Introduction

Congratulations! You have purchased the TrainworX HVZ-D Shuttle train. Please take the time to read this manual before driving off in your new engine.

ZVV HVZ-D LION

As part of the LION project ("Lifting, integration, optimization, redesign"), new double-decker rush hour "HVZ-D" relief trains were created with the new 2nd class double-deck coaches that were released by the new NDW. These consist of six or ten carriages and are coupled together with two converted Re 420 locomotives at each end. These trains have primarily replaced the previous RBe-540 services. In contrast to the DPZ compositions.

Special thanks

I want to express special thanks to Chris Longhurst, the team at Rivet Games, Leandro Ragaz, Bas van Hulst and Alex Brander for their input during the build process.

Installation

The zip file contains an installer for Train simulator 20XX, this manual and EULA. Please read the EULA carefully before installing this software. This software is PAYWARE and may not be redistributed in any way or form without written consent from the author (TrainworX).

1. Unpack the zip file
2. Start the installer : TwX_HVZD_vXX.exe_installer.exe. The XX is the current version.
3. Your new assets will now be installed in the 'TrainworX' assets folder and the manual in the Manuals folder.
4. If you want to use these engines in your scenario please make sure you activate 'TrainworX-TwX_HVZ' in the assets box (on the right)

Notes for installation

- *You need to be connected to the internet*
- *You need the activation code that you can find in your account*
- *If the activation does not succeed please switch off any software that might block the connection*
- *If you reach your download limit the activation will not work, please contact us*
- *You DO NOT need to re-download the software if the installation fails, please fix above and retry*
- *You need to first unpack the zipped files before commencing installation*
- *If the installer can't find the Railworks folder please make sure that the Windows Registry correctly points to the Railworks folder. This situation normally only happens when you have manually moved your Steam environment to another PC or Harddrive. You should always install Steam to the new location to fix the registry.*

Included versions

This pack includes 2 versions of the Re 420 and 2 types of passenger coaches:
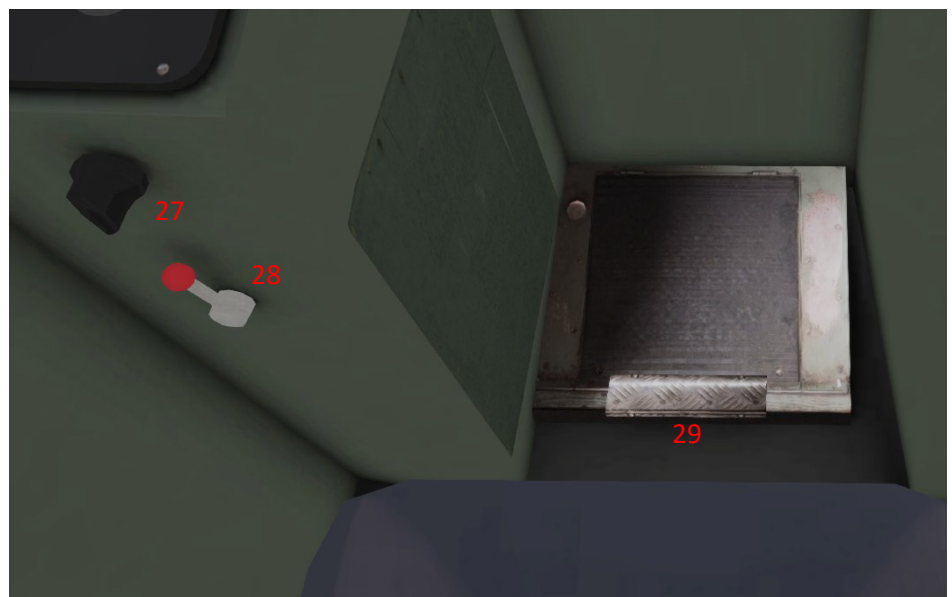
Re 420 HVZ-D **420 225-5** and **420 230-5***

HVZ B

HVZ AB

NOTE: these versions are Rivet Games ZUB compatible.

