RTI-1836-7

OPERATING MANUAL

B36-7
DIESEL-ELECTRIC
LOCOMOTIVE

RAPIDO TRAINS

GE B36-7 LOCOMOTIVE PRODUCT GUIDELINES

Thank you for purchasing this model of the one of the most under-appreciated locomotives of the 1980s, the GE B36-7. This is the first time this locomotive has been released in a ready-to-run model, and it is also Rapido's first modern-ish US freight locomotive too.

If this is your first Rapido locomotive, we must ask – why is this your first Rapido locomotive? No seriously, we've been around now for almost 15 years and we've produced an imperial ton of US products, like the New Haven FL9s and coaches, Amtrak F40s and Cabbages, RDCs, FA-2s, RS-11s, etc. So just for that, we're going to make sure you LOVE your B36-7. And then you'll say to yourself, "What have I missed out on all these years? I need to find and buy every Rapido model that has ever been released, in every scale! Especially that long tube thing that looks like a plane on rails with a red nose!" So we're thanking you in advance for that … if you can find everything.

If you are a returning customer, welcome back! Just put your engine on the track. All we ask is you don't intentionally set it on fire, don't use it on a daredevil stunt off the layout, and don't MU it to anything made by Tyco. Oh, and REALLY keep it away from cheap DC controllers. Crappy power packs can quickly and easily give any Rapido locomotive an unwanted makeover … and not the good kind.

Our head office is in Canada so our model train manuals are usually full of beavers and snow and stuff. We have made every effort to remove any Canadian-isms from this manual, eh? There's usually a good amount of humour through these manuals anyway, so it's always good to keep things on the lighter side. After all, model railroading is supposed to be fun, whether you're an experienced modeller or just beginning! Dang it – humor doesn't have a "u." And modelers should only have one "l." Man, it's only page one and we've already screwed up twice!

As always, if there is anything amiss with your B36-7 please do not hesitate to contact us. We stand by our products 100%. The best way to contact us is through email (trains@rapidotrains.com) but you can also reach us by phone, the postal service or Messenger Pterodactyl as well. Our contact info is near the back of this manual.

However, please do not send a faulty model back to us without first getting authorization. You wouldn't believe how many times we get a delivery of a broken locomotive with only a name inside, meaning we have no idea what's wrong with it! (Hey Bob – your FL9 is still sitting on the shelf in our bathroom.) If it's something simple – like a loose grab iron – then we'll likely tell you how to fix it yourself. While we generally will support repairs to your B36-7 for a considerable length of time, please realize that eventually the parts supply will run out. That, or the oxygen on this planet will. Whichever comes first, unfortunately that will dictate when we can no longer help you. Again, please make sure you contact us first so we can tell you whether there's enough parts (or oxygen) left to do your repair.

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PROTOTYPE HISTORY

Replacing the "Universal Series" U36B in the GE catalogue, the first prototype B36-7 locomotives were built at Erie, Pennsylvania in 1980 for the St Louis SouthWestern, otherwise known as the Cotton Belt. Initial orders were hampered by the recession of 1981-2; however, by the last year of production in 1985 some 222 locomotives had been constructed for US railroads with a further eight for export. British Rail ordered "almost one." And by that we mean they didn't order any. Too bad for them.

The design found customers in several of the larger Class 1s of the period: Santa Fe, Conrail, Seaboard System, Southern and Southern Pacific. With the mergers of the mid-1980s and the Conrail split of 1999 the bulk of the fleet ended up with CSX and Norfolk Southern. Circa 2000 the CSX roster was overflowing with B36-7s, with around 140 former Conrail and Seaboard units operating all over the eastern half of the US. The ex-Seaboard fleet was officially retired towards the end of 2009, but examples were still working into 2011.

The turbocharged 16-cylinder 7FDL prime mover rated at 3,600hp (later examples could create up to 3,750hp) and upgraded alternator and traction motors proved to be a reliable combination. However, with all that power on tap and with just eight wheels to lay it all down they gained a reputation for shaking the fillings out of teeth and marrow from bones. They were well liked by railfans though and were among the last of the Dash 7s in Class 1 service, outliving the six-axle variants by a number of years.

The increased power also meant increased noise. As well as the larger silencer (introduced in 1979), GE attempted to mitigate this with a pair of sound baffles on either side of the radiator section. These were installed on all the Cotton Belt, Santa Fe and Southern locomotives and the first 15 Conrail units. By 1983 GE had replaced the twin radiator fans with a single large fan to reduce noise - three additional grilles in the doors in the radiator section made this upgrade obvious - and only Southern retained the baffles beyond 1986, and even then only the lower of the two on each side.

