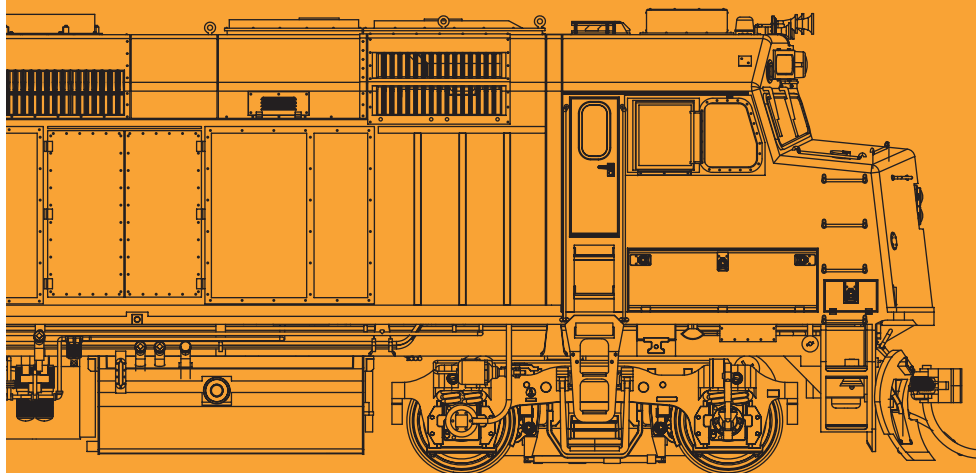


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F40PH DIESEL-ELECTRIC LOCOMOTIVE

with HEAD-END GENERATOR



OPERATING INSTRUCTIONS

**RAPIDO TRAINS INC.
MARKHAM, ONTARIO, CANADA**

FRANÇAIS AU VERSO



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LATER PHASE F40PH PRODUCT GUIDELINES

Thank you for purchasing this Later Phase F40PH locomotive. Our F40PH is based on the later phase F40PHs, which means it is an accurate representation of the Phase 2a, 2b and 3 style F40PHs. The most striking change on the Phase 2 variants is the “reversed” battery boxes and larger 1800-gallon fuel tanks. Phase 3 also saw the addition of “Q-fans” and many of the commuter road versions were delivered without dynamic brakes.

Please read the manual carefully as this model probably works differently from EVERYTHING ELSE YOU OWN. Unless you own one of our first production F40PH locomotives or our Amtrak NPCU. In that case, it works very similarly.

We’ve put a ton of love and care into the design and production of this Later Phase F40PH, much like our many other F40PHs that we have made! (Remember, we have over 5+ years of F40PHs produced!)

And while this really is a Phase 2a, 2b or 3 F40PH, saying “Later Phase or 2a, 2b or 3” all the time really is tiring. So we’re dropping the those terms from this point on in the manual. Or at least we’ll try. We may also save a few extra sheets of paper doing so.

There is always the possibility that you’ve found something wrong with your locomotive. Maybe a loose grab iron; maybe there’s a fingerprint on the model; or perhaps it goes forwards when it should be going backwards. Whatever it is, please don’t hesitate to get in touch! More warranty information is available towards the back of this manual.

Please do not send any models back to us for repair without first speaking to us to get authorization. If it’s the year 2104 and you’ve opened this box for the first time because you finally got around to building that first layout you said you’d build in 2021, chances are we’re either pushing up the daisies or we’re in a pickle jar somewhere. You can try calling us, but we can’t promise telephones will still work in the same manner, if at all. We’re not even sure model railroading will be a thing in 2104, but we’re hopeful.



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DCC QUICK START FOR PEOPLE WHO DON'T LIKE READING MANUALS

OK – We know that more than half of our customers will not read this manual and then call us complaining when their F40PH doesn't work properly. It does, but they didn't read the manual.

But if you have got this far and you are really impatient to get your locomotive on the track, please take note of the following.

We have tried our best to recreate the actual way an F40PH locomotive operates with this model. This means:

1. To operate your F40PH locomotive with a modern passenger train (such as Comet, Horizon or any of those other Amtrak-style cars – i.e. not old steam-heated junk) on a DCC layout, you need to press F4 and then F5 before you start accelerating.

