

# NOVOcITI LiFe

## USER'S MANUAL

**ANADOLU ISUZU**

## FOREWORD

This user's manual is prepared to give general information about the efficient and most economical use of E6 Novociti LIFE vehicle. We strongly recommend you to read the information carefully and to abide by all warnings. We would like to inform you that our company will not be responsible for any financial, spiritual problems and losses that you may suffer unless you follow the instructions.

You may apply to authorized dealers and authorized services when you need more detailed information about your vehicle.

Keep the user's manual in the vehicle continuously.

There may be modifications in the shape, equipment and technical specifications as a result of our continuous efforts to improve our vehicles. The information, pictures and technical specifications here are based on the last product information available at the publication of the user's manual and Anadolu Isuzu A.Ş. reserves the right to change without any prior notification.

Thank you for choosing this product.

We wish you a nice drive.

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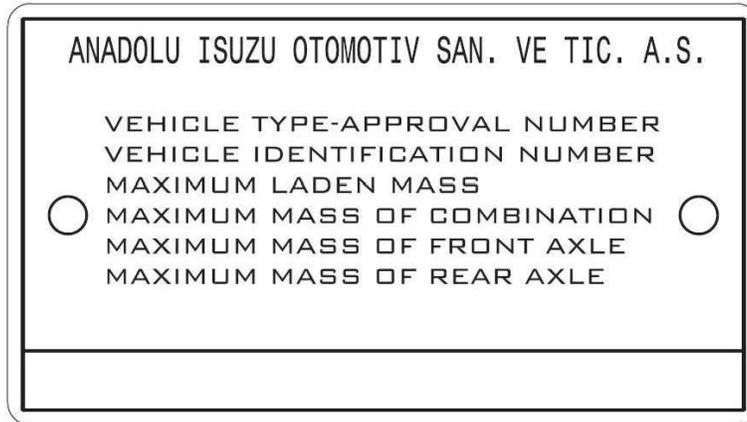
# 1. INTRODUCTION

## CHASSIS NUMBER



Chassis number of the vehicle is located on the profile behind the right front wheel.

## IDENTIFICATION PLATE



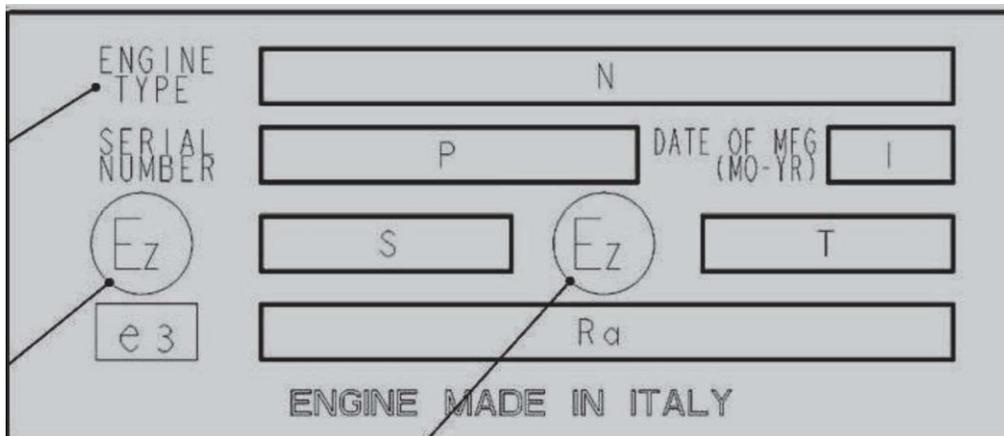
The identification plate is located on the platform where the driver's seat is located at the entrance of the front door. Identification plate contains VIN number, maximum axle load sum, maximum front axle load and maximum rear axle load information.

The vehicle identification number (VIN) contains information about the vehicle model, maximum load weight, type of engine, driving system, axle distance, manufacturing location code and the chassis number of the vehicle.

| BUS VIN SYSTEM |                        |          |          |          |          |  |          |          |          |          |          |          |          |          |          |          |
|----------------|------------------------|----------|----------|----------|----------|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1              | 2                      | 3        | 4        | 5        | 6        | 7  | 8        | 9        | 10       | 11       | 12       | 13       | 14       | 15       | 16       | 17       |
| <b>N</b>       | <b>N</b>               | <b>A</b> | <b>M</b> | <b>0</b> | <b>B</b> | <b>F</b>   | <b>L</b> | <b>A</b> | <b>G</b> | <b>B</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1</b> |
| (EXAMPLE)      |                        |          |          |          |          |  |          |          |          |          |          |          |          |          |          |          |
| 1 - 3          | INTERNATIONAL WMI NO   |          |          |          | NNA:     | (AIOS) ANADOLU ISUZU OTOMOTIV SANAYI VE TICARET ANONIM SIRKETI |          |          |          |          |          |          |          |          |          |          |
| 4              | MODEL LINE             |          |          |          | M:       | BUS GROUP  |          |          |          |          |          |          |          |          |          |          |
| 5              | GVW or CAPACITY RATING |          |          |          | 0:       | INDEPENDENT FROM SEAT NUMBER                                   |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | 1:       | 17 PASSENGER SEATS   |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | 2:       | 18 PASSENGER SEATS   |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | 3:       | 19 PASSENGER SEATS   |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | 4:       | 20 PASSENGER SEATS   |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | 5:       | 21 PASSENGER SEATS   |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | 6:       | 22 PASSENGER SEATS   |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | 7:       | 23 PASSENGER SEATS   |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | 8:       | 24 PASSENGER SEATS   |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | 9:       | 25 PASSENGER SEATS   |          |          |          |          |          |          |          |          |          |          |
| 6              | MODEL EXTENSION        |          |          |          | B:       | PUBLIC TRANSPORT TYPE  |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | U:       | INTERCITY TYPE   |          |          |          |          |          |          |          |          |          |          |
| 7              | ENGINE TYPE            |          |          |          | F:       | FPT - NEF4   |          |          |          |          |          |          |          |          |          |          |
| 8              | DRIVING SYSTEM         |          |          |          | L:       | LEFT HAND DRIVE  |          |          |          |          |          |          |          |          |          |          |
|                |                        |          |          |          | R:       | RIGHT HAND DRIVE   |          |          |          |          |          |          |          |          |          |          |
| 9              | WHEELBASE              |          |          |          | A:       | 4259 mm  |          |          |          |          |          |          |          |          |          |          |
| 10 -11         | MANUFACTURING PLANT    |          |          |          | GB:      | AIOS GEBZE PLANT   |          |          |          |          |          |          |          |          |          |          |
| 12 -17         | PRODUCTION SEQUENCE NO |          |          |          |          |  |          |          |          |          |          |          |          |          |          |          |

## ENGINE LABEL

The engine label is located on the engine flywheel housing.



- N → Engine model
- P → Engine serial number
- I → Production date
- S → Engine power homologation certificate reference
- T → Exhaust fume homologation certificate reference
- Ra → Homologation certificate reference

## VEHICLE WARRANTY

The warranty period and conditions of the vehicle are stated within the scope of the 'Warranty Certificate' supplied with the vehicle. Please refer to the 'Warranty Certificate' for detailed information on the warranty conditions and the conditions which are not covered by the warranty.

## OPTIONS

Apart from the standard features of the vehicle, the following options can be applied to the vehicle at any time.

- Preheater
- Fire extinguisher
- Engine chamber fire extinguisher
- Rim caps
- Tropical climate air conditioner
- Park sensor
- Front fog lamp
- Rear view camera
- Front view camera
- Internal camera (2 pcs)
- Monitor
- Heated double glazing
- Curtain (driver side)
- Electrically controlled mirrors
- Driver's cabin (with fan)
- Route indicator (rotary type)
- Route indicator (rear)
- DVR
- DVD (with LCD)
- EVSC
- Tachograph
- Speaker for the driver (2 pcs)
- Microphone & Amplifier

## RECOMMENDATIONS / WARNINGS

- For the spare key or when the key is lost, you need to inform the authorized service of the serial number on the ignition key, so please note down the serial number.
- Only use fuel that is of the specified specification (DIN EN 590 appropriate sulfur ratiomax. 10 ppm) in your vehicle.
- Diesel exhaust emission fluid (DEF) must comply with ISO 22241-1 or DIN 70070 standards. These two standards are equivalent to each other.
- Do not load your vehicle above the passenger capacity and do not change the seat positions. Our factory shall not be responsible for any problems that may arise due to a change of the load balance in the vehicle.
- Check the exhaust pipe at times. If you see any damage (for example, a damaged coupling piece due to wear or a hole or crack), have it checked and serviced by the nearest authorized service.
- Check tyre pressures frequently, always make sure they are at the correct value.
- Check the long and dipped beam settings, do not drive at night with defective headlights.
- Check the brake, parking and licence plate lamps frequently, do not drive with defective or muddy brakes, parking and license plate lamps.
- To ensure maximum performance in your vehicle, be sure to have all maintenances carried out on time and periodically at the authorized services.
- Liquid such as waste oil, brake fluid, antifreeze, waste filters and scrap batteries that you have used in your vehicle are harmful to the environment when they are thrown away randomly. Please note that such hazardous wastes should be able to be disposed of in accordance with environmental regulations.
- It is extremely dangerous to have empty boxes, empty bottles or other items that roll on the floor, please make sure that especially the floor around the driver's seat is clean and tidy.
- Before starting the engine, make sure that there are no flammable substances under or around the vehicle. Presence of such materials can lead to a fire.
- Before driving, make sure to adjust the seat, steering wheel and mirrors to the positions that provide the correct driving position for you.
- Always wear your seat belt.
- Make sure that the windshield and side windows are clean. Keep the curtains so as not to interrupt your vision and your driving.
- Do not increase the engine speed before the engine has warmed up sufficiently. Use your vehicle by paying attention to the traffic rules and to the road conditions.

- If you feel any abnormality in a tyre while driving, immediately stop in a safe place. If you continue to drive with a deflated tyre, excessive force may be applied to the wheel studs causing the bolts to break and the wheel to come out.
- Drive at a constant speed whenever possible. Heating the engine for longer than necessary and having a high engine speed waste the fuel.
- If a warning light turns on, do not ignore it and do not continue driving. Please note that you must take a corrective action by referring to the descriptions of the warning lamps and indicator lights.
- When the vehicle malfunctions while driving, run the the hazard lights and immediately take the vehicle to a safe location where it will obstruct the traffic. Place warning triangles to notify other vehicles of your presence. Get the other passengers out of the vehicle and have them wait in a safe place. Call the nearest authorized service.
- The AdBlue filling nozzle must comply with the ISO/DIS 22241-4 standard.

## **2. GENERAL INFORMATION**

## ENGINE START

Take the main switch to the 'ON' position and the gear to the "N" position. Turn the ignition switch to "M" position, turn the ignition switch and press the starter ("D" position).



Do not run the starter for more than 30 seconds and do not press the accelerator while running it. Wait two minutes between each running attempt.



If the engine oil warning light does not go out within 15 seconds, turn off the engine to prevent damage to the engine. Contact an authorized service.



Run the engine at idle for 3-5 minutes after starting the engine, gradually increase the engine speed. Do not operate the engine in such a way that it will exceed the maximum engine speed, which can seriously damage the engine.

## Running the Engine in Cold Weather

Take the main switch to the 'ON' position and the gear to the "N" position. Turn the ignition key to the "M" position and when the glow light is off, turn on the ignition key and press the starter ("D" position).



If the vehicle will be parked for a long time (more than 1 days), turn the main switch off.

## ENGINE STOP

Stop the engine by turning the ignition key to the "St" position.



Do not switch off the main switch when the ignition switch is open and before 70 seconds pass after the ignition switch has been switched off.

## OPENING AND CLOSING THE DOORS



On the front control panel there are on/off switches for opening/closing the doors from inside. The doors automatically close when the vehicle speed exceeds 5 km/h. The front door opens/closes with a remote control from the outside.

### Opening the Doors in Emergency Situations



The doors are equipped with drain valves for emergency situations. If necessary, discharge the air by turning the valve clockwise and open the doors by pulling inward.



There are also drain valves to open the doors from the outside when necessary. Turn the valve clockwise and open the doors by pushing inwards.



At the same time, there is a red on/off lock on the door to open the door with a key from the outside when the vehicle is locked or when there are passengers inside. When necessary, turn this lock to the arrow direction, discharge the air by rotating the drain valve on the door and open the door by pulling inward.

### EMERGENCY EXIT



In case of emergency, emergency exit can be provided by breaking the windows on the right and left sides of the vehicle with the aid of the emergency hammer.

## **3.CONTROLS AND INDICATORS**

## FRONT CONTROL PANEL

### LEFT SIDE SWITCHES

#### Outside Mirror Resistance Switch



When pressed the lower part of the switch, the outside rear view mirror resistance is activated. It is deactivated when pressed the second time. If it is not switched off by the driver, it is automatically deactivated after 20 minutes.

#### Driver Side Window Resistance Switch



When pressed the lower part of the switch, the driver side window resistance is activated. If it is not switched off by the driver, it is automatically deactivated after 20 minutes.

#### ASR Cancel Switch



ASR system is disabled when pressed the lower end of the switch. The ASR is activated when pressed the lower end of the switch.

#### Suspension Control Switch



This switch enables to automatically or manually control the tilting feature of the suspension system when the doors are opened.

When pressed the lower end of the switch, the vehicle automatically tilts on the right when the doors are opened and comes back into the driving position when the doors are closed. If the switch is in the normal state, the vehicle will not tilt on the right when the doors are opened. Tilting of the vehicle to the right side is provided with the suspension control switches.

### Route Indicator Switch



The route indicator is activated when pressed the lower part of the switch and deactivated when pressed the upper part.

### Retarder Switch



System is opened by pressing the lower edge of switch for retarder to activate. When the switch is on retarder can be activated with retarder handle or if the brake pedal is pressed, retarder will be activated automatically. The system is closed when pressed the upper edge of switch.

### LCD Screen Switch (Optional)



The LCD screen is turned on when pressed the lower part of the switch. The LCD screen is turned off when pressed the upper part.

### Emergency Switch



To use the emergency switch, lift upwards and open the red safety cover on it. When it is pushed forward, the power in the system is cut off, the engine stops, all interior lighting lights and the hazard lights turn on and the door switches are in a actively operating condition. When pulled back, the system returns to normal.

### Lighter



Lighter is pushed towards the inner heat element and automatically ejects when heated.

### Roof Lamp Switch



The roof lamps are turned on when pressed the lower part of the switch. The roof lamps are turned off when pressed the upper part.

## Driver Spot Lamp Switch



When pressed the lower part of the switch, the spot lamp on the top of the driver compartment flashes on and when pressed the upper part, the lamp flashes off.

## Preheater (Optional)



Heating

### Instant heating with long press

Press the  button for more than 2 seconds. The heater is on.

The display is on, the heater menu sign is displayed.

Press the  button for more than 2 seconds. The heater is off.

### Heating with a short press

Press the  button for less than 2 seconds. To set the temperature use the  or  button.

Press the  button to confirm the set temperature.

Press the  button for less than 2 seconds. The heater is off.



## Settings

Use the  or  button to select the  symbol from the menu bar. Press the  button to confirm the sign of the settings menu.



Select symbols by pressing the  or  button to set time format, time and day. Then, confirm by pressing the  button.

## Rear Fog Lamp Switch



While the dipped beams are open, the rear fog lamp flashes on when the lower end of the switch is pressed and flashes off when the upper end is pressed. If the dipped beams do not flash on, the rear fog lamp will not flash on.

## Front Fog Lamp Switch (Optional)



The front fog lamps turn on when the bottom of the switch is pressed. They flash off when pressed again.

## Parking and Headlamp Switch



The parking lamps turn on when the lower end of the switch is pressed once. When it is pressed for the second time, the dipped beams flash on. The dipped beams flash off once the upper end of the switch is pressed again, the parking lamps flash off when the button is pressed the second time.

## RIGHT SIDE SWITCHES

### Hazard Light Switch



The hazard light switch flashes on when pressed the bottom part of the switch and it flashes off when pressed the upper part. When the hazard light switch is on, the signal lamps in the instrument panel and the function lamp in the switch flash on and a buzzer sound is given with all the signal lamps of the vehicle.

### Stop Brake Switch



When pressed the lower edge of the switch, stop brake system activates: the system holds the vehicle still if the speed is "0". The system deactivates when pressed the upper edge of the switch.

If the speed is "0" and door(s) is open, regardless of position of the switch, stop brake system activates. When all the doors are closed, the system deactivates.

If the speed is "0" and disabled passengers ramp is open, regardless of position of the switch, stop brake system activates.

### Tilting / Driving Level Switch



When pressed the lower part of the switch, the vehicle tilts to the right and when pressed the upper part, it returns to the normal driving position. The system is deactivated when pressed the upper part.

If the doors or disabled passenger ramp are closed and the accelerator pedal is depressed, the stop braking system will be deactivated.

### ELC Control Switch



This switch is used to drive the vehicle at a higher or lower driving level than normal. When pressed the upper part of the switch, the vehicle switches to a higher driving level and when pressed the lower part, the driving level decreases.

When pressed the upper part of the Tilting/Driving level switch, the vehicle returns to normal driving level.

### Front Door Control Switch



Front door is opened/closed when pressed the bottom part of the switch. The switch will not be active when the vehicle speed exceeds 5 km/h.

### Rear Door Control Switch



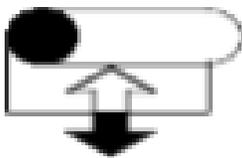
Rear door is opened/closed when pressed the bottom part of the switch. The switch will not be active when the vehicle speed exceeds 5 km/h.

### Switch, Turbo Fan (Optional)



Pressing the button turns on 2 turbo fans

### Motorized Curtain (Optional)



The curtain goes down when the lower part of the switch is pressed. the upper part is pressed, the curtain moves up.

### Switch, Windshield Heater (Optional)



The heater is activated when the lower part of the switch is pressed.

**Switch Stop Cancel (Optional)**



When the request to stop comes, it extinguishes the yellow warning lens.

**Switch, Starter (Optional)**



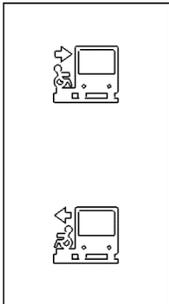
It serves to start the vehicle's engine when the lower part of the key is pressed. When pressed while the engine is running, it serves to stop the engine if there are suitable conditions.

**Switch, Ignition (Optional)**



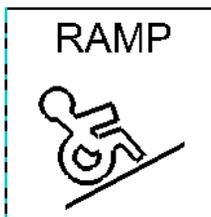
The ignition is turned on when the ON part of the switch is pressed. Units fed with KL15 in the vehicle are energized. When the OFF part is pressed, the contact is closed if suitable conditions exist.

**Switch, Disabled Ramp (Optional)**



The ramp operates in two stages. The handbrake must be engaged in order for the ramp button to be active. If the key is pressed, the ramp will start to open. After a part of the ramp is opened, the door will open automatically and the ramp will complete its final full opening movement. When the ramp button is pressed while the handbrake is on, the parking brake is automatically activated. The key must be pressed again to collect the ramp.

**Switch, Disabled Ramp On (Optional)**



It is a warning lens that indicates that the ramp is open. When the ramp is fully open, it informs the driver that it is open.

**Gear Selector (In automatic vehicles)**

The vehicle can be used in automatic and manual mode. The gear selector features are as follows:



+ Increasing the gear

- Decreasing gear

D Forward gear

N Neutral

R Reverse gear

Mode Performance/economy mode selection \*

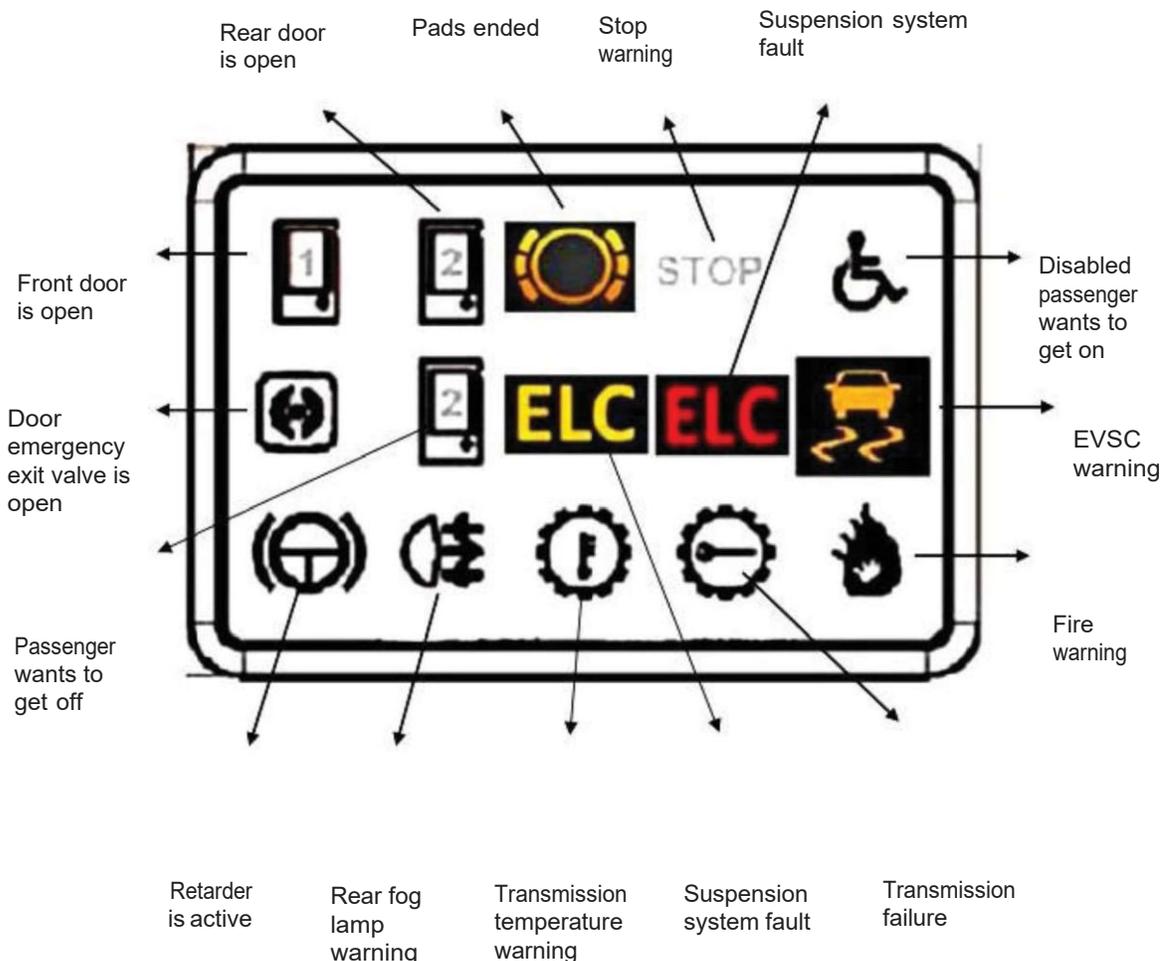


\* According to the transmission calibration

**Automatic Mode:** This mode is indicated by the '6' (highest gear number) figure on the gear selector and information display. For example, '64' means that it is in the 4<sup>th</sup> gear in automatic mode.

**Manual Mode:** This mode is automatically selected when the up/down button is pressed. The manual mode is indicated by the left digit on the gear selector LCD. The gear number associated with the number of button presses is indicated by the digit to the left. This means that the selected gear position is the gear limit. The driving position is automatically selected by the transmission box control unit when a button is not pressed.

**Warning Lens Panel** Shows the status when the functions or faults are active.



**Signal and Wiper Arm**



The lever signals to the left while it is in the downward direction and to the right while in the upward direction. At first rotation, it activates the wipers intermittently, at the second, at normal speed and at the third, at high speed. The water sprinkler runs when it is pushed towards the steering wheel. When pressed the button on the end, the horn is activated.

## Exhaust Brake Control Lever

This lever activates the exhaust brake.



## SIDE CONTROL PANEL

### Parking Brake



The parking brake system is of pneumatic type and spring installed. The parking brake is on the left side of the control panel. When the vehicle is stopped, the parking brake handle is pulled back, the handle must be locked in the lower position. To release the brake, pull the locking latch at the bottom of the handle slightly upwards and release the handle forward. There is a warning light on the instrument panel indicating whether the parking brake system is active.

When the parking brake system is activated, the gear automatically shifts to the N position and the gear selector on the LCD screen starts to blink. Even when the parking brake is deactivated, the gear will remain in the N position. The Driving/Rear position must be re-selected to drive the vehicle. For driving (vehicle active), if the brake air is insufficient when the parking brake is deactivated (below 6 bars), the warning light flashes red. This light must flash off before driving.

### Emergency Brake Release Valve

It is located on the left side of the driver, on the side control panel.

In case that the vehicle is left without air and malfunctions on the road, the valve is rotated without releasing it (since it has a spring, it will go to its initial position once released) with the left hand and the steering wheel is held with the right hand and the vehicle is pulled to the emergency lane. When the handle is rotated, the air reserved in an additional tank is sent to the brake cylinder and the parking brake is released.



### USB PHONE CHARGER



On the side control panel, there is a charger with USB socket where the driver can charge his/her mobile phone. There are two sockets for normal and fast charging.

### INSTRUMENT AND WARNING LIGHTS PANEL





**Low Pressure Warning:** When the brake circuit system pressure drops below 6 bars, the red warning light flashes on and a buzzer is given.



