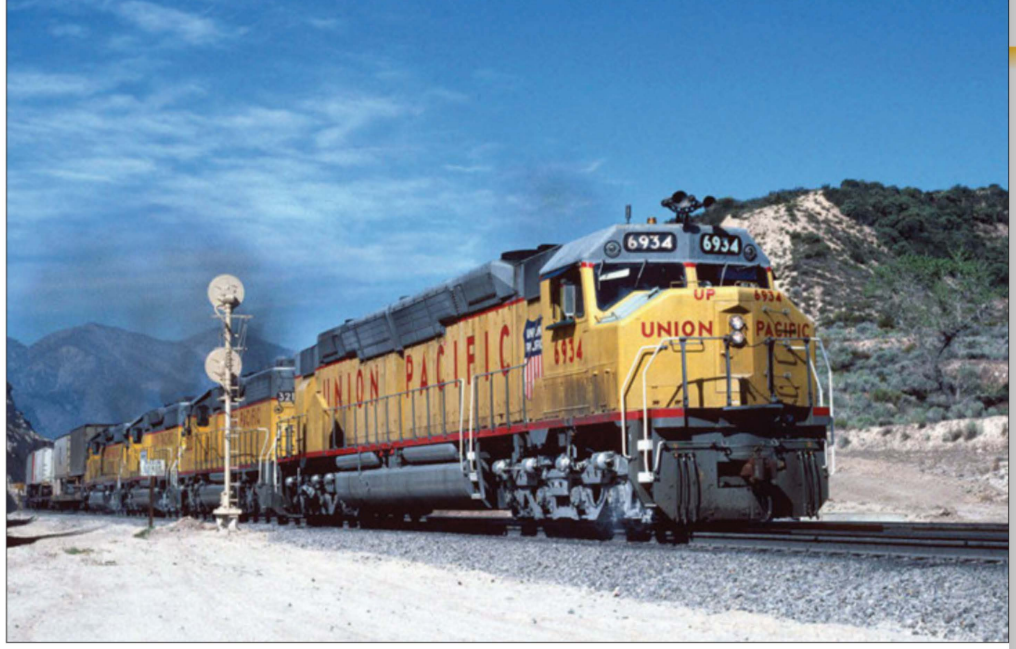

LEFT: Four equals five in this consist — five SD40-2s, that is. Reactivated for service after three and a half years in storage, twin-engine DD40AX Centennial 6934 roars eastbound over the summit of Cajon Pass on March 28, 1984. ABOVE: Three will get you five in this "Centennial Sandwich" with UP 6928 leading westbound at Frost on the east side of Cajon Pass on December 5, 1976. BELOW: After attempting some engine performance adjustments the brakeman is carefully making his way back to the warmth and safety of the lead SD40-2 at Martinez Spur on January 8, 1977. This Centennial Sandwich alternates layers of SD40-2s with DDA40X's for extra flavor.

Centennial Sandwich

BY DON R. FLYNN/PHOTOS BY THE AUTHOR

HUNGRY? During the mid-1960s, Union Pacific was very hungry — for horsepower, that is. Freight business had been increasing steadily during the decade and the fast-growing popularity of TOFC (trailer on flat car) piggyback service was adding even more volume. The railroad's appetite for power capable of maintaining high-speed freight train schedules across the western two-thirds of the nation was in demand. The relatively mild topography to be found in midwest did not require massive amounts of power to maintain the operating speeds desired, but the grades of the western high plains and more notably the seemingly never-ending roller coaster mountain and desert terrain of the far West was another matter.

To overcome these challenges, how about a locomotive with two 3300 h.p. engines, an 8000 gallon fuel tank, and both the latest proven technologies and promising new features? General Motors' Electro-Motive Division (EMD) and Union Pacific's Operating, Engineering, Purchasing, Marketing and Public Relations departments essentially formed a team to effectively produce and introduce a locomotive model that would not only meet the railroad's traffic needs but also gain the public's attention. Capitalizing on their upcoming historic event, EMD and Union Pacific introduced the DDA40X "Centennial" locomotive in 1969, numbered in the 6900-series commemorating the 100th anniversary of the driving of the Golden Spike completing the transcontinental railroad *[See the May 2013 RAILFAN & RAILROAD for more about the Golden Spike. —Ed.]*. UP 6900 was rushed to completion to allow it to be part of the ceremonies that took place in Utah on May 10, 1969.

A heavy advertising campaign from both EMD and UP made the introduction of the Centennial hard to miss. Weighing in at 545,000 pounds and just less than 100 feet in length, this 32-cylinder, twin engined, 6600 h.p. giant was the biggest and most powerful diesel locomotive ever built at the time. Building off the railroad's success with the DD35 program, the DDA40X was considered the next step in development, with "X" denoting an experimental EMD design. As such, many of the developments tested on the Centennials would later find their way into regular production EMD diesels. For instance, the DDA40X used modular electronic components which would later be introduced in the "Dash-2" series diesels. Though the Centennials sported the "widecab" look (borrowed from EMD's FP45), it would be many years before this design would become common for American diesels.

