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OMSI 2

Manual



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1. Introduction

1.1 Preface

Editor's History with the game

I started playing the game around while in college. Some of my teammates from a virtual logistics company in Eurotruck Simulator introduced me to the game without guidance so I had to learn everything as I played. I knew even less about and graphics at that point so I first thought the game was broken because I couldn't see the bottom selections. It wasn't until I told a friend who suggested I change my resolution that I was able to start the game.

Also, at that time I didn't know that STEAM had a place to access the game's manual so I basically went through all the keys and wrote down what each one did. It was a long and tedious process but that's how I realized just how in-depth the simulation is. Even now, I'm still learning new functions and features for the buses, such as the fact that there is a ramp on the second door instead of only at the front one. Most of these new realizations are because the German buses differ from American buses so there are features and functions not in an American bus that are in a German bus.

Editing the manual

The idea to create a manual came after I started mapping out the game. I was constantly lost so I finally had decided to map out the game and routes so that I could always find my way around. Since I had put so much effort into learning the controls and mapping it out, I decided it would also be best to just create a manual for new users so they didn't have to go through all the labor of learning the game like I did.

After about a year of writing the manual and mapping, I found the game's manual on STEAM which made everything I had done seem pointless. I also found the game's map which was frustrating. Rather than throwing away all my work, I decided to adapt it and to create a website where I can showcase it all. Yes there's a map, but it's not an extensive map that has all the street and stop names.

I liked the layout of the original OMSI 2 manual so I decided to just edit that. The manual I was writing was a bit too technical and more in-depth because it explained each function of the game, such as the individual tabs in the Options menu. The original manual's content layout made more sense for the audience it was targeting. It just needed an English editor to review and tailor it for English speaking audiences. I also changed the format of the manual to make it look more modern.

General Disclaimer

Needless to say, I do not own any rights to OMSI 2. The OMSI 2 content used in this manual are sole property of their respective copyright holders and are used with their written permission, which doesn't necessarily mean that they endorse or promote this product. This product was created for educational purposes without the intention or possibility to profit from sales under the fair use law.



1.2. Foreword

“Such a work is never actually finished – one must simply declare it to be finished once one has done as much as possible given the time and circumstances.”
Johann Wolfgang von Goethe (1749 – 1832)

Welcome to the ultimate omnibus experience!

Travel back in time to Berlin in the 80s and early 90s! It was a time of change that apart from the Fall of the Berlin Wall and the German Reunion also entailed lots of changes in public transportation. Old connections to the surrounding areas were quickly reactivated while the former concrete border was a shadow of what it used to be. The gradual reconnecting process of two separate systems and the evident contrast of Eastern Germany with Western Germany are what these exciting years of change were all about.

And you're right in the middle of the action! As a bus driver on routes 5 and 92 (known as route 130 and 137 since 1991) it's your task, day and night and in all kinds of weather, to get your passengers from the U-Bahn stations Ruhleben or Rathaus Spandau to their homes on the outskirts of the city as safely and comfortably as possible.

You'll quickly realize that OMSI offers limitless driving fun, and not just on the way from point A to point B! Everything is here: real destinations, hydraulics, brakes, lights, engine, transmission, heater, weather, seasons, physics and much more; all of it exactly as it was in real life and all of it waiting for you. Enjoy the privileged perspective and regal presence of a classic Berliner double-decker from the 80s and 90s!

If you let your creativity loose, OMSI will offer nearly limitless possibilities for creating your own landscapes, streets, towns and vehicles with the Route Editor to alter existing routes or create your own. Once you gained a little experience, you can even customize the buses' liveries.

Where did the idea for OMSI come from?

As children, we set off for school each morning, took our seats on the softly upholstered fake leather seats of an SD200, inhaled that typical SD smell, heard the characteristic hum and whine of the transmission and axles and the revving of the motor, and thought that it was the most normal thing in the world. We'd never have dreamed that these completely normal things would soon be part of the past. Like the many organizations that lovingly care for historical vehicles and take them out for traditional outings to try to keep the memory of the past alive, we're attempting to do the same thing in a completely different medium and to give this trip in the past a whole new atmosphere.

We wish you a lot of fun with OMSI 2!

*Marcel Kuhnt and Rüdiger Hülsmann
Berlin, October 2013*



1.3. Customer Support

For questions regarding the installation or activation of OMSI 2 or problems in general, please contact the Aerosoft-Support: support@aerosoft.de.

Visit our website and our forum to keep up with the latest news and share information and self-developed add-ons for OMSI with other users:

www.omnibussimulator.de
www.omnibussimulator.de/forum

Interested in developing OMSI-Addons? For further information please visit our OMSIWiki:

www.omnibussimulator.de/omsiwiki

1.4. System requirements

To fully enjoy OMSI – The Omnibus Simulator your PC should meet the following system requirements:

- Operating System: Windows XP/Vista/7/8
- Processor (CPU): 2.6 GHz
- RAM: minimum 2 GB RAM
- Graphics Card: Geforce® ATI Radeon® minimum 512 MB
- Addition: DirectX: 9.0c or better
- Internet connection and Steam User Account is required

1.5. Installation

Note: You must be logged on as an administrator (particularly for Windows Vista and Windows 7 users) and be connected to the internet to install OMSI 2 – otherwise the installation will not work.

1. Insert the OMSI 2 disc into your disc drive. Follow the installation instructions presented on screen. If the installation does not start automatically:
 - a. Click START on the task bar
 - b. Click MY COMPUTER
 - c. Double click on the appropriate DVD-ROM drive
 - d. Double click on the setup.exe icon
2. Steam will be installed first. It may update itself at various points.
3. You must choose whether to create a new Steam account or use an existing one. Enter the required information and make sure to not forget the login information.
4. Enter your game activation code when requested by the Wizard.
5. OMSI 2 will be installed from the DVD. Any necessary updates will then be downloaded from the internet.



6. After the game has installed, you will see the OMSI 2 icon on your desktop. Double click this to start running the game.
7. If you receive an “access is denied” message, retry the installation.

1.6. Tutorials

Use the new tutorials in OMSI 2 to learn how to control the program and bus, and how to drive!

1.7. About This Manual

The chapter “The First Kilometer” explains the OMSI controls in general and focuses on one bus in particular. It will walk you through the first steps of starting the program to picking up your first passenger. Windows and their options are also explained in great detail.

All further chapters are supposed to be reference works.

All differences between OMSI 1 and OMSI 2 are written in **bold**.

1.8. Terms

Below you’ll find explanations of some frequently used terms:

- **Situation:** You can save the current OMSI situation at any time and load it later. The situation includes the map you’ve selected, the type, location, condition and setting of all the buses, as well as the time and weather.
- **AI Traffic:** AI stands for “artificial intelligence”. The AI controls all the vehicles that are controlled by the computer, such as cars, trucks and other buses running on their fixed schedules. It also controls the passengers and pedestrians.
- **Current bus/vehicle:** The current bus is the bus that you currently control and whose status is displayed. It can also be the case that there is no current bus because there is no bus on the map or you’ve just deleted a bus and haven’t chosen a new one yet. You can also select one of the vehicles controlled by the AI; in that case, the vehicle you select will become the current vehicle.
- **Refresh Rate:** The speed with which the simulation runs or graphics are updated is called the refresh rate, which is measured in frames per second (FPS). This unit of measure is like the physical unit for frequency, Hertz (Hz). A refresh rate of less than 20 FPS/Hz will appear shaky, but is usually acceptable up to a certain point. If it drops below 15 FPS, the simulation will appear too slow. In the 30 – 50 FPS zone, you’ll notice that the simulation has reached the limits of perception; meaning that increasing the FPS further doesn’t lead to a noticeable improvement. You can view the refresh rate by repeatedly pressing keys Shift and Z until the refresh rate is displayed.
- **Controller:** This is usually a joystick or a steering wheel but can also be your mouse and keyboard. Any kind of controller can be used as long as Windows recognizes it as a game controller.



- **Status:** The status display shows a wealth of useful information about the current vehicle, the environment and the simulation. You can browse through the various status displays by pressing the keys Shift and Z.
- **Chronology Event:** OMSI 2 adds the possibility to provide the map with changes that only exist for a certain period. For instance, you may create a temporary construction site from May to September or start using the bus type NG272 in 1992. This also includes the changes concerning transport policy following the Fall of the Wall.
- **Map:** OMSI is a map-based simulation, meaning that the environment is contained in several maps. They are independent of one another and aren't "physically" connected to each other. If you want to drive in a different city, you'll need to end the current simulation and begin a new simulation using the map for other city; you cannot just drive from one city to another.

1.9. Keyboard Shortcuts

A note on keyboard shortcuts: the open architecture of OMSI allows you to create a new keyboard shortcut for any event that you can trigger with a mouse click or existing keyboard shortcut. That means that the shortcuts explained below are only valid as long as you haven't changed them:

- Num...- indicates one of the keys on the number pad
- Shift – indicates the shift key
- Space – indicates the space bar
- Up, Down, Left, Right – indicates the arrow keys

1.10. Graphics Settings

If your graphics card can support it without slowing down the simulation, we recommend activating anisotropic filtering and anti-aliasing, which will yield noticeably better graphics.



2. The First Kilometer

2.1. Options

After starting OMSI, open the Options menu by clicking on “Options...”. When you first open it, you’ll see the image from figure 1 and the General tab. You can make changes in every tab without having to confirm in the meantime.

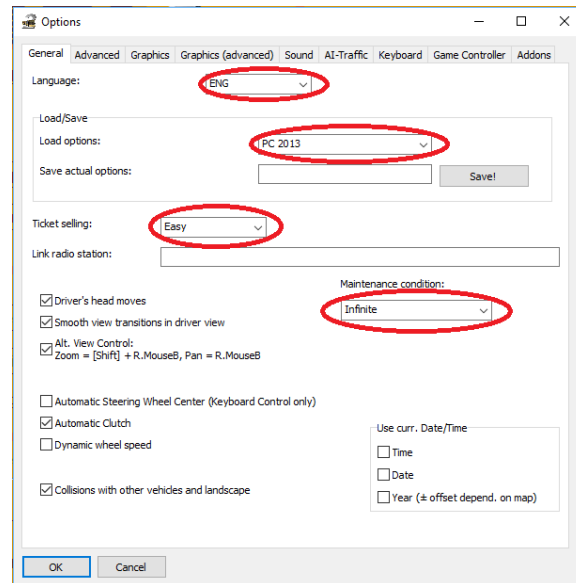


Figure 1. Options Menu

Choose the appropriate option set for your PC in the General tab from the dropdown box on the right, next to “Load Options”. If you hover over the options with the mouse cursor, you’ll get an explanation of possible settings after a couple of seconds.

Please set “Ticket Sales” to “Easy” and “Maintenance status” to “Infinite”. Once you’ve gained more experience, you can switch these to the level of difficulty of your choosing.

2.2. Steering Wheel/Joystick Configuration

If you’re using a steering wheel or joystick, you’ll need to configure it first. Click on the Controllers tab under the Options menu. The image from figure 2 will appear.

