No. 5 Overview

by Tom Knapp MMR#101


N Scale
Nn3
Narrow Gauge

N-Scale Narrow Gauge

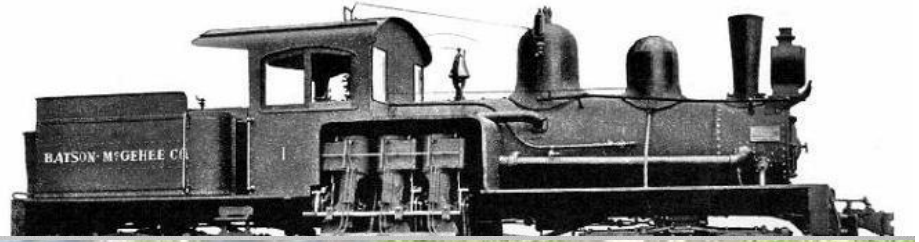
An Overview

Introduction
History
"State-of-the-Art"
Commercial Products

- Locomotives
- Rolling stock
- Track

Modules & Layouts
Resources

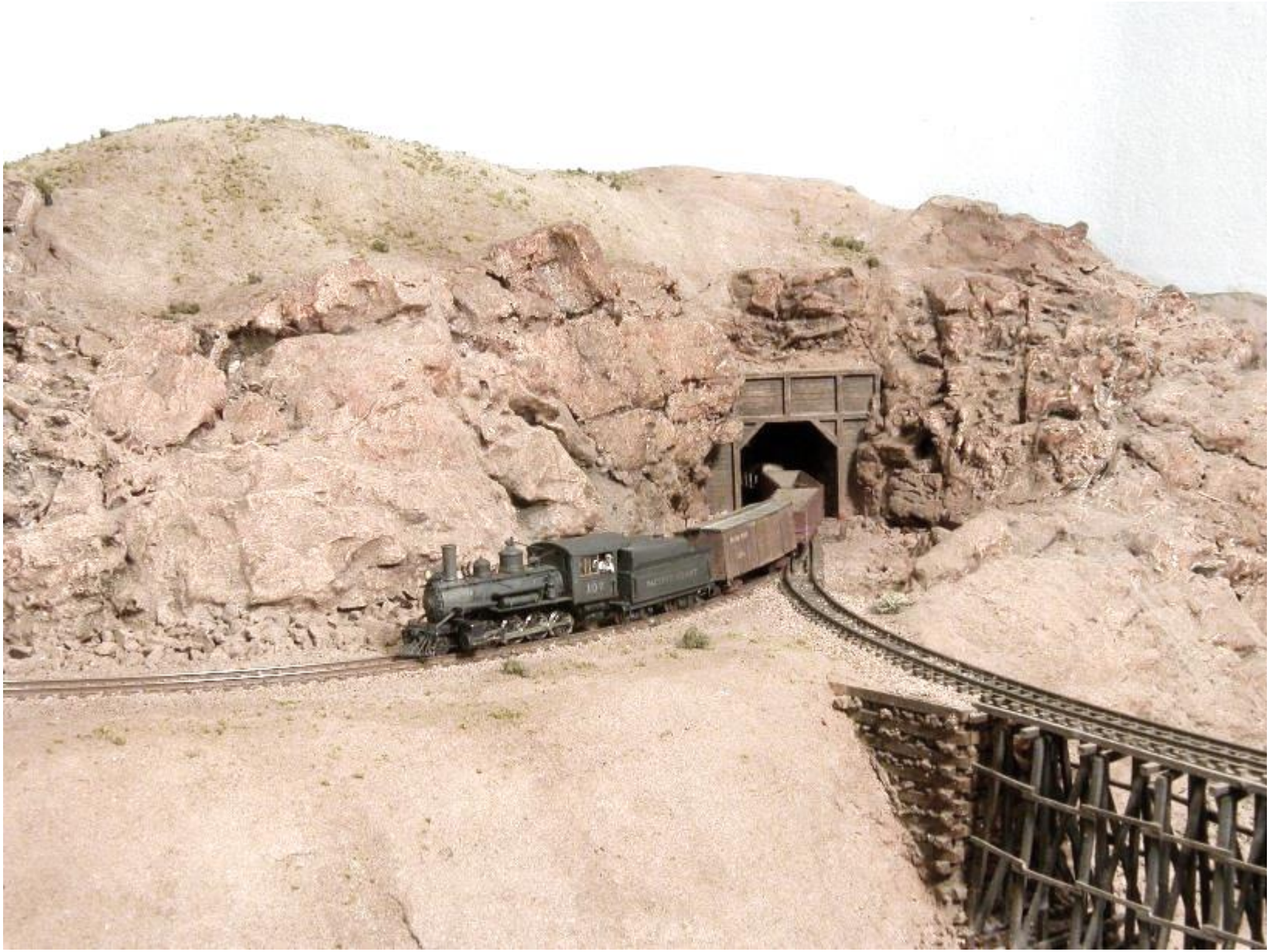
Time permitting: hand laid track, track weathering, track ballasting


BATSON-McGEHEE CO.


Rio Grande
478


345

Nn3 Overview
by Tom Knapp MMR#101

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Rio Grande

Nn3 Overview
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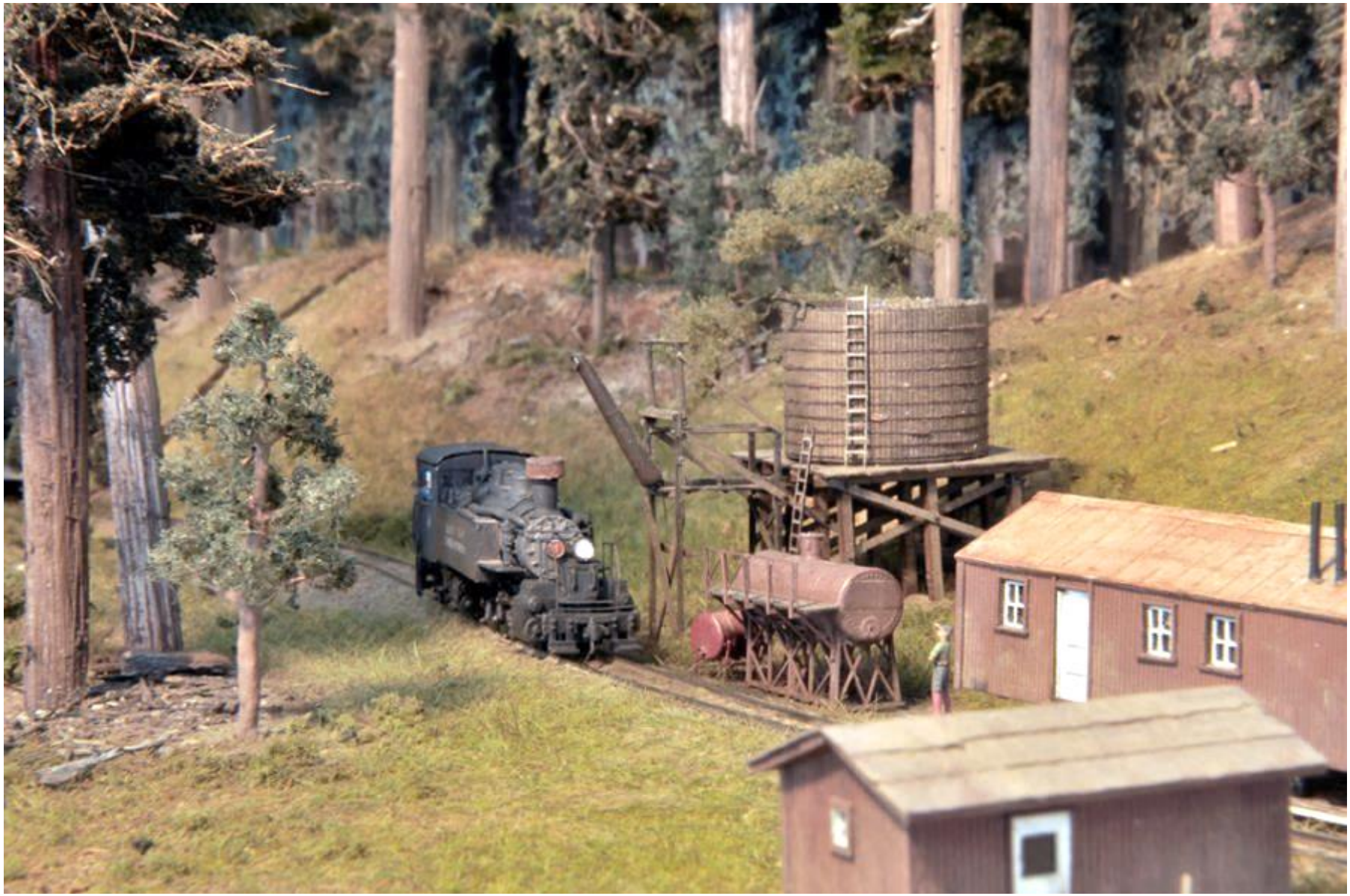
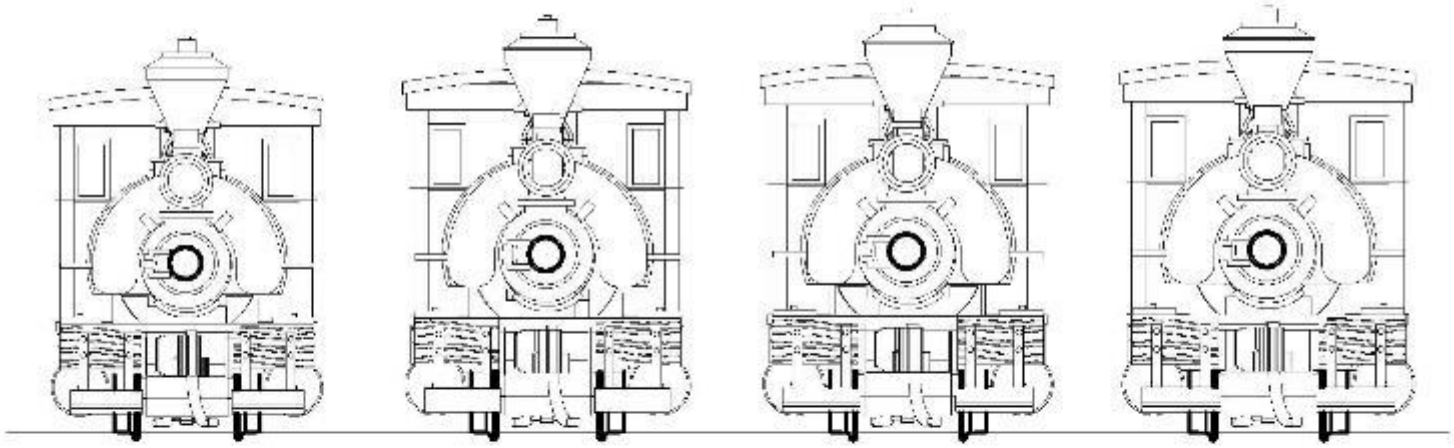


History: So..how did we get here?

Especially...why 6.5mm?

The“Small” Scales



1:160
(N. America, Europe)

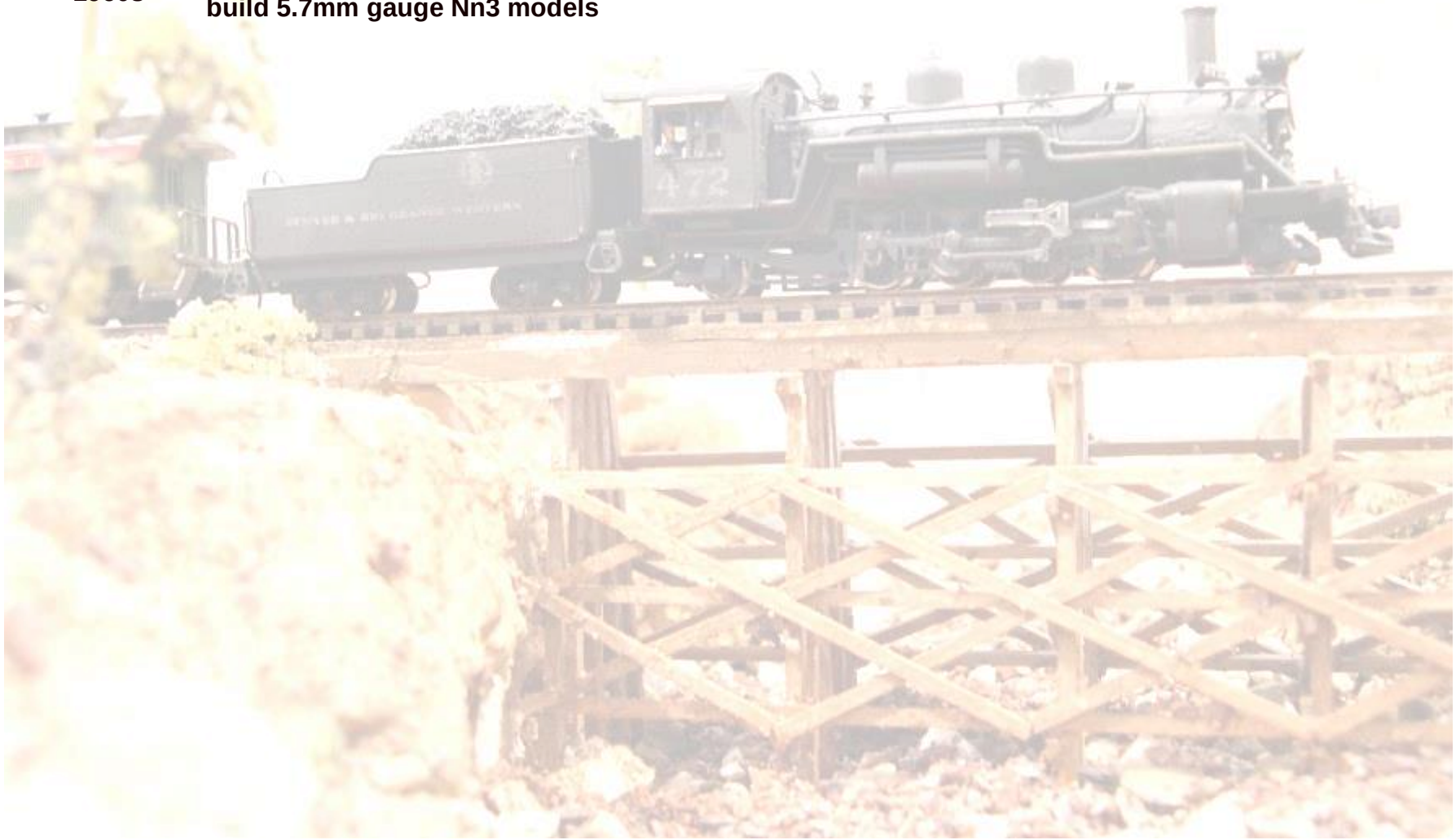
1:152
2mm Scale
(dates from 1920's)

1:150
Japan

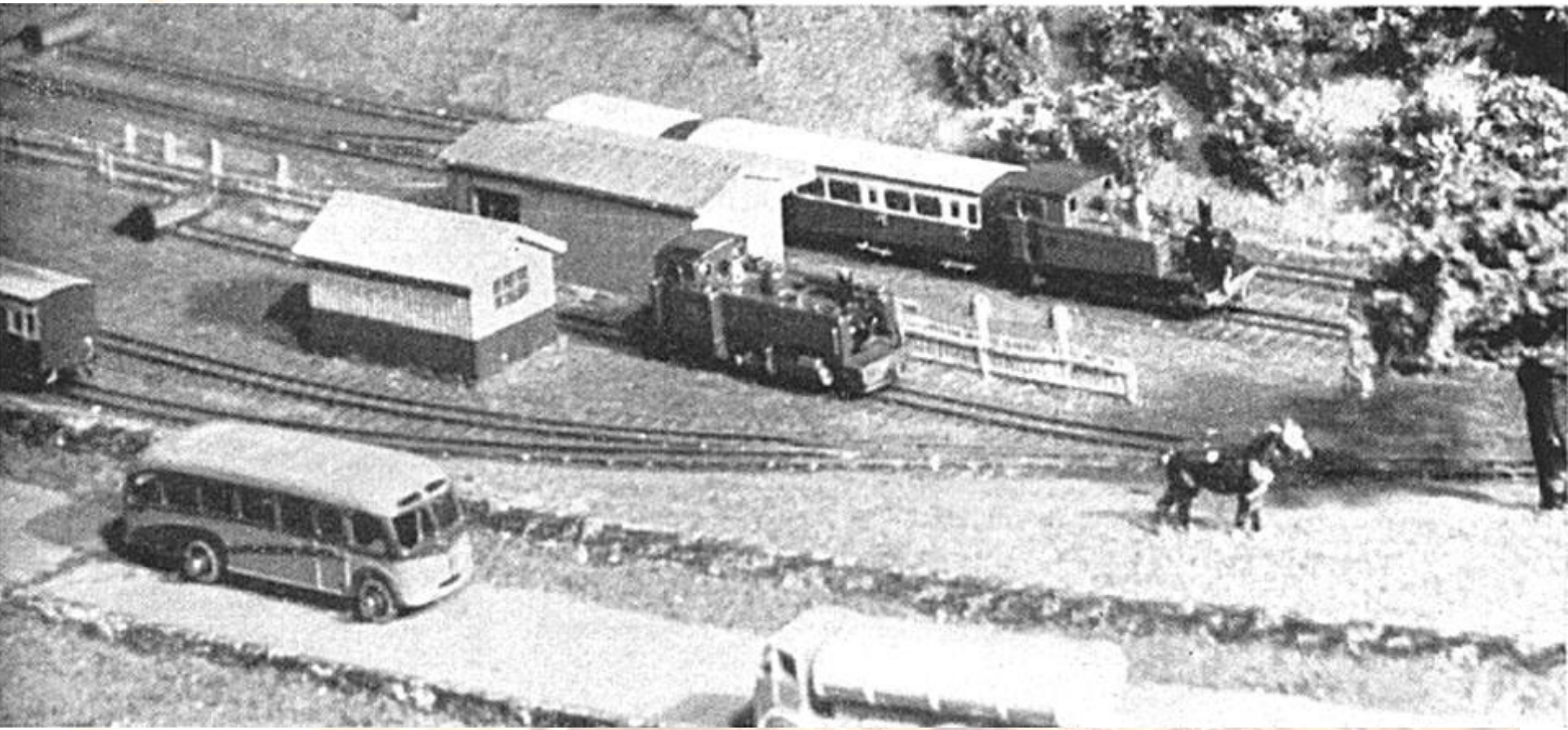
1:148
U.K.

Nn3 Milestones:

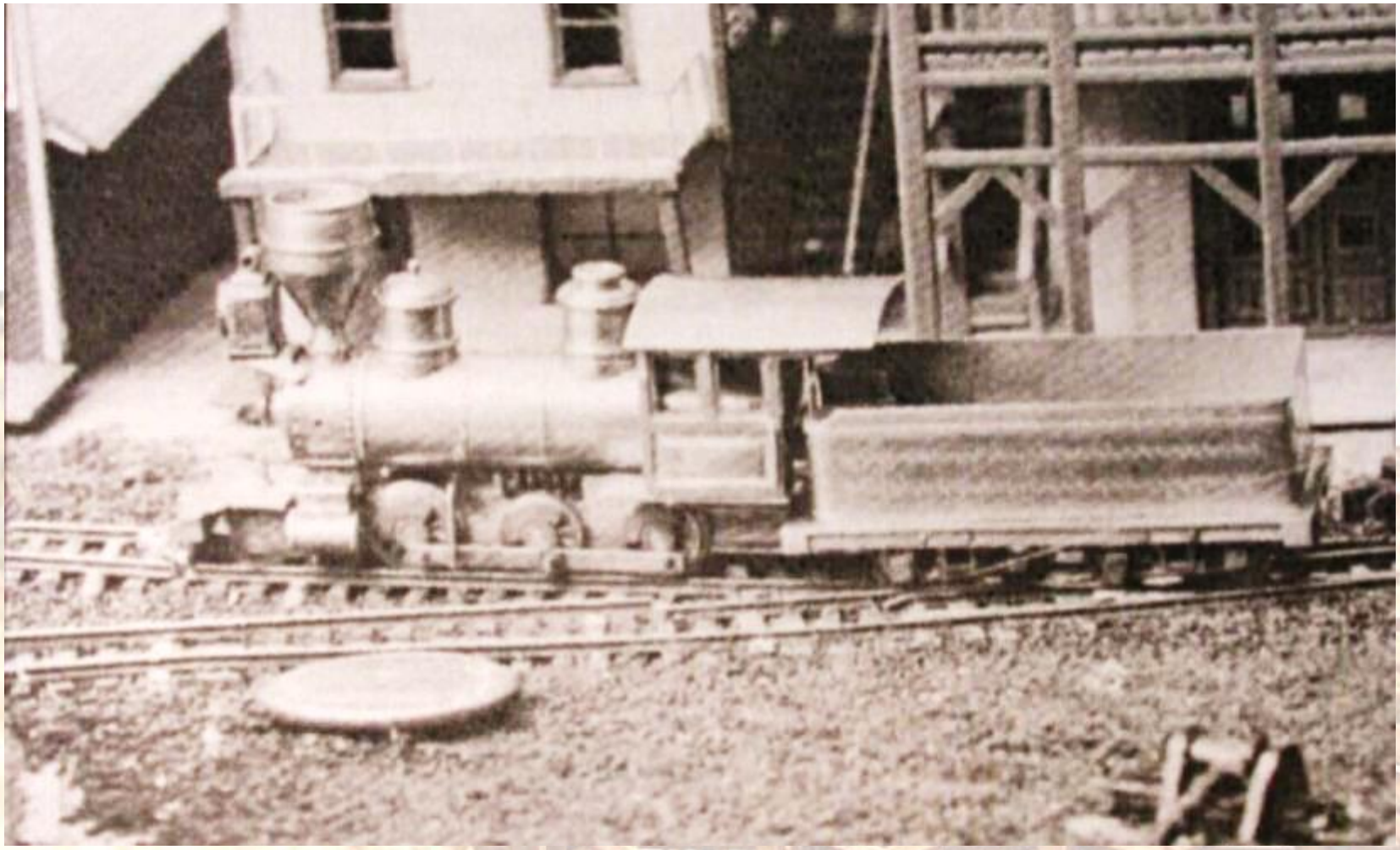
1951	**2MM Scale Narrow Gauge Layout "Vale of Penwal" by Griffiths & Wallace (2-foot gauge)**
1960s	**Karl Weiss builds "proto" Nn3 layout, 1:160 - 3 foot / 5.7mm gauge; other modelers scratch-build 5.7mm gauge Nn3 models**



"Vale of Penwal" layout in 2MM Scale narrow gauge (1951):



Nn3 Milestones



All brass scratch-built N scale locomotive running on 5.7mm gauge (36”) track, by K. Weiss, built during the late 1960’s.

Nn3 Milestones

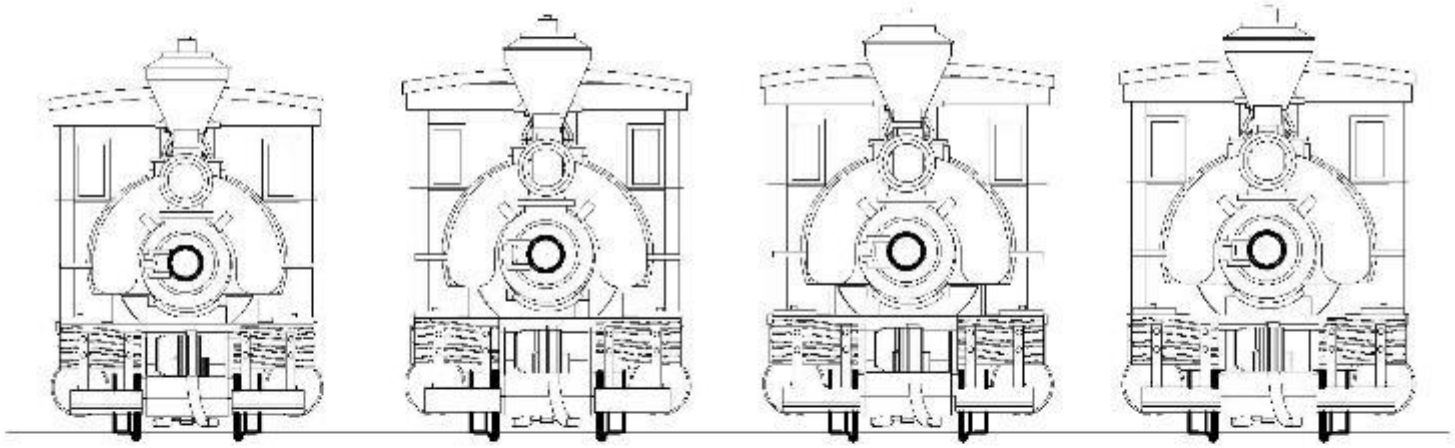
1972

märklin

Nn3 Milestones

Nn3 Milestones:

1951	2MM Scale Narrow Gauge Layout "Vale of Penwal" by Griffiths & Wallace (2-foot gauge)
1960s	Karl Weiss builds "proto" Nn3 layout, 1:160 - 3 foot / 5.7mm gauge
1972	Marklin introduces Z scale (1:220, 6.5mm gauge)
1974	First Nn3 NTRAK Modules at NMRA National Convention; first Nn3 contest winners at NMRA National Convention
1975	Nelson Gray produces injection molded styrene Nn3 freight cars, caboose, trucks and wheel-sets, 6.5mm gauge
1975	Robert Sloan introduces metal castings and brass etchings for converting Marklin Z scale locomotives to Nn3 locomotives
1977	First brass R-T-R Nn3 locomotive – Rocky Mountain Model's "Sho-Wa-No"
1981	Publication of first edition of The Nn3 Manual (now in 5th edition)
1982	NMRA adopts standards for Nn3
1987	Marshall Thompson acquires Sloan Line & establishes Republic Locomotive Works; continues development of more locomotive conversions
1989	Micro Trains acquires Nelson Gray Nn3 and Z Scale lines & continues development
1999	Formation of an international internet group which will become The Nn3 Alliance
2000	First National Nn3 modular layout, at NMRA National Convention, San Jose, CA
2001	Availability of DCC decoders which will fit most Nn3 locomotives
2003	Nn3 Alliance publishes "The Nn3 Handbook" which becomes the reference standard for N Narrow Gauge



1:160
(N. America, Europe)

1:152
2mm Scale

1:150
Japan

1:148
U.K.

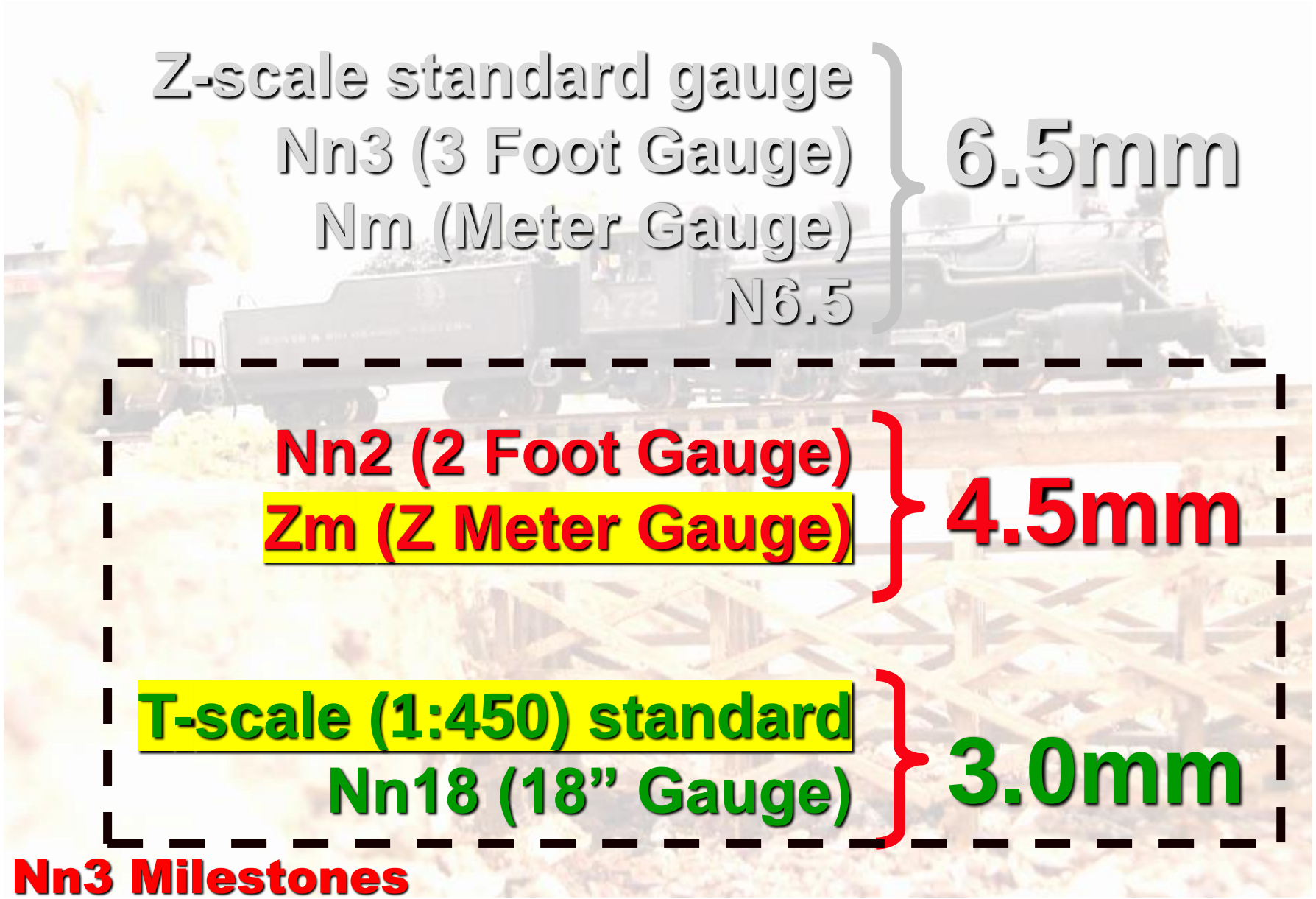
All use 6.5mm for narrow gauge

Z-scale standard gauge
Nn3 (3 Foot Gauge)
Nm (Meter Gauge)
N6.5
} 6.5mm

Nn2 (2 Foot Gauge)
Zm (Z Meter Gauge)
} 4.5mm

T-scale (1:450) standard
Nn18 (18” Gauge)
} 3.0mm

Nn3 Milestones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Nn3 Milestones

Z-scale standard gauge
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T-scale (1:450) standard
Nn18 (18” Gauge)
} **3.0mm**

Nn3 Milestones


PACIFIC COAST

First appearance of NTRAK Nn3 modules at an NMRA National Convention, San Diego, CA 1974

Nn3 Milestones

Not necessarily the first Nn3 steam locomotive, but the first to win in model competition at an NMRA National Convention: First Place, Steam Locomotives, 1974, San Diego, CA.

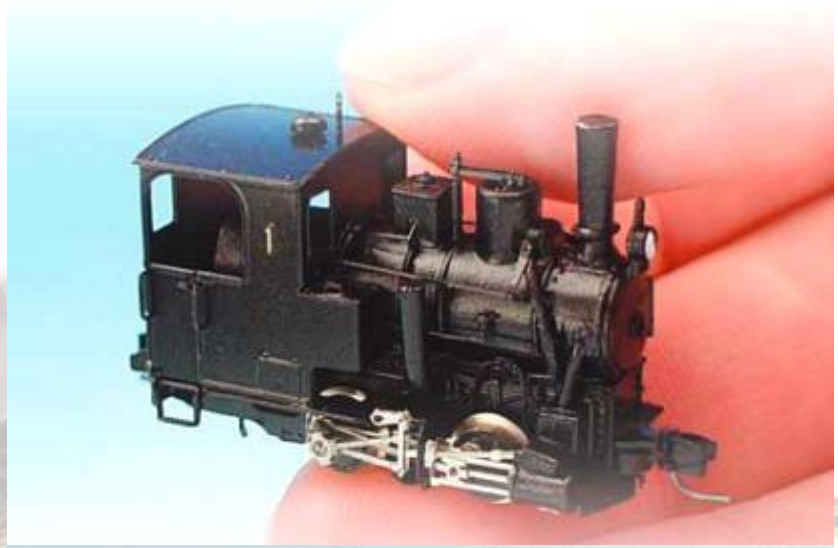
Nn3 Milestones

Nn3 modules at NMRA National Convention, Denver, CO 1977

Nn3 Milestones

Nn3 layout have appeared at numerous NMRA regional and national conventions, several National Narrow-Gauge Conventions, and local train shows such as GATS shows.

Nn3 Milestones



N meter-gauge (Nm) is popular in Europe with manufacturers in France, Germany and Switzerland, and modular layouts at train shows

Nn3 Milestones

NMRA Standard S1.2

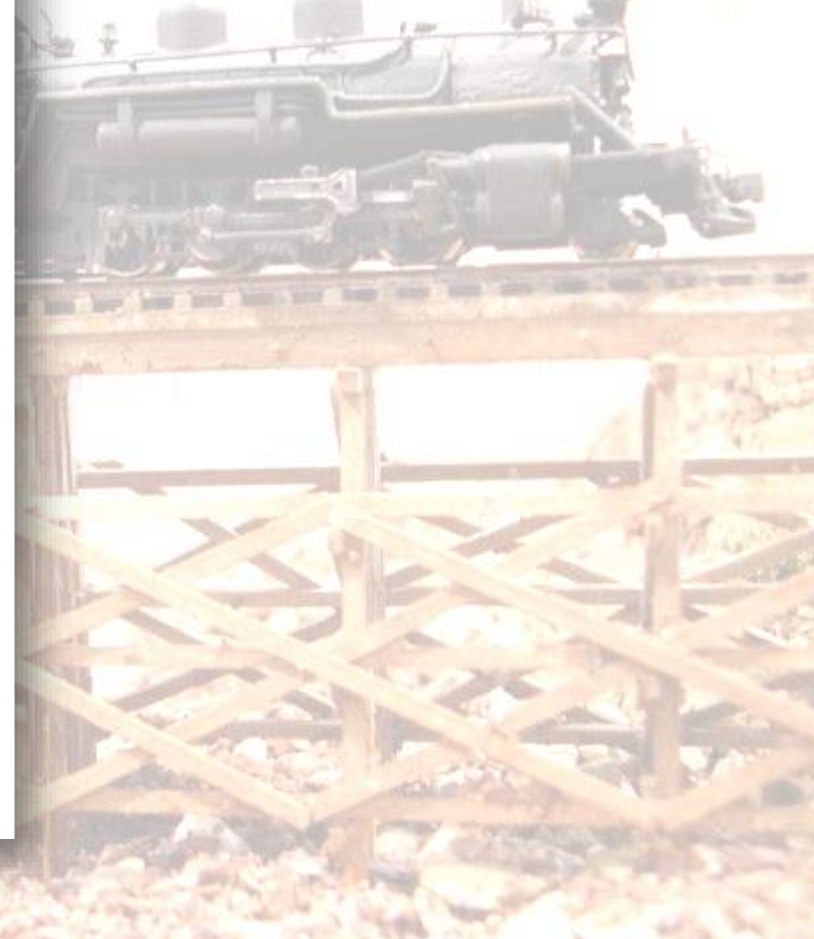
NMRA STANDARDS
S-1.2 Standards for Scale Models

NMRA STANDARD	
General Standard Scales	
July 2006	S-1.2

Standard Scale models are those which follow the popular standards scales. This Track and Wheel system sacrifices some scale fidelity of the actual wheel tread profile and track work to improve operation and interchangeability. These are the scales originally developed by the NMRA in 1940s. Only scales, which are maintained by the NMRA Technical Department, are included. Other popular scale standards (for example N&L) are maintained by MOROP in their NEM standards (see www.morop.org).