The introduction of the Centennials continued a long history developing big and powerful locomotives such as the Big Boy, Challenger, and Turbines; yet the release of the leviathan DDA40X would draw that tradition to a close. Union Pacific was no stranger to twin-engined diesels, having employed a fleet of streamlined EMD E-units to haul its famous passenger trains, and later encouraging the development of the DD35 freight diesel in 1963. In all, 47 Centennials were built and put into service between June 1969 and September 1971, carrying road numbers 6900 through 6946.

All of the Centennial units were equipped to operate at 90 miles per hour, and were assigned to UP's high-speed priority freights. About halfway through the ten-plus years the Centennial fleet saw continuous service, traffic levels were growing but operational costs were being fine tuned to optimize the fewest number of crews required to operate a number of priority trains. Tonnage per train continued to increase to a point where operating schedules were beginning to suffer from a lack of sufficient power. Despite

the abundance of horsepower and tractive effort the Centennials provided, a pair of them did not quite supply the speed needed to maintain the desired schedule for priority trains. As a result, multi-unit Centennial consists became an increasingly familiar sight.

Enter the "sandwich," which usually was a pair of Centennials serving as the "bread" and an SD40-2 locomotive squeezed in between as the "meat." The result was equal to five SD40-2s, and provided the right balance of power to help maintain the high-speed schedules. An SD40-2 is by no means small in size but when placed between a pair of Centennials it appeared almost miniscule.

Like any good diner, the UP's "sandwich" menu combinations also appeared in other forms; sometimes a single Centennial trailed by three SD40-2s, a pair of Centennials trailed by a single SD40-2, or three SD40-2s trailed by a Centennial (sorry, drink and chips not included). These combinations were often called "Fast Forty Sandwiches" by the railfans.

This 16,500 h.p. combo wasn't always aligned in a typical sandwich form. On some occasions a pair of Centennials or a single Centennial would be joined by a mix of other locomotive model types, and on other occasions Centennials would be absent entirely from a priority train and replaced by five equivalent units. Standard model SD40 locomotives also participated in these consists but to a far lesser extent. However, the Centennial Sandwich was quite often the motive power consist of choice.

RIGHT: The Centennial image was often used for advertising purposes such as this large billboard facing the heavily traveled Interstate 5, and next to UP's East Los Angeles Yard on January 22, 1977. BELOW: 6925 West with another Centennial Sandwich in the lead is holding the South Track just east of the Cajon Summit crossovers. Santa Fe 5713 East passes upgrade on December 6, 1977.

ABOVE: Are we in Nebraska? The 8000-foot mountains in the background suggest otherwise. Centennial 6936 is rolling north on the main line at Tehachapi Loop as UP-owned former Chicago & North Western 8698 holds the siding at Walong on April 15, 1999. LEFT: UP 6936 leads an Engineering Department passenger special eastbound through Chatsworth Rocks in California's Santa Susana Pass on July 17, 1999.

The eight-axle Centennials commanded the rails of the West for more than a decade. Towards the end of the 1970s, a prolonged national economic downturn coupled with rising fuel costs took its toll on railroad traffic, resulting in the Centennials and numerous other locomotive model types being placed into storage. At one point, the railroad tried to negotiate a trade-in deal with EMD for all of the stored units in 1982, but could not reach an agreement. Some Centennials became donor units, having their relatively low-mileage diesels transplanted into older SD40s in 1983. As the engine replacement program progressed, it was discovered the big DD40s were in better shape than the SD's.

By 1984 the nation's business activity was booming once again and the railroads found themselves short of motive power. Orders had been planned and placed for additional new locomotives but during the interim, the Centennials and other older locomotive model types that had been in storage were reactivated temporarily to bridge the gap. In 1984 about half of the Centennial fleet did return to service, but their tour of duty was to be a little more than one year before being permanently retired with the rest of the fleet.

Once a source of company pride, the aging units began to show the effects of being stored outside and road failures became more common. Two of the units, the 6903 and the 6921, saw much shorter careers on account of being involved in wrecks in 1974 and 1978, and being scrapped not long afterwards. By 1986, all of the Centennials had been withdrawn from service, having racked up more than 2.2 million miles in their brief service career.

Eleven of the locomotives were donated by UP for public display in various parks and museums. Centennial 6936 was the only unit from the fleet of giants to survive as part of the Heritage Fleet based in Cheyenne, Wyo. The unit has been subsequently restored and maintained in good working order to pilot some of the company's special trains, as it continues to do to this day. Even the one time massive fleet of SD40-2s has dwindled substantially as Union Pacific favors newer, more efficient diesels. Yet 6936 remains the pride of the fleet, reminding us of a time when "bigger was better" and the railroads truly offered "Dependable Transportation."