

Operation Manual

WECO *cad III*

**Version: 12.2000
Nr.: 1112-9902-01**

Valued customer,

congratulations on the purchase of your WECO cad III.

You are now the owner of a device that meets the expectations for the degree of automatization, precision and operator convenience expected in the modern optical laboratory.

The cad III complements and completes the WECO CMS system.

The manual helps the operator to use the device to its fullest potential and to benefit from the effectiveness and accuracy of the system. The manual contains information for the installation, tips and instruction to effectively operate the cad III.

Our recommendation:

Please read this manual carefully.

WECO wishes you good luck and success with your new cad III.

W E C O
Optik-Maschinen

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1 Safety Guidelines

Please read the machine operating manual (BDA) thoroughly.

Please note that the machine is hooked-up to an electrical power outlet with the same voltage as indicated on the machine identification plate and is grounded according to the local requirements. The ground prong on the plug must never be cut or bent in such a way that the machine cannot be electrically grounded.

The electrical wiring of the machine must not be tampered with. Any change may impair the built-in-protection features.

Before cleaning and maintenance, switch the machine OFF.

Never switch the machine ON while it is being serviced or cleaned.

It must be recognised that certain operator errors may be the result of medication influencing vision and ability quickly.

Always observe the safety rules of your place or lab.

For increased protection against electrical shock a special safety breaker is recommended.

This machine is only suited for the processing of frames, formers, lenses and demo.

Other objects or tools must never be ground with this machine.

2 Warranty Conditions

Machines

WECO extends to the original machine owner a warranty for its products and services in accordance with our specifications. Defects of our products have to be reported to us or to our agent immediately, or at the latest within four days, after accepting the products. Defects that manifest themselves later, must be reported within a week of their occurrence. In the event products, which is subject to a warranty claim are to be returned to WECO, freight paid, accompanied of a copy of the delivery slip or invoice, where they will be submitted to a thorough quality check.

WECO guarantees free replacement of parts that are defective in a material and/or workmanship. Articles returned to WECO that do not reveal any defects after a thorough quality examination, shall be considered to be charged to the client. The purchaser is not entitled to make any other claims as result of defects in goods, specifically regarding cancellation of the contract or contractual or non-contractual claims for damage. See below for warranty period. WECO shall not be liable for defects in material that were not visible during the manufacturing process. Unauthorised changes or changes made by unauthorised personnel will void the warranty. The use of accessories or replacement parts, diamond wheels and consumable articles, not approved by WECO, will void the warranty. WECO shall not be liable to the purchaser in respect to damage or loss of any nature as a result of the use of WECO machinery, equipment, diamond wheels or Software. Service work performed during the warranty period does NOT extend the duration of the warranty. The automatic edger is guaranteed by WECO for a period of 12 months from the time of delivery provided the machine is used in conformity with the provisions of the warranty for an average of 8 hours on working days.

Electrical Connection

The operator is responsible for the edger to an electrical outlet with the correct voltage for the machine and all utility requirements are met for safe operation. For the safety of the operator the edger must be connected to a circuit breaker protected outlet.

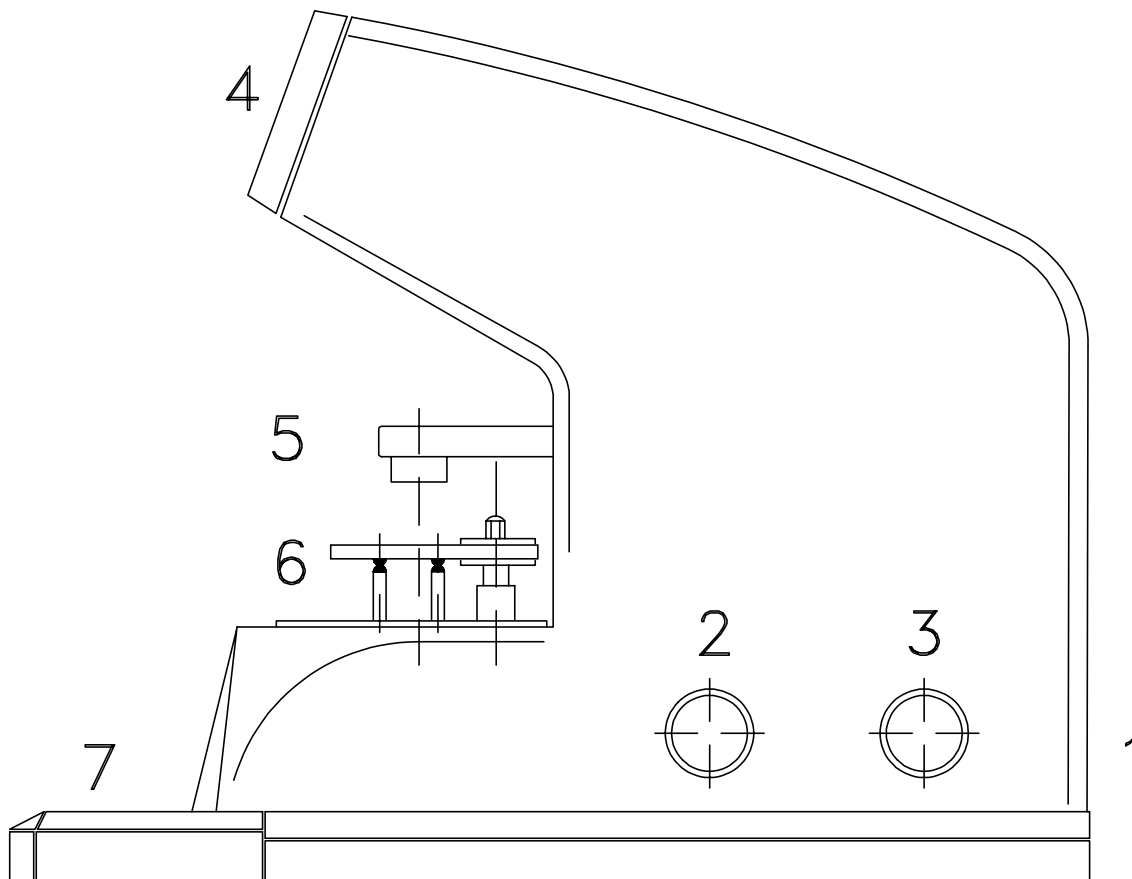
Transportation Damage

Transportation damage is not covered by the WECO warranty.

- Delivery is made at consignee's risk.
 - Damage must be reported immediately to the transportation company.
 - The consignee must claim the damage from the carrier.
- Goods and packing must be left in the state in which they were received, until such time an authorised representative of the carrier has examined the shipment.