**Charge Warning:** It is the red warning that flashes on when the ignition is on and flashes off when the engine is running and has passed the idling speed. If it flashes on during driving, it indicates that there is a malfunction in the charging system.



**Transmission Failure Warning:** It is a yellow warning that indicates a fault in the transmission.



**ABS Fault Warning:** The yellow warning flashes on when there is a fault in the anti-lock brake system.



**Engine Water Temperature Warning :** The yellow warning flashes on when the engine water temperature is 102 °C Red warning flashes on and warning buzzer will sound when the temperature is 106 °C.



**Brake System Fault Warning :** When the brake circuit system pressure drops below 6 bars, the red warning light flashes on.



**Driver Warning:** It is a yellow warning that flashes on so that the driver can detect any problems and causes in the NOx control system.

- If the diesel exhaust emission fluid level is below the level of warning,
- If an inadequate quality diesel exhaust emission fluid is used,
- If an inadequate amount of diesel exhaust emission fluid is used,
- In the case where the diesel exhaust emission fluid is intermittently sprayed,
- If the EGR valve or the system sensors do not work properly, the Driver warning flashes on.



**Engine STOP Warning:** It is the red warning that flashes on when the ignition is switched on and that flashes off when the engine runs. If the warning flashes on while the engine is running, the vehicle must be stopped safely and the engine should be switched off.

- If there is a major fault in the vehicle,
  - If automatic engine protection and shut off will take place,
  - If there is a fault in the SCR system,
  - If there is a diagnostic error code in the system,
- the Engine STOP warning will flash on.



**Engine Oil Pressure Low Warning:** The red warning light flashes on when a fault is detected in the engine lubricating system. The engine must be stopped when the warning flashes on.

- If the oil level is low,
- If the viscosity of the oil is not suitable,
- If the oil filter is clogged,
- If the oil pressure switch is defective,
- If the oil pump is defective, the Engine oil warning flashes on.



**Fault Display Warning:** A yellow warning light flashes on in case of a fault with the emission control system. When the warning flashes on, the vehicle must be taken to the nearest authorized service.



**Engine Warning:** It is the yellow warning that flashes on when a fault is detected which does not inhibit vehicle's movement and which is not active and critical. If a warning is lit while the engine is running, the vehicle must be taken to the nearest authorized service.

- If a switch off at idle will be performed,
- If it blinks when the ignition switch is turned on,
- If there are maintenance faults and there is a diagnostic error code in the system, the Engine warning flashes on.



**DPF Warning:** It is a yellow warning that flashes on when the DPF (diesel particulate filter) gets full.

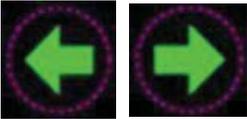
- The warning blinks when the amount of particles reaches a high level. Go to the Isuzu service to initiate the regeneration process. When the particle level reaches a critical level, the DPF warning light flashes off, the red engine warning light flashes on, the vehicle must be stopped in a safe place and an authorized service must be consulted.



**Exhaust System High Temperature Warning:** When active regeneration starts in the vehicle or when the exhaust temperature exceeds a programmable limit, the yellow warning light flashes on. When the exhaust temperature falls to an appropriate value, the warning light flashes off. When the warning flashes on while the vehicle is in a parked position, there should be no flammable material at the exit of the exhaust pipe.



**Diesel Exhaust Emission Fluid Level Low Warning:** The yellow warning light flashes on when the diesel exhaust emission level is low.



**Signal Warnings:** It is a green light, buzzer warning that shows right and left turns, that blinks when the signal lever or the hazard light switch is used.



**Front Fog Warning:** The green warning light flashes on when the front fog lights are in use.



**Glow Plug Warning:** It is a yellow warning that flashes on when the ignition is switched on and flashes off after a while. The lamp must flash off before starting the engine.



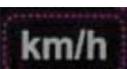
**Water in the Fuel Warning:** It is a yellow warning that flashes on when there is water in the fuel. The fuel quality should be checked if the warning flashes constantly.



**Fuel Level Warning:** The yellow warning light flashes on when the fuel level decreases. After the light flashes on, the vehicle can travel 50 km more.



**High Beam Warning:** It is a blue warning light that flashes on when the high beams are in use or when the headlights are flashed.



**Speed Unit:** It is the unit of value in the speedometer.

### Tachometer



Tachometer measures the number of engine revolutions per minute. It starts running when the engine is started.

### Speed (km/h) Indicator



It displays the speed of the vehicle in kilometre/hour and it starts running after the vehicle starts moving.

### Fuel Gauge



The fuel gauge shows the fuel level in the fuel tank. The yellow light at the bottom right of the display flashes on when the dial approaches the letter "E", which means the fuel is getting low. Fuel should be added before the fuel in the tank completely runs out, otherwise the system will be filled with air.

### Brake Pressure values.

It shows the front brake and rear brake air pressure

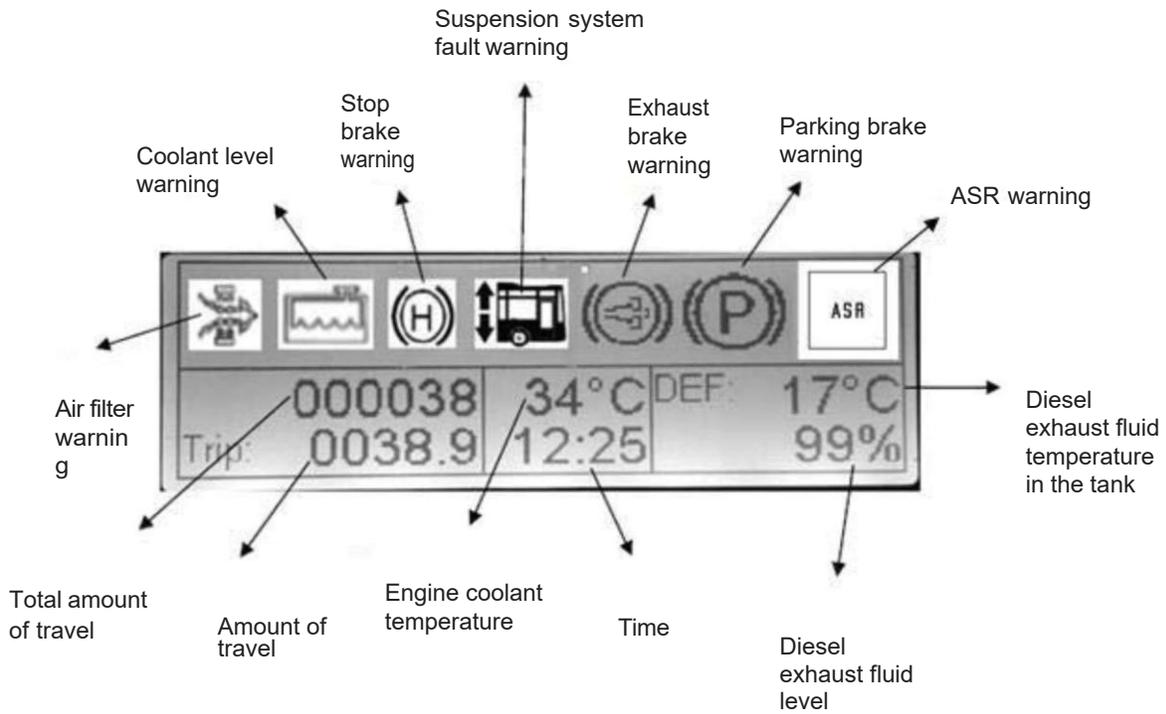
### Indicators:



Front brake pressure

Rear brake pressure

Information Screen

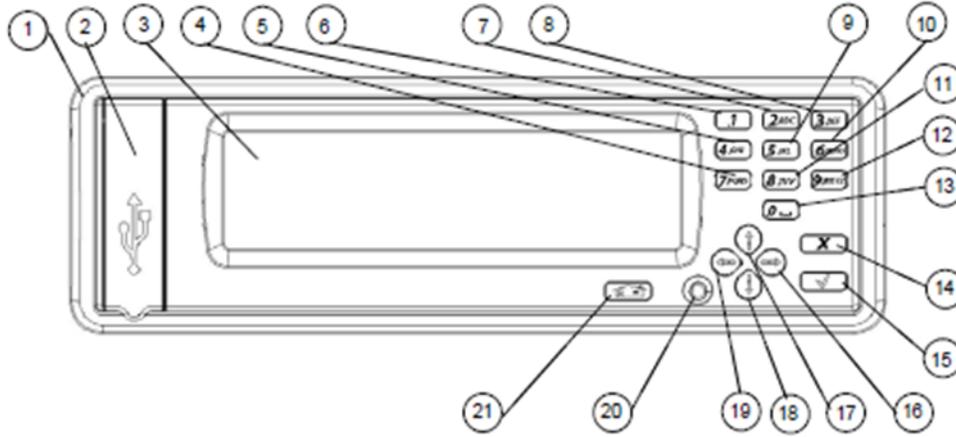


ROUTE INDICATOR CONTROL PANEL



There is a route indicator control panel on the upper part of driver's compartment. The route information is selected/changed via the control panel.

## LINE PLATE CONTROL PANEL (OPTIONAL)

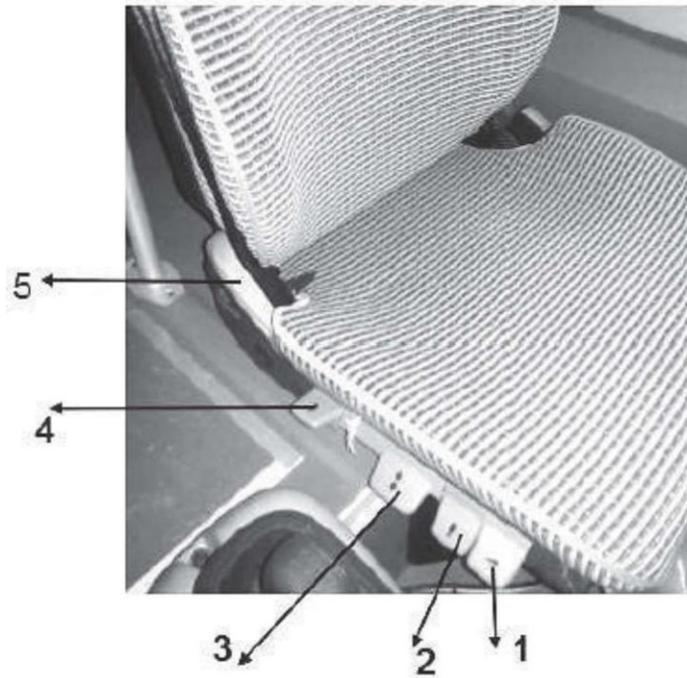


Front view

|    |                   |    |                               |
|----|-------------------|----|-------------------------------|
| 1  | Kapak             | 12 | Buton (9)                     |
| 2  | USB arayüz kapağı | 13 | Buton (0)                     |
| 3  | Ekran             | 14 | İptal                         |
| 4  | Buton (7)         | 15 | Onay                          |
| 5  | Buton (4)         | 16 | Yön tuşu (sağ)                |
| 6  | Buton (1)         | 17 | Yön Tuşu (yukarı)             |
| 7  | Buton (2)         | 18 | Yön Tuşu (Aşağı)              |
| 8  | Buton (3)         | 19 | Yön Tuşu ( sol)               |
| 9  | Buton (5)         | 20 | Ekran parlaklık ölçüm sensörü |
| 10 | Buton (6)         | 21 | Başlat menüsü                 |
| 11 | Buton (8)         |    |                               |

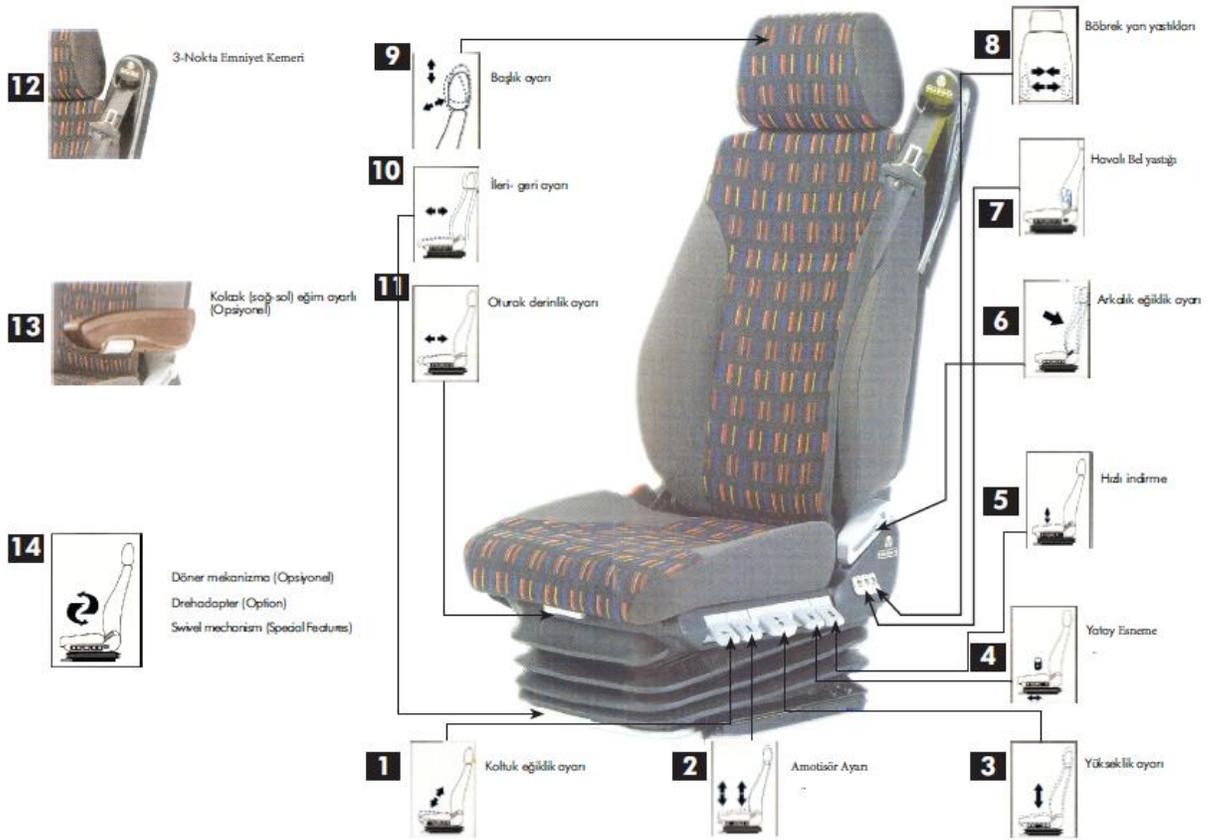
## **4. VEHICLE EQUIPMENT**

DRIVER SEAT



|   |                           |
|---|---------------------------|
| 1 | Seat Tilt Adjustment      |
| 2 | Shock Absorber Adjustment |
| 3 | Height Adjustment         |
| 4 | Quick Lowering Adjustment |
| 5 | Backrest Tilt Adjustment  |

## DRIVER SEAT (Option)



## PASSENGER SEATS

**1- Seat Tilt Adjustment:** Seat tilt can be adjusted between 2° and 12°.

**2- Shock Absorber Adjustment:** It can be adjusted in 4 steps from soft to hard with the damper adjustment button. It changes to hard position upwards and soft position downwards.

**3- Height Adjustment:** With the height adjustment button, it can be adjusted steplessly up and down within 100 mm.

**4- Horizontal Stretch setting:** The button changes to “open” up and “locked” down.

**5- Fast Download Setting:** It provides ease of getting on and off.

**6- Backrest Tilt Adjustment:** Lean against the backrest. Pull the lever up and move the backrest to the desired position and release the lever.

**7- Air Lumbar Pillow:** It can be adjusted to the desired position steplessly.

**8- Kidney Side Pads:** The kidney pad can be adjusted according to the user's request. With the (+) button, the pillow is filled with air. With (-) the air in the pillow is discharged.

**9- Head Adjustment:** Its height and inclination can be adjusted as desired.

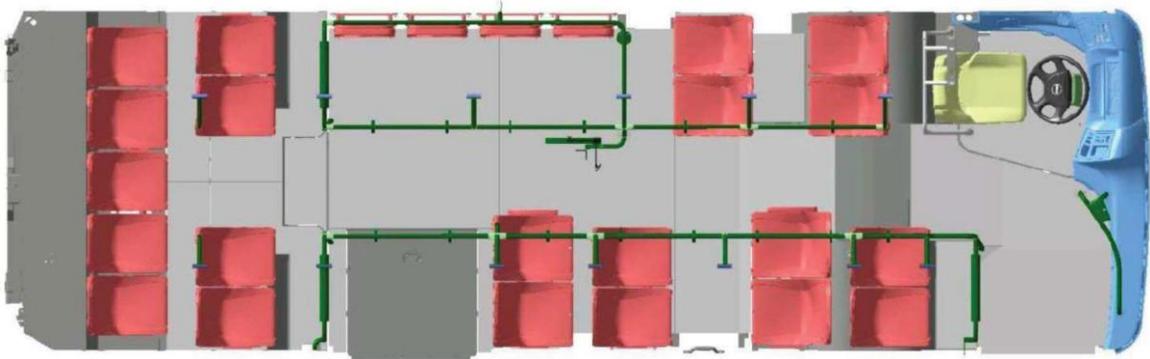
**10- Forward - Backward Adjustment:** It can be adjusted back and forth within 210 mm with 10 mm intervals.

**11- Seat Depth Adjustment:** It provides 5-stage adjustment within 60 mm.

**12- 3-Point Seat Belt:** Always wear your seat belts.

**13- Armrest (Right - Left) Tilt Adjustable:** By turning the adjustment button, its inclination can be adjusted steplessly. It can be easily folded up when getting on and off.

**14- Rotary Mechanism:** It provides ease of getting on and off.



As a standard, there are 25 passenger seats in the vehicle, including 4 folding seats. Passenger seats are of fabric upholstery. There is a wheel chair fixing area for disabled passengers, opposite the back door.

|   |      |      |      |
|---|------|------|------|
|   | 21\0 | 21\4 | 21\0 |
|   | 0    | 0    | 1    |
|   | 39   | 30   | 34   |
| = | 60   | 55   | 56   |

There is a passenger capacity label in front of the vehicle at the upper region. This label shows the number of sitting and standing passengers.

**DIGITAL CLOCK**



There is a digital clock on the front of the vehicle. Time and air temperature are shown alternatively on the screen. In addition, when the Stop button is pressed, 'STOP' statement appears. The clock settings can be done via the left button and the minute setting can be done via the right buttons.

## ROLLER BLIND

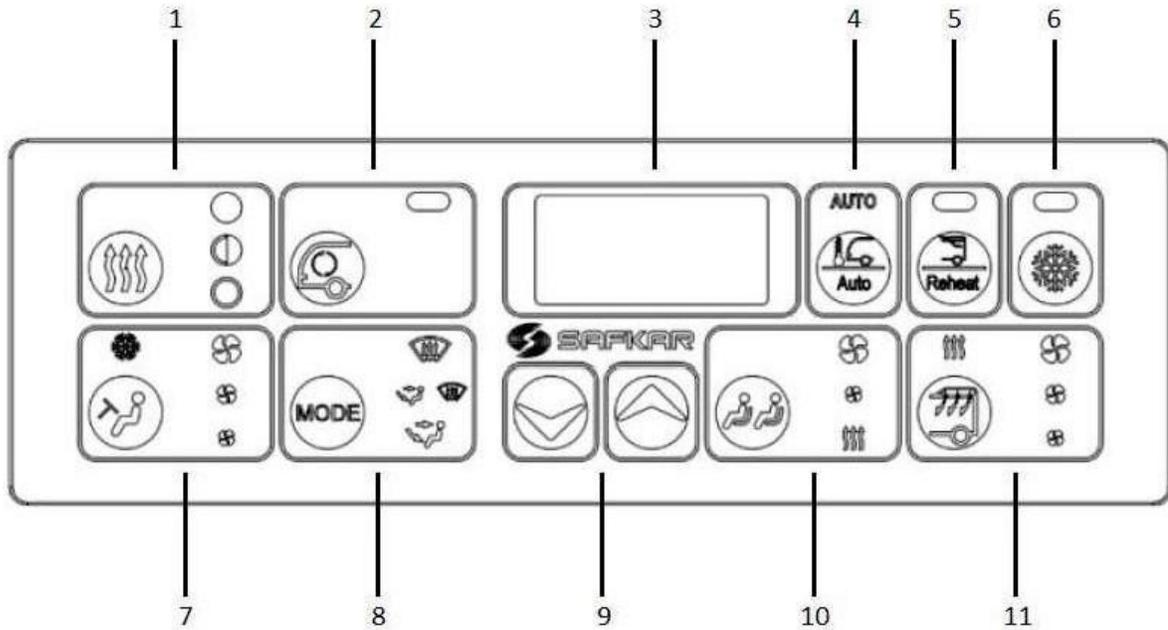
On the windshield, at driver's side, there is a manual roller blind. On the left side of the roller blind, there are two ropes for adjustment. When you pull one of these, the roller blind goes down and when you pull the other, the roller blind goes up.

## RADIO & MP3 PLAYER



There is a radio & MP3 player in the vehicle with USB and AUX inputs. Up to 30 radio channels can be stored into the memory.

AIR CONDITIONER CONTROL PANEL



| No. | Name                                    |
|-----|---|
| 1   | Heater Control (Driver Side)            |
| 2   | Air Selector (Driver Side)              |
| 3   | LED Display                             |
| 4   | Automatic Mode                          |
| 5   | Air Selector (Passenger Side)           |
| 6   | Air Conditioner On/Off (Passenger Side) |
| 7   | Fan Speed Control (Driver Side)         |
| 8   | Outlet Selector (Driver Side)           |
| 9   | Control Switches                        |
| 10  | Heater Control (Passenger Side)         |
| 11  | Roof Fan Speed Control                  |

1. Heater Control (Driver Side)  
Use this switch when manually selecting the heating on the driver side.  
Pressing the switch increases temperature.
2. Air Selector (Driver Side)  
Use this switch to change between ventilation of outside air and recirculation of the interior air. Led is active when interior air recirculates.
3. LED Display  
LED display shows temperature values and error codes.
4. Automatic Mode  
When pressed shortly, outer temperature is shown on LED display.  
Press the switch for 3 seconds to use the air conditioning system in automatic mode. When the switch is pressed, the system automatically warms up or cools down to 21°C. Led is active when the automatic mode is on.
5. Air Selector (Passenger Side)  
Use this switch to change between ventilation of outside air and recirculation of the interior air. Led is active when outside air ventilates.  
When air conditioning activates, interior air automatically starts recirculating.  
Press the switch for 3 seconds to activate passenger defrosting.  
When defrosting is activated, defrosting operates for 6 minutes then turns off.
6. Air Conditioner On/Off (Passenger Side)  
Use this switch to turn the air conditioning on or off.  
Blue led lights and interior air recirculates when the air condition is operating.  
Press the switch for 3 seconds to save air conditioning setup.
7. Fan Speed Control (Driver Side)  
Use this switch when manually selecting the fan speed on the driver side.  
Pressing the switch increases the fan speed.  
Press the switch for 3 seconds to open/close air conditioning on driver side.  
Led is active when the air conditioning operates.
8. Outlet Selector (Driver Side)  
The air outlet will change each time you press this switch.  
When defrosting is activated, defrosting operates for 10 minutes then turns off.  
Use this switch as approval button for service menu.
9. Control Switches  
Use the control switches to set temperature and to change functions.  
Press down switch for 3 seconds to adjust temperature value of driver side.  
Press up switch for 3 seconds to adjust temperature value of passenger side.

10. Heater Control (Passenger Side)

Use this switch when manually selecting the heating on the passenger side.  
 Pressing the switch increases the fan speed.  
 Blinking of heating led means that engine temperature has not reached suitable value.

11. Roof Fan Speed Control

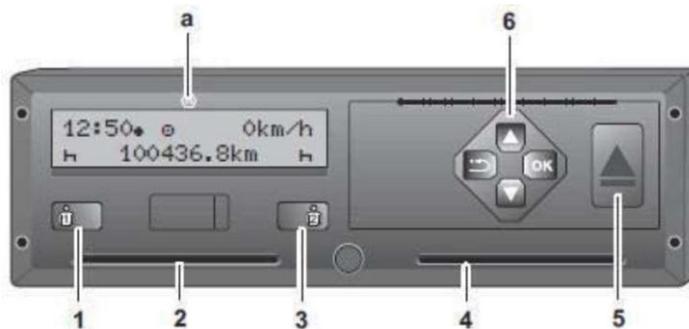
Use this switch when manually selecting the roof fan speed.  
 Pressing the switch increases the fan speed.  
 When cooling function is activated, fans start to run at minimum level automatically. It cannot be closed.  
 If the vehicle is equipped with roof heating, roof fans can operate at 1<sup>st</sup> level.



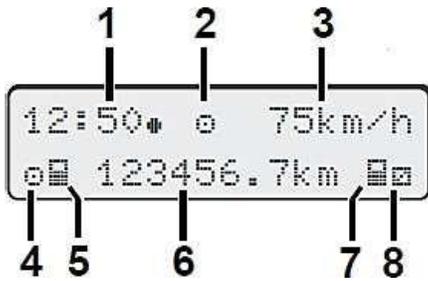
The air conditioning system uses a sun sensor, room temperature sensor and outside air temperature sensor to ensure effective and comfortable air conditioning. Do not place anything on the sensors or get them wet. Air conditioning control will become inaccurate.

