



Enginemen's  
Operating  
Manual

**MODEL FP7**  
**MODEL FP9A**



**FRANÇAIS AU VERSO**

**FP7/FP9A LOCOMOTIVE PRODUCT GUIDELINES**

Thank you for purchasing this Rapido Trains FP7 or FP9A locomotive. Yes, we said "or". No, we're not trying to make you believe they're the same. They have their own unique spotting features, but internally they're pretty much the same. So we're having them share this manual like good neighbours. However due to budget cuts – and in order to reduce the overall length of this manual – we're replacing "or" with a backslash. It was either that or we'd have to temporarily reduce Jordan's pay in order to afford the extra page in this manual.

Our sound-equipped FP7/FP9A locomotive is powered by an ESU Loksound Select decoder and can be operated on DC or DCC layouts. It is fully compatible with our old (like, really old) FP9A locomotives included in The Canadian (containing SoundTraxx Tsunami decoders) and will MU with them smoothly. Please read "Operation – DCC/DC with Sound" to familiarize yourself with the ESU decoder in your new FP7/FP9A as there are some programming differences between the ESU and the SoundTraxx decoders.

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

Please do not send any models back to us without first speaking to us to get a return authorization, and please be patient when you send something back. The Helmic Regulator in the Rapido TARDIS is malfunctioning, so we can't return your model to you before you've sent it to us. And if you complain in an online forum that you sent back your model for repair "months ago" even though we only received it last Tuesday we reserve the right to put your picture up in our office and make fun of it.

If you just bought this model and the current year is 1993, then be sure to watch the Montreal Canadiens win their 24th Stanley Cup against the Los Angeles Kings on June 9th. Or if you're not into sports, we're certain you can find a few FP7s and FP9As working in the Montreal area. But it also means that you've perfected time travel, and that you've taken your model train back in time with you. We're not sure why you'd ever want to do this but thank you for bestowing our model with this honour. We'd also like to talk to you about taking us back with you to do some research and maybe save a few more pieces of equipment (like a UAC TurboTrain). We can probably assume that you can travel ahead in time, so if it's now 2102 (regardless if you've done the time travel thing) then good luck finding replacement parts for your FP7/FP9A. We're banking on our children and grandchildren to continue the business, but who knows what they'll be interested in next.

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**FP7/FP9A DCC FUNCTION QUICK REFERENCE**

F0	HEADLIGHT
F1	BELL
F2	HORN
F3	FULL THROTTLE
F4	DYNAMIC BRAKE
F5	ROOF-MOUNTED SPOTLIGHT (IF EQUIPPED)
F6	DITCH LIGHTS (IF EQUIPPED)
F7	DIM THE HEADLIGHTS
F8	STARTUP/MUTE/SHUTDOWN
F9	CLASS LIGHTS – WHITE
F10	CLASS LIGHTS – GREEN
F11	BRAKE
F12	DOPPLER HORN – SLOW
F13	RAIL SQUEAL

## **PROTOTYPE NOTES**

So what is this engine called, anyway? The real General Motors F9/FP9 manual refers to the locomotive as both an FP9 and an FP9A... on the same page! Yet with the FP7, they never used the A suffix in the name. Logic rarely enters into railway nomenclature. CN referred to its FP9As as both FP9A and FP-9A, but never FP9.

CP used their own classification and called the FP7s anything from a DPA-15a through DPA-15d for the passenger units, and DFA-15c through DFA-15g for the freight units. The FP9As were similarly treated but were classed as -17 instead, but nobody would have a clue what we were talking about if we called them as such. So we decided to call the locomotive an FP7 or an FP9A, for no other reason except that it keeps things simple. Or does it?

## **BREAK-IN**

Don't break in to anyone's layout room to steal their FP7/FP9A. Just buy more for yourself. But this isn't about that kind of break-in.

Every locomotive needs a break-in period. Your FP7/FP9A has been tested at our factory for about a minute. 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 FP7/FP9A 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.

## **THE UGLY COUPLER ON THE FRONT**

While you may be fortunate enough to have minimum 12-foot-radius curves in the aircraft hangar-sized layout you had custom built on the grounds of your estate, most people don't. In order for the FP7/FP9A to go around slightly smaller curves and in order to ensure the coupler trip pins do not foul the pilot, we needed to include a really, really long coupler in the front. This may cause it to sag a bit. If this bothers you, your options are:

- A) Replace it with a shorter coupler from your workbench and cut off the trip pin, or
- B) Take close-up photos of it that accentuate the sagging effect and then post photos of it on internet model train forums telling everyone that it looks like rubbish; don't bother to change it because you don't know how to hold a screwdriver; get angrier and angrier every time you look at it; and decide that maybe you should have actually learned how to do some model railroading rather than paying that team of 47 imported Swedish custom layout builders to build your aircraft hangar-sized layout for you.