3 Description

3.1 Over view



III. 1

- 1 Main switch (Back side)
- 2 Adjustment knob for lens illumination
- 3 Adjustment knob for display contrast
- 4 Observation window
- 5 Blocking device
- 6 Lens adapter
- 7 Key pad

3.2 Key pad

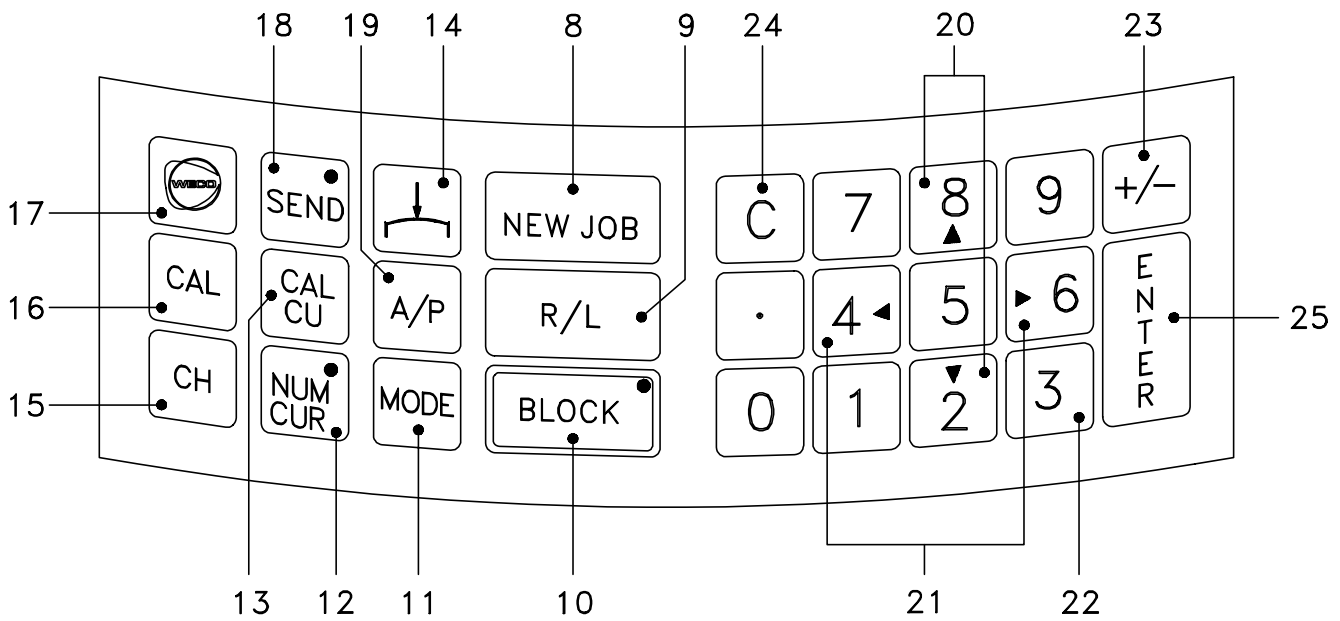


Abb. 2

8:	<NEW JOB> key	To call off new form	17:	<WECO> key	Reset
9:	<R/L> key	Right / Left lens	18:	<SEND> key	No function
10:	<BLOCK> key	Table goes into parallax free position	19:	<A/P> key	No function
11:	<MODE> key	Select lens mode	20:	<↑>, <↓> keys	Menu choice or vertical movement of the decentration point
12:	<NUMCUR> key	Switch key for numerical /cursor entry	21:	<←>, <→> keys	Horizontal movement of the decentration point
13:	<CALCU> key	Switch key for menu selection / normal operation	22:	<0...9> keys	Number input
14:	<lower table> key	Table goes to lower position	23:	<+/->	Sign change
15:	<CH> key	Pre-decentration input	24:	Taste <C>	Corrections and deletion of error codes
16:	<CAL> key	To start adjusting mode	25:	Taste <ENTER>	End input entry

3.3 Display

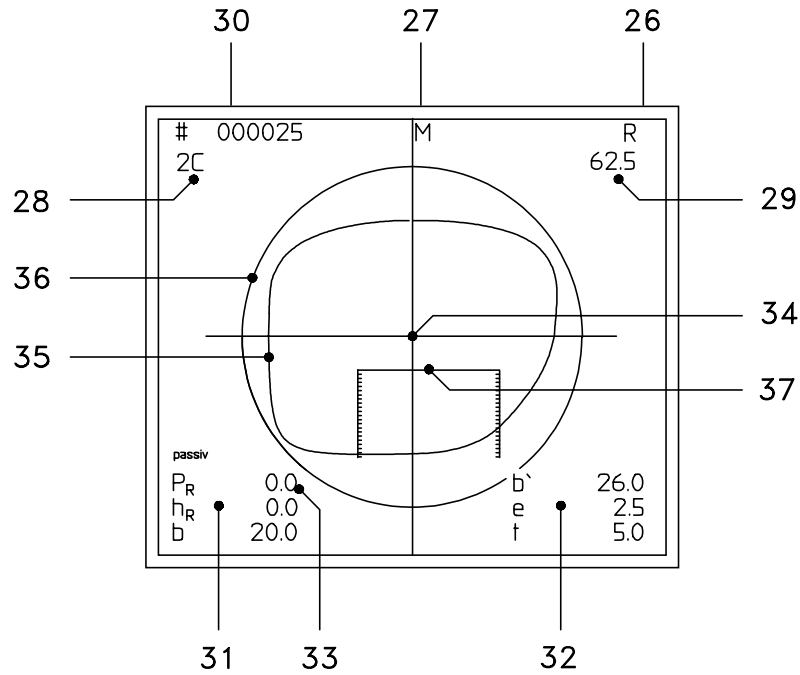


Abb. 3

Display

- 26: Right / left lens
- 27: Lens mode
- 28: Decentration menu
- 29: Required blank diameter including edging tolerance

Graphics:

- 34: Axiscross (Geometrical form centre M)
- 35: Pattern shape in 1:1 scale
- 36: Minimum blank (circle)
- 37: Near segment lay-out grid for segment or segment edges.

Input fields

- 30: Formnumber
- 31: Decentration data (depending on menu)
- 32: Additional data for multifocal lenses
- 33: Cursor (Flashing)

3.4 Optical principle

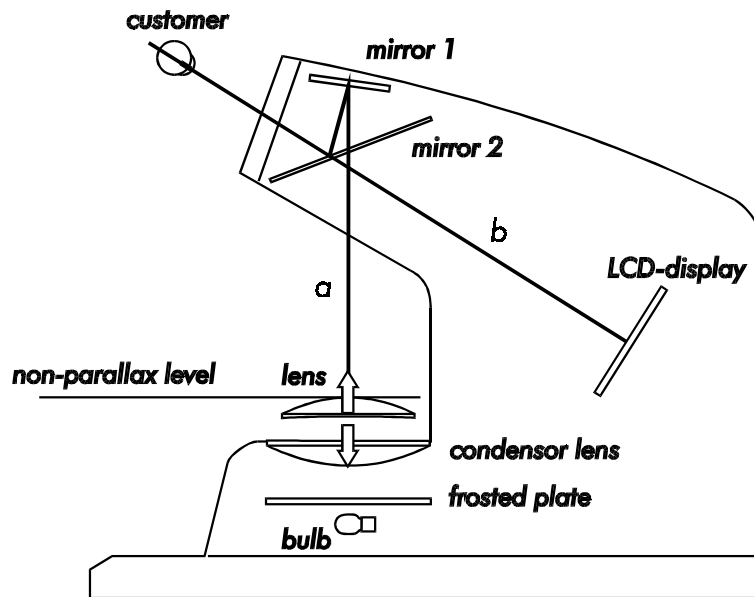


Abb. 4

The user is looking through a partly transparent mirror 2 on a LCD that is illuminated from the back and thus shows the decentration values and graphics.

