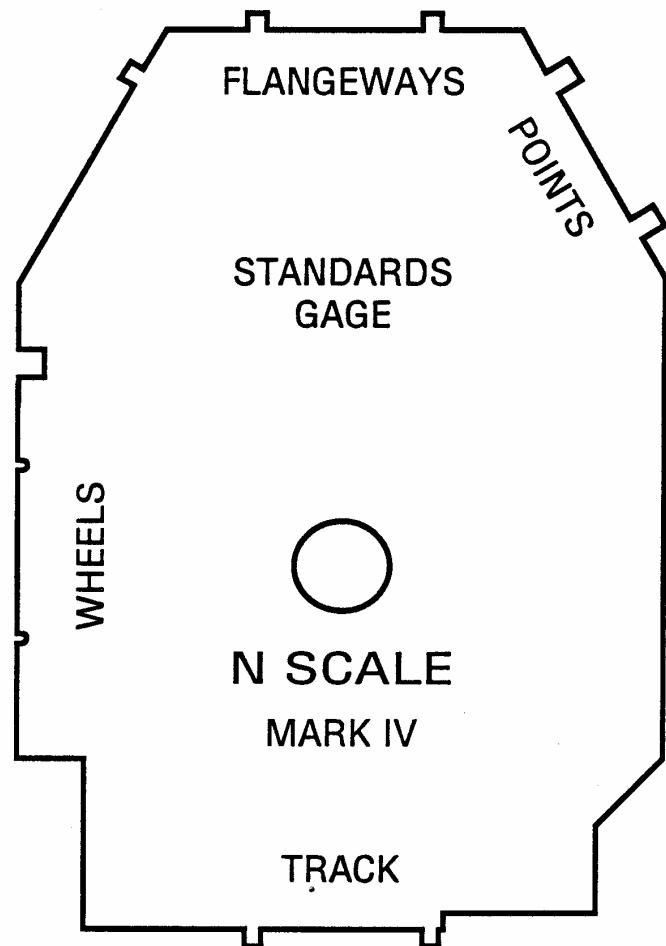


San Diego Society of N Scale

**EQUIPMENT
STANDARDS
AND
PROCEDURES**



PDL STANDING ORDER NUMBER 1

January 1991



San Diego Society of N Scale

EQUIPMENT STANDARDS AND PROCEDURES

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I. PURPOSE

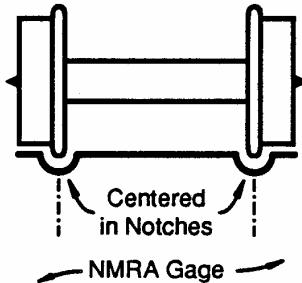
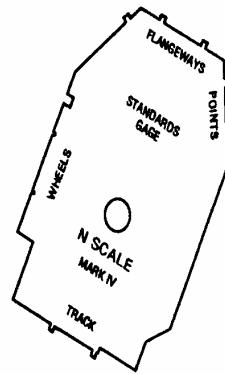
- A. In accordance with Article 10 B of the SDSONS By Laws, this instruction sets forth standards and procedures for N-scale model railroading equipment operated on the Pacific Desert Lines (PDL).
- B. The purpose of these standards and procedures is:
 1. To provide members of the SDSONS with specific guidelines which can be used in construction, maintenance and operation of their equipment, and which will encourage them to adopt and maintain high equipment standards.
 2. To ensure that equipment operated on the PDL is of the highest quality achievable in N-scale so that the operation and appearance of that equipment is trouble-free and prototypically correct.

II. DEFINITIONS

- A. As used in this instruction, the term "Motive Power" is defined as any equipment which is prototypically self-propelled.
 1. Examples of motive power include steam, steam-turbine, diesel, diesel-electric and diesel-hydraulic locomotives, rail diesel cars, gas-electric cars, snowplows, cranes, etc.
 2. Model railroading equipment which represents motive power will be considered as such even though it may be an unpowered (dummy) unit.
 3. Auxiliary equipment such as tenders, fuel/water cars and slugs which are prototypically associated with a given unit of motive power shall be considered a part of the basic motive power equipment for modeling purposes.
- B. As used in this instruction, the term "Rolling Stock" is defined as any equipment which is not motive power, and which prototypically requires separate motive power to move it over the rails.