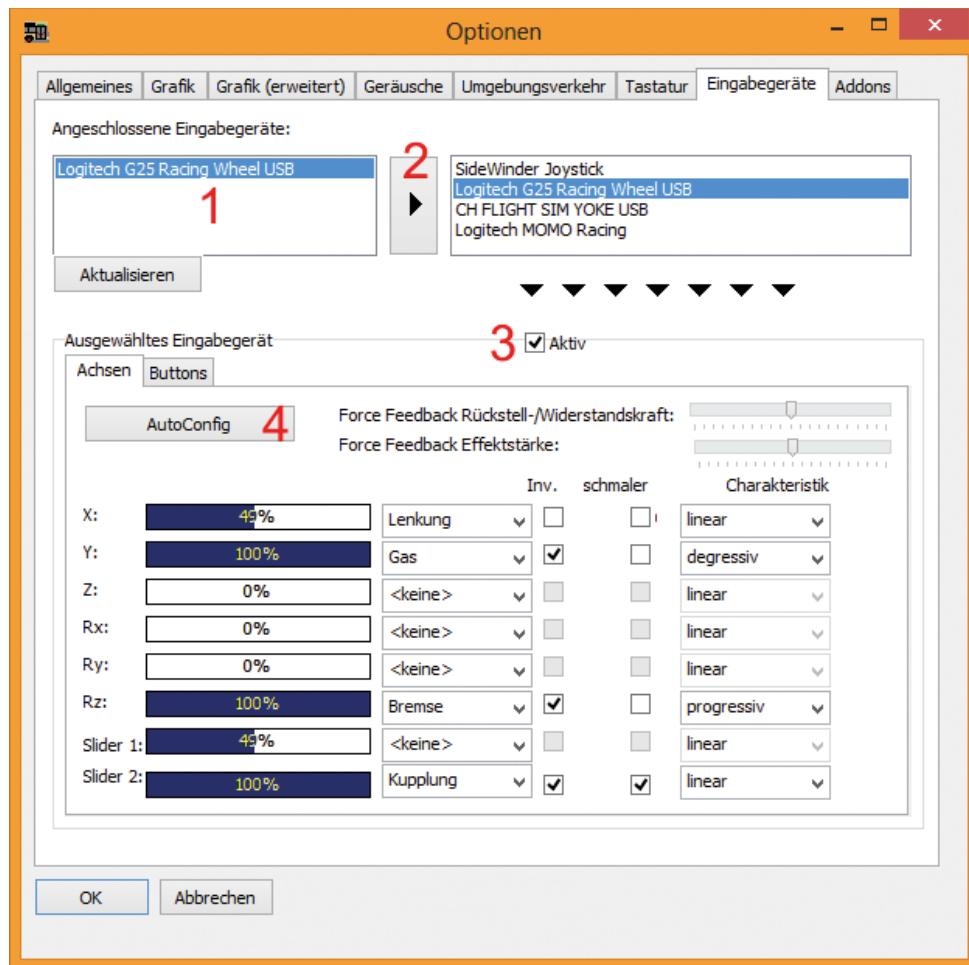


Figure 2. Controllers tab, taken from the original OMSI 2 manual

Follow these steps:

1. Verify that your controller is listed on the upper left. If it doesn't appear, verify that it is correctly connected to your PC and that Windows recognizes it as a game controller.
2. Select your controller from the list on the left and click on the triangle to the right of the box. Your controller will now appear in the list on the right. The list on the right has all the controllers that have been configured for OMSI, including previously configured controllers that are not currently attached.
3. Select the desired controller from the list on the right, click the Active box and switch to the Axis tab below.
4. To configure the axis, click on "AutoConfig" and follow the instructions.

Once you're satisfied, click "OK" to confirm the changes in the Options menu. You'll return to the Start menu.



2.3. Start Menu and Driver Files



Figure 3. Start Menu

The Start menu can be divided into five sections: 1) driver settings, 2) date/time settings, 3) information on selected time, 4) map settings and 5) information on selected map.

2.3.1 Driver Settings

The drop down menu for Current Driver allows you to change between drivers if you have more than one profile. When OMSI is first installed, the only driver listed will be “Unknown Driver”. To create a new profile, click on “Create new driver...” which will prompt the window from figure 4.

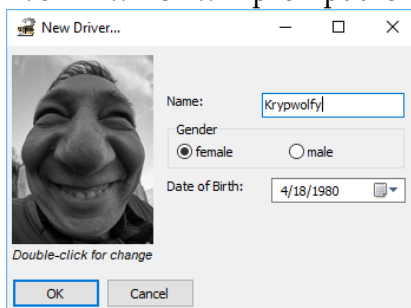


Figure 4. New Driver Window

Make sure to click “OK” once you are done entering the pertinent information. If you want to check the statistics on a driver, such as their driving rating, then click on “Open personell file...” which will open the window in figure 5.



Personnel File	
Name:	Mrs Krypwoify
Date of birth:	4/18/1980
Date of hire:	5/23/2018
Covered Distance:	0.0 km
Bus stops:	0
thereof too early:	0
thereof too late:	0
Sold Tickets:	0
Gains:	0.00
Crashes:	0
Abscondings:	0
thereof heavy:	0
Hurt pedestrians:	0
Rating Driving:	100.0 % (excellent)
Rating Ticket Selling:	-
Rating Pass. Comfort:	-

Figure 5. Personnel File

2.3.2 Date/Time Settings

The date and time at the bottom of this section indicates the date and time that the game will begin when you go into it. To change it, click on “Change date and time” which will prompt the window in figure 6.

Time: 10 : 10 : 1

Day: Evening

Date: 11 : 5 : 1980

Day of the week: Sunday

Holidays: Summer time

OK Cancel

Figure 6. Change Date and Time Window

Make sure to click “OK” once you are done entering the pertinent information. Note that Germany uses European date format which is date/month/year. So 9/4/17 is April 9, 2017. Also note that Germany uses military time, which counts from 0:00 (12:00am) to 23:59 (11:59pm).



2.3.3 Information on Selected Time

This section contains information for the selected period. The information can include fare changes, time table changes and route changes.

2.3.4 Map Settings

To change the map, click on the drop-down menu for Current Map. When OMSI is initially installed, only two maps will be available: Grundorf and Berlin-Spandau. Select Grundorf for now until you feel ready to take on the real city of Berlin-Spandau.

The options below that drop-down menu are for how you would like the map to load. The Load latest state of map option will load the map with the latest updates, such as fixed bugs. Load map without buses option will load the map without any buses. The Load saved situation option is to load the map with certain situations, such as the fall of the Berlin Wall or when a new line was introduced.

2.3.5 Information on selected map

As the title states, it contains information on the map such as routes.

2.4 Main Menu

Once you are in the game, which occurs when you press the Start button in the Start menu, press the Esc button to open the Game menu. The image from figure 7 will appear.

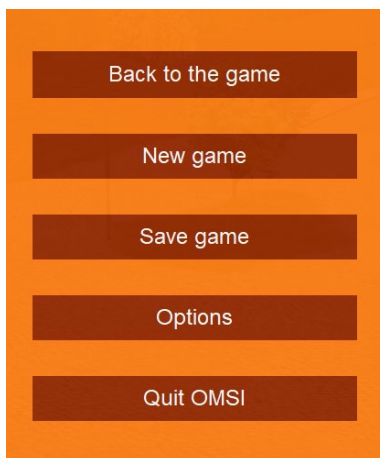


Figure 7. Main Menu

This menu lets you start a new game, close the game, open a different situation or access the Options menu. If you would like to return to the game, press the Esc button.

2.5 Game Menu and Map View

After successfully loading the map, there won't be a bus that can be driven by the user. Depending on your settings, there might be AI buses. The Game menu, which is illustrated in figure 8, appears in the right bottom corner of the screen. It can be displayed and hidden using the white triangle or you can press the Alt key.



Figure 8. Game Menu

The camera point of view from figure 8 will be the “Map View”. With this camera, you can view the entire map. You can change the perspective in the following ways:

- Move the mouse while pressing on the mouse wheel to pan the view.
- Move the mouse while pressing the right mouse button to zoom in or out.
- Click with the right mouse button on a specific point on the map to center the view there, which is only possible via the map view.

You’ll be able look at the surroundings using these features.

2.6 Bus Selection

When you’re ready, there are two ways to start driving a bus: 1) taking over one of the AI-driven buses or 2) placing a “new” bus on the map. We’ll choose the second option for now. Click on the “New

bus...” button in the Game menu: . The picture from figure 9 will appear.

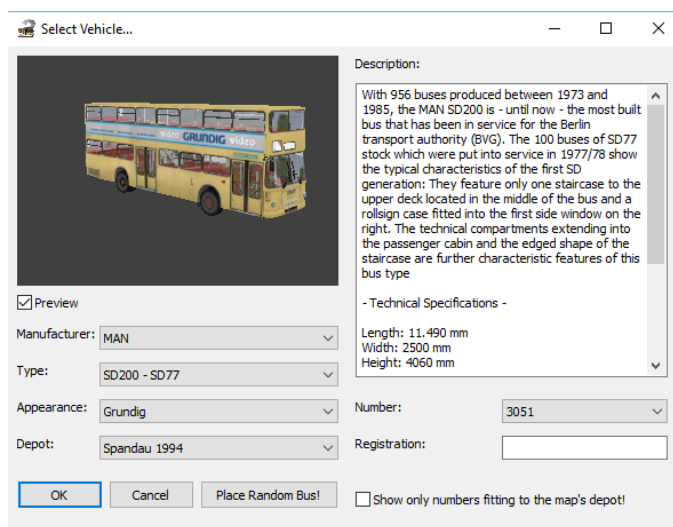


Figure 9. New Bus Menu

You’ll be able to select the manufacturer (MAN) and model (SD200 – SD80). You can also choose the paint job which is the advertisement that surrounds the bus. Most importantly, the bus depot/spot where the bus will be placed.



The bus depot influences the available destinations and routes. If you select the depot for Spandau but are in the Grundorf map, you won't be able to see destinations and routes for Grundorf. For the tutorial, select the Grundorf depot and click "OK". Once you do so, the window from figure 10 will appear.

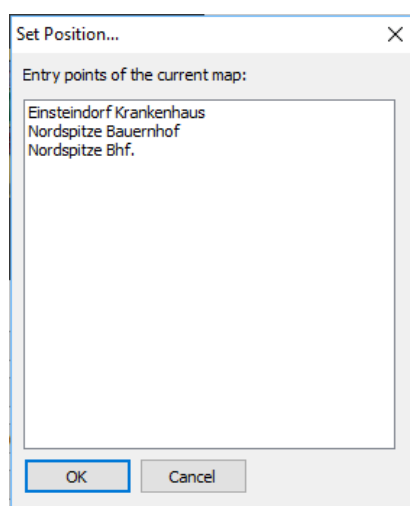


Figure 10. Set Position Menu

The Set Position menu allows you to choose in which bus stop to place the bus. Only certain bus stops will be available. For this tutorial, choose "Nordspitze Bauernhof". Don't worry, OMSI will ensure that the bus isn't placed on top of another vehicle. If all the available positions in a location are already occupied by other vehicles, the location won't appear in the window.

Once you confirm by clicking "OK," the bus will be placed at the Nordspitze Bauernhof stop as demonstrated in figure 11.