BREAK-IN

Just so we're clear, that doesn't mean break into anyone's layout room to steal their B36-7. And don't break into a hobby shop either because that is really frowned upon. Just buy more for yourself. But this isn't about that kind of break-in.

Every locomotive needs a break-in period. Your B36-7 has been tested at our factory for about two minutes … maybe … just to make sure everything functions as it should. That is certainly 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 B36-7 on a test loop and just let it run in each direction for an hour or two. Fast and slow. Don't have it pulling anything either while you're breaking it in.

There already should be enough grease in the gearbox so you don't need to add any. Just let the thing run. If you are running this thing on track on the carpet, please vacuum first. You have no idea how many models come back to us with gearboxes full of carpet fluff and pet fur. Our models are not cat-proof.

HOW TO HOLD YOUR B36-7

The B36-7 has numerous very delicate parts, including our amazing wire grab irons. If you want to back date it to be the quality of a model produced in the 1970s, then rip all the parts off and handle it like one of those impossible-to-win claw machine games you find at the arcade. We're assuming you don't want to do that, so the B36-7 should be picked up carefully. We suggest you DO NOT lift by the long hood, because if for whatever reason the clips holding the hood don't hold its weight, your locomotive will have a brief skydiving experience. We don't want to risk that, so the best way to pick up the unit is to grab it from above with your thumb and forefinger on either side of the fuel tank. Always make sure your hands are free of shmutz before touching your engine, otherwise you'll shmutz up your fuel tank. Hey – if your hands have oil stains on them that could actually be pretty realistic.

If you are taking your B36-7 to the club all the time and regularly handling it, stuff will likely break off. Sorry. The little bits are made of plastic and metal with glue, which is all a bit fragile. We attempted to make the small parts out of unobtainium and use Steady-State Micro Welding to install them. Unfortunately, the unobtainium was unobtainable.

We suggest wrapping your B36-7 in a plastic bag before placing it in the packaging or in your holder so you can catch bits that fall off. White glue is the recommended adhesive for reattaching the bits, although you are welcome to use CA, but only if you are very careful and very brave.

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 it was a Monday night and our factory workers were placing bets on last night's football game between Taiwan and Singapore rather than assembling models, 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, then remove the affected wheelset from the truck by prying off the bottom lid of the gearbox with a small flat screwdriver and then spreading apart the sideframes. 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 it 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). If your track transitions from flat to a 12% grade in three inches, you might also want to cut off the pilot and the fuel tank as they will foul the rails. Have you ever considered roller coaster modeling? That might be more your style.

- 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 B36-7 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 the idea of human beings touching your models, but if it is a matter of gluing an exhaust stack 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, 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 you see some grab irons are missing and they are not floating around the packaging, let us know and we will send you replacements. More information about our warranty can be found towards the end of this manual.

ADDITIONAL FEATURES

The Rapido B36-7 comes with a few special features, depending on what roadname you've purchased. For some people, you may think you've won the lottery. For others, they may have wished that their road had at least one special feature (Sorry

Seaboard fans, we've got nothing for you). With that said, let's have a look at what some of the special B36-7 features are:

STRATOLITE BEACON

Everyone likes twinkly lights, and Santa Fe knew what they were doing when they put a rotary beacon on the roof of many locomotives. But it wasn't a true rotary. It was a 4-light beacon known as a Stratolite, which flashed each light independently in a rotating pattern. While the concept was great, the beacons tended to get dirty fairly quickly (especially when trailing another unit) and it seems typical wash racks didn't get the roof as clean as the sides. Eventually they fell out of favour, but not before getting our attention. Want a Stratolite for your unit (even if it's not a B36-7)? We offer kits separately to equip anything you'd like, from a locomotive to a top secret missile silo. Hey, why not?

GYRALITE

Southern Pacific had what was affectionately referred to as "the light package", which included a Gyralite on both ends of a locomotive, sometimes in an obnoxiously large housing. Up until the 80s, Gyralites were a mechanical device within a headlight housing that produced a flashing effect to make a train more visible to anyone on or near the tracks. When the B36-7 was delivered, in order to reduce maintenance (and because Gyralites were not a common request), GE took a different approach and wired a dual-beam headlight independently for use as the Gyralite, creating a "bouncing ball" effect more like a set of warning flashers. While we made every effort to recreate this effect, we just couldn't get the design quite right so opted for the traditional programming for a Gyralite.

