The first PA's: the ecstasy, the agony, and the legacy

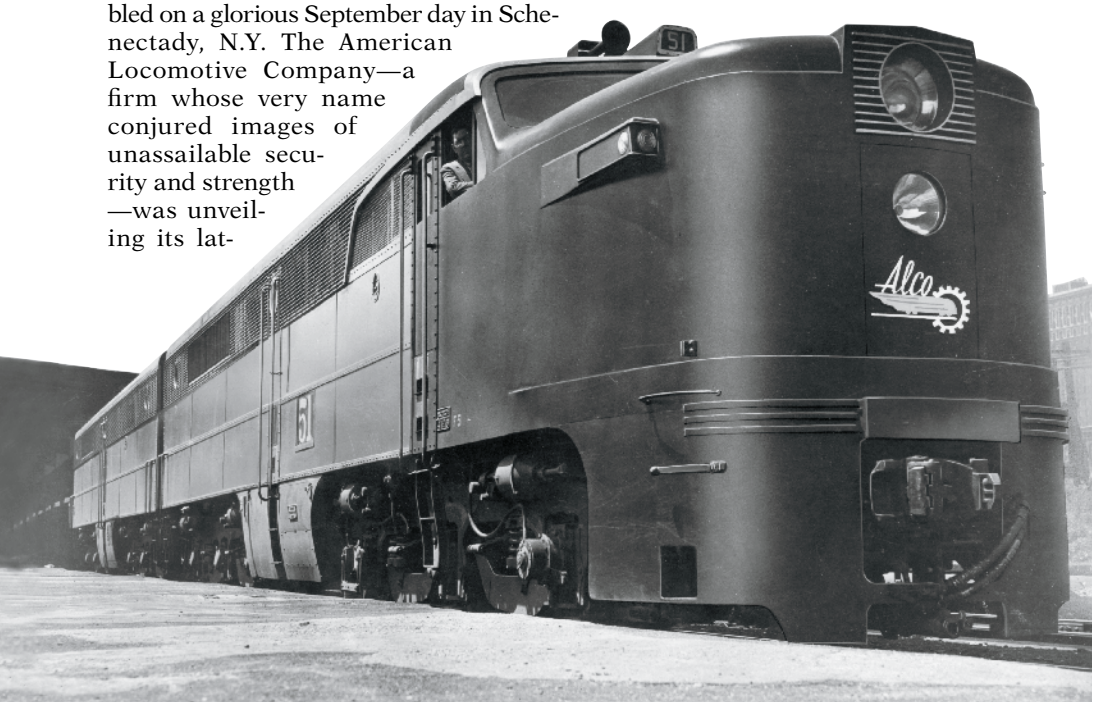
Alco and the Santa Fe cooperated on a barrage of publicity for the builder's postwar passenger diesel, but the reality did not live up to the hype

By Peter A. Hansen

It was the summer of American optimism, and the zenith of American power. Nearly alone among industrial nations, the U.S. had emerged from World War II with its economy intact and its land mostly unscathed. The hot war was over, and the Cold War was yet to come. Half the planet's manufacturing capacity lay within America's borders, and more than half the world's wealth was in American hands. It was 1946, and in the United States, all things were possible.

That's how it seemed to a crowd assembled on a glorious September day in Schenectady, N.Y. The American Locomotive Company—a firm whose very name conjured images of unassailable security and strength—was unveiling its latest product. Promoted as the 75,000th locomotive built by the company, its rugged good looks suggested both refinement and power: a triumph of the stylist's art.

It would come to be called the PA1, and in its gleaming sides, Alco thought it glimpsed its future. The years ahead would not be as bright as Alco imagined that day, but the PA would nonetheless be a reasonable reflection of the company's fortunes. In time, the machine would prove unequal to the expectations heaped upon it, and in the process, it would damage Alco's reputa-



Santa Fe's three-unit 51 set—the first PA's—gleams amid potted plants and other display props at Dearborn Station, Chicago, on an early-fall 1946 morning. Before getting "Warbonnet" colors (lower left), two of 51's units wore black with stainless-steel flanks.
Main photo, V. O. Harkness; opposite, Alco

Preston George

On October 3, 1947—one year after No. 51's lavish coming-out parties—sister 58 is on First 3, the *California Limited*, east of Ribera, N.Mex.

tion at a most inopportune time. All of that was still in the future, though: This was a time of celebration.