**TACHOGRAPH (OPTIONAL)**

The tachograph records the vehicle's speed, travel time, distance and other information. The tachograph can help to achieve economic driving and optimal management of the operations.



|                                 |  |
|---------------------------------|--|
| 1 Driver 1 combined button      | Adjusting the activity and removing the driver card  |
| 2 Card slot 1                   |  |
| 3 Driver 2 combined button      | Adjusting the activity and removing the driver card  |
| 4 Card slot 2                   |  |
| 5 Printer drawer opening button |  |
| 6 Menu keys                     | <p>▲/▼ Select the desired function or selection <b>OK</b> Confirm the selected function \ option</p> <p>⏪ Exit, exit from menu</p> |



|   |                          |
|---|--------------------------|
| 1 | Time † (with local time) |
| 2 | Operation mode           |
| 3 | Speed                    |
| 4 | Driver 1 active          |
| 5 | Driver 1 card symbol     |
| 6 | Total kilometer          |
| 7 | Driver 2 card symbol     |
| 8 | Driver 2 active          |

## DIAGNOSTIC SOCKET



The diagnostic socket is located inside the cabin at the right bottom part of the torpedo, at the front door entrance. This socket is used to load, change a parameter to the engine control unit and for the diagnosis.

## MIRRORS



There is an inside rear view mirror in the vehicle.

There are two outside rear view mirrors, one on the right and one on the left.



Right Outside Rear View Mirror



Left Outside Rear View Mirror

## INTERNAL CAMERA (OPTIONAL)

There are 2 internal cameras in the vehicle, showing the front door and the rear door. On the left side of the driver, there is a monitor (optional) on the front panel, which allows the driver to monitor the passenger entry and exit with the displays reflected from the camera.



## DIGITAL ROUTE INDICATOR

There are digital route indicators, 1 at the front and 1 at the side, optionally a rotary type can also be mounted. In addition, optionally one can be mounted at the rear of the vehicle.

## HANDLES



There are handles on the holding pipes for passengers to hold.

## STOP BUTTONS

There are three types of stop buttons in the vehicle.

Standard



For disabled passengers



For priority passengers



Passengers who want to get out of the vehicle inform the driver by pressing these buttons. The corresponding door's button flashes on and the 'STOP' message appears on the digital clock. In addition, the buzzer is also activated. When the doors are opened, the words 'STOP' and the warning lights on the door flash off.

## WHEEL CHAIR FIXING AREA

There is a private area opposite the back door so that the passengers who get on the vehicle with a wheel chair can travel safely.

## DISABLED PASSENGER RAMP

There is a manually opening/closing ramp at the rear door to enable the disabled passengers with wheel chairs enter/exit the vehicle comfortably.

### Use of the Ramp

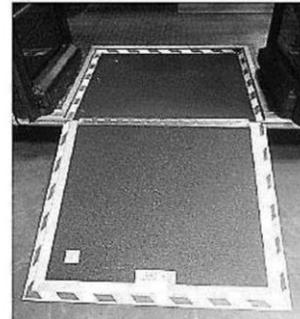
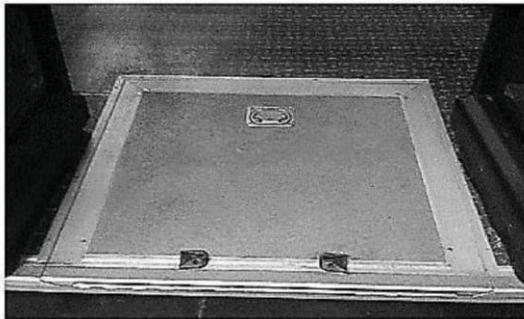
When disabled passengers who want to get on the vehicle press the button,



warning  lights.

In this case:

Stop the vehicle at a point where the traffic is convenient.

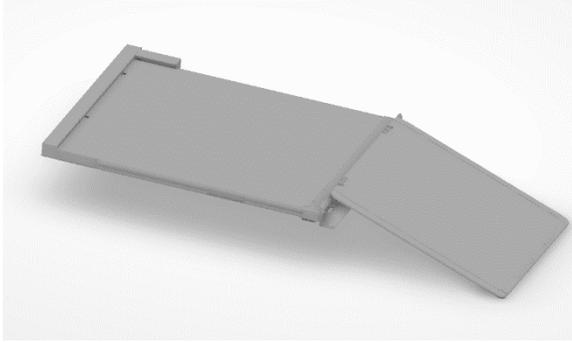


- Open the rear door.
- Open the ramp by holding the grip and push it out of the vehicle.
- Enable the disabled passenger to get on/out.
- Close the ramp by folding it into the vehicle.

When the ramp is open, the  (rear door open) warning light flashes on.

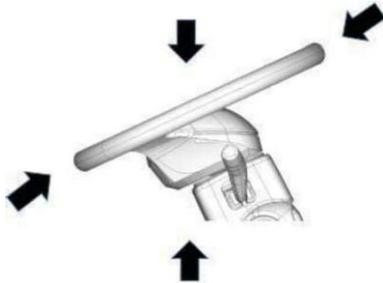
Disabled passenger symbol  appears on the information screen. A buzzer is also heard.

## DISABLED PASSENGER RAMP ELECTRIC (OPTION)



The vehicle has an electric passenger ramp.

## STEERING WHEEL ADJUSTMENT



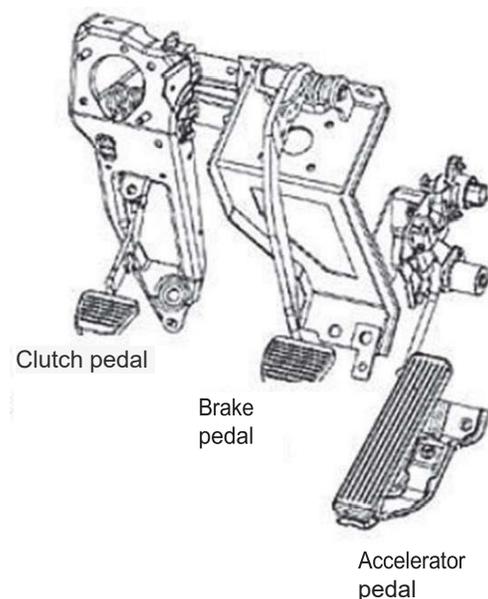
Steering wheel is tilt and telescopic. For this setting, the lever on the right side under the steering wheel is pulled upwards. The lever is pushed back when desired position is reached.

## HORN

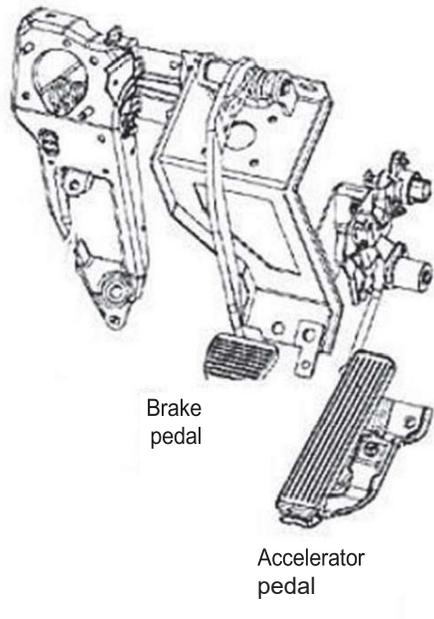
The horn sounds when you press the centre of the steering wheel and the horn button on the signal lever.

## PEDALS

In a vehicle with a manual transmission;



In a vehicle with an automatic transmission;



### Brake Pedal

When the brake pedal is depressed, an electric signal is supplied to the control unit and air is distributed to the brake elements. The retarder engages automatically when the brake pedal is depressed.

It is integrated into the vehicle's brake system and will run when the brake pedal is pressed. Depressing the brake pedal lightly will apply the retarder gradually. The retarder is activated on before service brakes are applied.

### Accelerator Pedal

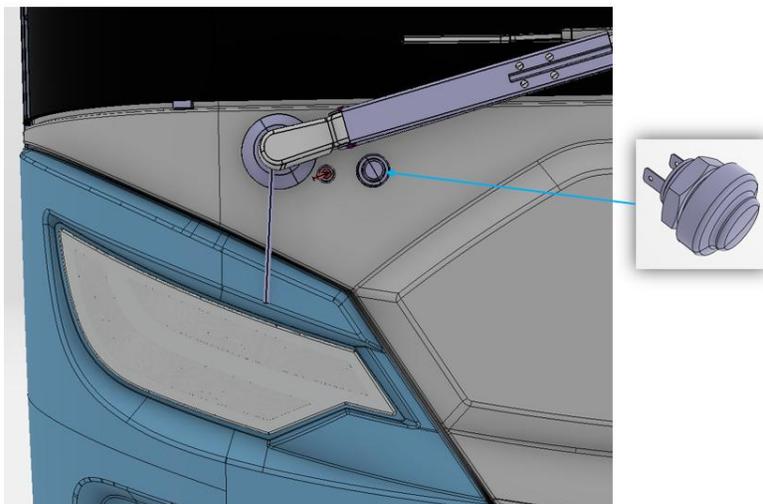
The pedal on the right is the accelerator pedal. The electronic signal sent by the position sensor connected to the accelerator pedal is evaluated by the ECU (Electronic Control Unit) and the amount of fuel going to the engine is set. In vehicles with automatic transmission, there is a kick-down button at the end of the accelerator pedal that increases the engine speed.

### First Aid kit (Option)

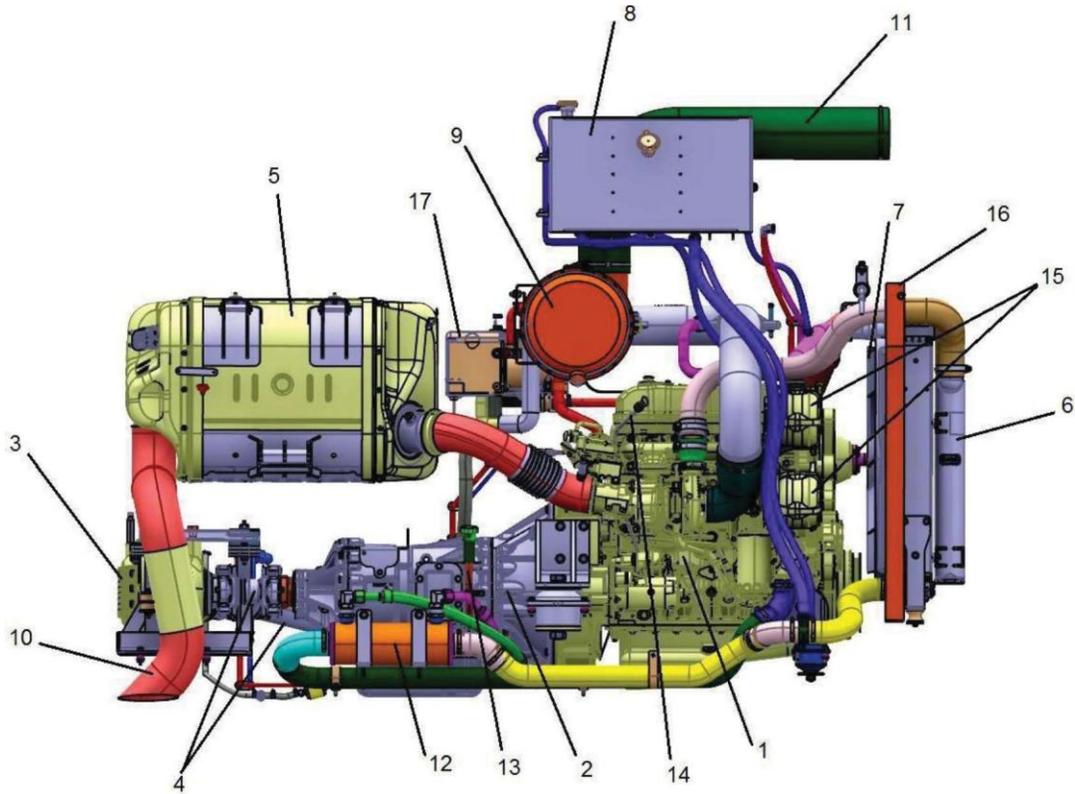


### Button On-Off (Option)

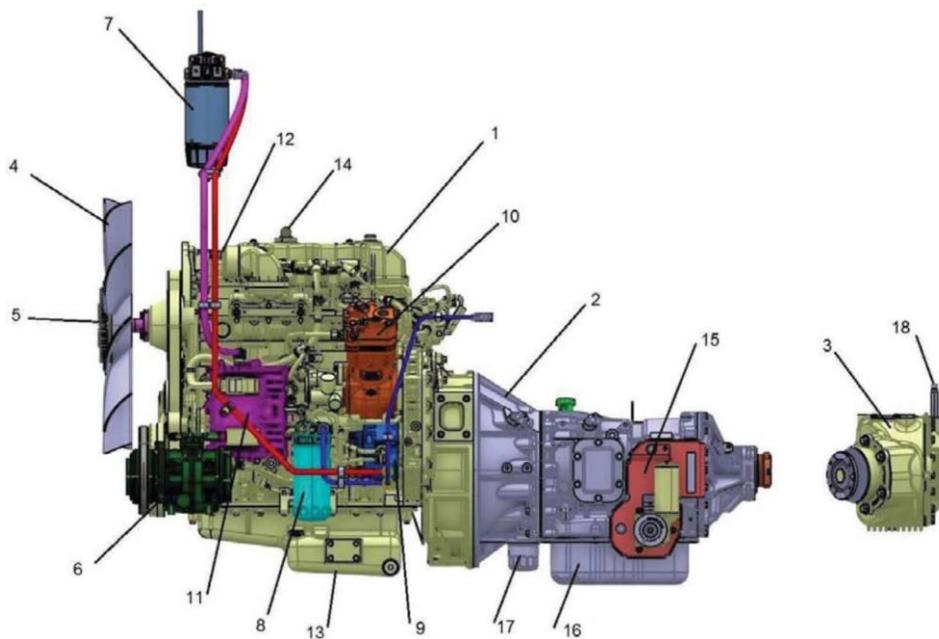
Under the wiper is the front door open button. When the button is pressed outside the vehicle with the ignition switched off the front door opens.



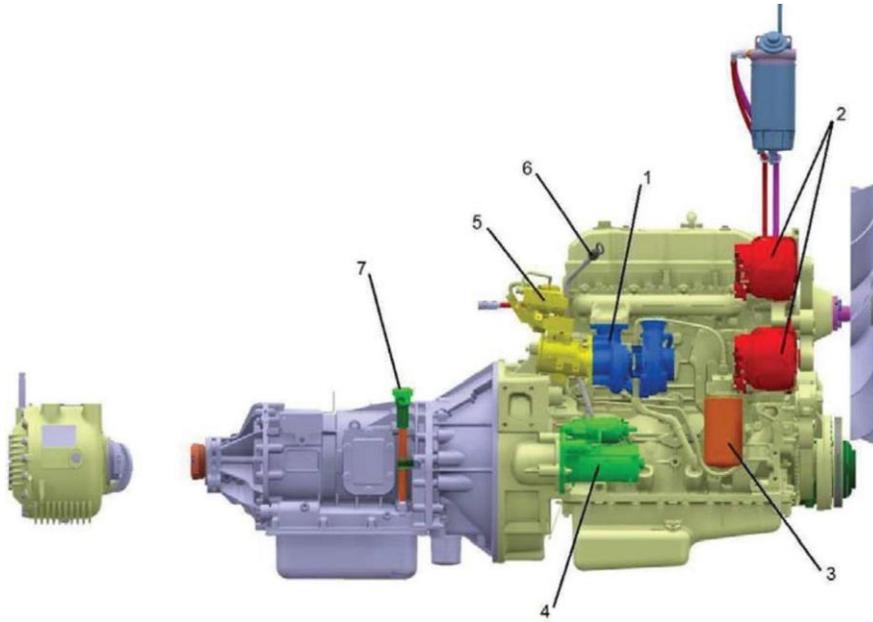
## POWER PACK



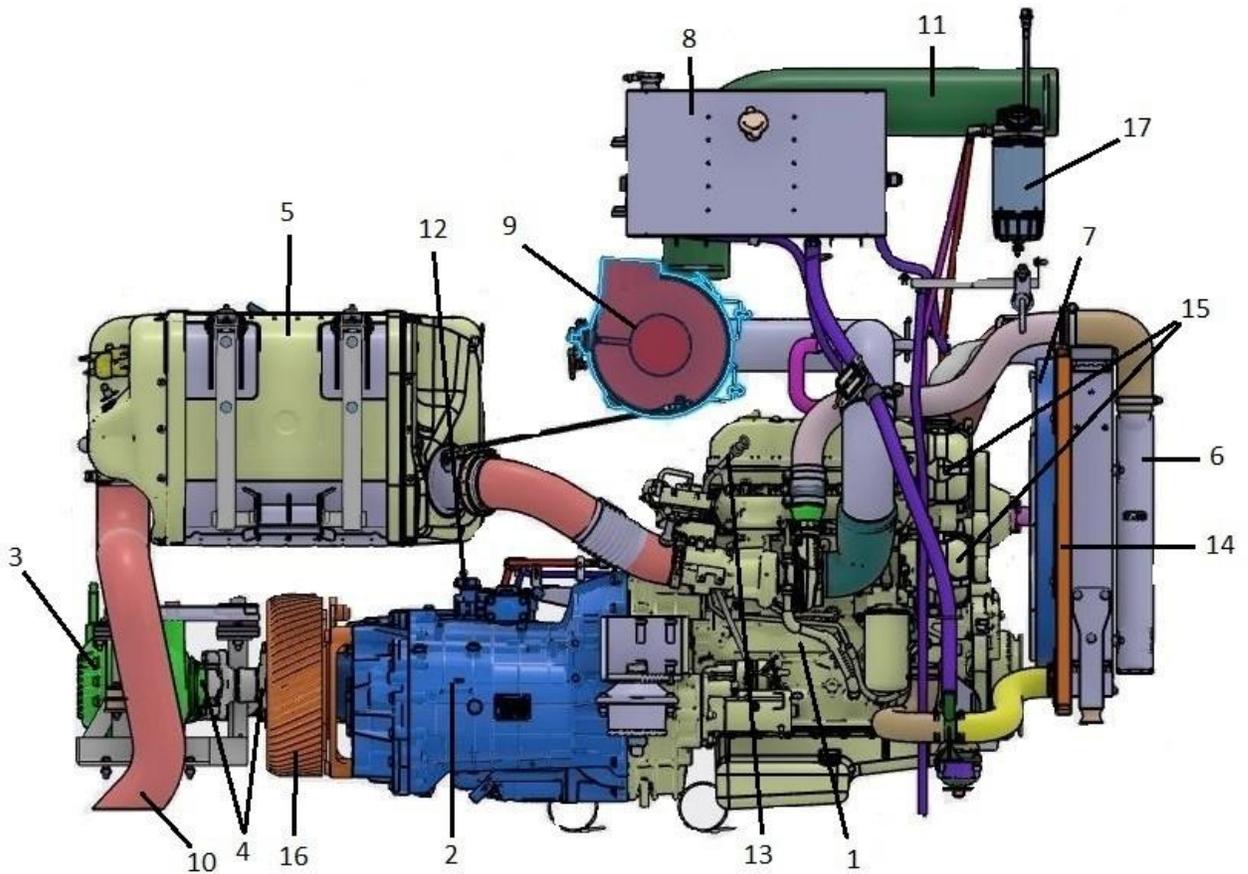
- |                                |                               |
|--------------------------------|-------------------------------|
| 1. Engine                      | 9. Air Filter                 |
| 2. Automatic Transmission      | 10. Exhaust Tail Pipe         |
| 3. Angle Drive                 | 11. Air Intake Hose           |
| 4. Long and Short Shafts       | 12. Transmission Oil Cooler   |
| 5. Exhaust Gas Processing Unit | 13. Transmission Oil Dipstick |
| 6. Cooling Unit                | 14. Engine Oil Dipstick       |
| 7. Blower Fan                  | 15. Alternator                |
| 8. Expansion Tank              | 16. Insulation                |
|                                | 17. Preheater                 |



- |                                     |  |
|-------------------------------------|--|
| 1. Engine                           | 9. Engine Fuel Injection Pump            |
| 2. Transmission                     | 10. Air Compressor                       |
| 3. Angle Drive                      | 11. Engine Control Module (ECM)          |
| 4. Fan Propeller                    | 12. Engine Oil Filling Cover             |
| 5. Viscous Coupling                 | 13. Engine Oil Pan                       |
| 6. Air Conditioner Compressor       | 14. Engine Oil Pan Ventilation           |
| 7. Fuel Filter with Water Separator | 15. Transmission Gear Selector Activator |
| 8. Engine Fuel Filter               | 16. Transmission Oil Pan                 |
|                                     | 17. Transmission Oil Filter              |



1. Turbo Unit
2. Alternator
3. Engine Oil Level
4. Starter
5. Exhaust Brake
6. Engine Oil Dipstick
7. Automatic Transmission Oil Filling Pipe and Oil Dipstick



- |                                |                               |
|--------------------------------|-------------------------------|
| 1. Engine                      | 9. Air Filter                 |
| 2. Automatic Transmission      | 10. Exhaust Tail Pipe         |
| 3. Angle Drive                 | 11. Air Intake Hose           |
| 4. Long and Short Shafts       | 12. Transmission Oil Dipstick |
| 5. Exhaust Gas Processing Unit | 13. Engine Oil Dipstick       |
| 6. Cooling Unit                | 14. Insulation                |
| 7. Blower Fan                  | 15. Alternator                |
| 8. Expansion Tank              | 16. Retarder                  |
|                                | 17. Fuel Filter               |

**ABS Interface**

The Retarder system is equipped with an electronic interface designed to work with the Anti-Lock Brake System (ABS) in your vehicle. In an ABS situation (an ABS condition is defined as any situation where the wheels are locked), the retarder closes automatically, allowing the ABS to control the brakes without any intervention from the retarder. In the case of ABS, the retarder will be activated gradually, ensuring correct braking performance.

**NOTE:**

As soon as the ABS warning light of the vehicle is on, the retarder will not work. If the ABS warning light is on, there is a problem with the ABS. In order for the retarder to work, it must be made to ABS.

**Important points**

- Retarder engages with normal use of the brake pedal. You will notice that you achieve adequate braking performance with less pedal pressure.
- Retarder automatically shuts down at low speeds (below approximately 3 km / h).
- Make sure that the indicator light on the instrument cluster turns on when the brake pedal is fully depressed. If the light does not come on, the retarder may not be working properly.
- As long as the ABS warning light of the vehicle is on, the retarder will not work.
- Retarder should be washed periodically with a pressure washer. Before using the tool, please make sure it is clean and free of any residue. Applies to vehicles with electric retarder only.
- The retarder will also work efficiently when reversing (above about 3 km / h).
- Retarder does not attract metal objects magnetically.
- Retarder is integrated into the vehicle's brake system. Do not touch or disable the retarder to avoid damage to the vehicle.

**Retarder System Maintenance:**

The system must be powered off before any maintenance is performed on the system. Before re-energizing the retarder system, make sure that all controls on the retarder are OFF.

**Periodic maintenance related to the retarder**

| Maintenance Interval (x 1000 km)              | 30 | 60 | 90 | 120 | 150 | 180 |
|---|----|----|----|-----|-----|-----|
| Retarder                                      | C  | C  | C  | C   | C   | C   |
| All functions of the control system           | C  | C  | C  | C   | C   | C   |
| Retarder air gaps                             | C  | C  | C  | C   | C   | C   |
| Connection bolt torque values                 | C  | C  | C  | C   | C   | C   |
| Oil leakage from gearbox or axle flange seals | C  | C  | C  | C   | C   | C   |
| Retarder electrical cables                    | C  | C  | C  | C   | C   | C   |
| Cable cap and tightening torques              | C  | C  | C  | C   | C   | C   |

**\* Pressure Washing:**

Maintain a distance of at least 1 meter between the washer's hose end and the retarder. Maximum pressure should be 25 bar, maximum water temperature should be 50 ° C, do not use chemicals or detergents.

Before charging the batteries, disconnect the power to the retarder and all retarder electronic control modules.

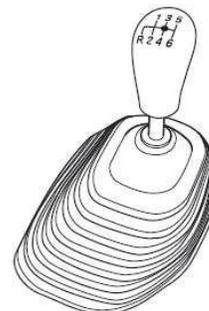
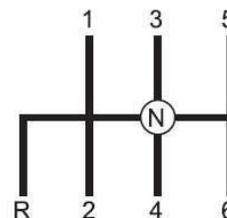
\* Perform this procedure only for vehicles with electric retarder.

**TRANSMISSION**

**1) Manual Transmission Model**

Your vehicle has a manual transmission with 6 forward and 1 reverse gear options.

When the shift lever is set to 'R' (Reverse), the reverse gear lamps turn on and the buzzer sounds.





Switch from the forward gear to the reverse gear or from reverse gear to forward gear only when the vehicle stops completely. Otherwise, the transmission may get damaged.

## 2) Automatic Transmission Model

The vehicle can be used in automatic and manual mode. The gear selector features are as follows:

- ↑+ Increasing the gear
- ↓- Decreasing gear
- D Forward gear
- N Neutral
- R Reverse gear
- Mode Performance/economy mode selection \*

\* According to the transmission calibration

**Automatic Mode:** This mode is indicated by the '6' (highest gear number) figure on the gear selector and information display. For example, '64' means that it is in the 4<sup>th</sup> gear in automatic mode.