Figure 11. Nordspitze Bauernhof



2.7 Driver View, Passenger View and External View

Following the steps from the previous section, you'll be in the external view which follows the bus. You can change to another view by using the F1 through F4 keys.

2.7.1 Driver View

Press the F1 key to change to driver view which is the view from the driver's seat as shown in figure 12.



Figure 12. Driver View, taken from the original OMSI 2 manual

From this view, you can access all you will need to manage and drive the bus. You can change the route number, the light settings and air conditioning, along with distribute tickets and change. Of course, you can also turn on the bus and drive it. These settings can be accessed no matter which point of view you are in through the keyboard, except for the air conditioning and IBIS system. However, from this point of view, you can actually click on the buttons which make the simulation more realistic.

The section 4.7.1 points out all the buttons and their functions for the different bus dashboards.

With the left and right arrow keys you can look to the left or the right. If you keep pressing the arrow keys, you'll see more points of views within the driver view, such as focus shot of the route schedule. You can also zoom and pan with the mouse just like in the map view. Press the C key to re-center the view or the Space bar to return to a straight-ahead view.

There are also two special views: press the Insert key to view the bus schedule/route and the Home key to view the ticket sales area. Both views only last as long as you continue pressing the relevant key.

2.7.2 Passenger View

Press the F2 key to switch to passenger view. The previously described keyboard and mouse commands also work in this view with one addition: if you press the left or right arrow keys, you can move to another seat. For example, move to a seat near the front of the bus or to a seat on the upper deck.



2.7.3 External View

Press the F3 key to switch back to the external view or the F4 key to change to the map view. Both of these views follow the bus from the outside.

2.8 Set Time

It's a good idea to make your first round without any passengers. If you're not sure you can manage to pull around the AI bus that's directly in front of you, you can just wait a few minutes for it to pull away on its own or you can adjust the time so that the bus is already off on its route. Click on the Set time



button: to access the date/time window. For this tutorial, change the time to 10:15. The bus that had been parked in front of you will now be elsewhere. You can use this menu window to change the date and time as you see fit, but only if there's no active timetable. If there's an active timetable, you'll still be able to set the time ahead but not back.

Confirm the changes by clicking "OK". It may take a little while for all the AI vehicles to be moved to their new locations. Due to the new chronology function in OMSI 2, it is impossible to change the date during a game because a change of date not only affects the nature but the entire environment including streets and bus lines.

2.9 Driving the Bus

Now it's time to turn on the electrics and start the engine. It's best to switch back to the driver view. The image from figure 13 points out the important functions to turn on and start the bus.

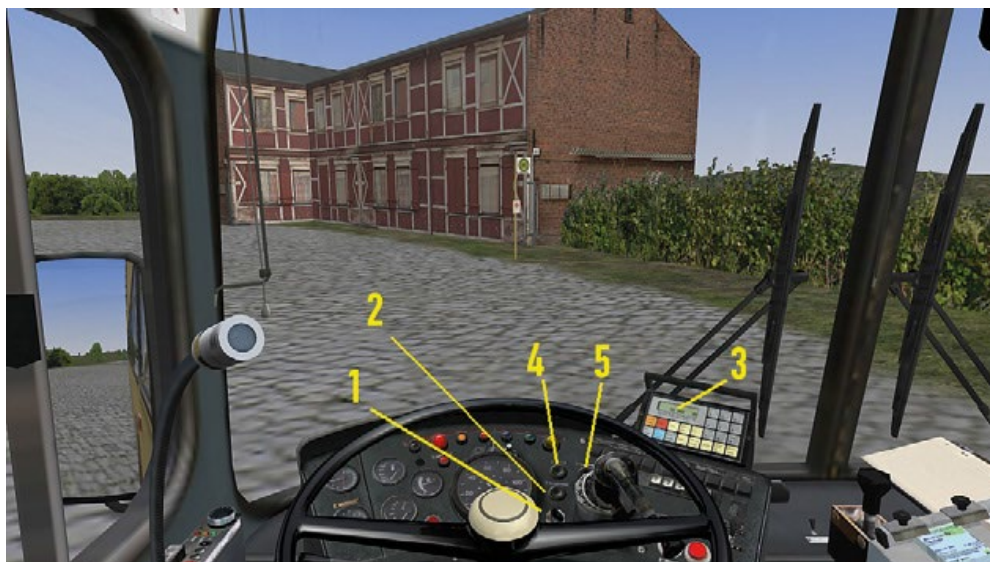


Figure 13. Driver View (2), taken from the original OMSI 2 manual

Turn on the electrics by pressing the E key or pressing the button labeled as 1 in figure 13 which will insert the key into the key switch, and then pressing the main battery switch by pressing the M key or by clicking on the button labeled as 2 in figure 13. Note that not all models have a main battery switch to press. The IBIS startup chime will play, and some of the warning lights and the IBIS display will light up. The IBIS is labeled as 3 in figure 13.




Note that some vehicles, like the '77 SD200 and SD202, don't have a battery switch. You'll only need to insert the key into the key switch to turn on the electrics.

You can turn the engine on with the M key or with the starter by pressing the button labeled as 4 in figure 13. You can only start the engine if the transmission is in neutral. To turn off the engine, you must press the engine cut-off, labeled as 5 in figure 13, or the M key until the engine has stopped completely – otherwise it may turn itself back on.

Once you've turned the engine on, you'll have to build up the air pressure in the air pressured system so that the brakes, suspension and doors will work correctly. Pay attention to the white indicator on the double pressure gauge, labeled as 6 in figure 13, on the left and to the red warning light. It goes out at around 6 bar, and the bus will be ready for action. It takes one or two minutes to fill the compressed air system. The engine needs to be switched on.

2.10 Steering

If you haven't already decided on how you'll steer the bus, you need to do so now. You can use the keyboard, mouse or a steering wheel or joystick if you've configured one. You can choose in the Game menu.

- Keyboard: Press the 8 key on the number pad to give it a little gas and the 2 key to brake. Both should be audible. Press the 4 key or the 6 key to steer left or right, and then the 5 key to re-center the steering wheel. The accelerator and brake pedals react differently. When you release the accelerator, it will return to the neutral position. If you release the brake, it will remain depressed. To release the brake, you must tap the accelerator. You can also release it gradually by pressing the + key on the number pad. If you press the + key and the 8 key, you'll floor the accelerator.
- Mouse: Press the O key or the Control button: , and then on the Mouse option to activate mouse steering. Now you can steer with side-to-side movements of the mouse, and accelerate or brake by moving it forward or backward.
- Steering Wheel/Joystick: You'll need to configure a steering wheel or joystick. Press the K key if you already have configured it to activate it. If not, go to the Game menu and under "Steering Wheel or Joystick", activate the controller that you'd like to use. Test the accelerator, brake and controls. You can change the configuration of the controller by opening the Main menu, pressing the Esc key and opening the options. You can also use several devices simultaneously. Configure them as described above and then activate them all with the K key.

While testing the controls, you can also have a look at your virtual feet. If the controls are working correctly, you'll be able to see the pedal positions change!

When you're ready to drive, put the transmission in gear (press the number 3 on the gear selector or the D key on the keyboard) and release the parking brake with the "." key in the keyboard. Choose whatever route you'd like and get used to the controls. If you get into trouble, you can click on the




Place Bus option:  in the Game menu to return the bus to a preset position.




2.11 First Aid

If you happen to get your bus stuck somewhere, you can put it in reverse and back it out. Press the N key to put in neutral and then the R key to put it in reverse. To put it back in drive, you'll have to first put it in neutral again and then press the D key.

If you collide with another vehicle, you'll have to stop and activate the emergency lights by pressing

the B key. Then open the Game menu and click on the Call the Police option: , who will respond to the accident and secure the victim. If you don't do this, you'll be charged with leaving the scene of an accident.

Collisions with other vehicles, objects or buildings can damage your vehicle. After an accident, the electrical system may be damaged or the transmission could be shot. You can repair damage and

continue driving by opening the Game menu and selecting the Repair Vehicle option: .

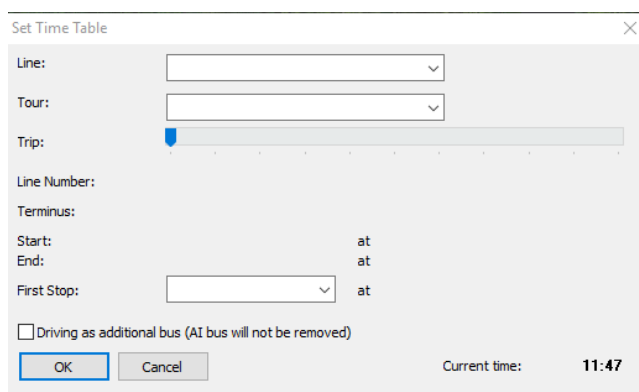
2.12 Your First Passenger Run

Are you ready? Then it's time to pick up your first passenger! Open the Game menu and click on the

Place Bus option:  to return to the starting position at Nordspitze Bauernhof, or drive yourself there if you know the way. Set the clock:  in the Game menu to 10:05.

To begin your first round with passengers, you'll need to select a timetable. Click on the Timetable

Settings option:  to select a timetable. The image from figure 14 will appear.



Set Time Table

Line:

Tour:

Trip:

Line Number:

Terminus:

Start: at

End: at

First Stop: at

☐ Driving as additional bus (AI bus will not be removed)

OK Cancel

Current time: 11:47

Figure 14. Timetable Setting

For this tutorial, please select Line 76 and then tour 1. On the Grundorf tutorial map, this is the only line available and besides your bus, only one other bus will be active. Beneath the selection you'll find a slider which – after you've selected a line and a tour – automatically shows the next departure of that tour. In this case, the departure time should be 10:07. If you move the slider back and forth, you'll notice that the buses depart the Nordspitze Bauernhof stop at 07 and 37 minutes after the hour. Select 10:07 and click on "OK". You'll see the information window from figure 15 appear, unless you check the box for Driving as additional bus (AI bus will not be removed).

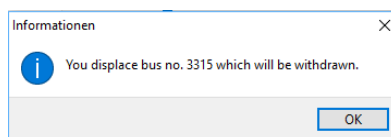



Figure 15. Bus Replacement Window

Since you selected tour 1, the AI bus is unnecessary and won't be in action.

Now have a look at the route by pressing the Insert key. The route schedule will also be on the bus, but the locations will vary depending on the bus model. Sometimes they are to the left of the ticket distributor, sometimes they are above the window on the driver's side. The header states the line, destination and route number. Below that you'll see the departure times for the relevant bus stops.

Your next task is to inform potential passengers which route you're driving. Open the Game menu and

click on the Set Terminus option:  to open the Set Line and Terminus menu, which is shown in figure 16. Enter "76" and select "Krankenhaus" from the list, then click on "OK." Switch to the external view by clicking the F3 key and verify that the route and destination appear correctly. Remember you can pan the camera around by pressing the mouse wheel.

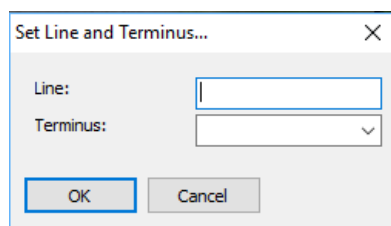



Figure 16. Set Line and Terminus

Drive to the first stop, set the bus stop brake by pressing the - key on the number pad, and open the doors with the "/" key and "*" key in the number pad. The former opens the left door and the latter opens the right door.

