

# DR. FEICKERT ANALOGUE

## Preface

Dear customer, first of all let us thank you for your confidence in our products. The Protractor you hold in your hands is a precision device that enables you to adjust cartridges and tonearms with an effective length from 8,6 up to 17,7 inches for correct overhang and offset.

The calculation of parameters were carefully carried out according Lofgren's (frontside) and Baerwald's (backside) equations aiming in reduction of the overall RMS distortion level caused by deviations from the perfect linear tracking position of your cartridge. Please read this manual carefully to have full benefit from this unique tool. In terms of perfect azimuth calibration we refer to our innovative software ADJUST+ ([www.adjust-plus.com](http://www.adjust-plus.com)).

## A little bit of theory

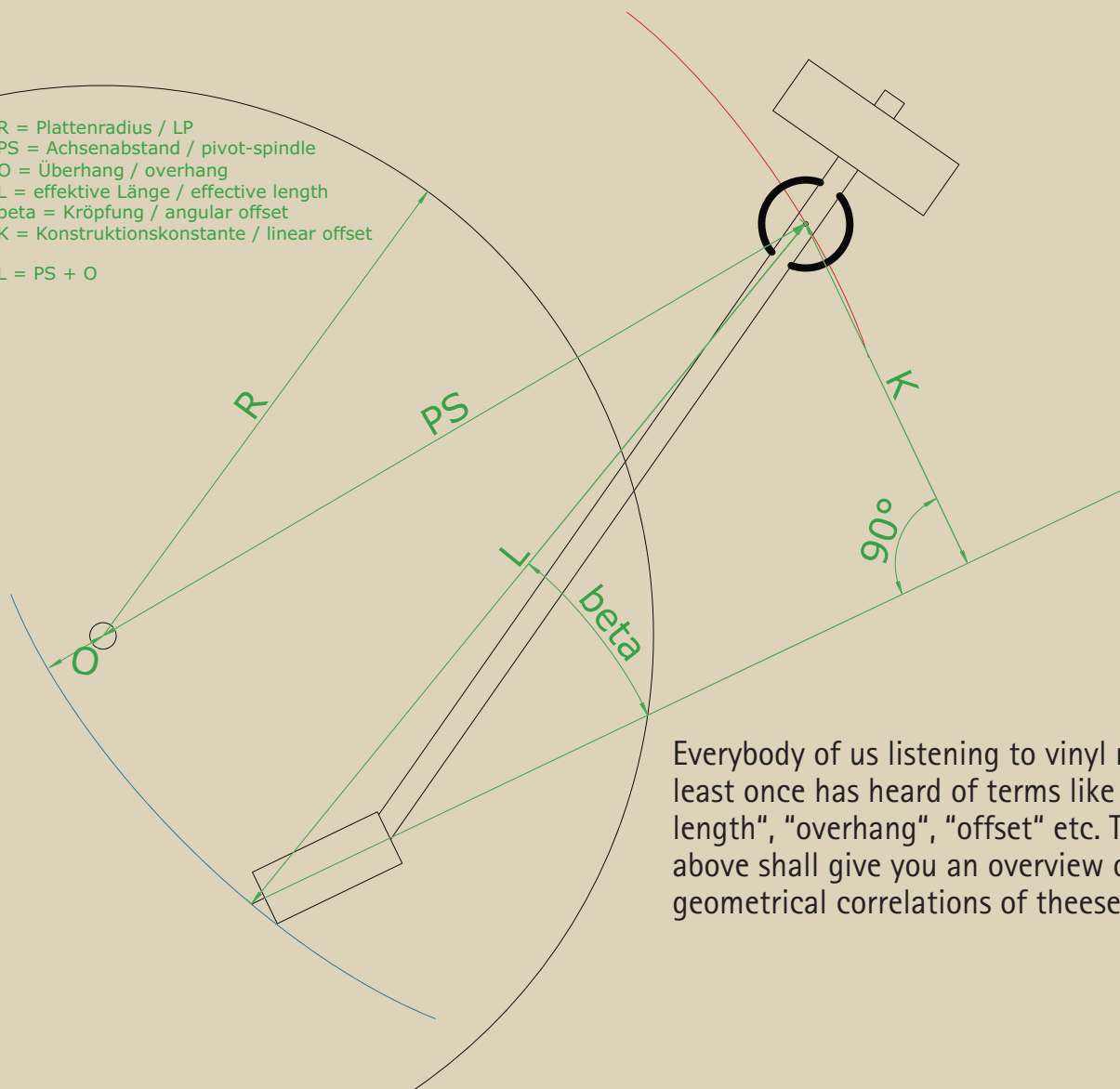
The general geometrical correlation of a tracking device based on a fixed pivot point are well known since the fundamental publications of Baerwald and Lofgren back in the first half of the 20th century. The conclusion of both papers was that such a tracking device must have an angular offset with a defined overhang. The offset and the overhang vary with the effective length of the tonearm itself.

