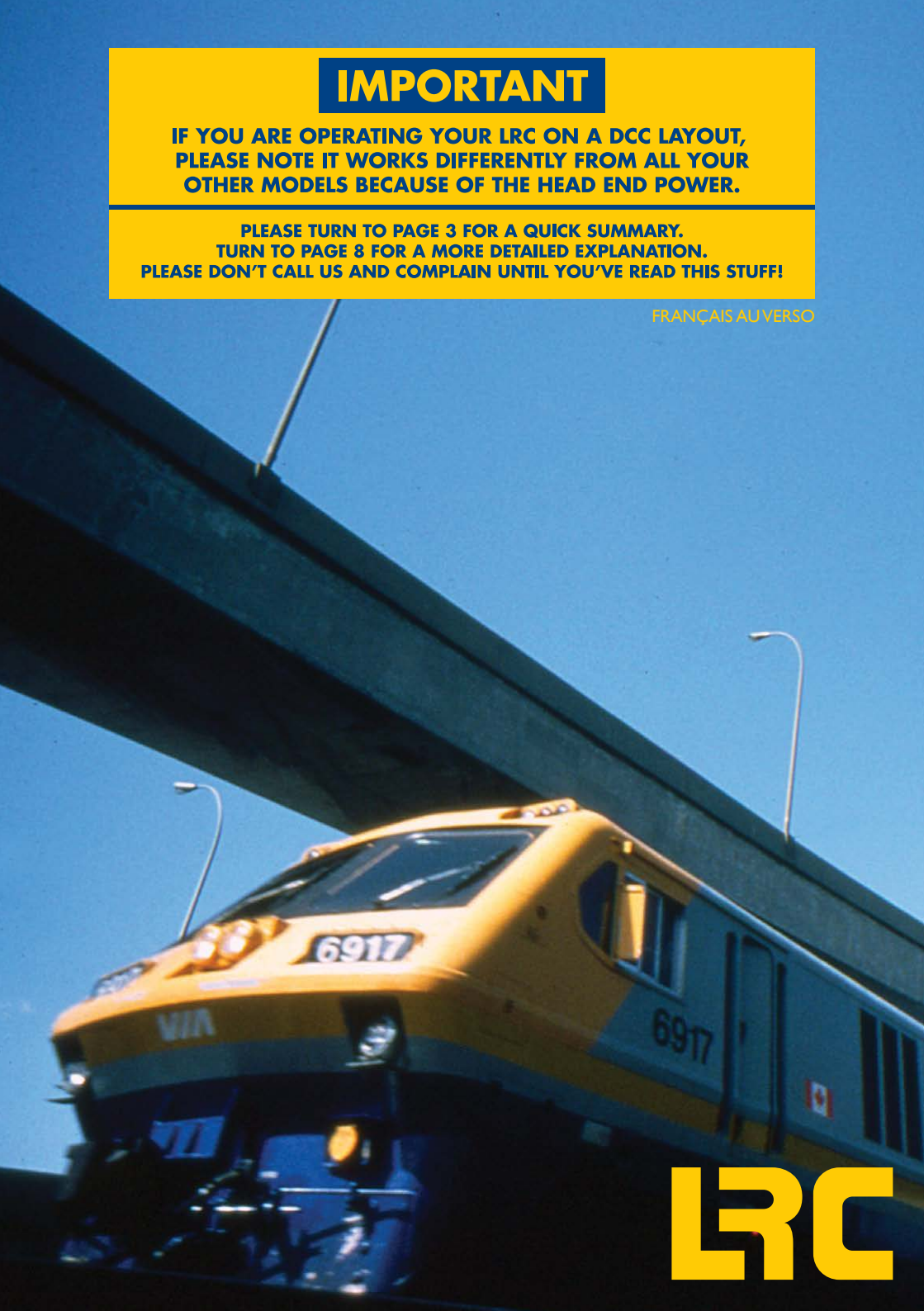
IMPORTANT

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

PLEASE TURN TO PAGE 3 FOR A QUICK SUMMARY.
TURN TO PAGE 8 FOR A MORE DETAILED EXPLANATION.
PLEASE DON'T CALL US AND COMPLAIN UNTIL YOU'VE READ THIS STUFF!