The lens is displayed in actual shape (not reversed) via mirror 1 and 2. The decentration point for blocking needs to be in the following position: distance b from mirror 2 (measured by mirror 1) which equals the distance a from mirror 2 to the display. To achieve this one has to lower or lift the lens. This procedure will happen automatically when the <BLOCK> key is pressed.

This imaging of the lens on the display avoids image shifts or systematic blocking errors since the distance between the image and the display equals zero.

This means that the system is parallax free i.e. the relation of a point on the lens with that of a point on the display remains unchanged regardless the position of the observer. This is particularly important with prismatic corrections since it is the only way to transfer the correct refraction values to the final eye glasses.

3.5 Lens support

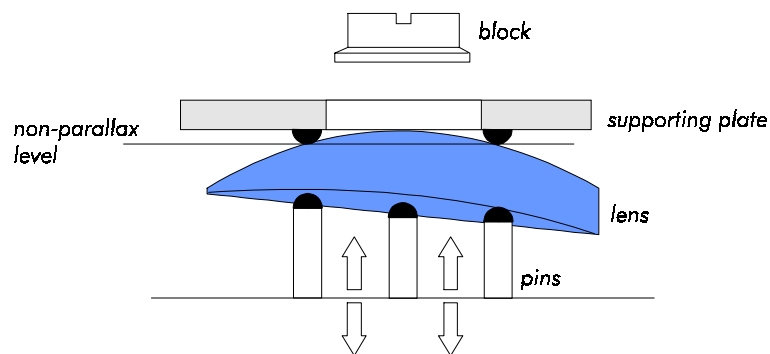


Abb. 5

The lens is positioned on 3 pins which forms an equilateral triangle on a cardanic ring.

The transparent supporting plate is hold in place by three rubber supports opposite to the caps of the pins S. After lifting the supporting plate you can position the lens between the pins and the supporting plate. When you release the plate the lens is pressed onto the pins which will adapt to the back curve of the lens by use of cardanic bearings.

Independent of the lens surface, the decentration point will always be in a vertical position in relation to the axis that goes through the middle of the blocking device and the block.

This geometrical setting ensures that:

- During the blocking process only vertical pressure is applied to the lens which avoids unwanted shifting.
- The block and blockpad make full contact with the lens surface.
- The position of the lens in the blocker and the edger is identical.

As shown in ill. 5; is the adaptation of the pins to the back curve of the lens particularly important for those corrections that have a high prismatic effect in the blocking point.

3.6 Technical data / Performance standards

Manual's applications range:

Operation of CAD 2000 in WECO CMS (CL-operation) with form tracer and edger and memory card SM200.

Technical Data

Width	200 mm
Depth	430 mm
Height	335 mm
Weight	10 kg
Operating voltage	220/230 V 50 Hz (other voltages on request)
Power consumption	50 W
Allowed ambient temperature for operation	: 15 - 30 °C
Allowed storage temperature:	5 - 40 °C
Allowed humidity (relative humidity)	: 35 - 85 %

Connections and interfaces

The standard version of the CAD 2000 includes interfaces for current loop (CL) and RS232 operation. For RS232 operation CAD Blocker software is required. This software is not standard See operation mode RS232 below.

Current loop interface (CL):

Operation mode: for operation a WECO Form Tracer and an edger with SM200 memory board is required.

Interface with RS232:

Operation as RS232 terminal. For operation CAD Blocker software (EPROM), cable and connection to PC program Optolab IV are required. This operation manual is not valid for the interface operation mode RS232..

Performance standards

The performance standards can only be guaranteed with the use of original WECO equipment as described in this manual.

Maximum lens diameter.	100	mm
Maximum center thickness	15	mm
Maximum edge thickness	25	mm
Blocking accuracy	<0.1	mm
Operation speed	60	Blocking actions / h
Screen resolution	640x400	Pixel
Durability (MTBF approx.)	50.000	Blocking actions

3.7 Accesories

Standard accessories

Power cable	3571 - 0123
Data cable (CI)	3652 - 2501-00
Folio holder	1112 - 1029
Operation manual	

3.8 Features

- **Decentration result is independent of lens power or geometry.** through parallax free system with automatic lens positioning on the reference level.
- **No optical distortion.** by use of parallax free system with the lens and form on one level
- **Easy recognition of near segment of high powered bifocal lenses** through adjustable contrast and illumination brightness
- **High decentration accuracy** through high resolution LCD display
- **Reliable determination of decentration point** through automatic calculation of blank diameter and decentration points
- **Exact blocking of prismatic and highly decentered lenses.** through cardanic lens support
- **Exact blocking of high-cost and fragile lenses** through automatic (motor driven) blocking device
- **User friendly adjustment to different decentration modes.** by use of 9 decentration menus
- **Comfortable use of foils** through use of special foil adapter
- **Compatible to all Weco CMS-equipment** with standard interfaces

4 Set-up

4.1 Installation

- Open top of cardboard box
- Remove machine with foam wrap (upwards)
- Place the machine side ways on a soft underground and remove packing material
- Position the machine in such a way that the highest productivity is ensured..

Note: : **Do not expose the device to direct sunlight, heating systems etc.**
For correct operating temperature see chapter 3.6.

4.2 Electrical connection

Note: **Please follow safety guidelines (see 1).**

- Check whether the voltage indicated on the WECO type plate is conform with the local power supplier.
- Connect the power supply cable at the back side of the CAD2000.
- Connect the power supply cable with a correctly installed socket.
- Switch on the machine.

4.3 Connection of othe CMS units

- Connect CMS units with interface cable
- Secure the plug with the screws

4.4 First test run

- Switch on all devices (FormTracer, CAD 2000 and edgers).
- Trace the form on the Form Tracer
- Call form on CAD2000.
The traced form is displayed.
When error messages appear (see 8.2)

4.5 address setting

Address changes are only required when two machines are used with the same address.

Factory settings:	FormTracer	Address 1
	CAD 2000	Address 3
	Edger	Address 4

Note : Do not use devices with the same address in the same system!

