



Nobody Knows the Trouble I've Seen

Louis Armstrong



Sub-roadbed

- Plywood
- Layer Separation



Bubbles



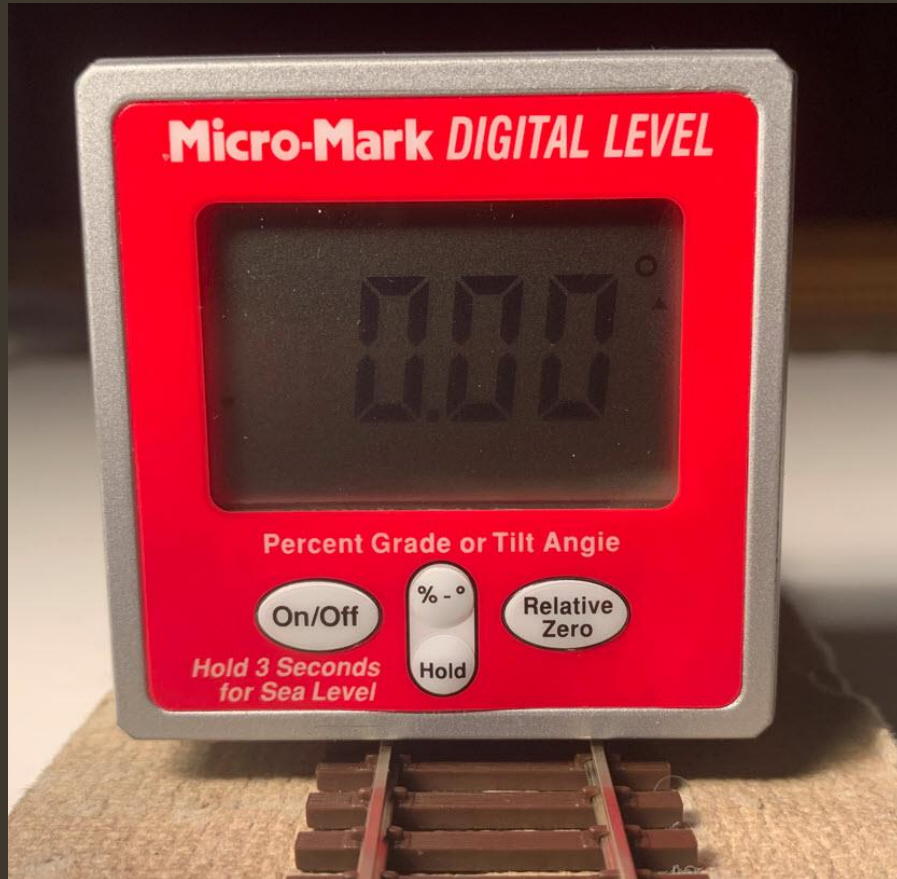
Sub-roadbed – con't

- Risers



Sub-roadbed – con't

- Level – Lean
- Goal



Reality



Sub-roadbed – con't

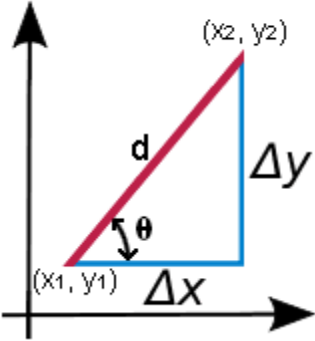
- Slope Calculation - <https://www.calculator.net/slope-calculator.html>

Slope Calculator

By definition, the slope or gradient of a line describes its steepness, incline, or grade.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \tan(\theta)$$

Where
m — slope
 θ — angle of incline



- Slope/Lean

Percent Slope	Slope Degrees	Rise (per scale feet 100)
1%	0.57°	1'
2%	1.15°	2'
3%	1.72°	3'
4%	2.29°	4'
5%	2.86°	5'
6%	3.43°	6'