TrainworX
Trainsimulator Addons

Controls

The pack comes with a fully functional Cab. This is the LION cab which is different from the other versions. **A quick guide is included with this install, please read it!** Below you can find an explanation of the controls:

Re 420 HVZ-D Controls			
Nr	EN	DE	FR
1	Engine Brake Lever	Rangierbremshebel	Manette de frein de manœuvre
2	Train Brake Lever	Fuehrerbremshebel	Levier de frein de guidage
3	EP Brake Lever	ep-Bremshebel	levier de frein ep
4	Panel Key (Unlock C panel)	C-Tafel verriegelung	Serrure panneau C
5	Control Current Switch	Steuerstrom Schalter	Commutateur de courant de commande
6	Pantograph Switch	Stromabnehmer Schalter	Commutateur pantographe
7	Main Switch	Hauptschalter	Interrupteur principal
8	Compressor Switch	Luftverdichter Schalter	Commutateur de compresseur d'air
9	Shuttle Service Switch	Zugsammelschiene Schalter	Commutateur de jeu de barres de train
10	Shunting Switch	Manoever Schalter	Interrupteur Manoever
11	Doors locked Light	Türverriegelung	Serrure de porte
12	Stepswitch Light	Stufenschalter Meldelampe	Voyant lumineux de l'interrupteur à pas
13	Emergency Brake Switch	Notbremsanforderung	Demande de freinage d'urgence
14	Shuttle Service Light	ZZS Meldelampe	Lampe de signalisation ZZS
15	Hand Brake Light	Handbremse Lok Meldelampe	Lampe de signalisation pour locomotive de frein à main
16	Brake Test Light	Bremsprobe / Bremsen los	Test de freinage / frein désactivé
17	Brake Light	Bremsen fest Meldelampe	Témoin de frein serré
18	Wheelslip Light	Schleuderwarnunglampe	Lampe d'avertissement de rotation
19	Highbeams	Scheinwerfer	Phares
20	Reverser	Wendeschalter	Interrupteur inverseur
21	Regulator/Dynamic Brake	Fahrhebel (Rekupbremse)	Levier de conduite (frein de récupération)
22	Horn / Whistle	Lokpfeife	Tuyau de locomotive
23	ZUB Acknowledge	ZUB Taste	Bouton ZUB
24	ZUB Start Switch	ZUB Start	Début ZUB
25	ZUB Reset Switch	ZUB Rueckstellung	Disposition ZUB
26	Wiper Switch	Wischerschalter	Interrupteur d'essuie-glace
27	Sander Switch	Sanderschalter	Interrupteur à sable
28	BV-Hahn Valve	BV-Hahn	Robinet BV
29	Deadmans Pedal	Wachsamkeitspedal	Pédale de vigilance
30	LEA Schedules	LEA Fahrplan	Calendrier LEA
31	Servicelights Switch	Dienstbeleuchtung	Éclairage officiel
32	Cablight Switch	Fuehrerstandsbeleuchtung	Éclairage de cabine
33	Instrument Light Switch	Instrumentenbeleuchtung	Éclairage des instruments
34	Parkmode Switch	Parkstellung	Position de stationnement
35	Emergency Lights Warning Light	Notbeleuchtung Meldelampe	Lampe de signalisation d'éclairage de secours

Use US international keyboard setting

Keyboard controls:

Control = Strg = Ctrl							
Shift = Umschalt = Major							

KeyMapping SBB CFF FFS Re 420 HVZ-D

Function	Funktion	Group			QWERTY	AZERTY	Action	Aktion
Autostart	Automatisch Aufruesten	Drive	Crtl	Shift	S	S	Engine start sequence	Lok aufruesten
AWS/ZUB	Zugbeeinflussung ZUB 121	Safety			Q	Q	Acknowledge	Betätigung
AWS/ZUB	Zugbeeinflussung ZUB 121	Safety		Shift	Q	Q	Free	Frei
Brake valve switch	BV Hahn	Brakes		Shift	B	B	ON-OFF	EIN-AUS
Cabinelight	Fuehrerstandlampe	Lights			L	L	Forward-ON	Vorwärts-EIN
Compressor	Kompressor	Electric		Shift	K	K	ON-OFF-AUTO	EIN-AUS-AUTO
Destination boards	ZZA	Info			F10	F10	Next	Weiter
Destination boards	ZZA	Info			F9	F9	Previous	Zurueck
Double Traction	Zugsammelschiene - Pendelzug	Drive		Shift	Z	Z	ON-OFF	EIN-AUS
Emergency Brake	Notbremse	Brakes			Backspace	Backspace	ON	EIN
Engine brake	Rangier(Zug)brems	Brakes			Hook right (])	+-	Increase	Mehr
Engine brake	Rangier(Zug)brems	Brakes			Hook left ([)	Ü	Decrease	Weniger
EP Brake	Elektro Pneumatische Brems	Brakes			,	,	Increase	Mehr
EP Brake	Elektro Pneumatische Brems	Brakes			.	.	Decrease	Weniger
Handbrake	Feststellbremse	Brakes			Slash (/)	-	Increase	Mehr
Handbrake	Feststellbremse	Brakes		Shift	Slash (/)	-	Decrease	Weniger
Highbeam	Fernlicht	Lights	Ctrl	Shift	H	H	ON-OFF	EIN-AUS
Horn	Pfeife	Safety			B	B	ON	EIN
Instrumentlight	Instrumentenlicht	Lights	Ctrl		I	I	Forward-ON	Vorwärts-EIN
Instrumentlight	Instrumentenlicht	Lights	Ctrl	Shift	I	I	Backward-OFF	Rückwärts-AUS
Main Switch	Hauptschalter	Electric			Z	Z	ON-OFF	EIN-AUS
Panel C Key	Tafel C Verriegelung	Safety			K	K	Lock-unlock	Ver-entriegelen
Panto	Pantograph	Electric			P	P	Up-Down	Oben-Unten
Panto Arcing Override	Pantograph Blitz	Electric	Ctrl	Shift	A	A	OFF-ON	AUS-EIN
Panto Choice	Pantograph Wahl	Electric		Shift	P	P	Front-Rear	Vorne-Hinten
Rearview mirrors	Spiegel	Safety	Ctrl		S	S	Deploy/Fold	Aus/Einklappen
Reverser	Wendeschalter	Drive			W	W	Forward	Vorwärts
Reverser	Wendeschalter	Drive			S	S	Backward	Rückwärts
Sander	Zand	Drive			X	X	ON	EIN
Schedule (iPad LEA)	Fahrplan (iPad LEA)	Info			F	F	Next	Weiter
Schedule (iPad LEA)	Fahrplan (iPad LEA)	Info		Shift	F	F	Previous	Zurueck
Schedulelight	Fahrplanlicht	Lights	Ctrl		F10	F10	ON-OFF	EIN-AUS
Servicelights	Dienstbeleuchtung	Lights			H	H	Turn CW	Linksherum
Servicelights	Dienstbeleuchtung	Lights		Shift	H	H	Turn CCW	Rechtsherum
Servicelights	Dienstbeleuchtung	Lights	Ctrl		D	D	Forward-ON	Vorwärts-EIN
Servicelights	Dienstbeleuchtung	Lights	Ctrl	Shift	D	D	Backward-OFF	Rückwärts-AUS
Stepswitch	Fahrstufenschalter (Rekuperationsbremse)	Drive			A	A	Forward	Vorwärts
Stepswitch	Fahrstufenschalter (Rekuperationsbremse)	Drive			D	D	Backward	Rückwärts
Train Brake	Fuehrerbrems	Brakes			Semicolon (;)	Ö	Increase	Mehr
Train Brake	Fuehrerbrems	Brakes			Apostrophe (')	Ä	Decrease	Weniger
Vigilance safetly acknowlegement	Wachsamkeitskontrolle Betätigung	Safety			Space	Leertaste	Activate	Betätigung
Vigilance system	Wachsamkeitskontrolle	Safety		Shift	7	7	ON-OFF	EIN-AUS
Wipers	Wischer	Safety			V	V	Turn CW	Linksherum
Wipers	Wischer	Safety		Shift	V	V	Turn CCW	Rechtsherum
Zug-Manoever	Zug-Manoever	Safety	Ctrl		M	M	ON-OFF	EIN-AUS

Notes:

- The controls on the right side of the cab are also functional (Horn/Schedulelight/Cablight)

First steps

After entering the cabine you should at least take the following steps to get moving:

A) Autostart
Unlock panel C with panel key (**K**)
Press **Crtl-Shift-S** to get your train ready:
- BV Hahn
- Controlcurrent
- Panto
- Main
- 15Kv
- Deadmans safety system (Wachsam) on. Switch OFF with Shift-7
- Reverser forward

Manually loosen trainbrakes and activate ZUB system

B) Manual start
1. Brake valve / BV Hahn open (**Shift-B**)
2. Turn panel key to unlock panel C (**K**)
3. Steuerstrom ON (**Shift-S**)
4. Panto UP (**P**). Toggle panto front/rear with **Shift-P**.
5. Mainswitch ON (**Z**)
6. Compressor to 'Auto' (**Shift-K**)
7. Shuttle function ON (**Shift-Z**)
8. Locobrake OFF (**[**), (default 70% on)
9. Trainbrake to 'Quick Release' **(; or '**)
10. Reverser forward (or reverse)
11. Activate ZUB if you want

ZUB 121 System

The swiss ZUB safetysystem is simulated in this engine and reacts to the magnets on routes that have these. The system is compatible with Rivet Games's ZUB magnets. On routes wihout ZUB magnets the system will not work. The basic TS AWS system will be used instead. If you don't activate ZUB, default AWS is used. This makes it possible to drive on routes without ZUB magnets.