- Switch-on device
- ⇨ Press <CAL> key, the calibration menu is displayed
- ⇨ Press <CH> key
- ⇨ Press <decimal point> key change menu is displayed.

Note: Do not change the x and y values. A wrong blocking point will result!

- ⇨ Press <ENTER> key until cursor is on CL3
- ⇨ Enter address on key pad.

Allowed address values:
For use with SM200: 1 - 5
For use with OPTOLAB: 1 - 24

- ⇨ Press <ENTER> key
- ⇨ Press <CAL> key to end functionn

CAL

CH

.

ENTER

7 8 9

4 5 6

1 2 3

0 . ±

ENTER

CAL

5 Operation

5.1 Getting started

1. 

2. 

3.

7	8	9
4	5	6
1	2	3
0	.	±

4. 

5.

7	8	9
4	5	6
1	2	3
0	.	±

6. 

7. 

The normal job processing with the CAD 2000 is very easy to learn

⇨ press <NEW JOB>

⇨ Key <MODE> For single or multi focal lenses.
Display " S " Single vision
Display " M " Multi focal
Display " P " Progressive

⇨ Enter the form number on the key-pad

⇨ Press <ENTER>.
The form of the right lens appears on the screen

⇨ Enter the decentration data.

- Press <ENTER>
Decentration point and lens diameter are automatically calculated and displayed
- Place the lens on the lens support.

⇨ Press <BLOCK> to put the table in the parallax free position

- For single vision lenses place the optical centre of the lens in line with the centering cross on the screen. For multifocal lenses place the centre and the edges of the top of the near segment in line with the markings of the segment on the screen
- Put the Vario Block in the adapter of the blocking device.
- Position the blocking device on top of the lens
- The lens is blocked automatically

⇨ Press <R/L> key to select the left lens.
The left form is displayed decentration values of the right lens are used.

- You can over write the data or confirm the data by pressing the <ENTER> key.
- Proceed as under point 5.

5.2 Application

The <ENTER> Key

The <ENTER> Key must be pressed after all data input.

The cursor will jump to the next input field.

When you exit the last input field the decentration value is calculated.

When the <ENTER> key is pressed for more than one second the calculation is applied.

Dual entry

In entry field "b", DBL, you can enter two values:

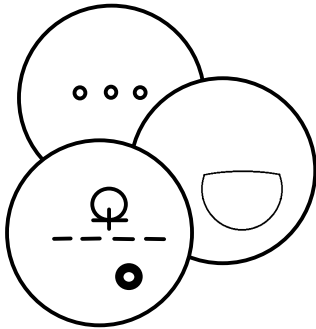
Values below 30mm: Display "b" For DBL

Values over 30 mm: Display „m“ for frame PD

Corrections

With the <C> key you can delete values at the cursor position and the error message will disappear.

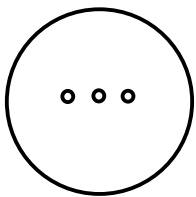
5.3 Centration modes



Single vision lenses (1) Multifocals (2) / Progressive lenses

With the <MODE> key you can select any of the 3 decentration modes.

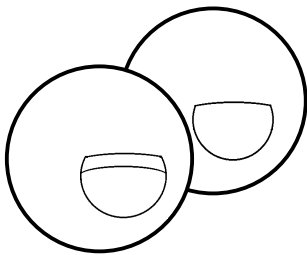
The lens selection mode needs to be selected before the job number is entered since the shape is released when the <MODE> key is pressed.



Mode 1: Single Vision Lenses

Display "S" (single vision)

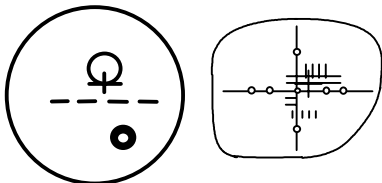
In mode1 the optical center of the lens is super imposed on the centering cross of the screen. The same procedure applies for progressive lenses.



Mode 2: Bi-focal and tri-focal lenses

Display "M" (multifocal)

In Mode 2 you can decenter multi focal lenses according to the near segment by use of the decentration raster on the display. The scale is displayed after entry of the decentration data on the exact position in the frame. The near segment of the lens is now super imposed over the raster on the display.



Mode 3: Multifocal lenses,

Display "P" (progressive)

Progressive lenses are best decentered by the used of foils.

This also counts for the decentration of other lens types such aspheric lenses or other high powered lenses.

Menu selection in different lens modes

In mode 1 and 2 you can select several menu`s that are indicated by capital letters (A, B,..) The selection depends on how the decentration data is applied by the optician. In total there are 9 different decentration menu`s indicated as 1 A 2 C etc. .The selected menu is displayed in field (28) on the screen. (Upper left corner)

In mode 3 only Menu 3 can be selected.

The option of menu selection allows for direct entry of the decentration data with out re- calculation



⇐ Press <CALCU> for decentration menu selection.
LED-display in <NUM CUR> key lights up



⇐ Select the appropriate menu with key <8> or <2>
For decentration menu description refer to p. 19.



⇐ Press <CALCU> key to end decentration menu selection.
LED-display in <NUM CUR> key goes out

Note: The selected decentration menu remains activ even when the machine is switched off.

5.4 Decentration process

The decentration menu`s differ from each other since the decentration process depends on the different lens types.

In total, 9 menu`s are available.

Decentration menu selection:

6 Menu`s with box measurement decentration
(DIN 58 208 bzw. DIN 58 200):

1A, 1C, 1D, 3H, 2A, 2C

3 Menu`s with decentration to frame rim (RAL RG 915)

1B, 2B, 2D

Selection of decentration menu according to lens type:

5 Menu`s for single vision- and progressive lenses

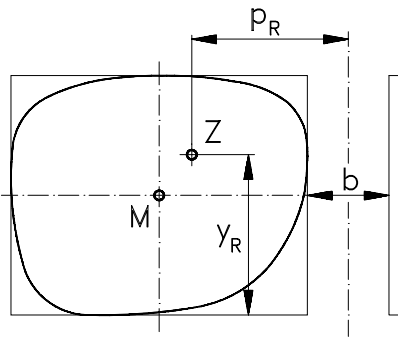
1A, 1B, 1C, 1D, 3H

4 Menu`s for Bi-focal- and tri-focal lenses.

2A, 2B, 2C, 2D

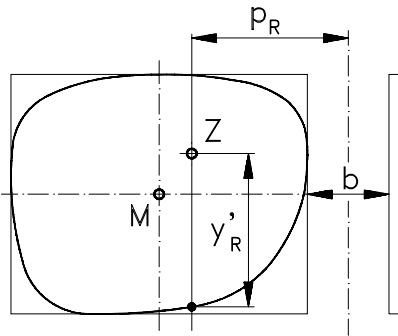
5.5 Menu description

Mode 1 for single vision lenses (Display: S)