Moving on to the engine's backside: the buffer plate is sprung, but it may catch on tight curves. For tight-radius curves, we include an extra long-shank coupler in the box to prevent interference with the rear buffer.

## **CHANGING THE COUPLERS**

Changing the couplers is very straightforward. Place a white table cloth on your workbench or kitchen table. Place a foam cradle (available from Micro-Mark, product #80784) or a thick-piled hand towel (not a tea towel!) folded over a couple of times on top of the table cloth and lay the FP7/FP9A on its roof. Alternatively, you can place it upside down in the foam insert inside the wonderful multi-purpose box that the loco came in.

Use a small Phillips screwdriver to unscrew the coupler box and slide it out without destroying the surrounding details, especially the yoke surrounding the rear coupler. Swear loudly when the yoke snaps off. Snap the lid off, replace the coupler, and snap the lid back on. Slide the coupler box back in and replace the screw. Pick up the FP7/FP9A and look around the white table cloth for all the little roof details that may have fallen off. Glue them back on with white glue. Hey – don't say we didn't warn you! And on that note....

## **HORIZONTAL SLIT GRILLES**

If your locomotive has horizontal slit grilles, please note it is not possible to use our not-at-all-patented-but-we-wish-it-was "No Warp Grilles" installation method. It would distort the grilles. The grilles are kept in place with ten small tabs, but they may warp due to temperature and/or humidity changes. If your layout is in a room with stable temperature and humidity, you might want to wait a few weeks after getting your model into the room and then tack down the grilles with some white glue. If your locomotive travels a lot or your layout room is a shed in the Australian outback with no AC and no heating, we advise you to accept the warped grilles as being cheaper than insulating your shed and adding HVAC.

## **MISSING OR DAMAGED PARTS**

With about 300 individual detail parts, the FP7/FP9A is a stupidly complex model. To prevent inevitable frustration, we recommend checking your locomotive as soon as possible to ensure that everything is where it should be. We try to catch all potential issues at the factory, but with literally thousands hundreds dozens of locomotives in each production run it is possible that the odd problem may slip past our quality control inspectors. They do karaoke at night and can get tired during the day. Please cut them some slack. At least they know all the words to "Don't Stop Believing" by Journey.

A bigger issue is damage in transit. 99% of all locomotives are perfect when they

leave our warehouse. But our gentle courier and postal carriers like to use our models to practise for the Rugby World Cup, so between our warehouse and your front door chances are this FP7/FP9A has been used in a 50-yard field goal attempt and spiked into the floor during a victory dance by Benny in Receiving. No packaging is designed to survive such punishment.

If bits come loose in transit, they are easily reattached with white glue, such as Weldbond. We prefer Weldbond over CA because it works just as well for most layout scenarios and is very easy to clean up. There is no risk of damaging the paint job – just wipe it up with a bit of warm water on a paper towel. If the courier companies have been really cruel and there are a lot of parts loose, please contact us. You can send the locomotive back and we'll glue all the parts back on and pack the thing in a mile of toilet paper before sending it back to you. As an added benefit, the toilet paper may come in handy for other purposes as well.

If any parts are missing or broken, please call or email us. We'll happily send you free replacements. We aim for 100% customer satisfaction... with one exception. If you are one of those people who calls us because the bell is slightly crooked and you don't want to move it back into place with your finger, please go away.

## 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.

- Check to see that all wheelsets are correctly in gauge using an NMRA RP-2 Standards Gauge. Should any of the wheelsets be out of gauge, remove the affected wheelset from the truck by prying off the bottom lid of the gearbox with a small flat screwdriver and then spreading the sideframes slightly. The wheelset can be regauged by grabbing each wheel and twisting. Reverse the steps to replace the wheelset, and ensure the gearbox cover is snapped into place before placing on the track.
- Check that all underbody piping and appliances are firmly installed and clear of the track. Of particular note are the air hoses and steam pipes at the rear end of the unit, both coupler trip pins and the water tank. A small drop of CA-type super glue will sufficiently hold any loose parts securely. Under the body who cares if you spill a bit?
- Make sure that the trucks swivel freely and without binding. If they catch on anything, check to ensure that the brake cylinders and their associated piping do not interfere with any of the underframe components.
- The rear buffer plate should move smoothly and spring back quickly. If not, there may be binding – check for flash or plastic shards that may cause any interference.

