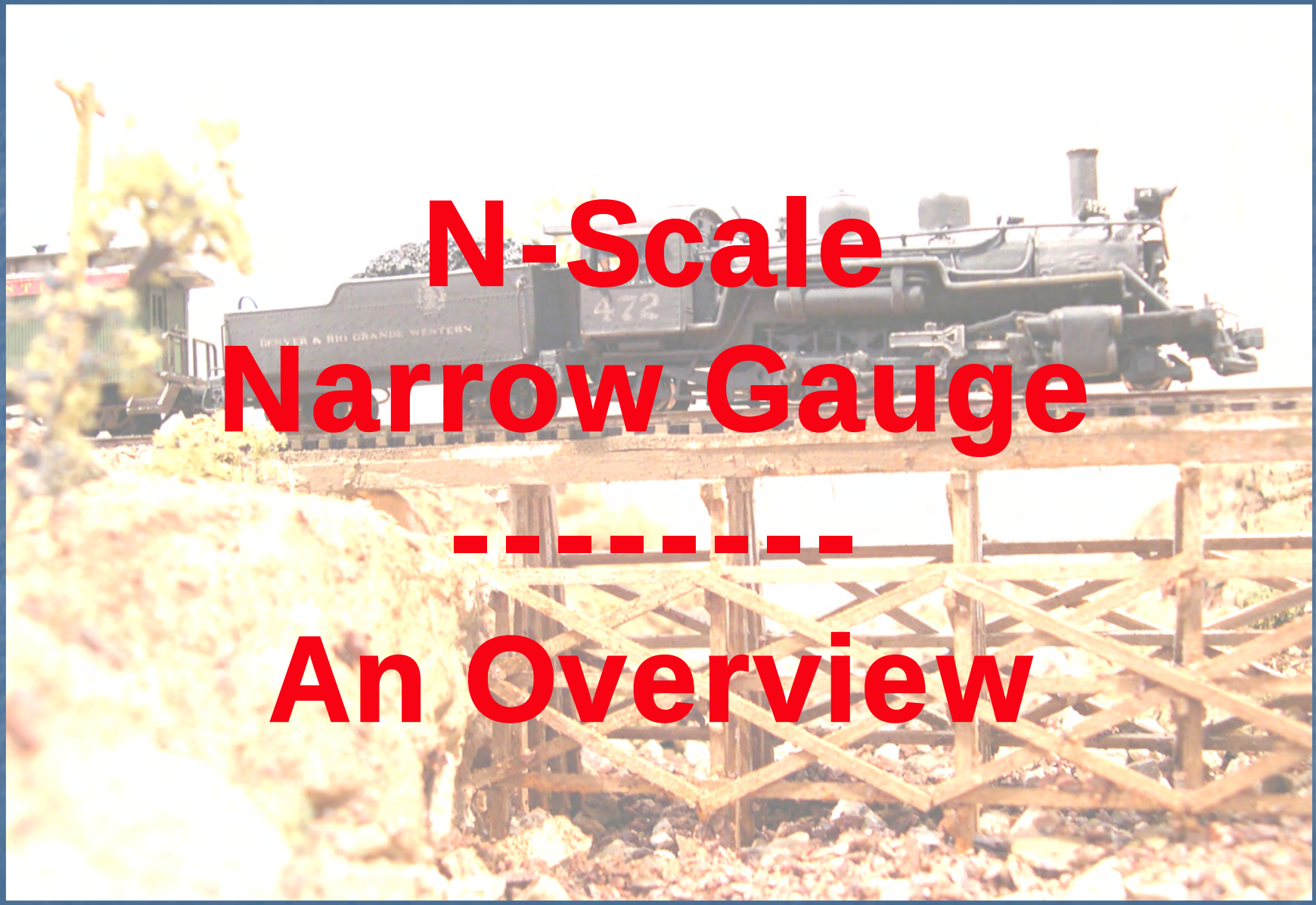
Nn3 Overview

by Tom Knapp MMR#101

April 2013

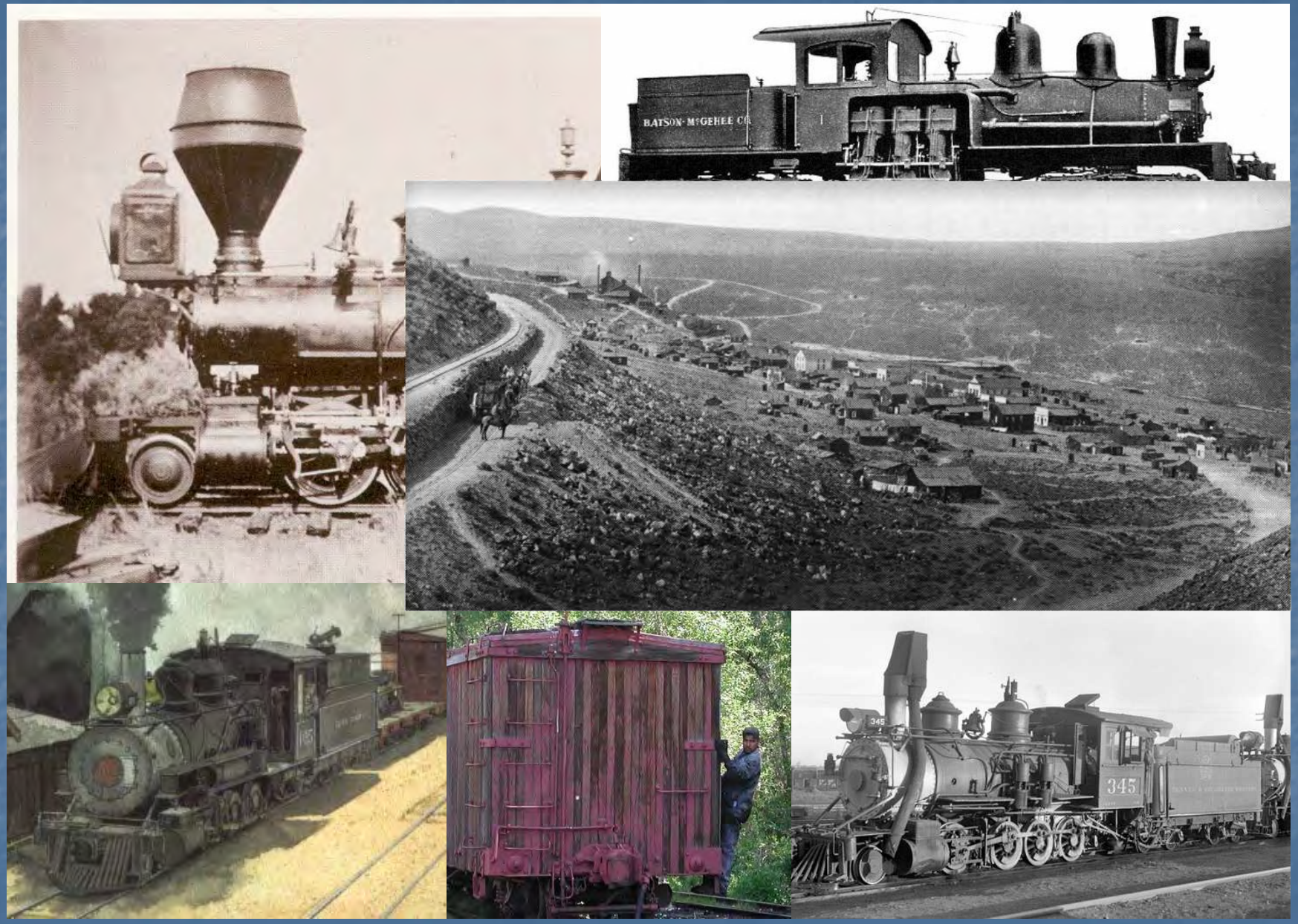

N Scale
Nn3
Narrow Gauge



N-Scale Narrow Gauge

An Overview


cingular
SAMSUNG



Nn3 Overview


473
476
Rio Grande
478

Nn3 Overview

by Tom Knapp MMR#101

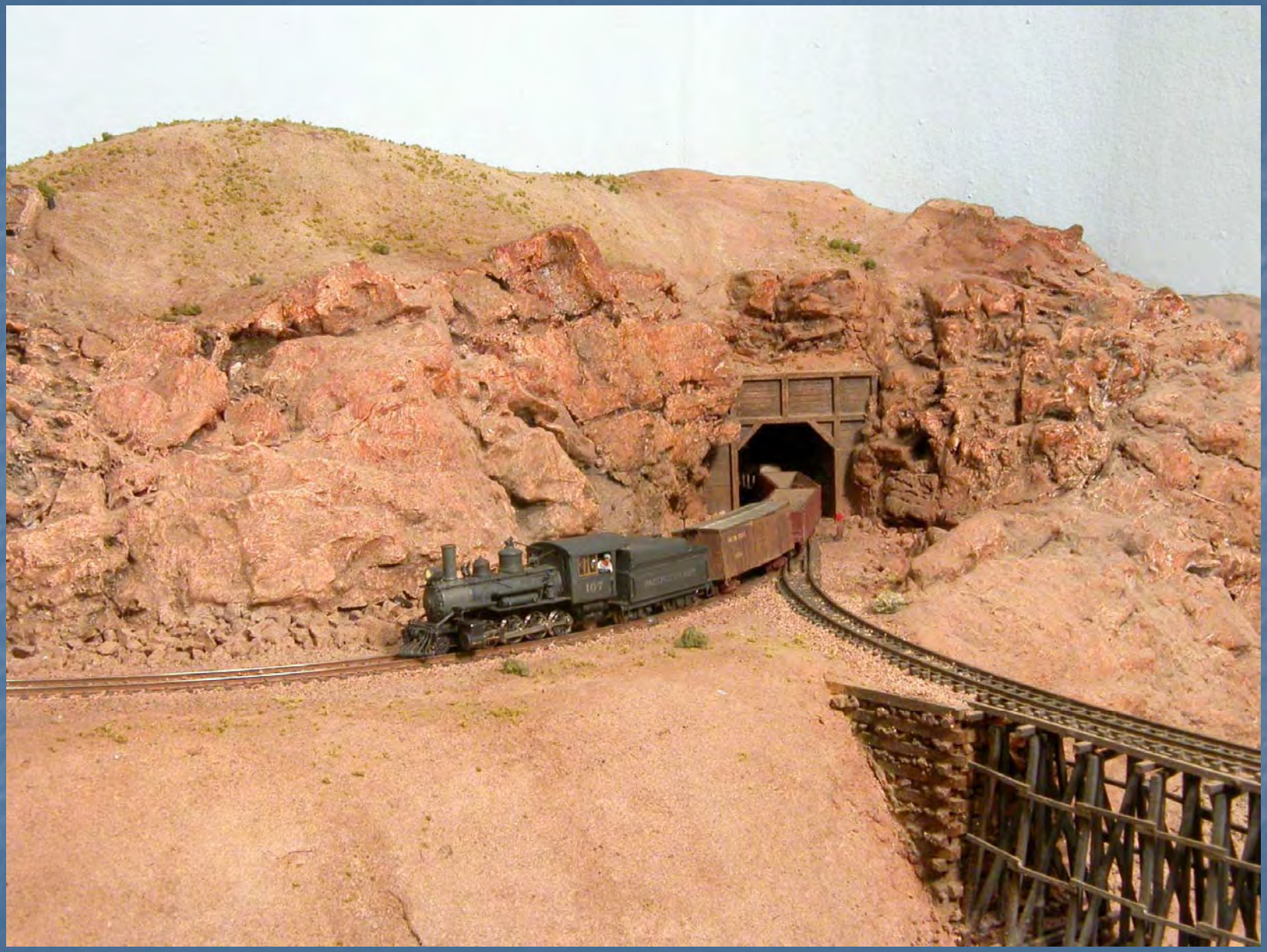
Nn3 Overview

Nn3 Overview

Nn3 Overview

Nn3 Overview

by Tom Knapp MMR#101

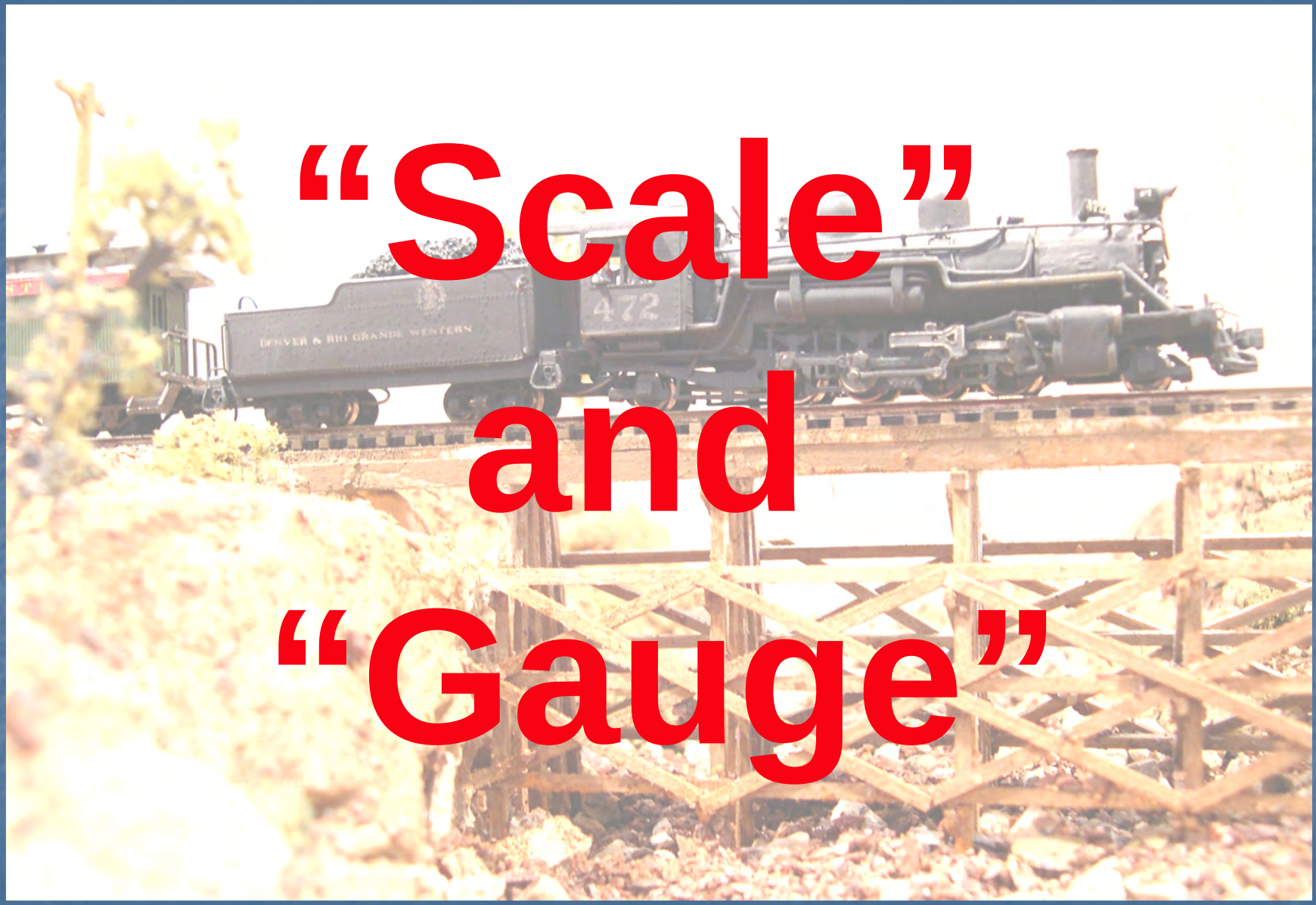



278
Rio Grande

Nn3 Overview

Nn3 Overview


Rio Grande
497



"Scale" and "Gauge"

HO Scale (1:87)

N Scale (1:160*)

Both are “Standard Gauge” – rails spaced a “scale” 4’-8-1/2” apart – but different “scale”

Both locomotives are N “scale”, but run on different track “gauge”

Standard Gauge

standard gauge

3 foot gauge

Narrow Gauge

* In Europe & N. America

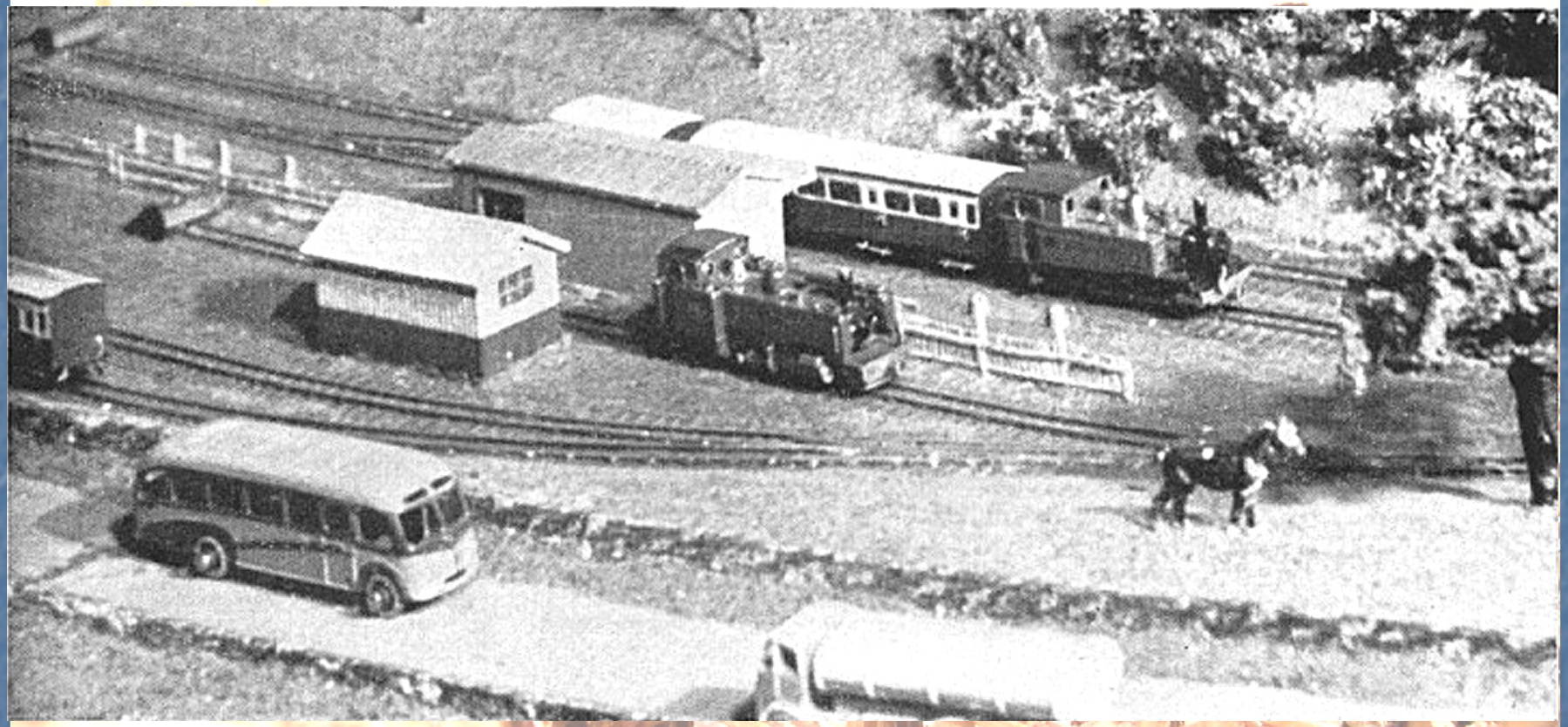

PACIFIC COAST


“N Gauge”
“Z Gauge”

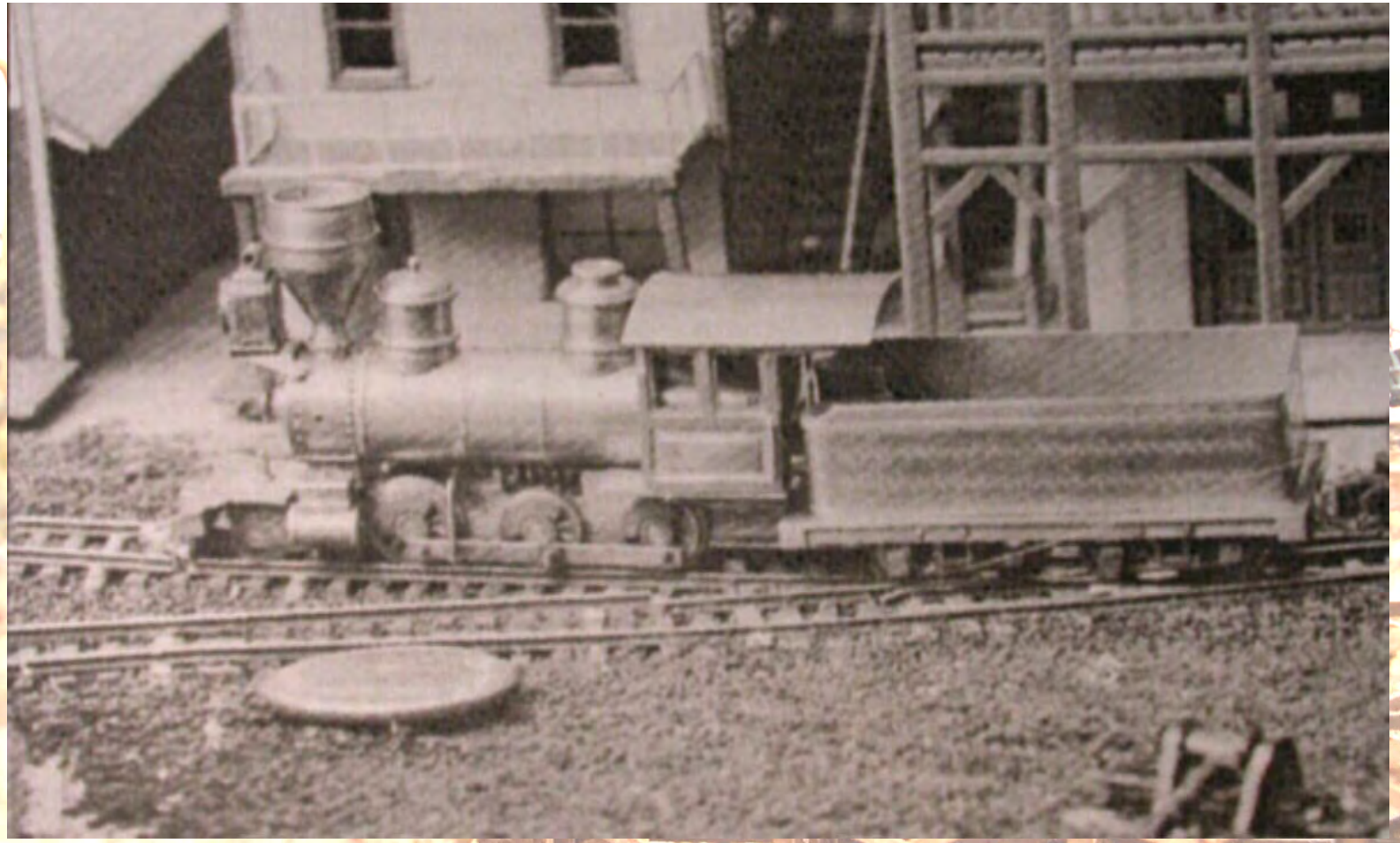
Nn3 Milestones:

1951	2MM Scale Narrow Gauge Layout "Vale of Penwal" by Griffiths & Wallace (2 foot gauge)
1960s	Karl Weiss builds "proto" Nn3 layout, 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

“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

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.

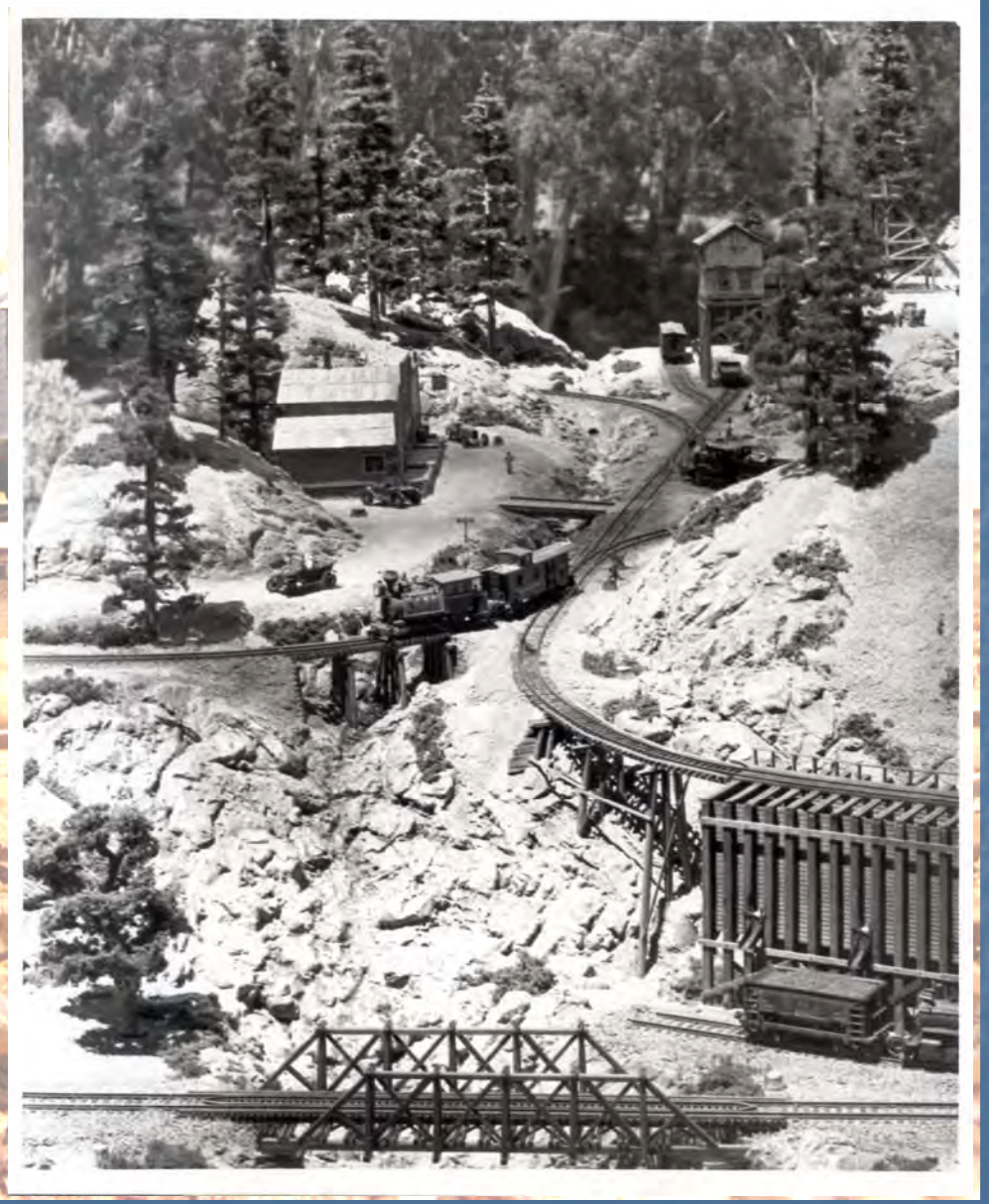
Nn3 Milestones

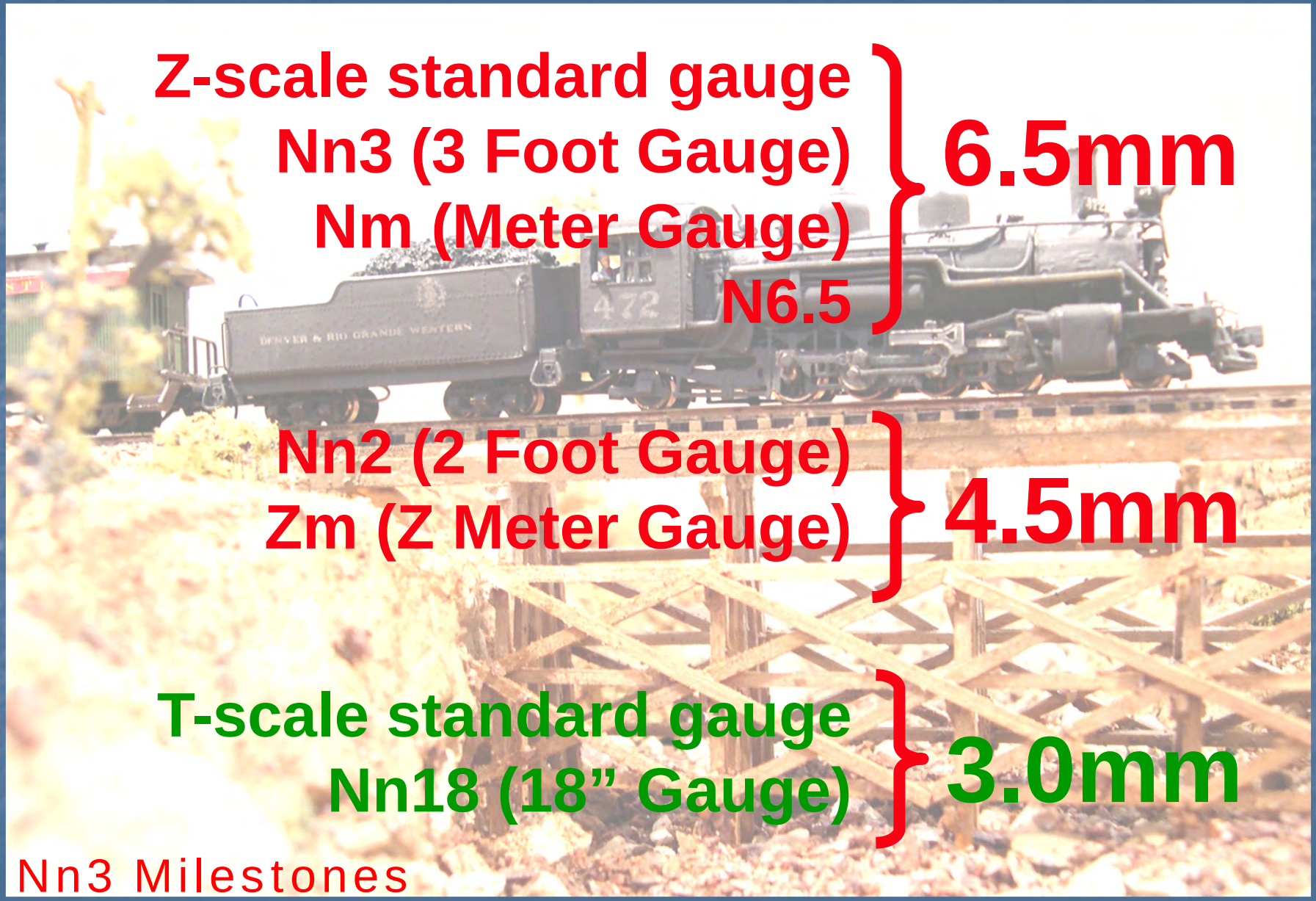
First appearance of NTRAK Nn3 modules at an NMRA National Convention, San Diego, CA 1974

Nn3 Milestones

Nn3 Milestones

Nn3 modules at NMRA National Convention, Denver, CO 1977




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 standard gauge
Nn18 (18” Gauge)
3.0mm
Nn3 Milestones

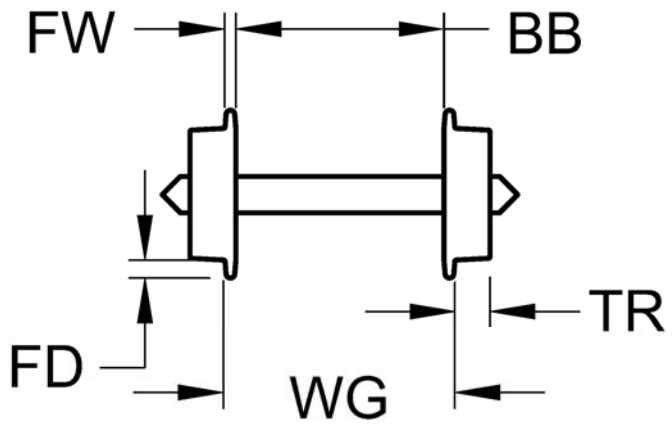
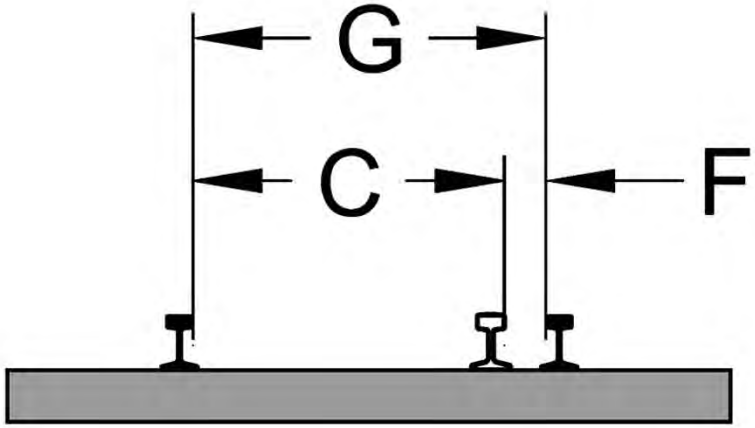


table 1

	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"[1] 0.51 mm	0.016" - 0.018"[1] 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]

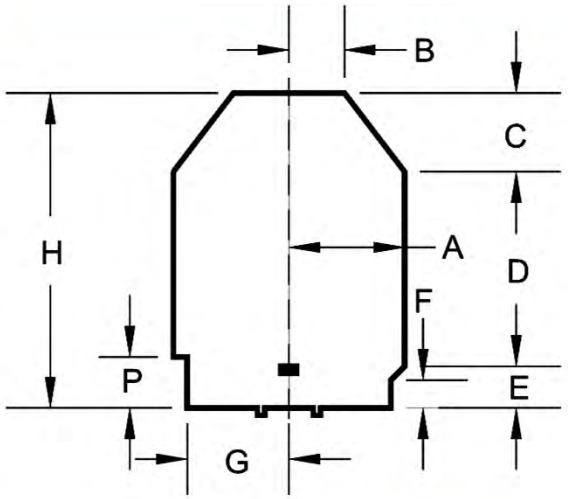
[1] *standards still under development at time of printing; check www.nn3.org for updates. TBD = To Be Determined*

Nn3 Milestones



	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]

