



N SCALE FL9 LOCOMOTIVE PRODUCT GUIDELINES

Thank you for purchasing the first accurate models ever produced of the New York, New Haven and Hartford Railroad's unique passenger locomotive, the EMD FL9. This has been one of the most sought-after New Haven locomotives, as its extended length requires all-new tooling and can't be modified from existing F-unit molds. We at Rapido have gone to great lengths to do justice to this iconic locomotive. We hope you will be pleased with the results.

As always, please do not hesitate to contact us should there be anything wrong with your model. Whether you have a warranty issue (missing parts, depleted uranium accidentally left in the fuel tank, etc.), a question ("Why won't this go around my 6" radius curves? What a ripoff!") or a comment ("The nose is wrong.") please give us a shout. More warranty information is available throughout this manual. Please read it before contacting us.

If you really do think the nose is the wrong shape, please bear in mind that it was scaled from original EMD F-unit nose blueprints, including cross sections every inch up the nose from pilot to roof. The windshield area dimensions were double-checked on a real F-unit cab using a depth gauge and the results traced into our computer designs.

You can reach us by email: trains@rapidotrains.com, by phone (1-855-LRC-6917 or +1-905-474-3314) or by snail mail at the address below.

Please do not send any models back to us without first speaking to us to get authorization. You'd be amazed at how many models arrive at our location with no documentation whatsoever. And if models get sent to one of our old addresses, they might as well have been beamed into the mouth of a wormhole as we'll never see them.

If you've finally got around to opening this model after your retirement in 2053, you're on your own. Sorry.

FL9 DCC FUNCTION QUICK REFERENCE

- F0 Headlights
- F1 Bell
- F2 Horn (Hancock Air Whistle)
- F3 Straight to 8
- F4 Dynamic Brake
- F5 Doppler Hancock
- F6 Steam Generator
- F7 Dimmer
- F8 Startup/Mute/Shutdown
- F11 Brake
- F12 Switching Mode
- F14 Grand Central Terminal Mode

BREAK-IN

Every locomotive needs a break-in period. Your FL9 has been tested at the factory... for about 30 seconds. That is not enough time to get the gears to mesh nicely or to even out any jerky operation in a new motor. We suggest that, after reading this manual, you put your FL9 model on a test loop and just let it run in each direction for an hour or two. Fast and slow.

There already should be enough grease in the gearbox so you don't need to add any. Just let the thing run.

PROTOTYPE INFORMATION

The FL9 was built in two batches of thirty units each. The first group, built between October 1956 and November 1957, included road numbers 2000-2029 and were classified EDER-5 (Electric Diesel-Electric Road) on the New Haven. The second group, road numbers 2030-2059, were classified EDER-5a and were built in 1960. Unit #2059 was the last F-unit ever built by EMD.

There were subtle differences between the two construction groups. The first group, road numbers 2000-2029, featured nose MU doors and hoses, a door diaphragm, and a small pantograph on the roof for use inside Grand Central Terminal with a rear ladder for access to it. The second group, road numbers 2030-2059, did not have the nose MU equipment due to the U.S. Government loan used to purchase them. They also lacked the rear ladder and pantograph, it having proved to be an unreliable design.

As built, the second group was fitted with a side platform on the engineer's side of the nose along with additional grab irons both on the nose and L-shaped grabs above each cab windshield. No door diaphragm was installed on the second group. The first group was modernized with a similar platform and grabs at the same time, as well as the removal of the roof pan, rear ladder and door diaphragm.

The New Haven, ever thrifty and resourceful (cheap?), removed the platforms and the grabs from the left side of each of the second group of EDER-5a units and applied them to the right side of the earlier batch that were already in service! The railroad also added an L-shaped grab above the right side windshield on the earlier units, but only a half-length grab above the left side windshield. These mismatched grabs stayed on these units throughout their service life.

If you browse through pictures of the FL9 on the internet, chances are the majority of the photos will be from the last few years of their lives, when they were regularly used in push/pull service for the Connecticut DOT/Metro-North (despite being lettered for the New Haven). A common sight is a head-end-power-equipped FL9 bringing up the rear of a train of Comet cars. That was a comparatively modern invention. For most of their service lives, and certainly when equipped with steam generators (as can be found on our model), the FL9 was always found at the head end. But for those of you who would like to run your FL9 at the rear, we have conveniently provided you with operating red classification lights on the nose in DC and DCC.

For the 1.5 of you modeling Grand Central Terminal in New York, we offer a "Grand Central Terminal mode" on the model in which it emulates the third-rail power pickup used in the terminal and tunnels. More information on this neat feature can be found in the "Operation – DCC/DC with Sound" section of the manual, beginning on page 8.