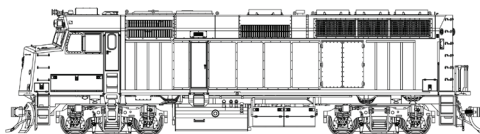
If you press F4 but don't press F5, YOUR LOCOMOTIVE WILL NOT MOVE.

That's right – the locomotive will NOT move when just F4 is pressed. Press F5 if you want it to move. Those of you who read the rest of the manual will find out why. If you have a really short attention span and you simply can't read manuals then you can wonder about this odd feature for the rest of your life and make uninformed comments on our YouTube channel or Facebook page.

2. If you don't press F4 or F5, your F40PH locomotive will operate like a freight engine and will not provide power to your passenger cars, just like the real thing.
3. The rear (backup) light will only go on when you are switching cars. It won't go on when you are backing up, just like the real thing.
4. If you are running DC, just go play trains. Whatever sounds come out are what you get. And the rear (backup) light will never go on, just like the re... ok not like the real thing. Not that we're trying to convince you to upgrade to DCC or anything...

You can read more about these weird features, along with our reasons for introducing them, in the **Prototypical Operation – DCC** section below.

If you are using DCC and you really don't like operating your F40PH prototypically, you can turn off all of these features. Please turn to page 11 for step-by-step instructions on how to do this.





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LOK SOUND
EST. 1999

Sound-equipped Rapido models feature ESU Loksound V5 decoders. For more information, please visit www.esu.eu.

LATER PHASE F40PH DCC FUNCTION QUICK REFERENCE

- | | |
|-----------------------------|----------------------------------|
| F0 Front Headlight | F12 Hostler (Switching) Lighting |
| F1 Bell | F14 Dynamic Brake |
| F2 Horn (And Bell) | F15 Brake |
| F3 Doppler Horn | F16 Turn off Numberboards |
| F4 Go Into/Out of "Standby" | F20 Sarco Valve (Spitter) – Slow |
| F5 Go Into/Out of "Run" | F21 Sarco Valve (Spitter) – Fast |
| F6 Ditch Lights | F22 Sarco Valve on Shutdown |
| F7 Dim the Headlights | F23 Brake Release On/Off |
| F8 Startup/Mute/Shutdown | |
| F9 Front Marker Lights | |
| F10 Strobe Lights | |
| F11 Doors Opening/Closing | |



BREAK-IN

No, we don't mean you should break into your model railroad club president's layout room so you can take his or her Rapido F40PH locomotives. That would be a crime. It would also be a crime to spend money on anything that isn't model trains, specifically R-A-P-I-D-O. ...OK, shameless plug.

Every locomotive needs a break-in period. Your F40PH has been tested at the factory... for about 26.3 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 F40PH on a test loop and just let it run in each direction for an hour or two. Fast and slow. If your layout has not been built yet, or you don't have any track to run it on, you can probably skip this step for the time being.

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

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 (It's not spelled gage or guage, by the way. We find that really annoying). 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. 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 on the ends of the locomotive and both coupler trip pins. Bend up any low coupler trip pins so they don't interfere with your switches and crossings. We recommend using Kadee part #237 (Trip Pin Pliers) or Micro-Mark part #80600 (Trip Pin Bending Plier).
- 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 the steps. If they do, see that everything is firmly installed.

MISSING OR DAMAGED PARTS

If you open your F40PH box and discover that something has obviously been bumped in transit and is damaged, please contact us. We know that some of you don't like to touch your models, but if it is a matter of gluing a grab iron back on you can do it yourself in



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less than a minute with a drop of white glue. If you really want to send your model back to us for us to install that grab iron, we would be happy to. 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 you're on your own, buddy. We're not playing warranty whack-a-mole.

If there are big gaping holes where grab irons obviously fell out and no such grab irons are in the box, then please give us a shout as that should not be the case! 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 F40PH (to install a crew, install a decoder, etc.) 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 state-of-the-art transporters will automatically lock on to the little part and beam it directly into the furnace of a steel mill. 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 spilled their tea all over the computer that controls the transporter. We think it was Jordan in our office and his 10th daily cup of tea.
- 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 wiggle the shell off. Carefully. Remember the transporter lock.
- That's it, really.

