

## POWERING the MILLER ALCO DIESEL SWITCHER

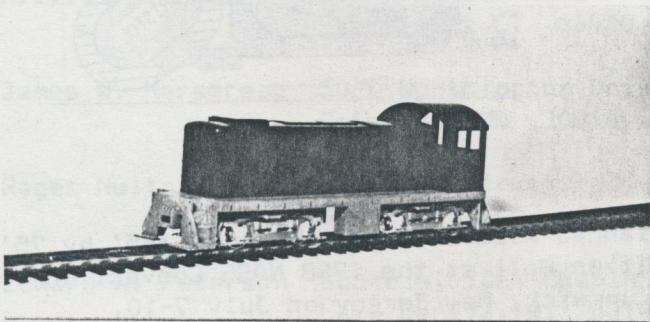
by Charlie Sandersfeld

Ah! yes ... the Miller switcher. Oldtimers in 1:64 scale will remember when Miller Laboratories introduced their diesel switch engine components. First came a zamac diecast frame and a plastic body shell - probably the first plastic casting ever produced for S scale railroading (non-tinplate). Then a novel direct drive system was engineered which used a truck axle as the motor's armature. The result was a switcher with one speed: fast. Like many 1:64 modelers, I had a Miller Alco body shell around, waiting for appropriate power.

At Omnicon Scale Models, we didn't set out to design components for the Miller locomotive. But after producing the PA conversion kit and during the engineering of our "F" unit mechanism, we seem to have stumbled on a mechanism for the Alco switcher.

Initially, we designed the gear tower for our "F" unit to a width (7/8") that would also fit in the Alco. This gear tower could then be fitted into almost any S scale diesel and used to transfer power horizontally to the trucks. Unfortunately, the trucks of the real Alco are too close together to provide room for universal joints between the gear tower and the trucks.

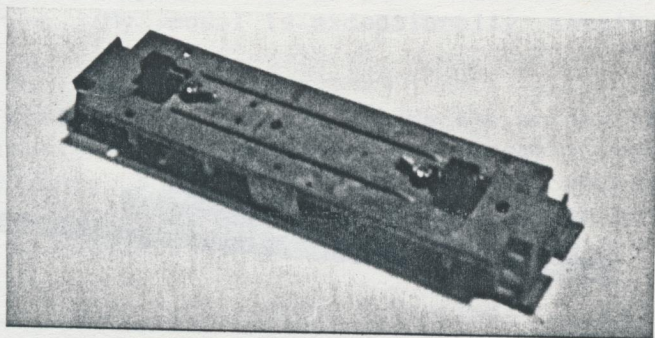
Then came the Omnicon Scale Model RDC cars. These cars feature a drive system on which the gear tower is built into one axle and powered from above the floor surface. After a little experimenting, I found that this truck could be converted to a drive system for the Alco.



Next, I needed trucks. I'm sure the original Miller sideframes would do nicely, but I've never had access to any. Perhaps they require axle end bushings. For this conversion, I used Alco trucks made by Overland and purchased from G&W.

The conversion is not a beginner's project. It takes some skill and some tools. Here's what I did:

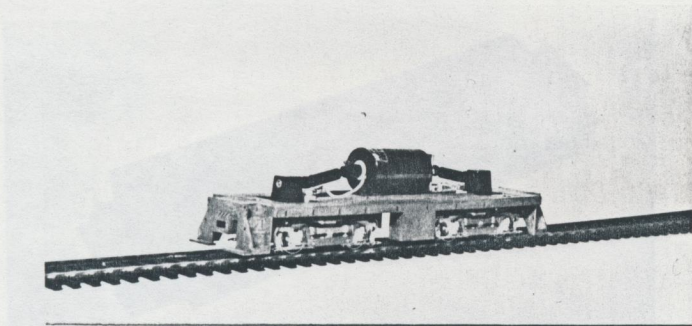
- A. I chucked the frame in a vertical milling machine, downside up, and ground off all the material that simulates the cast-on bolster to approximately .050 thickness. There is a cast-on cross rib between the bolster and the center spline of the locomotive. Stop grinding inside this rib.
- B. I Bored out the existing truck mounting hole to accept the Omnicon insulated bolster pad.
- C. I Cut a square hole above each truck for the gear tower. This hole is about 9/16" long, and as wide as the inside dimension of the long ribs that position the hood of the model. I Started the hole 1" from the end of the frame. Make sure you don't invade the space of the truck mounting hole.
- D. The trucks: If you use Miller trucks, you're on your own. With Overland trucks, you will find that the supplied brass bolsters make the model sit too high. I solved this problem by unscrewing the bolsters from the sideframes and remounting them underneath the sideframe mounting studs. You may even require a shim washer, but this is an easy job. You could make a new bolster, if necessary.



E. The wheels and mechanisms: I used Omnicon Scale Models' RDC replacement mechanisms. The RDC had 33" wheels and the Alco had 40" wheels. So this is what needs to be done:

1. Remove the RDC sideframes and save them for another project.
2. Remove the RDC wheelsets from the gear boxes.
3. Remove the insulated wheel and carefully pull the gear off the axle. The gear is what we want.
4. Replace the wheel on its axle and save the wheelsets for another project. You might want to use them to upgrade American Models freight car trucks. The pointed axles of these wheelsets work great with AM trucks.
5. Pull the insulated wheel from the blunt-ended axles of two Omnicon 40" wheelsets, and pull the gear from each.
6. Press the RDC gear on each of these 40" wheelset axles.
7. Put the wheelsets back in the gear boxes.

You have now done the worst part of the job. However, I found the spacing between the axles on the RDC worm shaft to be greater than the sideframe spacing. To correct this, I simply placed one end of the assembled worm and gear boxes over a plate with a hole of greater



diameter than the worm shaft, and I tapped the opposite end with a brass hammer. A few light taps did it. Keep checking the fit with the sideframes.

- F. After testing the wheels, gears, etc, oil with La Belle #2, and assemble the trucks.
- G. Use a #3mm x 8 screw through the insulators and into the bolsters to mount the trucks to the frame.
- H. Because the hood of the Alco is so narrow, I used a flat double-ended Sagami motor which I attached to the center of the frame with an "L" shaped bracket. I soldered electrical leads to the motor with solderless connectors at each end. These connectors fit under the bolster screw heads and on top of the top insulator.
- I. The gear tower fits through the frame hole and has a very close tolerance between the bolster screw head and the ball cup of the universal. You may have to remove this cup to tighten the screw.
- J. The universals are the plunger type and have to be shortened to fit between the motor shafts and the gear towers. Take your time and be sure you leave enough length on the plunger part when cutting.
- K. In order for the body shell to clear the universal and the gear tower, the plastic cab wall and the plastic wall of the hood that glues to the cab will need to be cut out slightly.

If you've been careful so far and have the insulated truck wheels on opposite rails, you should be ready for a test run. My model is exceptionally smooth and powerful.

The total cost of this package, less the motor, is \$40 from Omnicon. This isn't an advertisement because there are only a handful of extra RDC mechanisms available. However, there should be enough to satisfy the 15 or so modelers who have been bugging me for such a unit.

Good luck - Happy S-Scaling.