



ROCAR

**Instructiuni de
exploatare si
întretinere**

U 412-260

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by RomanianWorks

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Preface

This project debuted in april 2019, initially as a bold idea of PaulIP (founding member of „RomanianWorks”), to simulate the first Romanian bus in OMSI. Although Paul had some experience in computer modelling, the project proved to be much more complex, taking approximately two years to launch version 1.0. Paul’s wish to bring back to virtual life one of his childhood buses made him push forward.

When this project started, De Simon buses still existed in very few cities in Romania, thus the technical documentation was based almost exclusively on photos and discussions with bus enthusiasts or those who dealt with these buses. In Bucharest, the last active vehicles were withdrawn in August 2011.

As the project progressed, more people joined in, becoming part of the RDS team. This team was officially named “RomanianWorks” on the 22nd of July 2021. Besides the RomanianWorks team, many enthusiasts brought extremely valuable contributions, without which the Rocar De Simon would not have been modelled in such detail. Thus, RomanianWorks would like to officially thank the following:

- Matei Melinte (“Renault_ER100_Safra”), Andrei Pinteau (“andrei105”), Pavlos Andreas, Gabriel Dumitriu (“Gabi23”), Marian Andrei and Andrei Cristian for their support pictures and/or technical information provided;
- Dragoş Anoaica (“Dr2005”) for his indirect contribution to the project via his detailed photo gallery (<http://www.transport-in-comun.ro/galerie.html>) ;
- Andrei Roşu (“alexredx”) for his help with modelling;
- Ing. Mihai Bucşan for his detailed history of the “De Simon” business in Romania, and for his photos and drawings of all the bus models of this type;
- „ByOnu” for his help with the making of the teaser trailer and full trailer, as well as for his help with promotional photographs;
- To all the others which contributed with information, suggestions or ideas and we may have forgotten to mention.

For experimented OMSI users, this manual does not present many new things, however, we have written it so that inexperienced users may also be able to drive and personalize this bus.

ATTENTION:

- Redistributing this addon or any part of this addon, taking ownership of the addon or using this addon for commercial purposes is **strictly forbidden** and punishable by law!
- In case you want to modify this addon, please contact us beforehand, so that we may integrate these modifications in future versions.

For any questions or suggestions, feel free to contact us on our Facebook page „RomanianWorks OMSI 2” - <https://www.facebook.com/roworksomsi/>

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1. Introduction

Year 1925.

Giovanni De Simon creates De Simon SPA in Osoppo, Udine province. The company will produce bus bodies on existing Fiat, OM, ALFA Romeo and Lancia chassis.

Year 1978.

De Simon, Sicca and Breda form the INBUS consortium. A new facility is built in Carini, Palermo, Sicily). Shortly thereafter, Sicilian transport companies with a fleet deficit will take delivery of 1000 new buses. In the following years, INBUS will produce 6000 buses, out of which De Simon's share will be approximately 30%.

Years 1985-1990.

Buses and coaches are built on Siccari, Iveco, Scania, DAF, MAN and Mercedes chassis. The most successful will be the Turbocity buses built on Iveco chassis and the Starbus buses built on MAN chassis.

Year 1992.

An agreement is signed in Bucharest for the formation of a new company named ROCAR DE SIMON SRL, with ROCAR S.A. București (50%) and De Simon SRL Osoppo (Udine) Italia (50%). The society will be in charge of the building and selling of urban and interurban buses named De Simon Starbus, built on MAN chassis. Components for these buses were to be produced internally, however, this is soon found to be impossible to achieve due to financial problems. In the end, the agreement fails, the society is dissolved and ROCAR remains with only one license for the standard urban bus named STARBUS UL70 (Urbano Lungo).

Year 1996.

The ROCAR DE SIMON UL70 prototype is presented. The bus is assembled at ROCAR and equipped with a MAN D 0826 LUH05 169 kW / 230 HP (EURO 2) engine and a Voith D851.2 automatic gearbox. The Romanian capital's public transport operator, RATB, buys the prototype plus 5 other units. In the same year, the ROCAR DE SIMON U412-230 is presented. These buses will have the same engine and gearbox as the UL70, but will boast a number of aesthetic differences. RATB buys 9 units, and RAT Craiova buys 2 units. In the second half of 1996, the ROCAR DE SIMON U412-220 is presented. They will have the same gearbox, but a slightly less powerful MAN D 0826 LUH12 162 kW / 220 HP (EURO 2) engine. RATB buys 25 units.

Year 1997.

ROCAR DE SIMON U412-260 is presented. The bus is equipped with a stronger MAN D 0826 LUH 13 191 kW / 260 HP (EURO 2) engine and a Voith D851.3 gearbox with integrated retarder. RATB takes delivery of 298 such buses between 1997 and 2001. RATUC Cluj-Napoca buys 6 units, RA-OTL Oradea buys 5 units, Transurb Galați buys 2 units and RAT Brașov buys one unit.

A number of trolleybuses will also be built using the Rocar De Simon body. 2 units are delivered to RATB, 2 units are delivered to RATUC Cluj-Napoca and 15 are delivered to RATC Constanța.

Year 2003.

Last De Simon bus leaves the factory.

Year 2004.

ROCAR S.A. is dissolved.

