

Logging Mallet

16Bit
SOUND



The Role Model

The locomotive was designed by Baldwin Locomotive Works as a heavy narrow-gauge locomotive for transporting timber. This model is a Mallet-type compound locomotive. This means that the exhaust steam from the rear high-pressure engine does not audibly enter the intake of the front low-pressure engine. In fact, with this locomotive, one hears only the powerful exhaust stroke of the low-pressure engine. Asynchronous double strokes are characteristic of the Simple Articulated type, which features two drive units supplied directly with live steam from the boiler. As a layperson can easily tell, a Mallet has larger cylinders at the front, while a Simple Articulated has cylinders of equal size at both the front and rear.

All recordings were taken from a very similar locomotive that operated on the Weyerhaeuser Lumber Co. line.

Sound Project Informations

- The locomotive's sounds include the thunderous puffing at full power and the gentle coasting on flat terrain. You can switch between the two modes using F15.
- This sound project was developed exclusively for the new Zimo MS sound decoders. All Zimo MX decoders have insufficient resources and, unfortunately, no longer work with this sound project.
- The MS970 for the NMRA-compliant mainline interface uses pin FA6 for the smoke generator heater. A new feature on the Zimo locomotive boards MS950 and MS990 is that pin FA3 is designated for the smoke generator heater via a direct cable connection. This project has pre-programmed both FA3 and FA6 for the smoke generator heater.
- Pins FA7 and Servo 1 can control multiple electric uncouplers. The Kadee electric uncoupler can simply be plugged into the Servo 1 jack.
- Please note that not all programming settings are visible and are protected against accidental manipulation in second-level scripts.
- In the prototype, the bell is rung while the locomotive is stationary using an air bell ringer. Accordingly, no swinging bell is provided.
- The Bachmanntrains model can be equipped with servos to ensure the correct positioning of the controls on both drives. A script controls the two servo outputs, 2 and 3, for this purpose.
- The generator noise sounds when one of the three lights is turned on and does not stop until the last light is turned off. The first light to be turned on is activated with a slight delay to allow the generator to ramp up. You can adjust the delay using CV 981. This effect control can only be achieved via a script, which means that this mapping of function outputs 0, 4, and 5 cannot be modified by the user. Volume is adjustable via CV 980.
- If you want to use the sound in a locomotive from before the incandescent lamp era, you can deactivate scripts 1, 4, 5, and 6 using CV 837 as explained in the Zimo user manual, or—more elegantly and simply—check the 4 boxes in the ZCS software using the MXULFA or KLUG programming device. The generator noise must then be programmed to an unused function.
- The short starting whistles differ: 2 beeps for forward and 3 beeps for reverse. If you do not want these whistles, you can disable them using function 26. Volume is adjustable via CV 983.
- A Bachmann model's clock generator can also be used via the NMRA interface. To do this, set CV 268 from 0 to 1.

- If you need support, please read out CVs 105, 106, 254, 255, and 256 and be sure to provide them to us. mit.

Warnigs

- The function outputs are preprogrammed for specific effects. Please read this first, then solder!
- This project cannot be used with MX 8-bit decoders!!
- The values in CVs 3, 4, 5, 154, and 158 are relevant to this sound project. Changing them will cause the sound project to malfunction!
- The maximum speed should be limited exclusively using CV 57; otherwise, sounds will play at the wrong speed.

If you want to assign a function to a different key

With Zimo input mapping, even complex programmed functions can be remapped to a different button using a single CV.

Everything is remapped! For this reason, input mapping should always be performed last.

CV 400 + function number – value = desired button.

If the desired key is already assigned a function, you must also reassign that function.

For example, the model does not have an illuminated cab, but you would like to have the “All Aboard” announcement assigned to the keys for the cab lighting.

CV 405 Value 17

CV 417 Value 05

It doesn't get any simpler than that

F0	Generator ein	F0 Licht verzögert ein-aus FA0 Lv Lr	Analog ein/Vw	Analog ein/Rw
F1	Airbellringer.wav			
F2	Mallet HWC.wav			
F3	Mallet Long.wav			
F4	Mallet Short.wav			
F5	Generator ein	F5 Licht verzögert ein-aus FA5	FA5	
F6	Blow Down 3.wav	FA6		
F7	Entwässern			
F8	Fahrsound Ein/Aus	Start Whistle 2.0	Generator ein	Analog ein
F9	Kurvenquietschen ein			
F10	Shoveling-Coal.wav + FA8			
F11	Blower44.wav + Rauch-Ventilator			
F12	Servo1	kupplung.wav	FA7	
F13	Ankuppeln.wav			
F14	Pop Valve short.wav			
F15	Setumschaltung			
F16	Mute wenn ein			
F17	All a Board 1.wav			
F18	Injector complete 44.wav			
F19	Compound fast single.wav			
F20	Waterfill.wav			
F21	Steamblast.wav			
F22				
F23				
F24				
F25				
F26	Start Whistle 2.0			
F27	Leiser			
F28	Lauter			