EMERGENCY LIGHT

Man, Southern Pacific fans are really getting the good stuff, aren't they? SP still required Emergency Lights on its locomotives, even with the purchase of the B36-7s. And while we would have liked to make them both work, unfortunately technology just hasn't caught up with our imaginations, so the rear emergency light (on the long hood) is non-operational. The front one will illuminate when activated regardless of direction of the unit. You SP guys have all the fun but you give our factory workers heartburn!

RED MARKER LIGHTS

Sometimes referred to as "bug eyes" or "beast eyes", these were a Conrail-specific detail on all newer locomotives (sorry, everyone else gets regular class lights … if you're lucky). The reason for just having red markers was

two fold: New York State required lit markers on all trains day or night (even for light engine moves) and Conrail was also a user of tail-end pushers (or helpers) on several lines, so the need for the red markers was understandable.

SOUND BAFFLES

When the B36-7 was designed and tested, engineers probably didn't expect the upgraded units to put out as much noise as they did. To mitigate this, twin sound baffles were designed and installed on the first 15 Conrail units, as well as all Santa Fe and Southern locomotives. The Southern Railway changed theirs rather quickly to a single low baffle, in order to avoid restricting visibility since their units were oriented long-hood forward. The other fleets that were equipped with sound baffles eventually lost them when the twin radiator fans were replaced with a single large fan.

REMOVING THE SHELL

If you need to open up your B36-7 to install a crew or a decoder, things work a little differently than most of our previous models, so please read carefully. In a perfect world, you should never have to open your locomotive up, but sometimes things happen. We don't deliberately make our models difficult to open, but due to the vast quantity of fiddly bits installed on each one, they have to be . If you must get inside your B36-7, you will need to follow these steps:

- We recommend that you only attempt opening up your locomotive in a zero-gravity environment. That way, if a part does break off, it will just be suspended there, right where you broke it, ready for you to reinstall it. If you don't have a zero-gravity chamber, then we suggest not installing shag carpet in your workspace. Yes it looks great and yes it feels great on bare feet, but Rapido employees have experience in understanding that whatever detail bits fall into shag carpet are gone forever. No questions, it's not coming back. The only way to find it is to walk barefoot and hope that it impales your foot in the most painful way possible. And if you decide to use this method to find the missing parts, you're not covered by our health plan.

- To that end, please make every effort to ensure nothing flies away. We normally suggest you work in a room with everything white – walls, floor, ceiling, workbench, tools, clothes – everything. But doing so would be very boring (albeit practical) so that's likely not the case, is it?

- If you wish to install a crew inside your B36-7, unfortunately removing just the cab is probably the trickiest part. The cab is held on by 4 clips – two forward, two rearward – and with a little manipulation the cab should come free. We

recommend pulling the cab straight up, since there are channels on the long and short hoods which the cab slides into. You can tilt it a bit forwards or backwards in order to get the clips free, just not too much. Patience will be key here. If you have a Santa Fe unit, use extra caution as the wires for the stratolite come out the back of the cab into the long hood and could break. Oh, and remember to disconnect the hand rails from the cab too or they're going for a ride.

- If you wish to change out the decoder, then you're going to have to remove the entire shell, including the cab. There are 12 clips holding the entire body to the frame – one each on the ends of the short and long hood, the 4 previously mentioned on the cab and 3 on each side of the long hood. We suggest starting from the cab end of the unit and getting the nose clip first. Manipulate the cab to come next, and then the long hood will be easiest.

  At this point you should have the entire shell off the frame. We don't know how to put it back together (we never tried) so from here you're on your own. Just read the instructions backwards and you should be ok. If you find a cryptic message while reading the instructions backwards, it's not our fault.

Any requests for replacement hoods or cabs because you broke the little clips will be met with laughter, followed by sadness, then laughter again, and then a very polite suggestion that you should model a locomotive rebuilder and use your recently broken body as scenery. We did warn you after all. If we can assist, then all joking aside we'll make every effort to do so. But note that we don't have a warehouse full of shells and cabs to replace the broken ones.

OPERATION – DC (SILENT)

If your B36-7 locomotive is not equipped with a sound decoder, it should function like most other HO scale locomotives. Put it on the track. Give it some juice. Watch it go. In DC, the number boards are always on and the headlights and ditch lights (when equipped) are directional. All other lights – including class lights and optional stratolite, Gyralite or emergency beacon – are wired, but they will not work in DC.

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 B36-7 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 15 volts DC. Similarly, controllers designed for large scale trains put out a much higher voltage than your B36-7 can handle. Please see the highlighted warning not too much further in this manual.

