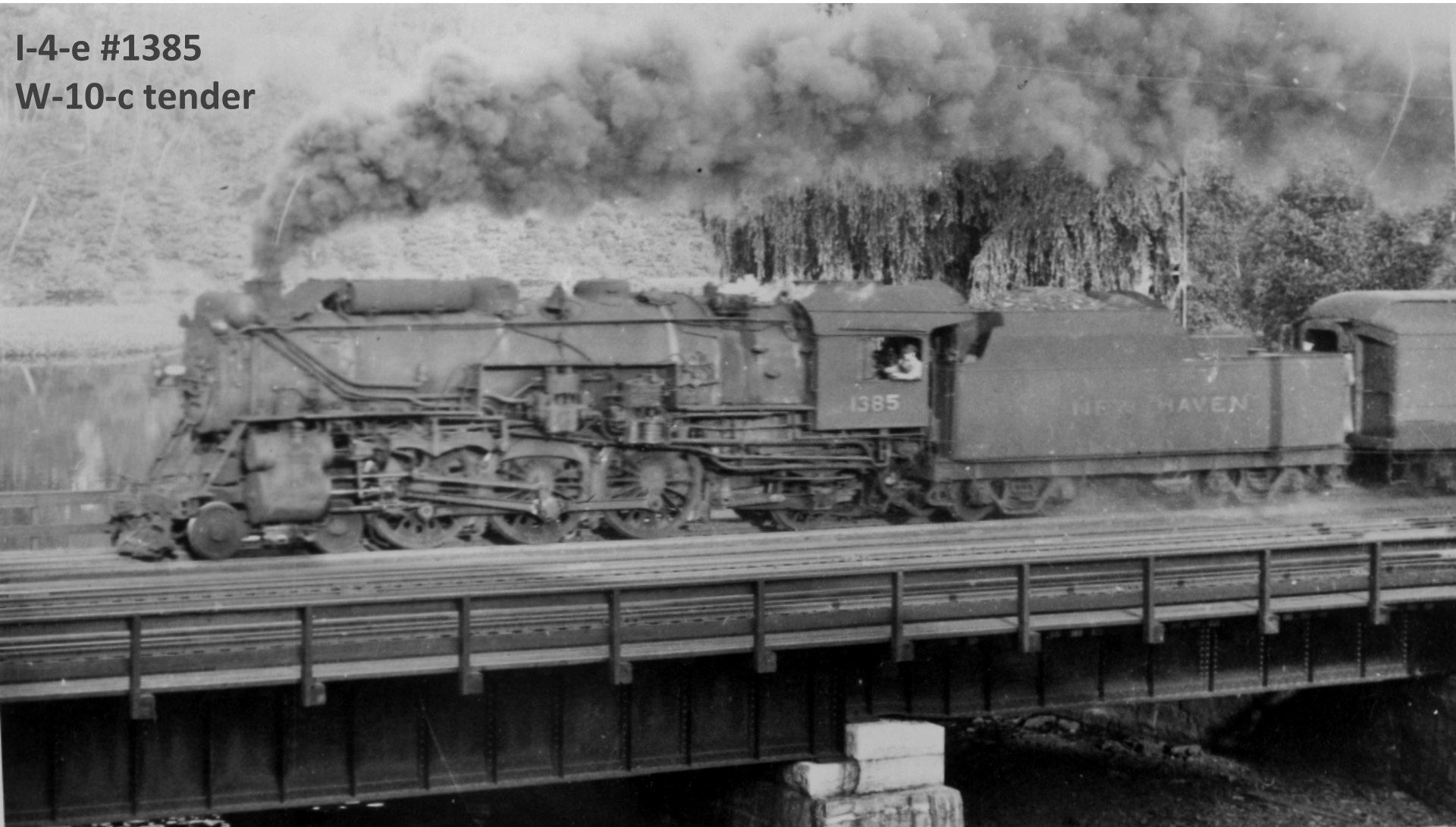


New Haven Steam



I-4-e #1385
W-10-c tender

A detail study for modelers

By Chris Adams, Charlie Dunn, Randy Hammill and the NHRHTA Photo Library

Overview

Scope is classes with HO Scale models available

Focus is on prototype and applies to all scales

Highlight variations within a class

Highlight modifications over time

Switchers

- T-2-b
- Y-3
- Y-4

Freight

- K-1-b/d
- J-1
- L-1
- R-1
- R-3-a

Passenger

- G-4
- I-2
- I-4
- I-5

Common Modifications

Headlights

- <1917 - Oil headlights
- 1917-1920 - Pyle National (?) cylindrical headlights. Not all were replaced.
