

# **CITIPORT CNG**

## **USER MANUAL**

**ANADOLU ISUZU**



It is a symbolic photograph of Citiport vehicle.

## FOREWORD

This user manual is prepared to give general information about the efficient and most economical use of **E6 Citiport CNG** 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.S. 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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# TABLE OF CONTENTS

	PAGE
1. INTRODUCTION	1
Chassis Number	3
Identification Plate	3
Engine Number	5
Vehicle Warranty	5
Options	6
Recommendations / Warnings	6
2. GENERAL INFORMATION	8
Starting The Engine	9
Stopping The Engine	11
Opening and Closing The Doors	11
Emergency Exits	12
Steering Wheel Adjustment	12
3. CONTROLS AND INDICATORS	13
Driver Control Panel	14
Front Control Panel	15
Side Control Panel	22
Gauge and Warning Lights Panel	24
4. VEHICLE EQUIPMENT	29
Driver Seat	30
Passenger Seats	31
Side Window With Resistance	31
Water Heater/Cooler for Driver (Optional)	31
DVD Player	32
Digital Tachograph	32
Roller Blinds	32
Diagnostic Socket	33
Passenger Information Panel	33
Mirrors	33
Digital Route Indicator Panel	33
LCD Display	34
Half Pop-up Window	34
Trapdoor	34
Handles	34
Stop Button	35
Pack Area	35
Wheel Chair Fixing Area	35
Disabled Passengers Ramp	36
External Camera System	36
Internal Camera System	36
DVR	36
Rear View System	37
Parking Sensors	37
External Alert and Lighting Lamps	37

	PAGE
Pedals	40
Transmission	40
Gas Filling	42
Accumulators	42
Tire Inflator Kit	42
Heating and Cooling System	43
Electronic Brake System	49
Engine Room Fire Detection System	49
Engine Room Fire Extinguishing System (Optional)	50
<b>5. SERVICE AND MAINTENANCE</b>	<b>51</b>
Cleaning Vehicle	52
Towing Vehicle	52
Engine Maintenance	53
Engine	56
Lubrication Oil and Filter Care	59
Automatic Engine Oil Refill System (Optional)	59
Crankcase Ventilation Filter	60
Low Pressure Fuel Filter	61
Engine Coolant Water Filter	62
Engine Cooling System	64
Engine Cooling, Cabin Heater and Air Condition Systems	
Line Filling and Air Relief	64
Control of Brake Discs and Pads	66
Transmission Maintenance	66
Differential Oil Change	67
Air Condition Compressor Belt	68
Steering Wheel Hydraulic Tank	69
Glass Fountain Water Tank	70
Air Filter	70
Air Dryer	71
Draining Water in Air Tanks	71
Replacing Wipers	72
Fuses/Relays	72
Replacement of Bulbs	73
Use of The Jack and Tire Replacement	75
The Periodic Maintenance	76
<b>6. TECHNICAL INFORMATION</b>	<b>80</b>
<b>7. THE LIST OF FOREIGN DISTRIBUTORS</b>	<b>85</b>

# **1.INTRODUCTION**



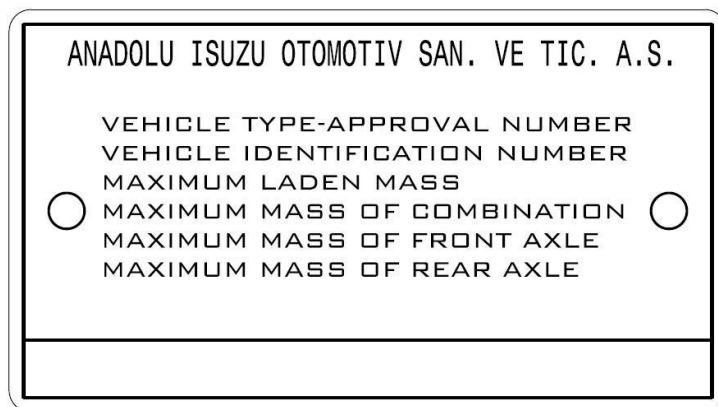
It is a symbolic photograph of Citiport vehicle.

## CHASSIS NUMBER



The chassis number of the vehicle is available on the internal cover of tin plate of the front-wheel slot.

## IDENTIFICATION PLATE



The identification plate is in the front door entry, under the right front seat. Type approval number, VIN number, the sum of the maximum axle load, maximum front axle load and the maximum rear axle load datum are located on the identification plate.

VIN number includes the vehicle's chassis number info along with vehicle model, maximum loaded weight, engine type, driving system, wheel base, and production place codes.

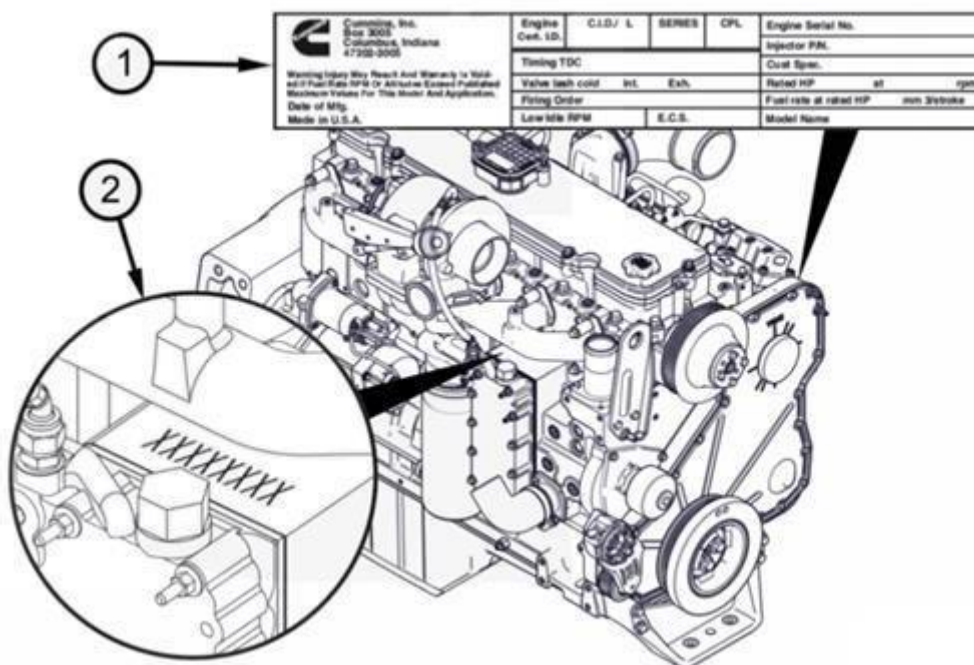


A detailed description of the composition of the VIN																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
N	N	A	M	0	B	H	L	B	0	2	0	0	0	0	0	1
1 - 3	INTERNATIONAL WMI NO					NNA	(AIOS) ANADOLU ISUZU OTOMOTIV SANAYI VE TICARET ANONIM SIRKETI									
4	MODEL LINE					M	BUS GROUP									
5	GVW OR CAPACITY RATING					N	14 PASSENGER SEATS									
						H	17 PASSENGER SEATS									
						8	18 PASSENGER SEATS									
						F	19 PASSENGER SEATS									
						G	20 PASSENGER SEATS									
						L	21 PASSENGER SEATS									
						B	22 PASSENGER SEATS									
						C	23 PASSENGER SEATS									
						4	24 PASSENGER SEATS									
						E	25 PASSENGER SEATS									
						M	26 PASSENGER SEATS									
						D	27 PASSENGER SEATS									
						R	28 PASSENGER SEATS									
						P	29 PASSENGER SEATS									
						T	30 PASSENGER SEATS									
						K	31 PASSENGER SEATS									
						S	32 PASSENGER SEATS									
						U	33 PASSENGER SEATS									
						V	34 PASSENGER SEATS									
						5	35 PASSENGER SEATS									
						6	36 PASSENGER SEATS									
						7	37 PASSENGER SEATS									
						Z	38 PASSENGER SEATS									
						9	39 PASSENGER SEATS									
						A	43 PASSENGER SEATS									
						0	INDEPENDENT FROM SEAT NUMBER									
6	MODEL EXTENSION					S	STANDARD TYPE									
						A	DELUXE TYPE WITH AIR SUSPENSION									
						Z	DELUXE TYPE WITH AIR SUSPENSION (EURO EXPORT)									
						L	DELUXE TYPE WITH MECHANICAL SPRINGS									
						B	PUBLIC TRANSPORT TYPE									
						H	STANDARD TYPE WITH ACTUATED DOORS									
						E	PUBLIC TRANSPORT (ALGERIAN EXPORT TYPE)									
7	ENGINE MODEL					2	INTERURBAN TYPE									
						D	CUMMINS ISB6.7E5 300B									
						E	CUMMINS ISB6.7E6 280B									
						G	CUMMINS ISLG 6B 300									
						C	CUMMINS ISBG 6C 300									
						F	CUMMINS ISB6.7E6C280B									
8	DRIVING SYSTEM					H	CUMMINS ISB6.7E6C300B									
						L	LEFT HAND DRIVE									
9	WHEEL BASE					R	RIGHT HAND DRIVE									
						B	5850 mm									
10-11	MANUFACTURING PLANT					01	AIOS KARTAL PLANT									
						02	AIOS GEBZE PLANT									
12-17	PRODUCTION SEQUENCE NO															

## ENGINE NUMBER



The engine number is present on the engine block at the top of the oil cooler body.



## VEHICLE WARRANTY

Warranty terms and conditions are specified in the “Warranty Certificate” given with the vehicle. You can find the detailed information about warranty procedure in “Warranty Certificate”.

## OPTIONS

Except for the vehicle's standard features, the following options can be applied to the vehicle when requested.

Maximum Permissible Hydrogen, Hydrogen Sulphide, Sulphur and Siloxane		
Content	Requirements	Test Method
Hydrogen (H <sub>2</sub> )	Volumetric maximum 0,03%	ASTM D2650
Hydrogen Sulphite (H <sub>2</sub> S)	Volumetric maximum 0.0006%	ASTM D4084
Siloxanes	Volumetric maximum 0.0003%	Environment Protection Agency (EPA) TO-14, 15 GC/ELCD, GC/AED, GC/MS
Sulphur (S)	Maximum of 0.001%	Title 17 CCR Section 94112 Method 16

- Digital tachograph
- Heated air conditioning
- Automatic engine oil complete system
- Electric ramp
- Double glazing
- Fully enclosed driver's cab
- Water cooler
- Information panel for passengers at the rear
- Colour front line instrument panel
- Centre monitor / LCD
- Additional NGV1 filling adapter

## RECOMMENDATIONS / WARNINGS

- Use only the specified fuel. The methane number in your vehicle should not be below 75 and the lower heating value should not be less than 37448.6 kJ / kg.
- Use diesel exhaust emission fluid suited for DIN70070.
- Do not load your vehicle over its passenger capacity and do not change the places of the seats. Our factory is not responsible for the problems arising as a result of a change in the load balance of the vehicle.
- Examine exhaust pipe from time to time. If you see a damage (for example, a damaged connecting member caused by abrasion or a hole or a crack, corrosion and leaks in pipes ports), take it to the nearest authorized service for control and maintenance.
- Control the wheel pressures frequently and be sure that they are always at the right value.
- In order to control tire degradations, get pre-layout settings to be controlled in every 20000 km.
- Control the main and dipped beam settings, do not drive with defective headlights.
- Control brake, parking and plate lamps frequently, do not drive with defective or mud covered brake, parking and plate lamps.

- Take care of the maintenance of your vehicle to be done in authorized services in time and regularly in order to provide maximum performance in your vehicle.
- When the fluids such as waste oil, brake fluid and antifreeze you use in your vehicle and scrap batteries are thrown away indiscriminately, this gives great damage to the environment. Take care of eliminating such hazardous wastes in accordance with environmental regulations.
- Empty cans, bottles or other articles rolling on the floor, is extremely dangerous, be sure that especially the floor around the driver's seat is clean and tidy.
- Be sure that there are no combustible materials under or around the vehicle before starting it. The existence of such materials may cause fire.
- Be sure that you had trimmed the seat, steering wheel and the mirrors suitable for your correct driving position before the drive.
- Always wear your seat belt.
- Take care of front and side windows to be clean, keep the blinds not hindering your visibility and driving.
- Do not raise the speed of the engine before it was heated enough.
- Drive your vehicle carefully by complying with traffic rules and the road condition.
- If you realize an abnormality in a wheel during the drive, stop immediately in a safe place.
- If you go on your way with a deflated tire, this may cause the breaking of the bolts and the remove of the wheel by applying too much force to the wheel studs.
- Drive at a constant speed to the utmost. It is the waste of fuel to heat the engine overmuch and to make the engine high-speed.
- Do not go on driving when a warning light turns on. Do not forget that you have to get the corrective action by applying the instructions of counters, warning lights and indicator lights.
- When the vehicle malfunctions during the drive, turn on the hazard warning flashers and take the vehicle to a safe place not to block traffic. In order to inform the other vehicles that you were there, insert the triangle reflectors. Provide other passengers to get off the vehicle and wait in a safe place. Notify the nearest authorized service.
- Under bad weather conditions, visual angle reduces and slippery road surfaces increase the stopping distances. Drive slower than in good weather conditions. Additionally do not rotate the steering wheel suddenly and do not apply the brakes. Use tire chains and winter tires in snow-covered or icy roads.

## **2. GENERAL INFORMATION**

## STARTING THE ENGINE

Set the main switch to the "ON" position and the gearbox to the "N" position. Turn the ignition key to the "M" position and turn the ignition key to the starter (position "D").



Do not operate the starter motor for more than 30 s and do not press the gas pedal while operating. Wait two minutes between each start attempt.

1. Make sure the gas pedal is not pressed
2. Move the transmission to neutral
3. Make sure the main switch is in the on position
4. Turn the ignition switch to the ON position without pressing the gas pedal

When the ignition switch is in the ON position, the engine indicator lights momentarily flash and then goes out.

**NOTE:** The malfunction indicator lamp (MIL) does not go off until the engine starts.



The engine must have sufficient oil pressure within 15 seconds after the start. If the low oil pressure warning lamp does not go out or the oil pressure is not displayed in the display within 15 seconds, switch off the engine immediately to prevent engine damage.

If the engine does not start after three attempts, check the fuel supply system.

After starting the engine, let the engine idle for 3 - 5 minutes before starting the load.

After starting a cold engine, ensure adequate lubrication of the bearings and the oil pressure.

Slowly increase the engine speed (rpm) to allow the balancing.



When the engine coolant temperature is below the specified minimum, the engine is do not run at low idle time.

Running the engine at low idle for a long time may cause the followings:

- Carbon accumulation in the cylinder
- Valve sticking
- Poor performance

### Starting the Engine in Cold Weather



Do not use starting fluid due to the possibility of engine damage. Starting fluid does not provide a practical benefit for gas fired engines. Using the starting fluid will cause engine damage.



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

Set the main switch to the "ON" position and the gearbox to the "N" position. Turn the ignition key to the "M" position and turn the ignition key (position "D") when the glow light goes out.

When properly prepared and maintained, it is possible to operate gas engines in extremely cold environments. Proper lubricants, fuels and cooling water must be used for the cold air gap to start the vehicle. Refer to the following table for operating recommendations for operating ranges.

Winter 0 ° to -23 ° C [32 ° to -9 ° F]	Winter -23 ° -32 ° C [-10 ° to -26 ° F]	Winter -32 ° to -54 ° C [-25 ° to -65 ° F]
Use ethylene glycol antifreeze to maintain up to -29	Use 50 % ethylene glycol antifreeze 50 % water mixture	Use 60% ethylene glycol antifreeze %40 water mixture
Use API, CD standard oils for natural gas engines	Use arctic oil	Use arctic oil

If the car is to be parked for a long time (more than 2 days), turn the main switch to the off position.

### Starting Procedure After A Long Period Of Inactivity Or After An Oil Change

After each oil change or if the engine is not operated for more than five days, complete the following steps to ensure that the oil flows through the lubrication system.

