

## Preemption Test Procedure Checklist

**INTRODUCTION:** This test is a controller/cabinet assembly system test. Controller shall be installed in a cabinet wired for the particular signal installation being tested. Cabinet shall be wired to 120VAC test indicators (to simulate signal heads). No dummy loads (i.e. resistors) shall be used to simulate signal heads, except where called for on electrical detail plans. Normal phasing and color sequence operation should be verified and found to be functionally correct before proceeding to preemption test. Tester should be thoroughly familiar with operation shown on the signal plans before beginning this test.

1. TECHNICIAN FLASH SWITCH – switch should allow controller to cycle while signal is in flash. Check signal flash colors during this test as well. Colors shall flash according to signal plans. When switch is returned to AUTO mode, make sure signal starts-up in designated phases (i.e. 2+6 green).  
*Note: If 170/2070 cabinet is used, make sure DC isolator is installed at input file position I-14. This isolator controls FLASH SENSE, and STOP TIME inputs to the controller.*  
 PASS  FAIL
2. POLICE PANEL FLASH SWITCH – switch should stop controller timing. When switch is returned to AUTO mode, make sure signal starts-up in designated phases (i.e. 2+6 green).  
 PASS  FAIL
3. SIGNAL SWITCH – this switch should darken signal heads in the field while allowing the controller to cycle.  
 PASS  FAIL
4. AUTO/MANUAL SWITCH – this switch should enable the cabinet assembly for manual control. When in the MANUAL position the controller will not be allowed to max out. It will stay in the phase currently timing until the manual pushbutton is pressed, or switch is returned to AUTO position.  
 PASS  FAIL
5. DETECTOR TEST SWITCHES – make sure each detector test switch places a call on the designated phase.  
 PASS  FAIL
6. CABINET LAMP, THERMOSTAT AND FAN – cabinet lamp should be switched off when cabinet door is closed. Check thermostat and fan operation by moving thermostat setting to a temperature below the current air temperature.  
 PASS  FAIL
7. CONFLICT MONITOR – Check conflict monitor programming card for proper jumper placement. Verify switch settings as well. If EDI monitor is used, it is highly recommended that the EcCom software be used (via PC) in order to verify permissives selected on monitor programming board. This is essential on 170/2070 installations.  
 PASS  FAIL

8. CONTROLLER PROGRAMMING – Go through controller program (menu by menu) to verify each setting in controller programming. Features that are not used (i.e. time of day plans, coordination, etc.) should be set to default settings. Timings and other operational options shall be set according to signal plan/electrical detail.
- Make sure phases that are unused in normal operation, but are used in preempt sequence, are OMITTED during normal operation.  
 PASS  FAIL
9. VERIFY PREEMPTOR PROGRAMMING – Make sure each setting is verified and according to signal plan/electrical detail. Tester should have an understanding of each preemptor parameter so expected operation can be checked for correct operation.
- PASS  FAIL
10. PERFORM PREEMPTION SEQUENCE TEST – Be sure to be thoroughly familiar with signal display operation before starting this test. Train your eyes to the test indicators as to the orientation of used phases and overlaps. During this test verify the following operation:
- Preempt should be activated during every interval of every phase used in normal operation (i.e. green, yellow, and red clearance intervals).
  - Proper color sequence shall be displayed during transition to preempt, during preempt, and exiting to normal operation. This includes blank-out sign operation (if applicable).
  - Railroad Preemption shall override minimum green times.
  - Observe operation of blank-out signs.
  - If Rail preempt is used, during at least one preempt activation, allow controller to stay in preempt long enough to observe preempt dwell operation. Phases not allowed to run in preempt should remain red (even with vehicle demand on the phase). Controller shall remain in preempt dwell until preempt input is removed.
  - During at least one activation, activate the preempt by removing the jumper that simulates the interconnection of the cabinet assembly with the RR crossing signal cabinet assembly, and or firehouse pushbutton.  
 PASS  FAIL
11. PREEMPT POWER FAIL TEST – While preempt is active, shut off the main cabinet circuit breaker. After about 10 seconds, switch circuit breaker back to the “on” position. Preempt input should still be active. When controller comes back up, signal should be in flash. Signal should remain in flash until preempt input is removed. Verify flash colors. When input is removed, normal start-up sequence shall begin.
- PASS  FAIL
12. RAIL PREEMPTION BLANK-OUT SIGN OPERATION DURING FLASH – Place cabinet into flash by switching controller power to “off”. Activate preempt and verify that blank-out signs operate while signal is in flash and controller power is “off”. Rail preempt only.
- PASS  FAIL

13. RED FAIL MONITOR TEST – Pull each load switch (one at the time) and make sure the conflict monitor registers a “RED FAIL” for the appropriate channel.  
 PASS  FAIL
14. CONFLICT TEST – While controller/cabinet is running in normal operation, create conflicts (on the field side) by using a jumper or controller diagnostic capability. Insure that conflict monitor latches a CONFLICT fault and displays the appropriate channels and colors. Make sure each circuit for every used phase, ped signal and overlap is tested.  
 PASS  FAIL
15. PREEMPT PANEL CHECK – Make sure preemption interface panel in the cabinet has the following required components (applies only to rail and EV pushbutton style installations):
- 5 AMP fuse on OUTGOING preempt interconnect circuit. Make sure AC+ (not neutral) is being sent out through interconnect line.
  - 5 AMP fuse on blank-out sign control circuit (applies to rail preemption only).
  - Preempt test push button.
  - 2K ohm, 12 watt drain resistor on INCOMING preempt interconnect circuit. Should electrically be in parallel with preempt input relay coil.
- PASS  FAIL

Completed by: \_\_\_\_\_ Date \_\_\_\_\_  
Contractor Representative

Witnessed by: \_\_\_\_\_ Date \_\_\_\_\_  
NCDOT Representative