The Big Splash is born

In the finest American tradition, the PA was introduced amid a barrage of publicity. "Never coy," *Time* magazine observed in October, "U.S. corporations like to mark their milestones with extravagant shindigs." Alco's bash would top them all.

The company had good reasons for the hype, and the PA itself provided an excellent justification. As a passenger locomotive, it was more likely to garner media attention, and its introduction would mark the Schenectady builder's return to passenger diesel production, which had been restricted by a War Production Board mandate. (Alco hadn't been singled out, since the manufacture of EMD's competing E units was also suspended during the war. WPB allowed the production of only five types of diesels, all of them for switching or road freight service.) A well-publicized debut for the PA would signal to the industry, to Wall Street, and to the public that Alco was back in the game.

Alco's customer for the new machine enhanced the p.r. opportunities all the more: Santa Fe's flashy "Warbonnet" paint scheme of silver, red, and yellow was already an indelible brand image in the public mind, and the PA's were to be assigned to the *Super Chief*, arguably the most prestigious train on earth. When Santa Fe agreed to a series of public events to mark the debut, Alco jumped all over it.

The planning began in early summer. Meeting in Alco's corporate headquarters at 30 Church Street in lower Manhattan, the builder's p.r. people cooked up a media extravaganza worthy of the Big Apple: part society debut, part Broadway stagecraft, and all promotion. There were even some substantive elements thrown in for the benefit of industry mechanical officers, who were likely to be concerned with details like reliability and technical innovation. The p.r. push would have three phases: preparatory activities, technical "indoctrination," and the formal debut itself.

Like an artillery barrage to soften the ground before a battle, the preparatory phase was supposed to create a favorable environment for the main assault to follow. A two-month campaign of direct mail and teaser ads would "develop in the minds of key figures from the press, trade, and special groups that something new and important is coming," said an internal document. The preparatory phase concluded with the rollout ceremony in Schenectady, "executed on such a scale as to reaffirm [the city's] position as the center of locomotive engineering, and to dramatize American Locomotive's emphatic entry into the mainline diesel-electric field."

That last statement is remarkable for two reasons: First, it shows that Alco knew it needed to make a splash, even though the competition was never explicitly mentioned. Second, it overlooked the company's previous DL109 locomotives, the last of which was barely a year old. The Big Splash was more important than Alco's own marketers seemed to realize, since they themselves had forgotten the company's earlier efforts.

The belle of the ball

Wednesday, September 18, was the kind of day an upstate New Yorker would want to bottle for later consumption in the snows of January. The first PA's (an A-B-A set wearing Santa Fe road numbers 51L, 51A, and 51B), were parked outside the erecting hall at Alco's Schenectady plant. Bands played, speeches were offered, and the surrounding buildings were festooned with bunting. The future looked bright, indeed.

From there, it was on to the main event in New York City, where Phases 2

Alco initially called the three-unit version of its postwar passenger diesel the "6000," as in this brochure; "PA" and "PB" are latter-day labels.

Factory-fresh No. 51 strikes a dramatic publicity pose shortly after emerging from the paint shop at Alco's Schenectady plant.
Railroad Museum of Pennsylvania collection

BNSF Railway/Photolibrary

The PA's visited shops more often than Santa Fe's passenger F units; in a steam-era view at San Bernardino, a gantry crane has hold of No. 55.

and 3, the technical indoctrination and the formal debut, would unfold. One can only imagine the reaction of onlookers as the PA's—in full Warbonnet livery—made their way down New York Central's Water Level Route in the Hudson Valley, past the gray battlements of West Point and the brooding heights of Breakneck Mountain, and into the exotic domain of third-rail M.U. cars. They must have startled many a jaded commuter.

Their destination was one of the least-known yet most rarefied segments of steel in America: Track 61 in Grand Central Terminal's subterranean yards. Directly beneath the Waldorf-Astoria Hotel, it was sometimes called the Private Car Siding, and had been used by notables from General Pershing to President Franklin D. Roosevelt.

It also happened to be adjacent to a Waldorf ballroom, a popular venue for society parties. The p.r. people loved the imagery of a debutante ball, and that may have been the basis for the idea of a Waldorf debut. Over the next few days, Alco and Santa Fe brass would stand beaming like proud parents, while the bluebloods of American industry paid their respects to the stylish young lady in a southwestern-inspired dress. "No society belle," wrote *Santa Fe Magazine*, "ever had a bigger coming out party."

