TLP-P340B-E

TOOL PRESRTTER(PROJECTOR TYPE)
OPERATION MANUAL

INSIZE

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MN-TLP-P340B-E

V1

Attention

◆ This machine does not have an explosion-proof structure, do not use in the environment of combustible gases.

◆ Turn off the power when not in use for a long time.

During thunderstorms, unplug the power cord if possible.

◆ Do not open the housing or plug or unplug the scale until the power is turned off.

◆ Do not place any objects on the power cord, and the power cord should be arranged in such a way that it does not obstruct the movement of people or the operation of the machine.

Structural

1. projection screen
2. 20X lens
3. illumination
4. BT50 spindle
5. spindle rotation hand wheel
6. air fiotation button
7. Z-axis fine adjustment knob
8. X-axis fine adjustment knob
9. foot-switch

Working principle

This instrument uses optical projection measurements. The tool is placed in the taper hole of the spindle and magnified into a positive image on the projection screen by the optical system, we use the crosshairs of the projection screen to aim at the edge of the tool image to measure, at the same time, the X-axis and Z-axis scales (located in the internal instrument) will be converted into digital signals for the measured displacement to the digital display meter, the digital display meter and then the tool signals are processed and displayed in order to complete the measurement work.
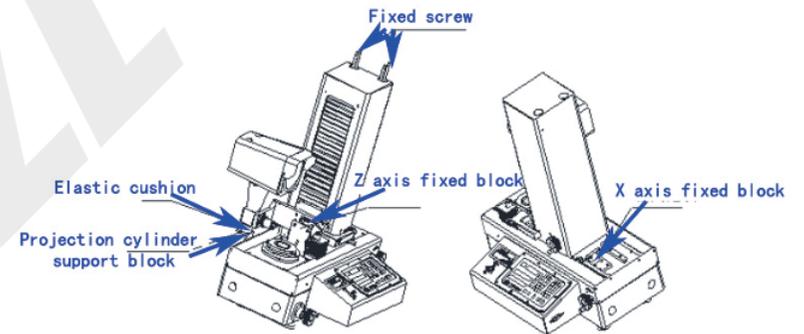
Instrument opening and adjustment

1) Remove the instrument outer packing and Install the joint bottom foot: The outer packing includes a wooden case cover and a chassis group. Remove the chassis group by removing only four bolts that lock the bottom of the marble base. Lift the whole instrument with a lifting device (the weight of the instrument is about 160kg) and mount the 4 pcs joint bottom foot to the bottom of the marble base. The following figure shows.
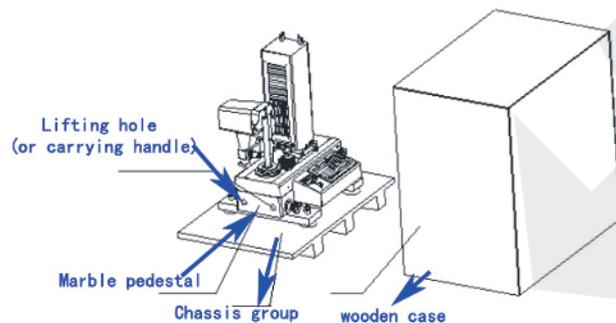
2) Place the instrument on the table (user-provided): Since the weight of the instrument is about 160kg, the table should have enough bearing capacity.

3) Dismantle the inner packaging of the instrument: the inner packaging parts are rust red (except elastic pads, rubber gaskets and screws), including X-axis fixing blocks, Z-axis fixing blocks, projector support plates, elastic pads, counterweight fixing screws, and rubber gaskets.(The line cover plate and the round hole cover are individually packed in the packaging bag.)

4) Place the leveler on the shafting and adjust the foot of the instrument joint with a wrench so that the marble base of the instrument is parallel to the water level. The following figure (If there isn't have leveler, Please to rotate the X-hand wheel back and forth to see whether the transmission power is equal, general- ly to the high side of the motion transmission force is relatively large, reduce the side of the two joint foots or raise the other side of the two joint foot until the transmission power back and forth consistent.)