OPERATION – DC (SILENT)

Put the F40PH on the track. Make it go. That's it.

In DC operation, the only lights that work are the headlights and ditch lights (if applicable) (when going forward) and the front red marker lights (when going in reverse). The light on the rear of the locomotive is only used when switching and cannot be turned on using a DC controller.

If you are new to the hobby (or just like to occasionally "play trains") and you have a DC-powered train set, please contact us before operating your F40PH as it may not be safe (for your engine and/or your wallet) for you to use your controller.

Some train set throttles put out a very high maximum voltage that is not suitable for scale



model trains. The maximum recommended voltage is 16 volts DC. Similarly, controllers designed for large scale trains put out a much higher voltage than your F40PH can handle.

If you use a train set throttle or a throttle designed for large scale trains, your locomotive's circuitry may end up looking like an overcooked steak. In such situations, we'll try our best to fix it for you. But we may have to charge you for the replacement parts and/or the labor involved. That's because you didn't read this bit of the manual.

INSTALLING A DCC DECODER

The F40PH contains an ESU-designed motherboard which is connected to the track, motor and lighting outputs. A blind plug is attached to the motherboard using a 21-pin connector. To install a decoder, remove the blind plug and install a 21-pin decoder. Your chosen decoder should have six function outputs.

At the time of writing, we recommend the following 21-pin decoder:

- ESU #59029 - LokPilot 5 Basic with 21MTC
- ESU #59529 - LokPilot 5 DCC with 21MTC

We feel the 21-pin connectors are superior because there are enough pins to ensure that all your lighting functions are connected. The necessary resistors are included on our ESU-designed 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 F40PH function mapping which can be downloaded into their non-sound decoder (59029 or 59529) 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 F40PH page in the Support section of our web site. You will need an ESU LokProgrammer to write the function mapping to the 59029 or 59529 decoder. If you don't have a LokProgrammer, you can adjust CVs in the usual way.

If you have F40PH locomotives from other manufacturers, sell them and buy more of our F40s. If you are not in a position to do that, sell your other models and buy more of our F40s. If you want to install a decoder other than the one we suggest, it's more than just plugging in the decoder and then playing trains. You will have to custom map all the functions. It's just how it is. We won't apologize for that. Sorry.

OPERATION – DC (SOUND)

To operate your sound-equipped F40PH locomotive on a DC layout, just give the throttle some juice. The engine will start up once sufficient voltage has been reached (around seven volts). See the note above (in **Operation – DC (Silent)**) about using train-set or large-scale throttles. With DC layouts, you have very little control over the sounds of your model.

The only lights that work in DC are the headlights, ditch lights and strobe lights (when going forward) and the front red marker lights (when going in reverse). You can't adjust



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the strobe flash pattern in DC, nor can you turn the strobes off. Still happy that you haven't switched to DCC? The light on the rear of the locomotive is only used when switching and cannot be turned on using a DC controller. Sorry. Your buddy with the DCC layout can turn on that light. The number boards and step lights are always lit.

Some throttle manufacturers produce special doo-dads which are meant to trigger the sounds in locomotives on DC layouts. As we have no involvement in the development of those doo-dads, we have absolutely no idea how they will affect your F40PH, for good or for ill. As always, we'll try to help you fix your F40PH if one of these doo-dads converts your locomotive's circuitry into something that looks like burnt scrambled eggs, but we can't guarantee we'll be able to.

If you like running sound-equipped locomotives and advanced lighting features, you might want to think about upgrading to DCC. If you are one of those people who thinks that modern inventions like the the horseless carriage are new-fangled rubbish and just passing fads, by all means stick with DC.

If you want a taste of what you are missing, please read on...

— NOTICE —

If you want to run your sound-equipped F40PH on a DC layout, the Back-EMF circuit can cause issues when you're trying to bring your F40PH to a stop. To turn off Back-EMF, you will need to bring your F40PH 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 off the layout.

PROTOTYPICAL OPERATION – DCC (SOUND)

We're continuing our bold, new step in North American model locomotive operation that we pioneered with our Bombardier LRC, VIA F40PH-2D and as-built Amtrak F40PH locomotive models. This may upset some people, but we feel the enormous amount of added realism is worth the extra couple of buttons you need to press on your DCC controller. Hopefully you will quickly get used to this prototypical operating method and it becomes second nature.

