EMD GP40X UNION PACIFIC LOCOMOTIVE

MANUAL OPERATOR TO TRAIN SIMULATOR

dovetail GAMES

Train Simulator - GP40X locomotive manual

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GP40X history

The EMD GP40X was an experimental type of four-axle diesel locomotive, which was part of EMD's development of their prime-movers to get more horsepower and newer technology into their range. It foretold of the GP50, SD50, GP60, and SD60, such as introducing microprocessor controls, digital speedometers, automatic fuel starters, as well as having a form of distributed power known as "locotrol," which involved the ability for multiple locomotives to be controlled at once from the lead unit via a remote-control radio system without the need of crew members activating or starting other units' motors or engines manually. Optional HT-B trucks were also produced for improved dynamic braking and suspension, yet they actually caused issues as opposed to improving them.

The EMD GP40X was an initial success, and led to the success and introduction of the GP50.

The EMD GP40X should not be confused with its original counter-part the GP40.

The main way of distinguishing it from other EMD four-axle diesel locomotives, is that it has flared radiators like the six-axle SD45 — however, the SD45 has three radiator grilles. Also some units, such as UP's, have HT-B trucks.

Info: https://locomotive.fandom.com/wiki/EMD_GP40X

Technical Data

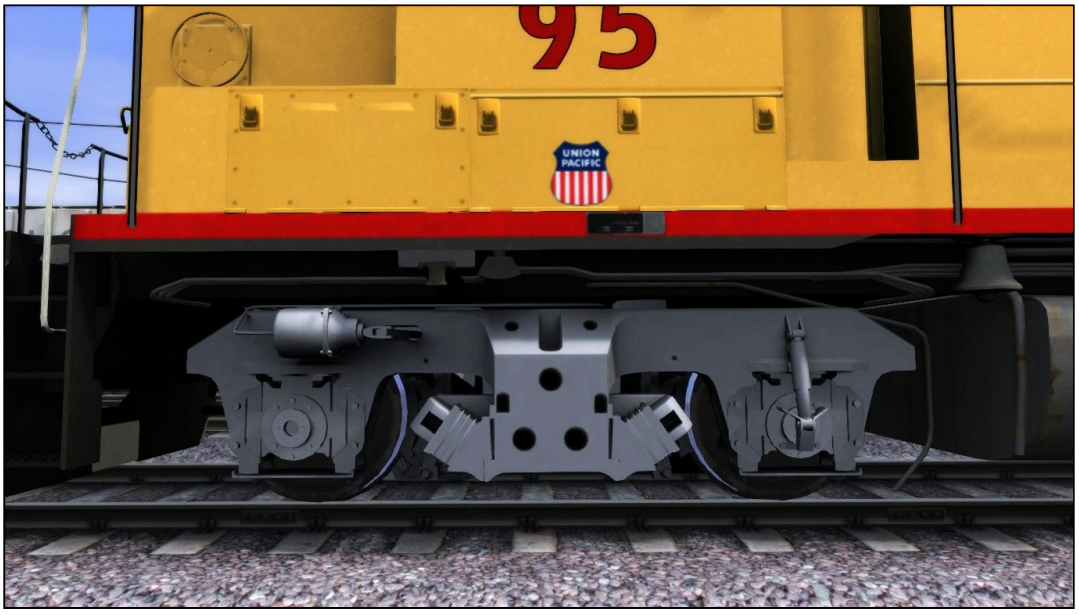
The GP40X was an experimental model of four-axle diesel locomotive, which was part of EMD's development to increase the efficiency of their prime-movers to obtain more horsepower or to attain the highest horsepower output possible with their existing 645 engine line; as well as introducing new technology into their range of diesel locomotive models, furthermore attempting to get ahead of the competition from GE. Having introduced the latest variant or version of the 645 series prime-mover or engine: the 16-645F3 (or 16-645F), the engine served as a milestone for four-axle or four-motor diesels by including an increased (yet over-stressed) rpm via an improved alternator: the AR10X2 (which eventually became the AR15), and the latest traction motor model: D87X (later D87) to help boost the usual horsepower rating of 3,000 or 3,200hp from the existing 16-645E3, to 3,500hp or 3,600hp. Although only a mere 500hp difference, the 645F3 engine model proved to provide a more efficient amount of tractive effort over the preceding GP40-2 and subsequent GP40; despite having proved to be plagued with issues once production began.

