



# User's guide MT-HD-10 Teaching geometry control system



**EXKOTEST**®  
EDUCATION





---

<b>1. PREPARATION .....</b>	<b>5</b>
<b>2. „STRAIGHT AHEAD" OF FRONT WHEELS .....</b>	<b>6</b>
<b>3. CAMBER.....</b>	<b>6</b>
<b>4. FRONTAXLE: TOE MEASUREMENT AND ADJUSTMENT USING THE INCLINOMETER... 7</b>	
<b>5. REAR AXLE: TOE MEASUREMENT AND ADJUSTMENT USING THE INCLINOMETER .... 9</b>	
<b>6. FRONT AXLE TOE MEASUREMENT AND ADJUSTMENT USING THE SOFTWARE! ..... 11</b>	
<b>7. REAR AXLE TOE MEASUREMENT AND ADJUSTMENT..... 13</b>	
<b>8. CASTOR / KPI .....</b>	<b>15</b>
<b>9. TOE OUT ON TURNS .....</b>	<b>16</b>
<b>10. COPY THE SOFTWARE FILES ONTO THE HARD DRIVE OF YOUR COMPUTER..... 17</b>	
<b>11. TECHNICAL DATA .....</b>	<b>18</b>

## 1. PREPARATION

**Check tire air pressure**  
**Check joints and bearing for play**

Drive the vehicle carefully onto the turn plates.  
 Remove the pins from the turn plates.



Mount the measuring heads onto the front wheels.



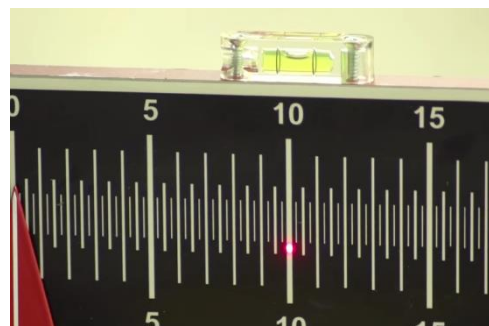
Make sure that all 3 cylinders have good contact to the rim edge or to the tire.



Mount the targets onto the rear wheels.



Make sure that the target is put in level.



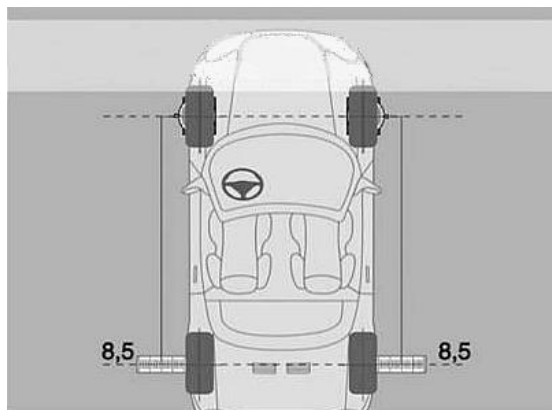
## 2. „STRAIGHT AHEAD" OF FRONT WHEELS

Switch on both laser and beam onto the target on the rear wheels.

**Turn the steering wheel** until the laser points show the same value on both targets.

For example 8,5 left and right.

When both targets show the same value the front wheels go straight ahead



## 3. CAMBER

Put the electronic camber gauge onto the shaft of the measuring head and switch it on.

Secure it with the little screw.



The display directly shows the camber value.

Repeat it on the other side.



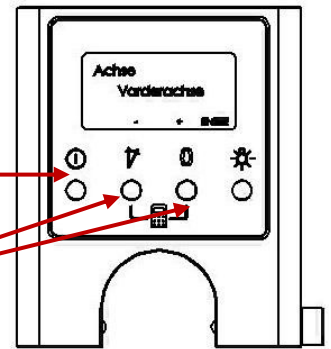
## 4. FRONTAXLE: TOE MEASUREMENT AND ADJUSTMENT USING THE INCLINOMETER

Turn steering wheel straight and lock it!

