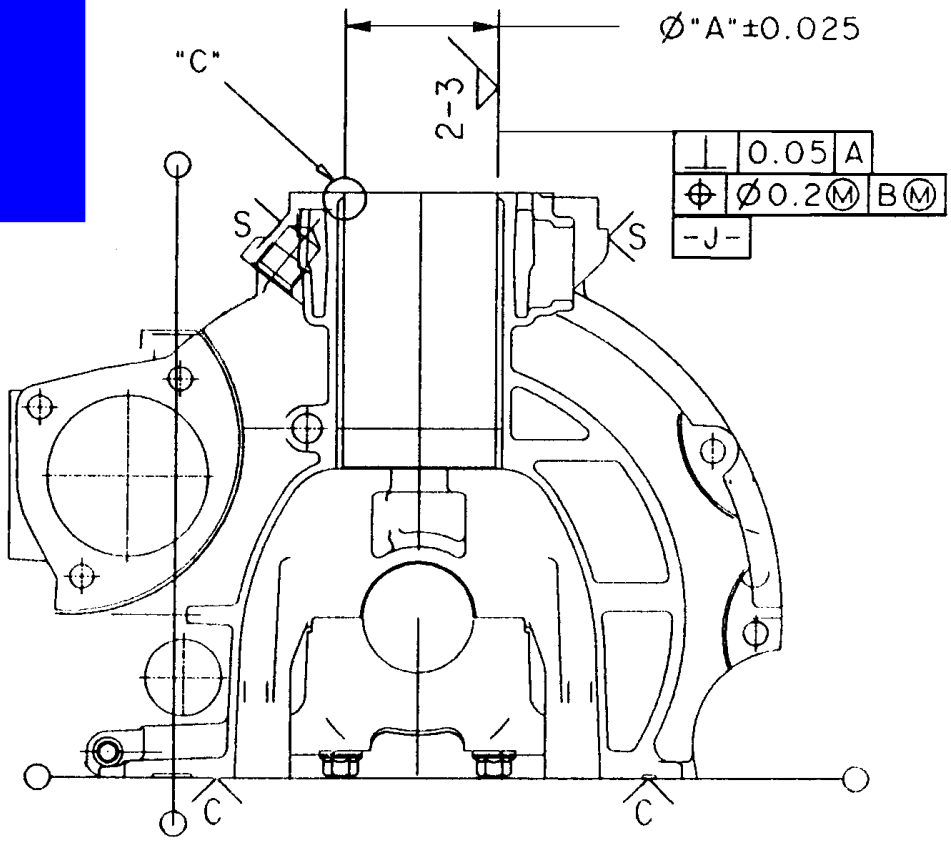
UMESS

for machine operators



Operating Instructions

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Preface

These operating instructions describe the function and operation of the **UMESS for machine operators** measuring program.

It is here assumed that the user is familiar with the coordinate measuring machine and the **UMESS** basic software. Please keep all printed materials delivered with the measuring machine ready to hand at all times.

Principles in this operating manual

Before starting to work with this manual, the user has to familiarize himself with the applied principles.

In the following, you will find information on the used font types, signs and symbols.

Typographic principles

The font types and font schemes used in this manual have the following meaning:

- **bold face**
  - Dialog element on the screen
    Example: "... the button **<TERMIN>**"
  - Term
    Example: "During calculation the location of a **measuring element** in relation to a **reference element** is determined."
  - File and directory names
    Example: **/home/zeiss/...**
- *italic*
  - Highlighted text of which the contents are very important
    Example: "*Starting the shutdown of the operating system*"
- **`Courier bold face`**
  Text in dialog windows and records

Signs and symbols

Special signs and symbols are used in this manual.

Symbols for warnings and information

Danger!
In this case, special care is called for. The warning triangle indicates risk of injury. Non-observance of this warning may cause personal injury.

Note!
This symbol warns against situations which may lead to loss of data, measuring errors, errors in the measuring run, collisions or damage to the machine and workpiece.