Sub-roadbed – con't

- Homasote



- Compressed Cellulose
 - Uneven surface

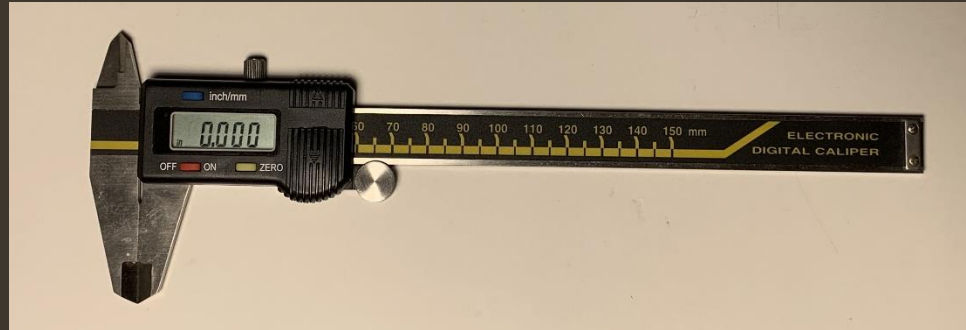
Sub-roadbed – con't

- Homasote con't



Sub-roadbed – con't

- Homasote con't



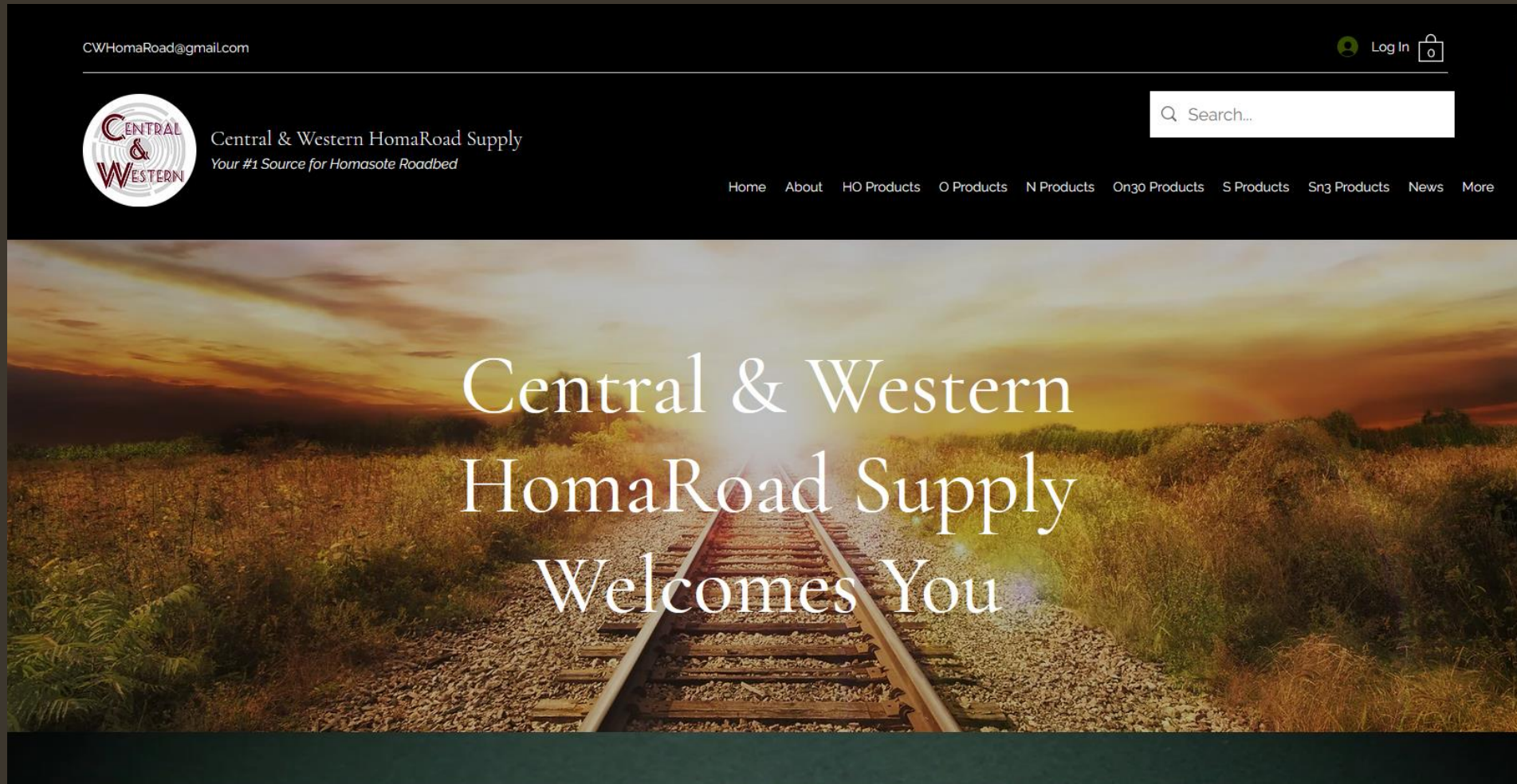
Sub-roadbed – con't

- Homasote con't



Sub-roadbed – con't

- Homasote con't - <https://www.cwhomaroad.com>



The image shows a screenshot of the website for Central & Western HomaRoad Supply. The top navigation bar is dark with the email address "CWHomaRoad@gmail.com" on the left, a "Log In" button with a user icon on the right, and a search bar with the placeholder text "Search...". Below the navigation bar is a circular logo with the text "CENTRAL & WESTERN" and the company name "Central & Western HomaRoad Supply" with the tagline "Your #1 Source for Homasote Roadbed". A horizontal menu contains links for "Home", "About", "HO Products", "O Products", "N Products", "On30 Products", "S Products", "Sn3 Products", "News", and "More". The main content area features a large background image of a railway track stretching into the distance under a sunset sky. Overlaid on this image is the text "Central & Western HomaRoad Supply Welcomes You" in a white serif font.

