



dovetail
GAMES

DB BR361/V60



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1 Background

1.1 BR361/V60

Built between 1956 and 1964, the DB Class V60 is a diesel locomotive designed for shunting duties and the occasional light goods train for Deutsche Bundesbahn. 942 of these shunters were produced in total, with several modifications through their lifetime, including new engines and the addition of remote control operation.

The first prototype was designed in 1951 as DB had a shortage of small shunters. Four prototypes were built in 1955, each built by a different manufacturer utilising different engines: Krupp, Mak, Henschel and Krauss-Maffei. DB opted for the Maybach GTO 6/GTO 6A engines for their production models, which started to be delivered in 1956.

Even in the early stages of the V60's life some models were modified with stronger frames and a higher adhesive weight increase from 48.3 to 53 tonnes. These heavier shunters were able to haul an additional 6 tons of ballast compared to the unmodified variant. Despite this difference they were all still classified as V60s until the reclassification of all of DB's rolling stock, dividing the V60 locomotives into Class 260 and the Class 261 for the light and heavy variants respectively.

Despite being built primarily as shunters, the V60s were also used for transporting light freight and passenger trains and had a top speed of 60km/h (37mph).

In the early 1980s trials were carried out for a new shunting locomotive to be classified as Class 259 to replace the V60s. However, being unable to decide on a suitable alternative, DB took steps to work on improving the 25 year old V60s instead.

During 1987 they were reclassified as minor locomotives (Kleinlok) meaning they went from Class 260s/261s to Class 360s/361s. This was of economic benefit as a Kleinlok doesn't require a train driver, only a Kleinlok operator, allowing DB to make savings on employee costs.

Radio control started to be installed on the Class 360/361s, meaning the operators can drive the shunters away from the cab remotely.

The new radio control models were classified as Class 364 and 365 (light and heavy variants) but as there was only a single Class 364 this locomotive was eventually changed into a 365 (No.700).

The Class 365s started to be re-engined in 1997 using Caterpillar 12-cylinder engines, and these locomotives were again reclassified as Class 362 and 363 (light and heavy variant). One shunter was given a Caterpillar V8 engine in 2001 and ran on natural gas, however this 'Class 760' was proved unsuccessful after testing around Munich and was eventually scrapped.

Today, many of the 942 locomotives are still in service. Any that had not been fitted with radio control by 2003 were retired leaving about 400 in DB service and other examples for various private railways in Germany and beyond, including Turkey and Norway.

1.2 Design & Specification

Power Type	Diesel-Hydraulic
Locomotive Weight	48.3t
Vehicle Length	34ft 3.4" (10,450mm)
Build Date	1956-1964
Vehicle Power	640hp (480kW)
Top Speed	37mph (60km/h)
Brake Types	Train Brake, Direct Brake
Power Type	Diesel

