Five red-and-gray units lead Train CUWIPJ-09 as it breezes westward through Mud Cut in Mapleton, Utah, on March 9, 2012. The unique MK50-3s had found a home on the Utah Railway, but change was in the air. JAMES BELMONT

A DIESEL TOO REVOLUTIONARY, TOO SOON

UTAH'S MK50s

JOSHUA BERNHARD/PHOTOS AS NOTED

ABOVE: A trio of MK5000Cs and a single SD40 pull a Utah Railway coal train through Spring Canyon on January 6, 2001. The Utah Railway began testing three MK5000C locomotives in October 2000, which led to purchasing the entire production fleet of six units by the following November. JAMES BELMONT

RIGHT: Three MK5000Cs and a single SD40 pull a Utah Railway coal train through the Kyune gooseneck in Utah's Price Canyon on January 6, 2001. JAMES BELMONT

Mention the Utah Railway and you'll probably think of long coal trains, tall sandstone cliffs and high desert railroading. The line's classic red-and-gray locomotive fleet has been hauling freight over Soldier Summit from the Carbon County coal fields to Provo, Utah, for decades, but in the past 20 years the railroad has undergone major changes. Utah's famous MK50-3 locomotives, of which only six exist in the entire world, now run in Kansas, where the undulating flatlands are a far cry from the steep grades of the Price River Canyon they once called home.

The MK50-3s are a product of a critical point in history. In the 1990s, the country was at the high point of recovering from the 1973-75 recession, during which many railroads reduced their workforce and mothballed hundreds of locomotives. After almost a decade in storage, these locomotives proved to be damaged and outdated beyond use, creating a major power shortage. Southern Pacific in particular was desperate for new power after years of distraction due to the failed merger with Santa Fe and the recent amalgamation with Rio Grande Industries. In addition, the industry dynamic was changing, especially as mergers consolidated the national rail network and as increasing pressure for more economical operations, coupled with the rapidly expanding development of computers and digital technology, opened an environment suitable for experimentation and expansion in the locomotive construction industry. This led a small rebuilding company in Idaho to force its way into the market of brand-new locomotives, creating a unique design of powerful single-unit engines that had a colorful but truncated history, and became the iconic motive power of the coal-hauling Utah Railway. This was MK Rail, a subsidiary of the venerable Morrison-Knudsen Construction Co. in Boise, Idaho.

The first public announcement of the ambitiously revolutionary locomotive came in 1992 when M-K and Caterpillar jointly revealed their plans at the Chicago Locomotive Maintenance Officers Association industry show. MK Rail's manager of New Locomotive Development admitted to being in a horsepower race, and the M-K promotional material boldly declared that the MK5000C would challenge "the duopoly of General Motors' Electro-Motive Division and General Electric." EMD and GE were also developing new high-horsepower a.c. traction locomotives, and the railroads' interest in increasing power while reducing fuel and maintenance costs placed locomotive builders at a crossroads as digital technology became more and more practical. MK entered the market at what seemed like a windfall of opportunity, and their hope for success is revealed in their advertising materials that were published in French, German, and Spanish.

The first production model was completed in 1994. With a Caterpillar 3612 prime mover, Kato alternators, and Dofasco bolsterless trucks (the first locomotives south of Canada to use them), the locomotives were meant to look

Early MK Rail advertisements (LEFT) featured Southern Pacific demonstrator units. ABOVE: Southern Pacific SD40M-2 8654 leads MK5000C 502 and 501 on a test run leaving Phippsburg, Colo., on April 7, 1995. Tunnel motor 8495 trails the consist, and two more EMDs are cut deep in the coal train. ROLF STUMPF

and sound as powerful as they were. *Popular Mechanics* claimed that the MKs sounded like "hell on rails," having a "Death Star baritone," but advertising specifically pointed out that the cabs were "well-insulated against noise." The streamlined, ergonomic cab and state-of-the-art MK-LOC microprocessor system gave the interior a futuristic look. Once the first MK5000C was tested and approved by the Federal Railway Administration, M-K revealed plans to build a total of 62 units by 1995 and to develop a more powerful model for release immediately after to be called the MK6000AC. The three Southern Pacific units were sent to Denver for display soon after the company's acquisition by Rio Grande.