- Make sure that the fuel supply is switched off by closing the supply valve
- Do not operate the starter motor for more than 30 seconds. For starter to cool down, wait two minutes before igniting the starter again.
- Turn the starter motor until the oil pressure in the crankshaft appears on the display or warning lamp goes out.
- After the oil pressure is monitored, open the oil supply valve.
- Start the engine, refer to the Normal Operating Procedures section in this chapter.

### Engine Indicator Lamps



The engine control warning, lights when the engine needs service at the first opportunity, is yellow and is shown as a motor symbol.

Another function of the warning lamp is to flash for 30 seconds under certain conditions when the switch is ON position. This flashing function is called MAINTENANCE lamp. The MAINTENANCE lamp may flash depending on one of the following reasons:

- The power of the real-time clock has been interrupted.
- The coolant level is low.

**STOP**

When the red colored STOP warning lights the engine should be stopped as soon as possible. The motor must be kept closed until repaired.

For motors with motor protection shut-off activated, the engine automatically switches off after 30 seconds if the STOP warning lamp flashes. Flashing engine STOP warning lamp warns the operator of a pending closing operation.



The FAULT INDICATOR LAMP indicates that the vehicle may exceed its emission level limits, is yellow and is indicated by a motor symbol.

When the lamp lights, the FAULT INDICATOR LAMP indicates that the engine or exhaust gas treatment system must be repaired at the earliest

opportunity.

When the switch is turned on, the FAULT INDICATOR LAMP will light and flash even if there is no malfunction.

## STOPPING THE ENGINE



Failure to follow the correct shutdown procedure can cause turbocharger damage and shorten the life of the turbocharger.

After a full load, let the engine idle for 3 to 5 minutes before turning it off. This ensures that the pistons, the rollers, the bearings and the turbocharger components cool down sufficiently.

Turn the engine off by turning the ignition key to the “St” position.

NOTE: Ensure that the ignition switch is off for at least 100 seconds before switching off the main switch on the battery. If the main switch is turned off in less than 100 seconds after the ignition is turned off, active fault codes and incorrect ECM errors may occur.

## OPENING AND CLOSING THE DOORS

The front door of the vehicle is opened/closed from the outside with the remote control. There are door open/close switches in front control panel in order the doors to be opened/closed from the inside.



### Opening Doors in Emergencies



There are air drain taps above the doors for emergencies. Evacuate the air by turning the tap clockwise when necessary and open the doors by pulling them inward.



There are also air drain taps on the sides of the doors for opening the doors from outside when necessary. Turn the tap clockwise and open the door by pushing it inward.





There is also a red lock on/off control above the door for opening the door when the vehicle is locked with a key from outside, or in the event that there are passengers inside. The control is turned in the direction of the arrow when necessary and the air is evacuated by turning the air drain tap above the door, the door is opened by pulling inward.

## EMERGENCY EXITS

In emergency cases, emergency exit may be ensured by breaking the windows at the right and left of the vehicle and on the trapdoor with the help of emergency attractive.



## STEERING WHEEL ADJUSTMENT



Steering wheel may be adjusted to up, down, front and back according to the comfortable drive of the driver. For this adjustment, steering wheel level adjustment switch on the front control panel is used. There have to be enough air pressure in the vehicle during adjustment.

### **3. CONTROLS AND INDICATORS**

## DRIVER CONTROL PANEL



**Driver Control Panel;**







Front Control Panel

Side Control Panel









Gauge and Warning Lights Panel

## FRONT CONTROL PANEL













ICON	FUNCTION
	It moves the driver's sunshade up and down.
	It activates the mirror heating system. It stays active for 8 minutes and then automatically turns off. It cannot be activated again for 4 minutes.
	It activates the window heating system. It stays active for 8 minutes and then automatically turns off. It cannot be activated again for 4 minutes.
	Press once to adjust the podium height. Press again to lock it in place.
	It activates the lane marker.
	It activates the hazard lights.

**NOTE :** The places of the switches may vary from vehicle to vehicle.

ICON	FUNCTION
	It opens the front sunroof.
	It closes the front sunroof.
	It opens the rear sunroof.
	It closes the rear sunroof.
	Pressing once will activate the heater at the first level. While it is active, pressing again will switch the heater to the second level. Pressing once more will turn off the heater.
	It activates the interior roof lamp at the first level.
	It activates the interior roof lamp at the second level.
	It activates the driver's overhead light.



ICON	FUNCTION
	The first door activates the front wing selection.
	The first door activates the rear wing selection.
	It activates the ELC system in the upward direction. It <u>send</u> a command to the ELC module for message transmission.
	It activates the ELC system in the downward direction. It <u>send</u> a command to the ELC module for message transmission.
	It activates the ELC system for the driving position. It <u>send</u> a command to the ELC module for message transmission.
	It lowers the vehicle completely. It <u>send</u> a command to the ELC module for message transmission.
	It <u>deactivates</u> the ASR system.
	It turns the TV system on and off.
	It <u>deactivates</u> the foot retarder system.
	It activates or deactivate the halt brake system.

## 1. -2. Electrical Front Curtain Switch



It is used for opening and closing the curtain in front of the driver. When it is pressed on the lower end of the switch, curtain goes down. When the switch is released, the movement of the curtain stops and remains in the level which it was lowered. When it is pressed on the upper end of the switch, the curtain moves upstream.

## 3. Front Roof Vent Switch



When pressed on the upper end of the switch, front roof vent is opened. It is closed when pressed on the lower end of the switch. The backlights flash during the up and down movements of the roof vent. The backlight illuminates when the roof vent is opened. The roof vent is automatically closed when the heater, air condition or wipers were operating.

## 4. Rear Roof Vent Switch



When pressed on the upper end of the switch, rear roof vent is opened. It is closed when pressed on the lower end of the switch. The backlights flash during the up and down movements of the roof vent. The backlight illuminates when the roof vent is opened. The roof vent is automatically closed when the heater, air condition or wipers were operating.

## 5. Ceiling Light Switch



Function lamp lights up when pressed on the switch. The switch has 3 positions.

- When pressed on the upper end, partial lighting is obtained.
- It gets closed when it was in the middle position.
- When pressed on the lower end, full lighting is obtained.

## 6. Driver Ceiling Light Switch



The lights are on when pressed on the lower end of the switch, and off when pressed on the upper end.

## 7. ASR Cancel Switch



ASR system breakdowns when pressed on the lower end of the switch, and the system activates when pressed on the upper end.

## 8. Outside Rearview Resistance Switch



Outside rearview heating activates when pressed on the switch. When pressed again it breakdowns right away; when it is not pressed, it breakdowns automatically after 500 seconds. The backlight of the switch lights up during the heating.

## 9. Driver Side Window Resistance Switch



Driver side window heating activates when pressed on the switch. When pressed again it breakdowns right away; when it is not pressed, it breakdowns automatically after 500 seconds. The backlight of the switch lights up during the heating.

## 10. Steering Wheel Level Adjustment Switch



The vehicle is equipped with air assisted adjustment system in terms of ensuring ease of setting. Steering wheel adjustment lock is opened when pressed on the switch, after setting the steering wheel is locked by pressing the switch again.

## 12. Hazard Switch



The hazards begin to operate when pressed on the lower end of the switch, they stop when pressed on the upper end. When pressed on the switch, signal warning lights on the indicator panel and the function lamp on the switch flash with all the signal lights of the vehicle and give an audible warning.



## 16. Headlights/Parking/Front-Rear Fog Lights Control Switch



When it is in “0” position and turned to right once, parking lights lit, when turned one more time, headlights lit. When the switch is pulled up while the parking lights or dipped headlights were lighting, front fog lights turn on; if it is pulled up one more time, rear fog lights turn on.

## 19. Route Indicator Switch



Route display activates when pressed on the upper end of the switch, and breakdowns when pressed on the lower end.

## 20. Heater Switch



When pressed once on the lower end of the switch, 1<sup>st</sup> level activates; when pressed twice, 2<sup>nd</sup> level activates; when pressed for the third time, it breakdowns.

## 21. Switch Which Determines The Operating Mode of The Front Door



When pressed on the upper end of the switch the left wing, when pressed on the lower end the right wing, when remained in the middle both wings of the front door open and close.

## 22. High Driving Switch



This switch is used in the vehicle for a higher driving level than normal. The vehicle comes to a higher level when pressed on the upper end of the switch, and it comes to normal driving level when pressed on the lower end.

## 23. Tilting / Normal Level Switch



The vehicle tilts to right when pressed on the lower end of the switch, and comes back to driving position when pressed on the upper end.

## 26. Disabled Passenger Ramp Switch



Disabled passenger ramp is opened under the supervision of the driver when pressed on the lower end of the switch, the stop brake activates automatically. When pressed on the upper end of the switch, stop brake does not breakdown unless the disabled passenger ramp gets closed, it blocks the movement of the vehicle when the ramp is opened.

## 30. Front Door Wing Selecting Switch



According to the determination with switch which determines the operating mode of the front door, front door opens or closes left, right or both wings. The backlight lights up when the door is opened, and turns off when it is closed. Opening door qualification does not activate in speeds more than 5 km.

## 31. Middle Door Open/Close Switch



Opens or closes the middle door. The backlight lights up when the door is opened, and turns off when it is closed. Opening door qualification does not activate in speeds more than 5 km.

### 32. Back Door Open/Close Switch



Opens or closes the back door. The backlight lights up when the door is opened, and turns off when it is closed. Opening door qualification does not activate in speeds more than 5 km.

### 33. Middle and Back Door Open/Close Switch



Opens or closes both the middle door and the back door at the same time. The backlight lights up when the door is opened, and turns off when it is closed. Opening door qualification does not activate in speeds more than 5 km.

### 37. Automatic Transmission Control Buttons



**1** : Transmission does not exceed 1<sup>st</sup> gear.

**2** : Transmission does not exceed 2<sup>nd</sup> gear.

**3** : Transmission operates in all 3 gears.

**D button** : It is the forward drive gear.

**N button** : It is the position of idle gear, parking position.

**R button** : It is the driving back gear.

### 50. Retarder Control Lever



Retarder activates or breakdowns in 3 stages.

## 51. Ignition Switch



Ignition switch works against spring pressure in starter position and turns back again when released.

<b>St</b>	Closed
<b>M</b>	Ignition active
<b>D</b>	Starter active



Do not try to remove the ignition switch while the vehicle is on the move.

## 52. Signal and Wiper Lever



It signals to left when the lever is in the downstream and to right when the lever is in the upstream. It activates the wipers at intermittent in the first turn, at normal speed in the second turn and at high speed in the third turn. The fountain begins to work when pushed towards the steering wheel. The horn activates when pressed on the button at its end.

## 53. 7" LCD Display



The images of the cameras which provide the internal and external security of the vehicle during the driving are watched from this display. It switches to rear view position automatically when taken into reverse gear position. The display can be watched by dividing (2, 4, 8 etc.) as desired.

## SIDE CONTROL PANEL



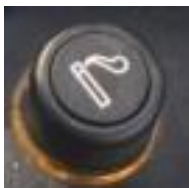
1. Amplifier
2. Cup Holder
3. Lighter
4. Mirror Control Switch
5. Emergency Switch
6. LCD Switch
7. Driver Window Switch
8. Handbrake

### Amplifier



Increasing and decreasing the volume of speakers are performed with amplifier.

### Lighter



The lighter is pushed towards the heating element inside of it, it gets out automatically when heated.

### Mirror Control Switch



This switch is used for the driver to adjust the directions of the rearview mirrors by himself. The mirror is rotated to the desired direction by rotating the arrow on the switch to the desired direction and directing the switch (right, left, up, down).

### Emergency Switch



In order to use the emergency switch, the red colored safety cover on it is opened by holding up. When pushed forward, the electricity of the system cuts down, the engine stops, all internal lights and hazards turn on, door switches are in the active and workable position. When pulled back, system turns to normal.

### Regeneration Switch



The regeneration is started by pushing on the switch.

### LCD Switch



LCD activates when pressed on the lower end of the switch, breakdowns when pressed on the upper end.

### Driver Window Switch



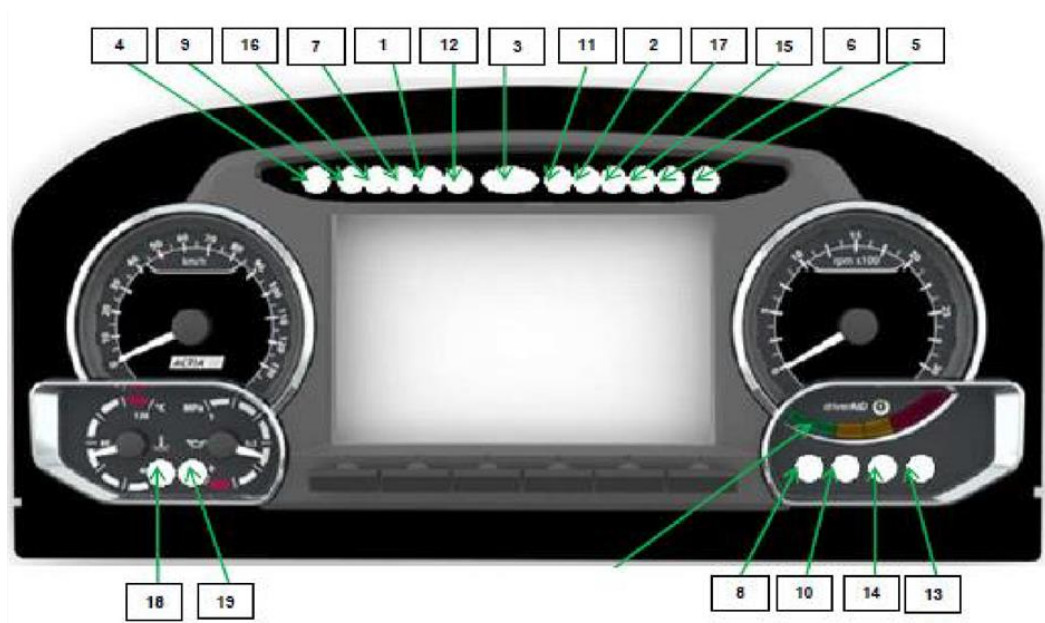
The driver window moves down when pressed on the lower end of the switch, stops when pressed again, and moves up when pressed on the upper end.



## Handbrake




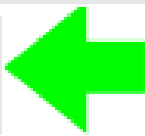
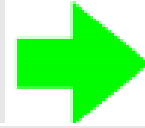









Handbrake system is air typed and spring mechanismed. Handbrake lever is on the left control panel. The handbrake lever is pulled back when the vehicle is stopped, the lever has to be locked in the lower position. In order to relieve the brake, the lever is released to front by pulling slightly the ratch under the lever. There is the warning signal on the indicator panel that shows whether the handbrake system is activated or not. The warning light would be red if the brake airis not enough (below 6 bars) for driving (the vehicle is in operating position) when the handbrake is released, it is tobe waited the turning off this light before moving.

## GAUGE AND WARNING LIGHTS PANEL







Tell-tale	Icon	Color	Function
1		Red	The warning is activated when the parking brake is engaged.
2		Orange	If the AdBlue level is low, the warning will be activated. AdBlue should be refilled as soon as possible. (For diesel vehicles only)



3		Red	The red warning from the ECM (Engine Control Module) is an alert. If the warning is active, the engine should be stopped immediately. The engine diagnostics should be checked to identify which faults are present.
4		Green	The warning will be activated when the left turn signal is on.
5		Green	The warning will be activated when the right turn signal is on.
6		Red	The red warning from the Transmission Control Module is an alert. If the warning is active, the transmission diagnostics should be checked to identify which faults are present.
7		Red	The warning from the ECM (Engine Control Module) is a driver alert. The engine diagnostics should be checked to identify which faults are present.
8		Blue	The warning will be activated when the high beams are turned on.
9		Orange	The orange warning from the ECM (Engine Control Module) is an alert. The engine diagnostics should be checked to identify which faults are present (MIL lamp).
10		Green	The warning will be activated when the low beams are turned on.
11		Red	It indicates that at least one of the alternators is faulty. If the warning is active, the engine should be stopped immediately, and the alternators should be checked.
12		Orange	The warning light should be off before attempting to start the engine. (For diesel vehicles only)
13		Orange	The warning will be activated when the rear fog lights are turned on.
14		Green	The warning will be activated when the front fog lights are turned on.