## WHAT ARE ALL THE EXTRA BITS?

When Josh took the reigns on this project (ok, it was thrown in his lap), he didn't know much about the FP7 or FP9A. In fact, had he known what he knows now, the project wouldn't taken a much different approach. After studying almost every corner of the locomotive, he not only has nightmares about the placement of grab irons but considers himself an expert (or so we lead him to believe). Because of the wide variety of order dates and uses some roads had for their FP7s or FP9As, it's hard to accurately represent some paint schemes because of the addition or subtraction of details over time. This applies more so to CP and ONR than it does to CN. That's why we've included the basic parts for most models and included all the extras for you to add should you desire.

For most parts, if you remove the shell, you'll find dimples on the inside of the shell where to drill to add these - everything from icicle breakers to nose mounted grabs. Follow the drawing in the middle of this manual for assistance and always reference prototype photos. Should you have any concerns or issues, we'd be more than happy to help. We'll just tap Josh's brain should we need more info (and likely trigger even more nightmares about detail parts placements).

### Roof-Mounted Spotlight

If you've got an early CP FP7 that was used in passenger service (the 1400-series), then there's a pretty good chance it has a roof-mounted spotlight already installed. If your unit doesn't have it installed, the light is there inside the shell and all you'd need to do is create the hole to plug in the detail part. If you have a CN unit, then please move on because CN never had the roof light. Just don't. Some of us might have to come and confiscate your models if you proceed.

### Icicle Breakers

CP's 1400-series passenger units all received icicle breakers to prevent damage to the dome cars from low hanging ice in tunnels. Most of these units lost these when they were removed from passenger service. We've included the icicle breakers for the early passenger units should you wish to add them. Typically, the presence of the icicle breakers matched that of the roof spotlight, but we've found a few pictures with the icicle breakers present and the spotlight removed. If that's not enough, we actually found one picture that shows the spotlight present but the breakers removed. Oh, consistency, where art thou?

### Ladder Grabs

CP was just as inconsistent when it came to ladder grabs on both the nose and carbody. Typically the carbody grabs were present for crews to access the spotlight and icicle breakers. When these were removed, the ladder grabs were sometimes removed. Yes, sometimes. Many kept them through to retirement, others lost them immediately, and some just lost them at an arbitrary time and place. If we're certain they were on the unit, they're installed. Otherwise, they've been polybagged for your installation preference.

## **Small Nose Grab and Steps**

When ONR retrofitted their FP7s with a nose MU receptacle so they could run their units "elephant style", they installed a small grab iron near the engineers-side number board in order for crews to safely access it. They also added a step near the anti-climber for the crew to stand on the front on the locomotive and hook-up the cable (we have a photo of this manoeuvre and we're sure that health and safety inspectors would cringe at the practice today). Match photos as some units received these details later than others. If you're adding the steps AND the ditch lights, you'll need to modify the steps as ONR cut them in half to install the ditch lights. We suggest installing the ditch lights first, then cutting the steps to fit.

## **Horn**

We're pretty confident we got the horn location right, because there was only about 10 of CP's original FP7s that didn't have the horn mounted in the middle of the roof. But if you want to be creative or change the type, we've included a few extra bits. For the ONR modellers who want to make the 5-chime horn, we've included a 2-chime detail part that can be glued on to the top of the existing 3-chime horn. ONR liked to switch bells around too, so we went with the most common arrangement.

## **Bell**

CP was not one to use the roof mounted bell on their original units, but roads like CN and eventually ONR adopted this trend. VIA also retrofitted their later rebuilds – the 6300's – with roof top bells if they lacked them. This part is included in the polybag if it's not already installed on your model.

## **Radio Antenna**

Two types of radio antennas were used on Canadian units – the more common Sinclair antenna (the long flat one) and the whip antenna (the round one). CP, CN and VIA used the Sinclair while ONR has used both over the years, meaning once again, we can't be certain which to install. We even have photos with both installed! If one is not already installed, follow prototype photos to determine which type is appropriate.