If you don't want to have anything to do with prototypical operation and you just want to turn these !@\$#%& features off, move on to the **HEP Mode: How To Turn Off This Annoying Feature** on page 11 and follow the instructions.

Here's a quick overview that explains how the real F40PH locomotive works, and then we'll explain how it affects the model's operation.

HEAD END POWER IS THE KEY

The F40PH is a 3000 HP locomotive designed for hauling passenger equipment. Because



the locomotive generates Head End Power (HEP) for its trailing passenger cars, it does not operate like a conventional diesel locomotive. (By the way, HEP is pronounced “aitch ee pee” in the United States but it is pronounced the far cooler “hep” as in “hep cat” in Canada. You are encouraged to adopt the Canadian pronunciation for coolness’ sake). The 480-volt HEP allows for the heating, lighting and air conditioning of the train; it is generated by an alternator connected to the prime mover (diesel engine) via a 2:1 ratio gearbox.

In order for the HEP alternator to turn at the needed speed of 1786 RPM, the prime mover must always be running at its maximum speed of 893 RPM. So rather than hear an F40PH labor through the notches from idle to eight, it always sounds like it is screaming at notch eight.

The throttle does not control the prime mover’s speed; instead, it controls the flow of current in the Traction Alternator, which in turn controls the amount of power delivered to the Traction Motors. From our perspective as model railroaders, the locomotive sounds pretty much the same no matter what speed it’s going or how heavy a load it is pulling.

HEP MODE: IDLE, STANDBY AND RUN

Inside the cab of a real F40PH is the Head End Power Mode Switch. The three positions are Idle, Standby and Run. This switch is key to how the locomotive sounds and operates.

IDLE: When the HEP Power Mode Switch is set to Idle, the F40PH operates like a freight engine – as you increase the throttle, the prime mover speed increases from its idling speed of 460 RPM up to its maximum of 893 RPM. The locomotive power is directly tied to the prime mover speed.

By default, your model is set to Idle. If you put it on the track and advance your throttle, the HEP alternator is not engaged and the locomotive will operate and sound like a freight engine. If you are running your locomotive in freight service, you will want to keep the Head End Power Mode Switch at Idle. Similarly, if you are running two F40s in multiple, the lead F40 should be in idle. The trailing F40 is the only one providing HEP.

STANDBY: Standby is meant to be used when the train is idling for a long time at a station, such as between runs. The HEP is provided by the Traction Alternator rather than the HEP Alternator. Since the Traction Alternator is being used for HEP and not for the Traction Motors, the locomotive cannot move. The prime mover rotates at 720 RPM, which roughly sounds like Notch Six.

RUN: Once the F40PH is in Run, the prime mover is rotating at 893 RPM and the second engineer can turn on the HEP to the passenger cars. From a railfan’s perspective, there is no noticeable difference in the sound of the locomotive between Run without the HEP turned on and Run with the HEP turned on. So we don’t have an extra button for that. In general practice, the locomotive is kept in Run for its entire trip – i.e. from terminus to terminus – even if it is making several station stops along the way.

Note that the locomotive must be stationary when changing between Head End Power modes. This is not like switching to third-rail on an Amtrak P32AC-DM or a New Haven FL9. You can’t switch on the fly or you’ll blow up the engine.



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MODEL OPERATION

We've tried our best to simulate the Head End Power Mode Switch with the F4 and F5 function buttons on your DCC controller. Once the F40PH model is on the track, press F8 to turn on the sounds and put your locomotive into Idle.

Press F4 to put it into Standby. The prime mover will rev up to 720 RPM. If you don't press F4, the locomotive operates like a freight engine.

IN STANDBY, YOUR LOCOMOTIVE WILL NOT MOVE, EVEN IF YOU ADVANCE THE THROTTLE.

With your F40PH in Standby mode, you can put it into Run by pressing F5.

If you don't need to go to Standby, then just hit F4 and F5 in rapid succession. The prime mover will rev right up to 893 RPM and your locomotive will be in Run. It will move when you advance the throttle. This simulates turning the Head End Power Mode Switch directly to Run.

