

# (Video #819) MP 15C – 3 HO Trains 9/17/2018–Ver 18ib

(using Mini-Panel #4) Cab A 1999 Procab= cab 4 // Cab B Cupp Procab= cab 7 // Cab C Keegan= cab 8 // MP#4 – cab 3, MP#5 = cab 11.

- The 2-part [AutoControls.org](http://AutoControls.org) Video #819 titled “**NCE Mini-Panel+Z-Stuff DZ-1011 Detector Control 3 DCC Trains On 1 Mainline using NO Turnouts**” – shows the NCE Mini-Panel controlling 3 trains on 1 track -- using a Z-Stuff detector to sense train position.
- This file DOCUMENTS the commands used in the Mini-Panel. (The 3-train commands are on **Page 8**.)

The differences between the 2 videos, Pt. 1 and Pt. 2 are:

- In Part 1, the “front most” of the 2 “creeping” locos in the yard is speeded up to cruising speed IMMEDIATELY after the “mainline” loco passes in front of the detector (Program “H” on Page 8).
- In Part 2, the “creeping” locos are speeded up AFTER the 8 second delay statement finishes.
  - The photo for Pt. 2 is shown on Pg. 5, and Program “H2” used for Pt. 2 is shown on Page 6.
- Program “H2” (Pt. 2) is slightly BETTER than Program “H” (Pt. 1). Program “H2” makes the mainline effectively “longer” by about 8 seconds, by having the “creeping” train creep for an additional 8 seconds. Program “H2” is also a bit simpler.
- **Wiring Diagram:** The separate file “mp15Awire-3-trains” shows the wiring diagram for this layout.
- **Logic Diagrams:** The separate file “mp15b-logic-3trains” shows the “logic diagrams” for these operations. The commands in this file, were developed using the logic diagrams in that file.

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- For suggestions how to get started with the NCE Mini-Panel, please see previous **Video #816** and the web page <http://autocontrols.wordpress.com/links-for-getting-started-with-nce-dcc-mini-panel-automatic-train-control> .
- Note we have USED UP almost all available programming space in the Mini-Panel, except for Input #2 – which could be used to hook up another pushbutton.



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Pg 4: Prog G: Run 2 Trains: #1216 & #051

**Pg 6: Prog H2: Run All 3 trains: #451, #2316, #4020. This is shown in the PART 2 video.**

Pg 7: Prog. J: Run 2 Trains: #1216 & #3364 (Using previous Method shown in Video #815 , where 1 Train STOPS)

Pg 8: Prog H: Run All 3 trains: #1216, #051, #3364. This is shown in the original PART 1 video.

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(Program “H2” on Pg. 6 is the “improved” version of older Program “H” on Pg. 8.