Sub-roadbed – con't

- Homasote con't - : https://www.youtube.com/watch?v=sYh_mEs7fqs



Sub-roadbed – con't

- Micore



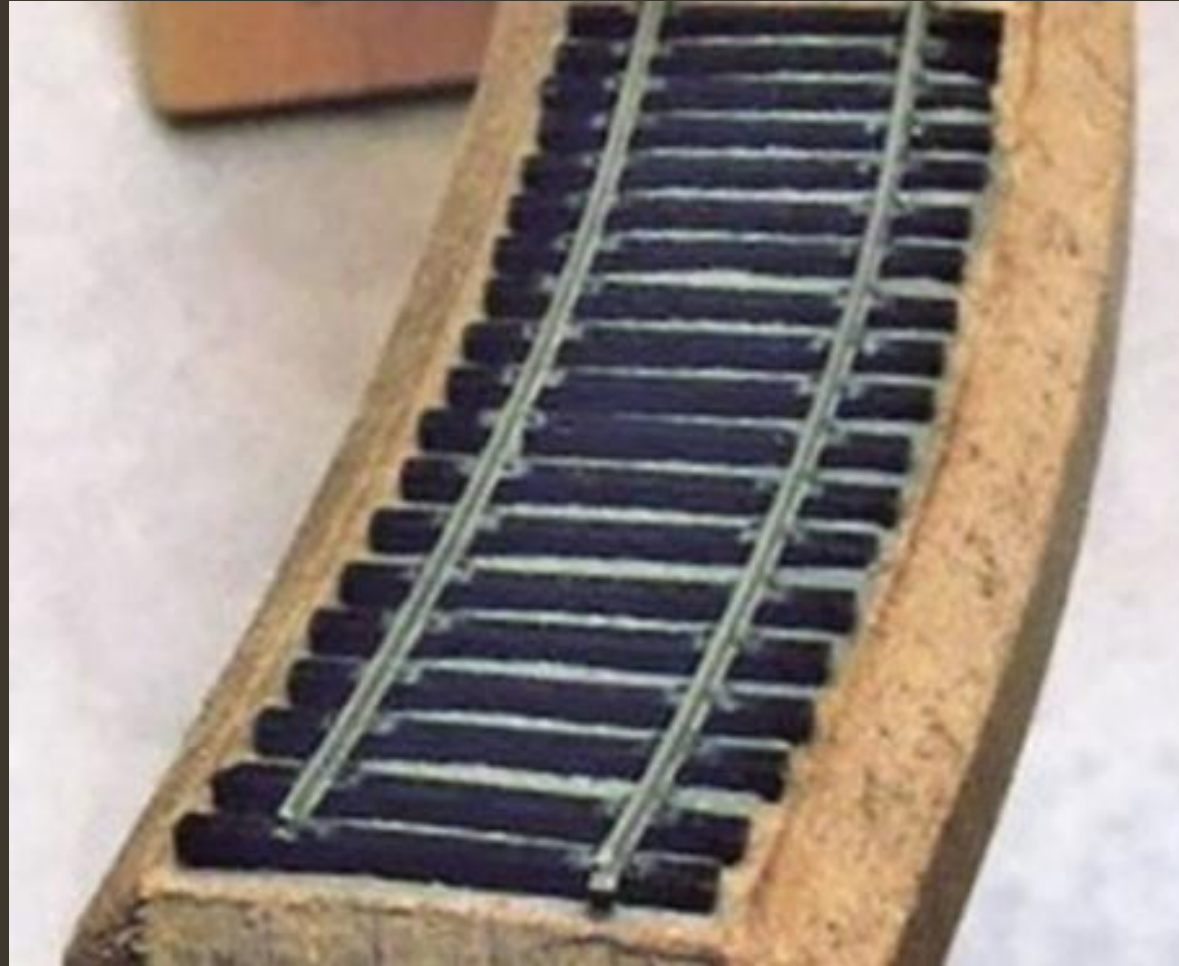
Sub-roadbed – con't

- Spline



Sub-roadbed – con't

- Spline con't



Sub-roadbed – con't

- Foam

OWENS CORNING
FOAMULAR
INSULATION
R-3.0
1/2 inch Thickness
1/2 pulg. de espesor

OWENS CORNING
FOAMULAR
INSULATION
R-3.0
1/2 inch Thickness
1/2 pulg. de espesor

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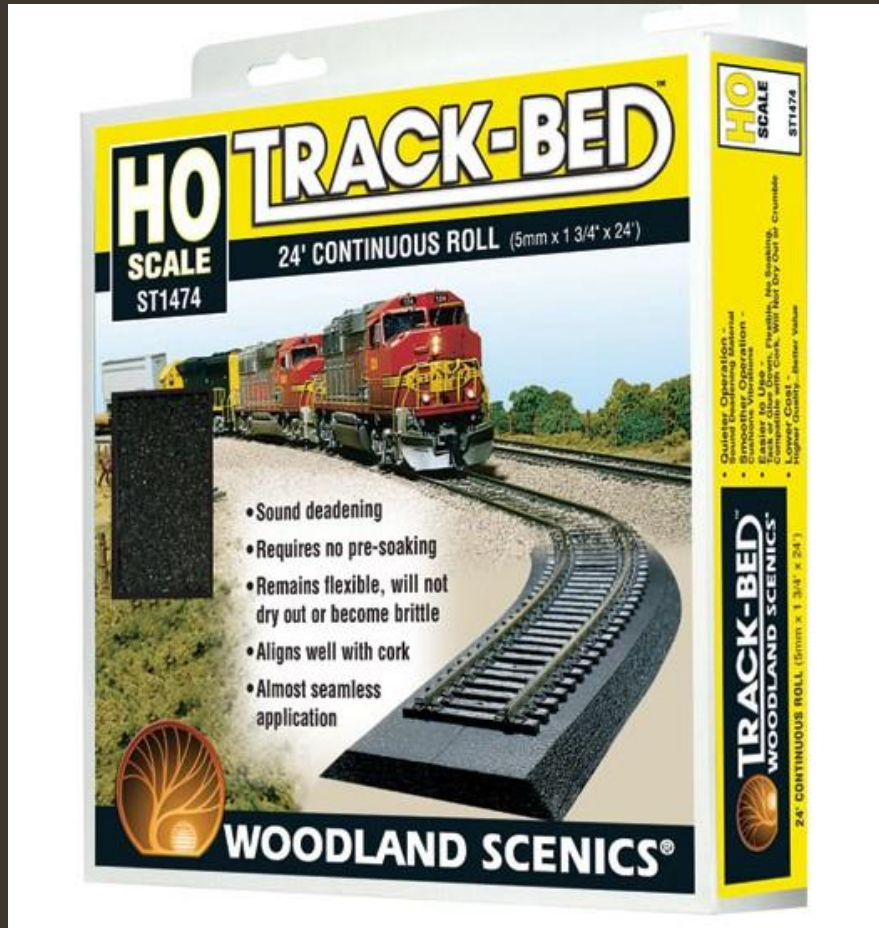
Dow
Styrofoam
UTILITYFIT
1/2 inch Thickness
1/2 pulg. de espesor