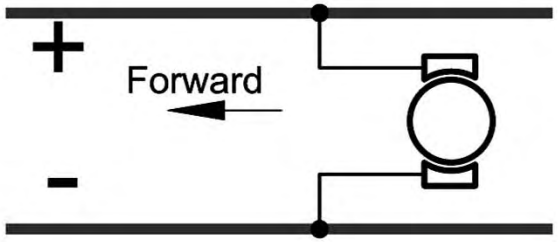
Nn3 Milestones



	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

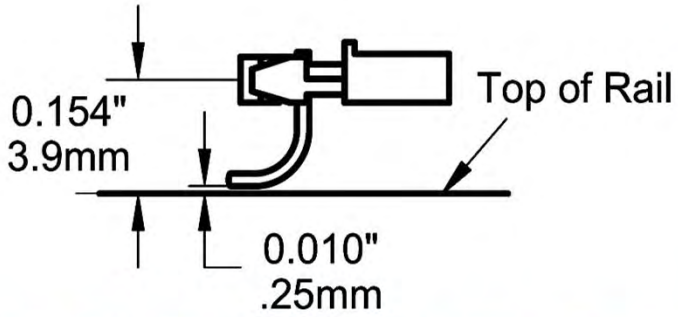
Motor Wiring

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



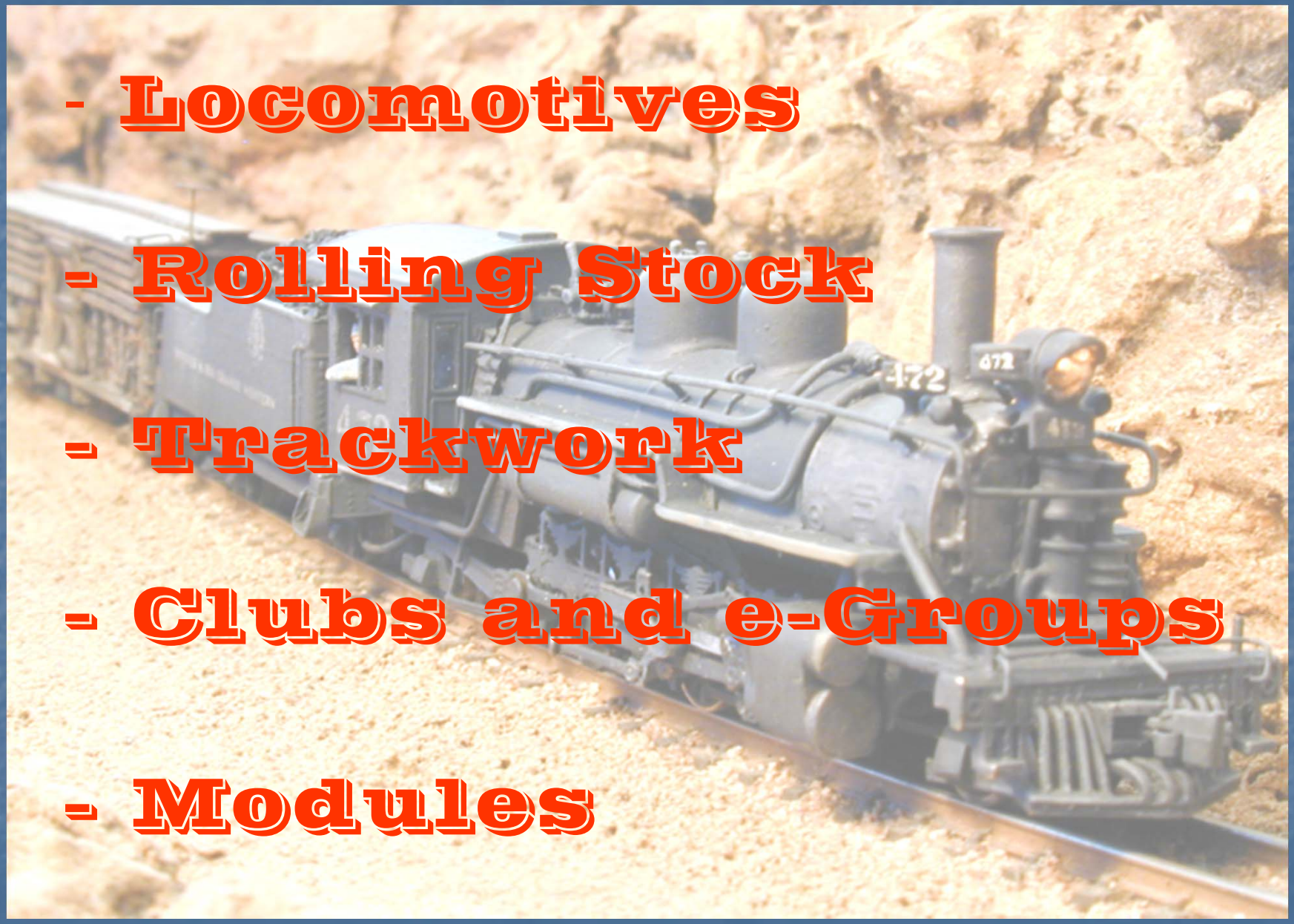
Couplers

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



Nn3 Milestones


472
472
472


- Locomotives
- Rolling Stock
- Trackwork
- Clubs and e-Groups
- Modules


Nn3
Locomotives

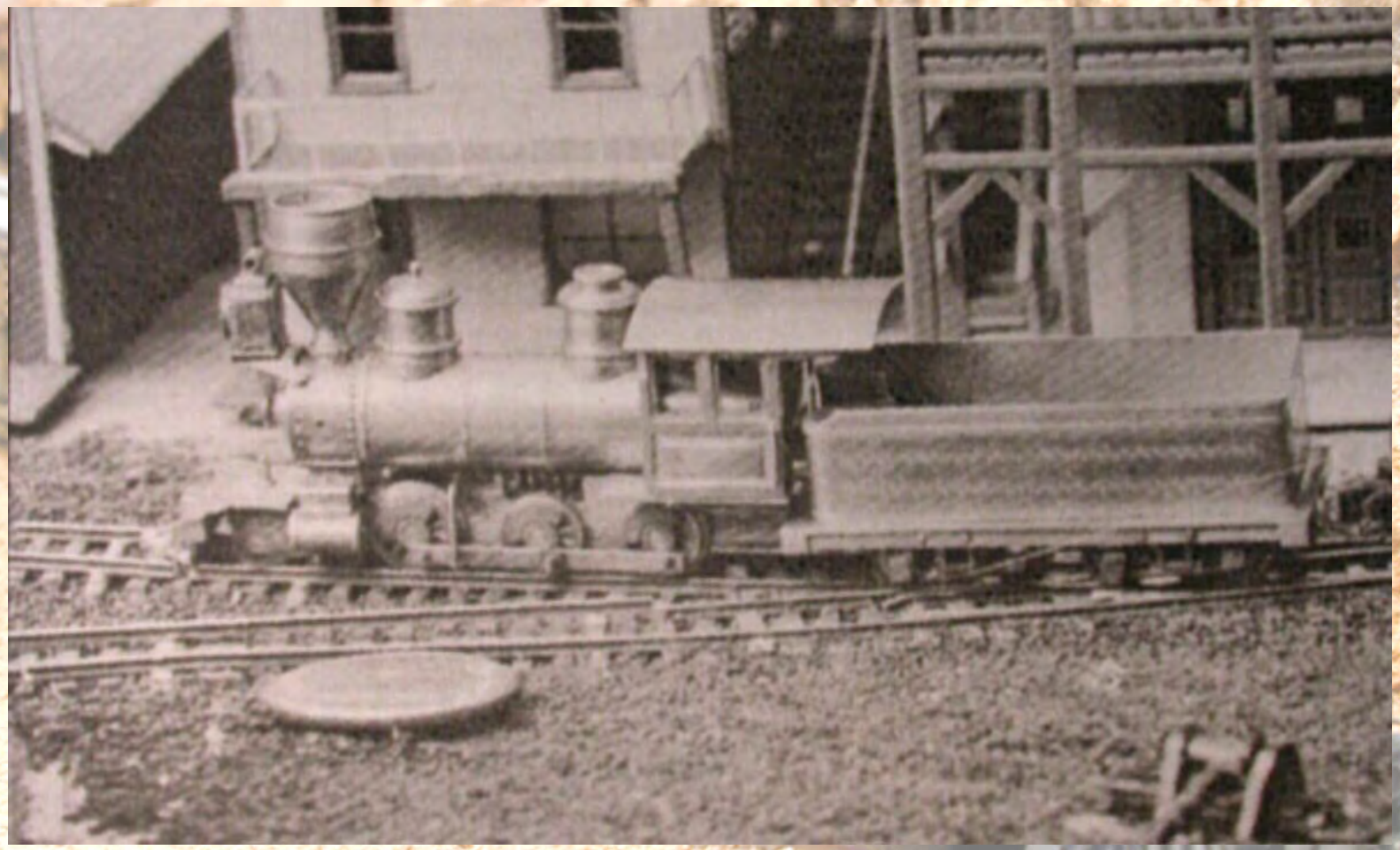
Locomotives

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


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

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


- Semi-Scratchbuilt
- Kit
- R-T-R
Most utilize Marklin Mini-Club mechanical components

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

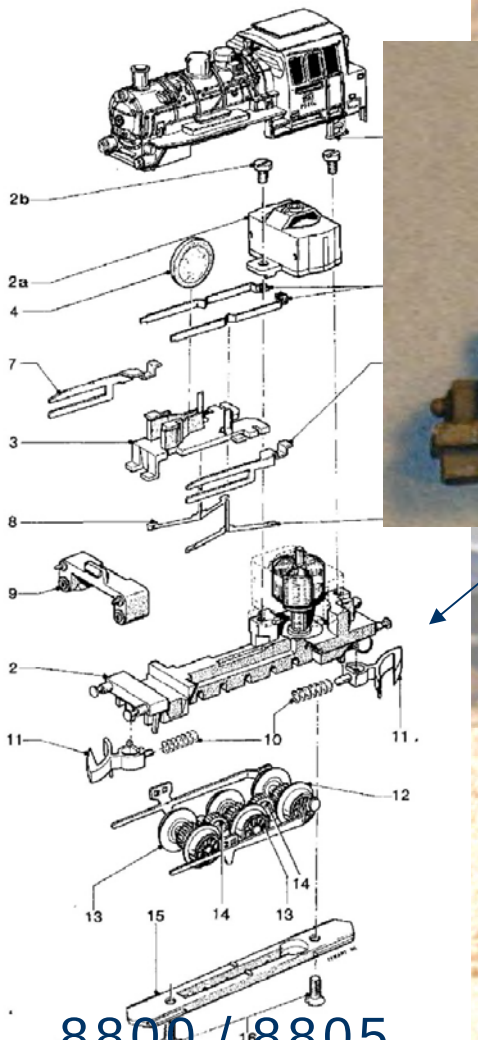
8804 / 8864 / 8865

8801 / 8803 / 8895

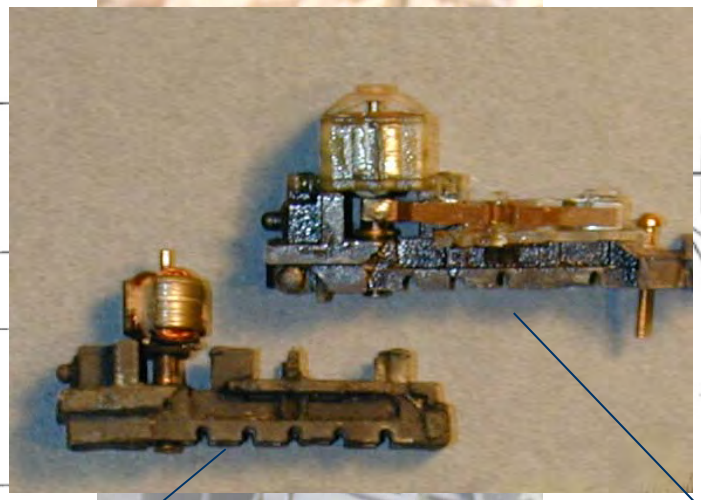
8800 / 8805

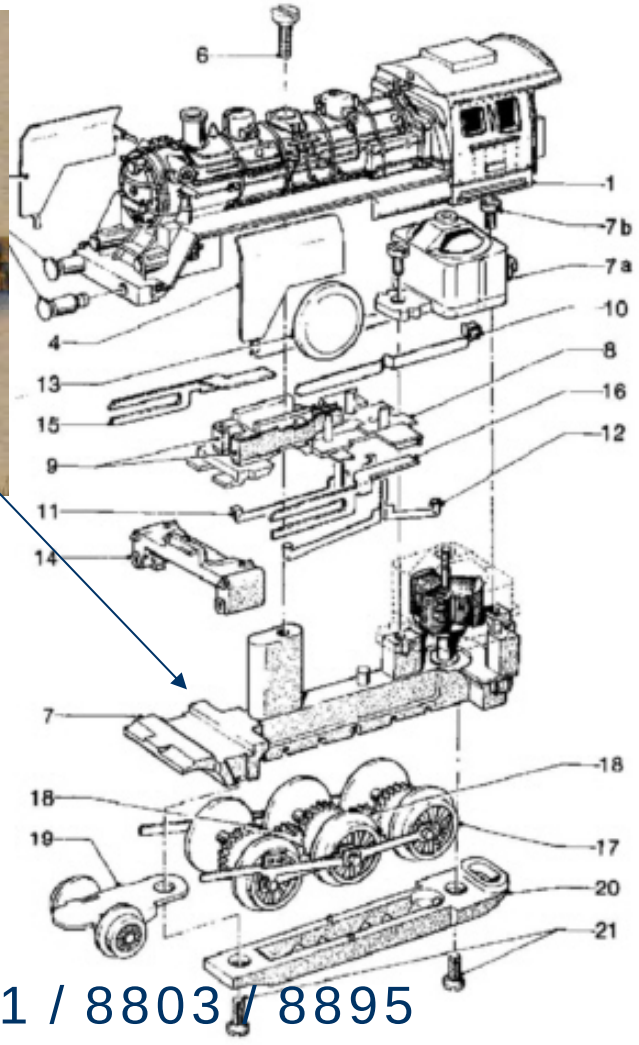
Chassis Components

Marklin "Unitized" Chassis



8800 / 8805

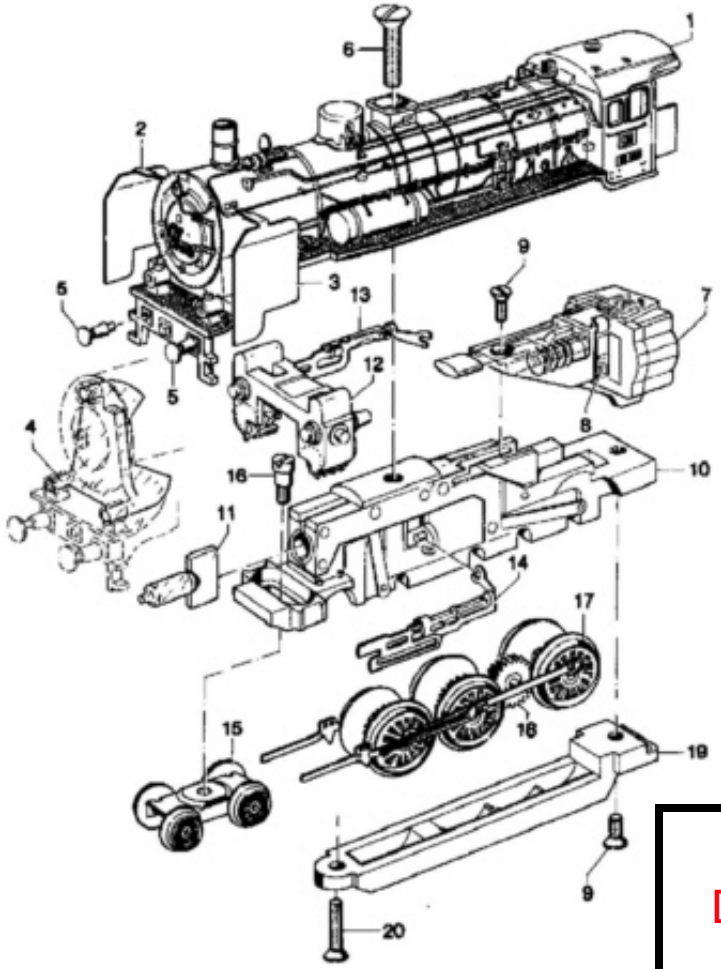




8801 / 8803 / 8895

Chassis Components

Marklin Non-Unitized Chassis

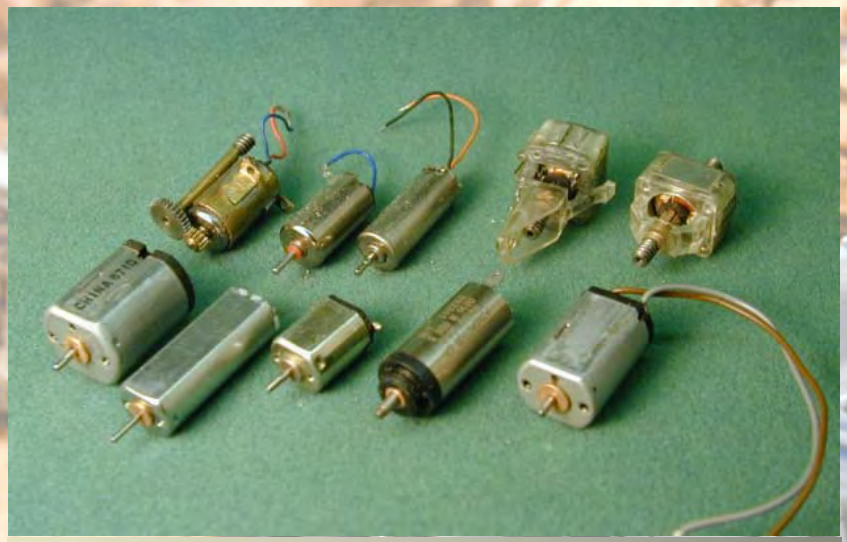


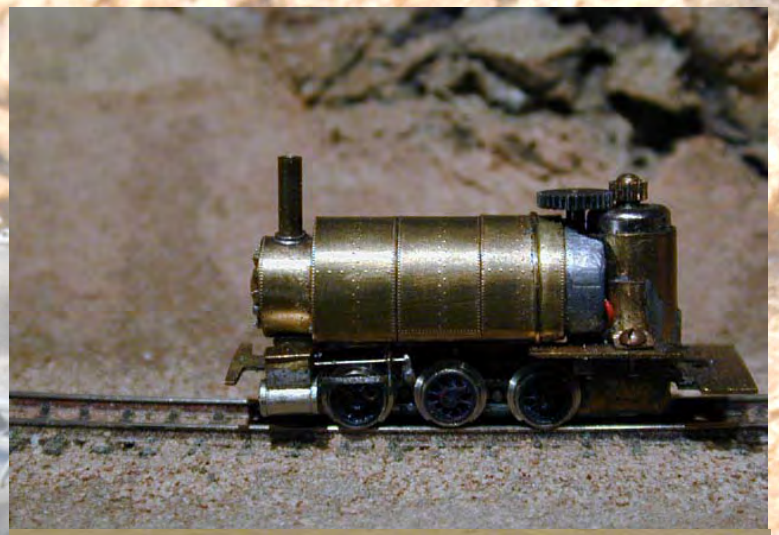
8896

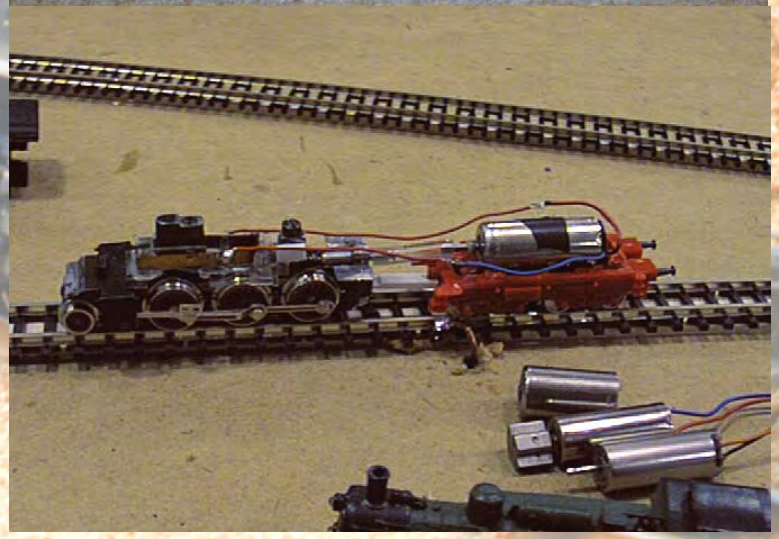
Detailed Specifications with Erection Diagrams for selected Marklin chassis are in The Nn3 Handbook

Chassis Components

Alternative Motors

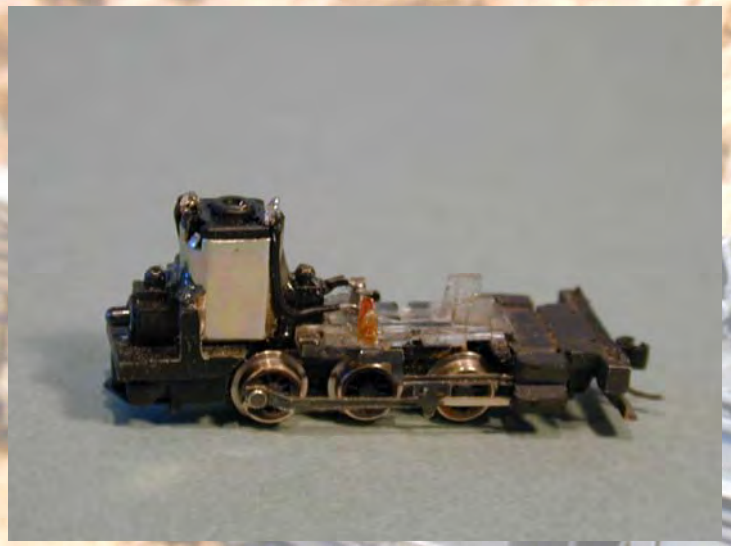




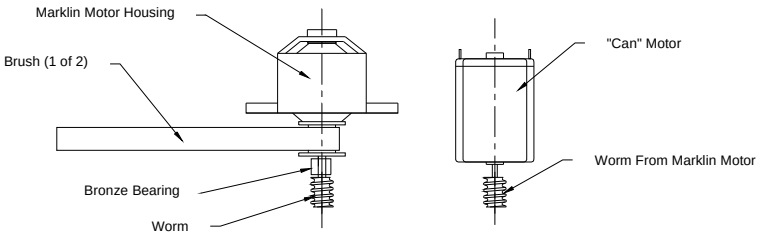


Chassis Components

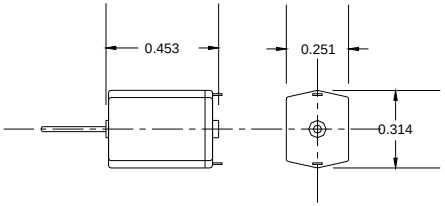
Re-motoring Unitized Chassis Locos



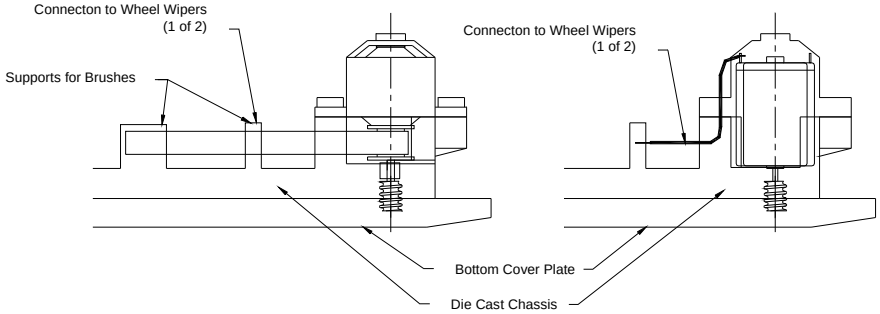
Chassis Components



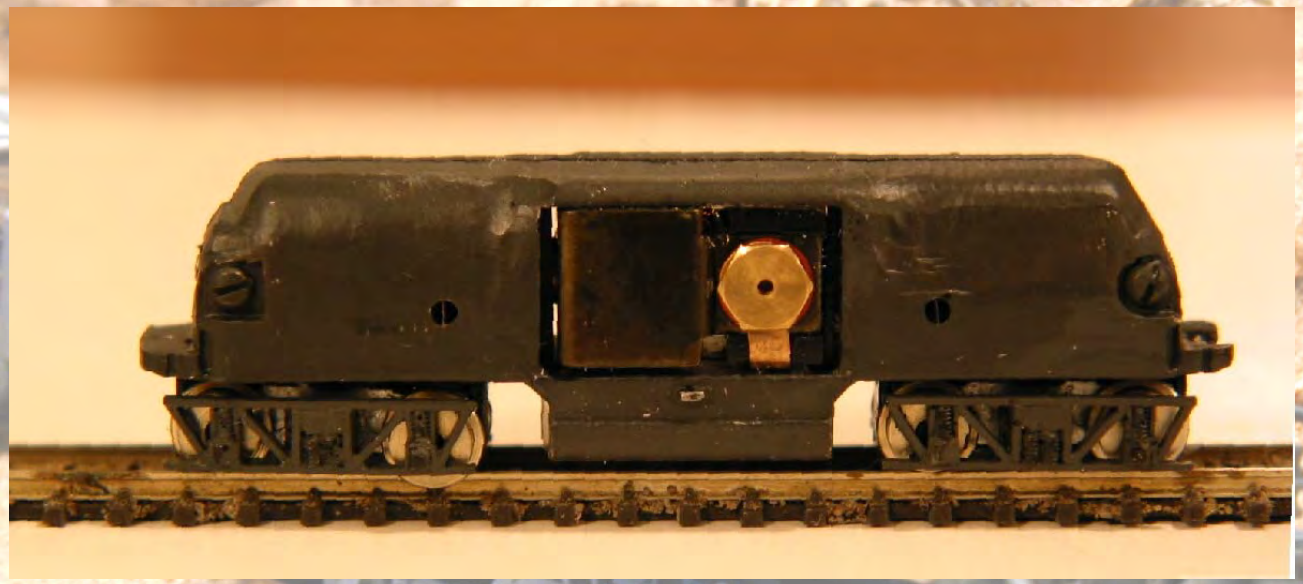
Comparison of Marklin and Can Motors



"Can" Motor Dimensions (Inches)



Comparison of Motor Installations

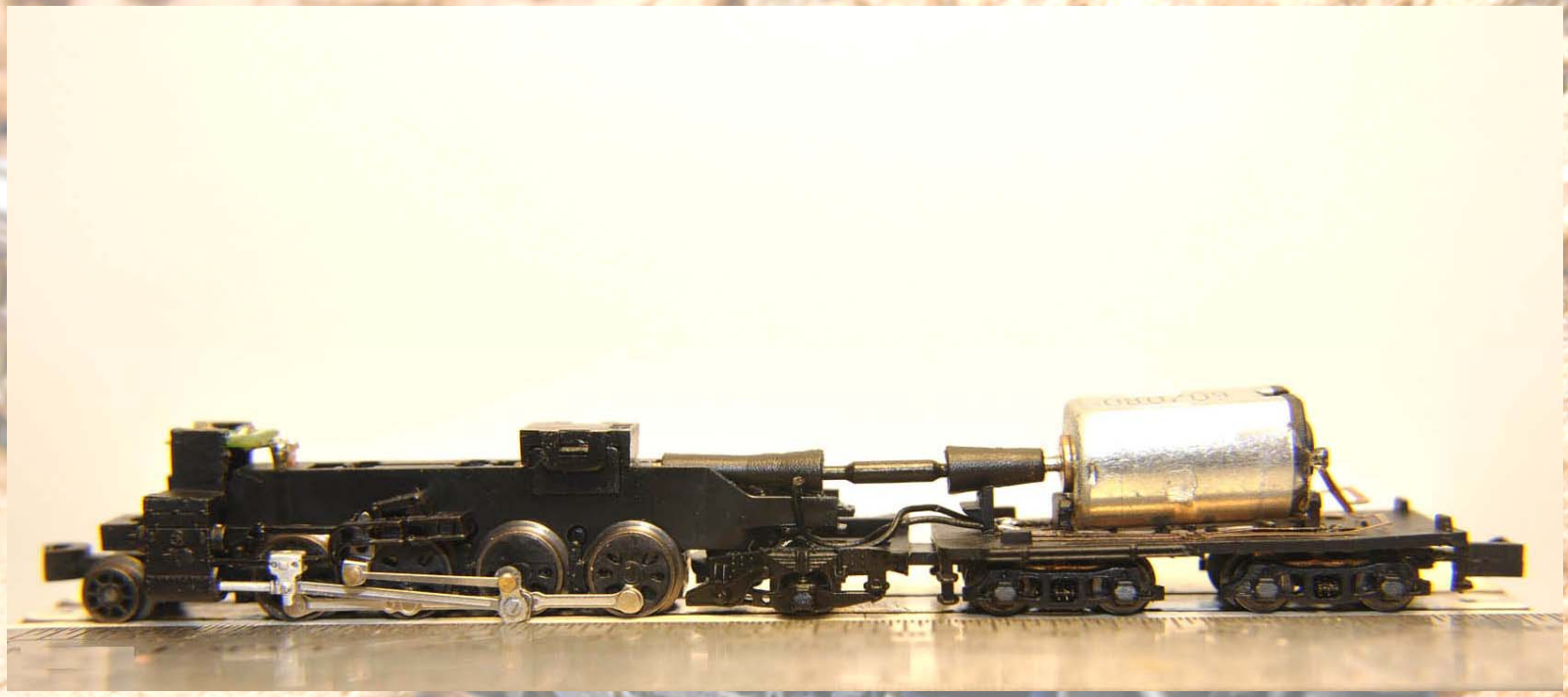


Micro Trains Z-Scale F-7 Chassis (used in RLW geared loco, doodle-bug and box-cab diesel kits)

Chassis Components

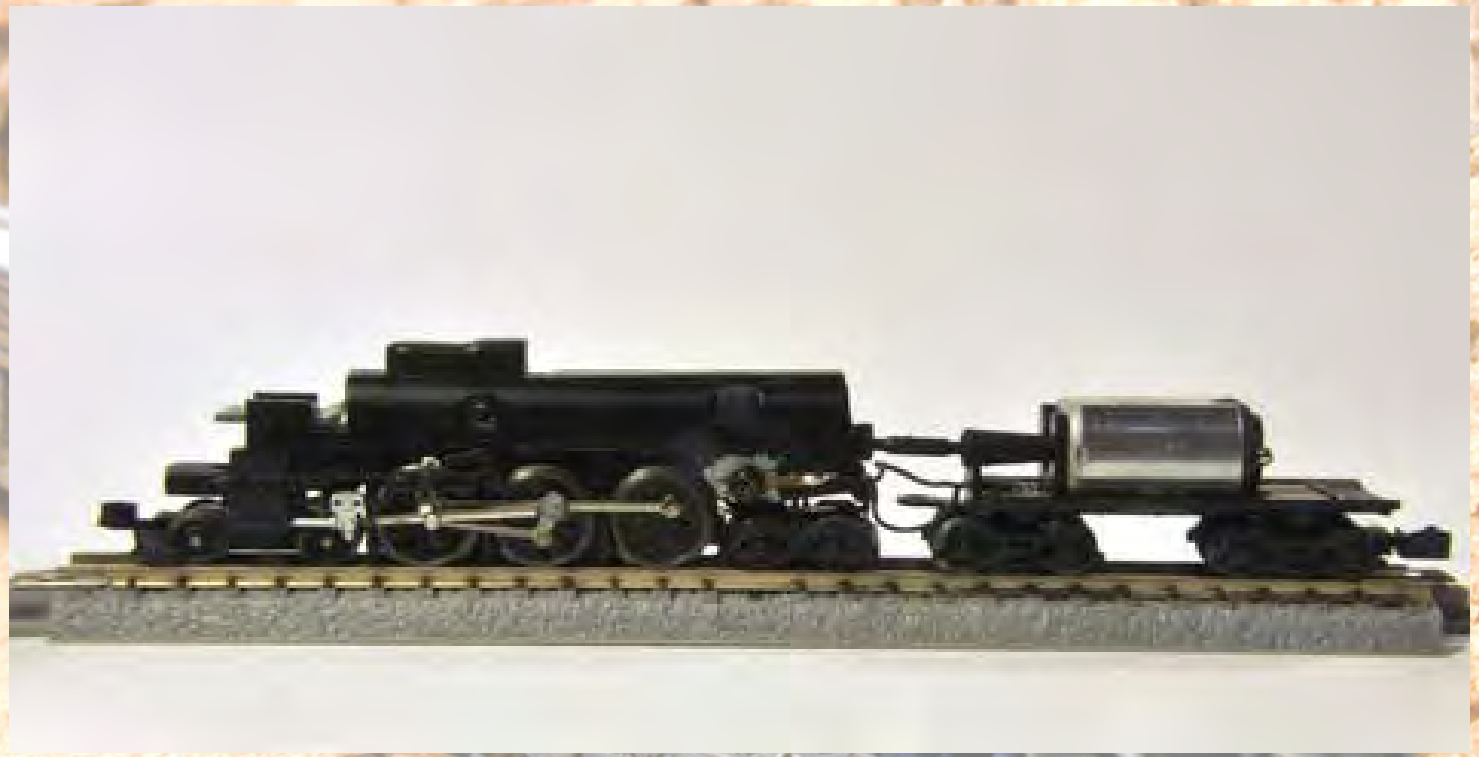
Tenshodo Z-Scale Japanese D51 Mikado Locomotive - available in various prototypical configurations

Chassis Components



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

Chassis Components

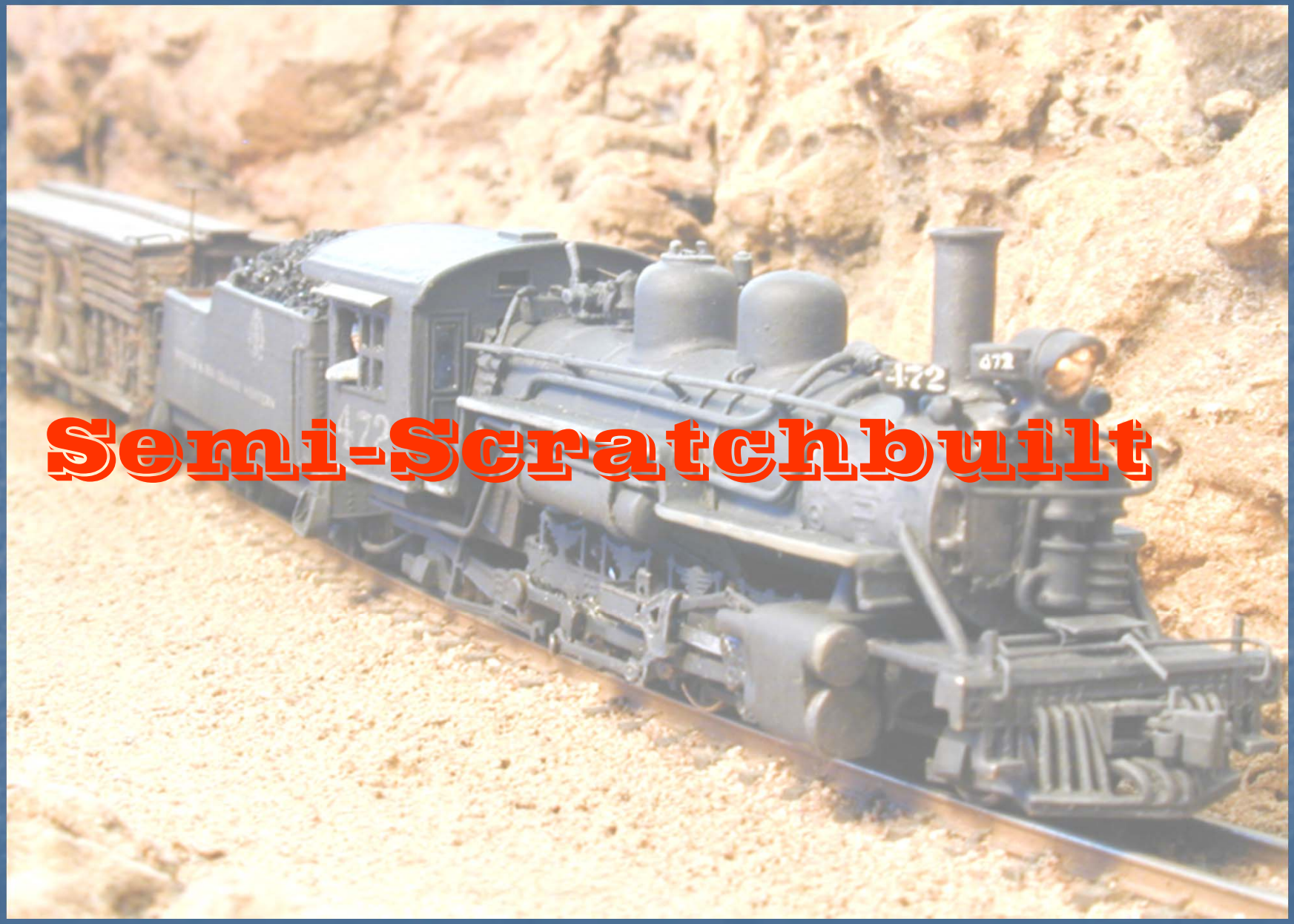


Tenshodo Z-Scale Japanese C62 Prairie Locomotive - 2-6-2 chassis

Chassis Components

SEARAILS "PowerMAX" motorized four-wheel truck/chassis

Chassis Components

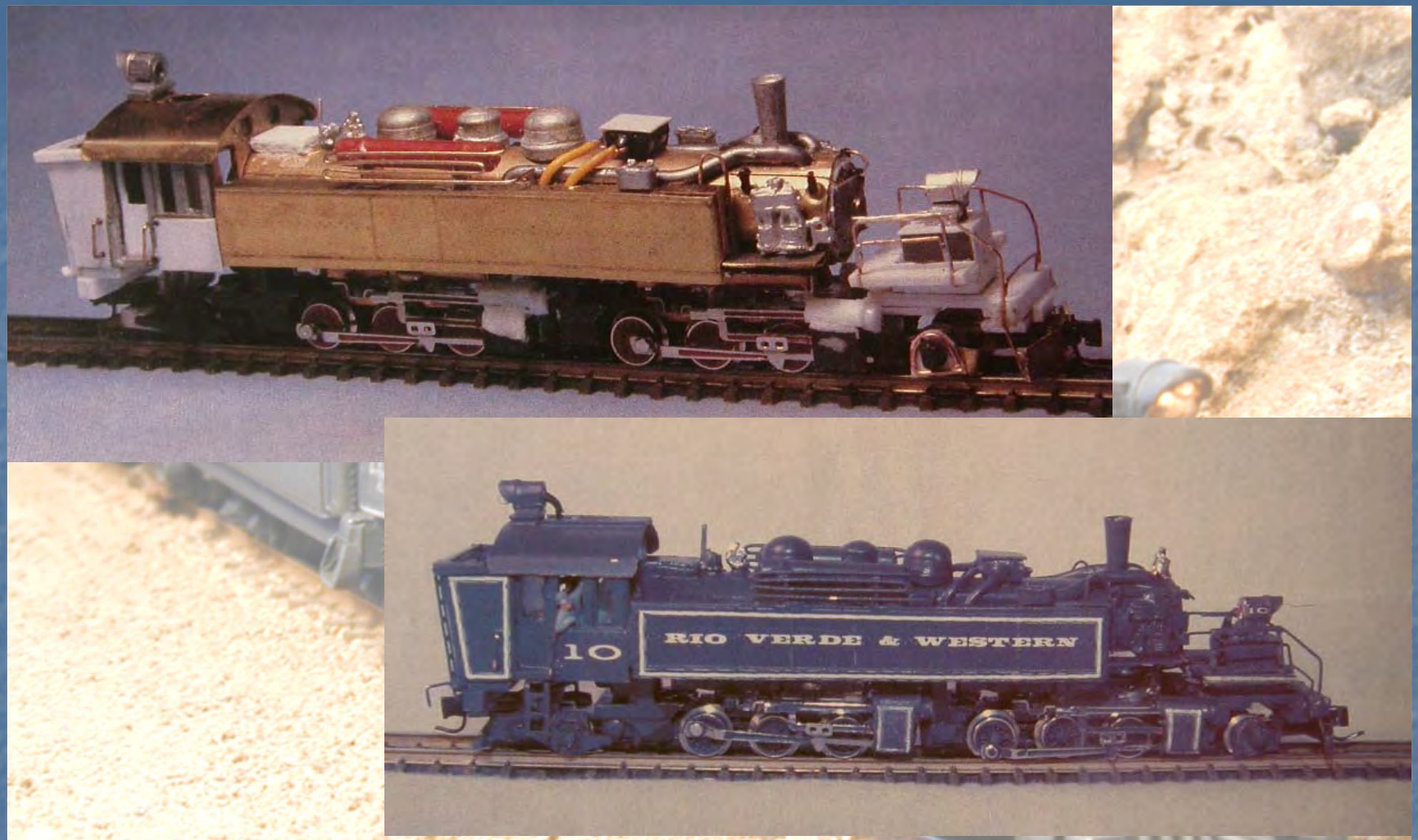

Semi-Scratchbuilt

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)

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)

Semi-Scratch-Built Locomotives



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

Semi-Scratch-Built Locomotives


"Parts Built"
Locomotives

Boilers, cabs, domes, cylinders, air tanks, tenders – all locomotive components are available separately from RLW, 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 late 1970's. This kit is still produced by RLW.

