F40PH-2D

IMPORTANT

IF YOU ARE OPERATING YOUR F40PH-2D ON A DCC LAYOUT, PLEASE NOTE IT WORKS DIFFERENTLY FROM ALL YOUR OTHER MODELS BECAUSE OF THE HEAD END POWER.

PLEASE DON'T CALL US AND COMPLAIN UNTIL YOU'VE READ THIS STUFF!

F40PH-2D LOCOMOTIVE PRODUCT GUIDELINES

Thank you for purchasing this model of VIA Rail Canada's unique F40PH-2D locomotive. The F40PH-2D has been VIA's workhorse since 1986 and with the completion of the recent rebuild program it looks like it will continue to play that role for another generation. Please read the manual carefully as this model works differently than EVERYTHING ELSE YOU OWN.

We've put a tonne of love and care into the design, production and packaging of your F40PH-2D. That's a metric tonne of course. 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 there are too many squashed bugs on the windshield; or maybe you just want to ask us why we haven't included a free RDC-4 with your model. 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 it's the year 2047 and you've just bought this locomotive "new" because the guy who originally bought it for his "future" layout died of old age with no layout and a basement full of unopened locomotive boxes, there is a very good chance that we have moved and/or some of us are dead like that guy. Please contact us to make sure we still exist and can help you BEFORE sending any models back.

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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-2D 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-2D locomotive operates with this model. This means:

1. To operate your F40PH-2D locomotive with a modern passenger train (such as LRC, HEP-1, HEP-2 or Amtrak passenger cars) 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.

2. If you don't press F4 or F5, your F40PH-2D locomotive will operate like a freight engine and will not provide power to your passenger cars.

3. The rear (backup) light will only go on when you are switching cars. It won't go on when you are backing up.

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. 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 **Protoypical Operation – DCC** section below.

If you are using DCC and you really don't like operating your F40PH-2D prototypically, you can turn off all of these features. Please turn to page 11 for step-by-step instructions on how to do this.

RAPIDO

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BREAK-IN

No, we don't mean you should reach into your wife's piggy bank so you can buy more F40PH-2D locomotives. Use the money from your paper route.

Every locomotive needs a break-in period. Your F40PH-2D has been tested at the factory... for about 30 seconds. That is not enough time to get the gears to mesh nicely or to even out any jerky operation in a new motor. We suggest that, after reading this manual, you put your 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 tough tooties. 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.

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) 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-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.

INSTALLING A 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 (recommended) or a 21-pin adapter to attach an 8-pin or a 9-pin decoder. Your chosen decoder should have six 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. This is available for download on the F40PH-2D page in the Support section of our web site. You will need an ESU Lok-Programmer to write the function mapping to the 54615 decoder. If you don't have a LokProgrammer, you can adjust CVs in the usual way.

If you have brass or kitbashed F40PH-2D locomotives and you would like them to operate the same way as our models, you can install ESU decoder #91423. This is ESU's F40PH decoder with Rapido's custom F40PH-2D function mapping already installed.

OPERATION – DC (SOUND)

To operate your sound-equipped 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.

As in silent locomotives, the only lights that work in DC are the headlights and ditch lights (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. 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. It's not even the way of the future any more, as it's about 30 years old. As much as Jason likes his rotary phone, he accepts that when he has to "press one" for something, he's up the creek. The same applies to DC throttles and sound-equipped engines. You just can't do most of the stuff.

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

PROTOTYPICAL OPERATION – DCC (SOUND)

We're taking a bold, new step in North American model locomotive operation with our LRC and F40PH-2D locomotive models. This is sure to 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, turn to **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-2D locomotive works, and then we'll explain how it affects the model's operation.

HEAD END POWER IS THE KEY

The F40PH-2D 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 "hep" and not "aitch ee pee." If anyone calls it "aitch ee pee" you have our permission to point and laugh.) 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-2D labour 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-2D 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-2D 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 or you are pulling steam-heated passenger cars (such as VIA's blue and yellow cars), then you will want to keep the Head End Power Mode Switch at Idle.

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-2D 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.

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-2D 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.

When your F40PH-2D is in Standby, 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.

In VIA practice, when two F40PH-2D locomotives are operating in a consist, both are providing HEP so both should be operated in Run. This applies whether the locomotives are running elephant style or back to back, and it applies when both locomotives are at one end of the train or "top-and-tailing" the train. Note that "top and tail" or push-pull operation can only be used with LRC or HEP2 passenger cars (and certain HEP1 baggage cars, 8618–8623). Other VIA passenger cars do not have the necessary pass-through multiple unit cables to allow push-pull operation.

When more than two locomotives are in a consist, only the last two are providing HEP. The lead locomotive(s) can be operated in Idle.

On J-Trains – two trains coupled nose to tail and operated as one – both units are powered, in Run, and providing HEP.

If you are running your F40PH-2D with an F9B or other non-HEP unit you don't have to worry about F4 and F5 as the HEP is not needed. Just operate your locomotive 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-2D 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, CV413=128, CV415=16

This puts your F40PH-2D 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.

But if you want to run your locomotive in a non-HEP environment, such as in freight service or pulling conventional passenger cars, you can't. Your F40PH-2D will always be screaming at notch 8.

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!

Also please keep in mind that some DCC systems do not have sufficient power to program sound-equipped locomotives on the mainline. If you have an old DCC system made by a manufacturer whose name starts with D and ends with X which was purchased in the early Victorian era, this locomotive won't work at all – and neither will a bunch of other locomotive models produced since the turn of the 20th century. Go upgrade your system to a newer version from that manufacturer.