Dow
Styrofoam
UTILITYFIT
1/2 inch Thickness
1/2 pulg. de espesor

Dow
Styrofoam
UTILITYFIT
1/2 inch Thickness
1/2 pulg. de espesor

Roadbed

- Foam



Roadbed – con't

- Foam con't



Roadbed – con't

- Cork



Roadbed – con't

- Cork con't



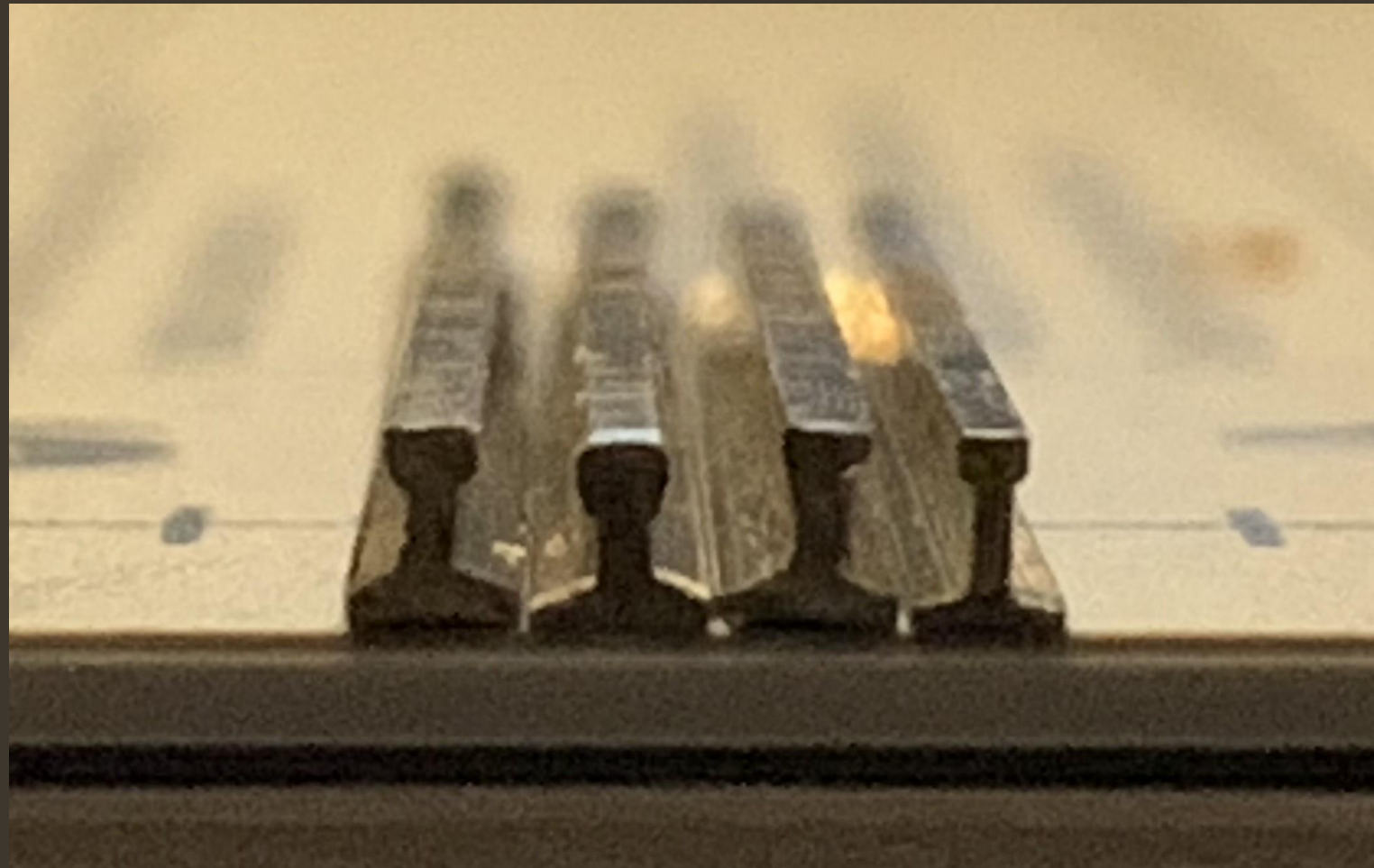
Roadbed – con't

- Cork con't



Trackwork

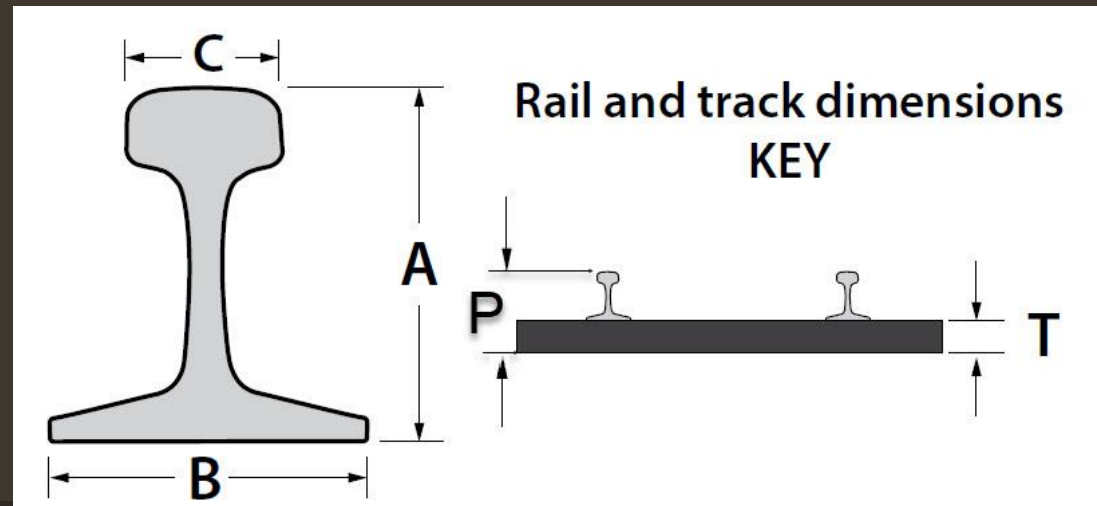
- Rail – Atlas, ME, Walthers. Peco



Trackwork – con't

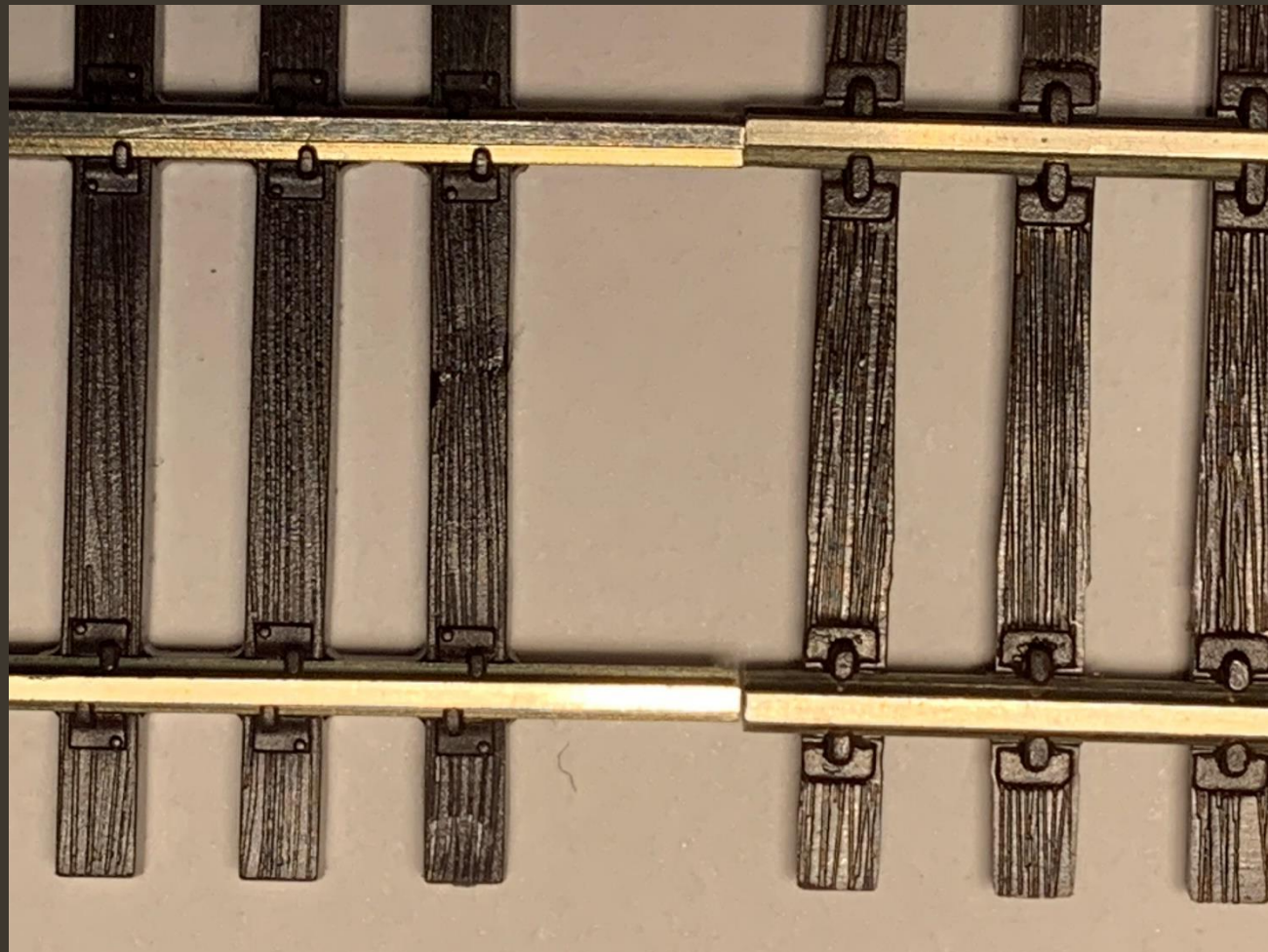
- Rail Comparison

Mfg	Code	Rail Height (A)	Base Width (B)	Head Width (C)	Tie Height (T)	Track Profile Height (P)
Atlas	83	~0.083"	~0.076"	~0.040"	~0.082"	~0.165"
Micro Engineering	83	~0.083"	~0.074"	~0.039"	~0.083"	~0.164"
Peco	83	~0.083"	~0.066"	~0.031"	~0.081"	~0.164"
Walthers	83	~0.083"	~0.074"	~0.040"	~0.065"	~0.147"



