DCCOD Detector Tester

A simple bench test board for Chubb's DCC-OD and MRCS' cpOD-M detectors.

Theory:

This board is designed to be a bench test unit for Chubb's DCCOD and pin compatible detectors. A board is inserted into the test pins and the three buttons are pressed in sequence while observing the "detected" LED. A "good" board will light up with both the "low" and "normal" button presses, but not the "high" one. The DCCOD sensitivity can be adjusted in the jig to give the desired behavior.

A local test track can be optionally connected that enables the testing of specific locomotives and rolling stock simply by placing them on the track.

The values for R1, R2 and R3 should be chosen for the layout and locomotives in use - N-scale's small highly efficient motors will draw less current than a O- or G-scale, and will require greater sensitivity. Your wheelsets may provide 10K or 100K resistors, which should also inform your choices. The values below are astarting point; feel free to experiment. There is nothing wrong with choosing 100K as "normal" and 150K as "too high" as long as your choice of "turns" thru the DCCOD's pulse transformer can provide the detection. Start with "normal" matching your wheelset/rolling stock resistors, "low" being half of that, and high being 2x to 10x of normal...

Validate that your DCCOD can actually detect your chosen values by adjusting its potentiometer to its most sensitive position and observing that the detected LED lights when the buttons are pressed.

Usage:

- Plug a DCCOD board to the Detector Tester.
- Connect to a 12v DC regulated power supply.
- Connect the output of a DCC booster to the DCC connector
- Press one of the pushbuttons to place a detectable load resistance across the simulated "track" for the detector to see - Sensitivity test values (choose to match your givens and druthers) - 5K resistance (~3mA) - 10K resistance (~1.5mA) - 100K resistance (~0.15mA) - 150K resistance (~0.1mA)
- The “Track” connector is for optionally connecting a test track behind the tester. You can use it to tune a detector for the resistance of a particular piece of rolling stock.

Use the following table to diagnose/adjust based on the whether the detection LED lights when the following buttons are pressed:

LOW	NORMAL	HIGH	
OFF	OFF	OFF	Nothing lights, missing DCCOD, no DCC power, no DC power, poorly chosen R1,R2 and R3

LOW	NORMAL	HIGH	
OFF	OFF	ON	Bad detector tester - check solder connections
OFF	ON	OFF	Bad detector tester - check solder connections
OFF	ON	ON	Bad detector board - check solder connections
ON	OFF	OFF	this DCCOD will have problems detecting a typical car resistance. Adjust DCCOD until NORMAL lights when pressed
ON	OFF	ON	Bad detector tester - check solder connections
ON	ON	OFF	this DCCOD is properly adjusted
ON	ON	ON	this DCCOD is potentially overly sensitive, and may false trigger. Lower the DCCOD sensitivity until this just extinguishes

If any of the LEDs light when no buttons are pressed and nothing is connected to the external track connector, either the detector tester or the DCCOD is bad.