Spirit level
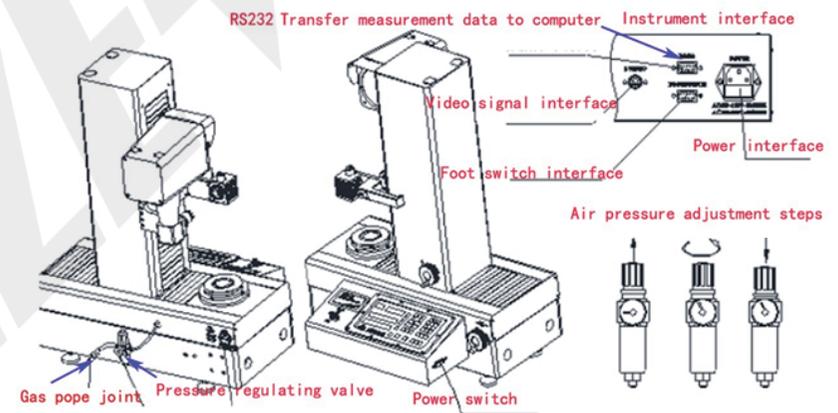
Joint bottom foot
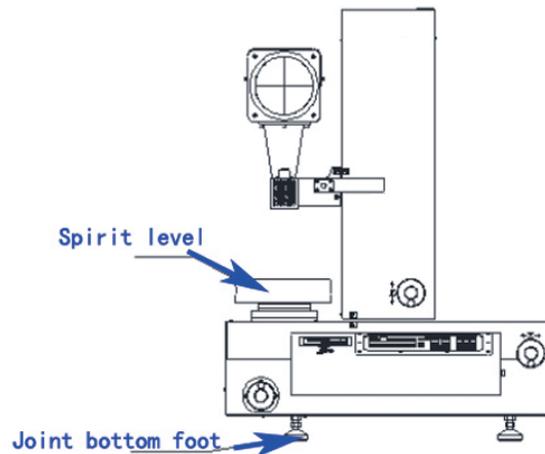
5) Turn on the power supply and the gas source, the power supply voltage frequency is 50/60HZ, the voltage value can be switched between 110V and 220V, intake pipe φ8mm, the air supply pressure is 0.6MPa.

6) Start-up check the instrument: check whether the digital display meter and light source are energized, move the quick-pulling handle to see if the X, Z grating ruler can find the normal zero point and check whether the quick-pulling is smooth, rotate the X-axis and Z-axis fine-tuning handwheel to see if there is a stuck phenomenon in the whole range of motion, put a standard bar to check whether the zero-rule value is normal. Comparing with the value engraved on the calibration rod, the deviation of diameter value is within ±4μm, and the deviation of height is within ±10μm. Otherwise, the zero gauge should be reset）, and the instrument will be adjusted.

Operating steps

When the instrument is put to the table, please follow these steps.
1). Switch on the instrument power supply and air supply: intake pipe φ8mm (when intake pipe is directly inserted into the connector, if you want to pull out the pipe, you must press the head of the connector to pull out), pressure regulator valve to 0.6 MPa, Then turn on the power switch, as shown below.

RS232 Transfer measurement data to computer   Instrument interface

Video signal interface

Foot switch interface

Power interface

Air pressure adjustment steps

Gas pope joint   Pressure regulating valve   Power switch

Air pressure adjustment steps:
Step 1. Pull up the pressure knob upward.
Step2. Rotary knob regulating air pressure.
Step3. Adjust the pressure up 0.6Mpa and press the button down.

2). Find the RI point of the XZ two-axis grating ruler: you must find the RI point every time you turn on the instrument The digital display table prompts you to "move to the near of the X-RI point". Press the ENTER key on the digital display table, the digital display table prompts you to "looking for the X-axis RI point". Grasp the quick handle and hold the button on the handle at the same time, pull the X axis, so that the X axis zero mark alignment until the digital display table prompts "RI to" can be, X-RI point found after the digital display table prompted " move to the near of the Z-RI point ", and then press the "ENTER" button on the digital display table prompted "looking for Z-axis RI point." Pull the Z-axis with the above method, so that Z-axis zero mark alignment, to this XZ two-axis RI. When the point is found, press the ABS/INC key on the digital display table to switch to the ABS absolute coordinate state.
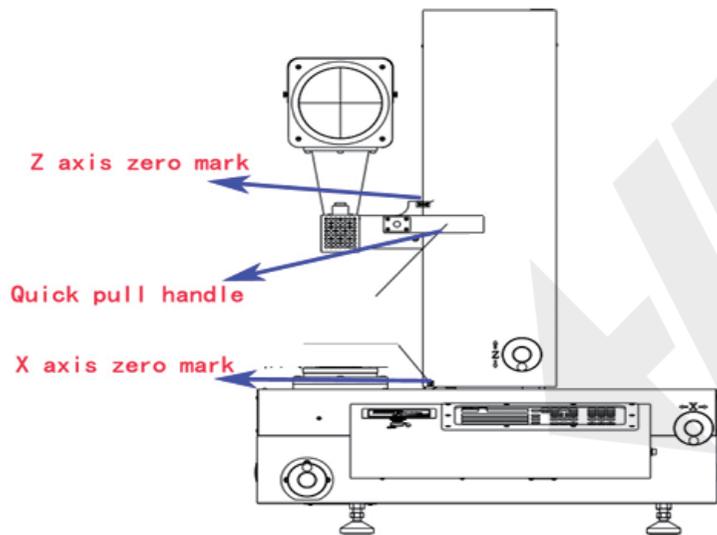
3). Wipe the tool taper handle and spindle taper hole completely with clean gauze (no slight stain or gauze fiber residue), and then put the tool into the spindle taper hole.