While the passengers are getting on the bus, it could happen that one of them still needs to buy a ticket. Press the T key to hand over a ticket and, if necessary, press the keys Ctrl and T to give change. Then click on all the bills and/or coins with which the passenger has paid. Don't get upset if the passengers are impatient – they don't know it's your first day.

When you're ready to go, shut the doors and release the bus stop break by pressing the "-" key on the number pad. As long as you don't brake at this point, the bus will continue forward.

To orient yourself on your new route, you can turn on the guide by opening the Game menu and then

click on the Route Help option: . Once you do, the images from figure 17 should appear.

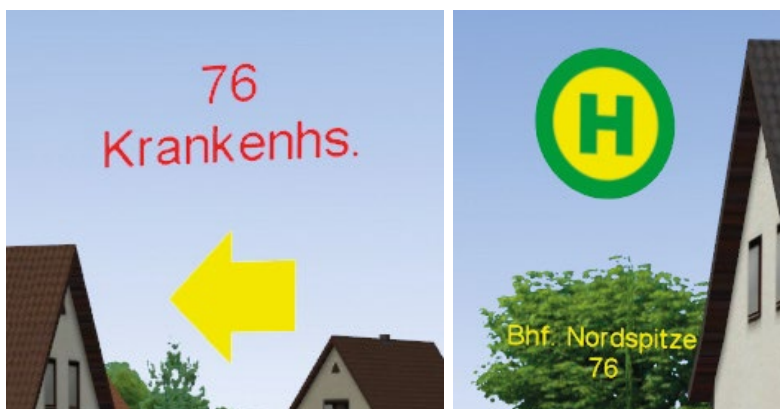


Figure 17. Route Help Signs, taken from the original OMSI 2 manual

The images that you'll see will vary depending on the line you have chosen and the bus stops near you. Nevertheless, the image to the left in figure 17 are signs that direct you to the bus stops within the route. The image to the right illustrates how the actual bus stops look. If you drive without a timetable, you'll only get rough directions, which are the yellow arrows without text and orange arrows for terminals, and all the stops will be marked. Once you select a timetable, you'll get additional precise directions, as in figure 17, for the chosen route and only stops along the route are highlighted.

When passengers want to get off at a stop, the yellow stop request light will light up on the dashboard. Stop at the next bus stop and set the bus stop brake by clicking the "-" key in the number pad. The rear door will open automatically. After the last passenger has exited the bus, the door will automatically close. Then you'll just need to release the break by pressing the "-" key again and continue driving.

When you reach the end of the line at the Krankenhaus stop and open the doors, you'll see a report like in figure 18 appear.

Haltestellenname	Ankunft soll	Ankunft ist	Ankunft diff	Abfahrt soll	Abfahrt ist	Abfahrt diff	Status
Nordspitze				10:08:48	10:03:45	-00:05:03	zu früh
Elsterplatz	10:10:13	10:04:11	-00:06:02	10:10:13	10:04:40	-00:05:33	zu früh
Gosdorf	10:11:05	10:11:13	00:00:08	10:11:05	10:11:34	00:00:29	ok
Einsteindorf Ausbau	10:12:51	10:21:09	00:08:18	10:12:51	10:21:31	00:08:40	zu spät
Einsteindorf Marktpl	10:13:40	10:21:48	00:08:08	10:13:40	10:22:07	00:08:27	zu spät
Krankenhaus	10:13:59	10:22:14	00:08:15				zu spät

Figure 18: Route Report, taken from the original OMSI 2 manual

The report will compare your performance with the actual schedule for the route. If you're more than three minutes late for a stop, you'll see a notice to that effect. If you're more than two minutes early for a departure, that will also be noted on the report.

When you close the route window, the next trip will begin, which in this case is the return to the first stop at Nordspitze Bauernhof. If you'd like to end the round, you can click on the Cancel Timetable



option in this window, or click on the Route Selector option:  in the Game menu and confirm by answering the following question with a “Yes.”

Note: As long as you’re alone in the bus you can do as you please but once you have passengers onboard, you need to follow the regulations for safety and comfort. Give them a smooth ride. Don’t brake abruptly or steer wildly or else you’ll annoy the passengers. If the ride is unpleasant enough, they’ll want to get off again immediately.

Once you’ve mastered this tutorial, there’s nothing holding you back from a career as a bus driver at the Spandau bus depot. Have fun, and don’t work too hard!



3. Controlling the Simulator

This chapter explains how to operate the OMSI 2 simulator.

3.1 Situations

You can save the current situation at any time in the Main menu. The current map, your current bus or buses and their locations, weather and the date and time will be saved. You can load a saved situation later by selecting it via the Start menu.

3.2 Status

You can also call up a status report which is a set of red lines at the top left of the screen with useful information. As soon as a passenger says something or a ticket sale commences, it will be shown in the status display if you haven't deactivated it. You can activate or deactivate the status display in the Options menu by turning on or off the Show Ticket Sales and Passenger Dialogue option.


Press the keys Shift and Z to view or hide the status display. Each time you press the combo, you'll see more and more information in the status display until it disappears.

3.3 Buses


In OMSI, you can drive more than just one bus. While you naturally can't drive more than one bus at the same time, you can park a bus somewhere and then switch to another bus. You can also add a "new" bus later or delete one of the existing ones.

3.3.1 Changing the current bus


You can change the current bus in two ways as long as no timetable is activate:

- Click directly on another bus in the map view and then click "Yes" to confirm the change.
- Click on the Change Bus option:  in the Game menu, choose the bus that you'd like to take over and click "OK" to confirm.

3.3.2 Adding a New Bus

Click on the Add New Bus option:  in the Game menu. A window will open allowing you to select the bus and configure its settings. This feature is not available if you have a bus with an active timetable.

3.3.3 Deleting the Current Bus

Click on the Delete Current Bus:  in the Game menu. A window will open allowing you to select the bus and configure its settings. This feature is not available if you have a bus with an active timetable.


3.3.4 Placing a Bus

You can also place a bus in a new location if there is no active timetable. There are two additional options:

- You can click on an open space in the map view with the left mouse button. You'll be asked if you'd like to place a bus there. If you confirm, a bus will be placed there and will automatically




face in the same direction that the camera is facing. Because of this, a new placement may require a bit of practice.

- You can also place a bus at a preset location. If you click on the Set New Bus option:  in the Game menu, you'll see the same window as that for adding a new bus.

3.3.5 Taking Control of a Bus



If the current bus is an AI bus, you can take control of it by clicking on the AI Take Over option:  in the Game menu. The AI will be deactivated so that you can – and must for there to be a steering wheel! – drive the bus along its route. Watch out! The process is immediate even if the bus is barreling down the Autobahn at 100km/h.

3.3.6 Handing over a Bus

You can also hand over your bus if OMSI recognizes your location by clicking on the AI Take Over option in the Game menu. If you have an active schedule and OMSI can determine where you are on the route, the AI driver will take over for you and continue driving the bus according to the schedule. If OMSI can't orient itself, the AI driver will drive the bus on a maintenance circuit.

3.3.7 Repairing Your Bus


An accident can result in damage to the engine or transmission, or a short circuit in the electrical system or some other kind of damage. The bus might be damaged due to lack of maintenance which can be set in the Options menu. In the best case, you can continue driving without a full electrical system, but you might not be able to continue driving at all. In that case, you can repair the bus by



clicking on the Repair option:  in the game menu.

Every repair takes its time – especially when you're somewhere on the route. Wait for a maintenance vehicle to arrive!

3.3.8 Washing Your Bus

Even if you don't get into any accidents, your bus is still going to get dirty, especially in bad weather. As soon as you pull into a depot or gas station, you can wash your bus by clicking on Wash or Tank Up option:  in the game menu, and then on "Wash."

3.3.9 Tanking Up

A bus naturally requires fuel. To tank up, you need to pull into a depot or gas station and click on the Wash or Tank Up option in the game menu, and then on "Tank Up." The gas tanks in the buses are large enough to hold enough fuel for several rounds so it's unlikely that you'll find yourself stranded on empty, but it's something to watch out for!



4. Controlling the Buses

This chapter describes how you can control the buses and their systems. It is assumed that you've read the chapter "The First Kilometer". At first the information will be general, but later on the special characteristics of the MAN SD200, SD202, NL202 and, of course, the articulated bus NG272 will be described and explained.

4.1 TrackIR

In case TrackIr is installed, you can switch it on or off when the TrackIr software is running. TrackIr is only used in internal views as view control doesn't make any sense in external views.

4.2 Schedule & Passengers

4.2.1 Bus Stops

Bus stops are indicators of where the bus will stop and which buses stop at that location. Images of a bus stop are illustrated in figure 19.



Figure 19. Bus Stop

Simply stop at the bus stop, open the doors and wait until everyone has boarded or departed and then continue driving. But beware – passengers only board buses that they expect! You'll need to switch the destination display to a destination that the passengers recognize:

Line 76 in Grundorf (fictional, tutorial):

- **Nordspitze Bauernhof** (northern terminus)
- **Einsteindorf Krankenhaus** (southern terminus)
- **Bhf. Nordspitze**

Line 92/137/13N/N33 in Spandau:

- **Freudstr.** (northern terminus)
- **Falkensee** (northern terminus after the Reunion)
- **Stadtgrenze or Reimerweg** (southern terminus)
- **U Rathaus Spandau, U Altstadt Spandau, Am Kiesteich** and **Westerwaldstr.** (intermediate stops)

Line 5/130/N5/N30 in Spandau:

- **Nervenklinik** (northwestern terminus)



- **U Ruhleben** (eastern terminus)
- **U Rathaus Spandau, Waldkrankenhaus, Fernbahnhof Spandau and Spektefeld Schulzentrum** (intermediate stops)

4.2.2 Passengers

Cheerful Berliners want to ride along with you. As they board the bus, they'll greet you, or possibly complain if something's bothering them, and will request tickets if you've configured OMSI to do so. When the passengers want to get off the bus, they'll press the "stop" button, which will cause the stop requested signals in the bus and on your dashboard to light up. The image for one of the stop requested signals in the bus and the one for your dashboard are in figure 20.

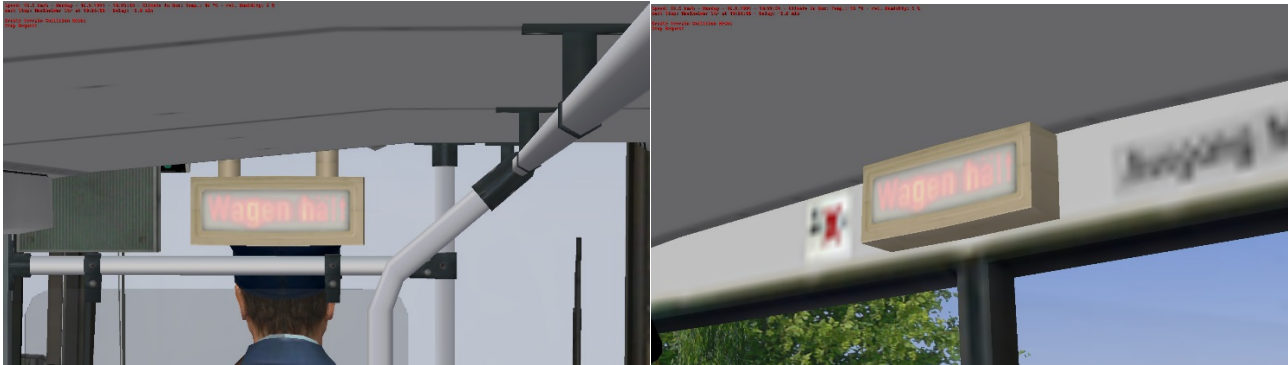


Figure 20. Stop Requested

They won't get off if there's no bus stop unless your driving style is so wild that they decide to flee the bus!

