

**OPERATING ON
THE APPLE VALLEY MODEL RAILROAD
REV. 03-21-2025**



A) INTRODUCTION

The Apple Valley Model Railroad Club has an HO- Scale standard gauge layout and a G- Gauge layout.

1. **The Apple Valley Model Railroad HO layout** utilizes the DIGITRAX DUPLEX DCC System that also supports SIMPLEX operations.
2. **The HO Apple Valley Model Railroad** is made up of two divisions The Asheville Division and the Piedmont Division, which includes the Piedmont mainline and Piedmont Upper Level. Each division is powered by separate 8-amp boosters which, with multiple power districts, helps with short circuit isolation. The command station is an advanced DCS 240 with direct USB computer link. The AVMRC supports Digitrax Simplex, Duplex and Wi-Fi operation (WI throttle or Engine Driver) using a smart phone. Use of address 03 is not recommended for locomotives since this is the default address for all locos.
3. **The Thomas “subsidiary”** is a two track DC layout for use of the Thomas Set.
4. **The East Tennessee and Western North Carolina (ET&WNC) “subsidiary”** is an outdoor G Gauge layout located on the station platform. The G Gauge layout may be operated utilizing the Crest DC analog operating system with remote wireless control or internal battery with remote wireless control.

B) APPLE VALLEY MODEL RAILROAD OPERATION TYPES

There are six distinct operating situations on the Apple Valley Model Railroad defined below:

1. **Saturdays and Special events** – These are typically considered as High Visitor Traffic and have more restrictive guidelines. Trains must be operated on both divisions during the hours the Apple Valley is open to the public. Normal Saturdays the AVMRC is open from 10:00AM to 2:00PM. Special events may have longer hours, usually 10:00AM to 4:00 PM. (Sections C-E)
2. **Wednesdays** – intended for work on the layout and meetings. Wednesday 1:00 PM – 3:00PM is considered High Visitor Traffic. Members are expected to adhere to the operating rules/ guidelines. (Section C-E)
3. **AVMRC Operating Sessions** occur on the Third Tuesday of each month, starting at ~ 9:00AM. (Section F)
4. **Member Day** is currently scheduled for the first Thursday monthly from 10am to 2pm. All rules/guidelines are waived. It is assumed that operators will take responsibility to protect the club

and personal equipment. The outdoor layout is open to Piedmont Garden Railroad Society (PGRS) members during this time as well.

5. **The Junior Engineers Session** is scheduled for the Saturday following the AVMRC Operating Session (See B-3) and will start at ~ 2:00PM. See Section H for specific rules for this program. These rules are also available as part of the application form.
6. **G- Gauge Outdoor Layout.** (See Section G)

C) APPLE VALLEY HO EQUIPMENT REQUIREMENTS

1. The club has HO locomotives, rail cars and cabooses available for use of members.
2. Club and Personal HO equipment must meet the following club standards for use on the HO Apple Valley Model Railroad. This requirement is to ensure the highest level of reliability possible.
 - a) HO engines must be DCC equipped. There will be no Analog (Address 00) engines operated on the HO Apple Valley Model Railroad. Use of address 00 has been eliminated from the main system to avoid damage to DC equipment and adverse effects to the DCC system.
 - b) All HO cars and engines will have metal wheels. Plastic wheels are prone to build up material that is deposited on the rails, significantly reducing the reliability of the operation.
 - c) All HO cars and engines will be equipped with operating knuckle couplers, preferably Kadee. Proper height shall be set using the Kadee height gauge available in the shop. Experience has shown the Kadee metal coupler to be more reliable than the available alternatives.
 - d) All HO cars will be weighted per NMRA recommendations. Car weight as defined by NMRA insures consistent level of operational reliability.
 - e) All HO cars with metal truck frames must have properly insulated metal wheels. This requirement is intended to minimize the number of electrical short circuits that result in track shutdown.
 - f) The Thomas Layout only utilizes the DC equipment provided by the club.
3. **Club HO equipment** is periodically maintained to meet the club standards.
4. **Club HO engines or cars requiring repair** shall be carefully returned to the shop and a bad order slip filled out describing the problem, date of occurrence and name of submitter.
5. **Repairs of the Club equipment** will be done by a member of the club Repair Committee.