31st of July 2011

Last Rocar De Simon buses are officially withdrawn from commercial service in Bucharest.

1.1 Technical Information U412-260

Length: 12000 mm

Width: 2500 mm

Height: 3170 mm

Empty mass: 10.950 kg

Max authorised mass: 17.750 kg

Reservoir capacity: 300L

Engine: MAN D0826LUH13, 191 kW / 260 HP

Max engine rpm: 2300 rpm

Cilinders: 6871 cmc

Gearbox: VOITH DIWA 851.3

Steering-wheel diameter: 500 mm

Wheels: 22,5 X 8,25

Tires: 12 R 22,5

Max speed: 75 km/h

Seating capacity: 25+1

Standing capacity: 75

2. Commands and functionality

This chapter presents the functionality of this bus. It is assumed that the user is accustomed to the basic functions of OMSI 2 buses, thus we will only mention them briefly. The particularities of this bus will be explained in more detail.

2.1 Central cockpit console



- | | | |
|---|-------------------------------|---------------|
| 1 – Indicators (blinkers) | 2 – Battery | 3 – High beam |
| 4 – Low beam | 5 – Air pressure in circuit 1 | |
| 6 – Air pressure in circuit 2 | 7 – Hand brake is applied | |
| 8 – Oil pressure | 9 – Water temperature | |
| 10 – Low antifreeze level (no function) | 11 – High gearbox temperature | |
| 12 – Retarder failure (no function) | 13 – Spark plug (no function) | |
| 14 – ABS | 15 – ASR | 16 – E-GAS |

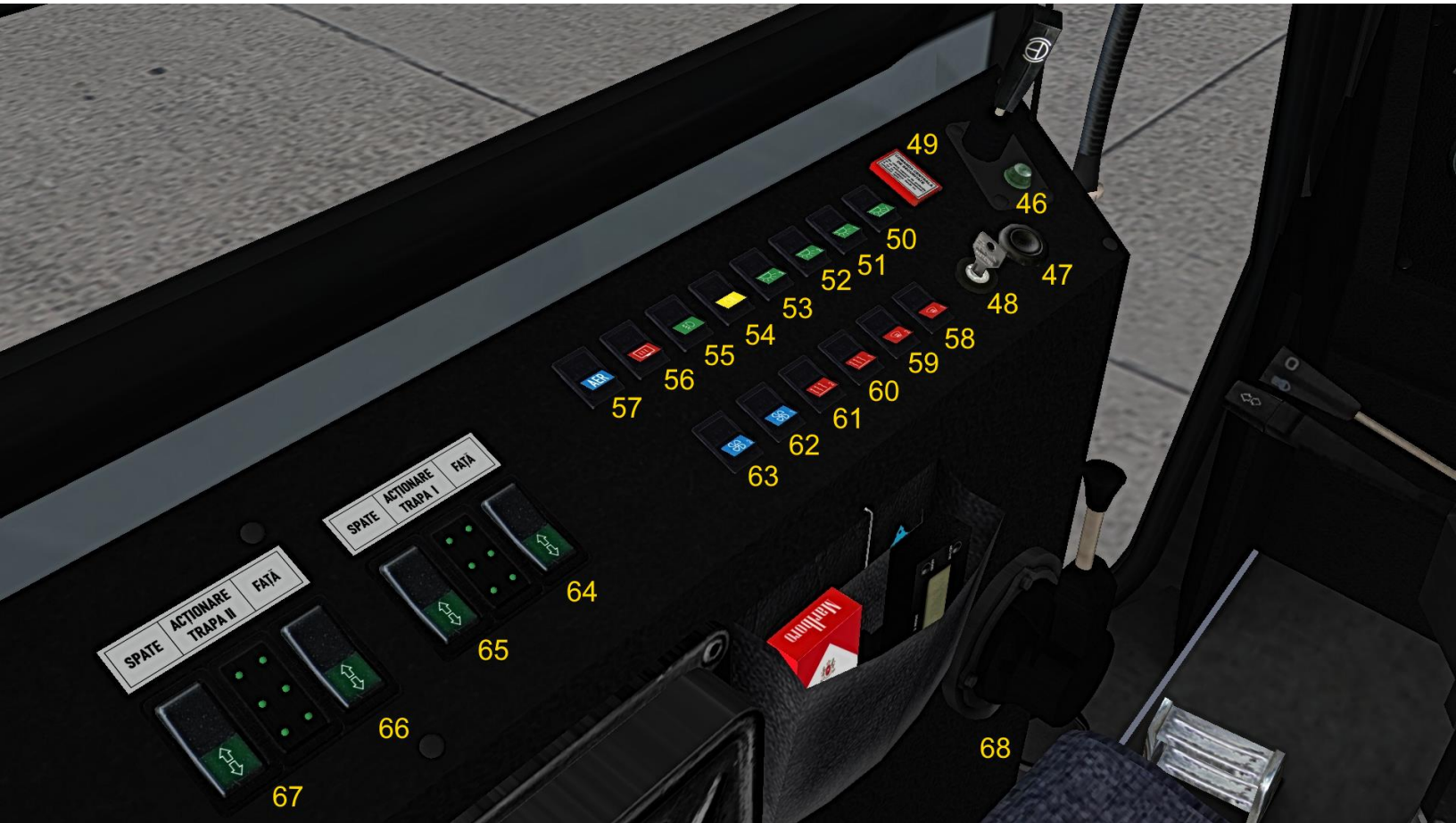
17 – Kneeling is operating	18 – ECAS (suspension) setting
19 – STOP request	20 – General failure / not fit for service
21 – Tachometer	22 – Fuel indicator
23 – Oil pressure indicator	24 – Battery voltage
25 – Water temperature indicator	26 – Speedometer
27 – Pressure gauge circuit 1	28 – Pressure gauge circuit 2
29 – Battery switch	30 – Warning lights
31 – SERVICE button: blocks driver door / INT/EXT button deactivates exterior door buttons (no function)	
32 – Gear selector	33, 34, 35 – Door buttons (and indicators)
36 – Centralised door command	
37 – Busvox console (see chapter 2.4)	
38 – Suspension level decrease	39 – Kneel up/down sideways
40 – Suspension level increase	41, 42 – (no function)
43 – Headlights & Horn	44 – Indicators (blinkers) switch
45 – Windscreen wipers	