IMPORTANT: IF YOU DON'T FIRST PRESS F4, PRESSING F5 WILL HAVE NO EFFECT.

To go back down to Standby, press F5 again – you are essentially “turning off” the Run mode on the decoder. Then press F4 again to “turn off” the Standby mode and go back down to Idle. If you are in Run and you don't need to go into Standby, press F5 and F4 quickly, in that order. The locomotive will skip Standby and go straight down to Idle.

HEP MODE: CONSISTING

Every DCC system treats consisting a little bit differently. On some systems, you will need to put your locomotives into Run before you consist them. On most systems, you can decide which functions are controlled by consist address so you can switch all of your units into Run simultaneously.

As mentioned earlier, when two or more F40PH locomotives are operating in a consist, only the rear locomotive is providing HEP so only the rear locomotive should be operated in Run. This applies whether the locomotives are running elephant style or back to back. The remaining locomotives are operated in Idle.

HEP MODE: HOW TO TURN OFF THIS ANNOYING FEATURE

If you don't want to futz around with F4 and F5 and you just want to put the F40PH on the track and make it go, but you still want to hear the sound of the HEP, we have a solution for you.

On your programming track (or using a LokProgrammer), input the following (in order):

CV31=16, CV32=2, CV400=0, CV445=128, CV447=16



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This puts your F40PH into Run as soon as you press F8 to start it up, and it will stay in Run until you press F8 again to shut down the locomotive. You won't hear the startup or shut down sequences.

But if you do that and you want to run your locomotive in a non-HEP environment, such as in freight service or pulling steam-heated passenger cars, you can't. Your F40PH will always be screaming at notch 8.

LOCOMOTIVE ADDRESS

Your Rapido F40PH 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! Also be aware that if you give your locomotive a four-digit address it will not work at all if you try to run it on a friend's DC layout.

Also please keep in mind that some DCC systems do not have sufficient power to program sound-equipped locomotives on the mainline. If your sounds do not operate correctly on a Digitrax DCC system, this likely means that you need to clear the memory on your system, achieved by "clearing slot #36." A basic summary of how to do this can be found on the F40 page in the Support section of our web site. More detailed information can be found on the Digitrax web site.

If you have a really old DCC system, you may find that this locomotive won't work at all – nor will many other new models. Go update DCC your system to a newer version. Your television is updated regularly. Your DCC system should be updated as well.

TURN ON THE SOUND

Press F8 and you will hear the F40PH 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. We are really impatient so we turned this feature off. One of these days we'll sneak into the office in the middle of the night and change this setting without telling him. Refer to a full ESU LokSound Select decoder manual for more information. You can download it from the F40 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.

If you want the F40PH to be making noise as soon as it is put on the track, you need



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to change some CVs. On a programming track (or using a LokProgrammer), input the following in order:

CV31=16, CV32=2, CV435=32

Note that if you are listening to your F40PH idling nicely and then you select another engine with your throttle, 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 his or her controller, the F40PH will promptly shut down. They will need to press F8 again.

— 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.

FUNCTIONS

F0	Front Headlight	F12	Hostler (Switching) Lighting
F1	Bell	F14	Dynamic Brake
F2	Horn (And Bell)	F15	Brake
F3	Doppler Horn	F16	Turn off Numberboards
F4	Go Into/Out of "Standby"	F20	Sarco Valve (Spitter) – Slow
F5	Go Into/Out of "Run"	F21	Sarco Valve (Spitter) – Fast
F6	Ditch Lights	F22	Sarco Valve on Shutdown
F7	Dim the Headlights	F23	Brake Release On/Off
F8	Startup/Mute/Shutdown		
F9	Front Marker Lights		
F10	Strobe Lights		
F11	Doors Opening/Closing		

FUNCTIONS: MORE INFORMATION

F0 Front Headlight

Headlight goes on, headlight goes off. Headlight goes on, headlight goes off. That's all.



F1 Bell and F2 Horn

Your F40PH is programmed with an accurate recording of a high-quality steel Air Bell. If you want an E-Bell for some unknown reason, we've included one in the file, as well. (We still haven't figured out why Jason likes these so much.)