Test Units Arrive

The MK5000Cs were unveiled at Denver Union Station on September 12, 1994. Despite SP's interest in the new machines, and positive tests at M-K's facilities in Idaho, they exhibited several major design flaws during their demonstrator period. A mere two days after their unveiling, all three were returned to Boise after one unit's traction motor failed and the other two suffered software malfunctions. After months of work they were returned to SP and placed in service on the Denver–Roper (Salt Lake City) manifests with M-K employees riding along to monitor their performance. The M-K men insisted that the locomotives be used as much as possible in making up a train, so one MK5000C was put to work building an eastbound train lashed up back-to-back to a brand-new GE Dash 9 unit, with the MK5000C facing forward. The engineer throttled up to head out but the locomotives did not move until notch five when the entire train began moving *backward*. It turned out that the MK5000C's multiple-unit plugs were wired in reverse so the GE was responding with the opposite of what was intended — but it also proved that despite the promised high horsepower, the GE could outpull the MK.

While SP was dealing with the bugs of the first three models, Union Pacific leased the three newer units, painted in dark blue with gold stripes and numbered MKCX 9901–9903. These final three locomotives differed slightly from the SP units — they had four steps up to the end platforms and the anticlimbers were slightly wider, adding a few extra inches of length. Union Pacific put these locomotives through every imaginable abuse as swing helpers and on coal trains, intermodals, and switching jobs across the northwestern end of its system between Nampa, Idaho, and Hinkle, Ore. While not as drastic as with the SP, UP was also experiencing a power shortage to the point of leasing Amtrak F40PHs for freight trains. While UP expressed interest in MK Rail's concept for the MK6000AC, the MK5000Cs were returned to Boise after less than a year of trials. Two of the SP units were returned to service in March 1995, but the third was diverted to the Utah Railway for a few weeks. Further issues with software caused the locomotives to go randomly into emergency or reverse direction while running during these final months of testing on SP and Utah Railway. In his January 1996 column in *Pacific Rail News,* Sean Graham-White wryly observed, "M-K may have bitten off more than it can chew" with the new locomotive concept.

As far as the locomotive race went, SP decided on EMD's SD70Ms and GE's C44-9Ws for its new roster, giving up on

the MK Rail experiment and returning its three to Boise. M-K then leased all six MK5000Cs to Union Pacific, where they worked across the western portion of UP's system through 1996 although some crews also expressed a preference for GE's brand-new Dash 9 models over the MKs. The biggest complaint crews had was the cab designs. The so-called "ergonomic design" equated to injection-molded plastic paneling on every surface but contributed little toward comfort. Adam Pinales, a former Utah Railway engineer who operated the MKs for almost a decade, said "They were designed by short people or something. I have a scar from hitting my head on [the nose door frame], ripping my skin open. What really sucked about the console was that all the controls were far back, but you couldn't scoot far enough forward [to reach them]... Visibility was great, but it was almost scary — you could look straight down, but nothing was really accessible, like in weird places and stuff. They were just trying to be so independent in their design that they messed the whole thing up."

Reassignment in Utah

The railroads' rejection coincided with another major event that spelled the end for further production of the MK5000C. MK Rail passed every year of its existence operating at seven-figure losses due to the millions it invested in the MK5000C project and its natural gas MK1200Gs. The MK5000Cs alone were responsible for half of 1995's reported $40 million losses, according to the October 1998 "Market Watch" column in *Pacific Rail News*. Parent company Morrison-Knudsen declared bankruptcy and its holdings were split up. The rail business was purchased by Wabtec and reorganized as Motive Power Industries. The resulting corporate restructuring pushed the new locomotive idea into the shadows, leaving only six completed MK5000Cs and three partially completed units that were scrapped in 2001. Despite brief testing by BC Rail in 1998, the fate of the six completed MKs seemed bleak.

The dawn of the new millennium created another motive power crunch, but this time on the Utah Railway. The Utah was running a fleet of leased rebuilt EMD SD35s, SD40s, SD45-2s and F45s and needed newer locomotives to replace the aging engines. Remembering the few weeks of testing the SP MK5000C in 1995, and having used MK lease units before, the railroad approached MK Rail about purchasing the idle MK5000Cs. An agreement was reached, and in October 2000, they returned to the Beehive State to be the flagships of Utah Railway's long coal drags.