Another feature of our FL9 is “straight to eight.” On real passenger locomotives – especially in commuter service – the engineer just puts the throttle into Notch 8 (full power) and accelerates out of the station. We’ve recreated this on the model, should you desire it. For more information on how it works, please refer again to the “Operation – DCC/DC with Sound” section of the manual.

It is 100% prototypical for your FL9 to be pressed into freight service, especially on fast TOFC trains, so go convince all of your freight modeler friends to buy one (or six).

CHECKING AND ADJUSTING YOUR LOCOMOTIVE

We try and make sure that every locomotive is perfectly up to spec before it leaves the factory, but if the karaoke was particularly good the night before your model was assembled there may be a couple of bugs. Doing a quick pre-service check will solve most operational glitches.

Your FL9 was tested at the factory on a Kato Unitrack layout, including through turnouts. It should have no problem handling Unitrack turnouts and 11” radius curves. Some brands of track (especially code 55) are notoriously fiddly. We can’t guarantee that your FL9 will handle all brands of track and turnouts. If your FL9 shorts on your turnouts, we recommend playing with the wheelset spacing to find the “sweet spot” for your turnouts. We do not offer this service for you but it is very easy to do:

- Pull off truck
- Unclip the truck frame by disengaging the tabs at the front and back of the truck.
- Lift out gearbox.
- Remove wheelsets and replace them.
- Line up the wheelsets in the gearbox and reattach the truck frame.
- Clip truck back in place.
- That’s it! You’re done!

Check that the air hoses are not touching the rails. If they are, we recommend trimming the bottom of the hoses off. They are designed to be about 1/32” off the rail head but that’s a bit beyond the tolerances of a hand-assembled model so sometimes they hang a touch low.

Check that the couplers are not too low. If the trip pin clears the rail head, you are OK. We try to catch all of these at the factory but one or two low couplers occasionally slip through.

Make sure that the trucks swivel freely and without binding. If they catch on anything, check to ensure that the ends of the trucks don’t bind against any underbody piping or conduit. If they do, see that everything is firmly installed.

MISSING OR DAMAGED PARTS

If you open your FL9 box and discover that something has obviously been bumped in transit and is damaged, please contact us. If the horn or other small part has broken off, the easiest way to reattach it is with a drop of white glue. You can't ruin the paint finish with white glue. If you don't like to touch your model trains, you are welcome to send the engine back for us to glue that doodad back on with white glue. But if you do send it back to us for us to put that one part back on and other stuff falls off when we send it back to you, then there isn't much we can do. Your local delivery company obviously likes to play football with your packages and we recommend you glue the doodad on yourself.

More information about our limited lifetime warranty can be found towards the end of this manual.

REMOVING THE SHELL

If you need to open up your FL9 it is actually quite easy to do. Just be sure to remember these important points:

- We have a transporter lock on the molecular pattern of your locomotive. If something pops off while you are removing the shell, our starship's transporters will automatically lock on to the little part and beam it directly into the heart of the sun. Don't bother looking for it. It's gone. You might hear the transporter effect as the part is beamed away. I know it would have been more useful for us to beam the part back onto your workbench but someone's been fiddling with our transporters and we haven't been able to fix them. Sorry.
- To that end, please make every effort to ensure nothing flies away. Work on a clean, white surface. In fact, paint all the walls, the floor and the ceiling white, wear white coveralls, and remove everything else from within a three-mile radius of your workbench, especially (but not limited to) vegetation, people and wind.
- Turn the locomotive upside down in a foam cradle (painted white, of course) and remove the coupler screws. Pull the coupler boxes out of the ends and turn the loco right-way up. Now spread the skirts and wiggle the shell off. Carefully. Remember the transporter lock.
- That's it, really.
- No, really.

OPERATION – DC (SILENT)

If your FL9 locomotive is not equipped with a sound decoder, it should function like most other N scale locomotives.

The headlights in DC are directional.

INSTALLING A DCC DECODER IN A DC MODEL

The FL9 contains a motherboard which is connected to the track, motor and lighting outputs. A blind plug is attached to the motherboard using a 6-pin connector. To install a decoder, remove the blind plug and install a 6-pin decoder. Your chosen decoder should have at least two function outputs.

OPERATION – DCC/DC WITH SOUND

We go to extreme lengths for accuracy, in sounds as well as in looks. Our sound decoders are LokSound Select Micro decoders by ESU, programmed with sounds we recorded from a General Motors 567 prime mover. The sounds are 100% correct for the FL9, though even we will admit our air compressor sounds a bit clapped out!