- 1920-1924 - Pyle National (?) on new locomotives except R-1-a class #3310-#3339.
- ESSCo Golden Glow headlights starting in 1926. Brass number boards red for passenger locomotives, and black for freight and switchers.

Pilots

<1937 – Boiler tube.

>1937 – Steel Strap – phased in over time.

>1931 – Pilot plows applied to many (most?) locomotives, often removed in spring/summer

Footboard pilots on many locomotives in local freight service (often on tender as well).

Other

c1927+ – Spoked pilot wheels replaced with disc wheels

c1940's – Compressed air clappers applied to many bells

Headlights

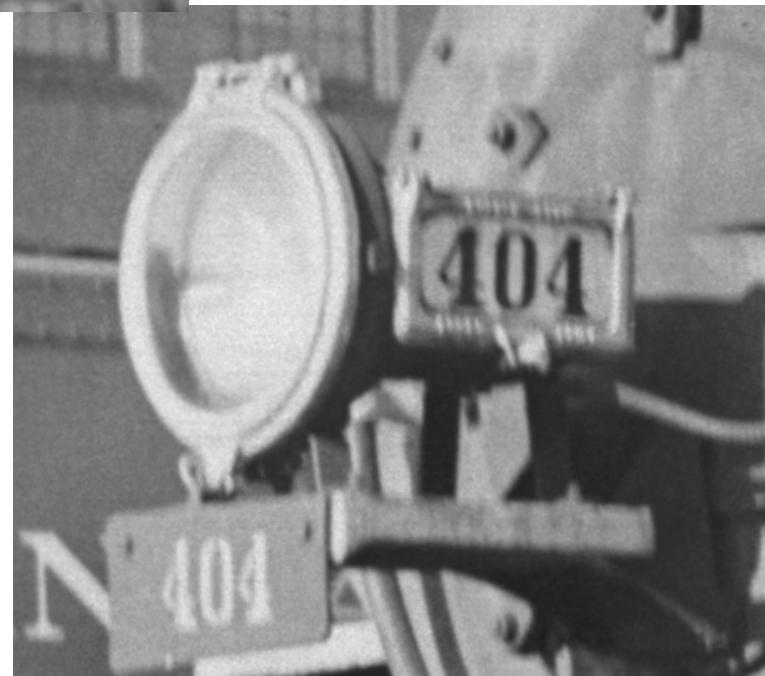
Oil



Pyle National (?)