RIGHT: Powered by a brace of four MK50-3s, a Utah Railway coal train exits the Kyune tunnels in Price River Canyon on February 17, 2009. ROLF STUMPF

BELOW: A Utah Railway coal train is bound for the Wildcat loadout near Martin, Utah, on a snowy February 17, 2009. The train is descending from Soldier Summit into Price Canyon on a 2.3 percent grade. ROLF STUMPF

ABOVE: On June 1, 2015, an empty hopper train is headed to the CV Spur loadout, photographed from the Highway 191 overpass just east of Price, Utah, on the former Rio Grande mainline. BRIAN PLANT

LEFT: Utah Railway No. 5001 waits for its next assignment outside the railroad's shop facility at Martin, Utah, in June 2010. TREVOR SOKOLAN

From its beginning, Utah Railway was one to try new and experimental motive power. Its steam locomotives drew away many Rio Grande firemen by their revolutionary automatic stokers, and the line was quick to dieselize despite the fact that its sole existence at the time depended on coal.

It was no surprise that the shortline would be interested in M-K's new product, even after UP and SP rejected it. All six of the MK5000Cs were purchased and immediately pressed into service on the long coal trains over Soldier Summit. Five unique EMD export market SD50Ss (the final "S" standing for "short frame") were shipped in from Australia at the same time. These six-axle units were stationed between the two terminals at Provo and Martin, working both head-end and traditional mid-train swing helper jobs.

Rebuilding and Rebirth

Utah Railway modified the MK5000Cs' SP numbering by simply adding an extra zero in the middle. SP 501–503 became UTAH 5001–5003, with the demonstrators completing the sequence as 5004–5006. After a year of operation they again proved the disadvantages of their unique design — the main bearings repeatedly failed, so they went back to M-K in 2003 to be rebuilt with more-standard EMD parts, returning to the Utah Railway with SD50 body shells, prime movers, and alternators, but retaining their distinctive cab profile and Canadian trucks. M-K called these rebuilds MK50-3s, the designation that they carry today.

The rebuild coincided with Genesee & Wyoming's purchase of Utah Railway in 2002. Strangely, only one of the rebuilt MK50-3s received G&W's orange paint, UTAH 5005 being the first Utah Railway locomotive to receive the scheme. While the remainder of the Utah Railway roster succumbed to repaints, the other five MKs maintain their classic red-and-gray paint to this day. Under G&W, the MK units' range expanded to include the RUT611/612 locals over Union Pacific track between Provo and Ogden and the HUTAHJ, a local train shuttling loaded and empty oil tanks between Provo and the oil loading facility at Wildcat. The locomotives became the icons of the Utah Railway, the most identifiable aspect of its operation and the draw for many photographers to visit the line.

Each MK developed its own personality on the Utah Railway. Some were liked better than others. The 5004 had bad cab mounts, so when the locomotive's weight shifted on curves, the cab would crack in and out of position with a loud "clunk" that sounded like the train had jumped the track. The 5005's horn had two settings, on or off with

no intermediary, making a distinctive and downright irritating BLAAAP. Crews hated the horn but because No. 5005 was in the best condition mechanically, and because the four steps and wider anti-climber made getting on and off easier, it often took the lead. No. 5003 would randomly surge during operation. The 5002 was avoided as a leader because the cab permanently smelled like an electrical fire after the sidewall heater lit a garbage bag on fire at the Intermountain Power Plant in 2004. Above all this, their biggest problem was the traction motors. Being unique in the U.S., they were custom-made to order only when needed, and Utah Railway's maintenance budget was too low to justify proper maintenance on disabled motors. Coal trains generally ran with four locomotives on the head, but between them there were only enough traction motors online for three.

Regular traction motor failures became a part of the Utah Railway experience. One time an entire MK caught fire on the upper end of the Gilluly Loops. The crew emptied every fire extinguisher it had on the train to put it out, then discovered that the failed motor had frozen the pinion bearing. The locomotive was dragged down the hill to the house track at lower Gilluly so it could be cut out.