While tracking the record the stylus matches tangential position in the groove in two points – the inner and outer Null points (linear tracking position).

## But what does this mean?

Have a look at the picture below:

R = Plattenradius / LP  
PS = Achsenabstand / pivot-spindle  
O = Überhang / overhang  
L = effektive Länge / effective length  
beta = Kröpfung / angular offset  
K = Konstruktionskonstante / linear offset  
 $L = PS + O$



Everybody of us listening to vinyl records at least once has heard of terms like "effective length", "overhang", "offset" etc. The sketch above shall give you an overview on the geometrical correlations of these terms.

# Manual for protractor

1



## Setup – an easy task

**Caution:** Always bear in mind that cartridges are a very delicate piece of equipment and therefore must be treated with care.

We are not liable for any damage caused by using this Protractor!

2

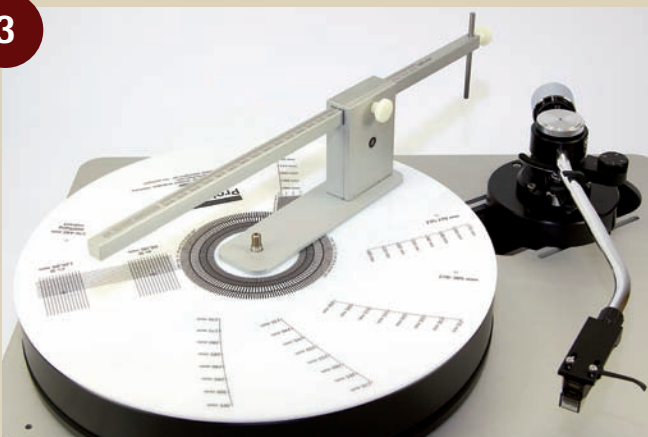


## General procedure

On the left hand first two photos you can see the both sides of the Protractor (Baerwald aka Lofgren 1 and the commonly known Lofgren geometry on the other side).

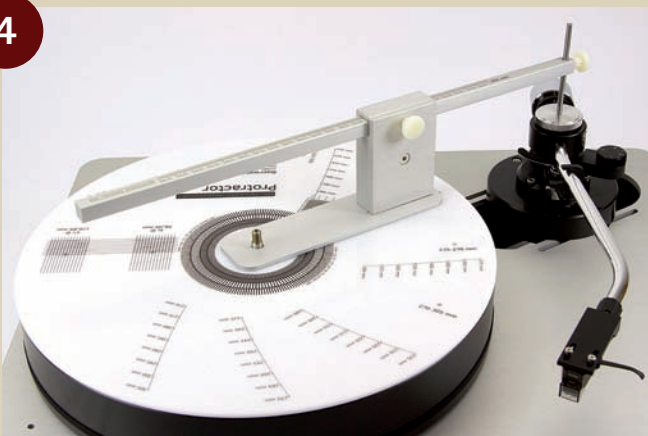
The two geometries are different in overhang causing to have a different set of Null points.

3



Put the disk on the platter and put the gauge in place. Make sure the small pin of the gauge fits into one of the holes.