If you use a train set throttle or a throttle designed for large scale trains, your locomotive's circuitry may end up looking like a TV dinner forgotten in the microwave after you accidentally punched in an extra digit into the timer. In such situations, we'll try our best to fix it for you, but it may be beyond salvaging. Please note we may have to charge you for the replacement parts and/or the labor involved in restoring it to its former self. That's because you didn't read this bit of the manual. For those of you who are reading this, hi! How's it going? You in the mood for pizza?

INSTALLING A SILENT DCC DECODER

The B36-7 contains a motherboard specially designed for our decoders. This is connected to the track, motor and lighting outputs. A blind plug is attached to the motherboard using a 21-pin connector. To install a decoder, remove the blind plug and install a 21-pin decoder. Your chosen decoder should have eight function outputs.

At the time of writing, we recommend only 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 motherboard so you don't have to futz around with resistors. Just plug in the recommended decoder and you have DCC. We know some of you prefer a different brand of decoder, but we honestly can't help you install it or map the functions.

We have made a B36-7 function mapping which can be downloaded into the ESU non-sound decoder (54615) so that the function buttons and motor control are exactly the same as our factory-released sound versions. This should be available for download from the Support section of our web site. If it isn't, bug us. 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.

We will be selling B36-7 sound decoders separately; if they aren't on our web site by the time you read this, call our office, pick a random number between 1 and 62, divide by 3, multiply by 6, and then take the second last number. Call that extension and you'll be redirected to someone whom you can yell at. Look at us – we use the correct pronoun and then end the sentence with a preposition. This is a metaphor for the contradictory nature of human existence! You can find further editions of this manual in the philosophy department of your local bookstore!

If you want to install a decoder other than the one we suggest, it's more than just plugging in the decoder and then playing trains. You will have to custom map all the functions. It's just how it is. We won't apologize for that. Sorry.

OPERATION – DC (SOUND)

To operate your sound-equipped B36-7 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 –

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

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

The DC lighting is limited. Some throttle manufacturers produce special gadget-like thingies which are meant to trigger the sounds in locomotives on DC layouts. As we have no involvement in the development of those gadget-like thingies, we have absolutely no idea how they will affect your B36-7, for good or for ill, for richer or poorer, in sickness and in … sorry, wrong transcript. As always, we'll try to help you fix your B36-7 if one of these gadget-like thingies turns your locomotive's circuitry into something akin to burnt toast, but we can't guarantee we'll be able to.

It is usually at this point in the manual that Jason inserts a gentle dig at his fellow modelers who won't switch from DC to DCC. The rest of the staff continue to repeatedly remind him what happened the last time he did that. Something about being chased down the county highway by a group of townsfolk wielding pitchforks and flaming torches. As long as we can keep reminding him of this event, he'll be nice to DC modelers. Not that we're calling DC modelers Luddites. We'd never do that.

OPERATION – DCC (SOUND)

We go to extreme lengths for accuracy, in sounds as well as in looks. Our sound decoders are LokSound V5 decoders by ESU, with Full Throttle functionality, programmed with correct sounds from a real GE B36-7. So you can rest assured that the sounds are bang-on accurate.

As we do for all of our sound decoders, we recorded the prime mover under load – it was a dead unit in tow, up a grade, both ways, in a snow storm, in July. Or maybe it was August. Anyway, locomotives sound a lot different when they are actually working. If you have decoders from other manufacturers in your locomotives you might want to check out the available line of Rapido decoders on our web site. All of our decoder sounds were recorded under load and we simply can't stand decoders that don't have this feature.

More detailed decoder instructions, including all sorts of weird CV settings we don't understand, can be found in the ESU LokSound V5 decoder manual. It is available for download from the support section of our web site or directly from the ESU website.

LOCOMOTIVE ADDRESS

Your Rapido B36-7 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 to all functions – motor, lights, sounds, everything. Once you have verified that the locomotive is responding you should assign it a unique address (normally the road number of the unit) before going any further. This can be done either on your programming track (recommended) or on the main if your system supports programming on the main. Be aware however that if you do program the locomotive on the main and you have any other locomotives assigned to address 3 (the normal default address for new locomotives) that ALL of them will also be changed to your new address! This is great if you want to simulate a bunch of kids getting into the engine shop, notching the controllers and then heading for the hills.

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

TURN ON THE SOUND

Press F8 and you will hear the B36-7 startup sequence followed by the sound of it idling. You can adjust CVs to prevent the locomotive from moving until the startup sequence has played out. Most of us at Rapido are really impatient so we turned this

feature off. Refer to a full ESU LokSound V5 decoder manual for more information. You can now download it from the Support section of our web site. The feature is called the "Prime Mover Startup Delay" and is Section 13.2 on Page 89 of the ESU LokSound V5 manual.