4.2.3 Ticket Sales

The process is always the same: the passenger will come up to your cash desk, say what they want and then place some money on the table.

If you've selected "easy" mode, you just need to press the keys Shift and T to collect the money and then press the T key to hand over a ticket or the keys Ctrl and T if they need change too.

If you've selected "advanced" mode, then you'll have to do it just as in real life:

- Since 1993 all buses have a ticket printer. Press the appropriate ticket button and confirm by pressing the long green button on the lower right. If it's the wrong ticket, you can tear it up by clicking on it and then repeat the process. If it's the right ticket, the passenger will take it.
- Buses before 1993 just have ticket pads. You can tear off the correct ticket by clicking on it. In Berlin, the driver would actually have to stamp the tickets as well. You can see the stamp in OMSI but since it won't be necessary for add-ons that employ different ticketing systems, we've left it out here.
- Click on the money paid by the passenger to collect it.
- Give out correct change by clicking on the appropriate buttons on the ticket machine. Tip: You can use the keys on the upper row to get several coins at the same time and thus give out larger sums of money with fewer clicks. The buttons indicate how much change the machine will produce. If you've miscounted, the passenger will let you know. Extra coins can be removed by clicking on them.



- Notice the changing prices in OMSI 2! The prices increased quite a bit in the simulated period from 1986 to 1994. Provided that you didn't disable it in the options menu, the desired ticket, its price and the money paid by the passenger are displayed on the top left.

Note – give change using the fewest number of coins. If you hand out too much small change, some of the passengers are sure to complain. Don't worry, you'll never run out of change so you can give it out with whatever combination of coins you like.

Don't forget that the old Deutsch Mark was used at that time and that there was no 20-Pfennig coin!

4.2.4 Schedule

If you think you're ready, you can try driving a route according to a real schedule. See section 2.12 "You First Passenger Run" for more information on how to choose a schedule.

You can only select routes that are appropriate to the current time and date. You cannot, for example, select a route normally scheduled for Sunday on a Friday.



Attention: If you can't choose a route for a certain line, it's possible that this line is currently not active. For example, the nightlines 5N/N30 and 13N/ N33 can only be selected at night (in Berlin this means between 12 am and 4 am). You have to keep an eye on the schedule to see when lines 5E and 92E are active.

Now it's your job to drive according to schedule. The route schedule will be displayed in a piece of paper that is located in one of the following two locations based on the model of the bus you are driving: above the front window either to the left or at the center or to the left of the ticket distributor. Figure 21 illustrates the locations of the route schedule.



Figure 21. Route Schedule Locations

You can also access additional information (next stop, departure time, delay) via the status display, which is shown by pressing the Shift and Y keys. If you press the combination more times, you'll see additional information. In the D92, the current delay is also displayed on the IBIS display.

If you click on the Personnel File button: , and then on the Schedule Evaluation option: , you'll see the status report that you can save as text file. It will also appear at the end of the route.

If you close OMSI, the current status will be saved and you can continue from there the next time you start up. You won't be able to change the date and time in the main menu until you have canceled the route.



4.3. The MAN SD200

This bus is a standard double-decker and so it follows the VöV (verband öffentlicher verkehr) standard bus guidelines, just like the single-decker MAN SL200 or the Mercedes-Benz 0305.

The chassis was manufactured by MAN and the superstructure by Gaubschat, Orenstein & Koppel as well as Waggon Union. In total, West Berlin received 956 buses of this type from 1973 to 1985.

There are many important differences (in OMSI as well!) among the models from each year. The first SD74 models, built in 1974, are very similar to the final SD85s, but many components and systems changed several times over the years. In OMSI, the following models are available and only the most important differences are listed:

- The SD77 which has only one stairway to the upper deck and the side display in the first window after the front door.
- The SD80 which has two stairways and a side display above the front door.
- The SD81 with the Standard 1 “facelift”: angular rear lights, brake lights and turn signals on the back, a modern steering wheel, plush seats and modern pictographic signal lights on the dashboard.
- The SD82 which has the first matrix display, although it’s still light gray.
- The SD83 which included light gray or light green matrix displays, and some buses with a fully-automatic roll signs.
- The SD84 which has a new motor and light green matrix display.
- The SD85 which has a modern transmission that automatically shifts to neutral when the stop brake or the service brakes are activated, and which has a wider retarder range up to standstill.

4.4. The MAN SD202

The SD202 is a standard double-decker from the 2nd VöV generation which, like all VöV-II buses, differs from its predecessor in its angular form, smaller tires, lower entry height and modern interior.

As with the SD200, the Waggon Union in Berlin added the superstructure to the MAN chassis. After three prototypes produced in 1982 – 83, 468 buses were manufactured from 1986 through 1992.

Also like the SD200, the design varies from year to year even though the differences are smaller because of the shorter production life of the SD202. The main differences were in the design and mechanism of the doors, the color of the grip bars and (starting in 1988) the modified interior design for handicapped access.

Although not explicitly designed as such, the SD202 can be considered the first low-floor double-decker thanks to its step-free entrance. Once true wheelchair-accessible buses were introduced in the early 90s, the formerly “wheelchair-accessible” SD202 was redesigned as merely “wheelchair-friendly”, since the newer buses had additional means of assistance like ramps or the ability to “kneel”.

The following models are represented in OMSI:

- The D86 with angular wheel wells, large engine compartment, silver MAN logo, compressed-air doors, narrow window rubberization and brown poles.
- The D87 with round wheel wells, smaller engine compartment and black MAN logo.



- The D88 with wheelchair-accessible design and a larger baby carriage/wheelchair area, electric doors, red poles and a MAN logo with no periods.
- The D89 with a new upper-deck heating system resulting in the rear bench being moved forward and a new arrangement of the air vents on the sides.
- The D90 with smart door controls that allow sorting rubber door seals and are partially equipped with infra-red transmitters to control traffic lights.
- The D91 with rear fog-lights and preparation for later additions of internal stop displays.
- The D92 with interior destination displays, an IBIS 2 system, an anti-lock braking system and anti-slip regulation. In OMSI, this model also has the ticket printer that was introduced in the 90s.

4.5. The articulated bus MAN NG272(2)

Countless OMSI enthusiasts have been eagerly awaiting the first “real” articulated bus in OMSI. Thus, for the first time a bus that’s not as typical for Berlin as the double-deckers featured in OMSI 1.

The NG272(2) is a low floor articulated bus of the 2nd VöV generation that was used by many German transport companies since 1992. BVG also got a series of 25 vehicles in 1992 they called GN92.

The NG272(2) is the first to feature a low floor front end which you can recognize by its lowered windows. Contrary to the trend to use single bucket seats, the BVG NG272 featured classic bench seats as you would find them in a 1st generation MAN standard bus. This leads to high seating comfort in the MAN GN92. To make optimal use of the turbocharged 6.8 liters engine, BVG vehicles feature for the first time a Voith four-speed transmission and a very short axle ratio. Since the beginning, GN92 featured bus stop displays and electronic ticket machines.

4.6 The MAN NL202(2)

The NL202 was only created to simulate the smaller version of the new NG272 for OMSI. It wasn’t part of the BVG vehicle fleet since they preferred its predecessor NL202, but you could see it on Berlin lines since 1992 in a dark yellow as it was used by private companies. BVG themselves restarted ordering MAN single-deckers in 1996, which are the advanced NL262 using Euro-II-engines.

4.7 SD200 and SD202 cockpits

Since the SD200 and SD202 are operationally so similar, the systems for both buses will be explained together.

4.7.1 Dashboard

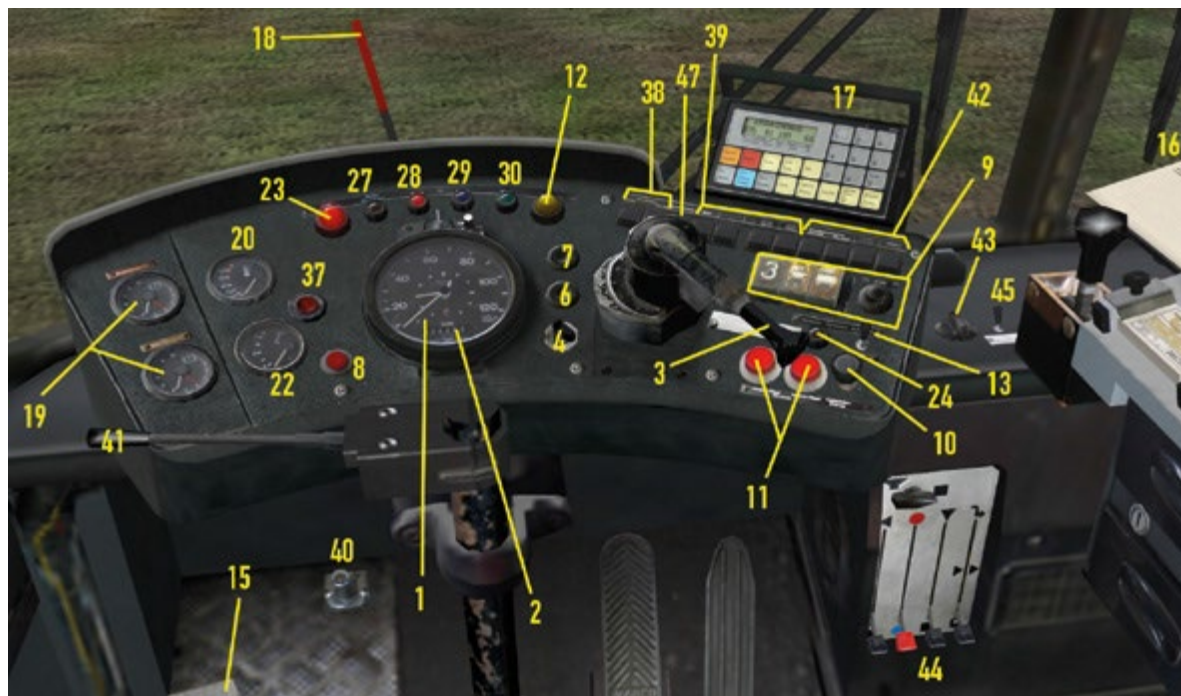
On the following pages you’ll find pictures of the dashboards of the SD77, SD80, SD81, SD85, D86, D92 and GN92. The dashboards of the other models differ only in a few details from those pictured in the manual. The following explanations apply to all of the dashboards

For a better view, you can “hide” the steering wheel by clicking on the steering column.