2 Rolling Stock

2.1 BR361/V60

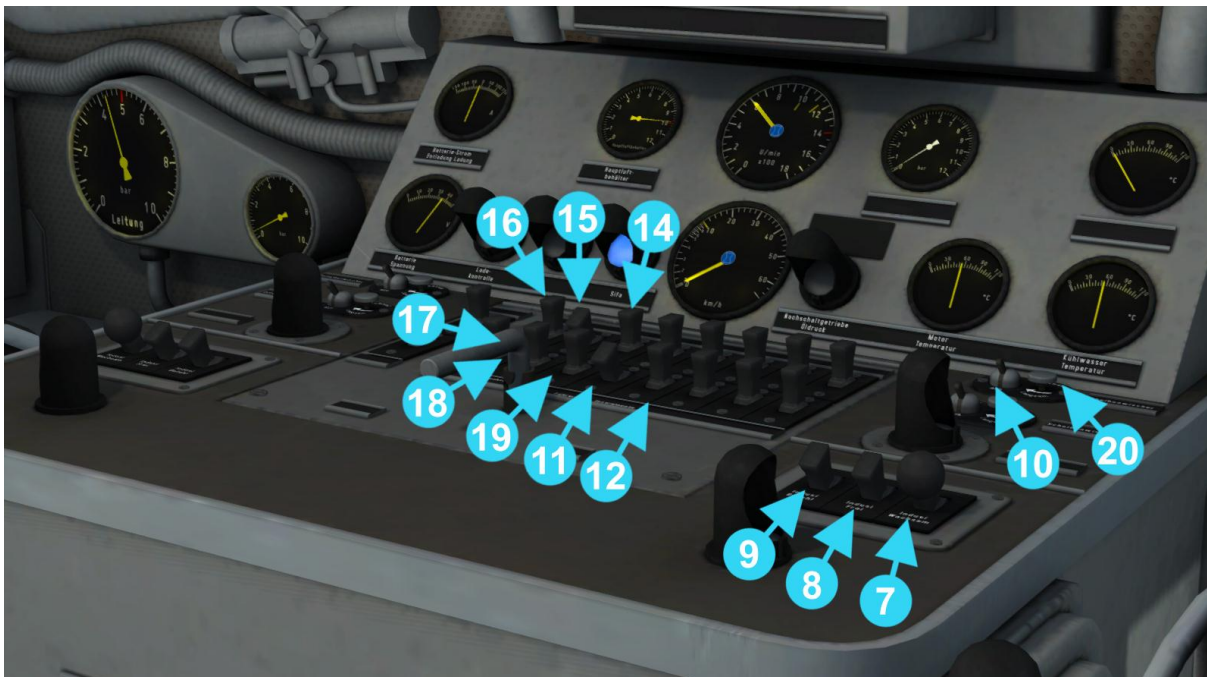
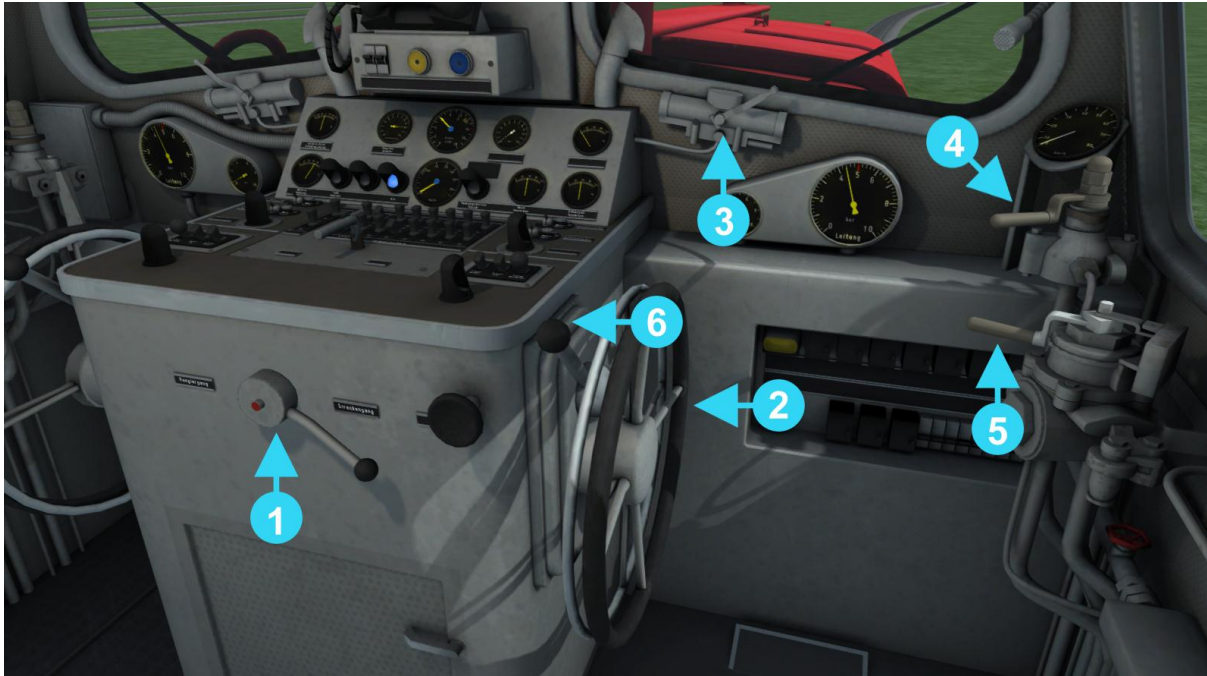


