

DCC has been with us for about 10 years. During that time semiconductor technology has produced devices with much greater density and speed. This has allowed more functions to be put into smaller packages. One of the results is the ability to squeeze more sounds and flexibility into the decoders. This increase in capability has allowed the expansion of the number of new sound decoder on the market.

SOUND CHOICES

In order to have more of a variety of sounds available two methods have emerged. One is downloadable sound files. This lets either the dealer or the modeler change the type of locomotive sounds the decoder produces. The other is to preprogram a variety sounds into the decoder and let the modeler choose the sounds by setting values in CVs. Each of these methods have the advantages and disadvantages. With downloadable sounds the advantage is the very wide choice of locomotive sound files to select from. The disadvantage is you need a programmer if you want to change the sound file. With the preprogrammed sounds the advantage is the sounds can be selected with any DCC system by changing CVs. The disadvantage is the most of the sounds are generic and may not match your locomotive.

SHEER BRILLIANCE DECODERS

The new line of low cost HO sound decoder from MRC is called **Sheer Brilliance**. There are two decoders in this line. They both have generic sounds with a variety of them preprogrammed into the decoder. Some of the sounds can be selected with CV settings and some with a function key.

There are two models available. The steam decoder item #1630 and the diesel item #1631. Both of these decoders come with a 28mm speaker and a matching enclosure. The diesel decoder also includes a 20mm speaker to fit into narrow body diesels. The speakers are connected with a 2 pin connector to the decoder. These are 8 ohm speakers. The decoder has components installed on both sides and is only 48mm X 17mm X 7.5mm. The decoder is rated at 1.5 amps. The instructions come on a single sheet printed on both sides.

The decoder can use function keys F0 to F19. The only DCC system that I know of at the present time that has function keys from F13 to F19 is the MRC Prodigy Advance DCC system. Most of the standard sounds and functions are controlled with the lower F keys and the decoder will work with any DCC system.

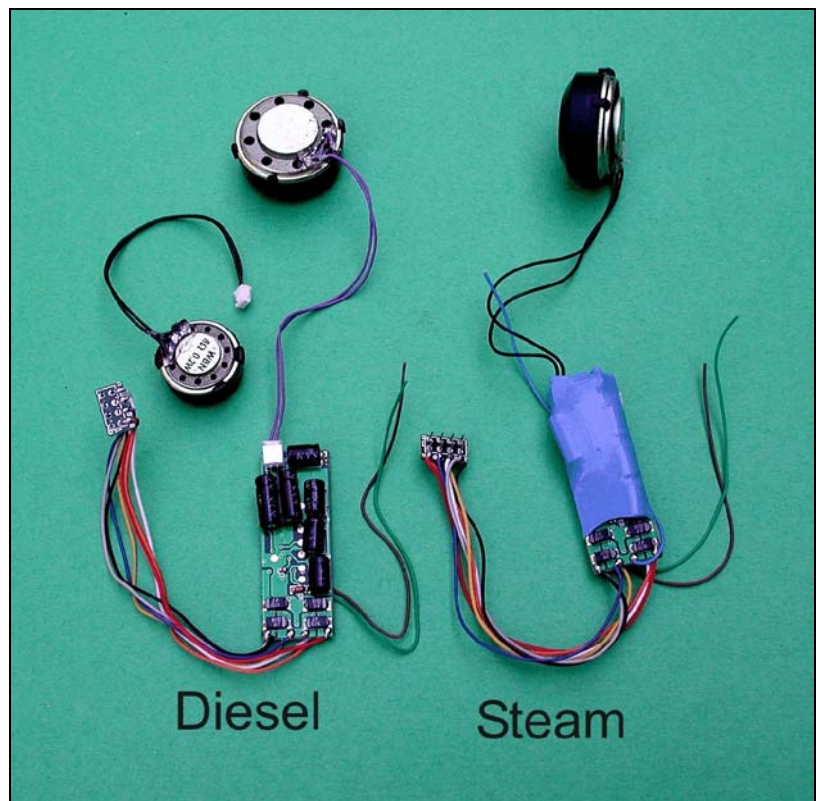
There are the standard front and rear lights plus a

limited number of special lighting features that are programmable. The steam decoder has fire box flicker and the diesel has Mars light, strobe and ditch lights. There are 4 function outputs for lights and other devices.

Both decoders are NMRA DCC compatible and use the standard 8 (2x4) pin connector for easy installation. All of the standard CVs are used for motor control. There are many CVs used for sound selection and volume control.

