ALDON Company, Inc.

MANUFACTURING EXCELLENCE SINCE 1904 IN RAILWAY AND INDUSTRIAL PRODUCTS

3410 Sunset Avenue, Waukegan, Illinois 60087 • TEL: 847-623-8800 • FAX: 847-623-6139
www.aldonco.com

Operator Instructions

#2 Aluminum Level (p/n: 4022-01)

#23 Aluminum Level & Gauge Combination (p/n: 4022-03)

Application

Aldon's #2 Aluminum Level and #23 Aluminum Level and Gauge Combination are designed to be used as a super-elevation measuring device. Super-elevation can be determined by bringing the spirit vial to plumb via adjusting leg. Reading the position of the adjusting leg will directly indicate the super-elevation of the track.

Primary Construction

The level is constructed primarily of aluminum alloys. The super-elevation adjustment leg, rail foot, main body tube, and vial assembly are all aluminum for a high strength to weight ratio and corrosion resistance. Zinc plated steel fasteners are used for strength. The level is electrically insulated to avoid shunting of track signals.

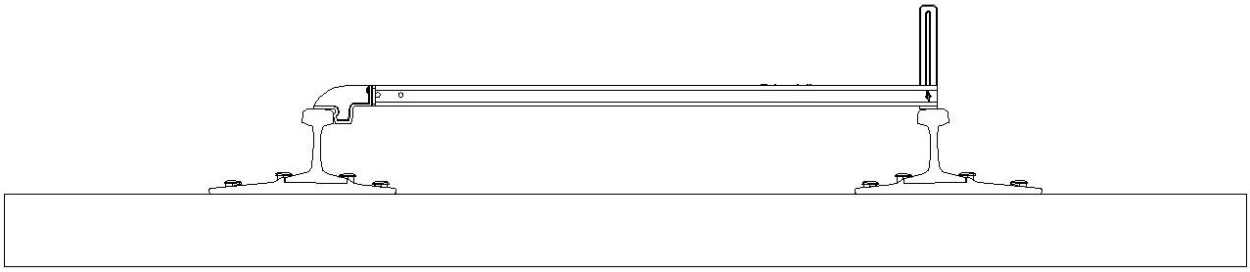
Accuracy

The vial is an adjustable high precision radiused glass vial assembly. The vial tube is radiused 57.5in to achieve a precise 5-7 minute of angle movement.

Calibration

Due to the precise nature of the spirit vial the assembly can be calibrated in the field with any reasonably level track. The vial is assembled in a sprung holder that can be tilted via a screw. This allows the level to be recalibrated yet yield the necessary precision.

To begin place the level on the track with the super-elevation adjustment leg set to the minimum position.



Take note to the position of the bubble. Is it to the right or left of center? How far from center or one of the indicator lines is it?

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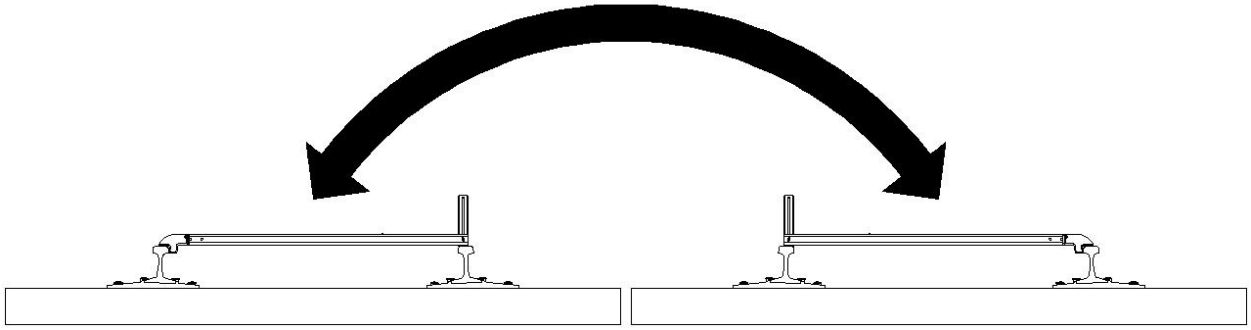
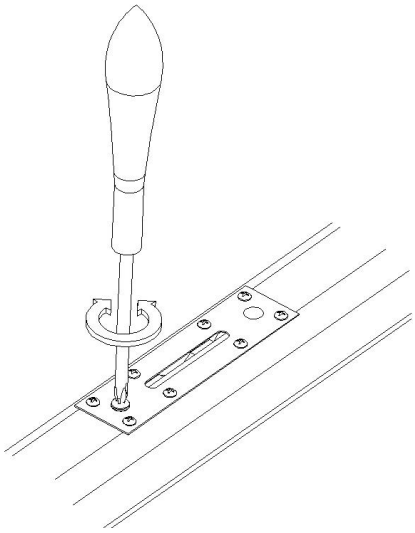
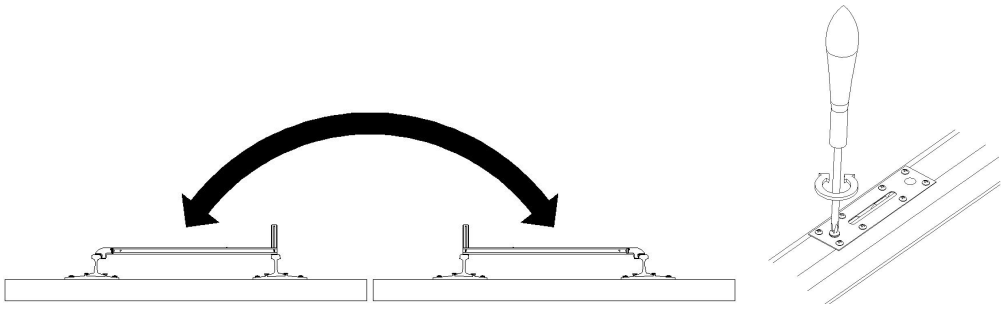
Turn the level, end-to-end, so the super-elevation leg is on the opposite rail.



