F40PH-2D Rebuild
OPERATOR'S MANUAL

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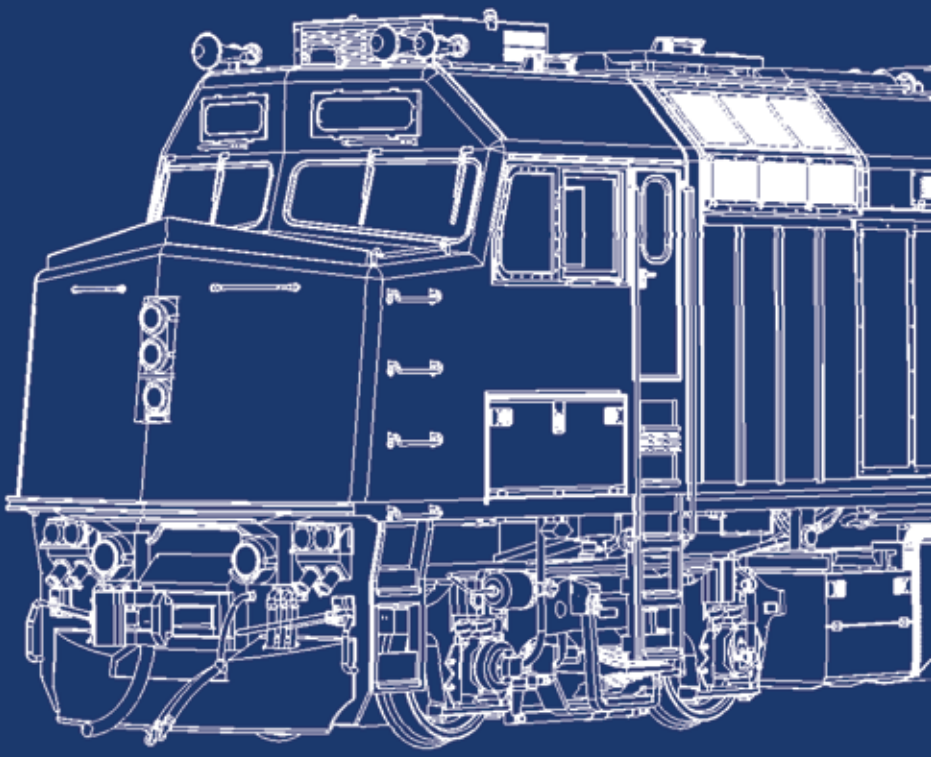

RAPIDO® TRAINS INC.

REBUILT F40PH-2D LOCOMOTIVE PRODUCT GUIDELINES

Thank you for purchasing this model of VIA Rail Canada's unique rebuilt F40PH-2D locomotive. Let's start these instructions by clearing up some nomenclature issues. There is no such thing as an F40PH-3. That is a made-up railfan term. If you speak to anyone at VIA about an F40PH-3 they will tell you that you have the name wrong and then make fun of you after you leave. We call the locomotive a rebuilt F40PH-2D, but you would be equally correct in calling it a GPA-30h. Nobody at VIA will know what the heck you are talking about, but if you point at the letters on the side of the engine and tell them that the locomotive is classified "GPA-30h" at least they will be impressed and instead of making fun of you they will walk away thinking that you are the smartest human being ever to exist on this planet. We suppose you could call it the "Renaissance" F40 but as we are now more than 15 years on from the whole Renaissance mishigas that term may be a bit out of date (look up mishigas). In Miramichi, New Brunswick, the town council got tired of debating the F40 locomotive classification for weeks on end and decided to refer to all VIA locomotives as Fred. You may want to do the same.

We've put a metric tonne of thought into this rebuilt F40PH-2D model and we hope you enjoy it. That being said, there is always the possibility that you've found something wrong with your locomotive. Maybe a grab iron has come loose in transit; maybe the "VIA" in the VIA logo was printed upside down; or maybe you just want to ask us why our model of 6403 cannot be used as legal tender. Whatever it is, please don't hesitate to get in touch! More warranty information is available towards the back of this manual.