**Manual Mode:** This mode is automatically selected when the up/down button is pressed. The manual mode is indicated by the left digit on the gear selector LCD. The gear number associated with the number of button presses is indicated by the digit to the left. This means that the selected gear position is the gear limit. The driving position is automatically selected by the transmission box control unit when a button is not pressed.

### Use of Transmission

#### Automatic Mode

While the vehicle is stationary, press the brake pedal and select the "D" position. '61' is displayed on the LCD screen. When the brake pedal is released and the accelerator pedal is depressed, the driving gear is automatically started and the vehicle starts to move. During travel, the gear will be increased/decreased automatically.

At any time during travel, for example, in difficult conditions, the gear position can be changed manually by pressing the up/down arrows on the gear selector.

#### Manual Mode

Depress the brake pedal and select the "D" position while the vehicle is stationary. Then press the down arrow button, the figure on the left will show the lowest gear position which is '11'. When the brake pedal is released and the accelerator pedal is depressed, the driving gear is automatically started and the vehicle starts to move. High gear positions can be selected by pressing the up arrow button and low gear positions can be selected by pressing the down button. When the down arrow button is pressed while the vehicle is moving, the number on the left will be equal to the number on the right.

### Engine Start Up

While the vehicle stationary, depress the brake pedal, select the 'N' position and turn the ignition to the starting position. The engine will start.

### Use of the Rear Gear

The 'R' position can be selected while the vehicle is stationary or when the vehicle speed is below 5 km/h. If the vehicle is stationary, press the brake pedal and select the 'R' position. Select the 'R' position if the vehicle is moving. After both selections, the left digit will display 'R'. The 'R' position cannot be selected while the vehicle speed is over 5 km/h.

### Transmission Malfunctions and Indicator Warning

This indicator means that there is an electronic malfunction. If necessary, park the vehicle securely. Close and reopen the ignition switch. Check if the fault is still present, if so call the service.

The control module will generate an error code relating to the problem. This code can be read by connecting with a computer.

### Kickdown Feature

When high engine power is needed, gear is decreased by the kickdown feature. It is activated by using the kickdown button under the accelerator pedal.



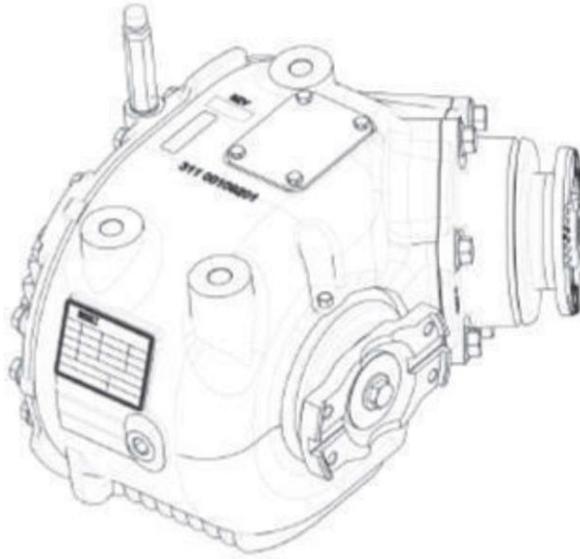
Using this feature increases fuel consumption.

### Retarder Feature

In models with automatic transmission, the (N) position is selected by the transmission every time the ignition is switched on. Retarder feature is optional. There are hydraulic retarder models in automatic vehicle and electric retarder models in manual transmission. The electric retarder will get hot when it is activated frequently, and its performance may decrease due to the warming in long-term use.

## ANGLE DRIVE

The angle drive ensures transmission of the power transferred by the shaft via the power pack with a second shaft to the differential on the driving axis with 35 degrees angle.



## FUEL TANK

Fuel tank capacity is 130 litres. The fuel filler cap is behind the left front wheel of the vehicle.

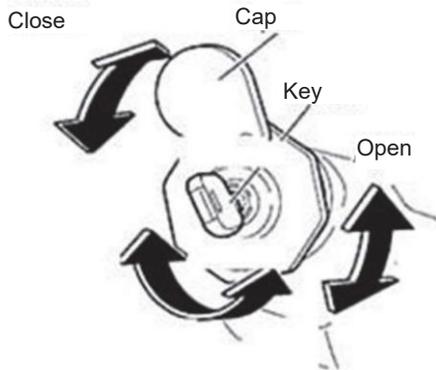


The protective cover must be opened before the fuel tank cover. The cover is opened with the fuel tank key. After filling, the tank cover is locked by turning clockwise. Under the front axle of the vehicle and just above the frame structure, a drain plug of the fuel tank is available. The plug is opened by turning and the residues are discharged from the fuel tank.



Fuel should not be filled while the engine is running. Smoking is not allowed during refueling. Otherwise, fire may occur. After refueling, the fuel tank cover must be tightly closed. Otherwise, the fuel leakage may cause fire during driving.

## Opening and Closing the Fuel Tank Cover



Remove the static electricity from your body before opening the fuel tank cover.

- Open the cover, fully insert the key and turn to the "OPEN" position.
- Turn counterclockwise to open the cover.
- Fill the tank
- Fit the fuel tank cover securely
- To lock the fuel filler cover, turn the key to the "CLOSE" position
- Pull out the key and then make sure that the fuel tank filler cover is closed securely.

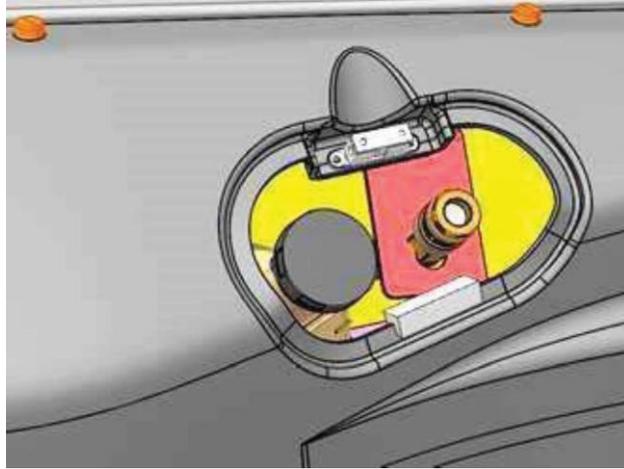
## BATTERIES



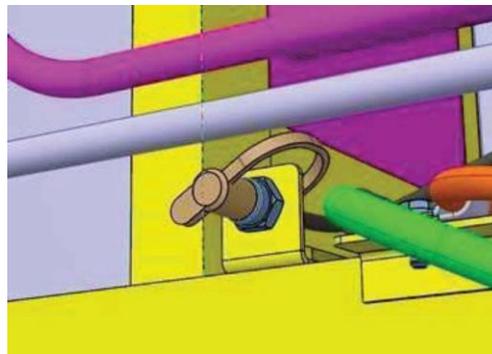
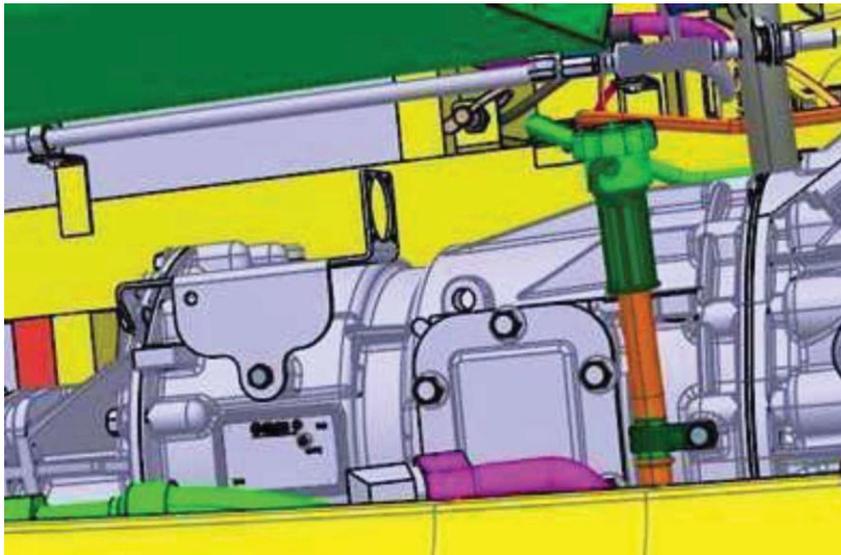
Batteries are inside the cabin at the rear of the vehicle. There are 2 batteries inside the vehicle. Each battery is 12 V and 125 Ah.

## TYRE INFLATION SET

The tyre inflation port is located at the left of the driver, on the side control panel. The cover is removed manually to reach the port.



The vehicle ventilation port is on the top front section of the transmission.

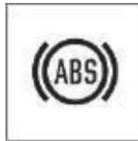


If the air pressure in the vehicle tyres is low, the tyre inflation set among from the tools is used to adjust the tyre pressure. To do this:

- Park the vehicle so as not to obstruct traffic.
- Pull the parking brake, shift the gear to neutral and start the engine. Take the tyre inflation set.
- Attach one end of the hose to the tyre valve and the other end to the air outlet. Complete the inflation process by supplying gas to the engine.

### **ANTI - LOCK BRAKE SYSTEM (ABS)**

Wheels can be locked or slid in case of sudden braking or on slippery road surfaces such as snowy roads. ABS is a device used to detect slippery conditions during braking, to prevent the wheels from slipping and to ensure vehicle's direction stability and road holding balance. ABS is only to assist in slippery conditions and will not prevent an accident if you exceed the safe driving speeds set for the road conditions. Always drive with caution.



When the starter switch is turned to 'ON', the ABS warning lamp flashes on and then flashes out after approx. 2 seconds. If the warning lamp flashes out, then the ABS is in normal condition.

If

- The ABS warning lamp flashes on during driving
- When the starter switch is turned to 'ON', the lamp does not flash on.

Contact your nearest Isuzu Authorized Service.

Even if there is a problem with the ABS, the normal brakes will continue to work properly. However, ABS will not work.

### **ANTI - SLIP REGULATOR (ASR)**

ASR helps to prevent slippage of the drive wheels and to improve vehicle motion balance when driving on snowy or otherwise slippery road surfaces. ASR is automatically activated when the engine is started. You can cancel the use of ASR by using the ASR OFF switch.



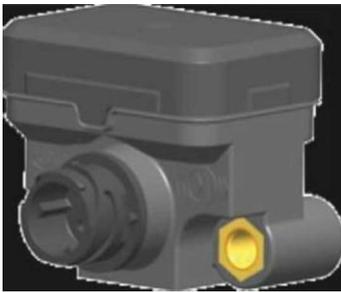
- If the ASR indicator lamp remains on while driving on a non-skidding, dry road,
- If the ASR indicator lamp flashes on (dark yellow) while driving (when the ASR CLOSE switch is not used)
- If the lamp does not flash on when the starter switch is turned to the 'ON' position, please contact the nearest Isuzu Authorized Service.

If the ASR is faulty, this will not prevent normal driving. However, ASR will not work.

## **ELECTRONIC VEHICLE STABILITY CONTROL (EVSC) (OPTIONAL)**

In the case of vehicles carrying loads and passengers, the wheel brakes can be controlled independently using electronic control during sudden maneuvers. The aim is to prevent possible accidents, such as vehicle's yawing or overturning. More reliable driving dynamics are guaranteed.

### **Angular Speed Sensor**



The speed sensor is located on the floor of the boot area near the centre of gravity of the vehicle.

The axial deflection in the vehicle is detected as momentary angular acceleration and transmitted to the brake system control unit in the form of an electronic signal. In a critical situation, the amount of deflection from the route is checked. It gives information on how to activate the stability control functions.

### **Steering Angle Sensor**



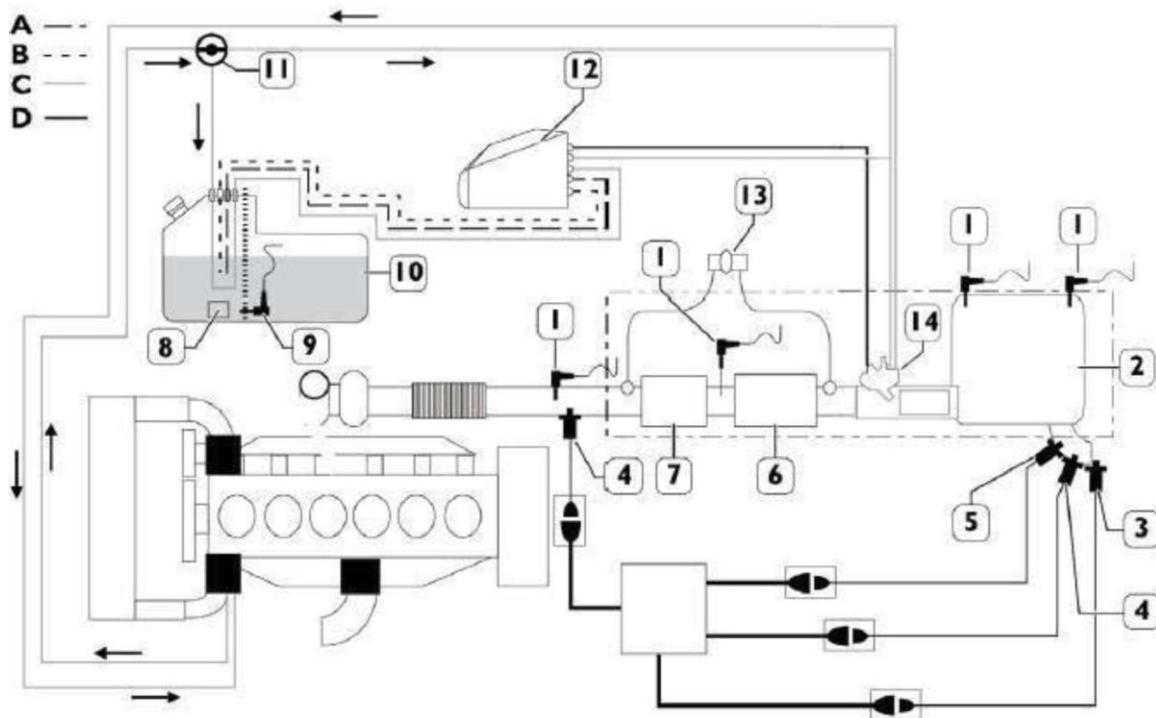
The angle sensor through the steering column is located under the signal group. It transmits the maneuver request from the driver to the brake system control unit according to the amount of turning the steering wheel. The transmitted information is sent as an electronic signal. Calibration is performed when the system is first installed to match the signal from the sensor to the angle of rotation of the vehicle.

The EVSC system will be faulty if the steering wheel is removed, installed, replaced or renewed at the front alignment adjustment. In these cases, installation must be performed at authorized services.

## DIESEL EXHAUST EMISSION FLUID (DEF) HEATING SYSTEM

The diesel exhaust emission fluid (DEF) used in the vehicle starts to freeze at  $-11^{\circ}\text{C}$ . When the temperature rises, the engine starts spraying DEF onto the exhaust system. If the fluid in the tank remains frozen while the engine is warmed up, the engine will be de-energized because DEF is not sprayed. For this reason, in cold climate conditions (at  $-7^{\circ}\text{C}$  and lower temperatures), the engine heats the DEF tank with hot water and the DEF line from the tank to the injector with the electric heater.

## EXHAUST GAS TREATMENT SYSTEM



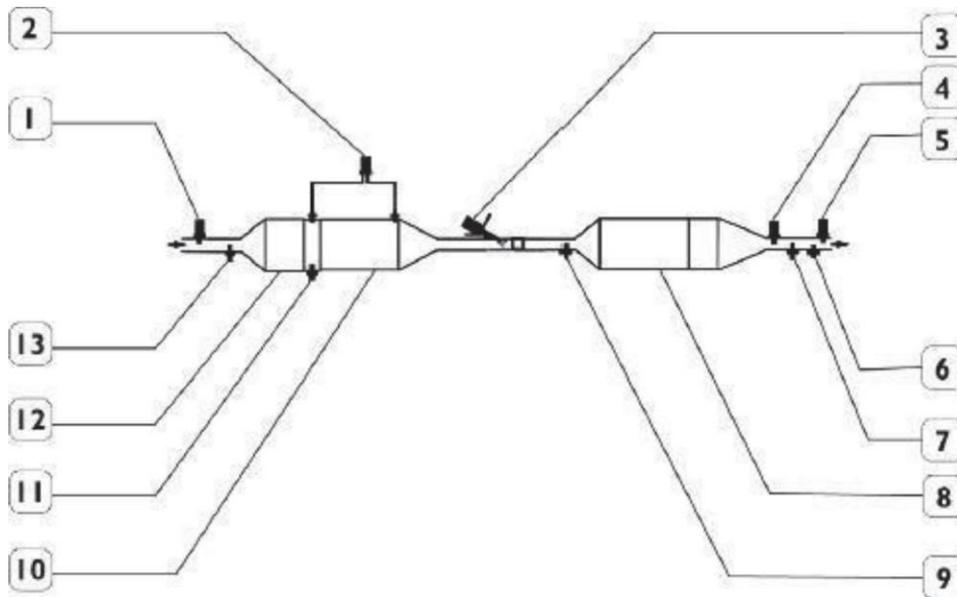
- A: DEF pump module feeder line
- B: DEF tank return line
- C: DEF system heating line
- D: DEF distribution line to the dosing module

The exhaust gas treatment system consists mainly of the following.

- DOC diesel oxidation catalytic converter (7)
- DPF diesel particulate filter (6)
- A DPF differential pressure sensor that detects the pressure difference at the inlet and outlet of the particle filter (13)
- A tank (10) for the reagent solution (water-DEF) with a level indicator (8) and a DEF quality sensor (9)
- The H<sub>2</sub>O change over valve (11)
- DEF pump module (12)
- Injection and DEF dosage module (14)

- SCR catalytic converter (2)
- Four exhaust gas temperature sensors (1): one at the DOC catalytic converter inlet and outlet (7), the other at the DPF diesel particulate filter (6) and from the catalytic converter (2) at the exhaust gas outlet pipe
- A humidity detection sensor attached to the engine air inlet tube at the air filter outlet
- Two nitrogen oxide (NOx) detection sensors (3, 4) installed upstream and downstream of the SCR catalytic converter
- The ammonia (NH<sub>3</sub>) detection sensor at the exhaust gas outlet (5)

The DEF pump module takes the reactive solution from the tank and sends to the mixing under pressure and injection module to be injected into the exhaust pipe.



1. Upstream NOx sensor flow of the SCR catalytic converter
2. DPF differential pressure sensor
3. DEF dosage module
4. Downstream NOx sensor flow of the SCR catalytic converter
5. NH<sub>3</sub> sensor
6. Particle sensor
7. SCR catalytic converter outlet temperature sensor
8. SCR catalytic converter
9. SCR catalytic converter inlet temperature sensor
10. DPF diesel particulate filter
11. DOC diesel oxidation catalytic converter outlet temperature sensor
12. DOC diesel oxidation catalytic converter
13. DOC diesel oxidation catalytic converter inlet temperature sensor

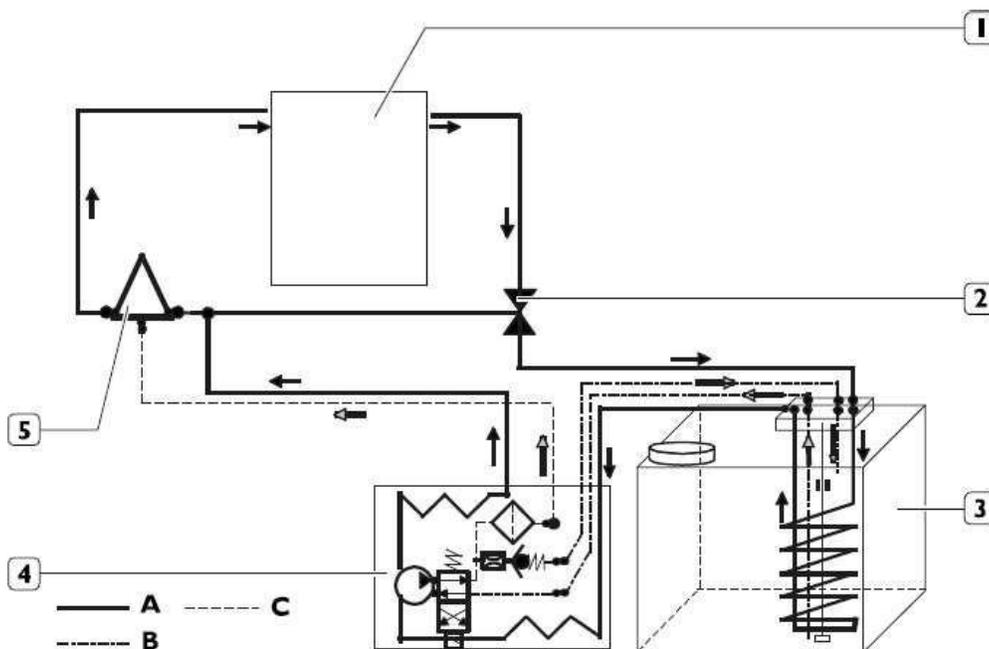
DEF is a 32.5% urea solution in demineralised water. It is fluid consumed to reduce the emission ratios of the engine.

DEF is pumped into the exhaust gases by the dosing pump. It forms during combustion and reacts with nitrogen-oxide gases being discharged and converts these gases into pure nitrogen and water. This process is called "Selective Catalytic Reduction" (SCR). The capacity of the DEF tank is 30 lt. The fluid level in the tank is constantly checked, the warning lamp on the display flashes yellow when the level decreases below a certain value. In this case it is required to complete the fluid level as soon as possible. The tank must always contain 18% fluid at least for healthy operation of the vehicle. Below this level, the engine will flash the warning light. When DEF level drops below 6%, the engine gives a fault code and cuts off the power. DEF you have purchased for efficient operation and long life of the SCR system must be certified in terms of being compliant with the DIN 70700 or ISO 22241-1 standards. Adhering to these standards guarantees that the fluid has the appropriate purity and concentration (32.5%). No additive should be added to the DEF.

### Exhaust gas treatment system heating/cooling

The system has two functions:

- Continuous cooling of the DEF dosage module
- DEF tank, DEF feeding module and DEF pipes heating



- A: Engine coolant
- B: DEF
- C: Cooling fluid circuit
- I: Engine
- 2: Diverter valve
- 3: DEF tank
- 4: DEF feeding module
- 5: DEF dosage module

The system is equipped with a heating circuit (DEF freezes at -11 °C) to adjust the DEF temperature and prevent the risk of freezing. The diverter valve allows a portion of the engine coolant fluid to pass into the coil inside the DEF tank and then into the DEF feeding module. The system heats the pipes and the tank when the engine is started; the DEF measurement is only enabled when there is no frozen DEF remaining in the system.

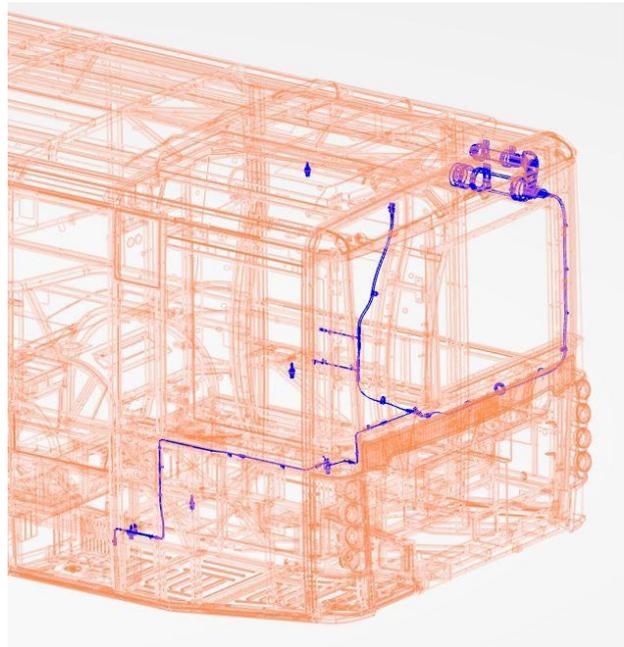
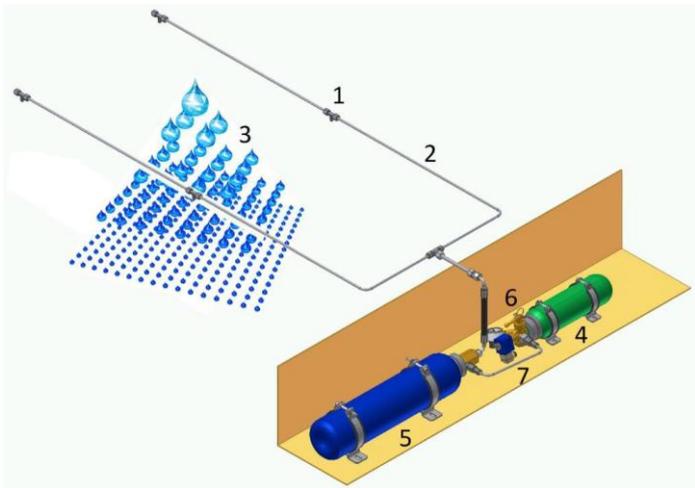
The DEF dosing module is connected to the engine cooling circuit and is cooled continuously.

**REGENERATION**

Regeneration is the burning process performed by the system for the particles that accumulate in the DPF (diesel particle filter) system within the exhaust gas treatment system according to the amount of time period or amount of clogging. The system is capable of passive regeneration.

**Passive regeneration:** It is a particle burning process that is performed when exhaust gases reach high temperatures under normal use conditions.