The speakers come installed in the enclosure or as the instructions call it a "cap". I found it interesting that the speakers were installed with the "front" facing into the enclosure. This provides two advantages over the conventional way of mounting the speaker with the back or magnet on the inside of the enclosure. The wires do not need to be sealed as they are on the outside of the enclosure. Since the magnet and back of the speaker is out of the enclosure there is more air volume in the enclosure which should lower the frequency response. The only disadvantage to this speaker and enclosure arrangement is it is slightly bigger.

The steam decoder has 8 selectable "chuffs", 11 whistles and 4 bells to choose from. The diesel has 11 horns and 7 bells to select from. The different sounds can be checked out by using OPS mode programming.



worked OK.

Here is a list of the sounds and F keys

F Key	Steam Idle / Moving	Diesel Idle / Moving
F0	Sound on/off-Lights*	Sound on/off-Lights*
F1	Bell on-off	Bell on-off
F2	Whistle	Horn
F3	Air Release	Air Release
F4	Coupling	Coupling
F5	Brake Squeal	Brake Release/ Braked Squeal
F6	Conductor / Rail Click	Dynamic Brake
F7	Fire Box Door	Air Hose Firing
F8	Air Exhaust	Coupling bar or notch down
F9	Flange Squeal	Exhaust or notch up
F10	Water	Rail Click (when moving)
F11	Blower Hiss	Air compressor
F12	Chuff on-off for drifting	Engine Cooling Fan
F13	Coal Auger	Cab Door Closing
F14	Coupling Fire	Coupling Crash
F15	Sand Drop	Air Pump
F16	Shoveling (coal?)	Safety Pop Valve
F17	Short Air Release	Short Air Release
F18	Injector	Change Bell Type
F19	Whistle Select	Horn Type Select

* Sound on/off with double click-- lights with single click

DECODER TESTING

To test the decoders an NEC decoder tester was used. Simple to connect just plugged the 8 pin connectors together. The speaker was already connected to the decoder. My test setup does have a motor so I can check out the response of the motor and to check the back-EMF function. There is a lamp on the decoder tester that is also used as a load. This lamp works out as a good monitor of the voltage applied to the motor by the decoder.

The back-EMF is turned on with a value of 1 programmed into 123. The test motor has a small flywheel that I can put a load on for the back-EMF test. Both decoders operated about the same way. The only thing that the Back -EMF seems to do is to be sure the motor is rotating before starting the chuff or speed up the diesel engine. There was little effect on the motor torque.

Read back of CV was intermittent and I could only read back a few CVs. Even if they would not read back they would program with no problems. There is a comment in the instruction about the problem reading back CV values with sound decoders. OPS mode on-the-fly programming

When first turned on the volume was so loud that the sound was a distorted. There was no way to reduce the overall sound level. Instead each sound has CV that controls the volume of the separate sound. The acceptable values in each CV were 0 to 3. This only gave a choice of 4 sound volume levels. To reduce the overall volume I had to look up each sound CV and set it to a lower volume. This meant adjusting 12 steam CVs and 14 diesel CVs to adjust the sound volume. Normally F8 is used to turn the sound off. These two decoders use a double click of F0 to turn sound off. CV 49 can also be used to turn sound off. I balanced the sound level for my use with OPS mode programming.

Even at the lower volume settings there was still plenty of volume. These small speaker put out a lot of sound. There is not much low frequency output. This is normal with any small speaker. Steam engines generally have more high frequency sounds than diesels. I tried the variety of sounds on both the steam and diesel decoders using a MRC Prodigy Advance system. This is the only system that has the full range of F0 to F19. It would be nice to map some of these sounds to a lower F key for use with other systems that have a limited number of F keys. There is no information on key mapping in the instructions.

The press release for the Brilliance line of decoder states **MRC Introduces(sic) "Carnegie Hall" Sound Quality for HO Gauge Steam & Diesel.** I've never been in Carnegie Hall and I don't think a locomotive has ever been there either. Judging sound is very subjective. To get an evaluation of the sound quality I did a comparison using QSI and SoundTraxx decoders. Mainly I checked out engine noise, bell and whistle/horn sounds

The MRC diesel engine sounds were like a generic EMD engine. They were satisfactory. The bell was about the same as the others that I compared with. Some of the MRC horns were not as clear. They sounded a bit fuzzy when compared to the other decoders.

The chuff sounds had a number of variations to select. In general, they were changes in tone. An articulate or standard engine sound could be selected. These were Ok. The MRC whistle modulation and inflection were not as good as the SoundTraxx. The bells were much the same quality.

Many of the added sounds come on a random times. The air pump did not always come on after a stop as in some of the other sound decoders. The decoder would stay quite until the locomotive started to move. Then they would operate normally.

The low price and small size of these two decoders make is easier to populate your fleet of locomotives with sound decoders. They have a lot of bang for the buck. For your prized locomotive you may want to step up to a higher priced sound decoder.

Don Fiehmman 16Sep05