



Photography: Dave Frary except where otherwise noted

## Diesel power for an HO<sub>n</sub>30" railroad is easily kitbashed from a Minitrix N scale Fairbanks-Morse H12-44 unit.

case full of drawings and specifications for a shortline diesel locomotive. The young salesman lectured Morris at length on the recent advances in motive power technology, and before the Super could get a word in edgewise, explained that replacing steam power on the C&DR with a fleet of diesels would save the road a princely

would be modernizing the road and, after all, that was something that everybody wanted to do, what with the many uses people were coming up with for plywood products.

Well, sir, Morris was quick to act. First thing he did was summarily throw the brash young stranger out of his office, and

# Heavy power for the Carrabasset

by Bob Hayden

Along about 1938 we find Superintendent Morris Pratt of the 30"-gauge Carrabasset & Dead River Railway up in Freeman Township, Maine, with a bit of a motive power problem on his hands. The price of coal, it seems, has increased quite a bit under the Roosevelt administration, largely due to some labor problems in Pennsylvania and West Virginia, and manhandling that same coal into narrow gauge cars and tenders down at the standard gauge interchange is costing Morris a pretty penny—even at Depression wages. Yet another aspect of the problem is that the Super's aging fleet of half-a-dozen low-driven Baldwins has been spending altogether too much time in the shop. So much time, in fact, that on a heavy day he's not sure of handling all of the traffic from the plywood company up the line, his mainstay shipper.

The solution, as it turned out, arrived one brisk February day on the morning mixed train up from the junction with the Maine Central. A young fella—sort of a city slicker you might have said—bustled into the road's general offices with a brief-

sum in annual operating costs. For one thing, he went on, fuel costs would go down, and since the diesels could make four or five trips over the road without pausing for fuel, the majority of the road's fueling facilities could be located down at the Junction, maybe even with a simple hookup from a wide-gauge tankcar. The more even weight distribution on the diesels' trucks would mean less stress and strain on the pike's older trestles and wooden bridges, and all the engine weight would be on the driving wheels, a far cry from the arrangement on the little Baldwins. Added to all this, the internally combustible young man pointed out, Morris

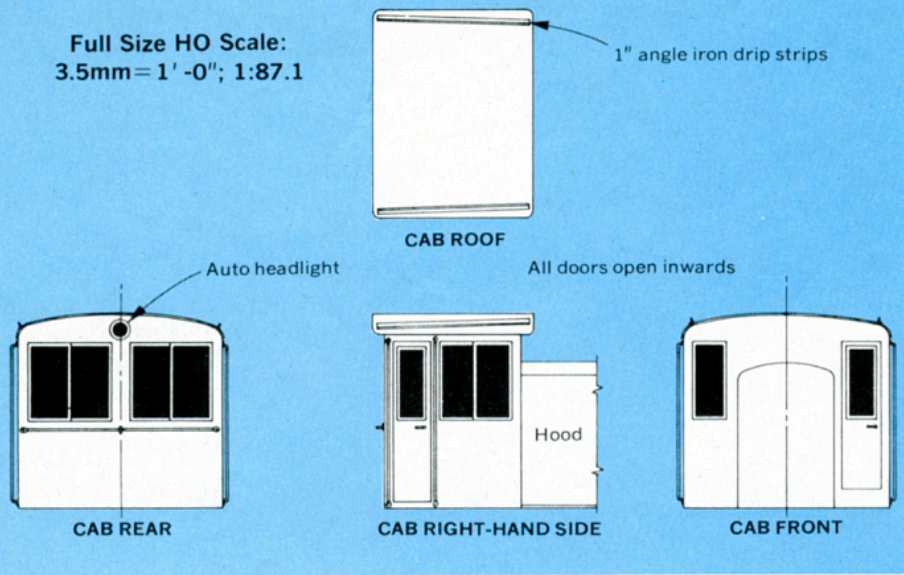
showed him to where he could catch the last mixed train back down to the Junction and, if he hustled, be out of the county by nightfall. Later on, though, after his newest Prairie-type broke an axle, and the 2-spot rolled down the bank while shoving a plow train up the grade to Carrabasset, he got to looking over the pile of information that the young salesman had left scattered on his desk. About six months after the diesel drummer had first graced his doorstep, Morris sent out a polite letter to his home office, and that same week he brought up the question of new power before the board of directors at their bi-monthly meeting. It was no easy feat, but

## What you'll need...

**Unit 25:** Minitrix FM switcher #51200400; Egger-Bahn 30" gauge (HO<sub>n</sub>2½) electric loco cab; Kadee MT-1106 N scale coupler conversion; Campbell nut-bolt-washers T-6; .010" and .020" styrene or ABS sheet stock; Kemtron bell M-10; ¼" and ⅜" O.D. tubing (stack); paint (author used Floquil); suitable decals or dry transfers.

