

NCMRS

Guide To Using Test Tracks

By Leo Valley

General Description: The Test Tracks have been installed to allow members to test and set up their locomotives and rolling stock. The Test Tracks are made up of three sets of tracks that can be used with either DC Analog or DCC. DC Analog is furnished by the Train Power 6200 controller mounted on the left side of slide-out drawer while DCC is furnished by the NCE Pro System which is the same DCC system utilized on our mainline. **IMPORTANT NOTE:** Just as any other DCC system, it is imperative that the tracks be kept clean.

The Test Tracks provide the following features:

- The ability to select power, individually, to any of the 3 tracks or any combination of tracks
- A 2% grade for setting the EMF feature on many new DCC decoders
- Testing of rolling stock to negotiate a #6 turnout
- The capability to check either DC Analog or DCC locomotives off the mainline
- The ability to perform manual programming of DCC decoders using a familiar throttle
- The ability to real-time program in Ops Mode on track long enough to see the immediate results of settings for maximum speed, acceleration, deceleration, etc.
- A current limited track to test new decoder installations
- Dual straight tracks to enable adjusting multiple locomotive settings to run as a consist or MU Lash-up
- A speedometer for setting locomotive speeds
- The capability to program decoders using the computer program Decoder Pro.

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Track layout - The track nearest the outside edge is Track A. The middle track is Track B while the elevated track, a 2% grade, is Track C.

Track controls (Refer to Figure 1 and to Table I on the next page)



Figure 1

Table I

- #1 – TrainPower 6200 DC Analog Transformer/Speed Control
- #2 – NCE ProCab System Throttle
- #3 – NCE Power Pro Command Station & Booster
- #4 – NCE Pro System Command Station Power Supply
- #5 – Power Strip for Test Track System
- #6 – This box contains the controls for supplying power to each track plus the control for inserting a current limiting resistor to the tracks.
- #7 – This box provides the controls as follows from left to right:
 - Enabling the speedometer
 - Selecting the track power source
 - Selecting Programming or Operations Mode for the DCC System
 - Disabling the last ¼ length of Track B
 - Not pictured – Inserting a correction resistor for the PowerPax Programming Booster
- #8 – Decoder Pro Computer
- #9 – Computer Keyboard

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DC Analog Controller (Refer to Figure 2)



Figure 2

This TrainPower 6200 DC Analog Throttle Control provides the ability to use the Test Tracks to set up/test non-DCC locomotives. The control descriptions are as follows:

- Throttle Control: This rotating knob controls the voltage level applied to the tracks to determine the speed of the locomotive
- Power Monitor: This Amber lamp glows brighter as the voltage is increased with the Throttle Control
- Power OFF – ON: Sliding the switch to the right (ON) provides power for the unit
- Mode I – II: This control is not implemented
- Direction: Sliding this switch to the *left* directs locomotive movement from right to left travel. Sliding this switch to the *right* directs locomotive movement from left to right.

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NCE pROcAB Thr ot t l e (Refer to Figure 3)



Figure 3

This is the standard NCE ProCab Throttle as used on our mainline. Any ProCab Throttle can be used with this DCC System but the coiled cable must be used.

NCE Power Pro command station & booster (Refer to Figure 4)

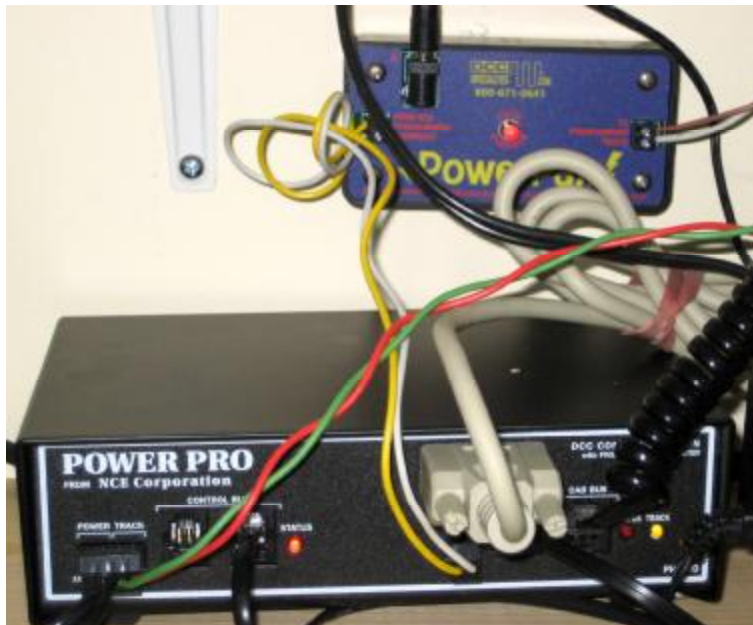


Figure 4

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Figure 4 shows the NCE Power Pro Command Station & Booster along with the PowerPax Programming Booster mounted above it. Neither of these items normally require any intervention by the user.