Model	GP40X	GP50
Production Dates	1977 to 1978	1980 to 1985
Total built	23	278
Length	60' 2"	60' 2"
Wheel arrangement	B-B	B-B
Engine (prime-mover)	16-645F3	16-645F3B
Horsepower	3,500	3,500
Alternator	AR10X2-D14	AR15-D18
Traction Motors	D87X	D87
Weight x 1,000 lbs.	274-278	

https://trains-and-locomotives.fandom.com/wiki/EMD_GP40X

GP40X Features

HT-B Experimental trucks. Cilinders and shoe brake animations



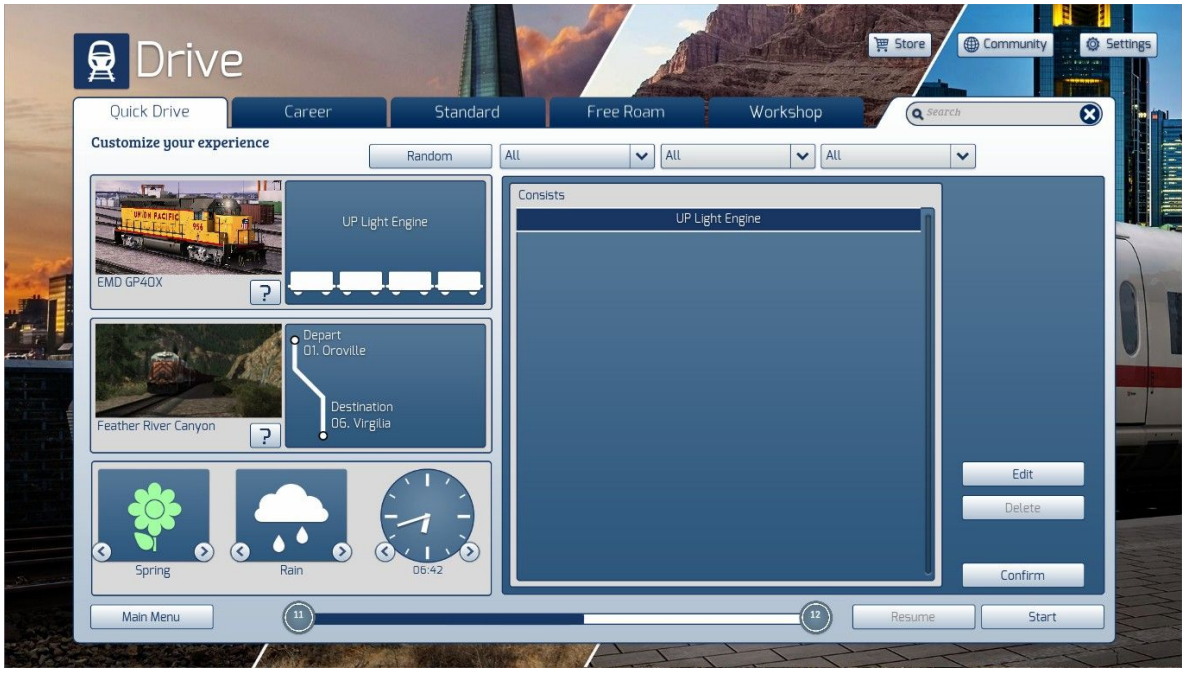
Ready to use with two to four digit numbering

Scenarios included

SHERMAN HILL route [GP40X] Fast Four:
In the midst of the storm. A train with empty carbon hoppers must make its way from Speer and arrive in Buford where it will await new orders.

SHERMAN HILL route [GP40X] Nitrate delivery:
You must transport some empty nitrate tank cars from Cheyenne yard to nitrate plant in Wycon. It is a local train. All switch are manual and you should ask for authorization of passage when leaving Cheyenne yard.

Quick Drive compatible to make a consist



How to Use in Your Own Scenario

To use it in scenarios, you need to activate the developer and the product in the editor.