NAME OF SCALE Alpha Numeric	NAME OF SCALE Common Fractional	SCALE TO FOOT	PROPORTION	TRACK GAUGE Min	TRACK GAUGE Max	REMARKS
	1"	1" (25.40 mm)	1:12	4.750" (120.65 mm)	4.910" (124.7 mm)	
	¾	.750" (19.01 mm)	1:16	3.500" (88.90 mm)	3.606" (91.58 mm)	
F	15 mm	.591 (15.00 mm)	1:20.32	2.783" (70.69 mm)	2.845" (72.26 mm)	(See Note 1)
Fn3	15 mm	.591 (15.00 mm)	1:20.32	1.766" (44.85 mm)	1.793" (45.54 mm)	(See Note 2)
LS	Varied	.375 (9.52 mm)	Varied	1.766 (44.85 mm)	1.793" (45.54 mm)	(See Note 3)
LSn3	Varied	.375 (9.52 mm)	Varied	1.125 (28.6 mm)	1.167" (29.64 mm)	(See Note 3)
O	1/4"	.250 (6.35 mm)	1:48	1.250 (31.75 mm)	1.285" (32.64 mm)	
On3	1/4"	.250 (6.35 mm)	1:48	.750" (19.05 mm)	.772" (19.61 mm)	
On30	1/4"	.250 (6.35 mm)	1:48	.649" (16.50 mm)	.672" (17.07 mm)	(See Note 4)
On2	1/4"	.250 (6.35 mm)	1:48	.500" (12.70 mm)	.522" (13.26 mm)	
S	3/16"	.188 (4.78 mm)	1:64	.883" (22.43 mm)	.905" (22.99 mm)	
Sn3	3/16"	.188 (4.78 mm)	1:64	.563" (14.30 mm)	.585" (14.86 mm)	
OO	4.0mm	.157 (4.0 mm)	1:76.2	.750" (19.05 mm)	.772" (19.61 mm)	(See Note 5)
HO	3.5mm	3.5 mm (.1378")	1:87.1	.649" (16.50 mm)	.672" (17.07 mm)	
HOn3	3.5mm	3.5mm (.1378")	1:87.1	.413" (10.49 mm)	.424" (10.77 mm)	
HOn2	3.5mm	3.5mm (.1378")	1:87.1	.276" (7.01 mm)	.290" (7.37 mm)	

Page 1 of 2



Nn3 Milestones

NMRA Standard S1.2

NMRA STANDARDS
S-1.2 Standards for Scale Models

NMRA STANDARD	
General Standard Scales	
July [illegible]	S-1.2

Standard Scale models are those which follow the popular standards scales. This Track and Wheel system sacrifices some scale fidelity of the actual wheel tread profile and track work to improve operation and interchangeability. These are the scales originally developed by the NMRA in 1940s. Only scales, which are maintained by the NMRA Technical Department, are included. Other popular scale standards (for example N.L.) are maintained by MOROP in

NAME OF SCALE Alpha Numeric	NAME OF SCALE Common/ Fractional	SCALE TO FOOT	PROPORTION	TRACK GAUGE Min	TRACK GAUGE Max	REMARKS
TT	1/10"	.100" (2.54 mm)	1:120	.470" (11.94 mm)	.483" (12.27 mm)	
TTn42	1/10"	.100" (2.54 mm)	1:120	.353" (8.97mm)	.367" (9.32 mm)	(See Note 6)
TTn3	1/10"	.100" (2.54 mm)	1:120	.300" (7.62 mm)	.314" (7.98 mm)	
N		.075 (1.91 mm)	1:160	.353" (8.97mm)	.367" (9.32 mm)	
Nn3		.075 (1.91 mm)	1:160	.256" (6.50 mm)	.260" (6.60 mm)	
Nn2		.075 (1.91 mm)	1:160	.177" (4.50 mm)	.189" (4.80 mm)	
Z		.055" (1.40 mm)	1:220	.257" (6.53 mm)	.270" (6.86 mm)	

Nn3 Milestones

NMRA Standard S1.2

NMRA STANDARDS
S-1.2 Standards for Scale Models

NMRA STANDARD	
General Standard Scales	
July 2009	S-1.2

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Nn3 Milestones

NMRA S-4.2

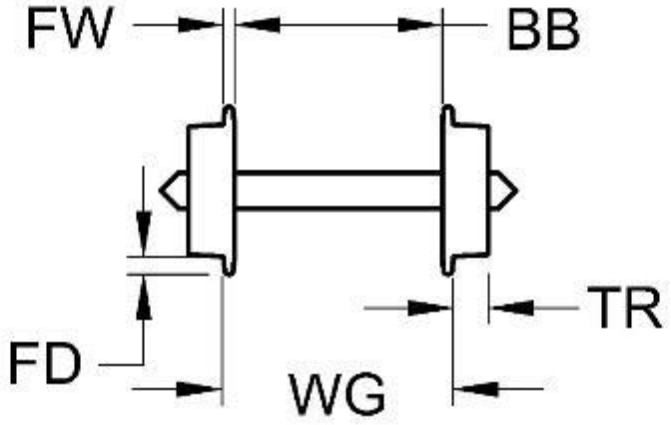
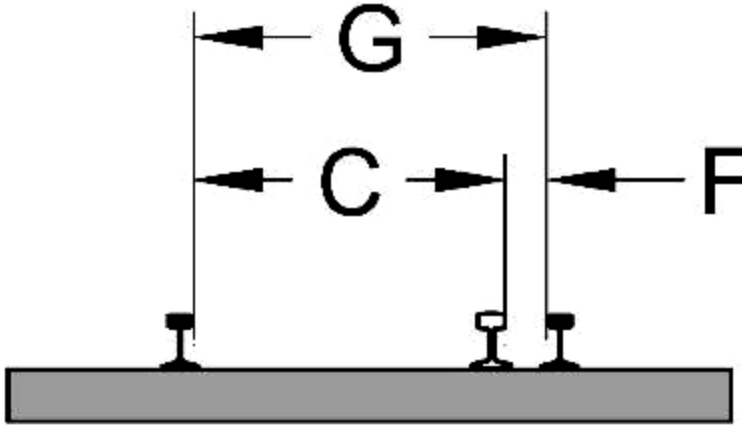


table 1

	WG wheel gauge	BB back to back	FD flange depth	FW flange width	TR wheel tread
STANDARD					
Nn3 / Nm / N6.5	0.24" 6.10 mm	0.210" 5.33 mm	0.02" 0.51 mm	0.016" - 0.018" 0.46 mm	0.041" 1.04 mm
Nn2 / N4.5	0.161" 4.09 mm	0.131" 3.33 mm	0.02" 0.51 mm	0.016" - 0.018" 0.46 mm	0.041"[1] 1.04 mm
FINESCALE					
Nn3 / Nm / N6.5	0.24" 6.10 mm	0.207 5.26 mm	0.017 0.40mm	0.012" - 0.013" 0.31 - 0.33 mm	0.027 0.69 mm
Nn2 / N4.5	0.161" 4.09 mm	0.128" 3.25 mm	0.017 0.40mm	0.012" - 0.013" 0.31 - 0.33 mm	0.027 0.69 mm
PROTO:					
Nn3	TBD[1]	TBD[1]	TBD[1]	TBD[1]	TBD[1]
Nn2	TBD[1]	TBD[1]	TBD[1]	TBD[1]	TBD[1]

[1] *standards still under development at time of printing; check www.nn3.org for updates. TBD = To Be Determined*

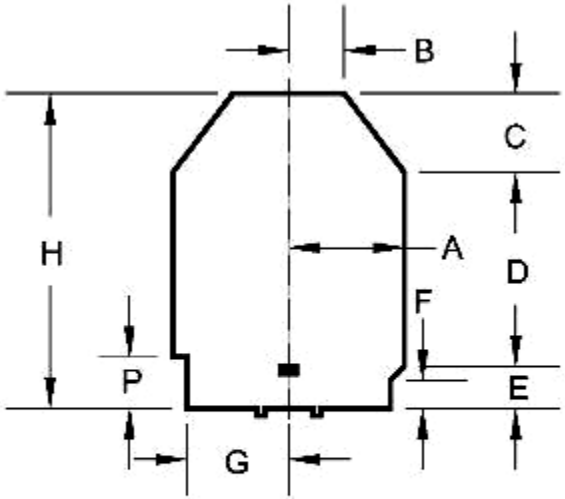
Nn3 Milestones

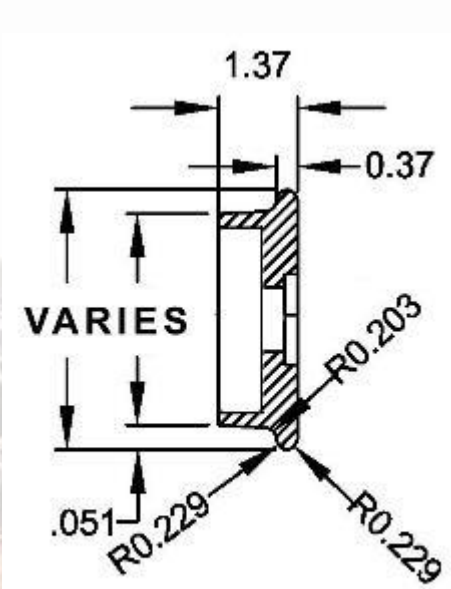


NMRA S-3.2

	G track gauge	F flange way	C check gauge
STANDARD			
Nn3 / Nm / N6.5	0.256" (6.5 mm)	0.030" (0.76 mm)	0.226" (5.74 mm)
Nn2 / N4.5	0.177" (4.5 mm)	0.030" (0.76 mm)	0.147" (3.74 mm)
FINESCALE			
Nn3 / Nm / N6.5	0.256" (6.5 mm)	0.025" (0.64 mm)	0.229" (5.82 mm)
Nn2 / N4.5	0.177" (4.5 mm)	0.025" (0.64 mm)	0.150" (3.82 mm)
PROTO			
Nm	0.2475"(6.25 mm)	TBD[1]	TBD[1]
Nn3	0.225"(5.72 mm)	TBD[1]	TBD[1]
Nn2	0.150"(3.81 mm)	TBD[1]	TBD[1]

Nn3 Milestones

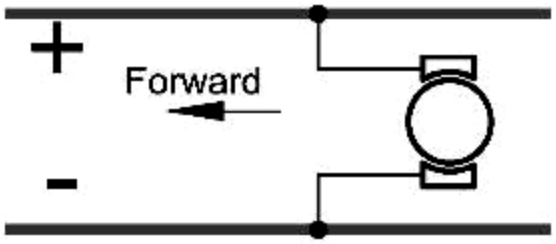




	A	B	C	D	E	F	G	H	P
Nn3/Nm/N6.5	.469"	.225"	.319"	.788"	.169"	.113"	.413"	1.275"	.206"
	11.91mm	5.72mm	8.10mm	20.02mm	4.29mm	2.87mm	10.49mm	32.39mm	5.23mm
Nn2 / N4.5	.449"	.225"	.319"	.788"	.141"	.113"	.338"	1.200"	.172"
	11.40mm	5.72mm	8.10mm	20.02mm	3.58mm	2.87mm	8.59mm	30.48mm	4.37mm

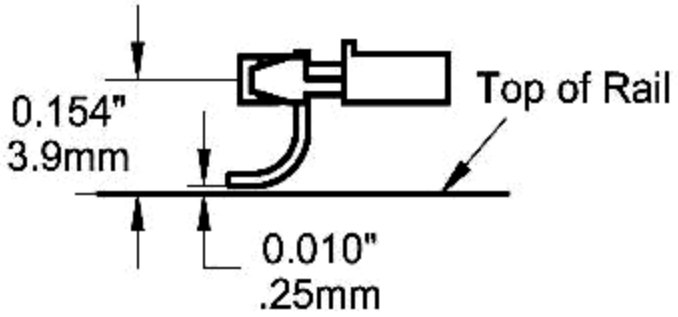
Motor Wiring

Motors should be wired so when the rail on the engineer's side of the locomotive (right side) is positive, the locomotive moves forward.



Couplers

Any coupler is permitted. Micro Trains Nn3/Z couplers are **Standard** for interchange and for use on Nn3 modular layouts.



Nn3 Milestones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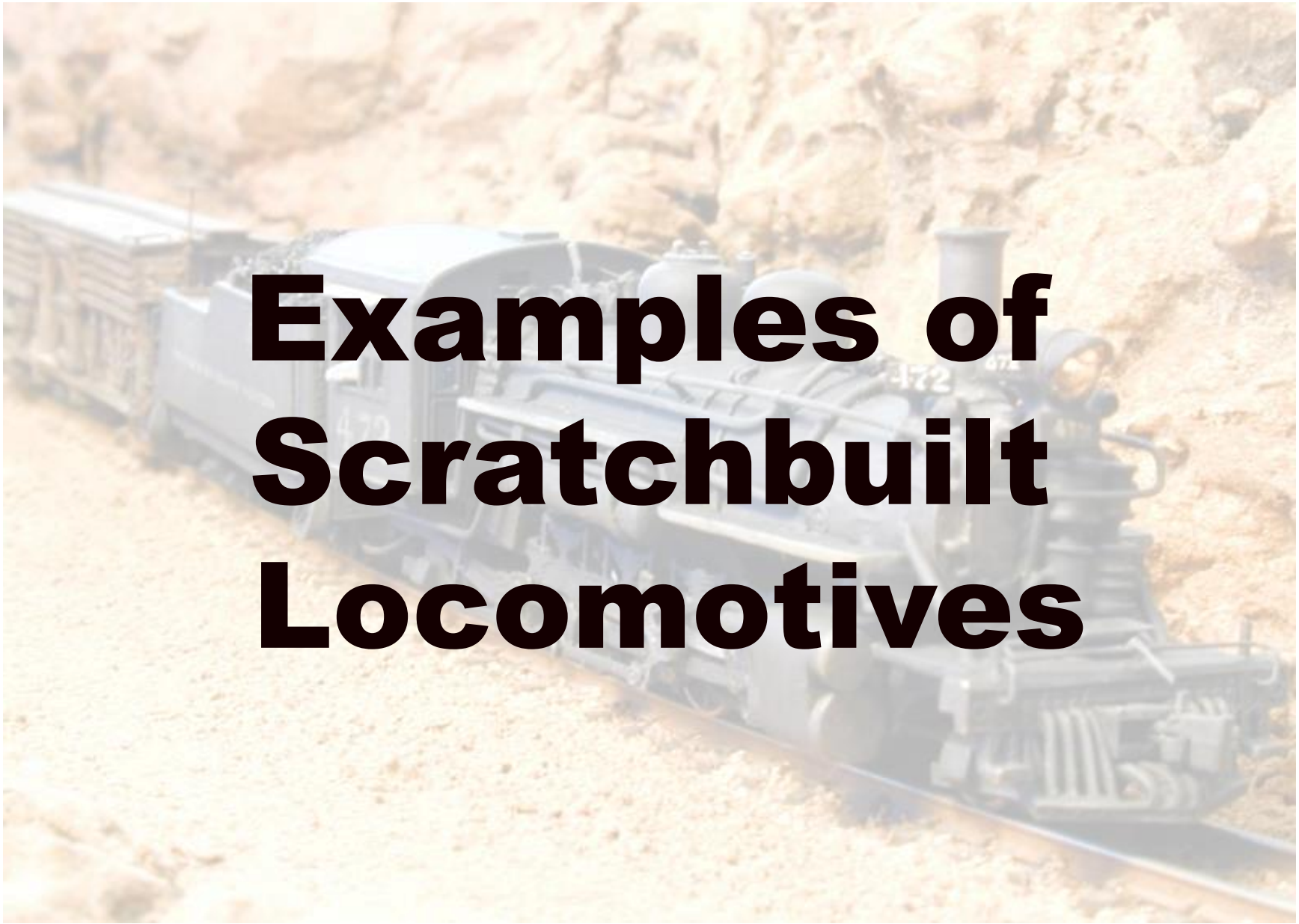
472
472

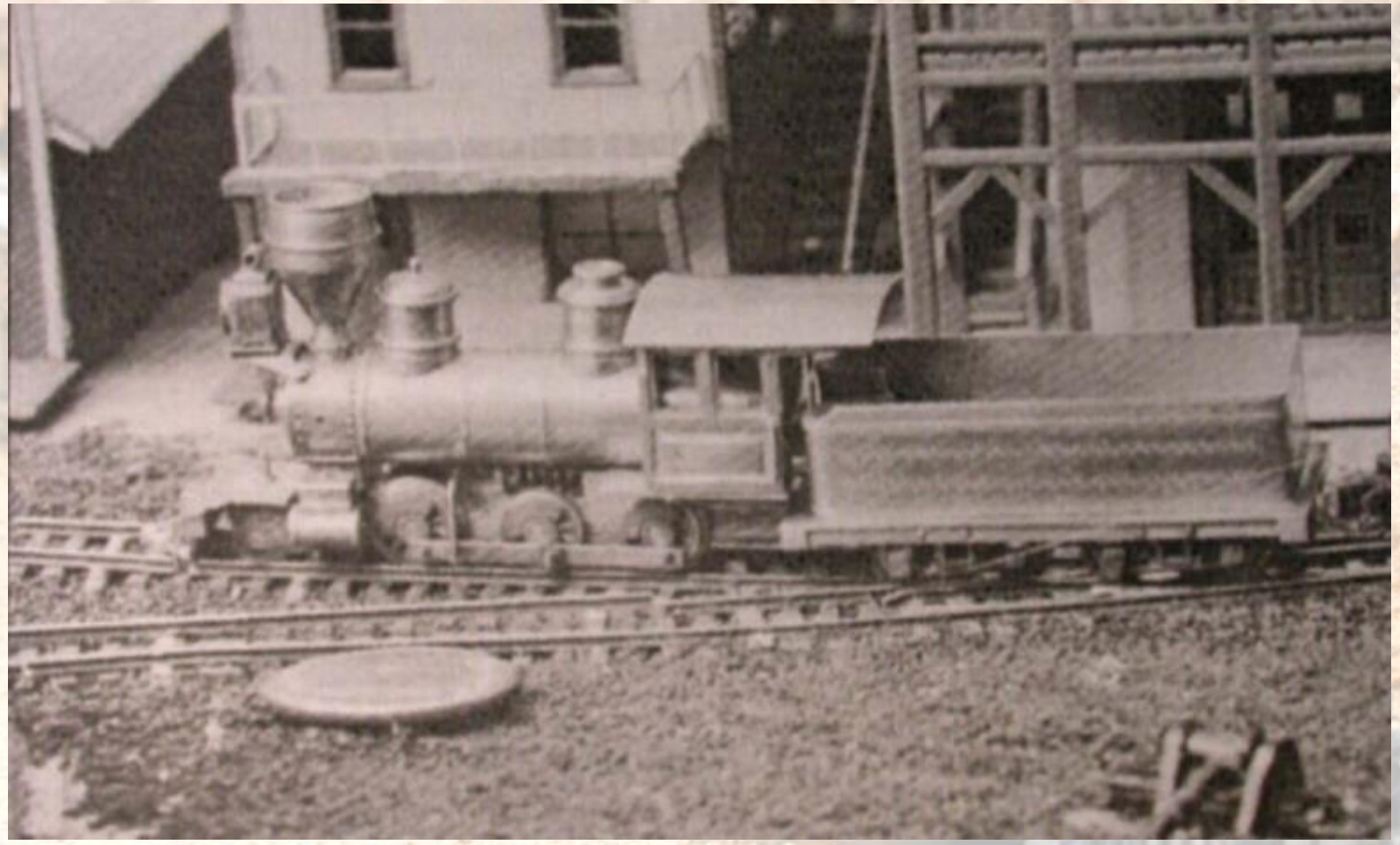
“STATE-OF-THE-ART”

Narrow Gauge is a niche model railroad market in all scales (with the possible exception of On30, skillfully exploited and promoted by Bachmann). Nn3 is perhaps the “nichiest” niche of niches.

This means that aside for some very limited R-T-R products, it is largely the domain of kits, kit-bashing and scratch-building.



Examples of Scratchbuilt Locomotives

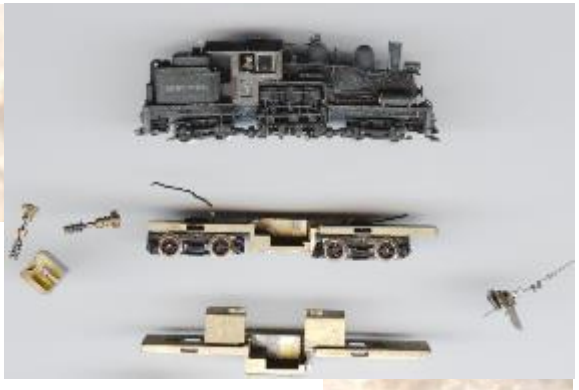


PIONEERING 2-6-0 SCRATCH-BUILT BY MR. WEISS DURING 1960'S, TO RUN ON .225" (5.71 MM) GAUGE TRACK

Scratchbuilt Locomotives

PIONEERING 2-8-2 SCRATCH-BUILT BY JÖRGEN WETTERSKOG DURING 1960'S, TO RUN ON .225" (5.71 MM) GAUGE TRACK (from article in Feb. 1971 Model Railroader Magazine)

Scratchbuilt Locomotives



TWO TRUCK SHAY WITH OPERATING CRANK- AND DRIVE-SHAFTS SCRATCH-BUILT BY AUTHOR DURING 1980'S, TO RUN ON .256" (6.50 MM) GAUGE TRACK

Scratchbuilt Locomotives

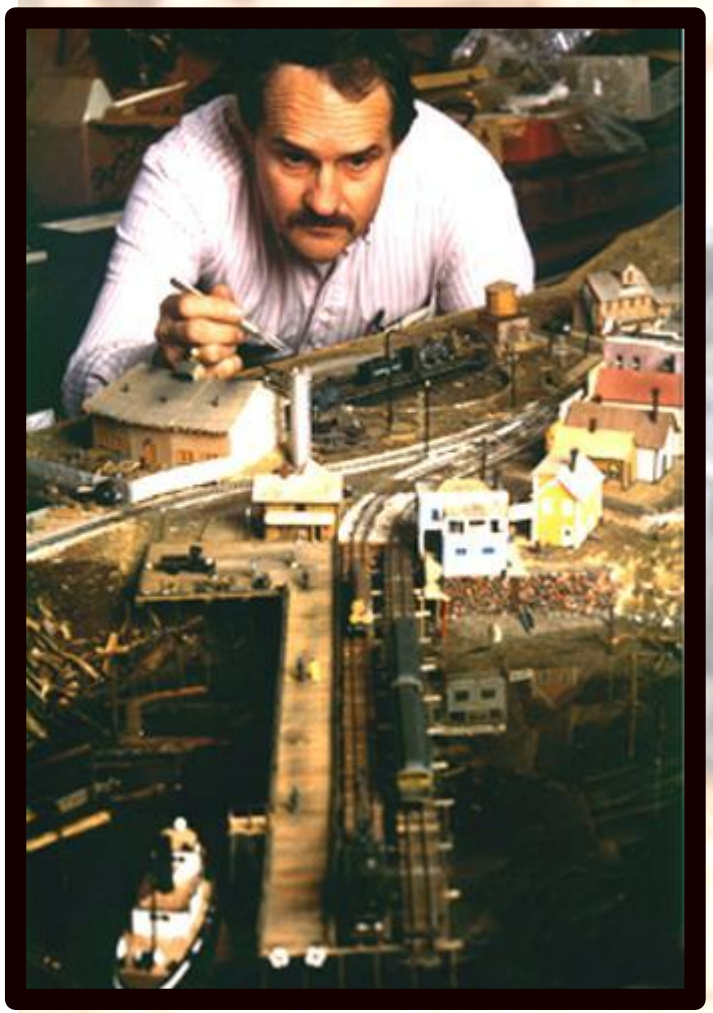
THREE TRUCK SHAY BUILT BY ROGER HORD (AUS) TO RUN ON .256” (6.50 MM) GAUGE TRACK

Scratchbuilt Locomotives

1914 MODEL T FORD RAIL TRUCK SCRATCH-BUILT BY AUTHOR TO RUN ON .256” (6.50 MM) GAUGE TRACK, USING “PAGER” MOTOR

Scratchbuilt Locomotives


COMMERCIAL
PRODUCTS



Kit Locomotives

Republic Locomotive Works

For forty years RLW was the cornerstone of Nn3 modeling, with over 1,300 items in their catalogue and manufacturing in a dedicated building in Cathlamet, Washington. In April of 2022 the owner – master modeler Marshall Thomson – died suddenly and unexpectedly. The entire business – stock, patterns, molds, production equipment, etc. – was purchased by Bruce Monroe - Monroe Models – who will gradually be resuming production.

Locomotives

Locomotives

Nn3 Locomotives can be generally categorized into the following:

1. **Scratch Built**
2. **Semi-Scratch-built** (scratch-built super-structure on commercial chassis, Marklin or other)
3. **Parts-Built**
4. **Conversion Kits** (for converting a non-Nn3 locomotive to Nn3)
5. **Kit**
   a. Including Marklin-based chassis
   b. Including proprietary chassis
6. **Ready to run (R-T-R)**
   a. R-T-R on Marklin chassis
   b. R-T-R on proprietary chassis

Locomotives

- Semi-Scratchbuilt
- Kit
- R-T-R

Until recently, most utilize Marklin Mini-Club mechanical components

Common Donor Chassis

Partial Marklin Mini Club Steam Loco Chassis Roster

Marklin No.	Wheel arrangement	driver diameter	wheelbase
8800	0-6-0	0.195	0.6060
8801, 8803, 8895	2-6-0	0.274	0.7205
8802	track cleaner		
8804, 8864, 8865	A-1-A	0.195	0.6890
8805	0-6-0	0.195	0.6060
8806	4-6-4		
8807, 8881, 8882	2-8-2		
8816, 8817	4 whl rail bus		
8827	2-8-2		
8884	2-10-0		
8885	4-6-2		
8888, 8889	4-6-2		
8891, 8892, 8893	4-6-2		
8895	2-6-0		
8896	2-8-2		
88690	B0-B0		
8899	4-6-0		

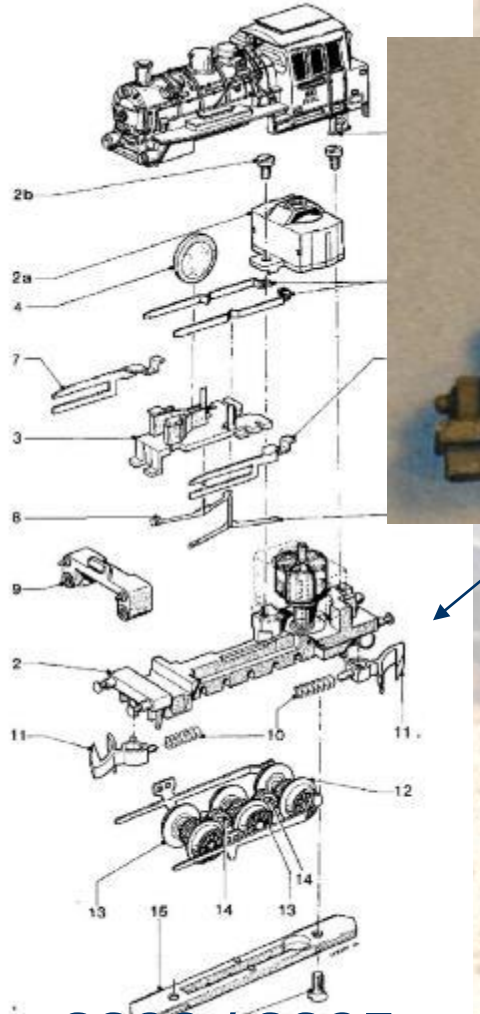
Detailed Specifications with Erection Diagrams are in The Nn3 Handbook

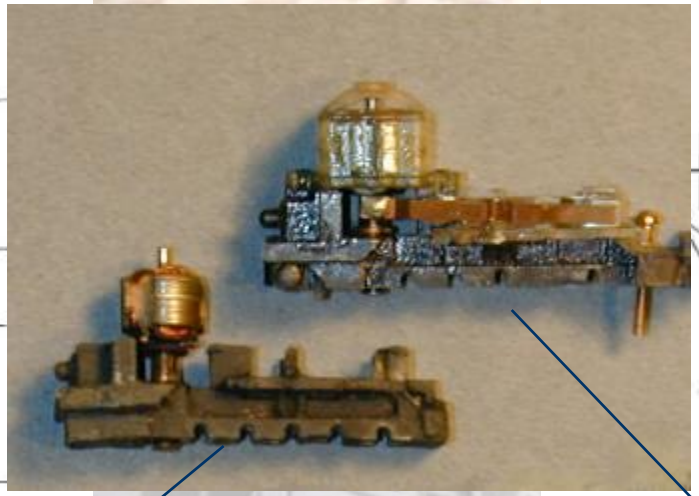
Chassis Components

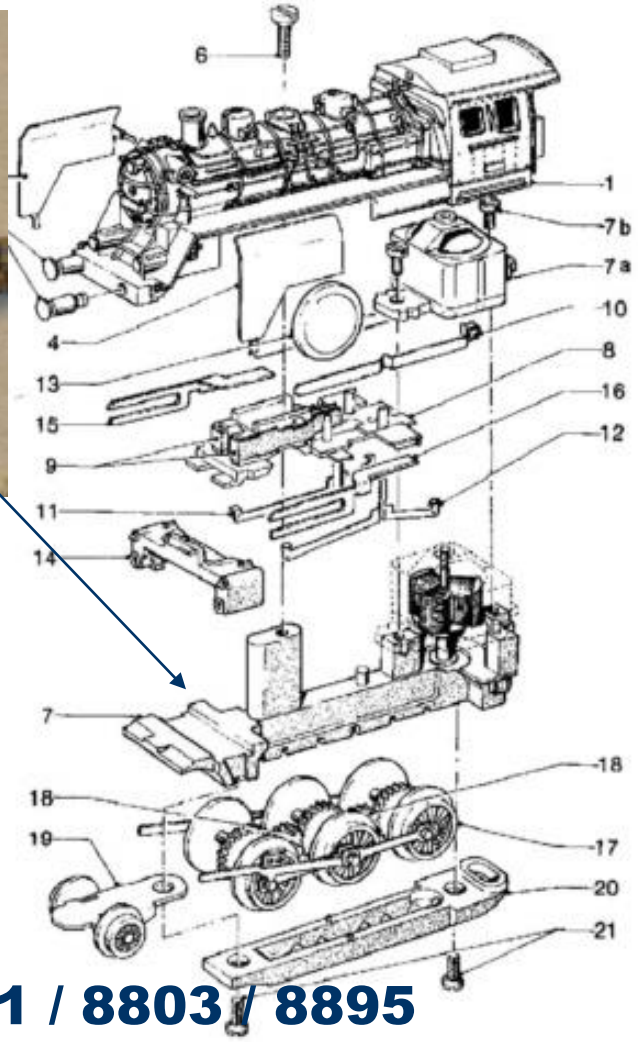
Marklin “Unitized” Chassis

Chassis Components

Marklin “Unitized” Chassis





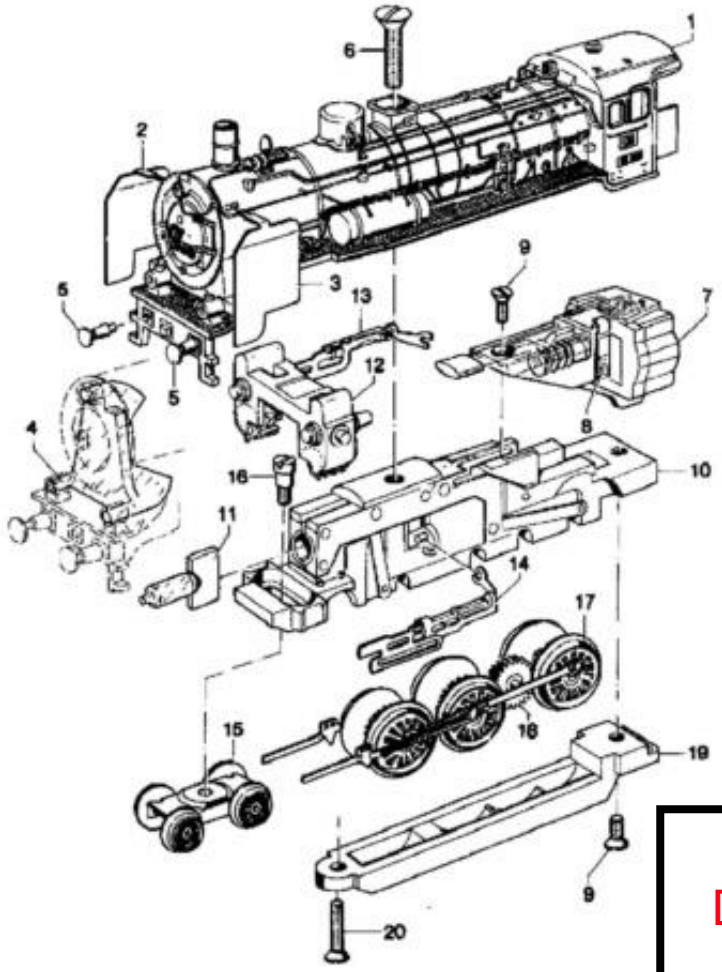


8800 / 8805

8801 / 8803 / 8895

Chassis Components

Marklin Non-Unitized Chassis

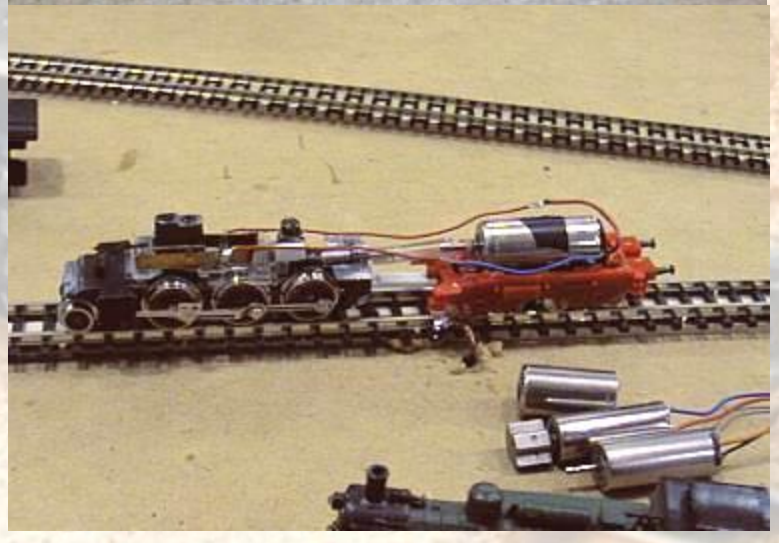


8896

Detailed Specifications with Erection Diagrams for selected Marklin chassis are in The Nn3 Handbook