2.1.1 Kneeling and suspension

Kneeling is allowed only when the bus is stationary and the **handbrake (68) is on**. Disengaging the gearbox (N) is recommended before kneeling operation. Activating the kneeling (**39**) is done by pushing the switch until the bus is completely kneeled. Returning the bus to normal position only requires one push of the same button. Kneeling illuminates both ECAS lights (**17, 18**). For raising the bus, press button (**40**) once, and the NIVEL ECAS (**18**) light is illuminated. Lowering the bus back to normal level is done via (**38**). ECAS (**17**) light indicates a suspension setting which does not allow the bus to depart. NIVEL ECAS (**18**) light indicates an abnormal suspension setting, however, this does not impede bus movement.

Attention! A blinking ECAS light (**17**) indicates insufficient air pressure in the reservoirs, which causes improper suspension behaviour. Kneeling is also inoperable. Drivers must ensure there are at least 6.5 bars of pressure inside the two reservoirs before departing or kneeling the bus.

2.2 Side cockpit console



- | | | |
|----------------------------------|---------------------------------|--------------------------------|
| 46 – Retarder & retarder light | 47 – Engine cut-off | 48 – Ignition switch |
| 49 – Emergency cut-off | 50 – Cabin light | 51, 52, 53 – Passenger lights |
| 54, 55 – Front / rear fog lights | 56 – Mirror heating | 57 – Cancel STOP request alarm |
| 58, 59 – Windscreen demister | 60, 61 – Roof ventilation 1 & 2 | 62 – Cabin heating |
| 63 – Passenger heating | 64, 65 – Hatch 1 fwd / aft | 66, 67 – Hatch 2 fwd / aft |
| 68 – Handbrake lever | | |