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 for repair without first speaking to us to get authorization. If you have just found this model in an archaeological excavation and it's the late 24th century, we're afraid that the warranty has expired. The model is of a train and it works on something called electricity. Hopefully somewhere nearby in the excavation is some track and an NCE DCC system, in which case you are all set. However, if this model belonged to a typical model railroader then all you will find is more trains in the box that were never opened. Sorry – you need the control system to run the train. You're out of luck. Give our regards to Captain Picard.

CONTACT US!

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BREAK-IN

Every locomotive needs a break-in period. Your rebuilt F40PH-2D – Fred – has been tested at the factory for about two minutes. 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-2D 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 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. Should any of the wheelsets be out of gauge, than 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-2D 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 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 we don't want to hear from you. We're not fixing it again.

If there are big gaping holes where grab irons obviously fell out and no such grab irons 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.

If you are one of the few people who bought a resin ripoff of our original F40 tooling and you want us to send you a chassis to run it on, we politely ask you to never contact us again about anything. Ever.

We have no patience for dingbats who tell us their F40 chassis is faulty and can we please send a replacement, when they really don't own our F40 and just want a chassis for their resin shell. If you want to buy a resin model that is made from stolen intellectual property, that's your problem. But don't contact the company that owns that intellectual property in search of parts. That's called "being a schmuck." Don't know what a schmuck is? It's a very not nice word. Look it up. A fluent Yiddish speaker will tell you it's even ruder than you think it is.

REMOVING THE SHELL

If you need to open up your F40PH-2D (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 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 wiggle the shell off. Carefully. Remember the transporter lock.

- That's it, really.

- No, really.

OPERATION – DC (SILENT)

Put the F40PH-2D on the track. Make it go. That's it.

In DC operation, the only lights that work are the headlights and ditch lights (when going

forward). 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-2D 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-2D 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 those "your brain on drugs" commercials. 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 labour involved. That's because you didn't read this bit of the manual. Seeing as we didn't change this section of the manual from the last VIA F40PH-2D model we made, and seeing as you probably own that too, there really is no excuse.

INSTALLING A DCC DECODER

The F40PH-2D 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. We used to tell you it was OK to use an ancient and outdated 8- or 9-pin decoder. But realistically you are so limited with those that we don't recommend them any more. They will just cause you grief. Your chosen 21-pin decoder should have eight function outputs.

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

- ESU #54615 - LokPilot V4.0 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-2D 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. Provided we ever get around to it, this will be available for download on the F40PH-2D 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.

OPERATION – DC (SOUND)

To operate your sound-equipped rebuilt F40PH-2D 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.

WARNING: If you have purchased a sound-equipped F40PH-2D and you operate your trains with a Model Rectifier Corporation RailPower 1300-series 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 F40PH-2D destroyed by a 1300 or any other "train set" DC controller. "Train set" DC controllers should not be used with sound-equipped locomotives.

As in silent locomotives, the only lights that work in DC are the headlights and ditch lights (when going forward). The light on the rear of the locomotive is only used when switching and cannot be turned on using a DC controller. The emergency light and strobes cannot be turned on using a DC controller. 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-2D, for good or for ill. As always, we'll try to help you fix your F40PH-2D if one of these doo-dads scrambles your locomotive's circuitry, but we can't guarantee we'll be able to.

If you like running sound-equipped locomotives and advance lighting features, you might want to think about upgrading to DCC. You might also want to try some of the other innovations from the DCC era, such as **cell phones**. Cell phones are really useful for being able to talk to people when you are outside of your house. They are also handy for getting left behind in taxis, buses, trains, patients' stomachs, and other places. Cell phones can even be used to browse something called the **internet**. That is another innovation from the DCC era. The internet is a way to connect people's computers and is a really handy tool for finding out 100% completely and totally true things you never knew, like the fact that you are related to royalty in Nigeria, the moon landing was a hoax, and vaccines are bad for you. There are many other new and exciting technologies that accompanied the development of DCC. You should give them a try.