**ENGINE COMPARTMENT FIRE DETECTION AND AUTOMATIC FIRE SUPPRESSION SYSTEM (FIREDECT-OPTIONAL-1)**



| No | Name   |
|----|--|
| 1  | High pressure (20MPascal/200bar) water mist nozzle                           |
| 2  | High-pressure stainless-steel pipe system                                    |
| 3  | Extinguishing Agent (Temper S-30) as 50 µ droplets                           |
| 4  | Nitrogen pressure bottle   |
| 5  | Temper S-30 Water + agent bottle   |
| 6  | Mechanical pressure valve for manual actuation (optional / not all models)   |
| 7  | Electric pressure valve (coil and solenoid valve), pressure gauge (optional) |

This is a system which consists of a pressure fire detection hose and fire spout nozzles which pass from the areas where a fire may occur in the engine room. There are 2 tanks in the system, one is the nitrogen tank which provides the detection of fire, and the other one is the fighting tank in which there was fireextinguishing fluid. Illuminated and audible lights alert during the fire detection.

Fire suppression system uses water as the extinguishing agent. The water is atomized at a high pressure of at least 160 bars at the nozzles. The pressure energy is used to split the water into small droplets of 50 $\mu$  with an extremely large surface area for cooling and provides these droplets with sufficient kinetic energy to bring them rapidly to the protected area. During fire extinguishing, the fire extinguisher is sprayed from nozzles which reduce the temperature, cut contact with air and convert them to columnar smoke clouds. The fire extinguisher is mainly antifreeze water based. Extinguishing time is between 3 - 5 seconds at normal but the effective time is 50 - 75 seconds.

## **WARNING**

In case of fire;

- Stop the engine.
- Empty the vehicle.
- Turn off the current.
- Keep the bonnet closed at least 5 minutes.
- Use a portable fire extinguisher if needed.
- Connect with the authorized Isuzu Dealer.

## **WARNING**

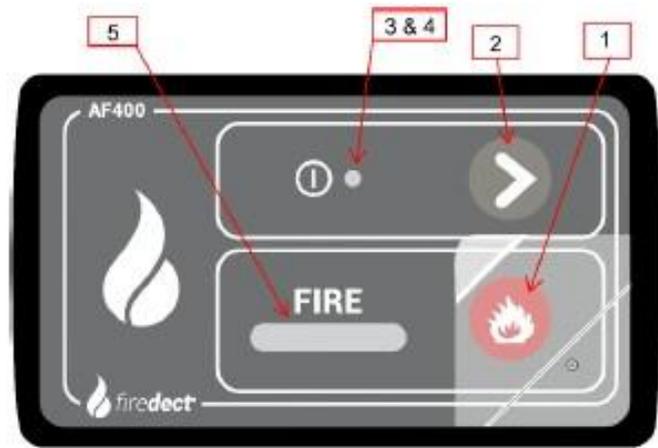
The following operations should be performed when the fire extinguishing system activated because of a reason other than fire and the tanks emptied:

- Wash all component surfaces with water in order for the parts in the engine room effected by the system not to corrode.
- Wash inside of the pipes and nozzles by giving water to the fire extinguishing piping system, but if it was too late for this, remove the nozzles and clean nozzles and pipes with water. Replace the nozzles if required.
- Insert protection covers to nozzles again.
- Activate the system again by mounting filled tanks.

## FIRE DETECTION THE CONTROL UNIT

It integrates the control unit and the display / HMI in one single device only.

| No. | Name          |
|-----|---------------|
| 1   | Fire Button   |
| 2   | Action Button |
| 3   | Green Led     |
| 4   | Yellow Led    |
| 5   | Red Zone Led  |



### Fire Button

#### WARNING

- Press only in emergency.

Press the fire button to activate immediately the suppression system manually.

#### CAUTION

- The fire button is protected by a plastic cab which has to be replaced every time the firebutton is actuated.

## Action Button

Normal operational mode:

- Short press has no functionality.
- Long press will start the LED & Alarm self-test.

Warning/diagnosis mode:

- Short press
  - First press will silence/mute the warning signal.
  - Every further press will show you the “Fault Display” (blink codes). If there is at least one error.
- Long press will reset the warnings. (The resets will only be reset if you are in the “Fault Display”).

Alarm mode:

- Short press will delay the activation by 15 seconds.
- Long press will silence/mute the alarm

## Green Led

Blinking:

- The control unit is booting.

Blinking slowly:

- The control unit is in the emergency current mode.

Constantly:

- The control unit is on normal operational mode.

## Yellow Led

Warning/Diagnosis mode:

- Blinking
  - There was a warning, but it has not yet been queried.
- Constantly
  - There is currently a warning.

## Red Zone Led

Fire in zone X detected. The suppression system is automatically activated.

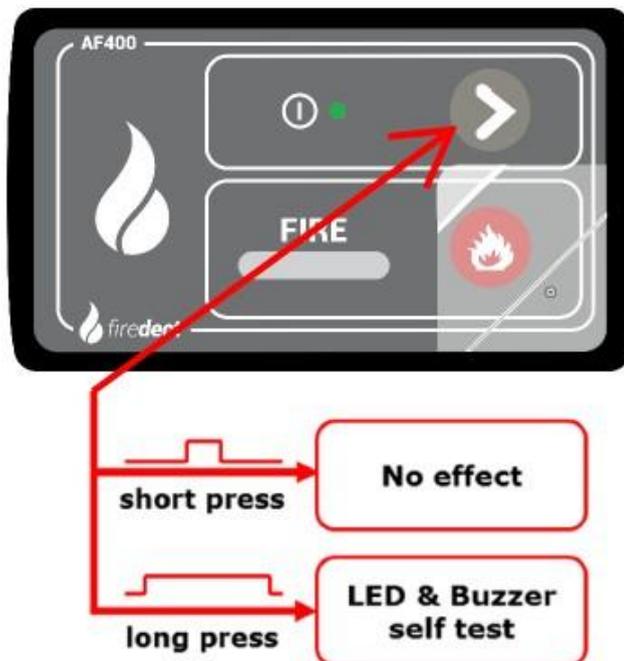
- Blinking  
Alarm countdown for activation.
- Constantly  
Alarm activated.

## Starting The Control Unit

When the control unit is connected to the power source, the green led will flash for 20 seconds, showing that the control unit is in boot loader. After leaving the boot loader, all leds will flash for 2 seconds and the buzzer will also become audible. The control unit will then go into operational mode recognizable by the glowing green led. If any of the monitored zones is not operational when the control unit is booted, the yellow alert led and zone led will flash and the buzzer will sound. In this event, the suppression system will not be activated. The zone can be checked, and if operational, the alerts will reset to normal state.

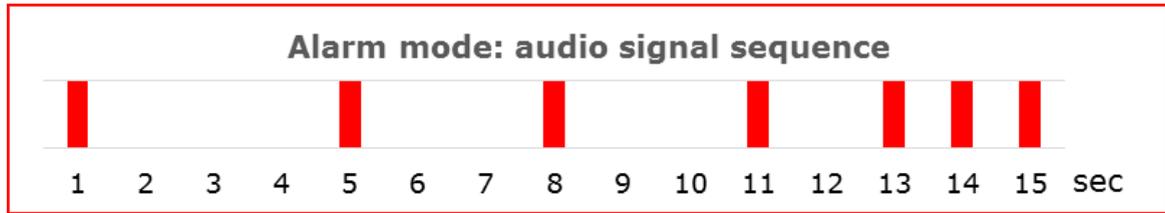
## Normal Operational Mode

In normal operational mode, the control unit will monitor all three (3) zones for fire. Along press of the action button while the control unit is in normal operational mode will cause the buzzer to sound and all leds will light up.

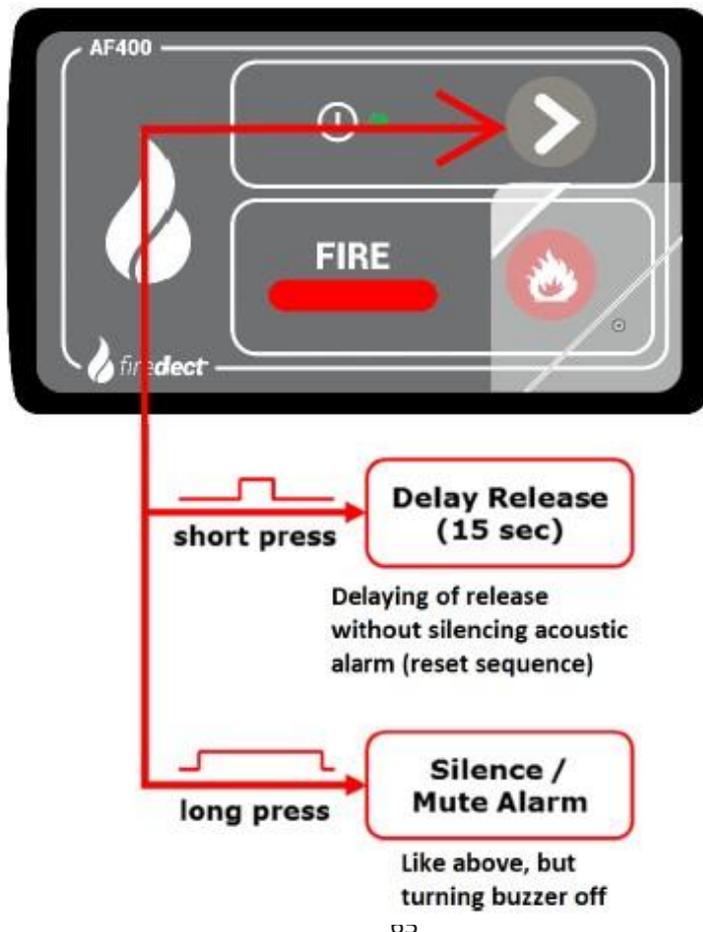


## Alarm Mode

If a fire is detected in any of the zones, the zone led will start to flash and the buzzer will sound. The flashing and beeping will continue to get faster until the suppression system is activated.

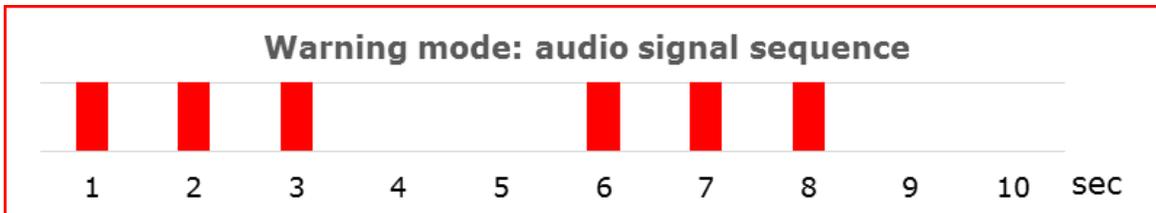


If the suppression system is active the led will flash constantly as well as the buzzer beeps constantly. There is a 15 second delay on activation, and the system is activated for 3 seconds. The alarm can be muted by pressing the action button for 0.8 seconds. Pressing the action button for less than 0.8 seconds will reset the delay in activation to 15 seconds. If a fire is detected in another zone, the timer will not be reset to 15 seconds. After the initial delay, the suppression system in Zone 1 will be activated for 3 seconds, followed by Zone 2 for 3 seconds. If the fire button is pressed, the suppression system for the zones will be activated for 3 seconds one after another.



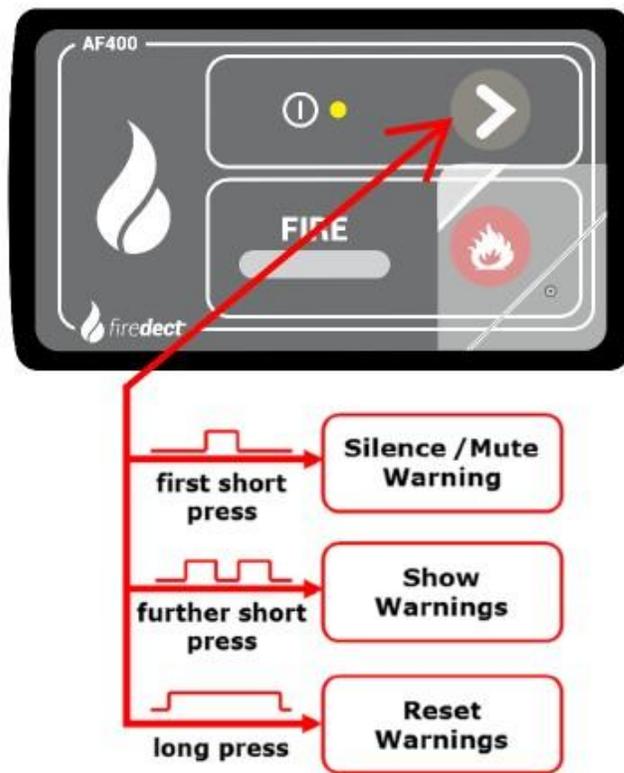
## Warning / Diagnosis Mode

If any warning occurs, the yellow led will flash and the alarm will beep 3 times every 5 seconds (in the emergency current mode: 3 times every 10 seconds).



A short press on the action button will silence/mute the acoustic warning signal. Every further press of the action button for less than 0.8 seconds will cause the control interface to show an error codes this will not work in alarm mode. A long press on the action button while showing the error codes will reset all error codes.

| # | Error - operational   | Z1  | Z2  | Z3  |
|---|---|-----|-----|-----|
| 1 | Fire-Sensor/Terminating - Resistor -> bad value               | 0   | 1   | 0   |
| 2 | Low-Pressure  | 0   | 2   | 0   |
| 3 | Defect in Valve-Connection                                    | 0   | 3   | 0   |
| 4 | Low Battery-Voltage   | 0   | 4   | 0   |
| # | Error - boot  | Z1  | Z2  | Z3  |
| 1 | Fire-Sensor/Terminating - Resistor -> bad value/not connected | On  | Off | Off |
| 2 | Low-Pressure/not connected                                    | Off | On  | Off |
| 3 | Defect in Valve-Connection                                    | Off | Off | On  |
| 4 | Fire Alarm  | On  | On  | On  |
| 5 | Wrong Battery   | Off | Off | Off |



**ENGINE ROOM FIRE DETECTION SYSTEM AND CONTROL UNIT (FOGMAKER-OPTIONAL-2)****Control Module****In Case Of Alarm - Fire**

Red motor fire symbol/red lamp flashes red.

Alarm siren gives repeating acoustic signal.

Fire alarm signal – bus manufacturer's system:

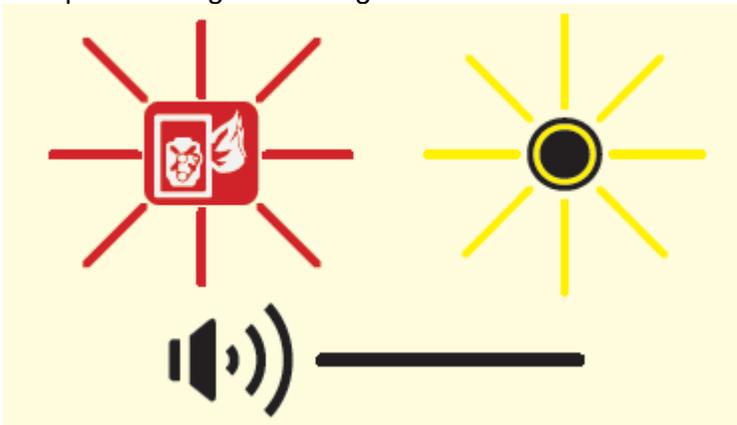
See bus manufacturer's manual.

Do not start the vehicle until the cause of the fire has been established and rectified!

Clean up the engine compartment as soon as possible to prevent corrosion on metal parts and unwanted flash-overs in the electrical system. Hose down with water, preferably at high-pressure. Alkaline washing agents can be used. See also the manufacturer's recommendations for washing the engine compartment.

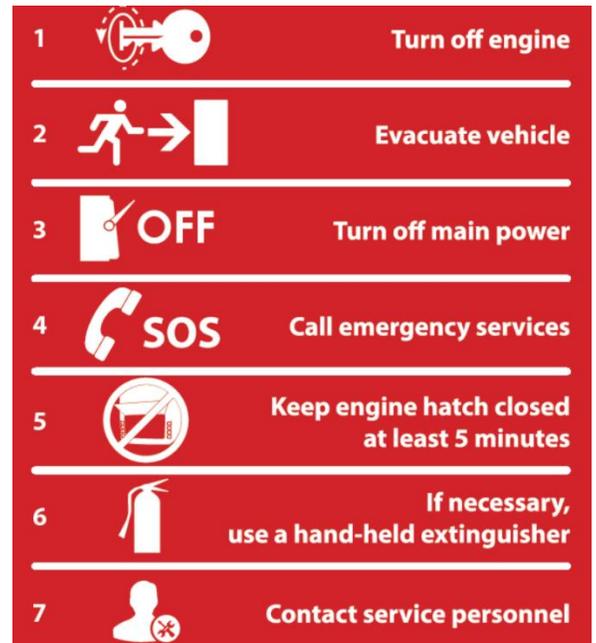
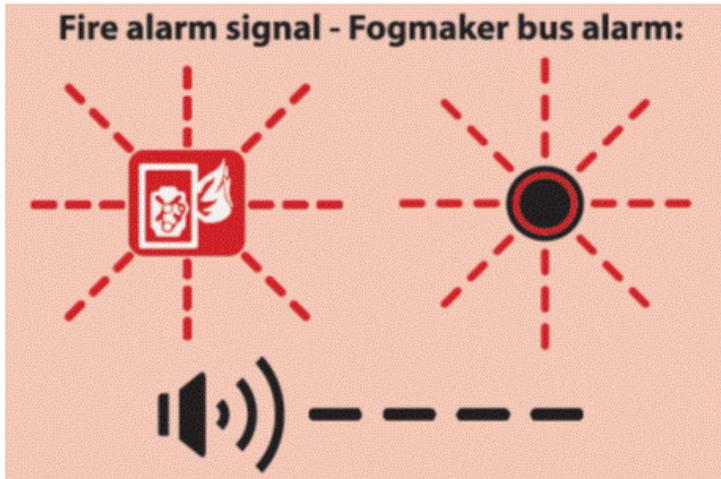
**Engine wash after fire**

Low pressure signal with fogmaker bus alarm:



- Red engine fire symbol/yellow lamp lights constantly
- Alarm siren sounds constantly.
- Low pressure signal- bus manufacturer's system:
- See bus manufacturer's manual.
- Contact the nearest authorized service.

## In Case Of Alarm – Fire

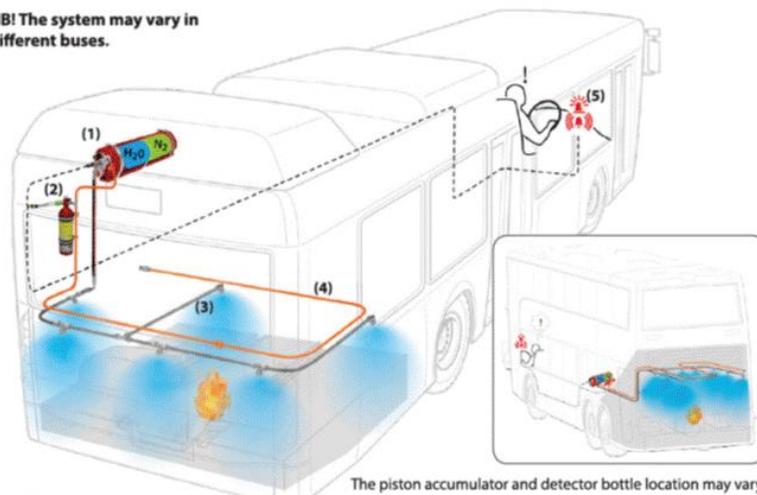


## Overview, Fogmaker's Fire Protection System

This bus fitted with a fully automatic fire protection system for the engine compartment  
The system comprises:

- Piston accumulator (1)
- Detector bottle (2)
- Pipe system with nozzles (3)
- Detector tube (4)
- Fogmaker bus alarm with acoustic and light signals or alternatively manufacturer-specific alarm panel (5)

**NB!** The system may vary in different buses.



The piston accumulator and detector bottle location may vary.

## Routine Maintenance

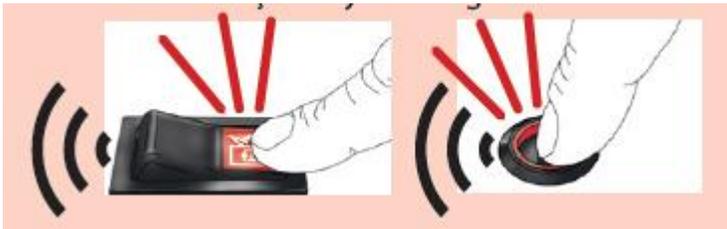
Pressure switch installed: Check that lamps indicating low pressure are not alight on the bus alarm button.

Pressure switch not installed: Make sure the pressure in the piston accumulator is within the green zone on the pressure gauge.

Test the alarm before starting the day's work..

Alarm test with the Fogmaker bus alarm:

- Press down the button- two variants, see below:
- Check that there are both a sound and light signal.

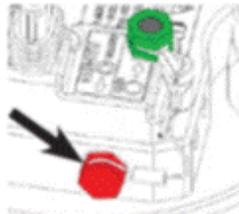


Alarm test – bus manufacturer's system:

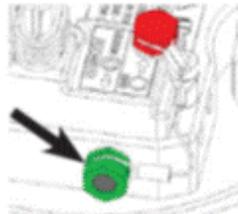
See bus manufacturer's manual.

### Quick-guide for piston accumulator and detector bottle

Piston accumulator: 100-105 bar at 20°C



**Red safety screw**  
mounted in the side of the valve **isolates the system**  
- done before all handling

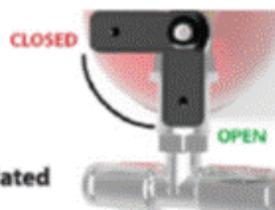


**Green screw** mounted  
in the side of the valve **unlocks the system** so  
it can deploy

Detector bottle: 20-24 bar at 20°C



The detection system is **isolated**  
by **closing the ball valve**:



## DRIVER SUPPORT SYSTEMS

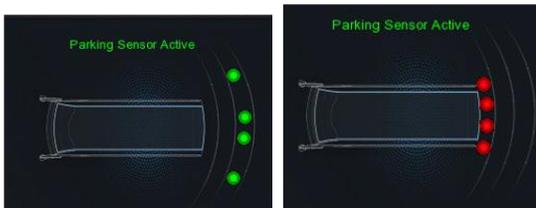
### REVERSING DETECTION

When the vehicle is put into reverse gear and an object is detected near the rear of the vehicle across the width of the vehicle, the driver is informed about the detected objects thanks to the sensors built into the vehicle bumper.

#### Optical signal & Acoustic signal

- The system is activated when the ignition key is turned on and is activated when the vehicle is put into reverse gear. When the sensors detect an object behind, the optical signal gives a warning as follows, accompanied by the acoustic signal.

#### Parking Sensor Active, Sound On



- Disabling the acoustic signal to avoid disturbing it is done via the menu. In this case, the following image will appear on the screen.

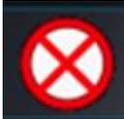
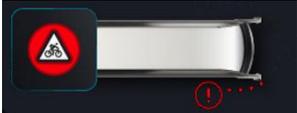
#### Parking Sensor Active, Sound Off

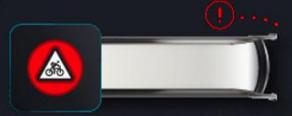


- The system will switch off automatically when there is a situation that prevents the system from working. When it switches off, the system is shown as off on the instrument panel. The system cannot be deactivated as there is no malfunction.

#### In case of parking sensor error;



|  |  |
|--|--|
| Vehicle  | NOVOCITI LIFE  |
| Function   |  |
| ISA active   |    |
| ISA deactive   |    |
| ISA Faiure Warning Signal  |   |
| ISA Faiure Warning Signal<br>no communication gps or camera &<br>Mulfunction Warning - |  |
| ISA Faiure Warning Signal<br>communication with only camera or gps                     |  |
| BSIS Collusion Warning Signal  |  |
| MOIS Information Signal  |  |
| MOIS Warning Signal  |  |

|   |  |
|---|--|
| <p>BSIS/MOIS/PLCA Failure Signal<br/>BSIS Automatic Deactivation<br/>MOIS Manual &amp; Automatic Deactivation<br/>BSIS/MOIS/PLCA Deactivation</p> |    |
| <p>LDWS Activate</p>  |    |
| <p>LDWS Malfuntion and Deactivation Signal</p>  |    |
| <p>LDWS Lane Departure Warning</p>  |    |
| <p>AEBS Collusion Warning Signal</p>  |  |
| <p>AEBS Malfuntion and Deactivation Signal</p>  |  |
| <p>PLCA Warning Signal</p>  |  |
| <p>DDAW Warning</p>   |   |
| <p>DDAW Deactivated &amp; Malfuntion Warning</p>  |   |

|                             |  |
|-----------------------------|--|
| Cyber gateway secure        |   |
| Cyber Gateway Not Secure    |  |
| Cyber Gateway Not available |   |

### **TPMS(Tire Pressure Monitoring System)**

- Tyre pressure information is transmitted to the driver.

The TPMS warning should illuminate in the following situations.

- Amber if any tyre pressure is 10% below the nominal pressure, red if it is 20% below the nominal pressure,
- If any tyre pressure is more than 25% above the nominal pressure,
- When a tyre without a sensor is fitted,
- When the sensor battery level is low

### **ISA(Intellegent Speed Assistant)**

- The function works in conjunction with GPS and the camera.
- The driver is informed of the speed limit on the route.
- When the specified speed limit is exceeded, the driver receives a visual and acoustic warning.