D) APPLE VALLEY HO MODEL RAILROAD OPERATING RULES

The following are the rules for operating on the HO Apple Valley Model Railroads:

1. **The HO DCC system start up and shut down instructions** are posted at the Piedmont DCC Command Station and the Asheville Booster station. The Piedmont booster station shall be turned on first before turning on the Asheville booster station. These instructions must be followed. Failure

to follow the procedures could result in the loss of control by the Command Station and necessitate reprogramming of the system.

2. **The Piedmont Division mainline** shall have no more than FOUR trains at one time during the times of High Visitor Traffic. This requirement is based on experience and is intended to prevent collisions and damage to club or personal equipment.
3. **Operation of more than one train by a single operator in the Piedmont division is prohibited.** No train operator may operate or permit the operation of more than one train at a time in the Piedmont Division.
4. **Camera car/tv display** may not be used as the only means of monitoring operation of the train.
5. **EACH Asheville Division mainline** shall have no more than ONE train per mainline during times of High Visitor Traffic. This requirement is based on experience and is intended to prevent collisions and damage to club or personal equipment.
6. **Piedmont Division upper level** shall have no more than TWO trains at any time on the upper level. This requirement is established because of limited passing sidings and turning facilities (short engines only).
7. **Operating a train on the Piedmont Division or Asheville Division during times of High Visitor Traffic.** Operators must check the Time Board to determine if there is an available slot. Place your magnetic name tag in the next available time slot. The Time board is located on the Maple St. wall opposite the end of the Black Mountain/ Spartanburg peninsula. This procedure was incorporated to help maintain Rule D-2. This also allows members to schedule a time slot so they will get to operate if they have come to the club to operate.
8. **When running on the HO Apple Valley Model Railroad** you are responsible for any damage you cause. If you allow a non-member to run your train you are still responsible, and your name tag should appear on the time board.
9. **HO Piedmont or Asheville Mainline Track Signals** You must observe and obey the track signals. On the Piedmont Division be aware of the train in front of you at all times. Piedmont Division signals are because of multiple trains on a single track mainline with the potential for collisions. Asheville Division signals are critical because of the possibility of trains crossing mainline tracks.
10. **HO Piedmont Upper-Level Track signals.** You must obey signals or take measures to ensure the safety of equipment in use.
11. **Non -member HO equipment** should not be operated during times of High Visitor Traffic. The AVMRC's goal is to have trains running for visitors, allowing unknown equipment can cause significant disruption of train movement.
12. **Member's unproven HO equipment** should not be operated during times of High Visitor Traffic. The AVMRC's goal is to have trains running for visitors, allowing unknown equipment can cause significant disruption of train movement.
13. **Setup tracks** are to be used to place HO engines and cars on the layout. See D-14

14. **Setup track locations** for the HO Apple Valley Model Railroad are indicated below. All setup tracks can have the power shut off during setup to avoid unwanted shutdowns due to short circuits. These tracks are clearly marked.
- Linwood Track 1
 - Hickory Interchange Track
 - Hickory Track 1
 - Spencer Track 1
 - Morganton Track 2
 - Spartanburg Track 1
 - Asheville Arrival and Departure Tracks
15. **Setup tracks** should be kept clear at all times for the purpose of setting up trains so that they can be used for the intended purpose. See D-14.
16. **Required end of train identification** - All trains running on the HO Apple Valley Model Railroad will have a caboose, an operating EOT (FRED) or other readily identifiable last car. This requirement will identify a train that has experienced a mid-train separation or mid train derailment.
17. **HO Piedmont Division Mainline train length** shall not exceed 9 feet. Engine(s), caboose or identifiable last car is included in the 9 feet. This requirement is set by spacing of signals, signal sensors and length of tracks available to park trains.
18. **HO Piedmont Division Mainline train length** maybe checked by tape measure. Alternately white posts with red tops have been set near tracks at 9ft spacing. 18.1 The measuring locations are: Hickory Spencer Morganton Old Fort Siding Spartanburg set up track Black Mountain mainline and siding.
19. **HO Asheville Division train length** shall not exceed the length of one Asheville Yard A/D track.
20. **Faulty equipment** must be removed from any Apple Valley Model Railroad trackage. Faulty club equipment should be taken to the repair location (See C-4). This requirement reduces the number of incidents during High Visitor Traffic times.
21. **The Operations Committee reserves the right to remove club or personal equipment that causes frequent disruption of operations, particularly during times of High Visitor Traffic.**
22. **First trains out** in the morning should include a track cleaning car.
23. **Track cleaning cars** need to be cleaned periodically and when you finish using the car.
24. **Parking an HO engine**, turn off the sound and lights. Common courtesy.
25. **Parking an HO train**. Do not park a train on mainline tracks. Doing this could disrupt train operations.
26. **Parking an HO train** on any HO Division siding or passing track. The train must not foul mainline tracks or yard lead tracks. This avoids collision or traffic disruptions during High Visitor Traffic times.