ESSCo Golden Glow



Pyle National vs. Golden Glow

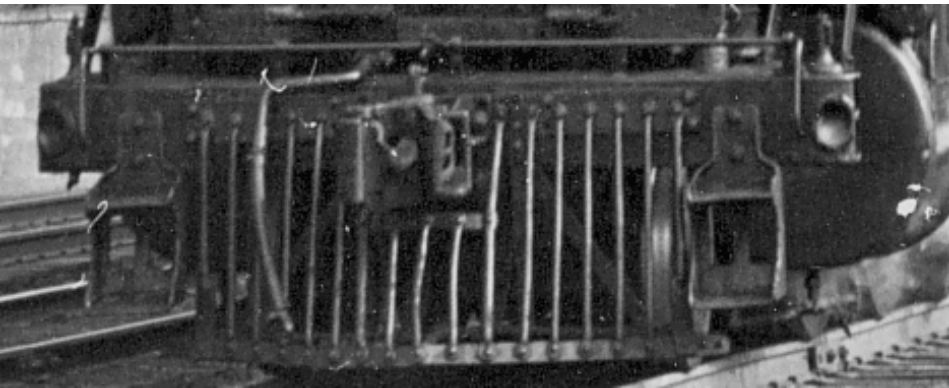


Pyle National Headlight from UP Big Boy
Note side mounted hinge

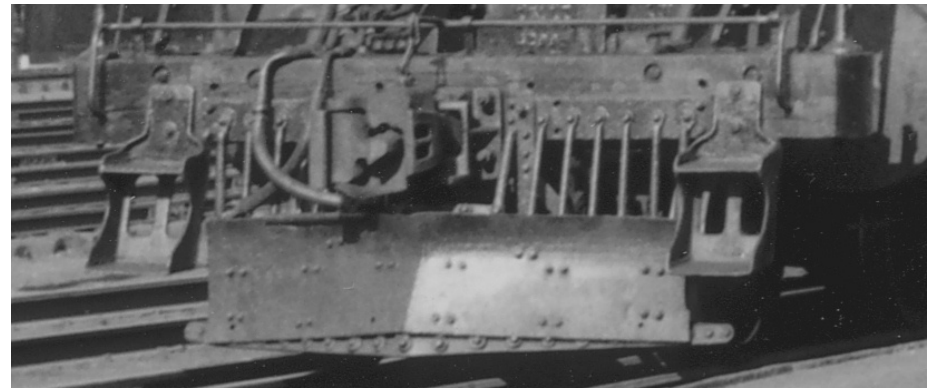


ESSCo Golden Glow Headlight
Note top mounted hinge

Pilots

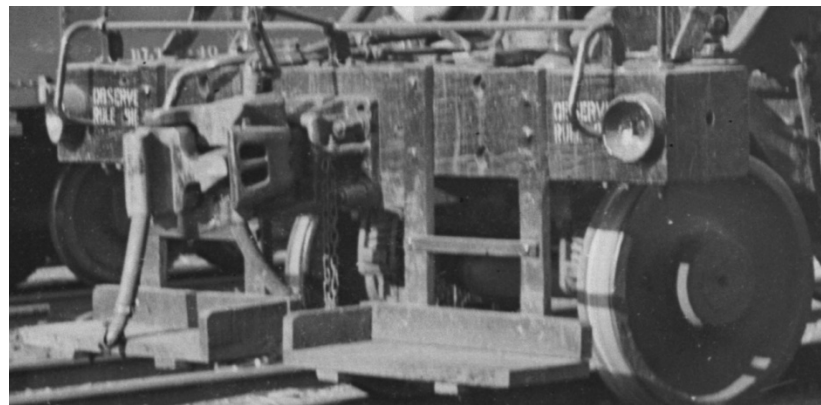


Boiler Tube



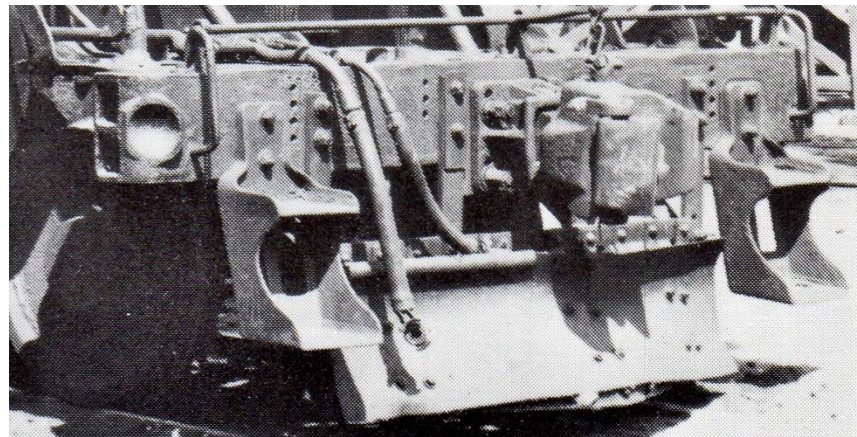
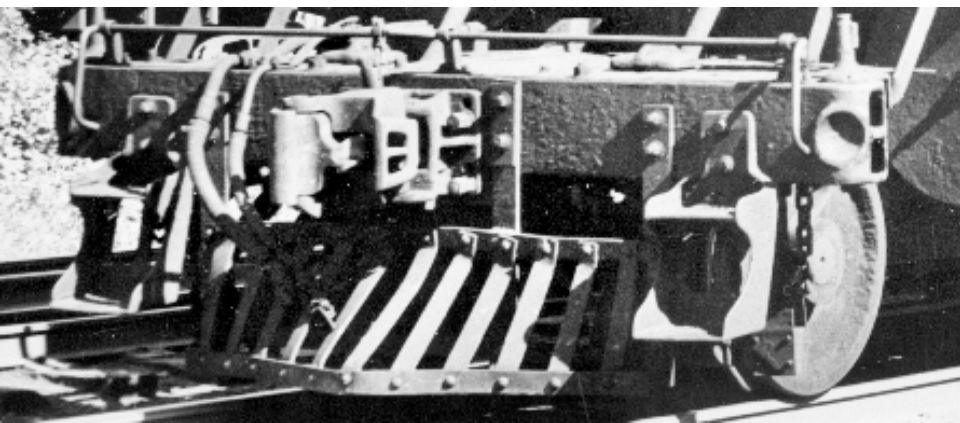
**Boiler Tube
with pilot plow**

