



CANADIAN PACIFIC RY
ANGUS SHOPS MONTREAL

D 10

OPERATION
INSPECTION
AND
MAINTENANCE
OF STEAM
LOCOMOTIVES

RAPIDO TRAINS INCORPORATED
MARKHAM • ONTARIO • CANADA

CP D10 4-6-0 LOCOMOTIVE PRODUCT GUIDELINES

Thank you for purchasing the next release in Rapido's Icons of Canadian Steam series – the Canadian Pacific's most prolific steam engine, the Ten-Wheeler D10.

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 20 years now and have been pumping out a lot of beauty Canadian products. We've produced a metric tonne of Canadian products, like the *Canadian*, Royal Hudson, Dash 8-40CM, RS-18u, RSC-14, M-420, GP9RM+slug, F59PH, etc. So just for that, we're going to make sure you LOVE your D10. And then you'll say to yourself, "What have We missed out on all these years? We need to find and buy every Rapido model that has ever been made, in every scale! Especially the UK ones!" Then someone will yell at you for referring to yourself in the 3rd person like royalty when you clearly are not.

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 end of the layout, don't coat it in marshmallow Fluff, 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 (but at least it will melt the Fluff into goeey goodness!).

If this is your first Rapido Manual, we should warn you up front – there's usually a good amount of humour through these manuals. Well, at least we think so. We have gotten some comments from people that don't agree, but we suspect that they have had their sense of humor surgically removed (we think it's near the spleen). After all, model railroading is supposed to be fun!

As always, if there is anything amiss with your D10, please do not hesitate to contact us. We stand by our products 100%. The best way to contact us is through email (service@rapidotrains.com) but you can also try to reach us by phone, the postal service, or two cans with a string (you must provide the string). 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 (sometimes only the FIRST name), meaning we have no idea what's wrong with it! (Hey Rick – your package of pantographs is still sitting on the shelf in our bathroom.) If the issue with your model is 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 D10 for a considerable length of time, please realize that eventually the parts supply will run out. That, or the Earth will be overrun by tribbles and all humans will become their pets; 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 quadrotriticale) left to do your repair.

TABLE OF CONTENTS

Prototype History..... 4

Assembling Your Locomotive 4

Break-In 5

How to Hold Your Locomotive 5

Checking and Adjusting Your Locomotive 6

Missing or Damaged Parts 6

Additional Features 7

Removing the Shell..... 8

Operation – DC (Silent) 10

Installing a DCC Decoder..... 10

Operation – DC (Sound) 11

Operation – DCC (Sound) 12

- Locomotive Address 13
- Turn On the Sound 13
- Functions 14
- Custom Sound Settings 18
- Mo-Power 19
- Sound Volume Settings 19
- Sound Volume Settings Chart 20
- Factory Reset 20

More Information 21

Limited Warranty 21

Acknowledgements 22

Contact Us 22



LOK SOUND
EST. 1999

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

D10 DCC FUNCTIONS

- | | |
|------------------------------------|---|
| F0 Directional Headlights & Dynamo | F15 Doppler Whistle |
| F1 Bell | F16 Injector |
| F2 Whistle | F18 Ash Dump |
| F3 Coupler Clank | F19 Blowdown |
| F4 Coast Mode | F20 Safety Valve |
| F5 Coal Shoveling | F21 Air Pump Slow |
| F6 Class Lights | F22 Headlight (<i>without dynamo</i>) |
| F7 Dim the Headlights | F24 Blower |
| F8 Chuff Sounds | F25 Oil Burner Blower |
| F9 Heavy Load Mode | F26 Short Whistles |
| F10 Independent Brake | F27 Air Pump Fast |
| F12 Manual Cylinder Cocks | F28 Auto Brake Set/Release |
| F13 Cab Light | F29 Flange Squeal |
| F14 Numberboards | F30 Rod Clank Off |

PROTOTYPE HISTORY

The D10-class Ten-Wheeler was the most numerous class of steam locomotive not only for the CPR but in all of Canada. Five hundred and two of these useful 4-6-0s were built between 1905 and 1913, and many lasted until the end of CP steam service in 1961. D10s were employed in freight and passenger work across Canada and into the United States on CP's many lines. There is truly no more useful locomotive for any steam-era CPR layout than the D10.