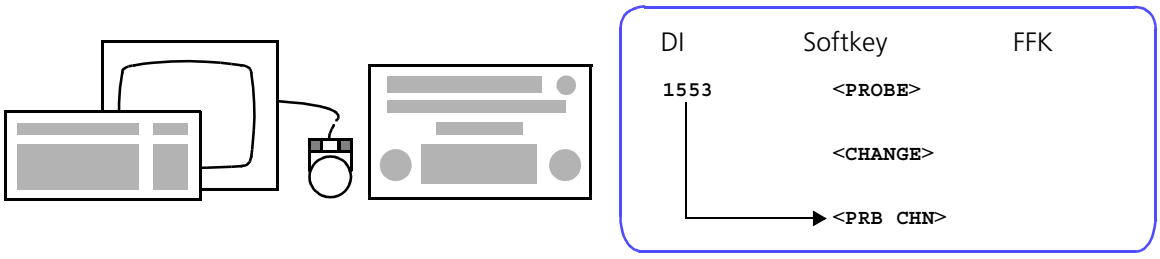
The **Note** symbol is shown next to important text and helpful additional information.

Symbol for function call

There are several possibilities:

- Direct input by means of the DI number
- Selection of function by way of a softkey

Example:



Symbol for softkey

Reference to softkeys in dialogs.

Overview of chapters

This manual describes the function, operation and application possibilities of the UMESS for machine operators program.

The following subjects are described:

Table of contents

Chapter 5 Shutting down the entire system

Chapter 1

General

This manual is intended for personnel working on coordinate measuring machines. It is limited to instructions which are required for the execution of prepared measuring runs (i.e. for starting CNC programs). The operator's work is based on the test instructions which must contain the following information:

- No. of the workpiece to be measured
- No. of the intended probe combination
- No. of the W-position stored in the computer (control coordinate system)
  (Control-coordinate system)
- No. of the fixture
- Position of the fixture on the measuring machine (clamping plan)
- Position of the workpiece on the fixture
- Information for determining the 1st W-position

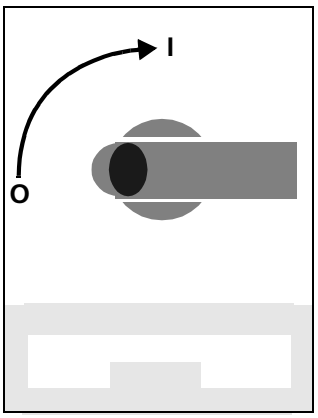
Chapter 2

Starting up the entire system

Switching on the main switch

First check whether all EMERGENCY STOP switches are released. Then switch on the main switch:

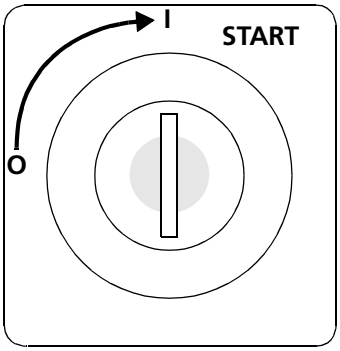
Rotate the main switch to the right to position I



- The **MAINS** pilot lamps illuminate
- The machine cabinet with the computer units is now ready for operation

Switching on the control and drives

Rotate the key-operated switch to the right to position I



- Control pilot lamps illuminate. In the monitoring display field +24 V, +15 V, -15 V, +5 V illuminate.
- Rotate the key-operated switch further and hold in the **START** position for approx. 2 secs until the air bearings are activated.
- The **DRIVES** pilot lamps and all the pilot lights for the voltage monitoring illuminate

The measuring programs are then loaded automatically (takes approx. 40 secs.).