Foot board



Steel Strap

**Steel Strap
with pilot plow**



The New Haven Railroad and Tenders

- The New Haven frequently swapped tenders
- Turntable length limited size of early tenders
- Large tenders were purchased for Shoreline service
- Tender class changed when a stoker was installed.
- Tenders received coal bunker extensions when stokers were installed
- Tender class did not change if an existing stoker was changed
- After WWII, as locomotives were retired, larger tenders were moved to other locomotives
- Unless you're modeling c1927 or earlier, If you model the New Haven, you'll need to modify or swap some tenders
- In the late '40's several had brakeman doghouses*

*Confirmed: L-1-a #3246; R-1-b #3328, #3333; R-3-a #3558

Important Tender Classes for Modelers

- W-6-a – Delivered on K-1-b/d
- W-6-b – W-6-a with raised coal bunker (I-2)

- W-7-a – Delivered on I-2, I-4 (J-1)
- W-7-b – W-7-a converted to Clear Vision (J-2, J-1, F-5)
- W-7-c – W-7-a with stoker (?) and raised coal bunker (J-1)

- W-10-a – Delivered on J-1, J-2
- W-10-b – R-1 (USRA tender with USRA trucks)
- W-10-c – Delivered on R-1-a/b (similar to W-10-b)
- W-10-d – W-10-c converted to Clear Vision (Y-4, Y-4-a)
- W-10-e – W-10-a with stoker and raised coal bunker (I-4)

- W-12-a – 6-axle long haul tender for freight (R-2-a, R-3, R-3-a)
- W-12-b – 6-axle long haul tender delivered on Y-4-a (R-1-a/b)
- W-12-c – 6-axle long haul tender for passenger (I-4)
- W-12-d – 6-axle long haul tender (I-5)

Vanderbilt Tenders

R-1-b #3325 with V-1-a tender



R-1-b #3325 with V-2 tender



Note the lower base of the coal bunker 'wings' on the V-1-a

- 1924-c1927/8 – Two V-1-a and 8 V-2 tenders delivered and used on Y-4 class
- c1928-1937 – V-1-a used on I-4 #1359 and #1392 for Merchants Limited*
- c1928(?) -1952 – V-2's used on R-2 #3500, and R-1-b's
- c1937 – V-1-a's used on R-1-b's

***photos confirm use until at least 1933**

V-1-a #1359, #1392, #3324, #3325, #3329, #3338, #3340

V-2 #3500, #3324, #3325, #3337, #3338, #3340, #3341, #3342, #3346, #3348

Switchers: T-2-b

Overland

- Not all had arched cab windows
- Dynamo location
- Air pumps – single, dual single, cross compound
- Running board configuration
- Air Tanks under running board
- Power reverse
- T-2-a nearly identical – main rod connected to second driver instead of third

Switchers: Y-3

Precision Scale, Proto 2000, W&R

- USRA Prototype
- Southern valve gear on ex-CNE locomotives
- #3400-#3409 have coal pushers
- #3410-#3419 with Pflager tender trucks, at least 3 were replaced with arch bar
- Vulcan tender trucks on others
- All had clear vision tenders by early '30s