## Summary

| Inp | S | Command                                                                                                                           | Entry                                   | Action                                                       |
|-----|---|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------|
|     |   |                                                                                                                                   |                                         | <b>Configuration Memory</b>                                  |
|     |   | Default=3, keep                                                                                                                   |                                         | Mem addr 0 = 3 (Cab bus address)                             |
|     |   | Default=5 keep                                                                                                                    |                                         | Mem addr 1 = 5 (Debounce timer)                              |
|     |   | Default=0, keep                                                                                                                   |                                         | Mem addr 2 = 0 (Format display unknown commds)               |
|     |   | Default=0, chg. To <b>3</b>                                                                                                       |                                         | Mem addr 3 = <b>3</b> (Continuous memory <b>3</b> and above) |
|     |   | Default=0, chg. To <b>3</b>                                                                                                       |                                         | Mem addr 4 = <b>3</b> (Disabled inputs <b>3</b> and above)   |
|     |   | Default=0, keep                                                                                                                   |                                         | Mem addr 5 = 0 (Interrupting wait commands)                  |
|     |   | <b>##===== ENGINE SETTINGS =====##</b>                                                                                            |                                         |                                                              |
|     |   | Cab: Momentum Multiplier = 1, deaccl = 1 x acc CV3 accel, CV4 decel)                                                              |                                         |                                                              |
|     |   | SPEEDS: Use fastest loco #1217 as the “reference” loco for speeds (slower locos can be easier adjusted to match the fastest loco) |                                         |                                                              |
|     |   |                                                                                                                                   | <b>#051 ATLAS VIRGINIAN TRAINMASTER</b> |                                                              |
|     |   | M=0 (use __ sec after crossing RS#16 (instead of default 3))                                                                      |                                         |                                                              |
|     |   | Cruise = spd 17, Slow Creep = Spd 6, Fast Creep = Spd 7                                                                           |                                         |                                                              |
|     |   |                                                                                                                                   | <b>#1216 ROCO D&amp;H SHARKNOSE</b>     |                                                              |
|     |   | M=1                                                                                                                               |                                         |                                                              |
|     |   | Cruise = spd 11, Slow Creep = Spd 3, Fast Creep = Spd 4                                                                           |                                         |                                                              |
|     |   |                                                                                                                                   | <b>#3364 KATO SF GEEP GP-35</b>         |                                                              |
|     |   | M=1 F5=strobe, F8=sound                                                                                                           |                                         |                                                              |
|     |   | Cruise = spd 21, Slow Creep = Spd 8, Fast Creep = Spd 11                                                                          |                                         |                                                              |
|     |   | <b>##===== COMMAND LIBRARY =====##</b>                                                                                            |                                         |                                                              |
| 1   |   | Delay 1/4 sec: <b>4</b>                                                                                                           | 5, 1, 2, <b>4</b>                       | Delay 1 second (¼ sec x <b>4</b> )                           |
| 2   |   | Delay 4 sec: <b>2</b>                                                                                                             | 5, 1, 1, <b>2</b>                       | Delay 8 seconds (4 sec x <b>2</b> )                          |
| 3   |   | Link to Input: <b>9</b>                                                                                                           | 5, 3, <b>9</b>                          | Go to Step <b>9</b> (magnet/reed switch test)                |
| 4   |   | End (Terminate)                                                                                                                   | 5,7,1                                   | Terminate (stop executing commands)                          |
| 5   |   | nop                                                                                                                               | 5,5,1                                   | No Operation (do nothing, go to next step)                   |
| 6   |   | >Select Loco: <b>003</b>                                                                                                          | 3, 1, <b>003</b>                        | Select Loco #3: (need “*” to indicate long adr)              |
| 7   |   | Speed Fwd: <b>10</b>                                                                                                              | 3, 2, 2, <b>10</b>                      | START loco                                                   |
| 8   |   | Skip if Inp: <b>16</b> Open                                                                                                       | 5, 6, 2, <b>16</b>                      | Skip next command if reed sw. # <b>16</b> is open            |
| 9   |   | Wait Inp: <b>16</b> Ground                                                                                                        | 5, 2, 1, <b>16</b>                      | wait for reed sw. # <b>16</b> to be closed (resistance decr) |
| 10  |   | Macro <b>14</b>                                                                                                                   | 2, <b>14</b>                            | Set both turnouts STRAIGHT (macro is in Cmmd. Stn.)          |
| 11  |   | Macro <b>15</b>                                                                                                                   | 2, <b>15</b>                            | Set both turnouts CURVED (macro is in Cmmd. Stn.)            |
|     |   |                                                                                                                                   |                                         |                                                              |
|     |   | Accy: <b>7</b> Norm                                                                                                               | 1, <b>7</b> , <b>1</b>                  | Set turnout # <b>7</b> STRAIGHT ( <b>1</b> = straight)       |
|     |   | Accy: <b>10</b> Rev                                                                                                               | 1, <b>10</b> , <b>2</b>                 | Set turnout # <b>10</b> CURVED ( <b>2</b> = curved)          |
|     |   | Skip if Inp: <b>16</b> Grnd                                                                                                       | 5, 6, 1, <b>16</b>                      | Skip next command if reed sw. # <b>16</b> is closed          |
|     |   |                                                                                                                                   |                                         |                                                              |
|     |   | Using Input 16 for GO/STOP reed switch (T1)                                                                                       |                                         |                                                              |
|     |   | <b>INPUT COMMAND LOCATIONS – USED for the following “programs”:</b>                                                               |                                         |                                                              |
|     |   |                                                                                                                                   |                                         |                                                              |
|     |   | Inp. 1 connects to Start button, Inp. 16 connects to DZ-1008 relay                                                                |                                         |                                                              |