Locomotives

Rocky Mountain Model's "Show-Wa-No", with original 4-wheel tender, the first R-T-R Nn3 locomotive (1984)

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
- Micro Trains
- Marklin
- Tex-N-Rails (LOK14)
- Republic Locomotive Works
- Aspen Model
- T R Knapp Model Engineering
- Toma Model Works
- Searails
- Image Replicas
- PECO
- NMRS Northampton
Kit & R-T-R Locomotives
* European prototypes are also offered by several manufacturers.

Micro Trains

Brass superstructure on Marklin chassis; not listed by MT, 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 proprietary chassis.

R-T-R Locomotives

Searails

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

(Also available factory painted.

R-T-R Locomotives

Searails

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

(DCC and LED lighting added by T Knapp)

R-T-R Locomotives

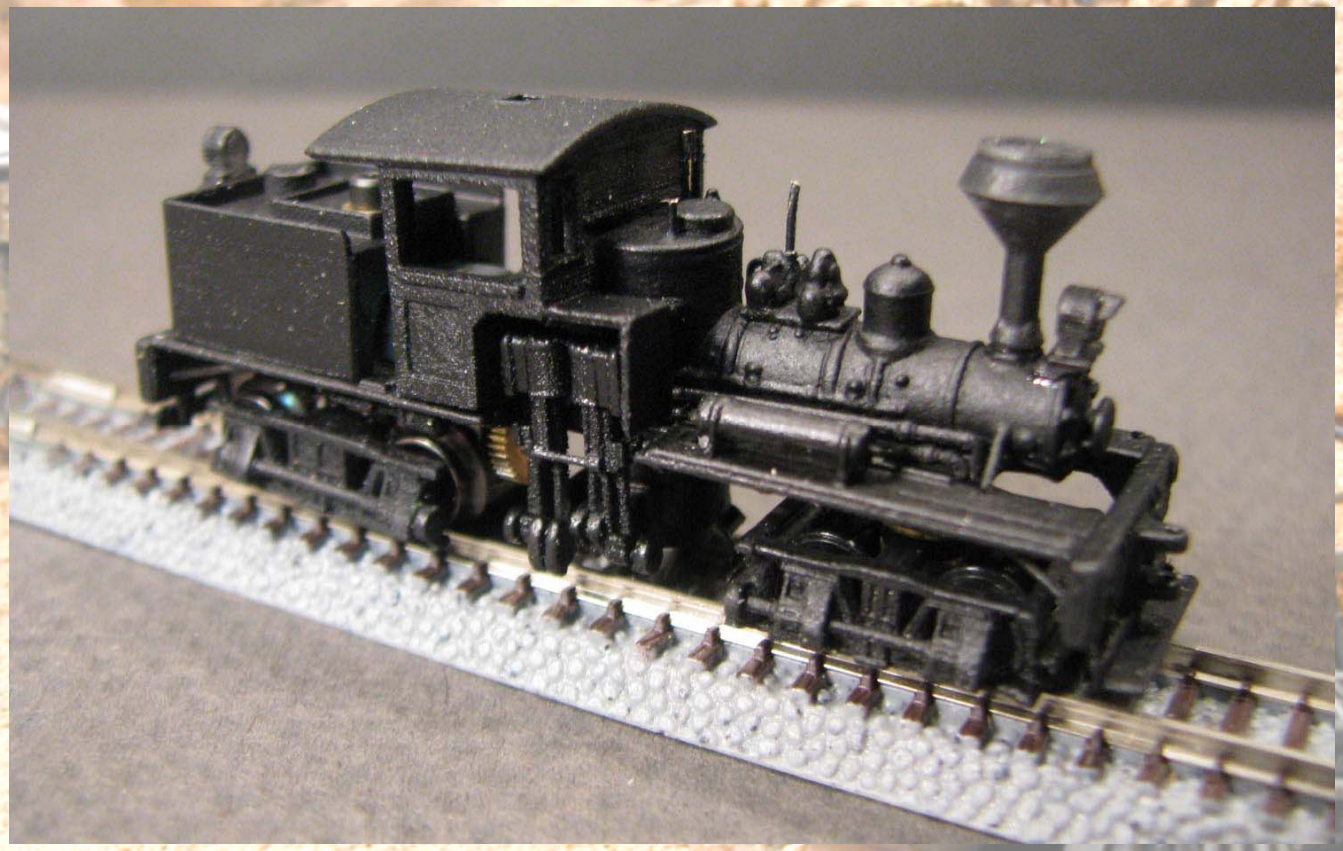
Searails

R-T-R, brass investment castings, powered motor car plus trailer

(Pre-production prototype show; final models will be available factory painted.)

R-T-R Locomotives

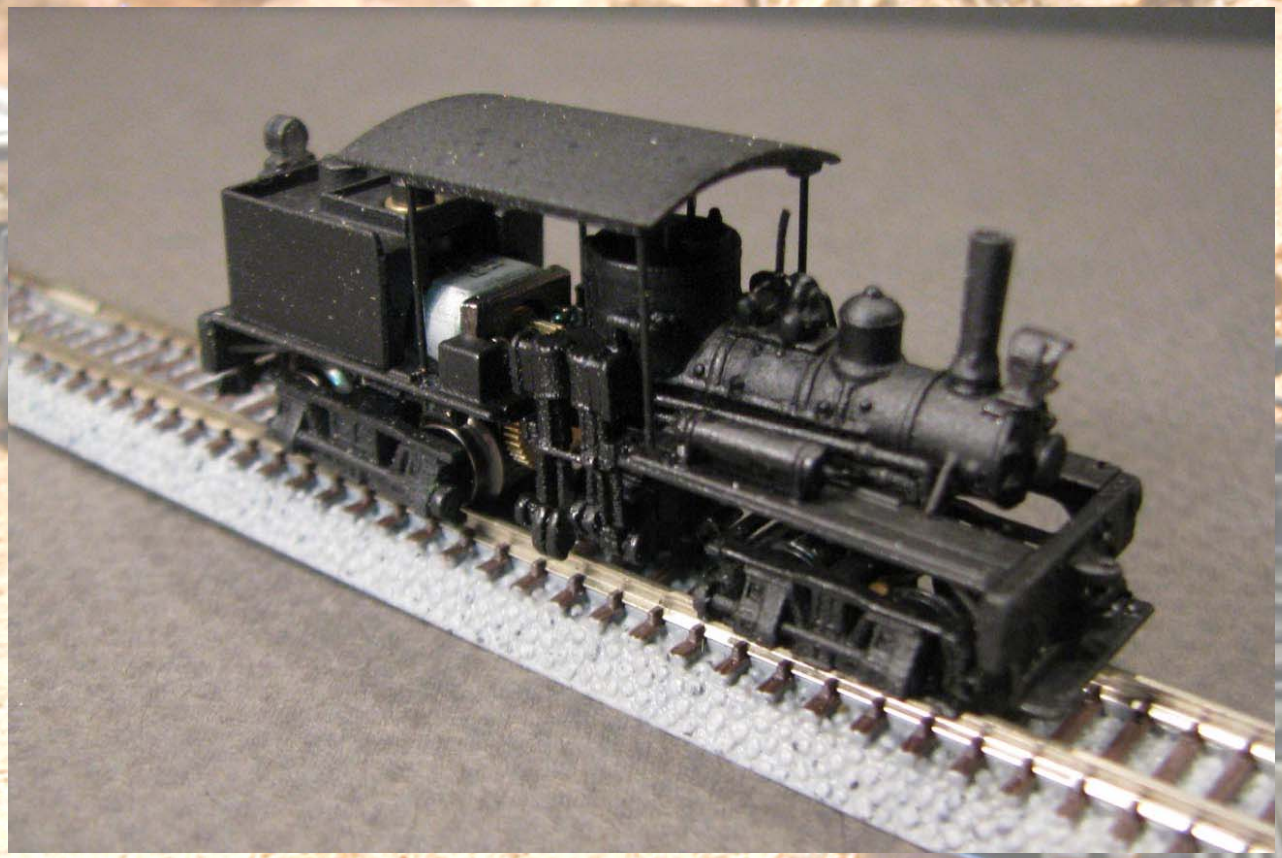
Image Replicas / ArchImageStudios-US



Class A 16-Ton T-Boiler Shay (wood burning version show; also avail. as coal and oil fired)

R-T-R Locomotives

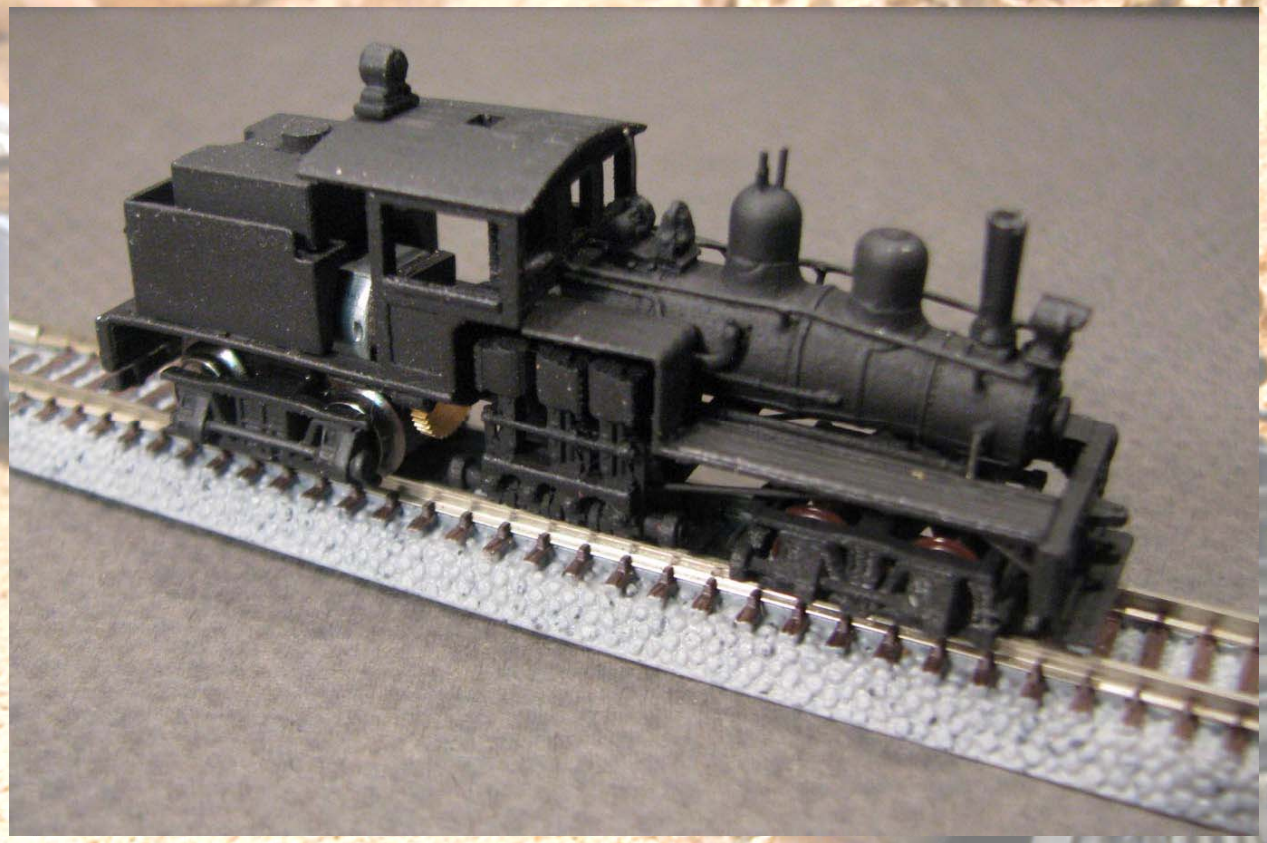
Image Replicas / ArchImageStudios-US



Class A 16-Ton T-Boiler Shay, Open Cab version

R-T-R Locomotives

Image Replicas / ArchImageStudios-US



Class B 26-Ton Shay (oil fired version show; also avail. as coal and wood burning)

R-T-R Locomotives

Toma Model Works

R-T-R brass four wheel diesel switcher

R-T-R Locomotives (also available as kit)

T R Knapp Model Engineering

West Side Lumber Company 3-Truck Shay No. 15, all brass

(new re-tooled version Summer 2013)

Kit Locomotives

T R Knapp Model Engineering

Porter 0-4-0 Saddle tank loco, brass and white metal (summer 2013)

Kit Locomotives (also available R-T-R)

T R Knapp Model Engineering

“Captain Goodall” Steam Dummy, brass and white metal (SUMMER 2013)

Kit Locomotives (also available R-T-R)

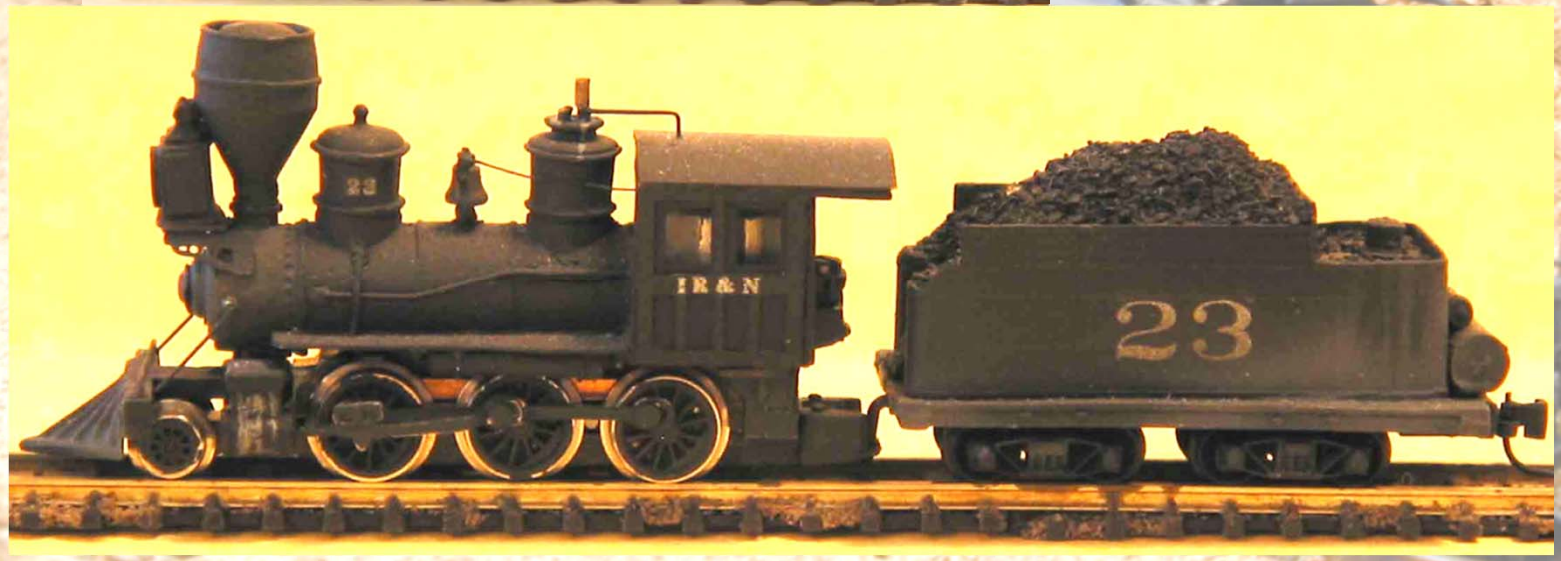

Republic
Locomotive
Works
Kit Locomotives

RLW

RLW offers an extensive line of Nn3 locomotive kits designed to fit Marklin or Micro Trains mechanisms. They also sell and extensive line of locomotive components and detail parts.

Kit Locomotives

RLW

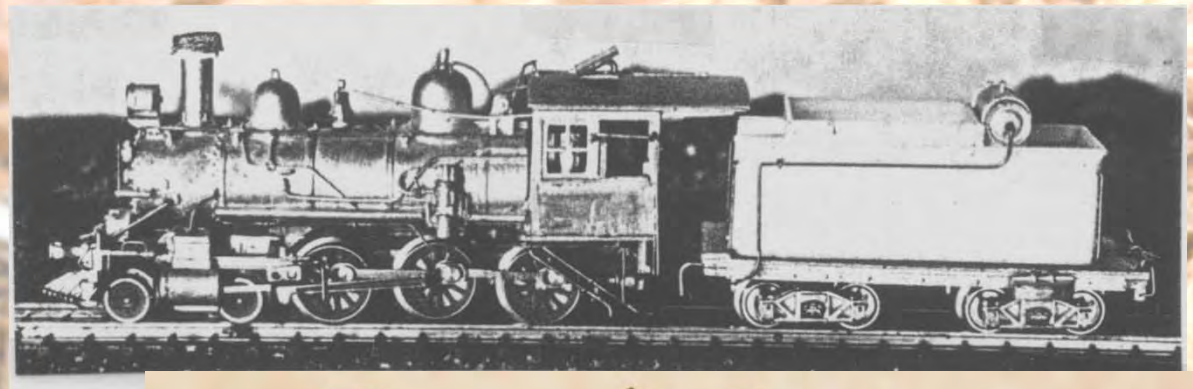


Kit Locomotives

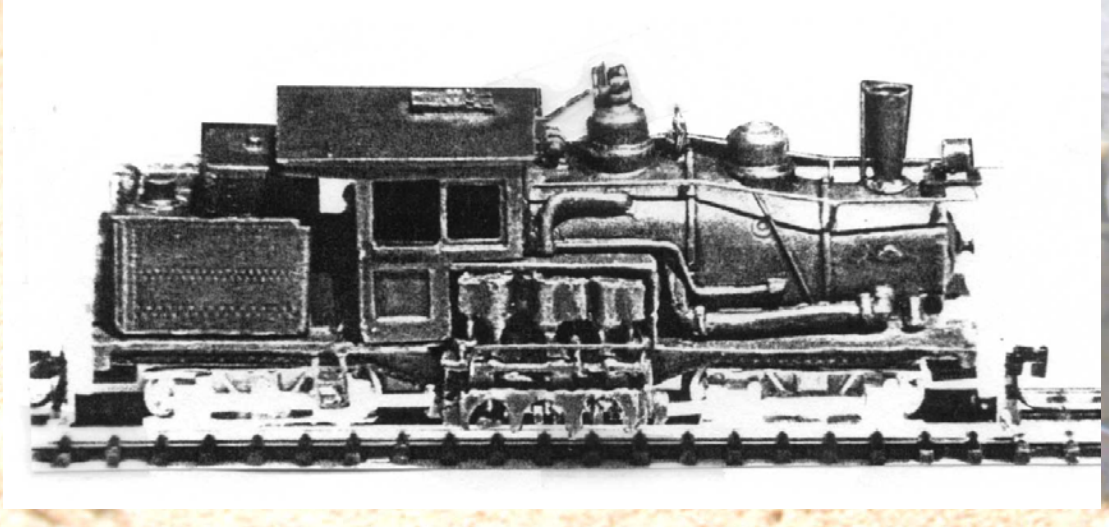
RLW

Kit Locomotives

RLW

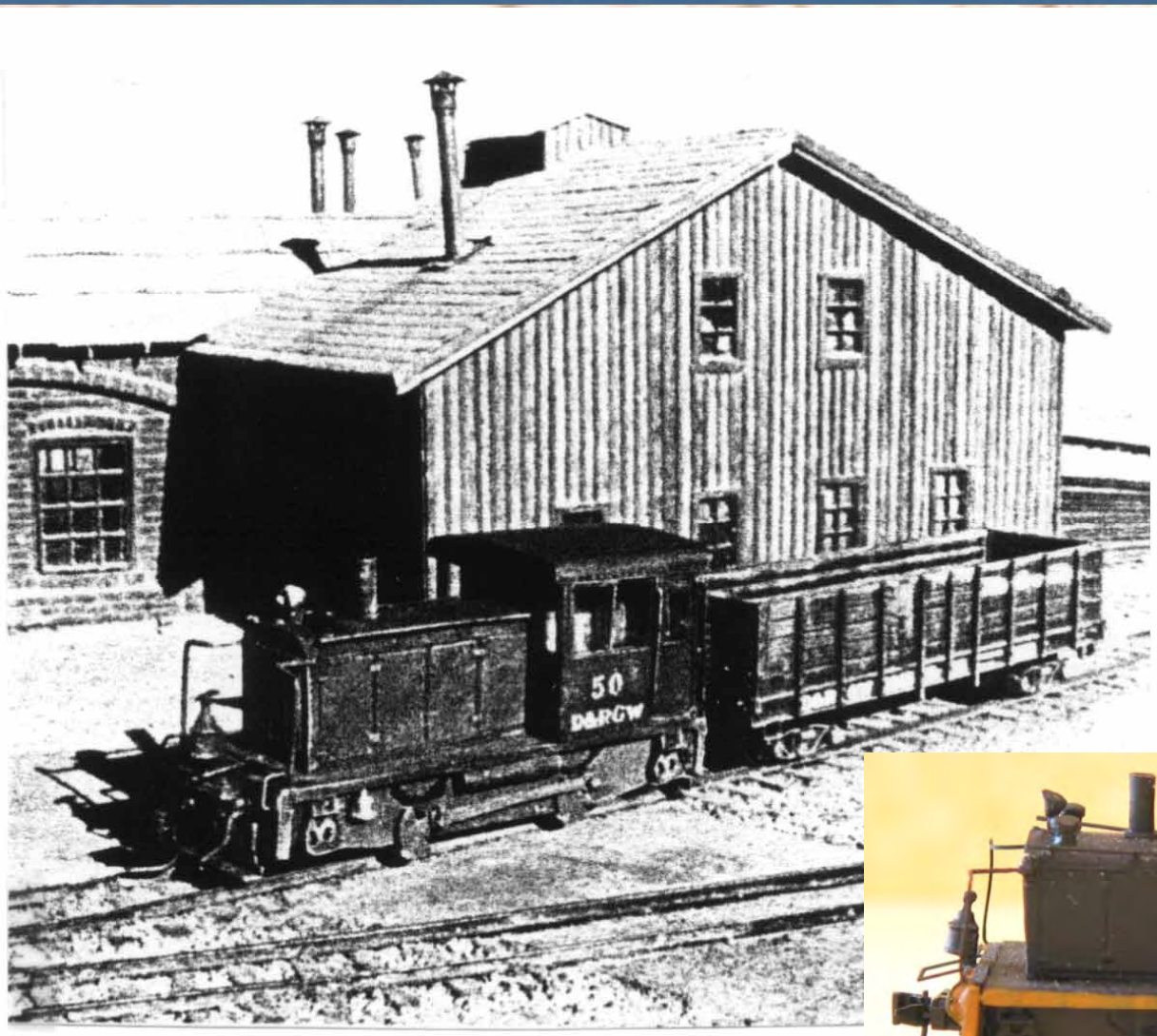


Kit Locomotives



Shay locomotives fit the Micro Trains F-7 chassis.

Kit Locomotives



Kit Locomotives

RLW

Kit Locomotives

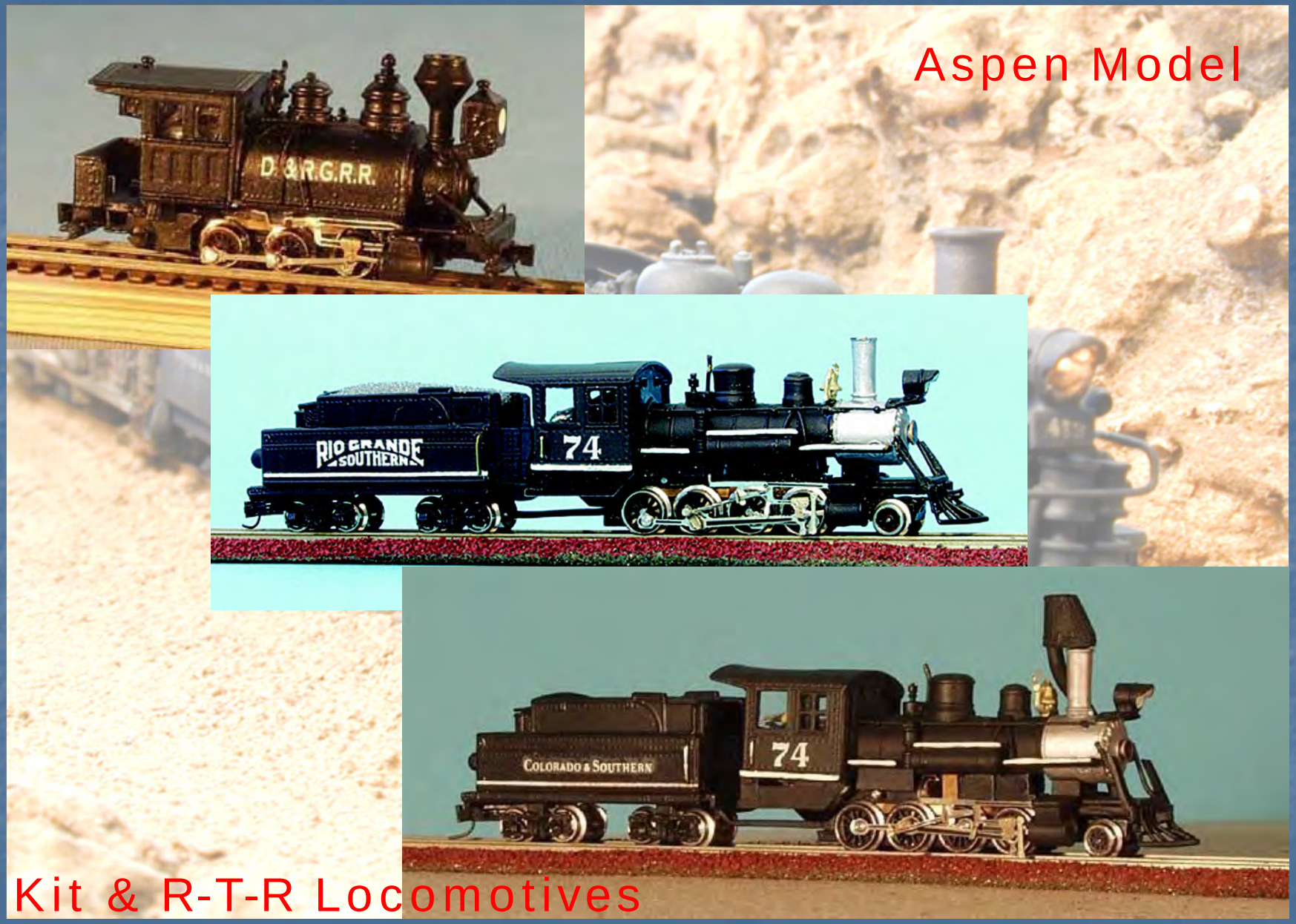
RLW

Kit Locomotives


Aspen
Model
Available through R S Laserkit in USA
Kit & R-T-R Locomotives

Aspen Model

Kit & R-T-R Locomotives


Aspen Model
D.&R.G.R.R.
RIO GRANDE SOUTHERN
74
COLORADO & SOUTHERN
74
Kit & R-T-R Locomotives


Aspen Model
Rio Grande
478
484
Rio Grande
RIO GRANDE SOUTHERN
No. 4
Kit & R-T-R Locomotives


T. R. Knapp
Model Engineering
Available through RLW
Kit & R-T-R Locomotives

T. R. Knapp Model E ngineering

Pre-production prototype

Pre-production prototype

C-16 conversion for Tenshodo D51 (Brass Kit)

West Side #15 Three Truck Shay (Brass Kit)