4). Target the blade roughly: Hold the handle fast and hold the button on the handle at the same time. Pull the XZ axis at the same time. When the image of the blade to be measured appears on the projection screen, release the handle and button at the same time.
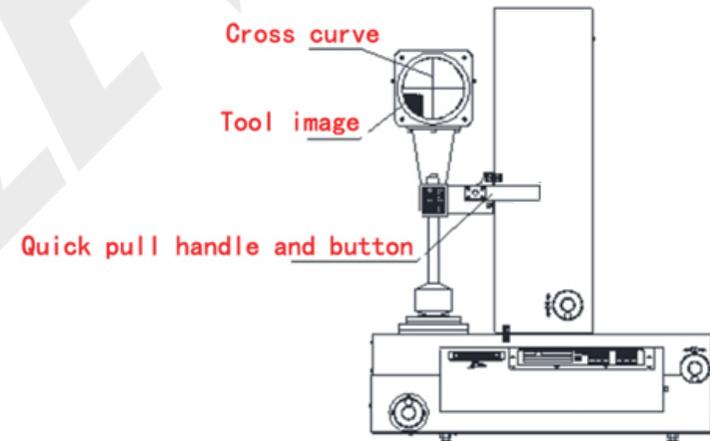
5). Accurate Aiming at the Knife Edge: Adjust the outline light knob to make the illumination of the projection screen suitable, rotate the spindle to rotate the handwheel to make the image of the knife edge clearest, then rotate the X-axis and Z-axis to fine-tune the right edge and the top edge of the knife edge respectively. At this time, the X-axis number on the digital display table shows the diameter of the knife. The radius of the Z axis shows that the tool height is as follows.

Cross curve

Tool image

Z axis fine adjustment handwheel

X axis fine adjustment handwheel

Spindle rotating handwheel

Contour light button
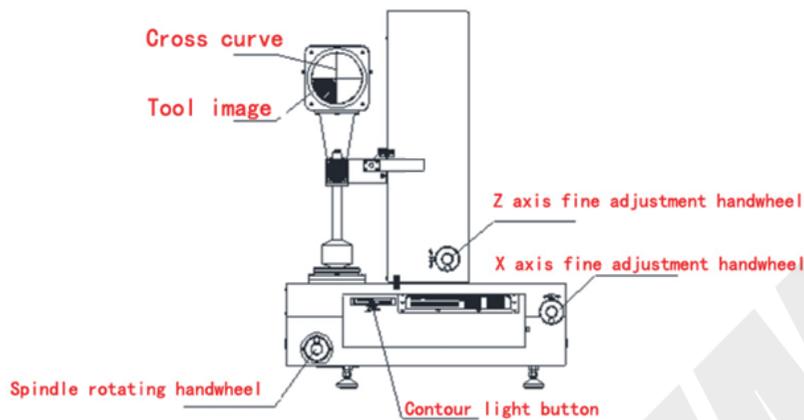
Here are the instructions for the digital readout.

General introduction

TLP-P340B tool presetter is a tool for measuring tool. Digital display is an essential instrument for testing tools. This chapter briefly introduces the functional characteristics and related concepts of the digital display part of the presetter. We refer to the digital display part of the knife adjuster as the digital display table for short.

| Current Position | 50# | RAD | ABS | mm | 11:30 |

01
X   100.5680
Y   200.5550
Q   00.00
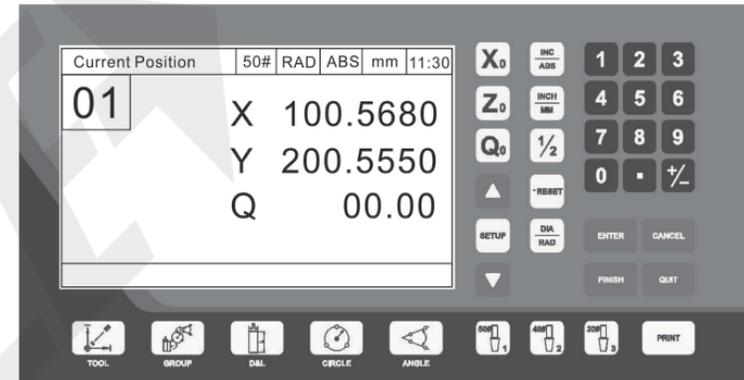
Functional characteristics

1. Easy to operate, easy to learn and easy to use.
2. Powerful function.
Glossary
Spindle:
Different types of tool presetters use different spindles. Only by selecting suitable spindle coordinate can measuring results be accurate. Spindle coordinate is preset by manufacturer, and it's not necessary to reset while using.

Select No. 1 spindle coordinate

Select No. 2 spindle coordinate

Select No. 3 spindle coordinate

ABS (absolute) Coordinate
Datum coordinate system. Under this coordinate system, zero clearing, 1/2, number input, are not available.

INC (incremental) Coordinate
Coordinate system used for display measuring. By switching from ABS to INC, it will exit zero gaugecoordinate display state.

Positioning mode
Collecting sampling points, via human eye, from the center of crosshair of the projector screen, is called positioning mode.

Measuring tool
Collect sampling points via positioning mode, and related parameters of tool are calculated by the system.