Spd = 17

Spd = 11

Spd = 21

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| Inp | S | Command                                                      | Entry                     | Action                                                                                              |
|-----|---|--------------------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------|
|     |   | <b>Use Pushbutton to Input #1, to Start Main Program</b>     |                           |                                                                                                     |
| 1   | 1 | Link to Input: <b>17</b>                                     | 5, 3, <b>17</b>           | Go to Input # <b>17</b> , START Sequence when button pushed                                         |
| 1   | 2 | End (Terminate)                                              | 5,7,1                     | Terminate (stop executing commands)                                                                 |
| 1   | 3 | End (Terminate)                                              | 5,7,1                     | Terminate (stop executing commands)                                                                 |
| 1   | 4 | End (Terminate)                                              | 5,7,1                     | Terminate (stop executing commands)                                                                 |
| –   | – |                                                              |                           |                                                                                                     |
| 2   | 1 | End                                                          |                           | (another pushbutton could be connected to Input 2)                                                  |
| 2   | 2 | End                                                          |                           |                                                                                                     |
| 2   | 3 | End                                                          |                           |                                                                                                     |
| 2   | 4 | End                                                          |                           |                                                                                                     |
|     |   |                                                              |                           |                                                                                                     |
|     |   | <b>##==== Prog. A: Blink LED == ##</b>                       |                           |                                                                                                     |
| 3   | 1 | Accy: <b>2000</b> Norm                                       | 1, <b>2000</b> , <b>1</b> | Set non-existent turnout # <b>2000</b> STRAIGHT (to blink Mini-Panel's LED)                         |
| 3   | 2 | Delay 1/4 sec: <b>2</b>                                      | 5, 1, 2, <b>2</b>         | Delay 1/2 second (¼ sec x <b>2</b> )                                                                |
| 3   | 3 | Link to Input: <b>3</b>                                      | 5, 3, <b>3</b>            | Go to Input <b>3</b> (repeat blinking every ½ second)                                               |
| 3   | 4 | End (Terminate)                                              | 5,7,1                     | Terminate (stop executing commands)                                                                 |
| –   | – |                                                              |                           |                                                                                                     |
|     |   | <b>##==== Prog. B Test N.O. Reed Switch (Blink LED) ==##</b> |                           |                                                                                                     |
| 4   | 1 | Skip if Inp: <b>16</b> Open                                  | 5, 6, 2, <b>16</b>        | Skip next command if reed sw. # <b>16</b> is open                                                   |
| 4   | 2 | Accy: <b>2000</b> Norm                                       | 1, <b>2000</b> , <b>1</b> | Set non-existent turnout # <b>2000</b> STRAIGHT (to blink Mini-Panel's LED)                         |
|     |   |                                                              |                           | * If Input <b>16</b> is Gnd, commands below will be executed. If not Gnd, will go back to Step 6-1. |
| 4   | 3 | Delay 1/4 sec: <b>2</b>                                      | 5, 1, 2, <b>2</b>         | Delay 1/2 second (¼ sec x <b>2</b> )                                                                |
| 4   | 4 | Link to Input: <b>4</b>                                      | 5, 3, <b>4</b>            | Go to Input <b>4</b> (repeat blinking every ½ second)                                               |
|     |   |                                                              |                           |                                                                                                     |
|     |   | <b>##==== Prog. C: Run Loco #051 Only ==</b>                 |                           |                                                                                                     |
|     |   | See LOGIC diagram #1 for this mode of operation.             |                           |                                                                                                     |
| 5   | 1 | >Select Loco: <b>051</b>                                     | 3, 1, <b>051</b>          | Select Loco # <b>051</b> : ATLAS VIRGINIAN TRAINMASTER                                              |
| 5   | 2 | Speed Fwd: <b>22</b>                                         | 3, 2, 2, <b>22</b> F      | START loco Speed <b>22</b>                                                                          |
| 5   | 3 | Delay 1/4 sec: <b>40</b>                                     | 5, 1, 2, <b>40</b>        | Delay <b>10</b> sec to get hand away from sensor (Step 6-3)                                         |
| 5   | 4 | Wait Inp: <b>16</b> Gnd                                      | 5, 2, 1, <b>16</b>        | ===== Wait until train crosses detector # <b>16</b>                                                 |
| –   | – |                                                              |                           |                                                                                                     |
| 6   | 1 | Delay 1/4 sec: <b>32</b>                                     | 5, 1, 2, <b>32</b>        | Delay <b>8</b> sec to get caboose past sensor (¼ sec x <b>32</b> )                                  |
| 6   | 2 | Speed Fwd: <b>8</b>                                          | 3, 2, 2, <b>8</b> F       | START loco Speed <b>8</b> (slow creep)                                                              |
| 6   | 3 | Wait Inp: <b>16</b> Gnd                                      | 5, 2, 1, <b>16</b>        | ===== use hand to simulate 2nd train                                                                |
| 6   | 4 | Link to Input: <b>5</b>                                      | 5, 3, <b>5</b>            | Go back to Input # <b>5</b> and REPEAT sequence                                                     |
| –   | – |                                                              |                           |                                                                                                     |
|     |   | <b>##==== Prog. D: Run Loco #1216 Only ==##</b>              |                           |                                                                                                     |
|     |   | See LOGIC diagram #1 for this mode of operation.             |                           |                                                                                                     |
| 7   | 1 | >Select Loco: <b>1216</b>                                    | 3, 1, <b>1216</b>         | Select Loco # <b>1216</b> : ROCO D&H SHARKNOSE                                                      |
| 7   | 2 | Speed Fwd: <b>11</b>                                         | 3, 2, 2, <b>11</b> F      | START loco Speed <b>11</b>                                                                          |
| 7   | 3 | Delay 1/4 sec: <b>40</b>                                     | 5, 1, 2, <b>40</b>        | Delay <b>10</b> sec to get hand away from sensor (Step 8-3)                                         |
| 7   | 4 | Wait Inp: <b>16</b> Gnd                                      | 5, 2, 1, <b>16</b>        | ===== Wait until train crosses detector # <b>16</b>                                                 |
| –   | – |                                                              |                           |                                                                                                     |
| 8   | 1 | Delay 1/4 sec: <b>32</b>                                     | 5, 1, 2, <b>32</b>        | Delay <b>8</b> sec to get caboose past sensor (¼ sec x <b>32</b> )                                  |
| 8   | 2 | Speed Fwd: <b>8</b>                                          | 3, 2, 2, <b>8</b> F       | START loco Speed <b>8</b> (slow creep)                                                              |
| 8   | 3 | Wait Inp: <b>16</b> Gnd                                      | 5, 2, 1, <b>16</b>        | ===== use hand to simulate 2nd train                                                                |
| 8   | 4 | Link to Input: <b>7</b>                                      | 5, 3, <b>7</b>            | Go back to Input # <b>7</b> and REPEAT sequence                                                     |

## Summary

Cruising speed

<==SENSOR

Pass sensor  
Creep past station

<==REPEAT

Cruising speed

<==SENSOR

Pass sensor  
Creep past station

<==REPEAT

**(Video #819) MP 15C – 3 HO Trains 9/17/2018–Ver 18ib**

[illegible]