If you press F8 when the locomotive is already moving, it will skip the startup and the sound will just turn on. Press F8 again to turn the sound off.

Note that if you are listening to your B36-7 idling nicely and then you select another engine, your locomotive still thinks F8 is pressed so it will keep idling along. However, if someone else selects your locomotive's number and F8 isn't pressed on their controller, the B36-7 will promptly shut down. They will need to press F8 again.

FUNCTIONS

The B36-7 features a new standard for function mapping that we will be attempting to match for all projects carrying forward. This is to better standardize our practices, as well as match locomotives available from other manufacturers. So if you note something missing below (like F15), it just means that the B36-7 doesn't have whatever function that could be. If you have any comments or suggestions regarding our revised function mapping scheme, please call, e-mail or dispatch a hoard of locusts to our address.

F0 Headlight
F1 Bell
F2 Horn
F3 Flange Squeal
F4 Dynamic Brake
F5 Doppler Horn
F6 Ditch Lights *(if equipped)*
F7 Dim the Headlights
F8 Startup/Mute/Shutdown
F9 Full Throttle
F10 Brake
F11 Classification/Marker Lights *(if equipped)*
F12 Switching Mode
F13 Gyralite or Rock Lights *(if equipped)*
F16 Flashing Ditch Lights *(if equipped)*
F17 Emergency Light *(if equipped)*
F19 Number Board Lights
F20 Spitter Valve

FUNCTIONS: MORE INFORMATION

F0 Headlight

Unlike the real thing, our B36-7 headlight is directional. It leads the way no matter which way you're going. Not like some fancy FP or FPA unit where it always stays on no matter which way it's going. If you want the headlight facing the opposite way of travel to be on, then read a little further on under the Switching Mode function.

F1 Bell

Probably one of the most difficult sounds to master is the bell, because it's such a noticeable feature and no matter what, chances are they all had their own unique tone to them, whether they were air operated or electric. So it really is up to the user to chose a bell to their liking. Speaking of liking, don't get us started on E-bells! Jason loves E-bells. No, we don't understand it either. Check the "Custom Sound Settings" section for details on how to customize your bell from the standard.

F2 Horns

We love our horns. Like really! Seriously, who doesn't love a good sounding horn? So we're now providing a wide range of horns for you to apply to your locomotive as appropriate or as you see fit (even if it's not appropriate). To get a short "toot" just tap F2 or your "HORN" button. If you hear a long tail-off you are tapping for too long. If, no matter what you do, you just can't get the darn thing to make a short "toot," switch to NCE. The default horn is a Leslie S-3L-R, but we've included many others. Refer to the "Custom Sound Settings" section below.

F3 Flange Squeal

We first introduced Flange Squeal on our HO scale SW1200RS in 2018 and since then, everyone has wanted it on every … single … model … we … make. People even want us to make sound decoders for freight cars! Press F3 to turn it on. Press F3 again to turn it off. If your neighbor complains about that nasty racket, just keep F3 on and say you can't hear them and maybe they'll go away.

F4 Dynamic Brake

Press F4 to get dynamic brake sounds. Who does that? Well apparently a lot of people because once upon a time, we got flak for putting it in the upper tiers of functions on our old locomotives. So for that, we apologize and have brought it to the forefront of functions for your acoustic pleasure.

F5 Doppler Horn

You can play this when approaching level crossings or any other whistle post. The doppler is nicely timed for a moderately paced train blowing for a level crossing. When you change the default horn for F2, the doppler horn will also change to the appropriate tone as well. It's like we're wizards or something!

F6 Ditch Lights *(if equipped)*

F6 turns on the ditch lights. Unlike the prototype, the ditch lights are directional (just like the headlights). Remember to press F7 to temporarily turn off the ditch lights when approaching a station or an oncoming train as they are BLINDING and we currently do not offer HO scale sunglasses for your customers. And when you apply

the horn using F2, the ditch lights will flash until a few seconds after the audio stops. If you are using the Doppler horn, you need to press F16 to start flashing your ditch lights and F16 again to stop them from flashing. And BC Rail customers, due to Canadian regulations, your ditch lights don't flash at all. Sorry, eh.

F7 Dim the Headlights

When approaching a station stop or an oncoming train, press F7 to dim your lights and turn off your ditch lights – you don't want to blind your passengers or the oncoming train's engineers. See our note above about sunglasses. It will also turn off any other potentially blinding lights you may be running. Not dimming your lights is a direct violation of what's commonly referred to as "Rule 17". The internet can answer all your questions about said rule.