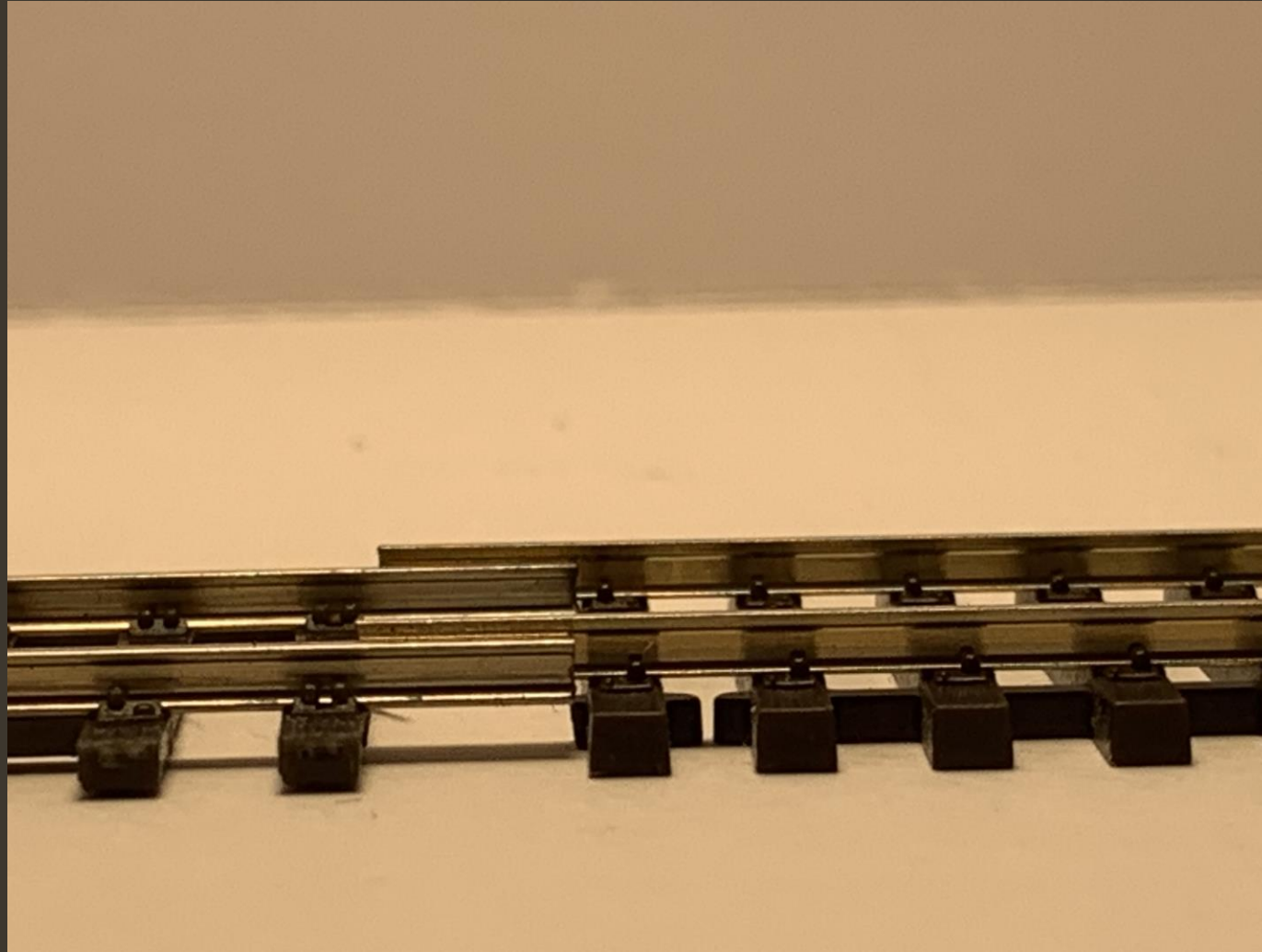
Trackwork – con't

- Rail mismatch



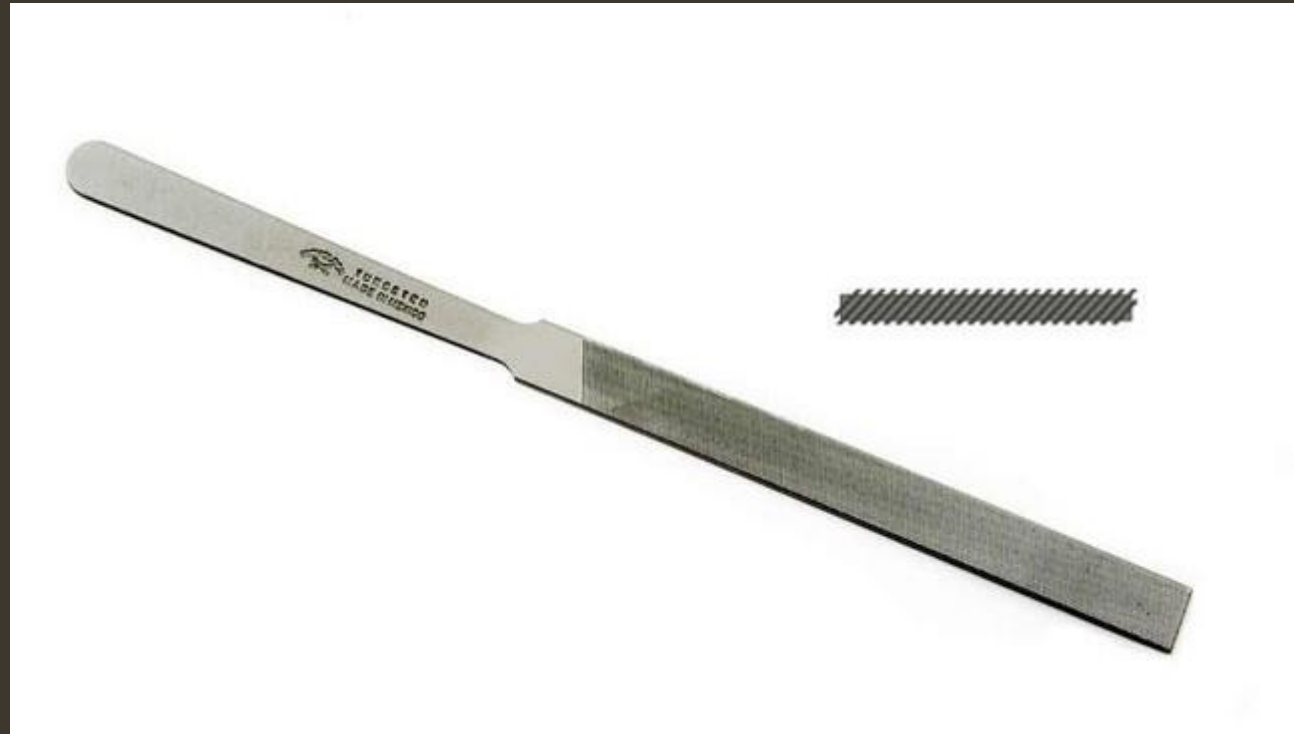
Trackwork – con't

- Rail mismatch – con't



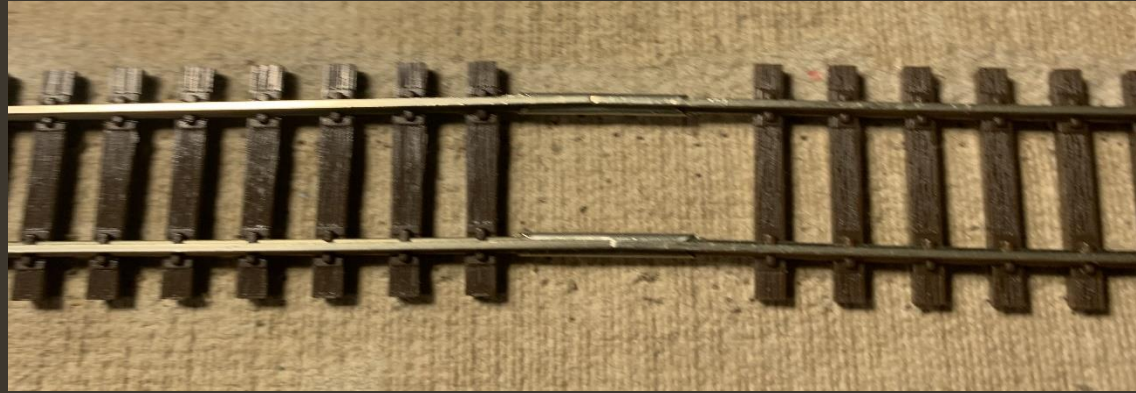
Trackwork – con't

- Rail mismatch – con't



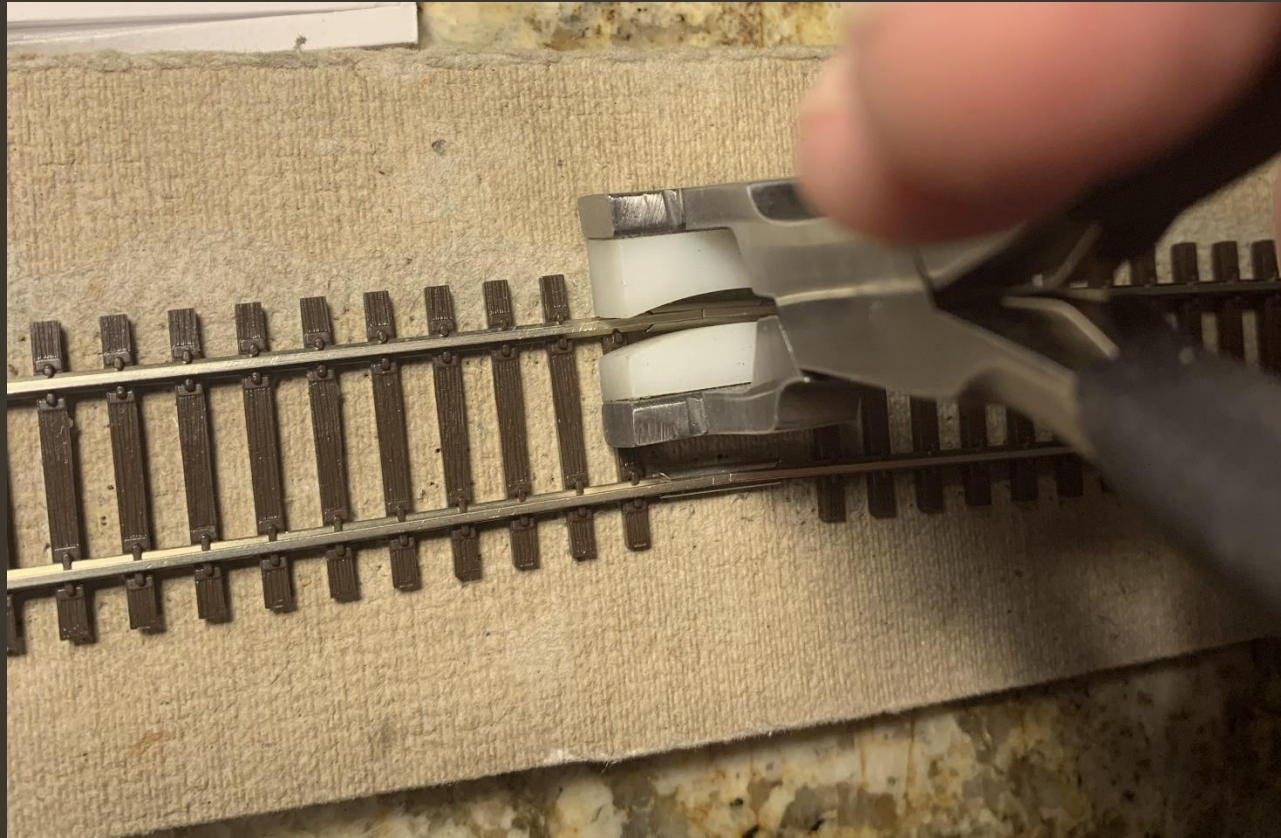
Trackwork – con't

- Rail Kinks



Trackwork – con't

- Rail Kinks – con't



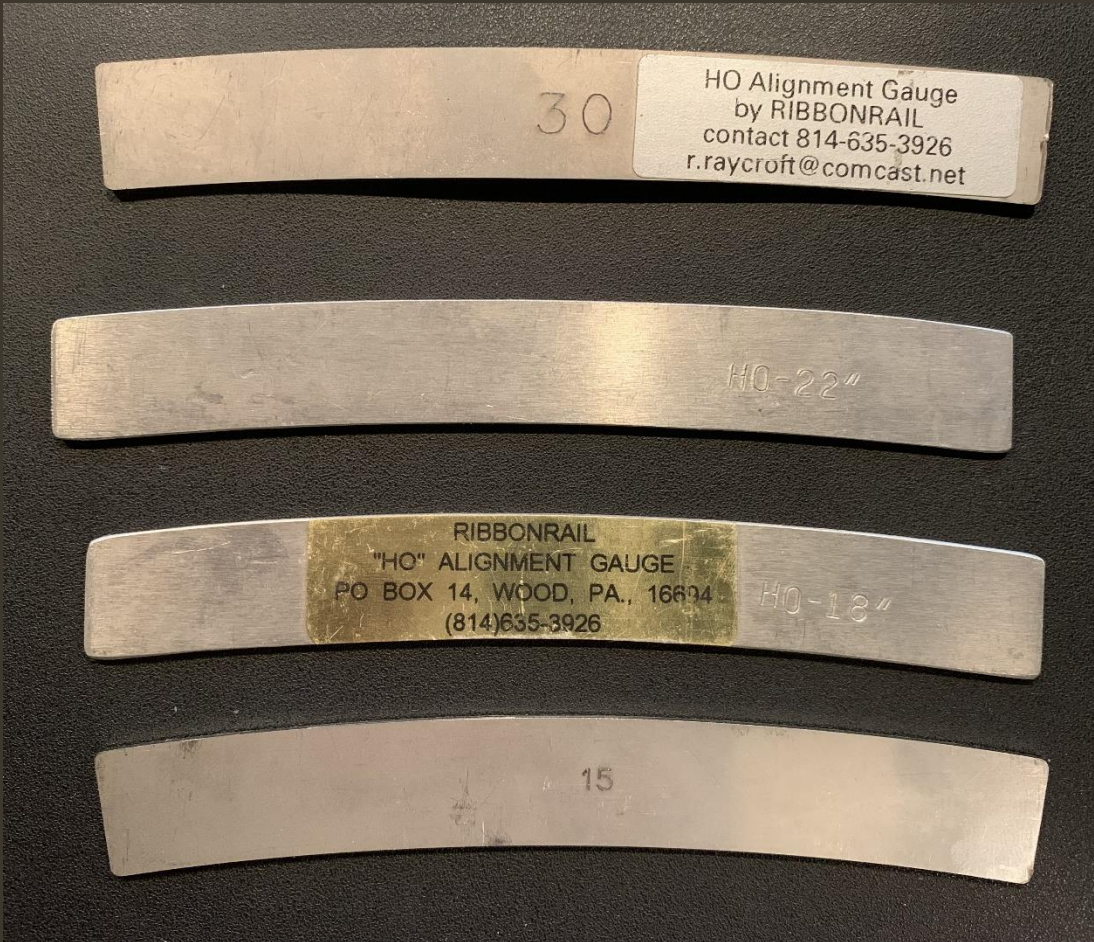
Trackwork – con't

- Rail Kinks – con't



Trackwork – con't

- Rail Kinks – con't