Available from Republic Locomotive Works

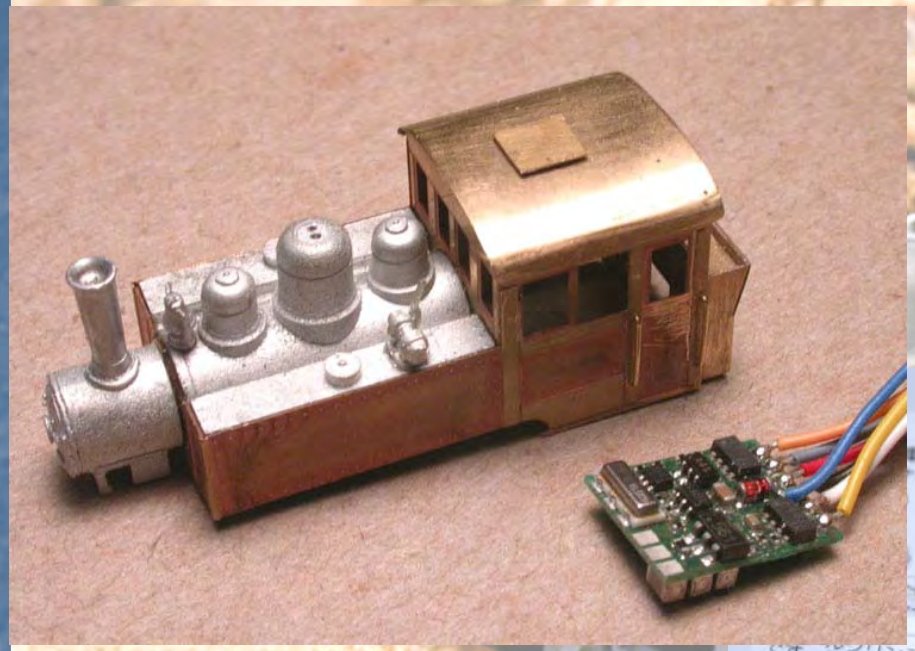
Kit Locomotives

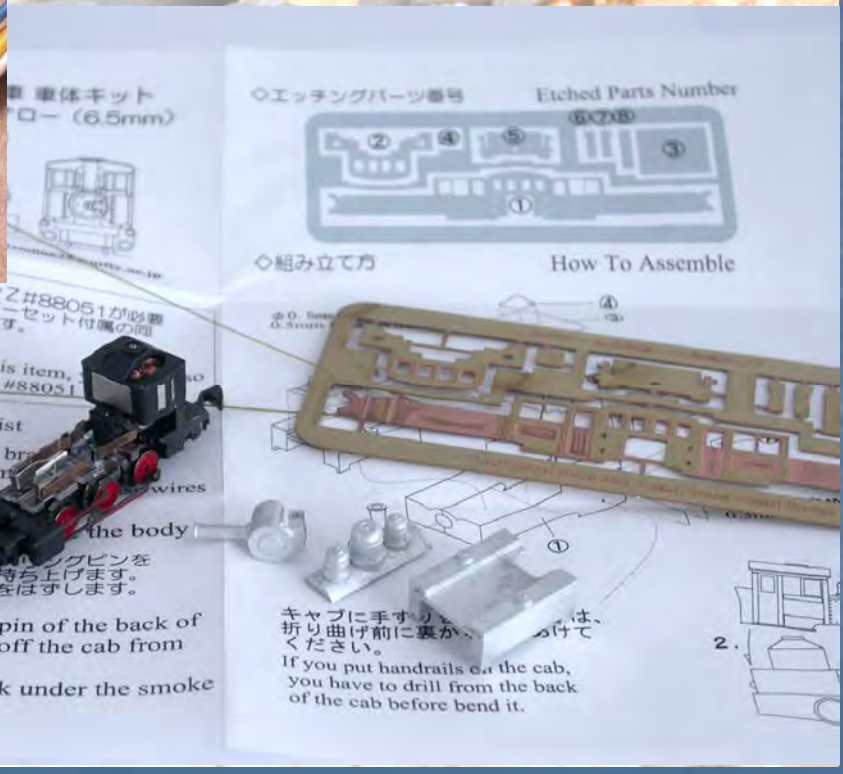

TOMA MODEL WORKS
Kenji Toma, Japan
Kit & R-T-R Locomotives

Toma Model Works

Kit Locomotives

Toma Model Works





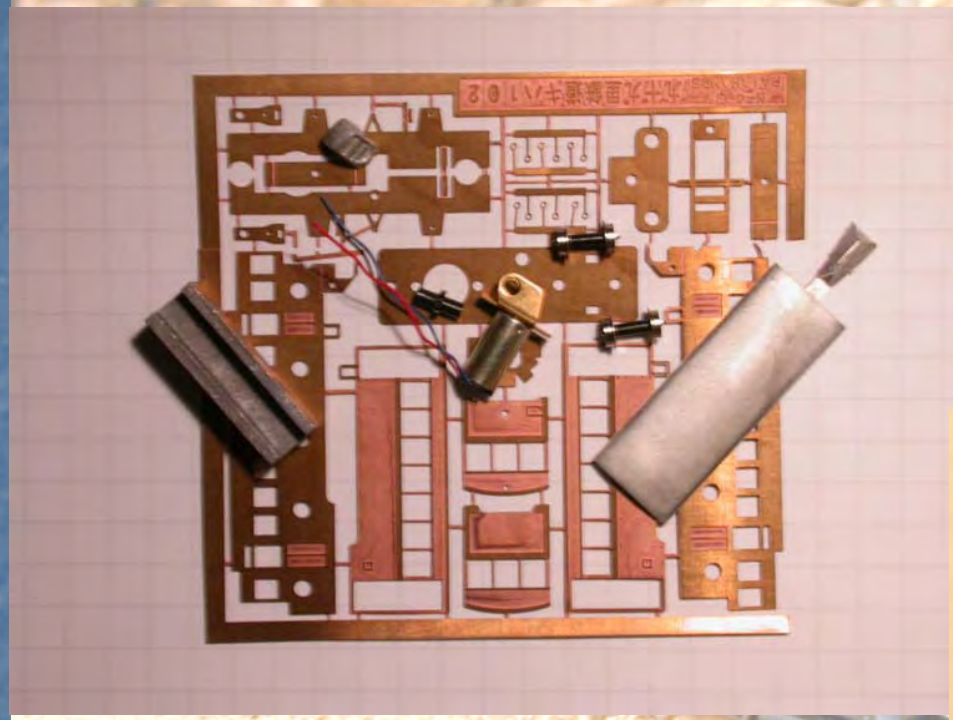
Kit Locomotives

Toma Model Works

Kit Locomotives

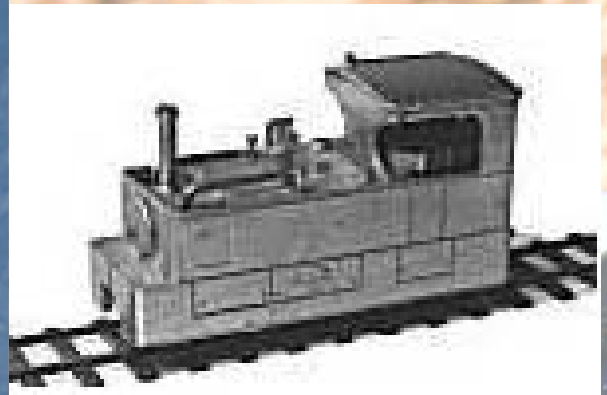
Kit Locomotives

Pairhands Models



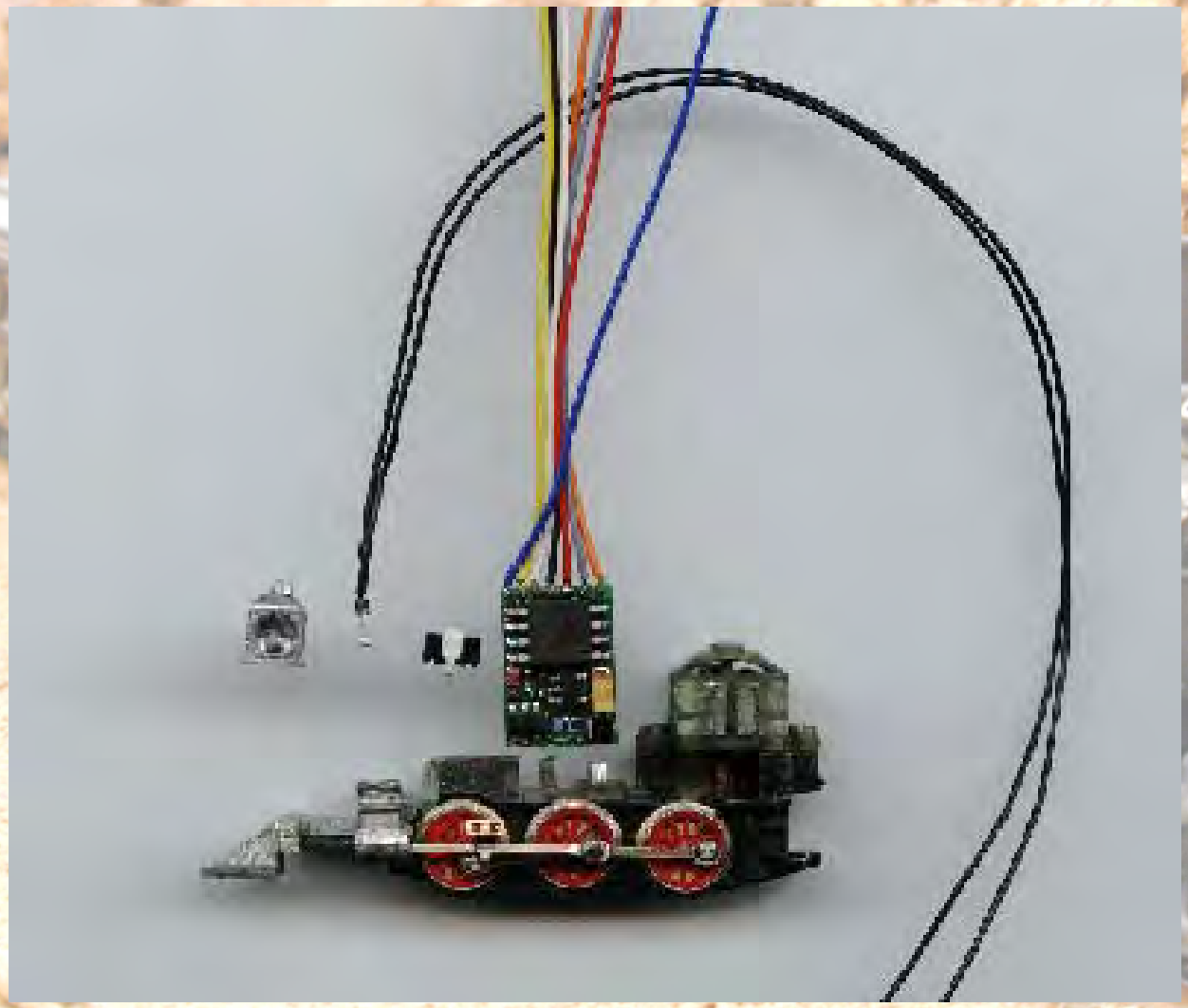
Kit Railbus

County Rolling Stock
(www.NTASTICShop.co.uk)



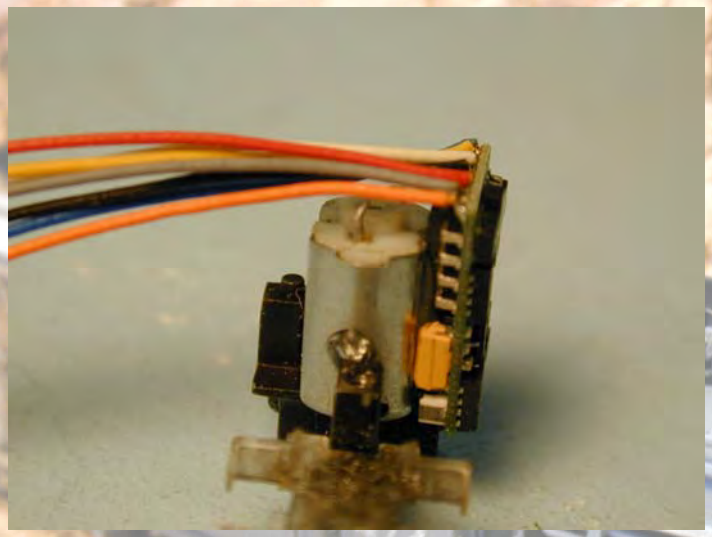
White Metal loco kits by Peco and NMRS


472
472
472
DCC



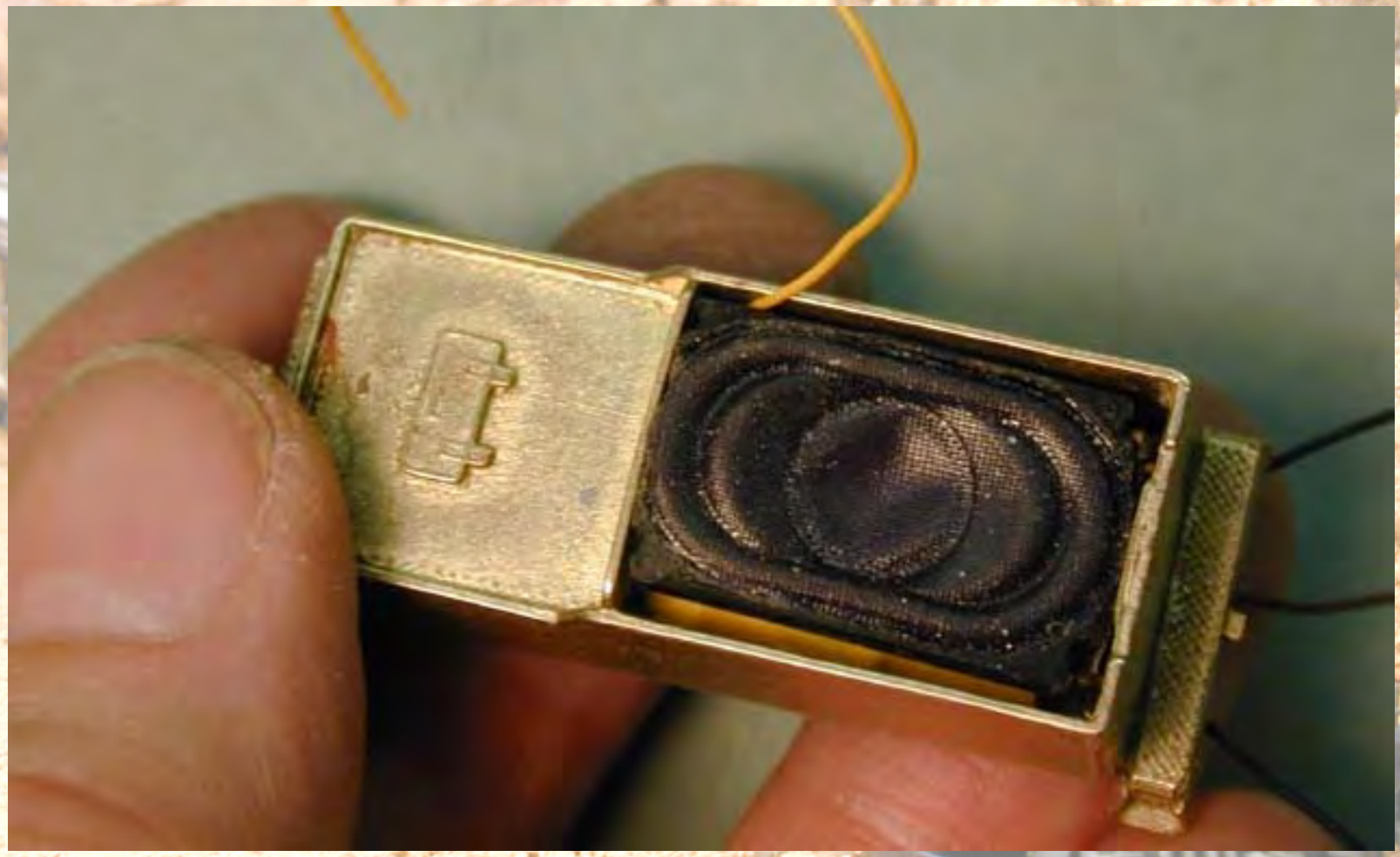
Several decoders are available which fit into typical Nn3 locomotives, the preferred unit being the smallest Lenz decoders.

DCC



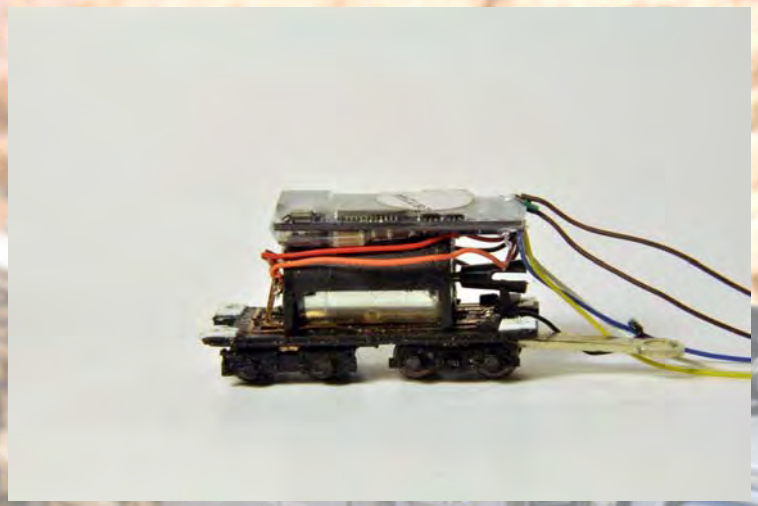
For saddle-tank locomotives or small diesels, the decoder can be mounted in the cab. This is preferred for even tender locomotives as the wires between the locomotive and tender cause problems for light weight Nn3 locomotives.

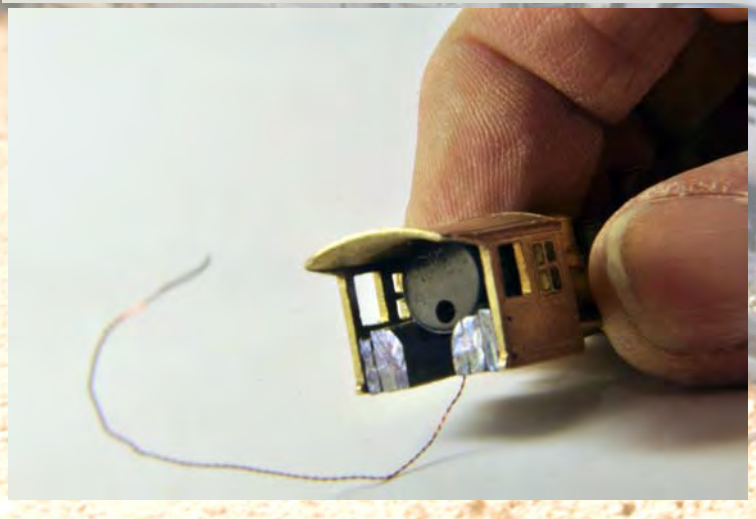
DCC

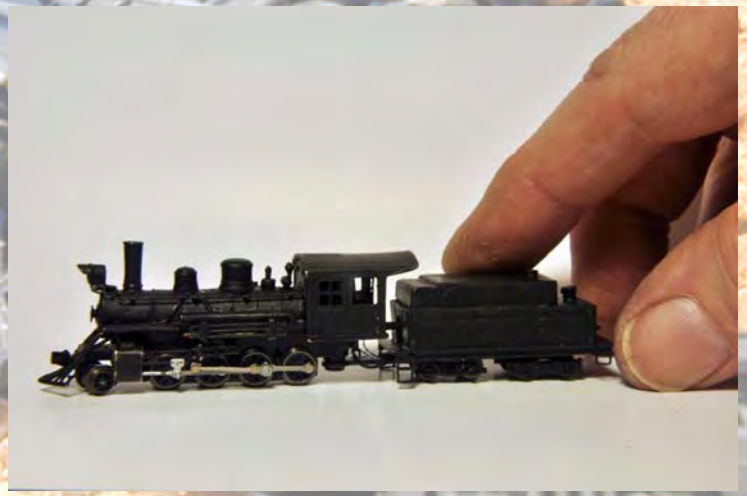


Larger steam locomotives have sufficient space (and weight) to accommodate decoders and speakers in the tender.

DCC







Even medium-sized locomotives can incorporate sound using LokSound decoders and special Motorola speakers.

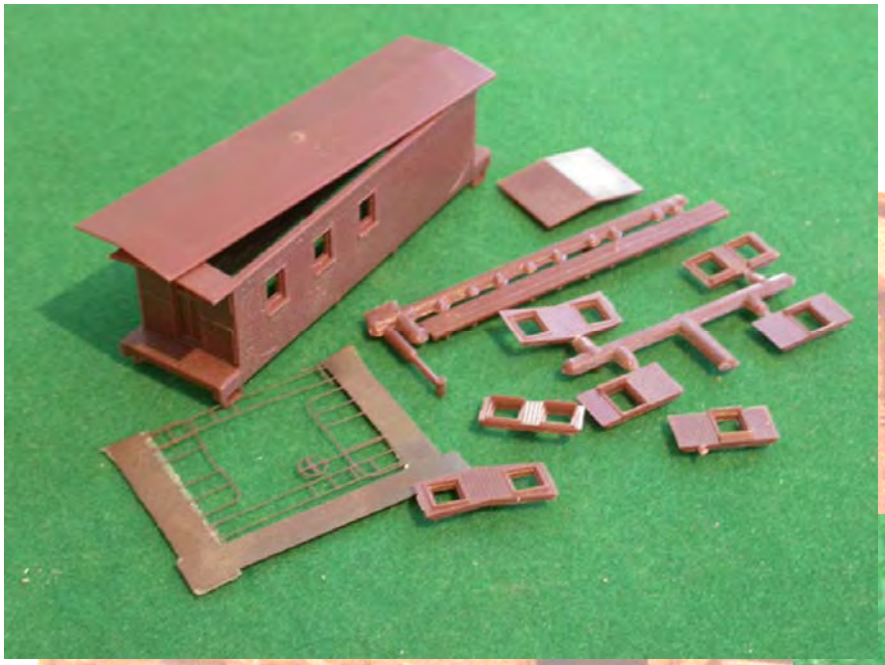
DCC


Nn3
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
(Available in USA from RS Laser Kit)
Rolling Stock – R-T-R

Aspen Model

Rolling Stock – R-T-R

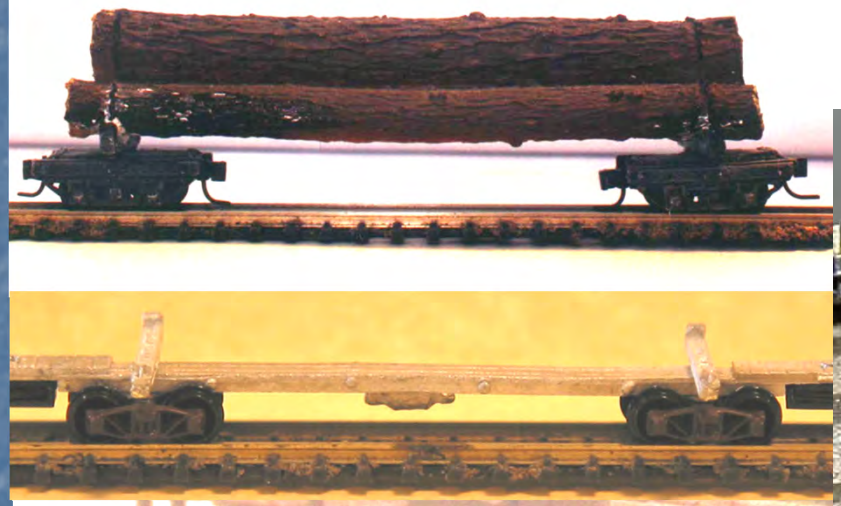
Aspen Model

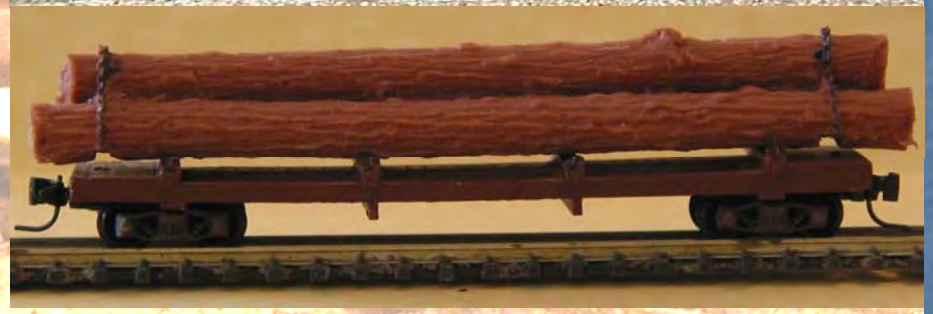
Rolling Stock – R-T-R

Rolling Stock – R-T-R


Republic
Locomotive
Works
Rolling Stock – kit

Republic Locomotive Works

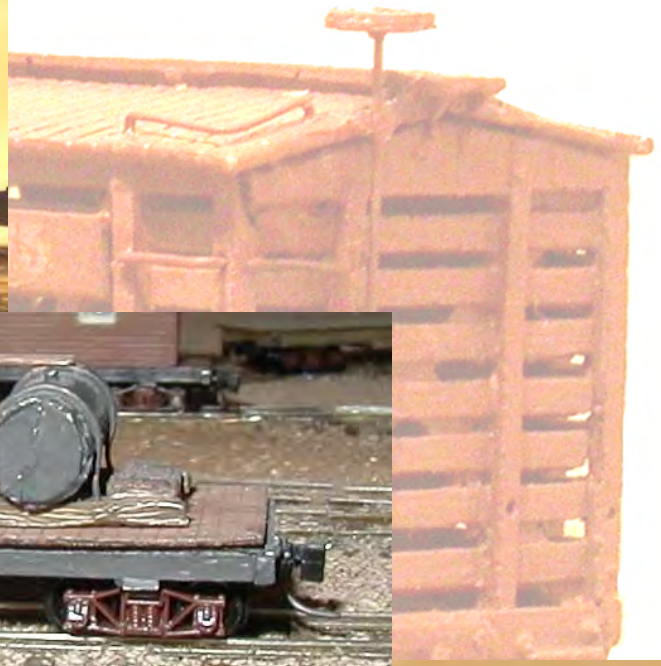




RLW offers an extensive line of Nn3 rolling stock kits incorporating white metal, resin, etched brass and laser cut parts.

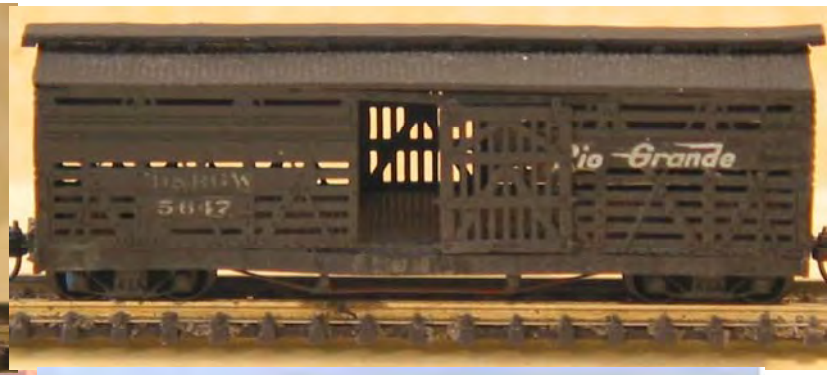
Rolling Stock – kit

Republic Locomotive Works



Rolling Stock – kit

Republic Locomotive Works



Rolling Stock – kit

Republic Locomotive Works

Rolling Stock – kit

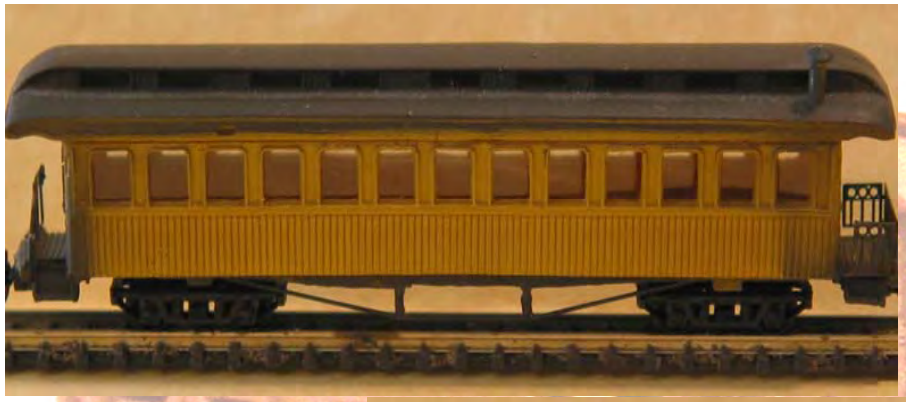
Republic Locomotive Works

Rolling Stock – kit

Republic Locomotive Works

Rolling Stock – kit

Republic Locomotive Works



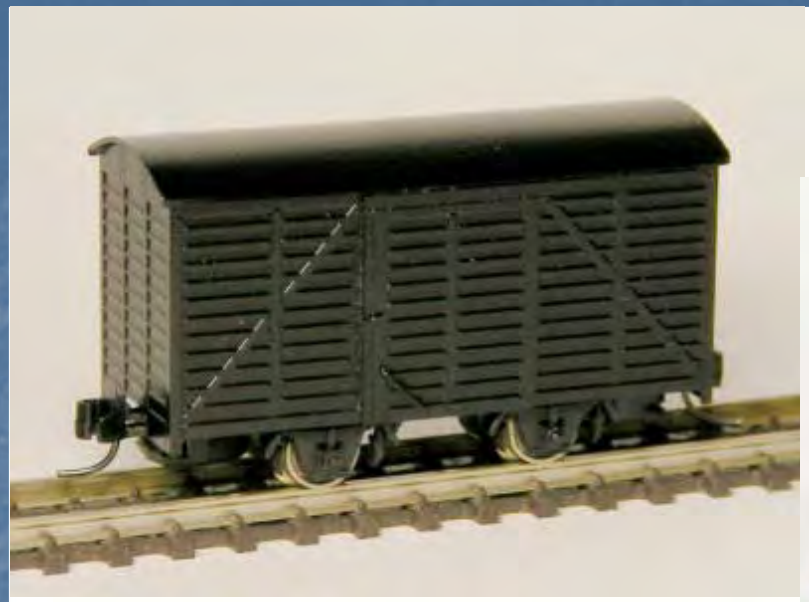
Rolling Stock – kit

TOMA MODEL WORKS

Kenji Toma, Japan

Rolling Stock – kit

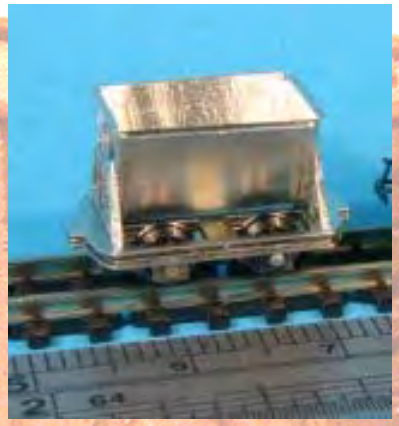
Toma Model Works



Rolling Stock – kit

Country Rolling Stock

(www.NTasticShop.co.uk)



3D printed kits by Country Rolling Stock

Etched kits by NMRA and other mfgrs.

Rolling Stock – Kit

Ride Trains (Roy Stevens)

(www.shapeways.com/shops/rtrains)

Acrylic 3D Print kits

Rolling Stock – Kit

T. R. Knapp Model Engineering

Pacific Coast 900-series tank car kit (summer 2013)

Resin kit for a Carter Brothers stock car

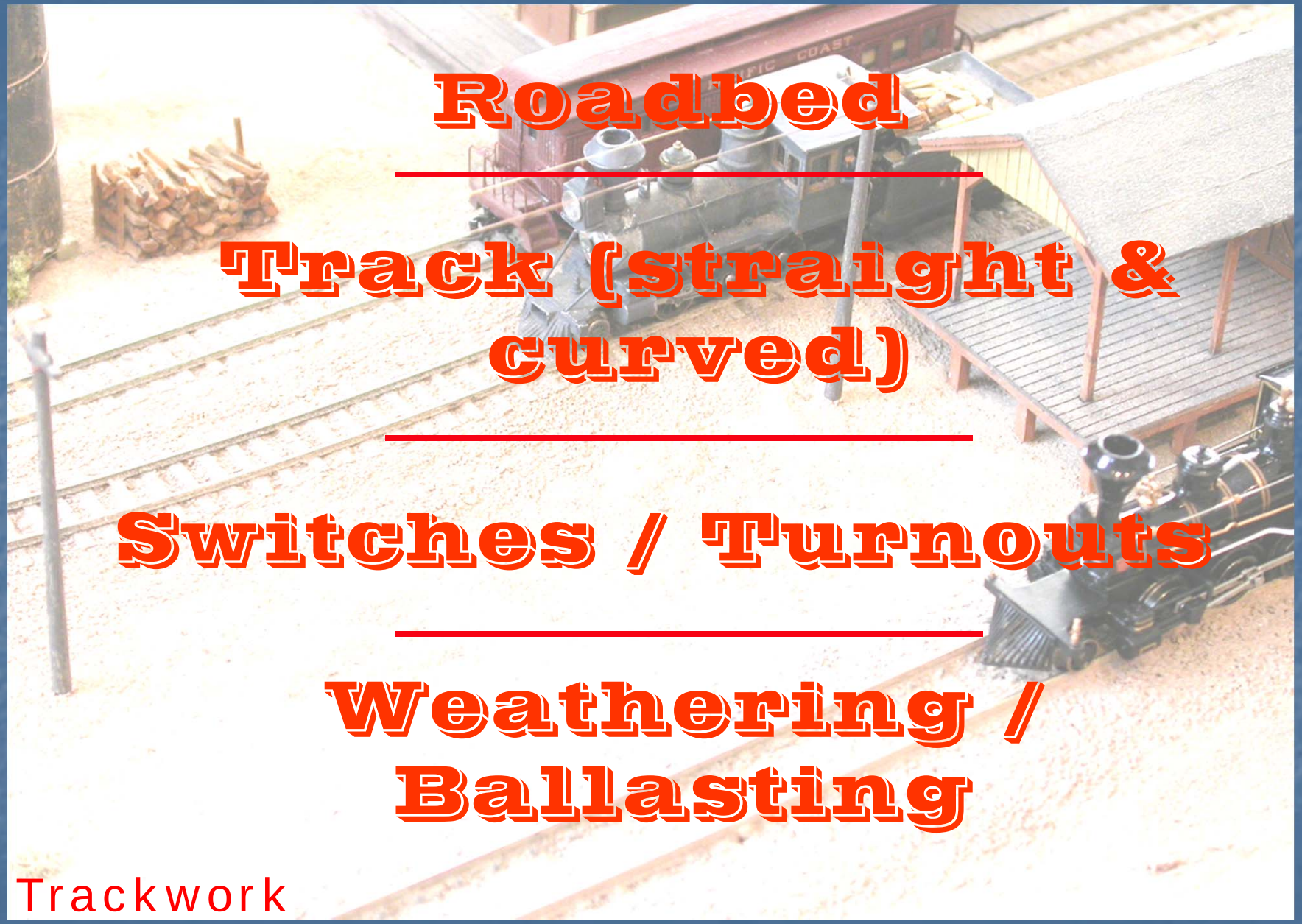
Available from Republic Locomotive Works

Rolling Stock – Kit

Nn3 Trackwork

1. A review & comparison of available products
2. A brief discussion of techniques
3. A preamble to a visit to the Nn3 modular layout, to see the products in-situ

Trackwork



Roadbed

Track (straight & curved)

Switches / Turnouts

Weathering / Ballasting

Trackwork

Roadbed

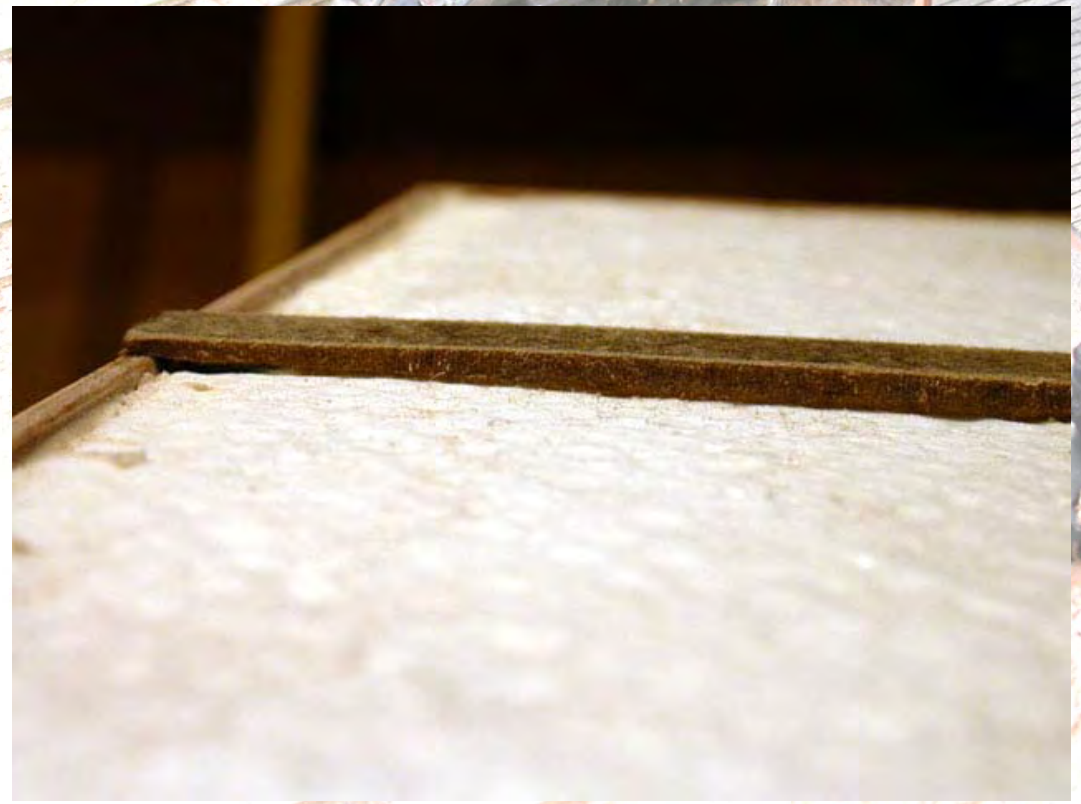
Track (straight & curved)

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



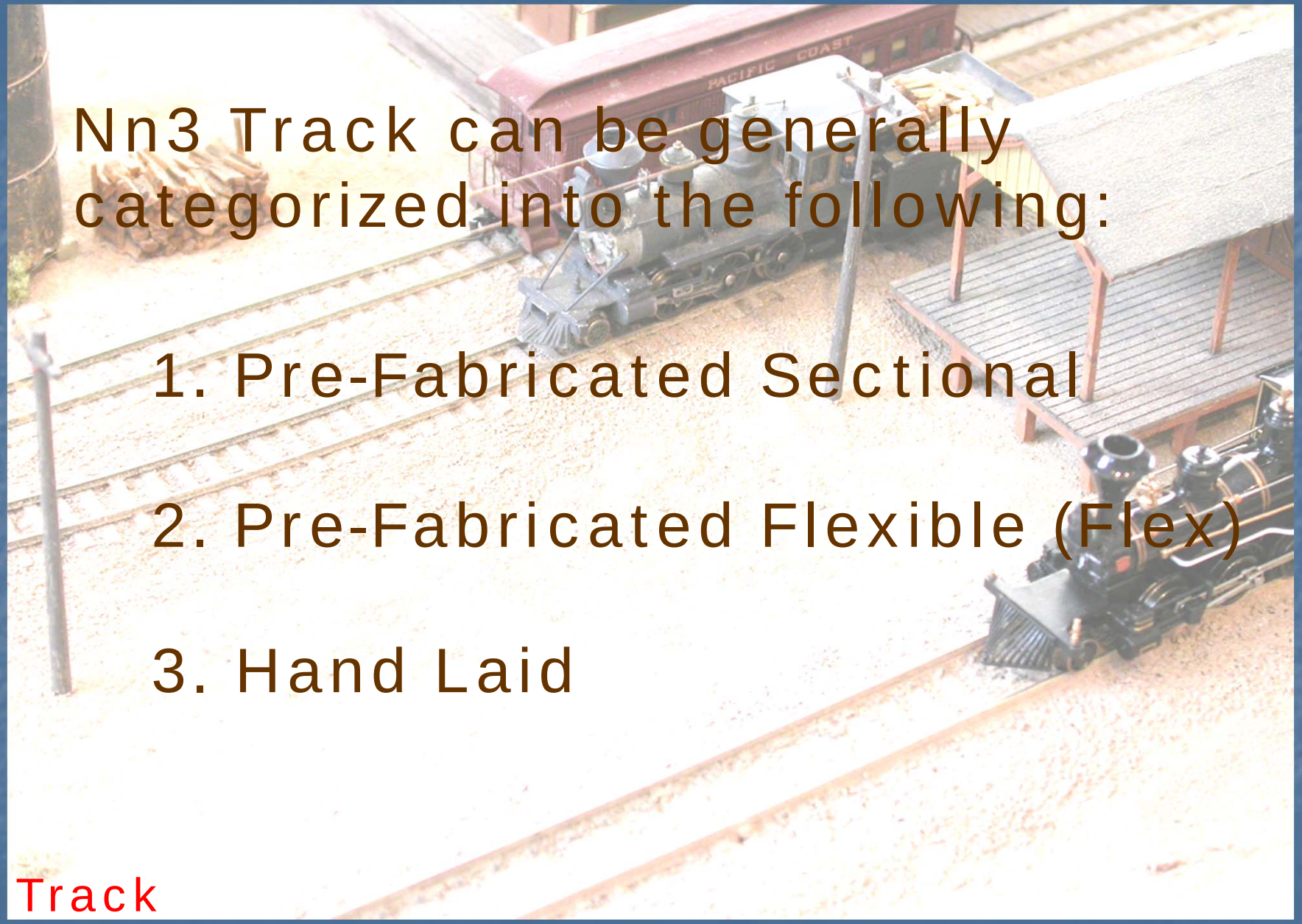
Roadbed

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

Track (straight & curved)