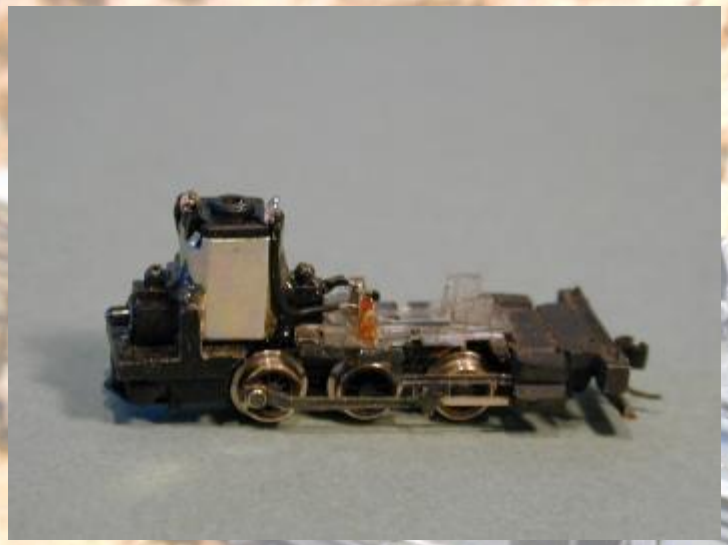
Chassis Components

Alternative Motors

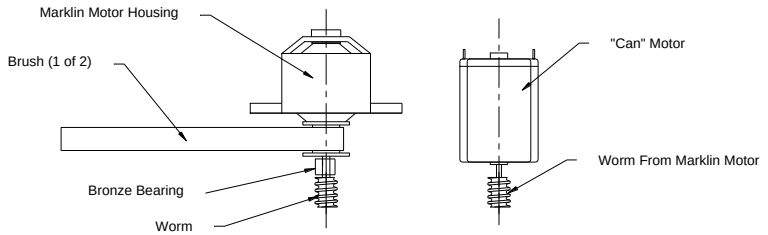


Chassis Components

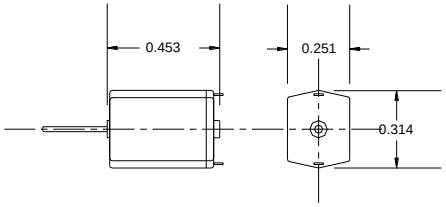
Re-motoring Unitized Chassis Locos



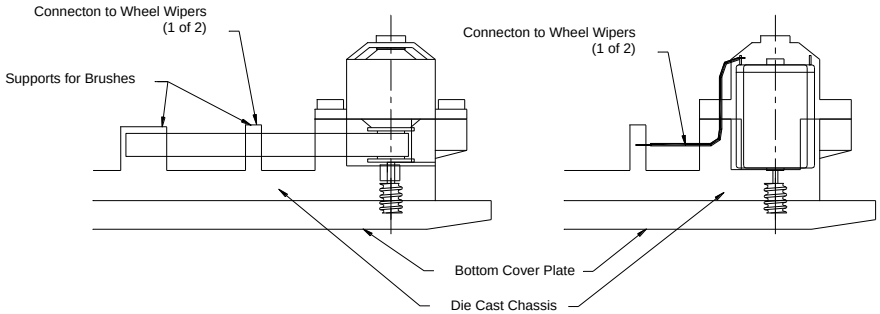
Chassis Components



Comparison of Marklin and Can Motors

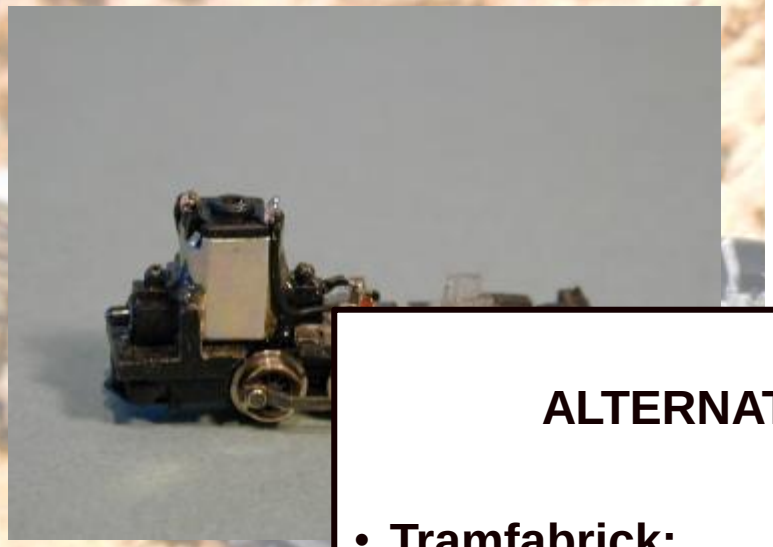


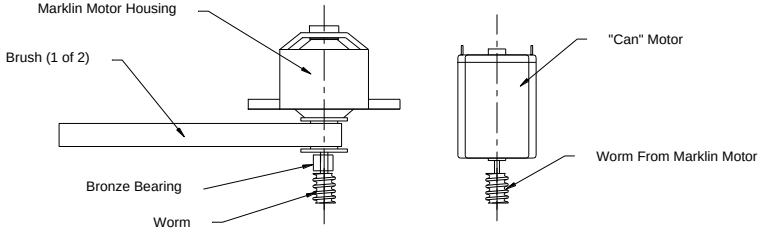
"Can" Motor Dimensions (Inches)



Comparison of Motor Installations

Re-motoring Unitized Chassis Locos





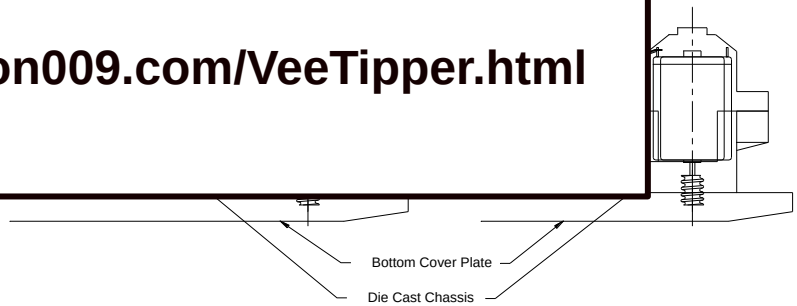
Comparison of Marklin and Can Motors

ALTERNATIVE MOTOR SOURCES

- **Tramfabrick:**

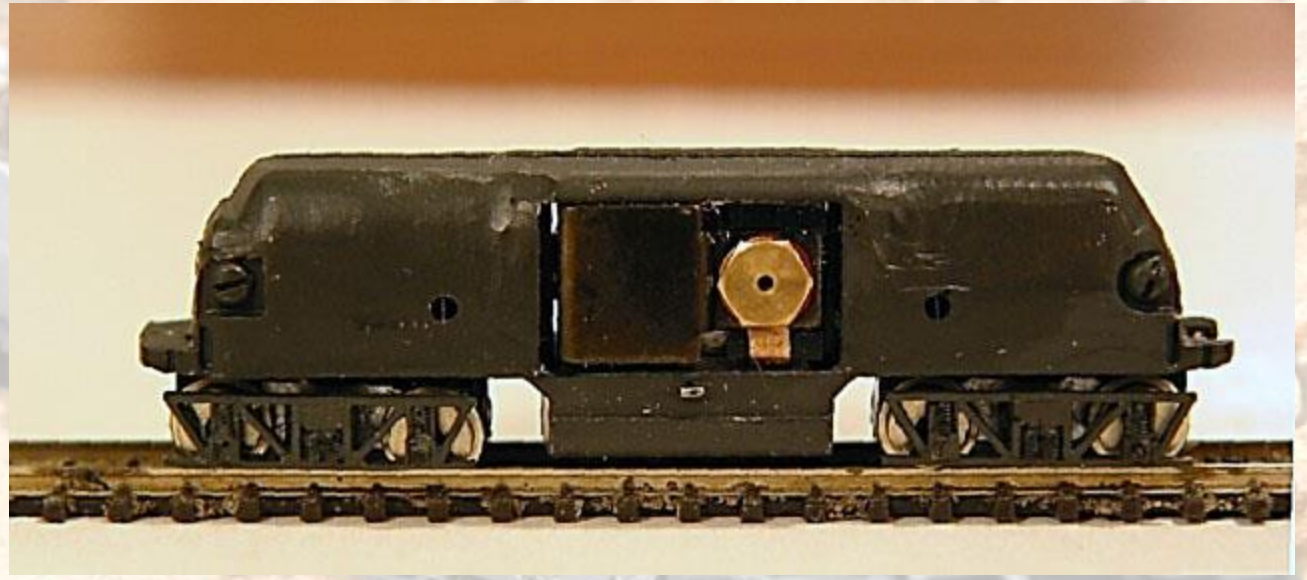
  https://www.tramfabriek.nl/
- **Nigel Lawton:**

  http://www.nigellawton009.com/VeeTipper.html



Comparison of Motor Installations

Chassis Components

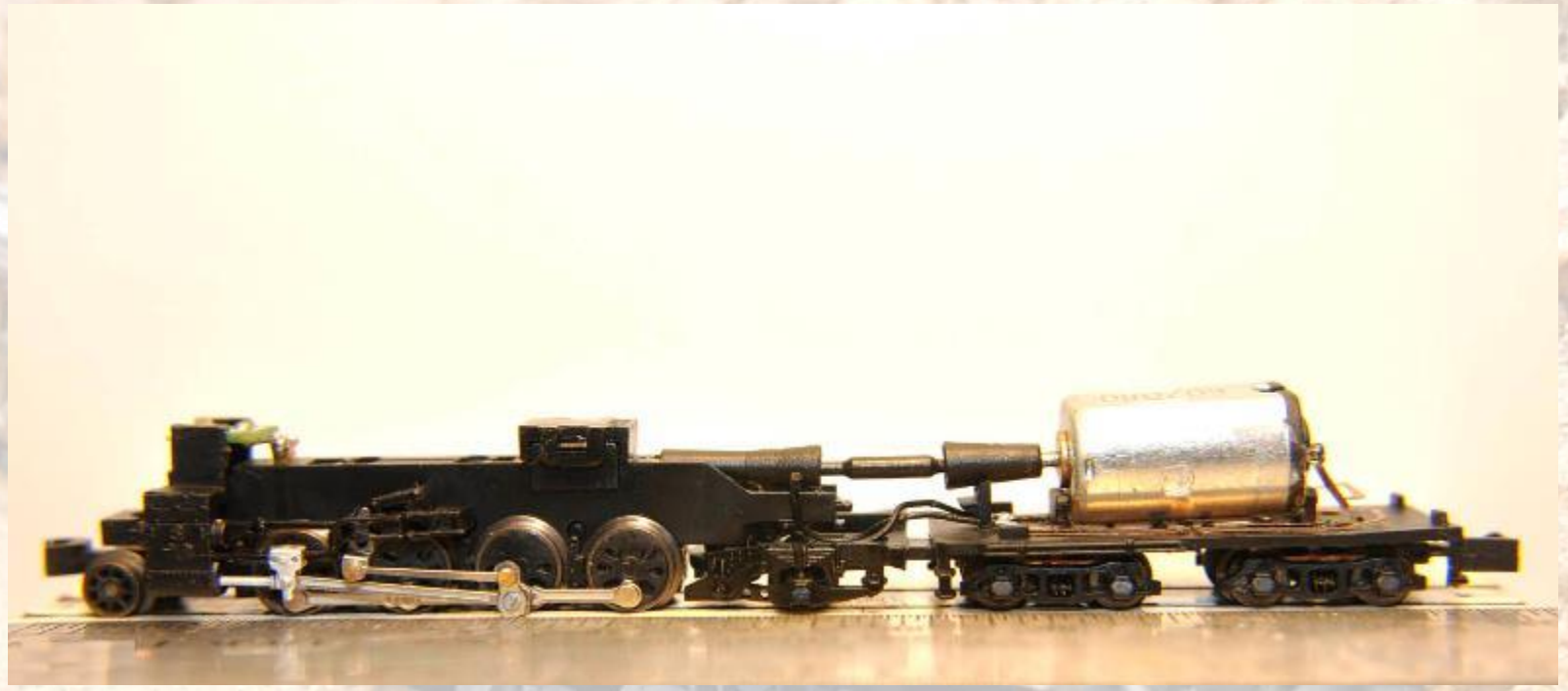


Micro Trains Z-Scale F-7 Chassis (used in RLW geared loco, doodle-bug and box-cab diesel kits)

Chassis Components

Tenshodo Z-Scale Japanese D51 Mikado Locomotive – available in various prototypical configurations

Chassis Components

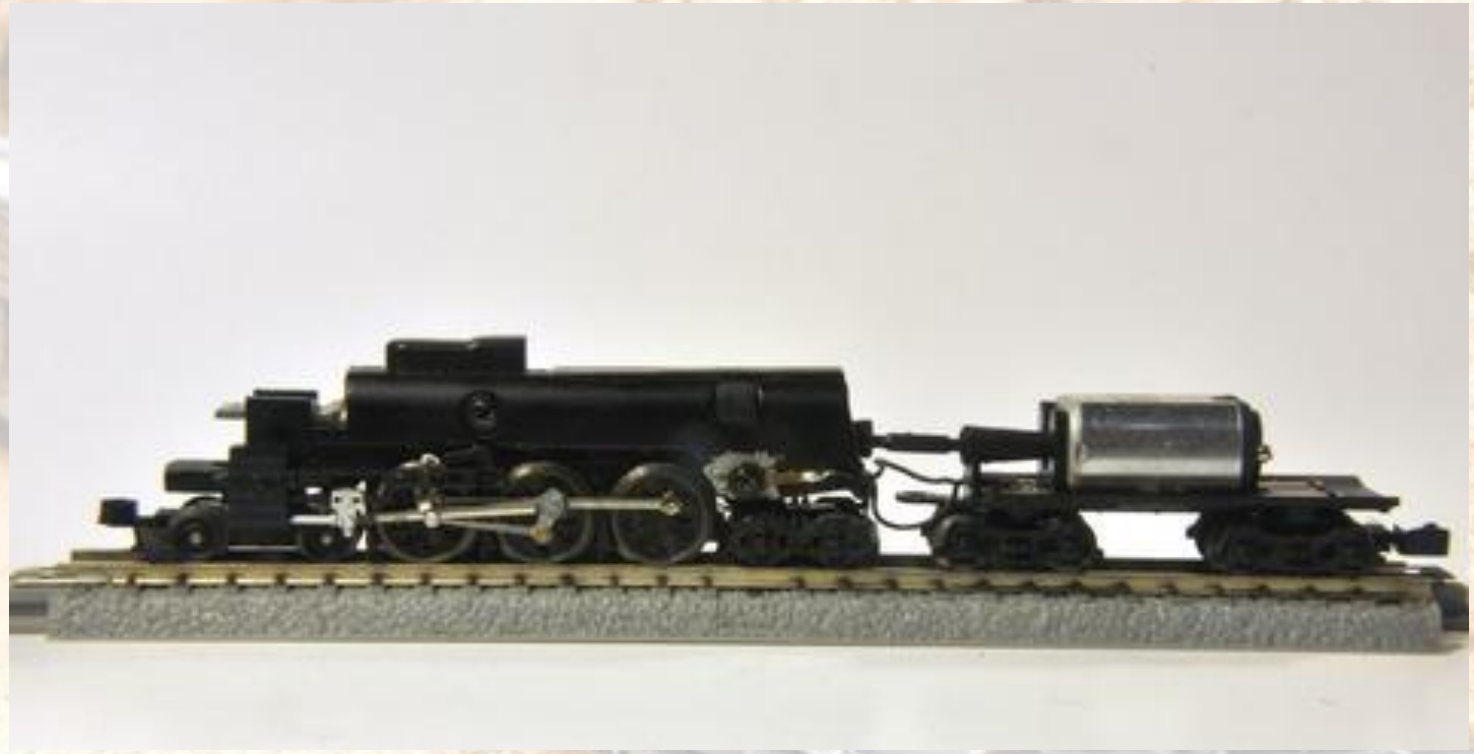


Tenshodo Z-Scale Japanese D51 Mikado Locomotive – 2-8-2 chassis

Chassis Components

2-8-0 Conversion using Tenshodo Z-Scale D51 Mikado 2-8-2 chassis

Chassis Components

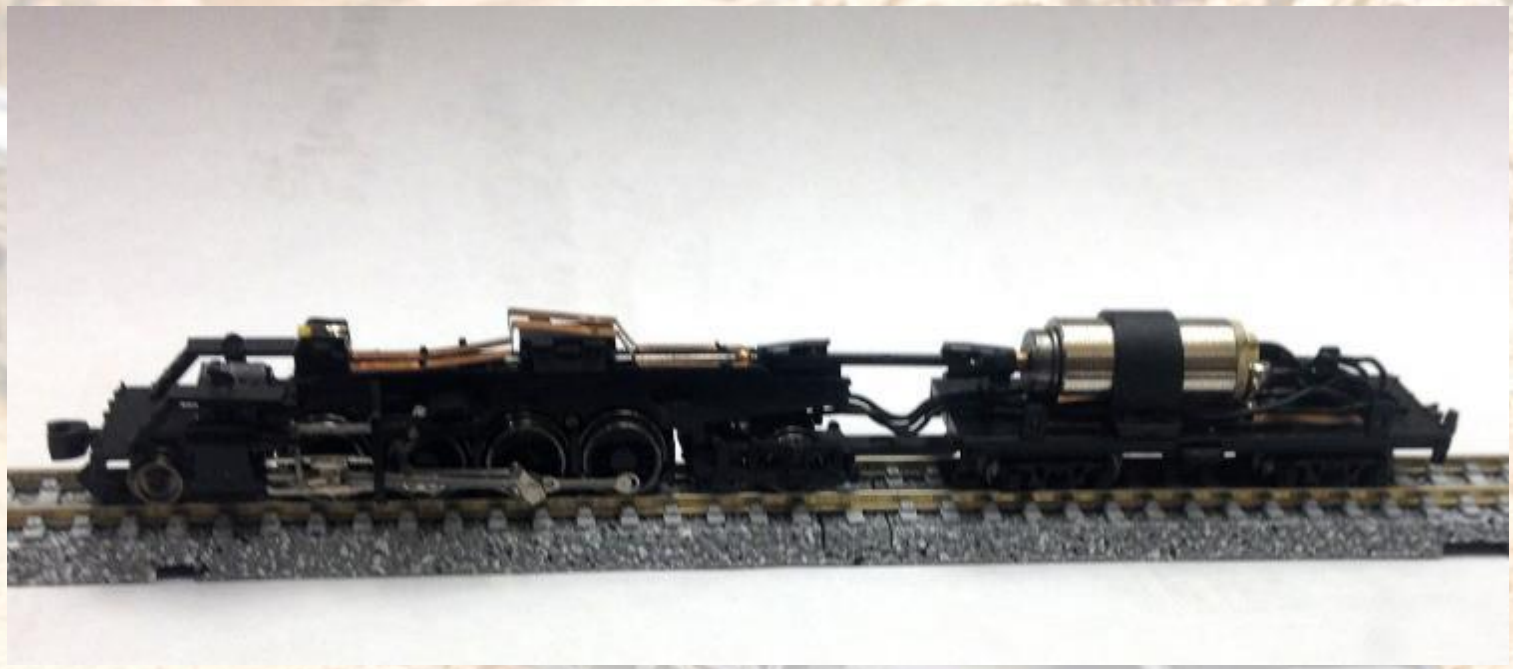


Tenshodo Z-Scale Japanese C62 Locomotive – 4-6-4 chassis

Chassis Components

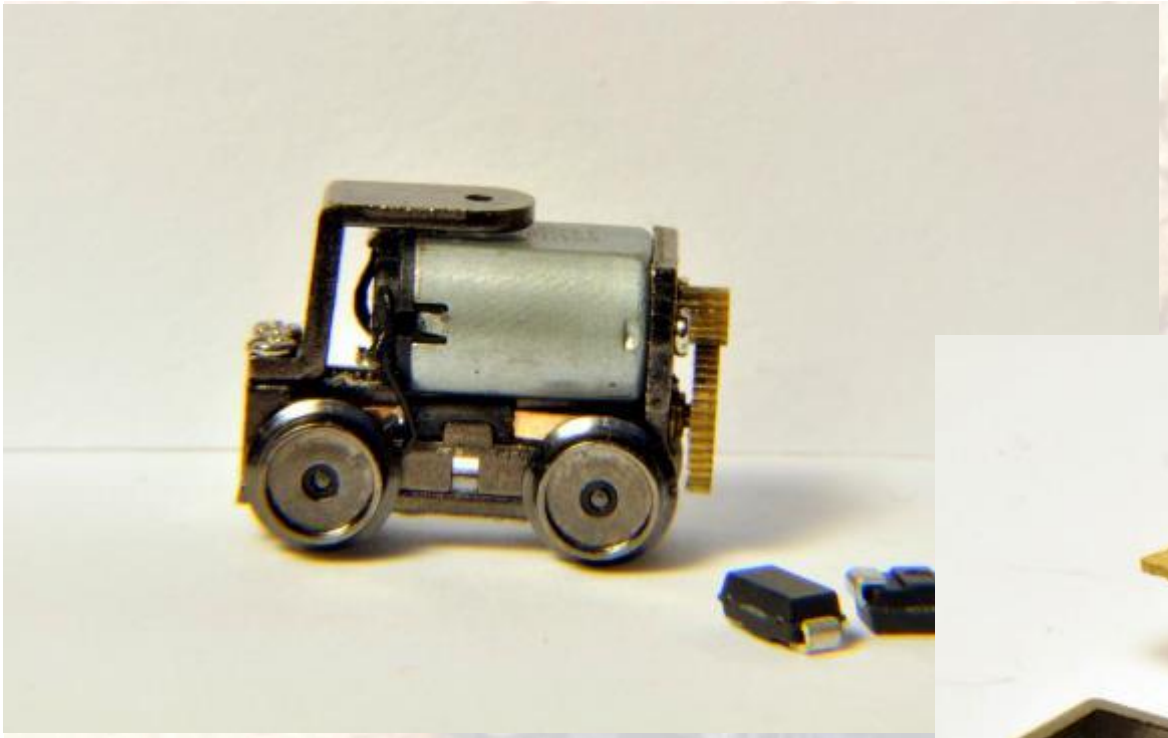
4-6-0 Conversion using Tenshodo Z Scale C62 4-6-4 chassis

Chassis Components



American Z-Lines
Mikado – 2-8-2 chassis

Chassis Components



SEARAILS “PowerMAX” motorized four-wheel truck/chassis

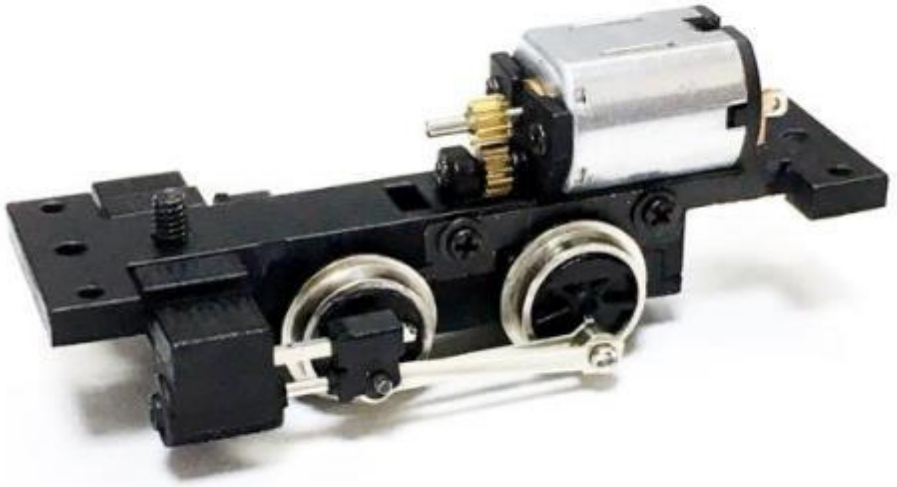
Chassis Components

Showcase Miniatures motorized four-wheel truck/chassis

Chassis Components

Showcase Miniatures motorized four-wheel truck/chassis

Chassis Components



Narrow Garage produces motorized four-wheel truck /chassis in several different wheel diameters and wheelbases; they also produce 9mm gauge 4-wheel and 6-wheel steam chassis and are developing 6.5mm gauge versions of these.

Chassis Components

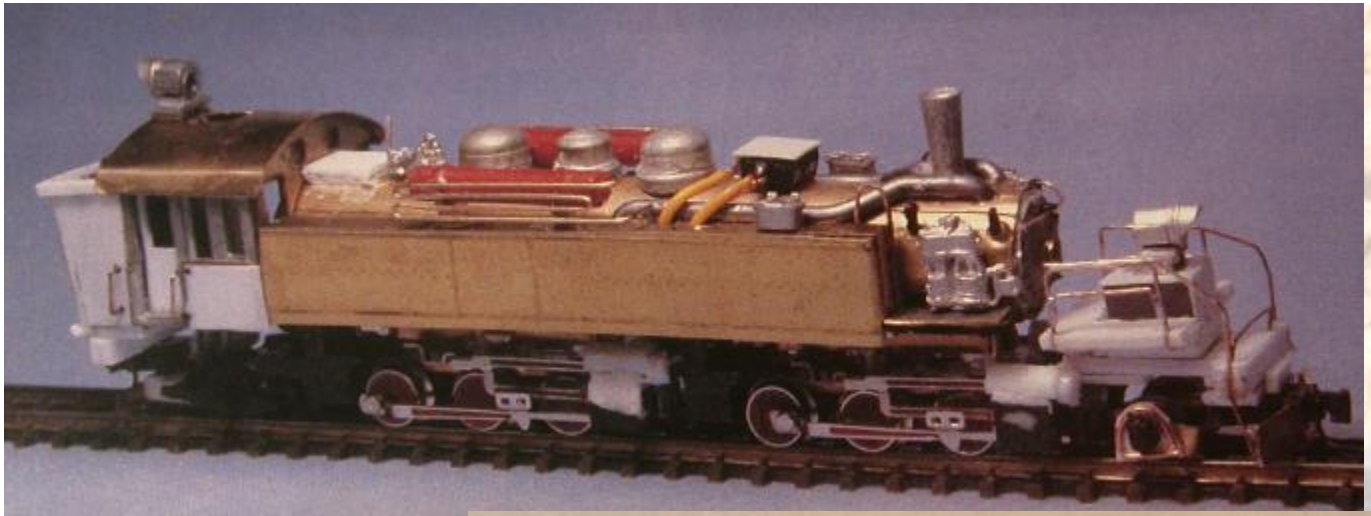

Semi-Scratchbuilt

K-37 #491 SCRATCH-BUILT BY AUTHOR DURING 1980'S, TO RUN ON .256" (6.50 MM) GAUGE TRACK (was used as pattern for RLW kit) (First Place "Steam Locomotive" at ____ NMRA National Convention)

Semi-Scratch-Built Locomotives

K-37 #491 SCRATCH-BUILT BY AUTHOR DURING 1980'S, TO RUN ON .256" (6.50 MM) GAUGE TRACK (was used as pattern for RLW kit) (First Place "Steam Locomotive" at ____ NMRA National Convention)

Semi-Scratch-Built Locomotives

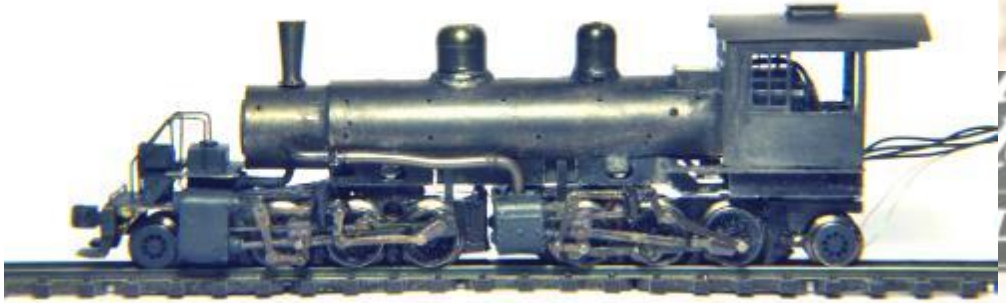


SCRATCH-BUILT UINTAH MALLET SUPERSTRUCTURE, ON TWO MARKLIN 0-6-0 CHASSIS, BY TED BRANDON

Semi-Scratch-Built Locomotives

SCRATCH-BUILT FREE-LANCE LOGGING MALLET SUPER-STRUCTURE, ON MARKLIN 0-8-8-0 CHASSIS, BY AUTHOR

Semi-Scratch-Built Locomotives



SCRATCH-BUILT NARROW-GAUGE VERSION OF "SAMSON" LOGGING MALLET SUPER-STRUCTURE, ON MARKLIN 0-8-8-0 CHASSIS MODIFIED TO 2-6-6-2 BY AUTHOR

Semi-Scratch-Built Locomotives

“Parts Built” Locomotives

Boilers, cabs, domes, cylinders, air tanks, tenders – all locomotive components are available separately from Monroe Models, Detail Assoc. and Aspen, enabling a modeler to "parts-bash" their own locomotive, as shown here.

Parts-Built Locomotives

Kit & R-T-R Locomotives

The first kit for a Marklin-based Nn3 locomotive was produced by Robert Sloan in the mid-1970's. This kit was still produced by RLW right up until that company was acquired by Monroe Models, who will continue its production.

Locomotives

Rocky Mountain Model's "Show-Wa-No", with original 4-wheel tender, the first R-T-R Nn3 locomotive (1977)

Locomotives

Key	Type	Description	RTR	KIT	Mech Mfr	Mech Model
AM	0-6-0T	Class 48 Tank Engine	X	E	Märklin	8800, 88051
RLW	0-6-0T	Class 48 Tank Engine		E	Märklin	8800, 88051
RLW		Davenport Switcher		E	Märklin	8800, 88051
GR	2-6-0	C&S #9, Mogul		M	Märklin	8895/8803
GR	4-6-0	SP #8/#9		M	Märklin	8899
MT	2-6-0	C&S #5, #6, #7 or #10	X		Märklin	8895
RLW	2-6-0	1880's Baldwin Mogul		M	Märklin	8895
AM	2-8-0	DRG #74	X	M	Märklin	8896
RLW	2-8-0	C-16		H	Märklin	8896
RLW	2-8-0	C-21		H	Märklin	8896
RLW	2-8-0	SP #1		H	Märklin	8896
RLW	4-6-0	RGS #20		M	Märklin	8895
RLW	4-6-0	RGS #22		M	Märklin	8895
LOK	2-8-2	DRG&W K-27	X		Märklin	8896
RLW	2-8-2	DRG&W K-27		H	Märklin	8896
AM	2-8-2	DRG&W K-28	X	H	AM	Faulhaber
AM	2-8-2	DRG&W K-36	X	H	AM	Faulhaber
RLW	2-8-2	DRG&W K-37		H	Märklin	8896,8827
RLW	2-8-2	EBT Heavy Mikado		H	Märklin	8827
AM	Goose	RGS Goose #4	X	H	AM	Faulhaber
AM	Goose	RGS Goose #3	X	H	AM	Faulhaber
RLW	Goose	RGS Goose #2		H	Märklin	8804, 8864, 8865, 88051
RLW	Goose	RGS Goose #3-#7		H	Märklin	8804, 8864, 8865, 88051
RLW	Climax	Climax A type		M	MT	14005
RLW	Shay	WSLC Shay		H	MT	14005
RLW	Mack	SN Mack "A" Rail Bus		H	Märklin	8804, 8864, 8865
RLW	Diesel	WP&Y D		M	Märklin	8854
RLW	Diesel	SP "Little Giant" 50 Ton GE Diesel [1]		E	MT	14005

Kit and R-T-R Locomotives

Kit & R-T-R Locomotive Manufacturers

(Both current and past but still available from third parties)

- Aspen Model
- GHQ/Gold Rush Models
- Lemiso (German Nm)
- Marklin
- Micro Trains
- Narrow Garage
- PECO
- Republic Locomotive Works (now mfg. by Monroe Models)
- Searails
- Showcase Miniatures
- Tex-N-Rails (LOK14)
- Toma Model Works

Kit & R-T-R Locomotives

*** European prototypes are also offered by several manufacturers.**

Micro Trains Line

Brass superstructure on Marklin chassis; not listed by MTL, but some shops still have these, and they are often on e-Bay

R-T-R Locomotives

Marklin

Brass superstructure on Marklin chassis; marketed as part of Marklin's Mini-Club Z-scale line, but model scales out to N-narrow gauge; the original #268 was a 2-8-0. (Re-painted and fitted with MT couplers at right.)

R-T-R Locomotives

LOK14

Tex-N-Rails

Brass superstructure on modified Märklin chassis; only 300 made in 1990's but show up regularly on eBay.

R-T-R Locomotives

Searails

GE 25-ton four-wheel industrial diesel switcher – all brass

(Also available factory painted.)

R-T-R Locomotives

Searails

EMD 40 industrial diesel switcher – all brass

(Marketed as Z Scale standard gauge but dimensions make it suitable for Nn3)

R-T-R Locomotives

Showcase Miniatures-US

Class A Shay

R-T-R Locomotives

Aspen Model

Kit & R-T-R Locomotives

Aspen Model

Kit & R-T-R Locomotives

Monroe Models / Republic Locomotive Works Product Line

Republic Locomotive Works produced an extensive line of white metal and etched brass conversion kits primarily designed to fit Märklin chassis, including locomotives for:

- D&RGW
- RGS
- SP Narrow Gauge / NCO
- East Broad Top
- C&S
- Sumpter Valley
- Uintah
- West Side Lumber Co.

The entire product line has now been acquired by Monroe Models.