FRANÇAIS AU VERSO



LRC

LRC LOCOMOTIVE PRODUCT GUIDELINES

Thank you for purchasing this model of the Bombardier LRC locomotive. The LRC was Bombardier's first foray into high-speed passenger rail and can justifiably be considered the grandfather of the many Bombardier high-speed passenger trains operating today. If you initially ordered this LRC from us back in 1982, we thank you for your patience. You are, in fact, dreaming. The LRC hasn't come out and probably never will. Get someone to pinch you really hard so you can wake up.

Please read the manual carefully as this model works differently than **EVERYTHING ELSE YOU OWN,** unless you own a Rapido F40PH-2D. But even if you own our (wonderful, gorgeous) F40PH-2D, there are a few differences between the two. Mainly, the LRC cannot operate in Idle beyond Notch 2, which is a feature certain to annoy **EVEN MORE** of you. More on that in the following pages.

We've put a tonne of love and care into the design, production and packaging of your LRC. 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 Royal Hudson 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 2053 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.

CONTACT US!

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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 LRC 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 LRC locomotive operates with this model. This means:

1. To operate your LRC 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 LRC locomotive is in Hostler mode. It will only accelerate up to Notch 2. So if you didn't read this and you are complaining that the LRC goes very slowly, please read this for the first time.

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 LRC 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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LRC DCC FUNCTION QUICK REFERENCE

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F2	HORN (AND BELL)
F3	DOPPLER HORN
F4	GO INTO/OUT OF "STANDBY"
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F14	STATION ANNOUNCEMENT – MONTREAL
F16	STATION ANNOUNCEMENT – TORONTO

BREAK-IN

No, we don't mean you should steal the money hidden in your wife's sock drawer that you aren't supposed to know about so you can buy more LRC locomotives. Use the money from selling your organs.

(We mean your old pump organs and Hammond organs, of course. Shame on you for thinking we meant something else!)

Every locomotive needs a break-in period. Your LRC has been tested at the factory... for about 47 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 LRC 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 LRC 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 lift ring 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 lift ring, 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 lift rings obviously fell out and no such lift rings 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 LRC (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.

OPERATION – DC (SILENT)

Put the LRC 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 step lights and number boards are on all the time. 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 LRC 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 LRC 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 DCC DECODER

The LRC 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 LRC 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 LRC 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 LRC 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 LRC, for good or for ill. As always, we'll try to help you fix your LRC 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 have an F40PH-2D, it is still worth reading this section because there are some subtle differences between the F40PH-2D operation and the LRC operation, as per the prototype.

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 LRC locomotive works, and then we'll explain how it affects the model's operation.

HEAD END POWER IS THE KEY

The LRC is a passenger locomotive through and through. It has a 3750 HP Alco 251F prime mover, of which 2700 HP is designated for traction. The other 1050 HP is needed for the Head End Power (HEP). The LRC cars (and the Tempo, HEP1, HEP2 and Super-

liner cars the LRC locomotives pull) do not have axle-driven Genemotors and steam heat like the older cars they replaced. Their heating, lighting and air conditioning is all powered by the locomotive at the head end, hence the term "Head End Power." Cables are run through the train which carry the 480V HEP.

Note that HEP is pronounced "hep" and not "aitch ee pee." If anyone calls it "aitch ee pee" you have our permission to point and laugh.

There are actually two alternators providing HEP. These are Stamford model E534B alternators, which are spinning at 1793 RPM and are mounted in front of the prime mover on top of the traction alternator.

Like the F40PH-2D, the prime mover needs to be rotating at a full 1050 RPM in order to keep those alternators rotating at 1793 RPM. The LRC does not labour through the notches from idle to notch eight like a freight engine or an early passenger diesel. It revs up to full RPM and stays there. Being an Alco, it gives us a nice, throaty rumble all the time! We only wish our model could give you the black smoke show but that would probably cause you to die of asphyxiation in your layout room and would result in some really big lawsuits which we can't afford.