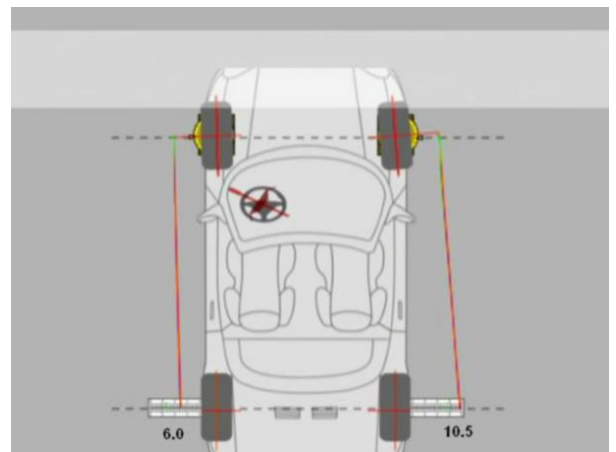
Switch on

Press "angle button" and "0 button" together and hold for 3 secs.

Select front or rear axle with + or - button and confirm with ENTER.

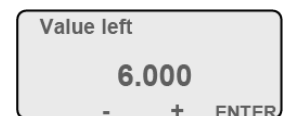


Turn both lasers onto the targets on the rear axle.



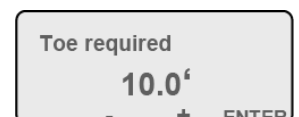
Enter the shown values on the rear axle targets left and right by pressing + or - button and confirm the value with ENTER

(For example: Value left 6,0 and Value right 10,5)



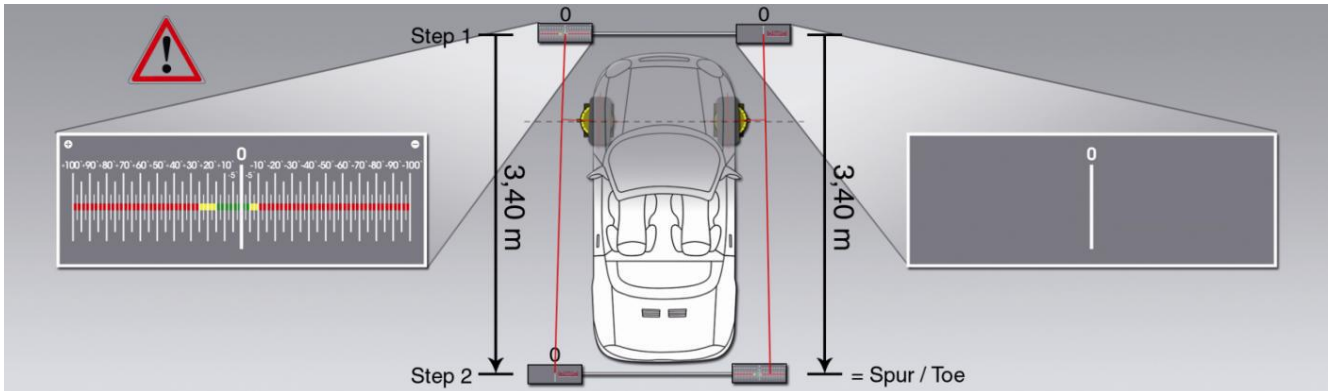
Enter the requires toe value by pressing + or - button and confirm the value with ENTER

(For example: 10')



**+ = Toe in**  
**- = Toe out**

Put the toe target in front of the front axle and beam with both lasers onto the targets.  
Adjust the toe target bar so that both laser points show 0 on the targets. **(Step 1)**



Move the toe target back by 3,40 m **(Step 2)**

Place the toe target bar so that the left hand side shows 0.

