PROGRAMMING FOR MRC PRODIGY DCC SYSTEM

When using the MRC PRODIGY DCC system you will be limited to a choice of just both American type whistles, the factory default air pump sound, and Functions F1-F4.

No matter what DCC System you are using, adjusting the volume never turns it off. It goes from low to maximum volume.

Whistle type:

To program American whistle type #1 on your PRODIGY DCC system, first program the decoder to address #1. This turns on whistle type #1. While still in the programming mode, program the decoder to any address you desire, except address #2

To program whistle type #2 on your PRODIGY DCC system, first program the decoder to address #2. This turns on whistle type #2. While still in the programming mode, program the decoder to any address you desire, except address #1.

Volume control:

To adjust the volume setting of your decoder with the MRC PRODIGY DCC system, first program the decoder to address #1. For minimum volume, set the throttle to minimum. For maximum volume, set the throttle to maximum. Press the "Program Momentum" button to lock in your volume level. Then program the decoder to any address you desire and reprogram the momentum to the desired address, except address #1.

For MRC PRODIGY DCC users, the volume level can be set first, followed by the whistle type.

ADDITIONAL INFORMATION

The MRC 1627 HO gauge synchronized steam sound decoder should perform well when used with other brand command systems. See your DCC command station's manual to learn how to program and operate the decoder. For more information about register/CVs and their functions, please refer to the NMRA DCC Standard & Recommended practices, RP-9.2.2 this is available directly from the NMRA or their website at **www.nmra.org.**

FCC COMPLIANCE

This device complies with the part 15 of FCC rule. Operation is subject to the following two conditions. (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that cause undesired operation.

RETURN PROCEDURE

If it should become necessary to return your decoder, unplug the decoder and return the decoder only. Please include a letter (printed clearly) with your name, address, a daytime telephone number, and a detailed description of the problem you are experiencing. Please also include a $15.00 check for handling and shipping fee. **Be certain to return the decoder only.**

Send the decoder to:

Model Rectifier Corporation
Attn: Parts & Service
80 Newfield Avenue
Edison, NJ 08837-3817 U.S.A

HOW TO WIRE THE SECONDARY SPEAKER

1. Cut one of the purple speaker wires as shown by the 'x' on figure 4. This results in two terminals from the first speaker.

2. Cut off the 2-pin connector from the secondary speaker. This results in two terminals from the second speaker.

3. Connect the two terminals from the first speaker to the two terminals from the second speaker as shown in figure 5.

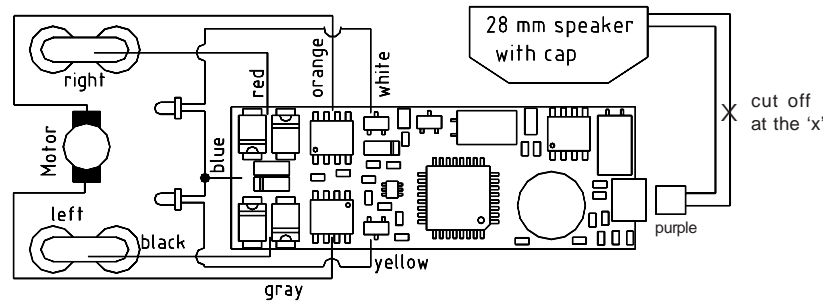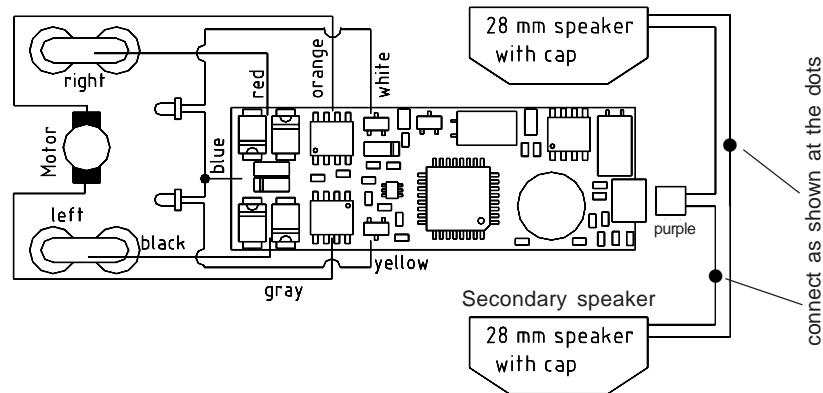Figure 4. Cutting off one of the speaker wires

Figure 5. Connection diagram for two speakers

HO Gauge Synchronized Steam Sound Decoder with 12 Sound Functions

Item #0001627

Thank you for purchasing our highly advanced DCC locomotive decoder. Combined with any DCC System, our decoder will make your model railroad more realistic and exciting.