The Command Station & Booster provides the DCC signal and power to the test tracks. There are two LEDs that show the condition of the unit.

- **STATUS:** Located on the left of the center of the panel:-
 - Steady ON – Track power is on and operation is normal.
 - Rapid Flash – Programming output is selected or no control signal from the station.
 - Slow Steady Flash – A short circuit or overload in excess of 5.1 amps is detected and the booster will shut down for 2-3 seconds or until the short or overload is removed.
- **TRACK:** On the right side of the panel, glows yellow to show normal system operation. A RED or GREEN glow indicates a problem with the Command Station.
- **NOTE:** The STATUS light on the right side of the panel is always off.

The PowerPax is a microprocessor unit that provides additional power and cleaner signals when programming the newer DCC Decoders such as BLI, SoundTraxx and multiple decoder/loco combinations. This unit is permanently attached to the programming output of the Command Station. A 12 ohm resistor, attached to the output, can be switched into the circuit for special programming requirements. NOTE:- Decoders from QSI, Tsunami, and some others require the programming booster. The RED LED on this unit has two indications: Steady ON – all normal; **BLINKING** – Short or System Overload detected.

Test track power strip (Refer to Figure 5)



Figure 5

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Except for the Speedometer, this power strip supplies all power for the system, including the computer, and is left permanently plugged in. The power rocker switch on the right end has a raised bar on one side of the switch – the side to push to enable power.

Track power & current limiting control box (Refer to Figure 6)

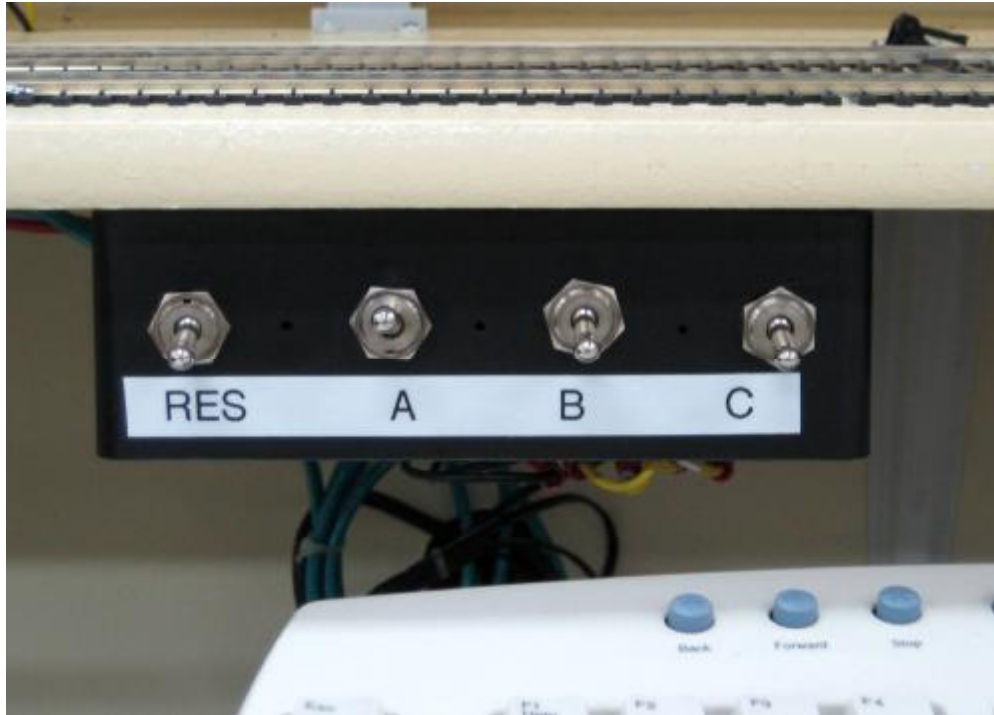


Figure 6

There are 4 toggle switches on this box labeled RES, A, B, & C. When the toggle switches are in the down position, their function is disabled/disconnected. Their functions are as follows:

- RES Toggle Switch UP – This places a 20 ohm current limiting resistor in series with the power source. Use of this function is to allow the DCC checkout of a new installed decoder without the probability of burning it out if was installed incorrectly. When the resistor is used, it still allows the testing of lights, sounds, etc. but performance will be slower than normal. ***CAUTION: This feature must not be utilized when operating with DC Analog! To do so may result in burning out the resistor!***
- A, B, or C Toggle Switch UP – This supplies power to the selected track(s). ***IMPORTANT NOTE:*** Before placing a locomotive, especially a DCC locomotive, on a track, or removing one from the track, it is good practice to turn the power to that track OFF!

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Power selection & signal control box (Refer to Figures 7 & 8)



Figure 7

This box contains the selection switches for the Speedometer, Selecting Power Source, Selecting Programming or Operations mode, removing Power from the last ¼ of Track B, and Inserting a Special Application Resistor in the Programming Output. The details of the switches are as follows:

- Speed On Toggle Switch: Switch DOWN - removes power to the Speedometer System. Switch UP - supplies power to the Speedometer
- DCC – DC Toggle Switch: ***This switch has a center-off position.*** Switch DOWN (DC) – DC Power is furnished by the Train Power DC Analog Controller. Switch UP (DCC) – DCC Power is furnished by the NCE ProCab System

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- OPS – PRGM Toggle Switch: ***This switch has a center-off position.*** Switch DOWN – Programming output of the NCE DCC System is sent to the tracks. Switch UP – Normal operation Power output of the NCE DCC System is sent to the tracks.
- Track B Part / Track B All Toggle Switch:
Switch DOWN – power is supplied to the entire length of Track B.
Switch UP – power is removed from the last (right end) of Track B. ***Note:*** This feature is useful in preventing a locomotive from slamming into the end-of-track stop when setting maximum speed.



Figure 8

PWR PAX RES 12 OHM Toggle Switch: Switch DOWN – power from the programming line is routed through a 12 ohm resistor on the output of the PowerPax Unit. Switch UP – the 12 ohm resistor is bypassed. ***Note:*** This is a rationale from the PowerPax documentation for the requirement of the resistor with certain decoders. *For BLI, Switchers and Proto GP9, when the resistor was placed in series with the output, all three systems were able to read and write CV values correctly. It may or may not affect the programming performance of other decoders.* The obvious procedure is to program with the resistor bypassed and if problems are encountered, use the resistor to check if using it will resolve the problem.

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Train speed speedometer (Refer to Figure 9)



Figure 9

This speedometer is located under the shelf, on the right side of the drawer. It is designed to give reasonably accurate scale speeds from 1 mph to 99 mph. It is especially useful in matching speeds for multiple locomotives in MU lashups (running as a consist) and setting prototypical speeds for your locomotives. The sensors are installed on the right end of the middle re-railer on track B. **IMPORTANT NOTE:** The sensors are designed to use available ambient light, therefore the overhead lights must be turned for the speedometer to function.

Positioning the SPEED ON Switch UP (See figure 7) will power on the speedometer. When power is applied, the unit goes through a self-test with a display of oP.1. If the test was successful, after several seconds, Sn.1 is displayed (see figure 9) until a pass is made.

Once a speed is displayed, it continues to be displayed until another pass is made or power is shut off. The sensors are disabled for about 2 seconds after a train has passed before it is possible to measure another pass (This is done to avoid false triggering as the spaces between cars in a train pass over the sensors).

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IMPORTANT NOTE: Both the DCC – DC and OPS – PRGM Toggle Switches use the CENTER-OFF Position!

TURNING ON THE SYSTEM – Ensure the following:

1. DC Analog Controller is Powered OFF
2. All Toggle Switches are in the OFF position
3. A ProCab Throttle is plugged in
4. Place your locomotive on the desired Test Track
5. The Power Strip is ON.

TURNING OFF THE SYSTEM – Ensure the following:

6. All Toggle Switches are in the OFF position
7. The Train Power DC Analog Controller is POWERED OFF and the Speed Control turned to Minimum
8. The Power Strip is OFF
9. If the computer was used, Exit Windows and Shut Computer OFF
10. The ProCab is unplugged and returned to the designated place
11. The drawer is pushed in.
12. Your locomotive(s) & rolling stock are removed