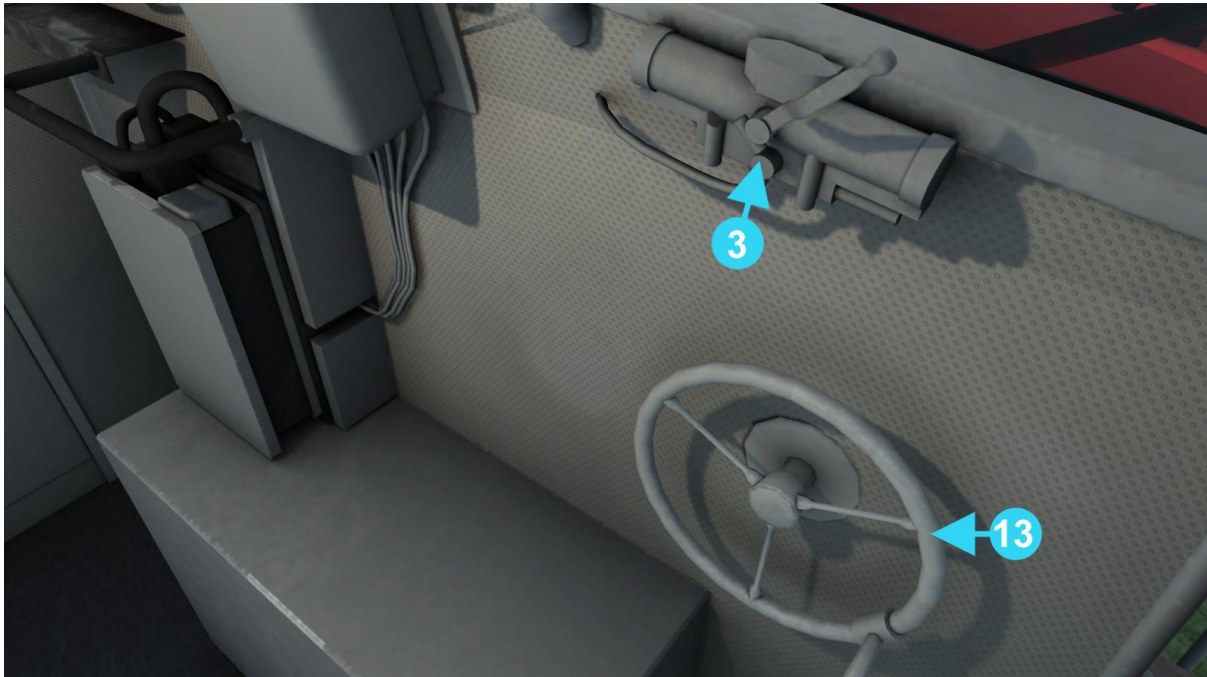
2.2 SGGRSS Freight Wagons



3 Driving the BR361/V60

3.1 Cab Controls





- | | | | |
|----|-------------------|----|------------------------|
| 1 | Gear | 13 | Handbrake |
| 2 | Throttle | 14 | Headlight Front Right |
| 3 | Wiper Handle | 15 | Headlight Front Centre |
| 4 | Direct Brake | 16 | Headlight Front Left |
| 5 | Train Brake | 17 | Headlight Rear Right |
| 6 | Reverser | 18 | Headlight Rear Centre |
| 7 | PZB Acknowledge | 19 | Headlight Rear Left |
| 8 | PZB Free | 20 | Wiper Speed |
| 9 | PZB Override | 21 | Sifa Reset |
| 10 | Wiper Switch | 22 | Emergency Brake |
| 11 | Cab Lights | 23 | Sander |
| 12 | Instrument Lights | 24 | Horn |

3.2 Locomotive Keyboard Controls

Key Equivalent	Action
D / A	Decrease or Increase the Regulator.
S / W	Decrease or Increase the Reverser.
; / ‘	Decrease or Increase the Train Brake.
[/]	Decrease or Increase the Locomotive Brake.
E	Change Between High and Low Ratio Gear. *

* The DB BR361/V60 has two selectable gear ratios which can be changed using the E key as long as the train is stationary and the engine is idle (600 RPM). Low ratio should be used for lower speed freights and will allow a maximum speed in the region of 30 km/h (18.6mph), and the high ratio should be used for higher speed freights to allow a maximum speed of 60 km/h (37.2mph).

3.3 General Keyboard Controls

Key Equivalent	Action
T	Load/Unload. Press once to load/unload passengers or freight.
H	Lights. Repeatedly pressing will cycle through headlight states.
L	Cab Lights. Press to cycle cab lights on and off
I	Instrument Lights. Press to cycle instrument lights on and off
Q	(Expert) Alerter. The Alerter is a system used to ensure that the driver has seen a signal. If the alert sounds (a black/yellow striped symbol is shown in the cab) it must be acknowledged by pressing the Alerter button or the emergency brakes will be applied.
X or Shift + X	(Expert) Sander. Causes sand to be laid on the rails next to the wheels to assist with adhesion. Press X once to apply sand and Shift + X to stop.
Space	Whistle. Sound the locomotive whistle.
/	Handbrake On/Off. This icon is displayed in the Coupling view
Shift + Ctrl + C	Couple Manually.
Tab / Ctrl + Tab	Request authority to pass a signal at danger.