The D10 design, introduced in 1905, was a reasonably powerful 4-6-0 which would be versatile and satisfy many different applications. Orders for D10s were placed simultaneously with CPR Angus Shops, Montreal Locomotive Works, and the Canadian Locomotive Company in Kingston, Ontario. Forty were built in the U.S.A. by Richmond Locomotive & Machine Works and Schenectady Locomotive Works. The D10 top speed was 65 mph but they were quite rough riding at higher speeds because there was no trailing truck to stabilize them. The D10 was a straight forward design, relatively easy to maintain, tough and dependable. D10s were well-liked by engine crews and shop forces and were used on almost all of CP's lines across the country in both branch and mainline service.

Designed by H. Vaughan soon after he joined the CPR in 1904, the D10-class followed the design of the earlier D9s with the main difference being that the D10s were superheated locomotives. Vaughan was a great proponent of superheating and he can be credited with bringing the CPR into the modern age. Locomotives equipped with superheaters had a fuel saving of approximately 10%. Simplicity, robustness and an ability to go more or less anywhere on the system ensured that the D10s enjoyed a long working life. The D10g and D10h engines had 63-inch diameter drivers, 21" X 28" cylinders, an engine weight of 202,200 lbs, a total engine and tender in working order weight of 351,200 lbs, a maximum tractive effort of 33,000 lbs, and overall wheel base 54' 1". They were hand-fired coal burners with open cabs. The tender's capacities were 5,000 Imperial gallons of water and 12 tons of coal.

When built, the engines were numbered in the 2700-series but in the 1912 reclassification of power, the D10g class were renumbered to the 900-series.

ASSEMBLING YOUR LOCOMOTIVE AND TENDER

Put your locomotive and tender on the track. Note the plug on the locomotive needs to go into the socket on the tender. If the locomotive or tender is not properly on the track, the plug and socket will not connect. Connecting them is super easy and smooth. They just click together. If they do not click together, **DO NOT FORCE THEM**. Check that the plug and socket are perfectly aligned. If you force them together and the plug and socket are misaligned, you will destroy your decoder.

BREAK-IN

Just so we're clear, that doesn't mean break into anyone's layout room to steal their D10. 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 D10 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 D10 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 LOCOMOTIVE

Hold your D10 gently, and with much love, care, and attention as your model has numerous delicate parts. If you want to back date it to be the quality of a model produced in the 1950s, then rip all the parts off and handle it like a box of poutine after skipping breakfast. We're assuming you don't want to do that, so the D10 should be picked up carefully. It is best to pick up the engine with the fingers of one hand along the bottom edges of the running boards (avoiding the air pump and reverser) while grabbing the bottom edge of the tender frame with the fingers of your other hand and lift both together. That way you won't leave greasy fingerprints on the boiler or tender and you also won't stress any of the delicate parts. **NEVER PICK UP A STEAM ENGINE BY THE VALVE GEAR OR SIDERODS!** They are very delicate. We also don't recommend using only one hand to pick up both engine and tender at the same time; there is no applause for juggling. Always make sure your hands are free of shmutz before touching your engine, otherwise you'll shmutz it up. However, if your hands have enough grease, soot, and oil on them, that could be quite realistic as clean steam engines only exist in museums.

If you are taking your D10 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 and attached 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, with the current global supply crisis, unobtainium has become unobtainable.

We suggest wrapping your D10 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 or very brave. Remember to apply the CA to the part and not to the model (don't ask us how we know this).

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 arguing over last night's mahjong game 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 leading or tender truck wheelsets be out of gauge, just remove the affected wheelset from the truck. The wheelset can be regauged by grabbing each wheel and twisting. **DO NOT TWIST A DRIVER WHEELSET!!!** If your drivers are out of gauge, please contact us for a replacement.
- Check that all piping and appliances are firmly installed and clear of the track. 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 tender and lead trucks swivel freely and without binding. If they catch on anything, check to ensure that the ends of the trucks don't bind against any underbody components. If they do, see that everything is firmly installed. If the engine is sitting at a 45-degree vertical angle, the leading truck is probably sideways so turn the truck around. Don't try to do wheelies with your \$600 steam engine model.