Using a Phillips screwdriver adjust the vial so the bubble is located in the same position noted before turning it end-to-end. Note the new location of the bubble.



Again, turn the level end-to-end and adjust the bubble half-way to it's previous location. Continue to do so until the bubble does not change position when turned end-to-end. If the bubble remains in the same location when it's turned it is properly calibrated.



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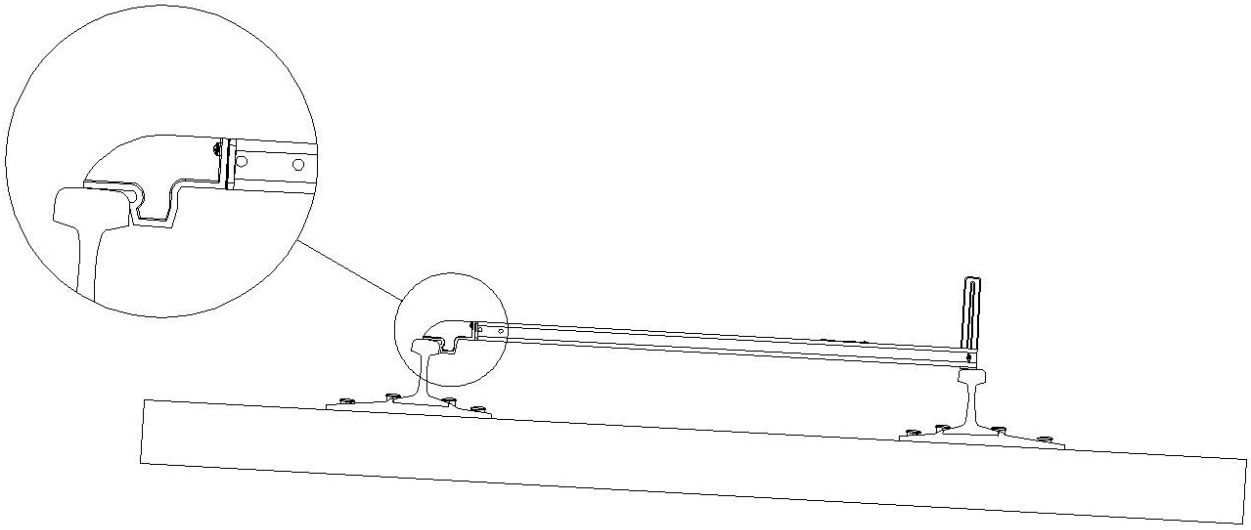
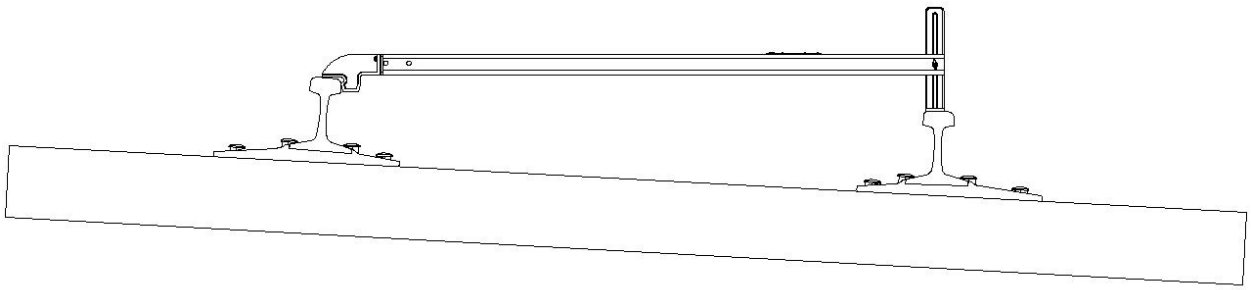
Measurement