**On the other side you can read the actual toe value.**

Enter the actual toe value by pressing + or - button and confirm with ENTER For example: -12,5'



**+ =Toe in**  
**- = Toe out**

Enter the wheel base by pressing the + or - button and confirm with ENTER. (Contra front axle to contra rear axle)

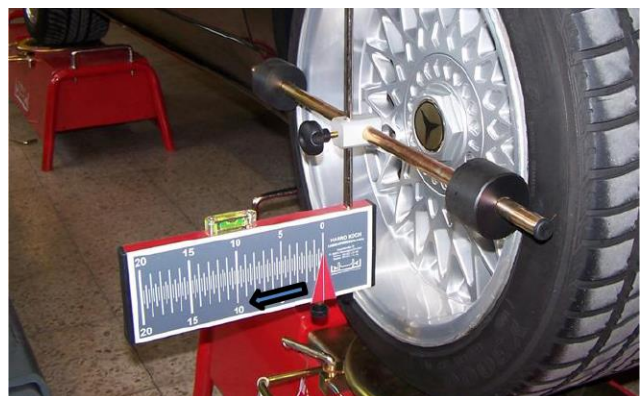


The indicated value is the value to be adjusted. Move the arrows on both rear axle targets to the indicated value and turn both lasers onto the rear axle targets.



Adjust the front toe until both lasers hit the indicated value on the rear axle targets.

**After adjustment recheck the total toe value!**

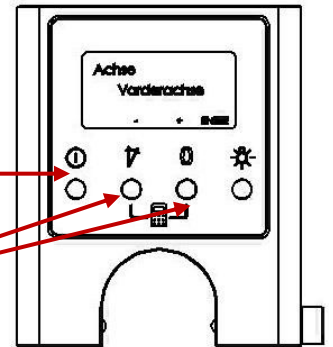




## 5. REAR AXLE: TOE MEASUREMENT AND ADJUSTMENT USING THE INCLINOMETER

Mount the laser measuring heads onto the rear wheels and the targets onto the front wheels.

Switch on

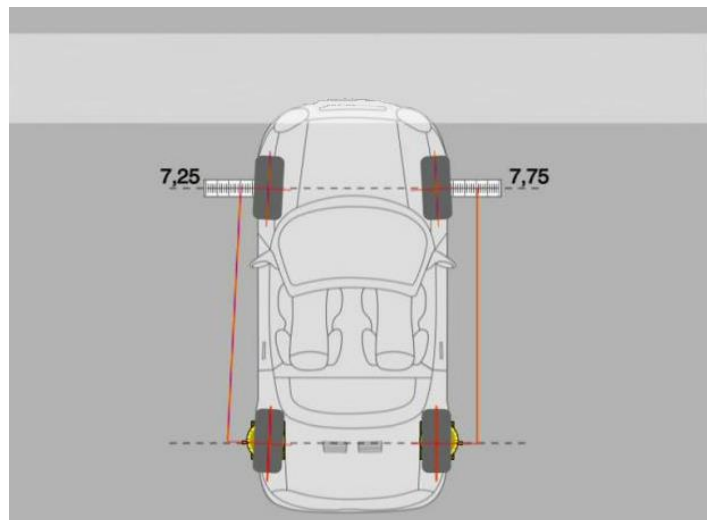


Press "angle button" and "0 button" together and hold for 3 secs.

Select front or rear axle with + or - button and confirm with ENTER

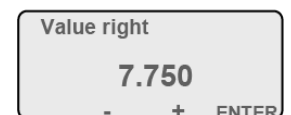
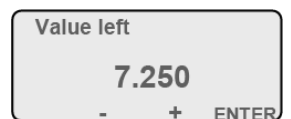


Turn both lasers onto the targets on the front axle.



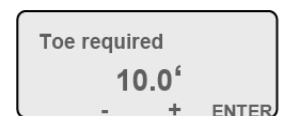
Enter the shown values on the rear axle targets left and right by pressing + or - button and confirm the value with ENTER

(For example: Value left 7,250 and Value right 7,750)



Enter the requires toe value by pressing + or - button and confirm the value with ENTER