Normal display status
When TLP-P340B is in non measurement, preset or system parameter settings, it is called normal display state.
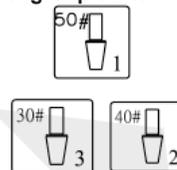
Axis compensation
In the course of motion, linear scale is not in linear motion but in curvilinear motion instead, so indication value in this axis will be deviated, and making up for this deviation is called axis compensation. There are two types of axis compensation: a) Linear compensation, that is, it is considered that the deviation is the same across the entire axis, and the same value is compensated for each equivalent is called linear compensation. b) Segment compensation, that is, the deviation on the whole axis is not the same, after the axis is divided into several segments, for each segment it is considered to be linear, so the linear compensation is applied for each segment, this compensation method is called segment linear compensation.

Tool parameters:
Tool parameters are: the radial value and length of the tool (D/L); the tool center coordinates (X/Z) and radius of the circle (R); the tool edge angle vertex coordinates (X/Z). And the size of the angle (A). If the tool parameters are measured under the current cutter number, press the MORE key to display the tool parameters in turn. If the previous (or next) ool number of the current tool number has a tool parameter, press ↑ or ↓ add (or subtract) the tool number and display the tool parameters, if there are other parameters under the tool number, press MORE to see other information. If there is no tool parameter under the tool number that appears by pressing ↑ or ↓ key, the LCD and the digital tube are in normal display state.

Key description

Tool group switching key, or tool type selection key.
Switch tool group keys. Each group can store 99 tool parameters (serial number from 1 to 99). Switch to a tool set and select zero gauge coordinates. The corresponding three indicators indicate the current tool set. When measuring or display tool parameters, the current tool set is determined by the indicator light.
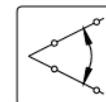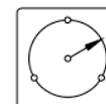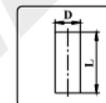
Tool measuring key
key to enter and recall tool parameters. Tool number entered is the current tool number. If number is entered after switching tool group, then this tool number is the new number for tool group. If measuring results are available in corresponding tool number, it is the parameters for this tool number. Measure all parameters, including radial direction value, length, radius, coordinate of circle center, angle, etc.

Measure the radial value and length of the tool.

Measure the center coordinates of the cutter and the radius of the circle.

Measure the angle and the vertex of the tool.

Mode selection key:

INC/ABS — Absolute / relative coordinate switching.

INCH/MM — INCH/MM switch. Unit switches between INCH and MM.

DIA/RAD — Diameter/Radius switch. This state is only available for X value

Functional keys:

SETUP SETUP: Enters the settings system parameters.

PRESET PRESET: Preset the position of the number axis.

PRINT PRINT: Printing tool parameters.

Check tools and their parameter keys:

UP: Tool number plus 1, set the original display tool number to 02, then press this key to display the tool number is 03, and if there is data corresponding to the tool number, display these parameters.

DOWN: Is contrary to the operation of the UP key, and the tool number is reduced by one. If the corresponding tool number is measured, the parameter value of the cutter is displayed.

Number axis clear or Medium key

X_0 Z_0 Q_0 Clear values on X, Z, Q axes. Zero set on X and Z axes can only be performed under INC. Zero set on Q axis can be performed under INC or ABS.
Axis centering. It can only be performed under ABS, and it's not applicable for Q axis under no circumstances

½

Numeric key: Numeric keys for data entry
Command key:Command keys are used to enter sample points, complete data entry, cancel or delete the last data entry, or exit the current activity and return to normal display.

ENTER **Determine the key:** when the tool is measured, input the sample point, press this key, the current coordinate position is received by the system as the basis for calculating the parameters when measuring the tool.

FINISH **Finish key:** Complete the tool measurement while measuring, and return the display to the normal state when displaying the tool parameters. It is also used to end system parameter settings and return to normal display status.

CANCEL **Cancel key:** Delete the last sampling point while measuring, or cancel the last key number when inputting data with the digital key, or delete the currently displayed tool parameter value when displaying the tool parameters, if there are no other tool parameters in the current tool group, then return to the normal display state.

QUIT **QUIT key:** skip the current task and return to the normal display state. It is also used to exit the system parameter setting or to end the tool parameter display back to the normal display state.

Operation

This chapter demonstrates the operation of TLP-P340B, through this chapter, the operator can quickly grasp the use of TLP-P340B tool measurement.
Measure the radial value and length of a tool.
Example 1: measure the radial value and length of a cutter.
Step 1.
Choose the right tool type and install the tool. If you do not perform this procedure, use the current tool type.
Note: there are three models for cutting tool types, and the following three keys are used.

50# 1   40# 2   30# 3

The three LED lights above the three keys indicate the corresponding tool type respectively. Selecting tool type does not affect the tool number of the second step input.
Measuring tool parameters must be carried out under the ABS (absolute) coordinate system.

Step 2.

Press [icon] Displays input tool number. Enter a tool number (tool number 1-

-99), for example, input number 1. Then press [ENTER] ,The input tool number is

displayed in the tool number display window. This step can be omitted if the default tool number is used.

Step 3.

Press [icon] LCD shows"Measuring radial values of tool....."

Step 4.