The swank surroundings of the Waldorf were just the beginning. Alco decorated the space with Howard Fogg paintings, and the artist himself was on hand for cocktail chit-chat. "Conover girls" from one of New York's hottest modeling agencies were also there, not only to pin carnations on each of the male attendees, but to escort them to the locomotive, where Alco salespeople awaited. Alco and General Electric technical personnel were present, as well, presumably to field any questions the Conover girls and salesmen couldn't handle. (GE was Alco's partner in the early diesel era, responsible for the products' electrical components. GE appliance designer Ray Patten

Alco's PA publicity efforts resulted in a photo spread in the bi-weekly photo magazine *Look*.

No. 51 comes to Los Angeles

In October 1946 I was a teenager living in the Lamanda Park section of Pasadena, Calif., and my home was located about 100 yards from Santa Fe's main line. I watched (and sometimes photographed) the daily parade of the road's finest passenger trains. I even kept a logbook of all of the trains I saw, noting the engine and train numbers and the number of cars.

On October 6, 1946, my log shows that just after No. 18, *Super Chief* or *El Capitan* (I can't remember which, as they operated on alternate days), No. 7, the *Fast Mail*, came west with brand-new Alco diesel No. 51 leading a dynamometer car, mail and express cars, and four business cars. It was quite a sight: a broad, husky snout; shiny, stainless-steel sides; and a powerful sound that didn't compare to the Electro-Motive FT's that had been pulling the premier trains since about April.

Stan Kistler

There was a lot of hoopla in the newspapers about "Santa Fe Railway's powerful new passenger locomotive," and the stories said it would be on public display for a few days on Exposition Boulevard in Los Angeles. I immediately formulated a plan to ditch classes the morning of October 9 and wend my way into L.A. on the Pacific Electric early in the morning, before the display was open to the public and the crowds would obscure my photos.

The 51, all three units, was on a siding off the PE's Santa Monica Air Line, near the L.A. Coliseum, with part of Exposition Boulevard roped off. I managed to get there around 8 a.m. as Santa Fe people were still polishing the locomotive. This is when I learned that switch-lamp oil was used to wipe down metallic surfaces to give them a sheen, and the workmen were doing just that. Those diesels really shined in the morning sun. I hung around for about an hour, getting shots from various angles, but at that time in the early stages of my photographic documentation of trains, I favored the "roster" shot. And besides, film was expensive to a young person making only 30 cents an hour in a mom-and-pop photo lab after school!

On October 11, back in Pasadena, I recorded the 51 going east as an extra with a 10-car streamlined consist. That evening it returned west running as First 7, with 4-8-4 3783 running as Second 7 a few minutes later with its regular mail-and-express consist. The next day I learned from Fletcher Swan, a friend who worked at Santa Fe's Los Angeles roundhouse, that what I saw had been a publicity special that spent the day on Cajon Pass for photos by the company photographer, Frank Meitz.

Early in the morning of October 12, the 51 led train 8, the *Fast Mail,* eastward. I didn't notice whether it had the dynamometer car with it this trip, but I assume it did. I show it again arriving with No. 19, the *Chief*, on October 17. I didn't see No. 8 that night, but I assume the new PA's went east on that train, because Nos. 20 and 18 on that date had FT's, while the rest of the eastbound passenger trains had steam. Again, on October 23, I showed the 51 and the dynamometer car 29 on First 7 with a 13-car consist.

I didn't see the 51 again for some time, until it took regular turns in the transcontinental passenger pool with the FT's and the 16-class F3's that started arriving in November.

I was only 15 years old in 1946, but the memories of this time in the steam-to-diesel transition period on the Santa Fe, my favorite railroad, are still with me in photographs and pleasant recollections.—*Stan Kistler*

Phillips Kauke

On its first trip to L.A., the 51 set roars up Ash Hill at Siberia, Calif., with the *Fast Mail*; dynamometer car 29 is right behind the engines.

also did the styling on the PA's.)

But the setting for the locomotive itself was the most no-holds-barred, spare-no-expense, bright-lights-and-glitter feature of the whole soirée: Alco hired Broadway set designers to build a synthetic Southwest beneath Midtown Manhattan, complete with painted backdrops, potted Joshua trees, theatrical lighting—even dancing Zuni, Apache, and Jemez Indians. It was both real and fake, it was cool and kitschy, and it was completely over the top—even if it was two floors below Park Avenue. Plus, the PA's looked sensational.