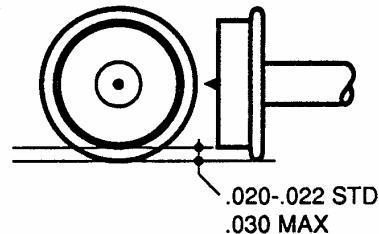
III. EQUIPMENT STANDARDS**A. General**

1. All equipment must be painted and lettered for some railroad or owner.
2. Wheels must be clean, concentric and wobble-free
3. The gage of all wheels shall conform to the NMRA MK IV standards gage. Conformance is defined as the centerline of the wheel flanges centered in the gage notches.

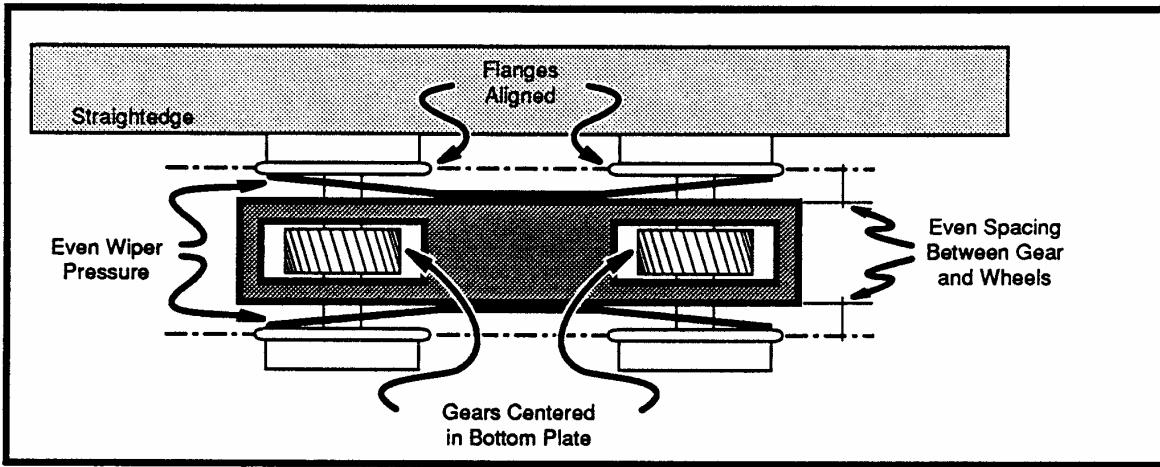
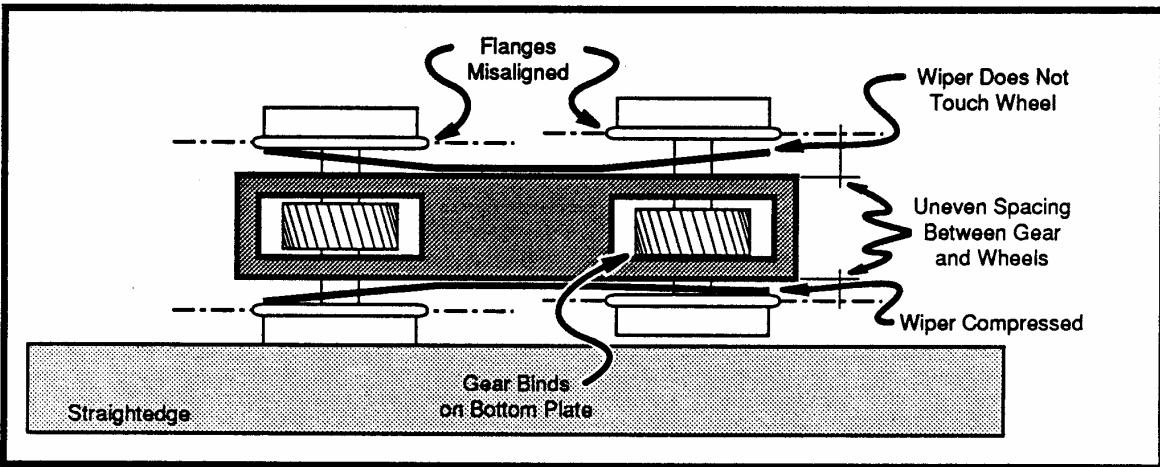