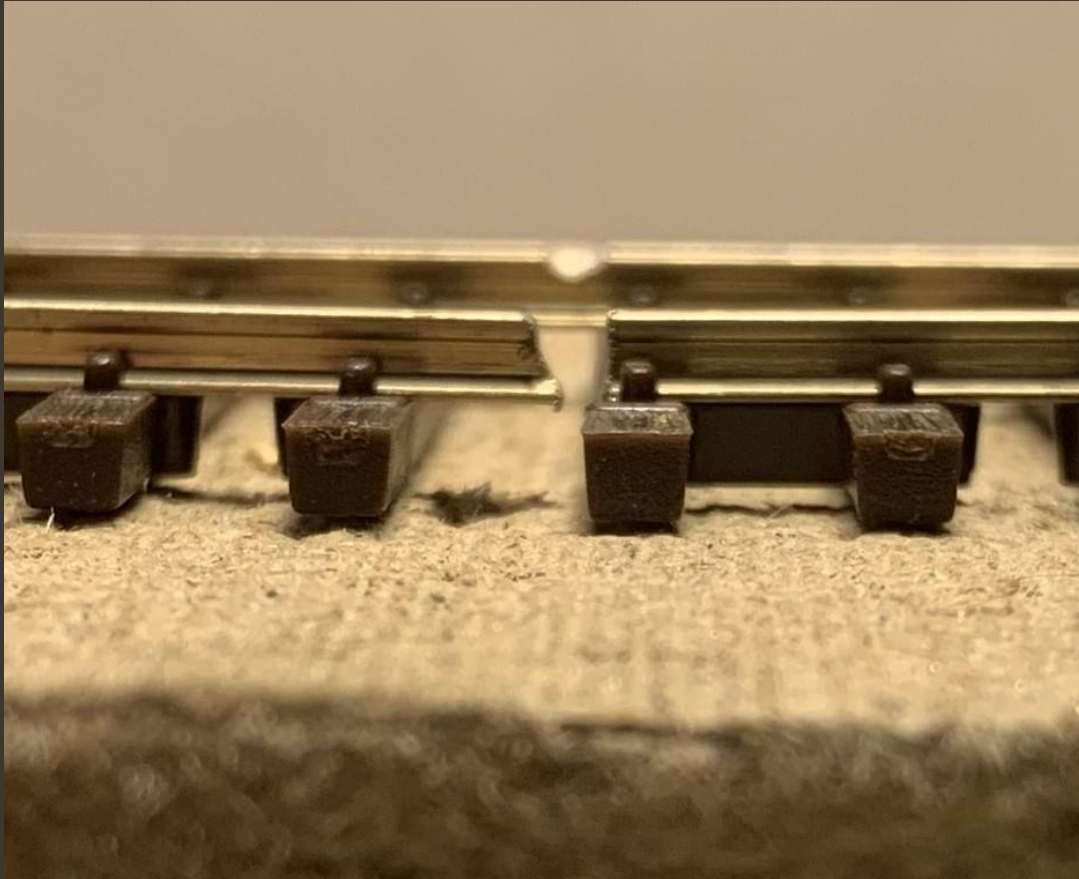
Trackwork – con't

- Rail Gaps



Trackwork – con't

- Rail Gaps con't



Trackwork – con't

- Rail Gaps con't



Trackwork – con't

- Rail Gaps con't



Trackwork – con't

- Needed Rail Gaps



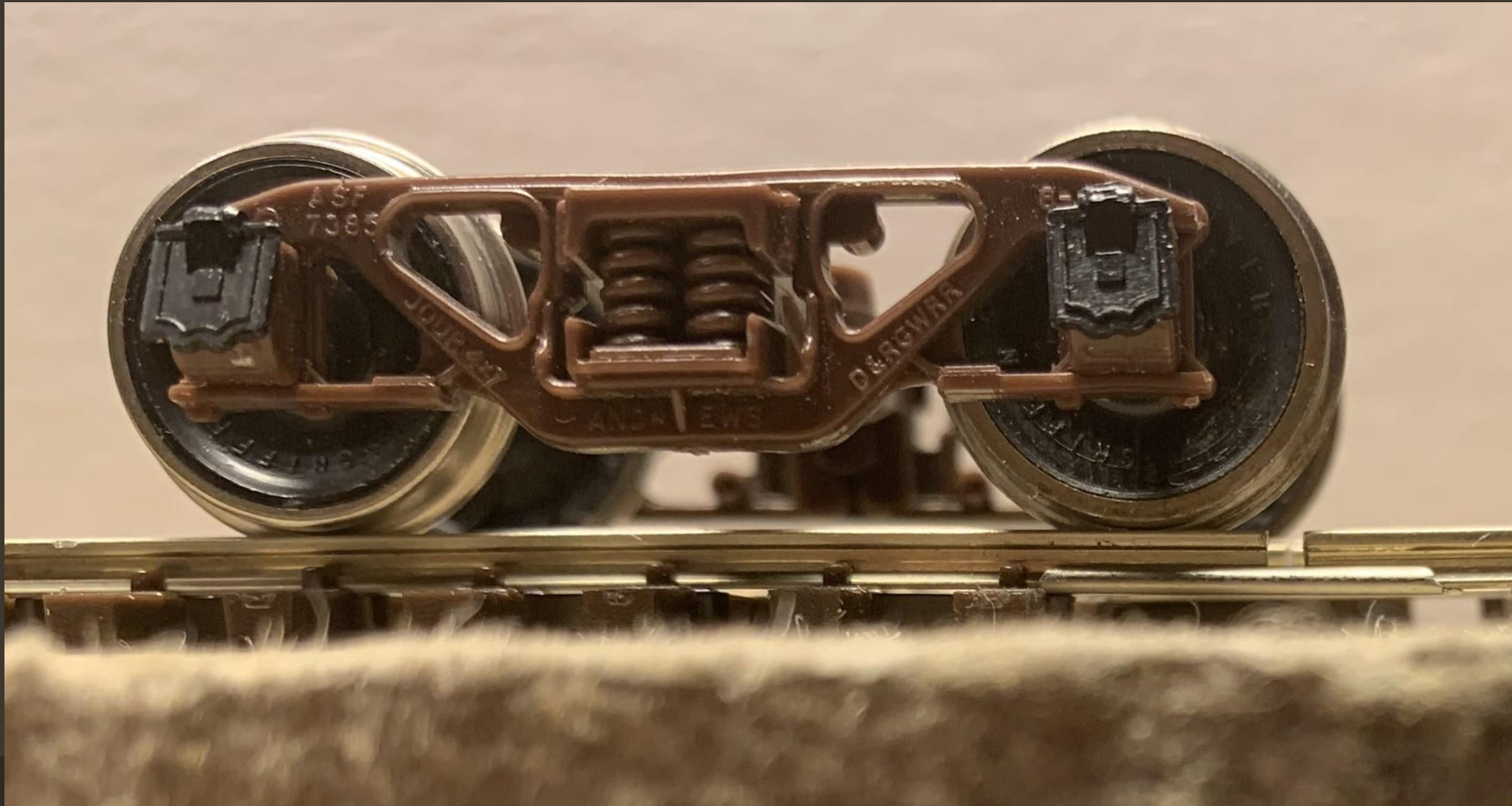
Trackwork – con't

- Needed Rail Gaps – con't



Trackwork – con't

- Needed Rail Gaps – con't



Trackwork – con't

- Switch Point Rails



Trackwork – con't

- Switch Point Rails – con't



Trackwork – con't