Kit Locomotives

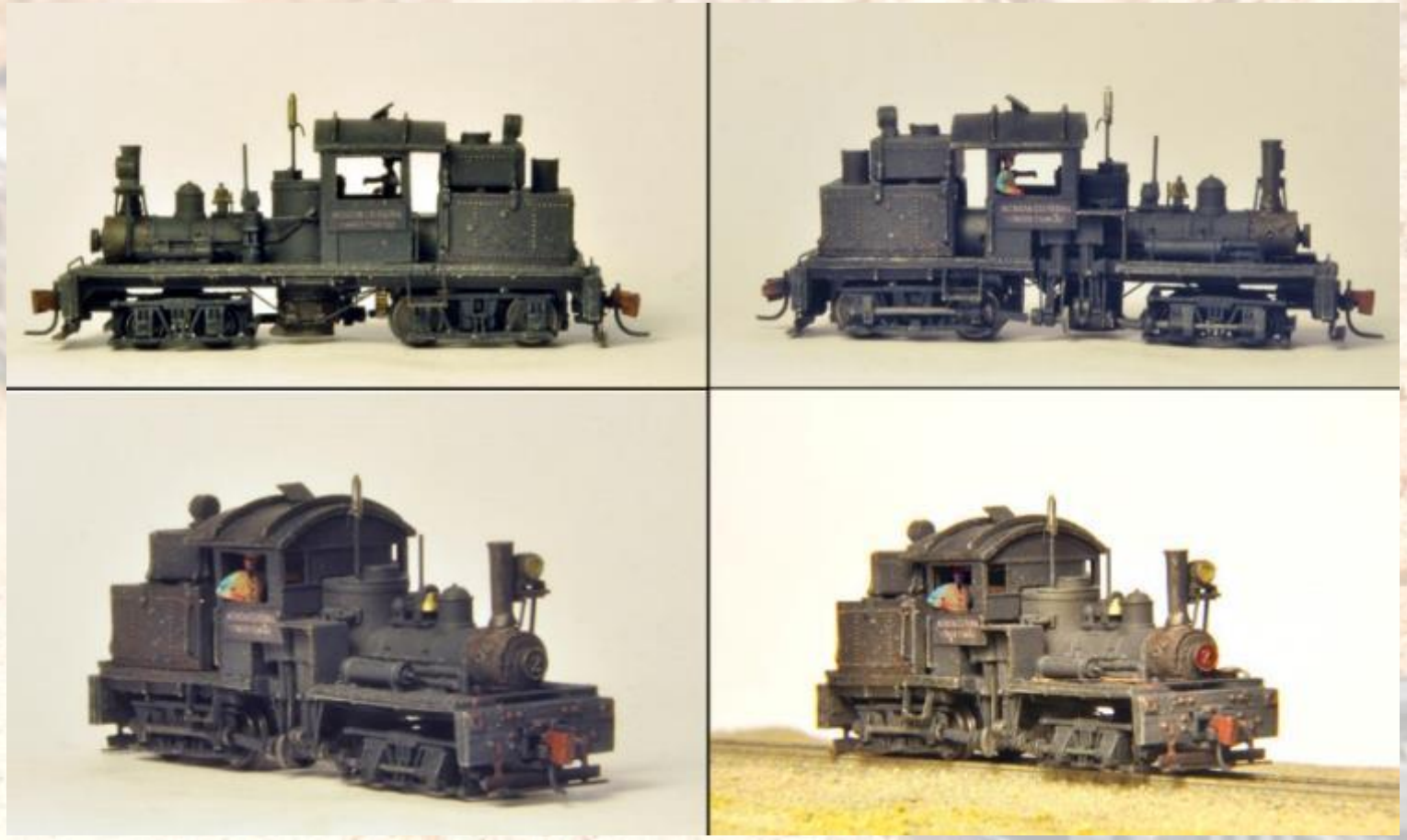
Kit Locomotives

Kit Locomotives

Showcase Miniatures

A typical Showcase Miniatures kit is composed of white metal castings and etched brass, 3D printed parts, Fox Valley wheels, brass wire, and screws.

Showcase Miniatures



Class A 16-Ton Shay **(oil fired version show; can also be built with wood cab and as coal or wood burning)**

Kit Locomotives

Showcase Miniatures

Class B 26-Ton Shay

Kit Locomotives

Showcase Miniatures

Class B 26-Ton Climax

Kit Locomotives

Showcase Miniatures

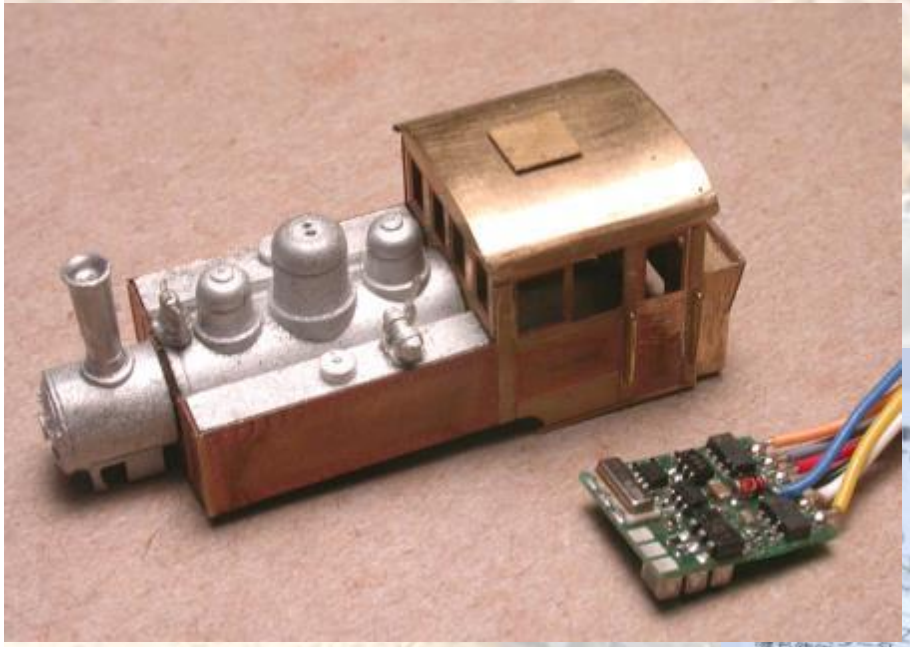
Showcase Miniatures Class C Shay kit powered by two motorized four-wheel truck/chassis

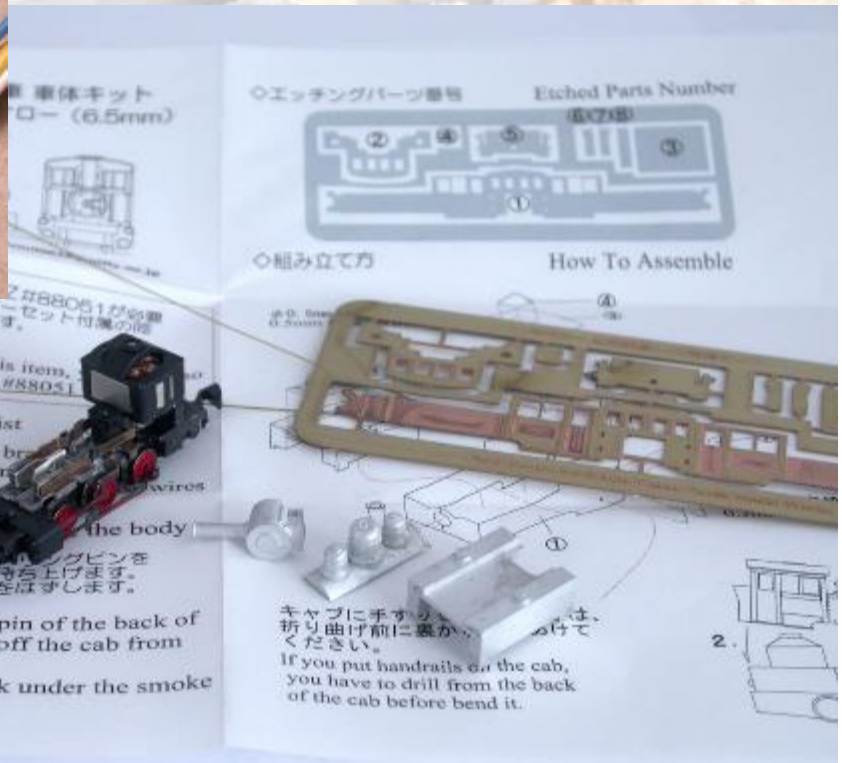
Kit Locomotives

Toma Model Works

Kit Locomotives

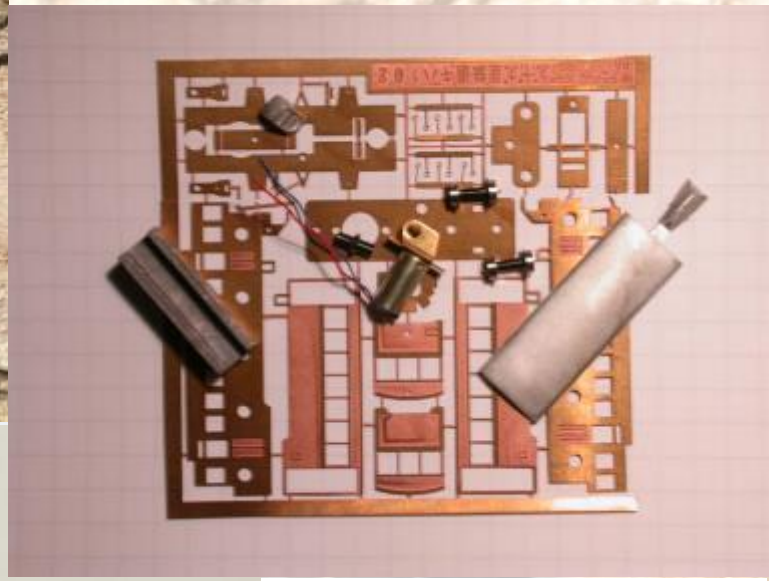
Toma Model Works





Kit Locomotives

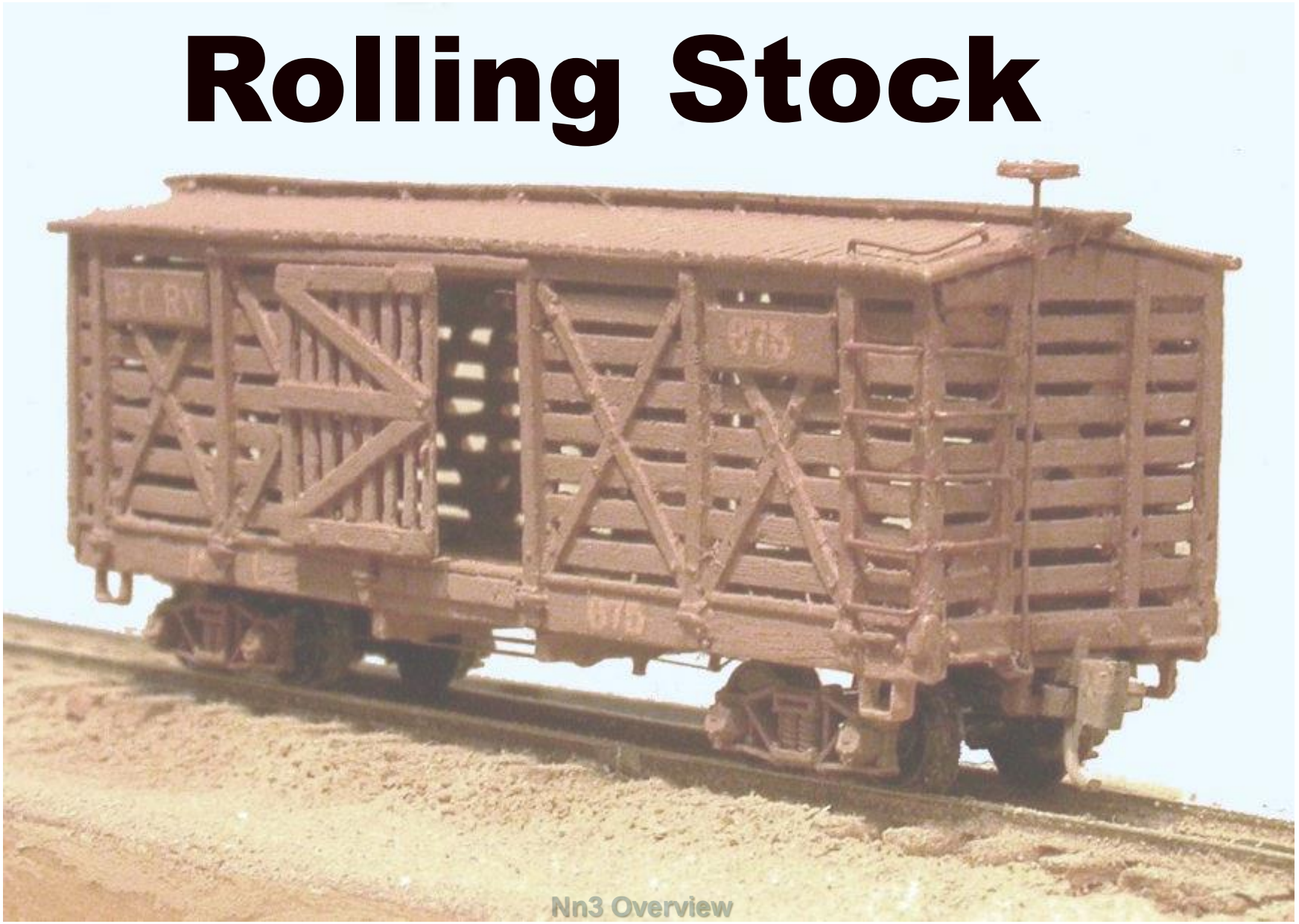
Pairhands Models



Kit Locomotives

White Metal loco kits by PECO

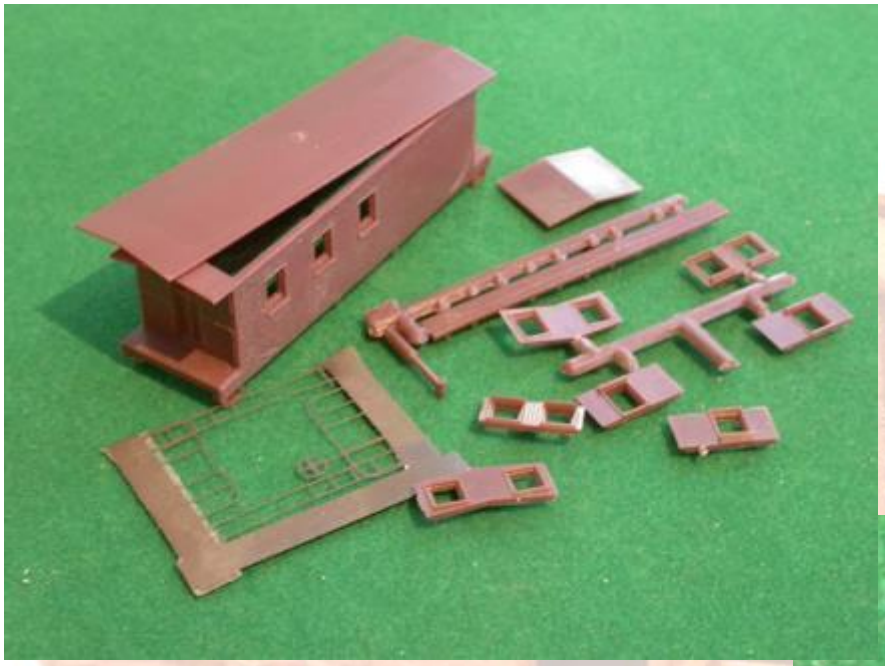
Rolling Stock



Early freight car kits were solid cast-epoxy or wood “craftsman” kits (i.e., a drawing and a bundle of wood.)

Early trucks were cast-epoxy using Marklin wheelsets (left.) Later, Nelson Gray produced injection molded trucks and wheelsets (center.) At right is current Micro Trains trucks.

Rolling Stock



Nelson Gray produced a box car, flat car, tank car, gondola, and this kit for a caboose.

Nelson Gray couplers were scale size and considerably smaller than the later MT Z/Nn3 coupler.

Rolling Stock

Micro Trains Line

Micro-Trains Line is the largest purveyor of R-T-R Nn3 freight equipment. The original tooling for these models was made by Nelson Gray in the 1970's-80's.

Rolling Stock – R-T-R

Micro Trains Line

Micro-Trains Line also is one of the leading manufacturers of Z-scale standard gauge, and some Z rolling stock can be used in Nn3.

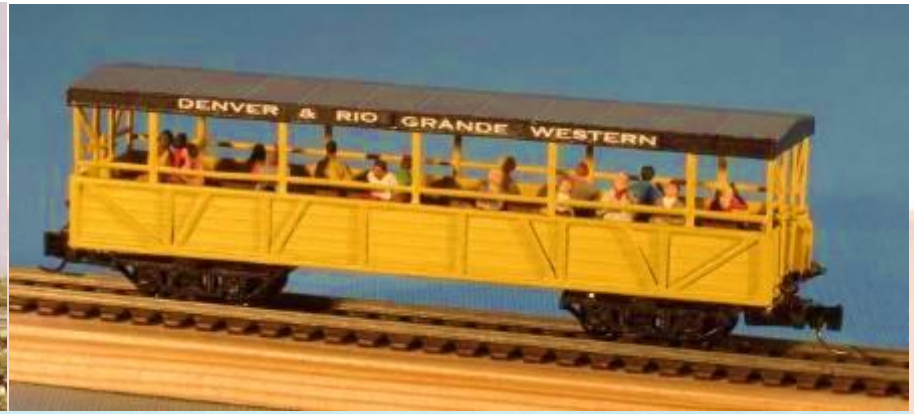
Rolling Stock – R-T-R

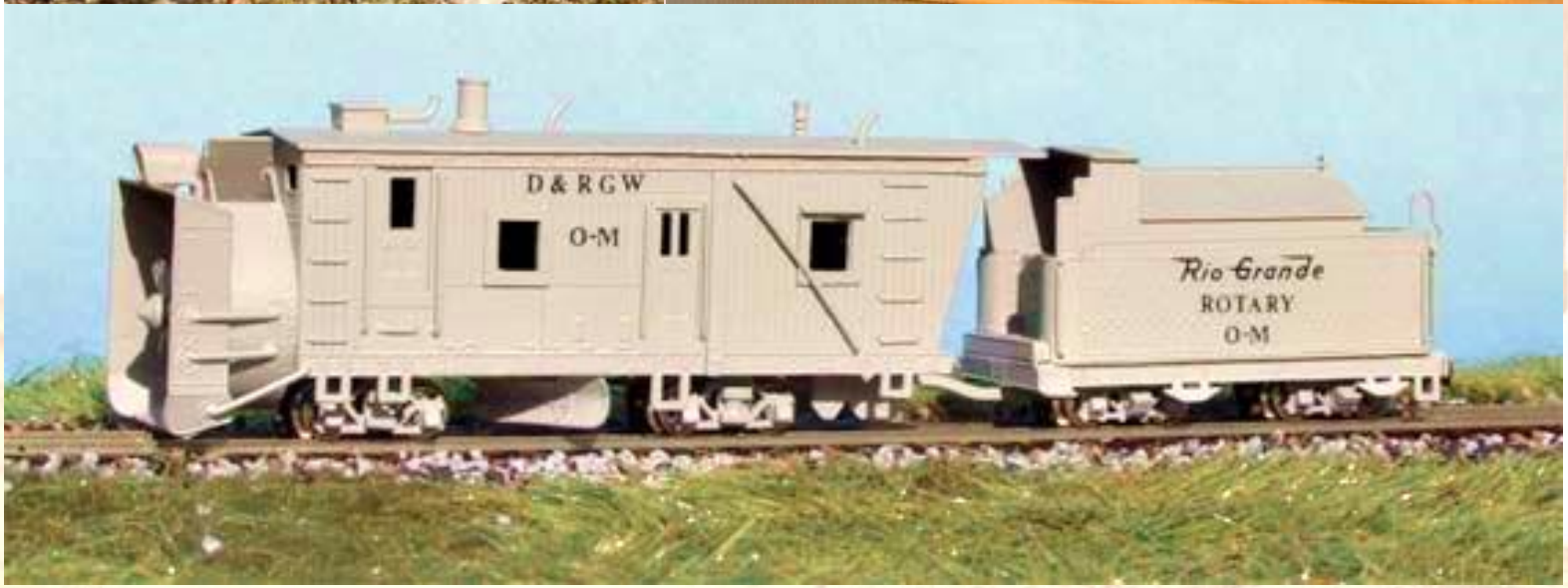
Aspen Model

"Factory Painted"

Rolling Stock – R-T-R

Aspen Model



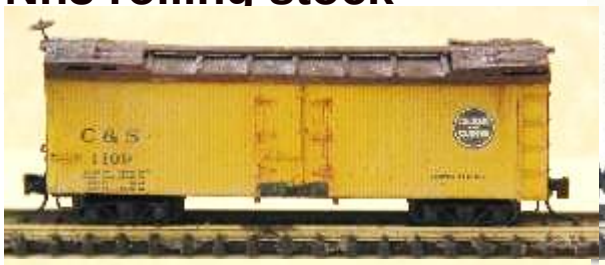


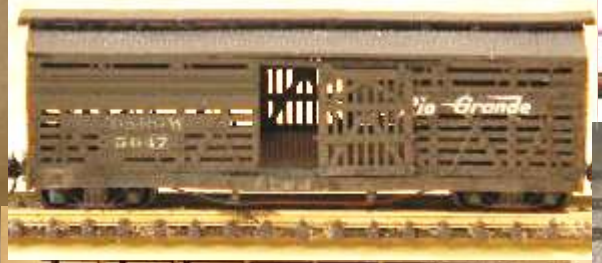
Rolling Stock – R-T-R

RLW offered an extensive line of Nn3 rolling stock

Republic Locomotive Works products

Now mfg. by Monroe Models





Rolling Stock – kit

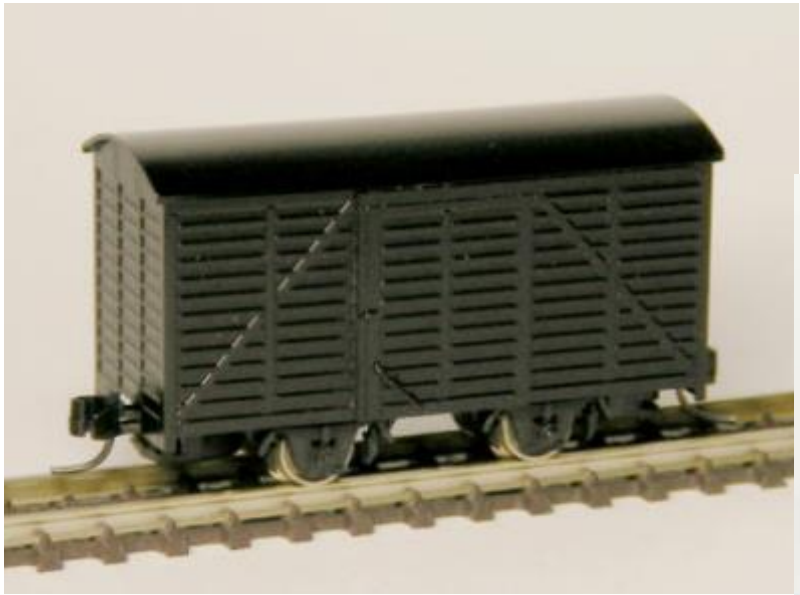
Republic Locomotive Works products
Now mfg. by Monroe Models

Rolling Stock – kit

Republic Locomotive Works products
Now mfg. by Monroe Models

Rolling Stock – kit

Toma Model Works



Rolling Stock – kit

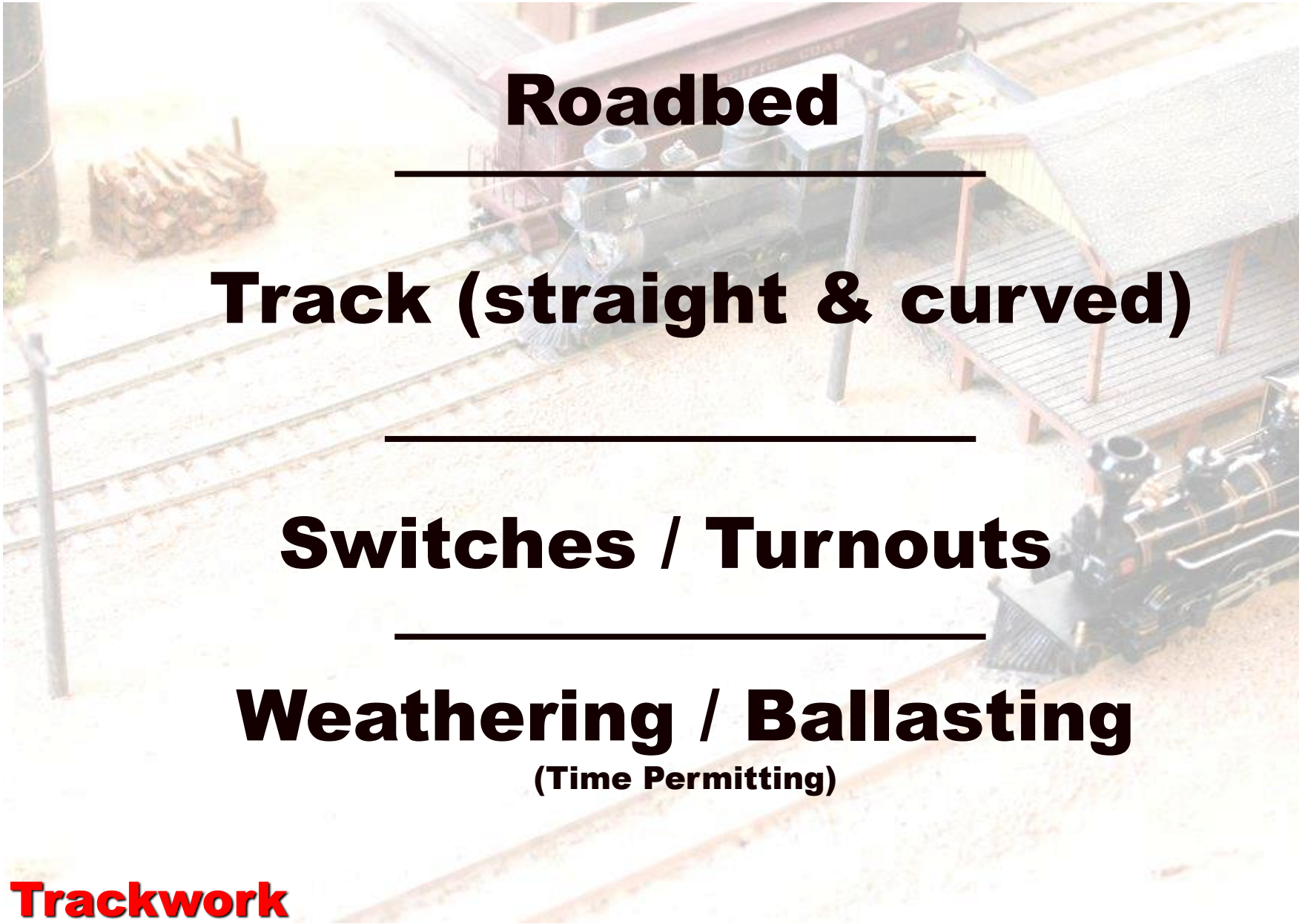
Ride Trains (Roy Stevens)

(www.shapeways.com/shops/rtrains)

Acrylic 3D Print kits

Rolling Stock – Kit

Nn3 Trackwork



Roadbed

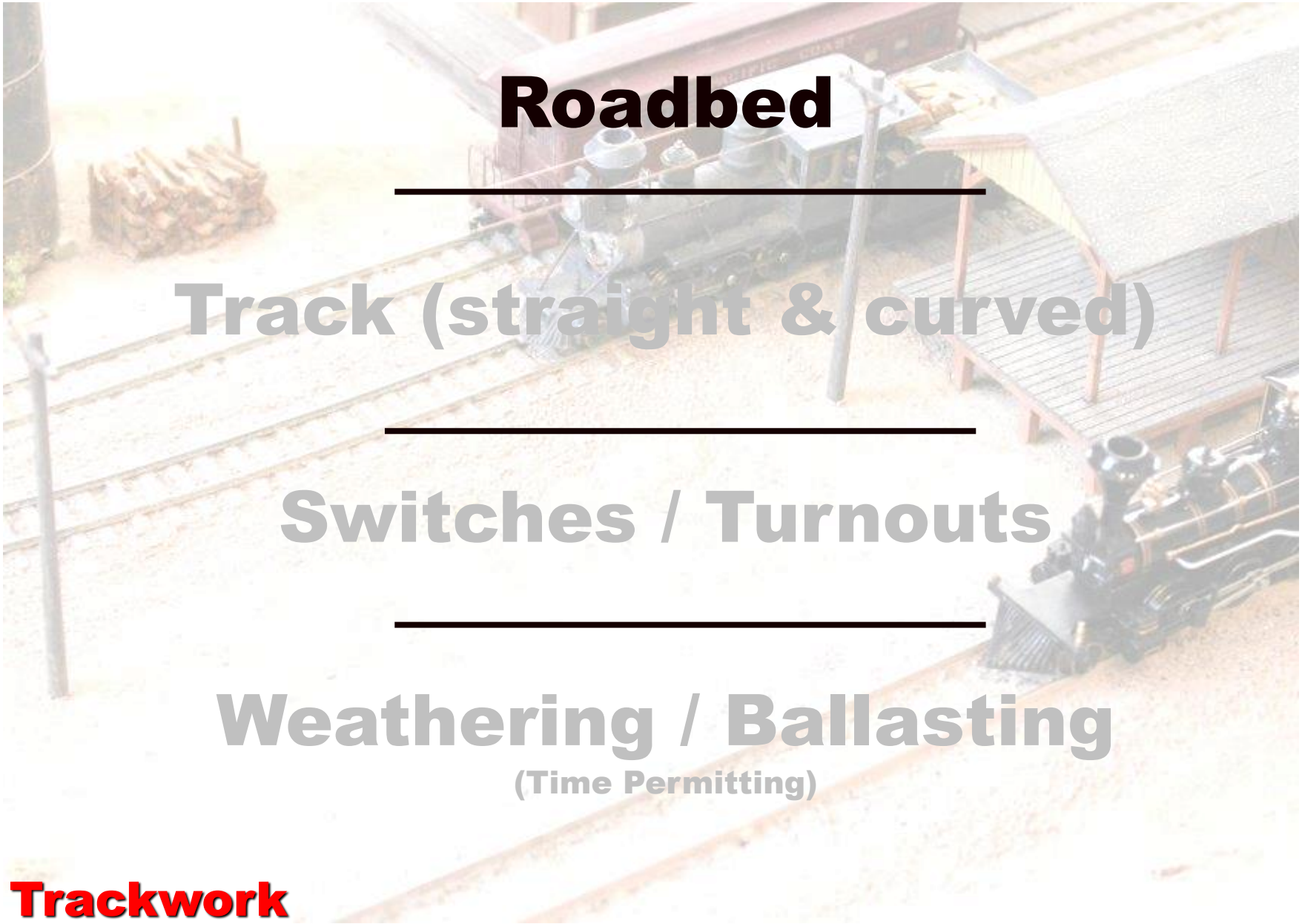
Track (straight & curved)

Switches / Turnouts

Weathering / Ballasting

(Time Permitting)

Trackwork


Roadbed
Track (straight & curved)
Switches / Turnouts
Weathering / Ballasting
(Time Permitting)

Trackwork

Most Nn3 modelers use 1/8” hardboard or plywood as roadbed, cut to follow the track plan in a large a continuous piece as possible, to ensure a smooth flat surface.

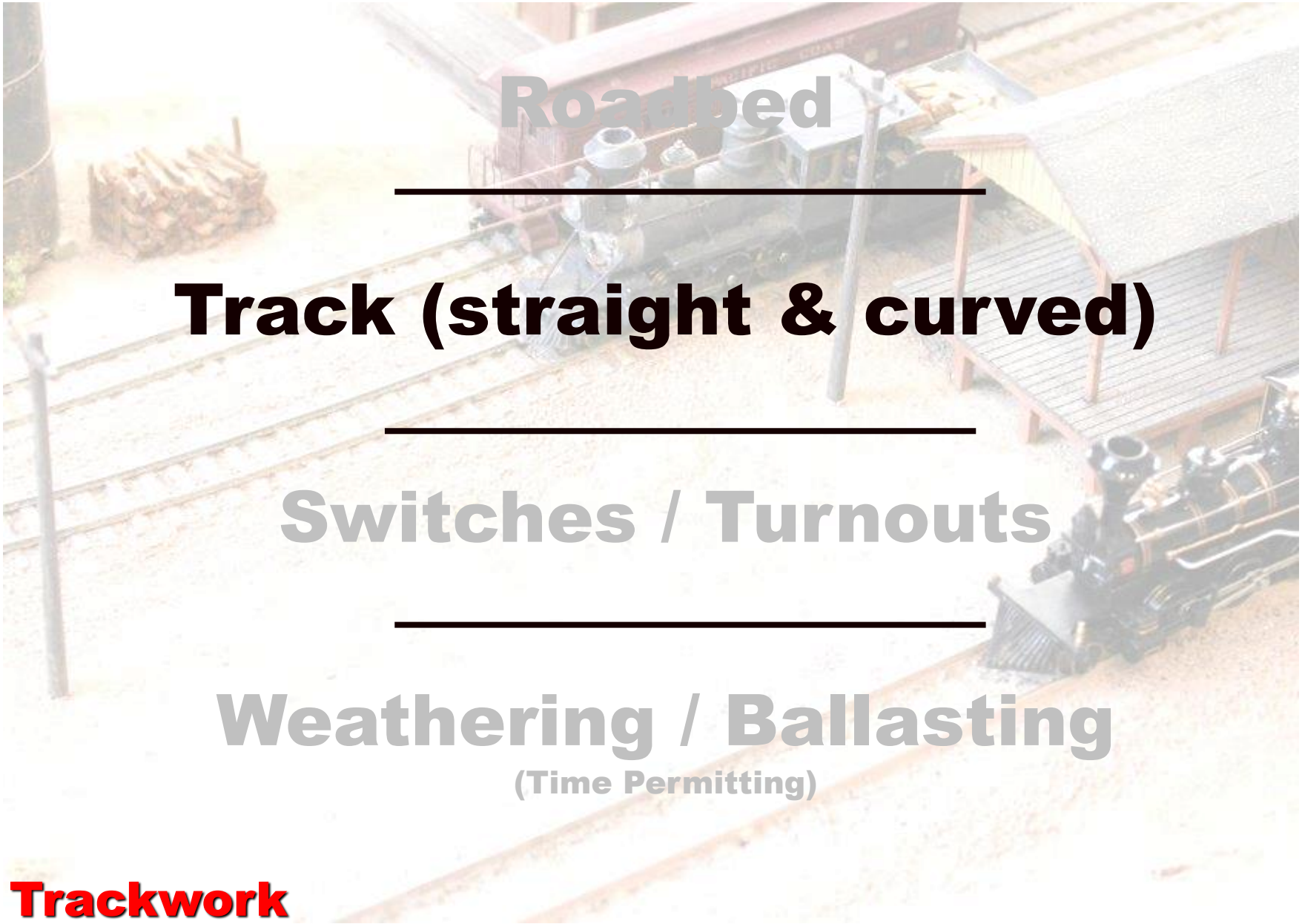
Roadbed

It is recommended that roadbed be tapered down slightly at module interface locations

Roadbed

Commercial tapered Homasote roadbed is available from California Homabed. This is softer and less rigid than hardboard or plywood, but is suitable for commercial track.