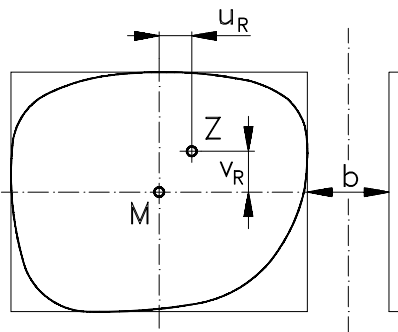
⇐ Menu **1A** with features:

p_R/p_L	Monocular PD
y_R/y	Vertical decentration to the frame rim
b	DBL



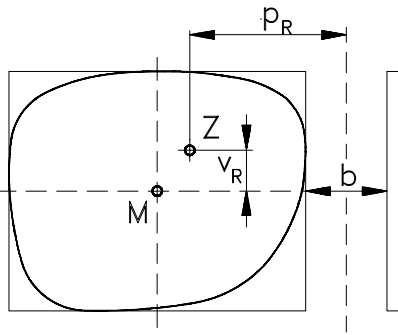
⇐ Menu **1B** with features:

p_R/p_L	Monocular PD
y'_R/y'_L	Vertical decentration to frame rim
b	DBL



⇐ Menu **1C** with features:

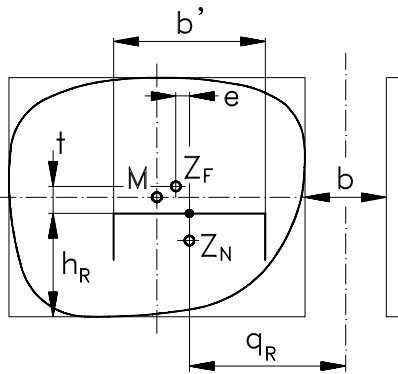
u_R/u_L	Horizontal decentration
v_R/v_L	Vertical decentration
b	DBL



⇨ Menu **1D** with features:

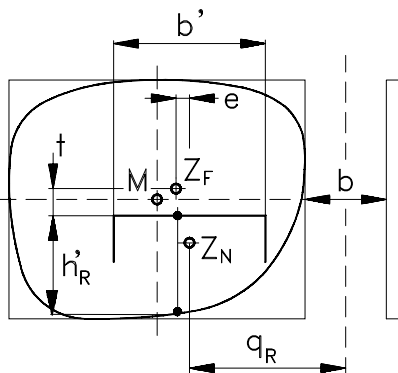
- p_R/p_L Monocular PD
- v_R/v_L Vertical decentration
- b DBL

Mode 2 for multi focal lenses (Display: M)



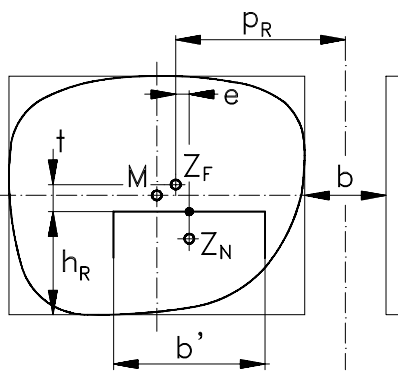
⇨ Menu **2A** with features:

- q_R, q_L Near PD
- h_R, h_L Segment height from frame rim
- b DBL
- b' Segment width
- e Horizontal displacement of the segment



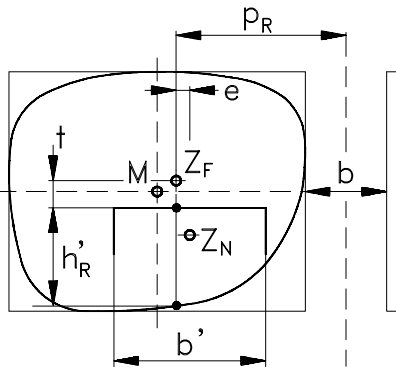
⇨ Menu **2B** with features:

- q_R, q_L Near PD
- h'_R, h'_L Segment height from frame rim
- b DBL
- b' Segment width
- e Horizontal displacement of the segment
- t Vertical displacement of the segment



⇨ Menu **2C** with features:

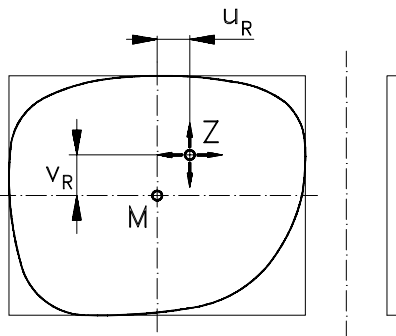
- p_R, p_L Monocular PD
- h_R, h_L Segment height from frame rim
- b DBL
- b' Segment width
- e Horizontal displacement of the segment
- t Vertical displacement of the segment



⇐ Menu **2D** with features:

- p_R, p_L Monocular PD
- h_R, h'_L segment height from frame rim
- b DBL
- b' Segment width
- e Horizontal displacement of the segment
- t Vertical displacement of the segment

Mode 3 for progressive lenses (Display: P)



⇐ Menu **3H** with cursor - or numerical entry:

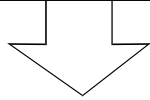
- u_R/u_L Horizontal decentration
- v_R/v_L Vertical decentration

6 Operation procedure

6.1 Operation procedure in CMS

Trace the frame
at FormTracer

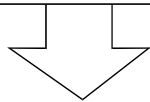
⇐ Operation overview in CMS



Enter the form number
at the CAD2000

Input decentration data

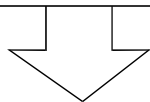
Block the lenses



Enter the form number
at the edger

Clamp the right lens

Start grinding process



Perform edging for
the left lens

6.2 Operation for single vision- and progressive lenses

1. 

⇐ Press <NEW JOB> key.


2. 

⇐ Press <MODE> key for lens type selection

Display **S "** **Single Vision lenses**

(Display " M " Multi focal lenses

(Display " P " Progressive lenses with foils)

3. 




⇐ Press <CALCU> key for decentration menu selection
LED-display in <NUM CUR> key lights up

Note: Only press<CALCU> key when the required menu has not yet been installed.

4.  

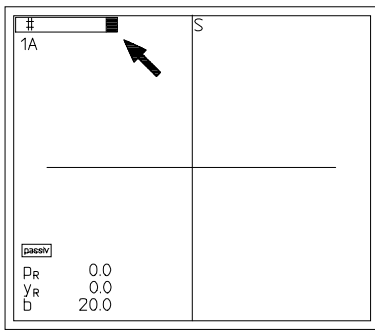
⇐ Use key <8> or <2> to select the required menu.
For decentration menu`s: refer to 5.5

5. 



