Unscrew knurled holder on top of condenser (2).
- Replace green filter glass with matt surface downwards.
- Screw knurled holder back into place.

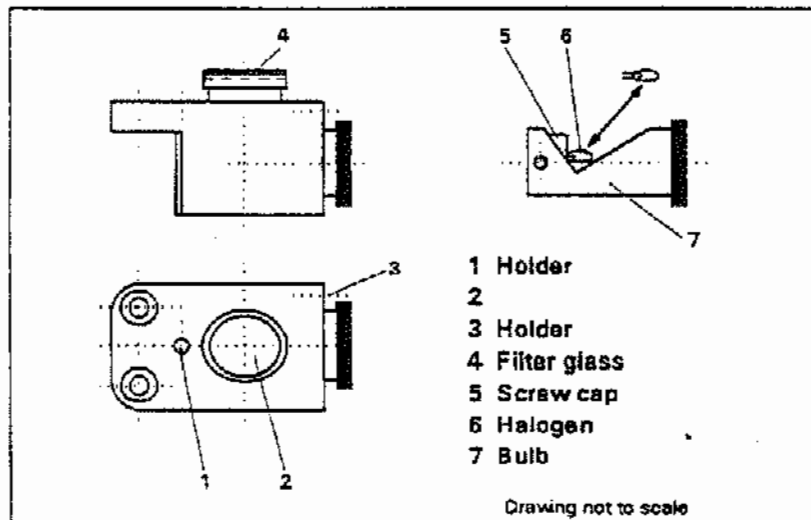


Fig. 14: Changing bulb and green filter

## 9 Microscope Measurement Device (Option)

### 9.1 General Notes

The microscope measuring device (see Fig. 15) has an optical precision measuring instrument. The absolute zero position of the centre line can be set optically, i.e. without contact, using the GWS Calibration Piece; this is useful for example with polycrystalline cutting tools. The microscope measuring device can also measure cutting tools. The height is measured via a "digital measuring screw" so that measurement data can be transferred to a computer for processing via an RS 232C interface.

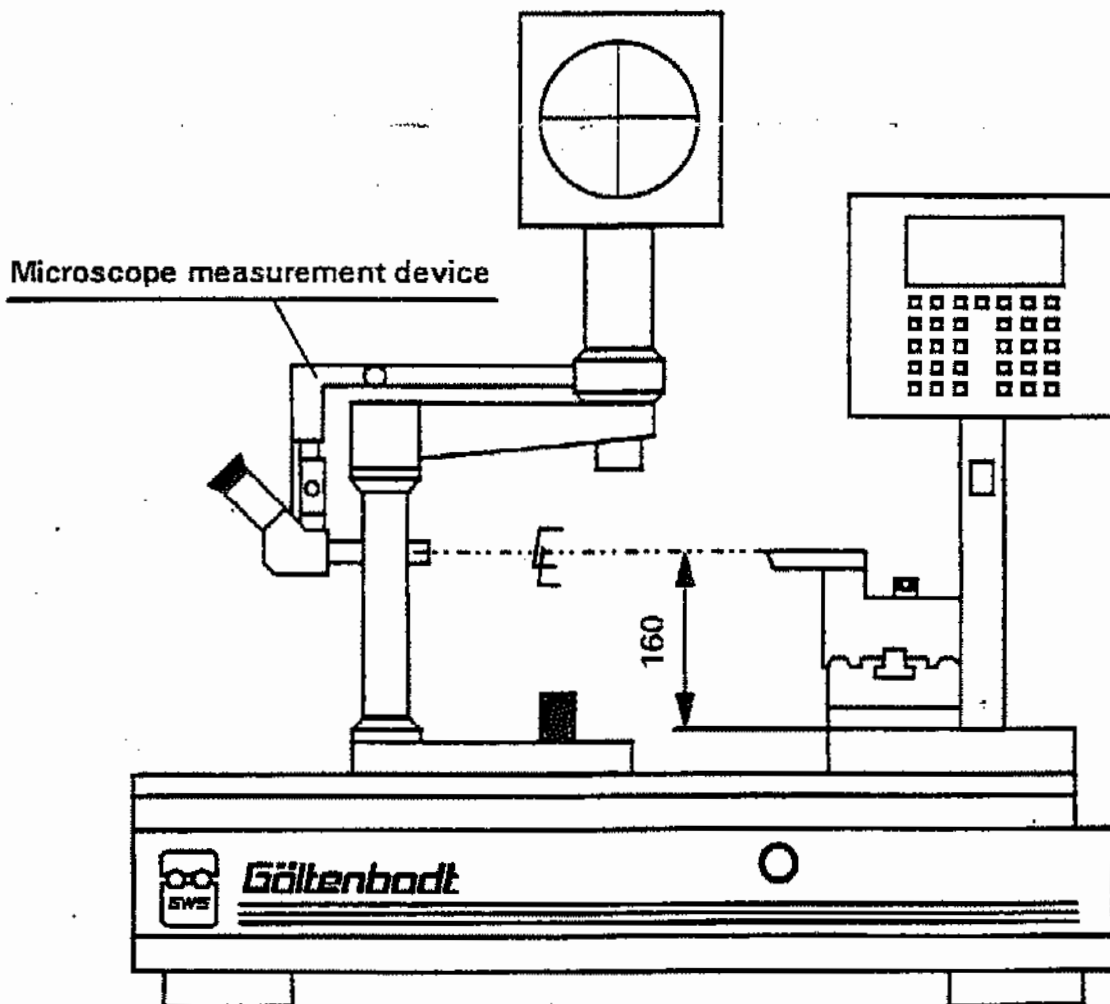


Fig. 15: Microscope measurement device for GWS presetter (option)