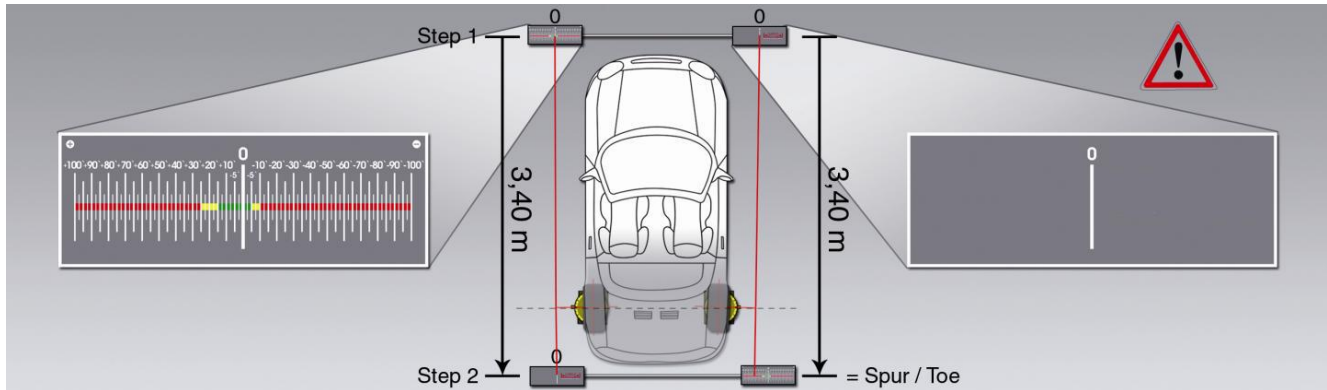
(For example: 10')



**+ =Toe in**

**- = Toe out**

Put the toe target in front of the front axle and beam with both lasers onto the targets. Adjust the toe target bar so that both laser points show 0 on the targets. **(Step 1)**



Move the toe target back by 3,40m (Step 2)

Place the toe target bar so that the left hand side shows 0.

**On the other side you can read the actual toe value.**

Enter the actual toe value by pressing + or –button and confirm with ENTER. For example: -20,0“



**+ =Toe in**  
**– = Toe out**

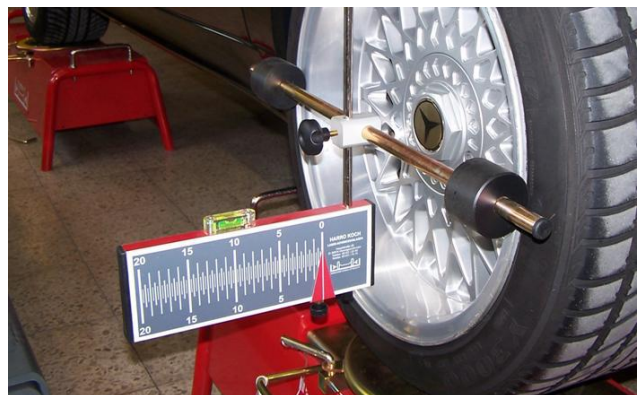
Enter the wheel base by pressing the + or –button and confirm with ENTER. (Centre front axle to center rear axle)



The indicated value is the value to be adjusted. Move the arrows on both rear axle targets to the indicated value and turn both lasers onto the rear axle targets.



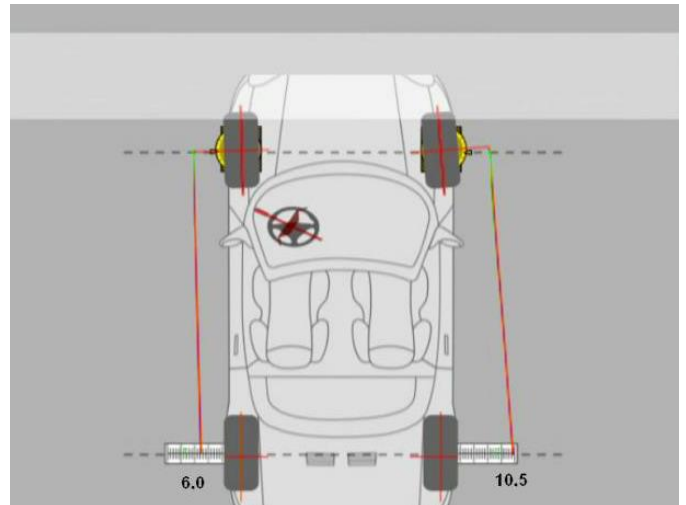
Adjust the rear toe until both lasers hit the indicated value on the rear axle targets.