## Summary

Cruising speed

## <==SENSOR

Pass sensor  
Creep past station

## <==REPEAT

Cruise  
Pass sensor

Slow Creep  
 <==**SENSOR**  
 Cruise  
 Pass sensor

Slow Creep  
 <==SENSOR  
 <==REPEAT

Cruise  
Pass sensor

Slow Creep  
 <==**SENSOR**  
 Cruise  
 Pass sensor

Slow Creep  
 <==SENSOR  
 <==REPEAT





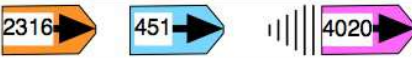
| Inp | S | Command                                                                                                                                                                                                                                                             | Entry | Action |
|-----|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|
|     |   | <h1>Part 2 Video</h1>                                                                                                                                                                                                                                               |       |        |
|     |   | The below photo shows the 3 trains used for the Part 2 video demo.<br>The “improved” commands for Part 2 are on the following page 6, identified as “Program H2”.<br><br>The 3–train commands for the original Pt. 1 video are on Pg. 8, identified as “Program H”. |       |        |

Summary



**Note:** This Page 5 shows the photo for Part 2 of the video, and Pg. 6 shows the revised “3–train” commands for Part 2 of the video.  
Pages 7 and 8 show commands used in Part 1.