15		Red	The engine oil pressure warning is an alert. If the warning is active, the engine should be stopped immediately, and the engine diagnostics should be checked to identify any faults.
16		Green	The warning will be activated when the door brake is engaged.
17		Red	The red warning from the EBS (Electronic Braking System) module is an alert. If the warning is active, the engine should be stopped immediately, and the EBS diagnostics should be checked to identify any faults.
18		Red	The engine coolant temperature warning is an alert. If the warning is active, the engine should be stopped immediately, and the engine diagnostics should be checked to identify any faults.
19		Orange	If the fuel level is low, the warning will be activated. Fuel should be refilled as soon as possible.




## Information Display




The following information can be achieved from this screen.



- Average Fuel Consumption
- Gear
- Total distance traveled
- Digital clock / date
- Battery level (V)
- CNG pressure (BAR)

ICON	ICON NAME	COLOUR	TASK
	Brake pad warning	AMBER	The warning will be activated when the thickness of any of the brake pads is low.
	Hill start assist	GREEN	The warning will be activated if the hill-start assist system has been activated for use.
	ASR OFF	AMBER	The warning will be activated if the ASR (Acceleration Slip Regulation) system is disabled.
	ASR ON	AMBER	The warning will be activated when the ASR (Acceleration Slip Regulation) system is active.
	DPF Warning	AMBER	The warning will be activated when DPF (Diesel Particulate Filter) regeneration is needed. If it flashes, immediate regeneration should be performed.
	Exhaust high temperature	AMBER	The warning will be activated when the exhaust temperature is high.
	Air filter warning	AMBER	The warning will be activated when the air filter is clogged.

	Engine brake	GREEN	When the engine brake is active, the warning will be activated.
	Fuel fluid warning	AMBER	If there is fluid in the fuel, a warning will be triggered. The engine diagnostics should be checked.
	Engine warning	AMBER	It is a motor warning. The engine diagnostics should be checked to identify which faults are present.

	The orange EBS warning	AMBER	The orange warning from the EBS (Electronic Braking System) is an alert. The EBS diagnostics should be checked to identify which faults are present.
	Transmission temperature warning	AMBER	The orange warning from the transmission is an alert. The transmission diagnostics should be checked to identify which faults are present.
	Transmission warning	AMBER	The orange warning from the transmission is an alert. The transmission diagnostic should be checked to identify which errors are present.

### Engine Speed Indicator



Engine speed indicator measures the number of engine speed per minute. It begins to work when the engine starts.

### Speed (km/hour) Indicator



It is the indicator which shows the speed of the vehicle in terms of kilometers/hour. It starts to work after the moving of the vehicle.

|

### Fuel Indicator

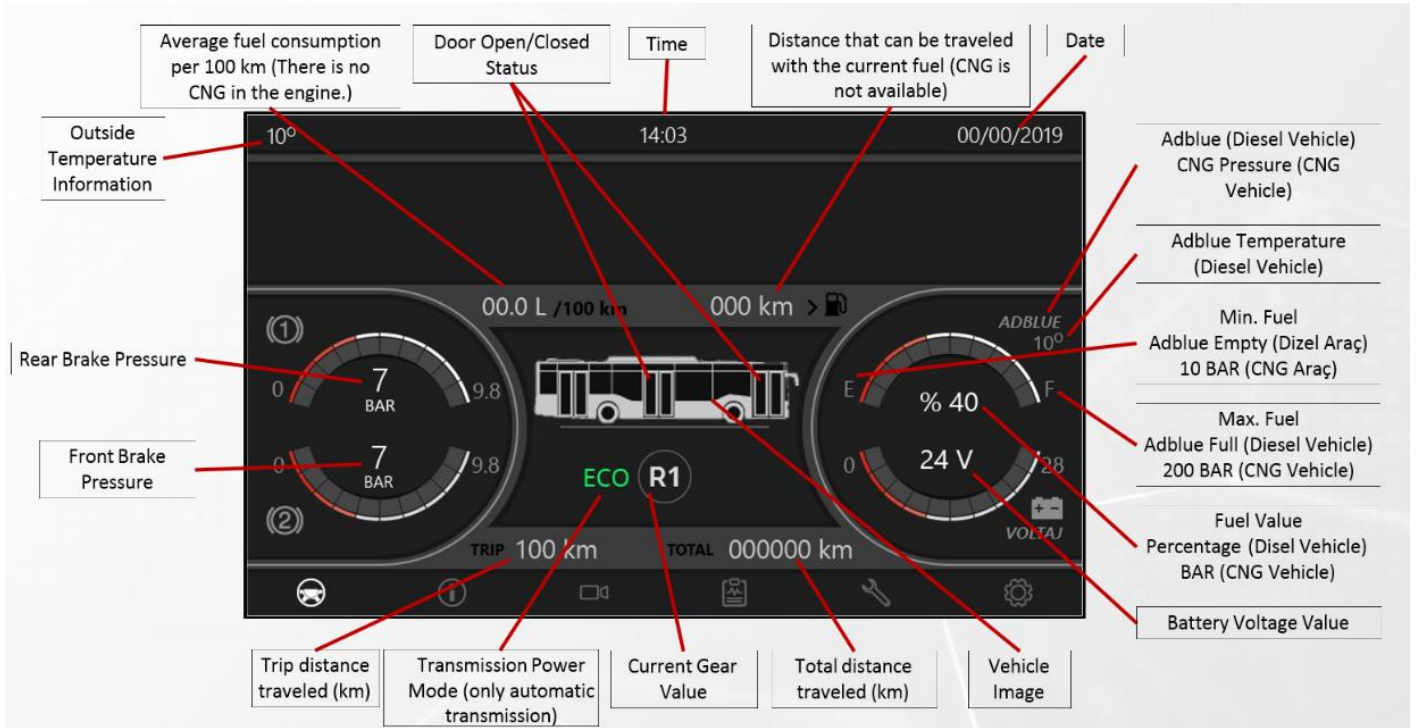


Fuel indicator shows the level of the fuel in fuel tank. When the needle nears "0", the red light at the bottom right of the indicator lights; it means that the fuel is reduced. Extra fuel should be added before the fuel in the fuel tank completely finished, otherwise the system makes-up air.

### Engine Heat Indicator



It shows the temperature of the engine cooling fluid. When the temperature exceeds 107 °C, warning lights red.



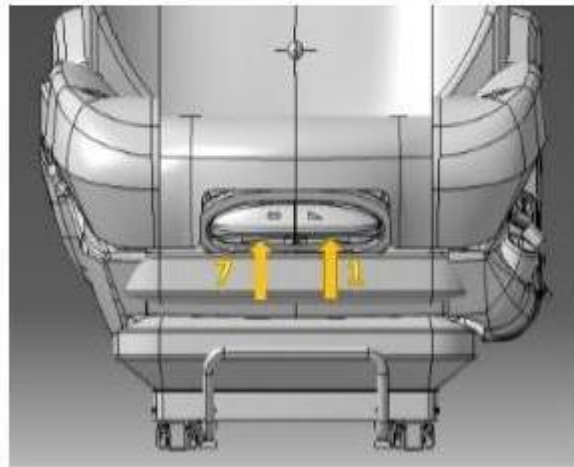
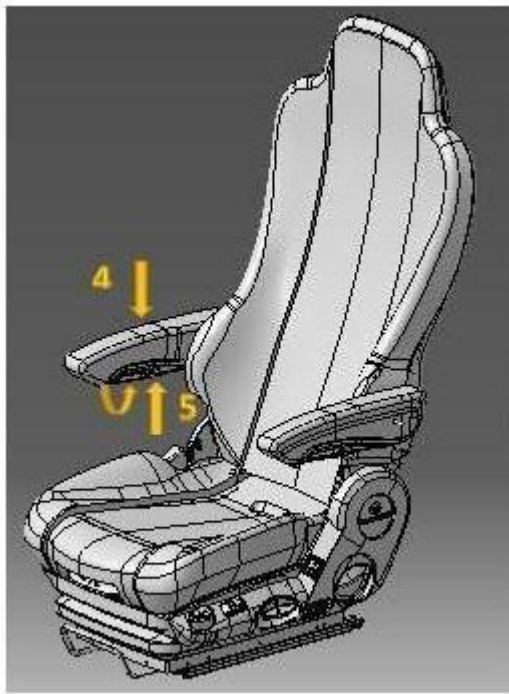
## ROUTE INDICATOR CONTROL PANEL



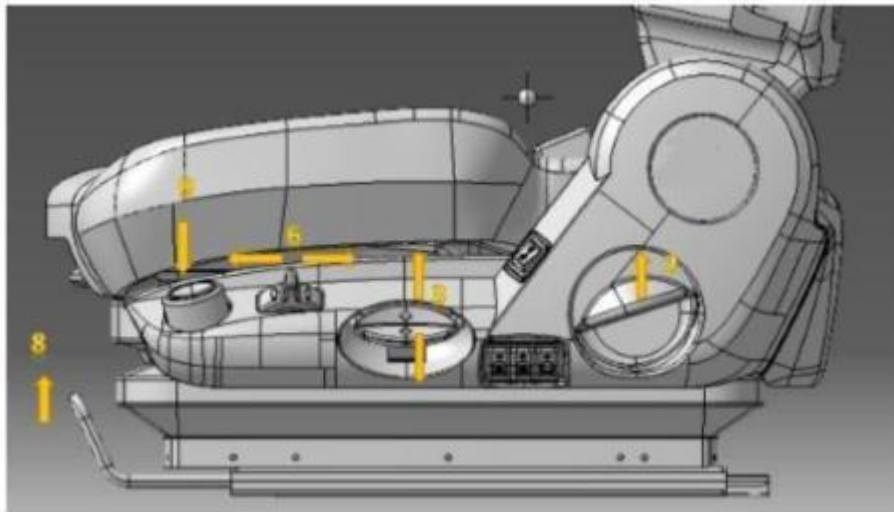
There is a route indicator control panel on the upper console in the driver compartment. Route information which would be shown in route indicator are selected/changed by this control panel.

## **4.VEHICLE EQUIPMENT**

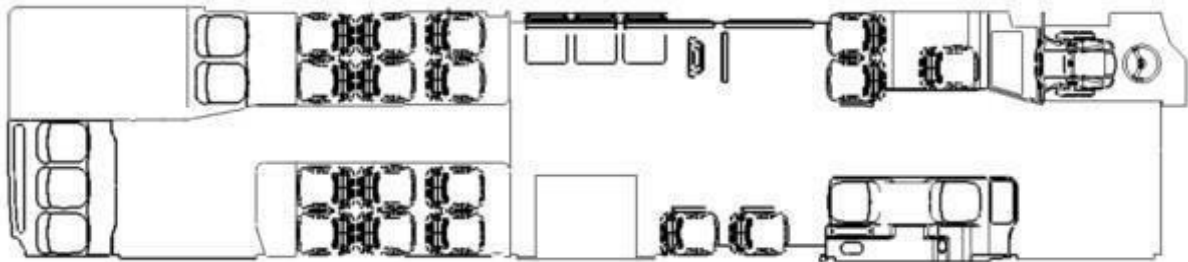
## DRIVER SEAT



1. **Seat Tilt Adjustment:** The button on the left is pulled up in order to adjust the incline of the seat shell. By giving the weight to the front and back at the same time, the incline of the seat is comes to the desired position.
2. **Backrest Tilt Adjustment:** It is adjusted by unlocking the backrest (lock lever is pulled up) and the backrest is reclined by pushing backwards.
3. **Height Adjustment:** The height of the seat is changed by holding up or pushing down the foot latch.
4. **Mittens:** There are mittens in both sides of the seat that can be lowered and raised.
5. **Mittens Tilt Adjustment:** The incline of the mittens can be changed by turning the button.
6. **Shock Absorber Firmness Adjustment:** The flexural stiffness of the seat can be adjusted at 3 stages.
7. **Seat Depth Adjustment:** The button on the right is pulled up in order to adjust the width of the seat moving forward. The seat is adjusted to the desired position by pulling front and back at the same time.
8. **Forward/Backward Adjustment:** The seat can be moved forward or backward by pulling seat locking lever.
9. **Fast Download:** By pressing and fixing the button, the seat can be downloaded to the lowest position. When pressed to the button again, the seat rises to the driving position again.



## PASSENGER SEATS



The vehicle has 27 passenger seats (24 + 3 folding seats). The passenger seats are fabric upholstered. The vehicle is equipped with triple seat in the rear, two single seats in the front right, a single in the front left and two in the other seats. There are 3 folding seats opposite the central door. There are two priority seats on the front right side of the vehicle, two single priority on the left side and one double priority on the left side.

## SIDE WINDOW WITH RESISTANCE

It is located at the left side of the driver. By driving electric engine, the switches on the front control panel can be controlled by the driver.

When the movable glass is broken or when the electric motor fails, apply to the authorized service.

## WATER HEATER/COOLER FOR DRIVER (OPTIONAL)



There is a water heater/cooler available for driver at the right side of the driver seat. Cooling mode is at the range of 22°C below the ambient temperature; and the heating mode is at the range of up to 60 °C beverage temperature.



## DVD PLAYER

1 DIN RADIO

**necvox**  
CAR INFOTAINMENT SYSTEMS



There is a USB and AUX-IN entry DVD player at the upper console of the driver compartment.

## DIGITAL TACHOGRAPH (OPTION)



It is located at the top of the windscreen, on the driver's side. Records, displays or prints data about the driver and vehicle. The recording is done on the internal memory unit in the device and on the tachograph card placed on the device. The device shows the time, vehicle speed and range information as standard.

## ROLLER BLINDS

There is an electric roller blinds on the side of the driver's side of the windscreen. Opening and closing of the curtain is provided by the curtain switch on the front control panel. Citiport S vehicles have manual opening and closing roller blinds.

In addition, manual opening and closing roller on the left side of the driver (except Citiport S vehicles) is available.

1 Display	Depending on the operating status of the vehicle, different screens appear. If desired, the standard display will show the local time. This pictogram is labelled with "+" (a).
2 Driver 1 keypad	Activity button for drive 1 Activity button for card slot 1
3 Card slot 1	Insert the driver card that will use the tool into the card slot 1.
4 Download and calibration interface	The download and calibration interface is located under the cover.
5 Drive 2 keypad	Activity button for drive 2 Eject button for card slot 2
6 Device seal	To prevent unauthorized opening of the case.
7 Card slot 2	Insert the driver card that will not use the tool in card slot 2
8 Release button	The printer drawer release button, for example, when loading paper.
9 Printer	Internal printer or integrated printer to output data from tachograph cards inserted.
10 Menu buttons	Selects the desired function. Confirms the function or action. As steps, the menu returns or cancels the function.

## DIAGNOSTIC SOCKET

It is at the backwards of the driver seat. This socket is used for loading and changing the parameters of the vehicle data communication system and for diagnostics.

## PASSENGER INFORMATION PANEL



There is a digital panel available at the right back of the driver for informing passengers. The time and the air temperature and alternately the date information are included at this panel.

Additionally, the “STOP” warning is monitorized on the passenger information panel when pressed on the stop buttons.

## MIRRORS



There is 1 internal rearview mirror available in the vehicle. There are 2 external rearview mirrors, one of which is at right and one is at left. The formation of condensation or ice in external mirrors is prevented by resistance heating.