**Unit 26:** Minitrix FM switcher #51200400; AHM Minitrains 30" gauge Plymouth body; Kadee MT-1106 N scale coupler conversion; Campbell nut-bolt-washers T-6; .010" and .020" styrene or ABS sheet stock; Cal-Scale bell BE-285; ¼" and ⅜" styrene tubing (stack); Grandt ventilators from passenger car roof detail set HO-43; Cal-Scale NP headlight HL-208; Kemtron marker lights with jewels ML-103; paints; lettering (decals or dry transfers); .010" acetate scraps; plastic body filler material (like Micro Scale's); single-strand of twisted copper wire.

Full Size HO Scale:  
3.5mm = 1' - 0"; 1:87.1



once the Super conceded to sell off four out-of-service Forney types for scrap value and trade a small parcel of railroad real estate to the local fire department, the town elders and the owner of the plywood mill gave him the nod to place an order for a single 34-ton diesel.

The very first narrow gauge diesel in the State arrived in November, all slick and shiny and wearing road number 25 emblazoned on her cab sides. The boys from the backshop had quite a bit to say about the latest acquisition, most of it unprintable. About the only positive comment came from old Abbott Livermore, who, after crawling over, under and all through

the engine, allowed to Mose Crocker as how the new power was "the consarndest thing I ever seen!" (Well, that's *almost* what he said...)

In HO<sub>n</sub>30" gauge, the 25-spot represents my first attempt at concocting a believable "two-foot" diesel using a few small standard gauge examples (the Southern Pacific's Keeler Branch three-foot gauge X-1 and the Sumpter Valley's 101) and an available N scale switcher as source material. We needed some hefty pulling power for the sharp curves and exaggerated grades on the new C&DR Dave Frary and I are building, and since we were depict-