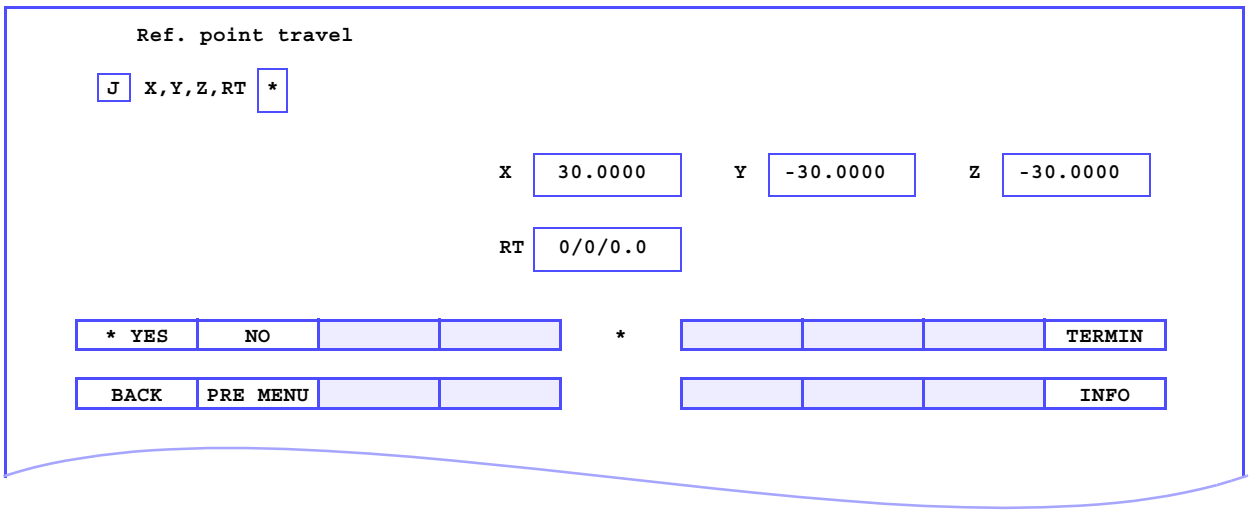
Switching on the computer, screen and printer

UMESS is started automatically up to the

Reference point travel input mask.

CAUTION! Danger of crushing!
Before the reference point travel, position the probe head so that the machine zero point subsequently travelled to (rear, left upper corner) can be reached without a collision being caused.
Workpieces clamped on the rotary table must not cause a collision.

Input mask



Conclude with **<TERMIN>** without changes.

Chapter 3

Preparing the measuring mode

Dieses Kapitel beinhaltet:

Place the fixture on the measuring machine as per test instructions and secure.

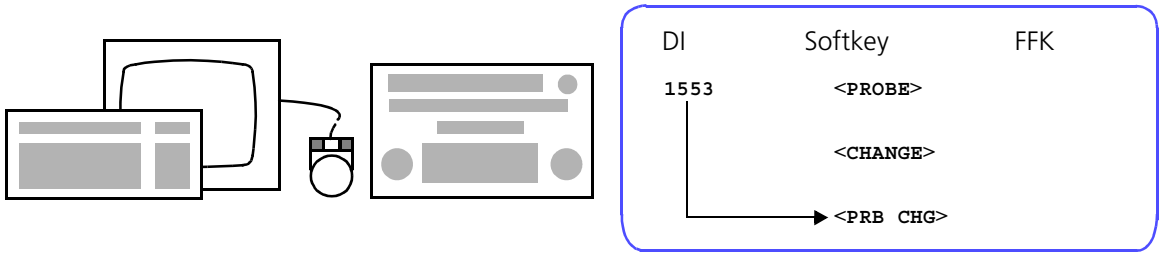
Remove or insert probe configurations on the measuring machine

At the start of the measurement, the applicable probe configurations must be available on the measuring machine. Proceed as follows to remove probe configurations no longer needed and to insert new probe configurations:

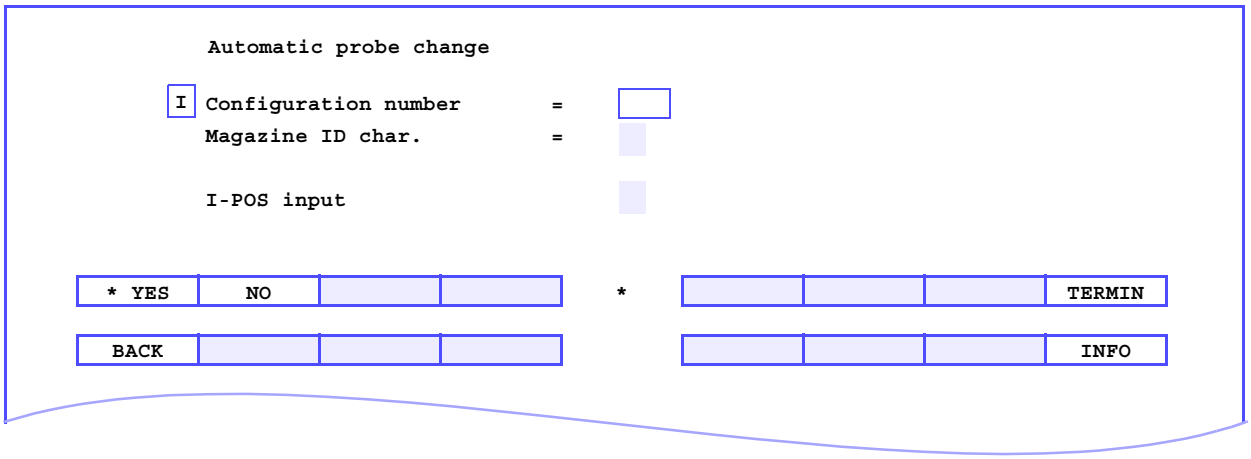
Fetch probe configuration with probe head from magazine

Probe configurations should only be removed from the probe rack or placed in the probe rack by the probe head.

