



# Bachmann Spectrum®

## **Chuff Synchronization:**

Bachmann Spectrum® locomotives come equipped with contacts in the engine that enable synchronization of the chuff sound with the cylinder piston movement. In order to utilize these built in contacts, it is necessary to add some wires to the circuit board that connects to the two-conductor wire running to the engine on the underside of the front of the tender. Run these wires into the tender along with the other wires from the connector board(s). These will be hooked in to the train speed (chuff) sensor inputs. These inputs are terminals 15 & 16 on the 2K2, C2:3 & C2:4 on the P5 and terminals 10 & 11 on the PB9.

If you are experiencing constant whistle blowing, very fast chuffing, no chuffing at high speed or any other irregular chuffing the most likely reason is erratic signals from the contacts. You may try cleaning the brass strips that rub the axle bars, also reshaping the contacts may be necessary. If either of these do not help, we recommend installing axle magnets and a reed switch on a tender axle for use as the chuff trigger. Another option is to convert the system from trigger mode to voltage mode which uses track voltage to determine the train speed. If you are running DCC, speed from DCC should be enabled in place of voltage mode.

## **The Volume Switch and Access Jack:**

Tool boxes and water hatches are good candidates for mounting the volume switch and access jack.

## **Track Power Wiring:**

On the tender floor there are two screws with some wires secured under them. The power leads (red and black wires with spade lugs) from Terminals 1 & 2 on the 2K2 or PB9 are added to these wires - one on each side. If the engine toots three times when forward motion begins, swap these wires at either the terminal block on the sound board or on the tender floor screws. Power for the P5 system should be connected in parallel with your DCC decoder.