Switchers: Y-4 and Y-4-a

Precision Scale

- 3-cylinder switcher
- The main visible difference between the classes is the throttle location
- Y-4's delivered with V-1 tenders
- Y-4-a's delivered with W-12-b tenders
- All were replaced with W-10-d's (W-10-b/c tenders converted to clear vision) c1929
- Headlight moved to top of smokebox c1938-9

Freight: K-1-b/d

New England Rail Service

- Largest class on the New Haven, you need a K-1
- 84 K-1-b's superheated by 1924 (now K-1-d)
- K-1-d - Walschaert, Baker and Southern valve gear
- Evenly distributed between K-1-b and K-1-d, even in the postwar era.
- Not all have arched cab windows
- Location of air tanks
- Running boards
- Air pumps
- K-1-c (oil burner) kitbash possible

Freight: J-1

Key

- Handrails (over top of boiler on some)
- Running board configuration
- Injector pipes moved outside jacket
- #3023 and #3024 both had McClellan boilers, their second McClellan boilers required increase in cab height
- #3011, #3013, and #3022 received ex-J-2 W-7-b clear vision tenders in 1946

Freight: L-1

Custom Brass, Precision Scale

- Received Elesco feedwater heaters c1926-30 (now L-1-a)
- Air pumps moved to pilot c1932
- ATS moved from pilot to side

Unique Locomotives

- #3206 – L-1-b with Type A and E Superheater from 1927 until 1939 (hatch visible behind stack)
- #3246 always class L-1, never received Elesco, received turbo injector (visible on engineer's side in front and below cab). Pumps still moved to pilot.
- #3247 – class L-1-c with Type E Superheater (hatch visible behind stack) in 1929
- #3206, #3207, #3238, #3244, #3245 all condemned 11-39. Rebuilt 1942 with all Boxpok drivers (and #3206 had Type A and E Superheater removed)

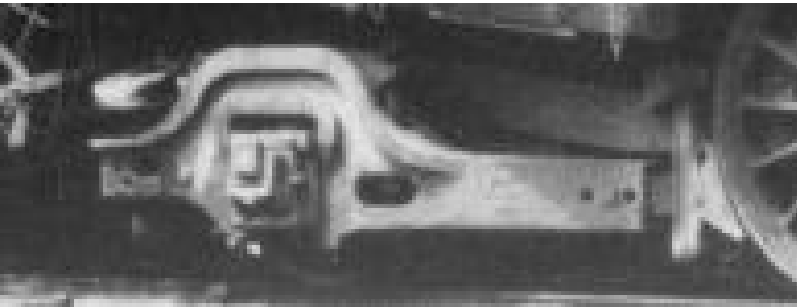
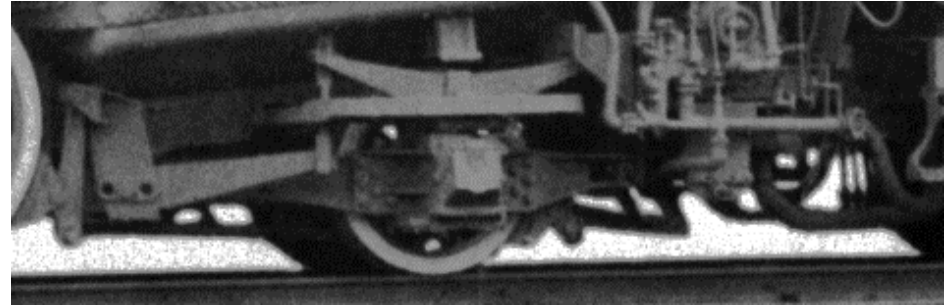
Freight: R-1

Bachmann, Key

- All R-1 classes received dual pilot air pumps early '30s
- Lifting injectors replaced by non-lifting type
- Number of sand pipes (2 or 4 per side) varied, and connecting pipes across the top of the boiler were often outside the jacketing
- Delivered with steel strap pilots

R-Class Trailing Trucks

**USRA trailing truck
#3300-#3309**



**First Delta trailing truck
#3310-#3339**

**Second Delta trailing truck
#3340-#3348, #3500,**

#3551 after conversion to R-3-a

Athearn Genesis from USRA Light Pacific (oop)



**Third Delta trailing truck
#3501-#3562**

Bachmann from USRA Light 2-10-2

Athearn Genesis from 4-8-2 (oop)