Function call



Input mask



Input fields

Configuration number

For orientation, the number of the configuration is entered which is in the probe head before the change. (If there is no configuration in the probe head, the field is empty. If the number of the configuration in the probe head is unknown, you are requested to insert this again manually). Enter the number of the configuration which is to be in the probe head after the change.

- Data already stored under this configuration number is read into the computer. A renewed calibration after the probe change is not necessary.
- With subsequent probe determination, data determined is stored under this configuration number on the hard disk.

If you enter the configuration number and press **<REPEAT>**, the storage position allocated to the configuration number is displayed or vice versa if the field to be filled in is empty. In this way you can easily check the assignment.

Magazine ID char.

If there is already an assignment between storage position and configuration and this does not change, you do not need to enter anything. If the assignment does not exist or changes, specify the letter of the magazine position in which the desired configuration is positioned.

I-POS input

Normally you enter **<NO>**.

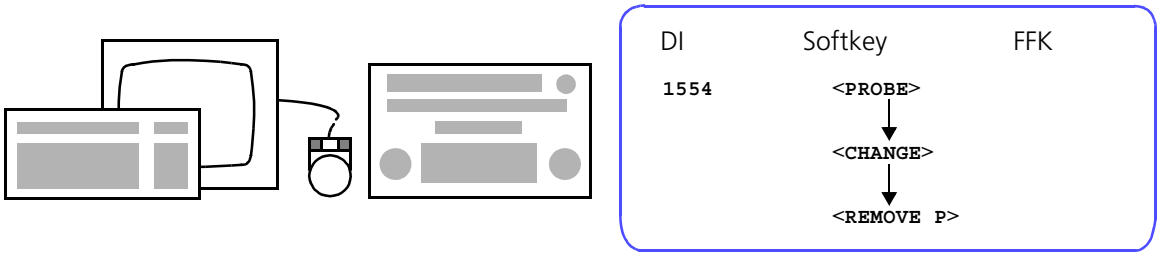
<YES>
The input mask for additional intermediate positions is called.

To avoid confusion, all probes used should be marked (e.g. with sticky labels).

Removing the probe configuration manually at the probe head

By calling this function the configuration inserted in the probe head can be taken out by hand.

Function call



Dialog for measuring probe head

```
Config. will be dropped in ... seconds
```
(1)

(1) ... seconds after calling **<TERMIN>**, the holding magnet is no longer effective. The probe can now be removed by slightly pulling.

CAUTION!
The probe may drop out of the mount on its own after the waiting time (... seconds).
Therefore in this case the probe must be positioned above the probe rack or taken out by hand.

Dialog for trigger probe head

```
Release configuration
```
(1)

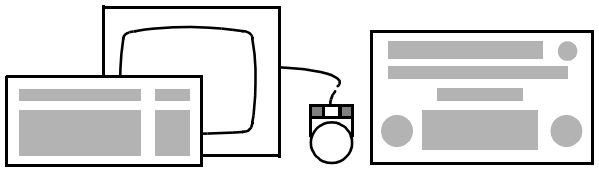
(1) The configuration is released when the probe is deflected.

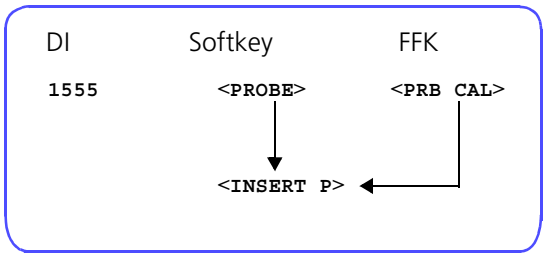
Place the fixture on the measuring machine as per test instructions and secure.