☒ Use random generators 1 and 2 for air pump Sample air pump quickly after stopping		[dB]	Volume	Interval [s] Minimum break		Loop time [s]	Driving condition	Speaker
1.	Compound fast single.wav	-3			1	10	In stand	1+2
Sample air pump slow due to pressure loss				min.	max.			
2.	Compound slow.wav	-3		190	210	30	Always on	1+2
Sample								
3.	Blower44.wav	-9		90	110	9	In stand	1+2
4.	Shoveling-Coal.wav	-12		92	120	9	Always on	1+2
5.	Injector complete 44.wav	-9		110	130	10	In stand	1+2
6.	Grumble.wav	-9		100	200	1	In stand	1+2
7.	Door.wav	-6		40	255	1	In stand	1+2
8.	Pop Valve short.wav	0		200	255	12	In stand	1+2

Input	Effect	
1		
2		
3	Steam chuff, tap on the sha	

Changed CV values used by the reset

CV# 1 = 18 Loco address	CV# 265 = 1 Selection of the locomotive type
CV# 3 = 23 Acceleration rate	CV# 266 = 64 Total volume
CV# 4 = 24 Deceleration rate	CV# 267 = 210 Chuff sound rate
CV# 7 = 5 Decoder version major	CV# 275 = 181 Volume with no load slow travel
CV# 9 = 97 Motor control frequency	CV# 276 = 181 Volume with no load speed run
CV# 12 = 4 operating modes	CV# 281 = 5 Threshold for full acceleration sound
CV# 13 = 128 Analog functions F1-F8	CV# 286 = 40 Volume reduced driving noise during deceleration
CV# 27 = 0 Asymmetrical stops (ABC) and HLU	CV# 287 = 110 Threshold for brake squeal
CV# 28 = 67 RailCom Configuration	CV# 288 = 50 Brake squeal time spent driving [0.1s]
CV# 29 = 10 DCC configuration (binary)	CV# 289 = 0 Thyristor Stepping effect
CV# 33 = 0 Function mapp. F0f	CV# 290 = 0 Thyristor pitch at medium speed
CV# 34 = 0 Function mapp. F0r	CV# 291 = 0 Thyristor pitch at maximum speed
CV# 35 = 0 Function mapp. F1	CV# 292 = 0 Thyristor gear for medium speed
CV# 36 = 0 Function mapp. F2	CV# 293 = 0 Thyristor volume at constant speed
CV# 37 = 0 Function mapp. F3	CV# 294 = 0 Thyristor volume during acceleration
CV# 38 = 0 Function mapp. F4	CV# 295 = 0 Thyristor Volume at delay trip
CV# 41 = 0 Function mapp. F7	CV# 296 = 64 Electromotor largest volume
CV# 42 = 0 Function mapp. F8	CV# 297 = 30 Electromotor: begin of audible noise
CV# 43 = 0 Function mapp. F9	CV# 298 = 5 Electromotor: begin of full volume
CV# 44 = 0 Function mapp. F10	CV# 307 = 128 cornering squeal inputs
CV# 45 = 0 Function mapp. F11	CV# 308 = 9 cornering squeal key
CV# 46 = 4 Function mapp. F12	CV# 310 = 8 Sound on/off button for road- and random noise
CV# 56 = 0 Motor regulation: PID	CV# 311 = 0 General on/off button for functional noise
CV# 57 = 70 Motor regulation: voltage reference	CV# 312 = 7 Drainage button
CV# 63 = 62 Effects cycle	CV# 313 = 116 Mute button
CV# 64 = 0 Ditchlight modifications	CV# 314 = 25 Mute fade time [0.1s]
CV# 65 = 19 Decoder version minor	CV# 315 = 1 Random Z1 min interval
CV# 98 = 1 Deactivate east/west reception	CV# 316 = 10 Random Z1 max interval
CV# 99 = 2 Deactivate railcom datagrams	CV# 317 = 10 Random generator Z1 playback time
CV# 105 = 145 User Data 1	CV# 318 = 190 Random Z2 min interval