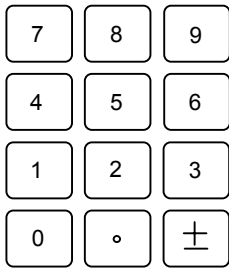
⇐ Use the <CALCU> key to end the decentration menu selection
LED-display in <NUM CUR> key dims

Note: The selected decentration menu remains when the machine is turned off.



⇐ Enter the form number on the key-pad.

The form number is the same as the number that was entered in the tracer during the tracing process.



6.

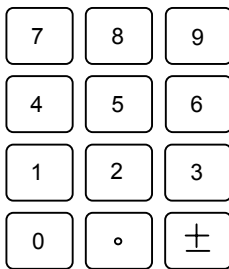


7.

Range of job numbers with memory card SM200: 1 - 234

Range of job numbers with Software Optolab IV: 1 - 999999

⇐ Press <ENTER> key to end data entry.
The right form is displayed.

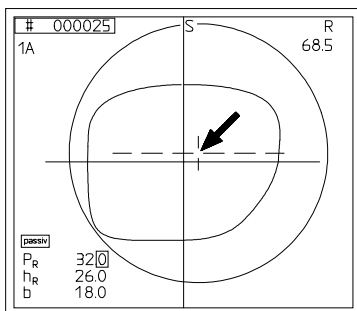


8.

⇐ Enter decentration data on key-pad.

The data quantity and type depends on the selected decentration menu.

- Press <ENTER> key to end data entry.



9.



⇐ Decentration point and blank diameter are automatically calculated and displayed.

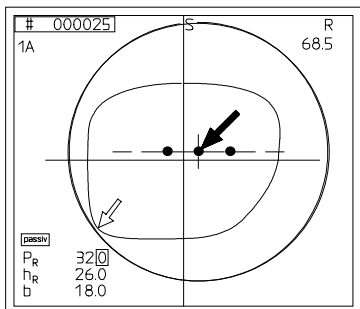
- Place the lens in the lens support

Note: The lens illumination will only turn on when the lens is located in the parallax free zone

⇐ Use <C> key to correct decentration values

Note:: When the <ENTER> key is pressed longer the change will be executed.

10. **BLOCK**



11. **R/L**

⇨ Use the <BLOCK> key to position the table in the parallax free zone
The lens illumination will turn on.

⇨ Single vision lens Super impose the optical center on the decentration point
Progressives:
Super impose the decentration cross on the decentration point

⇨ Check the blank diameter.

- Place the Vario Block with block pad in the block adapter.
- Position the blocking device over the lens.
The lens is blocked automatically

⇨ Press <R/L> key for left lens.
The left form is displayed, the decentration values of the right lens are applied.

- Overwrite the data or pass the fields by using <ENTER> key.
- Commence as described under point 8.

6.3 Operation for Bifocal- or Trifocal lenses

1. 

⇨ Press <NEW JOB> key.

2. 

⇨ Press <MODE> key to select lens mode.

Display " M " **Multifocal lenses**
 (Display " S " Single vision)
 (Display " P " Progressive with foils)

Note: The <MODE> key should only be used when the required lens mode is not yet in use.

3. 




⇨ Press <CALCU>key to select decentration menu.
 LED-Display in <NUM CUR> key lights up.

Note: The <CALCU> key should only be used when the required menu is not yet in use.

4.  

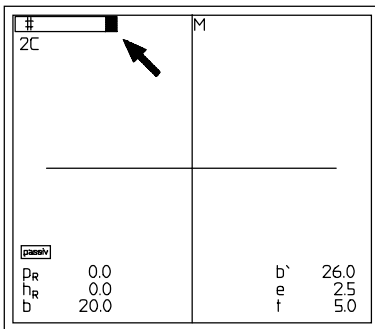
⇨ Use <8> or <2> key to select required menu.
 For decentration menu: see enclosed.

5. 



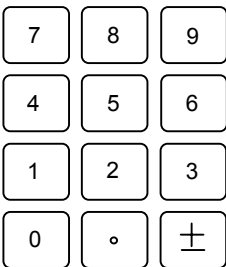
⇨ Use <CALCU> key to end the decentration menu selection
 LED-display in <NUM CUR> key turns off.

Note: The selected decentration menu stays in operation when machine is switched off.



⇨ Enter the form number on the key pad

The form number is the same number that was entered into the tracer during the tracing process..

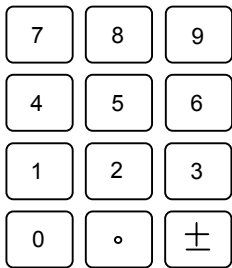
6. 

Range of job numbers with memory card SM200: 1 - 234

Range of job numbers with Optolab IV: 1 - 999999

7. ENTER

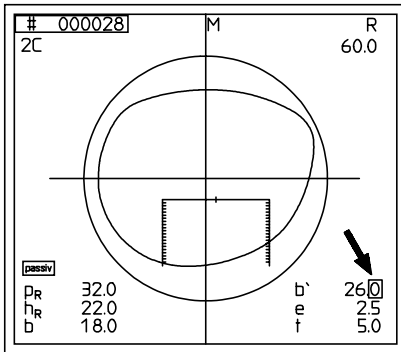
⇨ Press <ENTER> key to end data entry.
The right form is displayed.



8.

⇨ Enter decentration data on the key pad. The data quantity and type depends on the selected decentration menu. (see 5.5).

● Press <ENTER> key to end data entry.



⇨ Decentration point and blank diameter are calculated automatically.

● Place the lens in the lens support.

Note: The lens illumination is only activated when the lens is in the parallax free zone.

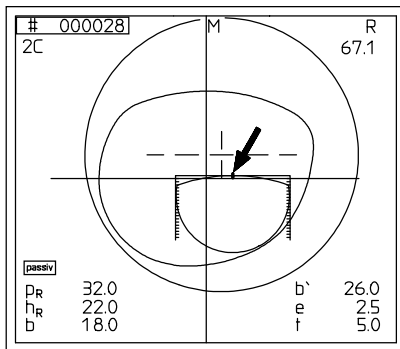
9. C

⇨ Use the <C> key to correct the decentration values

Note: When the <ENTER> key is pressed longer the change will be effective immediately.

10. BLOCK

⇨ Use the <BLOCK> key to position the table in the parallax free zone.
The lens illumination is activated.



⇨ Place the reading segment symmetrically and with correct axis on the lay-out grid.

⇨ Check the blank diameter.

● Place the Vario Block with block pad in the block adapter.

● Move the blocking device over the lens.
The lens is blocked automatically.

11. R/L

⇨ Press <R/L> to select left lens.
the left form is displayed and the decentration data of the right lens is applied.

● You can overwrite the data or use the <ENTER> key to jump the fields.

● proceed as under point 8.

6.4 Operation for Proressive lenses with foils

1. 

⇐ Press <NEW JOB> key.

2. 