**IN ORDER TO MINIMIZE DAMAGE TO
CODE 40 TRACKWORK,
THE IMPORTANCE OF PROPER WHEEL
GAGING CANNOT BE
OVEREMPHASIZED**

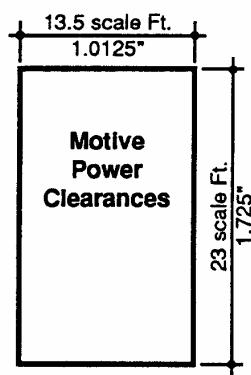
4. The underbody of all equipment shall be securely attached to the chassis.
5. All equipment should track smoothly through the test track turnout in both directions.
6. Operation of non-North American prototype equipment on the PDL is not authorized without prior approval of the Roadmaster. North American is defined as the U.S., Canada, and Mexico.
7. Because the layout is not properly equipped, operation of electric, trolley or traction equipment is not permitted on the PDL.
8. Because the PDL is constructed with Code 40 rail, equipment with very deep flanges is not permitted on the layout unless the flange depth has been reduced. This includes, but is not limited to, locomotives manufactured by RAPIDO. As a guide, the approximate flangeway of Code 40 rail is .031 inches.
9. Motive Power
 - a. Operation should be smooth. Starting and running speeds under normal train loads should closely simulate the operating characteristics of their prototypes; e.g., a switcher should have a low starting speed and a low top speed with a load of 1-3 cars.
 - b. The speed of multiple power lash-ups should be compatible.



c. In addition to proper wheel gaging, the flanges of geared wheelsets shall be longitudinally aligned, when checked with a straight edge against the wheelsets as shown below.

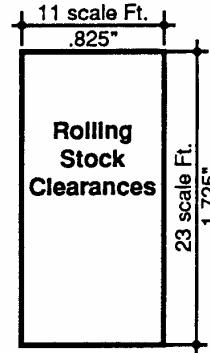
**CORRECT****INCORRECT**

d. Equipment scale dimensions for Motive Power shall not exceed a scale $13\frac{1}{2}$ ft. wide by 23 ft. high (1.0125 inches wide by 1.725 inches high).

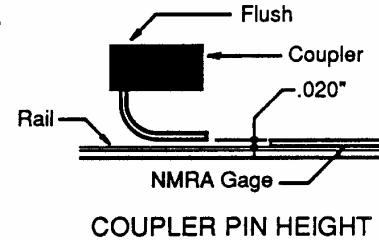


10. Rolling Stock

- a. Wheels must rotate freely.
- b. Must roll freely and unaided down 3% grade on test track (Except those cars equipped with restraining springs which are designated as last-car-in-train units by owner).
- c. Shall weigh no less than $\frac{1}{2}$ ounce. See III D below for recommended weights.
- d. Equipment scale dimensions for Rolling Stock shall not exceed a scale 11 ft. wide by 23 ft. high.
(0.825 inches wide by 1.725 inches wide).

**B. Member-owned Equipment**

1. All equipment shall be marked with member's personal identification mark.
2. Except for approved unit-trains, all equipment shall be equipped with functional Micro-Trains (Kadee) couplers.
 - a. Couplers may be body-mounted or truck-mounted.
 - b. Coupler height must conform to the Micro-Trains (Kadee) #1055 gage.
 - c. Trip pins shall be adjusted to .020 inches above the rail top. This is the thickness of the NMRA standards gage. Pins should be adjusted by bending and never pushed or pulled through the coupler knuckle. The pin should fit snugly in the knuckle so that it cannot drop. Trip pin should be flush with the top of the coupler.

**COUPLER PIN HEIGHT**

- d. Couplers shall operate as described in Micro-Trains (Kadee) installation instructions, and to the satisfaction of an authorized Equipment Standards Inspector.
3. Functional couplers are not required for steam locomotive pilots but must be installed on the tender for that locomotive.
4. Coupling between diesel units is at the member's discretion. Diesel locomotive ends which couple to rolling stock must be equipped with functional Micro-Trains (Kadee) couplers.

C. Club-owned Equipment

1. This equipment will be used only during Museum exhibit operations where reliability during continuous running operations is of primary importance. Members shall not run this equipment during their own operating sessions. The club train shall be parked in a siding or isolated in the loop trackage while members are operating the layout.