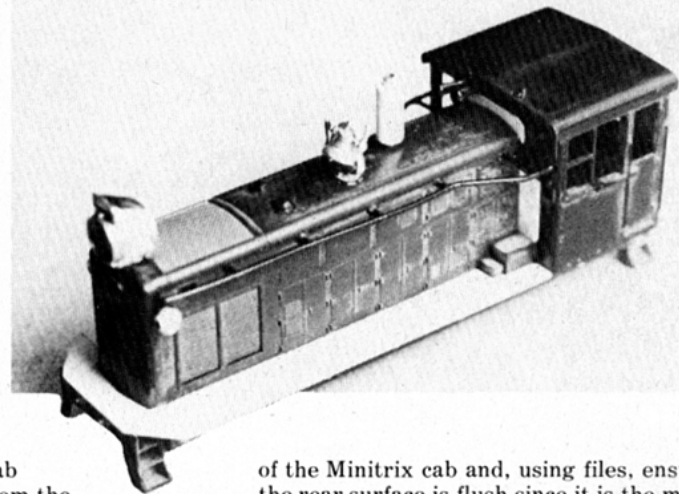
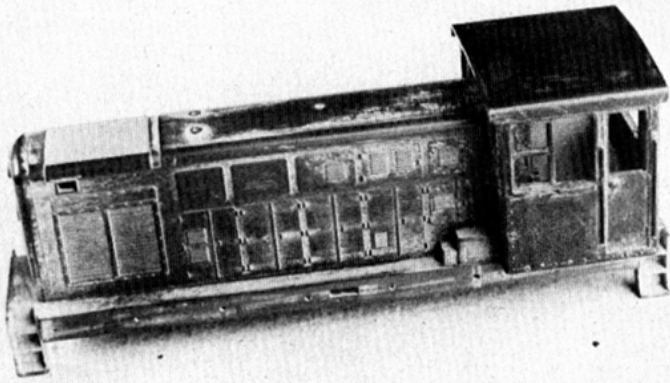
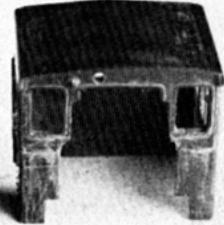
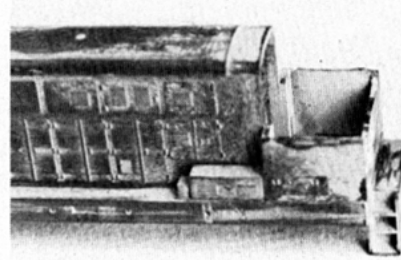
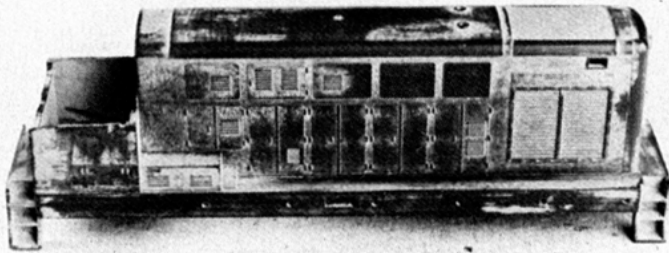
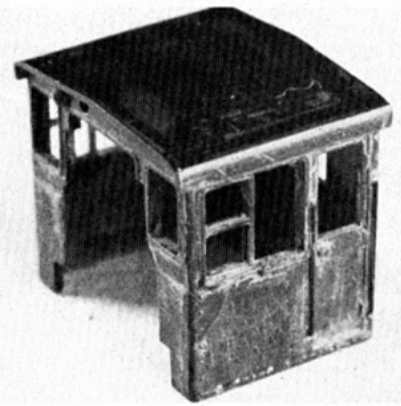
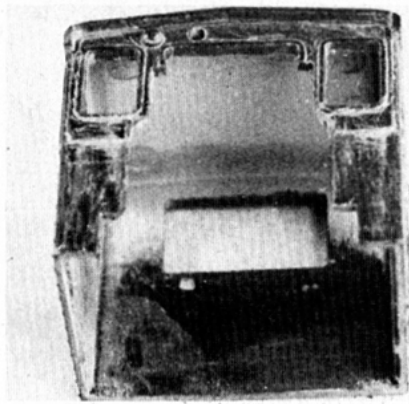
ing a period in the late Thirties and early Forties, internal combustion power seemed the coming thing. The first conversion—the 25—started life as a Minitrix Fairbanks-Morse switcher, and its performance proved so impressive over better than a year that a second unit was ordered up—er, converted—and became the number 26. The engines have eight-wheel pickup and good weight, and the readily available Ka-dee N scale coupler conversion makes them fit easily into our HO<sub>n</sub>30" scheme of things.

The conversion is a fairly easy cut-and-paste job. If you're interested, the first step is to gather together all the parts and materials that you'll need. I've included a list of the commercial parts that I used for both conversions. Aside from the basic Minitrix engine, most of the list is only by way of suggestion, since this is a *very* freelance model and the emphasis is on using what you have on hand and, more important, what pleases *you*. The tools you'll need are really basic: a sharp X-acto knife with a couple of spare blades, a razor saw, a pin vise with an assortment of small drills, a couple of needle files, a scale rule, needle-nosed pliers, tweezers, a small scriber (I use a point from an old grade-school compass), and whatever painting gear you normally use. I used all kinds of adhesives for various jobs, including a solvent-type plastic cement, a rapid-setting alpha-cyanoacrylate adhesive, and a two-part five-minute-setting epoxy—here again, use what you like. One more valuable aid is a Dremel tool, but if you don't own one, don't panic—all it really did for me was to speed up a couple of the early cutting operations.