**After adjustment recheck the total toe value!**

## 6. FRONT AXLE TOE MEASUREMENT AND ADJUSTMENT USING THE SOFTWARE!

- Measure the wheel base and fill in the software
- Put the steering wheel straight and lock it
- Enter the values shown by the laser points on the rear axle targets into the software!



**?** **Toe measurement**

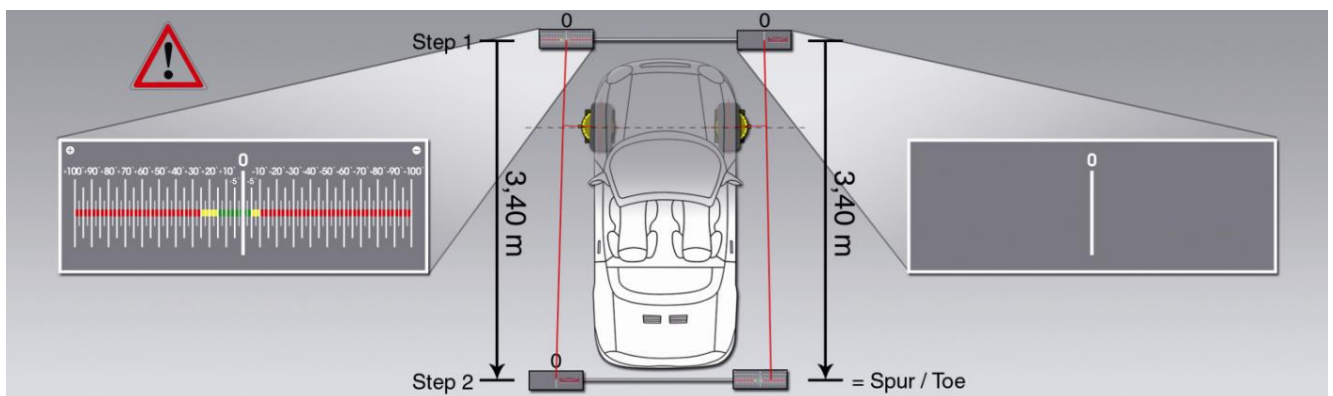
**Turn the steering wheel straight and lock it!**

**Values on the targets at the rear axle:**

	left	right
	<b>6</b>	<b>10,5</b>
<b>enter actual toe value:</b>		
<b>enter required toe value:</b>		

adjust the toe left and right to ? on the targets!

Put the toe target bar in front of the front axle and beam both lasers onto the targets. Adjust the toe target bar so the both sides show “0” (**Step1**)



Put the toe target bar 3,4 m back and move it to “0” on the left hand side of the car (**Step2**).

**Read the actual toe value on the right hand side of the car and enter the value into the software.**

Make sure to enter the value with + or – (positive toe= +, negative toe= -).

Enter the required toe value into the software.

Make sure to enter the value with + or - (positive toe = +, negative toe = -)

**Toe measurement**  
Turn the steering wheel straight and lock it!

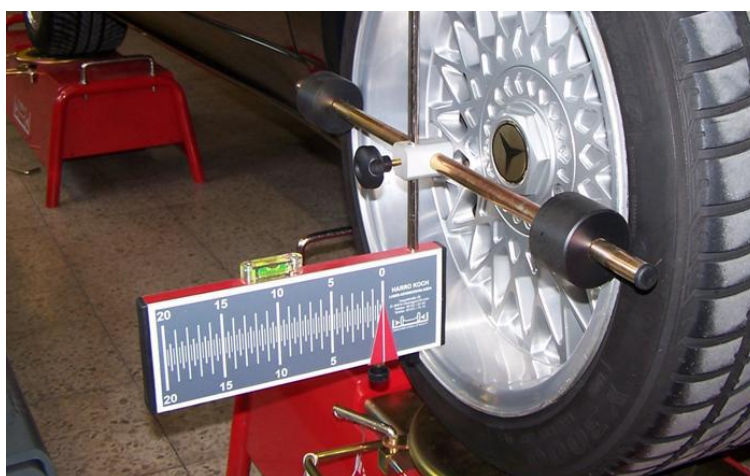
	left	right
Values on the targets at the rear axle:	<b>6</b>	<b>10,5</b>
enter actual toe value:	<b>-12,5</b>	
enter required toe value:	<b>+10</b>	

adjust the toe left and right to **9,0** on the targets!