## 9.2 Technical Description

Microscope measurement device complete with:

- centering microscope 20x magnification
- MA 110-2 compound table
- micrometre spindles
- digital measurement unit Y axis ead, accuracy: 0.001 mm

Micrometer spindle measurement range:

- vertical: 20 mm
- horizontal: 20 mm

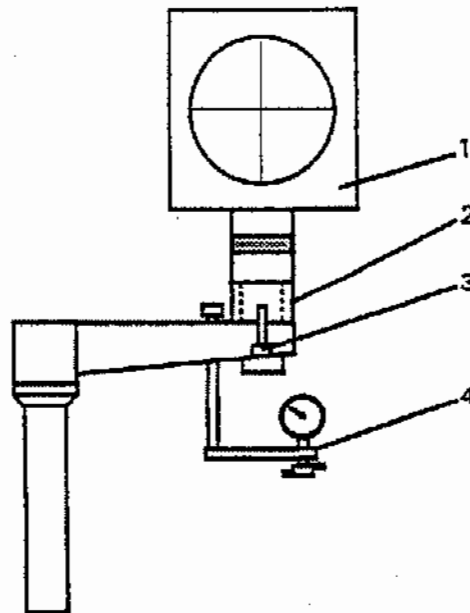
Handling:

- swivels through 90°, locks into end position automatically
- tilts through 45° for swivel function, locks into end position automatically.

## 9.3 Fitting Instructions

Before the microscope measuring device can be fitted, the projector (1), spacer sleeve (2) and measuring unit (4) must be removed by releasing screw (3).

The spacer sleeve and measuring unit are not used. They should be stored in a suitable place.



Fit and adjust the microscope measuring device as described below (Fig. 16).

Place the microscope measuring device (1) in position and tighten screws (2) such that the microscope measuring device can still be adjusted. By moving the microscope shaft (4), set the axis parallelism of the microscope measuring device to the X and Z axes of the GWS VTH 320-000 presetter to  $\pm 0.02$  mm using a dial gauge with magnet support (3), and fix by tightening the screws (2).

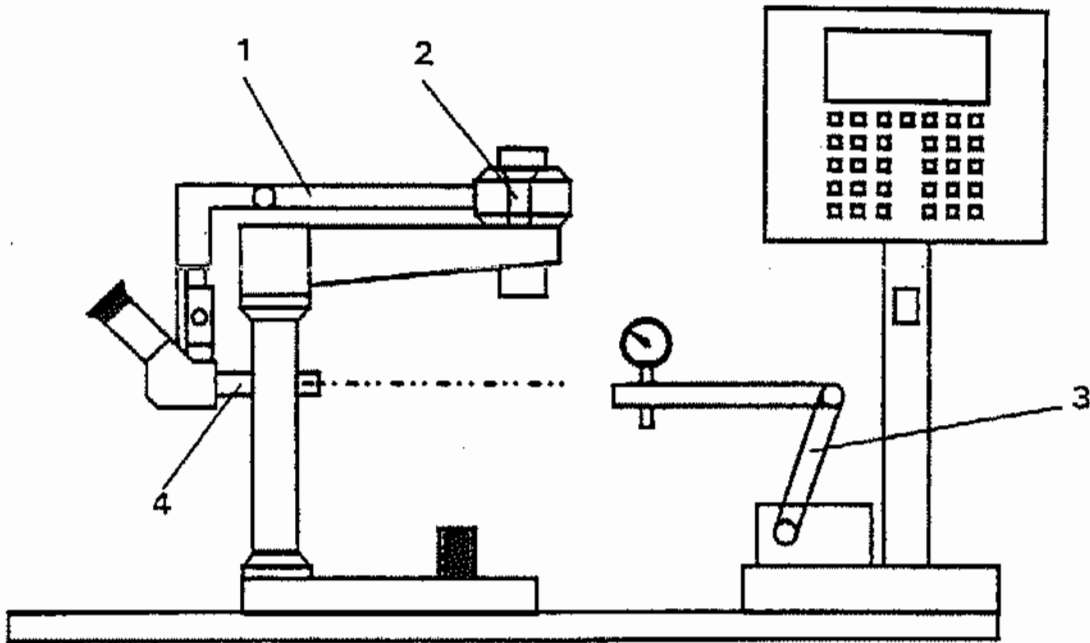


Fig. 16: Fitting the microscope measuring device

Fit and adjust the projector as described below.