Moving grating rulers make tools like the left picture. Its coordinates are shown in figure. Then press [ENTER]

    3420 ⊠
    6329 ☑
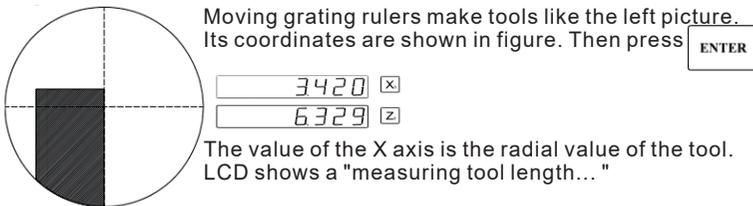
The value of the X axis is the radial value of the tool. LCD shows a "measuring tool length… "

Step 5.

Moving grating rulers make tools like the left picture. Then press [ENTER]
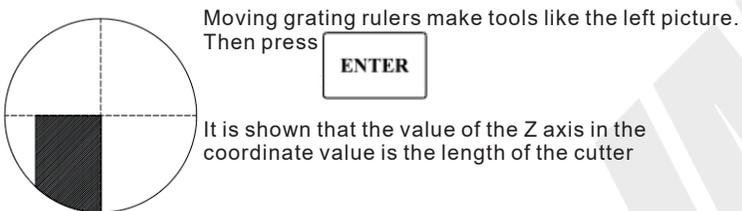
It is shown that the value of the Z axis in the coordinate value is the length of the cutter

The final measuring value is shown as the figure below

Tool Parameter	50#	RAD	ABS	mm	11:30

01

Tool 's Diameter And Length:
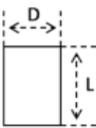
D=100.5805   L=245.6250

D ← →

↕ L

Measuring the angle of a tool:
Example 2: measure the angle of a 40# cutter. (Suppose the current tool type is 50#, the display window of the tool number is 16, and the angle measurement is two-line angle measurement.)
Step 1.
Change tool type. Press [icon 40#/2] The indicator light above this key

indicates that the currently selected tool set is the second set, and the tool number is still No. 16. It represents sixteenth cutters in the second set. (if the tool type is not changed, this step can be omitted).

Step 2.

21 Press [icon] enter the tool number, such as input 21,

Press [ENTER] ool number display window display 21

(like left picture), if the use of existing tool number, this step can be omitted.

Step 3.

Press [icon] for angle measuring, LCD will show "Measure Line 1 for

angle" and "00 points collected", in sequence, which means the current measuring is the first line that forms the angle and the number of sampling points it collects.

Step 4.

Move the grating ruler to the projection screen cross center point alignment target. Press [ENTER] sampling points.
Take two points on the horizontal line (like left picture) ,Press [FINISH] to end sampling point.
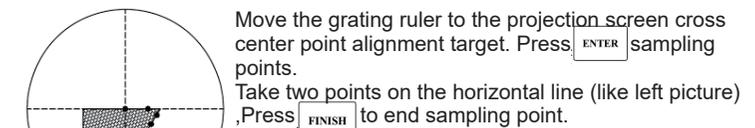
Be careful:
1. Measuring a straight line requires at least two sample points, but in order to describe a straight line more accurately, more samples should be collected (such as three or more, the system can only be up to 30).
2. Measuring a circle requires at least three sample points. In order to make the measurement more accurate, the number of sample points collected must be greater than 3. The system can only take up to 30 sample points to calculate the data of a circle.

Step 5
After finishing Step 4, LCD window indicates "Measure Line 2 for the angle", followed by "00 points collected", measure Line 2 according to Step 4. After that results will be shown immediately as below.

Tool Parameter	40#	RAD	ABS	mm	11:30

21

Tool 's Point of Angle And Angle Size:

X=100.5805   Z=245.6250

A=80.00   A1=100.00

Be careful: If the encoder angle is measured (selected in SETUP), it won't be so troublesome. But the angle of the encoder can't get the vertex of the angle Coordinates. The step 1 and step 2 are the same

Step 3.
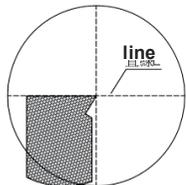
Move the grating ruler so that the center of the cross of the projection screen aligns with the vertex of the tool angle, and the line L on the projection screen aligns with a variable edge of the tool angle, (like left picture)
Then press **Q₀** clear the value of angle.

line

Step 4.
Move projection screen to ensure Line L aligns with the other side of tool's angle, shown as the left figure. Then press **ENTER** to indicate angle value.

Measuring value is shown on LCD as below.

Tool Parameter	40#	RAD	ABS	mm	11:30

21

Tool 's Angle Size:

A=80.00
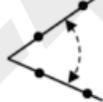
Due to visual error from operator, there's deviation on angle obtained by encoder and two-line measuring angle.

Preset circle center coordinate and radius for the tool:

Preset tool parameters by Kepad PRESET, namely **PRESET** . We'll elaborate circle center coordinate and radius below.

Step 1.
First switch tool is the same as tool measurement, enter a tool number. For example, enter 45.
Step 2.
Press PRESET Key, the LCD window displays "preset axis or preset tool...".