Once you've selected your raw material and have everything scattered around the workbench, start by removing the Mini-



Cab large enough for HO scale figures is obtained from an HO<sub>n</sub>30" gauge diesel, then modified to fit Minitrix FM switcher (two photos at right), or it can be fabricated from plastic (opposite page). Cab on FM switcher is then partially cut away as shown (below left). Paint has been removed from all components, which are then ready for final assembly (below right). Flat surface at rear of FM switcher cab is major point of contact for bonding new cab to body shell; author also added fillets of epoxy at front cab corners to strengthen entire assembly (bottom left). C&DR 26 is shown prior to painting (bottom right); white areas are styrene pieces used as running boards and as covering panels between cab and body. Other details, including unorthodox handrails from FM, have been applied.



trix switcher body from the running gear. All of the added-on detail parts, including the horns, handrails, clear headlight lenses, cab roof and opaque window glazing insert are easily separated from the basic body molding by applying a little liquid plastic cement to the inside of the body where they are glued, and then prying gently with tweezers or an X-acto knife while the joints soften up. Be especially careful with the handrail pieces; we're going to use these again.

I used ready-made plastic cabs for both my conversions: an Egger-Bahn 30" gauge electric work loco cab for the 25 and the cab from an AHM-Minitrains Plymouth switcher for the 26. Since neither of these locos may be available when you read this, I've included an HO scale drawing for an all-welded cab design that should take less than an evening to piece together from .020" or .025" and .010" styrene or ABS sheet stock. If I'd taken this route, and I'll probably have to on the next conversion unless I can scrounge up another Minitrains diesel, I wouldn't have worried much about leaving out rivet detail, since all-welded construction is hardly out of the question for the period we're talking about.

If you should be fortunate enough to unearth a Minitrains diesel, your next step is to remove all the added-on detail parts just as you did with the N scale body, and

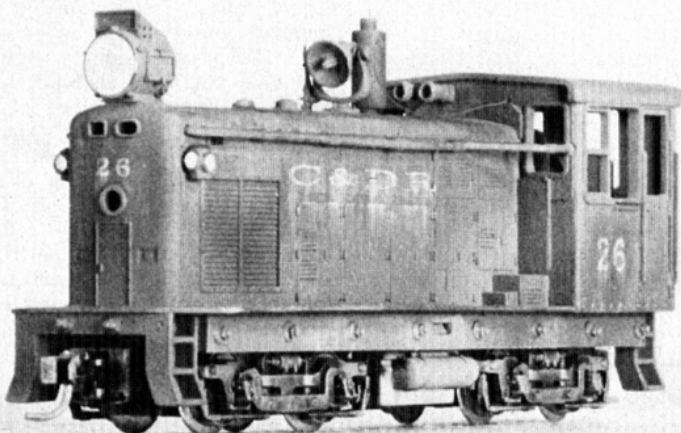
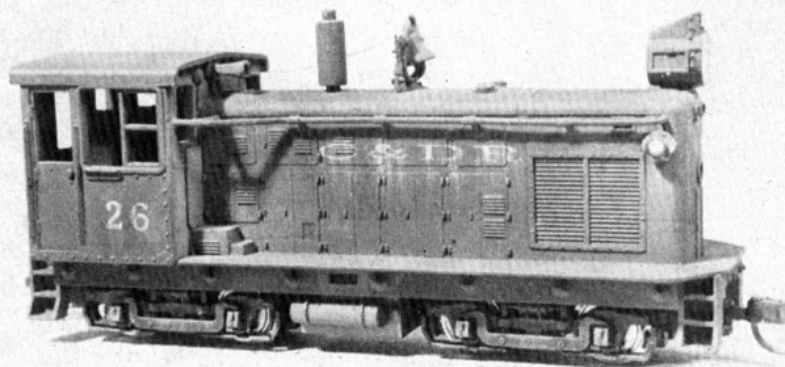
then separate the cab and hood molding from the lower frame and coupler molding. These are glued together, and I experienced no difficulty in prying them apart with just a little help from solvent-type cement. I then used a razor saw and a Moto-Tool with a high-speed steel cutter bit to cut the cab away from the hood. Since I wanted to save the hood for another project, I was careful to cut as thin a line as possible, as shown in the photos. This done, use a sharp X-acto blade to trim and scrape the cut-away cab edges to a smooth, no-burr contour.

Getting back to the N scale switcher body, use the razor saw to slice off the cab walls to the height shown in the photos, and trim up the cut edges for a smooth appearance. Since I'm not at all concerned with cab interior detail on a loco this small, I chose to cut N scale body right at the rear end of the hood, and trimmed it down only to a height where it would not be seen through the new cab windows. Leaving as much of the old cab as possible has an added advantage of retaining much of the strength of the Minitrix body molding—something that will be valuable as you handle the model later on.