## **Ditch Lights**

Eventually, almost every FP7/FP9A got ditch lights as long as it was still in service well into the 80s. CP began equipping their passenger units fairly early, with some units still in the 5" stripe Action Red scheme getting them in the mid-late 70s. ONR also had ditch lights - albeit a slightly different design - which began to appear a few years after the yellow Chevron paint scheme came about. VIA Rail had ditch lights on their ex CP FP7s and FP9As too, but they had them from the beginning, so your model already comes with them. If it doesn't, let us know so we can help correct that and lambaste the project manager!

**Note: You'll want to remove the shell from the chassis for this in order to prevent damage to the LEDs should you punch through the shell when drilling.**

In the past we made a drilling template, but found that it didn't work that well. So we're going with an off the wall approach. The spacing of the ditch lights (centre to centre) is 17.4mm apart. The spacing of standard HO scale rail (from centre of the railhead to centre of the railhead) is, you guessed it, 17.4mm. So, using a piece of track as a guide, line up the rail ends to the front of your unit and mark the spacing. Then measure 1.45mm from the top of the nose anticlimber to find your drilling point. Using a small diameter drill bit (such as a #78) in a pin vise held by your third hand (because your first and second hands are likely busy holding the shell), drill a pilot hole for each of the two holes for the ditch lights. Once finished, enlarge the holes using a #53 size drill bit. Ish. We're entirely basing the drill bit size on a universal measurement chart we found online, which says anything from a #50 to #53 will work. We suggest starting with a #53 and then enlarging if necessary. Be sure to drill in line with the rails, rather than 90 degrees to the shell nose. That is unless you want googly-eyed ditch lights!

Using your fifth and sixth hands, place the clear ditch light casting in the housing, dip the end in white glue, wipe off the excess and shove it into the hole. That's it – you now have working ditch lights. Hopefully.

If you only have two hands, then you may wish to amend the above instructions slightly to compensate for your deficiency.

To operate the ditch lights in DCC, use function 6.

## **Nose MU hoses**

MU hoses were another one of those "some roads did, some didn't" with regards to installing them on the nose. Over time, roads opted to add this equipment to their units (but not all at the same time it seems). We've installed the MU hoses where appropriate but in cases where we found photos showing them both installed and not in the same paint scheme, we've erred on the side of caution and included them in the polybag. You'll also find two dimples on the back of the pilot where the holes need to be drilled.

## **Polar Bear Express Sign**

Ontario Northland created large steel signs for their green & yellow FP7s for use on the *Polar Bear Express* between Cochrane and Moosonee. They are mounted on each side of the cab along the frame, centered between the cab ladder and the end of the anticlimber on the nose. The bear graphics both faced towards the front of the train.

## REMOVING THE SHELL

If you need to open up your FP7/FP9A 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 sides and wiggle the shell off, raising the rear end first. Carefully. Remember the transporter lock.

## OPERATION – DC (SILENT)

If your FP7/FP9A locomotive is not equipped with a sound decoder, it should function like most other HO scale locomotives. The gear ratio is 14:1 so it may MU (multiple unit) with your existing fleet. Put it on the track. Give it some juice. Watch it go.

In DC, most of the lighting features don't work. If you want to have neat things like class lights, rear headlights, and roof-mounted search lights, you might want to consider upgrading to DCC. We know, we know, you are tired of people telling you to upgrade to DCC, to buy an FM radio, or to check out this new thing called a touch-tone phone.

But if you want to make all of those cool locomotive features work, you will need a DCC system. (And by the way, movies come with sound now.)

Now that you DC users are really riled up, we'd like to inform you that effigies of Rapido employees are available to purchase. These can be burned on bonfires, at the stake, or even just propped up on your driveway. They are only \$299.95 each, which is about the same price as an entry-level DCC system. If you buy five, we'll throw in Dan Garcia for free. The real one, not an effigy. If you buy six, we'll also throw in the DCC system!

## INSTALLING A SILENT DCC DECODER

The FP7/FP9A contains an ESU-designed motherboard which is connected to the track,

motor and lighting outputs. It is located in the roof. A blind plug is attached to the motherboard using a 21-pin connector. To install a decoder, you will need to open your FP7/FP9A, remove the blind plug and install a 21-pin decoder. You must use a 21-pin decoder rather than an 8-pin or 9-pin decoder. This is clearly written in Rapido's laws and statutes, section 43, subsection 122, paragraph 2175b.