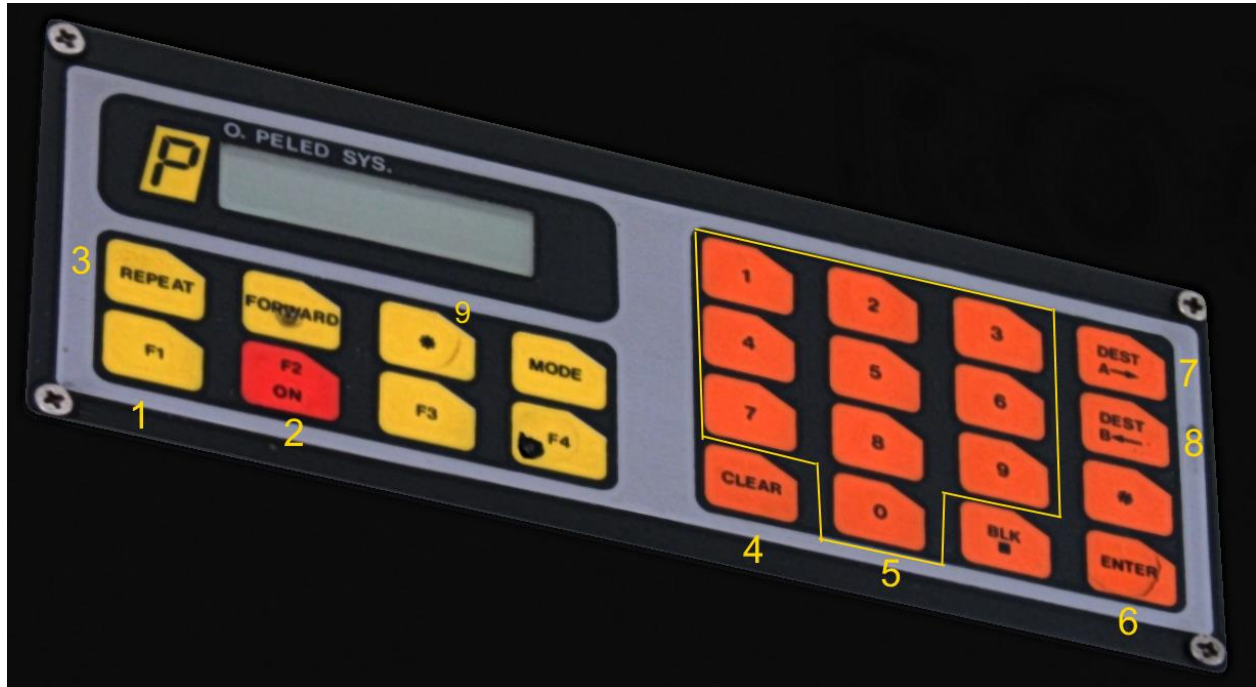
2.2.1 Retarder

The retarder (46) has 3 stages, each with increased braking power. The retarder light illuminates if any retarder stage is engaged. Retarder effect is cancelled by gas pedal input. **Attention!** The retarder lever is not clickable. To use the retarder you need to assign two keys for the following events: *retader_pridaj* and *retarder_uber*.

2.2.2 Roof ventilation hatches

The roof ventilation hatches (64 – 67) have 3 stages. You need to press continuously to open the hatch. LED lighting indicates hatch position. **Attention!** No LED indicates if the hatch is completely closed. The driver must ensure that all hatches are properly closed before leaving the bus.

2.3 Display cockpit console



1 – F1 key

2 – F2: Turn on / off

3 – REPEAT

4 – DELETE

5 – Numerical keys

6 – ENTER

7 – Insert terminus A

8 – Insert terminus B

9 – STAR

To turn on the console press F2 (2) for at least 5 seconds until you receive the “booting up” message. Press “DestA” (7) or “DestB” (8) key and insert the line number using the numerical keys (5). Confirm via ENTER (6).

Inserting the combination F2 (2) + Star (9) + F1 (1) in this order initiates matrix demo mode, which will display all destination boards that are memorised, sequentially, only once. Inserting the combination F2 (2) + STAR (9) + REPEAT (3) in this order initiates a matrix test: all dots light up then turn off.

Attention! Opelled cannot process lines which have more than 2 terminus points (a shortcoming that is, ironically, realistic). For such situations, players will use the OMSI 2 menu to set up the line and destination display (Alt key).

2.4 Busvox announcement system

The first two series of the U412-260 are fitted with a station announcement system. This works independently from the Opelled system.



- | | |
|--------------------------------------|-----------------------------------|
| 1 – Turn on / off | 2 – “Mind the doors” announcement |
| 3 – Change station announcement mode | 4 – Announce next stop |
| 5 – Insert line | 6 – Insert “ziel” |
| 7 – “Forward” | 8 – SELECT / confirm |
| 9 – “Back” | |

Turn on the console (1) and select the line (5) by navigating through the lines list using (7) and (9). When reaching the desired line, press SELECT (8). Choose ziel (6) by clicking once for ziel 1 and 2 times for ziel 2. Confirm via (8).

The console has two modes: automatic and manual. You can change between these two via (3), and confirm using (8). In automatic mode, the next stop is announced after doors close. **Attention!** Opening doors between stops will de-synchronise the system. In manual mode, stops are announced via (4). You can also navigate between stop announcements using (7) and (9).

Attention! The HOF structure must be changed for the Busvox system to work. Busvox cannot access HOF files which contain lines with more than 2 terminus points (a shortcoming that is, ironically, realistic). Thus, you need to modify HOF files to make Busvox work. RomanianWorks team modified only the “vanilla” OMSI 2 HOFs (Grundorf and Berlin Spandau). These may be used as examples to help yourselves.

2.5 UTI cockpit console

Through a [setvar], some buses have the UTI ticketing system installed, which has been used by RATB since 2006.



1 – ziel;

2 – line;

3 – shift;

C – cancel;

4 – garage;

5 – access into line;

F – ENTER;

Press **F** on the console, choose the function written under each console key (1-9). Select line, ziel (1 or 2) and shift using **F** after each insert command.

2.6 Bus start-up and shut down

Bus start-up is done by pressing **E** three times. First time for engaging battery switch (29). Second time for rotating the ignition key (48). Press longer for a third time for engine ignition. For shutting down the bus, press **M** three times. First time for stopping the engine (47). Second time for rotating the ignition key back (48). Third time for disengaging the battery switch (29).

2.7 Door control

In Romania, as in many former socialist countries, starting from the 1980s, the driver's cab was completely isolated from the passenger salon. Access inside the cab was done via the first half of door 1, which was then blocked during commercial service. Thus, the Rocar De Simon door system differs from many buses in the simulator.

All 3 doors are individually & manually controlled. Button (36) may be used for operating all doors at once. The driver's half of the first door can be operated in 2 ways, depending on the setvar option of each bus. Either there is a separate door switch located next to the kneeling buttons, or the door is opened together with the passenger

half and a SERVICE switch **(31)** (located next to the warning lights) is provided to block the driver's half in either the open or the closed position.

The doors have variable opening / closing speed, with every generated bus being assigned a unique set of values for the doors (some doors will slam, while others will move slower). The pneumatic door system is, by nature, unstable, thus drivers should not give multiple door commands in a very short timespan to avoid excessive oscillations or door slamming.

Attention! To open the back door using the keyboard you need to assign a key to the event ***bus_doorfront2***. To open/close all doors at once you need to assign a key to the event ***bus_doorfront_all***.