Sunday, September 22 was Media Day, and the festivities began with an afternoon press reception and buffet supper. Three hundred reporters from newspapers, magazines, newsreels, and radio attended. Leaving nothing to chance, Alco also seeded the crowd with industry writers who had taken VIP tours at Schenectady, and "received thorough indoctrination in the merits of the new locomotive." (*Railway Age* would run two pages on the Waldorf bash in its next issue, then a six-page spread on the locomotive's technical innovations the following month.)

Irving August

Engine 54 fronts an A-B-A set at the D&RGW station in Colorado Springs on February 9, 1950; this is train 101, the Denver-La Junta connection for the eastbound *Grand Canyon*.

Ross Grenard

On March 23, 1948, PA 71 and a PB head up the Galveston-Chicago *Ranger* at Wichita, Kans.

Monday saw a Santa Fe–hosted luncheon for 500 shippers, a late-afternoon cocktail party hosted by New York Mayor William O'Dwyer, and an evening reception for Santa Fe and Alco employees.

"You should have seen this!"

By now, the PA p.r. machine was in Run 8. Tuesday the 24th was a non-stop blow-out of parties and hype, substance and glitz. Full-page ads in newspapers nationwide carried the message that "Transportation history is being made today at the Waldorf-Astoria." Alco Chairman Duncan Fraser hosted a luncheon for Santa Fe's board of directors and senior executives, and the guest list read like a Who's Who of American Business. GE Chairman Philip Reed was there, as were the presidents of every railroad headquartered in greater New York except the New York, Ontario & Western. (Of the Class 1 roads represented at the luncheon, the Lehigh Valley, New Haven, and NYC would later purchase PA's; Jersey Central, Lackawanna, and Susquehanna would not.)

Other attendees included the chairmen and presidents of every major New York bank, including Rockefeller-in-law Winthrop Aldrich of Chase. After years of wartime production limits, the diesel revolution was about to begin in earnest, and the Waldorf event was the rough equivalent of the Shot Heard 'Round the World. Thousands of diesels would be built in the next few years, and most would wear trust plates: It was good business for the bankers to be there.

CEO's from Standard Oil of New Jersey and Shell were on hand to bless the transition from coal to petroleum products as the primary railroad fuel. Even the titans of publishing showed up, because railroads were big advertisers in those days, and because the industry was still good copy. William Randolph Hearst Jr. and Henry R. Luce of Time, Inc. were both at the luncheon that day, and Luce's *Look* magazine would run four pages of PA pictures.

The luncheon had been a success, and it also underscored the importance of railroading on the national stage. There may not have been as much personal net worth in one room at any other time in 1946—to say nothing of the combined worth of the companies represented. Never again would railroading command such attention from so many movers and shakers at one event.

No sooner had the luncheon wrapped up than an army of Alco marketing personnel and Conover girls began the final preparations for the Main Event: a dinner for 1,200 in the Grand Ballroom. Menus, carnations, place cards, name cards, and Fogg paintings were staged according to a strict timetable, and a large-scale model of the PA was placed in front of the dais like an altarpiece. The schedule of preparations runs three pages in an internal Alco memo.

At 6:45 p.m., Lowell Thomas conducted a live, nationwide radio broadcast from the 51L's cab on NBC. Thomas was one of the most famous radio personalities in America, and his interview with presidents Robert McColl of Alco and Fred Gurley of Santa Fe was a major coup for both companies.

Dinner was at seven. The Fred Harvey Company, longtime provider of meal service on the Santa Fe, had been asked to do the honors, and it did not disappoint. The menu included delicacies from every state served by the railroad, from Illinois watermelon to Texas sirloin to California fruits and wines.

The Native American dancers put in another appearance after dinner, conferring the title of "Chief Iron Horse" on Alco's McColl, and making him an honorary member of the tribe.

The festivities wrapped up with an address on "Modern Transportation" from Fred Gurley. His railroad had always been an innovator in motive power, he noted, and diesels were another big step of modernization. He called the PA "the last word in refinement," and declared that, "it will take its proud place at the front of our finest trains. It and others like it will be used on our *Super Chief*, *Chief*, and *El Capitan*."

Santa Fe had "a fine record of doing things first," Gurley went on. And then, unwittingly suggesting events to come, he added, "Confidentially, it will bring you some headaches . . . when you do

Power for the passes: A1A-A1A vs. B-B

Santa Fe had its reasons for preferring EMD F units on passenger trains. Three of them were called Cajon, Glorieta, and Raton.