Dynamic brakes gave out as well, so often, in fact, that the crews regulated air brake pressure coming over Soldier Summit expecting the dynamics to fail on the way down. A single trip in December 2010 had the dynamic brakes fail on two different MK50s, one at Rio in Spanish Fork Canyon and the other in Springville, causing panic along the route as people thought the volcano of sparks came from an electrical substation on the side of the right-of-way. Things got so bad that Union Pacific power was used more and more on the head end and the Utah Railway locomotives were relegated to swing helpers.

The End of the Line

In November 2016, rumors began circulating that Utah Railway would lose its coal contract with the Intermountain Power Project near Delta, Utah. The rumors were confirmed in early December when a Utah Railway employee marked December 26 on the Provo yard office's calendar with the words "The End." That was the last scheduled Utah Railway coal train, and local photographers rushed to document the trip from Provo to the Savage loadout near Wellington and back. This train ran with borrowed UP locomotives to avoid changing power at the interchange in Provo, but five of the six MK50-3s were added at Savage as swing helpers, running light from Martin in the early afternoon. An additional two unscheduled trains were run in the following weeks to cover the contract's tonnage agreement, and with that Utah Railway's original purpose disappeared.

With the loss of the heavy trains, the six-axle power was needed only on the locals and the countdown began for the MKs to leave the railroad they came to represent. Nos. 5003 and 5005 were kept in Provo to run the RUT611/612 and HUTAHJ and 5001, 5002, 5004, and 5006 were left at the engine facility in Martin. On February 26, 2017, employees of the Kyle Railway in Kansas expressed excitement on the internet about operating the MK50-3s on their line. The Kyle was short on power, Utah Railway had a surplus, and so G&W decided to send them east.

On March 3, the locomotives in Martin were turned, coupled together elephant-style, and towed dead to Provo where

ABOVE: Wearing the corporate dress of new owner Genesee & Wyoming, Utah Railway 5005 leads local train RUT-611 on October 16, 2016, notching up quickly to track speed as they depart Provo for Ogden. The end was near as few coal trains remained to be hauled out, putting the MK50-3s on borrowed time. STEVEN MCKAY **OPPOSITE:** An empty coal train pulls into the Wildcat loadout on February 17, 2009, which was the only remaining active loadout on the Utah Railway. ROLF STUMPF

ABOVE: The sun sets, both literally and metaphorically, on Utah Railway's coal traffic as the last scheduled coal train approaches Soldier Summit on the evening of December 26, 2016. While two more unscheduled trains would run to fulfill the contract's tonnage agreement, this train marked the end of a little over 100 years of coal traffic and the career of the unique MK50-3s in Utah. JOSHUA BERNHARD

RIGHT: Four of the six MK50s were shipped out together on March 11, 2017, lined up elephant style with shipping notices taped to the cab windows. JOSHUA BERNHARD

they were prepared for transit. As this happened, 5003 and 5005 seemed to be hiding as they constantly moved around the Utah Railway's system taking every job possible, including switching jobs in American Fork that were generally done with geeps. Since the SD50S locomotives were in poor mechanical condition and generally disliked among many of the crews, some speculated that the railroad's management was making a desperate attempt to keep 5003 and 5005 in Utah. This was not to be.

At 1:30 p.m. on March 14, the four dead locomotives were placed behind the power of BNSF Train QPVDVJ and sent to Denver, and then on to Abilene, Kan., where they were transferred to the Kyle Railway on April 4. After a few weeks of running the 611/612 locals, the 5005 was placed on the QPVDVJ on April 2, and 5003 followed on April 6.

In a twist of fate, as if a final "I-told-you-so," on April 8, the RUT 611 with two SD50Ss pulling 70 cars broke down in American Fork, a mere 15 miles into the 80-mile journey. The train blocked Union Pacific's mainline for hours while crews tried to repair the locomotives enough to limp back to Provo. Even now, rumor has it that G&W is selling the SD50Ss, which will reduce Utah Railway to an entirely four-axle roster. What changes may yet come can't be said, but if anything it is certain, Utah Railway's life as a coal hauler is over.

The irony of the MK50-3 experience is this — MK Rail, Caterpillar, and Kato were each the best in their industry, but when combined they failed to make a reliable machine. But it did make for a colorful period of railroading in the American West.

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