### **LDWS(Lane Departure Warning System-Option)**

- At speeds above 60 km/h, the system provides visual and acoustic warning to the driver in case of lane violation.

### **MOIS**

- The function only gives cyclist and pedestrian warnings.
- The function is active when the vehicle speed is between 0-15km/h.
- The functions do not work when the vehicle is in reverse gear.

When objects enter the radar scanning area;

- Parallel moving object speed 2-7km/h,
- The speed of the vertically moving object should be in the range of 0-12km/h.

### **BSIS**

- The warnings are activated when the object and the vehicle are travelling in the same direction.
- The function is activated when the vehicle speed is between 0-30km/h.
- Collision warning is not activated when the vehicle is stationary.
- The functions do not work when the vehicle is in reverse gear.

When objects enter the radar scanning area;

- Cyclist speed 5-20km/h,
- Pedestrian speed should be between 2-20 km/h.

### **LCDA(Side Lane Vehicle Warning)**

- The function warns of vehicles (car, motorbike, lorry, etc.) approaching from behind in the side lane.
- LCDA warning warns when the specified objects are travelling in the same direction as the vehicle.
- The minimum vehicle speed required for the function to be activated is 43 km/h.

The speed limits required at the target object for the function to be activated;

- Minimum target vehicle speed 21km/h,
- Minimum relative speed -22km/h (example: vehicle speed 43km/h, target vehicle speed 21km/h)
- The maximum relative speed should be 36km/h (example: vehicle speed 50km/h, target vehicle speed 86km/h).

## **5. SERVICE AND MAINTENANCE**

## CLEANING VEHICLE

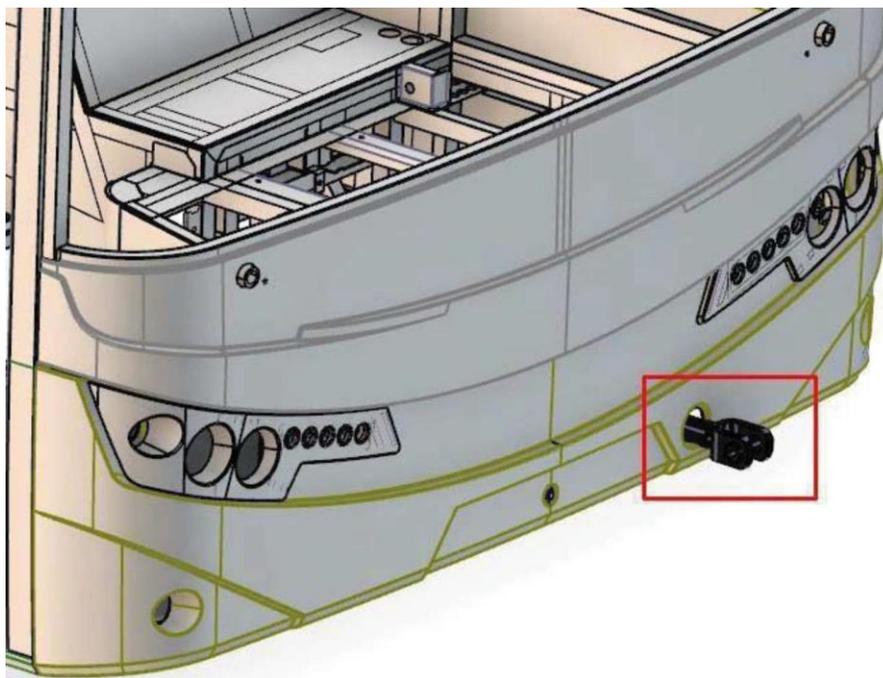
### Exterior Cleaning

- Do not clean your vehicle with detergents and chemicals, do not wipe with gasoline.
- Use pressurized water to clean the vehicle (except for the engine compartment), make sure that there is no water on the vehicle after cleaning, remove excess water with a cloth or chamois.
- Do not wash your vehicle under direct sunlight.
- Keep the interior of the fenders clean during the winter season.
- Use only soap and water when cleaning the air bellows.

### Interior Cleaning

- Clean the instrument panel with a damp cloth, do not use substances such as alcohol or thinner.
- Clean the seats with a damp cloth or a foamed artificial leather cleaner.
- Wipe the passenger floor with a wet mat and then dry.

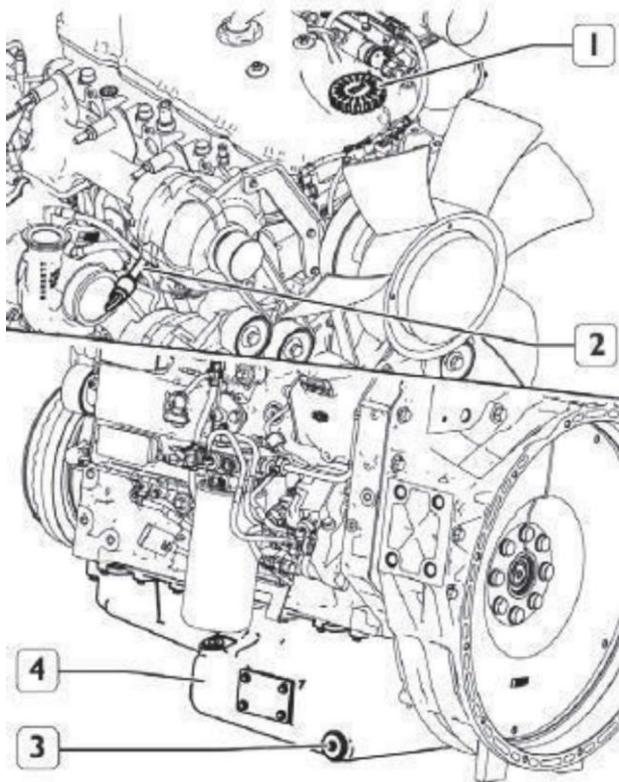
## TOWING VEHICLE



- Open the towing hook cover at the front bumper.
- Take the towing hook inside the toolbox.
- Screw the towing hook firmly into the slot in the chassis and make sure it is fitted.

## REPLACEMENT OF ENGINE OIL

To replace the engine oil:



- Place a container under the oil tank (4) to take out the oil
- Loosen the oil drain plug (3), pull the oil dipstick (2), remove the oil filler cover (1)
- Wait until the oil tank (4) is completely drained, then tighten the oil drain plug (3) ( $45 \pm 5$  Nm of torque)
- Switch to oil filling, using the dipstick (2), check that the oil level is between 'MIN' and 'MAX'.
- Tighten the oil filler cover (1).



Use the appropriate engine oil specified in the 'Oil and Fluid Specifications' section.

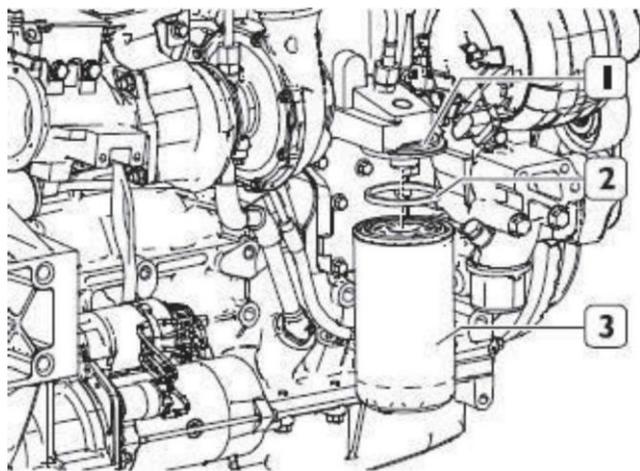
## Fluid Level Check

The engine must be stopped and be cold before checking the oil level.

For oil level check;

- Pull the oil dipstick
- Wipe it with a clean cloth
- Place the stick and pull again
- Check the oil level
- If oil level is insufficient, add oil.

## REPLACEMENT OF OIL FILTER



- Place a container under the filter support (4) to take out the oil
- Loosen and remove the filter (3) from the support to which it is attached
- Place the filter element and the sealing gasket (2) inside the filter
- Carefully clean the surface of the support.
- Slightly cover the sealing ring (2) of the new filter (3)
- Tighten the new filter (3) until it gets in contact with the sealing ring (2) (with  $20 \pm 2$  Nm torque)
- Run the engine for a few minutes, check the oil level using the oil dipstick

## ENGINE COOLING SYSTEM

Engine cooling system ensures that the engine operates efficiently by keeping the engine at a suitable temperature range and prevents wearing of the engine parts by maintaining proper oil viscosity.

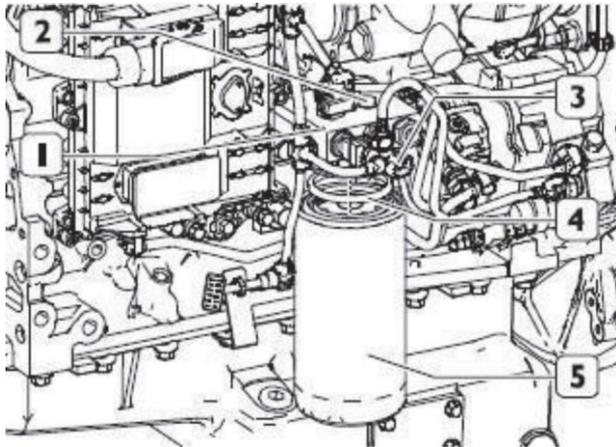
The system also cools the transmission. It meets the hot water requirement of the cabin heating system and heats the DEF tank at very low temperatures. The coolant used in the cooling system is a mixture of 50% water and 50% antifreeze. The freezing point of this mixture is  $-36^{\circ}\text{C}$  and the boiling point  $+108^{\circ}\text{C}$ . No additives shall be used in the coolant.

## ENGINE COOLING, HEATER AND AIR CONDITIONING SYSTEMS LINE FILLING AND AIR RELIEF

1. Park the vehicle on a flat surface.
2. Open the top and side covers of the expansion tank.
3. Start filling the engine coolant with a mixture of 50% antifreeze and 50% water from the cover on the side of the expansion tank.
4. When the expansion tank is full, stop filling. Before starting the engine, wait for 1-2 minutes to allow a natural discharge of the air entered into the system and balancing the coolant levels. Then add water to the tank again.
5. Start the engine and open the three-way valve manually.
6. While the vehicle is running, keep on to add engine coolant to the expansion tank up to the maximum level.
7. When the engine is running cold, increase the engine speed gradually to ensure that sufficient oil is supplied to the engine bearings and the oil pressure is stable.
8. For air evacuation, run the engine at high idle speed and vent the air from the air relief valves on the cabin heater (the system air must also be discharged from the air relief valves on the cabin heater).
9. It takes about 15 minutes to discharge all the air in the heating system. Make sure the air relief is complete and close it.
10. Start the engine again and run at high idle speed until the coolant temperature reaches the thermostat opening temperature. The radiator grille can be covered with a cloth (linoleum, etc.) for reaching higher temperatures faster.
11. After the engine coolant temperature reaches the thermostat opening temperature ( $80-95^{\circ}\text{C}$ ), the engine should be run at this temperature for a further 5 minutes at high idle speed.
12. Allow the parts such as piston, cylinder, bearing and turbocharger to cool down sufficiently by running at low idle speed for 1 minute before starting the engine.
13. Close the engine and keep on to add engine coolant to the expansion tank up to the maximum level.

14. Restart the engine at high idle speed, raise the engine coolant temperature to the thermostat opening temperature value which is 80-95°C and hold for 1 minute at this temperature level.
15. Allow the parts such as piston, cylinder, bearing and turbocharger to cool down sufficiently by running at low idle speed for 1 minute before starting the engine.
16. Switch off the engine and add coolant to the expansion tank, if possible. If more than 1 litre of coolant can be added to the system, repeat the procedure from article 14.
17. During filling and air relief, check for any coolant leakage in the installation and main parts.
18. It is the responsibility of the customer to check the level of the coolant on a daily basis and if necessary to fill it.

## REPLACEMENT OF FUEL FILTER



To replace the fuel filter:

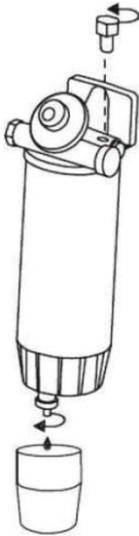
- Place a container under the filter support (I) to take out the oil
- Loosen and remove the filter (5) from the support to which it is attached
- Replace the filter element and the o-ring (4)
- Carefully clean the surface of the support (I) that contacts with the o-ring (4).
- Cover the o-ring (4) of the new filter with oil (5)
- Tighten the new filter (5) until it gets in contact with the seal (4) (with  $20 \pm 2$  Nm torque)

## FUEL WATER SEPARATOR

The fuel water separator is located in the upper right section when the rear engine cover is opened. Its function is to separate the water in the fuel and ensure that there is only fuel remaining inside the system.

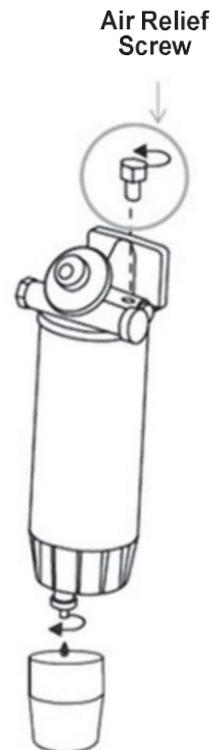
### Fuel Water Separator Filter Element Replacement

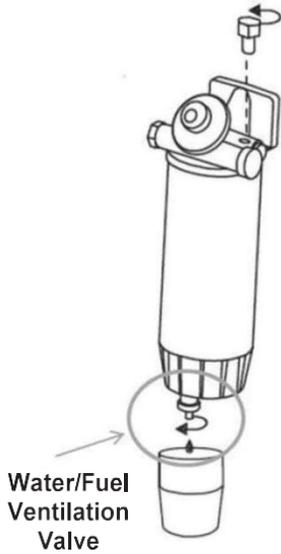
#### 1. Discharging the Filter



The filter and the fuel line of the vehicle must be isolated from each other.

The air relief screw in the filter head must be opened. (After discharging, the relief screw must be tightened again, tightening torque should be 2.26 Nm and 3.39 Nm.)

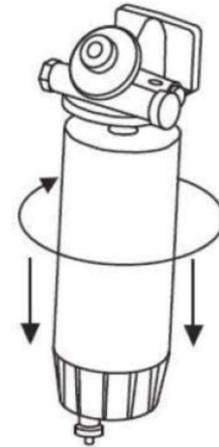




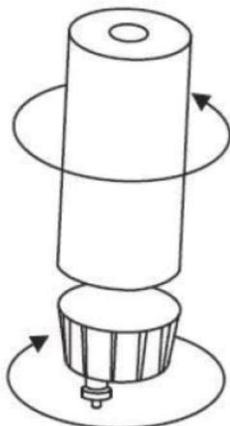
After the filter has been isolated from the fuel line, relief valve on the water tank must be rotated and all the fuel/water mixture in the filter should be drained.

## 2. Removing the Filter Element

After the filter is fully discharged, the filter element must be removed together with the water tank. It is convenient to rotate it through the water tank while using an auxiliary tool.



## 3. Separation of the Filter Element and the Water Element



Separate the filter element from the water tank. Since it is reusable, do not throw away the water tank; you can fit it to the new item once you clean it.

4. Installation of the New Filter Element and Water Tank

Be sure to change the gasket on the water tank before combining the filter element and the water tank. Always lubricate the gasket with engine oil before attaching the appropriate gasket to the water tank supplied with the filter element.

**Warning: No grease should be used when greasing the gaskets.**

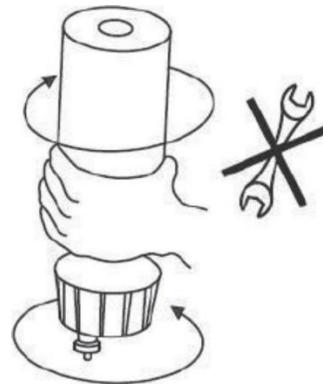
Be sure to change the gasket on the water tank before combining the filter element and the water tank. Always lubricate the gasket with engine oil before attaching the appropriate gasket to the water tank supplied with the filter element.

**Warning: No grease should be used when greasing the gaskets.**

5. Installation of the New Filter Element and Water Tank

No hand tool should be used while the filter element and water tank are connected. It would be sufficient to mount the two pieces together with a manual tightness.

**You may damage the filter element when you operate with a hand tool or when you fix it on the clamp.**



6. Installation of the New Filter Element and Water Tank to the Filter Head

Be sure to change the gasket on the water tank before combining the filter element and the filter head. Always lubricate the gasket with engine oil before attaching the appropriate gasket to the filter element supplied with the filter element.

**Warning: No grease should be used when greasing the gaskets.**

When the filter element and the filter head are combined, it will be sufficient to mount the two parts hand-tight without using a hand tool. If it is desired as the last operation, the filter must be rotated again 180 degrees from the water tank by hand tool.

**You may damage the filter element when you operate with a hand tool or when you fix it on the clamp. Always use the hand tool from the water tank.**

## 7. Feeding of Fuel to the System with Hand Pump

After the filter element is changed and the filter head is installed properly, the air formed in the system must be discharged. The hand pump must be pressed after the air vent screw is opened.

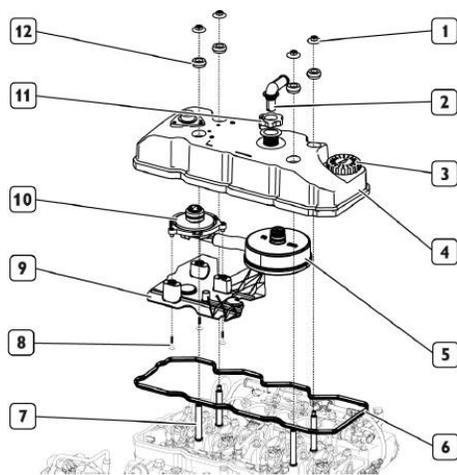
When the hand pump on the filter head is pressed, fuel starts to fill in the filter, and during this time, the air inside the filter element and the water tank is discharged from the place where the relief screw is located.

## 8. Closing the Air Relief Screw

After the screw is closed, it will be appropriate to feed the system with fuel several times by hand pump.

**It can be observed through the water tank that the filter is filled with fuel.**

### BLOW-BY FILTER CHANGE



Only proceed with the engine stopped and at low temperature, in order to avoid the risk of burning.

1. Unscrew the nut-hexagonal with flange (1) by the dual shank screws (7) and remove the cylinder head cover (4), recovering the gasket (6) and the spring dowels (12).

2. Unscrew the ring nut (11) and remove the breather pipe (2), rotating it to release it from the bayonet coupling.

3. Unscrew the self-locking screws (8) securing the oil deflector (9) and the control valve (10) to the tappet cover and remove it together with the filter element (5).

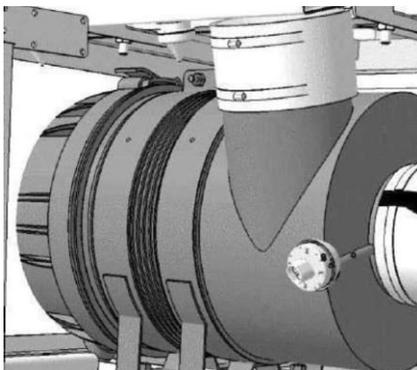
4. Replace the filter blow by element (5).

5. Assemble the control valve (10) with a new O-ring together with the filter element (5) and tighten the new self-locking screws (8) to the torque (5 Nm).

6. Partially screw the nut (11) on the filter element, insert the pipe (2) rotating it to until the filter element (5) engages with the bayonet connection. Complete the tightening of the ring nut (11).

7. Assemble the cylinder head cover (4) after replace the new gasket (6) and screw the nut hexagonal with flange (1) after replace the spring dowels on the dual shank screws (7).

## CLEANING THE AIR FILTER



The air filter can be accessed by opening the left rear filter cover.

To clean the air filter, the rubber dust valve in the bottom part is squeezed from the edges to discharge the accumulated dust.

### Air filter element

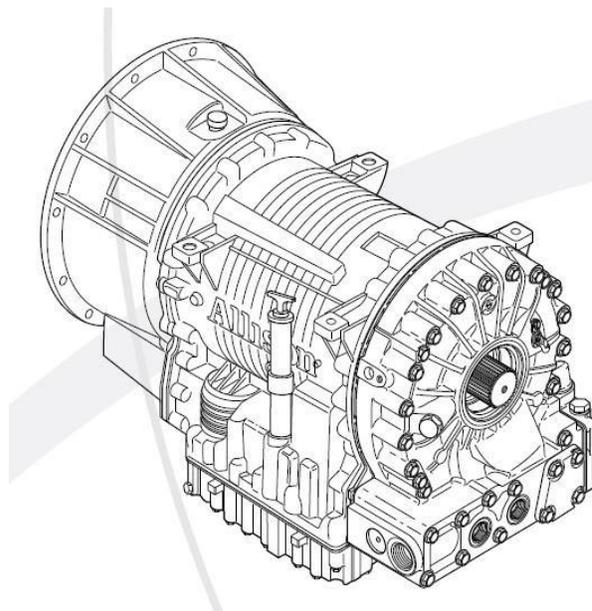
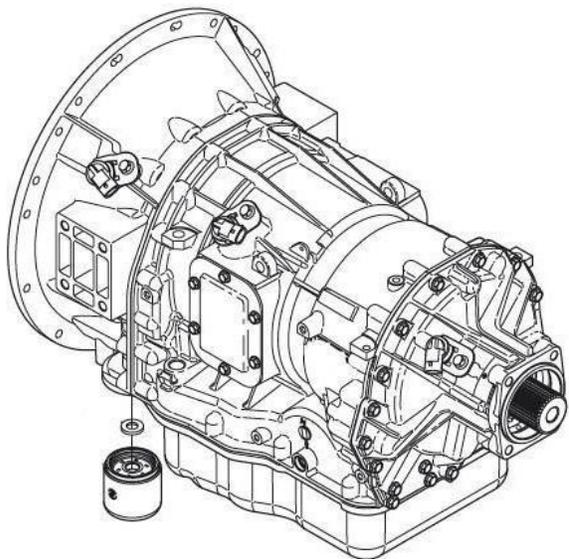
The air filter can be accessed by opening the left rear filter cover.

To clean the air filter, the rubber dust valve in the bottom part is squeezed from the edges to discharge the accumulated dust.

The air filter element must be replaced every 60000 km. To replace, follow these steps:

1. Open the lock on the cover
2. Turn the cover counterclockwise
3. Remove the cover from the frame
4. Remove filter element
5. Clean the frame and the cover
6. Install the filter element
7. Install the cover; the dust discharge valve on the cover should be in the lower position when the cover is locked.

## AUTOMATIC TRANSMISSION MAINTENANCE



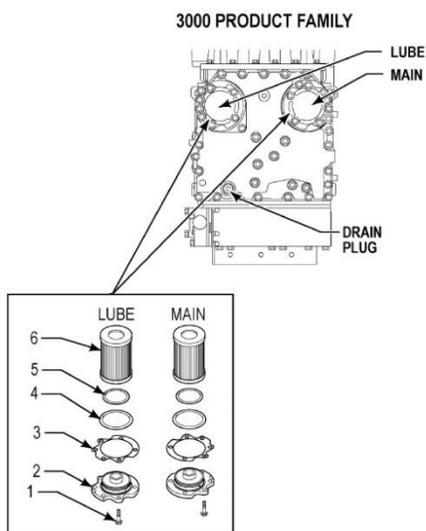
### TRANSMISSION FLUID AND FILTER CHANGE PROCEDURE

#### a. Drain Fluid

**NOTE:** Do not drain the transmission if replacing only the filters.



Avoid contact with hot fluid or the sump when draining transmission fluid. Direct contact with hot fluid or the hot sump may result in bodily injury.



**NOTE:** Torque all filter cover retaining bolts to 51-61 N·m (38-45 lb ft)  
**NOTE:** Main and Lube Filter designations cast into bottom of Control Module  
**NOTE:** O-Ring #4 is no longer included in high capacity filter kits.

1. Drain the fluid when the transmission is at normal operating sump temperature 71°C – 93°C (160°F–200°F). Hot fluid flows quicker and drains more completely.

2. Remove the drain plug from the oil pan and allow the fluid to drain into a suitable container.

3. Examine the fluid

#### Location of Filters for Service

**b. Replace Filters**

1. Remove twelve bolts (1), two filter covers (2), two gaskets (3), two o-rings (4), two o-rings (5), and two filters (6) from the bottom of the control module.
2. When reinstalling parts, lubricate and install new o-rings (4) and (5) on each cover. Lubricate o-ring inside filter (6) and push filter onto each cover (2). Install new gaskets (3) on each cover (2) and align bolt holes in gasket with holes in cover.
3. Install filter cover assemblies into the filter compartments. Align each filter/cover assembly with the holes in the bottom of the control module. Push the cover assemblies in by hand to seat the seals.



Do not use the bolts to draw the filter covers to the control module. Do not use an impact wrench to tighten the bolts. Using an impact wrench to tighten the bolts may cause stripped threads and expensive parts replacement. Use a torque wrench to tighten the bolts.

4. Install six bolts into each cover assembly and tighten to 51–61 Nm (38–45 lb ft).
5. Replace the drain plug o-ring. Install the drain plug and tighten to 25–32 Nm (18–25 lb ft).