When EMD and Alco began mass-producing passenger locomotives in the late 1930's and early 1940's, six-axle trucks quickly became the standard, both for EMD's E units and Alco's DL series. Santa Fe itself was an early buyer for some of these products.

The first and third axles on each of these trucks were powered, but the one in the middle was an idler: in the standard lexicon, they were called A1A trucks. Why have an extra axle instead of a B truck, which had only two axles, both powered? Mostly because an A1A truck rode better at high speed, thanks to its longer wheelbase.

Most railroads agreed with this thinking for their passenger power. There was a trade-off, though: less weight on drivers. A locomotive with two A1A trucks has only two-thirds of its weight on drive axles, but one whose trucks are all powered has all of its weight on the drivers.

For the Santa Fe, this was important. Cajon Pass was a sustained 25-mile, 2.2-percent climb for eastbound trains leaving the Los Angeles basin. In northeastern New Mexico, Glorieta Pass was a 40-mile eastbound climb, the worst part of which was 3 percent. And less than 200 miles farther east there was Raton Pass and its fearsome 3.5 percent. Traction was critical on Santa Fe's mountain passes, and thus, so was weight on drivers. B-B passenger power was the answer. (Great Northern, Northern Pacific, and Rio Grande would draw the same conclusion, D&RGW replacing PA's with F's on its leg of the *California Zephyr*.)

Santa Fe also came to prefer the F units because they made smaller, more flexible building blocks in a motive-power consist. Six-thousand horsepower was required for many transcontinental trains, and this could be achieved with either an A-B-A set of PA's, or with a four-unit set of F3's and/or F7's. Some assignments might require more or less horsepower, however, and it was often more efficient to add or delete units in 1,500 h.p. increments.

Finally, Santa Fe may have gravitated to passenger F's because it already had so many freight F's. Production of road freight diesels had been allowed to continue during World War II, and Santa Fe acquired more than 300 FT's by V-J Day. Shop forces became familiar with EMD's B truck (dubbed the Blomberg truck, after its designer) and with a host of other components. The large number of F units for both passenger and freight service simplified training and parts inventory alike.

Santa Fe came to prefer B-B power for its transcontinental passenger fleet, and banished its relatively few E units to other, flatter assignments. Not so with the PA's, however: they were gutsy enough to remain on the road's toughest grades for their entire 21 years of service, A1A trucks notwithstanding. Railfans, taking a cue from a quote in TRAINS by George Hilton, have called the PA's "honorary steam locomotives," but Santa Fe could have called them "honorary B-B's."—*Peter A. Hansen*

C. H. Kerrigan

Recently regeared and repainted for passenger service, a four-unit FT set leads the *Grand Canyon Limited* out of Chicago in August 1946.

things first." The PA's would indeed cause their share of headaches, due mostly to Alco's 244-model prime mover, which had been rushed through development without adequate testing. The implications would reach beyond the Santa Fe and beyond the PA: Ultimately, they would mean the end of Alco.

But no one knew that on September 24, 1946. It had been an expensive, exhausting, and altogether successful day. *Los Angeles Times* writer Bill Henry may have said it best when he wrote, "If you think we do things in a big way in Hollywood, you should have seen this!"

Hooray for Hollywood!

Tinseltown would have its own chance to see the PA's, since they were about to embark on a coast-to-coast road show. A week after the New York events, the PA's went on public display for two days at Chicago's Dearborn Station, Santa Fe's terminal [photo, page 21]. Fifteen thousand people turned out, including several railroad presidents and some 500 photographers, who were competing for prize money offered by the Santa Fe. The paparazzi climbed telephone poles and baggage trucks, and generally swarmed anyplace on the property that promised a better angle.

The PA's finally saw their home rails

Gordon Glattenberg

On the last day of May 1963, near Caliente, Calif., the container flats and passenger cars of Santa Fe's *San Francisco Chief* follow a PA-PB-PA set through the Tehachapi Mountains.

during an October 3 jaunt to Shopton (Fort Madison), Iowa, where for tax reasons Santa Fe took formal delivery. Mars lights, signal flags, fusees, water coolers, and tools were added to make the units road-ready, after which they were sent east on train 24, the *Grand Canyon*, arriving back in Dearborn Station at 6 p.m. on October 4.