PIA Brass (oop)

Freight: R-1 #3300-#3309

- Elesco Feedwater heater applied '28-32
- Never reclassified as R-1-b
- Original USRA delivery (first to any railroad)
- Sand dome above 1st driver
- USRA tender trucks
- Only 5 received ATS '27-42

Freight: R-1-a/b - #3310-3334

- Southern valve gear
- Baker valve gear installed on nine '42-'46*
- Sand domes above 2nd driver
- Delta trailing trucks (version #1)
- Vulcan tender trucks
- Elesco Feedwater Heater '22-32 (now R-1-b)
- All received ATS 1928

*Confirmed: #3328, #3333; not #3318, #3326

#3328 received Boxpok main drivers when upgraded to Baker valve gear

Freight: R-1-a/b - #3335-#3339

- Southern valve gear
- Baker valve gear installed '42- '46 (ex #3335)
- Sand dome above 2nd driver
- Elesco feedwater heater under smokebox, moved to top of smokebox by 1922 (R-1-b)
- All had ATS, some dual
- Delta trailing truck (#1)

Freight: R-1-b - #3340-#3348

- Sand dome above 1st driver
- Delta trailing truck (#2)
- Elesco feedwater heater
- ATS
- Baker valve gear installed '42- '46

#3348 received Boxpok main drivers when upgraded to Baker valve gear

Freight: R-3-a

Custom Brass, Precision Scale

- Pilot mounted air pumps
- Air pump shields
- Lifting injectors replaced with non-lifting injectors
- Sand pipes moved outside jacket
- Some have dual ATS

Passenger: G-4-a

Empire Midland

- Superheated 1912-1924
- Baker, Southern and Walschaert valve gear
- Smokebox extended when rebuilt
- Not all have arched cab windows*
- Headlight moved to top of smokebox on some
- Running board configuration

Confirmed: #845-#849 delivered with arch cab windows

#805, #813, #816, #824, #826 received arch cab windows

Passenger: I-2

Crown Custom

- Single air pump replaced with cross compound
- Mid '30s Power Reverse
- Injectors moved outside jacket

Passenger: I-4

Custom Brass, Precision Scale

Visually two classes based on service hatch behind stack

- I-4-c/e – small hatch for servicing Type ‘A’ Superheater
- I-4-d/f – large hatch for servicing Type ‘E’ Superheater

- Air tanks moved to top of boiler
- Smoke deflector
- Stokers added 1939-40 after ICC requirement.
- Early feedwater heater pump later replaced

Unique Locomotives

- #1350 – long air tanks
- #1370 – Bean smokebox
- #1388 – Boxpok Main Drivers (WWII rebuild)
- #1359, #1392 – V-1-a tenders from 1928 to 193?

Passenger: I-5

Broadway Limited, Custom Brass, Precision Scale, W&R

- Paint Schemes
- Loco Valve Pilot applied c1938

New Haven Steam Resources

New Haven Specific

Essential

- New Haven Power; Jack Swanberg
- New Haven Railroad - A Fond Look Back; Andrew Pavlucik
- A Great Railroad at Work (DVD/VHS available from NHRHTA)

Books

- Memories of the New Haven, Vols. 1-3; Ron Hall & Robert Wuchert
- Trackside - East of the Hudson (1941-1953); William J. McChesney

Locomotive Quarterly

- New Haven Pacifics, Vol. 12 #3
- New Haven Steam Power, Vol. 18 #2
- Maybrook Line Power, Vol. 26 #4
- New Haven's Streamlined Hudsons, Vol. 28 #2

Websites

- UCONN's Digital Image Collection (<http://images.lib.uconn.edu/>)
- NH Steam Locomotives A-Z (<http://sites.google.com/site/nynhhsteam/>)

General Information

- Model Railroader Locomotive Cyclopedia, Volume 1 (steam)
- Original Locomotive Cyclopedias
- Railway Prototype Cyclopedias
- Bob's Photos