Roadbed


Roadbed
Track (straight & curved)
Switches / Turnouts
Weathering / Ballasting
(Time Permitting)

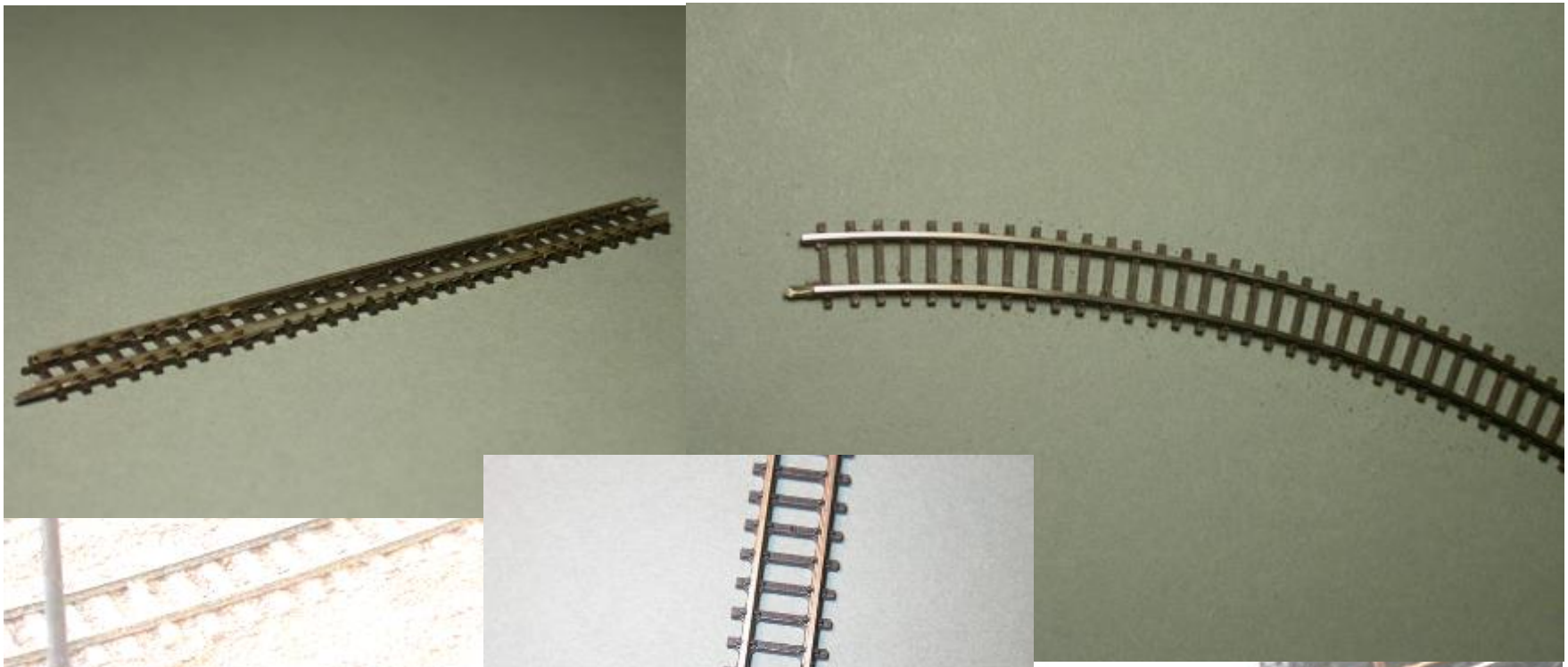
Trackwork

Nn3 Track can be generally categorized into the following:

1. Pre-Fabricated Sectional
2. Pre-Fabricated Flexible (Flex)
3. Hand Laid

Commercial Pre-fabricated Sectional Track

Track



Marklin

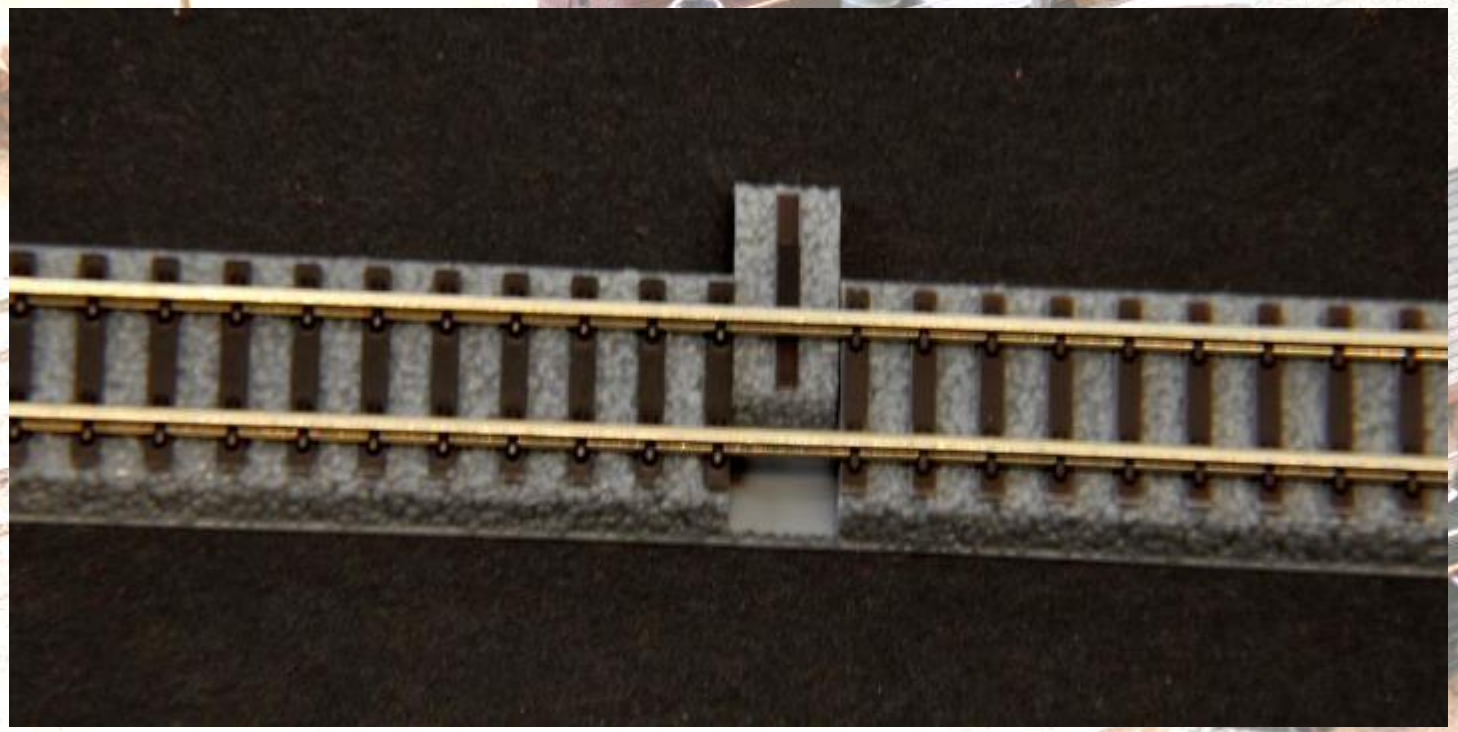
Nickel-Silver rail in molded plastic ties strips (Code 60+)

Track – pre-fabricated sectional

Micro Trains Line

Nickel-Silver, molded plastic ties strips (Code 60+), ballast section

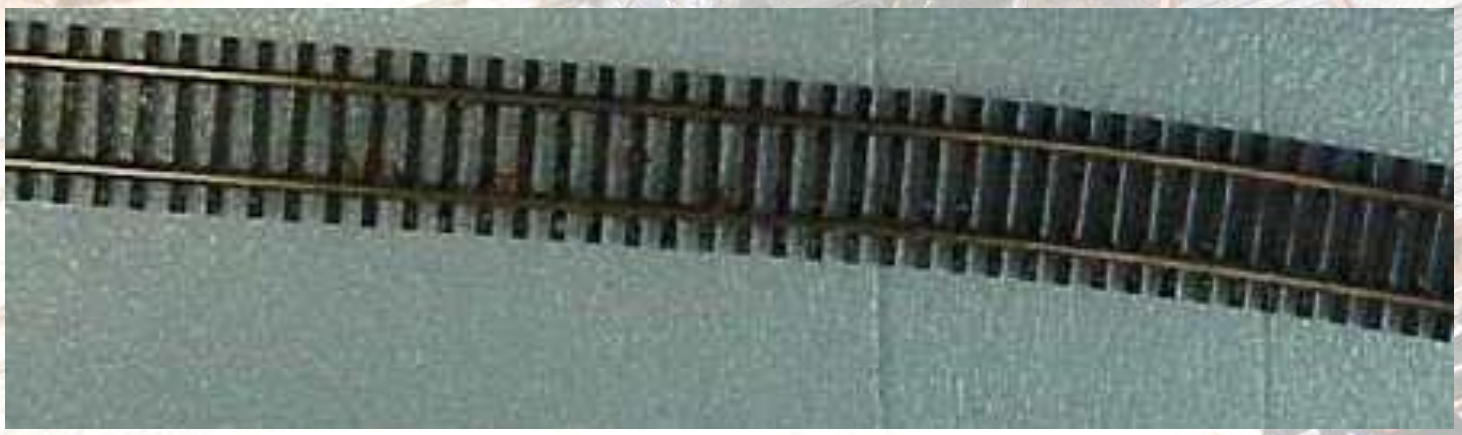
Track – pre-fabricated sectional



ROKUHAN (Japan) – Available through ZTrack Magazine's Shop
Nickel-Silver, molded plastic ties strips (Code 60+), ballast section

Track – pre-fabricated sectional

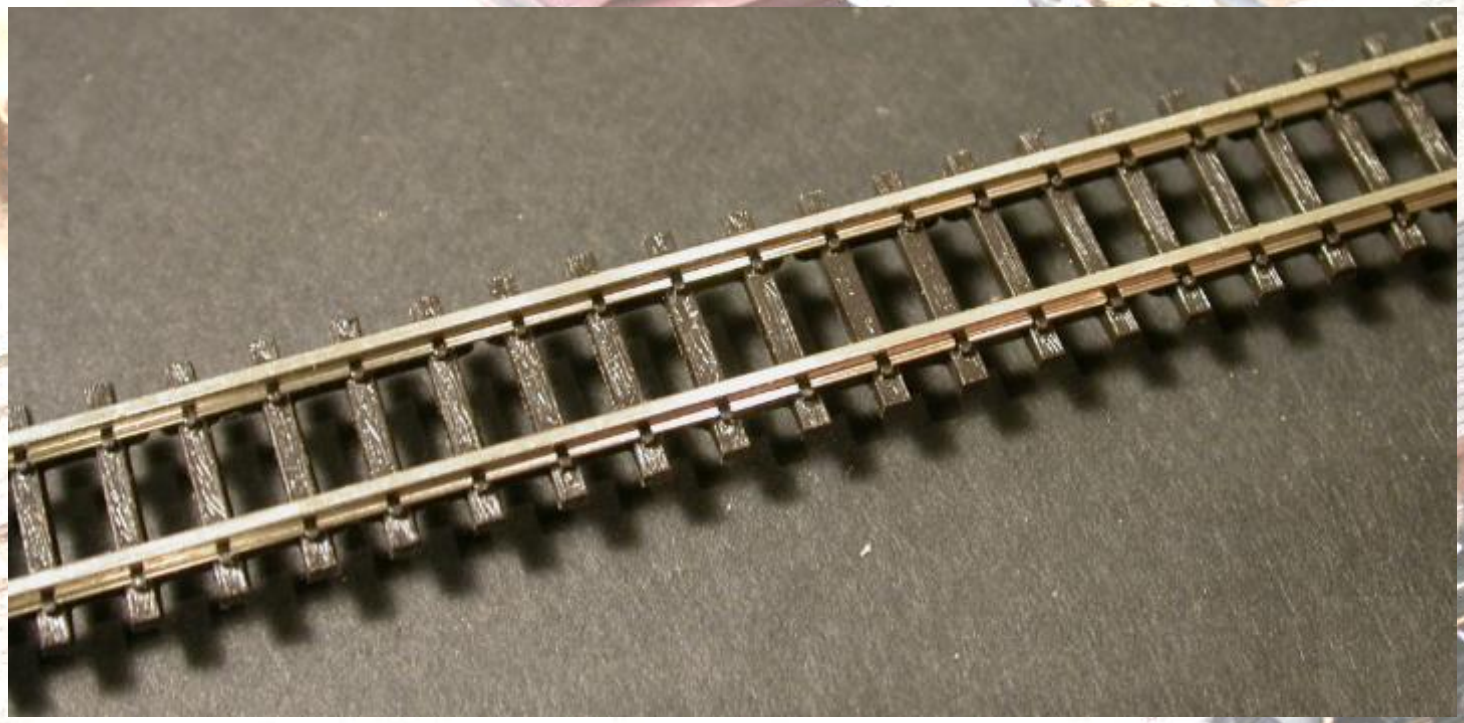
Commercial Flex Track



Micro Trains

Nickel-Silver rail in molded plastic ties strips, Code 60+

Track – prefabricated flex track

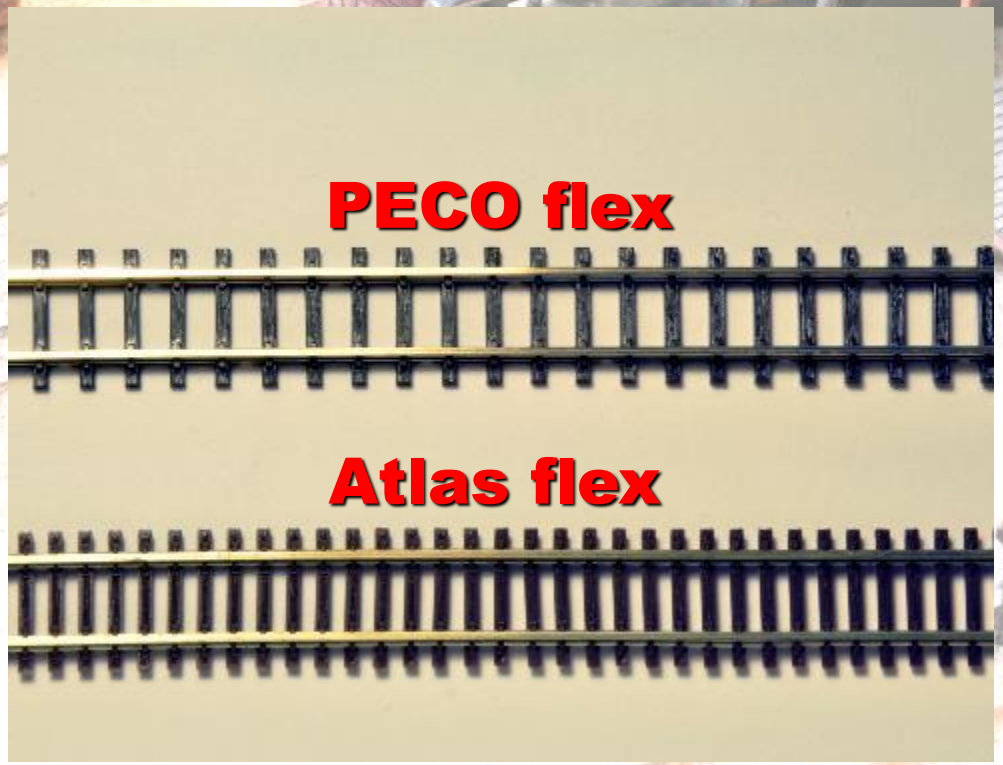


PECO

Nickel-Silver rail in molded plastic ties strips. Code 60+

Track – prefabricated flex track

Atlas Z Track



Track - prefabricated

Sectional track and flex track can be glued in place with Carpenter's Glue, Liquid Nails, or ACC. ACC and an accelerator are good for gluing flex track in a curve.

Track – prefabricated

PECO Rail, installed and ballasted

Track – prefabricated

Hand Laid Track

Track - handlaid

Track is typically “hand-laid” the following ways:

1. Nickel-Silver rail bonded to wood ties using Pliobond glue and heat
2. Nickel-Silver rail soldered to printed-circuit-board (PC board) ties located at intervals (usually every 5th or 6th ties) amongst wood ties
3. Nickel-Silver rail soldered to printed-circuit-board (PC board) ties, no wood ties. Sometimes this is prepared in a jig, then transferred to the layout, becoming “hand-laid sectional track”

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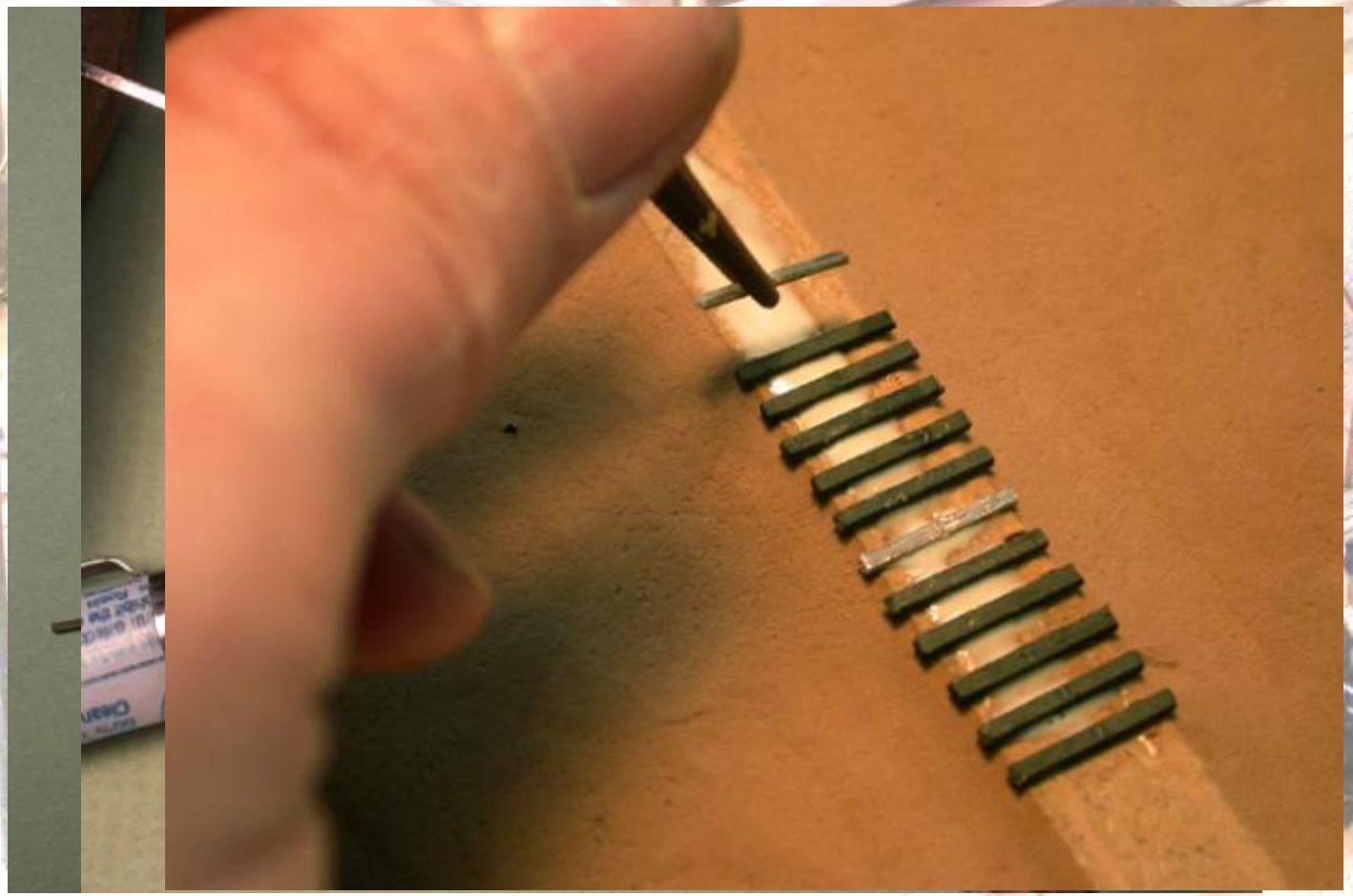
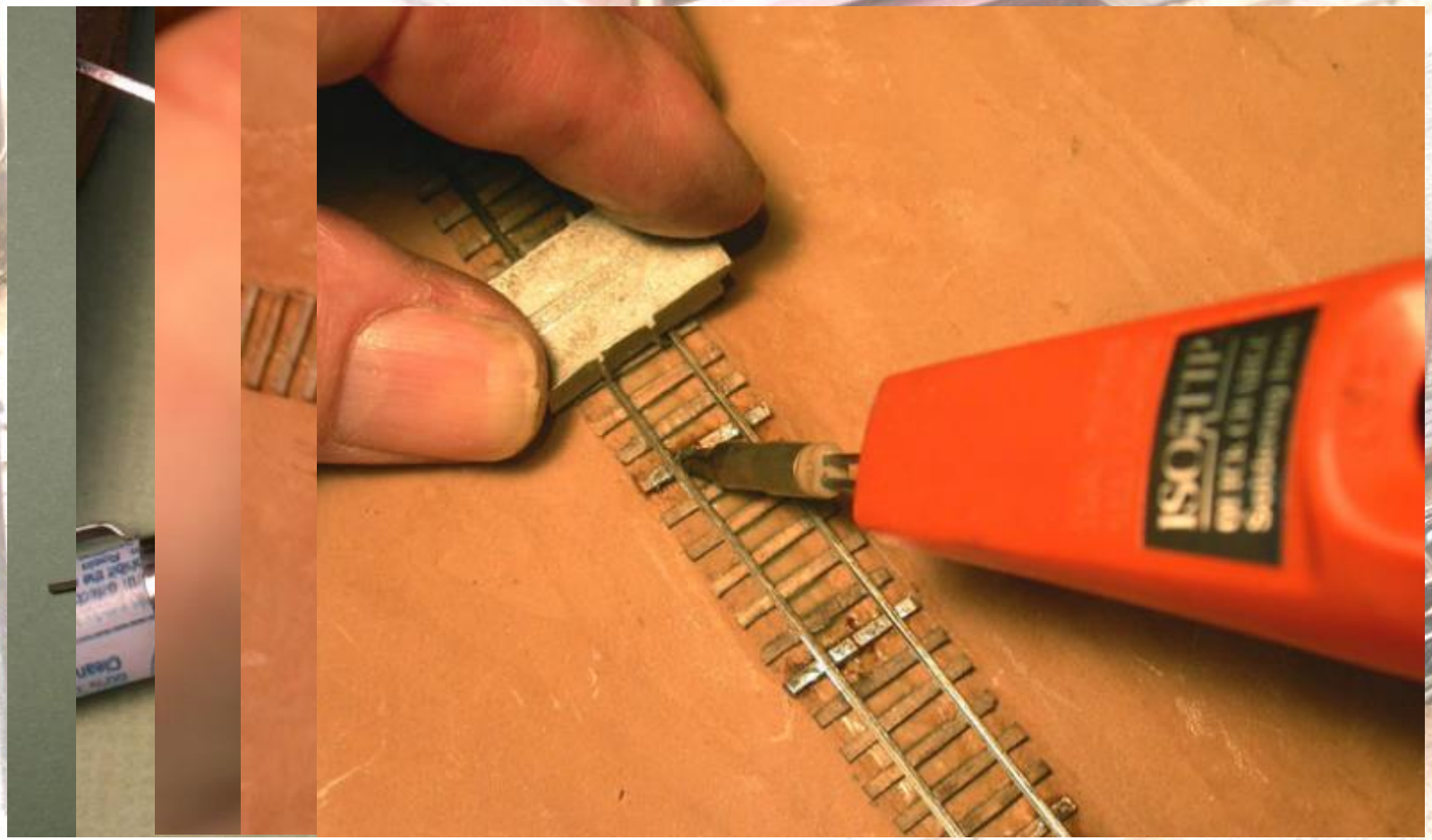


Nickel-Silver rail soldered to printed-circuit-board (PC board) ties located at intervals (usually every 5th or 6th ties) amongst wood ties

Track - handlaid

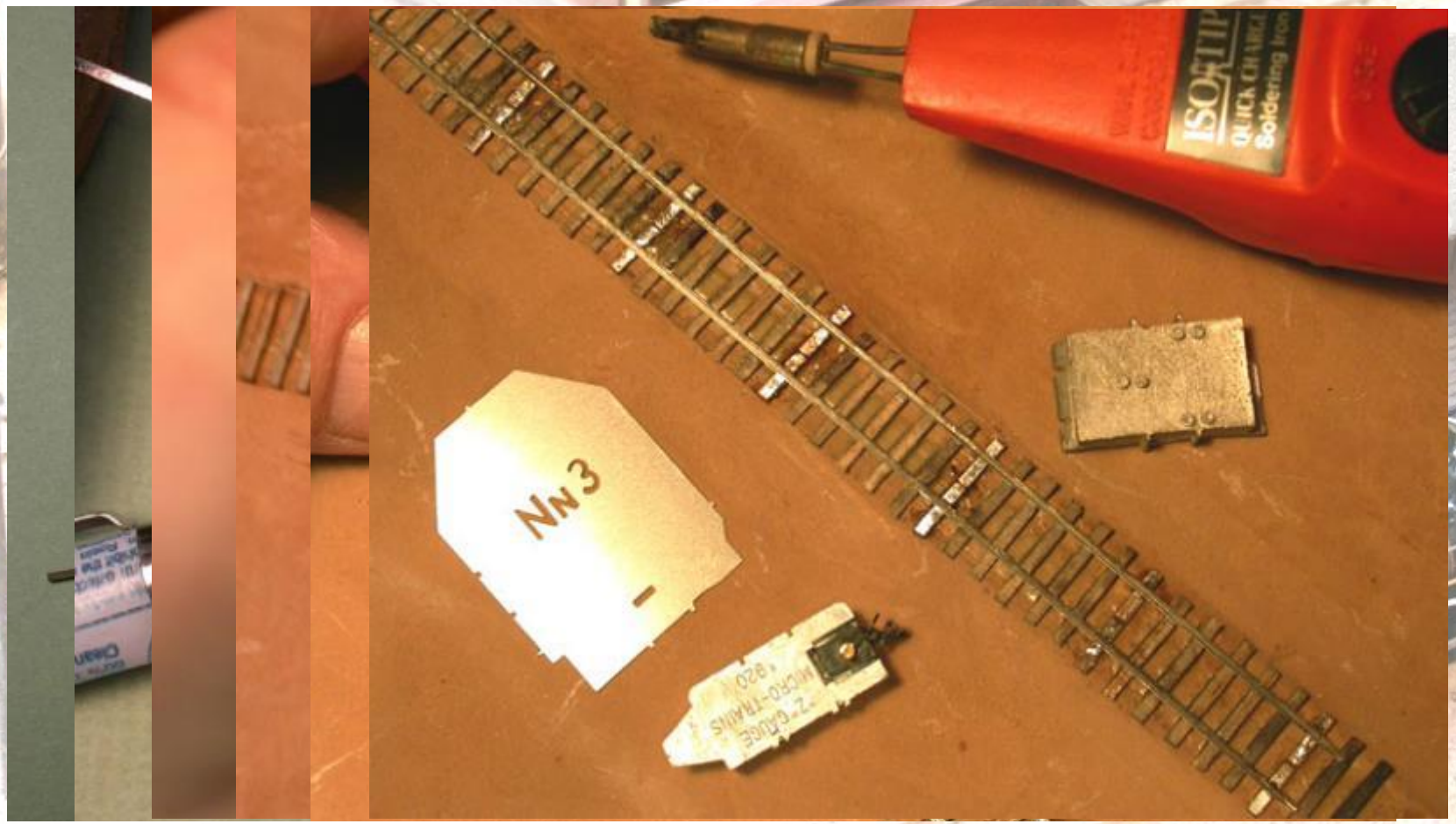
Nickel-Silver rail soldered to printed-circuit-board (PC board) ties located at intervals (usually every 5th or 6th ties) amongst wood ties

Track - handlaid



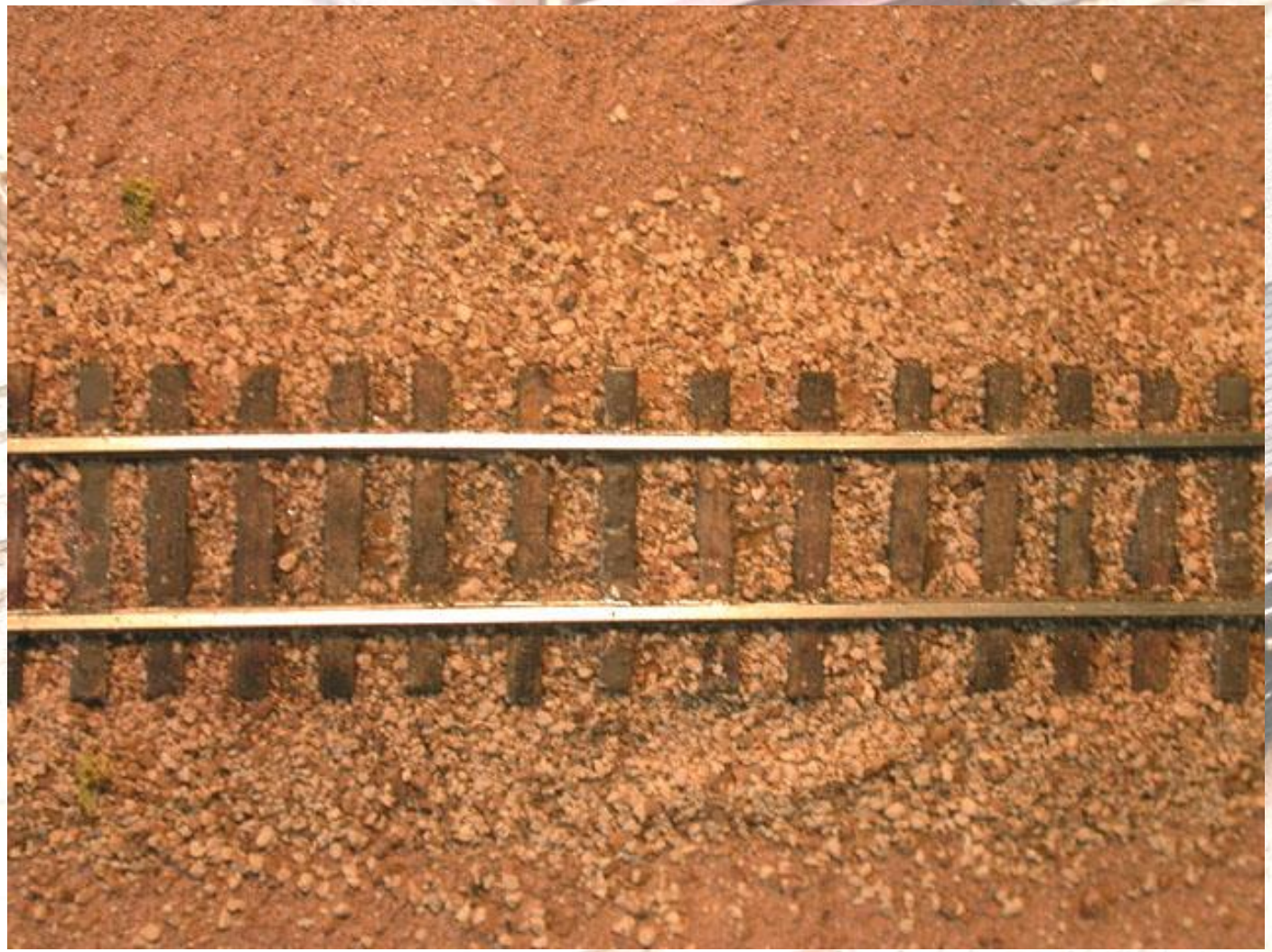
Nickel-Silver rail soldered to printed-circuit-board (PC board) ties located at intervals (usually every 5th or 6th ties) amongst wood ties

Track - handlaid



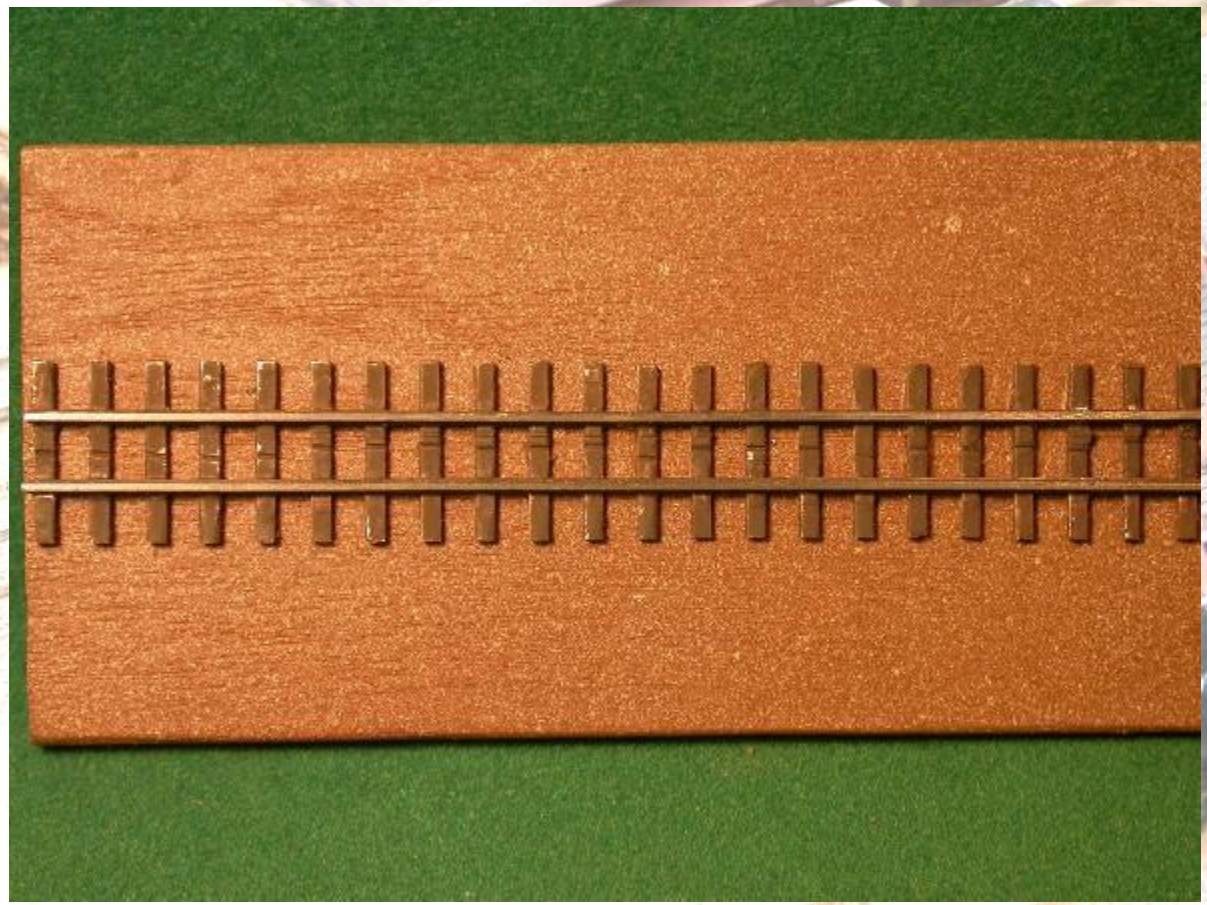
Nickel-Silver rail soldered to printed-circuit-board (PC board) ties located at intervals (usually every 5th or 6th ties) amongst wood ties