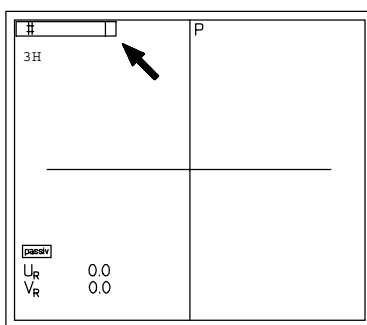
⇐ Press <MODE> key to select lens mode

Display " P " **Progressive with foils**

(Display " M " Multifocal lens)

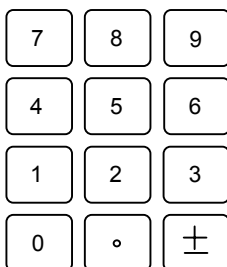
(Display " S " Single Vision)

Note: **Only press <MODE> key when the required lens mode is not yet in operation.**



⇐ Enter the form number on key pad.

The form number is the same number that was entered in the tracer during the tracing process.



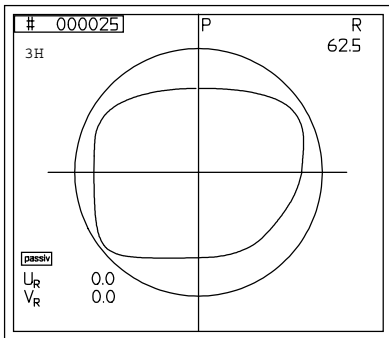
3.

Range of job numbers with memory card SM 200: 1 - 234

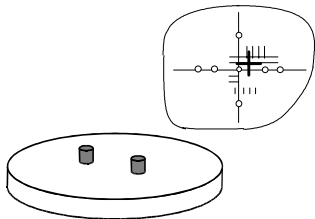
Range of job numbers with Optolab IV: 1 - 999999

4. **ENTER**

⇨ Press <ENTER> key to end data entry.



⇨ The right form is displayed.



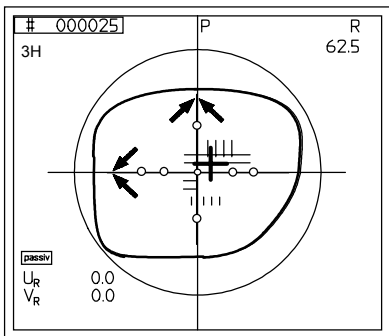
⇨ Position foils for the right lens with the nasal side to the right in the foil adapter.

- Put the foil adapter in the lens holder.

5.

6. **BLOCK**

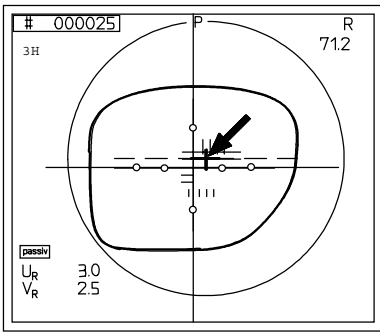
⇨ Use the <BLOCK> key to position the table in the parallax free zone.
The lens illumination is activated.



⇨ Align the center cross of the foil with the axis cross on the display.

⇨ Compare if the axis cross and form of the display drawing correspond with the foil.

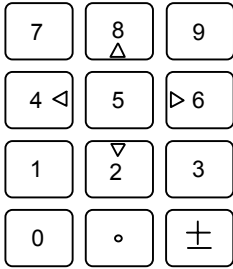
In case of a difference it is more important that the shape corresponds than the axis cross.



- ⇐ Use the cursor and <8> and <2> horizontal
<4> and <6> vertical

to align the decentration point on the display with the decentration point on the foil.

The decentration values " u " and " v " are displayed.



7.



8.

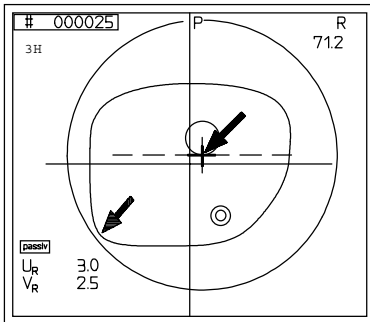
- ⇐ Press.<lower table> key.

- Remove the foil adapter.
- Put the lens in the lens holder.

9.



- ⇐ Use the <BLOCK> key to position the table in the parallax free zone.
The lens illumination is now activated.

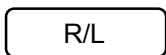


- ⇐ Align the decentration point of the lens with the decentration point on the display.

- ⇐ Check the blank diameter.

- Place the Vario block with block pad in the block adapter.
- Position the blocking device over the lens
The lens is blocked automatically.

10.



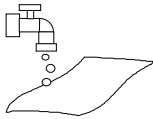
- ⇐ Press <R/L> key for the left lens.
The left lens is displayed. The decentration data of the right lens is applied.

- Commence as under point 5.

7 Maintenance

7.1 Cleaning

Warning: Turn of the machine and disconnect the electrical plug before cleaning.



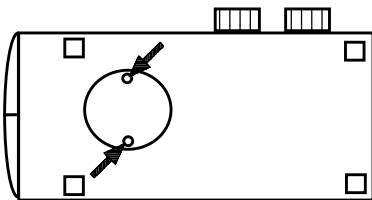
- Only clean with light dampened cloth.
- **Don`t** clean with dry cloth (static charge!)
- **Don`t** use any cleaners or solvents.

7.2 Light bulb exchange

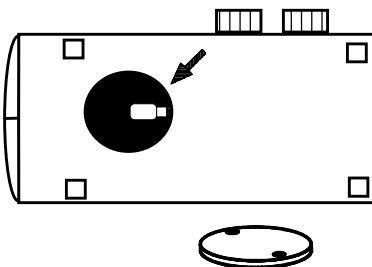
Spare light: Halogen bulb 12 V / 20 W
Weco Ord.-Nr.: 3561-0234

Warning: Before changing the bulb turn off and disconnect the machine

- Turn the machine on its side on a soft surface.
- ⇨ Loosen both screws of the coverplate on the base plate.
- Remove cover plate.



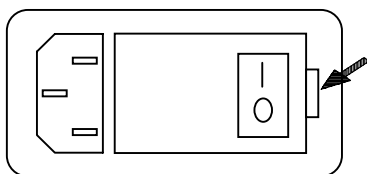
Warning: Never touch halogen bulb by hand. To insert the bulb, use a cloth or the cover that comes with the bulb.



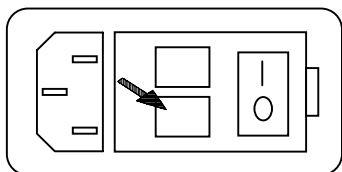
- ⇨ Replace the halogen bulb.
- Replace the cover plate.
- Lock the screws again.
- Position the machine - switch it on - check operation.

7.3 Fuses

WARNING: Before changing fuses turn off machine and unplug electrical plug.



⇨ Open shutter right - next to the electrical plug..



⇨ Remove both fuse holders.

