CAPITOL LIMITED CONVENTION - AUG 5-8, 2004

CLUB AND MODULE INSPECTION GUIDE

Matt Schaefer · April 4, 2004

A. SCOPE - As hosts of the Capitol Limited layout our goal is running lots of trains without problems and that is what the viewing public and all NTRAKers both want to see. Since most problems are detected while running trains it is suggested that clubs test their modules in their own layouts as outlined below. Any shortcomings can be better corrected in their home shops before coming to Chantilly.

We have tried to keep these inspections to the basics and simple and they do not cover all NTRAK requirements. For instance, the setback space for the connector tracks takes time to measure correctly and has been left out and clubs can cut track to fit if they so desire.

B. INSPECTION OF MODULES - Correct all shortcomings from the below as necessary.

1. TRACK - There should be no damaged or kinky rails. All track to be code 80 at the ends of the module. Sections of Micro Engineering code 55 are OK but Atlas code 55 is not allowed because the spikes are too high and interfere with the large MicroTrains flanges.

2. TRACK ALIGNMENT - Are at the rails at the ends of the modules flat and not bent up because of warped roadbed or plywood. Place a straight edge across connector tracks to check for flatness. Are the ends of modules flat and square with no overhanging plywood top? Shave off any overhanging plywood with a wood shaper. Check that track spacing is about 1.5-in. (plus or minus 1/16-in). Suggestion - Make a jig with slots for the rails to quickly check this.

3. SWITCHES - Do crossovers between R-Y-B use long turnouts? Restrictions on long engines and cars may be needed where shorter switches are used. Do all turnouts have controls holding point firmly against stock rail? Repair, replace or spike switches as necessary.

4. WIRE SIZE - Are all R-Y-B wires 18 gage or heavier from one plug to the plug on the other end of the module? Note: Some clubs prefer #12 gage wire for use with DCC. Is the white wire 16 gage and included? Is the 120 VAC 3-conductor cable included and rated for 15 amps?

5. YARD CONTROLS - The train controls in yards must have the capability to disconnect from the power of all the community tracks, R-Y-B.

6. ISOLATION OF RAILS - Are all Cinch-Jones (C-J) plug contacts and rails isolated from all other rails? This can be checked with a simple ohmmeter. Suggestion - The NTRAK "How To Book" has an article on a test device that will quickly check plugs and rails for proper connections.

7. CINCH JONES PLUGS - Are all C-J plugs properly color-coded and contacts clean? To clean push plugs in and out several times with CRC Contact Cleaner on contacts.

8. JUNCTIONS & INSIDE CORNERS - Check to see that all wiring and C-J plugs are properly reversed where required. Block power supplies or boosters can be damaged if plugs are not properly phased, positive to positive.

9. VOLTAGE DROPS - Do trains slow in one area indicating low voltage? Check track voltage with a digital meter or DCC RRampmeter and look for modules with voltage drops in some modules higher than the others. Look for loose connections first by wiggling C-J plugs. Try cleaning the plug contacts first and if no improvement wiggle wires and look for poor connections in plugs and terminal blocks. (See suggestions in paragraph C2 below.)

C. LAYOUT INSPECTION TRAIN - Correct all shortcomings as necessary.

1. INSPECTION TRAIN - Run a short inspection train at the start of each show with the following included in the consist. Use 2 or more long, 6-axle engines coupled together with body-mounted couplers and several long (86-ft) cars coupled together. Do these track easily without derails around all 18-in (blue) and 24-in curves and reverse curves and crossovers? Pay particular attention to “S” curves that should have at least an 8-in straight between the curves for a smooth transition.

2. CONTINUITY - A fast check of power to all rails is to run one 4-axle engine, without a flywheel, around all tracks and check for dead sections in switches and connector tracks and dirty track. Run this engine slowly over switches and suspect areas.

3. CAR CLEARANCE - Include a "clearance car" with profile form extending 1.75-in. above the top of the rails to test clearance to NTRAK standards as well as to clear all possible double stack loads. Add side profiles or run a Y6b, 2-8-8-2 to verify clearance for the fat low-pressure cylinders.

4. FLANGE CLEARANCE -Use some cars with MT "pizza cutter" wheels and some with low profile wheels and watch for cars bouncing that may indicate track out of gage or ballast on the track or in flange-ways or attempts to pick switches or derail.

D. SOME SUGGESTIONS:

1. THE GREAT 1157 BULB – If you do not have expensive fast trip circuit breakers one inexpensive protection for any power pack or train control is a single 1157 automobile bulb wired in series in one of the wires going to the track. When there is a short anywhere downstream the bulb limits the current and limits the heat at the short. The bulb may light up depending on the volt supply and the resistance of the circuit shorted.

2. TEST UNDER LOAD - To troubleshoot low voltage problems apply 12 volts DCC to a string of modules or a block and connect a 10 ohm 10 watt resistor (Radio Shack) across the track on the last module at the far end of the DCC block. If using 5 VDC use 5 ohms which is 2 ea. 10 ohm resistors in parallel, not series. The resistors can be wired across the pins of a C-J plug and easily plugged into the last module. The drop per 4-ft. module with the resistors in either case averages about 0.1 volt. Using a digital voltmeter or a DCC RRampmeter go down the line of modules looking a set of plugs or a module where the voltage drop is unusually high. For any voltage drops over 0.15 volt per module check wiring as in A9 above. An 1156 bulb can be used as a load with 12 V DCC to draw about 2.5 Amps. These are good to use when PM trips are set at 3-Amps.

3. GROUND FAULT INTERRUPTERS - Some insurance coverage for shows require use of GFIs. Check that wall outlets are GFI protected or supply your own GFIs on all 120 VAC feeds to layouts.

4. RAILS AT THE ENDS OF MODULES - Rails are better supported at the end of modules if more ties are left on those rails and less ties are undercut. Store the rail joiners on the connector tracks.

E. ACTION -We recognize that some module problems are not easily corrected at the show so these modules may be assigned to a location where they will not cause a problem on the *Red Line Routes*. During the show IF you still happen to see any bottlenecks or track problems go to the nearest YARD OFFICE PHONE BOX and call up the TRAINMASTER on duty. The TRAINMASTERS are responsible for getting bottlenecks corrected and keeping all *Red Line Routes* moving. The DIGITAL MASTER will be responsible for all DCC controls.

F. CERTIFYING SHOW READY MODULES:

1. Place your order now for a free supply of:

a. The *latest version* of our easy-to-use checklist, **SHOW-READY MODULE CERTIFICATION FORM** to check off that each module conforms to the above tests and,

b. The *newly designed*, bright yellow stickers, **SHOW-READY CERTIFICATION SEAL** to be applied to the back of each module after any and all discrepancies are corrected.

c. Just email your request to Don Jackson at **NWinNscale@aol.com**, providing your name, club affiliation, mailing address, telephone number and quantity of forms and stickers needed.

2. Each module displaying a certification sticker will speed through the EXPRESS CHECK-IN STATION on arrival at Capitol Limited in Chantilly, August 5th.

All the members of Northern Virginia NTRAK look forward to seeing you and your modules at this year's big layout for ***RunniN' Trains!***

Your comments and suggestions are welcome.

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