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.

Ah, bless… We're being gender neutral by saying "he or she" when 99.999% of model railroaders are male. We hope that all three women who have bought this model appreciate that.

FUNCTIONS

    F0   Headlights
    F1   Bell
    F2   Horn (and Bell)
    F3   Doppler Horn
    F4   Go Into/Out of "Standby"
    F5   Go Into/Out of "Run"
    F6   Ditch Lights
    F7   Dim the Headlights
    F8   Startup/Mute/Shutdown
    F9   Dynamic Brake
    F10 Red Classification Lights
    F11 Brake
    F12 Hostler (Switching) Lighting
    F16 Sarco Valve (Spitter) – Slow
    F17 Sarco Valve (Spitter) – Fast
    F18 Brake Set/Release
    F19 Air Release
    F20 Sarco After Shutdown

FUNCTIONS: MORE INFORMATION

F1 Bell
Your F40PH-2D is programmed with an accurate VIA E-Bell. VIA's F40PH-2D fleet was retrofitted with E-Bells in 1998. To replace the E-Bell with an air bell, use a programming track (or LokProgrammer) and input the following (in order):

    CV48=64, CV31=16, CV32=1, CV331= 0, CV31=16, CV32=2, CV290=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 most real locomotives delivered in the 1980s and later (including the 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 five 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 four-second timer is the best we can do.

If you want to turn off the (100% prototypical) feature of the bell and horn operating together, you can change CV 331 to a value of 0.

VERY IMPORTANT: Before you change CV 331, 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.

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.

F3 Doppler Horn

You can play this when approaching level crossings, but it doesn't come with the bell (as you can barely hear the bell when the F40PH-2D is passing at 90 MPH).

F4 and F5 – Standby and Run

See **Prototypical Operation – DCC (Sound)** 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, 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.

F10 Red Classification Lights (Markers)

The F40PH-2D is regularly used in push-pull service. The rear locomotive should have the red markers turned on. We did not include working white or green classification lights as this would have caused the cost to skyrocket for lights that are rarely used. There isn't a lot of room up there!

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 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.

F16 and F17 Sarco Valve (Spitter)

These functions turn on or off the Sarco Valve. On the real F40PH-2D, 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.

If you press F16, the Sarco Valve will be heard intermittently. If you press F17, it will be heard less intermittently. Make sure you turn off F16 first.

If you have a silent F40PH-2D and you want to recreate the Sarco Valve effect, please aim away from the models. Your F40PH-2D warranty does not include malfunction due to saliva.

F18 Brake Set/Release

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

F19 Air Release

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

F20 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, make sure F20 is pressed.

HORNS

There are numerous extra horn recordings included with your F40PH-2D, and you can change them around by changing the value of CV 48. Though why you'd want to change the horn from the GORGEOUS one that we recorded and is included from the factory is beyond us.

Change C48 to:

    0 - Nathan K3L (Default Horn)
    1 - A Different Nathan K3L
    2 - Another Different Nathan K3L (You can't say we didn't give you options!)
    3 - Nathan K5LA (For all you Amtrak and VIA P42DC Fans!)
    4 - Nathan P5A (Very Early Amtrak Horn – for Matt, for reasons we cannot fathom)
    5 - Nathan K3L (Default Horn)
    6 - Nathan K3L (Default Horn)
    7 - Nathan K3L (Default Horn)
    …83 - Nathan K3L (Default Horn)
    (You get the idea.)

Note that you can only change the horn 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. This is considerably quieter than what you are probably used to when first turning on a sound-equipped locomotive, because we feel that most locomotive models are set to ABSURDLY LOUD out of the box.

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.

F40PH-2D SOUND VOLUME SETTINGS				
FUNCTION	CV	DEFAULT	RANGE	YOUR VALUE
MASTER VOLUME	63	50	0-192	
DIESEL VOLUME	259	80	0-128	
HORN VOLUME	275	128	0-128	
BELL (F1 only) VOLUME	283	128	0-128	
COUPLER SOUND VOLUME	291	128	0-128	
DYNAMIC BRAKE FAN	299	100	0-128	
AUTO E-BELL (with Horn)	331	128	0-128	
DOPPLER HORN	339	128	0-128	
BRAKE SET/RELEASE	347	40	0-128	
SHORT AIR LET OFF VOLUME	363	128	0-128	
FAST SARCO VALVE VOLUME	371	64	0-128	
SLOW SARCO VALVE VOLUME	387	64	0-128	
SARCO VALVE AT SHUTDOWN VOLUME	395	64	0-128	
EXTRA SOUND #1	403	128	0-128	
EXTRA SOUND #2	411	128	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 F40PH-2D decoder by doing a factory reset. This is a myth about ESU decoders that was related to function mapping settings using an early version of JMRI. Even then the sounds were still there; they were just not mapped to the proper function buttons. ESU has changed their software so that this cannot happen again. 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. 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 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-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 F40PH-2D 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 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 trips to the basement floor, running your locomotive around 18" radius curves at ridiculously high speeds, throwing it to your friend across the room, picking it up with wet paint on your hands, 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

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Packaging cover photo by Manny Jacob.

Instructions cover photo by Commander William T. Riker.

NOTES

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

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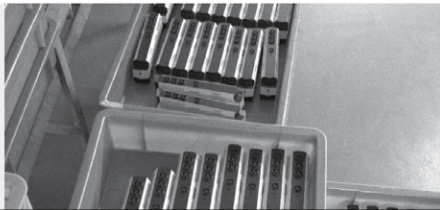
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