Inserting the probe configuration manually in the probe head

With this function a new probe can be inserted in the probe head. At the same time the applicable configuration can be read.

Function call





Dialog

```
Probe configuration number  (0-none) =                    (1)

INSERT CONFIGURATION                                      (2)

PROBE NOT INSERTED IN TIME PRESET                         (3)
```

Explanation of the dialog

(1) Here the number must be entered under which the calibration data of the probe to be inserted is stored on the Winchester or is to be stored. A maximum of 9999 configurations is possible.

– Data which is already stored under this configuration number is read into the computer; a new calibration after a probe change is therefore not necessary.

NOTE

The probe geometry changes as a result of hand heat. We therefore recommend you wear leather gloves when changing the probe manually.

– With subsequent calibration the data determined is stored under this configuration number on the Winchester.

Recommendation:
To avoid confusion, all probes used should be marked with the configuration number (e.g. with sticky labels).

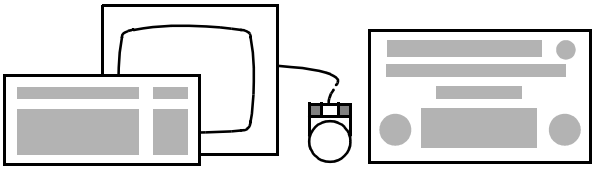
(2) The effect of the electro magnet in the probe head is cancelled for approx. 20 seconds in order to be able to insert the probe. When the probe is inserted the holding magnet takes effect again. An acoustic signal gives the time interval during which insertion of the probe is possible.

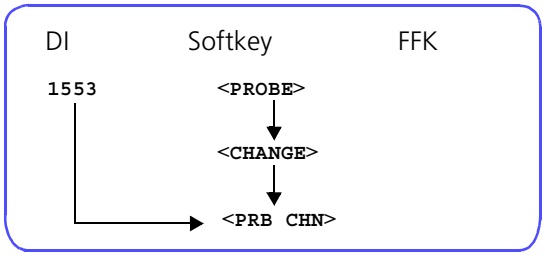
(3) Message only appears if the probe is not inserted within 6 seconds or if the probe has not engaged. In this case check probe head and probe for dirt and recall the program.

Place the fixture on the measuring machine as per test instructions and secure.

Storing the probe configuration with probe head in the rack

Function call





Input mask

```
Automatic probe change: Input of the target configuration

        Configuration number          =   3
        Magazine ID char.             =

        I-POS input

| * YES | NO |  |  |   *   | STORE |  | REPEAT | TERMIN |
| BACK |  |  |  |       |  |  |  | INFO |
```

Softkeys

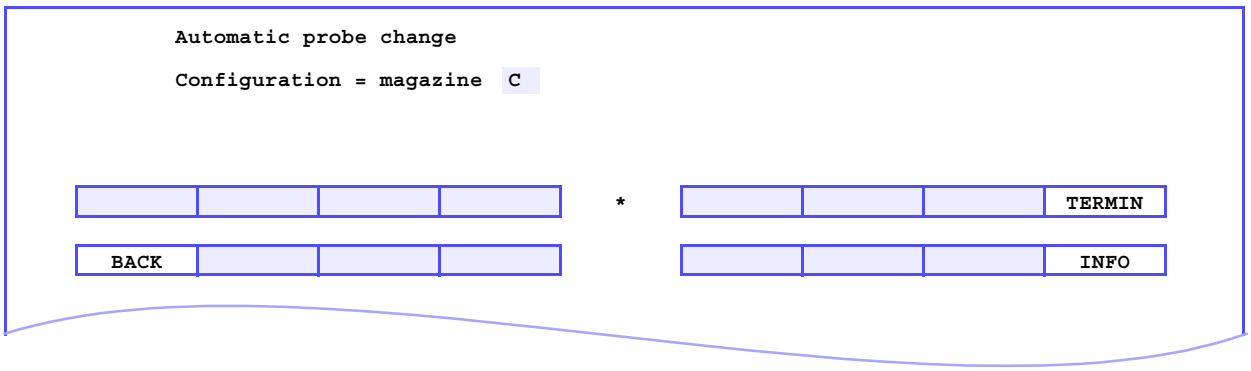
STORE

If there is no assignment between configuration and storage position, e.g. because the probe has been inserted manually, an input mask appears and demands a destination.

REPEAT

Display of the missing entry if only **Configuration number** or **Magazine ID char.** has been specified.

