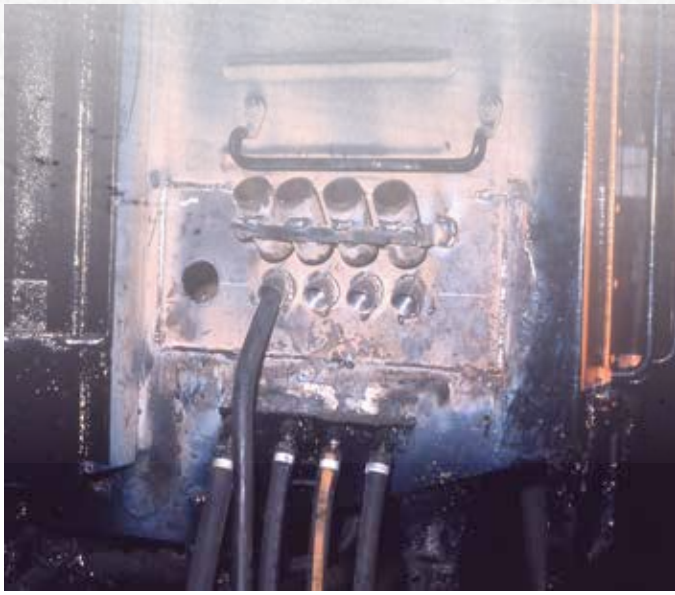
MILWAUKEE ROAD'S slug units

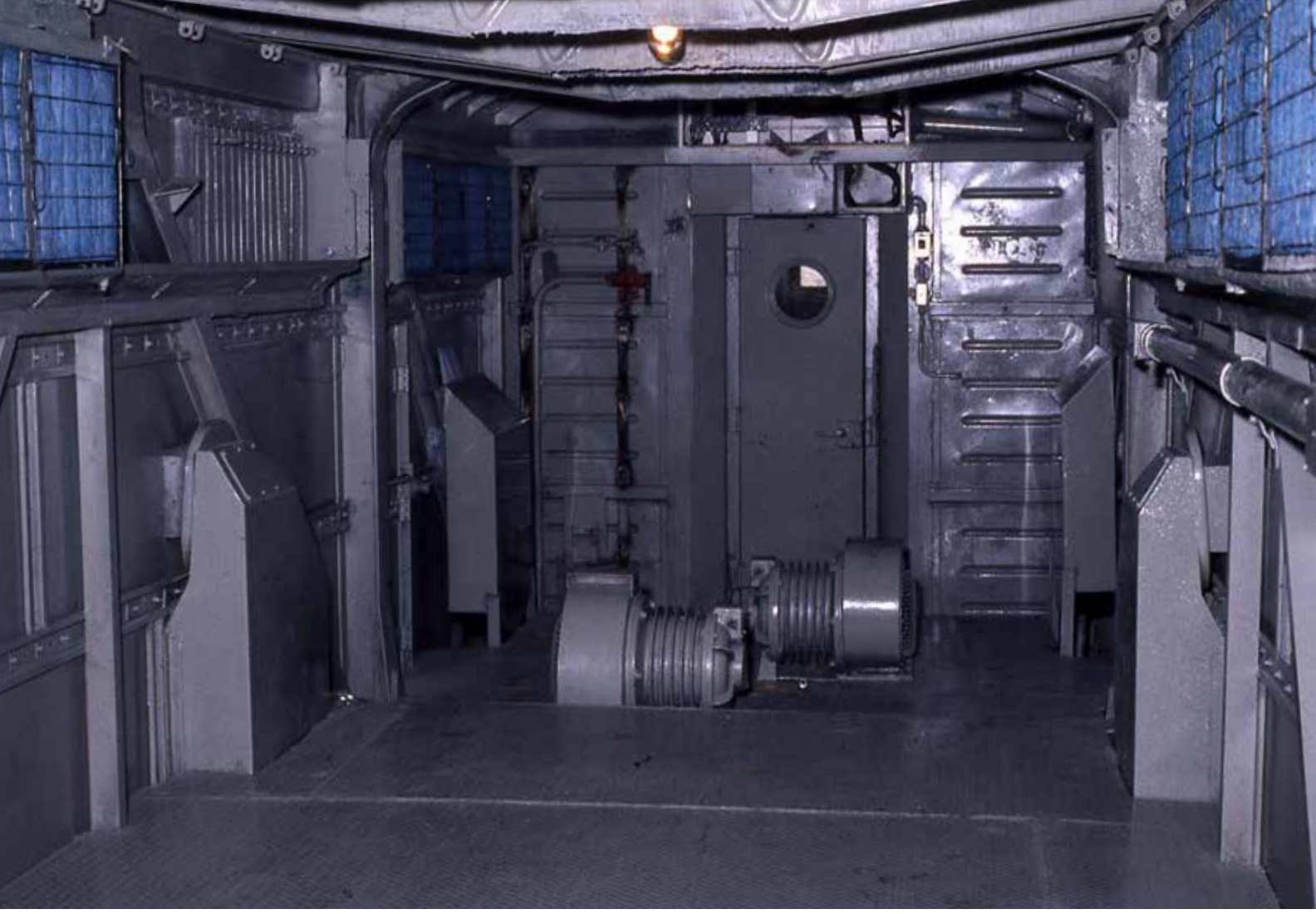
BY ART DANZ

Consider the slug. Not the shell-less cousin of a snail, but in railroading the weighted-down, engineless platform that's dependent upon a "mother" locomotive to provide power to its traction motors. The 1970s saw a number of Class I railroads develop an interest in these non-powered units as a cheaper alternative to providing higher tractive effort at lower cost in operations that didn't require high speeds.

THEY WEREN'T PRETTY, BUT THEY COULD PULL LIKE CRAZY



Main: Fresh out of the Milwaukee Shops in February 1972 47C/SE-1/47A (renumbered 81C/SE-1/81A) stand out against a cold, dreary day in Milwaukee, Wis. Those home-built winterization hatches along the front three roof cooling fans did not last. Above: The business ends of the Slugs. Note the power cable design difference between the SE-1 on the left and the subsequent SG-2 on the right. The original design featured a hood above the cables and vertical receptacles along the side to hold them when detached from the mother unit. The later design was much simpler. Notice that one of the ports has the power cable already pulled through. The power cable assemblies were installed only on one side of the slugs/mothers ends. A warning reminds employees not to plug into the "parent" unit with the engine running.



Top: Here's the inside of the finished product, a vast cavern resplendent in standard Milwaukee Road Suede Gray interior paint. Prominent are the two traction motor blowers in the center and four sand boxes along the sides with a flat safety-tread steel floor covering the area once occupied by the prime mover. Middle: You can get an idea of just how much the floor was raised above the ballast by these three photos.

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Slugs were perfect for the job, since they'd pull like crazy but at slow speeds. Among Class I railroads, Seaboard Coast Line was enthusiastic about the slug's advantages, using them in large numbers in the phosphate district near Barstow, Fla. SCL's slugs (called "Mates") were built by GE and were paired up with the railroad's U36Bs. I can remember being at Barstow, Fla., with my friend the late George Niles in the 1980s to watch the "fleet" arriving back at the SCL yard after a day of amassing hundreds of phosphate-filled hoppers. I also saw slugs on the Chicago & North Western and Missouri-Kansas-Texas; by the early 1970s, slugs were common sights on several other roads, including Louisville & Nashville, Norfolk & Western, Santa Fe, Union Pacific, and, later, Conrail.