- Check fuse and replace if required.
- Re-mount fuse holders.
- Close shutter.
- Turn on machine and check operation functions.

8 Appendix

8.1 Measurement values and descriptions

The WECO CAD 2000 use values and descriptions according to DIN 58 208 i.e DIN 58 200. To ensure universal operation the values for b' , CH, y' and h' have been added (all measurements in mm.)

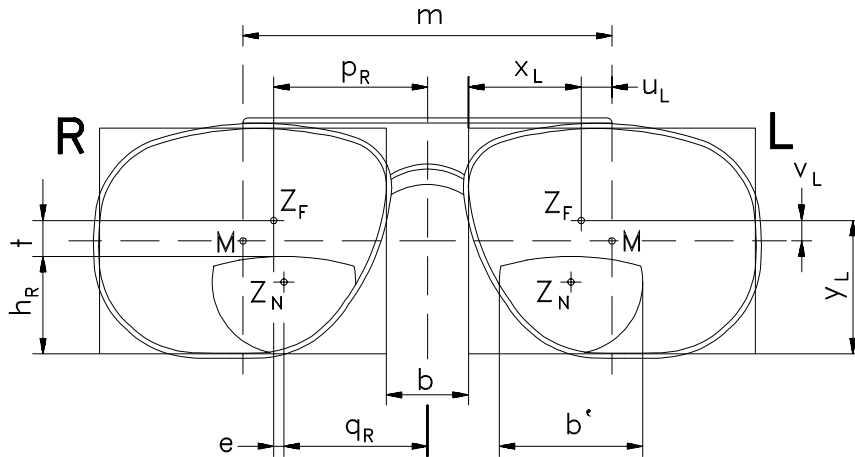


Abb. 6

M: Geometrical frame center

m: Frame PD

b: DBL

CH: Horizontal pre-decentration of the lens

Z_F: Distance decentration point

p_R/p_L: Monocular PD left/right

u_R/u_L: Horizontal decentration from centre of form right/left

v_R/v_L: Vertical decentration from centre of form right/left

x_R/x_L: Horizontal distance between the nasal box-line and Z_F

y_R/y_L: Vertical distance between bottom box line and Z_F

Z_N: Near decentration point

q_R/q_L: near monocular PD right/left

b': Segment width

e: Horizontal segment displacement by multi-focals (Inset)

t: Vertical displacement between segment top and distance centre.

h_R/h_L: Segment height from lower box line.

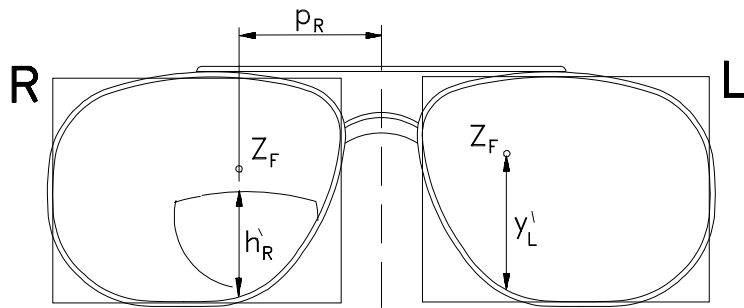


Abb 7

h'_R/h'_L : Segment height measured from lower box line to optical distance centre. (Not in segment centre!)

y'_R/y'_L : Vertical distance between lower box line and Z_F

8.2 Error messages

Error message	Message meaning	Correction
E 01	The entered drilling coordinate lies outside the allowable range.	Press <C> key – Select drilling coordinate inside the allowable range.
E 02	The distance of the drilling coordinate is less than 1 mm to the edge.	Press <C> key – this message is to be understood as warning.
E 03	The distance between 2 drill holes is less than 1 mm.	Press <C> key – this message is to be understood as warning.
E 05	The X or Y decentration value is too high, the decentration point is located outside the form.	Press <C> key – enter a smaller / higher value.
E 06	Decentration values X or Y in menu 1D are zero.	Press <C> key – enter correct decentration value.
E 07	Timeout - Time error when requesting a form out of the CAD2000 memory.	Press <C> key – repeat entry.
	No form available.	Press <C> key – Trace form, Repeat entry.
	After entry of the form number the <ENTER> key was not pressed	Press <C> key, repeat entry, Press <ENTER> key
E 08	Upper drilling limit reached (menu 4).	Press <C> key – change entry using the cursor keys.
E 09	Lower drilling limit reached (menu 4).	Press <C> key – change entry using the cursor keys.
E 10	The drill hole does not lie in the represented graphic area (menu 4).	Press <C> key – change entry using the cursor keys.
E 15	Transmitted sides 1 and 3 are not equal.	Press <C> key – request form again.
E 16	The value for m is smaller than the total of the A measurement and the DBL. This results in a negative DBL value.	Press <C> key, enter correct value.
E 18	Use small clamping piece.	Press <C> key (menu 1-3).
		Press <C> key – change entry using the cursor keys (menu 4).
E 40	No CL connection available.	Press <C> key – check cabel connection, switch on master.
E 41	Transmission error while transmitting a data set.	Check CL-address for conflicts, change as necessary.
E 42	Transmission error while receiving a data set.	Check CL-address for conflicts, change as necessary.

E 43	Test pattern in loop test okay.	Press <C> key .
E 44	Test pattern in loop test faulty.	Press <C> key .
E 46	The monocular PD value is less than half the DBL value. Therefore the decentration point is outside the form.	Press <C> key, enter correct value.
E 47	Timeout – time elapsed during loop test.	Press <C> key .

The following errors only occur in connection with the system components Optolab 1 and Pollingbox /Pollingcard:

Error message	Message meaning	Correction
E 57	Form number is already occupied when transmitted to the PC.	Press <C> key , enter new form number and send again.
E 60	Requested form number not available in files.	Press <C> key – check form number, request again.
E 61	Data set transmitted to PC is faulty, e.g. contour is not closed.	Press <C> key – request form again and repeat decentration and transmission.
E 62	Transmission error during reception in the Pollingbox /Pollingcard or the PC.	Press <C> key – request form again and repeat decentration and transmission.

8.3 Quick trouble shooting and solutions

Error	Possible cause	Solution
After switch-on no operation	<p>Main plug not connected or faulty main fuse</p> <p>Electrical plug not plugged in machine fuse defective</p>	<p>Ceck or replace fuse</p> <p>Plug-in electrical plug</p> <p>Replace (see 7.3)</p>
No form can be called-up	<p>Edger with memory not switched on</p> <p>PC with software not operational</p>	<p>Switch on edger</p> <p>Start software</p>
The decentration values of the finished frame are not within the tolerances	The wrong decentration menu has been used.	Install the right decentration menu
The lens is not blocked automatically	The table is not located in the parallax free zone.	Press <BLOCK> key once more
The graphic on the display is vaguely visable	The contrast is not set properly	Adjust contrast