RIGHT EXTERNAL REARVIEW



LEFT EXTERNAL REARVIEW

## DIGITAL ROUTE INDICATOR PANEL



There is one digital route indicator panel at the front (turning the corner) and one at the rear. (In Citiport S vehicles, instead of turning the corner indicator panel, there are separate indicator panels. One is at the front and the other is on the right side.)

### **Digital Colored Front Route Indicator Panel (Optional)**

There are 3 options available; one of which is at front (colored), one of which is lateral and one of which is at rear.

### **LCD Display**



There is one 19" LCD display at the front side of the vehicle. This screen may be used for informing the passengers and for ad impressions.

### **HALF POP-UP WINDOW**



There are 7 half pop-up windows in the vehicle.

### **TRAPDOOR**



There are 2 trapdoors including front and rear in the vehicle. They are electrically controlled. The opening/closing operations of the covers according to the desired direction of the air inlet are realized with the air condition switch on the front control panel. Trapdoors are designed to be used as emergency exits when needed.

### **HANDLES**



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

## STOP BUTTON



There are 11 stop buttons 7 of which are on the holding pipes, 3 of which are on the side wall for priority passengers and 1 for disabled passengers in the vehicle. The passengers who want to get off the vehicle, informs the driver by pressing on these buttons. The related door button lights and the “STOP” expression is seen on the passenger information panel. Additionally audible warning activates. When doors are opened, “STOP” article and the warning lights on door buttons turn off.

## PACK AREA



There is a pack area (except Citiport S vehicles) on the front wheel arch in which passengers may put the things in their hands (umbrella, package, suitcases etc.) designed passengers to travel in comfort.

## WHEEL CHAIR FIXING AREA

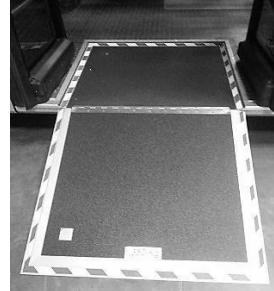


There is a special place in front of the middle door for the passenger who enters the vehicle with wheel chair in order for him to travel in secure.

## **DISABLED PASSENGERS RAMP**

A manual opening/closing ramp is installed to the middle door in order to ease the entry/exit of the disabled passengers with wheel chairs.

### **The Use of Ramp**



Stop the vehicle in a place where the traffic is suitable.

- Open the middle door.
- Open the ramp by holding it from its handle on it and by pushing towards the outside of the vehicle.
- Provide the entry/exit of disabled passengers.
- Close the ramp by folding towards inside of the vehicle.

Disabled Ramp warning light and voice shall activate when the ramp is opened.

## **EXTERNAL CAMERA SYSTEM**

There are 2 external cameras beside right and left rearview mirrors in order to see the barriers around during the movement of the vehicle. The camera at right also helps to follow the getting off the passengers from the middle or back doors.

## **INTERNAL CAMERA SYSTEM**



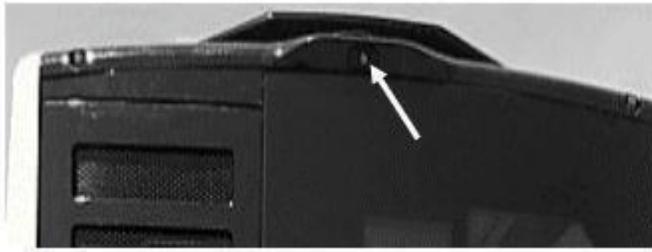
There are 5 cameras inside the vehicle 3 of which is used for controlling the entry and exit of the passengers, and one each for watching the driver and the road. The sights obtained from the camera are monitorized on the LCD display on the front control panel.

## **DVR (Digital Video Recorder)**



DVR is installed under the front trapdoor in driver compartment. DVR provides the recording of the audios and videos captured to the camera.

## REAR VIEW SYSTEM



There is a closed-circuit camera system available which monitorizes the area behind the vehicle when parking or reversing the vehicle. The sights obtained from the camera are monitorized on the LCD display on the front control panel.

## PARKING SENSORS



There are 4 parking sensors mounted on the fender. Sensor activates when the reverse gear is engaged. It buzzers the driver during the reversing according to the distance between the fender and the backward barriers.

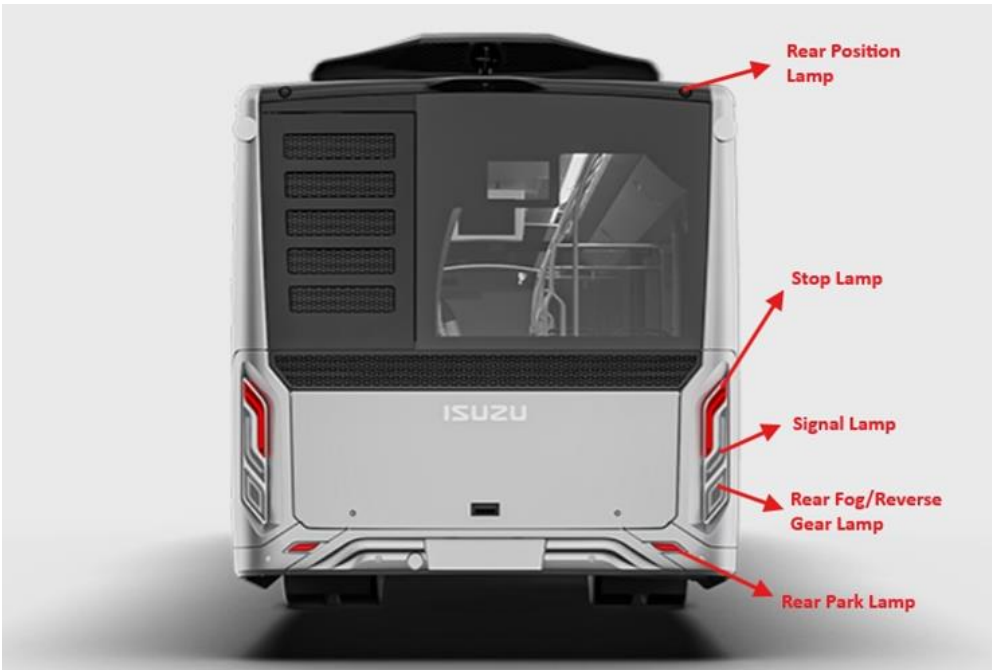
## EXTERNAL ALERT AND LIGHTING LAMPS

Lamps	Number in the vehicle
Main beam/parking	2 pcs
Low beam	2 pcs
Front fog lights	2 pcs
Front signal lights (with led)	2 pcs
Front clearance lights (with led)	2 pcs
Lateral signal lights (with led)	2 pcs
Sidemarkers (with led)	10 pcs
Rear signal lights	2 pcs
Brake/parking lights	2 pcs
Reverse gear lights	2 pcs
Rear fog lights	2 pcs
Rear plate lights (with led)	2 pcs
Rear clearance lights (with led)	2 pcs
Day drive lights (with led)	1 set
Reflector	2 pcs
Engine Illumination light (with led)	1 pcs

Set of Front Headlight



Rear Lights

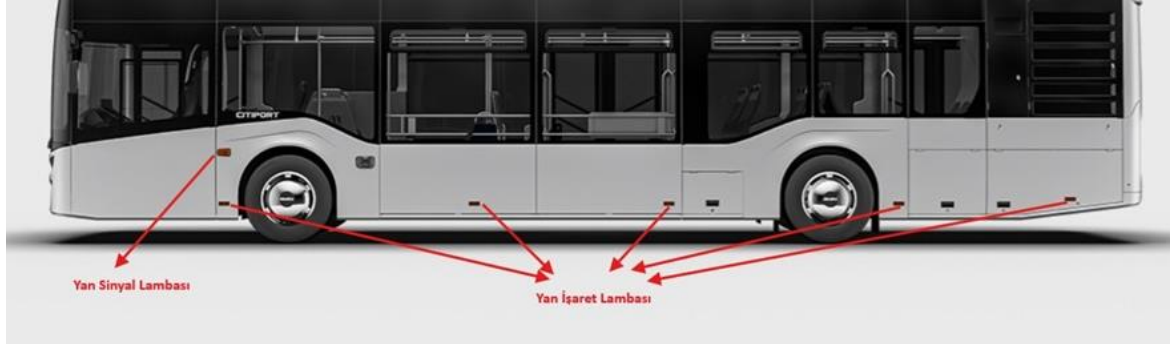




## Side Signal Lights and Sidemarkers and Clearance Lights

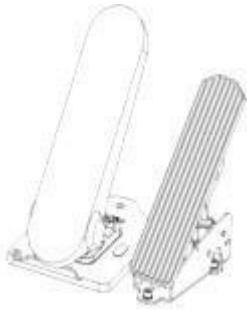
There are totally 2 side signal lights at right and left of the vehicle. They work with front and rear signal lights.

There are 4 clearance lights, 2 of which are at the upper front and 2 of which are at the upper rear of the vehicle. Additionally there are 10 sidemarkers, 5 of which are at right and 5 at left.





## PEDALS



**Brake Pedal:** The pedal at left is brake pedal. This pedal is part of electronic brake system (EBS). An electric signal is sent to the central control unit when pressed on the brake pedal and the air is dispersed to brake elements.

**Gas Pedal:** The pedal at right is gas pedal. The electronic signal sent by the position sensor connected to the gas pedal is evaluated by ECU (Electronic Control Unit) and the amount of fuel delivered to the engine is adjusted. At the end of gas pedal there is kick-down button which increases the engine speed.

## TRANSMISSION



There is a gear selector with 6 buttons in the vehicle. These buttons are:

**1, 2, 3 buttons :** They are used for limiting the maximum gear value that the transmission can raise.

**D button** : Automatically Forward

**N button** : Idle Gear

**R button** : Reverse Gear

The transmission should be at “N” position while the engine was running. When the ignition switch is turned on first of all all the buttons light for 1 - 2 seconds, then only the selected button lights. If the selected button flashes, it means that the selected gear was not accepted by the transmission control unit since the suitable conditions could not provided for the shift of the gear. If all the lights are flashing, it means that the gear selector was malfunctioning or there is a problem in the wirings of the vehicle data communication system (CAN). When pressed on more than one button by fault, the transmission performs the lowest gear selected. For example when it is pressed on D and 3 buttons at the same time, the transmission shall consider the 3 button.

### **While shifting the gear;**

- Do not press on the gas pedal
- The speed of the engine should be less than 900 rpm
- The vehicle must be in stop position
- It should be pressed on the brake pedal
- It should be pressed on the gear which shall be selected

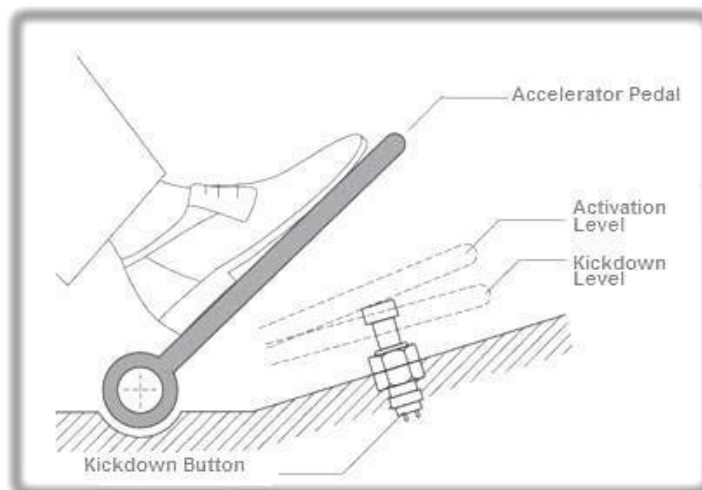
The transmission does not allow to select the gear in the following cases and its light flashes when pressed on the button.

- If pressed on the gas pedal
- If the engine speed is over 900 rpm
- If the vehicle is moving at the speed of more than 3 km/h and if it is moving in the opposite direction of the desired
- If the transmission oil heat is less than - 20 °C

Pull your foot from the brake pedal after 1 - 2 seconds of gear selection, the vehicle shall move. When the foot is pulled from the brake pedal while the vehicle is uphill, the transmission brakes so as to prevent the vehicle from rolling back.

### **Downhill**

While driving downhill, in order to limit the gear when needed it is to be limited the gear increase by selecting 1, 2 or 3 numbered gears.



### **Kickdown Specification**

When high engine power is needed, the gear is reduced with the specification of kickdown. To do so, it is to be pressed on the gas pedal until passing the kickdown activation point. The usage of kickdown specification increases the fuel consumption.

## Retarder Specification

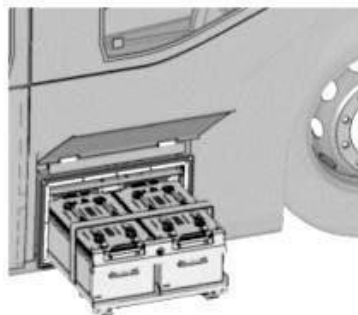
Retarder is the hydrodynamic brake specification of transmission which is used for extending the life of service brakes. It works at three stages with lever and/or brake pedal. Retarder works at 1<sup>st</sup> stage when pressed on the brake pedal first, when the pedal is being pressed it raises up to 3<sup>rd</sup> stage and by this way it increases the brake torque. If it is pressed on the pedal much more, service brakes activate, too. When the transmission oil exceeds the critical temperature, the performance of the retarder decreases or the transmission closes its retarder specification. When the transmission heat excessively increases, warning lights on the indicator.

## GAS FILLING



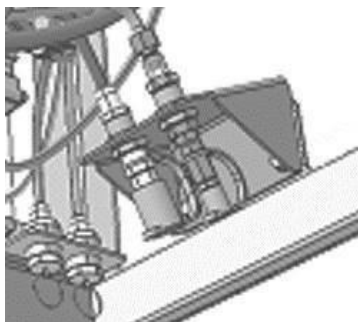
Gas filling ports are located at the right and the left side of the vehicle. Filling ports are ANSI NGV2 compatible. On the sides of the filling openings there are manometers that show the gas pressure in the tubes and the gas filling cap open / close sensor. Up to 200 bar of gas can be supplied to the tubes. If the cap is opened while engine is running, engine will stop until the cap is closed.

## ACCUMULATORS



The accumulators are located at the front side of the left rear wheel, they are installed on the sliding rails in the manner that can be easily inserted and removed. There are 2 accumulators in the vehicle. Each of them are 12V and 240 Ah.

## TIRE INFLATOR KIT



The ports which bleed air from the vehicle and supply air to the vehicle are located at the bottom between middle door and the wheel. If the air pressure in the wheels of the vehicle reduces, wheel pressures may be adjusted by using tire inflator kit in the toolboxes. To do so;

- Park the vehicle in the way not blocking the traffic.
- Get the gear into neutral by pulling the handbrake, start the engine.
- Take the tire inflator kit.
- Insert one end of the hose to the tire valve and the other end to the air outlet end behind the middle door.
- Complete the tire inflation by giving gas to the engine.

## HEATING AND COOLING SYSTEM

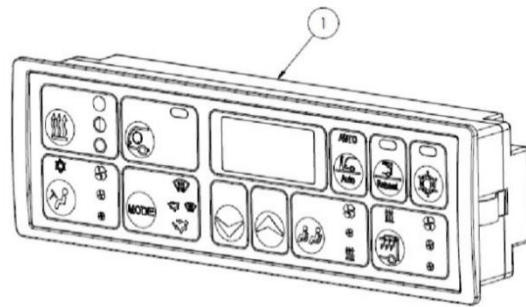
### Air Condition Control Unit

The control unit is located on the upper console of the driver compartment. There is one 22 pin, one 20 pin and one 6 pin connection socket on the rear panel of the control unit. There are 11 push buttons available on the front panel of the unit for conducting the various functions of the air condition. Different data and values such as desired (adjusted) and existing temperature level can be read from the three-digit and seven-segmented indicator located on the control unit of the passenger side.