DISCLAIMER: The following images of the dashboards were taken from the original OMSI 2 manual.



Dashboard SD77:



Dashboard SD80:





Dashboard SD81:



Dashboard SD85:





Dashboard D86:

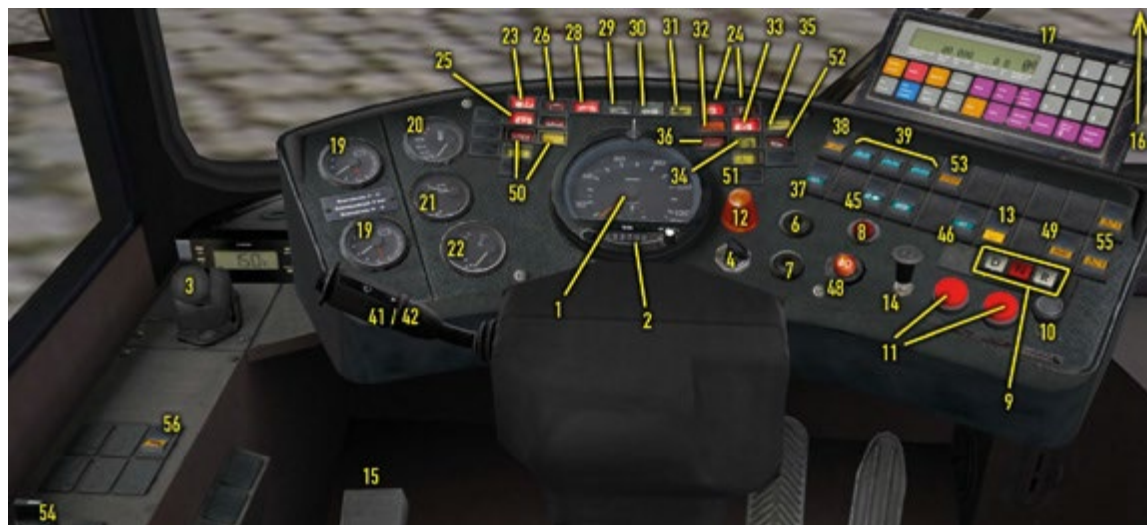


Dashboard D92:





Dashboard GN92:



(1) Tachometer in km/h and the clock.

(2) Odometer in km. When creating a bus, it will be automatically set to a sensible value depending on the production year and the current year in OMSI.

(3) Parking brake, or press the “.” key. It works on the rear axle and is like the parking brake in an automobile but the spring-loaded brake is released by compressed air. Thus, a bus with too little air pressure in the system will automatically brake because there’s not enough pressure to keep the brake from automatically engaging.

(4) Key switch, or pressing the E key. Removing the key will disconnect the battery. To return power to the bus, the key must be reinserted and the main battery switch (5) must be depressed; except on some models where you’ll only need to insert the key.

There are three positions for the key: left for high beams, middle for parking lights and right to turn off the other two lights. The key can be inserted or taken out in whichever position. To change the position of the key there are two options: pressing the L key only, or pressing the Shift and L keys. Pressing the L key will change the position between the middle and the right. Pressing the Shift and L keys will change the position between left and right.

(5) Main battery switch. The bus will power up only after you’ve pressed the button if the key has already been inserted and turned. This feature is not available on some vehicles.

(6) Starter, or press and hold the M key until the engine is running.

(7) Engine Off, or press and hold the M key while the engine is running to turn it off.

(8) Emergency lights.

(9) Gear selection. Some models have the following gears: D, N and R. Most models have 1, 2, 3, N and R. Pressing the D key for the latter models will press the 1 – 3 gears, and pressing the respective keys



will only press the respective gear button. Remember that to shift from forward to reverse and vice versa is only possible if you shift into neutral first.

The SD77 is an exception to this rule: instead of the neutral button, you'll have to press the current gear button a second time. To shift out of reverse, you'll need to press the *R-frei* (reverse free) button as well which is to the right of the gear selection buttons.

(10) Bus stop brake, or press the “-” key in the number pad. The bus stop brake is active when the bus is completely stopped and holds the rear axle with 3.5 bar pressure. The front and back doors will only open if the switch is pulled. If the baby carriage switch (13) is activated or a stop-request button is pressed, then the rear doors will open. Once a certain amount of time has passed and no passenger stands in the exit area, the doors will close. The brake will only be released once the rear doors are closed, even if you press the bus stop brake button while the doors are still open.

(11) Front doors, or press the “/” key and “*” key in the number pad. In the dashboard, the left button opens the front partition and the right button opens the rear partition. They work only when the bus stop brake switch is activated on buses with compressed air doors or when the bus stop brake is set on buses with electronic doors.

(12) Stop request light. Lights up along with the stop requested sign as soon as a passenger or you presses one of the stop-request buttons or presses the baby carriage switch (13).

(13) Baby carriage switch. So long as you have this switched on, it acts like a continual press on the stop request button so the stop request light will light up. If the stop brake is active, the rear door will open and remain open until the switch is turned off. This makes it easier for passengers with baby carriages, wheelchairs or heavy luggage to get on and off.

(14) 8:00pm switch (only on D92). If it's active, you can set the bus stop brake and open the front doors without opening the rear doors. In the early 90s, passengers were allowed to disembark between bus stops after 8:00pm, but only via the front doors. The 8:00pm switch prevented the back doors from opening on such occasions.

(15) Microphone foot pedal, or press the Q button. So long as the pedal is depressed, you can announce upcoming stops via a microphone attached to the PC. It also triggers the bus stop announcement on buses supporting this feature.

(16) Schedule.

(17) IBIS, see section 4.7.7 of this handbook.

(18) Pressure gauge warning. When the needle points up, there's not enough pressure in the compressed air system. The bus is not ready for action!

(19) Double manometer. The vehicles have two brake circuits: the red pointer indicates the current brake pressure (0 bar if the brakes are not in use) and the white pointer indicates the amount of air pressure held in reserve. You can try it yourself! If you brake while the bus is stationary, the brake pressure will shoot up and the pressure reserve will fall somewhat. Only when the engine is running will the pressure reserve be replenished.



-
- (20) Coolant temperature. A measure indicating if the engine is too cold or too hot. If it exceeds 100°C, you're in trouble! On the other hand, you can also see how effectively the heater is working. When the coolant is cold, you'll have to turn on the engine block heater.
- (21) Fuel gauge, except on the SD77. You'll need to check in in the status display.
- (22) Oil pressure gauge.
- (23) Warning light. The bus is not ready to drive. It lights up when the engine isn't on but the electricity is or if there isn't enough compressed air to power the brakes.
- (24) Rear door indicator. Lights up when the rear doors are open. If they remain open, turn the baby carriage switch on and off and the door should close.
- (25) Parking brake indicator light.
- (26) Water level indicator light (not functional).
- (27) Oil temperature indicator light (not functional).
- (28) Battery light. If the alternator doesn't produce enough electricity, the battery will be used. Normally only on when the engine is off.
- (29) High beams indicator light.
- (30) Turn signal indicator light.
- (31) Baby carriage indicator light.
- (32) Centralized lubrication system indicator light. Intermittently lights up while driving as the system lubricates the axles and the bearings.
- (33) Anti-lock brake system indicator light (only buses built since 1992). Lights up when the anti-lock braking system is active, and in the period between turning the electrical system on and beginning to drive.
- (34) Anti-slip regulation indicator light (only buses built since 1992).
- (35) Emergency valve indicator (only buses with electronic doors).
- (36) E-Gas indicator light (not functional for D88 and higher).
- (37) Auxiliary heating. You can warm up the coolant if it's cold outside so that the engine will warm up more quickly. The auxiliary heating system takes a while to get started and also continues to run briefly after it's been turned off.
- (38) Direct retarder (left) and On-Off switch (right, not available on D92). These switches control the retarder, a wear-free hydraulic brake built into the power train which produces a distinctive sound. With the right switch, which is normally in the on position, the retarder only comes into action when the brake pedal is depressed. If you turn on the left switch, then the retarder will activate as soon as you release the accelerator and will have a greater effect. This mode is useful when descending a steep



grade and can conserve the brakes. The retarder should be turned off when driving on ice so that you can brake more accurately.

(39) Light switches, or by pressing the 6, 7, 8 or 9 keys. 6 or the outermost left button turns on the lights on top of the driver's cabin, 7 or the inner left button turns on the front lights in the lower deck, 8 or the inner right button turns on the lights in the upper deck if there is one and 9 or the outermost right button turns on the back lights of the lower deck.

Note: These keys are for double decker buses. For those that only have one floor, such as the D92, there are only three options: 6, 7 and 9. 6 has the same functions as before, 7 or the middle button turns on the front inner lights and 9 or the right button turns on the back inner lights.

(40) High-beams foot pedal (only on the SD200), or by press the F key. In OMSI, you can also waive your right of way if you use the flashers.

(41) Turn signal. Starting with the D89, it also controls the windshield wipers.

(42) Windshield wipers, or pressing the W key. There are three locations depending on the model. For the SD200, the buttons are above the gear selections. The first button is to make the wipers go fast and there is no keyboard shortcut. The second button is turn on and off the windshield wipers or press the W key. The third button is to make the wipers wipe in intervals or you can press the Shift and W keys. The fourth button is turn on the washer or you can press the Ctrl and W keys, which need to be pressed and held.

For the SD202 until the D89, it is on the right side of the steer column. To turn on you can lift it up to 12.5 degrees for the interval speed wipers, lift it up to 45 degrees for the regular speed wipers, lift it to 57.5 degrees for the fast speed wipers and another notch for the washer. Like before, you need to hold it all the way up for the washer to be active. You can also press the combination previously mentioned for the wipers.

Starting with the D89, the buttons are combined with the turn signal. To turn on or off the wipers, turn the middle portion of the turn signal up or down. To change the speed, turn it up two clicks for the fast speed or down once for the interval speed. The washer is activated by pressing the top button of the turn signal. It still needs to be pressed and held to be active and the same shortcuts as before apply.

(43) Fan. Controls the speed of the fan.

(44) Air conditioner control panel. The first lever on the left turns on (position up) or off (position down) the air conditioner (AC) for the driver cabin, the second lever from the left switches between cold air (blue) and hot air (red), the third lever from the left turns on (position up) or off (position down) the AC for the rest of the bus and the fourth lever from the left has three options which control the air circulation: 1) top is to let outside air flow, 2) middle is to let the cold air flow and 3) bottom is to recycle the air. To let outside air in, the lever at the top left of the panel needs to be turn up. The NG272 and NL202 is controlled via a separate heating control panel

(45) Interior heater. Needs to be turned on to circulate hot air.

(46) Rearview mirror heater.



(47) Engine cooling. Normally, the engine fan activates automatically thanks to a thermostat, but you can also control it manually.

(48) Fog lights. Only on buses build since 1991.

(49) Anti-slip regulation switch. To turn it on and off for the following models: D92, NL202 and NG272.

(50) Electronically controlled air suspension/Kneeling device. When the yellow beacon is lit up, the bus is lowered and the stop brake can't be released while the bus is in a lowered position. When the yellow beacon is flashing, pressure in the fourth supply reservoir is too low (below 6.5 bars) so the bus can't be lowered. Usually both beacons light up shortly after starting the electrics.