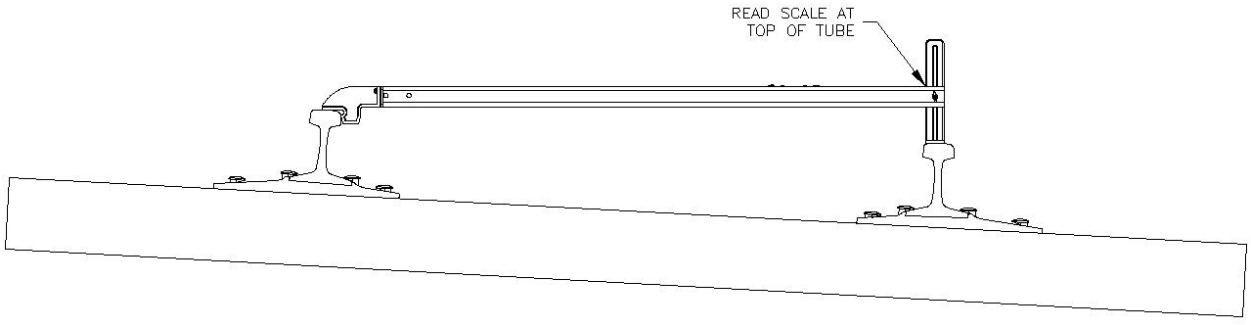
To measure super-elevation place the rail foot on the higher rail with the vertical stop tight against the gauge face.



With the wing nut loose lift the super-elevation end of the level (with the super-elevation scale on the rail) until the bubble reads plumb. Tighten the wing nut.



Read the measurement from the top of the main body tube against the scale. This measurement directly indicates super-elevation.



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If desired the super-elevation, as measured in inches, can be converted to bank angle via the table below.

Super-Elevation (in)	Bank Angle (°)	Bank Slope (%)	Super-Elevation (in)	Bank Angle (°)	Bank Slope (%)	Super-Elevation (in)	Bank Angle (°)	Bank Slope (%)	Super-Elevation (in)	Bank Angle (°)	Bank Slope (%)
1/8	0.1	0.2%	2 1/8	2.2	3.8%	4 1/8	4.2	7.3%	6 1/8	6.2	10.8%
1/4	0.3	0.4%	2 1/4	2.3	4.0%	4 1/4	4.3	7.5%	6 1/4	6.3	11.1%
3/8	0.4	0.7%	2 3/8	2.4	4.2%	4 3/8	4.4	7.7%	6 3/8	6.4	11.3%
1/2	0.5	0.9%	2 1/2	2.5	4.4%	4 1/2	4.6	8.0%	6 1/2	6.6	11.5%
5/8	0.6	1.1%	2 5/8	2.7	4.6%	4 5/8	4.7	8.2%	6 5/8	6.7	11.7%
3/4	0.8	1.3%	2 3/4	2.8	4.9%	4 3/4	4.8	8.4%	6 3/4	6.8	11.9%
7/8	0.9	1.5%	2 7/8	2.9	5.1%	4 7/8	4.9	8.6%	6 7/8	6.9	12.2%
1	1.0	1.8%	3	3.0	5.3%	5	5.1	8.8%	7	7.1	12.4%
1 1/8	1.1	2.0%	3 1/8	3.2	5.5%	5 1/8	5.2	9.1%			
1 1/4	1.3	2.2%	3 1/4	3.3	5.8%	5 1/4	5.3	9.3%			
1 3/8	1.4	2.4%	3 3/8	3.4	6.0%	5 3/8	5.4	9.5%			
1 1/2	1.5	2.7%	3 1/2	3.5	6.2%	5 1/2	5.6	9.7%			
1 5/8	1.6	2.9%	3 5/8	3.7	6.4%	5 5/8	5.7	10.0%			
1 3/4	1.8	3.1%	3 3/4	3.8	6.6%	5 3/4	5.8	10.2%			
1 7/8	1.9	3.3%	3 7/8	3.9	6.9%	5 7/8	5.9	10.4%			
2	2.0	3.5%	4	4.0	7.1%	6	6.1	10.6%			

Michael R. Lannan 11-1-2011