In the interior, above doors 2 and 3 there is a lamp which indicate if the passengers want to exit via that door. On some buses there is an extra set of indicators which tell the driver through which doors the passengers want to get off. Rocar De Simon buses also have factory exterior door buttons. However, in real life, they did not have a function, and the drivers did not have a switch to allow passengers to open their desired door themselves. Thus, in game, the exterior buttons can be pressed, but with no effect. In the driver engages the „INT/EXT” button **(31 - setvar)**, the exterior buttons can no longer be pressed. See chapter **3.5** for extra pictures of the cockpit and exterior buttons.

Each door has 2 emergency valves (interior / exterior) which evacuate the pressure and allow the doors to be opened “by hand”. To re-pressurise the system, the driver shall rotate the valve back to normal and give a door command to open / close completely.



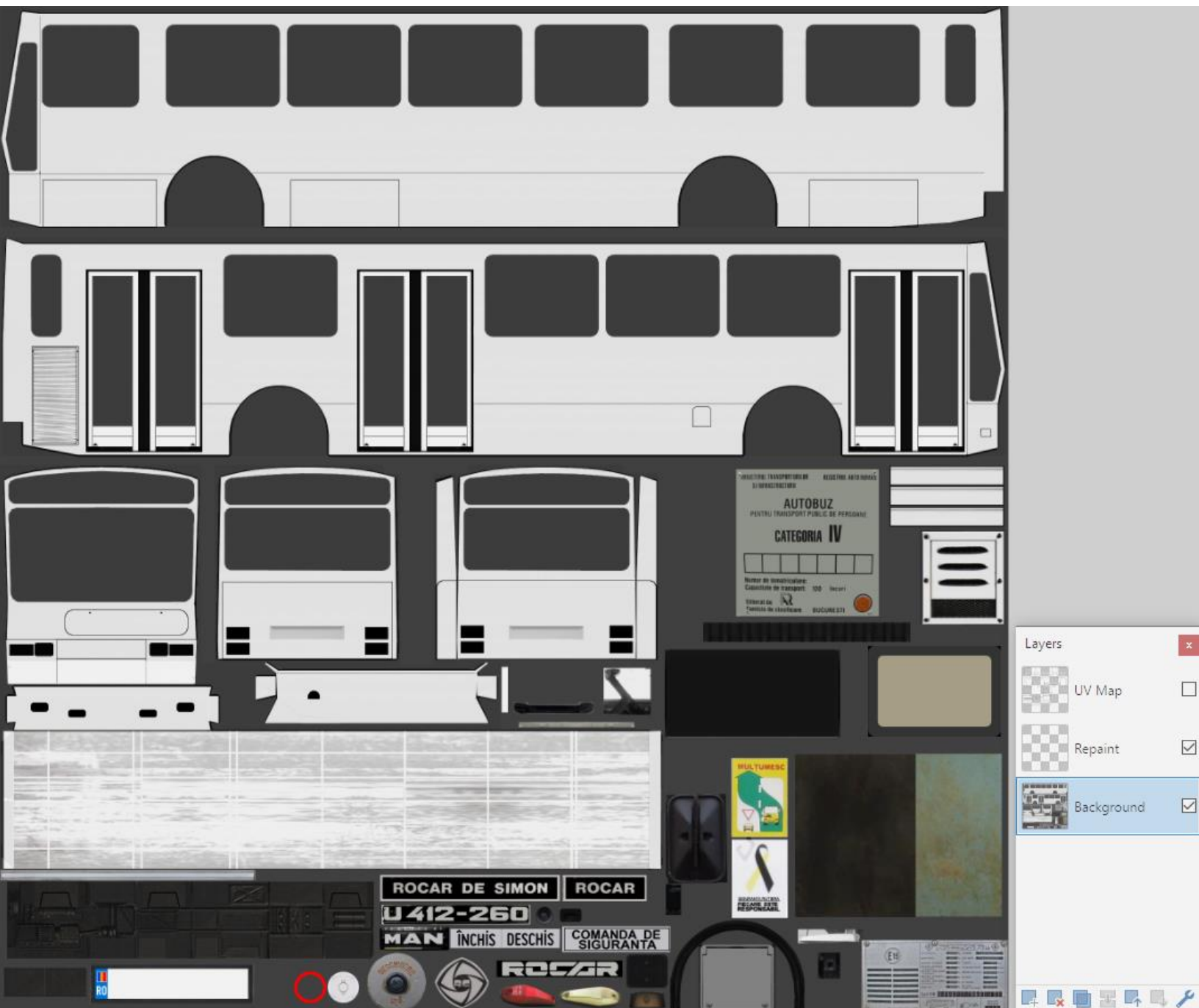
Buses also have a factory station brake, which is activated automatically only when the doors are opened. By design, the buses can not depart with open doors. The only exception is the driver's half of the first door, which is not linked to the station brake. A [setvar] option disables the station brake, and doors can be opened / closed at any moment. **Attention!** If the station brake is not functional and the doors are operated while the bus is in motion, the inertia dynamically affects door operation. Drivers must avoid operating the doors while the vehicle is in motion. Otherwise, doors may block or open improperly due to inertia.