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| Inp                                                                                                                                   | S | Command                                            | Entry                | Action                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------|
| <b>##=== Prog H2 (Video Pt. 2): Run All 3 trains: #451, #2316, #4020 ===##</b>                                                        |   |                                                    |                      |                                                                                                                |
|                                                                                                                                       |   | <b>Part i - #451 on Mainline</b>                   | DZ-1011 Sensor       |                              |
| 17                                                                                                                                    | 1 | >Select Loco: <b>4020</b>                          | 3, 1, <b>4020</b>    | Select Loco # <b>4020</b> : Kato D&H RS2                                                                       |
| 17                                                                                                                                    | 2 | Speed Fwd: <b>4</b>                                | 3, 2, 2, <b>4</b> F  | START loco Speed <b>4</b>                                                                                      |
| 17                                                                                                                                    | 3 | >Select Loco: <b>2316</b>                          | 3, 1, <b>2316</b>    | Select Loco # <b>2316</b> : Atlas D&H U23B                                                                     |
| 17                                                                                                                                    | 4 | Speed Fwd: <b>5</b>                                | 3, 2, 2, <b>5</b> F  | START loco Speed <b>5</b>                                                                                      |
| 18                                                                                                                                    | 1 | >Select Loco: <b>451</b>                           | 3, 1, <b>451</b>     | Select Loco # <b>451</b> : Kato D&H C424                                                                       |
| 18                                                                                                                                    | 2 | Speed Fwd: <b>18</b>                               | 3, 2, 2, <b>18</b> F | START loco Speed <b>18</b>                                                                                     |
| 18                                                                                                                                    | 3 | Wait Inp: <b>16</b> Gnd                            | 5, 2, 1, <b>16</b>   | ===== Wait till # <b>451</b> crosses detector # <b>16</b>                                                      |
| 18                                                                                                                                    | 4 | Delay 1/4 sec: <b>36</b>                           | 5, 1, 2, <b>36</b>   | Delay <b>9</b> sec to get caboose past sensor (¼ sec x <b>36</b> )                                             |
|                                                                                                                                       |   | <b>Part ii - #2316 on Mainline</b>                 | DZ-1011 Sensor       |                              |
| 19                                                                                                                                    | 1 | >Select Loco: <b>451</b>                           | 3, 1, <b>451</b>     | Select Loco # <b>451</b> : Kato D&H C424                                                                       |
| 19                                                                                                                                    | 2 | Speed Fwd: <b>7</b>                                | 3, 2, 2, <b>7</b> F  | START loco Speed <b>7</b>                                                                                      |
| 19                                                                                                                                    | 3 | >Select Loco: <b>4020</b>                          | 3, 1, <b>4020</b>    | Select Loco # <b>4020</b> : Kato D&H RS2                                                                       |
| 19                                                                                                                                    | 4 | Speed Fwd: <b>7</b>                                | 3, 2, 2, <b>7</b> F  | START loco Speed <b>7</b>                                                                                      |
| 20                                                                                                                                    | 1 | >Select Loco: <b>2316</b>                          | 3, 1, <b>2316</b>    | Select Loco # <b>2316</b> : Atlas D&H U23B                                                                     |
| 20                                                                                                                                    | 2 | Speed Fwd: <b>9</b>                                | 3, 2, 2, <b>9</b> F  | START loco Speed <b>9</b>                                                                                      |
| 20                                                                                                                                    | 3 | Wait Inp: <b>16</b> Gnd                            | 5, 2, 1, <b>16</b>   | ===== Wait till # <b>2316</b> crosses detector # <b>16</b>                                                     |
| 20                                                                                                                                    | 4 | Delay 1/4 sec: <b>28</b>                           | 5, 1, 2, <b>28</b>   | Delay <b>7</b> sec to get caboose past sensor (¼ sec x <b>28</b> )                                             |
| -                                                                                                                                     | - | <b>Part iii - #4020 on Mainline</b>                | DZ-1011 Sensor       |                              |
| 21                                                                                                                                    | 1 | >Select Loco: <b>2316</b>                          | 3, 1, <b>2316</b>    | Select Loco # <b>2316</b> : Atlas D&H U23B                                                                     |
| 21                                                                                                                                    | 2 | Speed Fwd: <b>5</b>                                | 3, 2, 2, <b>5</b> F  | START loco Speed <b>5</b>                                                                                      |
| 21                                                                                                                                    | 3 | >Select Loco: <b>451</b>                           | 3, 1, <b>451</b>     | Select Loco # <b>451</b> : Kato D&H C424                                                                       |
| 21                                                                                                                                    | 4 | Speed Fwd: <b>11</b>                               | 3, 2, 2, <b>11</b> F | START loco Speed <b>11</b>                                                                                     |
| 22                                                                                                                                    | 1 | >Select Loco: <b>4020</b>                          | 3, 1, <b>4020</b>    | Select Loco # <b>4020</b> : Kato D&H RS2                                                                       |
| 22                                                                                                                                    | 2 | Speed Fwd: <b>17</b>                               | 3, 2, 2, <b>17</b> F | START loco Speed <b>17</b>                                                                                     |
| 22                                                                                                                                    | 3 | Wait Inp: <b>16</b> Gnd                            | 5, 2, 1, <b>16</b>   | ===== Wait till # <b>4020</b> crosses detector # <b>16</b>                                                     |
| 22                                                                                                                                    | 4 | Delay 1/4 sec: <b>28</b>                           | 5, 1, 2, <b>28</b>   | Delay <b>7</b> sec to get caboose past sensor (¼ sec x <b>28</b> )                                             |
|                                                                                                                                       |   | <b>~~~ Check Whether to Repeat or to Stop ~~~~</b> |                      |                                                                                                                |
| 23                                                                                                                                    | 1 | Skip if Inp: <b>1</b> Open                         | 5, 6, 2, <b>1</b>    | Skip next cmd if SPST switch. # <b>1</b> open<br>(Normal: repeat running prog. if switch # <b>1</b> is closed) |
| 23                                                                                                                                    | 2 | Link to Input: <b>17</b>                           | 5, 3, <b>17</b>      | Go back to Input # <b>17</b> and REPEAT sequence<br>===== <b>Shutdown</b> =====                                |
| 23                                                                                                                                    | 3 | >Select Loco: <b>4020</b>                          | 3, 1, <b>4020</b>    | Select Loco # <b>4020</b> : Kato D&H RS2                                                                       |
| 23                                                                                                                                    | 4 | Speed Fwd: <b>0</b>                                | 3, 2, 2, <b>0</b> F  | STOP loco (Speed 0)                                                                                            |
| 24                                                                                                                                    | 1 | >Select Loco: <b>2316</b>                          | 3, 1, <b>2316</b>    | Select Loco # <b>2316</b> : Atlas D&H U23B                                                                     |
| 24                                                                                                                                    | 2 | Speed Fwd: <b>0</b>                                | 3, 2, 2, <b>0</b> F  | STOP loco (Speed 0)                                                                                            |
| 24                                                                                                                                    | 3 | >Select Loco: <b>451</b>                           | 3, 1, <b>451</b>     | Select Loco # <b>451</b> : Kato D&H C424                                                                       |
| 24                                                                                                                                    | 4 | Speed Fwd: <b>0</b>                                | 3, 2, 2, <b>0</b> F  | STOP loco (Speed 0)                                                                                            |
| -                                                                                                                                     | - |                                                    |                      |                                                                                                                |
| #451 SC=7, FC=11, Cruise=18 // #2316 SC=5, FC=5, Cruise=9 // #4020 SC=4, FC=6, Cruise=17<br>(2316 on Spd 4 hardly moves, need 5 min.) |   |                                                    |                      |                                                                                                                |
| 25                                                                                                                                    | 1 | End (Terminate)                                    | 5,7,1                | Terminate (stop executing commands)                                                                            |
| 25                                                                                                                                    | 2 | End (Terminate)                                    | 5,7,1                | Terminate (stop executing commands)                                                                            |
| 25                                                                                                                                    | 3 | End (Terminate)                                    | 5,7,1                | Terminate (stop executing commands)                                                                            |
| 25                                                                                                                                    | 4 | End (Terminate)                                    | 5,7,1                | Terminate (stop executing commands)                                                                            |