2. Equipment will be selected by the Equipment Standards Committee and approved for exhibit operations only after preparation, upgrading and inspection prove it suitable. The Equipment Standards Committee and Roadmaster shall control the consist of the train and verify that wheels and gears are clean and the train is operating efficiently.
3. Rolling stock owned by the SDSONS shall be equipped with:
 - a. Atlas / Trix / AHM/ Micro-Trains (Kadee) type trucks which will accept Micro-Trains (Kadee) wheelsets.
 - b. Micro-Trains (Kadee) #1008 low profile or standard wheelsets.
 - c. Truck-mounted Unimate couplers.
4. Diesel hood units shall be coupled together with draw bars. All motive power owned by the Club shall be equipped with Unimate couplers.

D. Recommended Practices

1. The following practices are recommended, but are not required:
 - a. Functional Micro-Trains (Kadee) couplers on steam locomotive pilots
 - b. Functional locomotive headlights (directional if possible)
 - c. Functional details such as FREDs, marker lights, etc.
 - d. Different reporting numbers for identical units
 - e. Weathering
 - f. Micro-Trains (Kadee) #1008 low profile wheels
 - g. Restraining springs in last car of train
 - h. Recommended weights for rolling stock, estimated from the table to the right.

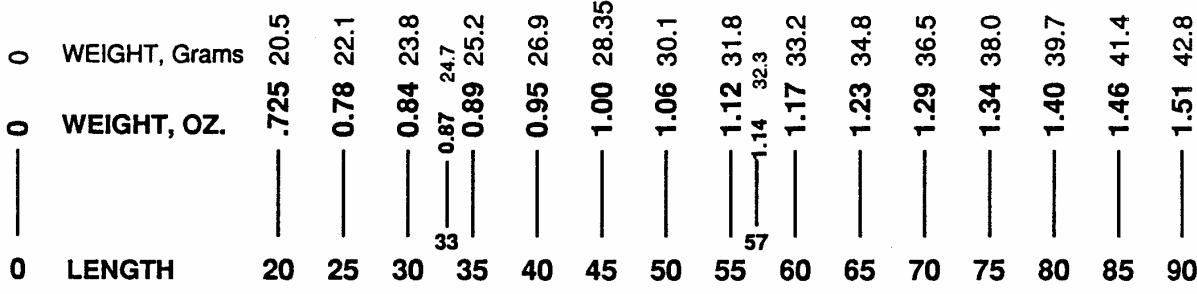
E. Other Standards

1. Any standards not specifically stated in this document should conform to the latest edition of the NMRA Standards and Guidelines.

Car Length	Weight
25'	0.78 oz
30'	0.84 oz
33'	0.87 oz
35'	0.89 oz
40'	0.95 oz
45'	1.00 oz
50'	1.06 oz
55'	1.12 oz
57'	1.14 oz
60'	1.17 oz
65'	1.23 oz
70'	1.29 oz
75'	1.34 oz
80'	1.40 oz
85'	1.46 oz
90'	1.51 oz

Formula:

Car length in scale feet x 0.075
x 0.15 plus 0.50 equals ounces



IV. EQUIPMENT INSPECTION AND BAD ORDER PROCEDURES**A. Equipment Inspections**

1. All equipment must be inspected and approved by authorized equipment inspectors before it can be operated on the Pacific Desert Lines.
2. Members of the Equipment Standards Committee, plus those Club members recommended by the Committee and approved by the Board of Directors, shall be designated as Authorized Equipment Inspectors. A current list of inspectors shall be posted on the Club bulletin board.
3. An inspection schedule will be posted in the Club area. Inspections will normally be scheduled one week in advance, but can be arranged on an individual basis. Members who desire to have their equipment inspected should make scheduling arrangements in advance.
4. Equipment submitted for inspection should be accompanied by Motive Power and Rolling Stock forms (enclosure 1), with applicable sections on the left-hand side completed by the equipment owner using the listed manufacturers codes (encl 2).
5. Inspectors will not handle any equipment unless authorized to do so by the owner. Authorization is by signature on the forms. If only specific items are not to be handled, mark them with an asterisk.
6. No inspector will inspect his/her own equipment.
7. Using the Standards Inspection Guide (encl 3) as a guide, authorized inspectors shall conduct a visual and mechanical inspection of submitted equipment to ensure that it complies with established standards.
8. Following the inspection, inspectors will complete the applicable sections on the right-hand side of the Motive Power and Rolling Stock forms (encl 1).