3. Repaints and personalisation

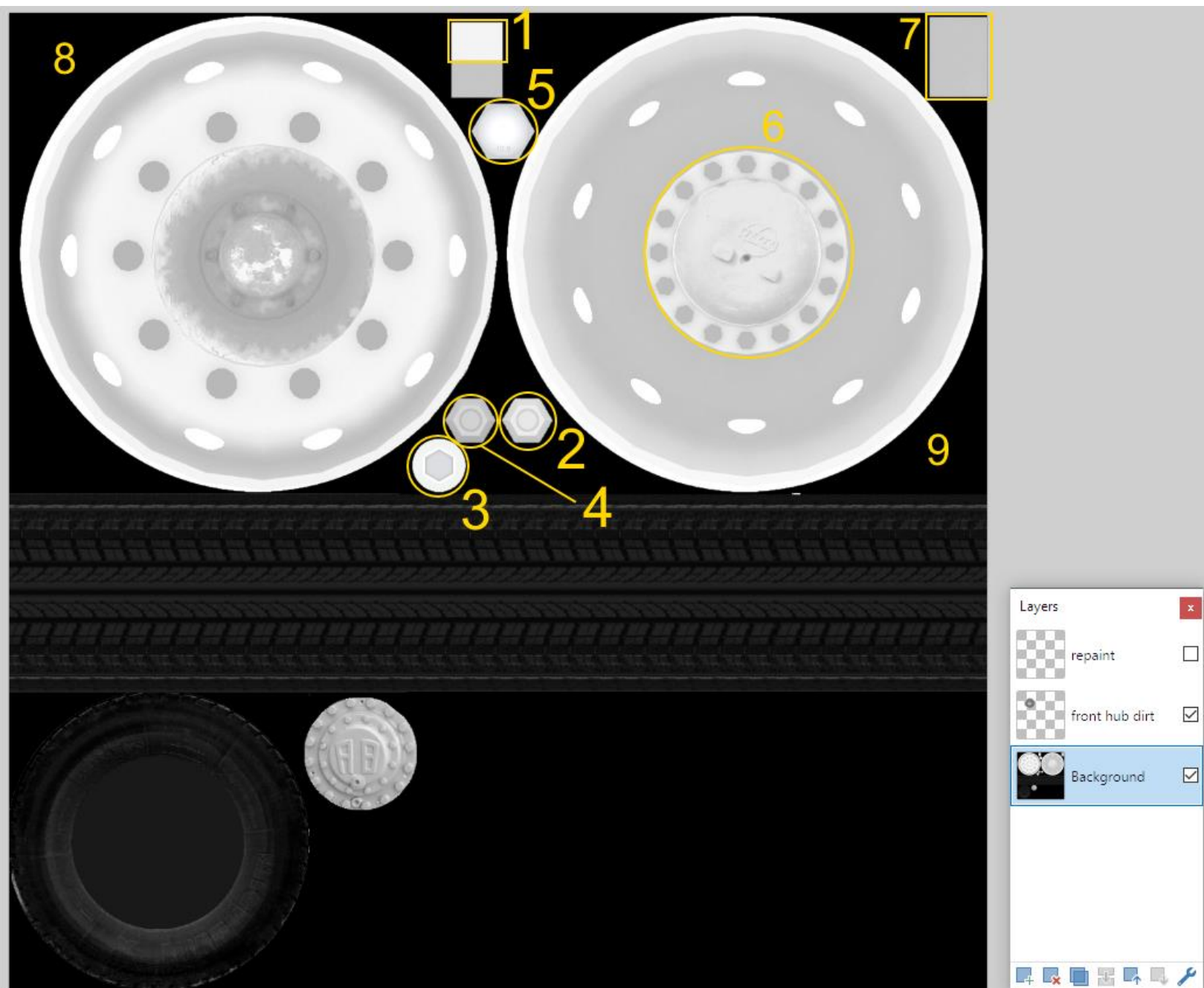
3.1 Paint kit

Inside this addon we have included the paint kits for the body (*body_260_template.pdn*), wheels (*wheels_template.pdn*), cabin curtain (*curtain_template.pdn*) and interior seats (*seat_template.pdn*). You can use these kits with software such as *paint.net* or *GIMP* (**NOT MS Paint!**), to personalise this bus to your liking.

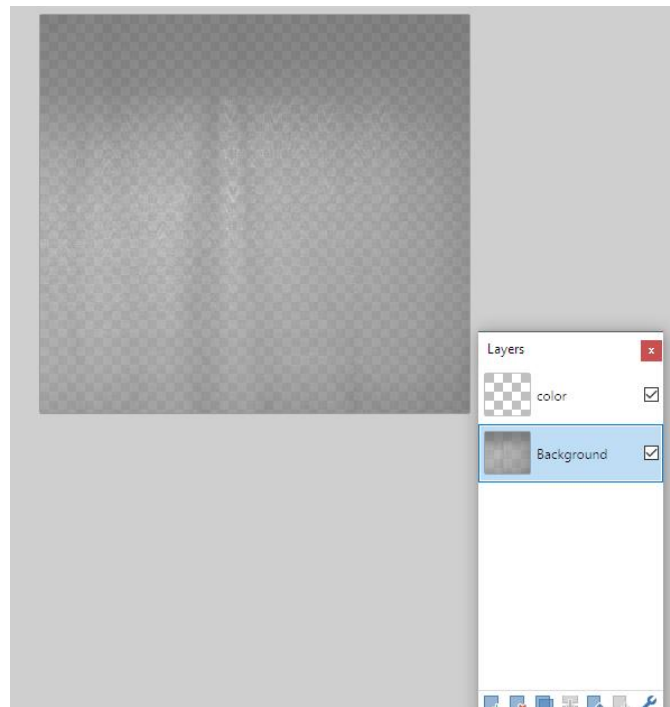
Below you can see the body paint kit. You may color the body **only** on the “Repaint” layer. The “UV Map” layer is used for precision painting of some components.