## Summary

LOGIC diagram #5

Slow Creep

Fast Creep

Cruise

<==SENSOR

Pass sensor

Slow Creep

Fast Creep

Cruise

<==SENSOR

Pass sensor

Slow Creep

Fast Creep

Cruise

<==SENSOR

Pass sensor

<==REPEAT

4020 Stops in Yard

**(Video #819) MP 15C – 3 HO Trains 9/17/2018–Ver 18ib**

| Inp | S | Command                                                                                                                                                                                                                                                                                                                            | Entry                | Action                                                           |
|-----|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------|
|     |   | <b>Part 1 Video</b> (next 2 pages were demonstrated in Part 1 of the video)                                                                                                                                                                                                                                                        |                      |                                                                  |
|     |   | <b>##==== Prog. J: Run 2 Trains: #1216 &amp; #3364 ==</b><br><b>Using previous Method , where 1 Train STOPS)</b><br>("old" method, where trains STOP instead of creeping -as shown in Videos 815, 816 Demo 14, 817, & 818)<br>Initial Conditions: #3364 is sitting at station.<br>See LOGIC diagram #4 for this mode of operation. |                      |                                                                  |
| 26  | 1 | >Select Loco: <b>1216</b>                                                                                                                                                                                                                                                                                                          | 3, 1, <b>1216</b>    | Select Loco # <b>1216</b> : ROCO D&H SHARKNOSE                   |
| 26  | 2 | Speed Fwd: <b>11</b>                                                                                                                                                                                                                                                                                                               | 3, 2, 2, <b>11</b> F | START loco Speed <b>11</b>                                       |
| 26  | 3 | Wait Inp: <b>16</b> Ground                                                                                                                                                                                                                                                                                                         | 5, 2, 1, <b>16</b>   | ===== Wait till # <b>1216</b> crosses detector # <b>16</b>       |
| 26  | 4 | >Select Loco: <b>3364</b>                                                                                                                                                                                                                                                                                                          | 3, 1, <b>3364</b>    | Select Loco # <b>3364</b> : KATO SF gray GP-35 diesel            |
| -   | - |                                                                                                                                                                                                                                                                                                                                    |                      |                                                                  |
| 27  | 1 | Speed Fwd: <b>21</b>                                                                                                                                                                                                                                                                                                               | 3, 2, 2, <b>21</b> F | START loco Speed <b>21</b>                                       |
| 27  | 2 | Delay 1/4 sec: <b>76</b>                                                                                                                                                                                                                                                                                                           | 5, 1, 2, <b>76</b>   | Delay <b>19</b> sec. bring # <b>1216</b> to station              |
| 27  | 3 | >Select Loco: <b>1216</b>                                                                                                                                                                                                                                                                                                          | 3, 1, <b>1216</b>    | Select Loco # <b>1216</b> : ROCO D&H SHARKNOSE                   |
| 27  | 4 | Speed Fwd: <b>0</b>                                                                                                                                                                                                                                                                                                                | 3, 2, 2, <b>0</b> F  | STOP <b>1216</b> (Speed 0)                                       |
| -   | - |                                                                                                                                                                                                                                                                                                                                    |                      | <b>===== (halfway point)</b>                                     |
| 28  | 1 | Wait Inp: <b>16</b> Ground                                                                                                                                                                                                                                                                                                         | 5, 2, 1, <b>16</b>   | ===== Wait for # <b>3364</b> crosses detector # <b>16</b>        |
| 28  | 2 | Speed Fwd: <b>11</b>                                                                                                                                                                                                                                                                                                               | 3, 2, 2, <b>11</b> F | START loco Speed <b>11</b>                                       |
| 28  | 3 | Delay 1/4 sec: <b>80</b>                                                                                                                                                                                                                                                                                                           | 5, 1, 2, <b>80</b>   | Delay <b>20</b> sec. bring # <b>3364</b> to station              |
| 28  | 4 | >Select Loco: <b>3364</b>                                                                                                                                                                                                                                                                                                          | 3, 1, <b>3364</b>    | Select Loco # <b>3364</b> : KATO SF gray GP-35 diesel            |
| -   | - |                                                                                                                                                                                                                                                                                                                                    |                      |                                                                  |
| 29  | 1 | Speed Fwd: <b>0</b>                                                                                                                                                                                                                                                                                                                | 3, 2, 2, <b>0</b> F  | STOP <b>3364</b> (Speed 0)                                       |
| 29  | 2 | Skip if Inp: <b>1</b> Open                                                                                                                                                                                                                                                                                                         | 5, 6, 2, <b>1</b>    | Skip next cmd if SPST switch. # <b>1</b> open (repeat if closed) |
| 29  | 3 | Link to Input: <b>26</b>                                                                                                                                                                                                                                                                                                           | 5, 3, <b>26</b>      | Go back to Input # <b>26</b> and REPEAT Sequence                 |
| 29  | 4 | nop                                                                                                                                                                                                                                                                                                                                | 5,5,1                |                                                                  |
|     |   |                                                                                                                                                                                                                                                                                                                                    |                      | <b>===== ( Shutdown ) =====</b>                                  |
| 30  | 1 | >Select Loco: <b>1216</b>                                                                                                                                                                                                                                                                                                          | 3, 1, <b>1216</b>    | Select Loco # <b>1216</b> : ROCO D&H SHARKNOSE                   |
| 30  | 2 | Speed Fwd: <b>0</b>                                                                                                                                                                                                                                                                                                                | 3, 2, 2, <b>0</b> F  | STOP <b>1216</b> (Speed 0)                                       |
| 30  | 3 | End (Terminate)                                                                                                                                                                                                                                                                                                                    | 5,7,1                | Terminate (stop executing commands)                              |
| 30  | 4 | End (Terminate)                                                                                                                                                                                                                                                                                                                    | 5,7,1                | Terminate (stop executing commands)                              |
|     |   |                                                                                                                                                                                                                                                                                                                                    |                      |                                                                  |
|     |   |                                                                                                                                                                                                                                                                                                                                    |                      |                                                                  |
|     |   |                                                                                                                                                                                                                                                                                                                                    |                      |                                                                  |
|     |   |                                                                                                                                                                                                                                                                                                                                    |                      |                                                                  |
|     |   |                                                                                                                                                                                                                                                                                                                                    |                      |                                                                  |