The next task is to cut and fit the two basic body components together. Start by slicing off the doorstep on the rear wall

of the Minitrix cab and, using files, ensure the rear surface is flush since it is the main point of contact between cab and hood parts. Fit the cab and hood sections together by removing material bit by bit from the opening in the front wall of the Minitrains cab. Go slowly here, since some of your joints will show up in the finished job, and continue cutting and filing until the cab will slide over the hood and can be lined up square all around. The front and rear cab walls rest on the original N scale running boards in my models, and I used these points of contact as a "ground level" to ensure everything was lined up right.

When you have the two major parts altered for a good fit, drop both of them into a container of wood alcohol and let them soak for two or three hours. The alcohol will not attack the plastic, and it does soften the paint enough so that you can remove it with a stiff-bristled brush and a little gentle scraping with the tip of an X-acto knife. ScaleCoat has a new paint remover that I have yet to test, but it seems likely to do an excellent job based on the firm's reputation. You could omit this step, but I found that the Minitrains cab had some surprisingly fine rivet detail that was all but obscured by the factory paint finish, and of course your own paint would just go farther to hide this kind of detail.



While the body parts are in the paint remover, disassemble the Minitrix running gear and install the Kadee conversion kit if you're partial to that type of coupler. Incidentally, we've been using Kadee N scale trucks and couplers throughout on the C&DR for well over a year, and have found them just as trouble-free as their HO counterparts. While you have the running gear apart, clean and mask the truck frames for painting. It is possible to re-

move the plastic sideframes from the trucks, but it's a ticklish job, involving fiddling with some very delicate pickup parts, and I found it safer, and simpler, to slip strips of paper between the frames and wheels and use masking tape to protect the inner truck frames and gearing. Also remove the plastic fuel tank and pickup carrier casting from the frame, mask and paint it.

Once the paint has been softened up on

the cab and hood, use a stiff-bristled brush to scrub off most of the factory finishes, and the point of an X-acto knife to pry away any stubborn paint particles. I used a brand new blade in the knife to carefully slice and scrape away the cast-in pickaxe and sledge hammer on the rear cab wall of the Minitrains diesel; you could do the same with the cab handrails and replace them with wire parts.

Now use small strips and bits of .020" styrene or ABS to add a divider to the large rear cab window opening. This is optional, but operating up in the cold weather as we do on the C&DR, we consider this alteration a necessity. This done, cement the Minitrains cab to the Minitrix body casting, and fill in between the cab and hood joints with strips and small sheets of .010" plastic. The photos show how this is done, and here the trick is to keep the pieces small and file the edges for a smooth joint between parts.

The running boards are made of .020" plastic cut to fit on top of the N scale running boards. You have a fair amount of latitude in size here: I made my running boards about a scale 23" wide, and cut and filed a piece to fit across the front deck with about 3" hanging over the front frame. I then used nut-bolt-washer castings to fill in the frame holes left by removing the N scale handrails, and drilled two additional holes in each side frame to allow the NBW castings to be spaced all along the sides. Only two NBW castings are used in the end frames; the other holes are filled with Micro Scale's filler putty and sanded flush. These nut-bolt units may be a bit questionable as "detail," but they look good and fill the holes nicely.

Your next job is to add the handrails, and this turns out to be about the most ticklish part of the conversion. I used the Minitrix N scale handrails, turned on their side and inserted in holes drilled into the cab and hood. This process takes a fair amount of eyeball fitting, so take your time and try not to warp the handrails out of shape when you fit them into the holes. With the handrails in place, drill holes and add whatever details you've decided are appropriate; my choices are listed in the accompanying box and shown in the photos. I used Grandt Line HOn3 passenger car roof ventilators for a pair of air intake filters on 26, along with a Cal-Scale headlight and bell, a homemade exhaust stack, and a pair of Kemtron classification lamps. The air horns on 26 were scavenged from the Minitrains diesel, with the ends drilled out to add just a jot more realism. In case you're wondering, both 25 and 26 purposely have only one headlight, making it necessary to turn them end for end on a wye or turntable for night operation—a very steam-prototypical feature.