This package contains the "ND" non-driver locomotive version

Advanced Braking Quick Reference Guide

1 Getting Moving

- Move the Train Brake handle towards Release - it will latch around 17%
- Release the keyboard button
- Wait a second
- Move it towards release again and it will move towards 0% and release
- Observe ER moves to 90psi
- Observe BP rises towards 90psi
- Observe BC drops towards 0psi
- Once BC is at 0psi, brakes are released on the loco and will begin releasing down the length of the train
- Apply Run 1 throttle and wait for the train to begin to move, once it begins to move you can start to apply more power

2 Going Down Hill

- Move the Dynamic Brake handle to Setup
- Move the Train Brake towards Apply, it will latch at around 24% for Initial Application
- Observe the ER moves to 84psi (6lb application)
- Observe BP rapidly drops to 84psi to follow
- Observe BC rapidly applies and stabilises around XYZpsi
- Brakes are now on a minimum application at the loco, the rest of the brakes on the train should respond relatively rapidly
- Once approximately 10 seconds have elapsed after the Dynamic Brake handle was moved to Setup, begin moving it further towards Apply in order to achieve more braking
- If Dynamic Brakes are not holding the loco, gently move the Train Brake a small amount to apply some more air brake but note that beyond the initial application the brakes are much slower to respond and it will take time to get the extra braking effort along the length of the train
- If you find yourself slowing too much even without Dynamic Brakes then you should bring the train to a stop, then release the brakes. It will take some time for the brake pipe to recharge and if you try to release the brakes while moving you may be going too fast before you can re-apply the brakes.

- At the top of a steep incline, you may wish to set handbrakes on some wagons using the coupling view
- this is equivalent to standard railroad practice of using retainer valves to maintain air brake pressure on some freight cars which would allow a minimum amount of braking even if you've released the main air brakes. Stop your train before applying hand brakes and then proceed.
- Above all, braking requires a lot of forward thinking and careful management. Remember, safety first
- if in doubt, stop the train. If you need to stop the train and release the brakes while on a gradient in order to allow a full recharge of the brake pipe then set all the hand brakes first.

3 Stopping

- Move the Train Brake towards Apply, it will latch at around 24% for Initial Application
- Observe the ER moves to 84psi (6lb application)
- Observe BP rapidly drops to 84psi to follow
- Observe BC rapidly applies and stabilises around XYZpsi
- Brakes are now on a minimum application at the loco, the rest of the brakes on the train should respond fairly rapidly.
- If you need further application to come to a stop then continue to move the train brake towards Apply gently, remember that the more air you let out of the BP the longer it will take to get the BP recharged again once you get going.

4 PCS Light Illuminated

- Ensure the Throttle handle is in the Idle position
- Move the Train Brake into the Emergency position before moving it back into Release

5 FAQ

The train won't move when the brake cylinder says the brakes are off

Remember all the gauges on the front refer only to the state of the brakes on the locomotive, as you use the air brakes a pressure wave makes its way down the train and it can take sometimes minutes for the effect of your braking to take effect along the length of the train.

Therefore, make small changes and wait for their effect. Forward thinking and small, careful changes are crucial in the safe operation of US freight trains.

The train won't slow down even though the BC is at 65psi!

You've most likely run out of air in the reservoirs down the train which can happen after a number of repeated applications and releases without allowing time for all the reservoirs to recharge.

There is no way to know what pressure the car reservoirs are holding so it is important to allow the train plenty of time after a brake release for everything to recharge, more so if the last application was a strong application since more air would have been used.

If you find yourself in this situation, move the Train Brake handle to its maximum application position, wait a second or two and then move it further to the Emergency position. This will make an emergency application of the brakes using a separate dedicated emergency reservoir and bring the train to a stop.

You should now set ALL handbrakes on the train so that it is pinned down safely and then you can release the Train Brake handle and let the brake system fully recharge, which may take 10-20 minutes on the hardest difficulty setting.

Once recharged you can make a minimum service application, release all the handbrakes and then continue on your journey.

Final credits and acknowledgments

- To the entire Dovetail team for supporting independent developers and making it possible to offer this product.
- Cesar Emanuel Pach (DTM) for the technique and patience.
- Mike Rennie for the advanced braking scripting.