Your chosen decoder should have six function outputs. We recommend the following 21-pin decoder:

- ESU #54615 - LokPilot V4.0 DCC with 21MTC

The necessary resistors are included on our motherboard so you don't have to futz around with resistors. Just plug in the recommended decoder and you have DCC.

ESU has made an FP7/FP9A function mapping which can be downloaded into their non-sound decoder (54615) so that the function buttons and motor control are exactly the same as our factory-released sound versions. This is available for download on the FP7/FP9A page in the Support section of our web site. You will need an ESU LokProgrammer to write the function mapping to the 54615 decoder. If you don't have a LokProgrammer, you can adjust CVs in the usual way.

You know, if you want silent DCC it's a heck of a lot easier to just order the sound model and turn off the sounds. After you've bought the silent decoder and spent four hours fiddling to install it, fix the bits you broke off, and get all the functions to work correctly, you'll realize it would have been cheaper and less frustrating to buy the sound-equipped model and just turn off the sounds. Your time and sanity are worth something, after all!

## **OPERATION – DC (SOUND)**

Operation of a sound-equipped FP7/FP9A on a DC layout is very similar to running a silent DC model, except that the model will not move until it has reached sufficient voltage for the sounds to fire up (around 7 volts). You cannot control user-activated sound features like the horn and bell if you are using DC. There are third party controllers that supposedly activate these sounds on DC but we've honestly never tested them so we have no idea how well they work. If they cause your FP7/FP9A to spontaneously combust, contact us for assistance, then contact the third party controller manufacturer and tell them they wrecked your brand new Rapido FP7/FP9A. Crying is optional but suggested to get best results.

If you want to run your sound-equipped FP7/FP9A on a DC layout, the Back-EMF circuit can cause issues when you're trying to bring your FP7/FP9A to a stop. To turn off Back EMF, you will need to bring your FP7/FP9A to a model railroad equipped with DCC and set CV49 to 18. If you want to turn it back on, change CV49 to 19. If you have a large DC layout and you like to operate sound-equipped locomotives, it might be worthwhile to invest in an entry-level DCC system just so you can adjust the motor settings of your sound-equipped fleet.

## — WARNING —

Rapido products are designed to operate safely between 0V and 16V. Voltages in excess of 16V - as well as irregular waveforms, voltage spikes or short circuits - may cause severe and sometimes irreversible damage to the product. "Train set" power packs are known to suffer from any one of these unexpected irregularities, whereas higher-end systems have safeguards in place to prevent this. Rapido always recommends using a power supply system that matches the quality of the models you are running. If you're reading this, you've obviously invested in top-of-the-line, museum-quality motive power and equipment, so we hope you've made the same investment with your model railroad power supply too.

While many power supply systems exist, some are known to have caused problems with model train circuitry in the past. If you have any one of the following systems, **PLEASE DO NOT USE IT** until you contact us for more information: MRC RailPower 1300/1370-series, Bachman Spectrum Magnum, Atlas 313 Universal Power Pack.

## OPERATION – DCC (SOUND)

We recorded a real Canadian FP9A locomotive with its original 567C prime mover back in 2009. If you haven't seen the video, check out "The Really Cheap FP9A Movie" on our YouTube channel: [youtube.com/rapidotrains](https://youtube.com/rapidotrains). The sound-equipped model sounds wonderful because it was recorded under load – this is very different than the sound of an FP7 or FP9A "revving up" while idling in the yard. And you need not worry that we "cheaped out" on the sounds by sharing them between the FP7 and FP9A. They both used the same prime mover. The only difference is the FP9A was able to put out a few extra horsepower.

## LOCOMOTIVE ADDRESS

Your Rapido FP7/FP9A 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 (normally the road number of the unit) 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 assigned to address 3 (the normal default address for new locomotives) that ALL of them will also be changed to your new address! This is great if you want to simulate a bunch of kids getting into the engine shop, notching the controllers and then running into the woods.

Note that some DCC systems get a little wonky when programming sound-equipped locomotives on the programming track because of the high current draw. If weird stuff happens, try programming on the main.

## TURN ON THE SOUND

Press F8 and you will hear the FP7/FP9A startup sequence followed by the sound of it idling. You can adjust CVs to prevent the locomotive from moving until the startup sequence has played out. Most of us at Rapido are really impatient so we turned this feature off. Refer to a full ESU LokSound Select decoder manual for more information. You can download it from the FP7/FP9A page in the Support section of our web site. The feature is called the “Prime Mover Startup Delay” and at the time of writing it was on page 35 of the ESU manual.