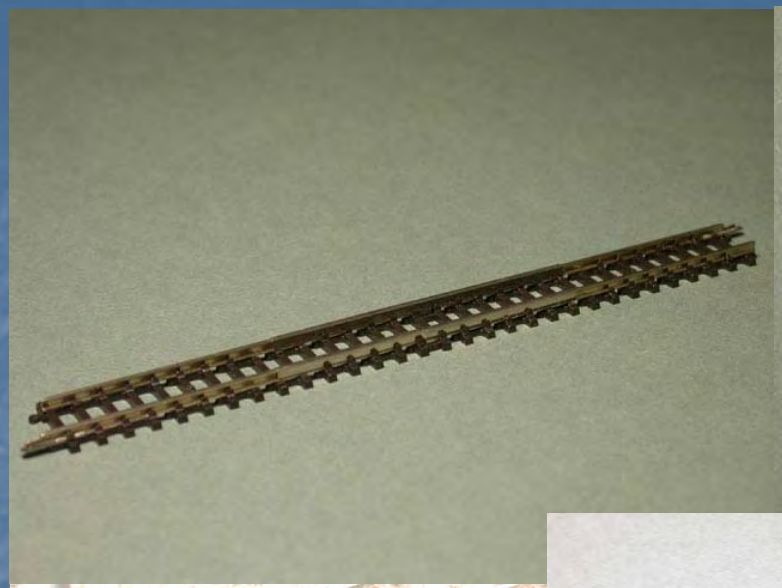
Trackwork

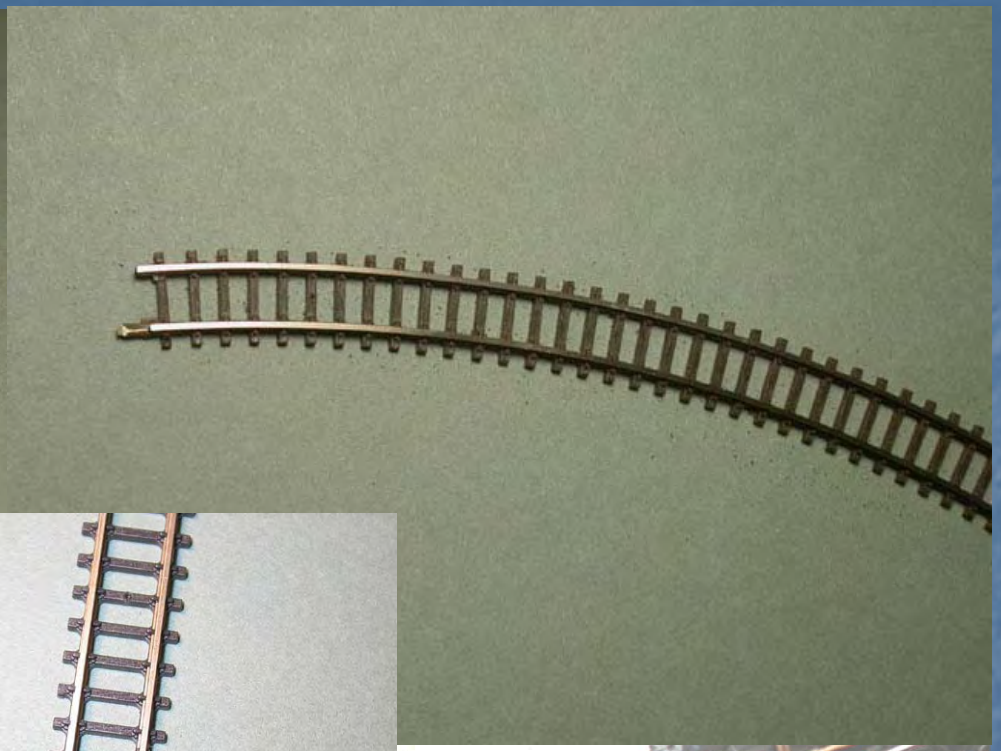


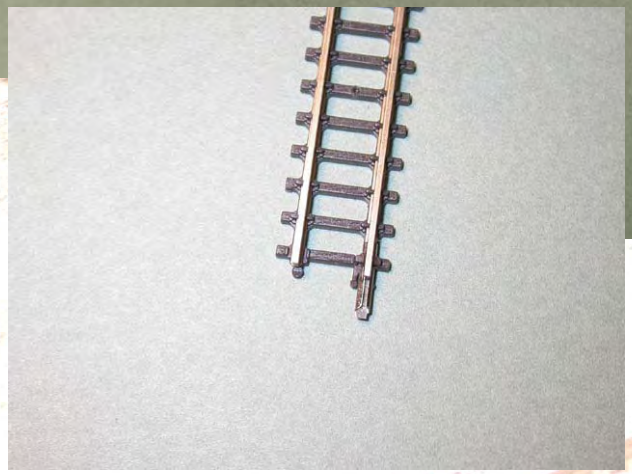
Nn3 Track can be generally categorized into the following:

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

Track



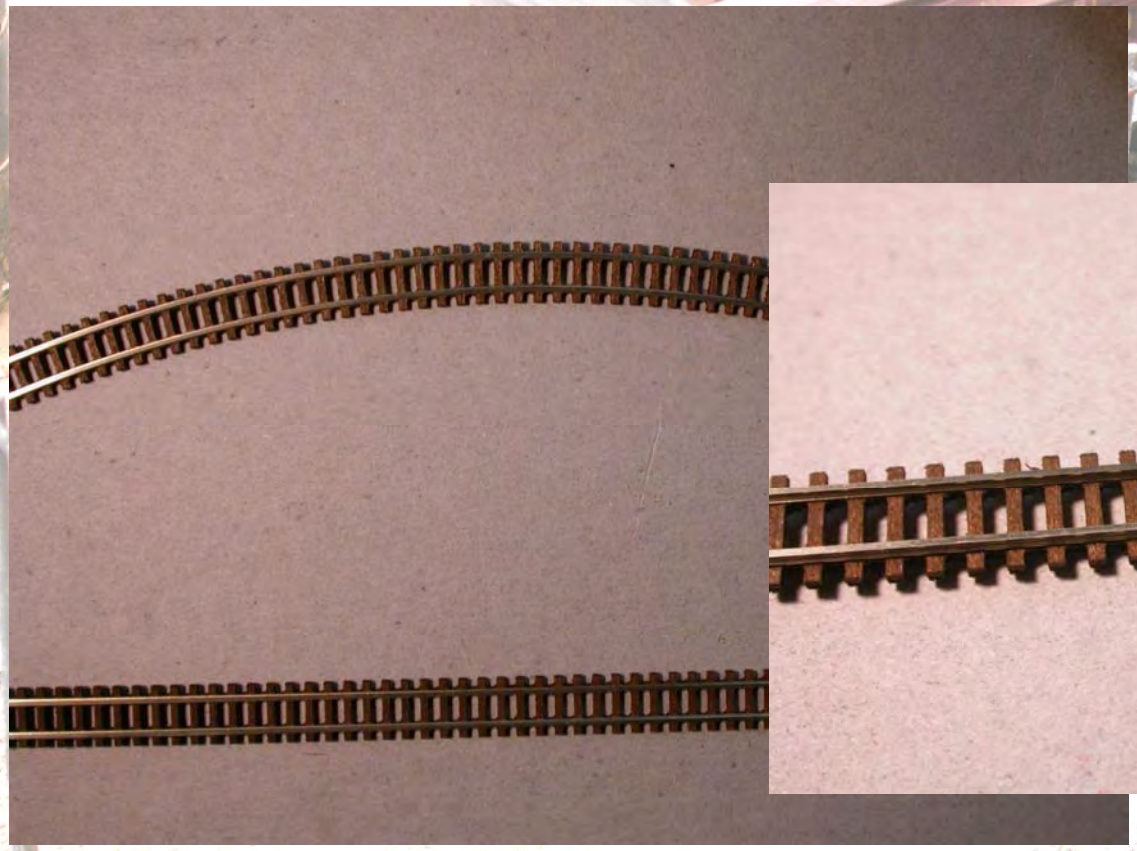


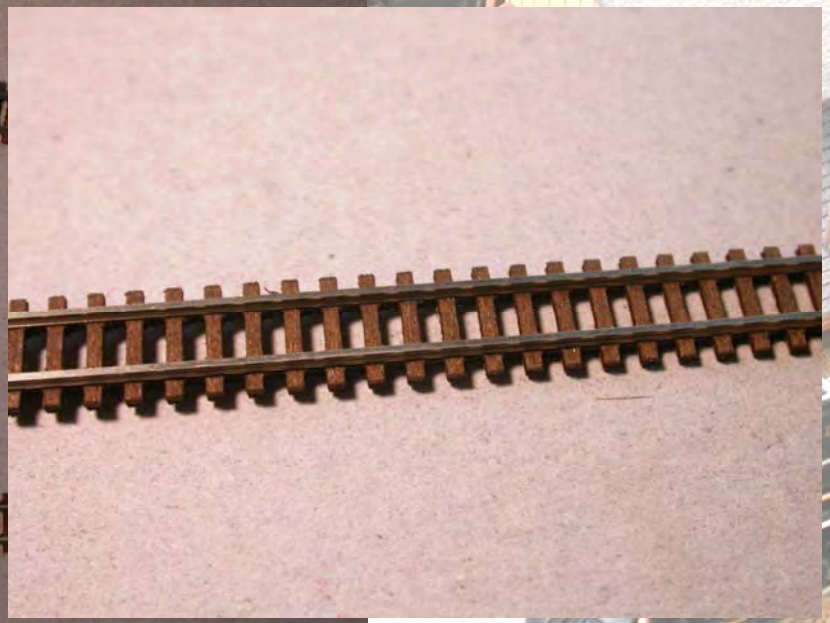


Marklin

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

Track – pre-fabricated sectional





JHM (Aspen)

Nickel-Silver rail bonded to laser-cut wood tie strips

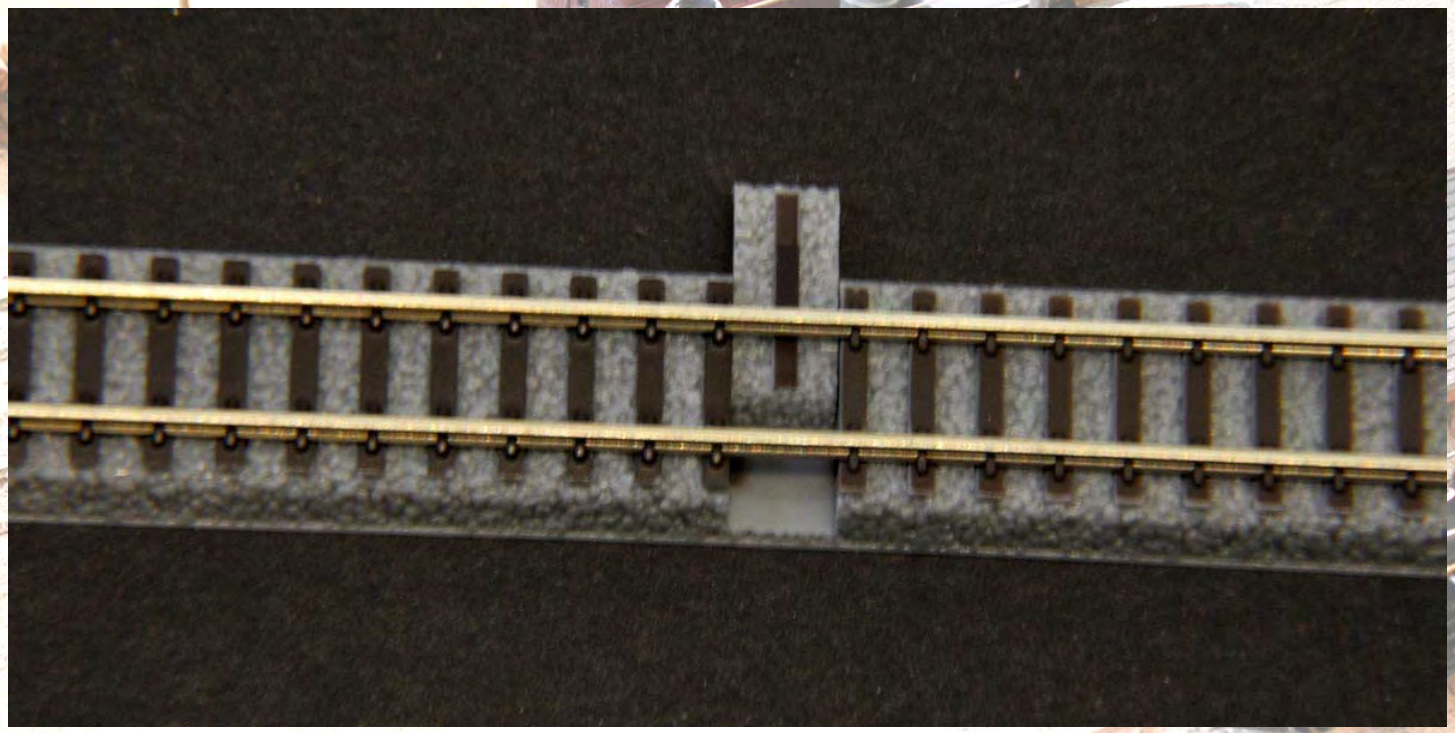
Code 40 and 55 – both 6.5mm and 4.5mm gauge (shown.)

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

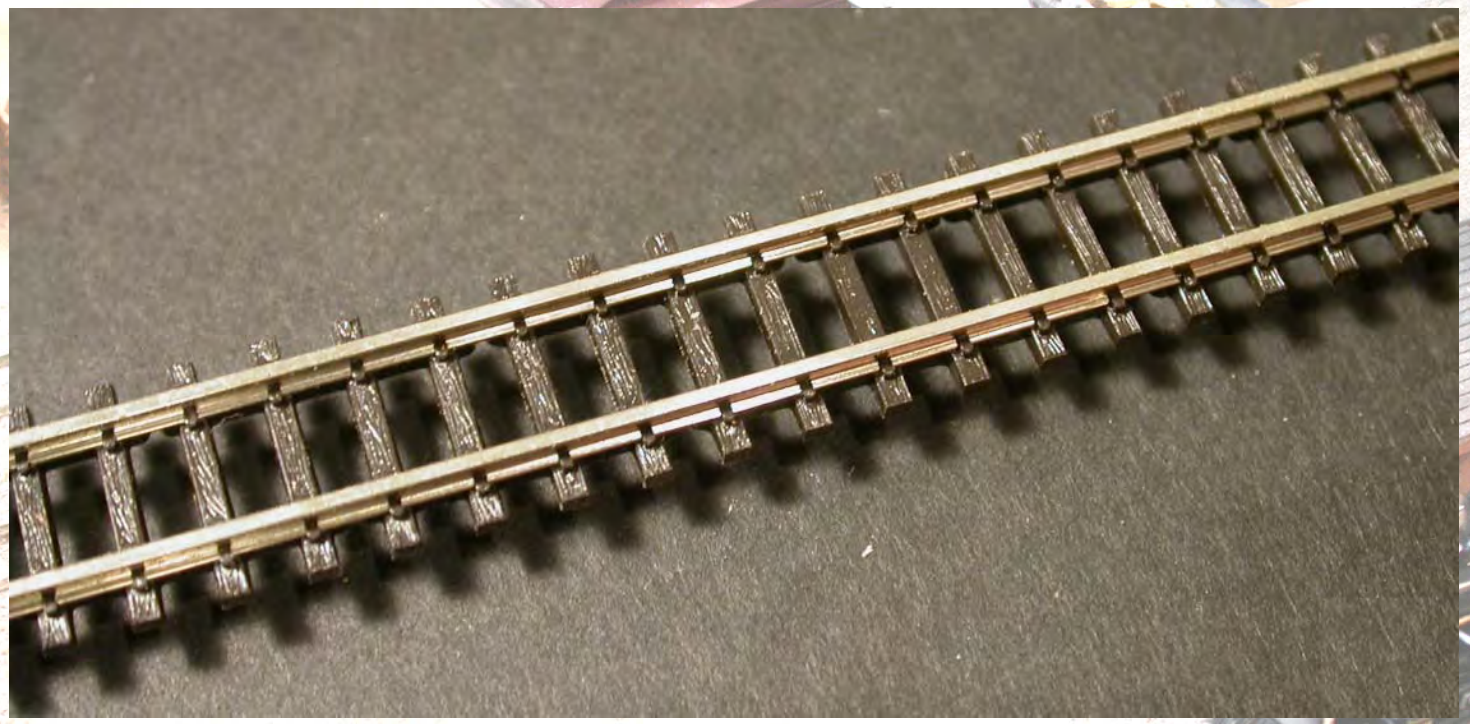
Commercial Pre-fabricated Sectional Track

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

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.

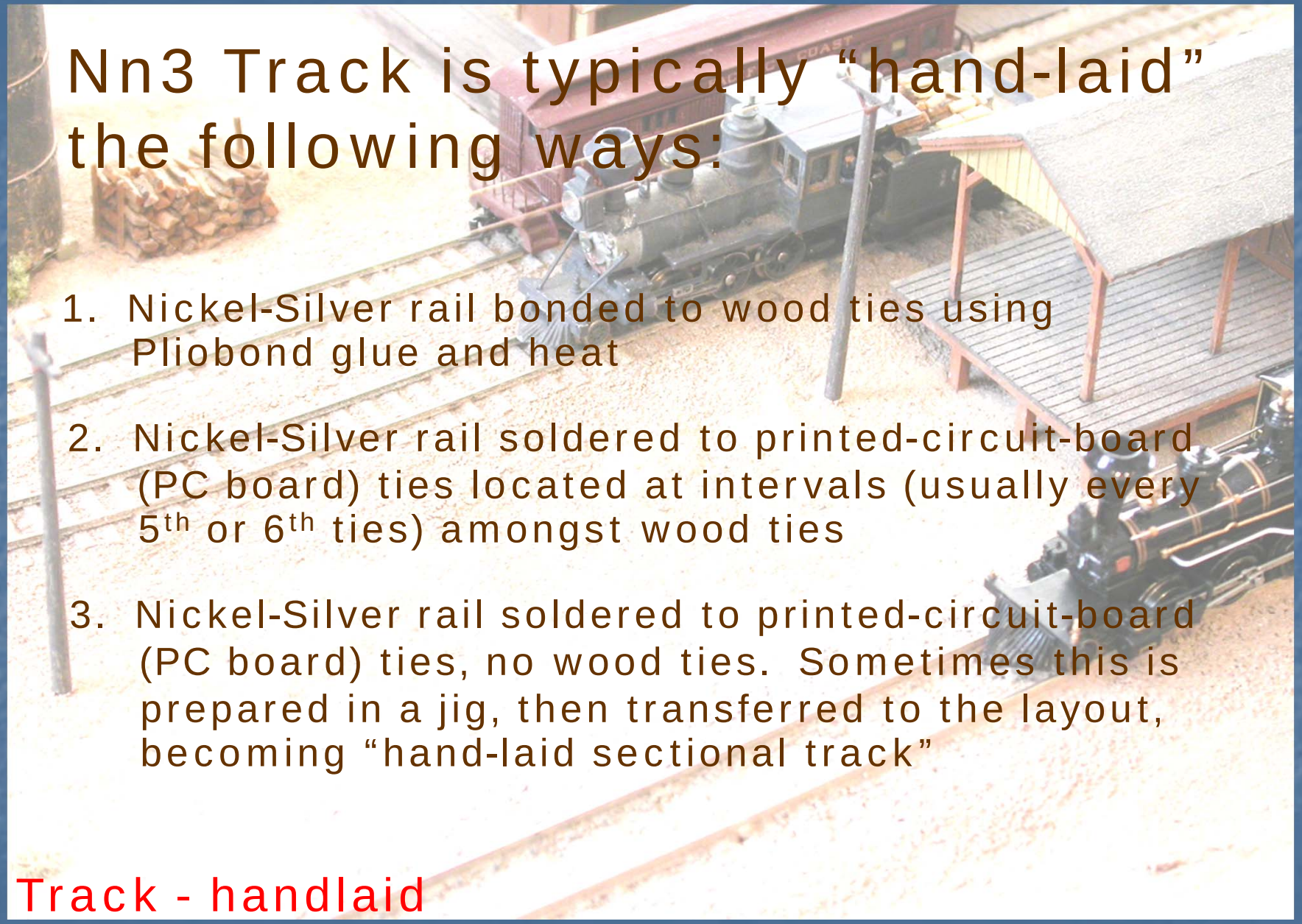
Track – prefabricated

PECO Rail, installed and ballasted

Track – prefabricated

Hand Laid Track

Track - handlaid



Nn3 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"

Track - handlaid

Nn3 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"

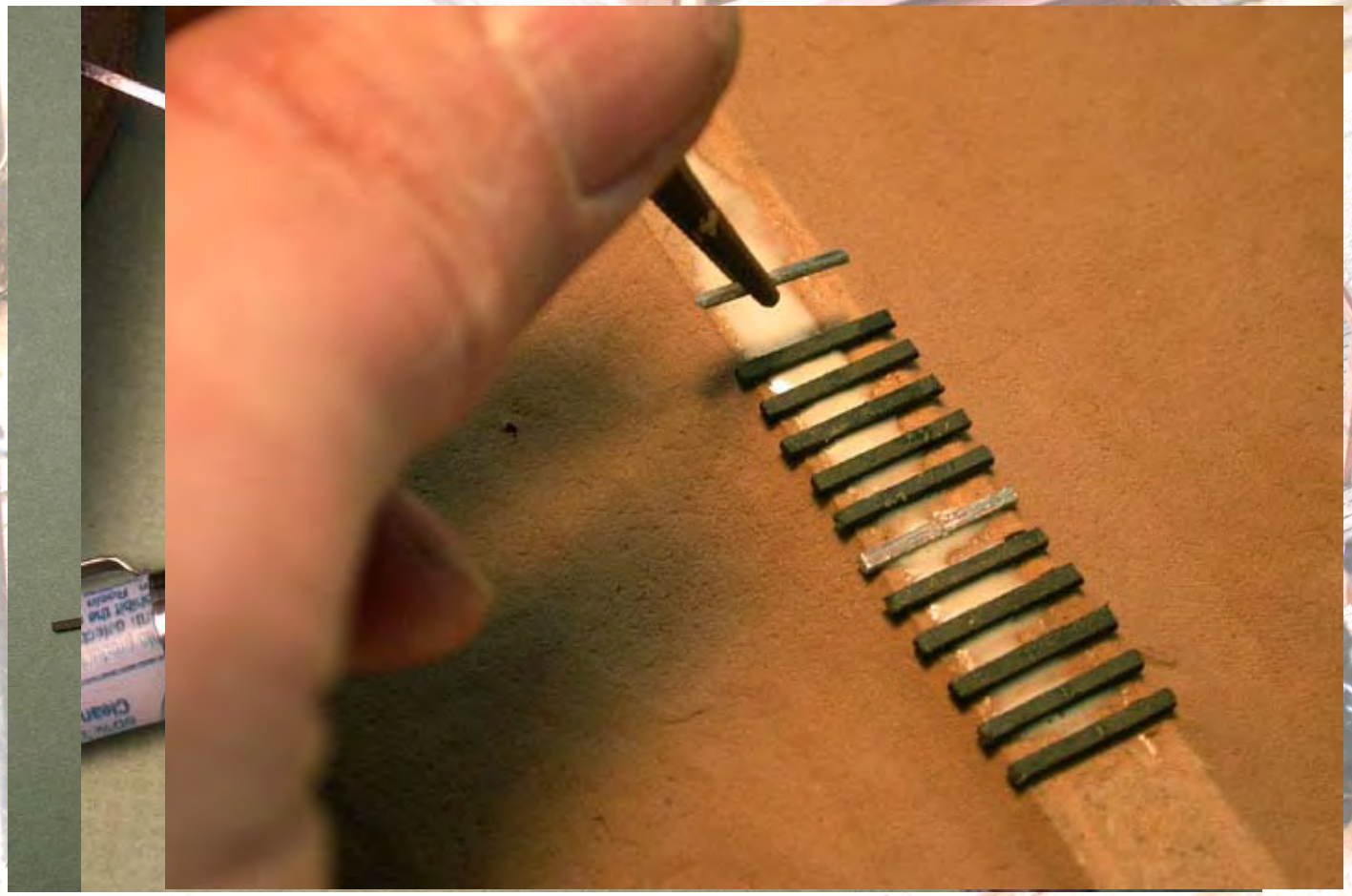
Track - handlaid

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

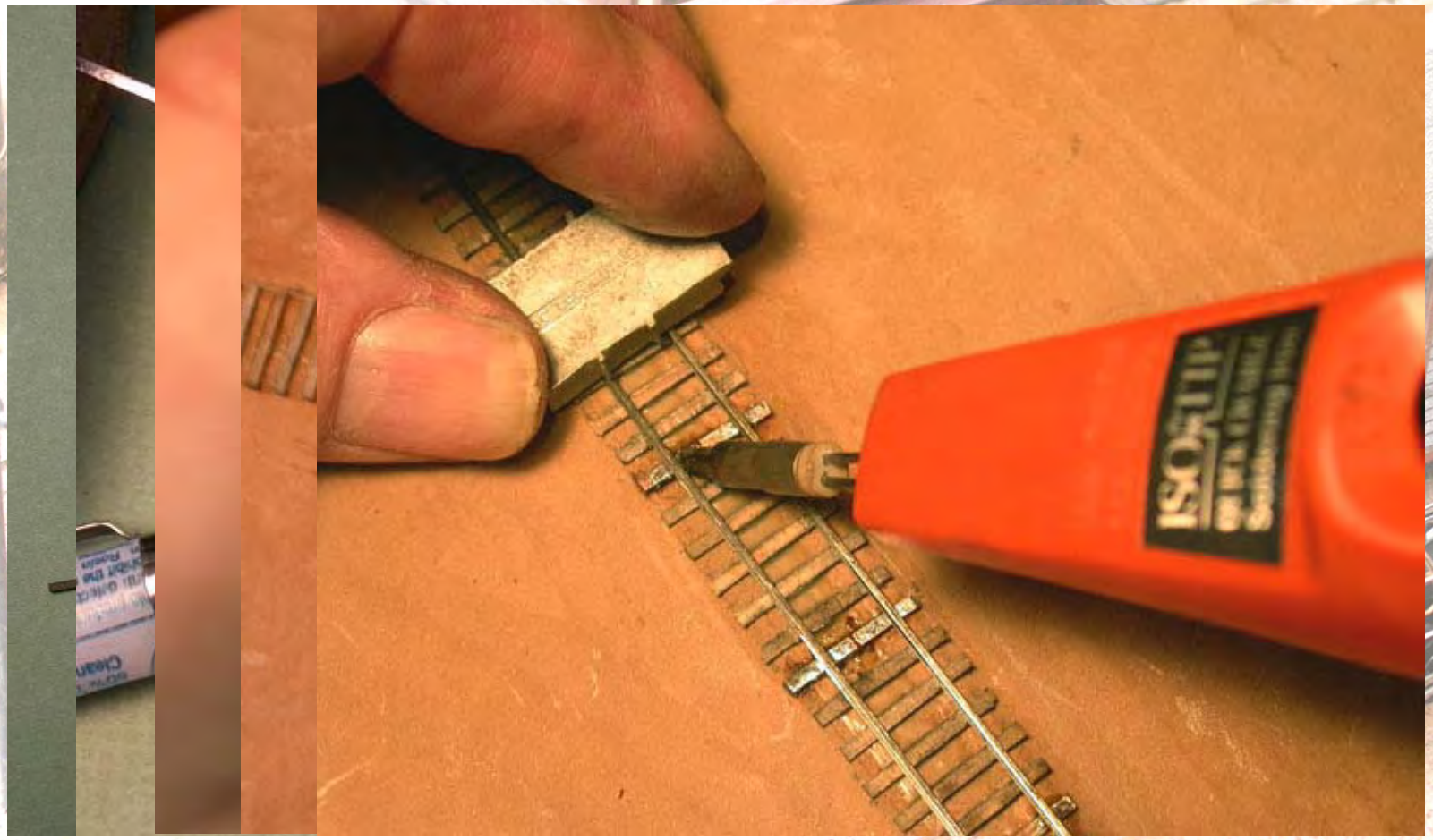


Nickel-Silver rail soldered to printed-circuit-board (PC board) ties located at intervals (usually every 5th or 6th ties) amongst wood ties

Track - handlaid

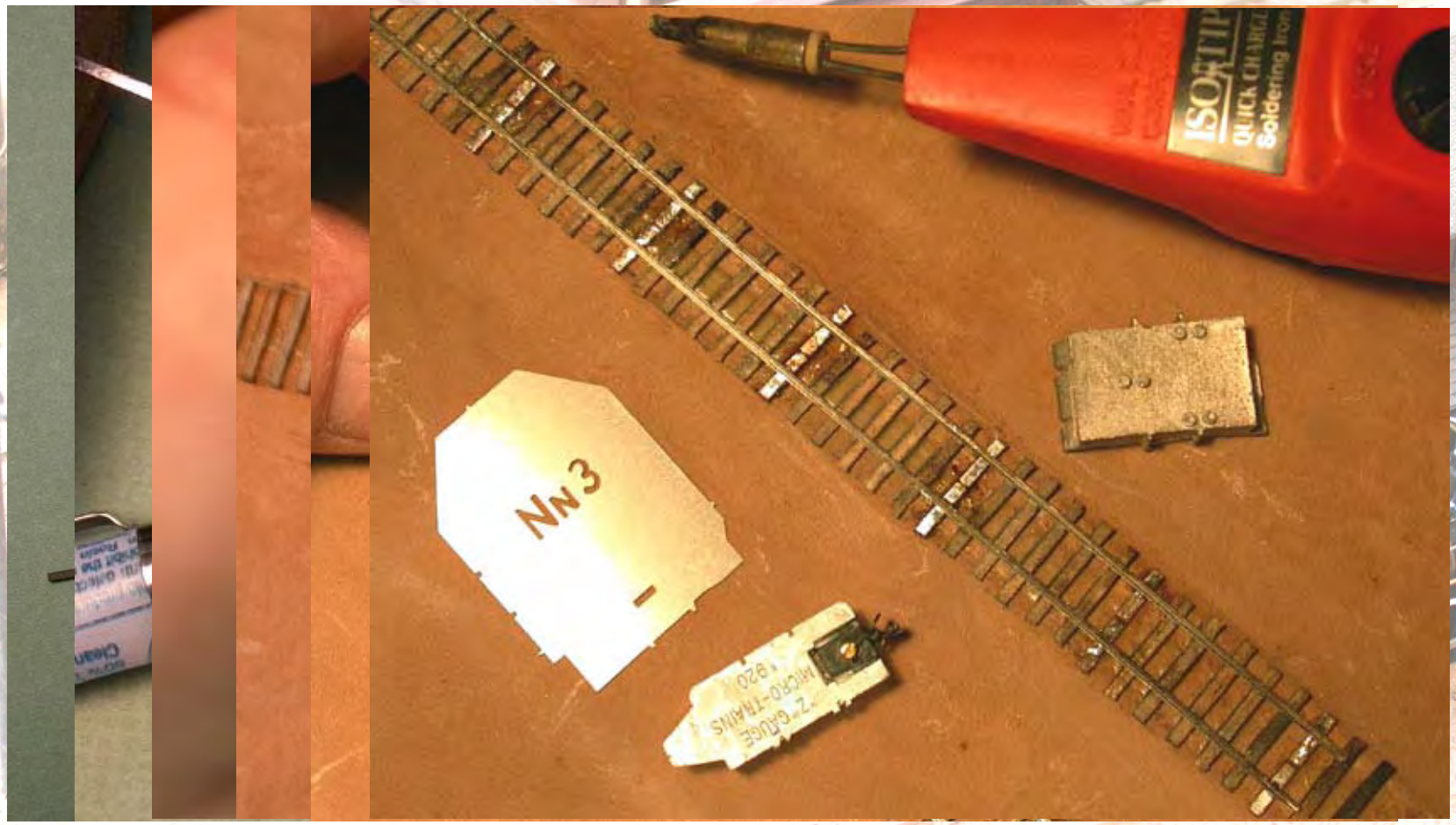
Nickel-Silver rail soldered to printed-circuit-board (PC board) ties located at intervals (usually every 5th or 6th ties) amongst wood ties

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

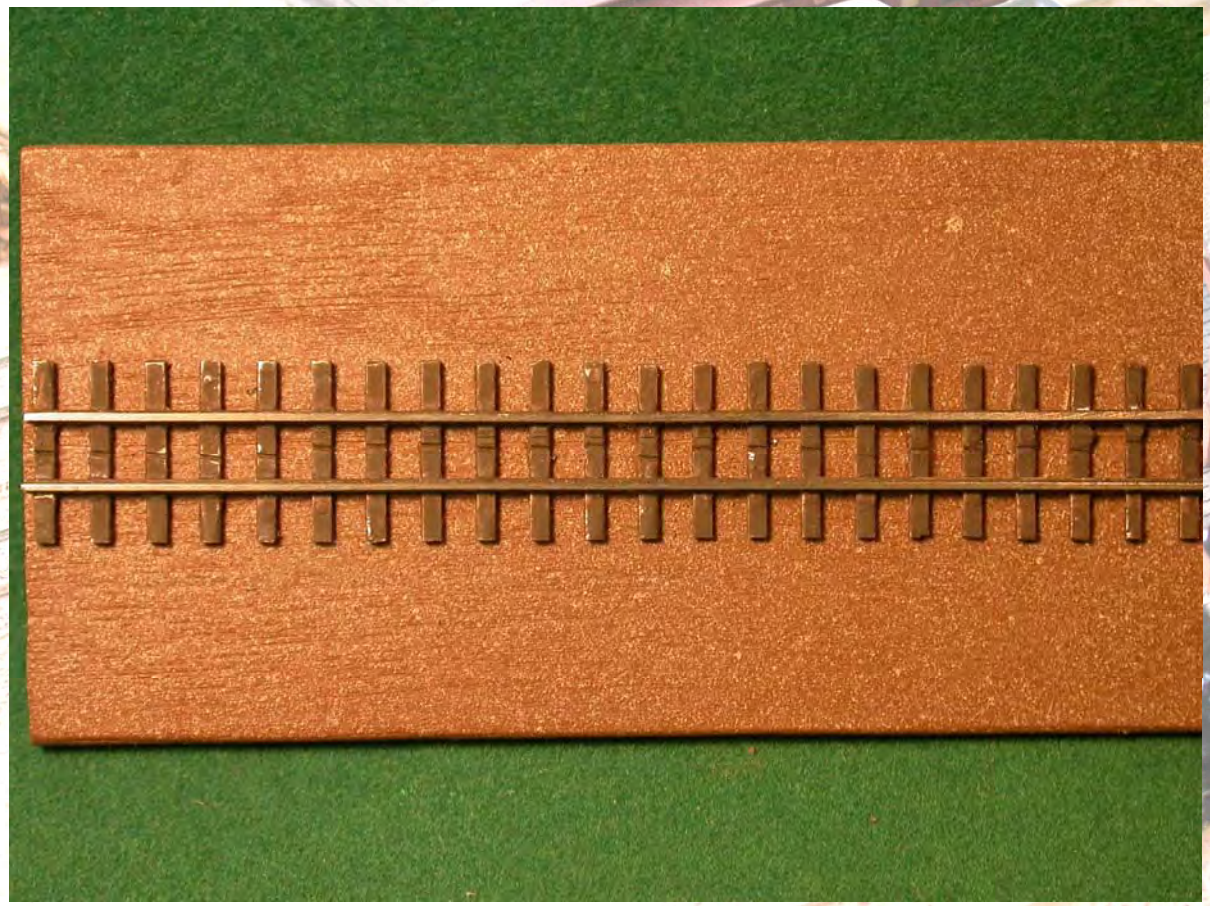


Nickel-Silver rail soldered to printed-circuit-board (PC board) ties located at intervals (usually every 5th or 6th ties) amongst wood ties