Input mask



Input fields

see above

Determining the W-position on the fixture

This step is only required if the fixture cannot be secured on the table of the coordinate measuring machine exactly according to the specifications in the test instructions or has to be fixed in a position other than the one originally intended. Make sure in any case that the orientation of the fixture is kept to.

The operating steps for determining the W-position can be found in the test instructions.

Chapter 4

Measuring

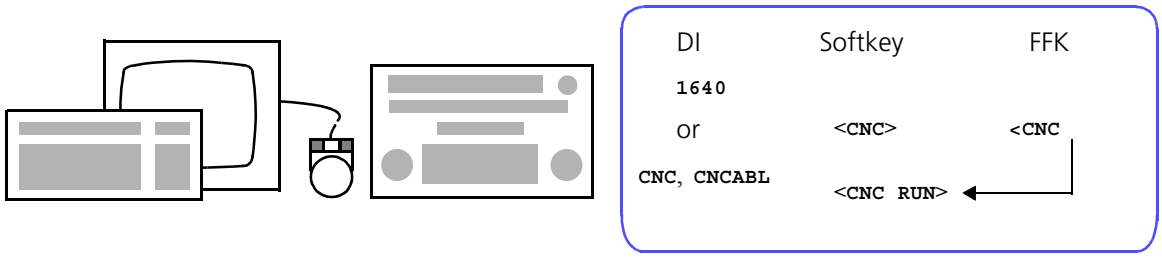
Insert the workpiece in the fixture as per test instructions

(workpiece must be clean and burr-free)

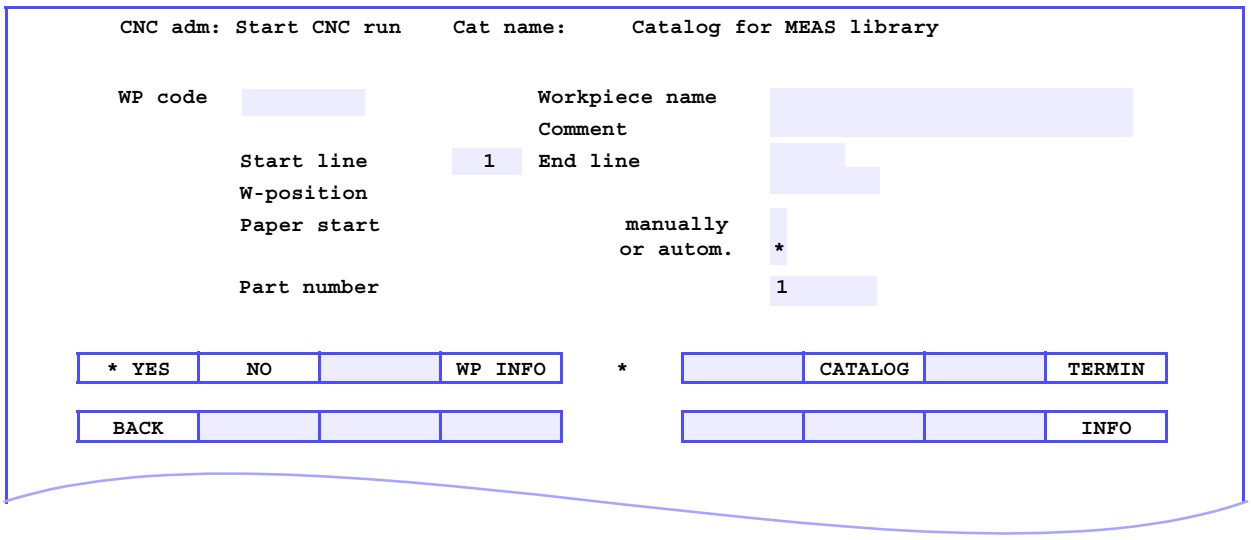
If specified in the test instructions, attach workpiece temperature sensor.

Start the measuring run in normal mode

Function call



Input mask



Softkeys

*** YES**

NO

Acceptance/refusal of highlighted **YES/NO** field.

WP INFO

Information on the current workpiece is displayed.

CATALOG

Display of the workpieces in the current catalog.

TERMIN

To conclude the input mask, accept data and start the measuring program.

BACK

Cancel

INFO

Further information.