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 FP7/FP9A idling nicely and then you select another engine, your locomotive still thinks F8 is pressed so it will keep idling along. However, if someone else selects your locomotive’s number and F8 isn’t pressed on their controller, the FP7/FP9A will promptly shut down. They will need to press F8 again.

## FUNCTIONS

F0	Headlights	F10	Class Lights – Green
F1	Bell	F11	Brake
F2	Horn	F12	Doppler Horn – Slow
F3	Full Throttle	F13	Rail Squeal
F4	Dynamic Brake	F14	Steam Generator
F5	Roof-mounted Spotlight*	F15	Switching Mode
F6	Ditch Lights*	F16	Doppler Horn – Fast
F7	Dim the Headlights	F17	Turn Off Number Boards
F8	Startup/Mute/Shutdown	F18	Rear Red Light*
F9	Class Lights – White	F20	Brake Set/Release

*\* If equipped*

## FUNCTIONS: MORE INFORMATION

### F0 Headlight

Like the real thing, our FP7/FP9A headlight is not directional. It stays on until you turn it off. The rear light is not a “backup light” as it is commonly referred to. It is a rear headlight. On the real locomotive, this would only be turned on during switching or light engine moves, and in that case it would be on with the headlight. Refer to F15 Switching Mode to learn more about this and to turn on that rear headlight. We’ve learned a thing or two about prototypical operation since The Canadian was produced, and we try to match our models to prototypical practices wherever possible.

## **F1 Bell**

As was the case with many early air-operated bells across multiple roads, we've come to the conclusion that the bell ring rate is firmly set to "as long as it makes noise." Every engine seemingly had a different bell ring rate. If you wish to change the default bell recording, we've provided a few extras. Check the "Horns and Bells" section for details.

## **F2 Horns**

We loved our last horn recording so much, we decided to use it again! To get a short "toot" just tap F2 or your "HORN" button. If you hear a long tail-off you are tapping for too long. If, no matter what you do, you just can't get the darn thing to make a short "toot," switch to NCE. The default horn is an M3H, but we've included many others. Refer to "Horns and Bells" below.

## **F3 Full Throttle**

ESU's "Full Throttle" feature allows you to play the prime mover of your FP7/FP9A like a musical instrument. When you press F3, you turn on "drive hold." This keeps the speed of the engine constant at whatever speed step your throttle happens to be on. Then as you increase the throttle, you hear the prime mover revving up. This sounds awesome, whether you're taking off from a commuter station stop at warp speed, or trying to get up that long, slow freight over the grade. The prototype is normally very overpowered for the short trains it is hauling. The high power is used for high speed rather than high tonnage.

"Full Throttle" is even neater when you throttle down, as it allows you to simulate "coasting" which is such an important part of running a real train. When you press F3 again you turn off "Full Throttle" and the engine will accelerate or decelerate to whatever speed step your throttle happens to be on. For realism it's a good idea to take note of what speed step your throttle was on when you turned on "Full Throttle" and be back at that speed step when you turn "Full Throttle" off. Otherwise your FP7/FP9A may fly like a bird.

## **F4 Dynamic Brake**

Press F4 to get dynamic brake sounds. Who does that? Well apparently a lot of people because we got flak for putting it in the upper echelons of functions on the old FP9A. So for that, we apologize and have brought it to the forefront of functions.

## **F5 Roof-Mounted Spotlight (if equipped)**

Canadian Pacific had roof-mounted search lights installed when the FP7/FP9A locomotives were delivered for passenger service. We've heard various plausible reasons why: safety, to illuminate the treacherous right of way in the mountains, visibility, etc. A retired CP locomotive engineer told us the real reason: they were a publicity gimmick. So we've included the gimmick, which is unlike anything we would ever do.

## **F6 Ditch Lights (if equipped)**

F6 turns on the ditch lights. Like the prototype, the ditch lights are not directional.

Remember to turn off the ditch lights when approaching a station or an oncoming train as they are BLINDING. The ditch lights do not flash as that is not a Canadian requirement.

### **F7 Dim the Headlights**

When approaching a station stop or an oncoming train, then press F7 to dim your lights and turn off your ditch lights – you don't want to blind your passengers or the oncoming train's engineers. Not dimming your lights is a direct violation of what's commonly referred to as "Rule 17". The internet can answer all your questions about said rule.