- Switch Comparison

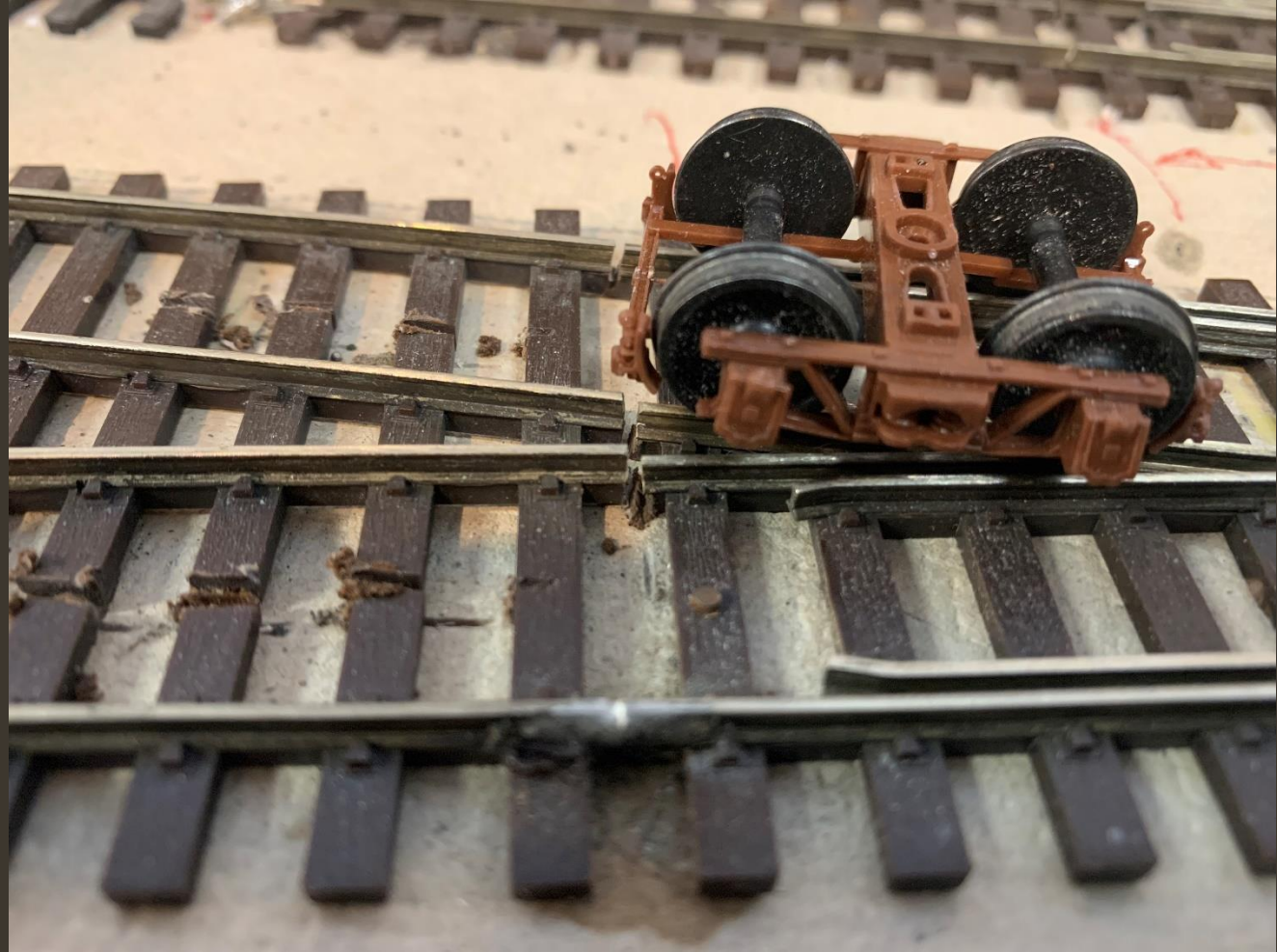
CLOSURE DISTANCE										
(1)	FROG NUMBERS	4	5	6	7	8	9	10	11	12
(9)	Straight Rail Length	2.923	3.621	4.274	5.227	5.911	6.333	7.080	8.056	8.591
(10)	Curved Rail Length	2.975	3.663	4.309	5.256	5.937	6.357	7.101	8.075	8.609
(11)	Curved Rail Radius	15.177	25.206	38.388	48.990	65.590	83.032	105.823	124.579	150.040

https://www.nmra.org/sites/default/files/standards/sandrp/pdf/tn-12_2015.03.05.pdf

<u>Furnout Number</u>	<u>Lead</u>	<u>Frog Angle</u>	<u>Closure Radius</u>
4	5.06"	14° 15'	15"
5	5.69"	11° 25'	26"
6	6.25"	9° 32'	43"
7	8.44"	8° 10'	49"
8	9.00"	7° 09'	67"
10	10.06"	5° 43'	117"

Trackwork – con't

- Switch Frog



Trackwork – con't

- Switch Frog – con't



Trackwork – con't

- What's Wrong



Trackwork – con't

- Bad Soldering



Trackwork – con't

- Switch Tools



Trackwork – con't

- Switch Tools – con't



Clinic Posting

www.lonestarregion.com

Look for the menu item - Clinics

Look in the Construction Section

Q/A