**c. Refill Transmission**

The amount of refill fluid is less than the amount used for the initial fill. Fluid remains in the external circuits and transmission cavities after draining the transmission.

| Ambient Temperature Limit Required for Preheating |            |            |
|---|------------|------------|
| Viscosity grade                                   | Centigrade | Fahrenheit |
| TES 295   | -35 °      | -31 °      |

**Importance of the Transmission Oil**

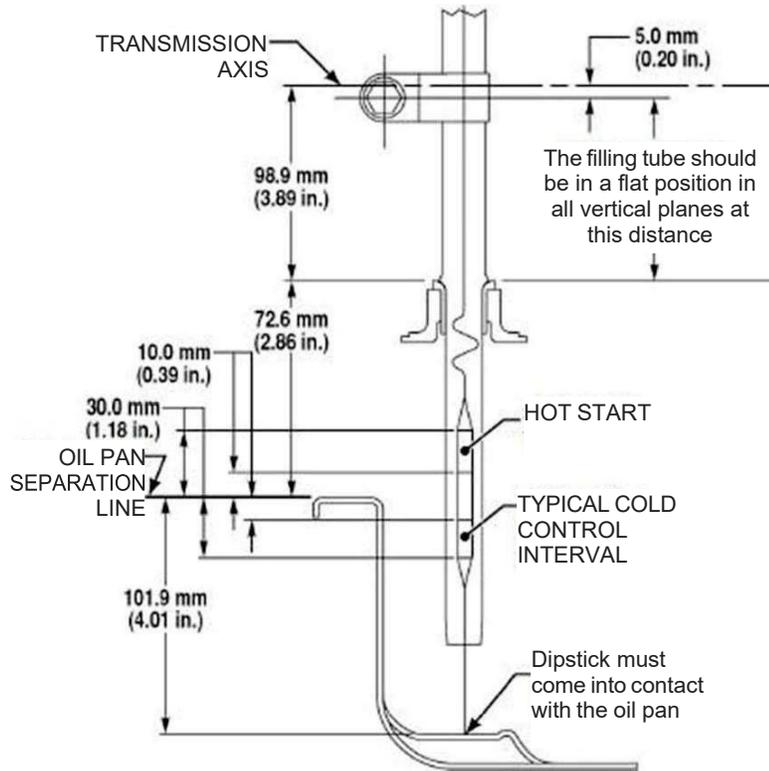
Choosing the right transmission oil is important in terms of the performance, reliability and longevity of the transmission. All oils that meet the TES 295 specification are suitable for use with this transmission.

When determining the optimum viscosity grade of the oil, the operating conditions of the vehicle, preheating properties and geographical position must also be taken into account. In very cold climates preheat the vehicle by operating it with auxiliary heating equipment for at least 20 minutes or when the vehicle is in the P(Park) or N (Neutral) position before running within the gear range.

Until the transmission fluid temperature requirements are met, gear shifts will be jerky and the torque converter clutch mode may not be reached. As the transmission reaches normal operating temperature, all gear ranges and torque converter clutch mode begin to operate.

## Transmission Oil Level Controls

### Oil Filling Tube and Dipstick



**Note:** In automatic transmissions, oil level is measured in 2 ways. Via the dipstick and via the gear selector (for models with retarder.)

### Manual Oil Control Procedure (Dipstick)

Before removing the dipstick, clean the dirt around the top of the oil filling tube. Do not allow dirt or foreign materials to enter the transmission, otherwise the transmission parts may wear out early, causing the valves to become trapped and the channels to be clogged. Check the fluid level using the following procedure.

#### Cold Check Procedure

The purpose of the cold check is to determine whether there is enough oil to run safely until a HOT CHECK can be performed in the transmission.



As the fluid temperature increases, the fluid level increases. If the transmission oil temperature is lower than the normal operating temperature, never fill the transmission above the COLD CHECK range. An overfilled transmission can overheat while running and the transmission can be damaged. Excess oil also will be thrown out from the ventilation.

- Park the vehicle.
- Put a wedge under the wheels and take all precautions to avoid the vehicle to move.
- Run the engine for at least one minute. Press the brake pedal and shift the gear first to D (Drive), then N (Neutral) and then to R (Reverse) to fill the hydraulic system. Finally, shift the gear to P (Park) or N (Neutral) position, allowing the engine to switch to idle.
- While the engine is running, remove the dipstick from the pipe and wipe it clean.
- Insert the dipstick into the pipe and then remove it and check the fluid level. Repeat the control procedure to ensure that the value is correct.
- Adjust the oil level up to the maximum level within the COLD CHECK range. After the adjustment, start to increase the oil temperature by increasing the engine speed while the vehicle is stationary or by using the vehicle in D driving mode.
- Apply HOT CHECK after it reaches 71°C - 93°C (160°F - 199°F) which is the normal oil pan temperature.

## Hot Control Procedure



The oil must be hot for a proper control. As the temperature increases, the fluid level increases.

- After the gearbox oil temperature reaches the following temperatures (you can get the oil temperature equivalent to the engine water temperature.)
  - The oil pan temperature is 71°C - 93°C (160°F - 199°F)
  - Converter output temperature is 82°C - 104°C (180°F - 219°F)
- Park the vehicle.
- While the engine is running, remove the dipstick from the pipe and wipe it clean.
- Insert the dipstick into the pipe and then take it out. Check the fluid level value. Repeat the control procedure to ensure that the value is correct.
- The safe operating level is the level inside the HOT RUN band on the level measuring stick. If the oil level does not appear within the HOT RUN range, the oil level will be added to the max. adjust the level. Oil level max. If it rises above the level, drain enough oil.

## Electronic Fluid Check

To complete electronic fluid check procedure using the pushbutton shift selector do the following:

Full Function Pushbutton

1. Park the vehicle on a level surface and shift to N (Neutral). Apply the parking brake.
2. To enter oil level display mode:
  - Pushbutton shift selector—simultaneously press the ↑ (Upshift) and ↓ (Downshift) arrow buttons once.

**NOTE :** The TCM delays the fluid level check until the following conditions are met :

- The fluid temperature is above 40°C (104°F) or below 104°C (220°F).
- The transmission is in N (Neutral).
- The vehicle has been stationary for approximately two minutes to allow the fluid to settle.
- The engine is at idle.

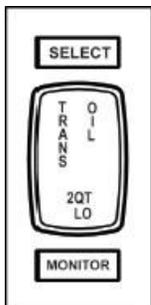
When fluid level check is delayed by the TCM, a countdown timer in minutes and seconds appears in the selector graphics display.

3. Correct fluid level.



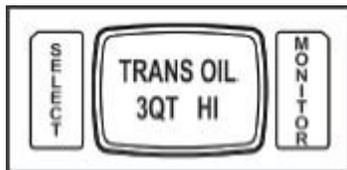
**NOTE:** The sensor display and the transmission dipstick may not agree exactly because the oil level sensor inside the transmission body compensates for fluid temperature.

4. Low fluid level is displayed and the number indicates the number of quarts of fluid the transmission requires.



**NOTE:** Confirm a low fluid level condition by making a manual fluid level check.

5. High fluid level is displayed followed by a number and the number indicates the number of quarts the transmission is overfilled.



6. To exit the oil level display mode:

- Pushbutton shift selector—press any pushbutton on the shift selector.
- Lever shift selector—press the DISPLAY MODE button twice.

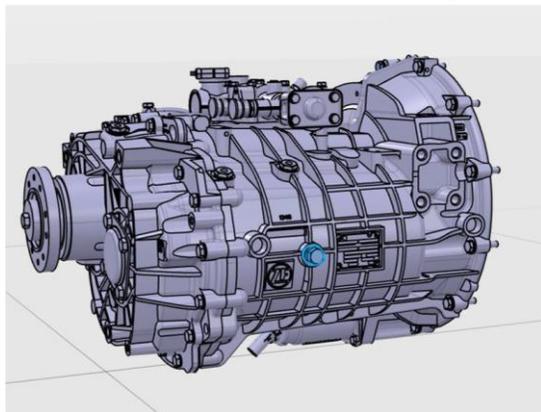
Invalid for Display Codes

Invalid for Display is activated when conditions do not allow the fluid level to be determined.

If these conditions cannot be corrected, contact the nearest Isuzu service.

| Code               | Cause of Code                 |
|--------------------|-------------------------------|
| SETTLING / X       | Settling time too short       |
| ENG RPM / TOO LOW  | Engine speed (rpm) too low    |
| ENG RPM / TOO HIGH | Engine speed (rpm) too high   |
| MUST BE / IN NEU   | N (Neutral) must be selected  |
| OIL TEMP / TOO LOW | Sump oil temperature too low  |
| OIL TEMP / TOO HI  | Sump oil temperature too high |
| VEH SPD / TOO HI   | Output shaft speed            |
| SENSOR FAILED      | Sensor failure                |

### Manuel Transmission Checking the Oil Level



1. Remove the oil level plug.
2. Check whether the oil level is up to the lower edge of the oil level plug hole. The correct oil level range is between 0 and 10 mm (0 and 0.39 in) below the bottom of the level plug hole. If the oil level is too low, add oil through the oil level plug hole.
3. Fasten the oil level plug to the specified torque (39 Nm). Also check to see if there are any transmission oil leaks

### Changing the Oil

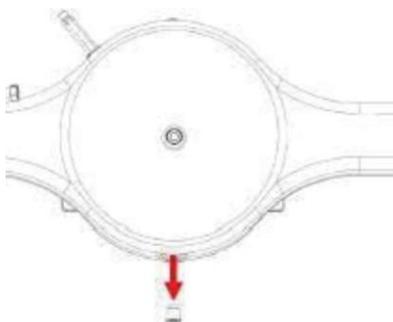
1. Place a container under the drain plug(s) to receive oil.
2. Remove both oil level plug and drain plug(s) to discharge the oil into the container.
3. After installing the drain plug(s) by tightening it to the specified torque (60 Nm), refill the transmission with new oil through the oil level plug hole up to the lower edge of the hole.
4. After refilling, confirm that the oil level is up to the lower edge of the oil level plug hole.
5. Install the oil level plug by tightening it to the specified torque (60 Nm)

### Transmission Oil Capacity

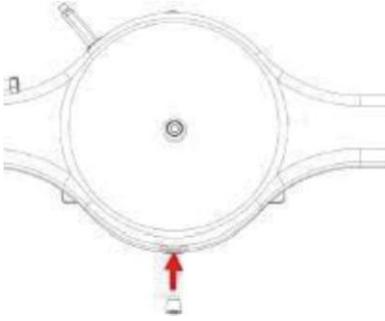
|                  |       |       |
|------------------|-------|-------|
| Without Retarder | 14 lt | 11 lt |
| With Retarder    | 29 lt | 22 lt |
| Manuel           | -     | 9 lt  |

### REPLACEMENT OF DIFFERENTIAL OIL

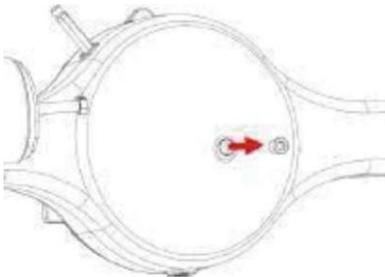
Place a bucket under the drain hole for used oil as the oil will drain when the magnetic plug is removed.



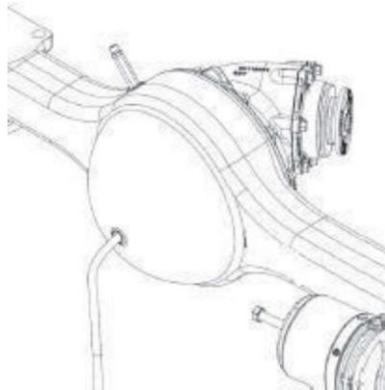
Remove the magnetic plug to drain the oil.



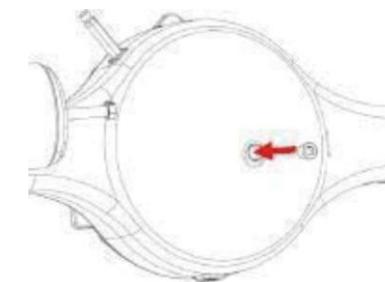
Re-install the magnetic plug, tighten with 60 Nm of torque.



Remove the plug.

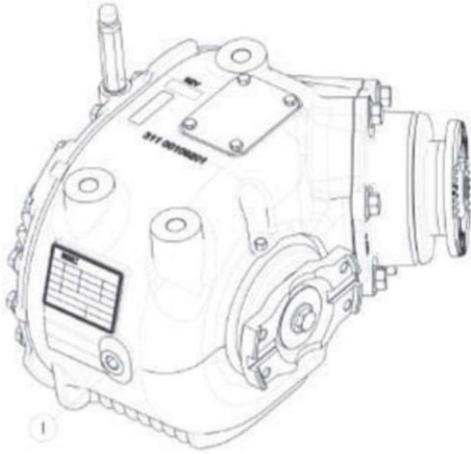


Fill in the oil. (Oil capacity: 5.7 lt)



Tighten the plug with 60 Nm of torque.

## REPLACEMENT OF ANGLE DRIVE OIL



- Unscrew and remove the oil fill and level plug (1)
- Add approximately 3 liters of oil.
- Wait for 15 minutes
- Check the oil level
- Tighten the plug with 60 Nm of torque

## CONTROL OF BRAKE DISCS AND LININGS



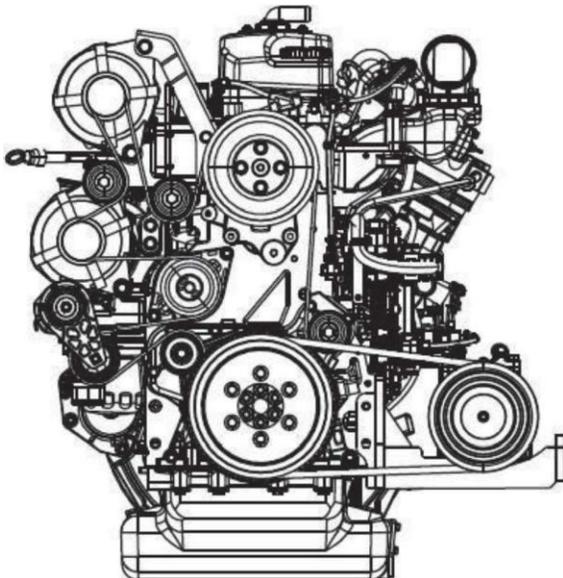
The brake lining wear indicator should be checked regularly. When the brake lining indicator reaches 10%, contact Isuzu service for replacement.

The right and left brake linings in the same axle shaft must be replaced together.

The original brake part defined by the vehicle manufacturer must be used.

The brake discs must also be checked and replaced when replacing the brake lining. Otherwise, brake performance may be adversely affected.

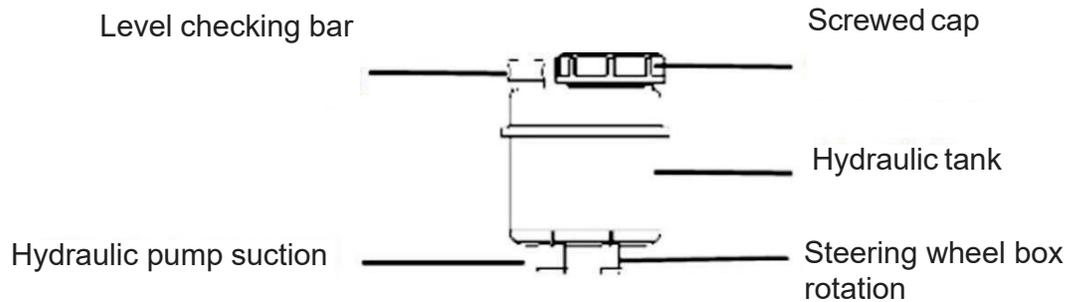
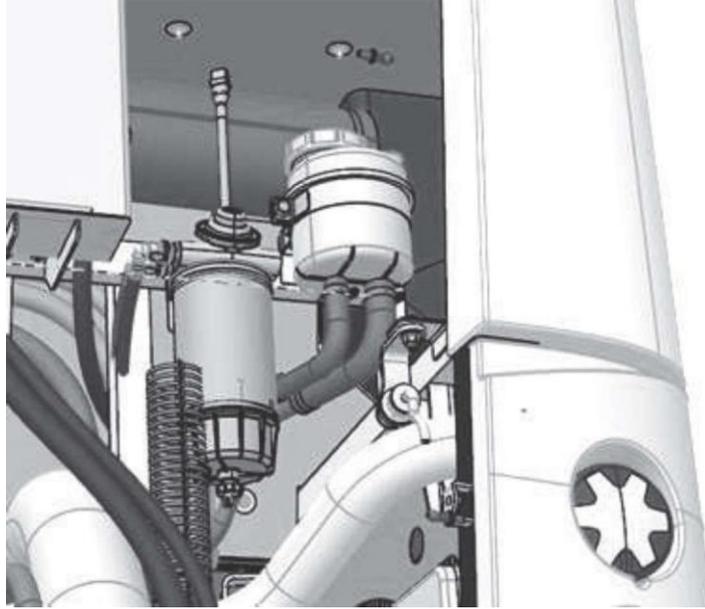
## AIR CONDITIONER COMPRESSOR BELT



The air conditioner compressor belt is 'XPB'. When the belt is damaged or ruptured, please contact your authorized service.

## STEERING WHEEL HYDRAULIC TANK

The engine is located on the upper right section when the engine rear cover is is opened.



The tank has a screwed cap and oil level checking bar. Oil level check should be done every 3,000 km. The bar is removed for oil level checking, the bar has minimum and maximum lines, the oil level must be between these two lines. For the hydraulic steering wheel and the pump to operate smoothly, the oil specified by the vehicle manufacturer must be used.

The vehicle should not be started if there is not enough oil in the steering system; otherwise the steering wheel may be damaged. If the amount of oil is reduced, oil must be filled up to the maximum line in the bar.

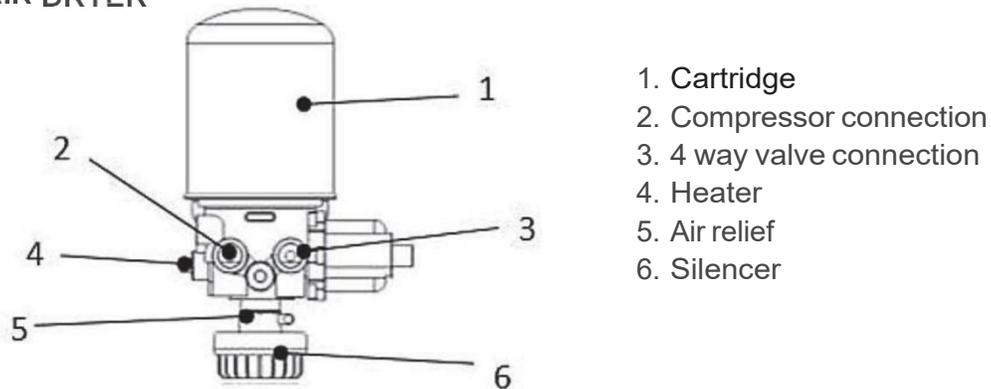
## WINDOW SPRINKLER WATER TANK



Window sprinkler water tank can be accessed by opening the front left body cover. A maximum of 10 liters of window washing water can be filled after opening the cover.



In cold weather, antifreeze should be used to prevent glass from freezing in cold weather.

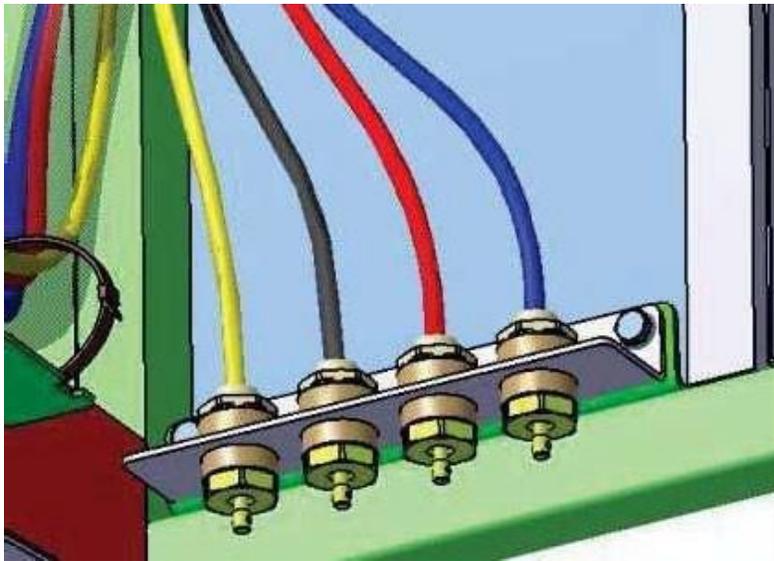
**AIR DRYER**

1. Cartridge
2. Compressor connection
3. 4 way valve connection
4. Heater
5. Air relief
6. Silencer

The air dryer is located behind the rear axle. The function of the air dryer is to regulate the air system pressure and to reduce the moisture and oil in the air supplied from the compressor. In the dryer, there is a heater that prevents freezing, which is activated especially at low temperatures and deactivated at high temperatures. The air dryer fills the system with air until the circuit breaker is activated at 8.6 bars. When the filling process is completed, it cleans itself by discharging the water and the oil which are accumulated in the lower part with pressure.

**DRAINING WATER IN AIR TANKS**

There are 4 air tank drain valves on the lower part of the front area of the left front tyre.



Drain water in air tanks daily by pumping manually.

## REPLACEMENT OF WINDSHIELD WIPERS

There are two external wiper arms including right and left.

To replace the wiper blade, remove the bolt and ring nut in the middle of the blade (Figure 1 and Figure 2).

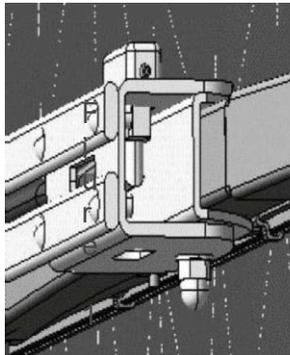


Figure 1

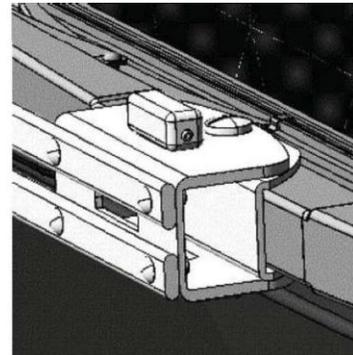


Figure 2

To replace the entire wiper arm, open the plastic cover at the point where the arm is connected to the vehicle body, remove the ring nuts and the wiper arm here (Fig. 3). When removing the wiper arm, the water sprinkler hose connected to the arm must be pulled and removed from the point it is connected to the vehicle body.

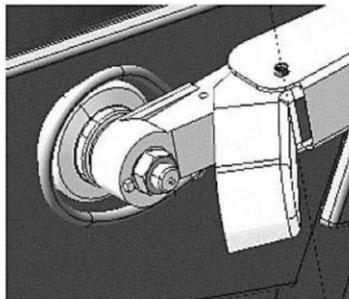


Figure 3

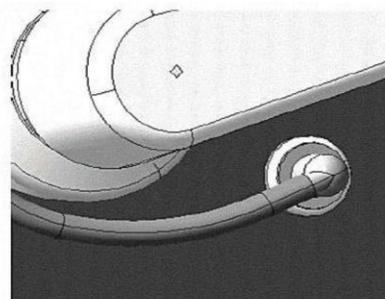


Figure 4



Wiper blades should be checked during the winter season and renewed if necessary. Interior mechanism of the wipers must be changed by authorized service personnel.

## FUSES/RELAYS

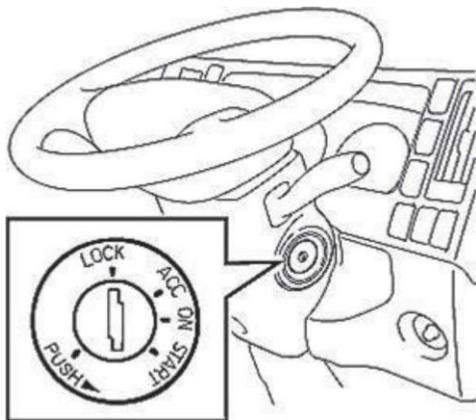


The fuse and the relays are located in the lower right cabin at the front door entrance of the vehicle. The fuse label is on the console cover. The fuses used in the vehicle are of blade type. When a short circuit or malfunction occurs in the system, the corresponding fuse trips to protect the electronic parts. After the power fault is eliminated, it is replaced by a fuse with the same amperage value.

## PRECAUTIONS FOR BATTERY USAGE

Keep the battery clean. If the battery is left in a dirty condition, the contaminants may mix with the battery fluid, the battery plates may be damaged, a short circuit may occur at the upper section of the battery and the service life of the battery may be reduced.

### While Performing Checking or Maintenance Operations



Before checking and maintenance of the battery and other parts of the electrical system, turn the ignition key to the "LOCK" position, turn all other switches to the "OFF" position and disconnect the negative cables of the battery. If the battery is checked or serviced while it is connected, danger of electric parts damage occur.

### Removal of the Battery

When the battery is unplugged, first disconnect the battery cable from the negative terminal. If the battery cable is connected to a negative terminal, in case of contact of the tools with the positive terminal, a short circuit may occur in the vehicle and cause dangerous electric shocks. The electrical system can also be damaged.

If the battery switch will be turned off, you should wait at least 3 minutes after the ignition is switched off to avoid damage to the ECM.