**Driver's Side Control Buttons**



**Passenger's Side Control Buttons**



## Control Unit Button Functions

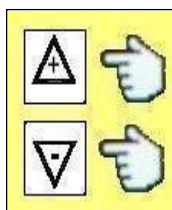
Button no	Function of the Button
T1	Opens/Closes the heating mode on driver's side
T2	Selects the circulation / fresh air mode on driver's side
T3	Selects the position of air flaps on driver's side (foot/foot-glove box/front window)
T4	Takes mist of the glass on driver's side
T5	Adjusts the fan efficiency manually on driver's side
T6	Starts the cooling mode on driver's side
T7	Opens/closes air condition on passenger's side
T8	Activates the fan efficiency manually on passenger's side
T9	Selects circulation / fresh air on passenger's side
T10	Raises comfortable heating degree up to 15 °C - 30 °C on passenger's side
T11	Reduces comfortable heating degree down to 30 °C - 15 °C on passenger's side
T10 - T11	Calls sensor values (when pressed both buttons together)
D	Display

### Reading The Internal Temperature Value



It shows the ever-present internal temperature on the indicator automatically when the vehicle starts.

### Reading The External Temperature Value Manually

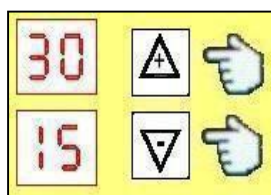


P1 appears on the indicator when T10 and T11 buttons were pressed together. It is pressed on to + button until P5 appears on the screen, the screen shows the external temperature degree for 5 seconds. Then it shows the passenger's side degree automatically.

### The Adjustment of The Degree of The Passenger Side Air Condition



Press on the Auto (T7) button on the control unit, (led active)



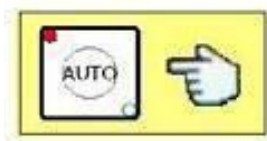
Increase the desired ambience temperature value by pressing on T10 button. Maximum 30 °C may be adjusted.  
Decrease the desired ambience temperature value by pressing on T11 button. Minimum 15 °C may be adjusted.



← Then the indicator automatically shows the temperature of the passenger side (internal temperature) again.

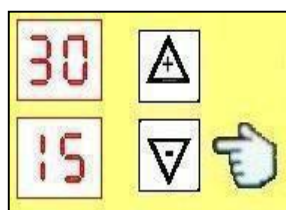
### Operating The Ceiling Air Condition in Cooling Mode

Start the engine of your vehicle.



Press on the Auto button on the control unit, when you press on “**Auto**” button your air condition shall begin to run in “**Automatic Mode**”. The red led lights when Auto is active, and the red and green led light together in cooling mode.

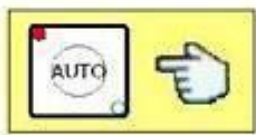
**Note:** The set value would remain 21 °C automatically when pressed on Auto button.



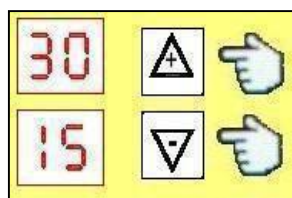
When you adjusted the desired comfortable temperature value for running in “cooling mode” of the device minimum **1.5 degrees less than** the passenger side temperature, it would begin to run in cooling mode 60 seconds later. Blowing fans accelerate and decelerate depending on the temperature. Automatic running mode is quitted by pressing on Auto button again. Condenser fans breakdown 20 seconds later.

### Operating The Passenger Side Air Condition in Heating Mode

It opens the heated air condition (optional) if there is in the vehicle. Start the engine of your vehicle.



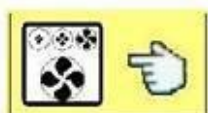
Press Auto button on the control unit, your air condition begins to work in “**Automatic Mode**” when you press on “**Auto**” button. The red led lights when Auto is active.



When you adjusted the desired comfortable temperature value for running in “heating mode” of the passenger air condition minimum **1.5 degrees more than** the passenger side temperature, the ceiling air condition would begin to work in heating mode. Blowing fans operate at 1<sup>st</sup> stage in heating mode. Automatic running mode is quitted by pressing on (Auto) button again.

### Manuel Adjustment of Ventilation Efficiency of Passenger Side Air Condition

It is possible to control the ventilation efficiency of the passenger air condition manually.



You may increase, decrease or close the ventilation efficiency gradually by pressing repeatedly on T-8 button.

There are fan symbols on three alongside buttons on which you may see the speed of the fan. With the activation of the led on this symbol, the fan speed you had chosen may be seen.

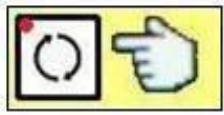


Led I (Evaporator blower fan 1<sup>st</sup> stage active (related led lights)

Led II (Evaporator blower fan 2<sup>nd</sup> stage active (related led lights)

Led III (Evaporator blower fan 3<sup>rd</sup> stage active (related led lights)

#### **Operating The Passenger Side Air Condition in Air Circulation Mode**



It operates in the “Air Circulation Mode” when you press on T9 flap button on the control unit. The related led activates. The air condition begins to work in “air circulation mode” automatically when it is in the “Auto” mode. The related led lights.

#### **Operating The Passenger Side Air Condition in Fresh Air Mode**



If the related led does not turn on when you press T9 flap button on the control unit, it begins to work in “fresh air mode”. The related led does not light.

#### **Operating The Front/Driver Side Air Condition in Cooling Mode**



The solenoid valve turns on when you press T6 driver side cooling button on the control unit and cooling starts. The related led turns on. When you press the same button once again to close, the led turns off and closes.

**Note:** The front/driver side air condition shall make cooling only when the passenger side air condition operates in cooling mode.

#### **Operating The Front/Driver Side Air Condition in Heating Mode**



The heating valve is turned on when you press T1 temperature button on the control unit and heating starts. The heating efficiency may be adjusted by pressing repeatedly on T1 button at 2 stages.

When you press T1 button once, the motorized valve is opened at 50%; when you press once more, it is opened at 100%.

#### **Manual Adjustment of Ventilation Efficiency of Front/Driver Side Air Condition**

The ventilation efficiency of the front/driver side air condition can only be controlled manually.



You may increase, decrease or turn off the ventilation efficiency by pressing T5 fan button repeatedly.

Led I (Evaporator blower fan 1<sup>st</sup> stage active (related led lights)

Led II (Evaporator blower fan 2<sup>nd</sup> stage active (related led lights)

Led III (Evaporator blower fan 3<sup>rd</sup> stage active (related led lights)

At the same time, when you press T5 fan button, you can see the fan speed you had chosen on the control unit screen with the following codes.



Blowing Fan 0



Blowing Fan 1<sup>st</sup> stage

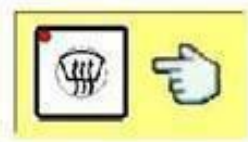


Blowing Fan 2<sup>nd</sup> stage



Blowing Fan 3<sup>rd</sup> stage

#### **Taking Mist of Front Window with Front/Driver Side Air Condition**



The front window mist taking starts automatically when you press T4“DEF”. The fans raise to at most the 3<sup>rd</sup> stage automatically, the heating valve is opened at 100% automatically, the position of the air blowing flap passes to the front window automatically.

To close, press again on T4“DEF” button (the related led turns off).

#### **The Positioning of Air Flap of Front/Driver Side Air Condition**



You may adjust the air circulation in the driver side at the 3 different positions by pressing repeatedly on T3 air flap positioning button.

1. Air flap position to feet. (the led on the symbol lights if it is active)
2. Air flap position foot and front glove. (the led on the symbol lights if it is active)
3. Air flap position front window. (the led on the symbol lights if it is active)

#### **The Definitions of Display Codes:**

P1 - Internal Environment Sensor Right

P2 - Internal Environment Sensor Left

P3 - Internal Environment Sensor Right/Optional

P4 - Internal Environment Sensor Left/Optional

P5 - External Sensor



F0 - Passenger side blowing fan is off

F1 - Passenger side blowing fan 1st stage

F2 - Passenger side blowing fan 2<sup>nd</sup> stage

F3 - Passenger side blowing fan 3<sup>rd</sup> stage

dF0 - Driver side frontbox blowing fan / off

dF1 - Driver side frontbox blowing fan / 1<sup>st</sup> stage

dF2 - Driver side frontbox blowing fan / 2<sup>nd</sup> stage

dF3 - Driver side frontbox blowing fan / 3<sup>rd</sup> stage

### **Error Codes**

There are 10 error codes designated to the air condition control unit. EEE-Error,

A1 – No main supply

C1 – Magnetic clutch coil does not pick.

H1 – Heating valve does not activate.

E1 – Internal Environment Sensor error (right)

E2 – Internal Environment Sensor error (left)

E5 – External environment sensor error

E6 – Right flap positioning error

E7 – Left flap positioning error

E10 – 3-way motorized valve positioning error

E12 – Frontbox air direction flap positioning error

## **ELECTRONIC BRAKE SYSTEM (EBS)**

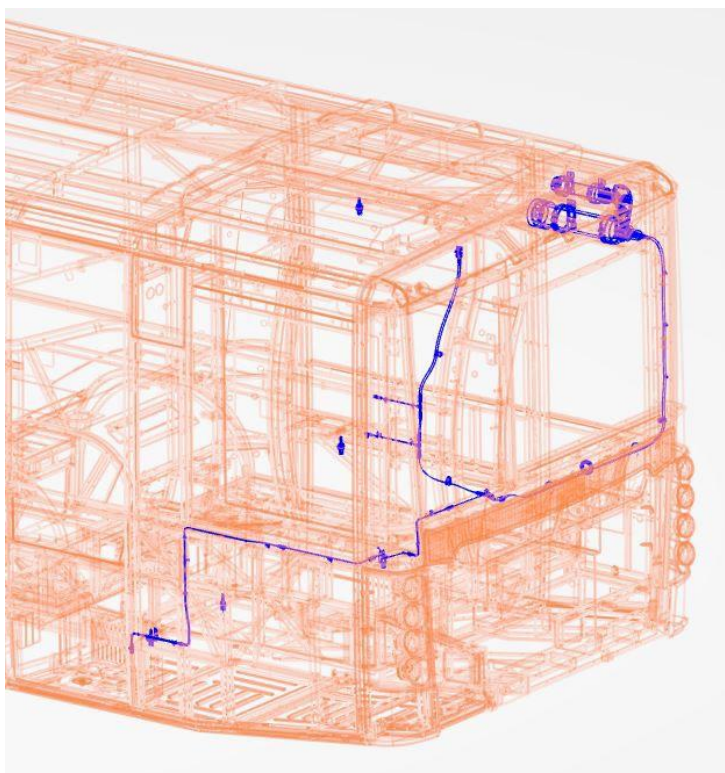
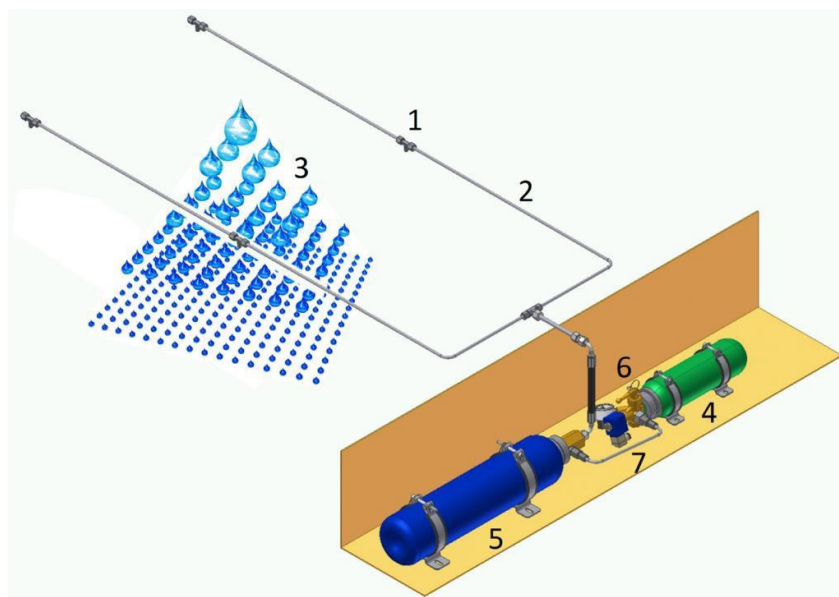
Electronic brake system has both electronic and pneumatic infrastructure. Under normal conditions the brake system is controlled electronically. The brake demand coming from the driver is operated by control unit, the most suitable brake at that condition is generated. This system has a higher performance as compared to conventional systems. The system does not close itself in case of electronic failures, it continues to run pneumatically.

EBS system includes the following functions:

- 1) Anti-Lock Braking System (ABS):** It prevents the rolling of the vehicle by precluding the locking of the wheels during braking. It provides the steering stability in sudden brakings.
- 2) Traction System (ASR):** The ASR activates when the drive wheels spin in ramps, slippery surfaces and during acceleration and it increases the driving safety by reducing skid at minimum.
- 3) Drag Torque Control (DTC):** The wheels may be locked due to the inertia of the drivelines in slippery surfaces, this system activates and increases the engine torque and tries to provide roadholding.
- 4) Electronic Brake Balancing (EBD):** It distributes the necessary brake force among wheels according to the vehicle's load status and pad wear.
- 5) Pad wear** can be controlled, the thickness of the pads are continuously followed on the dashboard.
- 6) Retarder Integration:** The system always interacts with retarder. The retarder precludes the pads wear in light brakings, at the same time it reinforces the brake system under normal conditions. Retarder system breakdowns when ABS function operates.

Security functions do not work in electric failure events, the performance of the brakes reduces, in this case the driver has to apply to the nearest authorized service carefully. The security functions such as ABS, ASR and DTC are effective in reducing the accidental risk, but the most important issue is to drive the vehicle appropriate to the traffic and road 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**

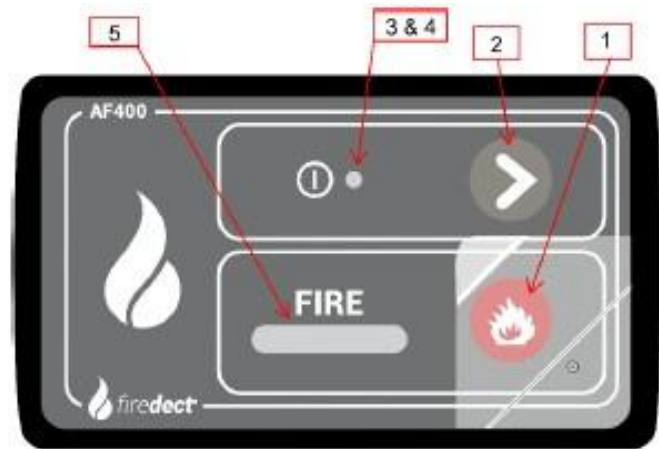
The following operations should be performed when the fire extinguishing system activated because of a reason other than fire and the tanks emptied:

- 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

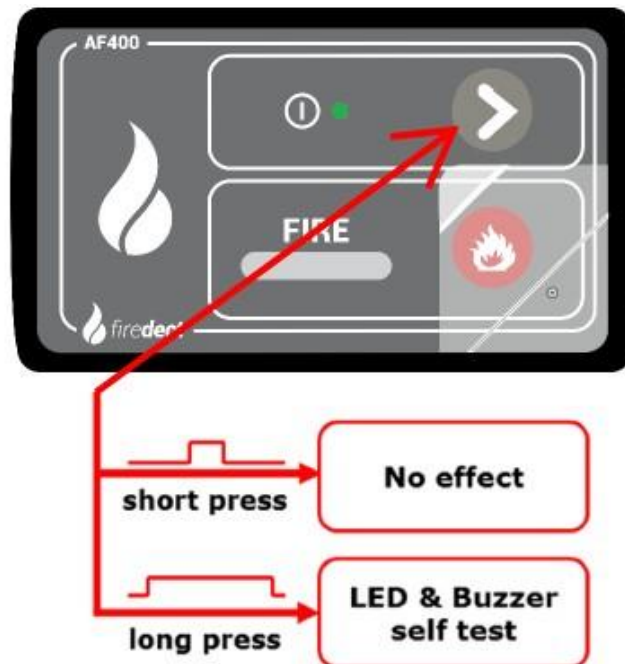
Alarm activated.