Activating ZUB

The ZUB system will be inactive by default. To activate it please follow the following steps:

Manually:

- Start up the engine as descibed in 'First Steps'
- Press the green button on the ZUB panel

- A test sequence will now run which ends with a simulated brake test and the red ZUB button will light up.
- Press the red ZUB button to quit the test and activate the system
- Now set the trainbrake to 'release' and re-engage the main switch
- De-activate the brakes

ZUB 121 will now be active.

<u>ZUB function</u>

The system will 'listen' to ZUB magnet information and show info on the ZUB display.

When a restricted speed is sent by a warningsignal (Vorsignal), the system will calculate a braking-curve to get to the desired speed at the next main signal (Hauptsignal). A buzzer will sound if you go over the speedcurve. Slowing down quits the buzzer. Disrespecting speedlimits will eventually cause a forced brake (Zwangsbremsung).

Driving faster than the current speedlimit will cause a buzzer to sound at +5 kmh and a forced brake at +15 kmh.

Reset a warning by turning the ZUB switch to the right (**_Q_**).

When the next main signal shows stop (halt) the braking curve is calculated to a full stop at the signal. If the signal turns green (or something else than stop), you can free yourself from the braking curve by turning the ZUB switch to the left (Shift-Q). You can drive max. 40 Km/h now until you pass the next signal.

Please note that the system is a simulation and is not exactly as in reality. We will keep working to improve it where we can but are also limited by the game engine and track.

Manöver

Pressing the 'Manöver' switch (**Ctrl-M**) will make it possible to pass red signals without SPAD or Emergency brake. You have to stay under 40 Km/h (warning). This is normally used when shunting. This is not available when country is set to D.

Wachsamkeitskontrolle

The SBB has a 'sifa' type vigilance system called 'wachsamkeitskontrolle'. This system is distance based under 100 kmh (not time based as German sifa is). Switch the system on/off by pressing **_Shift-7_**.

Speed under 20 kmh:

After 50 Meters : Audible warning

After 100 Meters : Emergencybrake with buzzer

Speed over 20 and under 100 kmh:

After 1600 Meters : Visual warning

After 1800 Meters : Emergencybrake with buzzer

Speed over 100 kmh:

The system switches to time-based measurement. Audible warnign after 30 seconds. Emergencybrake after 35 seconds.

The system is reset by pressing the _**spacebar**_ (Acknowledge) or by moving the regulator or trainbrakehandle.

Mirrors

The mirror can be opened by pressing the small pedal below the SIFA pedal (**Ctrl-S**).

Winter effects

When the season is set to 'Winter' the Panto's will have an arcing effect where it touches the catenary and there will be simulated snow swirl. You can switch this off (active engine) by pressing _**Ctrl-Shift-A**_.

Stufenschalter

The 'Fahrhebel' is controlling a step-switch (Stufenschalter) which regulates the power. It will take some 'getting used to' but is very close to reality. The Re 420 has 32 steps (stufen). You will hear the step-switch going through its positions. **M** will slowly increase power till 2150 amps. **+ (plus)** quickly to 2400 amps and **++ (double plus)** quickly to max power (3100 amps). The **dot** will freeze the current step, **- (minus)** will decrease power. The dynamic brake (Rekuperationsbremse) will electronically decrease the engines speed by using the same step-switch in reverse polarity up to 2200 Amps (22 steps). The **+ (plus)** increases brake, the **dot** will freeze the position and the **– (minus)** will loosen the brake.

The first 'step' will power the motors to 1000 Amps. This means that, especially without wagons, the engine will easily accelerate to high speed. You will have to switch between 0, + and – to keep your speed in check. A tutorial video is available on the product site.

Park Mode

When the train is parked (for longer periods) it can be switch into Park Mode. Follow the following procedures:

Switch ON Park Mode:

- When fully stopped, Close BV-Hahn
- Train Brake to Abschlussstellung position
- Press Park Mode Switch, it will start to blink fast
- Switch OFF Main, Panto and Control Current
- Lock panel C
- Engage Handbrake
- Park Mode Switch will blink slowly

Switch OFF Park Mode:

- Unlock Panel C
- Switch ON Control Current, Parkswitch Light blinks fast
- Press Park Mode Switch
- Open BV-Hahn
- Train Brake to Fahrstellung (Release)
- Loosen Hand Brake

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