F8 Startup/Mute/Shutdown

While your locomotive is stationary, pressing F8 will begin the startup sequence of the engine sounds. If your locomotive is silent but already in motion, pressing F8 will skip the startup sequence and simply turn on the sound. If the sound is already on, press F8 to mute the sounds. If your locomotive is stationary, then you will hear the engine shut down sequence before the sound turns off.

> *If you have a DCC system that only allows eight functions, you can remap the functions following the guidelines in the ESU LokSound V5 manual, which can be downloaded from the support section of our web site. Or you can upgrade to a newer DCC system, which may be less stressful.*

F9 Full Throttle

ESU's "Full Throttle" feature allows you to play the prime mover of your B36-7 like a musical instrument. When you press F9, you turn on "drive hold." This keeps the speed of the engine constant at whatever speed step your throttle happens to be on. Then as you increase the throttle, you hear the prime mover revving up. This sounds awesome, whether you're taking off from a commuter station stop at warp speed, or trying to get that long, slow freight over the grade.

"Full Throttle" is even neater when you throttle down, as it allows you to simulate "coasting" which is such an important part of running a real train. When you press F9 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 B36-7 may fly like an eagle, to the sea. Yes, fly like an eagle. Please don't make us sing the whole chorus.

F10 Brake

F10 works just like the brakes on a real engine. Press F10 and you put on the brakes. Turn off F10 and the brakes come off so you start moving again. ESU's Drive Hold feature has made the brake function more popular, so we've moved it up to F10 to match the ESU standard. The default sound is based on composite brake shoes but if you love your eardrums, you can change it to cast iron brake shoes and writhe in pain every time the train stops. Check the "Custom Sound Settings" section further on for how to change this.

F11 Classification/Marker Lights

When you press F11, your class lights will turn on. We're only offering white as that was the most common use of them, and many (if not all) were only installed with white lenses. White Class lights were used to signify a train was running as an extra in territory where train orders and schedules still applied. More on the use (and different colors) of classification lights can be found in the Google.

Now, if your B36-7 is painted in beautiful Conrail blue, then you're considered the chosen one. Your class lights are not only red, but the lenses are red too. So turn off the lights and watch those red lights glow. Use them when your unit is on the tail end of a light engine move or helping shove a heavy freight over the Appalachians.

If for whatever reason your engine is NOT decorated for Conrail and you have red class lights, then we feel that your unit may be possessed. Please contact Rapido on how to proceed without disturbing your demonized HO scale creature.

F12 Switching Mode

If you press F12, the headlight and rear light will both be on dim. This is appropriate for switching operations, which would be common in yards and terminals. This is the only way to turn on both the front and rear headlights at the same time. Doing so will also turn off your auxiliary lights too, namely the ditch lights and Gyralites. Press F12 again to turn off the switching mode and return to your regularly scheduled lighting.

F13 Gyralite *(Southern Pacific only)*

We know we've already said that SP really had this fascination with twinkly lights, and the Gyralite certainly qualifies as pretty high up on the twinkly scale. Yes we probably just made such a thing up, and yes we probably wish more railroads used Gyralites, because who doesn't like more lights? Press F13 to enable it and press it again to disable it. It's also directional so you don't have to worry about the headlight and Gyralite being on at opposing ends of the locomotive.

F13 Rock Lights *(BC Rail only)*

BC Rail customers will be pleased to see working rock lights included on a ready-

to-run model for once. Press F13 to enable these and press F13 again to turn them off. These were installed to improve visibility in the mountainous regions of the BC interior and could be found on almost anything BC Rail owned. Didn't their vans (that's "caboose" in Canadian speak) even have rock lights? Heck, didn't their conductors have rock light-equipped overalls too?

F16 Flashing Ditch Lights *(if equipped)*

If your locomotive is equipped with ditch lights, and it is *NOT* a BC Rail unit (sorry again, eh) then you can toggle the ditch light flashing sequence by using F16. This is great if you want to have the ditch lights flash without sounding off the horn, or if you want them to flash while playing the doppler horn. Hey, we did say we like twinkly lights!

F17 Emergency Light *(Southern Pacific only)*

Didn't we say something about SP fans getting the good stuff? Pressing F17 turns on the emergency light on the front of the locomotive. This was used to signal a rapid air loss and/or emergency brake application. While we made every effort to get the rear one to work as well, we just couldn't get the wiring in there. So regardless of direction, the front emergency light will pulse in all its red lensed brilliance. Press F17 again to turn it off.