(51) Ramp light. Lights up when the ramp is extended.

(52) Bending protection light. Used for articulated buses (bendy buses), it lights up as soon as a pivoting joint exceeds an angle of 47° at which time you'll hear a warning buzzer. The bending protection system prevents the kinematic pair from going at too large of an angle by disabling the accelerator pedal and if the reverse gear is engaged, applying the stop brake.

Change into a forward gear and make sure the kinematic pair gets back into the permissible range. You may use the bending protection rocker switch (56) to disable the system in an extreme case.

(53) Kneeling switch. The bus can only be lowered while idling and provided the fourth supply reservoir contains sufficient pressure. It is recommended to apply the stop brake first. Also, it can only be released after the bus is back in its "high position".

(54) Main switch for lifting device and ramp (only for the NL202 and NG272). You need to put it in cross position so you can operate the lifting device and the ramp. The lifting device at the front door is operated using the rocker switches (55).

To extend the ramp at the second door, the parking brake needs to be applied and the baby carriage switch (13) needs to be switched on so the middle door is blocked while open. Now the ramp can be extended by pressing one of the three stop request buttons right next to the door. The buttons are white and one is beneath the normal red stop request button next to the door, and the other two or side-by-side in the area where the wheelchair would be. The ramp is automatically retracted when the baby carriage switch is switched off and the door is closed. If the ramp is in motion, the warning lights on the inside and outside of the bus are flashing and you hear a warning buzzer.

(55) Lifting device rocker switches. To extend the lifting device, the main switch (54) needs to be turned on while the lower rocker switch is continuously pressed. When it reaches its final position and the motion has stopped, release the button and press it again so the lifting device lowers. If the lifting device hasn't reached one of its two final positions, the warning light on the outside of the bus will flash and you hear a warning buzzer.

(56) Bending protection rocker switch. The bending protection system can be disabled temporarily by pressing and holding the switch.



4.7.2. Compressed air system

The vehicles are equipped with a compressed air system, which is used for the brakes and door systems. The twin manometer (number 19 in section 4.7.1) displays the status of the compression system. The pressure is created by a compressor that is directly connected to the engine.

When the operating pressure of 8.5 bar is reached, you'll hear the compressor disconnect from the compressed air system, accompanied by an audible hiss and a steady whisper which you can hear if you're outside the bus. If the pressure falls to around 7 bar, the 67 compressor will automatically reconnect to the compressed air system (you'll hear a click and the hissing will stop). The compressed air serves four systems: brakes for the front and rear axles, the parking brake, the doors and the suspension. The individual systems are connected so that a drop in pressure, within the safety parameters, will affect all the systems, but a complete failure of the braking system will be prevented.

4.7.3. Parking Brake

The parking brake operates via compressed air, but is spring loaded and so is most effective when the amount of compressed air is minimal. The brake will only be released when enough air pressure is applied via the parking brake lever.

Therefore, the parking brake will automatically engage when the pressure in the dedicated brake circuit is too low. This is a safety measure since the parking brake is the only brake that can stop the bus if the air pressure is lost. Whenever you exit the bus, set the parking brake!

When the parking brake is engaged, the parking brake light (number 25 in section 4.7.1) will light up, except for when the normal brakes are fully applied since the effect of the parking brake will be reduced by a release valve as a safety precaution.

4.7.4. Electrical System

Turn on the electrical system by inserting the key (number 4 in section 4.7.1) and then pressing the main battery switch (number 5 in section 4.7.1). The IBIS startup chime will play and the lights and displays will come to life. The IBIS display will also be illuminated.

Don't forget – if the electrical system is engaged, it will run down the battery! When the engine is running and the charging light (number 28 in section 4.7.1) is lit, the battery will charge.

Sooner or later you'll notice that the new state of maintenance influences your battery.

When the electrical system is turned off, the lighting in the passenger area, the warning light, the auxiliary heating system and the front doors will still function. Note: the bus stop brake does not work in this case, so you should only turn off the electrical system after you've set the parking brake.

4.7.5. Destination Display Unit (old)

The SD200 series, which up until the SD81 used the old style of roller, controlled by the old destination display unit. The image from figure 22 illustrates the old unit.



Figure 22: Destination Display Unit (old), taken from the original OMSI 2 manual

The following lists the functions of the unit:

1. Counter.
2. Up button – press the F8 key once, then the Page Up key.
3. Down button – press the F8 key once, then the Page Up key.
4. Synchronize button.
5. Bus number (also located here in newer SD series buses).
6. Destination code table.

The rollers for the route numbers for these buses were actually set with a mechanical crank. Since we haven't implemented this mechanism yet, the route number can be "cranked" using a keyboard shortcut: first press the F5, F6 or F7 key to choose the first second or third number roll; then press or hold the Page Up or Page Down keys until the roller reaches the desired position.

The destination display, on the other hand, is controlled electrically using the control unit previously described. You can use the counter and the destination code table to determine which destination is currently being displayed. To change the destination, press the up or down arrow keys. You can also press the F8 keys once, and then the Page Up or Page Down keys. The counter will jump forwards or backwards to the next number and the display will change. The display can only be advanced again once it has stopped moving.

In reality, sometimes the destinations on the front and side displays along with the counter don't match up. In this case, you can press the Synchronize button (4) to return all the displays to the 0 position. Set the counter to the zero position as well, and all the displays will again be in sync.

4.7.6. Destination Display Unit (new)

The SD83 series buses, which have the new type of destination displays, have a somewhat different control unit and thus the controls are a bit different from those of the older models. Make sure to select the SD83 series with the roll sign option in parenthesis. Otherwise, you will not see the unit, which is illustrated in figure 23.

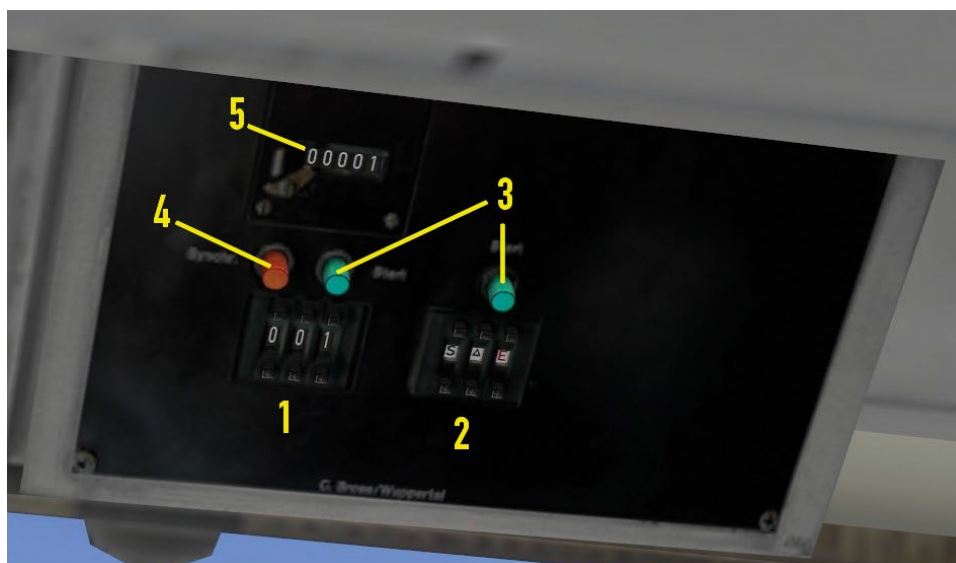


Figure 23: Destination Display Unit (new), taken from the original OMSI 2 manual

The following lists the functions of the unit:

1. Code for destination display.
2. Code for route display.
3. Start button for destination and route displays.
4. Synchronize button.
5. Destination display counter.

These rollers are automatically configured so are less time-consuming than those for the old system.

If you want to change the destination display, enter the desired destination code with the “+” and “-” buttons on the unit (the top buttons are “-” and the bottom buttons are “+”) and then press “Start”. On the counter you’ll see which destination is currently displayed. For a list of destination codes, see appendix 6.2. Warning: the counter takes time to adjust to the appropriate number. If the roller needs to be at 10 but is at 200, you’ll have to wait until it counts down to 10 to see the correct destination display.

The same applies to the route display by using the buttons on the unit to enter the number of your route. There are additional symbols you should know:

- Triangle – enter a triangle in all three fields and a triangle will be displayed, signifying a special route.
- S – school bus. “Gretel” appears on the left of the display, “Hansel” appears in the middle and the right is clear.
- E – shortened route.
- Red “12E” – express route. For a long time in Berlin, there were two express bus routes with red numbers and destinations: 12E and 54E. For reasons we won’t go into here, the 54E is indicated with a white 54 and a red E. In 1984 these routes ceased to exist, and the red destination blinds were removed from the display. However, the red numbers were kept.



4.7.7. IBIS

Since the late 80s, the buses of Berlin were outfitted with IBIS (Integrated OnBoard Information System), which controlled not only the ticket validator but also the matrix display in all newer buses since the SD82. An image of the IBIS is illustrated in figure 24.



Figure 24: IBIS, taken from the original OMSI 2 manual

1. Keypad – press the Ctrl key and the appropriate numbers on the number pad.
2. Time/Date – press the Ctrl key and the 0 key on the number pad.
3. Delete – press the Ctrl key and “,” key.
4. Enter – press the Ctrl key and the Enter key in the number pad.
5. Route – press the Ctrl key and the * key in the number pad.
6. Line/Course – press the Ctrl key and the / key in the number pad.
7. Destination – press the Ctrl key and the - key in the number pad.
8. Next Stop.
9. Back (Mute).
10. Forward (Mute).

There are more features than those listed but only those supported by OMSI are shown.

Setting the line:

Press the Line/Course button (6). The display will show “LINIE/KURS:#####”. Use the number pad to type in the code for the bus line and then press the Enter button. The code will appear on the display in the “Line/Course” area and the matrix display will change to the line number you’ve chosen.

The code for the bus line has two parts: **09210**. The first three bold digits, 092, are the line number for line 92. The final two digits allow you to display special characters on the matrix (refer to appendix 6.3). For example, if you enter 04936, X49 will appear. Note that routes for lines are entered separately in the IBIS.

Remember to type “00” after the line. For example, if you just type in “136” line 136 won’t be displayed. Instead, you’ll see “X1”. To see line 136 type in “13600”.

If you want to clear the display, click the Delete button (3). If you just want to clear the digits that you typed in so far, click the Line/ Course button (6) again.



Setting the route:

Every route consists of a set of stops and belongs to a line. For example, Line 92 Route 1 begins at Freudstr and end at Stadtgrenze. Route 2 includes the same stops but in reverse.

Once you've got the line set, press the Route button (5). The first line in the display will change to "ROUTE:" and you can type in the route. Press Enter to confirm, or cancel the process as described previously.

Once you press the Enter button, the first bus stop will be activated and the relevant destination will be displayed. The matrix display will change the destination automatically. On a bus with a roller, this must be done manually. You'll see the route and the destination code on the matrix display.