CV# 106 = 1 User Data 2	CV# 319 = 210 Random Z2 max interval
CV# 112 = 1 ZIMO configuration bits (binary)	CV# 320 = 30 Random generator Z2 playback time
CV# 114 = 255 Dim Mask FOfront-FO6	CV# 321 = 90 Random Z3 min interval
CV# 115 = 66 Uncoupler control	CV# 322 = 110 Random Z3 max interval
CV# 116 = 145 Automatic uncouple	CV# 323 = 9 Random generator Z3 playback time
CV# 121 = 1 Exponential acceleration	CV# 324 = 92 Random Z4 min interval
CV# 122 = 1 Exponential deceleration	CV# 325 = 120 Random Z4 max interval
CV# 125 = 89 Effects FOfront	CV# 326 = 9 Random generator Z4 playback time
CV# 126 = 90 Effects FOrear	CV# 327 = 110 Random Z5 min interval
CV# 131 = 88 Effects FO5	CV# 328 = 130 Random Z5 max interval
CV# 132 = 72 Effects FO6	CV# 329 = 10 Random generator Z5 playback time
CV# 133 = 16 FO4 or FO10 for smoke fan	CV# 330 = 100 Random Z6 min interval
CV# 137 = 153 Smoke generator at standstill	CV# 331 = 200 Random Z6 max interval
CV# 138 = 204 Smoke generator at cruising speed	CV# 332 = 1 Random generator Z6 playback time
CV# 139 = 255 Smoke generator at acceleration	CV# 333 = 40 Random Z7 min interval
CV# 141 = 20 constant braking distance distance	CV# 334 = 255 Random Z7 max interval
CV# 147 = 100 Motor regulation: I value	CV# 335 = 1 Random generator Z7 playback time
CV# 148 = 45 Motor regulation: D value	CV# 336 = 200 Random Z8 min interval
CV# 149 = 60 Motor regulation: P value	CV# 337 = 255 Random Z8 max interval
CV# 153 = 0 Continue without signal [0.1s]	CV# 338 = 12 Random generator Z8 playback time
CV# 154 = 18 ZIMO configuration bits 2 (binary)	CV# 345 = 15 Sound-switch-key
CV# 158 = 12 Several sound bits	CV# 351 = 204 Smoke fan pwm at constant speed
CV# 159 = 48 Effects FO7	CV# 353 = 32 Smoke heater max. operating time
CV# 160 = 8 Effects FO8	CV# 359 = 0 Tap changer hight limit/loop time
CV# 165 = 10 Servo 1 speed [0.1s]	CV# 361 = 0 Tap changer wainig time [0.1s]
CV# 169 = 10 Servo 2 speed [0.1s]	CV# 373 = 10 Electromotor volume deceleration
CV# 173 = 10 Servo 3 speed [0.1s]	CV# 376 = 128 Driving sound volume
CV# 177 = 10 Servo 4 speed [0.1s]	CV# 394 = 32 ZIMO configuration 4 (binary)
CV# 181 = 12 Servo 1 - Function Assignment	CV# 395 = 120 Maximum volume for increase key
CV# 182 = 201 Servo 2 - Function Assignment	CV# 396 = 27 Volume decrease key
CV# 183 = 0 Servo 3 - Function Assignment	CV# 397 = 28 Volume increase key
CV# 190 = 30 Up-dimming time for FO	CV# 508 = 0 Advanced Mapping dimming value 1-key
CV# 191 = 20 Down-dimming time for FO	CV# 509 = 0 Advanced Mapping dimming value 2-key
CV# 250 = 7 Decoder-ID 1	CV# 510 = 0 Advanced Mapping dimming value 3-key
CV# 251 = 255 Decoder-ID 2	CV# 511 = 0 Advanced Mapping dimming value 4-key
CV# 252 = 255 Decoder-ID 3	CV# 512 = 0 Advanced Mapping dimming value 5-key
CV# 253 = 215 Decoder-ID 4	CV# 513 = 115 F1 Soundnumber
CV# 254 = 255 Project-ID	CV# 514 = 181 F1 volume
CV# 255 = 64 Project-ID	CV# 515 = 8 F1 information on loop
CV# 256 = 7 Project-ID	CV# 516 = 116 F2 soundnumber