F19 Number Board Lights

The number boards are on all the time as a default. We hate having to turn number boards back on after a power failure. If you want to turn off the number boards, just press F19.

F20 Spitter Valve

To save you from the saliva clean-up should you try to mimic the sound of the spitter valve, we've provided its sporadic sounds on F20. By default it's always on, as the real thing would always be going when the locomotive is running (and for a few minutes after it's shut down). But if you prefer to not hear it at all, just press F20 to silence the spit.

CUSTOM SOUND SETTINGS

We used to call this section "Horns and Bells" but it's entirely the B36-7s fault that we changed it. Actually it's because the V5 decoder offers so many sound setting options, we almost can't contain our excitement. (Note: the excitement has been contained.)

The B36-7 was used by a number of operators and, as such, were equipped with a multitude of different horns, and could even feature slightly different bell tones, different brake materials and everything else in between.

The default horn on your model is a Leslie S-3L-R. We have zero scientific justification for doing this other than it sounded nice during a blindfold test with our secretary without her permission. You can change the default horn by changing the value of CV 163. We've also chosen defaults in the remaining categories, because someone had to make the important decisions. They can all be changed by adjusting the value of their respective CVs.

Horns
- CV 163=0 Leslie S-3L-R *(Default)*
- CV 163=1 Nathan K-5L
- CV 163=2 Nathan K-5L-R24
- CV 163=3 Nathan P-3
- CV 163=4 Nathan P-5

Bells
- CV 164=0 GE Steel Bell #1 *(Default)*
- CV 164=1 GE Steel Bell #2
- CV 164=2 GE Steel Bell #3
- CV 164=3 GE Steel Bell #4

Brake Squeal
- CV 165=0 Composite Brake Shoes *(Default)*
- CV 165=1 Cast Iron Brake Shoes

Air Dryer
- CV 166=0 Air Dryer #1 *(Default)*
- CV 166=1 Air Dryer #2
- CV 166=2 Air Dryer #3
- CV 166=3 Air Dryer #4

Note that after you change the horn, bell or any other sound effect, you may need to cycle the power (turn it off and on). And changing the default horn automatically changes the doppler recording on F5 too.

SOUND VOLUME SETTINGS

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

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

To set the volume levels go into the program mode on your DCC system (refer to your system's manual for instructions on how to do this as each system is slightly different); enter the desired CV number; then enter the desired levels. Note that this can be done either on a programming track or on the main (ops mode) if your DCC system supports programming on the main.

We strongly recommend that you keep notes on which settings you have changed and which values were used. If you ever need to do a reset on the decoder (see "Factory Reset" below) then having good notes will allow you to easily re-enter any changes that you wish to keep.

— VERY IMPORTANT —

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

B36-7 SOUND VOLUME SETTINGS

KEY	FUNCTION	CV	DEFAULT	RANGE	YOUR VALUE
	Master Volume	63	155	0-192	
F1	Bell Volume	283	60	0-128	
F2	Horn Volume	275	128	0-128	
F3	Flange Squeal Volume	435	30	0-128	
F4	Dynamic Brake Volume	299	75	0-128	
F5	Doppler Horn Volume	347	128	0-128	
F8	Diesel Volume	259	110	0-128	
F10	Brake Set/Release Volume	483	40	0-128	
F20	Sarco "Spitter" Valve Volume	387	90	0-128	
	Brake Squeal Volume	259	60	0-128	
	Air Compressor Volume	307	60	0-128	
	Radiator Fan Volume	315	40	0-128	
	Air Dryer Volume	387	80	0-128	
	Air Dryer Volume (on shutdown)	395	80	0-128	

FACTORY RESET

On your B36-7 you can perform a factory reset by entering a value of "8" into CV 8. Note that this will cause all of your new volume and motor settings to be lost, so you will need to reprogram any settings that you want to keep. What do you mean, you didn't take any notes? WE JUST TOLD YOU TAKE NOTES. If we had a band, you'd be kicked out of it. Again!

You can NOT lose all of the pre-recorded sounds on your B36-7 decoder by doing a factory reset. However, after performing a factory reset your B36-7 may begin to sound like John Madden repeatedly calling a penalty over and over again during the NFC championship game. OK John, we get it, there's a flag on the play. That was 10 minutes ago! Anyway, if that happens, you have probably lost your mind.

We also don't know how to change the play-by-play voice to Pat Summerall either, so just sit back, grab some pretzels and enjoy the game.

By the way, pay no attention to the person breaking into your layout room attempting to steal your Rapido B36-7 because they misread the instructions on Page 4.