B. Bad Order Procedures

1. Equipment which fails to pass a standards inspection will be identified as Bad-Ordered by the inspector by affixing a removable sticker to the underside of the equipment. The sticker and 'reason' column of the Motive Power and Rolling Stock forms (encl 1) will be marked with a number, using the Bad Order codes listed on enclosure 4.
2. If equipment malfunctions while operating on the PDL, its owner will be given two (2) opportunities to correct the problem. Equipment which malfunctions a third time shall automatically be removed from the layout and Bad-Ordered. All members are expected to abide by this code. In addition, during operating sessions, the assigned dispatcher is authorized to request that malfunctioning equipment be Bad-Ordered and removed. That part of the equipment which failed must be re-inspected to clear the Bad-Order.
3. Once equipment is Bad-Ordered, it shall not be operated on the Club layout until is re-inspected and approved for use.
4. A supply of removable Bad-Order stickers will be maintained in the Club area. As a reminder to the owner, a number sticker should be affixed to any Bad-Ordered equipment.
5. Bad-Ordered equipment owned by the SDSONS will be placed in the Bad-Order section of the club equipment drawer.

EXAMPLES OF HOW TO FILL IN FORMS:

Your Name
 Total number of pages for both
 Motive Power and Rolling Stock

MOTIVE POWER				OWNER _____	PAGE <u>1</u> OF <u>12</u>		
				Authorizes handling of equipment (Except those marked with an asterisk)	<input checked="" type="checkbox"/>		
PRINT LEGIBLY!							
To be filled in by owner				To be filled in by Inspector			
MFGRS CODE	TYPE (GP-7, 4-6-2 Pacific, etc.) ROAD NAME (Santa Fe, etc.)	ROAD NUMBER	Powered/ Dummy	Month/Year	Pass	Fail	Reason
ATL	SD-40 Santa Fe	1508	P	DON'T FILL IN THIS SIDE			
* TRX	4-6-2 PACIFIC, K-4 Santa Fe	3420	P Sagami				
<small>* Asterisk means Owner wants to handle this equipment during tests</small>				<small>Note special powering As numbered on engine</small>			

ROLLING STOCK

To be filled in by owner				To be filled in by Inspector			
MFGRS CODE	TYPE (Box, Gondola, etc.) ROAD NAME (Santa Fe, etc.)	ROAD NUMBER	LENGTH WEIGHT	Month/Year	Pass	Fail	Reason
KDE	Tank Alaska Railroad	9005	39' 0.65 oz	DON'T FILL IN THIS SIDE			
CON	Caboose w/restr spr Santa Fe	999821	39' 0.77 oz				

From Enclosure 2

in Scale Feet
 Use postal scale to get close
 As numbered on car
 Note special features

EQUIPMENT STANDARDS

SDSONS

MOTIVE POWER

OWNER _____ PAGE _____

**Authorizes handling of equipment
(Except those with an asterisk)**

1

PAGE _____

OF _____

PRINT LEGIBLY!

EQUIPMENT STANDARDS

SDSONS

ROLLING STOCK

OWNER _____ PAGE _____

PAGE _____

**Authorizes handling of equipment
(Except those with an asterisk)**

OF _____

PRINT LEGIBLY!

To be filled in by the owner

To be filled in by the Inspector

N-SCALE EQUIPMENT MANUFACTURER'S CODES

(FOR USE ON MOTIVE POWER AND ROLLING STOCK FORMS)

Manufacturer	Code	Manufacturer	Code
Ajin	AJN	Model Die Casting/Roundhouse	MDC
Ak-Sar-Ben	ASB	Model Rectifier Corp	MRC
American N-Scale Brass	ANB	Model Power	MPR
Arnold	ARN	N.A.P.	NAP
Associated Hobby Manufacturers	AHM	Nakamura	NAK
Atlas Model Railroading Co.	ATL	N-Gauge International	NGI
Aurora	AUR	N. J. Custom Brass	NJB
Bachmann	BAC	N scale of Nevada	NSN
Columbia Car and Foundry	CCF	Oriental	ORI
Concor/JMC	CON	Overland Models	OMI
C S Models	CSM	Pacific Fast Mail	PFM
Delaware Valley	DVA	Pecos River Brass	PRB
Dimi Trains	DIM	Precision Masters	PRM
Endo/Micro Cast	END	Precision Models Italy	PMI
Fleischmann	FLS	Precision Scale Co.	PSC
Flying Zoo	FLY	Quality Craft Models	QCM
Gold Rush Models	GRM	Rapido/Revell	RAP
Gloor Craft	GLC	Roco	ROC
Hallmark	HAL	Rowa	ROW
Interail	ITR	Stewart	STW
Kadee Co./Micro Trains	KDE	Sung Jin	SJN
Kato/Sekisue	KTO	Tichy	TIC
Key Imports	KEY	Tomix	TOM
Kitbash (owner)	KTB	Trix/Minitrix	TRX
Kumata Model Trains	KMT	V-Line	VLN
Life-Like	LIF	Wabash Valley Models	WAB
Lima	LIM	Western Railcraft	WRC