27. **Parking acquired trains.** Do not leave an unattended acquired train and active throttle on any HO Division track. Leaving trains unattended with throttle available has resulted in instances of runaway trains, particularly important during High Visitor Traffic times.
28. **Finished running a DCC engine(s)** - You must properly dispatch the engine(s).
29. **Operating other members' equipment.** You must get permission to move or operate other members' personal equipment.
30. **RED TAGs** indicate cars have been assigned for Op Session use, may not be moved (See Sect. F- 1a)
31. **All Club- provided DT controllers** shall be returned to the charging station and correctly placed to charge. See the charging instructions at the charging station for the correct procedure.
32. **Under NO circumstances** will anything (e.g., engine or car boxes, naptha bottles, controllers or train orders) be placed on any track on the layout at any time.

E) TURNOUT OPERATION ON THE APPLE VALLEY MODEL RAILROAD

1. **Piedmont Division (HO)**

- a) **Linwood, Hickory and Spencer Yards turnouts** are powered and controlled by local panels.
- b) **Piedmont Division Mainline Turnouts** are manually controlled using ground throws.
- c) **Black Mountain Turnouts** are powered and controlled by panels at either end of the yard. These panels are located on the fascia between Black Mountain and Spartanburg.
- d) **Spartanburg turnouts** are manually controlled. They are manually controlled because of the lack of space below the Spartanburg Yard.
- e) **Piedmont Division Upper-level turnouts** are powered. They are controlled by local panels located on the fascia below.

2. **Asheville Division (HO)**

- a) **Asheville Division turnouts** are powered.
- b) **Asheville Division mainline turnouts** can be controlled as follows:
 - I. From the Panel Pro panel located in the back corner of the Asheville Division Room
 - II. Utilizing a Digitrax DT300, DT400 or DT402, DT 500 UT6D or DT 602D throttle. This option is not available to UT4 users.
 - III. From local panels at Asheville Yard, Canton and Hendersonville
 - IV. Turnouts may be operated from Dispatchers Panel in the meeting room during Operations Sessions.

3. **Asheville Yard turnouts** are controlled from the Asheville Yard Panel

4. **Hendersonville and Hendersonville Industry Area turnouts** are controlled by the Hendersonville local panel. Mainline turnouts in Hendersonville can also controlled by Asheville Division 2-b.

5. **Canton Yard and Canton Mill turnouts** are controlled from one of two local panels. These panels are located on either side of the Canton Peninsula. During High Visitor Traffic members should limit use of the aisle panel. Do not leave it unattended and powered. Power to these panels is controlled

by a switch on the panels that allows only one panel to function at a time. When changing from one panel to the other check to determine if turnouts have reset.

F) **AVMRC HO Operating Session Rules**

The HO Scale Operating Session has unique Rules and waivers or amendments to the General Rules as indicated by the following sub sections.