Whenever you operate the bell, the strobe lights will automatically come on (if they're not already on). This is prototypical. If it really bugs you, there is probably a way to turn it off but we have no clue how to do this. Go ask Matt at ESU and tell him Rapido sent you. The default horn is one of many recordings available of a Nathan K5LA. Many Amtrak F40PH locomotives were modified with this horn. Other horn options are available should you wish to match a specific unit, or you like the sound of them better. A company that gives you options? That *sounds* like a great deal!

When you blow the horn, you should also turn on the bell. On the prototype locomotive (and on some of our other locomotive models), the bell comes on automatically with the horn. We couldn't include that feature on the Amtrak F40PH (something about strobe lights and Jason having nightmares about steel bells) so you will need to turn the bell on and off manually. But as an added bonus, if you've got your ditch lights turned on using F6, they will alternatively flash for a few seconds when you sound the horn.

F3 Doppler Horn

You can play this when approaching level crossings at speed. It is a real recording of an Amtrak F40PH (with train) approaching a level crossing at high speed with the engineer playing music on a K5LA. We think this sounds so beautiful, it makes us cry. If you've also got your ditch lights turned on (F6) and press F3, they'll start flashing alternatively. You know, just in case nobody hears you barrelling towards the crossing.

F4 and F5 – Standby and Run

See **Prototypical Operation – DCC (Sound)** on page 8 above.

F6 Ditch Lights

The ditch lights should be turned on whenever your F40PH is pulling a train – they are not just for use in the mountains like in the old days. However, remember to turn them off when approaching a station or an oncoming train as they are BLINDING.

But wait, there's more! Should your ditch lights be on when you sound the horn using F2 or F3, your ditch lights will flash alternatively. That's right folks, flashing ditch lights! Of course you already knew this if you've been reading the manual this far. After a few seconds, the ditch lights will default back to "always on".

F7 Dim the Headlights

When approaching a station stop or an oncoming train, turn off your ditch lights and then press F7 to dim your lights – you don't want to blind your passengers or the oncoming train's engineers. The ditch lights should turn off automatically too, unless we goofed on the programming.

F9 Front Classification Lights (Markers)

The F40PH can often be found in push-pull service. When pushing a train, the locomotive



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should have the red markers turned on. F9 operates independently of locomotive direction, just like the prototype.

F10 Strobe Lights

The Amtrak F40PH strobe lights operate automatically with the bell, but can also be operated separately by the engineer. When operating your model, there may be circumstances where you want the strobe lights to operate without the bell: hence function F10.

All Amtrak F40PH locomotives originally came equipped with small strobe lights that flashed together. However, just to make things difficult for model train manufacturers 40 years later, almost all Amtrak F40s were retrofitted with larger Star 200BC strobe lights in the late 1980s. They also were changed to flash randomly, independent of each other.

If you're like those who prefer order rather than chaos, and want your strobe lights to flash in unison, then you need to change the following CVs in order:

CV31=16, CV32=0, CV371=5, CV379=5

F11 Doors Opening and Closing

Every passenger train needs to make a station stop from time to time. Press F11 to play a sound effect of the doors opening and/or closing. While we would have liked to make this function actually make the doors of all your passenger cars open and/or close, technology isn't quite there yet. Maybe one day we'll get it working.

F12 Hostler (Switcher) Lighting

A common misconception on cab units is that the big light in the back should be on whenever the engine is moving backwards. Actually, it's only on when the engine is running light or switching cars. And in those situations, both the front and rear headlights are on, and they are dim. Pressing F12 will put both headlights on dim.

F14 Dynamic Brake

F14 operates the sound of the dynamic brake. We know four of you are going to e-mail us and complain that this isn't in the "top eight" or "top 12" function buttons. We felt features like the Doppler horn and the ability to easily turn your marker lights on and off would be appreciated more. But never fear! All of the functions can be remapped to different buttons by advanced users. If you are one of the four customers that uses the dynamic brake button, chances are you are advanced enough to remap the functions.

F15 Brake

F15 works just like the brakes on a real engine. Press F15 and you put on the brakes. Turn off F15 and the brakes come off so you start moving again.