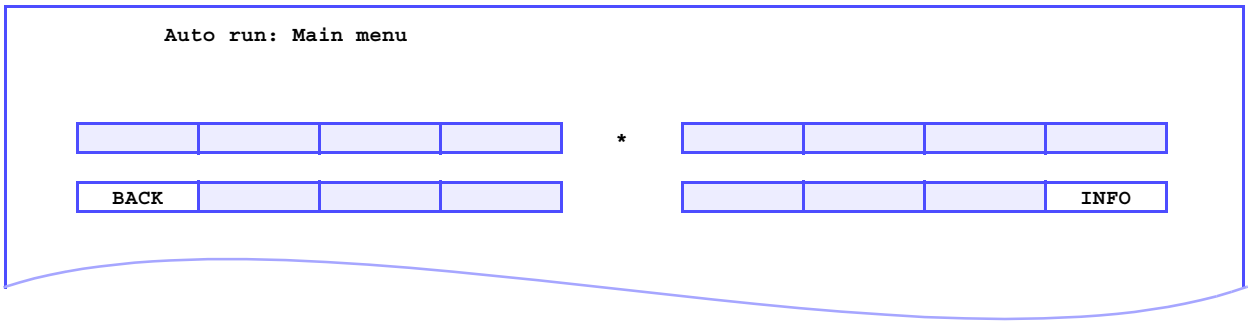
Input fields

WP code	Code of the CNC run
Workpiece name	Name of the CNC run
Comment	If there is a comment for this workpiece, this is displayed automatically.
Start line / End line	**Start line** is normally line 1. This input option enables any position in the program to be jumped to. If program parts are jumped which create measurement results, the following conditions must be fulfilled: – Start the CNC run with the W-position valid at the position started. – The workpiece coordinate system valid at the position started must be determined. – The address counter must be set to the next record address. – All measuring results required for a recall must be available. – In the following measuring run, any **Fixed plane** or **PRB MODE** required must be specified. – The probe must be in an initial position which enables collision-free travel to the first intermediate position. – The probe combination must be selected correctly. The program can be ended anywhere with **End line**.
W-position	Enter the number of the required W-position
Start paper manually or autom.	Select whether the paper is to be started automatically or manually.
Part number	Input of the part number.

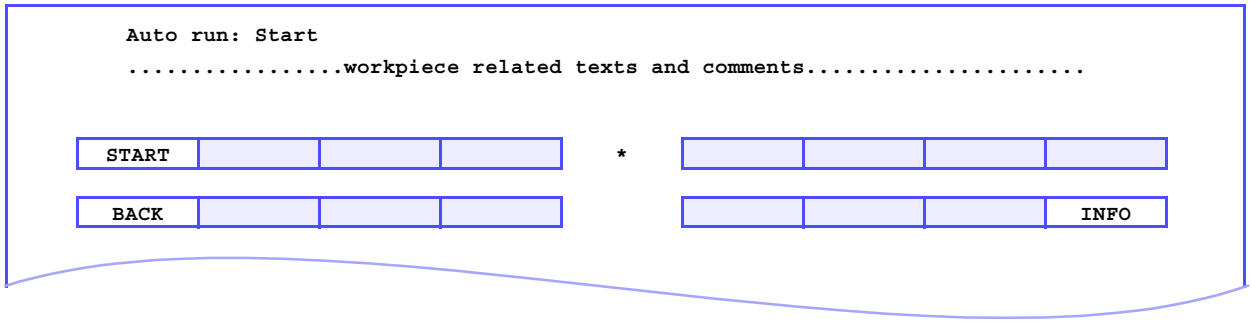
Starting the measuring run in one button mode

In this mode, the softkeys to be called at the start of a measuring run must be taken from the measuring plan.

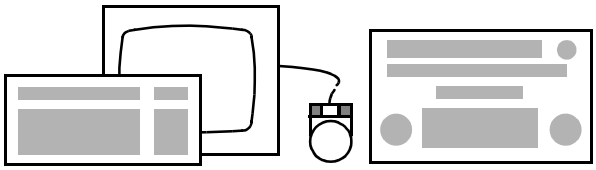
The **Auto run: Main menu** appears automatically if the one button mode is activated.