1. **PREPARATION for Monthly Op Session** is conducted on the Wednesday and Saturday prior to the scheduled OP Session.
 - a) Red Tags indicate that cars on that track have been assigned for Railop use.
2. **A meeting of all participants** will take place at 9:00AM in the Depot Meeting Room.
 - a) Any unique rules / situations shall be presented at this meeting.
 - b) Dispatcher positions will be verified at this meeting.
3. **Train Manifests and Yard Switch lists** are prepared using Railop computer software. Switch lists are distributed to yard crews prior to the start of operations. Manifests are given to train crew at the time of train assignment. See F-6-i
4. **Rolling Stock** – Only club owned freight cars, passenger cars and cabooses will be used for an AVMRC Operating Session. Personal DCC equipped engines are permitted.
5. **Yardmaster, Dispatcher, Trainmaster and Roadmaster positions** will be determined by the Operations Committee prior to the Session. These people will be notified by e-mail from OPS Committee Chairman or a Committee Member.
6. **Yardmaster, Dispatcher, Trainmaster, Roadmaster and Train Crew positions** are defined below:
 - a) **Asheville Yard Crew** may consist of 2 or 3 people who are responsible for operations within the Asheville Yard limits.
 - b) **Black Mountain/ Spartanburg Yard Crew** when needed will consist of 1 person responsible for operations within Black Mountain and Spartanburg Yards.
 - c) **Hickory Yard Crew** may consist of 1 or 2 people responsible for operations in Hickory Yard and interchange with Carolina and Northwestern (C&NW)
 - d) **Linwood Yard Crew** may consist of 1 or 2 people responsible for operations in Linwood Yard.
 - e) **AVMRC Train Dispatcher** is responsible for communication and control of trains on the Asheville and Piedmont Division mainlines. This dispatcher is not responsible for Piedmont Upper Level (C&NW, Ritter tracks).
 - f) **AVMRC Yard Dispatcher** is responsible for communication with Yardmasters and Train Dispatcher. Yard Dispatcher may also handle Asheville panel operation in meeting room or communication with Asheville Tower operator as required.
 - g) **C&NW Dispatcher** is responsible for operation and train assignment for C&NW and Ritter Lumber.

- h) **Asheville Tower Operator** will man the Asheville Tower as required to control mainline turnout operation on the Asheville Division.
 - i) **AVMRC Trainmaster** is responsible for the assignment of trains to train operators. The trainmaster will provide a signup sheet (Call Board) to document train assignments. The Call Board is NOT the time board referenced in Section D-5. Specific train assignments will be made at the morning meeting. (Section F-2)
 - j) **AVMRC Roadmaster** is responsible for “on the ground” issue reconciliation and operation of the Saluda Grade Pusher.
 - k) **Train Crews** consisting of one or two people are responsible for operating their assigned train following the manifest requirements and Train Dispatcher direction (Section F-8). The Train Crew is also responsible for having engine (personal or club), radio with headset and throttle ready before receiving manifest.
7. **Operating personnel** must have an FRS radio and headset for communication with appropriate Dispatcher. The club has a limited supply of radios and headsets.
- a) Train Dispatcher and Train Crew will utilize channel 9 and each train crew must have one active radio with a headset.
 - b) Yard Dispatcher and Yardmasters may utilize channel 16 and each yard crew must have an active radio and headset.
 - c) Carolina & Northwestern and Ritter Lumber Operations are exempt from the FRS requirement.
8. **Train crews** must follow the instructions of the Train Dispatcher.
- a) Train crew should respond to instruction by repeating instruction back to Dispatcher.
 - b) Train crew must notify Dispatcher of progress by “OS’ing” each marked OS location (OS means on station or on site).
 - c) Train crew must notify Dispatcher when stopped for a problem, when stopped at limit of track authority by Dispatcher, stopped to do work or stopped at yard limit waiting clearance into yard.
9. **Train crews** will conduct any switching that is NOT required in a yard with an assigned yard crew.
10. **Train crews** should confirm that the train has the correct cars after yard switching or local switching.
11. **Train Quantity Limits** (Section D - 2, 3, 4) are waived for AVMRC Operations.
12. **Train Length Limits** (Section D- 15, 16) are waived for AVMRC Operations.
13. **Regular Operation Time Board** (Section D-5) use is waived. See Section F -6i.
14. **Setup Track requirements** (Section D-11, 12, 13) are waived. These tracks may be used to set up staged trains or switching locations during AVMRC Operation Session.
15. **Asheville Division Turnout Control** is amended as below:
- a) Section E-1-c is amended to control by Yardmaster.
 - b) Section E-2-b-iii.1 is amended - Panel Pro panel in Asheville may only be operated by Tower Operator when Dispatchers panel is inoperative (See F- 6 – h)

- c) Section E-2-b-iii.2 is not permitted for AVMRC OP Session
- d) Section E-2-b-iii-3 this section is permitted after permission from Dispatcher.