F20 and F21 Sarco Valve (Spitter)

These functions turn on or off the Sarco Valve. On the real F40PH, it's always going. But you often can't hear it from a distance. In contrast, if you are close to the engine you can hear the Sarco valve pretty prominently. We feel that on many sound-equipped engines, the Sarco Valve is way too loud. So we've included two versions of it, controlled by



functions. You can choose whether or not you hear the Sarco Valve, and you can choose how fast you want it to spit.

F20 controls the “fast” spitter valve sound effect while F21 controls the “slower” sound effect. Each function toggles the sound effects in an on/off manner. Having both F20 and F21 enabled at the same time may result in spontaneous overload of spit released from your unit. We cannot guarantee this, nor do we recommend trying.

Please note your F40PH warranty does not cover malfunction due to excess saliva, so please try not to replicate the sound effect on your own.

F22 Sarco After Shutdown

On real engines you can hear the Sarco Valve after the engine shuts down. Some people like to hear this on the model, but Jason finds it annoying. So the default for this is “off.” If you want to hear the Sarco Valve spit for a minute after shutdown, just press F22.

F23 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.

HORNS AND BELLS

To change the bell and horn versions from the default, you need to change CV48. CV48 controls the bell and horn (and other stuff, but we’re ignoring them). Your choice of bell determines the initial value of CV48, and then your choice of horn determines how much you need to add to that initial value.

Horns

- CV 48=0 - Nathan Old Cast P5a (Default)
- CV 48=1 - Nathan New Cast P5a
- CV 48=2 - Nathan M5
- CV 48=3 - Nathan K5LA
- CV 48=4 - Nathan Old Cast P5a (Alternate)
- CV 48=5 - Nathan New Cast P5a (Alternate)
- CV 48=6 - Nathan Amtrak K5LA #2
- CV 48=7 - Nathan Amtrak K5LA #3

Bells

- CV 48=0 - Air Bell (Default)
- CV 48=64 - E-Bell

Note that you can only change these sound settings on a programming track or using a LokProgrammer.

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



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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 might want to keep.

LATER PHASE F40PH SOUND VOLUME SETTINGS

FUNCTION	DESCRIPTION	SOUND SLOT	CV	DEFAULT	YOUR VALUE
	Master Volume		63	60	
F1	Bell	4	283	64	
F2	Horn	3	275	128	
F3	Doppler Horn	16	379	128	
F4	Standby Mode	13 22	355 427	128 128	
F5	Run	13	355	128	
F8	Prime Mover	1	259	80	
F11	Doors Opening and Closing	23	435	128	
F15	Engine Brake	21	419	128	
F20	Slow Spitter Valve	17	387	64	
F21	Fast Spitter Valve	15	371	64	
F22	Spitter Valve on Shutdown	18	395	64	

FACTORY RESET

On your F40PH, 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 like we suggested earlier, didn't you?

You can NOT lose all of the pre-recorded sounds on your F40PH decoder by doing a factory reset. If you manage to lose all of the sounds on your F40PH then you have probably set fire to your decoder with a voltage spike on a cheap DC train set controller. Open up your F40PH and pour out the ashes. It's a display model now.



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 on the F40PH 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 Later Phase F40PH 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 or first opened it after that time, it is possible that we no longer have any replacements and that a repair is the only option. Please give us a call or write us an e-mail, and we will see what we can do to help.

There are a number of things that this warranty can not cover. If your F40PH 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 e-mail and we'll send you some replacements.

Of course, damage caused by trying to jump your locomotive over a washed out bridge, running your locomotive through baking soda "snow" for a photo shoot to impress your Facebook friends, posing it for a photo on the nose of a real F40PH locomotive moving at more than 10MPH, setting the throttle to maximum while trying to pull a 20-car Southwest Chief over an incline railroad instead of Cajon Pass because you wanted to see "how much it can pull," connecting a live 480V HEP cable to your model, 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!**



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If you like your Later Phase F40PH (or any Rapido product for that matter), please tell your friends about Rapido and encourage them to sign up for our newsletter. Most people tend to hear about our models after they've missed the pre-order deadline and then get upset because they've got to scour the world 5x over to find one available. Every year we try to bring a new revolutionary model (or three) to the American market, and we still get the "wow" factor even from our existing customers.