MISSING OR DAMAGED PARTS

If you open your D10 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 air pump back on you can do it yourself in less than a minute with a drop of white glue. You can't ruin the paint finish with 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. Just ask your granddaughter to install the part for you; it will take her at least three minutes.

We try to make our models courier- and mail-proof, but there really is no way to protect a model from damage when it is used in a game of football at the UPS

or FedEx distribution center. Model trains generally don't survive well after being "spiked" because Mikey strip sacked the QB near the warehouse loading dock.

If you see some parts 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

Of course, like any steam engine, the D10s appearance changed over the years with several variations in design based on updated technology and style. Let's have a look at what some of the interesting D10 features are:

TENDER

From 1941 to 1956 a number of D10g/h engines were converted from using coal to Bunker C oil for service primarily in British Columbia.

HEADLIGHT

When delivered, D10s had a half-moon headlight mounted on the top of the smoke box and a number plate in the center of the smokebox. Later many were fitted with a cylindrical Pyle-National headlight centered on the smokebox door.

FRONT NUMBERBOARDS

A flat numberboard atop the front of the smokebox was the original mounting location after the headlight was moved to the center of the smokebox, but this was later changed to an angled numberboard that was easier for towermen to read as the engine sped past.

POWER REVERSER

Some D10s were upgraded with a power reverse mechanism, a device that made switching movements easier for the engineer. It was along the right-side running board.

BELL LOCATION

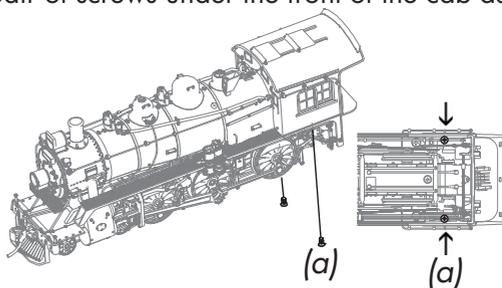
When delivered the bell was mounted behind the stack but later many had the bell relocated to between the two domes.



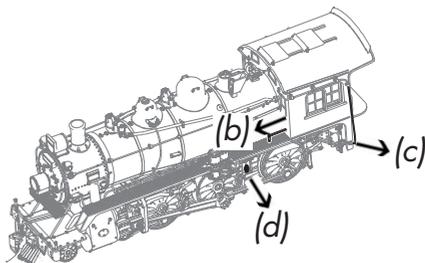
REMOVING THE SHELL

If you need to open your D10 to install a crew or a decoder, 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.
- 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?
- To remove the boiler, first remove the smaller pair of screws (a) on the bottom of the cab that are centered under the windows; these are partially covered by flexible pipes you should be able to move out of the way with the screwdriver. (NOTE: Do not remove the larger pair of screws under the front of the cab as they hold the chassis together.) Those of you familiar with other model steam locomotives may rush ahead, assuming that the pilot truck screw will need to be removed. You'd be wrong. HAH! We bet you wished you read this first, eh? Read on...

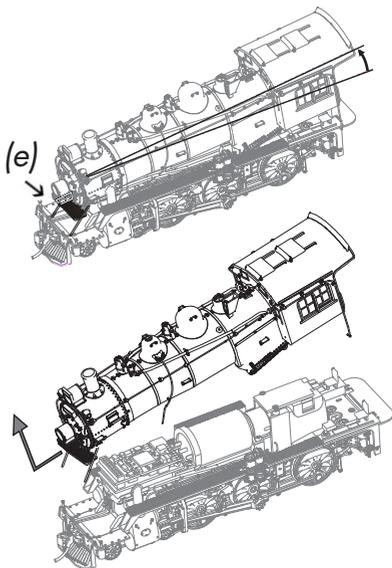


- Near the bottom of the external front wall of the cab, remove each small lever (b) that connects the front cab wall to the walkway.
- The bottom pin of each vertical grabiron (c) at the rear of the cab side needs to be disengaged from the chassis and moved slightly to the rear (you can leave the rest of the grabiron connected to the cab).



- The boiler blow down valve (d) on the fireman's (left) side of the firebox between the #2 and #3 drivers needs to be removed.

- Under the smokebox at the front of the engine are two angled wire rods (e) connected to each other by a platform under the headlight. These rods need to be disengaged from the pilot deck and lifted clear from the holes at the front of the chassis.
- Lastly, lift up slightly on the rear of the cab to raise the cab/boiler assembly clear of the cab seats, and then move the boiler slightly forward to clear the latch on the underside of the smokebox. Once unhooked at the front, the entire boiler can be lifted straight up and clear of the chassis.