If you insist on sticking with DC and you want a taste of what you are missing, please read on…

PROTOTYPICAL OPERATION – DCC (SOUND)

We put a lot of time and effort into our original F40PH-2D to get it to operate the HEP (head end power) in a prototypical fashion, and we're frankly a bit disappointed that VIA has rebuilt the engines to make them more efficient as we can't use our original F40PH-2D programming. We did lobby VIA to suspend the upgrade program because it would cause all sorts of problems with our DCC programming but surprisingly they were not receptive to the idea.

CAT Engine

The rebuild program replaced the HEP alternator with a separate CAT diesel engine to provide the HEP. The CAT engine is not tied in any way to the main prime mover, which means the F40's big diesel engine no longer needs to run at full RPMs all the time. This brings a huge reduction in fuel consumption and noise pollution.

Any time the F40PH-2D is pulling a passenger train, the HEP would be on. In fact, the CAT engine powers the microwave, heat and the AC in the F40 cab, so it would normally be on even when pulling a hospital train or switching in the yard on a hot day. The HEP can be turned on/off when standing still or moving.

When two F40s are in a consist, both CAT engines are usually used. One powers each of the two HEP circuits running through the train. If three F40s are in a consist, the HEP would not be on in one of them as there are only two HEP circuits in a train.

Essentially, the only time you would shut down the CAT engine is when you are about to enter Montreal's Central Station or any other station where you would be connecting "shore power," or HEP from the station rather than from the engine. In the case of Montreal, the engineers open the breaker a few minutes out of Central at Wellington Tower, which shuts down the power in the passenger cars. The CAT engine continues to run without load to allow it to cool down and continue to lubricate the turbocharger and other components. Then they shut down the CAT just before entering the station. Similarly, the CAT engine is only turned on a few minutes before leaving Central Station. In Ottawa, the CAT engine is shut down before the shop crews plug in the locomotive for the night.

The CAT engine should be running basically any time the engine is running, unless it is parked. This seriously simplifies the operation of your model. The rebuilt F40 now runs just like a standard freight locomotive, but you will need to remember to fire up the CAT engine or your locomotive engineers and passengers will have a pretty miserable ride.

If you wish to consist your rebuilt F40PH-2D with an original Rapido F40PH-2D, your original unit should be placed in RUN before you consist the engines together. As both engines are providing HEP, it is appropriate to have the older unit screaming away the whole time.

Xenon Light

The Xenon Light (or HID – High Intensity Discharge light) is used all the time as an additional light source to illuminate the right of way. The light provides a bright almost spotlight effect that shines out ahead of the locomotive to give the engineer even better visibility and to warn the public again of an approaching train. We recommend you turn this on whenever running the train, and please remember to turn it off well before you dim the lights for stations or oncoming trains. This will blind your passengers from a very long way away.

Emergency Horn

The Emergency Horn is used for emergencies. If you are approaching a level crossing and the guy driving that 1975 Chevelle looks like he is off in La La Land, blast him with the emergency horn. Use it for trespassers, bears, anti-vaccers, or anyone else you find annoying. Yes, we're really going after the anti-vaccers in this manual. If you think vaccines are bad for your children or grandchildren and the kids don't have a clinically proven allergy to a vaccine, you are an idiot.

Strobe Light

"Hey guys! The new F40 has a strobe light! Let's include a working one on the model!"

Yeah – that was a complete waste of time. The real F40 strobe light **ONLY** goes on when the engine was not shut down correctly to alert shop crews of this fact. I wish I had known that **BEFORE** specifying the model features. In the summer the shutdown method makes no difference but in the winter if an engine with Hotstart (remote start) is shut down incorrectly it could cause damage to the locomotive, such as frozen components and pipes because the normal shutdown/start up sequence has been cancelled. Pressing the emergency shutdown switch instead of the normal shutdown switch would cause this light to flash but you would not normally ever see it flashing under normal operating procedures. So if you are operating on a friend's layout, make the strobe flash after shutdown just to freak out your host, especially if it is his engine.