Track - handlaid



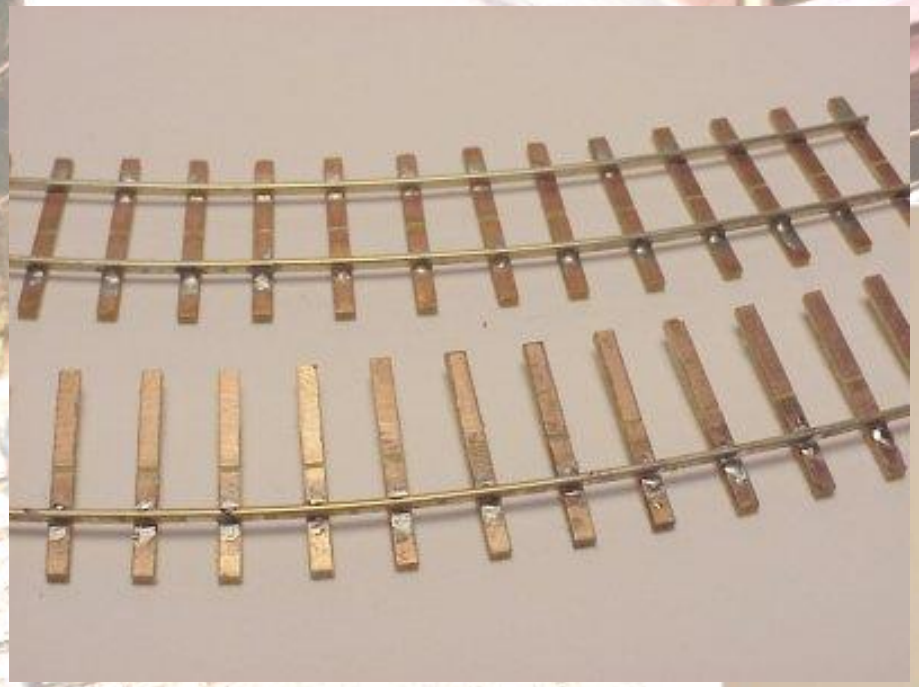
Track - handlaid

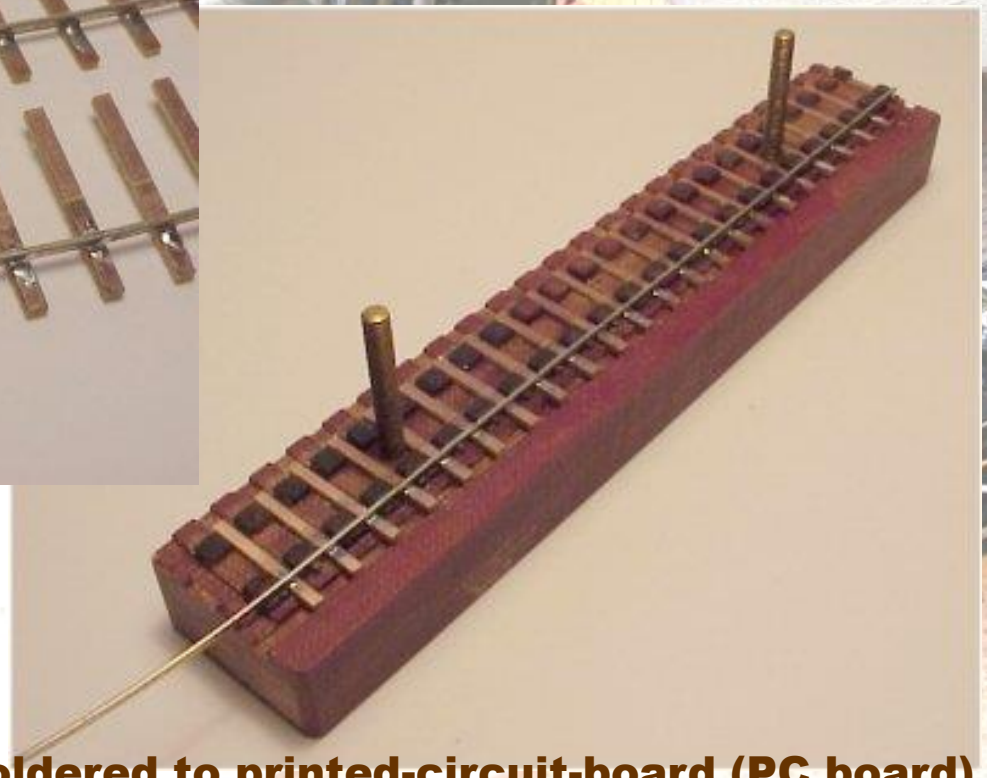
Track - handlaid



Nickel-Silver rail soldered to printed-circuit-board (PC board) ties, no wood ties. (4.5mm gauge – modeling 2-foot gauge)

Track - handlaid



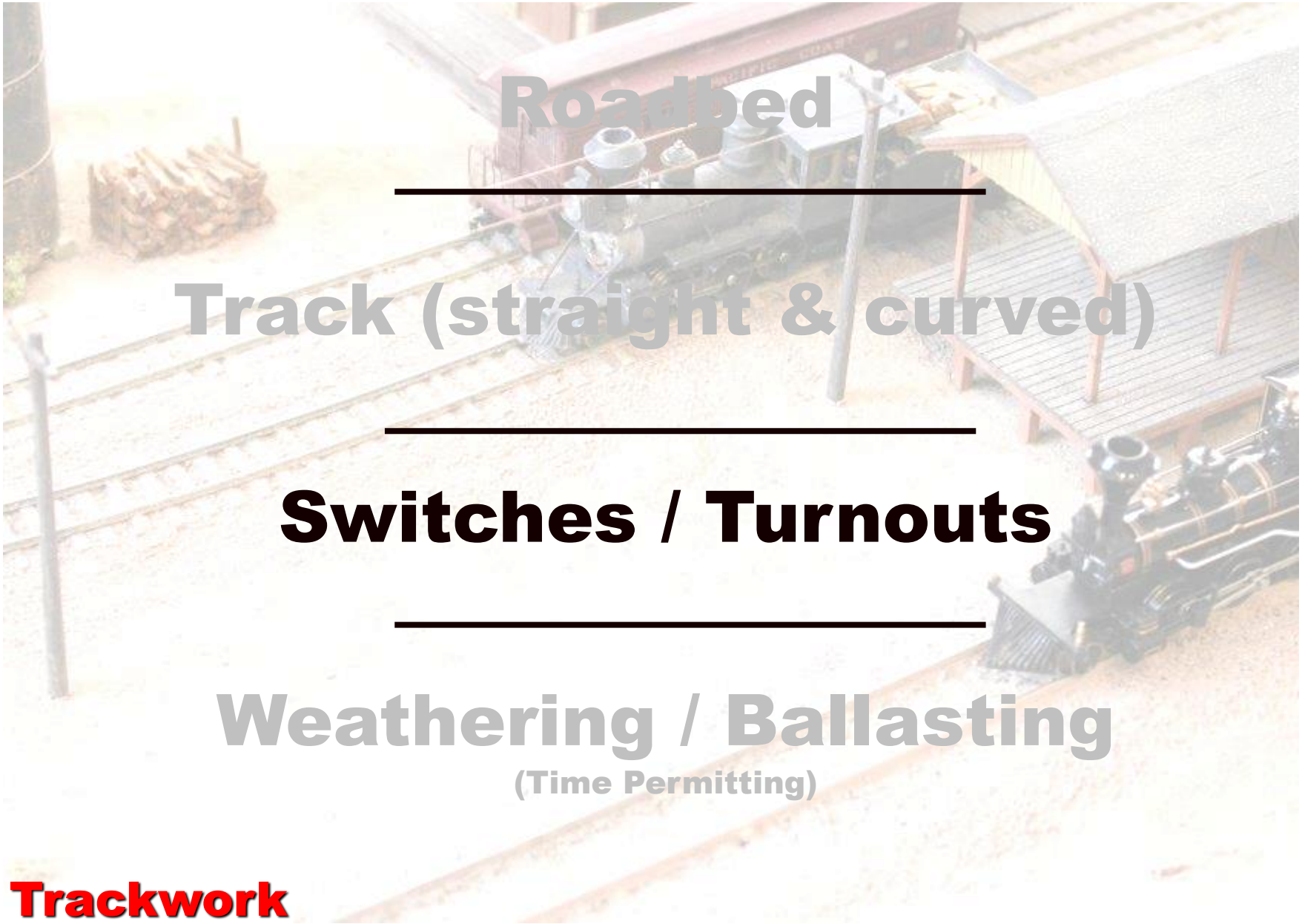


Nickel-Silver Code 30 rail soldered to printed-circuit-board (PC board) ties, no wood ties in jig for holding ties in position during soldering; note one rail only is soldered down in jig for curves – the remaining rail is soldered after laying track in place.

Track - handlaid

Nickel-Silver rail soldered to printed-circuit-board (PC board) ties, no wood ties.
(by Mark Fielder, UK)

Trackwork



Roadbed

Track (straight & curved)

Switches / Turnouts

Weathering / Ballasting

(Time Permitting)

Trackwork

Nn3 Switches can be generally categorized into the following:

1. Pre-Fabricated (R-T-R)
2. “Skeleton” Kits
3. Jig-Built Hand-Laid
4. Hand-Laid

Switches

Switch Machine Cover

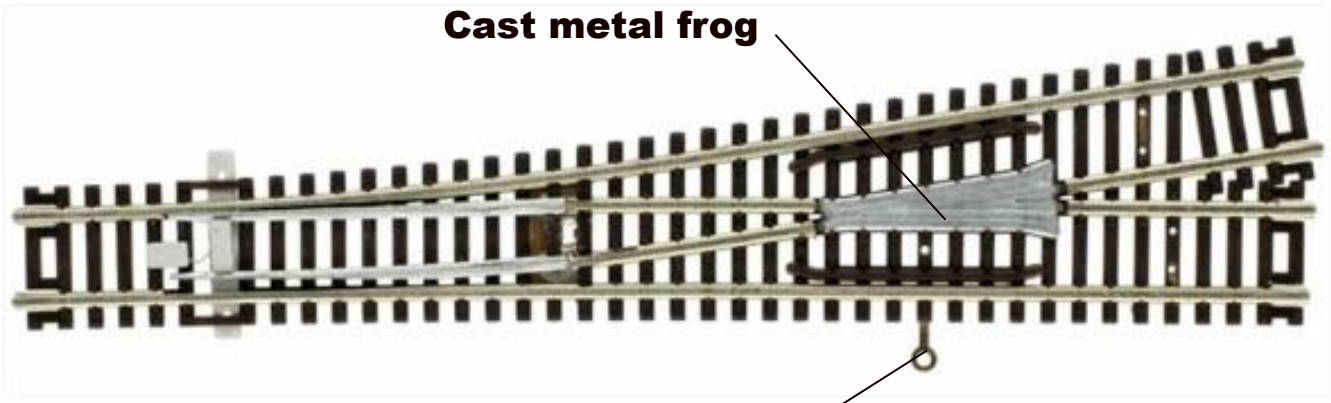
Switch machine cover removed & replaced by ground throw

S.S. strips in flange-ways

Marklin

Nickel-Silver rail in plastic tie strip; plastic frog

Switches – prefabricated “R-T-R”

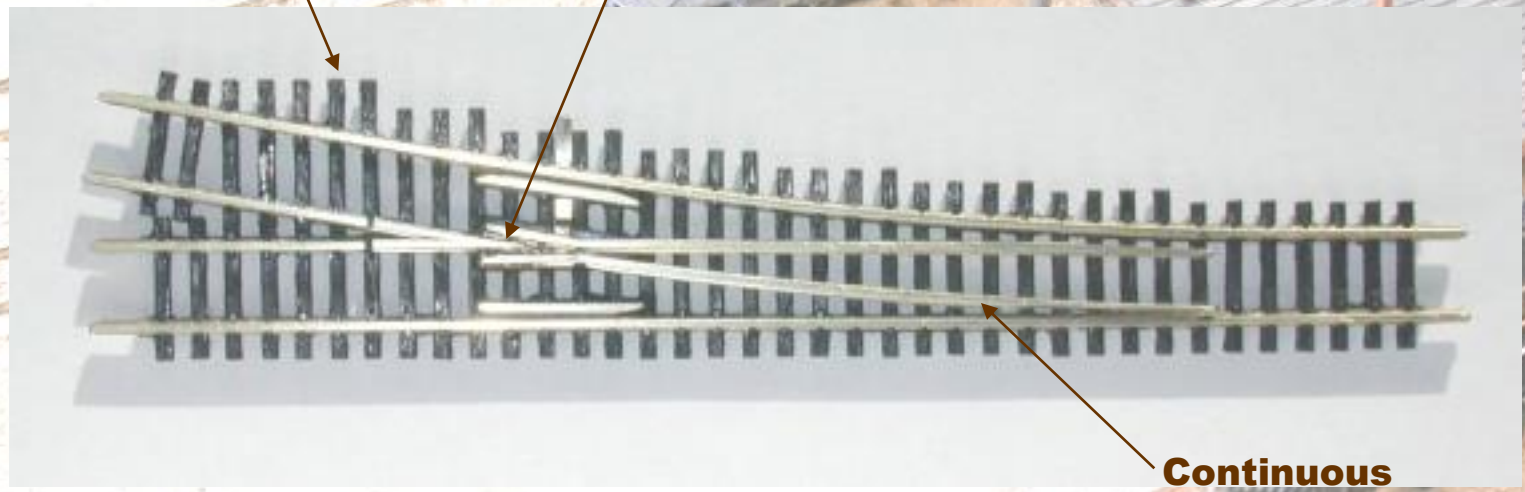


Atlas Code 55 Z-scale
Nickel-Silver rail in plastic tie strip; metal frog

Switches – prefabricated "R-T-R"

Lemiso Code 60 (PECO/Marklin compatible)
Nickel-Silver rail in resin tie strip; metal frog
Also, crossings and dual-guage track and turnouts

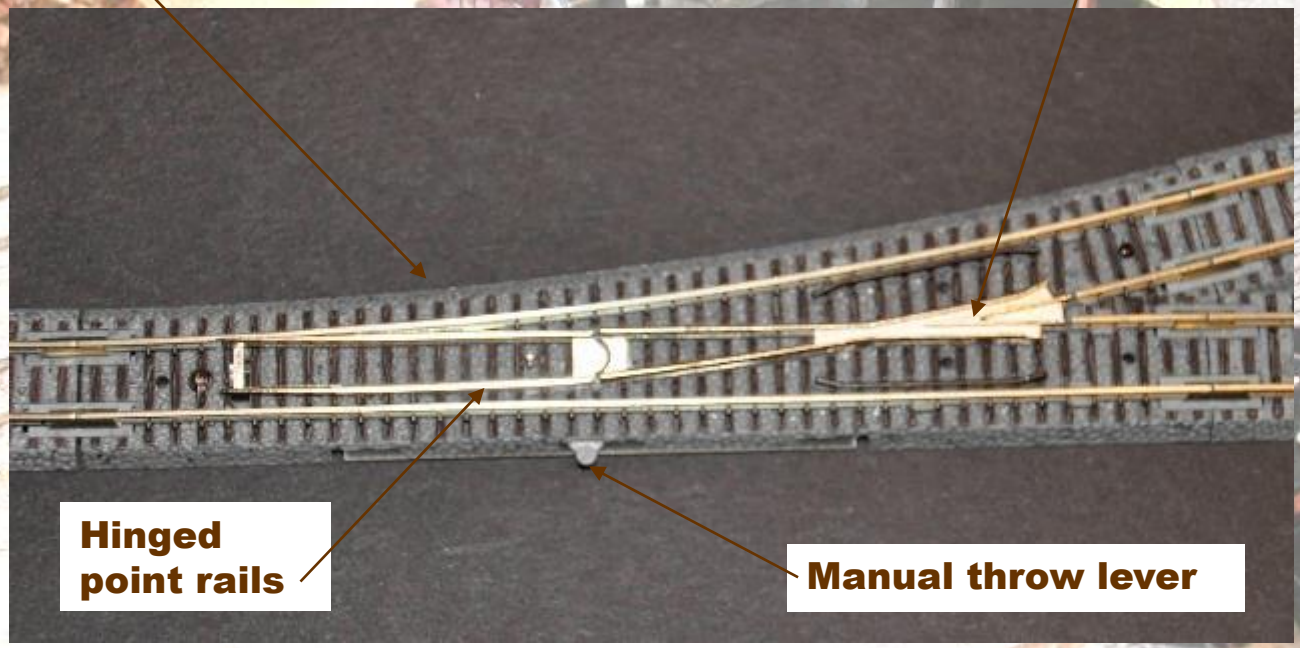
Switches – prefabricated “R-T-R”



Peter Wright

Nickel-Silver rail in molded plastic ties strips, compatible with PECO flex track

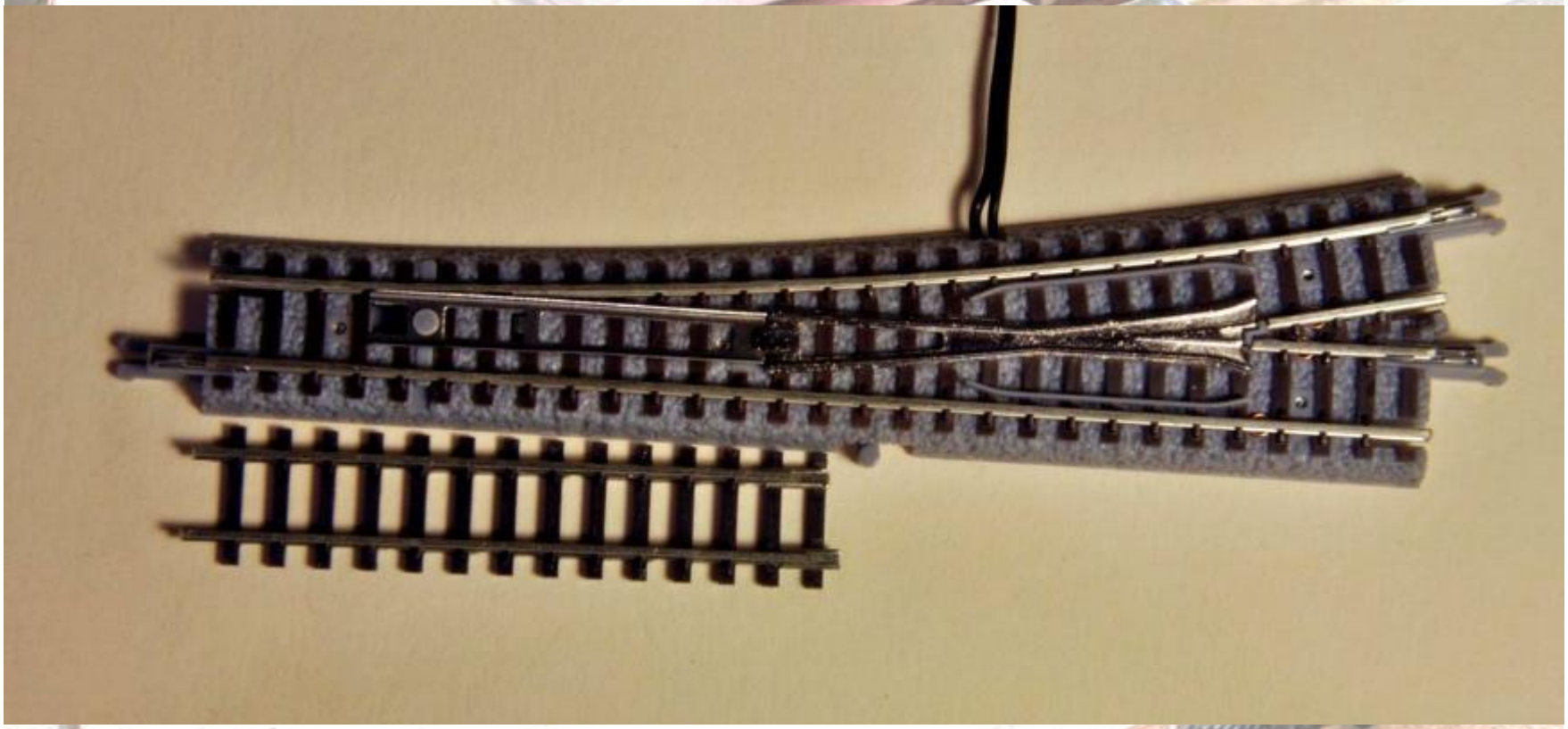
Switches – prefabricated "R-T-R"



Micro Trains Line

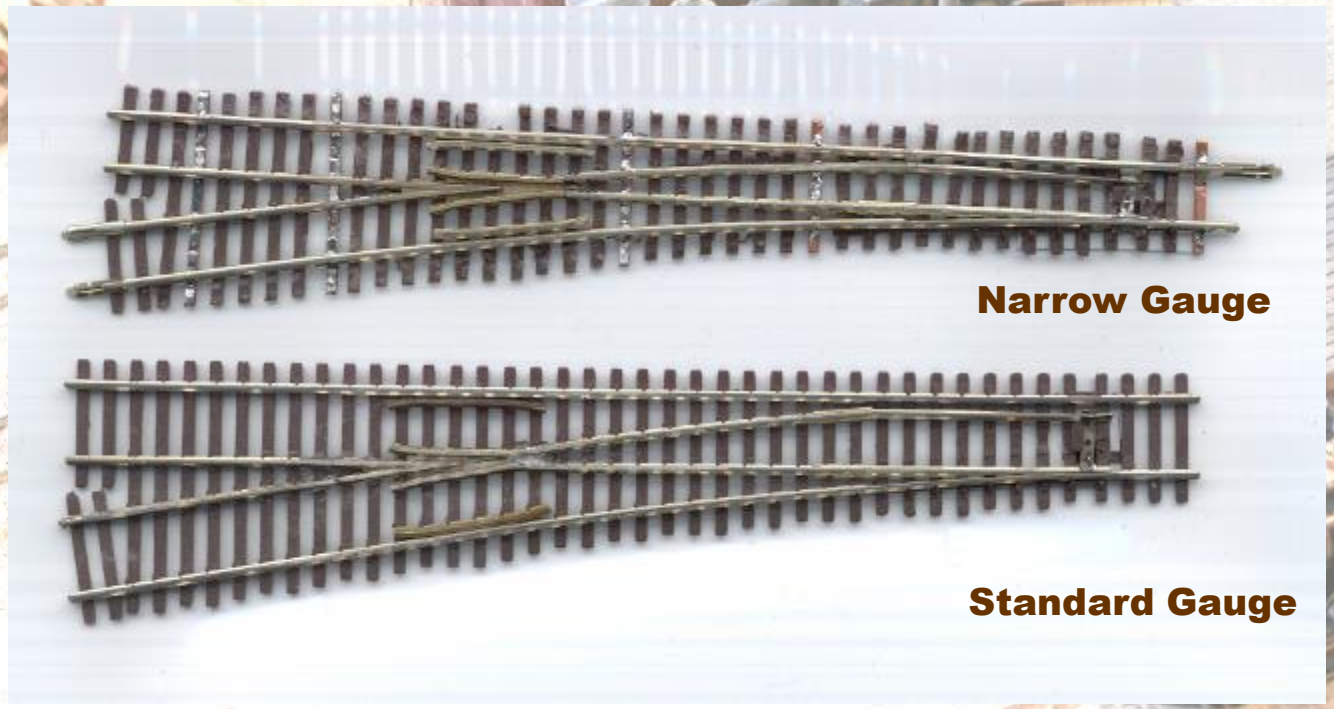
Nickel-Silver, molded plastic ties strips (Code 60+), ballast section

Switches – prefabricated "R-T-R"



ROKUHAN (Japan) – **Available through ZTrack Magazine's Shop**
Nickel-Silver, molded plastic ties strips (Code 60+), ballast section
(Note: ties size and spacing is a match for PECO N6.5 flex track)

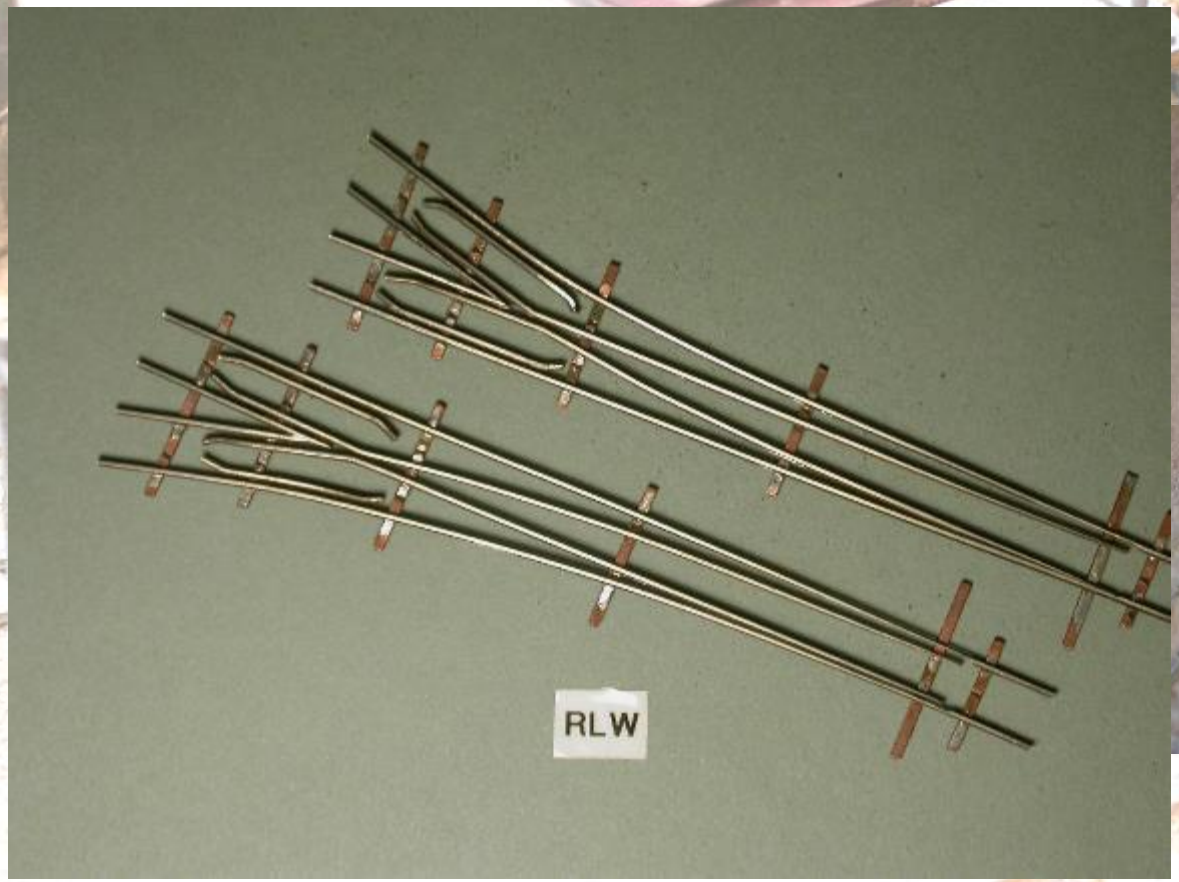
Switches – pre-fabricated "R-T-R"

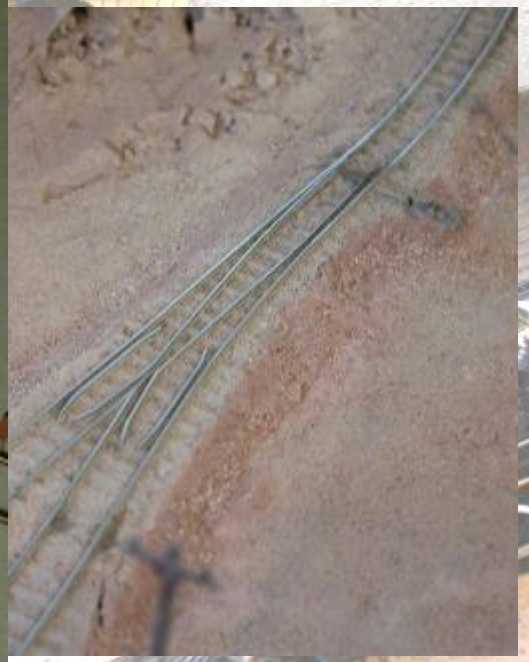


Micro Engineering Code 55, converted to Nn3 by Garth Hamilton

Nickel-Silver rail in molded plastic tie strips

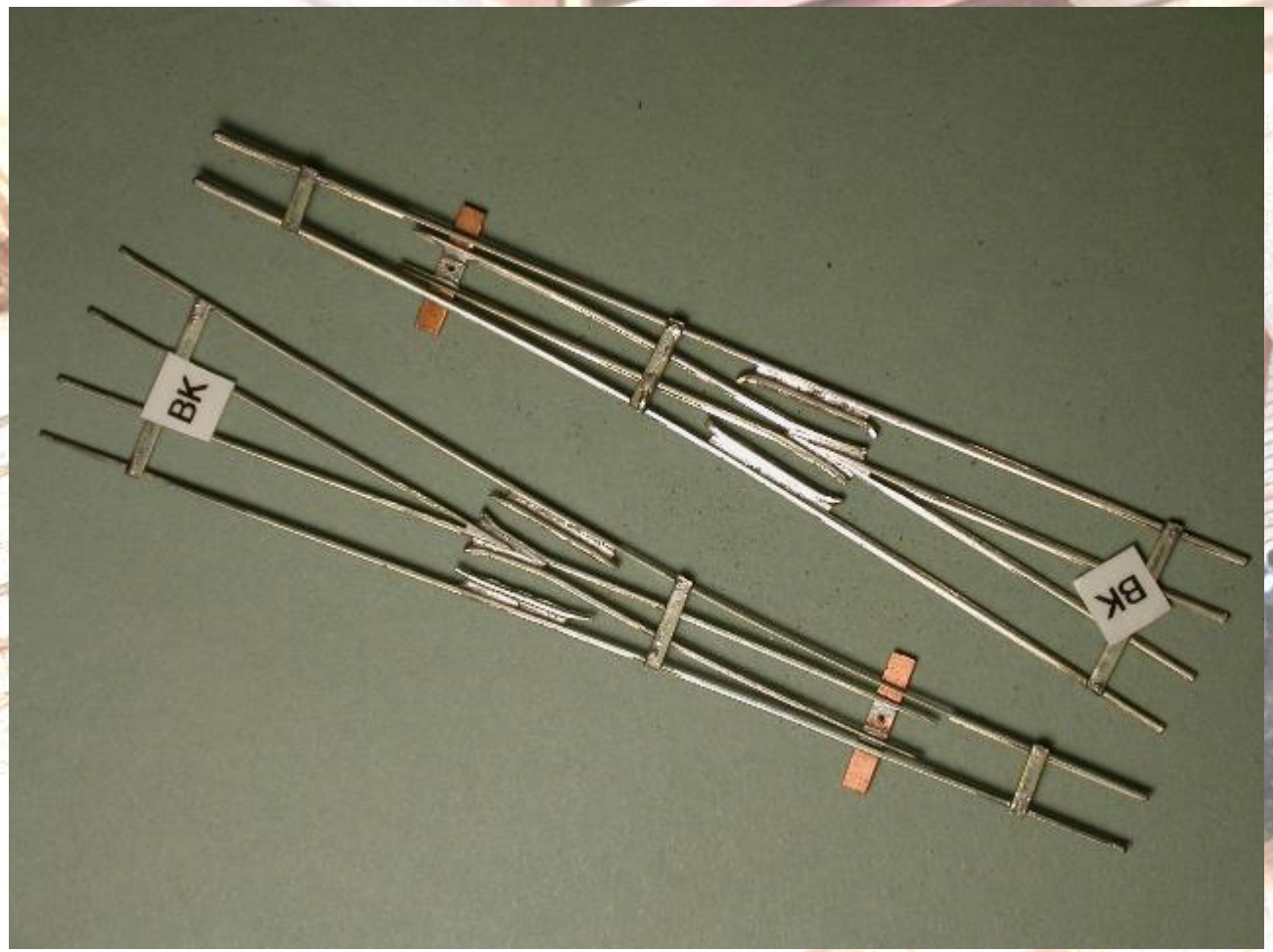
Switches – prefabricated - ALMOST "R-T-R"





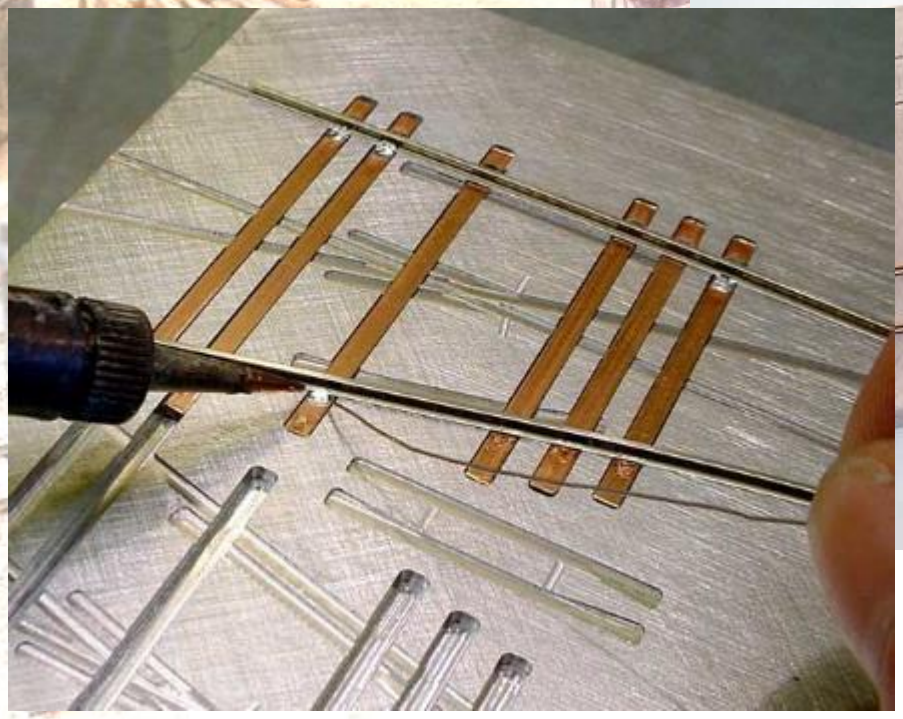
Republic Locomotive Works
Weathered Code 40 Nickel-Silver rail
Unknown status of existing stock at Monroe Models

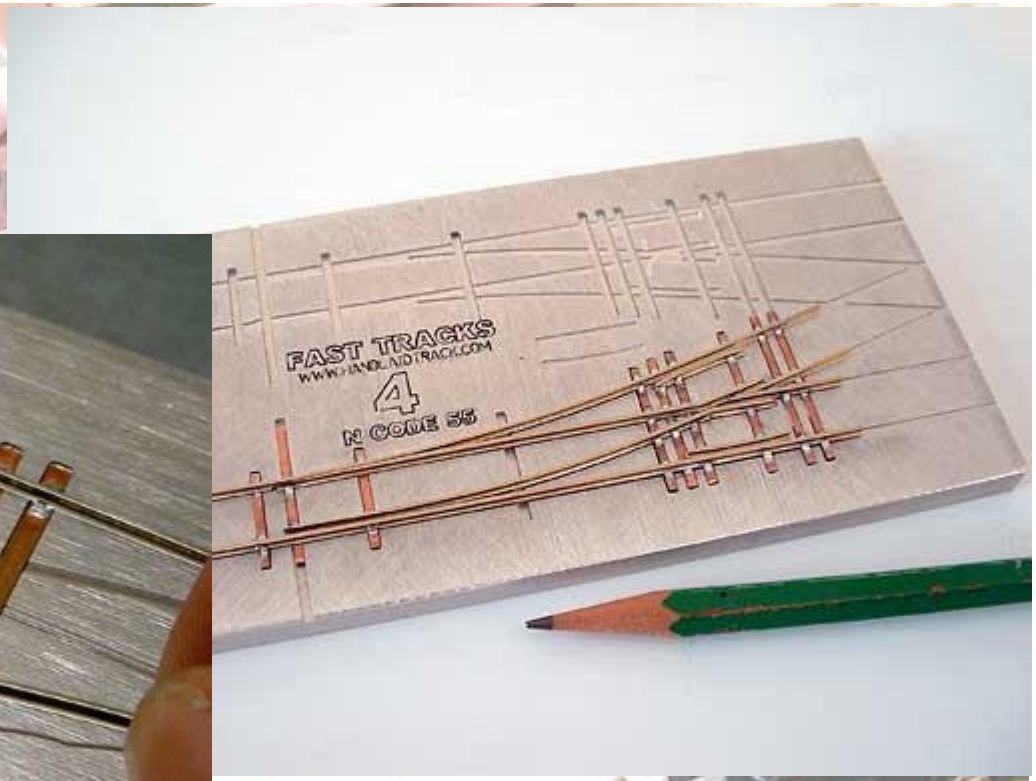
Switches – “skeleton” kits



BK Industries
Code 40 & 55 Nickel-Silver rail

Switches – “skeleton” kits





“Fast Tracks” makes turnout jigs for Code 40 Nn3 turnouts.