If you are working in a zero-gravity environment, the chassis will slowly drift away from the boiler. On the other hand, if you are not in a zero-gravity environment, remember that gravity sucks. If you hold your loco boiler upright, the chassis will now plummet to the nearest solid object. Hopefully that is not a concrete floor. You may want to do this carefully over some foam sheet (painted white!) on top of your white workbench.

- If you wish to change out the decoder, then just follow the previous steps about removing the boiler. It will expose all the wonders that lie within.
- If you wish to install a crew inside your D10, removing the boiler isn't necessary as the back of the cab is wide open. Just use some tweezers and put an engineer (on the right) and fireman (on the left) into their seats. We recommend using a removable adhesive like Hob-E-Tac® because if the figures stick out of the side windows, it will prevent the removing of the cab/boiler from the chassis. We suppose you could chop their arms and heads off, but then you'd have a zombie train crew.
- The open the tender up, simply remove the screws under each corner of the tender chassis and the tender tank will lift clear.

At this point you should have the entire boiler off the frame and the tender in two pieces, as long as you followed our simple instructions. We don't know how to put them back together, 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 models because you broke a part off 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 loco 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 an infinite supply of boilers, cabs, and detail parts to replace broken or missing parts. Pro tip: if you're going to break something, do it sooner rather than later while we still have the parts.

OPERATION – DC (SILENT)

If your D10 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 track inspection lights, firebox glow, and numberboard(s) are always on, and the headlights are directional along with the white class lights; they are lit while running forwards and turn off in reverse. All other lights 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 D10 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 D10 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? Didja know that hockey season starts soon?

INSTALLING A DCC DECODER

The D10 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 non-sound 21-pin decoders:

- ESU #59029 - LokPilot 5 Basic with 21MTC
- ESU #59629 - LokPilot 5 DCC with 21MTC

We feel the 21-pin connectors are superior because there are enough pins to ensure that all your lighting functions are connected. The necessary resistors are included on our motherboard so you don't have to futz around with resistors. Just plug in one of the recommended decoders 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 D10 function mapping which can be downloaded onto ESU decoders 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 59029 or 59629 decoders. If you don't have a LokProgrammer, you can adjust CVs in the usual way.

We will be selling D10 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 75, divide by $\frac{3}{4}$, multiply by $\sqrt{\pi^2}$, 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, eh?

OPERATION – DC (SOUND)

To operate your sound-equipped D10 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 D10, 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 D10 if one of these gadget-like thingies turns your locomotive's circuitry into something akin to glowing magma, but we can't guarantee we'll be able to.

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. The sounds are about as bang-on accurate as we can make them. D10s weighed in at some 350,000 lbs. in working order, therefore a certain amount of starting momentum has been pre-programmed into the decoder to replicate that massive weight. If you want to eliminate the delay to speed up, program starting momentum CV3=00, but when freight customers complain about their damaged cargo or passengers complain about their spilled drinks in the diner, don't blame us!

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 D10 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 or use a programming track booster.

— RECOMMENDATION —

We recommend that the tender be unplugged from the boiler and off the rails if using a DCC programming track. The Mo-Power (see page 19) device in the tender can soak up enough of the digital programming signal that there won't be enough energy to write to or read from the decoder; even programming track boosters don't always work.

TURN ON THE SOUND

Press F8 and you will hear the D10 start hissing as it builds steam. Fortunately, you don't have to wait for an hour or two for the locomotive to build up to a full working pressure. You can just drive off and listen to the wondrous noise! 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 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 D10 hissing nicely and then you select another engine with your throttle, your locomotive still thinks F8 is pressed so it will keep

simmering. However, if someone else selects your locomotive's number and F8 isn't pressed on their controller, the D10 will promptly go silent. They will need to press F8 again.