## **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.

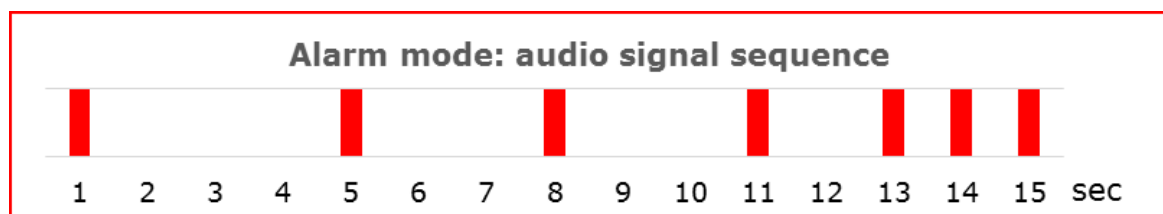
## Normal Operational Mode

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.



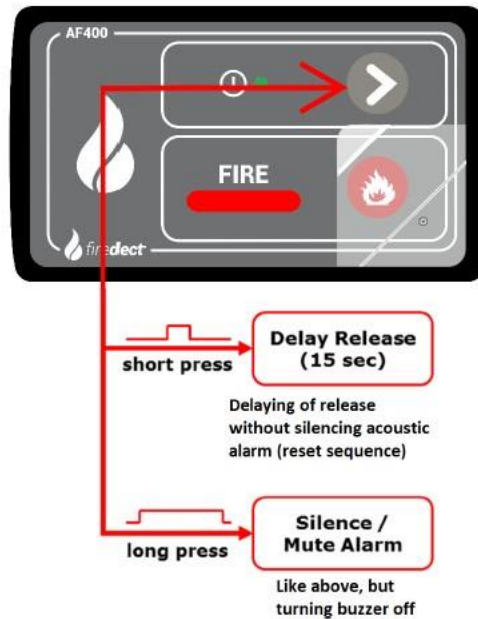
## Alarm Mode

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-1)

### Control Module

#### In Case Of Alarm- Fire

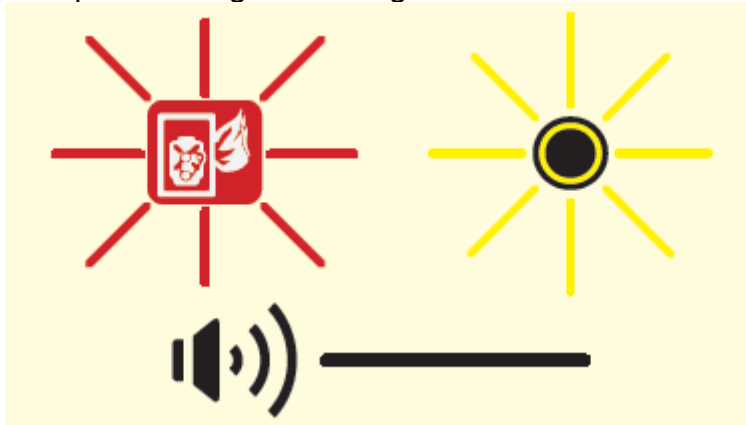
- Red motor fire symbol/red lamp flashes red.
- Alarm siren gives repeating acoustic signal.
- Fire alarm signal – bus manufacturer's system:
- See bus manufacturer's manual.

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

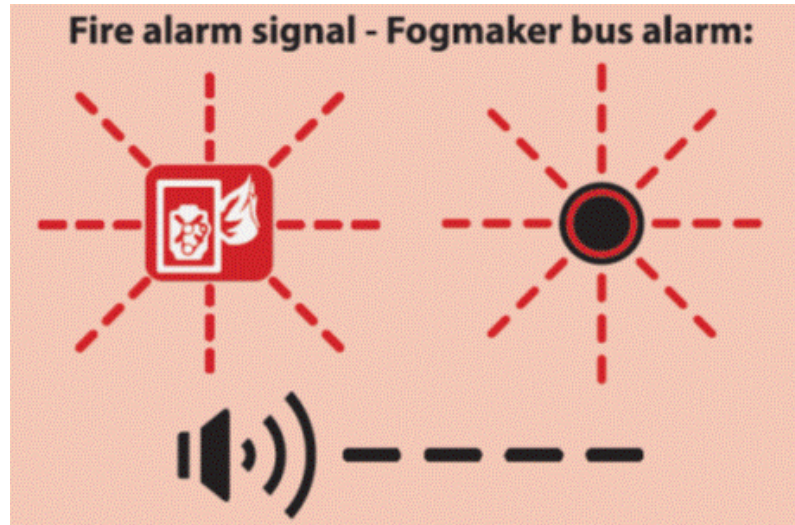
Low pressure signal with fogmaker bus alarm:



- 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



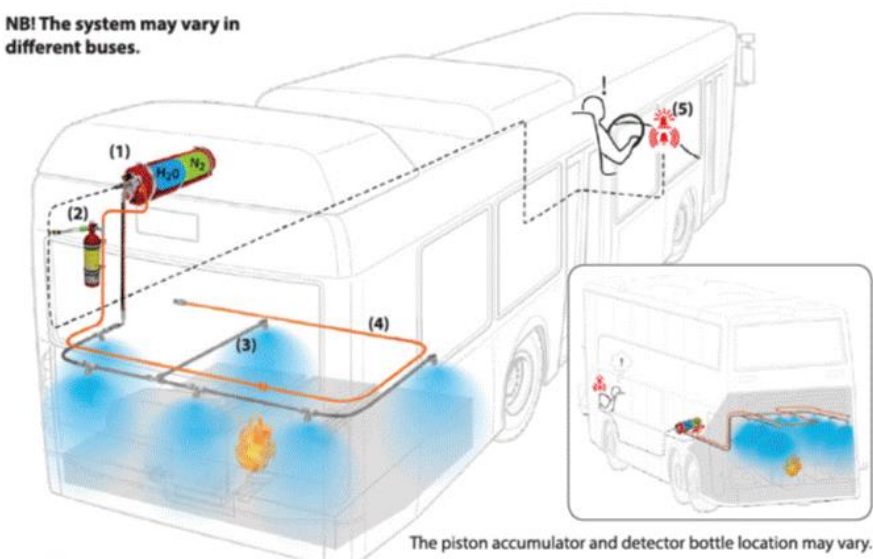
1		Turn off engine
2		Evacuate vehicle
3		Turn off main power
4		Call emergency services
5		Keep engine hatch closed at least 5 minutes
6		If necessary, use a hand-held extinguisher
7		Contact service personnel

### 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

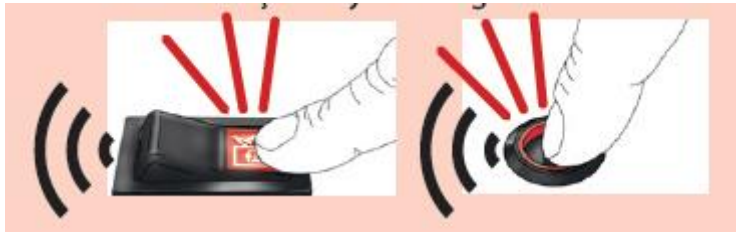
Pressure switch installed: Check that lamps indicating low pressure are not alight on the bus alarm button.

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.



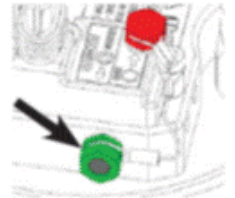
Alarm test – bus manufacturer's system:  
See bus manufacturer's manual.

### 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

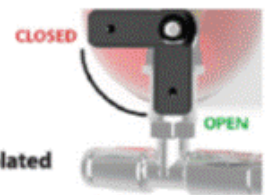


**Green screw** mounted  
in the side of the valve  
**unlocks the system** so  
it can deploy

Detector bottle: 20-24 bar at 20°C



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



## **DRIVE SUPPORT SYSTEMS**

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

Transmits tire pressure information to the driver. TPMS warning,

- If any tire pressure is 20% below the nominal pressure,
- If any tire pressure is 25% above the nominal pressure,
- When a tire without a sensor is installed,
- When the sensor battery level is low,

It informs the driver.

During tire or wheel changes, the sensors on the wheels must be installed on the same wheel. If multiple sensors are replaced, the TPMS sensor registration process must be performed. The battery life is approximately 7 years. Tire changes must be performed at ISUZU authorized service centers. Interventions performed outside of an authorized service center may prevent the TPMS from functioning properly. If there is an error in the sensors or the system, a red warning light will illuminate.

### **DDAW (DRIVER FATIGUE DETECTION SYSTEM)**

When the vehicle speed is above approximately 60 km/h, the system calculates the driver's attention level based on their behavior. The system analyzes whether driving has deteriorated and alerts the driver to take a break. It consists of a two-stage warning system:

- A warning is issued recommending that you take a break. This remains on the instrument panel until you cancel it. If you do not take a break and the system continues to detect that your driving has deteriorated, it will permanently display the fatigue icon, which will remain until you turn off the vehicle.

Since the system operates in conjunction with cameras and sensors:

- If the camera and sensors are obstructed or damaged, the system may not function properly,
- The system may not function properly on roads where lanes cannot be read or are uneven,
- The system's performance may vary depending on weather or environmental conditions (rain, light, etc.).

The fatigue detection system can never definitively determine the driver's actual fatigue level. If you feel tired or distracted, you should rest. Vehicle control and safety are always the driver's responsibility.

### **ISA (Intelligent Speed Assistant)**

When the specified speed limit is exceeded, the driver is given a visual and audible warning.

- The function works in conjunction with GPS and camera.
- The driver is given information about the speed limit on the route.

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

This system alerts the driver with optical and acoustic warnings when the vehicle exceeds the speed limit of approximately 60 km/h and drifts out of its lane.

The system does not function when radar sensors are obstructed (e.g., by snow, mud, or dirt). Sensors do not replace safe driving; they are systems developed to assist the driver during driving. Systems may not function as expected in certain situations. Driving safety and attention requirements are the driver's responsibility.

- On roads where lanes cannot be read properly,
- When the vehicle is traveling below approximately 60 km/h,
- During sudden braking or lane changes,
- In cold, foggy, or severe weather conditions,
- In dense or low light and glare,
- When ABS, ESP, or ASR systems are activated,
- On uneven road surfaces and sharp curves,

The system may not function properly.

## **ADVANCED EMERGENCY BRAKING SYSTEM (CMS) - OPTION**

The Advanced Emergency Braking System is a system that automatically detects an emergency situation and activates the braking system to slow down the vehicle in order to avoid a collision or reduce its impact. It provides at least two warnings before braking, at least one of which is acoustic.

The CMS's operating speed range is set at 7-120 km/h. At speeds below or above this range, it will deactivate and enter "Temporarily Out of Service" mode.

The standard sequence of a full CMS reaction is as follows:

- Start of visual and audible warning (FCW)
- Application of haptic feedback (HCW)

CMS will not function properly if the following items are not observed:

- Do not alter the position of the radar or the radar cover.
- Do not paint the radar cover.
- Do not replace the radar cover.
- Do not place objects (plates, labels, bike racks, etc.) on or in front of the radar cover.

If CMS is not deactivated in the following situations, the vehicle may brake on its own, creating a dangerous situation:

- If the vehicle is towed while the ignition is on
- If the vehicle enters a mechanism where the wheels rotate while in a stable position
- If the vehicle is lifted off the ground by the front or rear axle, causing the wheels to rotate

The CMS system may not function properly under the following conditions:

- When the radar cover is muddy, wet, covered with snow, or icy due to weather conditions
- When the radar cover is damaged
- When there are reflections from the surroundings in tunnels
- When the vehicle cannot detect the vehicle ahead while turning

The CMS system does not apply brakes to objects such as toll booths or concrete blocks that do not reflect on the road.

## **MOTION START INFORMATION SYSTEM (MOIS)**

The system becomes active when the vehicle is traveling at approximately 0-15 km/h. In accordance with UN ECE R159 regulations, it only provides warnings for cyclists and pedestrians. The function does not work when the vehicle is in reverse gear.

- The function is active when the vehicle speed is between 0-15 km/h.

When objects enter the scanning area;

- The speed of parallel-moving objects must be between 2-7 km/h,
  - The speed of vertically moving objects must be between 0-12 km/h,
- to be detected.

MOIS may not function properly under the following conditions:

- When in reverse gear (R) or when the vehicle speed is approximately 15 km/h or higher, or when the vehicle is stationary,
- When objects in front of the vehicle are moving too close or too far from the vehicle,
- When objects are stationary or moving too quickly,
- If the sensors are obstructed by dirt, snow, mud, or an external cause, or if they are damaged,

The MOIS warning system should be turned off from the driver's display screen under the following conditions.

- If there is a load attached to the front of the vehicle (bike rack, etc.),
- If the vehicle is towing another vehicle or being towed by another vehicle,

## **BLIND SPOT WARNING SYSTEM (BSIS)**

The blind spot warning system has been developed to detect road users such as pedestrians, cyclists, and vehicles in the field of view of BSIS radars on the side of the truck. In accordance with UN ECE R151 regulations, 2 BSIS (right) and 1 MOIS (front) radars are used as standard in vehicles.

The blind spot warning system detects pedestrians, cyclists, and other road users entering or

about to enter the vehicle's blind spot and alerts the driver. By default, it monitors the right side of the vehicle, and if desired, the left-side blind spot area can also be included. Warnings are triggered when the object or vehicle is moving in the same direction.

The system alerts the driver with optical and acoustic warnings from the blind spot warning light on the passenger side. In situations where the system detects a collision risk, the driver is alerted with an icon on the display screen and optical and acoustic warnings.

- The function is active when the vehicle speed is between 0-30 km/h.

- The collision warning is not active when the vehicle is stationary.

When objects enter the radar scanning area;

- Cyclist speed must be between 5-20 km/h,

- Pedestrian speed must be between 2-20 km/h.

The blind spot warning system may not function properly under the following conditions;

- When in reverse gear (R) or the vehicle speed is approximately 30 km/h or higher, or the vehicle is stationary,

- When sensors are obstructed by external factors such as dirt, snow, mud, foil, or a different cover,

- When a vehicle enters the sensor detection area at high speed,

- When sensors or sensor covers are damaged,

- If there is an immobile or very slowly moving vulnerable road user (VRU) in the detection zone,

### **PLCA (PASSIVE LANE CHANGE ALERT) - OPTION**

The PLCA function alerts the driver to vehicles (cars, motorcycles, trucks, etc.) approaching from behind in the adjacent lane.

- The LCDA warning is activated when the specified objects are moving in the same direction as the vehicle.

- The minimum vehicle speed required for the function to activate is 43 km/h.

The speed limits required for the function to activate on the target object are:

- Minimum target vehicle speed: 21 km/h,

- Minimum relative speed -22 km/h (example: vehicle speed 43 km/h, target vehicle speed 21 km/h),

- Maximum relative speed 36 km/h (example: vehicle speed 50 km/h, target vehicle speed 86 km/h),

must be met.

## FUNCTION - MODULE NAME

## ACTIA

**BSIS**

Only "Audible and Visual Warning" can be selected from the menu, and this selection cannot be turned off.

Proximity warnings are indicated by a warning light located on the right A-pillar. (No audible warning.)

In the event of a collision, the following warning appears on the vehicle's cluster display. (An audible warning is given as long as the collision warning is active.)