That about does it for construction, leaving painting the next step. Once I had everything stuck together with various types of glues, I gave my models a week or so for all the joints to set up rock-hard, and then cleaned them with another alcohol bath to remove any glue residues and finger oils. It's important to remember not to touch the model after you've cleaned it, and I use throw-away clear plastic "Hand-Guard" gloves to ensure I leave no finger oils on the model before painting.

Number 25 is painted with a lightened

Floquil Grimy Black color, but I decided to opt for something a bit more striking with 26 and mixed up a soup of ½ Floquil Rust, ¼ Boxcar Red, ¼ FloPaque "Dresden," and a few drops of Grimy Black to add a hint of filth to the brew. This was misted on so that the initial coat would not craze the plastic, and then sprayed on with the airbrush in a cover coat. If you're brushing Floquil, be sure to use a coat of Floquil Barrier beforehand, or better still, use Polly-S colors. Scale Coat recommends a protective coat before using their paints on plastic as well.

I let this first coat set up for about ten days to make the paint resistant to applications of its own solvent, and then misted on a coat of Grimy Black, followed by another mist coat of the basic orange-red color. This "undercoat weathering" gives you a visual suggestion of dirt without being obvious, either to the eye or the camera, and allows you to strip off layers of grime and paint with a brush moistened in Dio-Sol, giving very good control in the weathering process. These base coats should also set up for about a week before lettering and final painting, so take a break and work on another project. Incidentally, all these breaks give me a chance to sit down at the typewriter and put it all into words; if you're not troubled with that problem, try to resist the temptation to handle the model—your end results will be better for it!

I used dry-transfer lettering and, after it was applied, misted the engine once more with the basic color and some thinned Grimy Black. This done, I used a brush moistened with just a bit of Dio-Sol to remove some of these over-coats and expose the cleaner paint below. I kept my brush strokes up and down, simulating the streaks caused by rainwater and snow in the fine coat of engine grime. You'll have to try this technique yourself to get the hang of what I'm talking about—it amounts to a sort of "dry-brushing in reverse" where you are removing, rather than adding, very thin layers of paint to simulate the effect you want.

Number 26 was finished up with the addition of marker light jewels, and a headlight lens filed to shape from .010" acetate and glued into place. A bell pull of fine copper wire was added, and 26 now works both freight and mixed runs on the C&DR. By and large, 26 represents an esthetic improvement over 25, with a shorter, more businesslike cab and the larger, more typical narrow gauge headlight. The two diesels are frequently run double-headed, but never m.u.ed, since that refinement is unheard of on the circa-1939 C&DR. Out on the line with a drag freight, the units are not coupled together; rather, the helper is usually cut into the train at least three cars back, since the bridges on the line aren't really in the best of shape.

As I mentioned before, these conversions operate on a large HO<sub>n</sub>30" pike that is subject to all the bugaboos of dirty track, warped roadbed, and inadequate maintenance that we've experienced on wider gauge HO roads, yet they run very well. They represent a plausible form of motive power for a 1940-era narrow gauge pike, and Morris Pratt and I, not to mention that young diesel salesman, are very pleased with them.

## Critters to contemplate . . .

Idea material for modeling: Two examples of those innumerable tiny units aptly called "critters" by **Extra 2200 South**, plus a GE three-foot gauge unit, are shown below. No. 3 is a Plymouth three footer now used by GC&SJ at Golden, Colo. Yosemite Mountain & Sugar Pine in Fish Camp, Cal., uses this three footer (**center**) to share duties with a Shay. The GE, a cut-down 44-tonner in essence, saw service in Hawaii pineapple fields, but is now used on Cumbres & Toltec.