The LRC 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, HOSTLER, STANDBY AND RUN

Inside the cab of a real LRC is the Engine Control Switch. The four positions are Idle, Hostler, Standby and Run. This switch is key to how the locomotive sounds and operates.

IDLE: When the Engine Control Switch is set to Idle, the LRC happily chugs away but it won't move. The engine speed is stuck at 400 RPM and no load can be applied to the traction motors. Obviously if we kept your model LRC on idle it wouldn't do much except sit there and rumble away. So we've merged Idle and Hostler into one setting. Read on…

HOSTLER: When the Engine Control Switch is turned to Hostler, the LRC can now (sort of) work like a regular diesel locomotive. The traction motors are now engaged but the engine is restricted to 400 RPM. In layman's terms, that means the LRC can move around very slowly (to a maximum setting of notch two). The Hostler mode is designed for moving the engine around the yard on its own, but you can certainly switch cars while in Hostler mode, as was prototype practice.

This is very different from the F40PH-2D. When the F40PH-2D is in idle, it will operate like a freight engine and you can take it up to notch eight and it works (and sounds) just like a GP40-2. The LRC will NOT pull a train – even a freight train or a steam-heated

train that does not require HEP – unless the prime mover is operating at a full 1050 RPM.

How does this affect your model?

When you put the locomotive on the track and press F8 to start up, it will go into Hostler mode. If you advance your throttle, the sounds won't change much and the engine will not achieve full speed. We couldn't restrict the speed to 10 MPH like the prototype, but you will notice the LRC goes considerably slower than normal when in Hostler mode.

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 LRC is in Run, the prime mover is rotating at 1050 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.

And remember, even when pulling freight equipment or steam-heated passenger cars, the LRC still operates in Run.

Note that the locomotive must be stationary when changing between Hostler, Standby and Run.

HEP MODE: MODEL OPERATION

We've tried our best to simulate the Engine Control Switch with the F4 and F5 function buttons on your DCC controller. Once the LRC model is on the track, press F8 to turn on the sounds and put your locomotive into Idle/Hostler.

Press F4 to put it into Standby. The prime mover will rev up to 720 RPM. (If you don't press F4, the locomotive will move very slowly.)

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

When your LRC 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 1050 RPM and your locomotive will be in Run. It will move when you advance the throttle. This simulates turning the Engine Control 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

Unlike the F40PH-2D, the LRC must always be in Run when pulling a train. When hauling LRC passenger cars, the general rule is one locomotive with up to five cars and two locomotives with six to ten cars. However, due to reliability issues with the real locomotives you would often see two locomotives bracketing only three or four cars.

When the LRC is pulling non-LRC equipment, both locomotives are usually at the front of the train, operated back-to-back. This applies whether pulling HEP or conventional passenger cars. In order for LRC locomotive to "top and tail" a train, the passenger cars must have pass-through multiple unit (MU) cables. These allow the locomotives at both ends of the train to communicate with each other.

The only VIA passenger cars with pass-through MU cables are LRC and HEP2 passenger cars, as well as certain HEP1 baggage cars (8618-8623).

If you are pulling Amtrak equipment, bear in mind that back when the LRC was in service very few Amtrak cars had pass-through MU cables, so your Amtrak LRCs could only practically "top-and-tail" Amtrak LRC cars. None of the Heritage fleet had them and Amtrak was only beginning to add them to Amfleet cars. Today, most Amtrak passenger cars have MU lines.

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

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 LRC 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

Then input: CV31=16, CV32=3, CV364=0

This puts your LRC 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. It also gets rid of the speed limitation when F4 and F5 aren't pressed.

VERY IMPORTANT: Before you change the higher-level 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.

LOCOMOTIVE ADDRESS

Your Rapido LRC 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 a really old DCC system, you may find that 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.

TURN ON THE SOUND

Press F8 and you will hear the LRC 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.