CV# 517 = 0 F2 volume	CV# 754 = 64 Volume Z4
CV# 518 = 8 F2 information on loop	CV# 755 = 72 Information on loop Z4
CV# 519 = 121 F3 soundnumber	CV# 756 = 112 Soundnumber Z5
CV# 520 = 0 F3 volume	CV# 757 = 91 Volume Z5
CV# 521 = 8 F3 information on loop	CV# 758 = 8 Information on loop Z5
CV# 522 = 122 F4 soundnumber	CV# 759 = 127 Soundnumber Z6
CV# 523 = 0 F4 volume	CV# 760 = 91 Volume Z6
CV# 524 = 0 F4 information on loop	CV# 761 = 8 Information on loop Z6
CV# 528 = 118 F6 soundnumber	CV# 762 = 128 Soundnumber Z7
CV# 529 = 0 F6 volume	CV# 763 = 128 Volume Z7
CV# 530 = 8 F6 information on loop	CV# 764 = 8 Information on loop Z7
CV# 540 = 120 F10 soundnumber	CV# 765 = 113 Soundnumber Z8
CV# 541 = 64 F10 volume	CV# 766 = 0 Volume Z8
CV# 542 = 8 F10 information on loop	CV# 767 = 8 Information on loop Z8
CV# 543 = 111 F11 soundnumber	CV# 768 = 0 Actual used steam/diesel-set
CV# 544 = 91 F11 volume	CV# 769 = 5 Last drive direction
CV# 545 = 72 F11 information on loop	CV# 770 = 127 Servo 1 last position
CV# 546 = 117 F12 soundnumber	CV# 771 = 127 Servo 2 last position
CV# 547 = 0 F12 volume	CV# 772 = 127 Servo 3 last position
CV# 548 = 0 F12 information on loop	CV# 773 = 127 Servo 4 last position
CV# 549 = 129 F13 soundnumber	CV# 774 = 255 Last used rail data format
CV# 550 = 0 F13 volume	CV# 775 = 42 Measured kmh/mph values
CV# 551 = 0 F13 information on loop	CV# 776 = 26 Measured kmh/mph values
CV# 552 = 113 F14 soundnumber	CV# 777 = 60 Measured motor load parameter
CV# 553 = 0 F14 volume	CV# 778 = 30 Measured motor load parameter
CV# 554 = 8 F14 information on loop	CV# 779 = 60 Measured motor load parameter
CV# 561 = 126 F17 soundnumber	CV# 780 = 30 Measured motor load parameter
CV# 562 = 0 F17 volume	CV# 837 = 0 Deactivate scripts (binary)
CV# 563 = 0 F17 information on loop	CV# 980 = 64 Script CV
CV# 564 = 112 F18 soundnumber	CV# 981 = 8 Script CV
CV# 565 = 91 F18 volume	CV# 982 = 64 Script CV
CV# 566 = 72 F18 information on loop	CV# 984 = 88 Script CV
CV# 567 = 132 F19 soundnumber	CV# 985 = 168 Script CV
CV# 568 = 0 F19 volume	Page 145:3 CV# 330 = 0 Random generator Z1 speaker selection
CV# 569 = 8 F19 information on loop	Page 145:3 CV# 331 = 0 Random generator Z2 speaker selection
CV# 573 = 119 soundnumber boiling	Page 145:3 CV# 332 = 0 Random generator Z3 speaker selection
CV# 574 = 64 volume boiling	Page 145:3 CV# 333 = 0 Random generator Z4 speaker selection
CV# 575 = 131 soundnumber change of direction	Page 145:3 CV# 334 = 0 Random generator Z5 speaker selection
CV# 576 = 0 volume change of direction	Page 145:3 CV# 335 = 0 Random generator Z6 speaker selection
CV# 577 = 107 soundnumber squeal	Page 145:3 CV# 336 = 0 Random generator Z7 speaker selection
CV# 578 = 0 volume squeal	Page 145:3 CV# 337 = 0 Random generator Z8 speaker selection
CV# 581 = 108 soundnumber starting whistle	
CV# 582 = 0 volume starting whistle	
CV# 583 = 118 Soundnumber drainage	
CV# 584 = 128 Volume dewatering	
CV# 585 = 93 Soundnumber electromotor	
CV# 586 = 0 Volume electromotor	
CV# 603 = 106 cornering squeal sound number	
CV# 604 = 181 cornering squeal volume	
CV# 673 = 125 F20 soundnumber	
CV# 674 = 0 F20 volume	
CV# 675 = 8 F20 information on loop	
CV# 676 = 114 F21 soundnumber	
CV# 677 = 0 F21 volume	
CV# 678 = 72 F21 information on loop	
CV# 730 = 120 Soundnumber trigger 3	
CV# 731 = 10 Trigger 3 to FO	
CV# 732 = 110 Soundnumber trigger 4	
CV# 733 = 10 Trigger 4 to FO	
CV# 734 = 109 Soundnumber trigger 5	
CV# 735 = 10 Trigger 5 to FO	
CV# 736 = 111 Soundnumber trigger 6	
CV# 737 = 255 Trigger 6 to FO	
CV# 744 = 132 Soundnumber Z1	
CV# 745 = 181 Volume Z1	
CV# 746 = 8 Information on loop Z1	
CV# 747 = 105 Soundnumber Z2	
CV# 748 = 181 Volume Z2	
CV# 749 = 72 Information on loop Z2	
CV# 750 = 111 Soundnumber Z3	
CV# 751 = 91 Volume Z3	
CV# 752 = 8 Information on loop Z3	
CV# 753 = 120 Soundnumber Z4	