### **F9 White Class Lights**

CP and ONR regularly operated their FP7 locomotives on its freight trains, either scheduled or non-scheduled. You will want to turn on the white class lights when pulling any non-scheduled train – freight or otherwise. On regular, scheduled passenger or freight runs, the class lights are off. Unless ...

### **F10 Green Class Lights**

The green class lights were used only when multiple sections of a train followed the same schedule. That was rare, especially more than one extra section, but could happen for either freight trains or during busy tourist seasons or holidays for passenger trains. The use of green class lights indicates that there is an additional train following that is on the same schedule. So if you have two sections of a train, only the lead one will have green class lights lit. If you have three sections, then only the first two would have class lights lit. If you model a second section of a passenger train during one of your op sessions, we will be very impressed.

### **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 Doppler Horn – Slow**

While our original FP9A locomotive had an 80 mph doppler, we realize that not everyone is going to be running their trains at that speed, especially if it's a freight. So we've changed the doppler to a recording of an authentic M3H horn doing about 40 mph. When you change your default horn, the doppler will change accordingly as well.

### **F13 Curve Squeal**

Let's face it, when we introduced Curve Squeal on our SW1200RS, we created a monster. It sounds wonderful and can be easily applied to any train. So, since it was never possible for anything to SILENTLY go around tight curves and switches without waking up half the neighborhood, we've included the curve squeal. Press F13 for curve squeal. Press F13 again to turn off curve squeal. If your neighbour complains about that nasty racquet, just keep F13 on and say you can't hear them and maybe they'll go away.

## **F14 Steam Generator**

Press F14 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. We've moved this out to the back woods of functions because there's a solid chance you might be running a freight train and as such, don't need steam heat.

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 307. Please refer to Sound Volume Settings (below) before attempting this.

## **F15 Switching Mode**

If you press F15, the headlight and rear light will both be on dim. This is appropriate for switching operations, which would be common in yards and terminals. This is the only way to turn on the rear light on your FP7/FP9A as during normal operations it was the only time that it would have been used. Press F15 again to turn off the switching mode lighting.

If you have a DCC system that only allows eight functions, you can remap the functions following the guidelines in the ESU LokSound Select manual, which can be downloaded from the support section of our web site. Or you can upgrade to a newer DCC system, which may be less stressful.

## **F16 Doppler Horn – Fast**

Ok we lied. We really like fast dopplers, so we kept the 80 mph doppler just in case you have some high speed running. Just like the slow doppler, this recording changes automatically when your default horn is changed.

## **F17 Turn Off Number Boards**

The number boards are on all the time as a default. We hate having to turn number boards back on after a power failure. If you want to turn off the number boards, just press F17.

## **F18 Rear Red Light (if equipped)**

The Ontario Northland FP7s were equipped with a dual-lens rear light cluster – one white and one red. We searched high and low, and we talked to experts. No one has any record of seeing the red light illuminated for any purpose, so we don't know whether it was an indicator for loss of air (emergency brake) or a tail marker light. But since we like pretty lights, you can use F18 to toggle the light on and off.

## **F20 Brake Release On/Off**

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.

## HORNS & BELLS

Canadian National, Canadian Pacific and Ontario Northland all used different horns (and seemingly at different times too), and we've included some of the best recordings out there of the real thing. The same goes with bells too, as they all seemed to have a unique tone or ring rate.

The default horn on your model is a Nathan M3H. Because your locomotive is now equipped with the new Loksound V5 decoder, if you wish to change the default horn, you can do so by changing CV 163. For changing the default bell, change the value of CV 164.

### Horns

- CV 163-0 Nathan M3H (Default)
- CV 163-1 Nathan K3L #1
- CV 163-2 Nathan K3L #2
- CV 163-3 Nathan P5
- CV 163-4 Nathan M5

### Bells

- CV 164-0 - Bell #1 (Default)
- CV 164-1 - Bell #2
- CV 164-2 - Bell #3

Note that you can only change the horn or the bell on a programming track or using a LokProgrammer. And changing the default horn automatically changes the doppler recordings on F12 and F16 too. How's that for a beauty way to go?

## SOUND VOLUME SETTINGS

The sound volumes on your decoder have been pre-set at the factory to levels that we found comfortable on our test tracks.

