General Electric Evolution Series

Foto Heinz Daeppen

The Prototype

The evolution series is a diesel locomotive produced by GE Transportation Systems. The locomotives were supplied with DC or AC motors according to the customer order. The locomotives were delivered with 3 axles in two trucks, except for one type. All locomotives used in North America were delivered with the Nathan airhorn K5HL-R2.

The locomotives are all equipped with the engine GEVO 4 stroke diesel engines. The 40s and 44s types have 12 cylinders and the 50s have 16 cylinders. The nickname of the locomotive is G_EVO roarer.

The locomotives are increasingly replacing their GE predecessors, the Dash 9-44CW.

The sound effects are taken exclusively from my own recordings of the prototype. I could make the recordings thanks to the generous support of the Indiana Railroad.

Heinz Däppen.

Sound Project Information

The sound project is made with sound recordings of a prototype. The recordings are all made by Heinz Daeppen himself in Indiana.

F14 reduces the diesel motor sound to idling while maintaining the same speed.

The locomotive has the Kick the Cars Effect programmed on F15. This sound is heard when the engineer sets the acceleration rpm's and then immediately opens the throttle all the way to the desired speed. The diesel roars until the speed is reached.

The Dynamic Brake Effect produces a loud fan noise. This effect can be switched on continuously with F17 or by quickly throttling back on your controller.

With F10 and F11, the electrically driven manual brake sound is activated. This effect can be activated after the engine is started, as can be heard on the prototype. It can also can also be activated before departure and before the locomotive is switched off, to be true to the prototype.

When F12 is activated, the uncoupling noise is heard and the uncoupling movement (pushing forward and then backing away) takes place. The release of an optional Kadee servo coupler 11221 is programmed to servo ports 1 and 2.

CVs 3, 4, 5 and 57, 154 and 158 have values which are very important for the correct functioning of the sound project. Changes in CVs 3 and 4 must be adapted to the inertia of the large volume diesel engine! Reduction of the value of CV5 cuts out noise which is supposed to be heard at higher speeds. The maximum speed is to be defined with CV 57 and not with CV5. Make changes very carefully, in small steps, and note all your changes as you go!

Users whose digital system does not have all 28 functions, or who wish order functions differently on the keys, can easily assign functions to other keys, using the Zimo function key mapping.

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, as it is possible to map multiple functions to the same key, or invert functions! See http://www.zimo.at/web2010/documents/Zimo%20Eingangsmapping.pdf

Function	Installation	Function output	Sound effect
F0	Light on	FA 0v+0r	
F1	Bell		Bell
F2	Horn l-l-s-l	FA1 + FA 2 Ditch light	Highway Crossing
F3	Horn l		Horn sounds as long as key is pressed
F4	Horn s		Short blast of the horn
F5	Cab light	FA 5	
F6	Smoke generator	FA 6 and 2 + fan	Typical diesel smoke effects
F7			
F8	Sound on / off		Starter and then idling sound
F9	Wheels screeching on curves		Sound of wheels screeching on curves
F10	Applying the manual brake		Motorized brake
F11	Releasing the manual brake		Motorized brake
F12	Uncoupling	Servo 1 + 2 Fa 7	Uncoupling
F13	Coupling		Coupler closing
F14	Coasting		Engine idles
F15	Kick the cars		Diesel engine roars during acceleration
F16	Tunnel fader (muting)		Sound fades in or out in 2,5 sec
F17	Dynamic electric brake		Brake cooling fan can be heard all the time
F18	Locomotive brake		Braking and releasing
F19	Compressor		
F20			

Random effect	Sound	
Z1	Compressor	Always after the loco stops
Z2	Compressor	Sporadically during running
Z3		
Z4		
Z5		
Z6		
Z7		
Z8		

Input	Sound	Effect
1	Horn	
2	Bell	
3		

Changed CVs

CV# 3 = 22 Acceleration rate
CV# 4 = 20 Deceleration rate
CV# 17 = ---
CV# 29 = ---
CV# 35 = 0 Function mapp. F1
CV# 36 = 12 Function mapp. F2
CV# 37 = 0 Function mapp. F3
CV# 38 = 0 Function mapp. F4
CV# 41 = 0 Function mapp. F7
CV# 42 = 0 Function mapp. F8
CV# 43 = 0 Function mapp. F9
CV# 44 = 0 Function mapp. F10
CV# 45 = 0 Function mapp. F11
CV# 46 = 4 Function mapp. F12
CV# 57 = 120 Motor regulation: voltage reference
CV# 60 = 60 Dimming
CV# 114 = 127 Dim Mask FO0-FO6
CV# 115 = 66 Uncoupler control
CV# 116 = 145 Automatic uncouple
CV# 124 = 2 Shunting keys Settings
CV# 127 = 32 Effects F1
CV# 128 = 36 Effects F2
CV# 132 = 80 Effects F6
CV# 133 = 20 FO4 for exhaust fan
CV# 137 = 153 Smoke generator at standstill
CV# 138 = 204 Smoke generator at cruising speed
CV# 139 = 255 Smoke generator at acceleration
CV# 154 = 20 Special OEM bits
CV# 156 = 20 Momentum deactivation key
CV# 158 = 104 Several sound bits + RailCom variants
CV# 159 = 48 Effects F7
CV# 163 = 255 Servo 1 right stop
CV# 167 = 255 Servo 2 right stop
CV# 181 = 12 Servo 1 - Function Assignment
CV# 182 = 12 Servo 2 - Function Assignment
CV# 287 = 70 Threshold for brake squeal
CV# 296 = 180 Electromotor largest volume
CV# 297 = 20 Electromotor: begin of audible noise
CV# 298 = 5 Electromotor: begin of full volume
CV# 299 = 120 Electromotor noise depending on the speed of the pitch
CV# 312 = 0 Drainage button
CV# 313 = 116 Mute button
CV# 314 = 25 Mute fade time
CV# 347 = 15
CV# 348 = 7
CV# 351 = 204
CV# 353 = 32
CV# 374 = 14
CV# 376 = 255
CV# 380 = 17
CV# 381 = 112
CV# 382 = 255
CV# 383 = 71
CV# 384 = 200
CV# 385 = 49
CV# 386 = 7
CV# 387 = 255
CV# 388 = 255
CV# 389 = 25
CV# 391 = 70