Hours later, they were off to L.A. on the head end of mail train 7, with a dynamometer car right behind them. They strutted their stuff across the prairies and into Colorado, frequently topping 100 mph, but it was on Raton Pass that they met their unplanned, stiffest test. The PA's were equipped with automatic transition, a relatively new feature intended to simplify the change from low-speed operation, where more traction is required, to higher speeds. Automatic transition comes into play in deceleration, too, and that's what happened to the 51 set and her startled engineer as the 1,182-ton train dug into Raton's 3.5 percent grade.

The traction motors were connected to axles with 40-inch-diameter wheels, and they all unloaded at the same time. With practically no momentum behind them, the PA's quickly rolled to a dead stop on Santa Fe's steepest grade. There was no helper available, so the hogger had nothing to lose by trying to get the train moving again. Turbochargers whining, the 51 set developed a prodigious 108,000 pounds of drawbar pull, and within two miles, the train was up to 16 mph. It was a remarkable performance—and undoubtedly very satisfying to the Alco test engineers on hand.

Upon arrival at Los Angeles, the PA's were cleaned up and sent to Exposition Park for a two-day public display. Maybe Bill Henry's column about the lavish festivities in New York had wounded L.A.'s pride, because at least 750,000 Angelinos showed up to see the locomotives. (That was the LAPD's estimate; Santa Fe's was 840,000—half the city's population.) Lines extended more than two blocks, and dancing searchlights marked the scene at night, looking for all the world like a Hollywood premiere. Starlets were supplied for the requisite cheesecake photos, and ventriloquist Edgar Bergen brought his puppet pals Charlie McCarthy and Mortimer Snerd. True to the song, Hollywood was screwy and ballyhooey—and the Santa Fe relished every minute of it.

Down to business

The first PA's entered the transcontinental passenger pool after the exhibition, drawing assignments on any train as their turn came up. Over the next two years, Santa Fe would buy another 26 PA cab units and 15 PB boosters, a fleet second in size only to Southern Pacific's 64. In service, away from the hype and lights, the Santa Fe Alcos would both satisfy and disappoint.

They certainly made a good first im-

D. G. Hoffman; Ed DeRouin collection

PA 76, a PB, and another PA are on the point of No. 123, the Chicago-La Junta-L.A. *Grand Canyon*, stopping at Chillicothe, Ill., in 1959.

pression on J. P. Morris, Santa Fe's chief mechanical officer. In an October 8 speech to the Pacific Railway Club, he complimented Alco's design engineers and recounted the story of the 51 set's remarkable performance on Raton. He was equally complimentary of EMD, suggesting the jury was still out on the question of whose products were superior. One thing was certain, though: Morris had seen the future, and it was powered by diesels.

The Santa Fe conducted a series of dynamometer tests with PA's, FT's, and F3's in late 1946, and the Alco product seems to have made the best impression at that early date. The PA's developed more horsepower and drawbar pull at every speed; they accelerated faster and consumed less fuel and lubricating oil. Foreshadowing things to come, however, the turbocharger was already recognized as trouble-prone. EMD's products received more criticism in these tests than Alco's (chiefly because of excessive wear in the cylinder heads), but La Grange would eventually impress Santa Fe with superior technical support, and the PA's would develop more wear-related problems in the long run than did the F units.

If management was initially undecided on the Alco versus EMD question, the train crews were, too. Jack Elwood, a longtime Santa Fe engineer and road foreman, chalked up pluses and minuses for both. With their long nose, the PA's were considered safer, as Elwood himself can testify from a grade-crossing collision with a gravel truck. "If I hadn't been in a PA," he says, "I wouldn't be here now." Ergonomically, the PA's weren't as quiet or as comfortable to operate as EMD's F units, but their six-wheel trucks made them better-riding. And, echoing the experience of 51's first trip over Raton, he admired the Alcos' tractive power and acceleration: "The EMD's would still be making transition when a PA was already up to speed."

The failed experiment

Santa Fe Mechanical Department files indicate that a PA repowering project was contemplated as early as December 1953, and that it could have been Electro-Motive's idea.

EMD had just completed the repowering of Rock Island DL109 621, so the builder might have been on the prowl for more such projects. Not only might repowering become a profitable sideline for EMD, it was also embarrassing to the original builder.

The original PA set emerged from La Grange on August 30, 1954, with new 16-cylinder 567C prime movers (one per unit), plus new exhaust manifolds, radiators, cooling fans, generator gears, alternators, and control relays. Traction motors were not replaced.