Shoreliner Steam Articles

Class	Vol	#	Description
Multiple	6	1	“Power” Issue
Multiple	7	4	Development of Passenger power
Multiple	8	1	Locomotive Performance on the New Haven
Multiple	22	3	Comparison of Super Steam Passenger Locomotives
F-5	1	1	Description and Diagram
F-5	23	4	F-5 Feature Article
G-4	4	2	Article, Photos and Trivia
I-4/5	8	1	Comparing the I-4 and I-5; I-5 Experience and Photos
I-5	3	3	I-5 Description
K Class	11	1	K Class moguls
L-1 Class	7	2	Experiences
L-1 Class	26	2	Feature Article
R Class	2	2	R-1-b Modeling Article and Diagram; R-2-a and R-3-a Diagrams
R-1 Class	9	1	Feature Article
T-2-b	1	4	Description
T-4	3	4	Diagram
Modeling	7	1	Y-4-a Kitbash
Modeling	11	1	Review – NJ Custom Brass I-4, I-5; Empire Midland G-4
Modeling	12	1	Review – Key J-1; NJ Custom Brass R-3-a
Modeling	16	2	Modifying the NJ Custom Brass R-3-a
Modeling	16	3	Review – NERS K-1-b/d

Available New Haven Steam Models

Class	HO	N	O
G-4	Empire Midland		
I-2	Crown Custom		
I-4	NJ Custom Brass, Precision Scale		Weaver
I-5	Broadway Limited, NJ Custom Brass, Precision Scale, W&R		Weaver
J-1	Key		
K-1	New England Rail Service		
L-1	NJ Custom Brass, Precision Scale		
R-1	Bachmann, Key*	Bachmann, Hallmark	*
R-3	NJ Custom Brass, Precision Scale		Precision Scale
T-2	Overland		
Y-3	Precision Scale, Proto 2000, W&R*	Proto 2000*	MTH*
Y-4	Precision Scale		

* – USRA Prototypes; additional models have been produced in nearly every scale.
 - American Flyer produced an S-scale I-4 class in the 1950's.

HO Scale Detail Parts for New Haven Steam

Part	Cal Scale	Cary	Custom Finishing	Precision Scale
Air Brakes	359, 366, 368	189, 232, 258		3211, 3322-1, 31089, 31095
Air Hoses	274, 277, 319, 320			
Air Pumps	240, 256	218, 244		3092, 3092-8, 3092-9, 3092-11
Ash Pans	248, 249			
Bells	281, 285, 317	190, 195		31068, 31069
Cylinder Cocks		121, 124		
Dome Fittings	227, 228			
Generators	211, 212, 213	141		3148, 3149
Feedwater Heaters	343, 2003	129, 234, 236		
Headlights	241	128	102, 123, 124	3189, 31611, 31617
Injectors	262, 288	138		31312, 31314
Low Water Alarms	333			3480
Marker Lights	280, 312			31336, 31634
Pilots				32502
Pipe Brackets	480, 481, 482	158, 170		48480, 48486
Power Reversers	303	110, 133		
Smoke Box Fronts	243	105		31437
Stacks				31453, 31727
Stokers	224			
Throttles	268			

HO Scale Detail Parts for New Haven Steam

Part	Cal Scale	Cary	Custom Finishing	Precision Scale
Train Controls (ATC)	252			
Trucks	Bowser 2990			3127, 31556
Valve Gears				31529, 31530
Washout Plugs		271		32253, 48201
Water Hatches		180		
Whistles	250		103	

Cal-Scale (Walthers Mfg #190) and Cary are divisions of Bowser (Walthers Mfg #6): <http://bowser-trains.com>

Drawings and pictures are available in their online catalog.

Cary parts are only available direct from Bowser.

Precision Scale (Walthers Mfg #585): <http://precisionscaleco.com>

A \$30.00 minimum purchase is required when ordering direct.

Drawings are available in their *HO and HOn3 Steam Locomotives* catalog (current edition 3.1).

Not all PSC parts are listed or available via Walthers and are only listed in their catalog.

Custom Finishing (Walthers Mfg #247): <http://customfinishingmodels>

Order direct, or have your dealer order direct.

<http://needtrains.com> has a good supply in stock and is able to order more.

Bachmann Trains: <http://bachmantrains.com>

Parts must be ordered direct.

The Delta trailing truck USRA Light 2-10-2 Santa Fe is a decent match to the Delta truck #3 used on #3501 to #3562

The End

R-3-a #3553 Poughquag