Switches

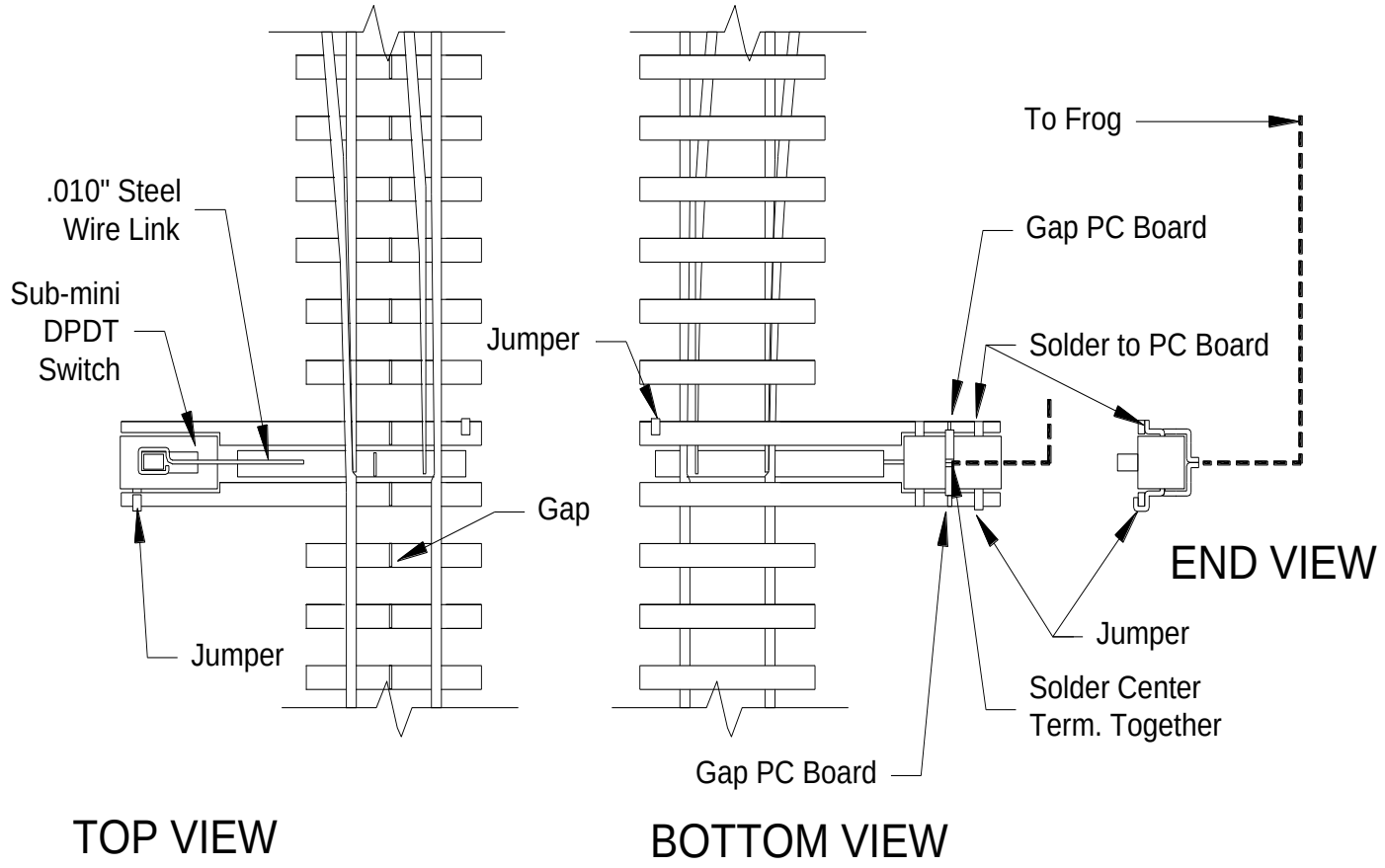
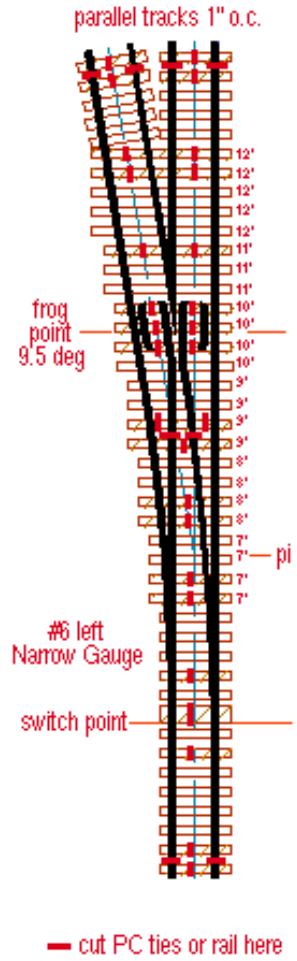
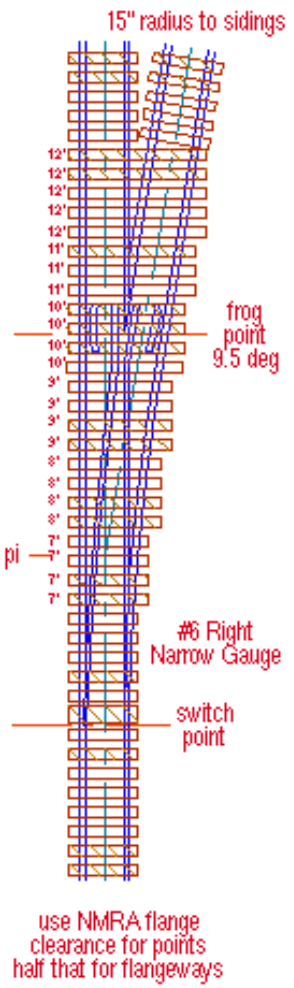


FIGURE 5: GROUND THROW

Switches – ground throws



Pacific Desert Lines 7/30/96			Bill of ties #6n3 turnout	
Put 6' ties on left side to start left turnout. Reverse sequence for rt turnout.				
Tie length	Amount	Each	Material	
6 foot	14	2	PC board	
		4	Wood	
		1	PC board	
		1	Wood	
		1	WIDE	sw pts
		1	Wood	
		1	PC board	
		3	Wood	
7 foot	4	2	PC board	
		2	Wood	
8 foot	4	2	PC board	
		2	Wood	
9 foot	4	2	PC board	
		2	Wood	
10 foot	4	1	Wood	
		3	PC board	frog
11 foot	3	2	Wood	
		1	PC board	
12 foot	5	3	Wood	
		2	PC board	
Start to branch out ties here				
6 foot	5	3	Wood	
		2	PC board	
TOTAL TIES	43			



http://www.urbaneagle.com/slim/../data/RRturnouts.html

Switches – hand-laid

Roadbed

Track (straight & curved)

Switches / Turnouts

Weathering / Ballasting

(Time Permitting)

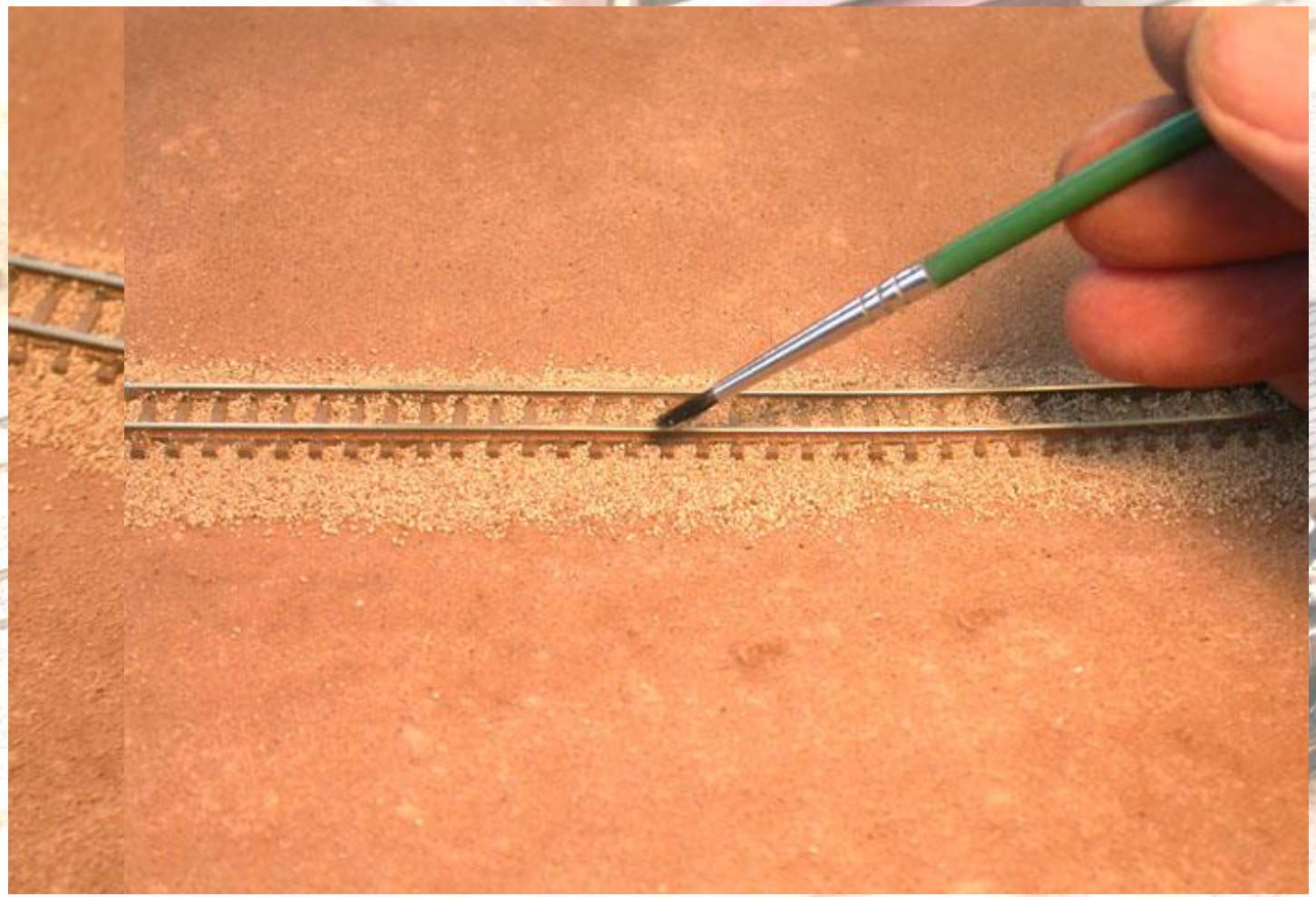
Trackwork

Mask adjacent terrain and spray both rail and ties with Testor's Master Modelers Light Earth or Floquil Rail Brown

Weathering / Ballasting

Spread ballast over track, then carefully brush ballast away from rail sides and tops of ties, then “tamp” ballast with finger tips.

Weathering / Ballasting



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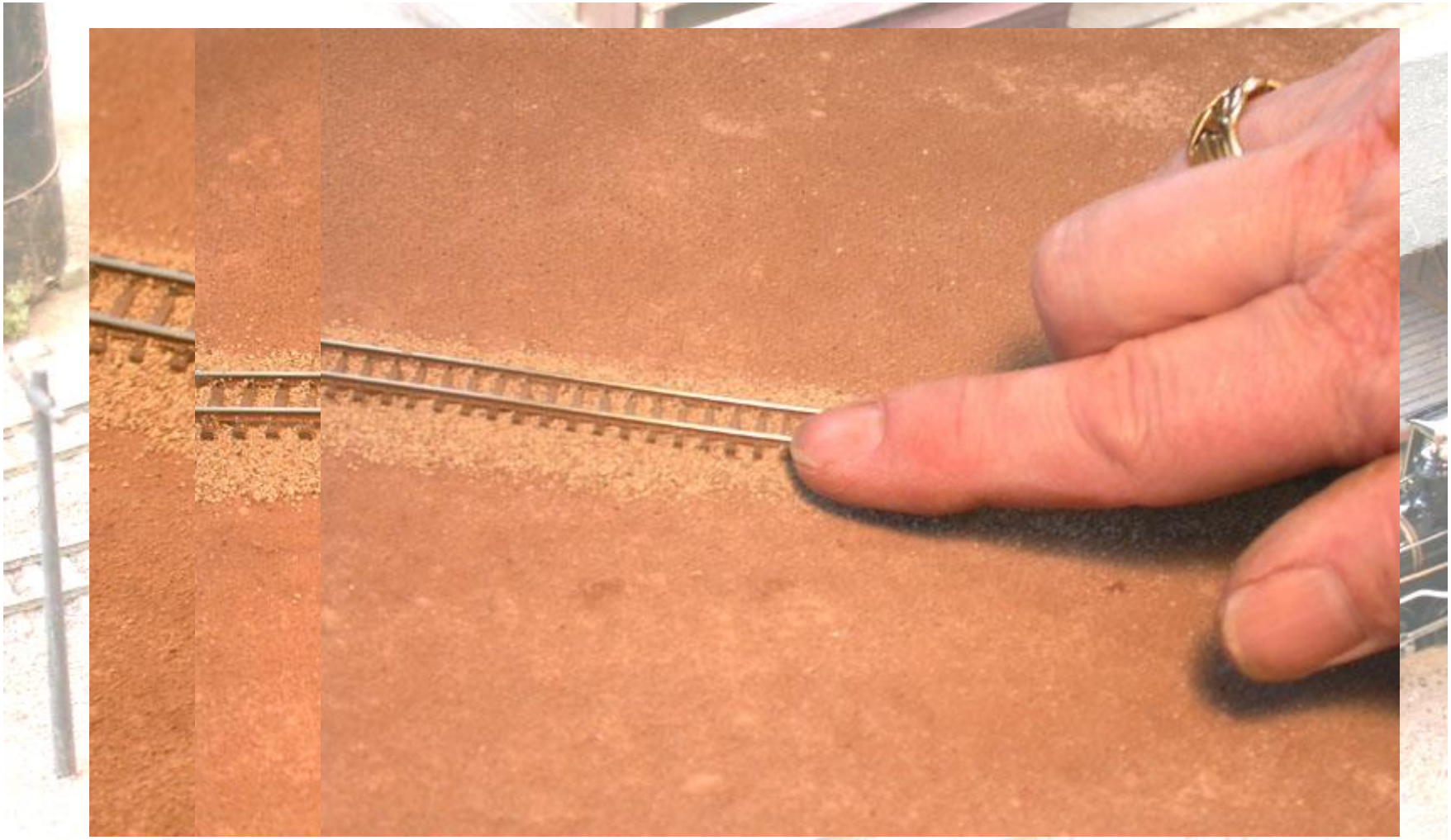
Weathering / Ballasting

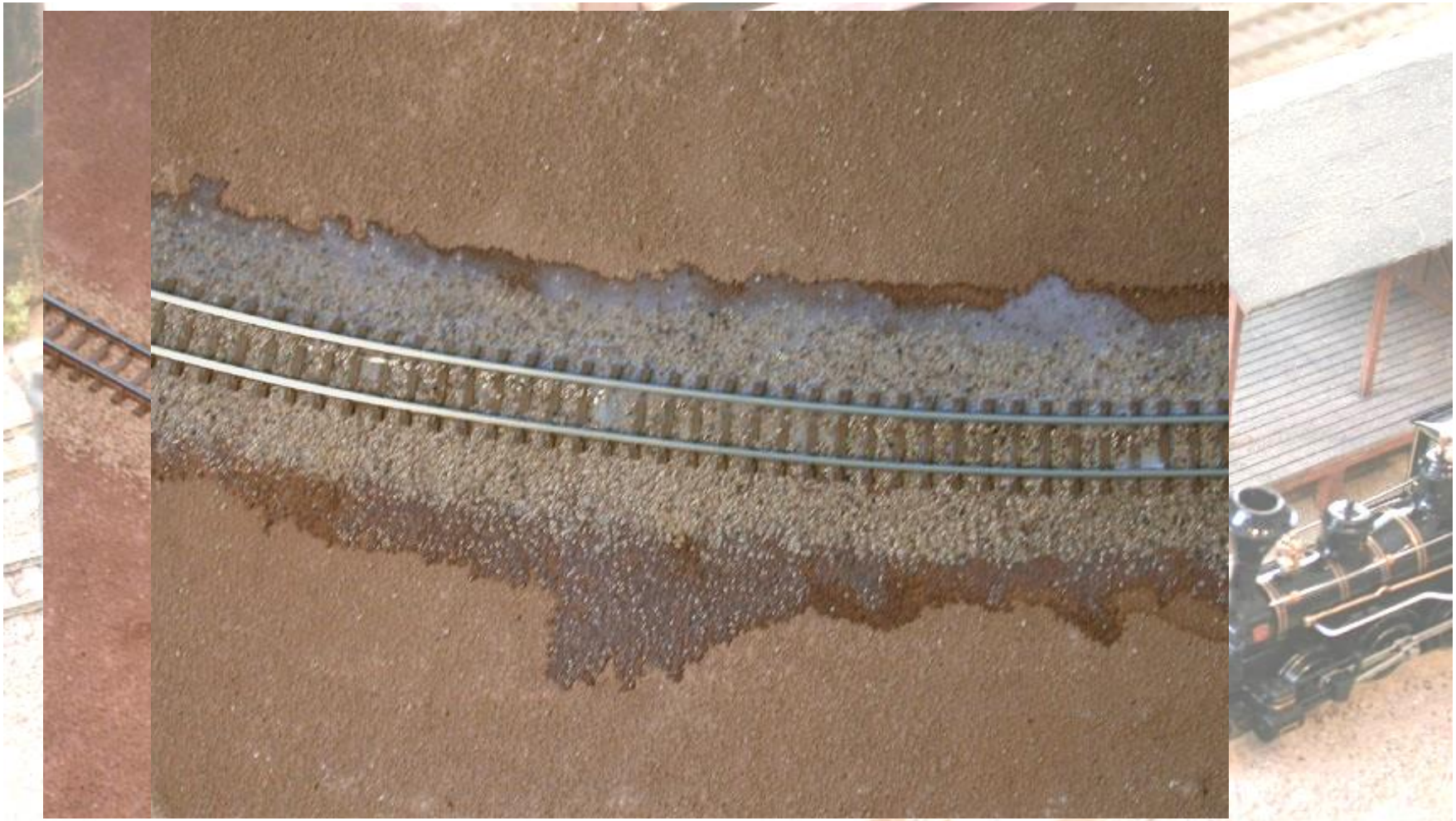


Spread ballast over track, then carefully brush ballast away from rail sides and tops of ties, then “tamp” ballast with finger tips.

Weathering / Ballasting

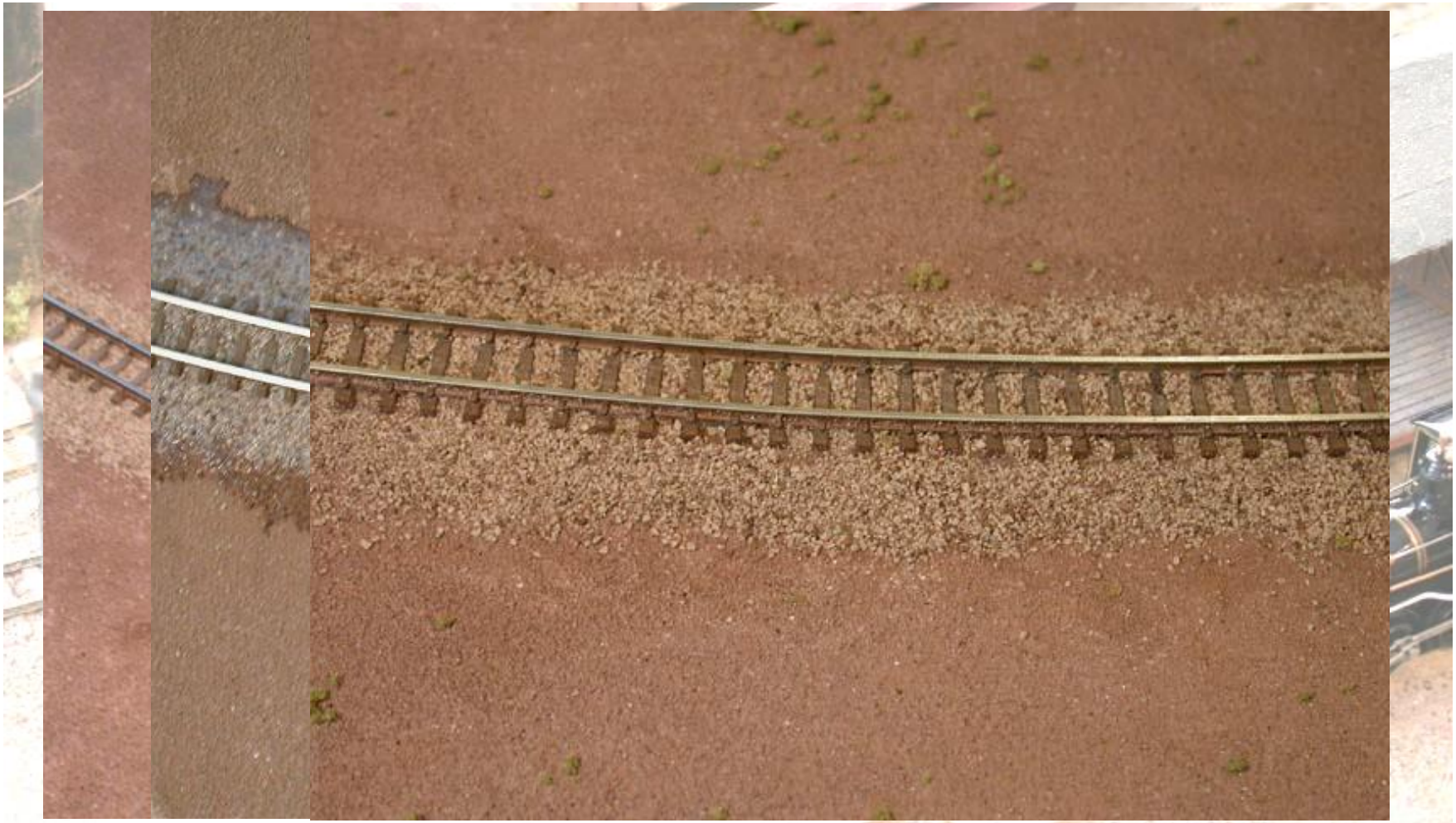
Wet ballast with rubbing alcohol, apply a mixture of acrylic matte medium, alcohol and water. Pick off any stray bits of ballast after everything is dry.

Weathering / Ballasting



Wet ballast with rubbing alcohol, apply a mixture of acrylic matte medium, alcohol and water. Pick off any stray bits of ballast after everything is dry.

Weathering / Ballasting



Wet ballast with rubbing alcohol, apply a mixture of acrylic matte medium, alcohol and water. Pick off any stray bits of ballast after everything is dry.

Weathering / Ballasting

RESOURCES

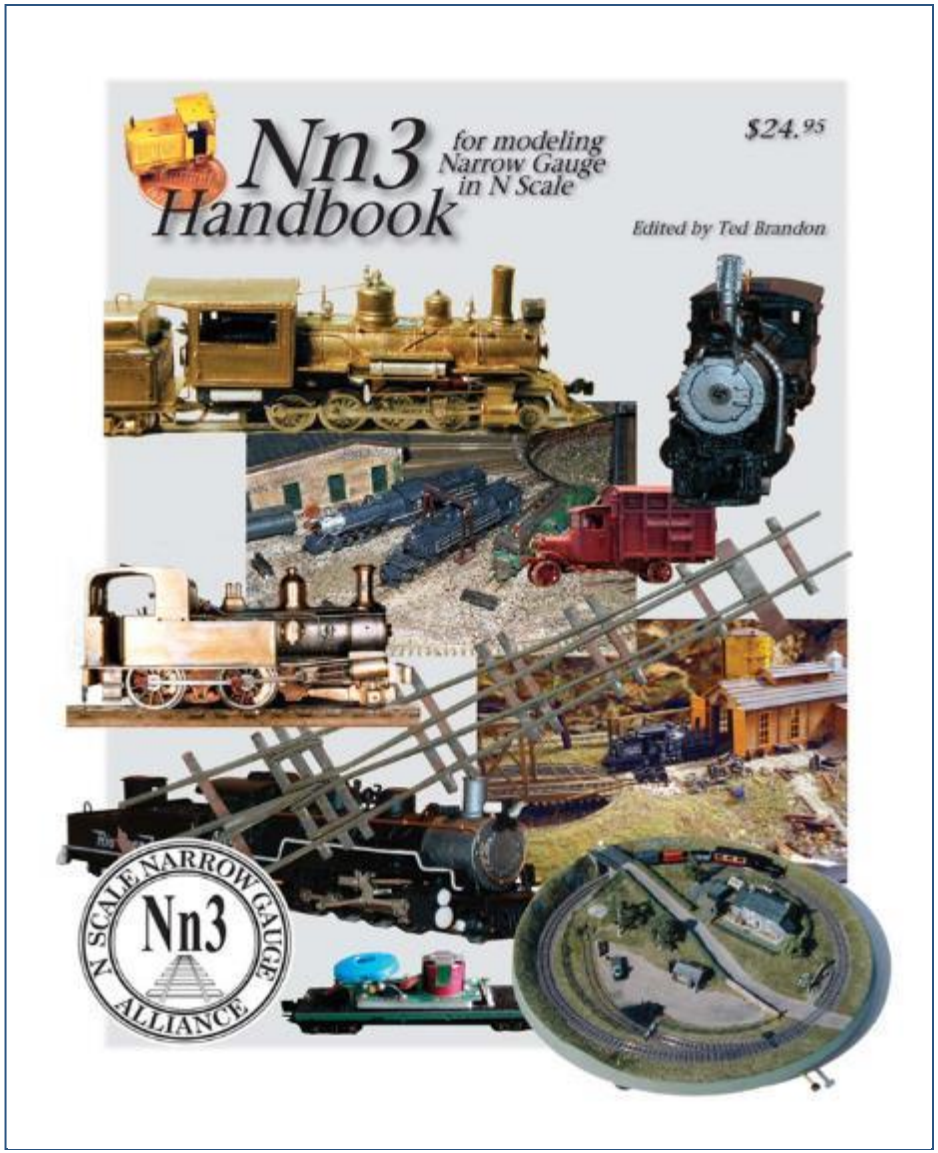
The Nn3 Handbook from the Nn3 Alliance from Monroe Models:
http://monroemodels.us/rlw.htm

https://groups.io/g/Nn3 - An Internet-based international forum of over 800 small-scale narrow-gauge modelers

www.Nn3.org- Home website with links to resources

https://groups.io/g/twomm
www.2mm.org.uk/
} **2MM Scale Association (which has an Nn3 group)**

Additional resources are provided in the separate handout.