The startup sequence lasts about 11 seconds. Please note that if you start moving before the startup sequence has finished, weird stuff may happen. You will hear the turbo but there will be no "rumble rumble" behind it. That is the price you pay for being impatient…

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 LRC 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 LRC 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
F14 Montreal Announcement
F16 Toronto Announcement
F17 Sarco Valve (Spitter)
F18 Brake Set/Release
F19 Air Release
F20 Sarco After Shutdown
F21 This is thing that we added at the last minute and we're not sure it will work. So we're not mentioning it here.

FUNCTIONS: MORE INFORMATION

F1 Bell

The LRCs were originally equipped with an air bell, so that is the default setting. In 1997/1998, these bells were replaced with an E-Bell. Jason prefers the sound of the VIA E-Bell to the sound of the air bell so he is letting you all know that you can put the E-Bell on by changing CV 48 to 0. This must be done on a programming track.

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, every

time you press the horn button the bell starts ringing. The bell only turns off when you turn it off manually… after passing the level crossing. The LRCs were modified to have this feature at some point in their service lives.

Because it was a later modification, the default settings on your LRC have the bell and horn separate. This is a super huge pain in the rear to operate, so if you want to have the bell go automatically (like on the F40PH-2D model), input the following CVs in order:

CV31=16, CV32=1, CV331=99

This will make your LRC model bell 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 five-second timer is the best we can do.

And remember – if you want that awesome E-Bell, set CV 48 to 0.

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.

For the dozen of you who bought the Amtrak LRC, we're sure your American rules are similar, sort of. Maybe.

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.

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 LRC 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 LRC 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.

If you are operating the LRC in the United States and you want to make the ditch lights flash, change the following CVs in order (on your programming track):

CV31=16, CV32=2, CV300 = 128

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 LRC is famously used in push-pull service, with one at the front and one at the rear of a gorgeous matched set of LRC coaches. 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.

F14 and F16 – Station Announcements
Very few people actually model Montreal Central Station or Toronto Union Station, but Jason is modelling Union so he insisted on putting these station announcements in. (He's probably going to have a separate speaker in his Union Station model, thereby making these announcements an almost – but not quite – complete waste of time.)

The announcements are exact copies of actual station announcements for VIA train 66/67, the Metropolis, the fastest scheduled passenger train in Canadian history. It travelled the 334 miles between the country's two largest cities in under four hours, usually with an LRC locomotive at either end. Oh how we long for those days again…

Due to space limitations, the Toronto announcement is in English only. Sorry about that! That Union Station dude talked really slowly!

F17 Sarco Valve (Spitter)
These functions turn on or off the Sarco Valve. On the real LRC, 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 turned the Sarco valve off, but you can turn it on by pressing F17.

If you have a silent LRC and you want to recreate the Sarco Valve effect, please use a cuspidor and not your LRC. Your LRC 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 LRC, 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)
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.

Remember to set CV32 before changing volume control CVs.

LRC SOUND VOLUME SETTINGS				
FUNCTION	CV	DEFAULT	RANGE	YOUR VALUE
MASTER VOLUME	63	175	0-192	
DIESEL VOLUME	259	128	0-128	
HORN VOLUME	275	88	0-128	
BELL (F1 only) VOLUME	283	99	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	
SLOW SARCO VALVE VOLUME	387	64	0-128	
SARCO VALVE AT SHUTDOWN VOLUME	395	64	0-128	
MONTREAL ANNOUNCEMENT	315	100	0-128	
TORONTO ANNOUNCEMENT	403	100	0-128	
EXTRA SOUND	411	128	0-128	
RANDOM SOUND VOLUME	451	64	0-128	
BRAKE SQUEAL VOLUME	459	128	0-128	

FACTORY RESET

On your LRC, 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 LRC 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 LRC then you have probably set fire to your decoder with a voltage spike. Open up your LRC 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). Your LRC 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 LRC 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 LRC 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 LRC arrives with a couple of loose detail parts, 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 on one of those Tyco Super Turbo Train tracks up your wall, using your engine to pull your granddaughter's scooter across the driveway, 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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