AWESOME SLOW SPEED THINGY

There is an awesome trick that you can use to get even better slow speed running and smoother operation. It's called the Automatic Motor Tuning Feature. This feature will automatically adjust the Back-EMF in most cases and give you phenomenal slow-speed performance. WE HIGHLY RECOMMEND YOU DO THIS FOR ALL YOUR ESU-EQUIPPED RAPIDO ENGINES.

In order to use this automatic adjustment, you need to use Ops mode programming, i.e. programming on the main. Make sure your locomotive is in "forward" and that you have lots of room in front of it on your mainline. You may have to set up pylons or a work block to keep other errant model railroaders from entering your territory. Set CV 54 to a value of 0. Then get out of programming mode and turn on the bell (press F1). We'll say this again: Make sure you have plenty of room in front of your locomotive and it is not headed for the layout edge and the basement floor!!!

Your B36-7 will quickly take off at full speed and suddenly stop. If you had previously installed an HO scale crew without HO scale seatbelts, you may want to dispatch an HO scale ambulance to attend to the injured. After that, you'll have fabulous motor control. If you ever have to reset your locomotive, you can do the automatic adjustment thingy again – it just takes a few seconds. Just remember to install the seat belts if you haven't already.

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 V5 decoder manual. This is available in the Support section of our web site.

LIMITED "FIVE-YEAR-ISH" WARRANTY

We will do our best to solve any problems or issues that you may have with your B36-7 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. And while we would love to have an infinite supply of spare parts, note that eventually these will run out too. If you are like most of us and – after purchasing this locomotive – you dismissed it to the collection shelf under the darkest corner of your layout and are now just discovering it 30 years later after your friend at the club ran theirs, then you are on your own if there are any issues. Jason is long retired and probably touring the country on our restored sleeping car, Edmundston. The rest of us have also retired but probably don't have the luxury of our own private rail car. And we're not bitter at all. Really.

There are a number of things that this warranty cannot cover. If your B36-7 arrives with a couple of loose grab irons or underbody bits, there is a very good chance that you can affect 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 works wonders for securing all sorts of parts and will not mar or damage your paint. However, if parts are missing that is another story – call us or send us an email and we'll send you some replacements.

Of course, damage caused by running your locomotive at full speed around a 15"-radius curve along the edge of your layout, weathering it with canola oil, modifying your locomotive to work off diesel fuel, pouring kerosene on it and lighting it on fire to make it smoke like a proper GE engine, or any other damage caused by you that we haven't been able to cover here is not covered by the warranty. However, if catastrophe does strike and your locomotive gets damaged, please give us a shout and we'll do our best to help you out. Yes, even if it was your fault we will try our best to fix your locomotive for you. Don't be shy.

ACKNOWLEDGEMENTS

The B36-7 project was one that really pushed the limits and took Rapido into a new market. Never had we produced a modern freight locomotive before, and in a market where we're still making inroads, we hope that this model continues to show what we are all about. It's also one of those locomotives that seems to have been glazed over for far too long, so we took it upon ourselves to finally give it its due. Of course, to do so means that we must call upon some experts for their input.

Thanks go to: Dave Abeles, Thomas Austin, Brian Banna, Gareth Bayer, Brian Bennett, Chris Bryant, Central Penn Rail Productions, Matt Gentry, Aaron Heine, Nick O'Dell, Stephen Priest, Tony Sissons and Harry Wong.

A special thank you goes out to the men and women of the Minnesota Commercial Railway, for their assistance towards this project.

And last but not least, not only do we want to thank, but we also want to dedicate this project to the men and women of the now shuttered Transkentucky Transportation Railroad for all their help and support during their final months of operation. Without you, we don't know if this project would have been made a reality.

Wait, hang on. We're missing someone. Oh right, the translator guy. His name is Richard Longpre (that's pronounced "long prey") and he's been doing these translations for us – under protest – for the last 36 years. Yes we know, we've only been around for 15 years, but he likes to remind us that every time we ask him to do one of these manuals in French, it ages him terribly. And if you're looking for the French version of this manual which he so eloquently wrote, it's only available on our website rather than being an additional 20-ish pages of this manual. Sorry Richard, maybe next time.

CONTACT US!

Rapido Trains Inc.
500 Alden Road, Unit 21
Markham, Ontario
L3R 5H5 Canada

Tel. (905) 474-3314
Toll Free 1-855-LRC-6917
Fax. (905) 474-3325
Email. trains@rapidotrains.com

Transkentucky Transportation B36-7 #5815, which was measured and 3D scanned for the Rapido B36-7 Project.

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