## Charging The Battery

- Before replacing the battery, remove the battery from the vehicle, put it in a well ventilated place and remove the battery covers. If the battery is to be charged while it is in the vehicle, be sure to disconnect the battery cables first.
- Make sure it is switched off when a charger is connected to or removed from the battery.
- In case of fast charging, battery cables must be disconnected. Failure to implement this measure may result in fuel consumption in the alternator.

## Installing the Battery

1. When installing the battery to your vehicle, be sure that its directions are set correctly and that it is securely installed without any looseness. If the battery is not inserted properly, the battery box and the battery plate can be damaged as a result of the shocks during the drive.
2. When connecting the battery cables, start with the positive terminal and then connect the negative terminal.

## Direct Use of the Battery as a Power Source

The battery should not be used directly as a 12 volt power supply.

If you need to use the battery directly as a power source, consult your Isuzu authorized service.

## Checking the Battery Water Level

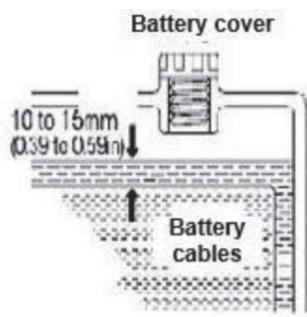
Daily Check

Open the battery cover and check if the fluid inside the battery chamber is within the specified range.

The surface of the battery fluid should be between the 'TOP LEVEL' and the 'BOTTOM LEVEL'. If you cannot see the fluid surface easily, shake the vehicle slightly.

If there is no level mark in the frame, 10-15 mm gap from the top of the battery plates is considered acceptable.

## Filling the Battery Water



If the amount of battery fluid inside the battery is insufficient, remove the covers and add pure water until the surface is close to the 'TOP LEVEL' mark or until it is 10-15 mm to the battery plates from the top. After you have finished checking the oil level, install the cap and the cover securely.

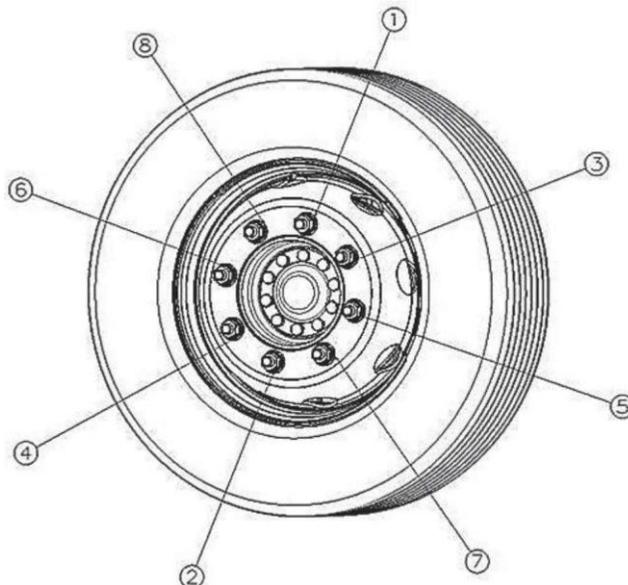


- The battery water should never be filled up to the top of the 'TOP LEVEL' line. Failure to observe this precaution may cause battery water to spill and battery terminals and other parts to wear out. The spilled battery water should be cleaned with water immediately.
- After the battery water is added, the battery must be recharged (by driving). If you do not recharge the battery in the winter months, the battery water may freeze and the battery box may be damaged.
- If the battery water level continues to fall rapidly which can rarely occur, get a service at the nearest Isuzu service immediately.

## USING JACK AND CHANGING TYRES

The jack points on the vehicle are in front of the front wheels and behind the rear wheels. When using a jack;

- Make sure the relief screw is tight
- Use your own jack lever to lift the jack
- To lower the jack, turn the relief screw two turns to the left. Tyre replacement;
- Place a wedge on the tyre opposite to the tyre you are lifting crosswise
- Loosen but do not remove the wheel nuts of the tyre to be replaced
- Lift the vehicle using the jack point at the rear of the tyre to be replaced until the tyre is completely separated from the ground
- Remove the wheel nuts and the tyre
- Install the spare tyre
- Make sure the tyre fits
- Tighten the transverse bolt nuts in three steps with a torque of  $500 \pm 50$  Nm.



- Slightly loosen the relief screw on the jack to lower the vehicle.

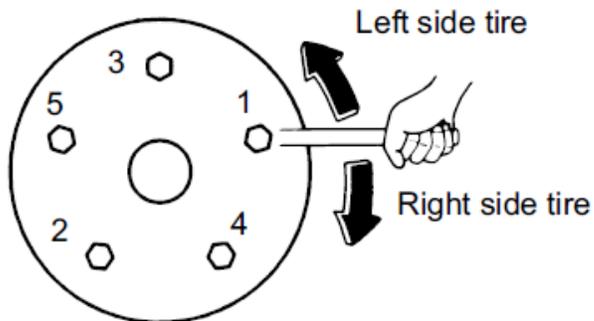


- Make sure that the jack is placed on a flat and solid ground
- Do not operate the engine while the vehicle is on the jack
- Do not drive while a jack is being used
- Get the passengers out during tyre change
- Make sure the vehicle is parked, pull the parking brake and flash on the hazard lights.

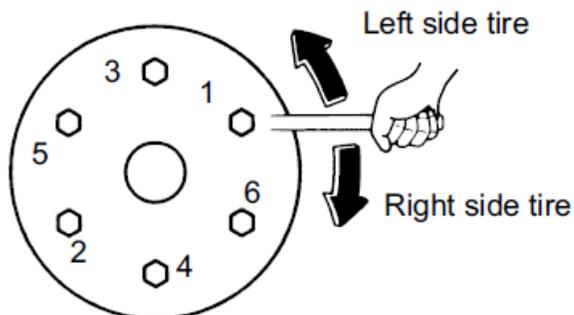
**NOTE:** If the tyre pressure is constantly decreasing, there may be an object stuck to the tyre. Check for leaks in the tyre or in the valve.

**Wheel nut tightening sequence**

**Wheel with 5 nuts**



**Wheel with 6 nuts**

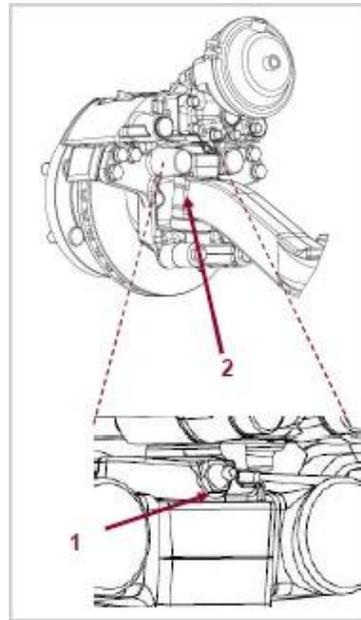
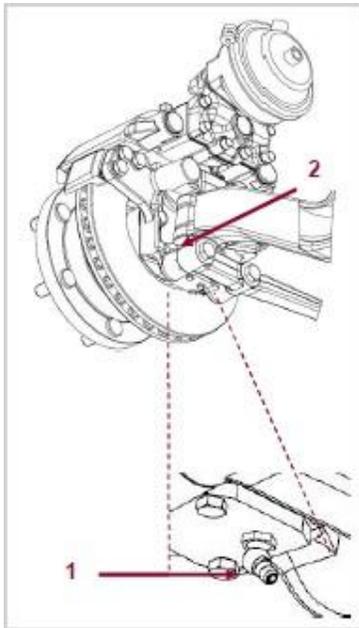


| Model or specification | Front wheel nuts  |          | Rear wheel nuts   |          |
|------------------------|-------------------|----------|-------------------|----------|
|                        | Tightening torque | Quantity | Tightening torque | Quantity |
| Single tire            | <b>600 N·m</b>    | 6        | -                 | -        |
| Dual tire              | -                 | -        | <b>500 N·m</b>    | 5 or 6   |

**Advice**

- After changing a tire, turn the steering wheel in both directions to make sure that the wheels do not interfere with the surrounding components. If you are unclear about any of this, please contact the nearest Isuzu Dealer.
- The tightening torque of the wheel nuts may decrease after tire replacement due to their initial settlement. Upon driving 50 to 100 km after a tire change, retighten the wheel nuts to the specified torque according to the instructions in the "Retightening Wheel Nuts" section in this chapter.

**GREASING FOR KING PIN**



- Grease the lower set of bearings of the king pin via the grease plug (1).
- Grease until the grease comes out between knuckle and axle beam (2).

**NOTE:** This operation must be done every time the king pin is disassembled or every 30.000 km.

## PERIODICAL MAINTENANCE

### Daily Maintenance

- Check the tyres.
- Check the brakes .
- Check the engine coolant level .
- Check the engine oil level. If oil level is insufficient, add oil.
- Discharge the water that is condensing in air tanks (especially in winter) .
- Check the DEF level .
- Check the transmission oil (electronic and / or manual control)
- Check if the exterior lighting lamps are suitable for a safe drive.
- Check the belts.
- Check the air levels.
- Check bus accident and original parts situation.

### Weekly Maintenance

Check tyre pressures with an air meter

Check the power steering fluid tank level

- Check the air cleaner limit
- Check the glass wash water level .
- Check the water that accumulates in the fuel water separator.  
Discharge the water that accumulates in the fuel separator.
- Check washing the entire bus weekly, making sure to remove all road chemicals
- Check corrosion chassis and parts of body

### CAUTION

- Should not use water jet cleaning machine inside of the bus
- Should not use corrosive material on the bus surface
- Should not use wash the vehicle with hand wash brush
- Informing the authorized service in case of accident
- Regular maintenance in authorized service

### Periodic Maintenance Table

The main periodic maintenance interval is 240000 km. Maintenance after 240000 km is the same as maintenance intervals after 30000 km.

I : Inspect then clean, repair or replace as necessary

A : Adjust

R : Replace

L : Lubricate

**NOTE** : Replace the filters/fluid before the recommended distance or month (whichever is before)

| Service Interval (x1000 km)                              | 30  | 60 | 90 | 120 | 150 | 180 | 210 | 240 | Month/Hour* |
|--|---|----|----|-----|-----|-----|-----|-----|-------------|
| Engine malfunction diagnostics                           | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Engine oil <sup>[1]</sup>                                | R   | R  | R  | R   | R   | R   | R   | R   | 12 / 800    |
| Engine blow-by filter                                    | R   | R  | R  | R   | R   | R   | R   | R   | 12 / 800    |
| Valve clearance setting                                  |   |    |    | A   |     |     |     | A   | 48          |
| Oil filter <sup>[2]</sup>                                | R   | R  | R  | R   | R   | R   | R   | R   | 12 / 800    |
| Fuel filter  |   | R  |    | R   |     | R   |     | R   | 24 / 1600   |
| Fuel water separator filter                              | Drain water every 30.000km                                |    |    |     |     |     |     |     |             |
| Engine component holder                                  | I   | I  | I  | I   | I   | I   | I   | I   | 12          |
| Engine coolant   | R : every 24 months                                       |    |    |     |     |     |     |     |             |
| Coolant density  | I : every 12 months                                       |    |    |     |     |     |     |     |             |
| Air filter element <sup>[3]</sup>                        |   | R  |    | R   |     | R   |     | R   | 12 / 1600   |
| Air dryer filter   | R   | R  | R  | R   | R   | R   | R   | R   | 12          |
| Fuel tubes and hoses visual check                        | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Cooling system leakage visual check                      | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Fan function   | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Fan clearance control and adjustment                     | A   | A  | A  | A   | A   | A   | A   | A   |             |
| Urea system leakage                                      | R : every 12 months                                       |    |    |     |     |     |     |     |             |
| Diesel particulate filter                                | R : every 300.000 km                                      |    |    |     |     |     |     |     |             |
| Exhaust brake  | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Urea pump filter   | R : every 300.000 km                                      |    |    |     |     |     |     |     |             |
| Turbocharging visual                                     | I   | I  | I  | I   | I   | I   | I   | I   | 12          |
| Exterior cleaning of radiator                            |   | I  |    | I   |     | I   |     | I   |             |
| Oil pan ventilation hoses and radiator pressure cover    |   |    | I  |     |     | I   |     |     |             |
| Belt and automatic belt tensioner                        | Check at every SP and exchange when wear limit is reached |    |    |     |     |     |     |     |             |
| Intercooler, pipes and air compressor                    | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Vibration damper   |   |    |    |     | I   |     |     |     |             |
| Transmission oil A/T (w/o retarder)                      |   |    |    | R   |     |     |     | R   | 36 / 3000   |
| Transmission oil filter A/T (w/o retarder)               |   | R  |    | R   |     | R   |     | R   | 24 / 2000   |
| Transmission oil A/T <sup>[4]</sup> (w/ retarder)        | R : every 240.000 km or 48 months or 6000 hours           |    |    |     |     |     |     |     |             |
| Transmission oil filter A/T <sup>[5]</sup> (w/ retarder) |   |    |    | R   |     |     |     | R   | 36 / 3000   |
| Transmission oil M/T <sup>[6]</sup>                      |   |    |    | R   |     |     |     | R   | 12          |
| Transmission oil leakage                                 | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Transmission bolt torque                                 | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Grease the king pin bearing                              | L   | L  | L  | L   | L   | L   | L   | L   |             |
| Front axle caps  | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Front axle bushing                                       | I   | I  | I  | I   | I   | I   | I   | I   |             |
| Differential oil   |   | R  |    | R   |     | R   |     | R   | 12          |
| Differential blow-by filter <sup>[7]</sup>               | I   | I  | I  | I   | I   | I   | I   | I   | 12          |
| Angle drive oil  | R   | R  | R  | R   | R   | R   | R   | R   | 12          |
| Angle Drive Breather                                     | R   | R  | R  | R   | R   | R   | R   | R   | 12          |

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|   |                                   |   |   |   |   |   |   |   |  |
|---|-----------------------------------|---|---|---|---|---|---|---|--|
| Rear axle and brake caliper Connection visual check | I                                 | I | I | I | I | I | I | I |  |
| Hydraulic steering oil                              | R : every 240.000 km or 24 months |   |   |   |   |   |   |   |  |

| Service Interval (x1000 km)   | 30                                       | 60 | 90 | 120 | 150 | 180 | 210 | 240 | Month/Hour* |
|---|--|----|----|-----|-----|-----|-----|-----|-------------|
| Oil leakage in the power steering system                                      | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Hydraulic steering connection visual check                                    | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Hydraulic steering hose visual check  | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Tyre nuts   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Tyre air pressure   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Hub bearing   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Brake tube and brake hose leakages  | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Brake linings and disc control  | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Clutch fluid (manual transmission optioanl)                                   | I  | I  | I  | R   | I   | I   | I   | R   | 24          |
| Level valves  | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Air boots   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Brake, signal, parking, fog and brake lamps                                   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Interior lighting   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Windshield wiper and windshield wash system                                   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Fuse panel electric cabling and socket connections                            | Every: 60.000 km                         |    |    |     |     |     |     |     |             |
| Battery connection cables   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Engine starter electrical connections   |  |    | I  |     |     | I   |     |     |             |
| Pneumatic door adjustment   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Safety equipment function of all doors  | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Air leakage of the door elements, damage, tightness and door function         | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Rearview mirrors connection   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Gas, brake and clutch pedal   | I  | I  | I  | I   | I   | I   | I   | I   |             |
| Wear of chassis and body parts  |  |    | I  |     |     | I   |     |     |             |
| Replacement of the addition heating fuel filter (replace sooner if necessary) |  | R  |    | R   |     | R   |     | R   |             |
| Underbody wax checking and repairing  | I: every 30.000 km                       |    |    |     |     |     |     |     |             |
| Washing the entire bus, making sure to remove all road chemicals              | I: Winter period monthly                 |    |    |     |     |     |     |     |             |
| Air conditioner compressor oil  | I : every 24 months & R : when decreased |    |    |     |     |     |     |     |             |
| Refrigerant and oil   | I : every 24 months & R : when decreased |    |    |     |     |     |     |     |             |

## NOTE

- \* The clock shows the total running time of the engine, including idling.
- [1] Change engine oil every 30.000 km or every 12 months or 800 hours. Perform every year even if the specified operating hour interval is not reached. Oil sump minimum and maximum levels are 6.8 lt and 11 lt respectively.
- [2] Change oil filter every 30.000 km or every 12 months or 800 hours. Perform every year even if the specified operating hour interval is not reached.
- [3] The air filter element should be replaced every 60.000 km or 12 months or 1600 hours or when the air filter warning is lit.
- [4] These values are valid for Allison TES 295 approved fluids. For other fluids, change transmission oil every 30.000 km or 6 months or 500 hours.
- [5] These values are valid for Allison TES 295 approved fluids. For other fluids, change transmission oil filter every 30.000 km or 6 months or 500 hours.
- [6] The first oil change period in manual transmission is 360.000 km or 36 months. After 360.000 km or 36 months, change manual transmission oil every 120.000 km or 12 months.
- [7] Clean differential blow-by filter at every inspection.
- For fire extinguishing system, the extinguishing fluid should be replaced every 5 years and the tanks should be replaced every 10 years.
- In difficult conditions (frequently repeated short driving distances, dusty or rough roads, trailer maintenance or mountain climbing) maintenance intervals should be reduced by half.
- The air intake filters of the air conditioner should be removed and cleaned on a weekly basis. The time may be extended depending on the pollution situation.
- Since air conditioner air intake filters can be reused, they are not easily deformed. It should be changed when there is excessive deformation and visible deformation of the filter.
- Air dryer filter must be replaced every 30.000 km or every year.
- Suspension bushings (stabilizer and other) should be replaced if 30.000 km wear control is required.

## **6. TECHNICAL INFORMATION**

|   |  |
|---|--|
| <b>Dimensions (mm)</b>                  |  |
| Maximum length                          | 8010   |
| Maximum width                           | 2435   |
| Maximum height                          | 2887 (without air conditioner)<br>3184 (with air conditioner)              |
| Wheelbase                               | 4259   |
| Front overhang                          | 1940   |
| Rear overhang                           | 1664   |
| Front track width                       | 2081   |
| Rear track width                        | 1900   |
| Inner height                            | 2475   |
| <b>Masses (kg)</b>                      |  |
| Gross vehicle mass                      | 10755  |
| Front axle capacity                     | 4255   |
| Rear axle capacity                      | 6500   |
| <b>Engine</b>                           |  |
| Model                                   | FPT NEF4   |
| Type                                    | Electronic Common Rail<br>Turbo Diesel Intercooler                         |
| Number of cylinders                     | 4  |
| Engine volume                           | 4500   |
| Maximum power (kW/ rpm)                 | 137 kW @ 2500 rpm  |
| Maximum torque (Nm/ rpm)                | 680 Nm @ 1400 rpm  |
| Maximum speed                           | 90 km/h  |
| Exhaust gas emission class              | Euro VI  |
| <b>Gearbox</b>                          |  |
| Model                                   | MT: ZF 6S 1010 BO<br>AT: ALLISON 2100 (Opt.)<br>AT: ALLISON T3270 x FE (R) |
| Number of gears, Type                   | 6 forward, 1 reverse, manual   |
| Final gear ratio                        | 4.454  |
| Steering system                         | Hydraulic  |
| <b>Tyres</b>                            |  |
| 225/75 R17.5                            |  |
| <b>Suspensions</b>                      |  |
| Front                                   | Air suspension - rigid axle  |
| Rear                                    | Air suspension   |
| <b>Brake system</b>                     |  |
| Front/Rear                              | Disc / Disc  |
| System                                  | Full air brake system with automatic adjuster<br>dual circuit and ABS      |
| Parking brake                           | Air actuated acted on rear axle  |
| <b>Fuel Tank (lt)</b>                   |  |
| 130                                     |  |
| Diesel exhaust emission fluid tank (lt) | 30   |
| <b>Generator</b>                        |  |
| Nominal voltage                         | 24 V   |
| Battery                                 | 24V(2x12) 125Ah  |
| <b>Air Conditioner</b>                  |  |
| Capacity : 22 kW + 5.56 kW              |  |

**NOTE :** The stated technical values are approximate and may vary depending on the vehicle type and options.

| PRESSURE VALUES               |                          |                    |
|-------------------------------|--------------------------|--------------------|
| Four Circuit Protection Valve | Static Closing Pressure  | > 5.5 bar          |
| Air Dryer                     | Minimum Cut in Pressure  | 7.2 bar            |
| Air Dryer                     | Maximum Cut out Pressure | 9 bar              |
| Tyres                         | Cold Inflation Pressure  | 7.25 bar / 105 psi |

|            |                                |                                    |
|------------|--------------------------------|------------------------------------|
|            | Ambient temperature up to 40°C | Ambient temperature 40°C and above |
| Engine Oil | 5W-30 ACEA E6                  | 10W-40 ACEA E9 / API CJ-4, CK-4    |

| OIL AND FLUID SPECIFICATIONS         |          |  |  |
|--------------------------------------|----------|--|--|
| DESCRIPTION                          | CAPACITY | NORM   | CLASS                                      |
| Engine oil                           | 11.5 lt  | SAE 10W 40                                   | CES-20086, API CK-4 or CES-20081, ACEA E-9 |
| *Transmission oil (A/T) w/o retarder | 11 lt    | ATF  | ALLISON TES 295                            |
| * Transmission oil (A/T) w/ retarder | 22 lt    | ATF  | ALLISON TES 295                            |
| * Transmission oil (Manual)          | 9 lt     | SAE 75W 80                                   | ZF TE-ML 02E                               |
| Differential oil & rear axle         | 5.7 lt   | SAE 80W 90                                   | API GL5                                    |
| Angle drive oil                      | 3 lt     | SAE 75W 90                                   | API GL5                                    |
| Hydraulic steering fluid             | 4.5 lt   | GM Dexron-III                                | AUT RAN DX III                             |
| Air conditioner compressor oil       | 600cc    | Viscosity ISO 46                             | ZXL 100PG POE oil                          |
| **Antifreeze (50%) + Water (50%)     | 70 lt    | ASTM D-3306, D-6210, D-4985                  | OAT (Organic Acid Technology)              |
| Refrigerant                          | 4.5 kg   | 1,1,1,2-Tetrafluoroethane (Refrigerant R134) | LINDE                                      |

\* The amount of oil to be added may differ depending on the amount of oil remaining in the gearbox.

\*\*It should not be mixed with different types of antifreezes. It should not be completed with water. Additions can be made using the same product.

## **7. LIST OF FOREIGN DISTRIBUTORS**

GENEL / PUBLIC

| COUNTRY        | STORE NAME                        | STORE ADDRESS  | CONTACT NUMBER       |
|----------------|-----------------------------------|--|----------------------|
| ALGERIA        | Spa Elsecom                       | Rue Baha H'med,<br>BP 200<br>Bab Ezzouar - Alger                 | +213 (0)23 85 30 86  |
| AZERBAIJAN     | AZ Auto LLC                       | 2207 Nobel avenue<br>AZ1006 - Bakü                               | +(994) 124964598     |
| BOSNIA         | Sejari d.o.o. Sarajevo            | Blađuj 78, 71215<br>Blađuj - Sarajevo                            | +387 33 770 306      |
| BULGARIA       | Isubus Ltd.                       | Botevgradsko Shose<br>Blvd.<br>1839 Sofia                        | +(359) 28182929      |
| CROATIA        | STP Krapina Presečki Grupa d.o.o. | Frana Galovića 15<br>49 000 Krapina                              | +385 (049)328-045    |
| CZECH REPUBLIC | Turancar CZ. s.r.o.               | Bavorská 856/14<br>155 00 Praha 5                                | +420 776 111 113     |
| FRANCE         | Fast Concept Car                  | Z.I La Ribotiere<br>85170 Le Poire Sur Vie                       | +33 25 13 41 034     |
| GERMANY        | Omnicar Fahrzeughandel GmbH       | Weinbrennerstrasse 10<br>77815 BÜHL                              | +49 (0)7223 8061930  |
| GREECE         | Petros Petropoulos S.A.           | 96-104 Iera Odos<br>122 10 Athens                                | +(30) 210349 92 00   |
| HUNGARY        | Anadolu Rom Hungary               | 1135 Budapest<br>Robert Karoly Ket. 96-98                        | +36 703730637        |
| ISRAEL         | Universal Trucks Israel Ltd.      | Industrial Area Segula,<br>P.O. Box 4599<br>Petach-Tikva 49145   | +972-3-9120010       |
| ITALY          | Midi Europe SRL                   | Via Crosaron, s.n.<br>37053 Cerea VR                             | +39 0442 328 212     |
| LITHUANIA      | UAB Saločiai Ir Partneriai        | Mokyklos str. 1B,<br>Bukiskės<br>LT-14182 Vilniaus raj.          | +370 5 2793000       |
| MOROCCO        | Maroc SDAMA                       | Route principale de<br>Rabat 1, km 6,3<br>Ain Sebaa - Casablanca | +212 (0) 529 029 300 |
| POLAND         | Busimport PL Sp. z.o.o.           | Gierłatowo 10A<br>62-330 Nekla<br>Wielkopolskie                  | +48 61 43 86 905     |
| ROMANIA        | Anadolu Automobil Rom. Srl        | Soseaua Bucuresti-<br>Ploiesti<br>Nr. 110 Comuna<br>CiolPani     | +4021-266 8300       |
| SERBIA         | Sejari Ltd. Belgrade              | Auto-put za Zagreb 15<br>11199 Novi Beograd                      | +381 112608 700      |
| SLOVAKIA       | Turancar                          | Bratislavská 29<br>94901 Nitra                                   | +421 37 6555 777     |

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