The software now shows the toe adjustment value. Mark this value with the tips on both rear axle targets.

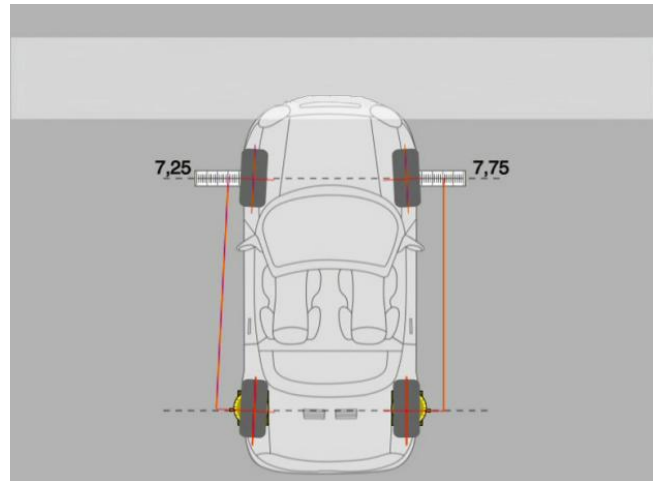
Beam with both lasers onto the rear axle targets.

Adjust the front axle toe bars until both laser points meet the required values on the rear axle targets.



## 7. REAR AXLE TOE MEASUREMENT AND ADJUSTMENT

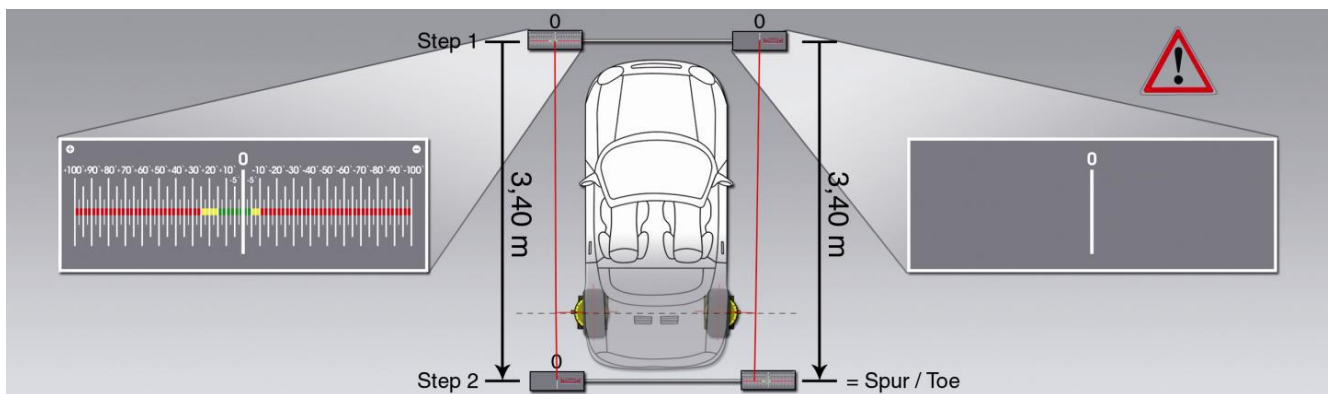
- Mount the laser measuring heads onto the rear axle and the targets onto the front axle
- Beam both lasers onto the targets on the front axle
- Enter the shown values into the software



<b>Rear axle measurement</b>		<b>left</b>	<b>right</b>
Values on the targets at the front axle:		<b>7,25</b>	<b>7,75</b>
<input type="checkbox"/> Rear axle not adjustable			
<b>Toe measurement</b>			
enter actual toe value:		<input type="text"/>	'
enter required toe value:		<input type="text"/>	'

Put the toe target bar in front of the front axle and beam both lasers onto the targets.