Place the projector (1) in position and tighten the 3 screws (2) such that the projector can still be adjusted.

Using the light slit principle (see page 7), set the axis parallelism of the projector to the X and Z axes of the GWS VTH 320-000 presetter using the GWS Calibration Piece (3) and its coordinates (see page 13), and fix by tightening the screws (2).

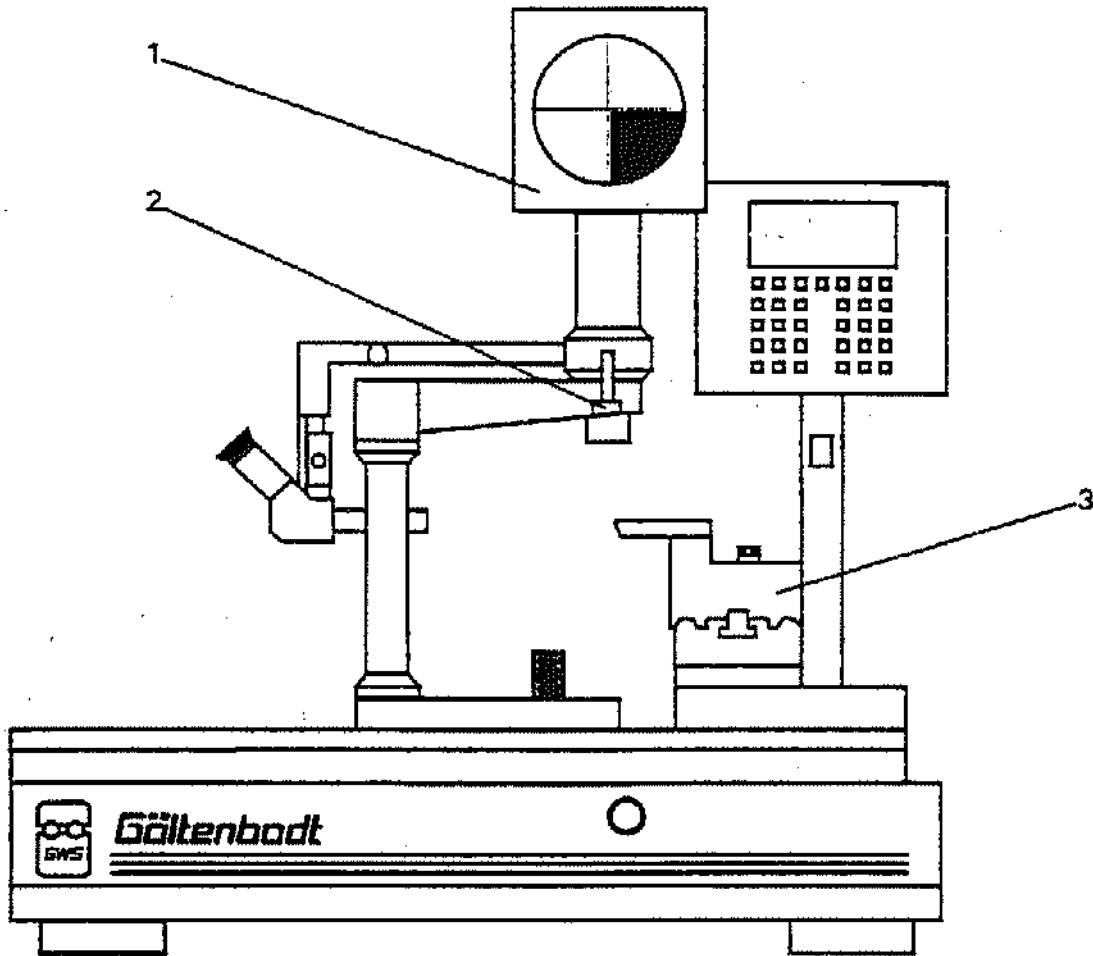


Fig. 17: Adjusting the profile projector

## 9.4 Function of Microscope Measuring Device

In order to work with the microscope measuring device, the following adjustments must be made (Fig. 18).

- Place Calibration Piece on base adapter.
- Sharpen image in microscope. To do this, turn the focus (1) to the centre position, release screw (2) and move microscope shaft (3) until the image is sharp.
- Align cross hairs in the microscope horizontally to the GWS Calibration Piece.
- Fix these two settings using screw (2).

The vertical cross hair lines of the projector and microscope measuring device must also be aligned. This is done by turning the adjustment spindle (6).

The microscope measuring device is zeroed to the lathe centre using the digital measuring screw (7). The horizontal crosshair line is moved to cover the horizontal edge of the GWS Calibration Piece (5) using the cutting edge screening principle.

The microscope measuring device can be swivelled through 90° in the measurement plane parallel to the X or Z axis.

Fold up the microscope (8), swivel and move to its working position.