Below you can see the wheel paint kit. Use the “Repaint” layer to color, and, as an optional feature, you can add “front hub dirt” layer for a dirtier wheel look. The lugnut cover can be repainted by coloring zone (1); front lugnut by coloring zone (2); front hub by coloring zone (3); rear lugnut zone (4); the bolts of the rear axle hub zone (5); rear hub cover zone (6); rear hub edge zone (7); front rim zone (8), and rear rim zone (9).



Below you can see the curtain kit. Use only the „color” layer.



Finally, the seat kit. Color using the “seat color” kit for the seat itself and the “frame color” layer for the seat handles.



Once the modifications are finished, layers must be overlapped **always down -> up** (example: „seat color” above „Background” then „frame color” above the new „Background” that was obtained). The file must then be saved in .tga format inside the

folder Texture\Repaints_260. To declare the new textures, open any .cti file and introduce the following:

```
*****
Repaint name
*****
[item]
Repaint name
CTC-Texture
texture_filename.tga

[setvar]
variable_name
value
```

[item] command tells OMSI 2 that at least one texture is to be modified. This command has 3 parameters:

1. "Repaint name" = the name of the repaint that will appear in the drop-down list in OMSI 2 bus selection menu;
2. CTC-Texture -> see chapter **3.2** for the complete list of changeable textures;
3. name of texture and the included file extension (above you can see the example file texture_filename.tga).

If you want to change multiple textures, simply write more [item] commands like the one displayed above.

The [setvar] command is optional and helps further personalise the bus once a variable is introduced. This command has 2 parameters:

1. variable name;
2. variable value.

Please see chapter **3.3** for the complete list of [setvar] variables and their values.

3.2 List of accepted textures in .cti

Inside model_260_x.cfg (where x = 1, 2 or 3 according to the bus series) you will find the following section which contains the textures that can be changed in the paint kit, as well as the name given to each texture in the liveries.cti file. This name will replace the “CTC-Texture” in the example shown in chapter 3.1.

```
#####  
Textur-Changes  
#####  
[CTC]  
Colorscheme  
Texture\Repaints_260  
0  
  
[CTCTexture]  
body_260  
caroserie_260_std.tga  
  
[CTCTexture]  
transparency  
geam_trans.tga  
  
[CTCTexture]  
wheels  
wheels.tga  
  
[CTCTexture]  
curtain  
perdea.tga  
  
[CTCTexture]  
seats  
scaun_260.tga
```

body_260 – bus body

transparency – window transparency texture; in case of repaints that cover the windows (example below, left picture), the window zone covered must be painted black on the transparent texture (example below, right picture) and opacity must be set. Otherwise, the window texture will not be visible in game.



3.3 List of [setvar] commands

blinker_type:

- 0 – blinkers with rubber pedestal;
- 1 – blinkers without rubber pedestal.

fleet_number_font

- 0 – original, front and aft;
- 1 – after RK repaint in RATB 2000' style (series 1 and 2 only);
- 2 – after RK repaint in ITB 1980' style (series 1 and 2 only);
- 3 – type UL70;
- 4 – original, front only;
- 5 – font found on buses 140-144 (series 1 and 2 only);
- 6 – no fleet number displayed.

Value 5 is allocated within the visual.osc script to buses with fleet numbers 140-144, but it can be called via [setvar]. If the latter applies, it does not matter which fleet number the bus has.

fleet_number_extra – adds a second fleet number display on the engine hood:

- 0 – without;
- 1 – black;
- 2 – white.

stair_lights_invisible:

- 0 – stair lights are fitted;
- 1 – stair lights not fitted.

vis_sigle:

- 0 – "Rocar De Simon" logo placed front and aft;
- 1 – "Rocar" logo placed front and aft;
- 2 – "Rocar" logo placed front only;
- 3 – only diamond logo placed in front.
- 4 – same as 0, but without "U412-260";
- 5 – logos used on bus 150 after RK.