Adjust the toe target bar so the both sides show "0" (**Step 1**)



Put the toe target bar 3,4m back and move it to "0" and the left hand side of the car (**Step 2**)

Read the actual toe value on the right hand side of the car and enter the value into the software.

Make sure to enter the value with + or - (positive toe = +, negative toe = -).

Enter the required toe value into the software.

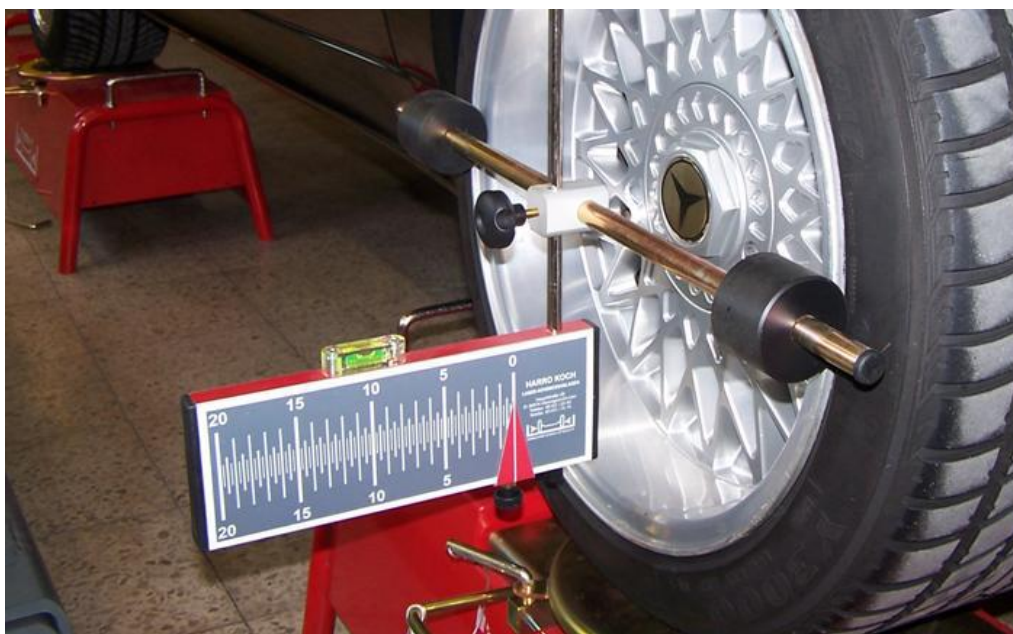
Make sure to enter the value with + or - (positive toe = +, negative toe = -).



The software now shows the toe adjustment value. Mark this value with the tips on both front axle targets.

Beam with both lasers onto the front axle targets.

Adjust the front axle toe bars until both laser points meet the required values on the front axle targets.



## 8. CASTOR / KPI

Put the front wheels in straight ahead position. See 1.  
Move the arrows on the turn plates to 0.

Press the angle button on the camber gauge.



Turn the front left wheel to the right until the arrow reaches the 20° mark on the turn plate. Keep this position and press the O button on the camber gauge



Turn the wheel to the other direction to the 20° mark and read the Castor value. (upper value)

Repeat on the other side.

For exact KPI result please push the brake pedal



If the wheel arch is too small for the 20° turn, you can lower the Measuring head. This will not affect the result.