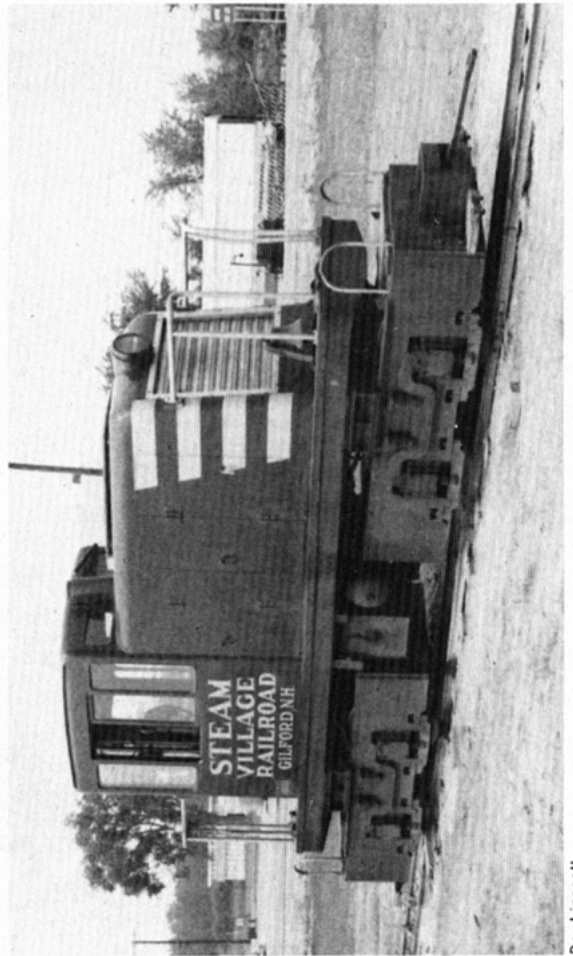
Three photos: Bob Hayden



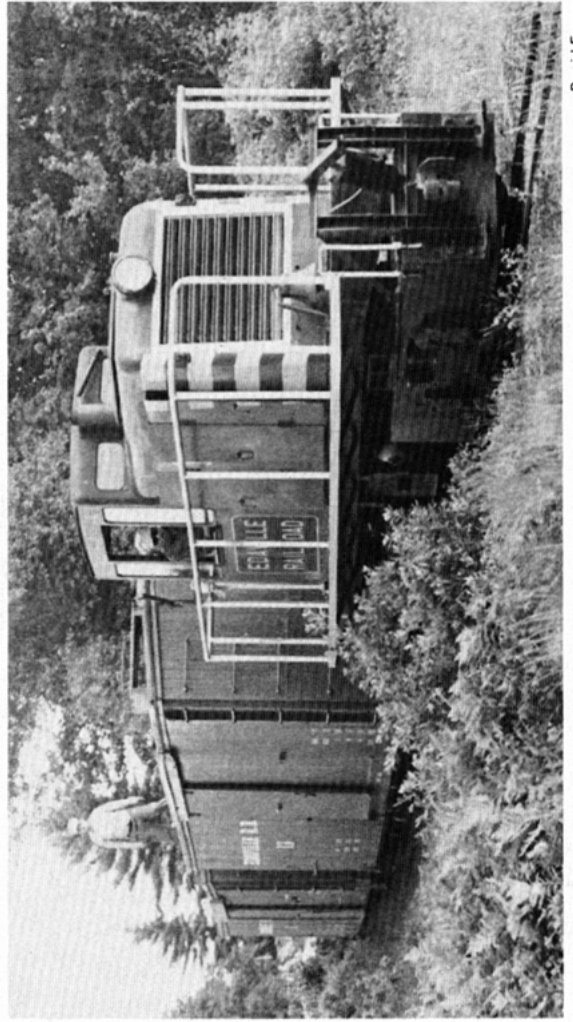
# GE's 23-ton two-footers

Late in 1949 General Electric completed the first of three unorthodox industrial diesel locomotives for the Whitin Machine Works of Whitinsville, Mass., a manufacturer of knitting looms and woolen-making machinery. The engines were ungainly beasts more than vaguely reminiscent of a standard GE 44-tonner. The 23-ton units were held to 50" wide due to close clearances within the plant. Rated at 150-hp., GE classified them B-B-46/46-4GHM844; they had a top speed in the 25-mph. range. They were used to haul both four- and eight-wheel dump, flat and gondola cars until phased out of the plant operations as part of a reorganization.