Step 3.
Press ⊙ Key, the LCD window displays "R: 0.000000", indicating the

radius of waiting for you to enter the circle. Set the input value 2.35, that is, the radius of the circle is 2.35mm, and press the ENTER key to determine.

Step 4.
The LCD then displays "X: 0.000000" that is, the X valueof the center coordinate of the input circle, such as - 4.983, is determined by ENTER after the input, followed by the Z value of the center coordinate of the input circle, which is 3.925. Press ENTER Key to complete the preset of the circle. Parameters preset is shown as figure below.

Tool Parameter	40#	RAD	ABS	mm	11:30

45

Tool 's Circle Center And Radius:

X=-4.9830   Z=3.9250

R=2.3500

Be careful:
If the first step is not executed, the default tool number is used. If the corresponding circle parameter of the tool already exists, the LCD display window displays "Is the tool replaced with existing data (Yes/No)?" after the Z coordinate of the center of the circle is finally entered. Ask if you want to replace the original data, press the ENTER key to replace the original data, and press the CANCEL key to replace it. The result of no substitution is that the preceding preset operation is invalid. For the preset case, the only difference to the measuring tool is that it is not replaced by another tool.

Printing tool parameters
Step 1
Press PRINT Key, LCD display window shows "print single tool information?" In accordance with ENTER The key is determined, followed by the print "single tool capital". Material, "please input the tool number", "tool number: 47".
Step 2
The tool number is the default value. You must enter a tool number and the tool data exists. For example, enter tool number 45. After confirmation, the system will The tool information will be displayed.
Step 3
Press ENTER starts printing. When the data is printed, the current date and operation number are printed.
Note: If the displayed tool number is not displayed in the data, it indicates that the tool has no parameters, the printing work will end and return to the normal display state.
1. Printed dates and operator numbers are manually entered, which is described in the next chapter, Parameter Settings.
2. When the current system presses the CANCEL key when displaying the tool parameters, the current measured tool parameters will be deleted. This needs special attention.

3. When printing all the parameters of the cutter, the indicator lights above the switch keys of the three cutter models will turn on in turn. That is to say, first print all the tool parameters of the first set of cutters, followed by the second group and the last third groups. After completion, it is reduced to select the tool type before printing the tool.
4. The number of cutters printed is slightly different from the number of cutters displayed. For example, the number of cutters printed is 12 for the first type of cutter.
Straight: Tool:1-12. Among them, 1 represents the first type of cutting tool; 12 indicates the cutter number under the first model. For example, second types of knives.
The display number is 10, and the number of printed tools is Tool:2-10. Of these, 2 represent second types of knives; 10 represent cutter numbers under second models.

Parameter setting

This chapter describes how to set system parameters, users can set according to the actual situation (in general, some of the basic settings have been set when leaving the factory), so as to achieve the correct operation of TLP-P340B tool measurement.

System setup menu

All parameters of TLP-340B can be configured by system menu. It includes

◆ Language setup
     Chinese Simplified
     Chinese Traditional
     English
◆ Display setup
     Length unit: (MM/INCH)
     Angle type: (DD/DMS)
     Angle mode: (Mode 1: -360—+360, Mode 1: 0—360, Mode 1:-180—+180)
     Screensaver timeout
◆ Linear scale setup
     Axis: X/Z/Q
     Resolution: 0.1μm/0.2μm/0.5μm/1um/5μm
     Reverse axis
     RI mode: Mode 1 to Mode 8
◆ Printer setup
     Printer type
     Reverse printing
     Baud rate
◆ Communication setup
     Baud rate

◆ Measuring method setup
   Angle meas
◆ Supervisor
   Operator
   X compensation type
   Z compensation type
   segment compensation (back up /restore)
◆ Spindle setup
   Tool number
   set up spindle
◆ Set up spindle's modification value
   set up 3 group of modification values for spindle
◆ Linear compensation setup
◆ Segment compensation setup
◆ Time/date setup

Enter system setup menu

press [SETUP] as the figure shown below.

Language		RAD	ABS	mm	11:30
Language					
Display	中文简体 □				
Linear Scale	中文繁体 □				
Print	English ☑				
Rs232					
Measure					
Supervisor					
Guage Setup					
Guage Correct	Ver: 4.0				
LEC					
SLEC	Date: 2023/01/06				
Time/Date					

The keys below will be used for system setup.

⬇ Scroll down to view system menu

⬆ Scroll up to view system menu

ENTER Enter key
Enter sub-menu, enter or select the corresponding option for setup.
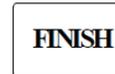
FINISH Finish key
Finish tool measuring; When showing tool parameters, finish showing and return to normal display state; Finish system parameter setup and return to normal display state.

QUIT Quit key
Bypass the current task and return to normal display mode; Exit system parametersystem and return to normal display state (current setup won't be saved).

Set Angle display type as DMS

Step 1
Press [SETUP] to enter system setup. LCD window shows as below, it means it enters system setup.