## 9. TOE OUT ON TURNS

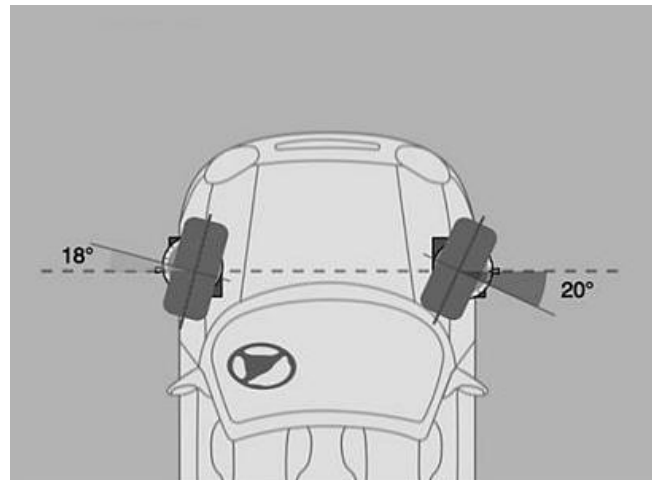
Put the front wheels in straight ahead position.

See 1.

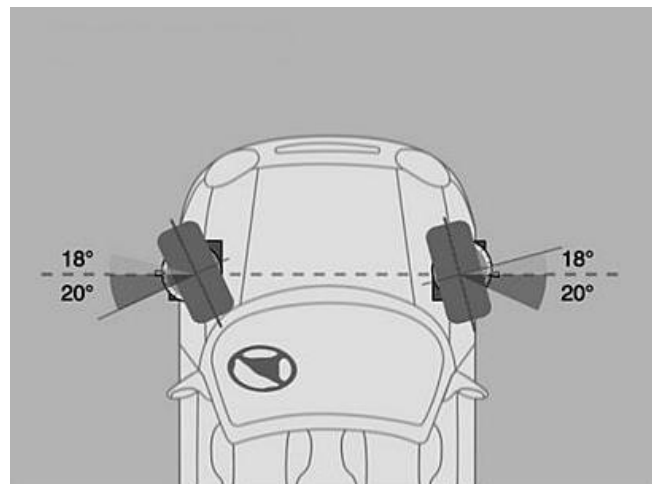
Move the arrows on the turn plates to 0

Turn the wheel on the right side to the 20° mark on the turn plate. On the other side you can read the toe out on turn value.

In case of 18° the t.o.o.t. value is 2°.



Repeat on the other side.





---

## 10. COPY THE SOFTWARE FILES ONTO THE HARD DRIVE OF YOUR COMPUTER

You can work directly from the CD- ROM or you can copy the software onto the hard drive of your computer.

If you want to work directly from CD put the CD into the CD drive. The software starts automatically.

If you want to copy the software onto your hard drive please do the following:

1. Put the CD into your CD drive. After it started please close the software.
2. Open a new file under "programs" or "own files" and call it f.e. "wheel alignment"
3. Copy all files from the CD into the new file.
4. Create a link of the "messtool.exe" file and copy it onto the desktop. For starting the software you only need to double click the link "messtool.exe"
5. Take the CD out of the CD drive and keep it safely.

## 11. TECHNICAL DATA

### Measuring accuracy:

Laser:	+/- 2,5 minutes of angle
Inclinometer	+/- 2,5 minutes of angle
Max. load of turn plates:	700 kg / each

### Laser:

Voltage:	5-7 V
Power:	0,95 mW
Distance:	20m
Laser class	2
Batteries	2x 1,5V (AA) Mignon Alkaline apr. 200h
Runtime of batteries	



Inclinometer:

Batteries:

Betriebsdauer der Batterien 3x 1,5V (AA) Mignon Alkaline apr. 200-300h

### Care and servicing:

Please check and clean the measuring shafts of the HD-10 Easy Touch regularly.

Keep the shafts well oiled. This guarantees a smooth running of the measuring cylinders and protects against corrosion.





*Visit our web site [www.exxotest.com](http://www.exxotest.com) !!*

**EXXOTEST®**

Original manuel

**ANNECY ELECTRONIQUE, creator and producer of: Exxotest and Navylec.**

Parc Altaïs – 1 rue Callisto – F74650 CHAVANOD – Tel : +33 (0)4 50 02 34 34 – Fax : +33 (0)4 50 68 58 93

RC ANNECY 80 B 243 – SIRET 320 140 619 00042 – APE 2651B – N° TVA FR 37 320 140 619

ISO 9001 : 2008 N° FQA 40001142 by L. R. Q. A.