Track - handlaid

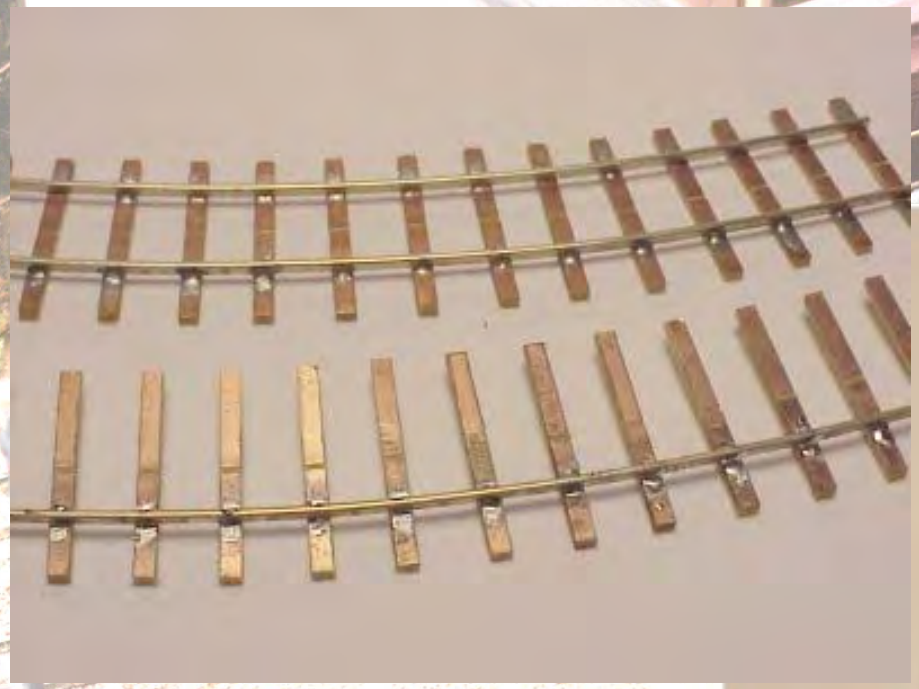
Track - handlaid

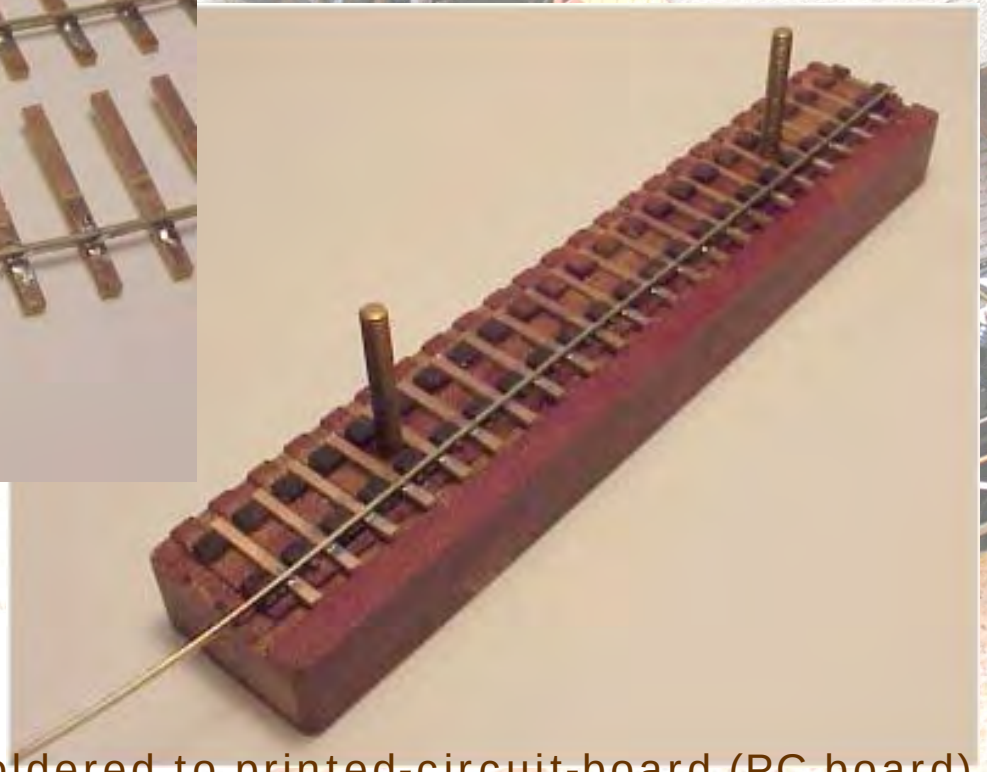
Track - handlaid



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

Track - handlaid



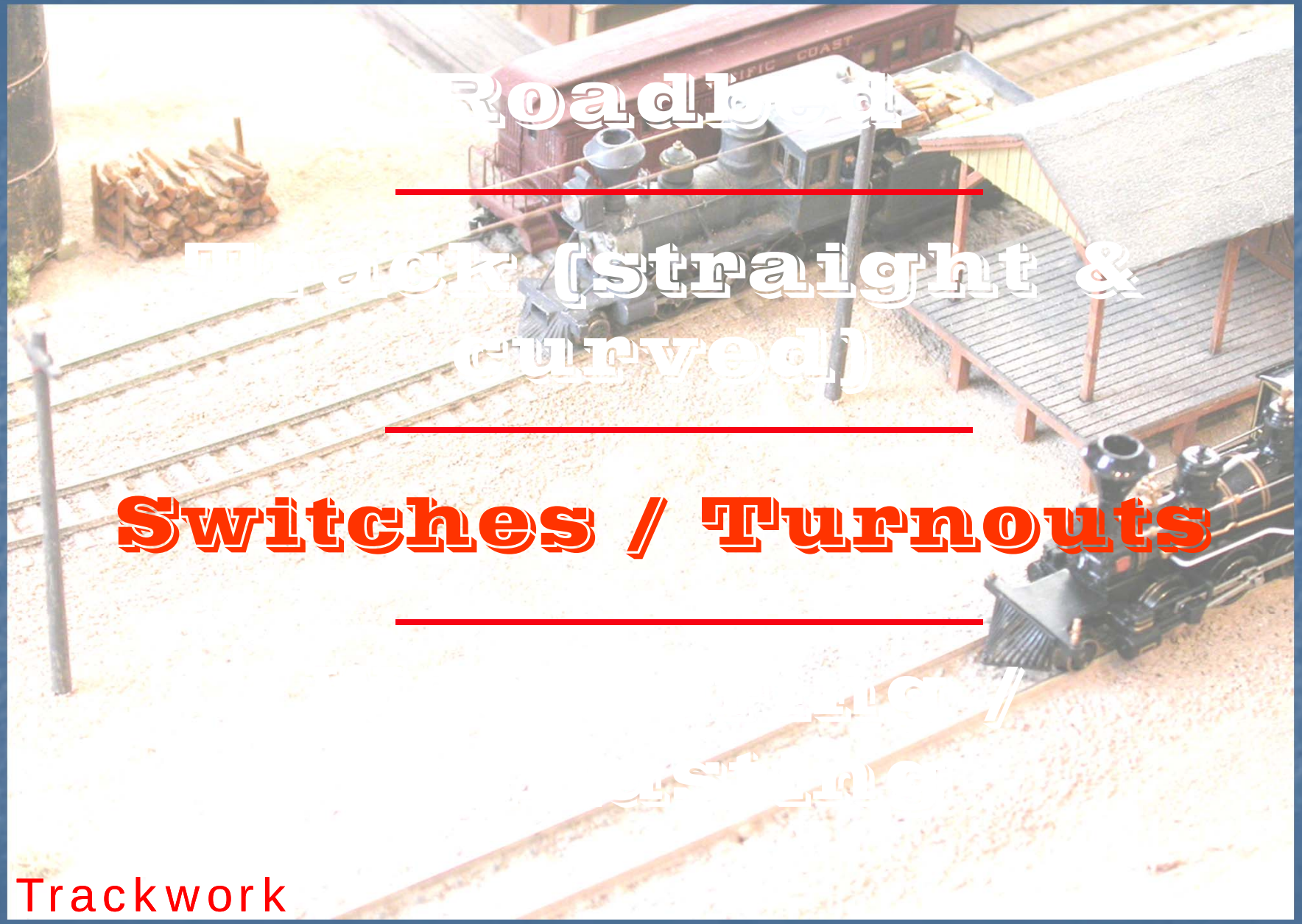


Nickel-Silver Code 30 rail soldered to printed-circuit-board (PC board) ties, no wood ties in jig for holding ties in position during soldering; note one rail only is soldered down in jig for curves – the remaining rail is soldered after laying track in place.

Track - handlaid

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

Trackwork



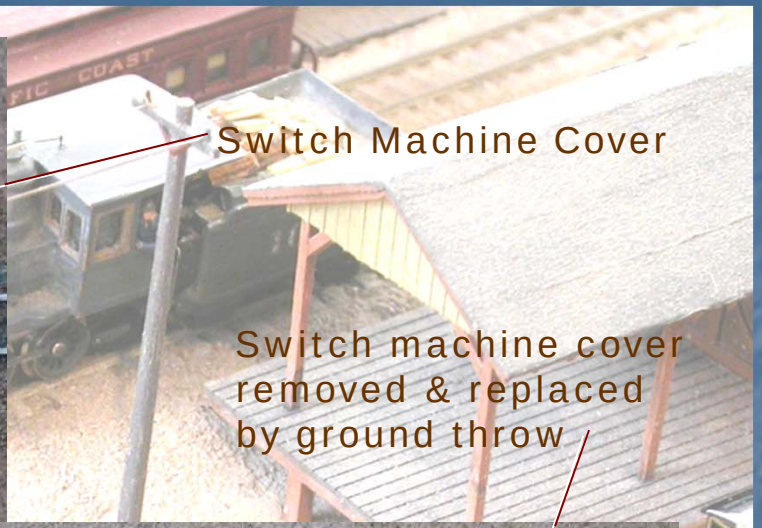
Switches / Turnouts

Trackwork

Nn3 Switches can be generally categorized into the following:

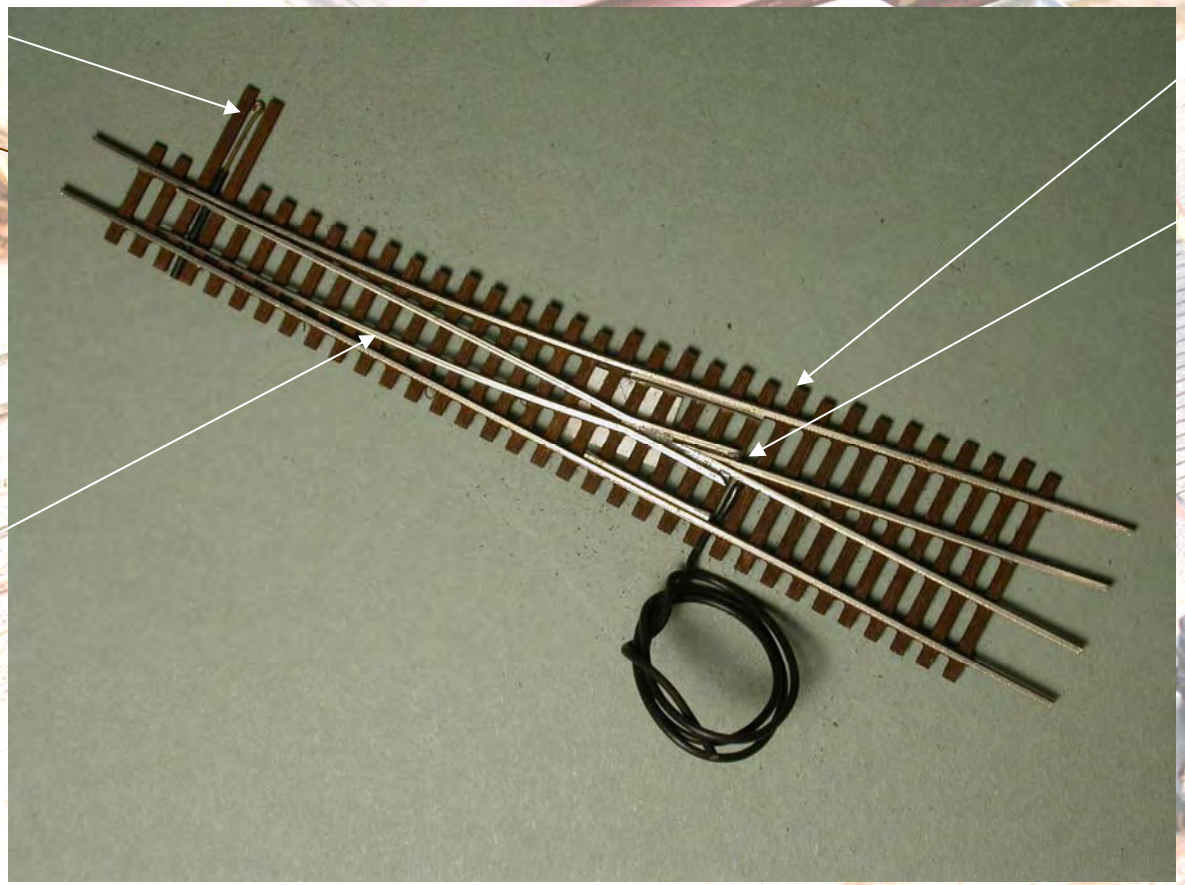
1. Pre-Fabricated (R-T-R)
2. “Skeleton” Kits
3. Jig-Built Hand-Laid
4. Hand-Laid

Switches



Marklin
Nickel-Silver rail in plastic tie strip; plastic frog

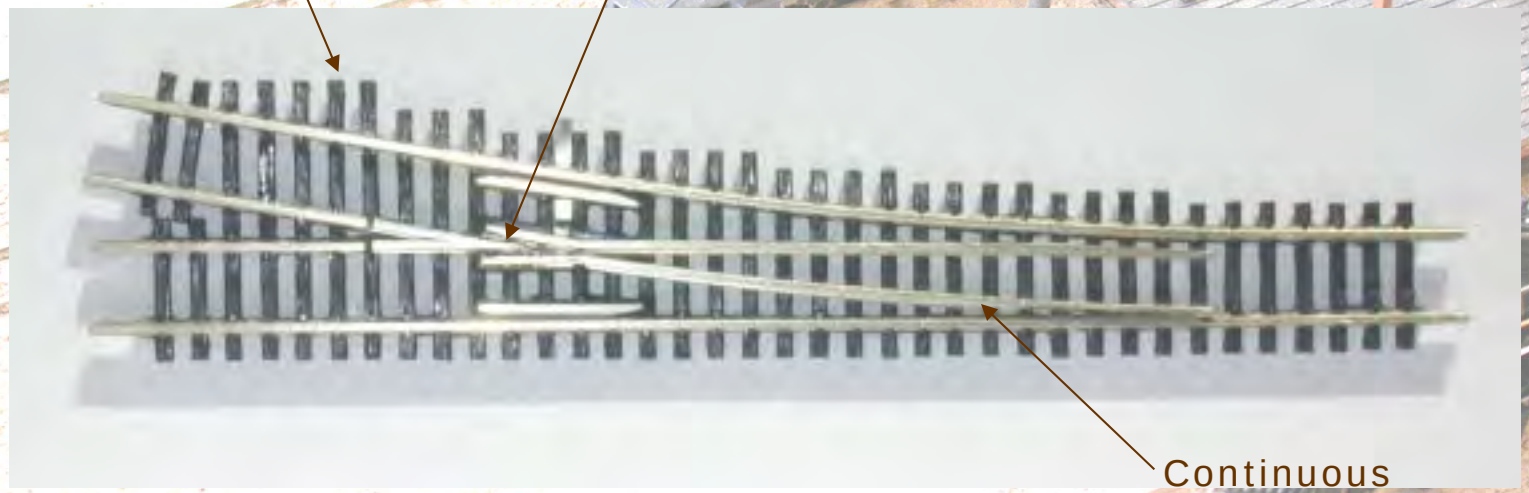
Switches – prefabricated “R-T-R”



JHM (Aspen)

Nickel-Silver rail bonded to laser-cut wood tie strips – both 6.5mm and 4.5mm gauge.

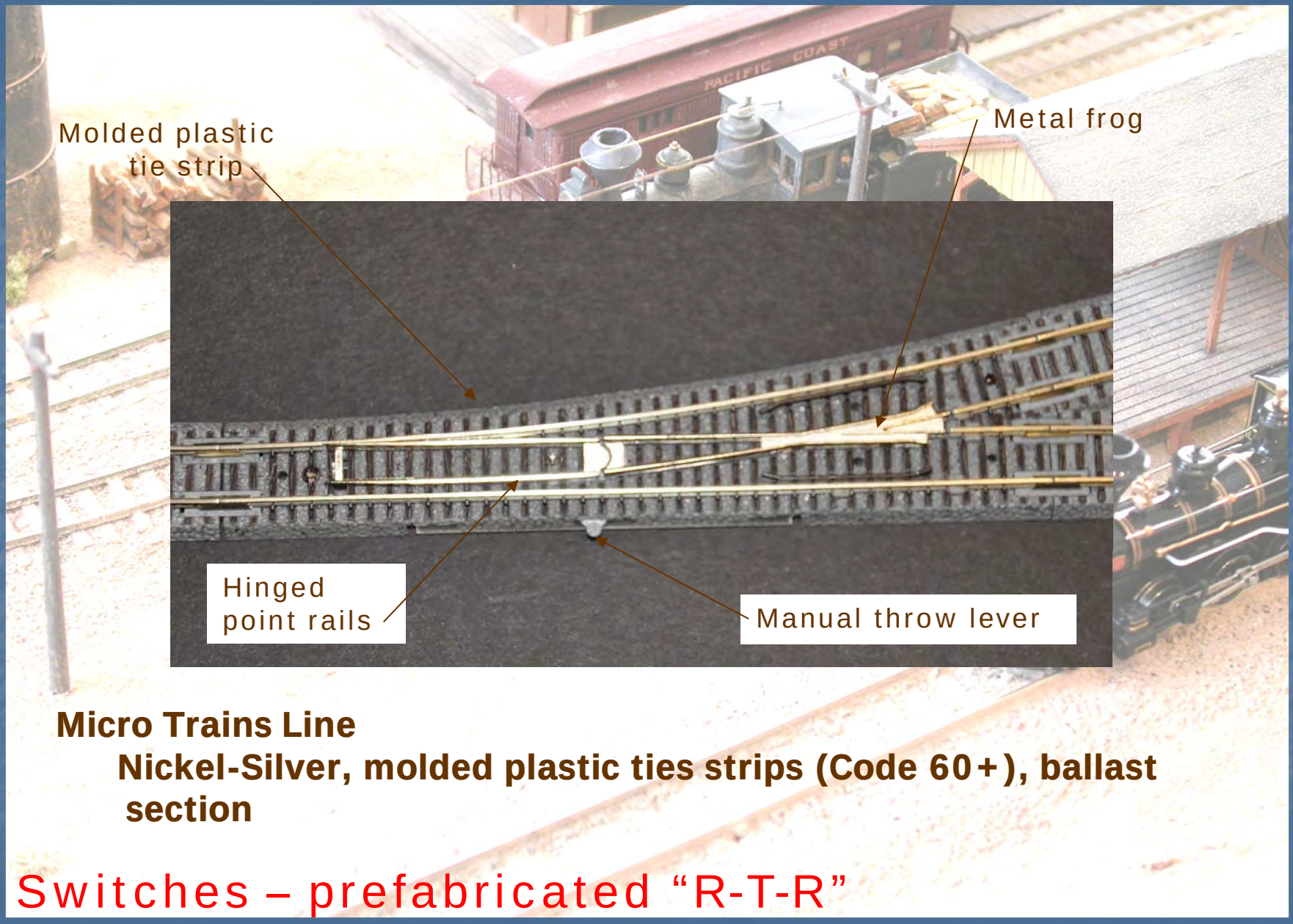
Switches – prefabricated “R-T-R”



Peter Wright

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

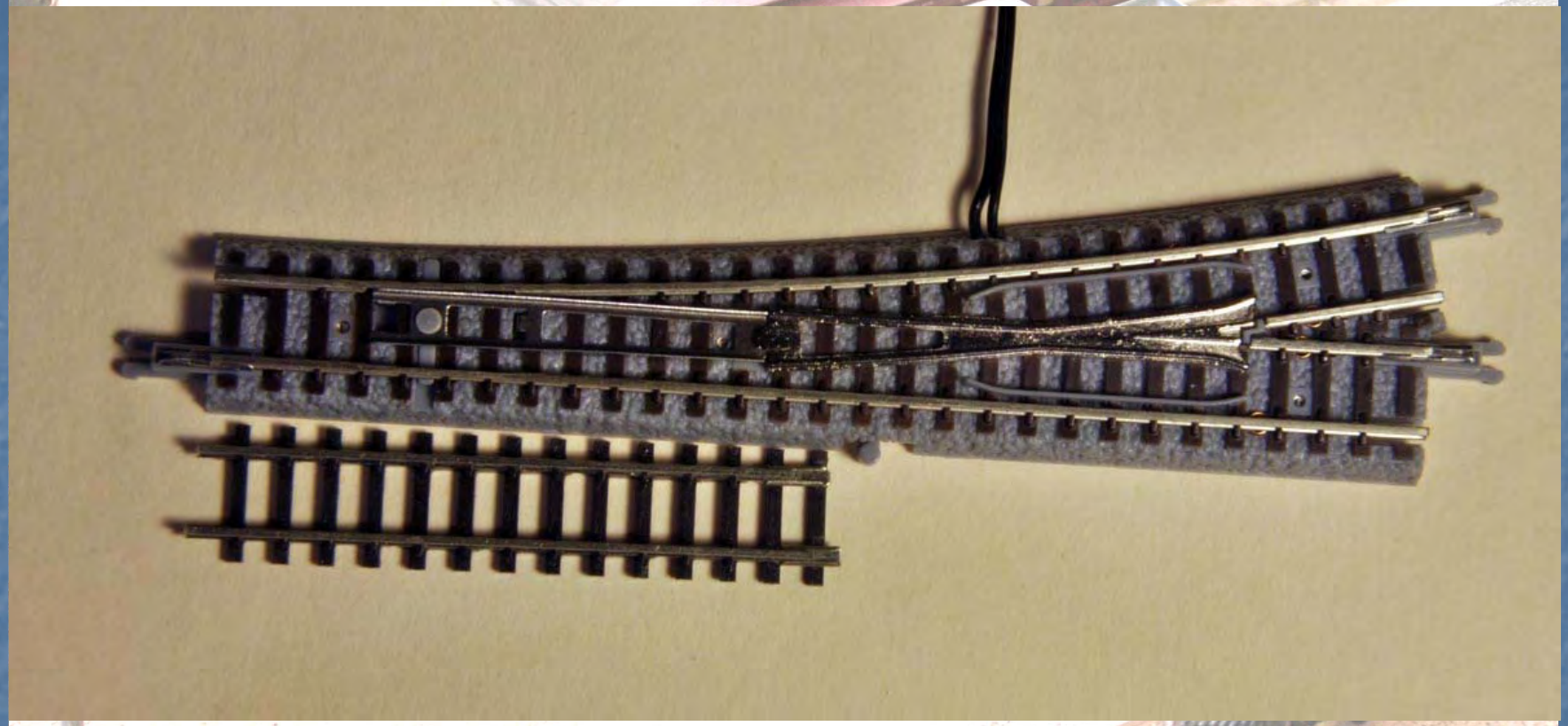
Switches – prefabricated “R-T-R”



Micro Trains Line

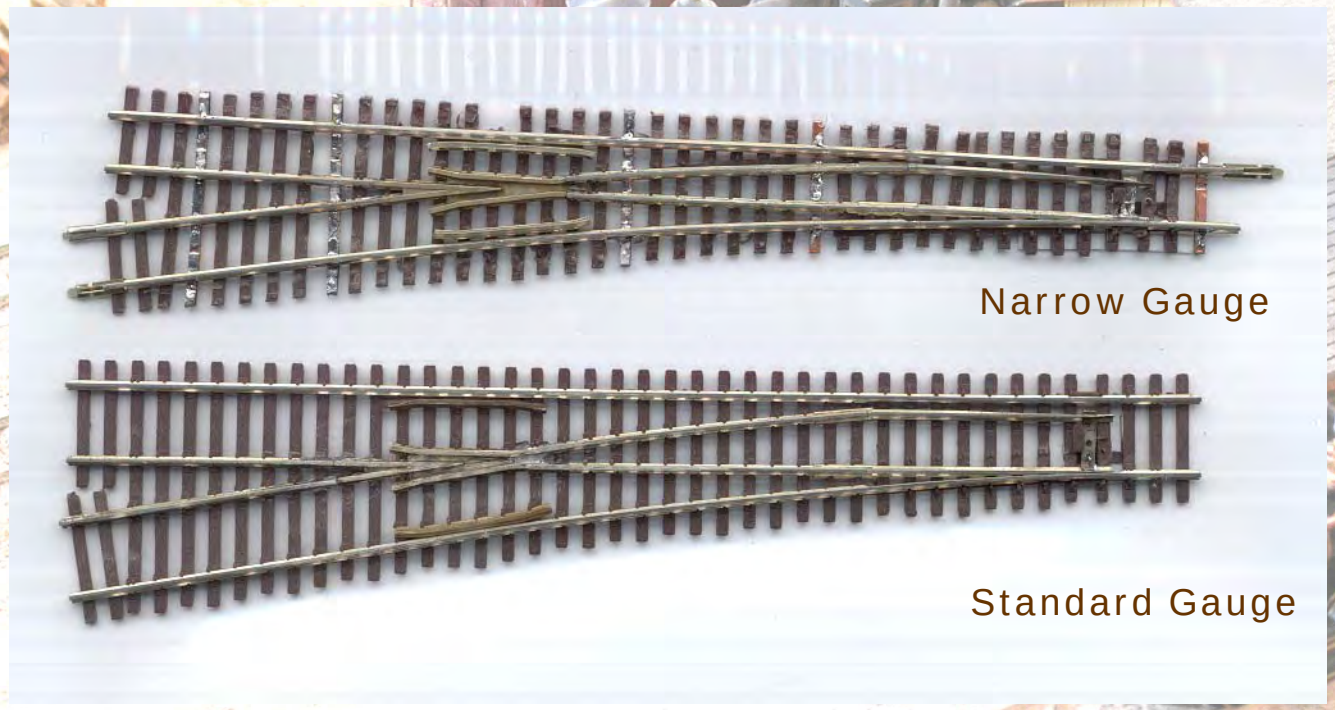
Nickel-Silver, molded plastic ties strips (Code 60+), ballast section

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)

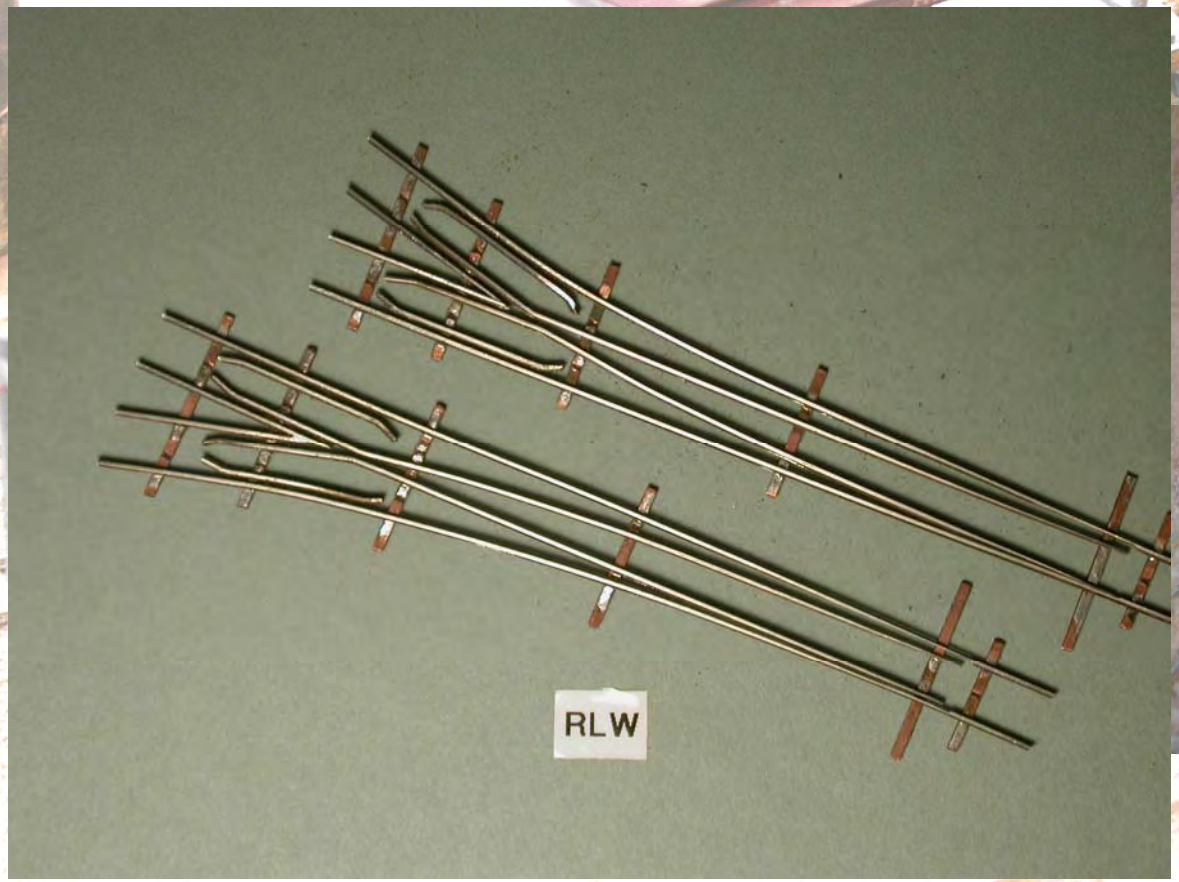
Switches – pre-fabricated "R-T-R"

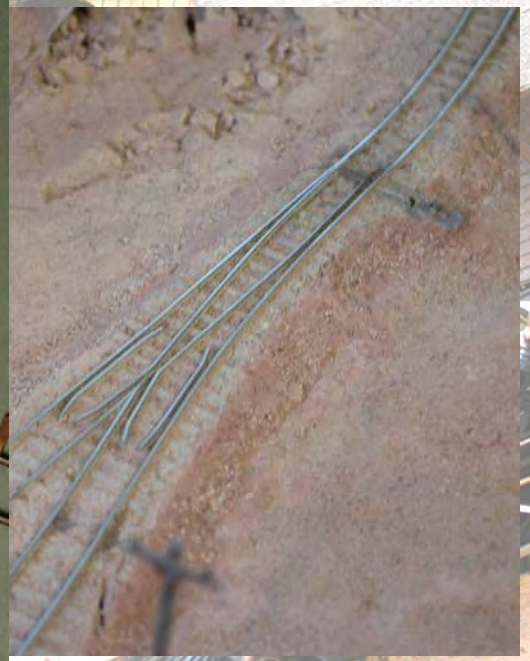


Micro Engineering Code 55, converted to Nn3 by Garth Hamilton

Nickel-Silver rail in molded plastic tie strips

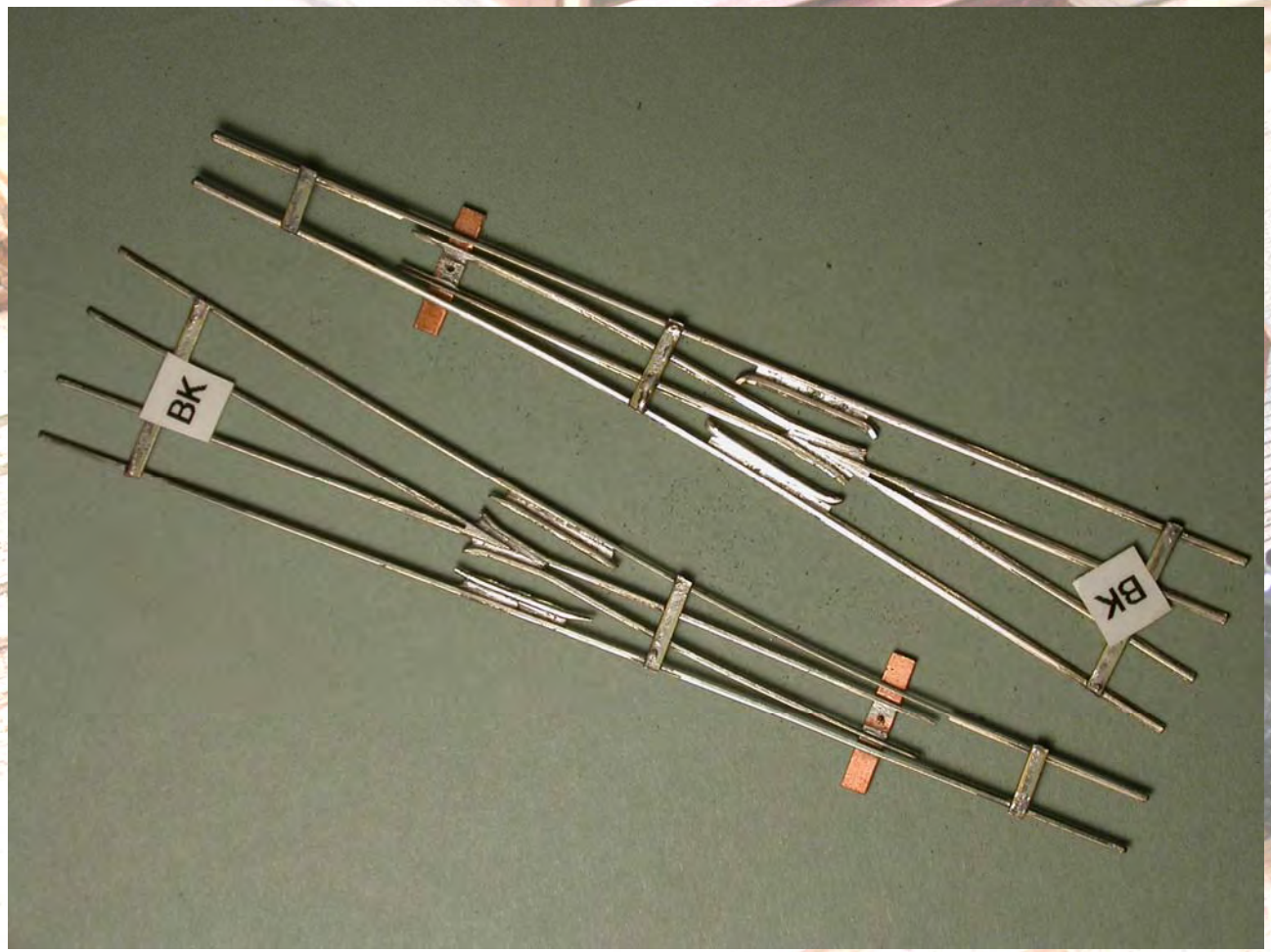
Switches – prefabricated - ALMOST “R-T-R”