Language		RAD	ABS	mm	11:30
Language					
Display	中文简体 □				
Linear Scale	中文繁体 □				
Print	English ☑				
Rs232					
Measure					
Supervisor					
Guage Setup					
Guage Correct	Ver: 4.0				
LEC					
SLEC	Date: 2023/01/06				
Time/Date					

Step 2
Press ⬆ or ⬇ to view system setup until LCD shows as the figure

Display		RAD	ABS	mm	11:30
Language					
Display	Linear Unit	mm			
Linear Scale	Angle Type	DD			
Print	Angle Mode	(0~+360)			
Rs232	Screen Saver	999 minute			
Measure					
Supervisor					
Guage Setup					
Guage Correct					
LEC					
SLEC					
Time/Date					

Step 3
Press [ENTER] to enter sub-menu for setting angle type, LCD window shows as below.

Display		RAD	ABS	mm	11:30
Language					
Display	Linear Unit	mm			
Linear Scale	Angle Type	DD			
Print	Angle Mode	(0~+360)			
Rs232	Screen Saver	999 minute			
Measure					
Supervisor					
Guage Setup					
Guage Correct					
LEC					
SLEC					
Time/Date					
1: mm 2: Inch (Enter number key)					

Step 4
Press [▲] or [▼] to view system setup until LCD shows as the figure below.

Display		RAD	ABS	mm	11:30
Language					
Display	Linear Unit	mm			
Linear Scale	Angle Type	DD			
Print	Angle Mode	(0~+360)			
Rs232	Screen Saver	999 minute			
Measure					
Supervisor					
Guage Setup					
Guage Correct					
LEC					
SLEC					
Time/Date					
1: DD 2: DMS (Enter number key)					

Step 5
After pressing Number key "2", LCD shows as below, indicating that the current angle type is in DMS.

Display		RAD	ABS	mm	11:30
Language					
Display	Linear Unit	mm			
Linear Scale	Angle Type	DMS			
Print	Angle Mode	(0~+360)			
Rs232	Screen Saver	999 minute			
Measure					
Supervisor					
Guage Setup					
Guage Correct					
LEC					
SLEC					
Time/Date					
1: DD 2: DMS (Enter number key)					

Step 6
After angle type is set as DMS, return to main menu by pressing [FINISH] ,and press [FINISH] again to save the setup and return to normal system display state.

Attention:In general, limited system setup is provided only. Only by entering correct PIN can super user setup be valid.

Operator ID

Step 1
Press **SETUP** to enter system setup.

Language		RAD	ABS	mm	11:30
Language	中文简体 ☐				
Display	中文繁体 ☐				
Linear Scale	English ☑				
Print					
Rs232					
Measure					
Supervisor					
Guage Setup					
Guage Correct	Ver: 4.0				
LEC	Date: 2023/01/06				
SLEC					
Time/Date					

Step 2
Press ▲ or ▼ to view system setup until LCD shows as the figure below.

Step 3
Press **ENTER**, enter password "332" as prompted, and press "ENTER" again to finish and enter Supervisor setup menu. LCD shows as the figure below, indicating it has entered sub-menu.

Supervisor		RAD	ABS	mm	11:30
Language	Operator 1				
Display					
Linear Scale	Segment Comp Backup?				
Print	Segment Comp Recover?				
Rs232					
Measure					
Supervisor	X Backup Time: --------				
Guage Setup	Z Backup Time: --------				
Guage Correct	X Recover Time: --------				
LEC	Z Recover Time: --------				
SLEC					
Time/Date					

Step 4
Then, enter operator ID in the field of Operator. Number 20 you enter means Operator ID is No. 20, as the figure shown below. After entering, press FINISH to go back to main menu, press FINISH again to save new setup and return to normal system display state.

Supervisor		RAD	ABS	mm	11:30
Language					
Display	Operator 20				
Linear Scale					
Print	Segment Comp Backup?				
Rs232	Segment Comp Recover?				
Measure					
Supervisor	X Backup Time: --------				
Guage Setup	Z Backup Time: --------				
Guage Correct	X Recover Time: --------				
LEC	Z Recover Time: --------				
SLEC					
Time/Date					

Set reverse direction for Z axis

Step 1
Press **SETUP** to enter system setup.

Language		RAD	ABS	mm	11:30
Language	中文简体 ☐				
Display	中文繁体 ☐				
Linear Scale	English ☑				
Print					
Rs232					
Measure					
Supervisor					
Guage Setup					
Guage Correct	Ver: 4.0				
LEC	Date: 2023/01/06				
SLEC					
Time/Date					

Step 2

Press or to view system setup until LCD shows as the figure below.

```
┌─────────────────────────────────────────────────┐
│ Linear Scale          │ RAD │ ABS │ mm │11:30 │
│ Language                                          │
│ Display        Axis          X                    │
│ Linear Scale   Resolution   0.0001                │
│ Print          Reversed       No                  │
│ Rs232          RI Mode       Mode 5               │
│ Measure                                           │
│ Supervisor                                        │
│ Guage Setup                                       │
│ Guage Correct                                     │
│ LEC                                               │
│ SLEC                                              │
│ Time/Date                                         │
└─────────────────────────────────────────────────┘
```

Step 3

Press ⬆ or ⬇ to view system setup until LCD shows as the figure below.

```
┌─────────────────────────────────────────────────┐
│ Linear Scale          │ RAD │ ABS │ mm │11:30 │
│ Language                                          │
│ Display        Axis          X                    │
│ Linear Scale   Resolution   0.0001                │
│ Print          Reversed       No                  │
│ Rs232          RI Mode       Mode 5               │
│ Measure                                           │
│ Supervisor                                        │
│ Guage Setup                                       │
│ Guage Correct                                     │
│ LEC                                               │
│ SLEC                                              │
│ Time/Date                                         │
└─────────────────────────────────────────────────┘
```

Step 4

According to hint "1: X 2: Z 3: Q(select by press number key to select)" shown on LCD operation prompt bar above, press number key "2" to select Z axis, as it shows below.