The Nn3 Handbook

By The Nn3 Alliance

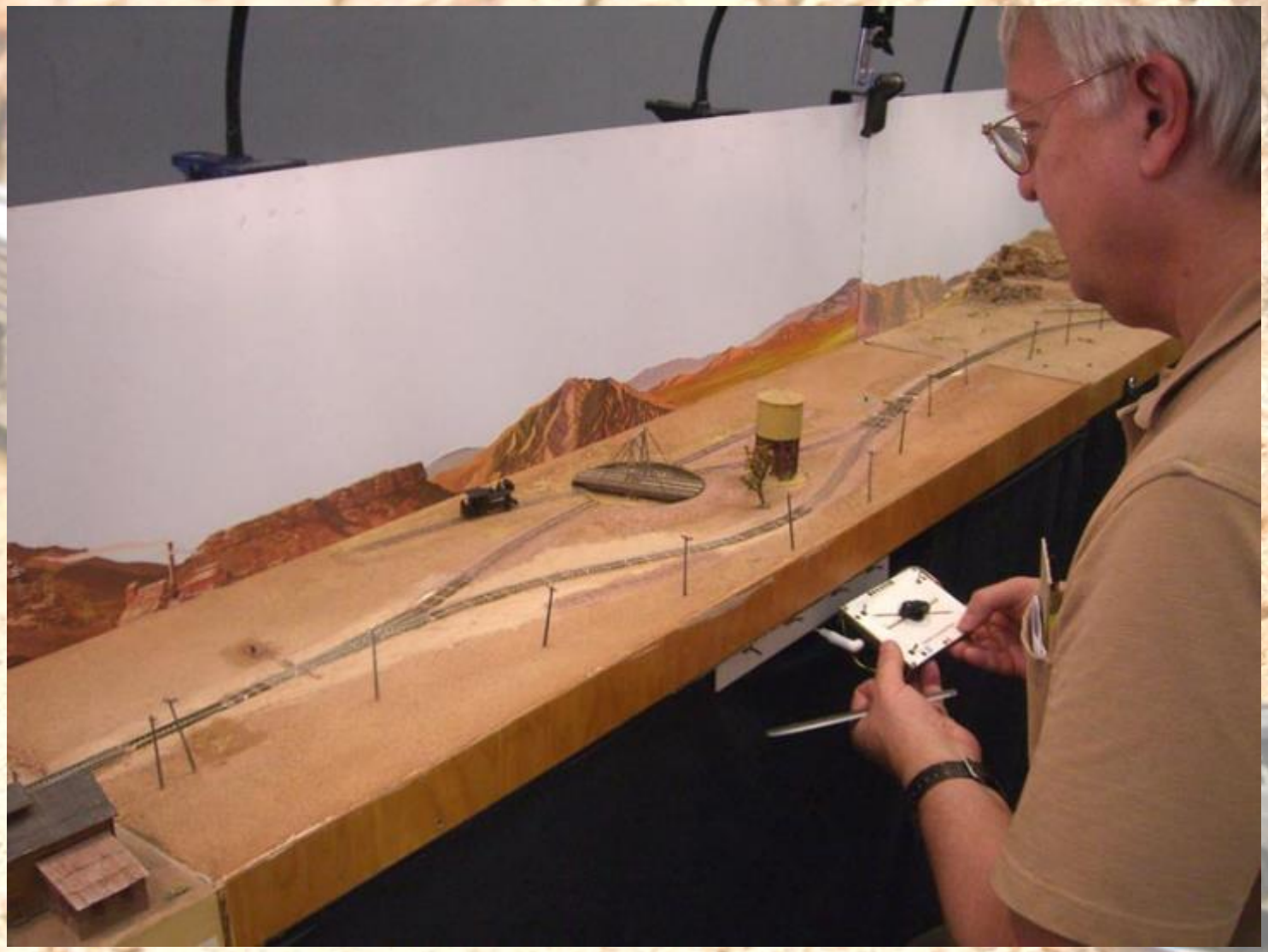
The definitive source of modeling information for N Scale Narrow Gauge

(available through Monroe Models)

Modules

NorCal Division

NorCal Division



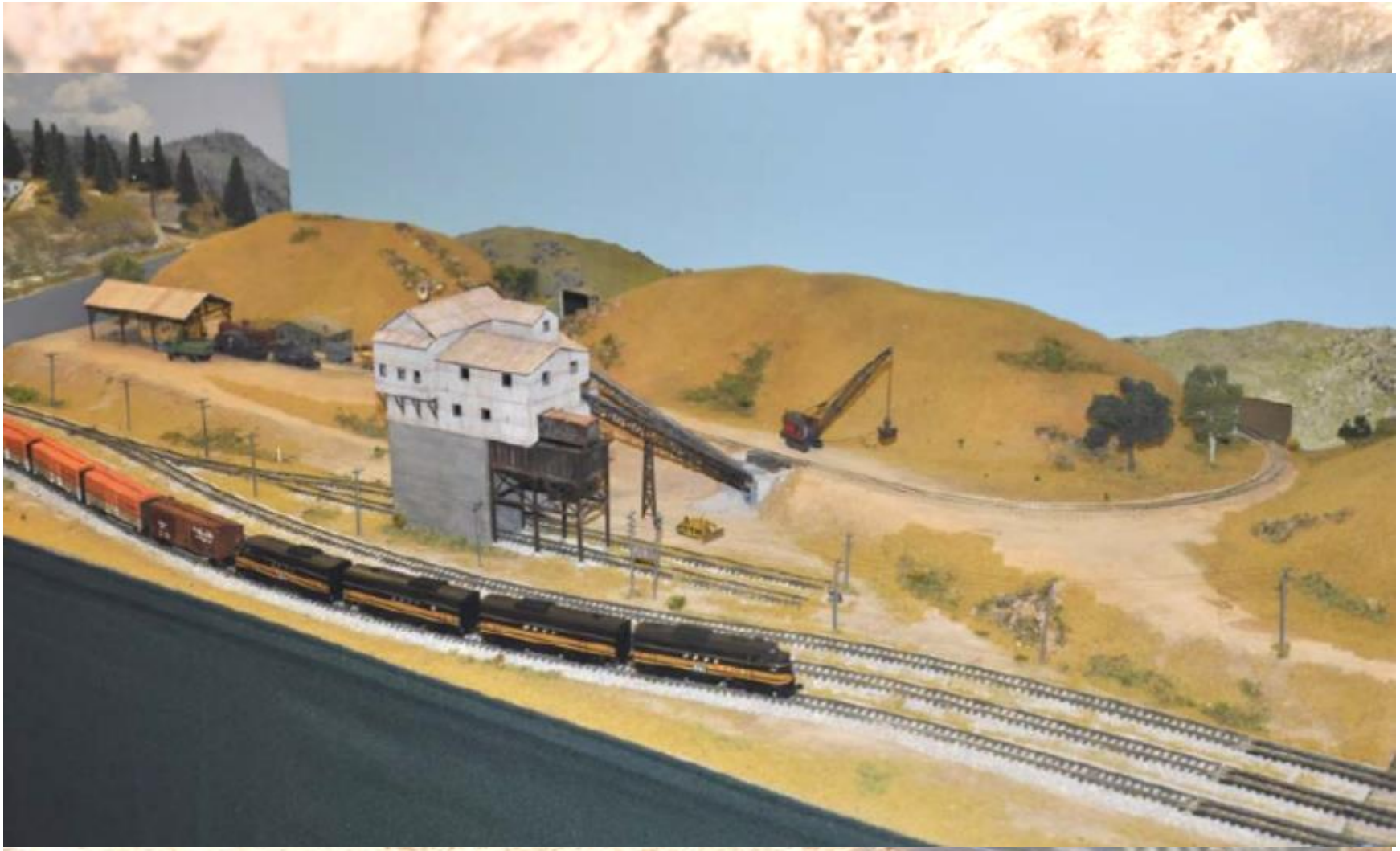
NorCal Division

NorCal Division

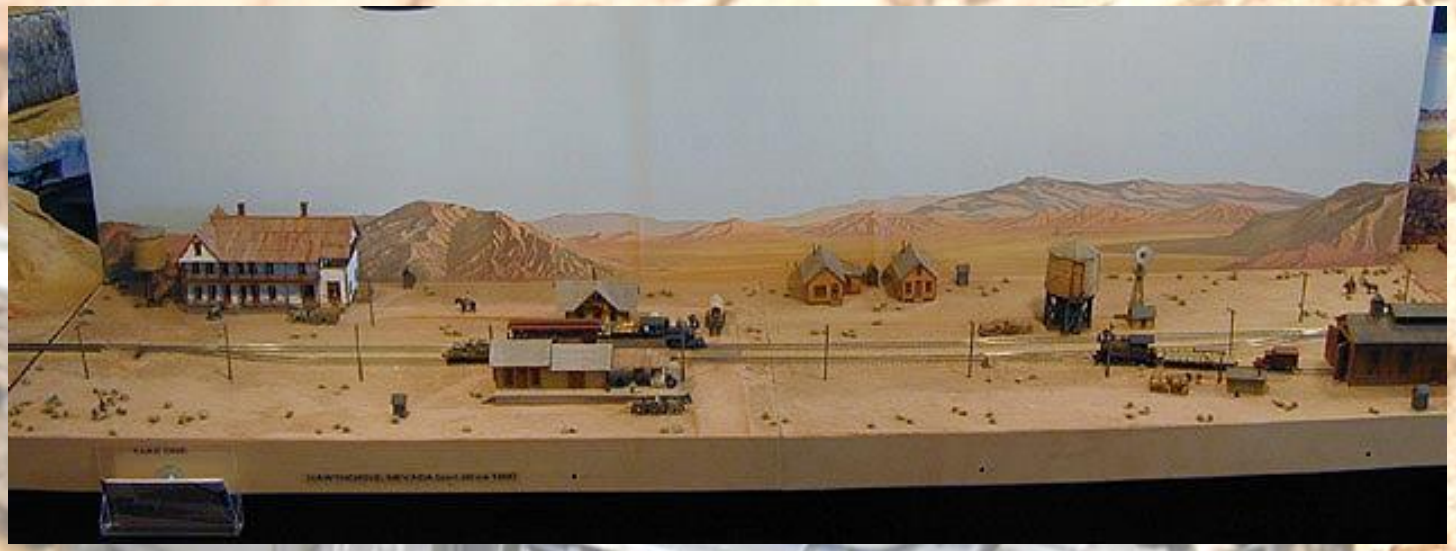
NorCal Division

NorCal Division

Caspar, South Fork & Eastern

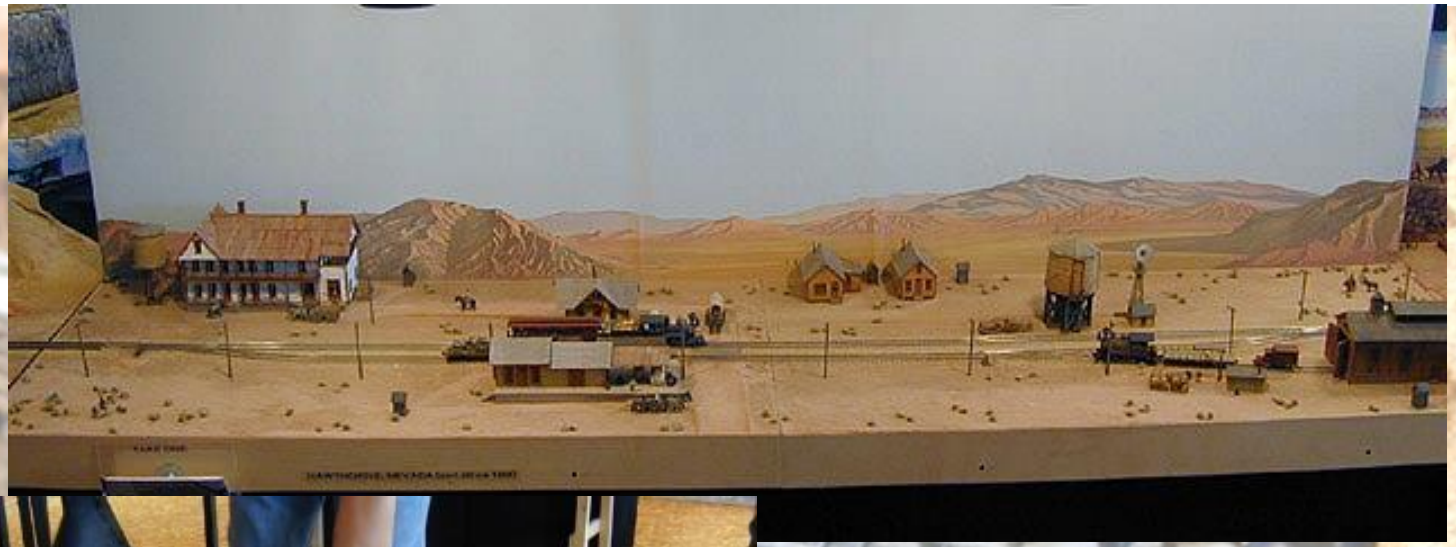


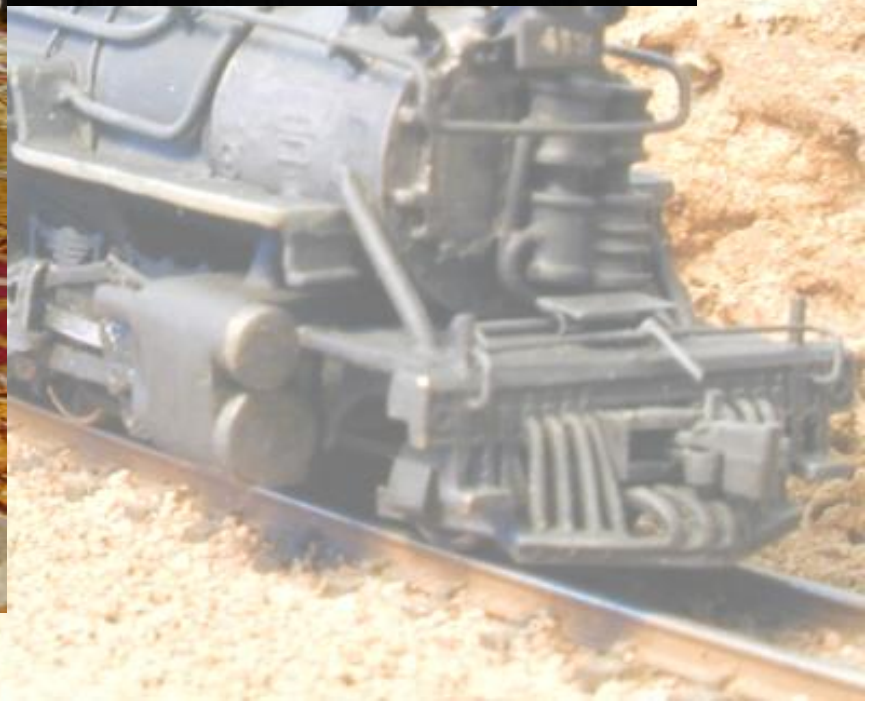
NTRAK Module with Nn3 Gravel Quarry Railroad



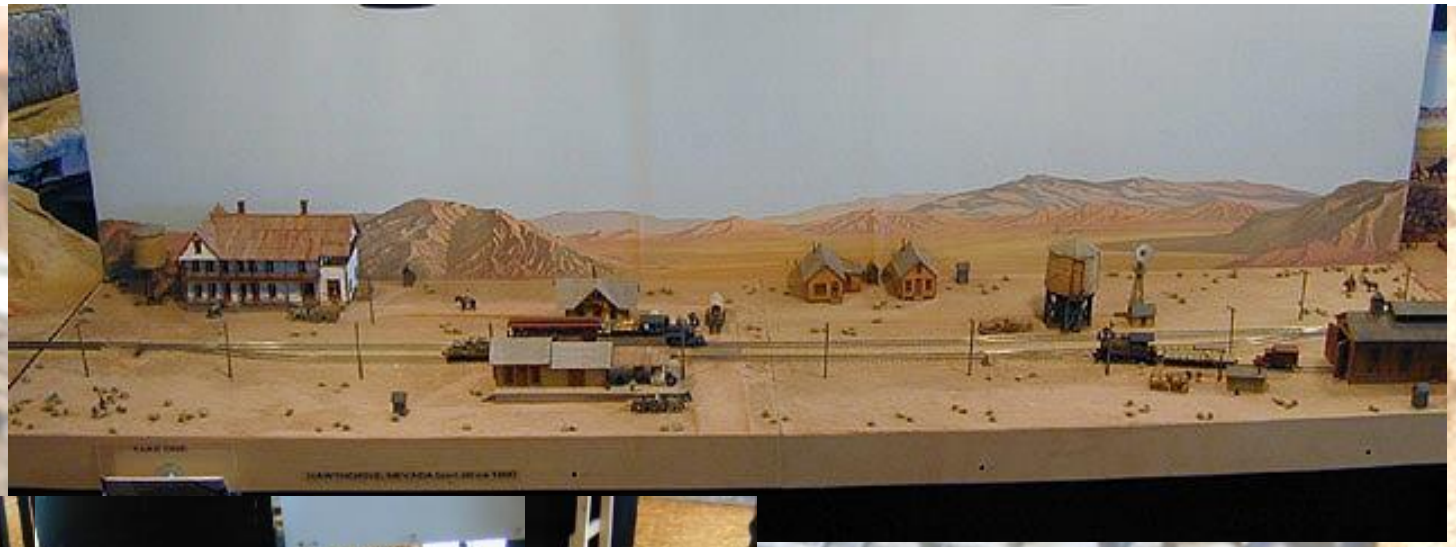
NorCal Division

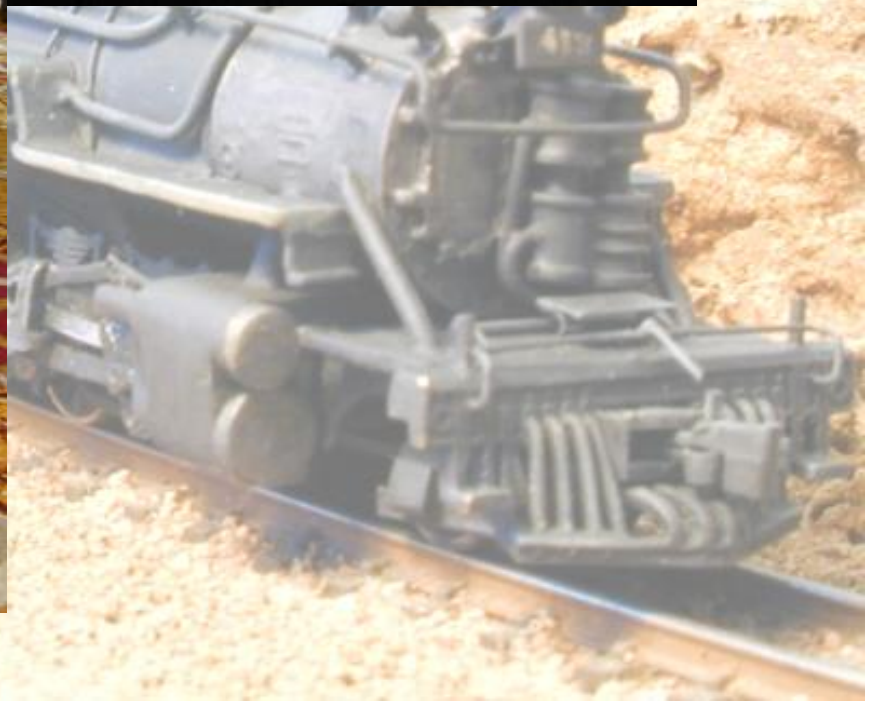
NorCal Division





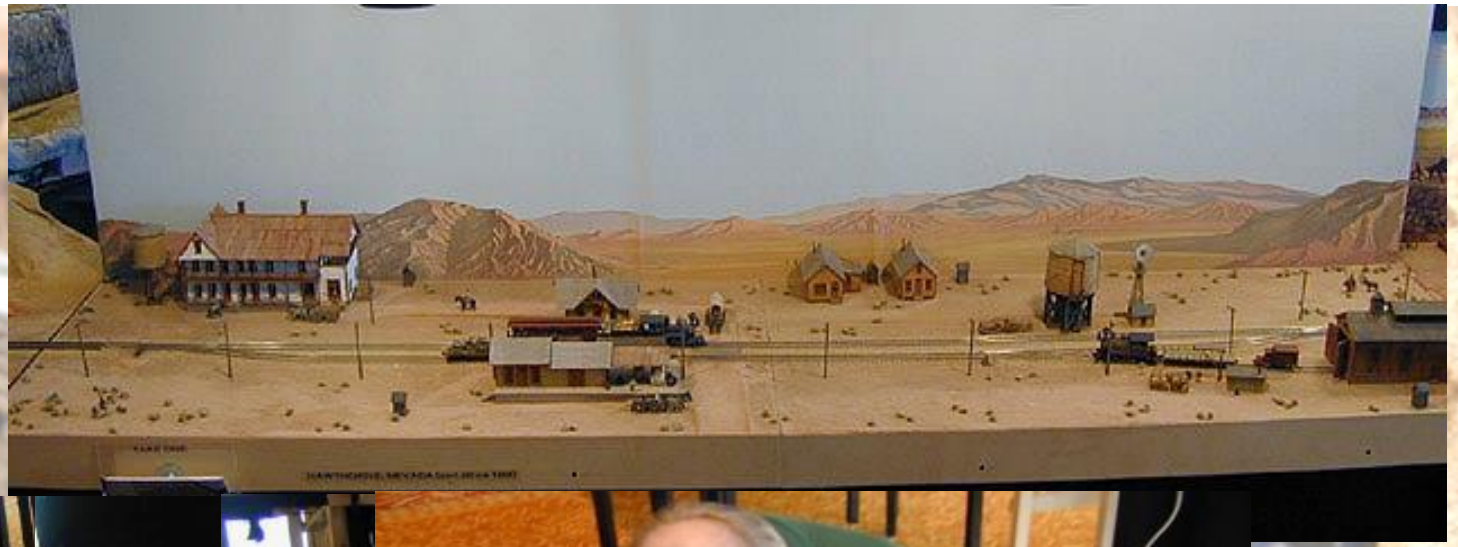
NorCal Division



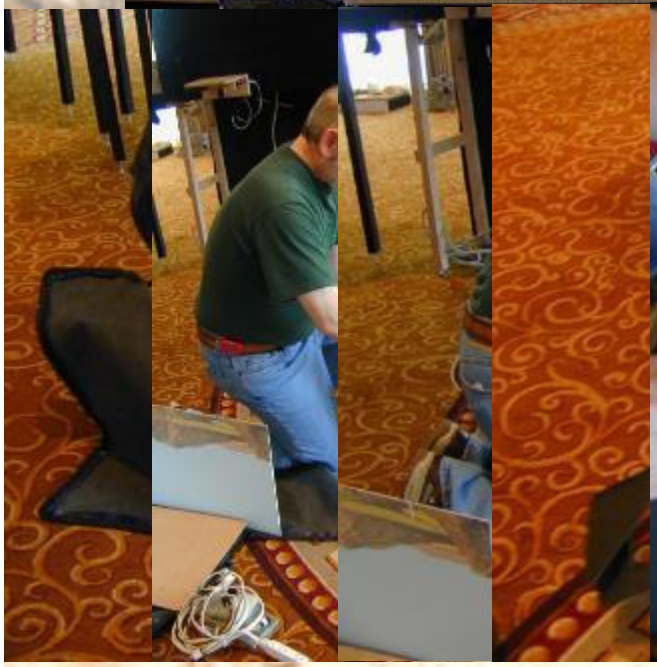


NorCal Division

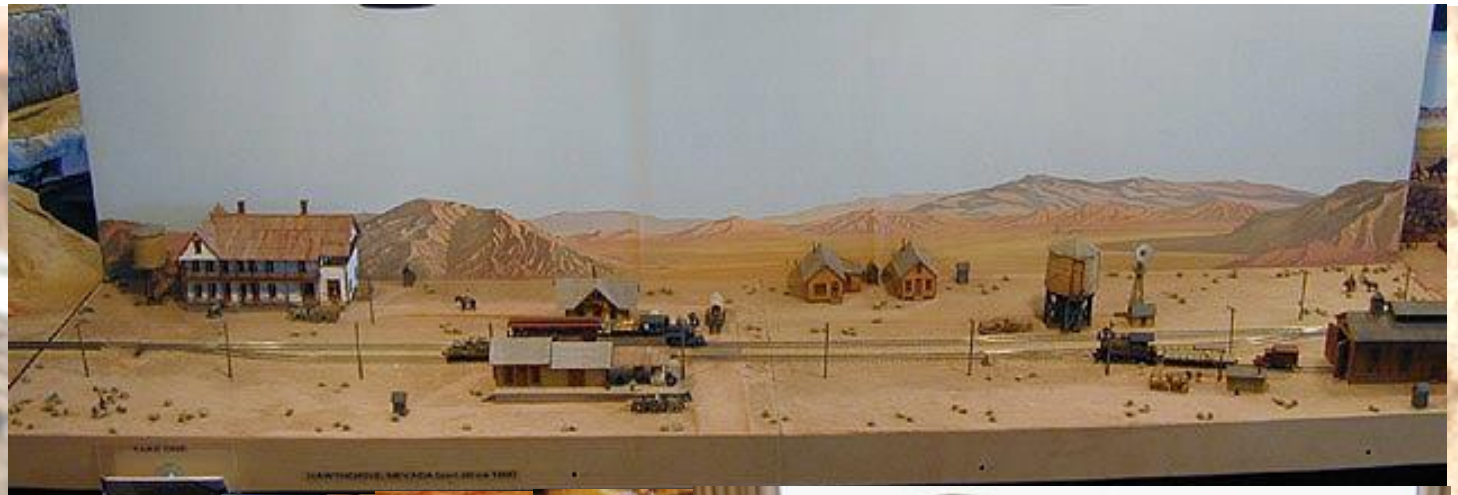
NorCal Division



NorCal Division



NorCal Division

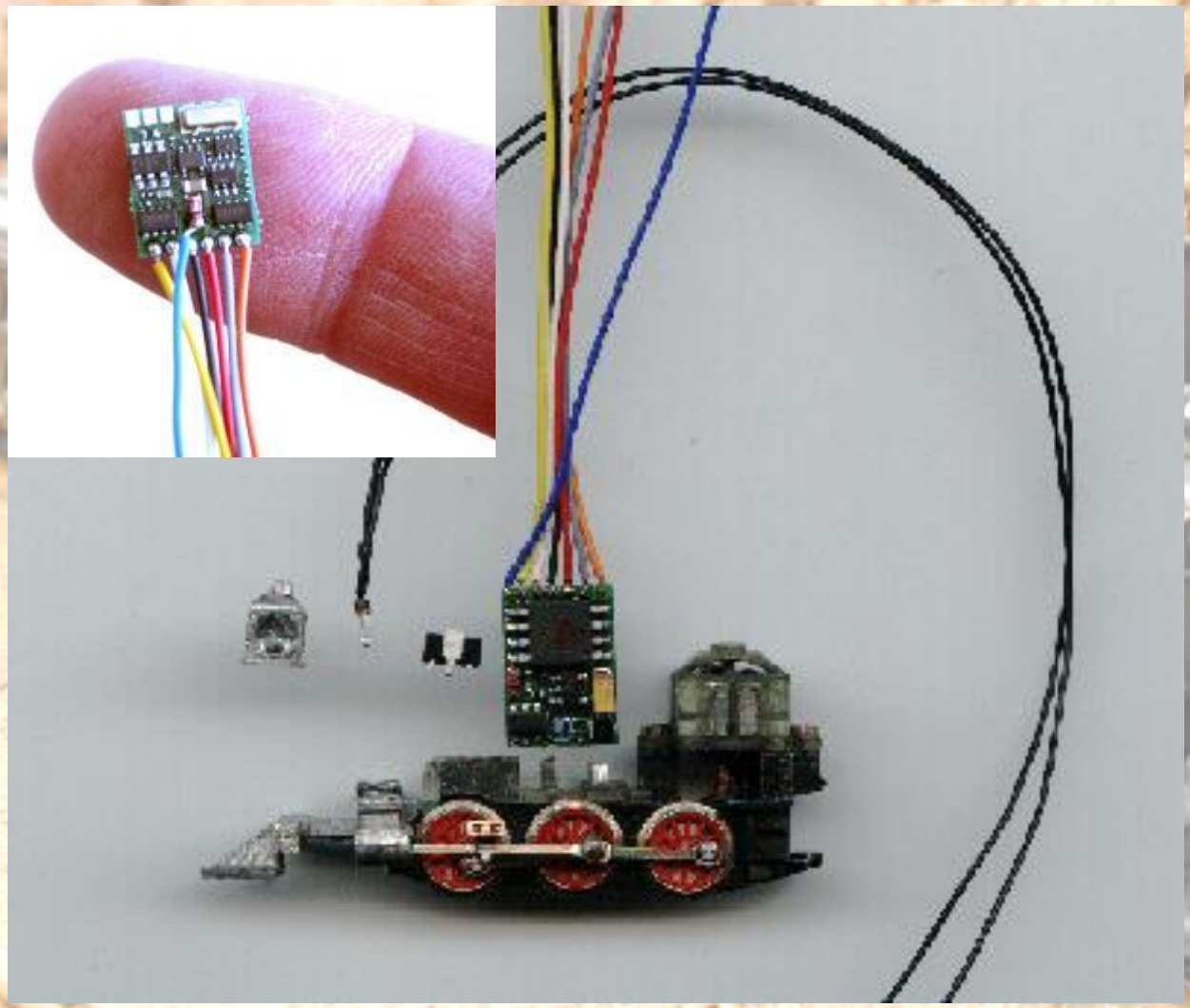


NorCal Division

NorCal Division

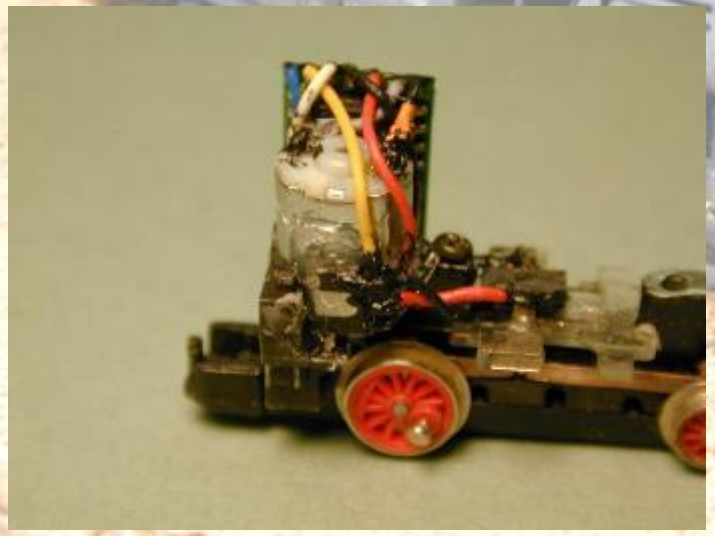
Questions & Discussion


DCC



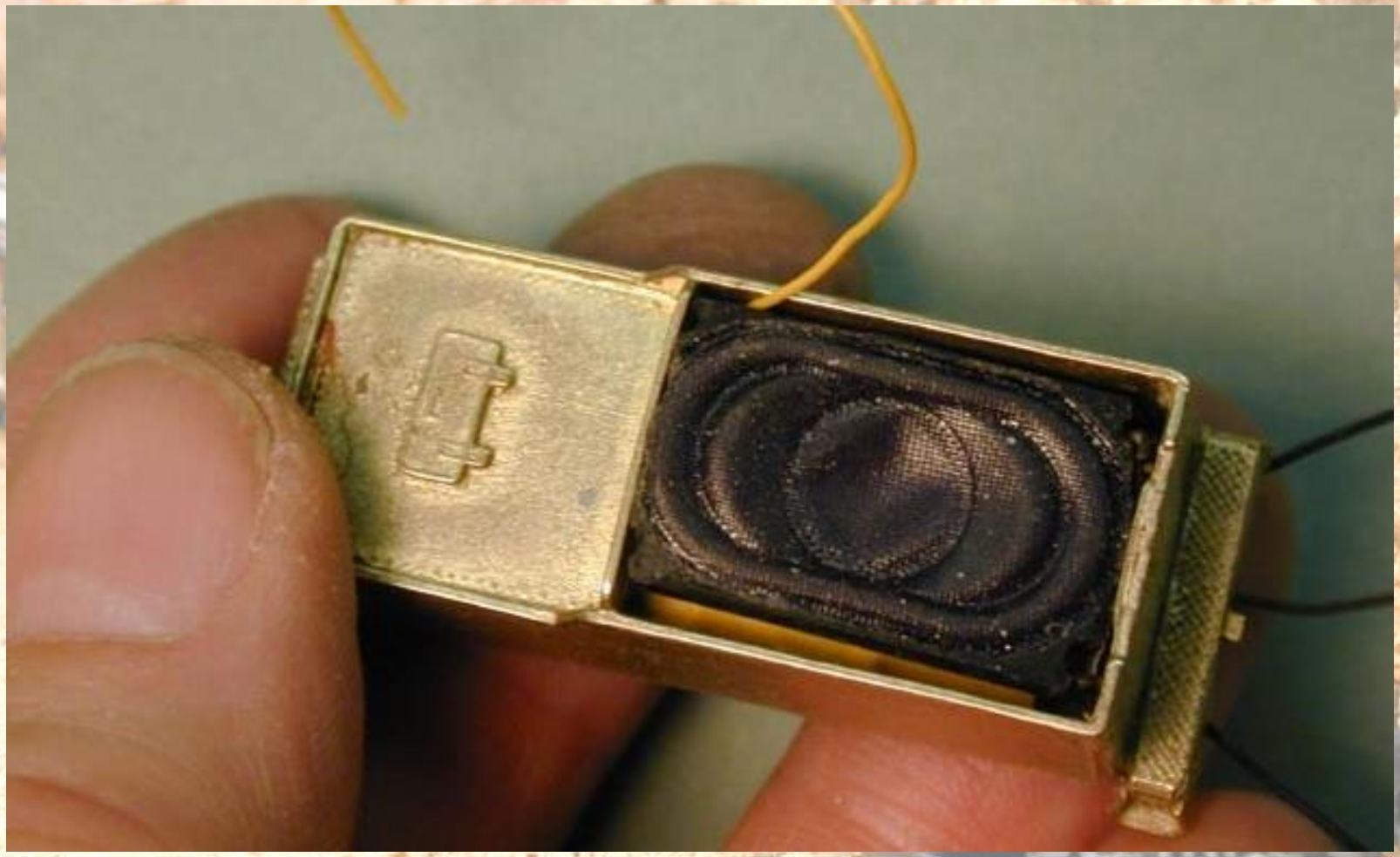
Several decoders are available which fit into typical Nn3 locomotives, the preferred unit being the smallest Lenz decoders.

DCC



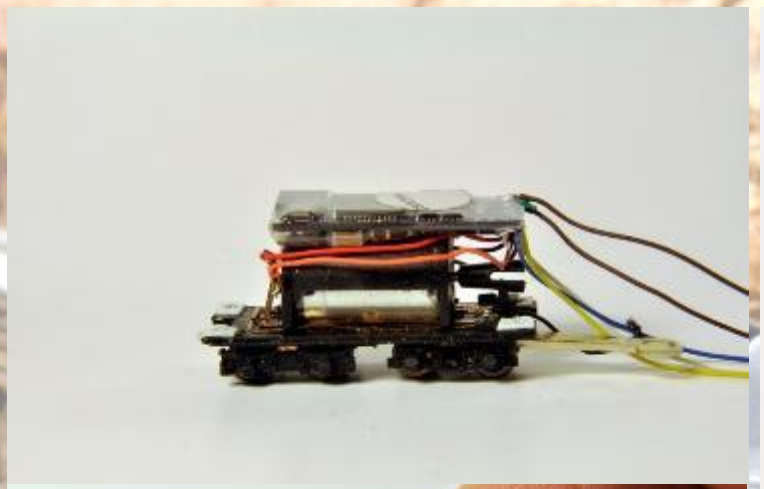
For saddle-tank locomotives or small diesels, the decoder can be mounted in the cab. This is preferred for even tender locomotives as the wires between the locomotive and tender cause problems for light weight Nn3 locomotives.

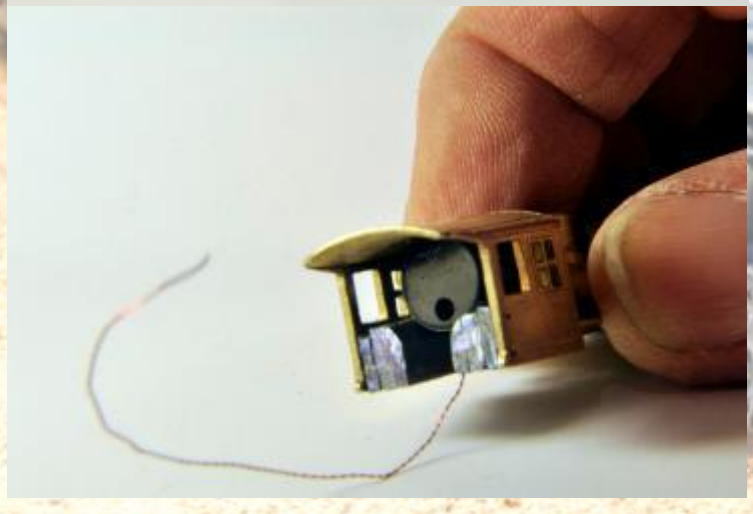
DCC

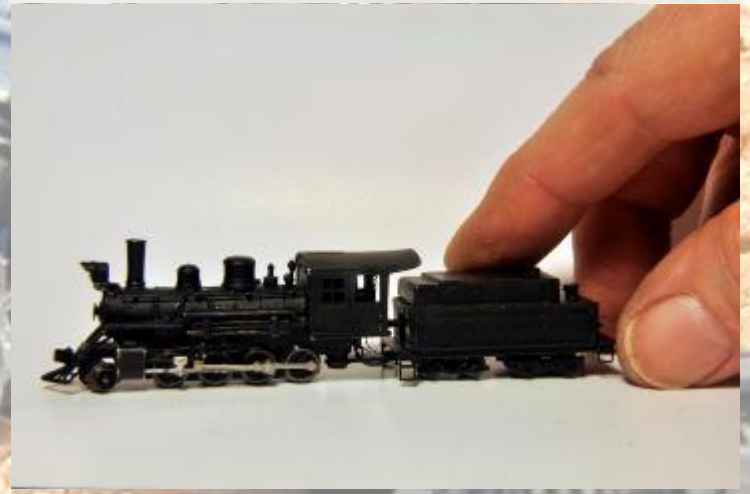


Larger steam locomotives have sufficient space (and weight) to accommodate decoders and speakers in the tender.

DCC







Even medium-sized locomotives can incorporate sound using LokSound decoders and special Motorola speakers. Performance is compromised by lack of "never stall" device.

DCC