Republic Locomotive Works
Weathered Code 40 Nickel-Silver rail

Switches – “skeleton” kits



BK Industries
Code 40 & 55 Nickel-Silver rail

Switches – “skeleton” kits

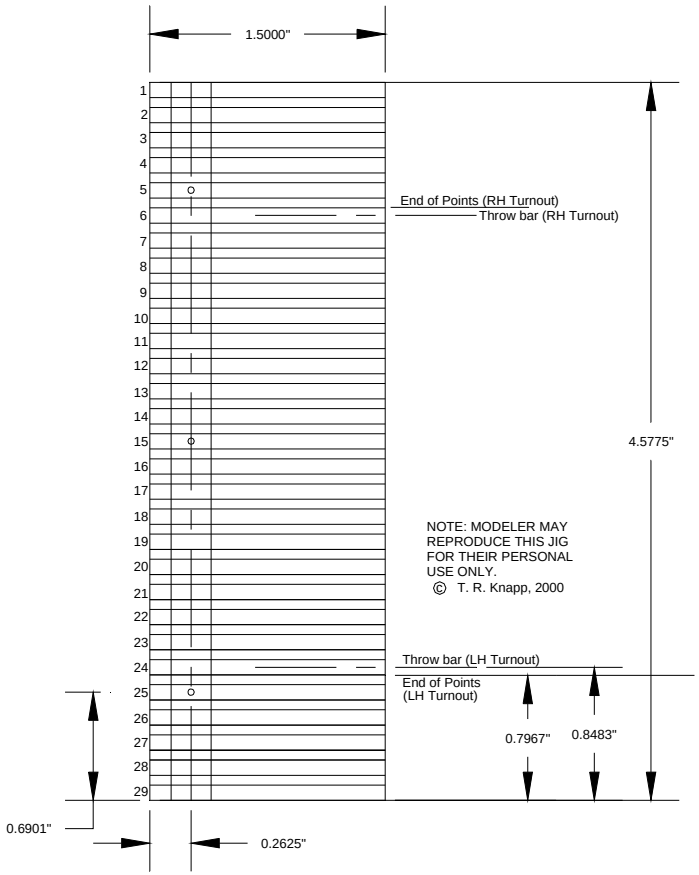
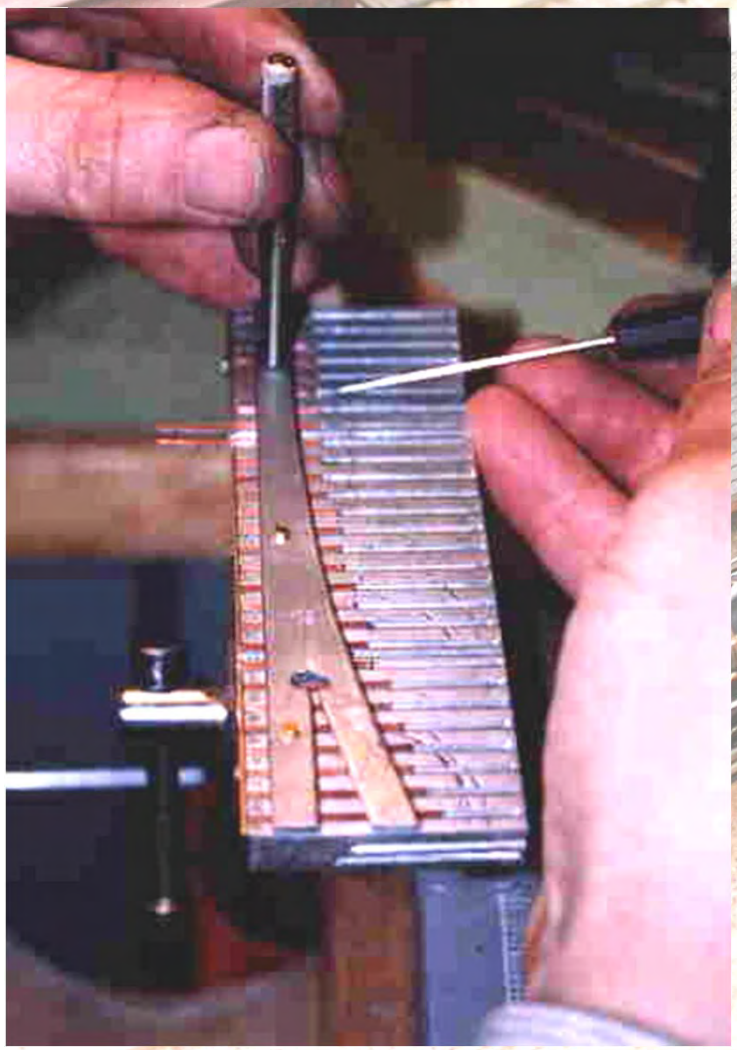
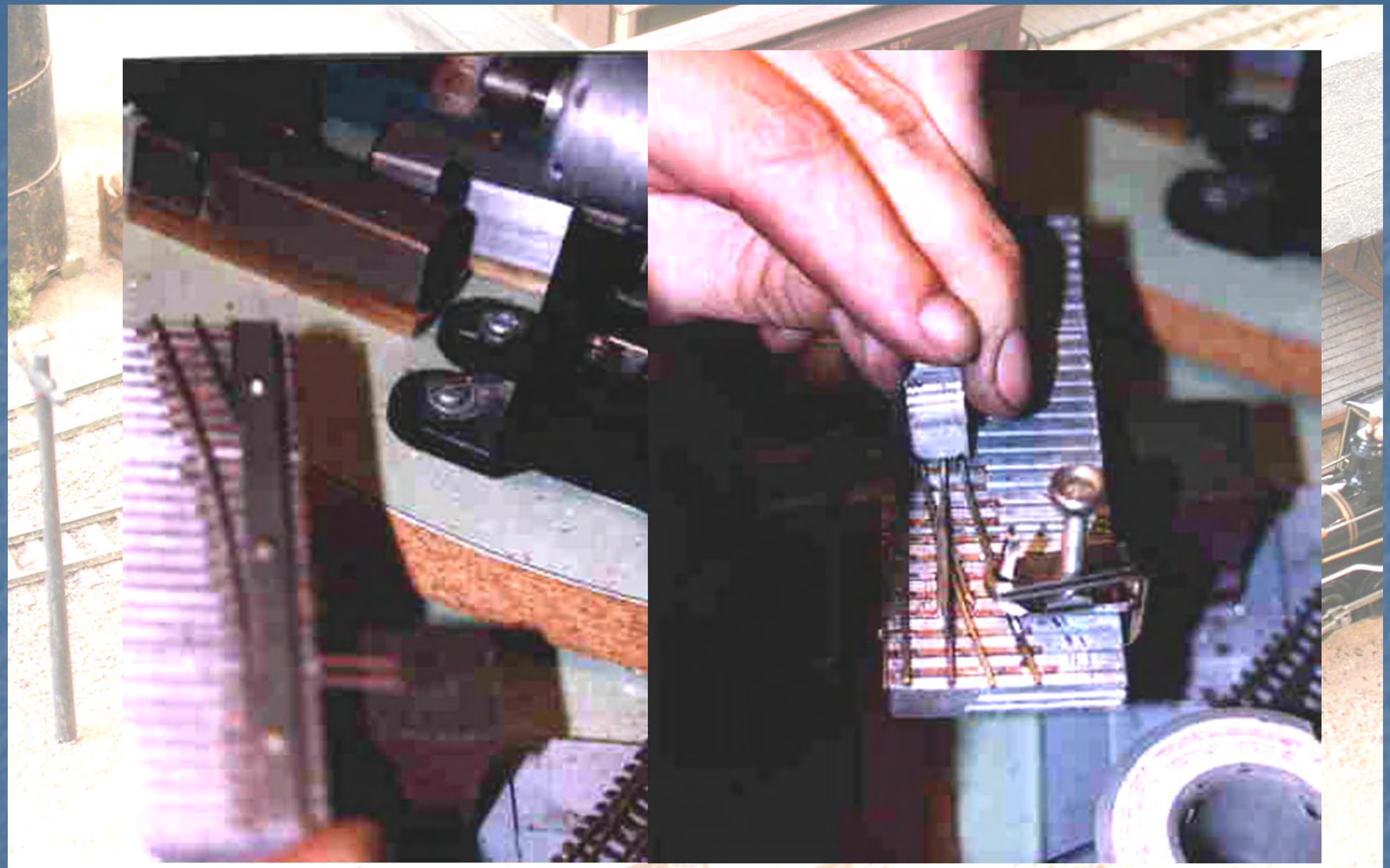


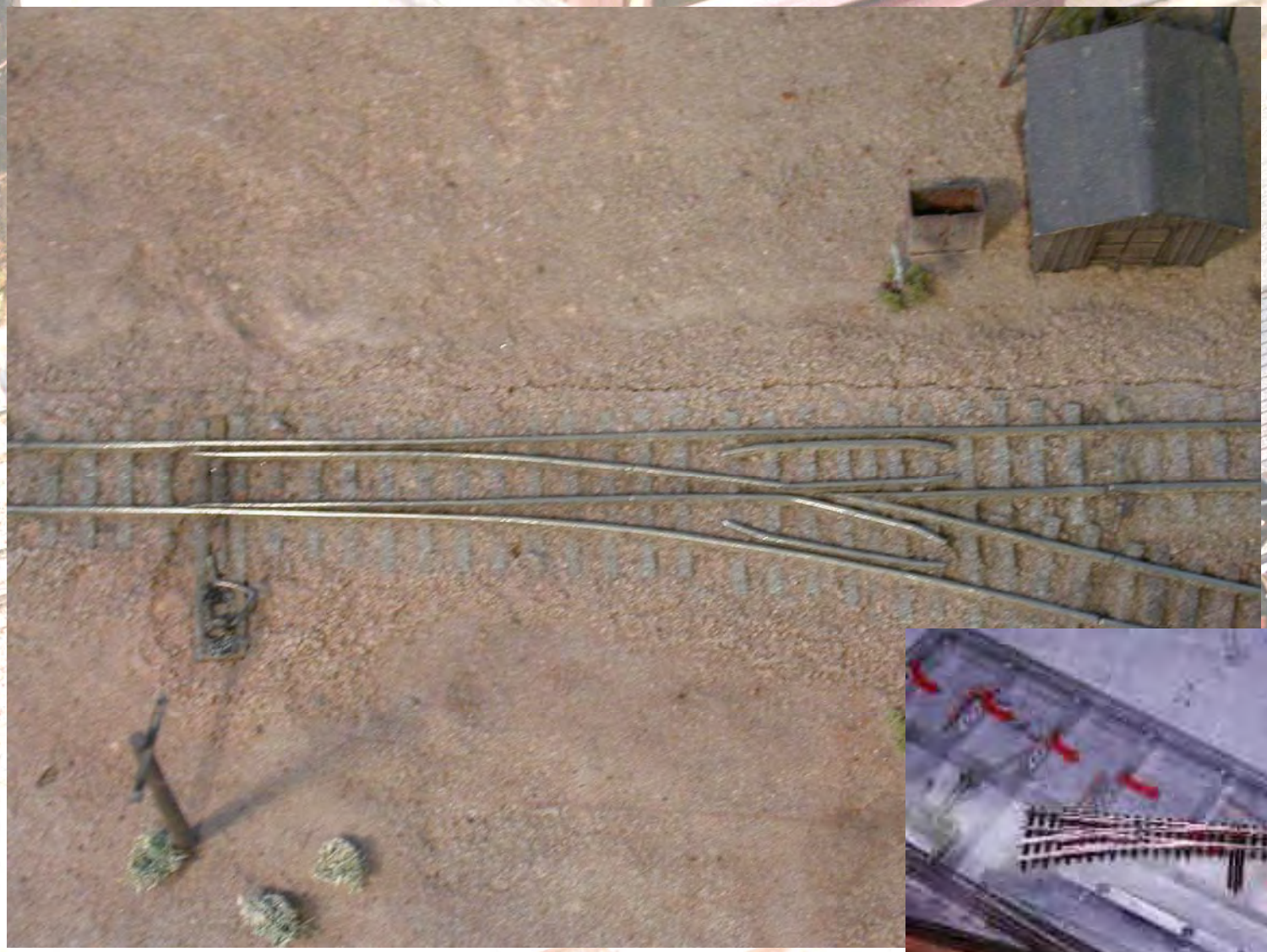
FIGURE 3: TURNOUT ASSEMBLY JIG

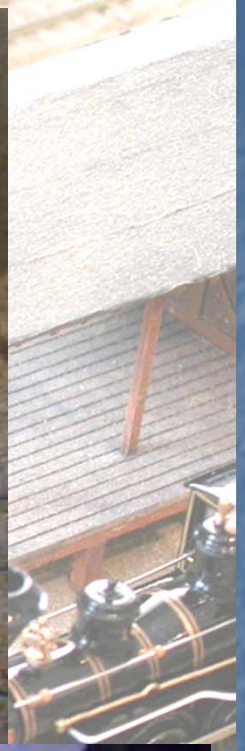


Switches – jig-built hand-laid

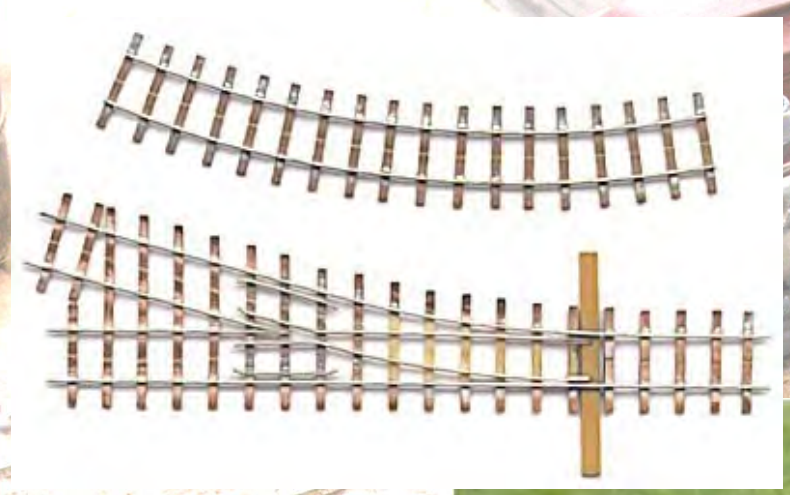


Switches – jig-built hand-laid





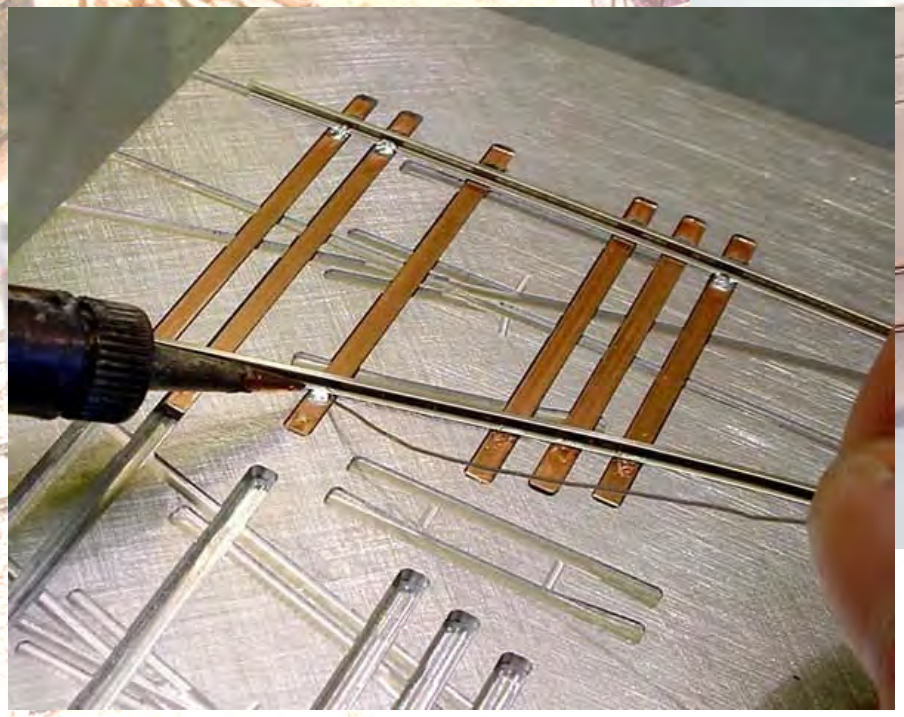
Switches – jig-built hand-laid

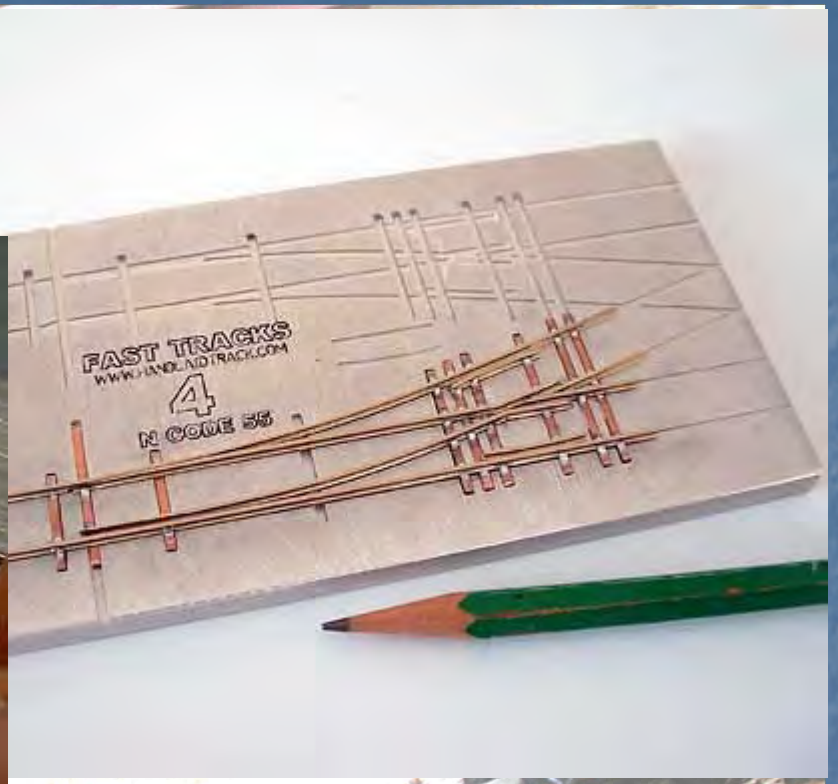


Nickel-Silver rail soldered to printed-circuit-board (PC board) ties in a jig, then transferred to the layout.

(Welsh narrow gauge, by Mark Fielder, UK.)

Switches – jig-built hand-laid





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

Switches

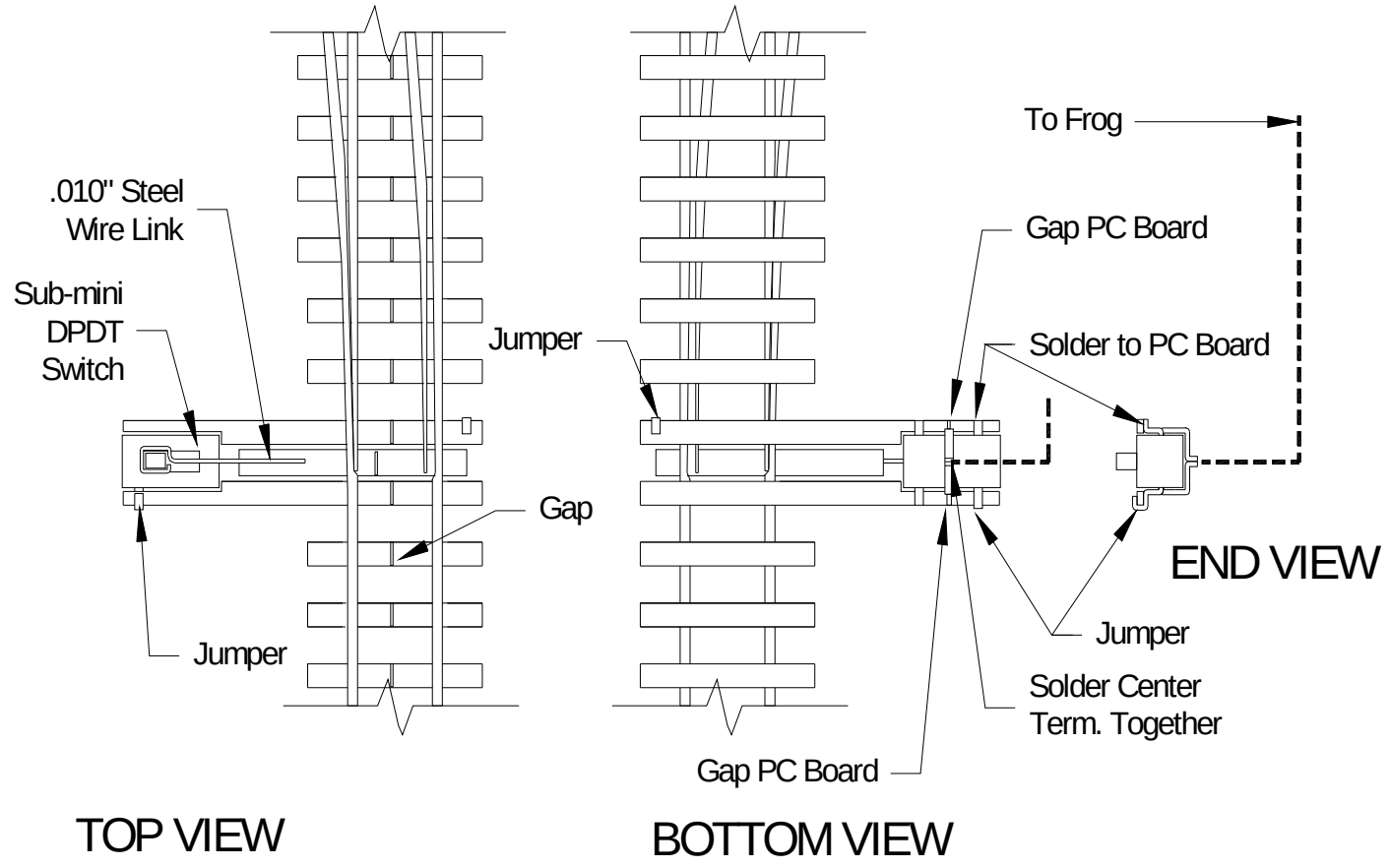
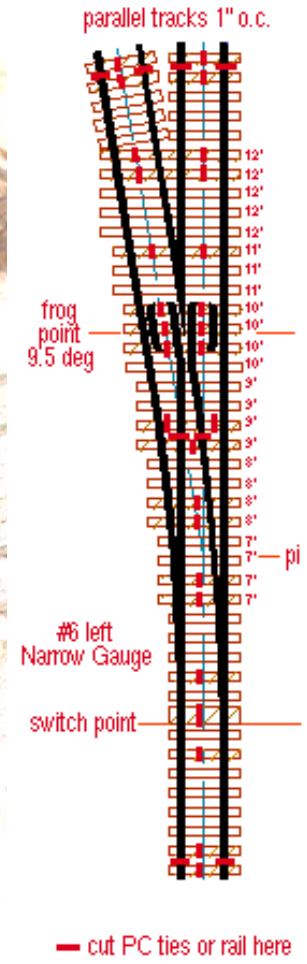
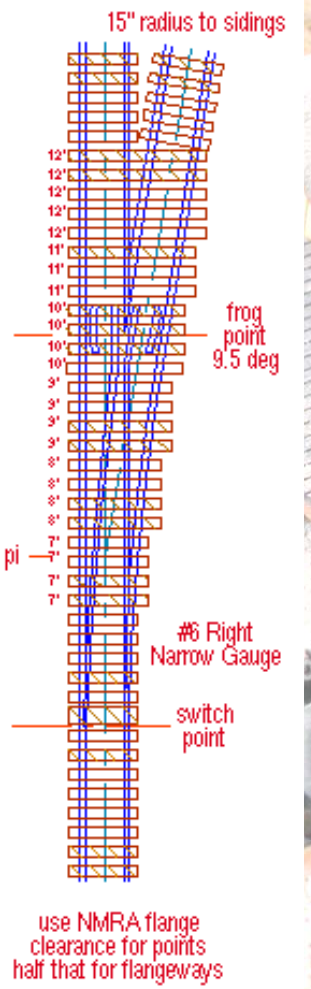


FIGURE 5: GROUND THROW

Switches – ground throws

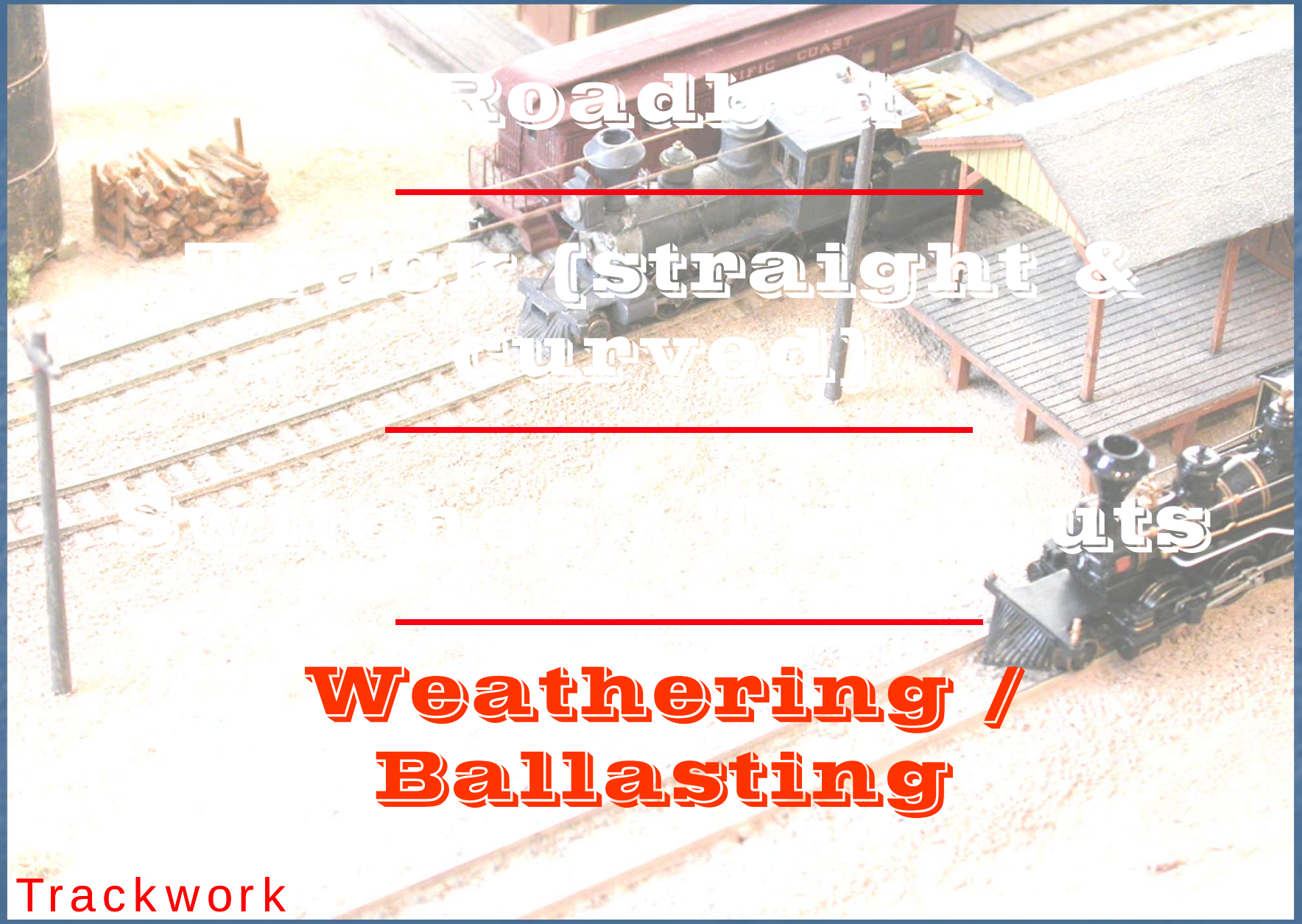


Pacific Desert Lines 7/30/96			Bill of ties #6n3 turnout	
Put 6' ties on left side to start left turnout. Reverse sequence for rt turnout.				
Tie length	Amount	Each	Material	
6 foot	14	2	PC board	
		4	Wood	
		1	PC board	
		1	Wood	
		1	WIDE	sw pts
		1	Wood	
		1	PC board	
		3	Wood	
7 foot	4	2	PC board	
		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



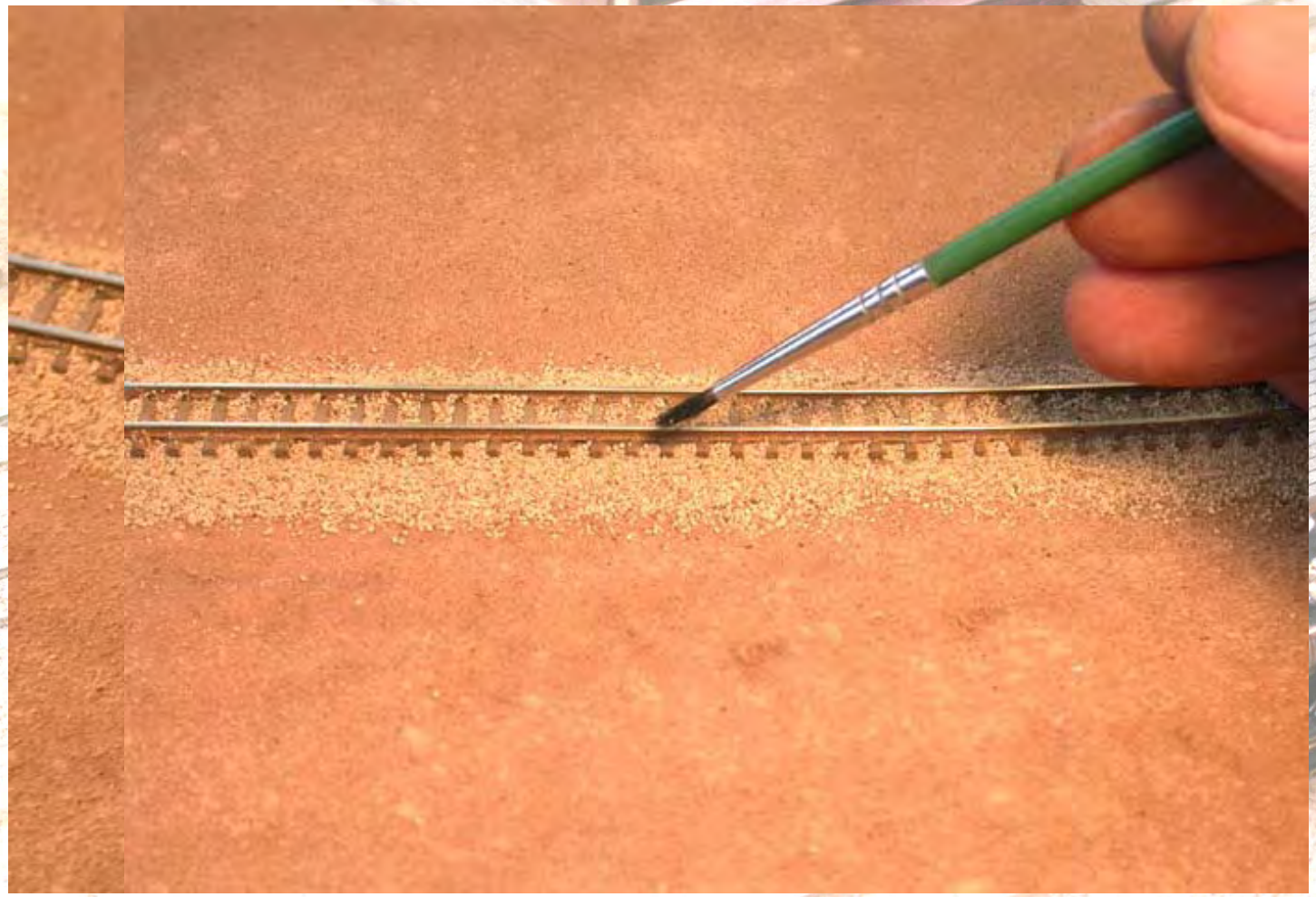
Trackwork

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

Weathering / Ballasting

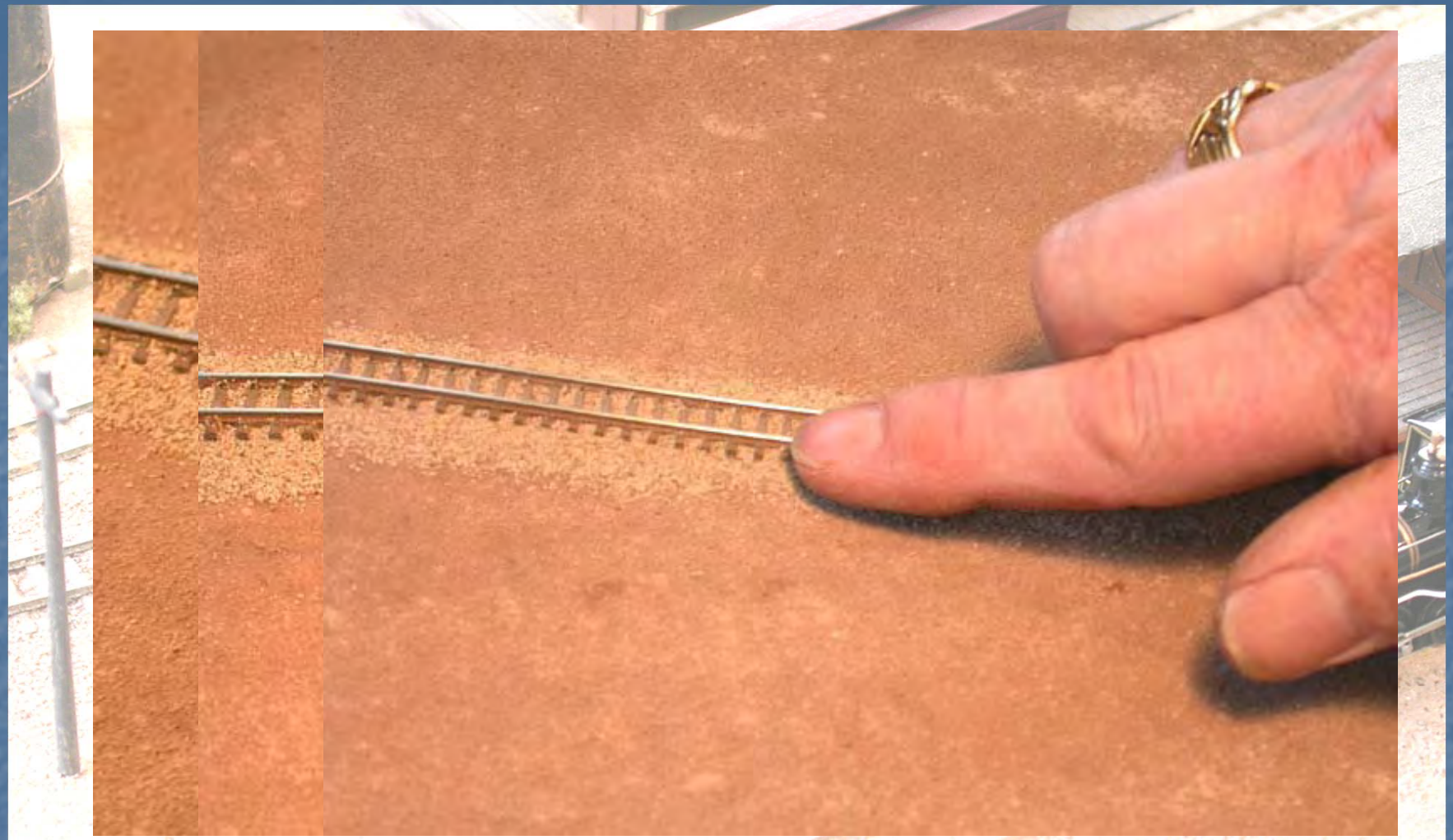
Spread ballast over track, then carefully brush ballast away from rail sides and tops of ties, then “tamp” ballast with finger tips.