FUNCTIONS

F0	Directional Headlights & Dynamo	F15	Doppler Whistle
F1	Bell	F16	Injector
F2	Whistle	F18	Ash Dump
F3	Coupler Clank	F19	Blowdown
F4	Coast Mode	F20	Safety Valve
F5	Coal Shoveling	F21	Air Pump Slow
F6	Class Lights	F22	Headlight (<i>without dynamo</i>)
F7	Dim the Headlights	F24	Blower
F8	Chuff Sounds	F25	Oil Burner Blower
F9	Heavy Load Mode	F26	Short Whistles
F10	Independent Brake	F27	Air Pump Fast
F12	Manual Cylinder Cocks	F28	Auto Brake Set/Release
F13	Cab Light	F29	Flange Squeal
F14	Numberboards	F30	Rod Clank Off

FUNCTIONS: MORE INFORMATION

F0 Directional Headlights & Dynamo

Starts up the dynamo, then turns the headlight on in the direction of travel when the dynamo generates enough power. Reversing the direction will change the light to the one on the tender deck. Pressing F0 again will power down the light and dynamo. If you want to turn on the headlight without the dynamo sound, see F22.

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. We have provided five slightly different bell sounds so that you can add a little variety to your huge fleet of D10s. You DO have a huge fleet of D10s, don't you? You can choose between the bells by changing CV164 to a value of 0 through 4.

F2 Whistle

We love our whistles. Like really! Seriously, who doesn't love a good sounding steam whistle? So, we're now providing a wide range of whistles 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 too long. We've included ten whistle options; change CV163 to a value of 0 through 9 to select them. Refer to the "Custom Sound Settings" section below to see which whistles are which (say that five times fast).

F3 Coupler Clank

The real D10, including its tender, weighs over 175 tons, and when it couples up to a 50 ton freight car or an 80 ton passenger car, there's going to be some noise. Hit F3 to get that noise. It helps, of course, to hit F3 the moment you strike the coupler of a car, otherwise it makes it sound possessed by spirits of scrapped D10s.

F4 Coast Mode (Rod Clank)

Coast mode simulates the engineer closing the throttle, either to slow down or when going downgrade. Pressing F4 will disable the throttle and drop the sound volume down to a drift. You'll hear the rod clank. You can then use the throttle to adjust the chuff level to where you want it. Pressing F4 again will return to regular operation.

F5 Coal Shoveling

Pressing F5 activates the shoveling sound to replicate the fireman hand firing the loco. If your D10 is an oil burner, don't press F5; it would stuff up the firebox something fierce and you'll be a fired fireman. Use F25 to hear the oil being injected.

F6 Class Lights

Turns the class lights on. Pressing the function repeatedly will run through a white / green /off sequence. Green lights were used to designate that a second section was following, while white class lights meant it was an extra movement.

F7 Dim the Headlights

When approaching a station stop or an oncoming train, press F7 to dim your lights – you don't want to blind passengers on the platform or the oncoming train's engineers. 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 Chuff Sounds

Normally, this is where the start-up and shut-down function is located, but we didn't think anyone wanted to listen to that multi-hour process. Besides, the sound decoder doesn't have enough memory. Instead, pressing F8 turns on the exhaust chuffs, the firebox glow, and the other automatic sounds, but you can still blow the whistle, ring the bell, etc.

If you have a DCC system that only allows eight functions, you can remap the following 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 Heavy Load Mode

"Heavy Load" allows you to adjust the "Steam Cut Off Valve" at any speed allowing for a fierce full chuff or drifting with snifters and rod clanks. Heavy load can also act as an offset allowing speed adjustments when engaged if desired. Pressing F9 again returns to normal operation.

F10 Independent 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 can start moving again. Change CV165 from 0 to 5 to hear the various glories that are cast iron brake shoes.

F12 Manual Cylinder Cocks

Before starting off, you should open the cylinder cocks to clear any condensation from the cylinders to prevent bending a piston rod. You can shut them again once the train is moving. Note that this is an automatic sound as well that is activated if the engine has been sitting for a period of time.

F13 Cab Light

When the sun sets or you are in a tunnel, how do you read your train orders (or see our awesome backhead detail)? Lighting an oil lantern wasn't easy in a cab being jostled about at speed (and back then a "cell phone" was the phone inside the local jail), so just turn on the cab light instead. Just remember to turn it off as soon as possible so as not to ruin your night vision.

F14 Numberboard(s)

The numberboard(s) are lit by default. We hate having to turn numberboard(s) back on after a power failure. If you want to turn them off, press F14.