- Synchronized steam chuff with random sounds
- 1.5 amp capacity
- Programmable for either 2-digit (1-127) or 4-digit (1-9999) addresses
- Programmable start voltage
- Programmable acceleration rate
- Programmable deceleration rate
- Programmable top voltage
- Programmable 14, 28, 128 speed steps
- Directional lighting control for front and rear lights at 0.2 amp rate.
- 12 accessory sound functions (F1-F12)
- Supports advanced consisting (CV19)
- Supports programming on the main
- Compatible with NMRA DCC standard
- NMRA 8 pin plug included for easy installation
- Complies with the part 15 of FCC
- 28mm speaker included
- Dimensions: 47.0mm x 17.5mm x 5.2mm

INSTALLATION

It is quite a challenge to install a decoder into a locomotive. You should have some basic electrical knowledge and soldering skills. If you do not have the above requirements, please ask the dealer for help in installation.

Figure 1 shows the electrical circuit of most standard locomotives. The terminals of the motor and light(s) are directly connected to the wheel pick-ups. Each type of loco has its own method of electrical pick-up and distribution. The connection between the wheels, motor and light(s) could be wires, clips, the body or chassis, a PC board or any other type of conductor. Figure out your loco's electrical system and how to disconnect (isolate) the motor and light(s).

Figure 1. Connection of standard locomotive. *Note: The 'X' marks indicate where to disconnect (isolate).*
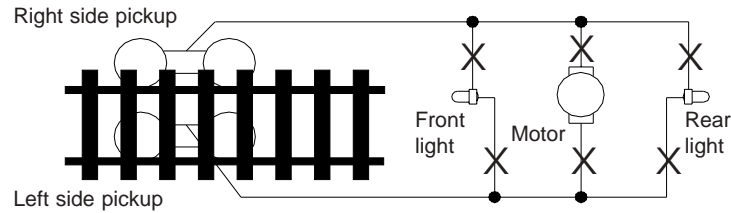

The decoder will be inserted between the wheel pick-ups and the motor. The 'X' marks in Figure 1 show you where to disconnect (isolate).

Figure 2 shows you how to wire the decoder. After disconnecting the motor terminals from pick-ups, connect the red wire to the right side pickup and the black wire to the left side pick up. Connect the orange wire to the motor terminal that originally connected to the right pickup. Connect the gray wire to the motor's other terminal. Connect the front light to the blue wire and the white wire. Connect the rear light to the blue wire and the yellow wire.

The blue wire is the common terminal for lights and accessory functions. You may use the black wire or the red wire to replace the blue wire. This is very useful when you find that it is hard to isolate one of the light terminals from the pickup. Wiring the bulb this way will also make the light dimmer. If your loco has only a front light, you should connect the white and the yellow wires together. If your locomotive has a NMRA 8 pin receptacle, just remove the dummy plug and plug in the decoder.

Figure 2. 1627 decoder wiring diagram
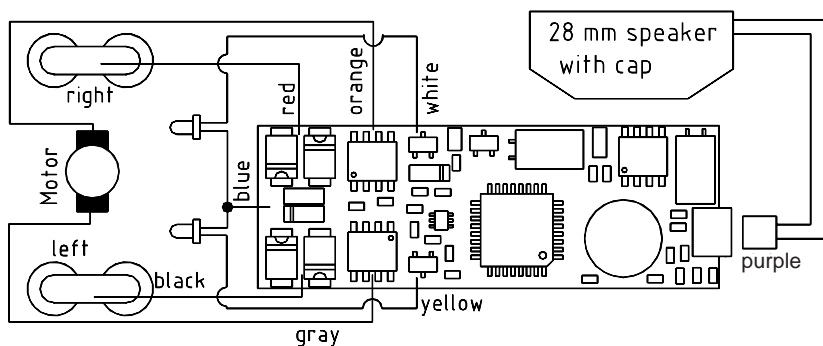
SPEAKER PLACEMENT

The 1627 HO gauge synchronized steam sound decoder comes with a speaker rated at 8-ohms. Placement of the speaker is up to you.

Use hot glue to affix the speaker to the locomotive.

MAKE A TEST TRACK

Before you start with your decoder installation, we strongly recommend building a test track that uses a 20-ohm resistor to limit current. Only test your installed decoder on the test track. The test track will prevent any damage due to an incorrectly wired decoder.