Weathering / Ballasting



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

Weathering / Ballasting

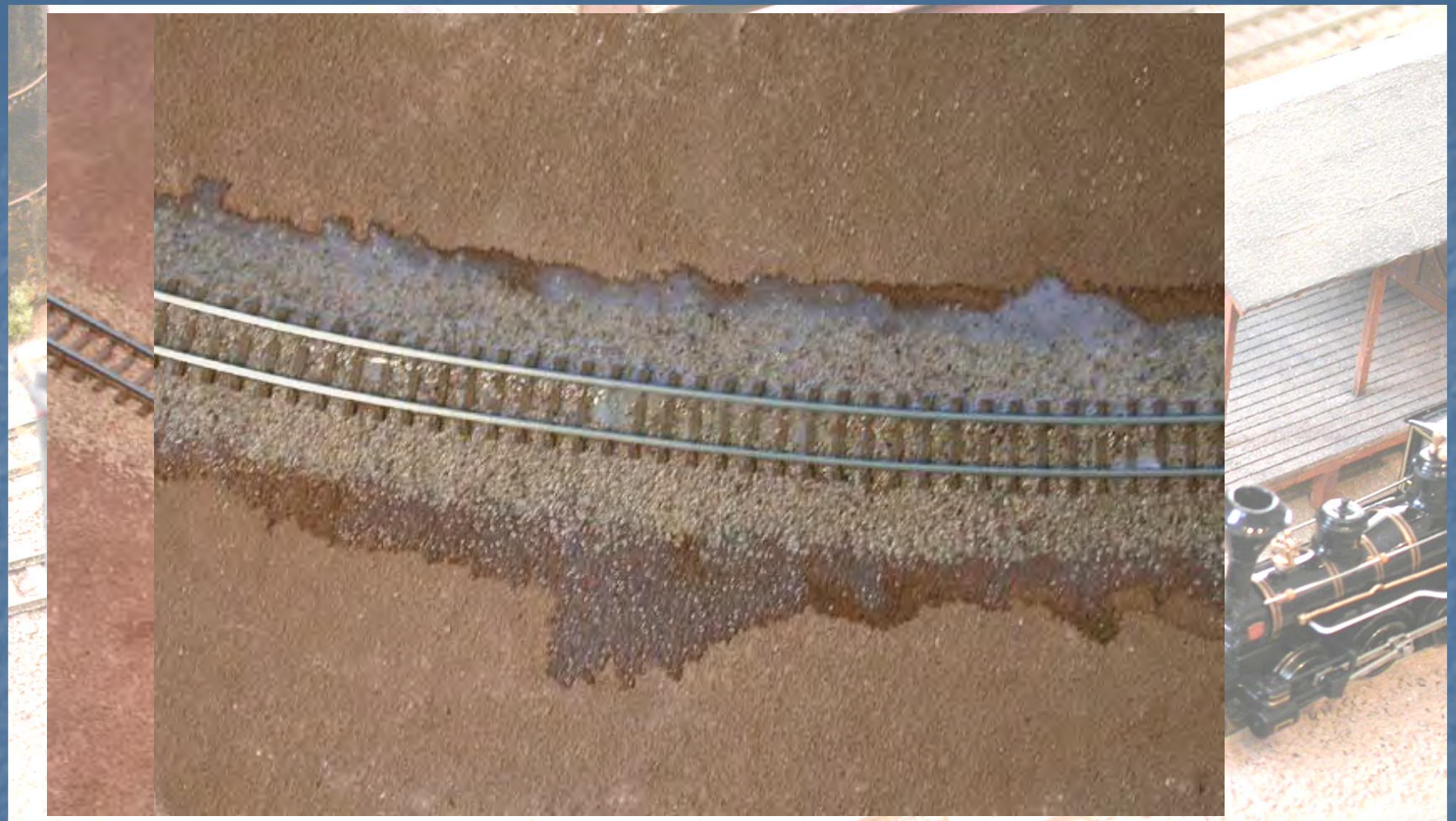


Spread ballast over track, then carefully brush ballast away from rail sides and tops of ties, then “tamp” ballast with finger tips.

Weathering / Ballasting

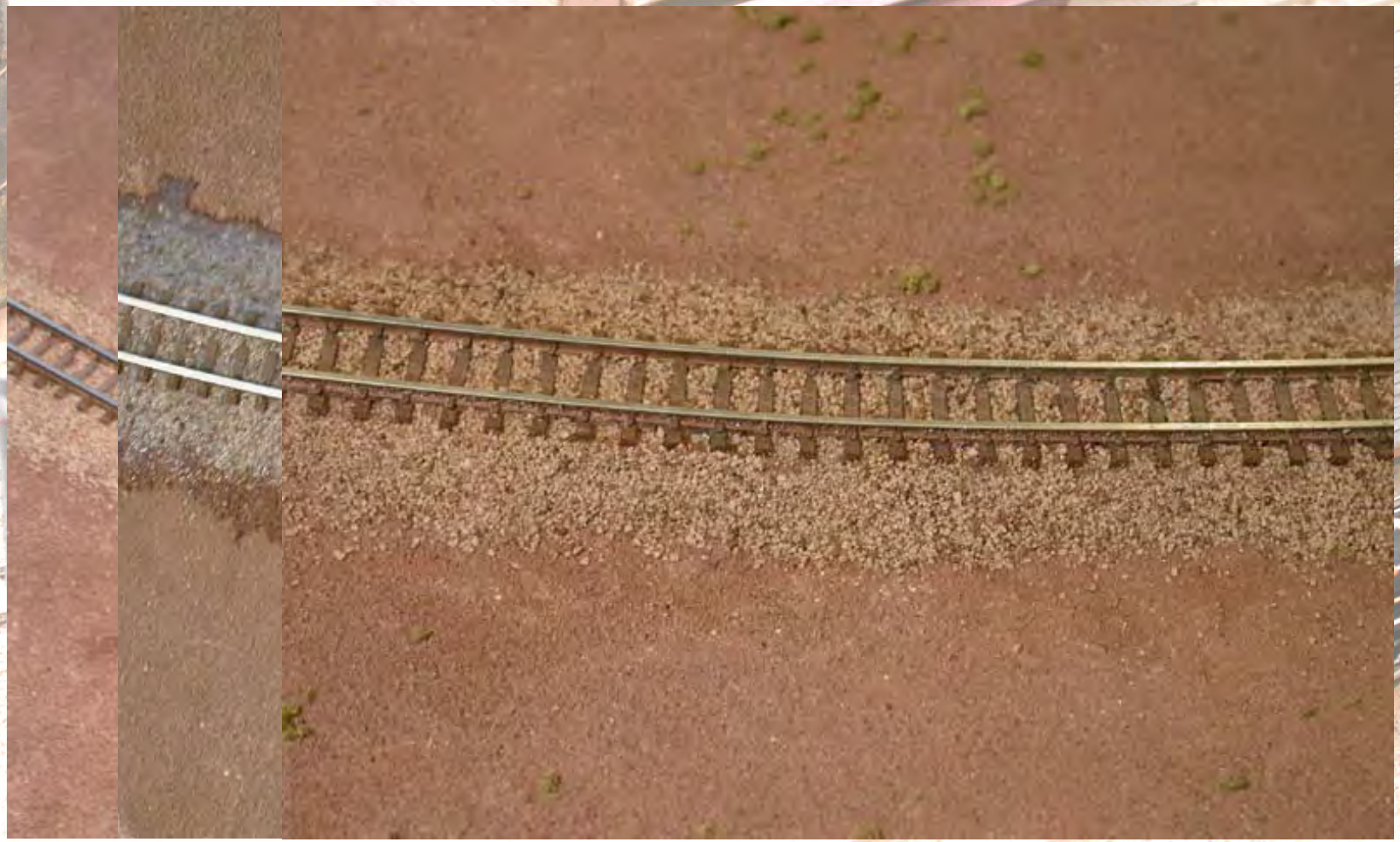
Wet ballast with rubbing alcohol, apply a mixture of acrylic matte medium, alcohol and water. Pick off any stray bits of ballast after everything is dry.

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


Clubs &
e-Groups

The Nn3 Alliance

An Internet-based international alliance of over 800 small-scale narrow gauge modelers
Nn3@yahoogroups.com
NorCalNn3@yahoogroups.com (USA west coast)
www.Nn3.org

2MM Scale Association

2MMNn3@yahoogroups.com

www.2mm.org.uk/

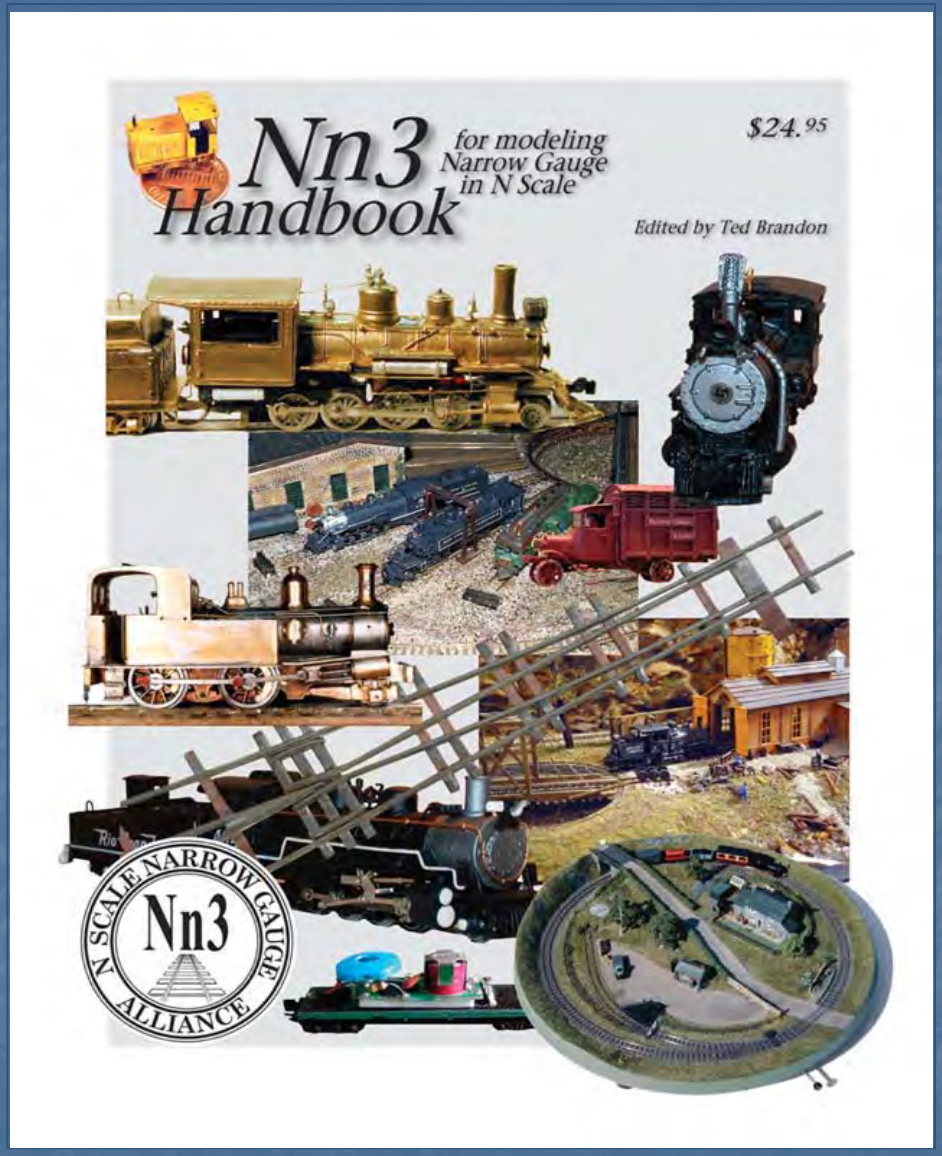
NTRAK

Many local chapters worldwide
NVNTRAK (USA east coast)
www.NVNTRAK.org and follow links to

British N Gauge Society

This group also has a narrow gauge special interest group

German "N Tram" modeling groups



The Nn3 Handbook

By The Nn3 Alliance

The definitive source of modeling information for N Scale Narrow Gauge

(available through Republic Locomotive Works)


Modules

NTRAK:
NTRAK has provided “right-of-way” in their module standards for Nn3 at two interface locations and two elevations since NTRAK’s inception in 1973.

oNeTRAK-style:
example: NorCal Division’s Nn3 modular layout

Sectional Layout:
NVNTRAK’s Nn3 layout

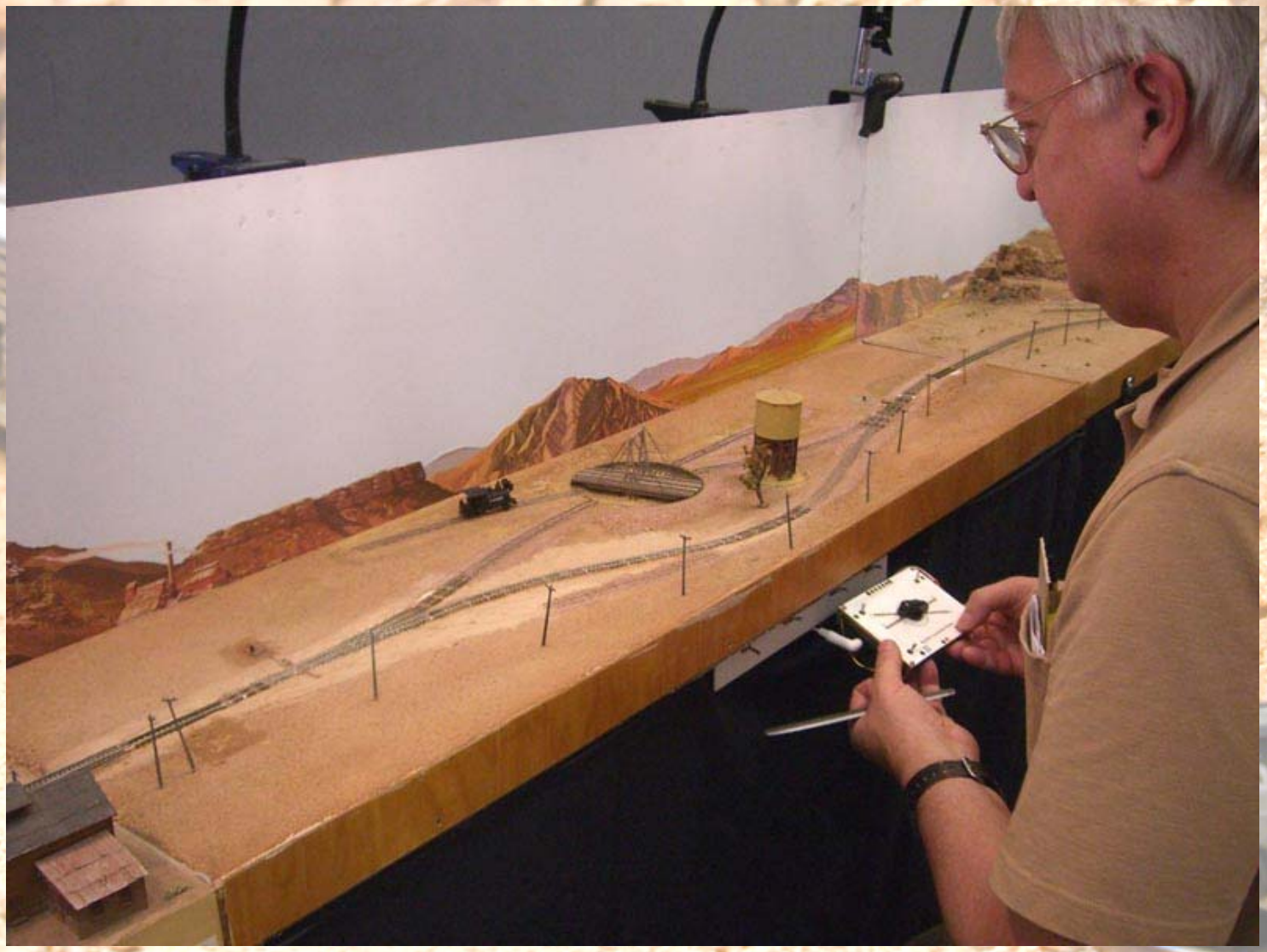
FREE-MO:
example: NorCal Division’s Nn3 modular layout

Stand-alone display layouts
Paul Sturtz’s layout in the lobby at this convention is an excellent example

NorCal Division

NorCal Division

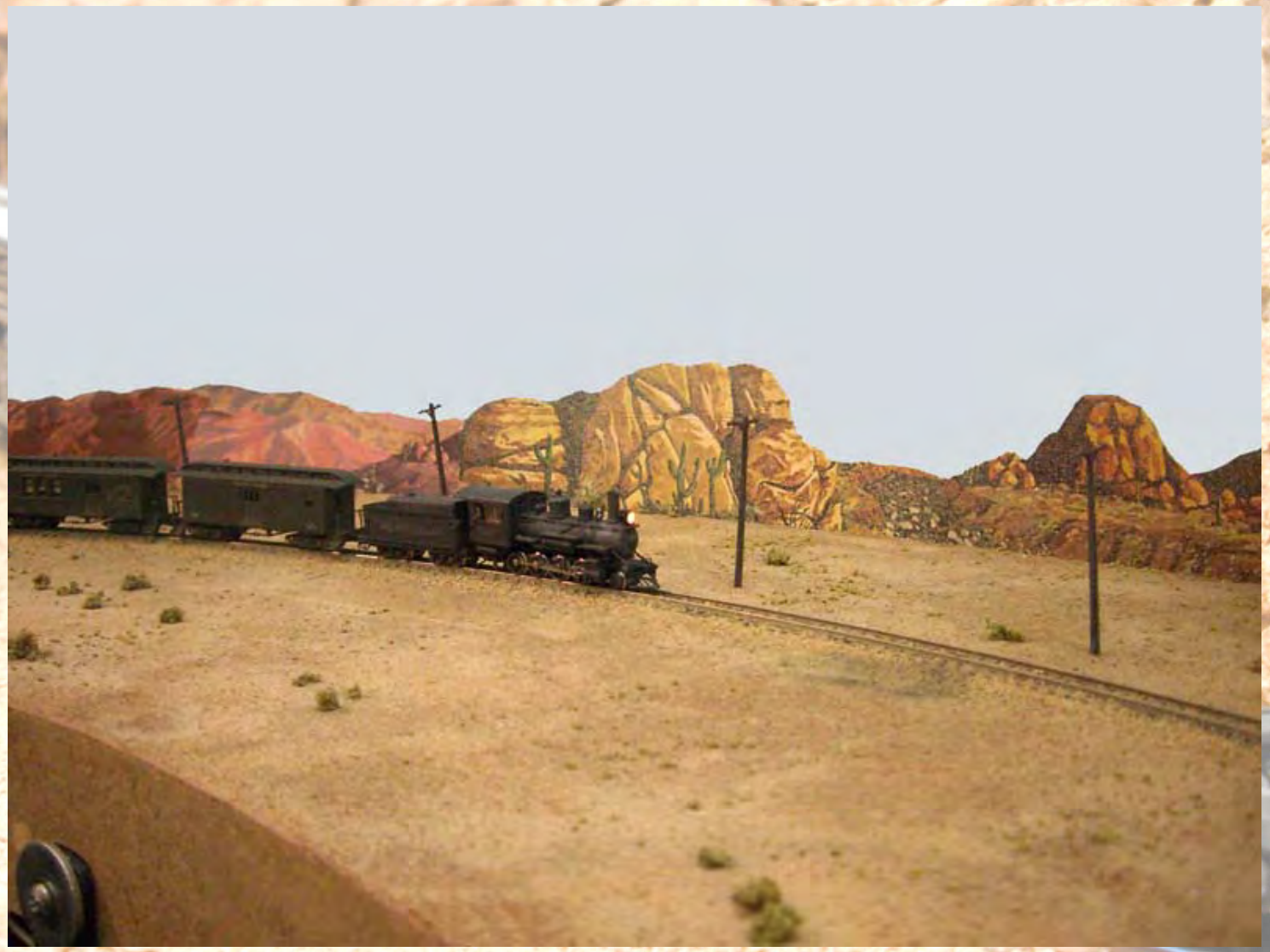
NorCal Division



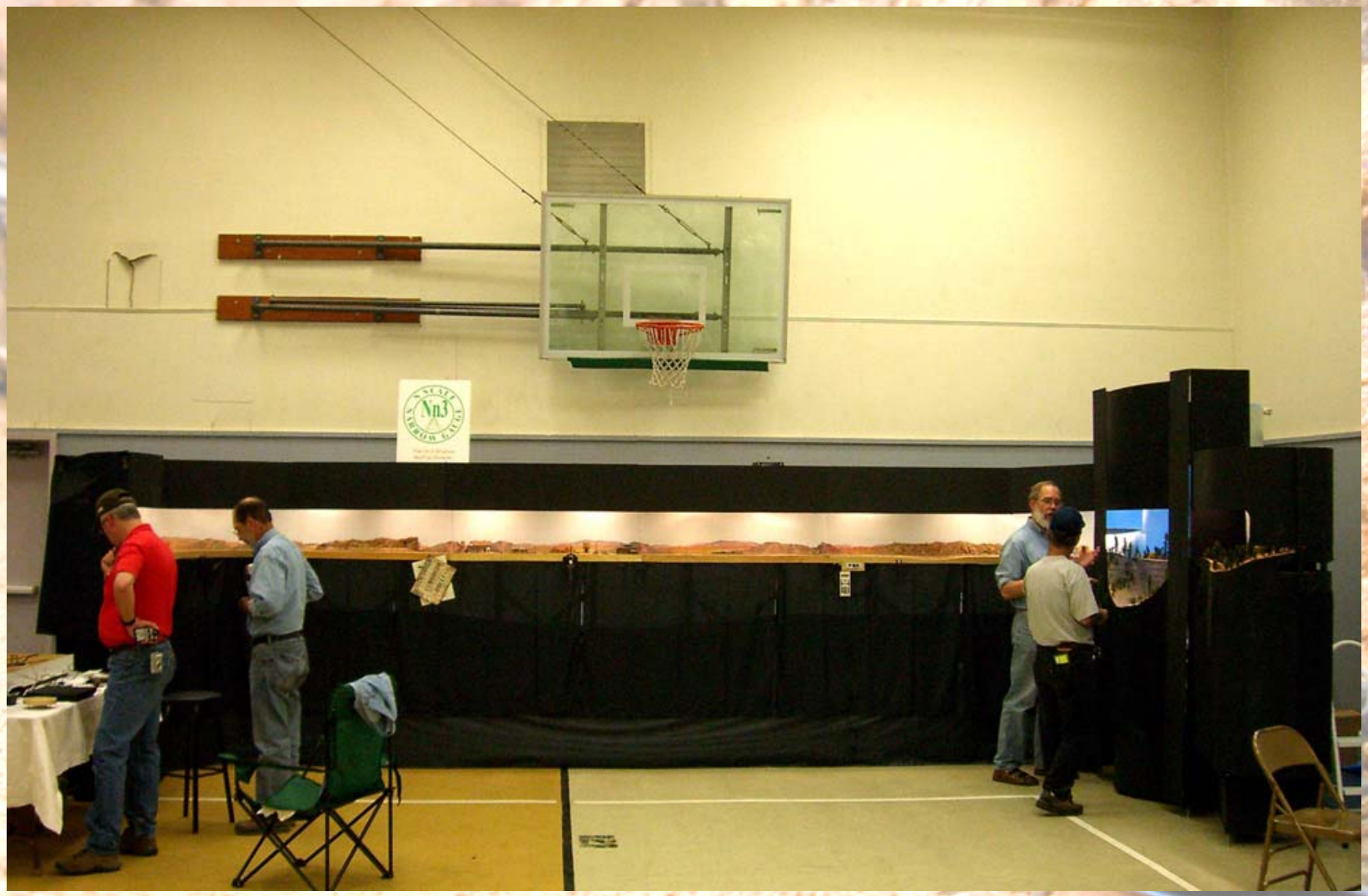
NorCal Division

NorCal Division

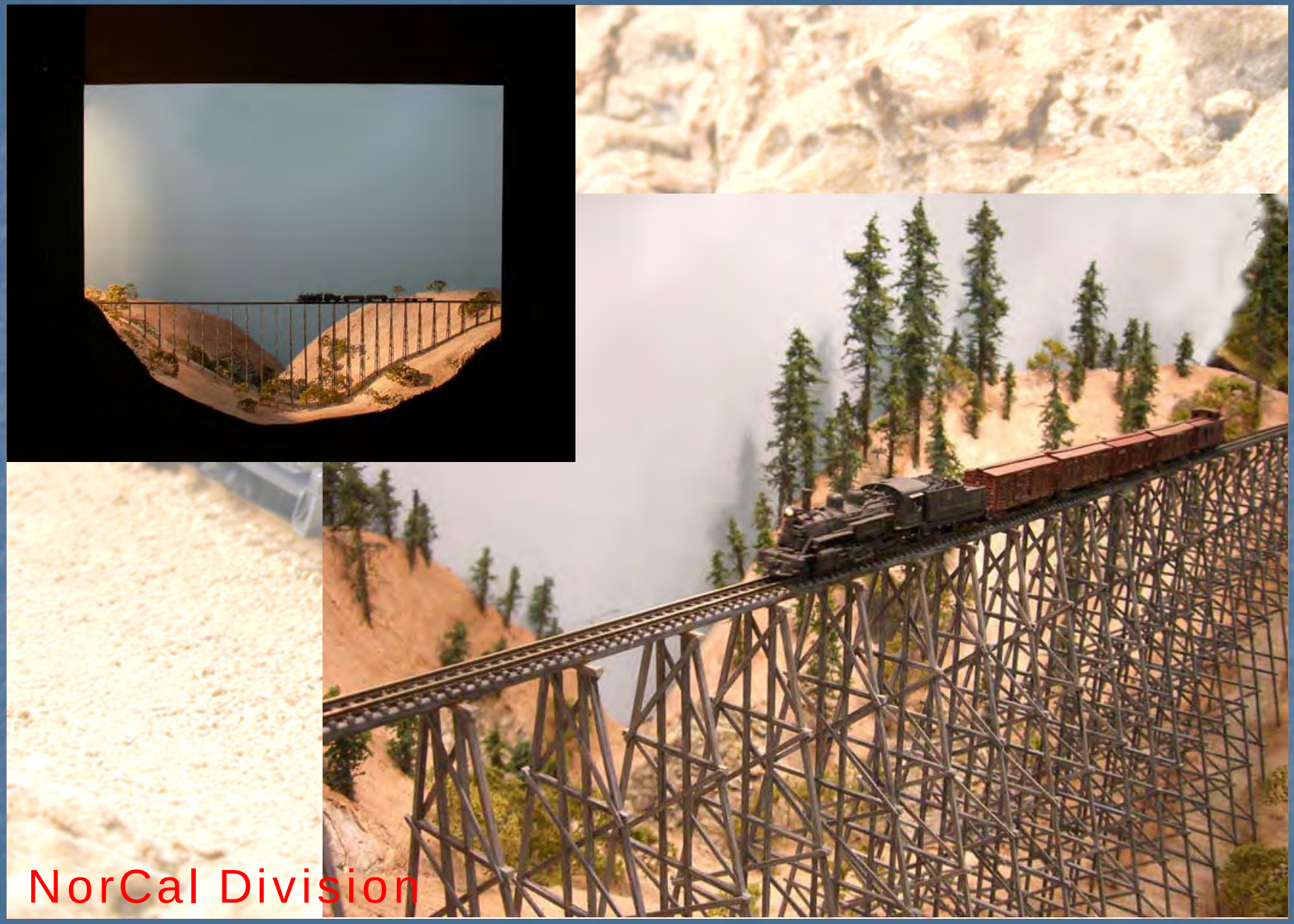
NorCal Division



NorCal Division



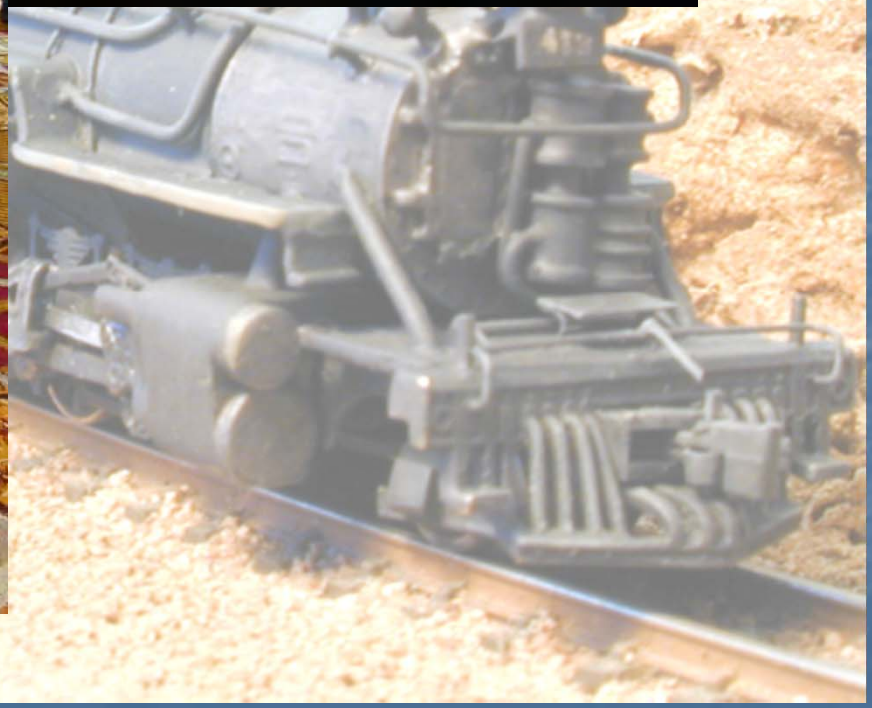
NorCal Division



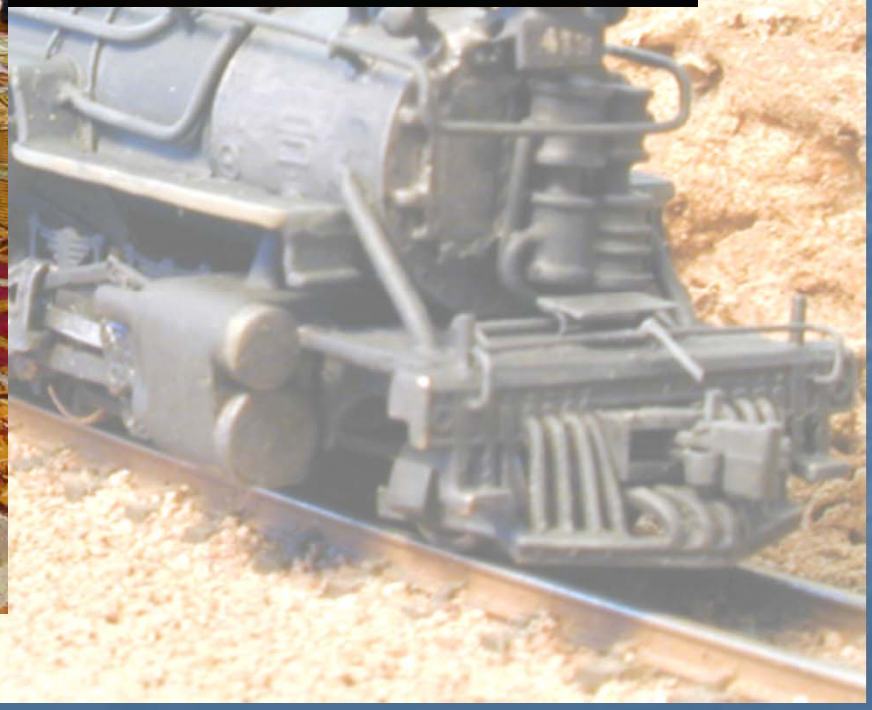
Nn3 Overview

NorCal Division

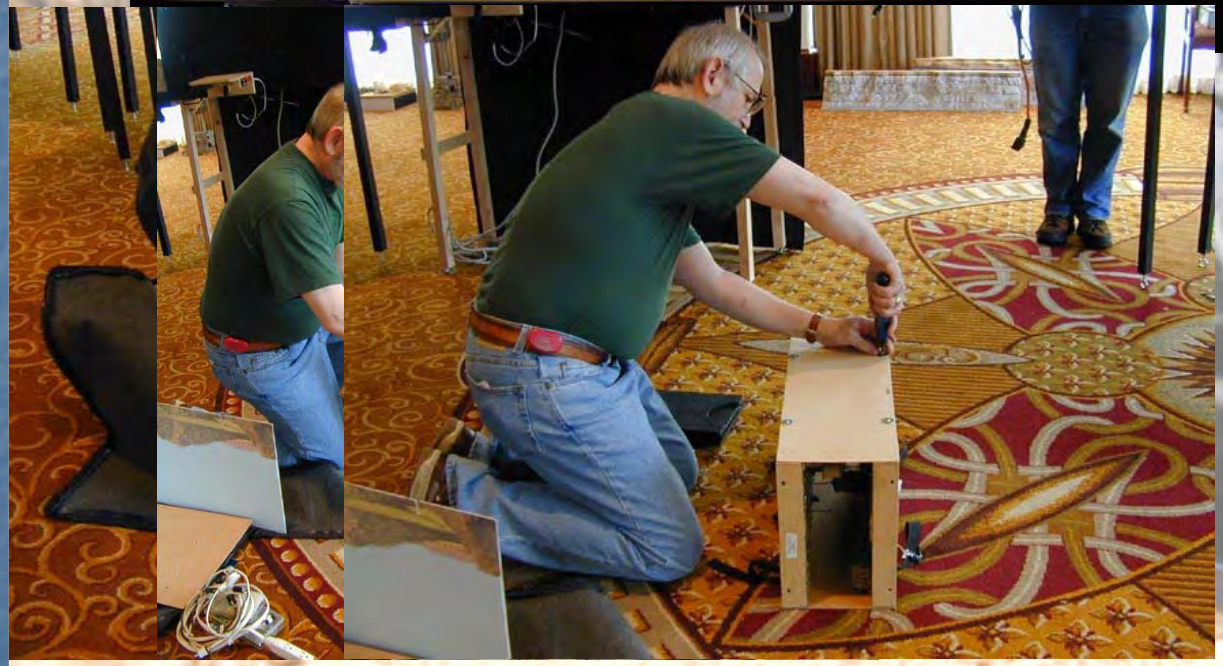
NorCal Division



NorCal Division

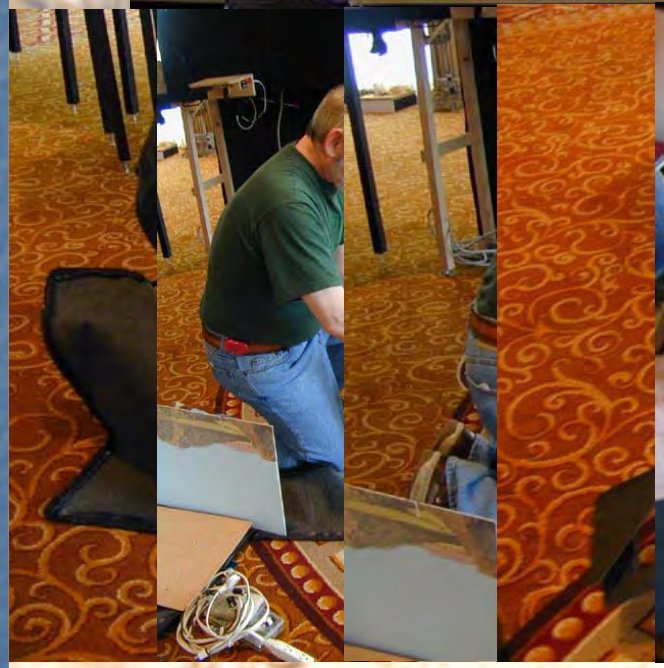


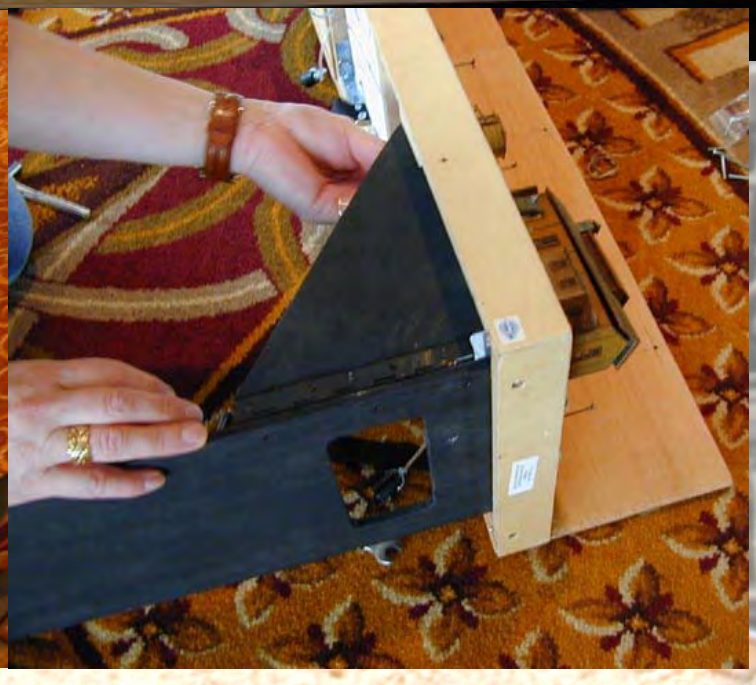
NorCal Division



NorCal Division

NorCal Division





NorCal Division

NorCal Division

NorCal Division

Questions & Discussion