G) G- Gauge - Procedures and Rules

1. Introduction

- a) The G-Gauge layout is known as ET&WNC.
- b) The ET&WNC is located on the depot platform.
- c) The ET&WNC allows for both track powered and battery powered engines.
- d) There is limited club equipment available for members' use. Members' personal equipment is welcome. See Section 2 Equipment Requirements

2. Equipment Requirements

- a) All club engines and rolling stock should be equipped with Kadee couplers set at the proper height using a Kadee coupler height gauge.
 - I. Personal equipment is exempt from Para.G.2a if not being run with club equipment.
- b) All club rolling stock should have metal wheels.
 - I. Personal equipment is exempt from Para. G.2. b

3. Layout Setup

- a) The awning should be opened, if necessary. The controller is found in the top drawer of the G-Gauge toolbox.
- b) Set up the car barn by unlocking with key from key ring located in YARD yellow tote box.
- c) Turn on power strip in shop by coffee pot to activate G Gauge layout track power for Upper-Level Branch Line, Main Line track and Avery Creek Yard Tracks.
- d) CREST remote controller(s) for track power operations are found in the outdoor toolbox that should be brought out to layout area.
- e) Railboss and Airwire remote controllers for battery operation can be found in the outdoor layout tool box.
- f) Check the battery levels of both CREST and AIRWIRE remote controllers and replace/recharge them if necessary.

4. Layout Shutdown

- a) At closing time, the awning must be closed using the controller found in the yellow toolbox.
- b) No cars should be out on the tracks unless covered by tarps at sawmills and gravel facilities.
- c) Cars must be stored in the Car Barn or on the back main yard tracks. No cars are to be stored on Main Line tracks. Some log cars may be on the Carr lumber track closest to the building. Some gravel cars may be stored at Penrose Gravel facility track.
- d) Return the yellow outdoor toolbox to the shop.
- e) Turn off layout track power supply power strip in shop and check that the mill water pump and any fans used are also turned off

5. Operating Rules

- a) G-Gauge trains should be operating on the Main Line loop and Upper-level Branch line during high visitor times, weather permitting. High visitor times are Saturdays from 10am to 2 pm, Wednesdays from 1pm to 3pm and Special Event hours.
- b) All trains running on the Main Line should have a caboos or identifiable end of train car.
- c) The double mainline allows train operations in both directions.
- d) Mainline operation is limited to two (2) total trains on either mainline
- e) Mainline operation is limited to one (1) train with battery operated engine and one (1) train with track powered engine.
- f) Upper-Level Branch operation is limited to one (1) train.
 - I. level operation is limited to one (1) train.
 - II. Several club engines and power support cars are equipped with reed switches placed on the tracks that allow continuous (back and forth) operation on both upper-level branches.
 - III. The Club has a limited number of engines, rail cars and cabooses available for use of club members.
 - IV. No member or visitor should run another member's personal equipment without asking the owner first. j. SET UP / TEST track on front edge of layout now known as Avery Creek and 4-yard tracks now known as Little River may be used to set up or test locomotives.
 - V. Club members are responsible for any restrictions regarding visitors operating
- g) Upper-trains on the ET&WNS
- h) Power control of all Avery Creek and Little River yard tracks is by on/off switches. The on/ off switches are located on the yard fascia panel.
- i) The car barn tracks are extensions of the yard tracks.
- j) Track power control panel at the Little River yard has on/off switches and a Main/Yard switch.
- k) Turnout operation is manual.

H) Junior Engineer - Procedures and Requirements

Procedures and Special Instructions are in the Junior Engineer Procedures manual.