LOCOMOTIVE ADDRESS

Your Rapido F40PH-2D 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!

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 computer is updated regularly. Your DCC system should be updated as well.

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 F40PH-2D page in the Support section of our web site. More detailed information can be found on the Digitrax web site.

TURN ON THE SOUND

Press F8 and you will hear the F40PH-2D startup sequence followed by the sound of it idling. You can adjust CVs to prevent the locomotive from running until the startup sequence has played out. Jason is really impatient so he turned this feature off. Refer to a full ESU LokSound Select decoder manual for more information. You can download it from our web site. It's called the "Prime Mover Startup Delay" and at the time of writing it was on page 35.

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 F40PH-2D 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 his or her controller, the F40PH-2D will promptly shut down. He or she will need to press F8 again. We're being gender neutral even though we know that just about everyone who bought this model is a man. Though we have it on good authority that one of the locomotives was purchased for a precocious schnoodle in Medicine Hat, so we should probably say "he, she or it."

FUNCTIONS

F0 Headlights
F1 Bell
F2 Horn (and Bell)
F3 Slow Doppler Horn
F4 Full Throttle
F5 Turn On/Off HEP
F6 Ditch Lights
F7 Dim the Headlights
F8 Startup/Mute/Shutdown
F9 Strobe Light
F10 Xenon Light
F11 Fast Doppler Horn
F12 Hostler (Switching) Mode
F15 Emergency Horn
F19 Turn Off Number Boards
F23 Brake Release On/Off
F24 Brake

FUNCTIONS: MORE INFORMATION

F1 Bell

Your F40PH-2D is programmed with an accurate VIA E-Bell. In fact, it's programmed with BOTH accurate VIA E-Bells. The default is "jingy jingy." If you want "ching, ching" you need to set CV48 to a value of 64. If you want to put it back to "jingy jingy" then restore CV48 to a value of 0.

F2 Horn (and Bell)

Most model railroaders don't know that according to the Canadian Rail Operating Rules (CROR) Rule 13, the bell must be rung when approaching a level crossing, unless Rule 14L applies. To make things easier, on the real F40PH-2D, every time you press the horn button the bell starts ringing. The bell only turns off when you turn it off manually.

By default, your F40PH-2D model bell is set to start ringing when the horn is pressed. It will keep ringing for a few seconds and then turn off. We would have preferred to have you turn off the bell manually, but the way a DCC system works precludes that. So the timer is the best we can do. It is not an option on the real F40PH-2D to blow the horn without the bell ringing, so we're not telling you how to turn this off on your model. So there.

Incidentally, you'll also want to ring the bell when you are passing a stationary train, a station, and a whole bunch of other places. It's worth downloading a copy of the Canadian Rail Operating Rules. Use The Google.

F3 Slow Doppler Horn

We're really proud of this. It's a K3L horn going past a level crossing at about 30 MPH. And it has the E-Bell ringing at the same time, and the E-Bell has a Doppler sound to it! Beauty goal, eh?

F4 Full Throttle

ESU's "Full Throttle" feature allows you to play the prime mover of your F40PH-2D like a musical instrument. When you press F4, 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, but to be honest you would not hear it all that often while the rebuilt F40PH-2D is in passenger service unless it is hauling nine cars filled to capacity with sumo wrestlers. 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. That is used a lot on the real F40PH-2D. When you press F4 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 F40 may fly like a bird.

F5 Turn On/Off HEP

F5 will turn on the CAT engine. Pressing F5 again turns it off. Please refer to the PROTOTYPICAL OPERATION – DCC (SOUND) section above.