F15 Doppler Whistle

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 whistle for F2, the doppler whistle will also change to the appropriate tone as well. It's like we're wizards or something!

F16 Injector

Your boiler needs water over the crown sheet of the firebox or it will explode. Press F16 to put water into the boiler from the tender. Use of real water will void your warranty.

F18 Ash Dump

After a hard run, pull up on the ash pit and dump the ashes by pressing F18. However, oil burners don't have ash! Hey you Western guys, DON'T PRESS THIS!

F19 Blowdown

Clean out any crud that may have accumulated in the lower parts of the water jacket and mud ring by pressing F19. Just make sure that nobody is standing next to the loco when you do!

F20 Safety Valve

Let off some steam! Used to prevent boiler explosions due to over-pressurization, safety valves are mounted on the dome in front of the cab. Note that this sound is automatically generated at random as well, provided the fireman hasn't fallen asleep.

F21 Air Pump Slow

Activates a slow air brake pump sound, useful for just topping up the train line pressure after normal use.

F22 Headlight *(without dynamo)*

Electric lights on a steam engine are driven by a dynamo that, with a steady whine of escaping steam, spins a turbine generator. This can become annoying in a small layout room, so we've added the ability to turn on the headlight without hearing that sweet, high-pitched sound...all...the...time.

F24 Blower

Adds draft to the fire, for use when the engine is stationary or coasting.

F25 Oil Burner Blower

This feeds the fire on oil burners.

F26 Short Whistles

When you stop at a station, you give a short toot. When you're ready to depart, you play two quick toots. If backing up, you toot the whistle three times. F26 is quite useful for giving these kinds of quick whistle signals, especially if your F2 button likes to stick.

F27 Air Pump Fast

Activates a fast air brake pump sound, useful for when you've just coupled up to a string of cars that have no air pressure after sitting idle for a few weeks.

F28 Auto 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.

F29 Flange Squeal

If you don't have enough flange squeal in your life, re-map F29 to a lower function number so you can play it on your DCC throttle. It can be kind of high pitched and loud so you might want to turn it down. WE SAID YOU MIGHT WANT TO TURN DOWN THE FLANGE SQUEAL!

F30 Rod Clank Off

Not everyone feels our passion for rod clanks, so we've inserted a function to turn that sound off when you coast. To use it, however, will require re-mapping F30 to a lower function number so a DCC throttle can access it.



CUSTOM SOUND SETTINGS

The D10 engines were in use for decades and, as such, each one tended to sound a little different from her sisters. They could even feature slightly different bell tones, dynamos, air pumps, different brake materials and everything else in between.

The default whistle on your model is from CPR 4-6-2 #2317. We have justified doing this because it's a CPR whistle and we like it. You can change the default whistle by changing the value of CV 163 (*see below*). 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.

Whistles

- CV163=0 HVSR #3 Crosby 3-Chime
- CV163=1 D&RGW 5-Chime
- CV163=2 Soo Line #1003
- CV163=3 SP #4449 Daylight
- CV163=4 Single Chime Hooter
- CV163=5 CPR #2317 (*default*)
- CV163=6 Western Maryland 6-Chime
- CV163=7 CN 4-Chime
- CV163=8 PRR Banshee #1
- CV163=9 D&RGW #484

Dynamos

- CV 166=0 Soo Line #1003 Dynamo
- CV 166=1 K-27 #463 Dynamo (*default*)
- CV 166=2 T16.1 Dynamo

Bells

- CV 164=0 #3 HVSF Bell (*default*)
- CV 164=1 Pnuematic Bell
- CV 164=2 Rope Pull Bell
- CV 164=3 Soo Line #1003 Bell
- CV 164=4 D&RGW K-27 Bell

Brake Squeal

- CV 165=0 Brake Squeal #1 Long
- CV 165=1 Brake Squeal #1 Short
- CV 165=2 Brake Squeal #2 Long
- CV 165=3 Brake Squeal #2 Short
- CV 165=4 Brake Squeal #3 Long
- CV 165=5 Brake Squeal #4 Short

Reversers

- CV 168=0 Manual Johnson Bar
- CV 168=1 Power Reverse

Air Pumps

- CV 167=0 Cross Compound #1 Soo Line #1003
- CV 167=1 Cross Compound #2 K-27 #463
- CV 167=2 Single Stage #1 Z27
- CV 167=3 Westinghouse Single Stage HVSR #3

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.