4 Sifa System

Sifa is short for Sicherheitsfahrschaltung or “Safety Driving Switch”.

The Sifa vigilance alerter is disabled at startup, but can be activated or deactivated by pressing ‘Shift+Enter(Numpad)’. While activated the Sifa light on the cab dashboard is normally switched off. While the train is moving the driver is required to confirm an alarm every 30 seconds.

When the 30 second alarm is triggered the Sifa light on the cab dashboard will illuminate, after an additional 2.5 seconds an audible alert will sound. After a further 2.5 seconds the emergency brake will be applied. This can be avoided by acknowledging the alarm at any stage by pressing the ‘Enter (Numpad)’ key or the warning icon on the HUD.

It is possible to release the brake triggered by a Sifa emergency application by acknowledging the alarm. After acknowledging the emergency, the brake will be released but the loco will not be able to apply power until the throttle is first set to the off position.

4.1 Key Controls

Function	Keyboard
Activate/Deactivate	Shift+Enter(Numpad)
Alarm Acknowledge	Enter(Numpad)

5 PZB Signalling System

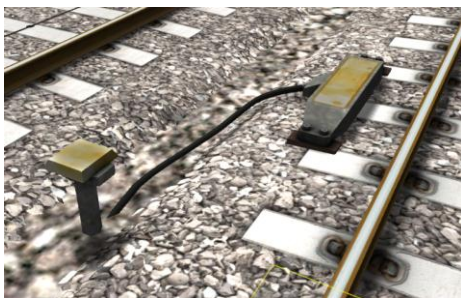
PZB stands for Punktförmige Zugbeeinflussung, translated to English this means “Intermittent Train Protection”.

Safe distances between trains are managed conventionally through the use of block-based systems. A given line is broken up in to a series of blocks, and trains are permitted (via green or yellow) signals to enter a block. While a train is present in a block the signal permitting entry is set to red, preventing any more trains to enter.

As railways have developed, more complex control systems and in-cab signalling have been implemented. This was to improve the safety of the railways and to ensure that drivers are fully aware of what is happening around them. In order to ensure this is the case, the driver is required to react in certain ways depending on the situation.

PZB is a complex system that requires a thorough understanding of the varying speed limits, and necessitates a prompt response to the signalling system.

5.1 PZB Track Interface



The PZB system incorporates in-cab signalling. This is where the control desk has indicators, alarms and buttons that will react according to the signalling status on the railway. The mechanism that is involved includes a series of balise magnets which are placed on the side of the track. An example of one of these magnets is shown in the image on the left.

5.2 Cab Controls

There are also three controls on the cab desk that you will need to use in order to interact with the PZB system.

These three controls, as shown in item 5 on the cab control diagram are identified below:

Override
Release
Acknowledge

5.3 Key Controls

Function	Keyboard
Activate/Deactivate	Ctrl+Enter(Numpad)
Acknowledge	Page Down
Release	End
Override	Del

6 Scenarios

*****For driving tutorials, please visit the Academy from the main TS2016 menu screen*****

6.1 1. [361] A Good Day's Deed

A light goods consist needs to be taken to München Süd Gbf ready to be attached to another consignment later. You're in a DB BR361 pulling from the front.

Transport the wagons you're pulling to München Süd Gbf, where they will later be added to another consignment bound for Rosenheim tomorrow morning. Keep a look out for yard entry and exit signals on the way.

- **Duration** **25 minutes**

6.2 2. [361] Express Marshall

Marshall together a passenger consist that will form tonight's express passenger service from Rosenheim to München. Freight containers will need to be moved out of the way first, in order to access your required coaches.

Start by moving the freight wagons out of the way to an empty siding. Then, marshall together the required passenger coaches to form tonight's express from Rosenheim to München. Leave these coaches coupled together at Rosenheim 1908.

- **Duration** **35 minutes**

6.3 3. [361] Goods Time Marshalling

A consignment of containers has just been assigned to you. Marshall them from around the yard in preparation for their scheduled delivery to Rosenheim later today. The yard is a mess, so double check you have the correct containers.

Your required containers are listed in the F1 task list. You need to marshall these in order of listing. The yard is a bit of a mess, so you'll need to move some other containers out of the way first. When the goods consist is marshalled to the correct siding, head back to München Süd Gbf 67a.

- **Duration** **65 minutes**

7 Acknowledgements

Dovetail Games would like to thank the following people for their contribution to the development of the DB BR361/V60.

Beta Testing Team
Deutsche Bahn

