
INTRODUCTION

The following discusses what's new at Richmond Controls since the Second Quarter 1999 Newsletter. Feel free to call if you need additional information - Jim

NEW LOCOMOTIVES AND CARS

Note: I generally don't devote any space to discussing installations in HO Scale and larger locomotives, since installations in these locomotives are so simple and straight forward (at least, when compared to N and Z Scale). It is generally safe to assume that there is a Richmond Controls lighting module for any HO Scale locomotive or car, as well as S Scale, O Scale, G Scale, 1" Scale, etc.

ATLAS N SCALE SD60, SD60M, and SD50: Kits for the Atlas SD50, SD60 and SD60M continue to be popular. As was mentioned in the last newsletter, pilot-mounted ditch lights can be done. The key is to use MicroTrains couplers, and attach the coupler with a 1 mm x 4 mm long screw, which is available from Northwest Shortlines. (A 00-90 screw is much too large.) Using the screw eliminates the plastic clip, which blocks access to the rear side of the pilot. This is the only way I've found to have enough room for a Sunrise Enterprises N-626A ditch light casting centered over a hole which does not interfere with the coupler. The EZ04-040S (\$36) will provide headlights and **ALTERNATING** ditch lights. The EZ13-040 (\$28) will provide headlights and **STEADY** ditch lights. The EZ11-020 (\$24) is used for headlights only, and the EZ04-021 (\$34) provides headlights and an amber rooftop beacon. Several customers have installed the EZ04-040S (\$36.00) with **DUAL GYRALIGHTS** in their D&RGW or KCS SD50s.

In all cases, the board mounts to the inside of the body shell at the far rear end, and the board and all wiring remain with the shell when the shell is removed from the chassis. As, usual, no chassis chopping is required.

By the way, Atlas left enough room in the nose area of the chassis to allow for nose-mounted lights without having to cut away any metal. Using the Sunrise Enterprises N-611A dual headlight casting in the nose should allow a modeler to have nose-mounted headlights or Gyalights with a minimum effort.

KATO N SCALE PASSENGER CARS: The EZ51 is essentially a drop-in fit for the Kato Pullmans and coaches. It comes with flicker-resistant interior lighting as standard, and can be supplied with or without a tail light. The tail light would generally be red, and it can be a steady or flashing red light, or a Mars or Gyalight.

Many railroads, including the Santa Fe and Southern Pacific, followed the practice of showing a red tail light to the rear, regardless of the type of car. Many customers have installed these kits in the Kato Business Car. The EZ51-000 (\$34.00) provides flicker-free interior lighting. A steady red tail light can be added for an additional \$2.00, while a Mars Light, Gyalight, or flashing light can be added for \$10.00 additional. Since the Kato passenger cars are already equipped with metal wheels and provisions for making track power available inside the car, installation of the EZ51 is quite simple. After the car has been on powered track for a few minutes, the lights will not flicker at all unless the wheels are *extremely* dirty.

By the way, when the wheels do become extremely dirty, all the wheels in the train can be cleaned with almost no effort if a Centerline track cleaning car is used to apply Goo Gone. If the Centerline car is placed between the locomotive and the cars, and the Handi-Wipe on the cleaning drum is saturated with Goo Gone, all that is required is to pull the train around the layout for a few minutes. I recommend cleaning the drum, with Handi-Wipe still in place, in an ultrasonic cleaner filled with hot soapy water.

NEW PRODUCTS

EZ08: The EZ08 module was initially developed to control aircraft warning strobes and lights to be installed on the Showcase Miniatures radio tower. In fact, it was designed to exactly replace the floor of the new deLuxe Innovations 20 foot containers which will be supplied as the transmitter equipment house for the tower. It turns out that the EZ08 easily fits inside HO Scale automobiles, and it will be used to provide an array of strobe lights, beacons, and flashing headlights for that beautiful series of Busch Highway Patrol cars. I have made the software much more modular, to allow customers to specify the details of the lighting effects if they wish. Please let me know if you have a special light pattern you'd like to have duplicated for your layout.

NEW PRODUCT PLANS

SHOWCASE MINIATURES RADIO TOWER: Many customers have seen the lighted Showcase Miniatures etched brass radio tower which I have taken to shows. If you haven't seen it, the kit results in a beautiful etched brass tower which is quite reasonably priced. After painting it in the familiar alternating red and white segments and installing winking and flashing red and white lights, it attracts a great deal of attention.