4



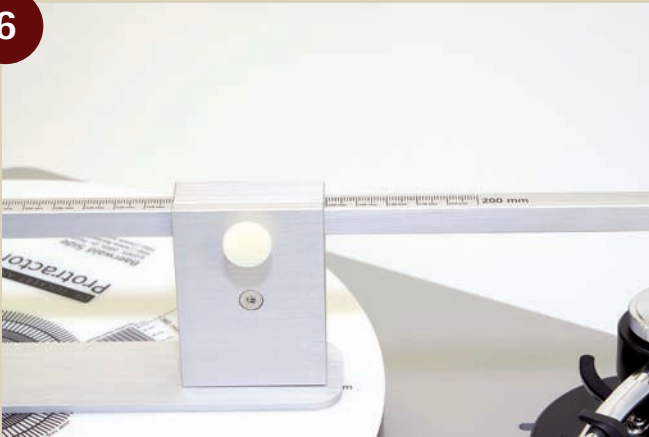
Aim with the gauge towards the arm pivot point.

5



Make sure you have correct alignment to the pivot point.

6



Read out the value on the gauge.

7



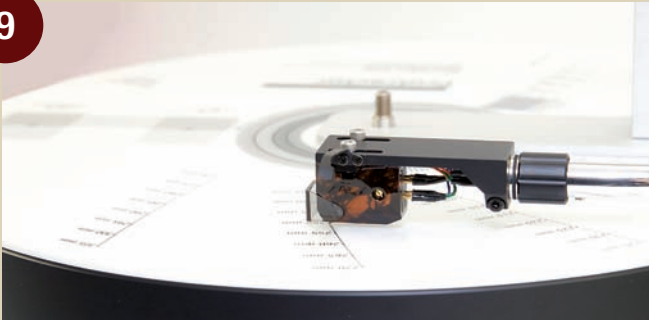
Check if you got the correct hole on the disk corresponding in range to the read out value.

8



If this is not the case turn the gauge to the correct hole and put it in place.

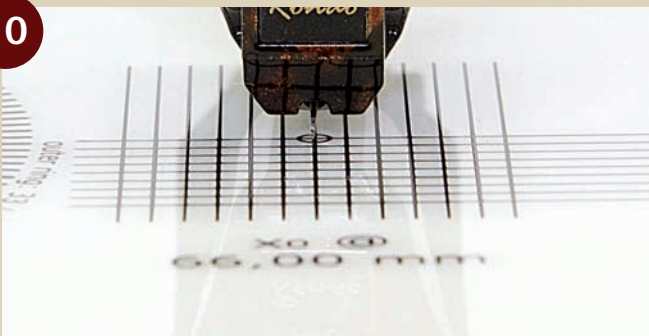
9



Adjust overhang so that you hit the value on the printed line at the point of the read out value of the gauge.



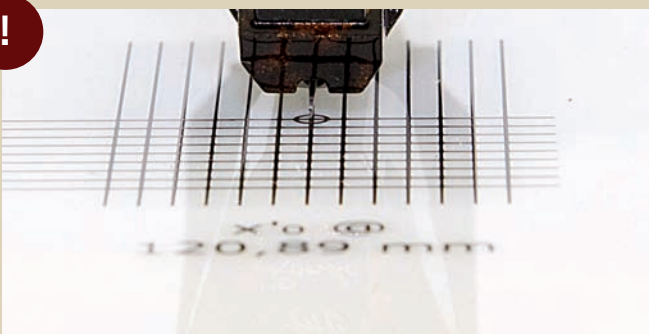
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Then check for parallelity of the cantilever with the auxilliary lines at the two Null points. Make sure antiskating is set to zero!

In case the cantilever is not in parallel with these lines in only one point then overhang was altered. Please readjust overhang and then go again through all the following steps.

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### Important notice for REGA owners:

Bear in mind that REGA uses a different set of parameters. In case you want to use this Protractor you need to install the REGA in 218 to 219 mm pivot-spindle!

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award-winning software Adjust+!**

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