As in all of our other sound-equipped engines, we recorded the locomotive under load up a steep grade. This simulates a four- or five-car passenger train on the straight and level.

More detailed decoder instructions, including all sorts of weird CV settings we don't understand, can be found in the ESU Loksound Select decoder manual. This is available for download on the FL9 page in the Support section of our web site.

WARNING: If you have purchased a sound-equipped FL9 and you operate your trains with a Model Rectifier Corporation RailPower 1300 DC controller, stop what you are doing immediately. Do not pass Go. Do not collect \$200. The RailPower 1300 is notorious for voltage spikes and it WILL destroy your locomotive. There is no "if" about it. We will not repair any FL9 destroyed by a 1300 or any other "train set" DC controller. "Train set" DC controllers should not be used with sound-equipped locomotives.

LOCOMOTIVE ADDRESS

Your Rapido FL9 comes from the factory with a decoder address of 3. We suggest if you are using DCC control that you first test that the locomotive responds on address 3. Once you have verified that the locomotive is responding you should assign it a unique address (we suggest the road number of the locomotive) before going any further. This can be done either on your programming track (recommended) or on the main if your system supports programming on the main. Be aware however that if you do program the locomotive on the main and you have any other locomotives on your layout assigned to address 3 (the normal default address for new locomotives) that **ALL** of them will likely also be changed to your new address!

TURN ON THE SOUND

Press F8. Your locomotive will start up. If you press F8 when the locomotive is already moving, it will skip the startup and the sound will just turn on. Press F8 again to turn the sound off.

Note that if you are listening to your FL9 idling nicely and then you select another engine with your controller, your FL9 still thinks F8 is pressed so it will keep idling along. However, if you

then select your FL9 again or someone else selects your locomotive's number on his or her controller, the controller "forgets" that F8 was pressed and the FL9 will promptly shut down. You or he or she will need to press F8 again.

It's nice that we are using "he or she" in this manual. We really hope the three female New Haven model railroaders in the world appreciate it and will consequently buy even more Rapido stuff.

You can change some CV settings to have the prime mover always on, but we caution that having your entire locomotive fleet rumbling away at one time is both a drain on your power and on your sanity. To make your FL9 "always on," use a programming track (or LokProgrammer) and input the following (in order):

CV31=16, CV32=2, CV387=32

If you are operating with sound on a DC layout, the sounds won't come on until the voltage is up around seven volts or more. This is normal.

DCC FUNCTIONS

- F0 Headlights
- F1 Bell
- F2 Horn (Hancock Air Whistle)
- F3 Straight to 8
- F4 Dynamic Brake
- F5 Doppler Hancock
- F6 Steam Generator
- F7 Dimmer
- F8 Startup/Mute/Shutdown
- F11 Brake
- F12 Switching Mode
- F14 Grand Central Terminal Mode

DCC FUNCTIONS: MORE INFORMATION

F0 Headlight

Like the real thing, in DCC our FL9 headlights are not directional. They stay on until you turn them off.

F3 "Straight to 8"

This unique feature simulates the prototypical operation of the FL9 locomotive. Many engineers did not slowly go through the notches if leaving a station on a clear signal. They would put the locomotive straight from notch 2 to notch 8. Similarly, when approaching a station, engineers would go right back down to idle and coast to a stop. This sounds very different from a typical freight engine slowly notching up to 8 and back down again.

When F3 is selected, the locomotive sound will ramp up quickly to “Run 8” (full power). If you decelerate, it will go right back down to idle. If you push F3 when the locomotive is at notch 8 and then you decelerate, it will notch down normally. Note that this function controls the sound only and not the motor speed. Motor speed is still controlled using the throttle settings as normal.

If you want your consisted engines to respond to F3 when you press it, refer to your DCC system to check how consisted engines respond to functions. You may need to change some CV settings in your consisted engines following the detailed instructions in section 5.2.3 of the ESU Loksound Select decoder manual, available for download on the FL9 page in the Support section of our web site.

F4 Dynamic Brake

Press F4 for dynamic braking. Dynamic brakes are best enjoyed with a fine whine. Ouch.

F5 Doppler Horn/Hancock

Play this when approaching level crossings at speed. It is a real recording of an FL9 complete with original Hancock Air Whistle, zipping past a level crossing at speed with five cars in tow. It sounds fantastic, if we don't say so ourselves. Special thanks to David Magill for letting us use his sounds and for recording it in the first place!