From a purely financial standpoint, it was an experiment worth trying. Budgetary estimates showed that it would cost just under $200,000 to re-equip all three units. This expense was more than offset by almost $211,000 in credits associated with early retirement of the original Alco components. On Santa Fe's books, the job actually generated a net credit of $11,651. Dollars aside, the experiment was a disappointment. Though each unit was rated at 1,750 h.p. by EMD, overheating in the exhaust manifolds kept the locomotives from developing their full rated RPM's. Shortly after entering service, the newly repowered units were downgraded to 1,500 h.p.

EMD repowered 48 units of other builders for the Katy during 1956-60, and repowerings were attempted by other railroads themselves in the '50's, but many were failures. These projects generally used some combination of old and new components, and, more often than not, they couldn't be made to work together satisfactorily. The alternative was to strip the old unit to the frame, but that could be just as expensive as a completely new machine. No matter how the job was done, it usually proved uneconomical, and with a few exceptions performed by individual railroads (*e.g.*, North Western, MoPac, Seaboard) repowerings were uncommon after 1960.—*Peter A. Hansen*

Gordon Glattenberg

Rooftop humps on the 51 set, pictured rolling a southbound *San Diegan* near Mission Viejo, Calif., in July 1964, are evidence of the units' repowering by EMD a decade earlier.

Bleeding edge of technology

Electrically and mechanically, the PA's were a mixed bag. Some of the units' new components were quite advanced for their time, like circuit breakers instead of fuses, but others were technically challenging and hadn't been adequately tested. Many problems could be traced to the 244 prime mover, and to the seductive appeal of turbocharging it. And, although the 244 and GE's turbo would each prove to have bugs of

Gordon Glattenberg

Around dawn on November 27, 1964, nameless train 14 pauses at Las Cruces, N.Mex., on its 5-hour 50-minute, 253-mile run from El Paso to Albuquerque. Lone PA No. 60 does the honors.

their own, the combination of the two introduced a third set of issues.

GE had gained wartime experience with aircraft turbocharging, a particularly demanding application. Ironically, however, the world of high-performance aircraft proved to be a poor test bed for a down-to-earth locomotive. It was perfectly acceptable—even desirable—to put an air-cooled turbo in a P38 Lightning, but in a locomotive, it was susceptible to overheating. GE would provide a water-cooled model in 1953, and Santa Fe would retrofit the entire PA fleet, but by then, the locomotives' reputation was already tarnished.

The 244 engine also had problems. In Alco's haste to get a jump on postwar production, the 244 had been rushed through development and testing. A 50-day stationary test was conducted on a 12-cylinder 244 in late 1945, and Alco's engineers were sufficiently impressed—or sufficiently worried about the competition—that they went into production immediately. Three weeks after the test ended, 12-cylinder 244's were installed in the FA road-freight demonstrator set.

The first 16-cylinder 244's went into Santa Fe's 51 set and had a 30-day test on the Lehigh Valley in summer 1946. (The units were not yet painted in Santa Fe colors; they were black from the cab doors forward, and stainless steel aft.) While the LV was not without its challenges, it could not offer the extremes of altitude and sustained high-speed running found on the Santa Fe. The road test was pronounced successful, setting the stage for the Waldorf debut.

Heaping problem upon problem, the combination of the turbo and the 244 led to unforeseen issues. Mated to Alco's diesel, the turbo could boost a 16-cylinder engine from 1,500 h.p. to 2,000. By contrast, EMD's E units were normally aspirated and needed two 12-cylinder prime movers to produce 2,000 h.p. GE's turbo seemed like the way to go: It would imply technical superiority over EMD, and 16 cylinders would mean roughly one-third fewer moving parts to produce the same output. Significantly, however, a 16-cylinder block would also mean a longer crankshaft, and broken crankshafts became one of the most frequent failings of the PA's.

Alco would address the 244's problems with the 251 engine of 1951. (In Alcospeak, "2" denotes a 9x10½-inch cylinder, while "51" is the year the prototype was built.) By then, however, most railroads had already bought or ordered their first-generation diesels. It would be another decade before the market revived, and Alco's pockets weren't deep enough to see the company through. When the second-generation market began heating up, an independent GE, not Alco-GE, would be the No. 2 builder. Alco ceased U.S. operations in 1969.

Reputations on the line

As the early tests showed, statistical measurements initially favored the PA's. Over time, though, EMD's products proved more reliable.

The trend is seen clearly in an analysis of Santa Fe's Locomotive Service Reports. Prepared monthly by each division for the Mechanical Department, the reports show the number of days each locomotive unit spent in the shop. Explanatory details aren't included, but it's still possible to get an accurate picture of comparative reliability for the PA's and the 16-class passenger F3's that were purchased around the same time.