Figure 3. Diagram of test track
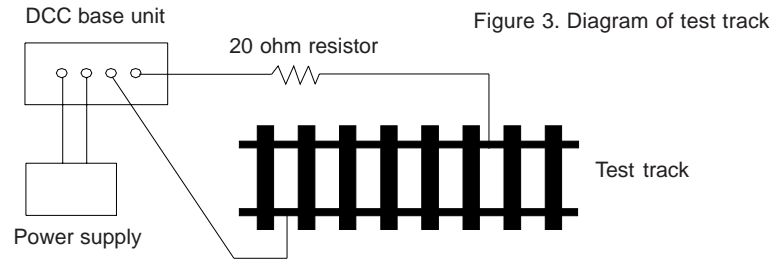
TEST

All MRC decoders have been factory programmed with address #3, 28/128 speed steps and maximum top voltage. After you have finished your decoder installation, you are ready to test it. **Never run the installed decoder on your layout without first passing the test.** You may damage the decoder if it is not wired correctly or if you have not properly isolated the motor and the lights.

Put the loco on the test track. Select the Run Mode of your DCC system and select or acquire address #3. Move up throttle and the loco should move forward. Push the light button and the front light of your loco should turn on. Push the reverse direction button. The loco should move backward and the rear light should turn on. The loco cannot get normal speed because there is a 20-ohm protection resistor in the test track. If you are able to turn on/off the front and rear lights and you are able to move the loco forward and reverse, you did a great job. Congratulations! **Do not test the loco on the test track for an extended period of time. To do so will cause the protection resistor to overheat.**

If your installed decoder does not pass the test, find the problem, correct it and test it again. As long as you test the decoder on the test track there is little chance of damaging your decoder. This is why making a test track is so important.

OPERATION

This decoder can be operated with the steam sounds on or off. Pressing F12 or double clicking your headlight button (F0) will turn the steam sounds on or off. When the steam sounds are turned off, all accessory function sounds will also be turned off.

There are three whistle type sounds and three air pump sounds for you to choose. The choice of air pump sound is for randomly played sounds when the locomotive is at idle.

SPEAKER SELECTION

This decoder includes one 28mm 8-ohm speaker. If it is too large, you can order a 20mm 8-ohm speaker from MRC. If you prefer improved sound effects, order a secondary 28mm or 20mm speaker from MRC. Refer to the last page for secondary speaker wiring.

The correct start voltage must be programmed in order for the locomotive to start chuffing when it begins to move.

STEAM SOUNDS CHART

Function	Idle	Moving
Double click F0	Sound on/off	Sound on/off
F1	Bell on/off	Bell on/off
F2	Long whistle	Long whistle
F3	Short whistle	Short whistle
F4	Sand release	Coupling
F5	Air release	Brake squeal
F6	Conductor	Coal feeding
F7	Fire box door open/close	Blower hiss
F8	Cylinder cock	Water injector
F9	Air pump 1	Air release
F10	Air pump 2	Fire box door open/close
F11	Air pump 3	Coal shoveling
F12	Sound on/off	Sound on/off

To make the sound longer, re-trigger the sound before it ends by pressing the appropriate function button.

PROGRAMMING

This decoder supports all program methods including register, page CV, direct CV and programming on the main (OPS mode programming).

CV	Register	Description	Range	Factory Value
CV1	R1	Short address	1-127	3
CV2	R2	Start voltage	0-32	0
CV3	R3	Acceleration	0-32	0
CV4	R4	Deceleration	0-32	0
CV5	---	Max voltage	0-32	0
CV29	R5	Basic configuration	---	2
CV7	R7	Manufacturer version number	---	32
CV8	R8	Manufacturer ID	---	143
CV17	---	Long address upper byte	192-231	192
CV18	---	Long address lower byte	0-255	3
CV19	---	Advanced consist address	1-127	0
CV50	---	Whistle type*	0-2	0
CV51	---	Air pump type	0-2	0
CV52	---	Sound volume	0 or 31	31
CV64	---	Chuff rate**	0-31	15
CV105	---	User identifier number	0-255	0
CV106	---	User identifier number	0-255	0
---	R6	Page number	0-31	1
CV115	---	Brake squeal	0=off, 1=on	0

* Whistle types: 0=American whistle #1, 1=American whistle #2, 2=European steam whistle

** To adjust the chuff rate, program the start voltage (CV2) so the loco begins to move as the chuff sound starts and then program the top voltage (CV5) to the desirable top speed. Then program the chuff rate (CV64) to synchronize to the locomotive.

MRC PRODIGY DCC and MRC Command 2000 users do not need to know all these register/CV numbers because the MRC DCC systems use model railroading terminology. It is easy to understand and easy to program.