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3rd Rail CB&Q 2-10-4 Class M4A



Review and Photos by George Brown

Although the Texas is the common name for the 2-10-4 type, the CB&Q called its 2-10-4s the Colorados, and they were the road's largest and heaviest class of steam locomotives. Baldwin Locomotive Works delivered 18 Colorados to the Chicago, Burlington, and Quincy Railroad, part of the larger Burlington Route, in the late 1920s. These engines were rebuilt in the late '30s as class M4As with lighter materials and smaller diameter cylinders, which made them capable of higher speeds than their original class. Each M4A developed a tractive effort of over 83,000 pounds from a boiler pressure of 250 psi and 64" drivers. Several of the M4As exited the rebuild with Elesco feedwater heaters, while others used the inconspicuous Worthington heaters.

Construction and Features

No two ways about it—the M4 is big. Just the wheelbase for the five sets of drivers is 5-3/4", while overall, the 1:48 scale brass model measures 27" excluding the rear coupler. Considering the length of the drawbar necessary for operation on hi-rail curves, the 3rd Rail model closely depicts the 107' overall length of a real M4A.

Real steam locomotives built during the early 20th century were mechanically busy looking with a lot of external plumbing and equipment, and the 3rd Rail model of the M4A exudes this visual complexity. Our evaluation sample of the Colorado features the visually prominent Elesco feedwater heater, which gives the engine its unique and complex appearing front end. On the boiler front between the headlight and top-mounted bell is a cast housing for the directional flashing Mars light plus a red Cyclops marker light for reverse running. Twin sand domes, replete with wire grab irons and located immediately in front of the steam dome, give the long boiler a particularly massive look.

A lanyard of .018" wire runs from the cab out to the bell with a second one going out to the whistle. Wires of the appropriate diameters, such as .032" for the 1-1/2" air lines, emulate the pipes and lines for carrying

water, steam, or air on the real engines. These pipes and lines frequently terminate at lost wax castings of the locomotive's various appliances, such as air pumps, injectors, valves, backhead gauges, power reverse, generator, and so forth. Several of the larger lines have spiral grooves to represent insulation wrapped around steam lines, and even bolted together flanges are modeled on several of the pipes.

Inside the illuminated cab is the same



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level of detail as on the outside of the engine. Painted gauge faces and valve handles accentuate the cab interior, as do the painted figures of the crew on their respective seat boxes. On the roof is an opening vent, while movable wind deflectors bracket the glazed windows on each side of the cab. At the left front of the tender are opening doors for a storage well. With the obvious attention to detail lavished elsewhere on the model, I found it odd that the cab side windows did not open and the windows in the cab's front and rear bulkheads were not glazed.

As with all 3rd Rail locomotives, the M4A has sprung drivers with the side rods realistically articulated at each wheel. By my caliper micrometer, the drivers fall a little short at a scale 63" in diameter across their rims. But with the naked eye, I sure can't detect they're .010" undersized. On the cast trailing and tender trucks, each axle journal is also sprung. Except for the sheet brass

pilot truck, all axles ride in bronze bushings so lubrication is paramount for smooth operation. I also recommend a small drop of oil on each driver's crankpin as well as where each crosshead slides along its guides.

Each 3-rail version of the M4A features Lionel TMCC and RailSounds 4.0 along with Engineer-On-Board speed control from Train America Studios. An unusually large oval speaker produces a nice tone, and even a 9-volt battery is factory-installed for RailSounds backup in conventional operation. Smoke plumes out of a Train America Studios Turbo Smoke unit.

Two rollers on the engine plus a roller on the tender pick up electrical power from the 3rd rail. A 9000-series, skew wound Pittman motor, equipped with a flywheel, moves the M4 through 3rd Rail's Quiet Drive mechanism. In this mechanism, a toothed, carbon fiber drive belt connects the motor,

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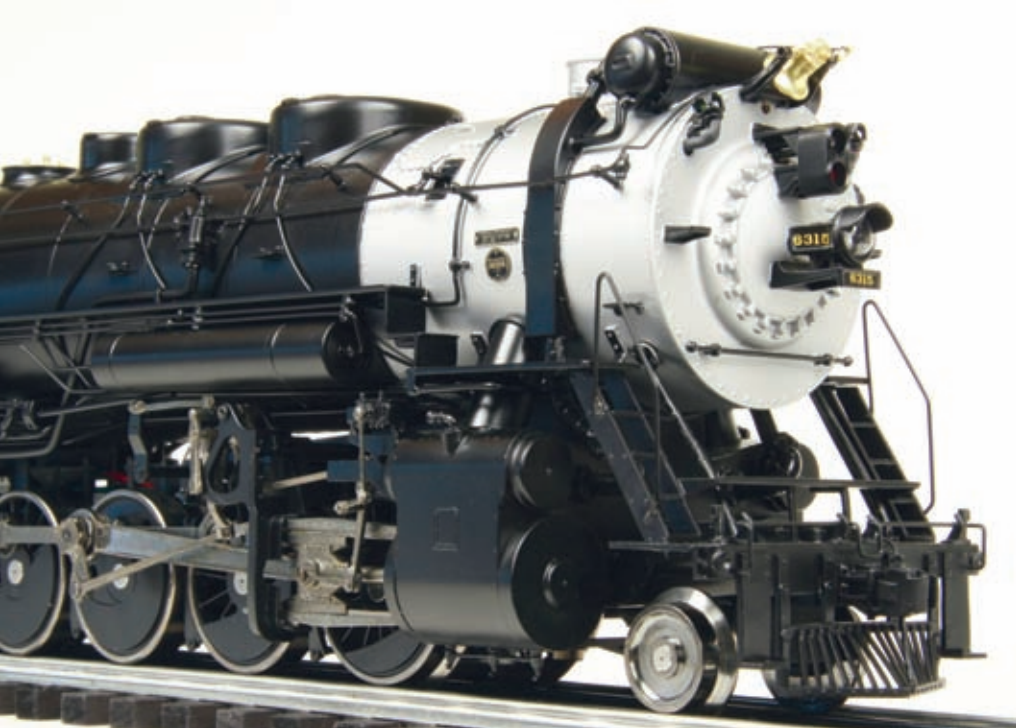
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mounted horizontally inside the firebox, to a parallel drive shaft that turns in ball bearings. This drive shaft and its gear box are inside the milled brass frame, well below the motor. Although expensive to produce, this design allows installation of the largest diameter motor possible that will fit inside the firebox.