## Summary

Cruise  
 <==SENSOR

## Cruise

# Shark at Station

**<==SENSOR**  
Cruise

## GP35 at Station

## <==SKIP



# (Video #819) MP 15C – 3 HO Trains 9/17/2018–Ver 18ib

| Inp | S | Command                                                                                                                                                                                                                              | Entry                | Action                                                                                                         |
|-----|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------|
|     |   | <b>Program “H” below, is the program used in the Part 1 video.</b><br>The “improved” Program “H2” on page 6 used in the Part 2 video, is a bit simpler and provides a bit better operation on a small mainline as seen in the video. |                      |                                                                                                                |
|     |   |                                                                                                                                                                                                                                      |                      |                                                                                                                |
|     |   | <b>##==== Prog H: Run All 3 trains: #1216, #051, #3364 ==##</b>                                                                                                                                                                      |                      |                                                                                                                |
|     |   | See LOGIC diagram #3 for this mode of operation.<br>The is the “featured” program for the video (runs all 3 trains at once)                                                                                                          |                      |                                                                                                                |
| 17  | 1 | >Select Loco: <b>051</b>                                                                                                                                                                                                             | 3, 1, <b>051</b>     | Select Loco # <b>051</b> : ATLAS Virginian TRAINMASTER                                                         |
| 17  | 2 | Speed Fwd: <b>17</b>                                                                                                                                                                                                                 | 3, 2, 2, <b>17</b> F | START loco Speed <b>17</b>                                                                                     |
| 17  | 3 | >Select Loco: <b>1216</b>                                                                                                                                                                                                            | 3, 1, <b>1216</b>    | Select Loco # <b>1216</b> : ROCO D&H SHARKNOSE                                                                 |
| 17  | 4 | Speed Fwd: <b>4</b>                                                                                                                                                                                                                  | 3, 2, 2, <b>4</b> F  | START loco Speed <b>4</b>                                                                                      |
| –   | – |                                                                                                                                                                                                                                      |                      |                                                                                                                |
| 18  | 1 | Delay 1/4 sec: <b>32</b>                                                                                                                                                                                                             | 5, 1, 2, <b>32</b>   | Delay <b>8</b> sec to get caboose past sensor (¼ sec x <b>32</b> )                                             |
| 18  | 2 | >Select Loco: <b>3364</b>                                                                                                                                                                                                            | 3, 1, <b>3364</b>    | Select Loco # <b>3364</b> : KATO SF gray GP-35 diesel                                                          |
| 18  | 3 | Speed Fwd: <b>8</b>                                                                                                                                                                                                                  | 3, 2, 2, <b>8</b> F  | START loco Speed <b>8</b>                                                                                      |
| 18  | 4 | Wait Inp: <b>16</b> Gnd                                                                                                                                                                                                              | 5, 2, 1, <b>16</b>   | ===== Wait till # <b>051</b> crosses detector # <b>16</b>                                                      |
|     |   |                                                                                                                                                                                                                                      |                      |                                                                                                                |
| 19  | 1 | nop                                                                                                                                                                                                                                  | 5,5,1                | Select Loco # <b>3364</b> : KATO SF gray GP-35 diesel                                                          |
| 19  | 2 | Speed Fwd: <b>11</b>                                                                                                                                                                                                                 | 3, 2, 2, <b>11</b> F | START loco Speed <b>11</b>                                                                                     |
| 19  | 3 | >Select Loco: <b>1216</b>                                                                                                                                                                                                            | 3, 1, <b>1216</b>    | Select Loco # <b>1216</b> : ROCO D&H SHARKNOSE                                                                 |
| 19  | 4 | Speed Fwd: <b>11</b>                                                                                                                                                                                                                 | 3, 2, 2, <b>11</b> F | START loco Speed <b>11</b>                                                                                     |
| –   | – |                                                                                                                                                                                                                                      |                      |                                                                                                                |
| 20  | 1 | Delay 1/4 sec: <b>32</b>                                                                                                                                                                                                             | 5, 1, 2, <b>32</b>   | Delay <b>8</b> sec to get caboose past sensor (¼ sec x <b>32</b> )                                             |
| 20  | 2 | >Select Loco: <b>051</b>                                                                                                                                                                                                             | 3, 1, <b>051</b>     | Select Loco # <b>051</b> : ATLAS Virginian TRAINMASTER                                                         |
| 20  | 3 | Speed Fwd: <b>6</b>                                                                                                                                                                                                                  | 3, 2, 2, <b>6</b> F  | START loco Speed <b>6</b>                                                                                      |
| 20  | 4 | Wait Inp: <b>16</b> Gnd                                                                                                                                                                                                              | 5, 2, 1, <b>16</b>   | ===== Wait till # <b>1216</b> crosses detector # <b>16</b>                                                     |
| –   | – |                                                                                                                                                                                                                                      |                      |                                                                                                                |
| 21  | 1 | nop                                                                                                                                                                                                                                  | 5,5,1                | Select Loco # <b>051</b> : ATLAS Virginian TRAINMASTER                                                         |