I have many requests for these towers, and most people want them completely decorated and lighted. This has been a bit of a surprise, as my initial plan was to sell a "craftsman kit" or "bag-of-parts" kit for the lighting package. I discovered that it requires quite a bit of delicate soldering to assemble the tower and attach the full lighting package. I'm now planning to offer the tower plus lighting kit as a completed unit and also as a craftsman kit.

BUSCH HO SCALE HIGHWAY PATROL CARS:

As mentioned above, the EZ08 fits inside the Busch HO Scale automobiles, and will be used to provide a variety of flashing lights on these cars. Probably the trickiest part of this project is attempting to determine what is prototypical. I have already discovered that in Texas, many different combinations of lights can be observed, and the combination used on any given car can be changed by the officer as a function of the circumstances, time of day, etc. I expect to provide flashing headlights and tail lights, plus red and blue strobes in the light bar in initial versions.

TRAIN SHOWS

Plans for the rest of the year include the SP Historical Society Convention in Redding, CA in late September, the Great Lakes Region NTRAK Convention in Evansville in early October, the Ft. Worth show in November and the Oklahoma City show in early December. Come say hi.

TECHNICAL NOTE

"White" LEDs: As you may know, an traditional LED is essentially a monochromatic light source -- it only emits one color (actually an extremely narrow range of colors). The LED colors you generally see are red, amber, green, and blue. As you may recall from high school physics classes, "white" light is a mixture of all of the visible colors. Thus, a true "white" LED is not technically possible at this time.

The devices sold as "white" LEDs actually function in a manner very similar to fluorescent lamps. In a fluorescent lamp, a glass tube is coated on the inside with a mixture of phosphors. (A phosphor is a material which emits energy in the form of light after to has absorbed energy in some other form. This phenomenon is called "fluorescence". If the phosphor takes a long time to lose that energy rather than giving it up quickly, a clever manufacturer could mold it into deluxe covered hopper cars that glow in the dark.) In a fluorescent light, an

electric field is established inside the tube, and this field indirectly excites the phosphors. Electrons in the phosphors absorb this energy and then re-emit some of the energy in the form of visible light. Since there is a mixture of phosphors, and each specific phosphor emits specific colors, the tint of the "white" light is controlled by the phosphor mix. That's why "deluxe warm white" looks more pink or orange than "cool white", which is very slightly bluish.

In the "white" LEDs generally offered for sale today, the basic energy source is a blue LED. (Blue photons have more energy than any other visible photons -- typically around 2.4 electron-volts.) The blue LED is then covered with a mixture of organic phosphors which absorb a great deal of the blue light and re-emit other colors. The mixture of colors produces the "white" effect. This "white" light has an obvious blue tint, presumably because the phosphor is unable to absorb ALL of the blue light from the blue LED, allowing some of it to be seen with the other colors. (Most normal "white" light has very little blue content.)

It appears that some people object to the blue tint and some do not. "White" LEDs are quite expensive (around \$4.00 to \$5.00 each), but they can be extremely bright and they produce a nice, uniform beam. So far, the smallest available sizes appear to be the T-1 size (1/8" diameter) and a surface mount LED. It is a very simple matter to retrofit the T1 size into locomotives that are normally supplied with yellow LEDs for headlights. For example, the modification is easy for the N Scale Kato C44-9W/PA1/E9, Atlas SD50/60/60M, and Life-Like GP20. I haven't seen a practical way to install several white LEDs in the front end of an N Scale locomotive to provide independent headlights, Gyalights and ditch lights, but this is a simple matter for S Scale and larger. One nice thing to remember about LEDs - they have EXTREMELY long lifetimes, and it is unlikely that any LED would burn out during a typical model railroader's lifetime if used correctly.

If any customer wants to convert to "white" LEDs to replace the yellow LEDs which came with their locomotive, Richmond Controls will be happy to make the change for \$8.00 each, plus \$3.20 per order for shipping. The customer should mail the board to Richmond Controls at the address given above, and include a check for the work plus shipping. We are unable to offer a discount on this service, since it will be done more as a courtesy than as a profit-making exercise. We need a trade-in board, but in some cases, we might be able to supply the board without a trade-in.