

# Challenger No. 3985



The Challenger No. 3985 was designed by Union Pacific and built in 1943 by the American Locomotive Company. It is one of 105 Challengers built for Union Pacific between 1936 and 1943 and is the only operating engine of its class in the world today – the largest and most powerful operating steam locomotive.

No. 3985 last operated in “regular” train service in 1957. It was retired in 1962 and stored in the roundhouse in Cheyenne, Wyoming, until 1975 when it was placed on display near the Cheyenne depot. A group of Union Pacific employees volunteered their services to restore the locomotive to running condition in 1981.

The name Challenger was given to steam locomotives with a 4-6-6-4 wheel arrangement. That means that they have four wheels in the leading “pilot” truck which helps guide the locomotive into curves, two sets of six “driving” wheels and, finally, four “trailing” wheels which support the rear of the engine and its massive firebox. Each set of driving wheels has its own steam cylinders. In essence, the result is two engines under one boiler.

The frame of the locomotive is “articulated,” or hinged, to allow it to go through curves. When watching the approaching locomotive go through a curve, you can see the boiler swing out left or right independently of the lower half of the engine, as the rear half of the locomotive remains in a straight direction until its wheels and frame are halfway through the curve.

The Challengers were designed for fast freight service, but occasionally pulled passenger trains. No. 3985 originally burned coal and pulled a tender with a 32-ton capacity. In 1990, it was converted to use No. 5 oil. The top speed of No. 3985 is about 70 miles per hour.

For more information on the Challengers and other steam locomotives, go to [www.up.com](http://www.up.com) and take a look at our Historical UP Locomotives section. Excursion information is published every Spring.

UNION PACIFIC LOCOMOTIVE NO. 3985 SPECIFICATIONS									
DRIVING WHEEL DIAMETER		CYLINDER		WHEEL BASE		WEIGHT IN WORKING ORDER (LBS.)		EVAPORATING SURFACES (SQ.FT.)	
69"		DIAMETER	21"	DRIVING	12' 2"	LEADING	102,300	TUBES	527
TUBES		STROKE	32"	ENGINE	60' 4 1/2"	DRIVING	404,000	FLUES	3,687
NUMBER	DIAMETER	BOILER		ENGINE-TENDER	121' 10 7/8"	TRAILING	121,600	FIREBOX	500
45	2 1/4"	INSIDE DIAMETER	94 11/16"	SUPERHEATING SURFACE (SQ.FT.)		ENGINE	627,900	TOTAL	4,714
177	4"	PRESSURE	280 LBS.	2,162		TENDER	446,000		
LENGTH	20'	WATER CAPACITY		MAXIMUM TRACTIVE POWER		FIREBOX		TOTAL WEIGHT OF ENGINE AND TENDER	
TENDER TYPE		25,000 GALLONS		97,350 LBS.		LENGTH	187 1/2"		
		GRATE AREA		FUEL		WIDTH	108 3/16"		
14-WHEELED		REMOVED IN 1990		6,450 GALLONS		FACTOR OF ADHESION		GAUGE OF TRACK	
				NO. 5 OIL		4.17		4' 8 1/2"	