F6 Ditch Lights

The ditch lights should be turned on whenever the F40PH-2D is pulling a train – they are not just for use in the mountains like in the old days. However, 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, 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, unless we goofed in the programming.

F9 Strobe Light

This should only be operated when you shut down the engine incorrectly. Please refer to the PROTOTYPICAL OPERATION – DCC (SOUND) section above.

F10 Xenon Light

This should be turned on any time you are running on the mainline and turned off well before you dim your headlights for an oncoming train or a station. Please refer to the PROTOTYPICAL OPERATION – DCC (SOUND) section above.

F11 Fast Doppler Horn

This is our original Doppler horn recording, a K3L flying past a crossing on the Kingston Sub at a blistering 80 or 90 MPH. The bell was ringing at the time but you can't hear the darn thing. So we've left it as is. Everyone loves this horn.

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.

F15 Emergency Horn

Use this to scare people. Please refer to the PROTOTYPICAL OPERATION – DCC (SOUND) section above.

F19 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, press F19. But really there isn't much point. Lit number boards are pretty.

F23 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.

F24 Brake

In 13 years of making model trains we have met one person who uses the brake feature on our locomotives. So we've shoved this to a higher function button. If you are that one person, you can remap this feature onto a lower function button by following the instructions in the full ESU Select Decoder manual, which can be downloaded from the F40PH-2D page of the Support section of the Rapido web site.

HORNS

All of VIA's F40PH-2D fleet has a K3L horn. Therefore we think the part of the manual about changing the horn is a bit pointless. So we've cut it ou–

SOUND VOLUME SETTINGS

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 all 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 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.

REBUILT F40PH-2D SOUND VOLUME SETTINGS				
FUNCTION	CV	DEFAULT	RANGE	YOUR VALUE
MASTER VOLUME	63	190	0-192	
DIESEL VOLUME	259	128	0-128	
HORN VOLUME	275	100	0-128	
BELL (F1 only) VOLUME	283	128	0-128	
COUPLER SOUND VOLUME	291	128	0-128	
DYNAMIC BRAKE FAN VOLUME	299	100	0-128	
EMERGENCY HORN VOLUME	307	128	0-128	
EXTRA SOUND #1	315	128	0-128	
EXTRA SOUND #2	323	128	0-128	
AUTO E-BELL (with Horn) VOLUME	331	128	0-128	
FAST DOPPLER HORN VOLUME	339	128	0-128	
BRAKE SET/RELEASE VOLUME	347	40	0-128	
HEP MODE VOLUME	355	45	0-128	
SHORT AIR LET OFF VOLUME	363	128	0-128	
FUEL PUMP VOLUME	371	45	0-128	
SARCO VALVE VOLUME	387	64	0-128	
EXTRA SOUND #3	403	128	0-128	
SLOW DOPPLER HORN VOLUME	411	128	0-128	
ENGINE BRAKE VOLUME	419	85	0-128	
RANDOM SOUND VOLUME	451	64	0-128	
BRAKE SQUEAL VOLUME	459	128	0-128	

FACTORY RESET

On your F40PH-2D, 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 rebuilt F40PH-2D decoder by doing a factory reset. If you manage to lose all of the sounds on your F40PH-2D then you have probably set fire to your decoder with a voltage spike on a cheap DC train set controller. Open up your F40PH-2D and pour out the ashes.

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.

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 F40PH-2D 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 modellers 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-2D 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 rebuilt F40PH-2D locomotive, but not if you don't actually own it. See the note about crappy resin F40 models in Missing of Damaged Parts above.

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 email, and we will see what we can do to help you out.

There are a number of things that this warranty can not cover. If your F40PH-2D 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 playing Demolition Diesel, 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 rebuilt F40PH-2D locomotive moving at more than 10MPH, setting the throttle to maximum while trying to pull a 40-car Canadian up a 3% grade 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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Packaging cover photo by Gonzo Boralis.

NOTES

Write your DCC programming notes here, or draw a pretty picture.