**MOIS**

**When “Audible and Visual Warning” is selected from the menu;**

**Proximity warnings are displayed in the cluster as follows. (The icon makes a sound when it appears and**



**Collision warnings are displayed in the cluster as follows. (An audible warning is given when a collision warning is received.)**



**When “Alerts Off” is selected from the menu, the MOIS system shuts down and a passive alert appears on the radar screen.**



**PLCA**

**N/A**

## DDAW

If "Sound On" is selected in the menu, and the vehicle speed exceeds 70 km/h, and lane departure occurs three times within one minute, or the steering angle micro-movement approaches zero continuously for 4.6 seconds or intermittently for 6 seconds,

The coffee icon is displayed for 10 seconds (continuously), and the buzzer sound remains active for 3 seconds from the parking sensor module. If the vehicle speed remains above 0 km/h intermittently or continuously for 3 hours, the coffee icon remains on the screen until the vehicle is turned off.

If "Sound Off" is selected in the menu, the buzzer sound is disabled, and only the coffee icon is displayed.



If there is a fault in the DDAW system (LDWS or steering angle sensor problem), a crossed-out coffee icon is displayed.



## TPMS

If a drop in pressure is detected in one or more tire pressures, the following icon is displayed on the HMI screen.



## CYBER SECURITY

If the Cyber Security System is deactivated in the vehicle, the following icon is displayed on the HMI.



If the Cyber Security System detects a cyber attack on the vehicle, the following icon is displayed on the HMI.



## ISA

If the vehicle speed exceeds the detected speed limit, the visual indicator will blink for 10 seconds and the buzzer will sound continuously for 4 seconds.

If "Mute Audible Warning" is selected in the menu, the buzzer will be muted and only the speed icon will be displayed. If the vehicle speed exceeds the detected speed limit, the visual indicator will blink for 10 seconds and no audible warning will be given.

If "Visual Warning Off" is selected in the menu, the blinking is turned off, and only the speed icon is displayed. If the vehicle speed exceeds the detected speed limit, an audible warning is given for 4 seconds.



If "Turn Off Audible Warning" and "Turn Off Visual Warning" are selected at the same time from the menu, the speed limit information is displayed directly without blinking, regardless of the vehicle speed. No audible warning is given. If there is an interruption in the camera system or GPS data, an exclamation mark is displayed next to the speed limit icon.



If "System Closed" is selected from the menu or there is a malfunction in the camera system, the following icon is displayed.



## **5.SERVICE and MAINTENANCE**

## CLEANING VEHICLE

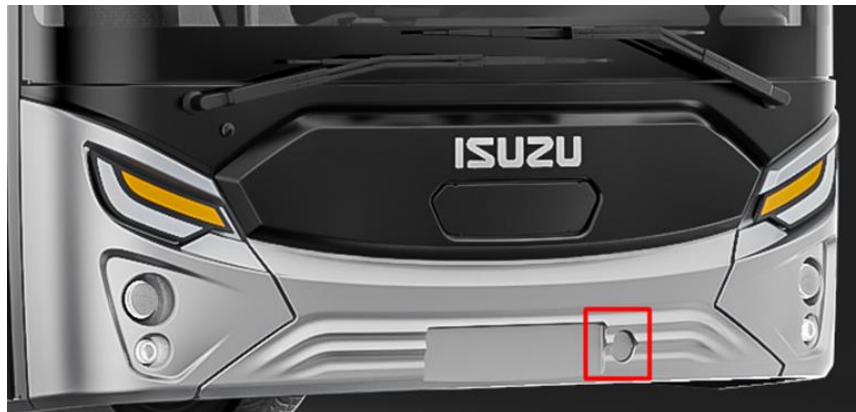
### External Cleaning

- Do not clean your vehicle with detergents and chemicals, do not wipe with gas.
- Use pressured water for vehicle cleaning (except for engine area), do not remain the residual water on the vehicle after cleaning, take the residual water with cloth or chamois leather.
- Do not wash your vehicle under hot sun.
- Keep the inside of mudguards clean during the winter months
- Use only soap and water in cleaning the air bellows in the vehicle.

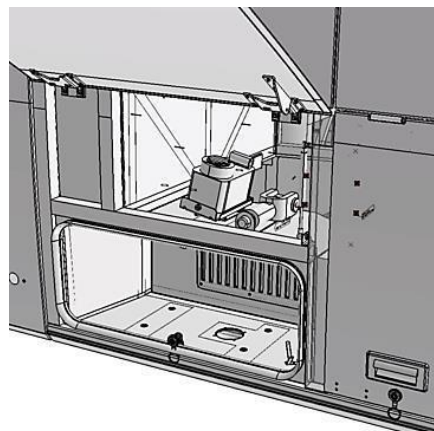
### Internal Cleaning

- Clean the instrument panel with wet cloth, do not use substances such as alcohol and thinner
- Clean the seats with wet cloth or foamed vinylex cleaners
- Wipe the passenger floor with wet mop and then dry the floor.

## TOWING VEHICLE



- Open the tow hitch cover on the fender
- Take the tow hitch from the preheater cabinet behind the left rear wheel
- Screw the tow hitch to the slot on the fender, be sure that it screwed into its place.

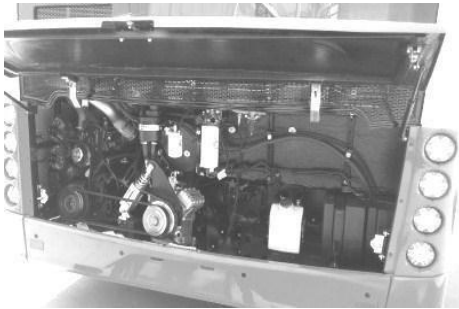


## ENGINE MAINTENANCE

It is achieved to the engine of the vehicle from 4 parts.

It is possible to achieve the engine from the rear, left, inside and below the vehicle.

### Rear Lower Cap



It can be reached to alternators, air conditioning compressor, V belts, recirculation pump, fuel water separator, the oil tank of engine oil complement, diesel exhaust emission fluid tank, ECM (Electric Control Module), dipstick, steering tank, dosage pump and dosage pump air filter by opening the rear lower cap.

### Rear Upper Cap



Hydraulic fan oil tank and hydraulic fan engine can be reached by opening the rear upper cap.

### Left Side Lower Cap



Oil filter, fuel filter, starter, alternators and turbo unit can be reached by opening the left side lower cap.

### Left Side Radiator Cap



Cooling unit, expansion tank water filling collar and level surveillance window can be reached by opening left side radiator cap.

### Left Side Filter Cap



Air filter, the valve related to the heating system, valve and the pump can be reached by opening the left side filter cap.

### Internal Caps



By opening 2 caps inside the vehicle it can be reached to air compressor, hydraulic fan, steering pump, fuel filter, fuel pump, heat and NOX sensor on exhaust gas treating unit, urea injector, valve cover, engine oil filler tube, transmission oil filling and level measurement collar.

## Lower Cap

The engine oil sump can be achieved by opening the cap below the vehicle.

## Start / Stop Button Group



If it is needed to start the engine during a maintenance and repairing activity of the engine, the rear lower cap of the vehicle is opened and the start/stop button group here is used.



In order to start the engine, the ignition switch is brought to “M” position while the transmission was in “N” position and this button is pressed on.



Press this button to stop the engine.



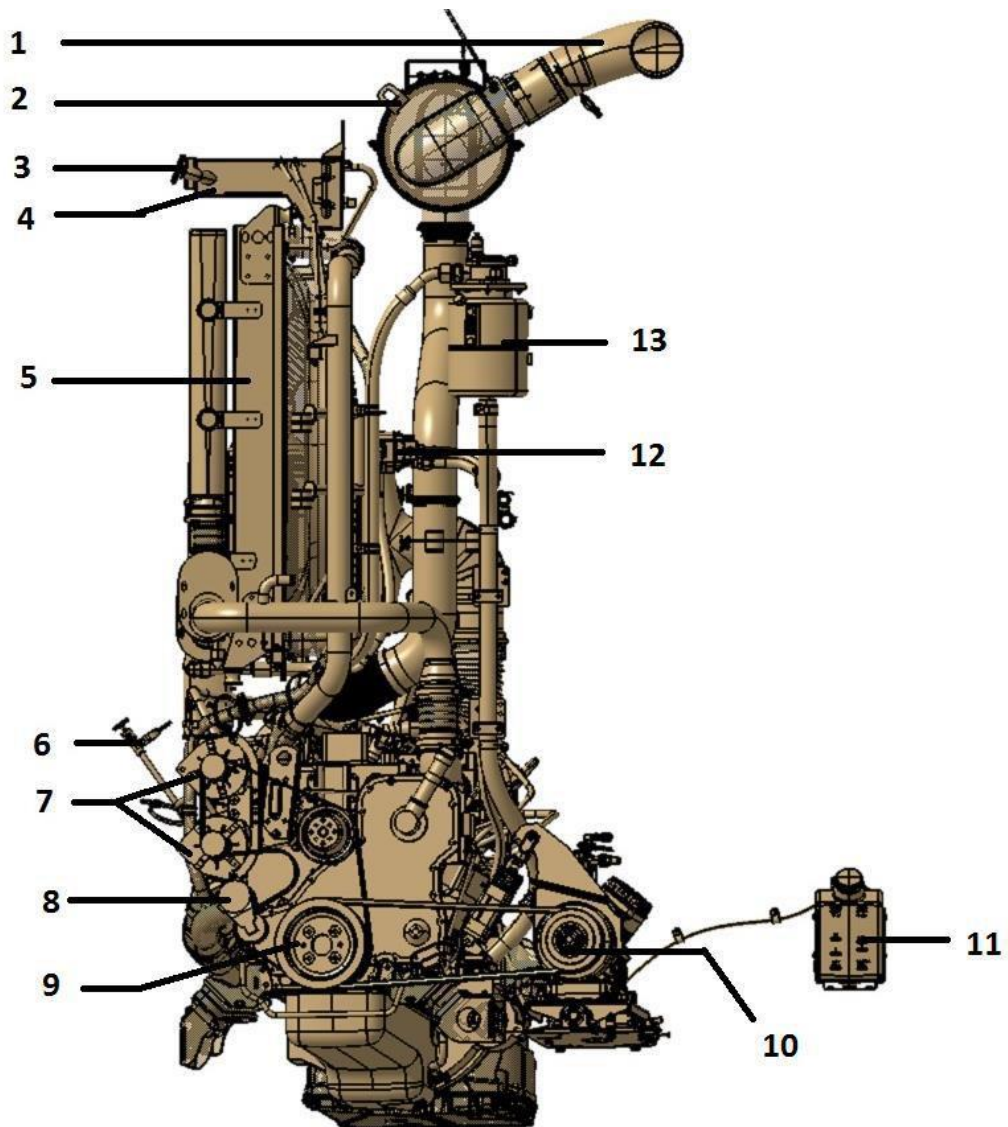
Press this (green) button to enlighten the engine.



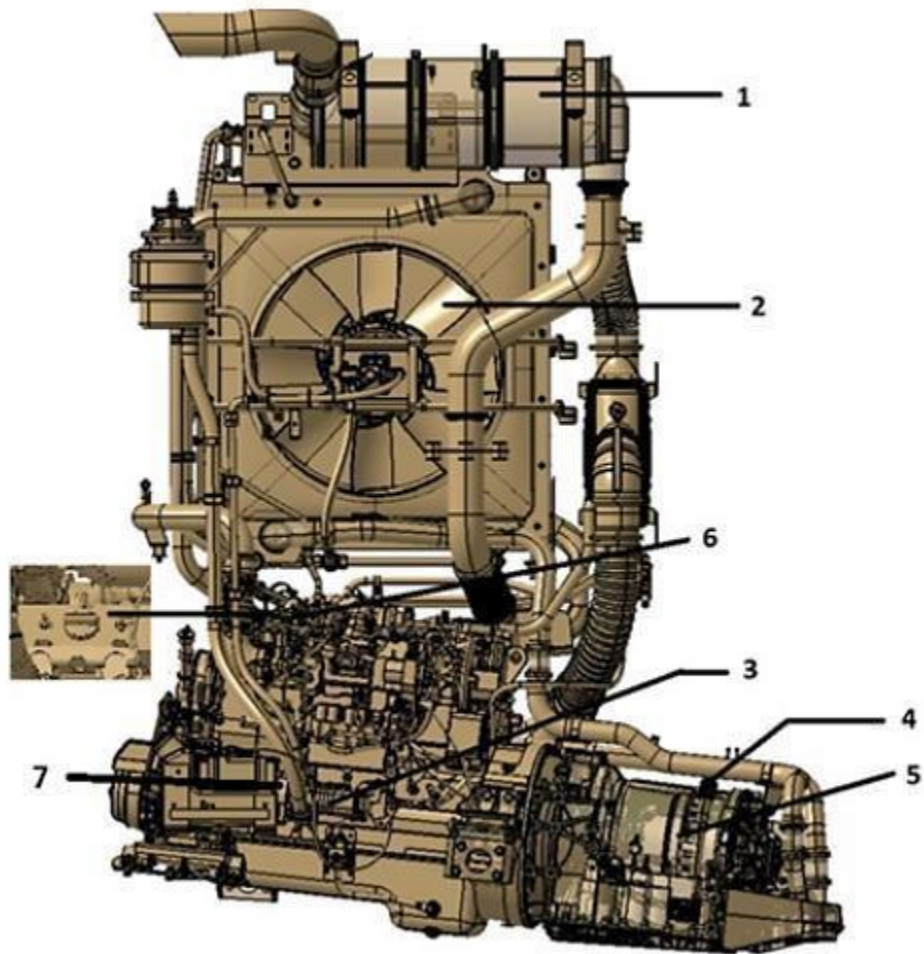
There is a safety switch available for preventing to start the engine from the driver side when the rear cap is opened.



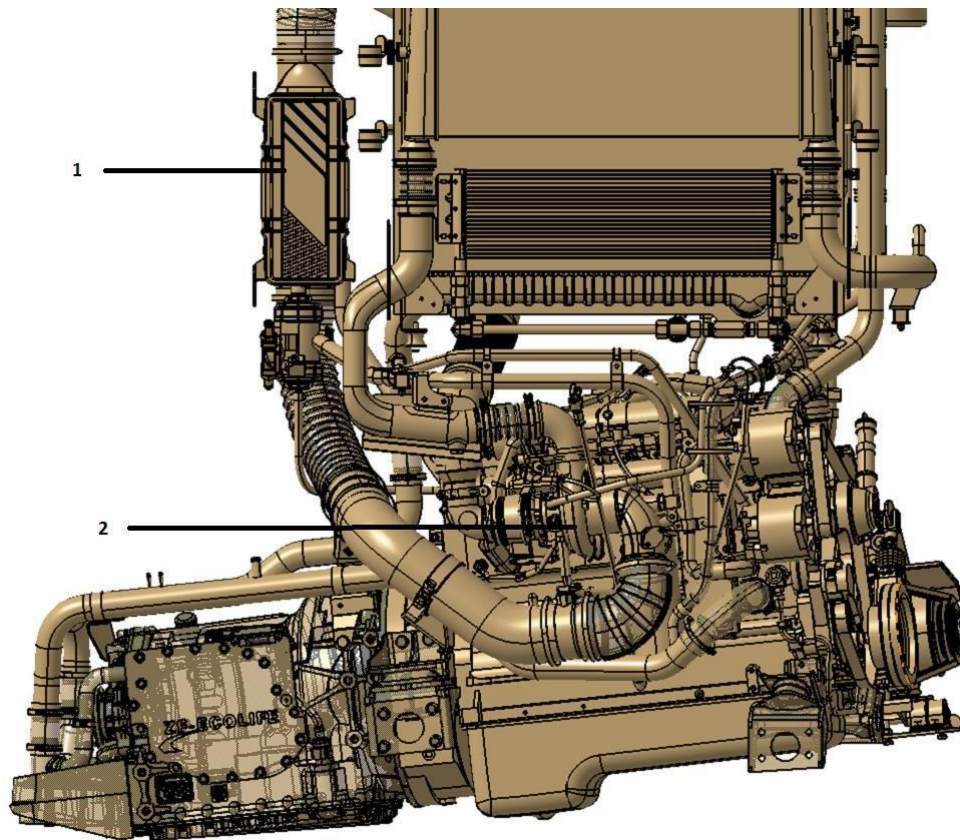
## ENGINE



- |                               |                              |
|-------------------------------|------------------------------|
| 1) Exhaust Tail Pipe          | 10) A/C Compressor           |
| 2) Exhaust Gas Processor Unit | 11) Engine Oil Tank (Option) |
| 3) Water Filler Cap           | 12) Hydraulic Fan Motor      |
| 4) Expansion Tank             | 13) Hydraulic Oil Tank       |
| 5) Cooling Unit               |                              |
| 6) Oil Level Bar              |                              |
| 7) Alternator                 |                              |
| 8) Recirculation Pump         |                              |
| 9) Crankshaft                 |                              |



- 1) DPD Unit
- 2) Fan
- 3) Fan Pump
- 4) Transmission Oil Filler Cap
- 5) Gearbox
- 6) Engine Oil Cap
- 7) Air Compressor



- 1) Air Filter
- 2) Turbo Unit

## LUBRICATION OIL AND FILTER CARE

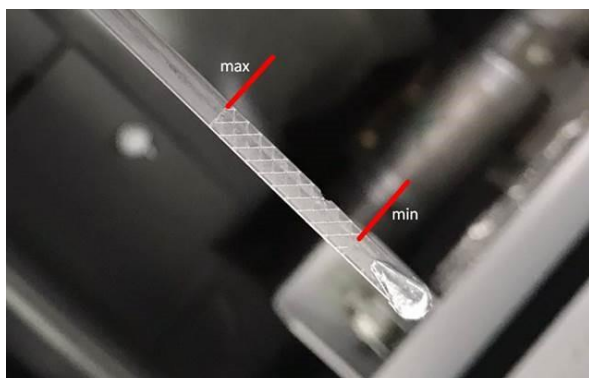


Do not use diesel engine oil in natural gas engines. If diesel engine oil is used, valve flare, piston wear and spark plug life may be reduced.