MO-POWER

This model is equipped with Mo-Power, our capacitor-based temporary energy storage system that lets a locomotive travel over dirty (or dead) rail spots without stopping. The length each loco can move without track power varies by condition of both track and model; your mileage may vary, long-distance rates may apply. NOTE: You will *not* have control of the loco when running on Mo-Power energy, and if you're used to a loco stopping when it shorts at a mis-aligned switch, forget it. Like the prototype, it's not going to stop just because the points are thrown against you (at least until the capacitors are drained). The lengths we go to for more realism!

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 settings.

Or just get a LokProgrammer. No, we will not teach you how to use it!

D10 SOUND VOLUME SETTINGS

KEY	FUNCTION	CV	DEFAULT	RANGE	YOUR VALUE
	Master Volume	63	155	0-192	
F0	Headlight/Dynamo Volume	379	120	0-255	
F1	Bell Volume	283	70	0-255	
F2	Whistle Volume	275	220	0-255	
F3	Coupler Clank Volume	315	70	0-255	
F4	Coast Mode Volume	475	45	0-255	
F5	Coal Shoveling Volume	291	90	0-255	
F8	Chuff Volume	259	255	0-255	
F10	Independent Brake Volume	427	85	0-255	
F12	Manual Cylinder Cocks Volume	491	150	0-255	
F15	Doppler Whistle Volume	419	220	0-255	
F16	Injector Volume	411	40	0-255	
F18	Ash Dump Volume	363	64	0-255	
F19	Blowdown Volume	443	100	0-255	
F20	Safety Valve Volume	347	128	0-255	
F21	Air Pump Slow Volume	299	60	0-255	
F24	Blower Volume	395	70	0-255	
F25	Oil Burner Blower Volume	307	95	0-255	
F26	Short Whistle Volume	459	240	0-255	
F27	Air Pump Fast Volume	467	60	0-255	
F28	Manual Notching Logic Volume	467	20	0-255	
F29	Flange Squeal Volume	371	85	0-255	

FACTORY RESET

On your D10 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 the pre-recorded sounds on your D10 decoder by doing a factory reset. However, after performing a factory reset, your D10 may begin to binge watch *Doctor Who* episodes and recite lines from the song *Love Potion Number Nine* by The Searchers. If that happens, you have probably lost your mind. But don't worry. Just sit back, grab some popcorn, and enjoy the show.

By the way, pay no attention to the person breaking into your layout room attempting to steal your Rapido D10 because they misread the instructions on Page 4.

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 WARRANTY

We will do our best to solve any problems or issues that you may have with your D10 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. While we would love to have an infinite supply of spare parts and do our best to keep as many on hand as possible, eventually these will run out too. In some cases, future productions of the same locomotive may result in a parts supply being restocked, but that is not always guaranteed. If you are like most of us and – after purchasing this locomotive – you put it on 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. Not....at... all....

There are several things that this warranty cannot cover. If your D10 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 – contact us directly through our website or give us a call 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 60" high layout, weathering it with Vaseline, or any other unique damage caused by you and that we haven't been able to cover here is not covered by the warranty. If catastrophe does strike – even as the result of your own actions (or possible inactions) – and your locomotive gets damaged, please give us a shout and we'll do our best to help you out if possible. Don't be shy.

ACKNOWLEDGEMENTS

The D10 project was very much a labor of love as many of us on the Rapido team obsessively love these locomotives. However, this project would not have been possible without the extensive help and expertise provided by the following folks:

The Canadian Pacific Historical Association, Fred Headon, Andrew Jeanes, John Morris, Jeff Pinchbeck, John Riddell, and Brian Schuff.

Although Richard Longpré can translate 5000 words in 10 minutes, one fact remains: the translation of this manual would never have been so complete without the involvement of Claude Langlois, a veritable encyclopedia of Canadian steam locomotives.

- August 2023

CONTACT US! CONTACTEZ NOUS!

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



Tel. *Télé.* (905) 474-3314
Toll Free *Sans Frais* 1-855-LRC-6917
Fax. *Télec.* (905) 474-3325
Email *Courriel.* trains@rapidotrains.com
service@rapidotrains.com