F6 Steam Generator

We just couldn't resist adding the steam generator noises to the FL9 because they are so completely awesome. If you have other F units that could use some neat-o steam generator sounds (along with all of our other great sound features), you can order new Steam-Equipped sound decoders from Rapido.

Press F6 at any time to start up the steam. We don't include random loud blowdowns but we include the irregular hiss that you can hear coming from the regulator and blowdown valves all the time when the steam generator is operational.

When you accelerate, the volume of the steam generator gets lower as you wouldn't hear it as clearly when the train is moving. If you want MORE STEAM! you can adjust the volume of the steam generator by adjusting the value of CV 315. Please refer to Sound Volume Settings (below) before attempting this.

F7 Dim the Headlights

When approaching a station stop or an oncoming train, press F7 to dim your headlights – you don't want to blind your passengers or the oncoming train's engineers with crazy bright headlights. Press F7 again to return to normal.

F11 Brake

F11 works just like the brakes on a real engine. Press F11 and you put on the brakes. Turn off F11 and the brakes come off so you start moving again.

F12 Switching Mode

If you press F12, the headlight and rear light will both be on dim. This is appropriate for switching operations, which would be common in yards and terminals, such as New Haven and Boston. This is the only way to turn on the rear light on our model FL9 as during normal operations it was the only time that it would have been used. Press F12 again to turn off the switching mode lighting.

F14 Grand Central Terminal Mode

We're hoping that you will find this nifty feature on our FL9 model to be so enthralling that the number of people actually modeling Grand Central Terminal (GCT) will double... to three. As

originally designed, the prime mover was to be shut down when third-rail power was provided to the traction motors. As anyone who tried to breathe while near an FL9 on the platform at GCT can attest, locomotive engineers did not shut down the engine in practice. It was left idling, much to the detriment of the health of anyone required to be on the platform for longer than about three minutes.

If you are running south into GCT, stop at 125th Street and press F14. The locomotive will switch into Grand Central Terminal Mode. The prime mover (diesel engine) is locked in idle, and you can hear the traction motors whining quite loudly. If you are properly following the rulebook and you want to shut down the prime mover, press F8. The prime mover sounds will shut down. In Grand Central Terminal Mode, you will hear the traction motors whining as well as the air compressor going off. If you have the steam generator turned on, you can hear that too. Horn and bell work as usual.

Northbound trains from GCT should stop after leaving the Park Avenue Tunnel to switch over to normal operation. Press F8 to fire up the prime mover and press F14 to turn off Grand Central Terminal Mode. Proceed to Woodlawn and points northeast.

If your train does not stop at 125th Street, you can switch to and from third-rail power on the fly. The prototype and model are both designed to allow the changeover at full track speed.

F18 Brake Set/Release

This function turns off the brake release and brake set sounds when you start or stop moving, respectively. It has no effect on the function of the engine — it just affects the sounds.

F19 Air Release

This makes an air release sound. Ahhhhh....

HORNS

There are two extra horn recordings included with your FL9, and you can change them around by changing the value of CV 48. The default is the Hancock Air Whistle, which was a New Haven staple and the horn these locomotives used for most of their service lives. The K5LA and the Leslie S2 were for later editions for Amtrak and Metro-North/ConnDOT, respectively.

CV48-0 Hancock Air Whistle

CV48-1 Nathan K5LA

CV48-2 Leslie S2

Note that you can only change the horn on a programming track or using a LokProgrammer.

SOUND VOLUME SETTINGS

The sound volume settings have been designed by Bill to be layout friendly. You can adjust the sound volume if you think it is too loud or too soft. If you want the sounds to be so loud you can hear them in the next room, we suggest you give up scale modeling and go buy a real FL9.

You can also adjust the relative volume levels of the different elements of the sound recordings. Jason demanded that Bill “turn that darn thing down!” when he heard the bell volume. If you are the type of guy who wants his FL9 bell heard in the next county, you have lots of room to increase its volume. Ours is set at level 25 of a possible 128.

To set the volume levels go into the program mode on your DCC system (refer to your system’s manual for instructions on how to do this as each system is slightly different); enter the desired CV number; then enter the desired levels. Note that this can be done either on a programming track or on the main (ops mode) if your DCC system supports programming on the main.

We strongly recommend that you keep notes on which settings you have changed and which values were used. If you ever need to do a reset on the decoder (see “Factory Reset” below) then having good notes will allow you to easily re-enter any changes that you might want to keep.