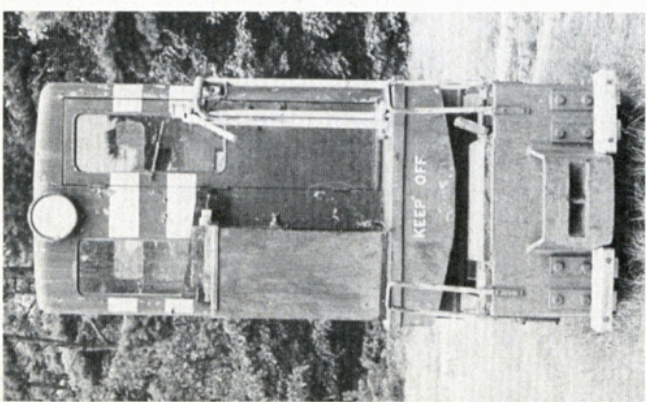
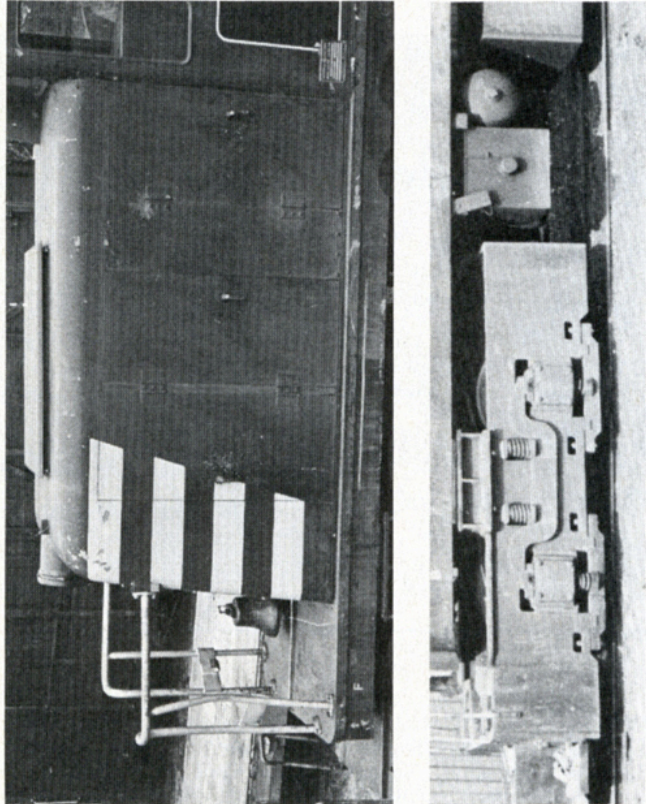
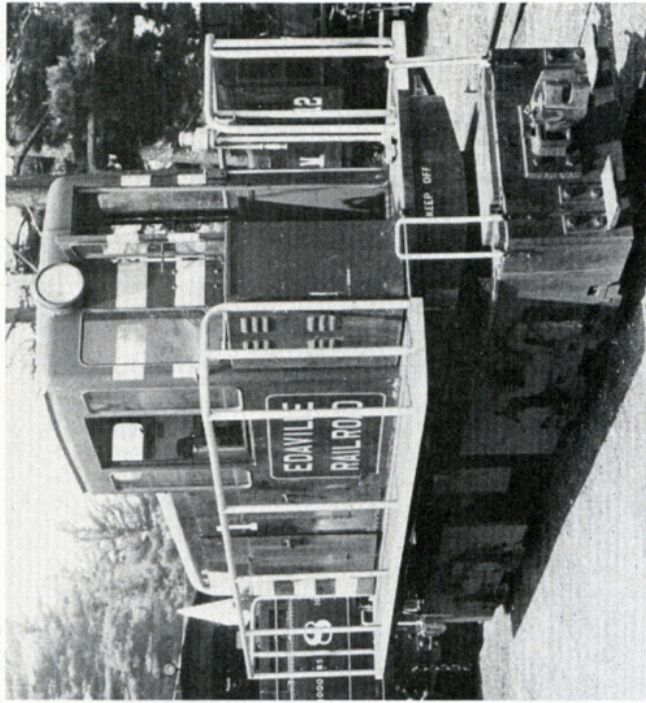
At least two of the trio went to the Edaville two foot gauge museum railroad at South Carver, Mass.; the other surfaced on the Steam Village Railroad in Guilford, N.H. All three were reportedly rescued from the clutches of a Worcester, Mass., junk dealer. Edaville rebuilt their units with running boards and handrails — *Bob Hayden.*



Roy Linscott



David Frary



drawn by Julian Cavalier and Bob Hayden

Full Size for On2: 1/4" = 1'-0"; 1:48