Step 5

Press or to view system sub-menu, and select "reversed", as the figure shows below.

```
┌─────────────────────────────────────────────────┐
│ Linear Scale          │ RAD │ ABS │ mm │11:30 │
│ Language                                          │
│ Display        Axis          Z                    │
│ Linear Scale   Resolution   0.0001                │
│ Print          Reversed       No                  │
│ Rs232          RI Mode       Mode 5               │
│ Measure                                           │
│ Supervisor                                        │
│ Guage Setup                                       │
│ Guage Correct                                     │
│ LEC                                               │
│ SLEC                                              │
│ Time/Date                                         │
│ 1: X    2: Z    3: Q   (Enter number key)        │
└─────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────┐
│ Linear Scale          │ RAD │ ABS │ mm │11:30 │
│ Language                                          │
│ Display        Axis          Z                    │
│ Linear Scale   Resolution   0.0001                │
│ Print          Reversed       No                  │
│ Rs232          RI Mode       Mode 5               │
│ Measure                                           │
│ Supervisor                                        │
│ Guage Setup                                       │
│ Guage Correct                                     │
│ LEC                                               │
│ SLEC                                              │
│ Time/Date                                         │
│ 1: Yes    2: No   (Enter number key)             │
└─────────────────────────────────────────────────┘
```

Step 6

Press Number key "1" to confirm reverse axis, then press FINISH to go back to main menu, and press FINISH again to save new setup and return to normal system display state.

Attention
1. It's not advised for general operator to enter super user setup, otherwise accuracy or normal operation could be affected by changing parameters in super user setup. Should it's necessary to change super user setup, it's advised to contact with supplier or representative in your area.
2. Except for the Step 1, other operating methods are similar with Example 1. Should you have any questions regarding parameter setup, you're advised to contact with supplier or representative in your area

Set gauge's correction value

Since there's deviation between actual value and the corresponding value installed on machine tool, it's necessary to add modification value for zero gauge when setting.

Step 1
Press [SETUP] and enter system setup. Press [▲] or [▼] to move to " Gauge correction value", press [ENTER] and enter password "332"as prompted, then it enter setup sub-menu, as the figure shows below.

Guage Correct		RAD	ABS	mm	11:30
Language	Guage Correct				
Display					
Linear Scale	50# Diameter	0.0000			
Print	50# Length	0.0000			
Rs232	40# Diameter	0.0000			
Measure	40# Length	0.0000			
Supervisor					
Guage Setup	30# Diameter	0.0000			
Guage Correct	30# Length	0.0000			
LEC					
SLEC					
Time/Date					

Step 2
Set radial direction error value for 50# spindle, enter -0.053, and press ENTER to confirm. Move cursor to "50# Axial error", enter 0.008, and press ENTER to confirm, finally press "FINISH" or "QUIT" to exit setup menu.

Attention
1. The radial and axial error values input are generated by the installation of the actual tool taper handle on the machine tool and testing device.
2. This machine is able to set 3 group of correction value for spindle in the meantime, enabling user to carry out measuring compensation.

Other setup

Set angle type
Press [SETUP] to enter system setup; Press [▲] or [▼] and move the cursor to "Display" option, press [ENTER] to enter setup sub-menu, and press [▲] or [▼] to select angle type. LCD operation prompt bar indicates: " 1 (-360—+360)" 2 (0—360)" 3 (-180 — +180)" (press number key to select). If Mode 2 needs to be selected, press Number key "2" , and press [FINISH] to finish and exit.

Reverse printing setup

Press [SETUP] to enter system setup; Press [▲] or [▼] and move the cursor to "Print" option. Press [ENTER] and enter password "332"as prompted, then it enter setup sub-menu, and press [▲] or [▼] to move the cursor to "Reverse printing" option. Then, LCD operation prompt bar indicates "1: OK 2: Cancel (press Number Key to select)". Press Number Key "1"to set reverse printing, and press "FINISH" to complete the setup and exit the current setup menu.The data printed by two methods are as follows.

/0:ROTCEPSNI
INSPECTOR:0/
10/11/70 :etaD
Date: 07/11/01
0189.1   L
L   1.9810
5201.0   D
D   0.1025
10-1:looT
Tool:1-01

Reverse printing

Tool:1-01
D   0.1025
L   1.9810
Date: 07/11/01
INSPECTOR:0/

Non-reverse printing