Sound levels are very much a matter of personal taste (especially if you are going deaf like we are), and what sounds great in one layout environment may sound too loud or too soft in another. Fortunately, the sound levels can be easily adjusted to best suit your own requirements and we recommend that you experiment with different settings if you don't care for the default levels.

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 wish to keep.

## – VERY IMPORTANT –

Before you manually change any of the volume control CVs, you must set CV 31 to 16 and then CV 32 to 1. CV 31 and CV 32 are used as index selection registers and if you don't set them first, unspeakable things may happen to your unit. You must set the CVs every time before changing any volume CV setting. Or just use a LokProgrammer.

### FP7/FP9A SOUND VOLUME SETTINGS

FUNCTION	CV	DEFAULT	RANGE	YOUR VALUE
MASTER VOLUME	63	75	0-192	
DIESEL VOLUME	259	100	0-128	
HORN VOLUME	275	128	0-128	
BELL VOLUME	283	99	0-128	
DYNAMIC BRAKE VOLUME	299	60	0-128	
STEAM VOLUME	307	30	0-128	
CURVE SQUEAL VOLUME	379	128	0-128	
FAST DOPPLER HORN VOLUME	411	128	0-128	
SLOW DOPPLER HORN VOLUME	419	128	0-128	
BRAKE VOLUME	459	128	0-128	

## FACTORY RESET

On your FP7/FP9A, you can 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. What do you mean, you didn't take any notes? WE JUST TOLD YOU TAKE NOTES. You're out of the band. Again!

You can NOT lose all of the pre-recorded sounds on your FP7/FP9A decoder by doing a factory reset. However, after performing a factory reset your FP7/FP9A may begin to sing *Engine of Love* and recite lines from the musical *Starlight Express*. If that happens, you have probably lost your mind. But don't worry. Just sit back, grab some popcorn and enjoy the show. Pay no attention to the person breaking into your layout room attempting to steal your Rapido FP7 or FP9A because they misread the instructions on Page 4.

## AWESOME SLOW SPEED THINGY

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. WE HIGHLY RECOMMEND YOU DO THIS FOR ALL YOUR ESU-EQUIPPED RAPIDO ENGINES.

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. You may have to set up pylons or a work block to keep other errant model railroaders from entering your territory. 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 FP7/FP9A will quickly take off at full speed and suddenly stop. If you had previously installed an HO scale crew without HO scale seatbelts, you may want to dispatch an HO scale ambulance to attend to the injured. After that, you’ll have fabulous motor control. If you ever have to reset your locomotive, you can do the automatic adjustment thingy again – it just takes a few seconds. Just remember to install the seat belts if you haven’t.

## **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 decoder manual. This is available 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 FP7/FP9A 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 are like most of us and – after purchasing this locomotive – you dismissed it to the collection shelf under the darkest corner of your layout and are now just discovering it 30 years later after your friend at the club ran theirs, then you are on your own if there are any issues. Jason is long retired and probably touring the country on our sleeping car, Edmundston. The rest of us have also retired but probably don’t have the luxury of our own private rail car.

There are a number of things that this warranty cannot cover. If your FP7/FP9A arrives with a couple of loose grab irons or underbody bits, there is a very good chance that you can effect a repair in less time and effort than it would take to contact us. Don’t be afraid to do some model railroading! White glue, such as Weldbond, works wonders

for securing all sorts of parts and will not mar or damage your paint. However, if parts are missing that is another story – call us or send us an email and we'll send you some replacements.

Of course, damage caused by running your locomotive at full speed around a 15"-radius curve along the edge of your layout, modifying your locomotive to work off diesel fuel, not modifying your locomotive to work off rocket fuel but still filling it with diesel fuel, using your locomotive to re-enact the explosive derailment scene from your favourite railway movie, or any other damage caused by you that we haven't been able to cover 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

The FP7/FP9A project is another evolution of our original FP9A that we produced as part of The Canadian set all those years ago, as well as the retooled FP9A that we produced more recently. And since it's been a while since we acknowledged those original contributors, we'd like to acknowledge them here all over again, plus a few others.

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And we have Richard Longpre to thank once again for the excellent translation of this manual for our French customers. Without him, we'd have our customers relying on an online translation service to understand this manual. And let us be the first to advise you that doing so doesn't work very well, especially with locomotive classifications. At least Richard knows a thing or two about railways!

**DETAIL PARTS  
PIÈCES SUPPLÉMENTAIRES**