The coal tender is nearly as long as the engine because of the prototype's water capacity of 21,500 gallons. Underneath the tank, but in plain view, is the tender's distinctive fishbelly frame that nestles realistically over the trucks. Much to my pleasure, no air is visible between the trucks and the frame, even with my line of sight at truck journal level. Controls for the tender-resident electronics are under-

neath the water tank hatch, while switches for the smoke unit and steam exhaust chuff rate are under the engine's firebox. Instead of an insulated antenna somewhere on the engine or tender, copper wipers pick up the radio frequency command signals directly from the outside rails via the wheels on the tender's rear truck...eloquently simple, and it works. If a wiper squeals against the inside face of the wheel, a light film of silicon dielectric grease brings quiet back without affecting the command signals.

With its overall satin black paint, silver smokebox and firebox, oxide red cab roof and tender deck, and gold lettering, the M4A is a handsome locomotive. Even close scrutiny with my magnifying visor revealed no runs or



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buildup in the paint. I was especially pleased to see dull pewter plating on the rods, wheels, and driver rims instead of the bright and shiny plating of some earlier 3rd Rail locomotives.

I enjoy seeing craftsmanship in the construction of any model, so my studying this one for its individual details was... exciting. What made it even more enjoyable was the fact that limited production brass models are hand crafted, and like their full-scale prototypes, no two are completely identical both cosmetically and mechanically.

At Trackside

When I read the statement about a minimum O54 curve in the owner's pamphlet, my fist impulse was, "No way!" But the M4A negotiated the O54 curves on the editorial Carpet Central surprisingly well, after I pulled enough slack into the interconnect cable between the engine and tender. As to the overhang at the cab end of the engine and also its center drivers on an O54 curve, it wasn't nearly as far as I

expected. However, the back of the engine did swing out far enough so its hinged step plate, which normally covers the drawbar and cable, dropped off the tender and rested on the cable. On O72 curves, the big Colorado was in its element, and the hinged step plate stayed in place, resting on the top of the tender's walkway.

Slow running is the engine's forte, and with the Engineer-On-Board electronics and RailSounds, realistic starts and running with drag freights are a thrill to watch and hear. But on the downside, with the sound turned down or off, the motor resonates audibly at low speeds because of the short-duration, high-power pulses from the EOB electronics. Happily, with the sound at full volume, this resonance is barely perceptible.

At the back of the tender, the command-triggered coil coupler is mounted to the tender frame and not the rear truck as is common on 3-rail locomotives and rolling stock. The coupler's shank is spring-loaded and swings both laterally and vertically to accommodate the car coupled to it. However, the coupler's knuckle

end consistently lifted and disengaged from one of my freight cars. After the engine unexpectedly left its train sitting dead on the main line, I coupled a different car immediately behind the tender—problem solved.

The Colorado's behavior at high speeds was uneventful with its relatively small drivers churning rod motion into a blur. I was somewhat concerned with the engine's mass as it entered the first turn at a scale 60 mph, but it tracked solidly through the O72 curves with no sign of instability. But as soon as I verified the track voltage and noted the current draw, I slowed the Colorado to a more reasonable scale 40 mph. I have no interest in seeing a magnificent scale model of a steam locomotive, or any other locomotive, careen into one of my train room walls or display cabinets.

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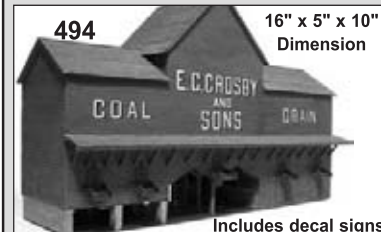
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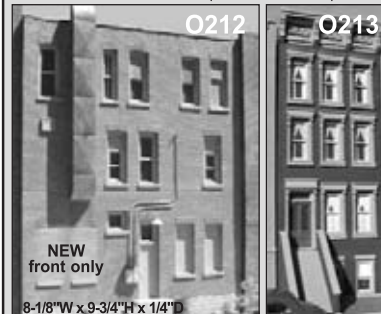


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