VERY IMPORTANT: Before you change any of the volume control CVs, please make sure that CV 32 is set to 1. CV 32 is used as an index selection register and if you don’t set it first then we are not responsible for your resulting rage and the fact that you will probably throw the locomotive against the wall in frustration.

For example, to set the horn volume, first set CV32=01, then CV275=0-128.

FL9 SOUND VOLUME SETTINGS				
FUNCTION	CV	DEFAULT	RANGE	YOUR VALUE
MASTER VOLUME	63	150	0-192	
PRIME MOVER	259	64	0-128	
HORN	275	100	0-128	
BELL	283	25	0-128	
DYNAMIC BRAKE	299	60	0-128	
STEAM	315	25	0-128	
DOPPLER HORN	339	100	0-128	
SHORT AIR LET OFF	363	128	0-128	
BRAKE SQUEAL	459	35	0-128	

FACTORY RESET

On your FL9, you perform a factory reset by entering a value of “8” into CV 8. Note that this will cause all of your new volume and motor settings to be lost, so you will need to reprogram any settings that you want to keep. You did keep notes, right?

You can NOT lose all of the pre-recorded sounds on your FL9 decoder by doing a factory reset. If you manage to lose all of the sounds on your locomotive then you have probably set fire to your decoder with a voltage spike. Open up your locomotive and pour out the ashes.

AWESOME SLOW SPEED THINGY (HIGHLY RECOMMENDED)

There is an awesome trick that you can use to get even better slow speed running and smoother operation. It's called the Automatic Motor Tuning Feature. This feature will automatically adjust the Back-EMF in most cases and give you phenomenal slow-speed performance. Make sure you do this to each locomotive separately.

In order to use this automatic adjustment you need to use Ops mode programming, i.e. programming on the main. Make sure your locomotive is in "forward" and that you have lots of room in front of it on your mainline. Set CV 54 to a value of 0. Then get out of programming mode and turn on the bell (press F1). We'll say this again: Make sure you have plenty of room in front of your locomotive and it is not headed for the layout edge and the basement floor!!!

Your FL9 will quickly take off at full speed and gradually slow down to a stop while the decoder reads the motor responses. You'll have fabulous motor control after you do this. If you ever have to reset your locomotive, you can do the automatic adjustment again – it just takes a few seconds.

MORE INFORMATION

While addressing the features that most modelers will need for normal operation, these instructions have covered just a small number of the many customizable features of your ESU LokSound decoder. For advanced users who want to more fully explore the capabilities of the decoder we suggest downloading the ESU Loksound Select Micro decoder manual. This is available on the FL9 page in the Support section of our web site.

LIMITED LIFETIME WARRANTY

We will do our best to solve any problems or issues that you may have with your FL9 locomotive. If your locomotive has any defects that originate from the factory, we will repair your locomotive using new components or replace it outright should a repair not be possible. However, we can only replace your locomotive while we have additional ones in stock. We normally keep spares for up to six months after a model is released.

If you purchased this locomotive at age 23 and you've only first opened it upon retirement, it is possible that we no longer have any replacements, we're retired, or we're pushing up the daisies. It is also possible that by that time the molds have been stolen by the Purple Army of Constantinople during the Madagascar-Jamaican War and used in a catapult to break down the Kardashian Gates in Cleveland. In that case they probably aren't usable any more. Please check to see if we still exist and give us a call or write us an email, and we will see what we can do to help you out. If Connecticut is covered by one big glacier, chances are we're extinct. Don't bother calling.

There are a number of things that this warranty can not cover. We've already gone over the bit about reattaching loose parts yourself – don't be afraid! The worst thing that can happen is that you ruin a gorgeous \$300 locomotive and have to give it to the neighbor's dog as a new chew toy. If parts are missing, please call us or send us an email and we'll send you some replacements

provided that we have them. As mentioned above, this warranty does NOT cover damage caused by voltage spikes on MRC 1300 or “train set” power packs.

Of course, damage caused by throwing your FL9 out of a moving shuttlecraft, generously allowing your wife’s aunt to use your FL9 locomotives as hair curlers, changing the locomotive numbers with a 1” wide brush and house paint, adding realistic weathering by leaving your FL9 on a windswept shore for seven years, or any other damage caused by Acts of You that we haven’t mentioned here is not covered by the warranty. However, if catastrophe does strike and your locomotive gets damaged, please give us a shout and we’ll do our best to help you out. Yes, even if it was your fault we will try our best to fix your locomotive for you. Don’t be shy!

ACKNOWLEDGEMENTS

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Finally, this model is dedicated to our late N scale master modeler, Mike McGrattan. We miss you, Mike.