The analysis reveals that the average F3 spent 30.4 days in the shop during its first 60 months. The average PA logged 91.5 days of shop time during the same period—almost exactly three times more. The number of down days per shopping is nearly the same (6.3 days for the PA's vs. 6.6 days for the F3's), but the PA's visited the shop much more often. This suggests that the Alcos' problems weren't necessarily more serious; they were just more frequent. Mean time between failures was 126.5 days for the PA's and 393.5 days for the F3's.

The trend shows in the number of miles on the locomotives' service records, too. To cite a typical example, PA 59 and F3 32 were both delivered in October 1948. By March 1954, the PA had run 1,286,763 miles, while the F3 had logged 1,589,764. By the end of 1962, the trend was even more pronounced: 3,209,755 miles for the PA, and 4,168,693 for the F3—a difference of 30 percent. Both locomotives were in the transcontinental passenger pool, so given equal availability, they should have logged roughly the same number of miles.

As might be expected, the Mechanical Department was making the same comparisons—and drawing disturbing conclusions, from Alco's standpoint. In 1954, the 51 set—the very same units that had been unveiled with such fan-

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See clips of Santa Fe PA's in action from the Herron Rail Video DVD/VHS program *Glory Machines, Vol. 5* at ClassicTrainsMag.com

Tom Gildersleeve

In their later years, the PA's were fantrip favorites. Nos. 69 and 67 easily handle a three-car excursion near Summit, Calif., on May 15, 1964.

fare only eight years before—was sent packing to La Grange to have their Alco 244's replaced by 1,750 h.p. EMD engines. "We have experienced a great deal of difficulty in maintaining the Alcos," an internal document read, "as they have been expensive to maintain and have caused considerable delay in our passenger operation." Although the 51 trio ran for more than a decade with its EMD innards, the transplant was not successful, and only one other such surgery was performed on a PA, by the New York Central on PB booster 4302.

If the Santa Fe was disenchanted with Alco, so too, was GE. Just six months after the repowering project, a GE market study complained that "the stigma of lack of reliability earned by the Alco passenger units on the Santa Fe is still following Alco and damaging their reputation, and ours. Had we deliberately tried, we probably could not have picked a more difficult or dangerous place to enter the market with a new and untried product. Certainly high-speed, long-distance passenger service was not the place to develop the value of higher motor rating and higher engine horsepower, and it certainly was the place to show up what we did not have; namely, Reliability."

Significantly, only the PA's came in for criticism. The same GE study notes that Alco was "comparable in reliability to EMD in freight service." Indeed, Santa Fe seems to have thought so, too, since—although it had no Alco FA's—it purchased 61 of Alco's RSD-series road-switcher freight locomotives between 1951 and '53. Significantly, they were powered by the shorter-block, 12-cylinder 244. After buying its last PA's in 1948, Santa Fe never bought another Alco for passenger service. (It's also worth noting that the road bought only another 13 A1A-A1A units from EMD after that date—12 of which were rebuilds of the 1937-39 E1's. For a variety of reasons, Santa Fe had settled on four-axle passenger power.)

The Icon

Were the PA's poor performers? Hardly. They served the Santa Fe for more than two decades—the longest life the model enjoyed on any railroad—and four of them went on to further service on the Delaware & Hudson and in Mexico. According to log books kept by longtime Santa Fe historian Stan Kistler, they pulled the *Super Chief* as late as 1952—and Kistler thinks they continued in that assignment for a few years after that, though he doesn't have any log books to prove it.

Even into their third decade, the PA's were the regular power on the *San Francisco Chief*, (the longest run in America, at 2,556 miles), and on mail trains 7 and 8, a demanding schedule with a heavy consist. Based on those early dynamometer tests, their ability to handle a train was slightly superior to the 16-class F3's, even if their reliability later fell short.

The evidence suggests the PA's were solid performers, though they didn't age as gracefully as the EMD's. This would account for the Santa Fe's apparent reluctance to assign them to the *Super Chief* in later years.

Perhaps no other diesel locomotive has been the object of as much affection as the PA, and that sentiment has not been misplaced. Capable, elegant, and the inspiration for a million model train sets, it captured both the unbridled optimism of the immediate postwar years, and the reality of adjusted expectations. It was and is an icon of those last, best days when the streamliner touched aesthetic perfection.