Climax B-Class geared locomotive

Photo   Heinz Däppen

The Prototype

The Climax steam locomotives originated from locomotives developed by Dunkirk. After prolonged patent litigation, both Dunkirk and Climax have abandoned the construction of the A-Class.
The Climax A-Class basically has a flat car as a base, on which the boiler is mounted. Stand-alone boilers, T-boilers and boat type boilers were used. A twin-cylinder marine steam engine was installed in the center of the flat car, which drives the wheels via an affiliated 2-speed manual gear box. Power is transferred to the wheels with a universal joints and helical bevel gears.
In the B-Class, the cylinders were arranged diagonally next to the boiler and drove a blind shaft. Power was then transferred to the wheels in the same manner as with the A-class, centered under the locomotive with helical bevel gears. The C-Class was extended and had a third engine bogie

The locomotives were fired with wood, coal or bunker oil
All in all, from today's perspective, an interesting testimony American inventiveness.

More information: http://www.gearedsteam.com/climax/climax.htm

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Sound Project Information

The sound operates both the hard-thundering highball and the light coasting sounds of the helical bevel gears in flat areas. Use the F15 function key to switch between modes. The sound project produces the unique odd sound of this special locomotive.

The Sound Project is based on the Zimo Advanced Standard and is available in versions with wood, coal or oil firing. In some cases, the steam strokes also differ.

The decoder must have SW Version 39 or higher.
The sound is available in an 8-bit for MX and 16-bit version for MS decoder.
FA 7 and servo1 can operate several electric couplers. The Kadee electric coupler 11220 can simply be plugged in on servo connector 1.

CVs 3, 4, 5, 6, 154 and 158 are important values for the sound project. Please change values very carefully! Set the final speed exclusively with CV 57 only!

By default, the function number is the same as function key. All the functions can easily be assigned 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! 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	oilburner
F1	Bell		Bell
F2	Whistle l-l-s-l		Highway crossing signal
F3	Whistle long		Playable as long as the key is pressed
F4	Whistle short		Short whistle sound
F5	Cab light	FA 5	
F6	Smoke generator on heater load controlled Also replaceable with Zimo blowing smoker	FA 6 heater, on 15 min timer to prevent burnout Fan output for cam operated blower	
F7	Cylinder valve		Blow down
F8	Sound on / off		
F9	Wheels screeching on curves		Sound of Wheels screeching on curves
F10			
F11	Blower	Smoke fan is on	Steam blowing
F12	Servo coupler opens and loco moves back and forth	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)		Sound fades in or out in 2,5 secs
F17	Conductor		„All aboard! "
F18	Injector		Feeding water in the boiler
F19	Topping up air brakes		Air pump pumping quickly
F20	Filling water into tender		Water splashing
F21	Conductor		„All aboard! "
F22	Ash door		Hatch closes

Random effect	sound	
Z1	Air pump fast	
Z2	Air pump slow	
Z3	Blower	Fan blows smoke out of stack
Z4	Injector	Steam injects water into the boiler
Z5	Safety valve	Loud popping of valve
Z6	Steam blow	Steam blow
Z7		
Z8	Firebox hatch	

input	sound	
1		
2		
3	Cam chuff trigger	optional

Changing CVs values used by the reset

CV# 3 = 20 Acceleration rate
CV# 4 = 30 Deceleration rate
CV# 9 = 55 Motor control frequency
CV# 29 = ---
CV# 35 = 0 Function mapp. F1
CV# 36 = 0 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# 47 = 16 n.a.
CV# 48 = 32 n.a.
CV# 57 = 60 Motor regulation: voltage reference
CV# 60 = 255 Dimming general
CV# 112 = 1 ZIMO configuration bits (binary)
CV# 114 = 127 Dim Mask FO0-FO6
CV# 115 = 66 Uncoupler control
CV# 116 = 145 Automatic uncouple
CV# 124 = 0 Shunting keys configuration (binary)
CV# 132 = 72 Effects F6
CV# 137 = 153 Smoke generator at standstill
CV# 138 = 204 Smoke generator at cruising speed
CV# 139 = 255 Smoke generator at accelaration
CV# 154 = 18 ZIMO configuration bits 2 (binary)
CV# 158 = 8 Several sound bits + RailCom variants
CV# 159 = 48 Effects F7
CV# 160 = 8 Effects F8
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# 272 = 60 Drainage time
CV# 274 = 60 min. drainage downtime [0.1s]
CV# 283 = 181 volume at full acceleration
CV# 286 = 110 Volume reduced driving noise during deceleration
CV# 287 = 90 Threshold for brake squeal
CV# 307 = 130 cornering squeal inputs
CV# 308 = 9 cornering squeal key
CV# 312 = 7 Drainage button
CV# 313 = 116 Mute button
CV# 314 = 25 Mute fade time
CV# 345 = 15 Sound-switch-key
CV# 346 = 2 Sound-switch-conditions
CV# 351 = 204 Smoke fan pwm at constant speed
CV# 353 = 32 Smoke heater max. operating time
CV# 376 = 181 Driving sound volume
CV# 394 = 32 ZIMO configuration 4 (binary)
CV# 395 = 120 maximal volume
CV# 396 = 27 Volume decrease key
CV# 397 = 28 Volume increase key
CV# 508 = 0 ZIMO Mapping dimming value 1-key

CV# 509 = 0 ZIMO Mapping dimming value 2-key
CV# 510 = 0 ZIMO Mapping dimming value 3-key
CV# 511 = 0 ZIMO Mapping dimming value 4-key
CV# 512 = 0 ZIMO Mapping dimming value 5-key
CV# 736 = 64 Soundnumber trigger 6
CV# 737 = 255 Trigger 6 to FO
CV# 745 = 91 Volume Z1
CV# 746 = 8 Information on loop Z1
CV# 748 = 91 Volume Z2
CV# 749 = 8 Information on loop Z2
CV# 751 = 128 Volume Z3
CV# 752 = 8 Information on loop Z3
CV# 754 = 128 Volume Z4
CV# 755 = 8 Information on loop Z4
CV# 758 = 8 Information on loop Z5
CV# 760 = 91 Volume Z6
CV# 761 = 8 Information on loop Z6
CV# 764 = 8 Information on loop Z7
CV# 777 = 0
CV# 778 = 0
CV# 779 = 0
CV# 780 = 0