Cycling through stops

When you press the Q key, the microphone pedal (number 15 in section 4.7.1) or the IBIS Next Stop (8) or Forward (10) buttons, the next stop will be selected and displayed. If the bus has an automatic announcement system, like the D92, the next stop will be announced unless you've pressed the Forward button.

Manually set destination

Sometimes you'll want to set a destination that's not directly on your chosen route or that doesn't belong to any route like Maintenance or School Bus.

First, find the right three-digit code and press the *Ziel* (destination) button. The display will show "ZIEL:" and you can enter the code and then confirm it. The matrix display will change to reflect the new destination. You can see the destination code in the lower line.

The chosen route will be saved but you can still cycle through the stops if you only want to make a shortened trip that ends at a stop that doesn't belong to any route.

Display date and time

If you're not in the middle of entering a route or destination, press the Time/Date button (2). The upper line will show the current date and time in OMSI. The date and time will be displayed until the upper line is needed to display a stop or destination.

Delay display (D92, EN92 and GN92 only)

The IBIS 2 system can display the current status of the schedule. It's accurate to a tenth of a minute and appears on the right edge of the display. A "+" means that you're running late and a "-" means that you're early.

4.7.8. Heater

The water coolant of the buses is heated by the engine and is then used to heat the passenger area.

All vehicles feature a front blower. The SD200 and SD202 have two relevant levers on the bottom right next to the cockpit. Refer to section 4.7.1 numbers 43 and 44 for its instructions on how to use the heater.



The NL202 and the NG272 are equipped with a modern control panel that you find over the front window. Figure 25 illustrates it.



Figure 25: Heater, taken from the original OMSI 2 manual

You can control the blower's intensity using the buttons 1 to 3; the second and third position is only available while the engine is running. You turn the blower off by pressing the 0 button. When the blower is active, you can set the temperature using the "-" and "+" button on the far left.

Usually the front blower uses outdoor air, but press "Smog" if you only want to use circulated air and press the button in the middle to use a mixture. DEF is short for "Defrost" and heats the windshield.

In the passenger area of each bus there are several heaters, which you can control with the switch (number 45 in section 4.7.1).

The effectiveness of the heating system depends on the temperature of the coolant. To warm up the coolant on cold days, which will get the bus ready to drive sooner and makes the internal heating more effective, you can turn on the auxiliary heater (number 37 in section 4.7.1).

The auxiliary heater only works until the coolant temperature reaches approx. 70 °C (158 °F).

Try to keep a comfortable interior temperature and make sure that the passengers get enough air. The windows in the cabin or in the passenger area can be opened to let in some fresh air, and the heating system can also provide ventilation. Don't leave the doors open too long on cold days or it will get too cold inside.

There's a small digital thermometer in the cabin so that you can keep track of the temperature.



5. Credits

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- MAN Truck & Bus AG, München
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- BCT Berlin City Tour GmbH
- Bähge Baustoffe GmbH & Co. KG, Berlin
- BAUHAUS AG, Mannheim
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6. Appendix

6.1 Tickets until July 1991

In our buses you can sell five types of tickets. Pay attention to the color and the underlined letter because they'll help you quickly find the correct ticket. Depending on the date you set, the ticket prices are different! Ticket prices were raised on May 1, 1987 and May 1, 1988.

Table 1: Tickets until July 1991

Ticket Picture	Ticket Type	Ticket Price
	Normal (transfer permitted) Ticket Machine: "Fs Norm"	86: DM 2.20 87: DM 2.30 88: DM 2.70
	Student/Reduced (transfer permitted) Ticket Machine: "Fs Erm"	86: DM 1.40 87: DM 1.50 88: DM 1.70
	Short Haul (since 1988) Ticket Machine: "Kurzstrecke"	88: DM 1.70
	Student/Reduced Short Haul (since 1988) Ticket Machine: "Kurzstr Erm"	88: DM 1.20
	1-Day Ticket Ticket Machine: "Tagesk Nor"	86: DM 7.50 87: DM 8.00 88: DM 9.00



6.2 Tickets since August 1991

On August 1, 1991, the tickets were redesigned and prices were raised. On January 1, 1993 and January 1, 1994 prices were raised again.

Table 2: Tickets after July 1991

Ticket Picture	Ticket Type	Ticket Price
	Normal Ticket Machine: "Fs Norm"	91: DM 3.00 93: DM 3.20 94: DM 3.50
	Student/Reduced Ticket Machine: "Fs Erm"	91: DM 2.00 93: DM 2.10 94: DM 2.30
	Short Haul Ticket Machine: "Kurzstrecke"	91: DM 2.00 93: DM 2.10 94: DM 2.30
	Student/Reduced Short Haul Ticket Machine: "Kurzstr Erm"	91: DM 1.50 93: DM 1.60 94: DM 1.80
	1-Day Ticket Ticket Machine: "Tagesk Nor"	91: DM 12.00 93: DM 12.00 94: DM 13.00



6.3 Important Destination Codes

The following tables will come in handy as a quick reference for the important destination codes you'll encounter on your routes.

Table 3: Berlin-Spandau Destination Codes

Roller	Matrix	Matrix since 5/29/94	Destination
1	206	150	Schoolbus
2	205	013	Special
4	049	39	Driving School
6, 36, 66, 96, 116	013	013	Maintenance
5, 37, 63, 92, 114	223	163	Spandau Autobus-Depot
47	081	-	Heerstr., Stadtgrenze (until 6/1/91)
47	418	-	Staaken, Bergstr. (6/2/91 – 5/28/94)
47	-	329	Staaken, Hahneberg (since 5/29/94)
48	210	153	Spandau, Freudstr.
49	007	909	U-Bhf. Altstadt Spandau
50	079	064	Heerstr. E. Reimerweg
51	214	156	Spandau, Am Kiesteich/Wasserwerkstr.
52, 105	212	155	Spandau, Westerwaldstr./Siegener Str.
53, 108*	211	154	U-Bhf. Rathaus Spandau
55	387	306	Bahnhof Falkensee (on matrix since 11/25/89, on roller since 9/30/90)
102	282	205	U-Bhf. Ruhleben
103	231	170	Psychiatric Clinic
104	313	231	Waldkrankenhaus
106	232	231	Long distance train station Spandau
107	233	172	Spektefeld School

*until 5/28/94

Table 4: Grundorf Destination Codes

Roller	Matrix	Destination
0	000	Leerfeld
1	013	Maintenance



2	206	Schoolbus
6	105	Einsteindorf, Hospital
8	107	Nordspitze Bauernhof
9	108	Nordspitze, Train Station

6.4 Line/Course for Matrix Displays

Table 5 explains what the MAN SD200/202 matrix readouts display based on the line/course inputs. The assumption is that the value 123## is inputted in the IBIS as “Line/Course”, where ## is to be replaced with the respective “No.” on the table.

Table 5: Line/Course Matrix Display

No.	Display
00	123
01	E23
02	“Triangle”
03	“School Bus”
04	23N
05	S23
06	A23
09	_E3
10	23E
11	_D3
12	_C3
13	_B3
14	_A3
15	_N3
23	_S3
24	S23
25	_U3
26	U23
27	_M3
28	M23
29	BVG
30	23S
31	23U
32	23M
35	N23
36	X23
97	Software Version
98	Chessboard switch
99	All In/All Out Switch



6.5 Routes

On June 2, 1991, all double digit line numbers were replaced by three-figure numbers. At the same time, an “N” for night liners was put in front of the number.

Line 5/130

Line/Course: 00500 (5), 00510 (5E) or 13000 (130)

Table 6: Line 5/130 Routes

Route	From	To
01/02	Ruhleben	Nervenklinik
03/04	U Rathaus Spandau	Nervenklinik
07/08	U Rathaus Spandau	Spektefeld
09/10	U Rathaus Spandau	Waldkrankenhaus

Line 5N/N30

Line/Course: 90500 or 93000

Table 7: Line 5N/N30 Route

Route	From	To
01/02	U Rathaus Spandau	Nervenklinik

Line 13N

Line/Course: 91300

Table 8: Line 13N Routes

Route	From	To
01/02	U Altstadt Spandau	Stadtgrenze
03/04*	U Altstadt Spandau	Am Omnibushof

*only until 4/30/87

Line N33

Line/Course: 93300

Table 9: Line N33 Route

Route	From	To
01/02	U Altstadt Spandau	Bergstr.*

*only until 5/29/84, then Hahneberg

Line 92 until 9/29/90

Line/Course: 09200 (92) bzw. 09210 (92E)

Table 10: Line 92 Routes until 9/29/90

Route	From	To
01/02	Freustr	Stadtgrenze
03/04	U Rathaus Spandau	Stadtgrenze
05/06	U Rathaus Spandau	Reimerweg



11/12	Kiesteich	Reimerweg
13/14	Kiesteich	U Rathaus Spandau (Galenstr.)
19/20	Westerwaldstr.	Reimerweg
23/24	Falkensee	U Rathaus Spandau
25/26	Freudstr.	Reimerweg
27/28	Freudstr.	U Rathaus Spandau (Galenstr.)
29	Sandstr.	Freudstr.
33	Seeburger Str./Klosterstr.	Freustr.

Line 92 since 9/30/90

Line/Course: 09200 (92) bzw. 09210 (92E)

Table 11: Line 92 Routes since 9/30/90

Route	From	To
01/02	Falkensee	Stadtgrenze
03/04	U Rathaus Spandau	Stadtgrenze
05/06	U Rathaus Spandau	Reimerweg
11/12	Kiesteich	Reimerweg
17/18	Westerwaldstr	Reimerweg
19/52	Freudstr.	U Rathaus Spandau (Galenstr.)
21/22	Freudstr.	Reimerweg
23/24	Freudstr.	U Rathaus Spandau
25/26	Freudstr.	Stadtgrenze
36	Sandstr.	Freudstr.
44	Seeburger Str./Klosterstr.	Freustr.
48	U Rathaus Spandau (Galenstr.)	Kiesteich

Line 137

Line/Course: 13700

Table 12: Line 137 Routes

Route	From	To
01/02	Falkensee	Bergstr.*
03/04	U Rathaus Spandau	Bergstr.*
05/06	U Rathaus Spandau	Reimerweg
11/12	Kiesteich	Reimerweg





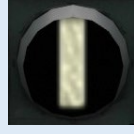

17/18	Westerwaldstr.	Reimerweg
19/52	Freudstr.	U Rathaus Spandau (Galenstr.)
21/22	Freudstr.	Reimerweg
23/24	Falkensee	U Rathaus Spandau
25/26	Freudstr.	Bergstr.*
27/28	Falkensee	Reimerweg
36	Sandstr.	Freudstr.
38	Sandstr.	Falkensee
44	Seeburger Str./Klosterstr.	Freudstr.
48	U Rathaus Spandau (Galenstr.)	Kiesteich

*since 5/29/94, before Hahneberg

6.6 Traffic Signals

In Spandau you'll find special traffic signals that regulate bus traffic. Table 13 has illustrations of the signals and their meaning.

Table 13: Traffic Signals

Signal	Meaning
	Stop
	Stop/Go Transition
	Go. If the line is vertical, you're permitted to drive straight ahead. If the line is diagonal, you can proceed in the direction that the line tilts.
	Bus Register. A bus has successfully made contact with the traffic signal and the signal will change accordingly.