| 21  | 2 | Speed Fwd: <b>7</b>                                                                                                                                                                                                                  | 3, 2, 2, <b>7</b> F  | START loco Speed <b>7</b>                                                                                      |
| 21  | 3 | >Select Loco: <b>3364</b>                                                                                                                                                                                                            | 3, 1, <b>3364</b>    | Select Loco # <b>3364</b> : KATO SF gray GP-35 diesel                                                          |
| 21  | 4 | Speed Fwd: <b>21</b>                                                                                                                                                                                                                 | 3, 2, 2, <b>21</b> F | START loco Speed <b>21</b>                                                                                     |
| –   | – |                                                                                                                                                                                                                                      |                      |                                                                                                                |
| 22  | 1 | Delay 1/4 sec: <b>32</b>                                                                                                                                                                                                             | 5, 1, 2, <b>32</b>   | Delay <b>8</b> sec to get caboose past sensor (¼ sec x <b>32</b> )                                             |
| 22  | 2 | >Select Loco: <b>1216</b>                                                                                                                                                                                                            | 3, 1, <b>1216</b>    | Select Loco # <b>1216</b> : ROCO D&H SHARKNOSE                                                                 |
| 22  | 3 | Speed Fwd: <b>3</b>                                                                                                                                                                                                                  | 3, 2, 2, <b>3</b> F  | START loco Speed <b>3</b>                                                                                      |
| 22  | 4 | Wait Inp: <b>16</b> Gnd                                                                                                                                                                                                              | 5, 2, 1, <b>16</b>   | ===== Wait till # <b>3364</b> crosses detector # <b>16</b>                                                     |
|     |   |                                                                                                                                                                                                                                      |                      |                                                                                                                |
| 23  | 1 | Skip if Inp: <b>1</b> Open                                                                                                                                                                                                           | 5, 6, 2, <b>1</b>    | Skip next cmd if SPST switch. # <b>1</b> open<br>(Normal: repeat running prog. if switch # <b>1</b> is closed) |
| 23  | 2 | Link to Input: <b>17</b>                                                                                                                                                                                                             | 5, 3, <b>17</b>      | Go back to Input # <b>17</b> and REPEAT sequence                                                               |
|     |   |                                                                                                                                                                                                                                      |                      | <b>===== ( Shutdown ) =====</b>                                                                                |
| 23  | 3 | >Select Loco: <b>1216</b>                                                                                                                                                                                                            | 3, 1, <b>1216</b>    | Select Loco # <b>1216</b> : ROCO D&H SHARKNOSE                                                                 |
| 23  | 4 | Speed Fwd: <b>4</b>                                                                                                                                                                                                                  | 3, 2, 2, <b>4</b> F  | START loco Speed <b>4</b>                                                                                      |
|     |   |                                                                                                                                                                                                                                      |                      |                                                                                                                |
| 24  | 1 | Delay 1/4 sec: <b>32</b>                                                                                                                                                                                                             | 5, 1, 2, <b>32</b>   | Delay <b>8</b> sec to get caboose past sensor (¼ sec x <b>32</b> )                                             |
| 24  | 2 | >Select Loco: <b>3364</b>                                                                                                                                                                                                            | 3, 1, <b>3364</b>    | Select Loco # <b>3364</b> : KATO SF gray GP-35 diesel                                                          |
| 24  | 3 | Speed Fwd: <b>0</b>                                                                                                                                                                                                                  | 3, 2, 2, <b>0</b> F  | STOP loco (Speed 0)                                                                                            |
| 24  | 4 | >Select Loco: <b>1216</b>                                                                                                                                                                                                            | 3, 1, <b>1216</b>    | Select Loco # <b>1216</b> : ROCO D&H SHARKNOSE                                                                 |
| –   | – |                                                                                                                                                                                                                                      |                      |                                                                                                                |
| 25  | 1 | Speed Fwd: <b>0</b>                                                                                                                                                                                                                  | 3, 2, 2, <b>0</b> F  | STOP loco (Speed 0)                                                                                            |
| 25  | 2 | >Select Loco: <b>051</b>                                                                                                                                                                                                             | 3, 1, <b>051</b>     | Select Loco # <b>051</b> : ATLAS Virginian TRAINMASTER                                                         |
| 25  | 3 | Speed Fwd: <b>0</b>                                                                                                                                                                                                                  | 3, 2, 2, <b>0</b> F  | STOP loco (Speed 0)                                                                                            |
| 25  | 4 | End (Terminate)                                                                                                                                                                                                                      | 5,7,1                | Terminate (stop executing commands)                                                                            |
|     |   |                                                                                                                                                                                                                                      |                      |                                                                                                                |
|     |   |                                                                                                                                                                                                                                      |                      |                                                                                                                |

## Summary

Cruise

Fast Creep

Pass sensor

Slow Creep  
<==SENSOR

Fast Creep

Cruise

Pass sensor

Slow Creep  
<==SENSOR

Fast Creep

Cruise

Pass sensor

Slow Creep  
<==SENSOR

<==REPEAT

Fast Creep

Pass sensor

3364 Stops in Yard