Denver & Rio Grande Western K-27

Photo © Heinz Daeppen, Bachmann Spectrum G-Scale on his own garden layout in Switzerland

Prototype information

The D&RGW K-27 class are 3 foot narrow gauge, Mikado type, 2-8-2 steam railway locomotives built for the Denver and Rio Grande Railroad by the Baldwin Locomotive Works in 1903. They eventually became known by the nickname "Mudhens".

Fifteen locomotives were built, originally class 125, reclassified K-27 in 1924 when the Denver and Rio Grande became the Denver and Rio Grande Western Railroad. The K-27s were built as Vauclain compounds, with two cylinders on each side, expanding the steam once in the smaller cylinder and then a second time in the larger one. The extra maintenance costs of the two cylinders were greater than the fuel saving, so they were converted to simple expansion in 1907–1909. They were Rio Grande's last purchase of compound locomotives. They were built with their main structural frames outside the driving wheels, with the counterweights and rods attached outside the frames.

They had one peculiarity which arose from their outside frames and counterweights. In places where the D&RG's standard gauge system met the narrow gauge system, the railroad operated dual gauge trackage, with three rails, so that standard gauge equipment ran on the outer two rails and three foot gauge equipment ran on one of the outer rails and a third rail, inside the other two. Since the narrow gauge equipment was much lighter than the standard gauge, the inner rail was generally lighter and, therefore, not as tall as the standard gauge rails. In the case of the D&RGW, the difference was ⅞ inch (22 mm). Because the counterweights were outside the frames, they ended up directly over the standard gauge rail, with a clearance of only about ⅝ inch (16 mm). When the shop crews trued up the drivers periodically, they had to be very careful not to go too far.

They pulled freight, passenger and mixed trains on the D&RGW in and over the Colorado Rocky Mountains, traversing the entire length of the railroad. Many of them also spent time on the Rio Grande's subsidiary, the

Rio Grande Southern.

Number 463, was sold to cowboy actor and singer Gene Autry in May 1955. Autry never used the Mudhen and donated it to the City of Antonito, Colorado. It was restored by and entered into service on the Cumbres and Toltec Scenic Railroad in 1994. It was taken out of service with a broken side rod in 2002. In 2009, it was moved to the railroad's shop at Chama, New Mexico where a major rebuild is done. 463 is now back to service. 463 was added to the National Register of Historic Places in 1975 as Engine No. 463.

The other K-27 in existence is 464. It sat outside in Durango, Colorado during the 1960s and was sold to Knott's Berry Farm in 1973. It saw little or no use there, in part because of its condition and in part because of the counterweight clearance problem described above. The Huckleberry Railroad in Flint, Michigan, acquired the locomotive in 1981, did an eight-year restoration on it, and put it into active service.

Source: Wikipedia

Sound project information

The sound operates both the hard thundering highball and the light coasting with clanking side rods on flat areas. Use F15 to switch between the two modes.

The sound project is based on Zimo Advanced Standard.

The Decoder must have SW Version 33.14 or higher.

The sound project is designed for the new Zimo MX 697 sound decoder that fits the NMRA G-scale plug and play connector. All another Zimo sound decoders work well too, except the old MX 690 series, which cannot handle complex sounds with coasting.

FA 7 and servo1 can operate several electric couplers. The Kadee electric coupler can simply plug in on servo connector 1

CVs 3, 4, 5, 57, 154 and 158 are important values for the sound project. Please change values very carefully!

The function number is by default the same as function key. With the Zimo function key mapping, the complete function are easy changeable to another key.
Program the desired key number as your value in the CV 400+Fu number and the whole function is mapped to another key. Please take care, you can map multiple functions to one only key! Please read the instruction sheet http://sound-design.white-stone.ch/Information.html

Function	Installation	Function output	Sound effect
F0	Light on	FA 0v+0r	alternator
F1	Bell		Bell
F2	Whistle l-l-s-l		Highway crossing signal
F3	Whistle		Playable as long as you press the button
F4	Whistle s-s-s		Stop/backing
F5	Cab light	FA 5	
F6	Smoke generator on heater, load controlled Also replaceable with Zimo blowing smoker	FA 6 heater 15 min timer against burnout Ventilator output for cam operated blower	
F7	Cylinder valve		Blow down
F8	Sound on / off		Light engine
F9	Rail squeal		Sound of wheels squealing on sharp curves
F10	coal shovel	FA 8 flickers automatic	Door shovel door
F11	blower	Smoke ventilator is on	Steam blowing
F12	coupler open engine twist back and for	FA7 and servo1 opens electric coupler	Uncoupling sound
F13	Coupling		Coupling sound
F14	Pop valve (safety valve)		Loud steam blast
F15	Full power / coasting		Switch between 2 sound modes
F16	Tunnel fader (muting)		Fade in or out in 2,5 sec
F17	conductor		All aboard
F18	injector		Feeding water in the boiler
F19	Dual Westinghouse air pump fast		2 air pumps with different speed
F20	Water fill in the tender		Water swallow
F21	Marker Lights	FA9	
F22	Steam blast at the side		Very loud steam blast

Random effect	noise	
Z1	Dual air pump fast	Every time the loco stops
Z2	Dual air pump slow	Maintaining air pressure
Z3	Coal shovel	FA8 flickering
Z4	Blower	Ventilator blows smoke out of stack
Z5	Injector	Steam injects water into the boiler
Z6	Firebox door	
Z7	Steam noise	
Z8	Safety valve	Loud popping valve

input	sound	
1	bell	
2	whistle	
3	Cam chuff trigger	

Changing CVs values used by the reset

CV# 3 = 22
CV# 4 = 32
CV# 7 = ---
CV# 22 = 12
CV# 29 = ---
CV# 35 = 0
CV# 36 = 12
CV# 37 = 0
CV# 38 = 0
CV# 41 = 0
CV# 42 = 0
CV# 43 = 0
CV# 44 = 0
CV# 45 = 0
CV# 46 = 4
CV# 57 = 120
CV# 60 = 213
CV# 65 = 6
CV# 114 = 127
CV# 115 = 66
CV# 116 = 156
CV# 132 = 72
CV# 133 = 20
CV# 137 = 153
CV# 138 = 204
CV# 139 = 255
CV# 154 = 18
CV# 158 = 8
CV# 159 = 48
CV# 160 = 8
CV# 181 = 12
CV# 250 = 224
CV# 253 = 234
CV# 260 = 0
CV# 265 = 1
CV# 267 = 105
CV# 286 = 53
CV# 287 = 100
CV# 312 = 7
CV# 313 = 116
CV# 314 = 25
CV# 345 = 15
CV# 346 = 2
CV# 351 = 23
CV# 352 = 255
CV# 353 = 32
CV# 376 = 255