Value 1 is allocated in visual.osc to fleet numbers 140, 142, 143, 145, 149, 150, 1000, 1002, 1007, 1008 and 1014, but it can also be chosen via [setvar]. If the latter applies, OMSI 2 will display the requested logos no matter the fleet number. The logos held by values 2, 3 and 4 can only be chosen via [setvar].

emergency_lids:

- 0 – exterior door pressure valves have original protective casing;
- 1 – exterior door pressure valves have been covered and reded out of service;
- 2 – exterior door pressure valves without protective casing.

no_side_rollo

- 0 – side driver's curtain is present;
- 0 – side driver's curtain is not present.

door_arm_covers

- 0 – door masks with inscriptions;
- 1 – door masks without inscriptions;
- 2 – no door masks and no inscriptions.

interior_labels: 0 – salon inscriptions; 1 – no salon inscriptions.

rar_plate

- 0 – nothing;
- 1 – RAR plate displayed at the back of the bus, with license plate allocated via textfield;
- 2 – same as in 1, but without textfield;
- 3 – RAR plate on the rear window, with license plate allocated via textfield;
- 4 – same as in 3, but without textfield.

abs_asr_buttons

- 0 – nothing;
- 1 – two extra buttons on the side driver's console for ABS (not simulated) and ASR deactivation.

door_lock_button

- 0 – "Service" button (31) blocks the driver's half of the first door;
- 1 – "INT/EXT" button deactivates the external door buttons and the driver's door is operated via a separated switch located next to the kneeling buttons.

door_checklights

- 0 – orange door checklights "USA" indicate door position, and the door buttons (33-35) are not illuminated;
- 1 – orange door checklights "USA" indicate where passengers want to exit, and the door buttons (33-35) are illuminated to show door position.

disabled_stationbrake

- 0 – bus equipped with station brake;
- 1 – bus without station brake.

Validator: 0 – no validator; 1 – UTI validator.

door_brushes: 0 – Italian door brushes; 1 – Romanian door brushes.

ticket_stamper: 0 – RATB stampers; 1 – RATUC stampers.

license_plate

- 0 – font for visible license plate;
- 1 – font for invisible license plate (the plate is provided by the repaint).

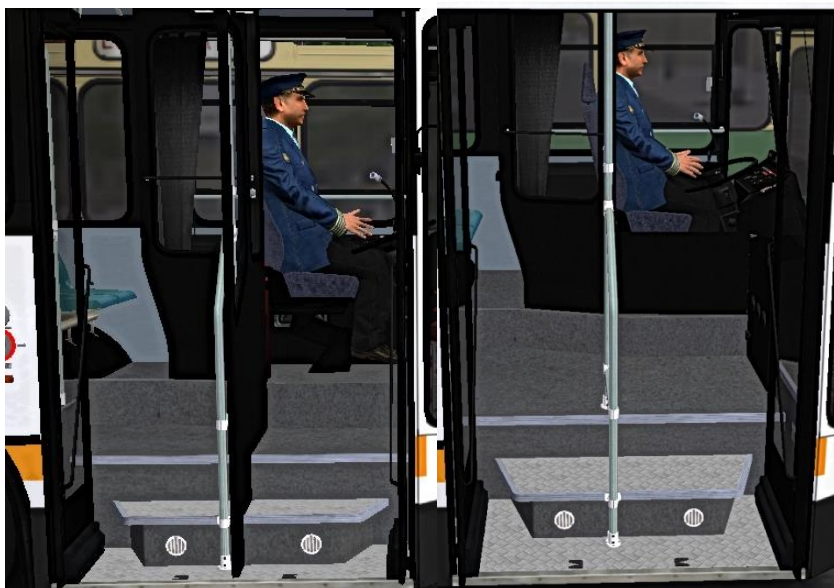
3.4 Click configuration

Besides the setvars, other features can be changed directly in game:

- Clicking on the steering wheel column changes the Rocar logo into an AB logo;



- Clicking on the picture displayed on the overhead console, the driver's cabin may be completely closed or opened (only available for the first two series of the U412-260).



3.5 Bus particularities

Some vehicles had distinguishable features. Some of these features have been modelled in game, depending on the bus inventory number. Here are some of the most notable features:

- Interior walls that are black / blue (140-151; 1000-1017) or cream / lime (1018-1281);



- Rectangular / pyramid front and back marking lights (140, 141, 149, 1007);



- Door masks and messages / door masks without messages (150) / no door masks and no messages (1008, 1020)



- “Service” button for blocking the driver’s half of the first door and standard door buttons with “USA” lights indicating door position / “INT/EXT” button for separate driver’s door command and door buttons with incorporated bulbs and “USA” lights indicating through which door passengers request exit



- Rounded steps (series 1 and 2) / pointy steps (series 3). Without / with stair lights (setvar)



- Large engine hood (series 1) / small engine hood (series 2 and 3)



- Exterior door pressure valve covered / uncovered (RATUC) / missing (1008)



- Side cockpit console with “driver’s bag” (series 1 and 2) / without bag and with interior hatch (series 3). Side cockpit console with / without extra slots for buttons (setvar)



- Exterior side hatch (series 1 and 2) / missing side hatch (series 3)



- Cabin wall with windows (series 1 and 2) / without windows (series 3)



- Salon back with (1044, 1047) / without black upholstery



- Small sliding windows / large sliding windows (140-151, 1000 - 1016, 1041, 1046 - 1062, 1064 - 1075, 1099, 1107 - 1140, 1142, 1148, 1161, 1195, 1197 - 1202, 1204 - 1216, 1218 - 1220, 1248)



- Buses with / without station brake (150, 1008, 1020). **Attention!** Buses without station brake allow doors to open and close at any moment. Drivers should take extra caution not to operate doors while the bus is in motion.
- Romanian door brushes / Italian door brushes