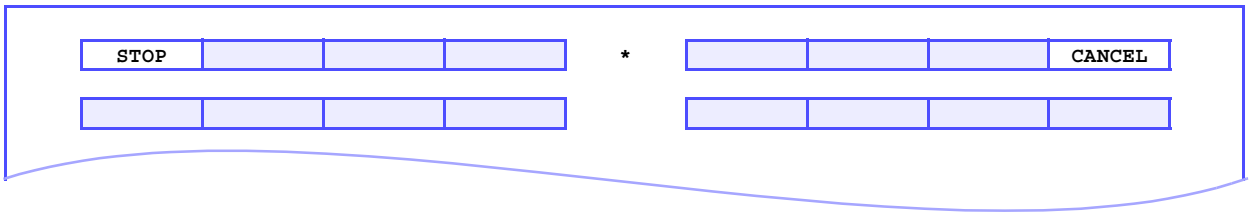
The main menu shows the softkeys which can be called with the available measuring programs (**<.....>**) and the softkeys (**<*....>**) for branching to further softkey levels. After preselecting the measuring program, the measuring run must be started using the **<START>** key.



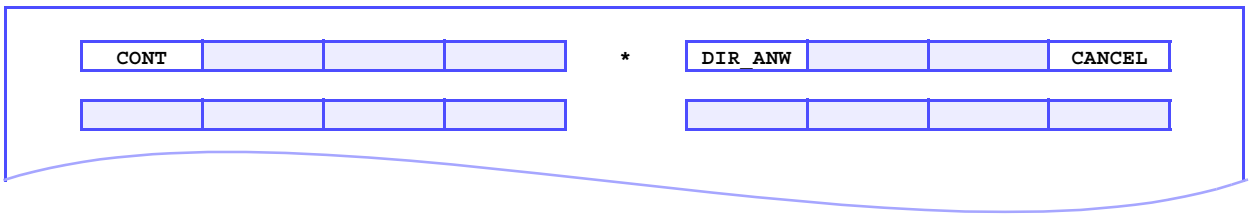
Stopping the measuring run



DI	Softkey
	<STOP>

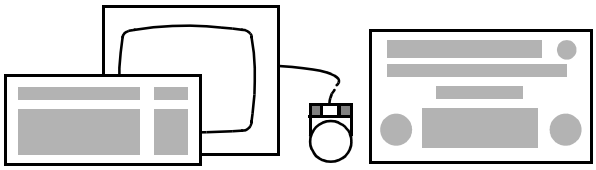


The softkey assignment changes after calling **<STOP>**:



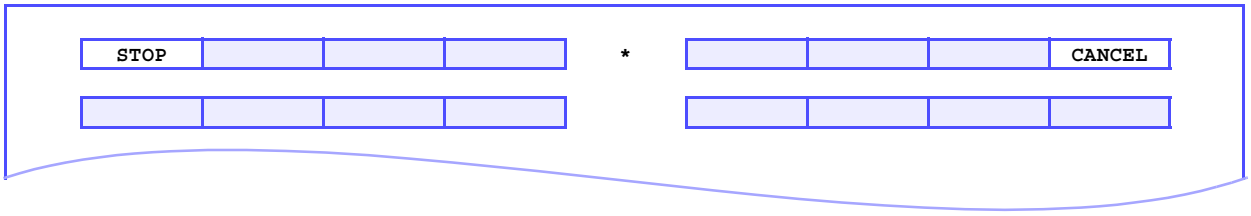
The CNC measuring run can be continued by pressing the **<CONT>** key.

Cancelling the measuring run



DI Softkey

<CANCEL>



Chapter 5

Shutting down the entire system

Ending UMESS and starting the shutdown (end) of the operating system

Normal mode	One button mode
End UMESS by calling **<DI 1003>** or **END** **Starting the shutdown of the operating system** – Move the cursor to the blue area of the screen and press the left mouse button. – In the Root menu which appearsmove the cursor to the **System Shutdown** field and release. – Move the cursor to the **System Shutdown** mask which appears and press **<Return>**.	**Ending UMESS and starting the shutdown of the operating system** **Auto-Run: Main menu** Call **<BACK>** to change to the menu: **Switch off one button operation** Call **<SYS END>** to end UMESS and start the **shutdown** of the operating system.

Switching off the computer, screen and printer

if **Halted, you may now cycle power** is displayed at the lower edge of the screen.

Switching off the measuring machine

– Switch off the drives using the EMERGENCY STOP button, then release the EMERGENCY STOP button.

– Switch off the main switch.

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