STANDARDS INSPECTION GUIDE

1. Check form for owner's entries
2. OK to handle equipment?
3. Body mounted securely to chassis
4. Painted and lettered
5. Place unit in cradle and check:
 - a. Owner's mark
 - b. Wheels clean / concentric / rotate free
 - c. Wheel gage and flange alignment
6. Place on scale and weigh:
 - a. Rolling stock (minimum 1/2 oz.)
 - b. Dummy units
7. Place on test track and check:
 - a. Coupler height (use #1055, both ends)
 - b. Trip pin height (use NMRA gage {.020}, both ends)
 - c. Coupler operations over magnet (use test locomotive / car)
 - d. Track OK through turnout (both legs)
 - e. Wobble free
8. For motive power check:
 - a. Starting
 - b. Slow speed
 - c. Running smoothness
 - d. Shorts / stalling
9. For rolling stock, perform rolling test down 3% grade
10. Put stickers on Bad-Order Units
11. Complete form entries
12. Be nice!!!

BAD ORDER CODES

01. Wheel gage too narrow
02. Wheel gage too wide
03. Flanges on geared axles not longitudinally aligned
04. Dirty wheels
05. Wheel(s) wobble
06. Excessive rolling resistance (fails 3% grade test)
07. Wheel(s) contact chassis or body
08. Bent axle(s)
09. Wheels drag or do not rotate freely
10. Traction tire missing or loose
11. Driver not quartered
12. Coupler component broken or missing
13. Coupler too high
14. Coupler too low
15. Coupler will not deflect over magnet
16. Coupler deflects wrong direction over magnet
17. Coupler will not fully open to "delayed" position over magnet
18. Coupler will not center
19. Coupler frozen or painted shut
20. Random uncoupling
21. Trip pin missing
22. Trip pin loose in knuckle
23. Trip pin too high (over .020)
24. Trip pin too low (below .020)
25. Trip pin out of lateral adjustment
26. "Jack Rabbit" starts
27. Minimum speed too high
28. Poor electrical contact or short
29. Jerky or intermittent operation
30. Polarity reversed
31. Insulated wheel(s) are installed backwards
32. Dead locomotive or motive power unit
33. Stalls / requires a tap or push to start
34. Runs only one direction / won't reverse
35. Component (other than wheels) touching rails
36. Missing or damaged wheel wiper(s)
37. Unit less than minimum weight ($\frac{1}{2}$ oz.)
38. Exceeds maximum scale height
39. Exceeds maximum scale width
40. Not painted or lettered
41. No owner's I.D. mark
42. Upper body not securely fastened to chassis
43. Excessive oil or lubrication
44. Loose or missing bolster pin
45. Loose / missing valve gear or side rod(s)
46. Car body not level or vertical
47. Excessive light visible in cab or through car body
48. Frequent derailments
49. Truck, sideframe, draft gear contact chassis or body
50. Other (specify)



San Diego Society of N Scale, Inc.

San Diego Model Railroad Museum
1649 El Prado, Balboa Park
San Diego, CA 92101

APPLICATION FOR MEMBERSHIP

Please Print or Type

DATE _____

NAME _____ AGE _____

ADDRESS _____ CITY _____

STATE _____ ZIP _____ PHONE (____) _____

How long have you been modeling or interested in N scale?

Are you a prototype railfan also? If so, Which road?

Have you ever or do you now belong to any other type of railroad organization? (NMRA, N-TRAK, PCR, Historical Societies, etc.)
Please list:

Do you model in scales other than N? Which scales?

Are you interested in Narrow Gauge? Yes No

Please list any special skills and/or particular areas of interest:
(electronics, scratch building, scenery, photography, etc.)

How did you hear about our club?