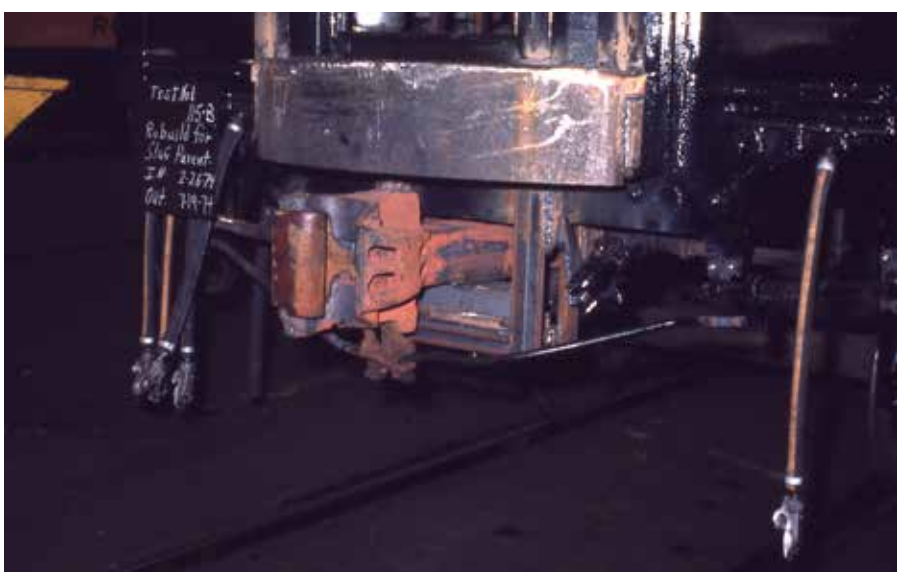
My employer, the Milwaukee Road, also ventured into the slug concept and built a total of five very successful units. The first one, numbered SG-1, was constructed in 1972 from an Alco RS3 and designed to be married to a pair of GE U30Bs. Dubbed the "Twinkie" because of its shape, it worked south out of Tacoma, Wash., on the Milwaukee's logging branches. After the success of SG-1, the company continued with the program but settled on using aging EMD F7 units as platforms, as they were coming due for retirement.

It was a perfect design, since the slug sets were to be used as helpers and in drag service rather than switching. Set 81A/SE-1/81C (formerly 47A/SE-1-47C) emerged in 1972, while sets 82A/SE-2/82C and 83A/SE-3/83C followed in

Ballast consisted of scrap freight car axles and rail angle bars, likely lowered into the carbody through the roof hatch when the prime mover was removed. Note how the blower motor ducts were raised to get the motors up to the new floor level. Look closely at the lower left-hand photo; you can see a workman at the far end modifying the area where the side access door swings in.

Above: Metamorphosis complete, slug SG-2 sits on the turntable outside the Shops roundhouse ready to be towed west on the next freight to Tacoma, where she'll be introduced to her U30B General Electric mother units.

Below: Units 82A/SE-2/82C, 83A/SE-3/83C, and SG-2 all received the Milwaukee Road billboard lettering that was introduced in 1972. Middle: Looks like the paint shop was ready before the final sand box modification was. It'll get touched up later on. Bottom: Little seen area of F-type locomotives. Note how the coupler yoke was modified and strengthened. F7B No. 115B became the SG-2 on July 19, 1974 after a five-month rebuild.



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1974, with the 82AC and 83AC sets receiving the new billboard-style Milwaukee Road lettering. Last to be built was SG-2, again an F7B, but this time constructed to be paired with another set of GE U30Bs. Four of the sets were assigned to Tacoma, with the 81AC and 82AC sets spending most of their time coupled together pulling cuts of Portland-bound cars up the 3.5% grade between Tacoma and Hilldale.

Far to the east, the 83AC spent its career based out of Latta, Ind., roaming the main line as well as the Lattas Creek Branch, gathering up strings of coal. All five slugs lasted in service until the Milwaukee Road's final bankruptcy and retrenchment from the West Coast in 1980.

What you see here is a photo story of the slugs as they were being constructed at the railroad's West Milwaukee Shops complex. It's an interesting look into the engineering, building techniques, and planning that were incorporated into one of the famous Shops' last major products.

Over the years I've asked myself what the big advantage is of a three-unit slug set with 3,000 hp and 12 traction motors versus a pair of SD7s with 3,000 hp and 12 traction motors. I think I might have hit upon an answer. A slug set weighed in at 748,600 pounds, while the SD7 pair weighed 590,000 pounds. A general understanding of railroad tractive effort tells us that more weight on the drivers (powered axles) equals more adhesion and greater pulling power. Hence the success of the slug sets on various railroads across the country.

Below: Slug mother 47C looks like any other F7A on the property. The only slug mother physical features noticed are the single porthole window, those two extra sand box filler ports, and the power cables barely visible at the rear. Bottom: SE-1, on the other hand, is quite noticeable with its absence of any roof appliances, no portholes, fuel tank or battery boxes, one side access door, power cables, and large under-mounted air tank.