**NOTE:** The oil of natural gas engines, like diesel oil, does not become tarnished and dirty. To determine the oil change intervals, use the recommended maintenance intervals, not the appearance of the oil.

1. Move the vehicle to a horizontal position.
2. Operate the engine coolant temperature until it reaches 60°C [140°F]. Switch off the engine.
3. Remove the oil drain plug.
4. Relieve the oil immediately to ensure that all oil and contaminants are removed from the engine.
5. Clean and check the lubricating oil drain plug threads and sealing surface.
6. Install the lubricating oil sump drain plug. (Steel Oil Pan 80 Nm)
7. Remove the oil filter with the filter switch. (The oil filter can be accessed from the bottom left guard)
8. Clean the area around the lubricating oil filter. Clean the sealing surface of the filter head.
9. For natural gas engines, use high-quality oil to match the specifications.
10. Fill the engine to the correct level with lubricating oil.

Oil Pan Capacity	
Crankcase Capacity	18.9 to 22.7 litres
Total System Capacity	26,5 litres




11. To inspect the lubricating oil filter and drain plug for leaks start the engine at idle.
12. Start the engine and check the filter for leaks.
13. Stop the engine. Wait approximately 5 minutes to allow the lubricating oil to drain from the top of the engine.
14. Check the oil level again.
15. Add oil up to the H (High) mark on the dipstick.



If the oil pressure does not appear within 15 seconds after the engine has been started, turn off the engine to avoid internal damage.

## AUTOMATIC ENGINE OIL REFILL SYSTEM (OPTIONAL)

Engine oil refill system is a system which completes the engine oil of the vehicle when it reduced. There is a 6 lt capacity oil tank in the engine area of the vehicle. When the ignition switch turned on after turned off for a time of 3 hours, the system controls the oil level automatically. When the engine oil of the vehicle reduces, the pump connected to the oil tank provides 0.5 lt oil supply to the engine.

There is a warning light  on the information display which alerts in the event of a failure during the supplementation of engine oil.

## CRANKCASE VENTILATION FILTER

- Loosen the crankcase vent hose clamp (from above) or drain hose clamp (from below) and remove the crankcase vent hose or drain hose. Remove the filter element made of paper from the filter.
- Turn the cover by hand or counter clockwise with a wrench with a rubber or fabric rim.
- Remove the used filter and o-ring from the base.
- Inspect the crankcase ventilation oil drain pipe check valve for proper operation. Drain the oil from the crankcase ventilation filter housing to the oil pan and prevent the crankcase gases from reaching the crankcase ventilation filter housing.
- A small amount of air (less than 34 kPa [5 psi]) can be blown from the line to test the operation of the check valve. If the check valve does not hold the pressure, replace the crankcase ventilation oil drain pipe.
- Clean the outer surface of the crankcase ventilation filter housing with hot soapy water.
- Dry with compressed air.
- Inspect the crankcase ventilation filter housing for cracks. If damage is detected, replace the entire group.



Do not immerse the crankcase filter in liquid. This will damage the breather filter.

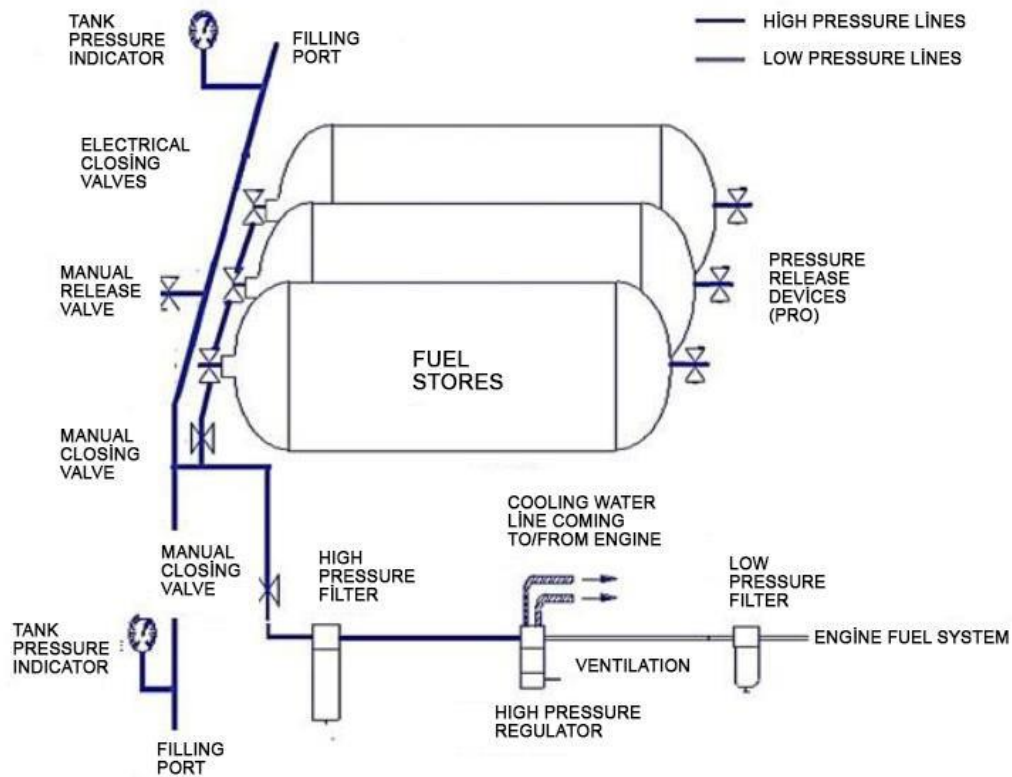
- Lubricate the new housing o-ring with clean engine oil. Fit the new O-ring onto the reusable base.
- Install a new filter element. Use the following procedure to determine the correct filter number.
- The filter element can be installed with one end at each end.
- Fit the vent housing cover removed by turning it clockwise to access the filter. Tighten by hand.
- Fit the crankcase vent hose or drain hose properly.

**NOTE:** Do not attempt to clean the filter element with solvents or other cleaning material to prolong the life of the filter element.

**NOTE:** During normal use, the filter element collects engine oil, engine wear residues and combustion by-products. The used filter element must be disposed of in accordance with local environmental regulations, such as in a used oil filter.



## LOW PRESSURE FUEL FILTER

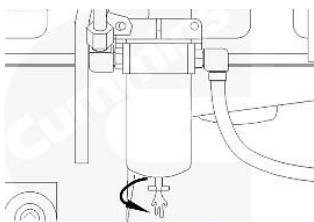


Filtering and separating the oil from the fuel is important to ensure that the fuel system operates smoothly and has a long life. In certain cases, when the pressure is applied to the fuel, oil will enter the fuel in the gas compressors. Some of the components in the fuel system are susceptible to oil contamination.

The fuel filter element has a valve that must be opened daily to drain the oil collected. To keep the oil out of the fuel system, regular maintenance is required, including draining the oil from the filter.

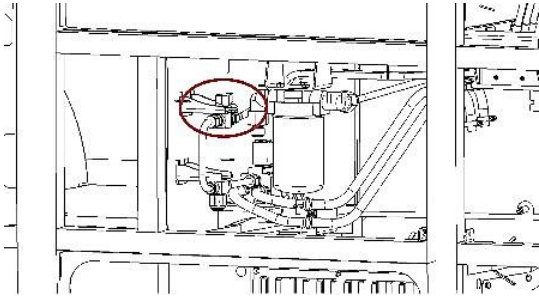
**NOTE:** When performing the maintenance procedure in the Daily Range, simply drain the fuel filter. 24,000 Kilometres [15,000 miles], maintenance procedure for 1000 hours or 1-year intervals replace the fuel filter.

1. Switch off the engine.
2. Use your hand to open the drain valve.



3. Turn the valve counter clockwise approximately 1-1 / 2 to 2 turns until the drain starts.

4. Drain the oil from the fuel filter.
5. When closing the drain valve, do not overtighten the valve. Excessive tightening can damage the teeth. Turn the valve clockwise to close the drain valve.



6. Before removing any parts, turn off the fuel supply at the fuel stop valve of the vehicle near the filter.

7. Let the engine idle until it stops.
8. Clean the area around the fuel filter cap.
9. Remove the fuel filter with the oil filter wrench.
10. Clean the gasket surface of the fuel filter cap.
11. Use the correct filter.
12. Lubricate the seal with a clean gas engine lubricating oil.
13. Attach the fuel filter to the fuel filter cap. Turn the filter until it touches the gasket head. In addition to damaging the mechanical over-clamping teeth, the filter element seal or filter box)
14. Tighten the fuel filter by hand, the gasket must be turned by  $\frac{1}{2}$  to baş after touching the fuel filter cap surface.
15. Use a gas detector or soap solution to check for leaks.
16. If a leak is found, close the valve, turn the ignition switch to OFF and repair any leaks immediately.



Fuel is flammable. To avoid serious injury or death while operating the fuel system, keep all cigarettes, flames, pilot lamps, arc welding equipment and switches out of areas that share the work area and ventilation.



**This article is valid for vehicles using TYPE4 fuel tube.**

CNG tube must have a minimum pressure of 2 bar. If there is no 2 bar pressure inside the tube as a result of a sudden pressure drop, such as triggering the PPRD or TPRD sensors on the tubes, there is a possibility that the structure of the tube will be damaged. In these cases, before using the tubes, approval for reuse must be obtained by authorized teams. In addition, the working pressure of the tube should be 200 bar.

## ENGINE COOLANT WATER FILTER



Do not remove the pressure cap from a hot engine. Before removing the pressure cap, wait until the engine coolant temperature drops below 50°C [120°F]. Hot cooling water spraying or vapor can cause injury.

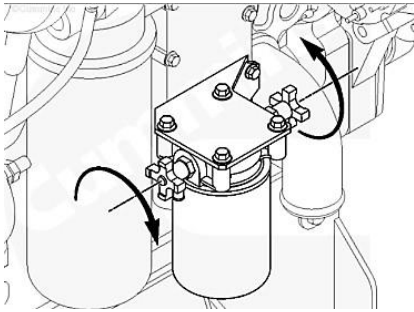
- Close the coolant inlet and outlet valves in the cooling water filter head by turning the valves clockwise.



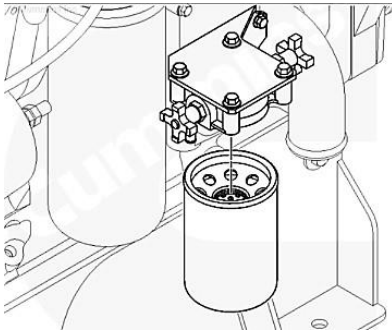
There may be a small amount of coolant leakage when the coolant filter is serviced while the shut-off valve is in the OFF position. The possibility of injury avoid contact with hot cooling water.



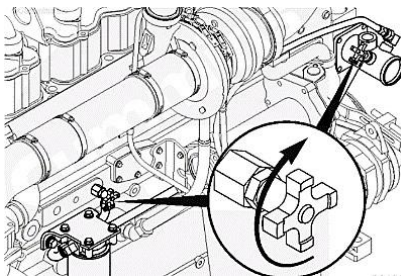
Cooling water is toxic. Keep away from children and animals. If not, dispose of in accordance with local environmental regulations.



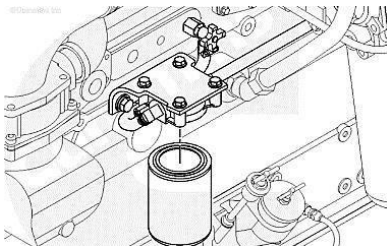
- Close the coolant inlet and outlet valves in the cooling water filter head by turning the valves clockwise.



- Use the coolant filter switch to remove the coolant filter. Discard the coolant filter.

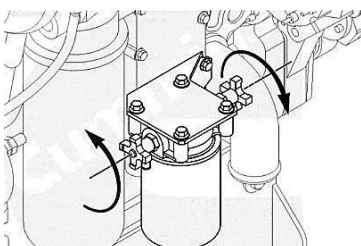


- Turn the shutter valve to the OFF position by turning the knobs clockwise until the valves close completely.



- Remove and dispose of the coolant filter.

- Clean the gasket surface.
- Apply a thin layer of lubricating oil to the seal sealing surface before installing the new coolant filter.
- Attach the coolant filter to the filter head. Tighten the filter until the gasket contacts the filter head surface.
- Tighten the coolant filter as  $\frac{1}{2}$  to etc or as specified by the filter manufacturer.

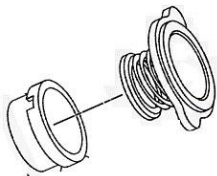


- Open the coolant inlet and outlet valves in the cooling water filter cap by turning the valves counter clockwise.



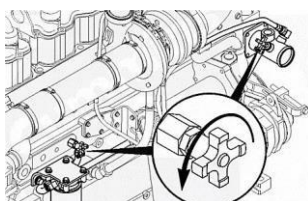


The valve must be in the ON position to prevent engine damage.



- Fit the cooling water system pressure cap.

- Start the engine and check for coolant leaks.
- Check the coolant level after airing through the system.
- Apply a thin layer of lubricating oil to the seal sealing surface before installing the new coolant filter.
- Attach the coolant filter to the filter head.
- Tighten the filter until it touches the gasket surface of the filter head.
- Tighten the coolant filter as  $\frac{1}{2}$  to etc or as specified by the filter manufacturer.
- Turn the shutter valve to the ON position by turning the knobs counter clockwise until the valves are fully opened.



- Fit the cooling water system pressure cap.
- Start the engine and check for coolant leaks.
- Check the coolant level again after receiving air from the system.

## ENGINE COOLING SYSTEM

Engine cooling system provides the engine heat to remain in appropriate temperature interval, thus the engine works efficiently and by maintaining the oil viscosity the wear of the engine parts is prevented. The system also cools the transmission. At the same time, it also ensures the hot water necessity of the heating system and the heating of diesel exhaust emission fluid tank (optional) in very low temperatures. The cooling fluid used in cooling system is a mixture of 50% water and 50% antifreeze, the antifreeze that shall be used have to be suitable for ASTM D6210 standard. This mixture has the freezing point of - 36 °C and boiling point of +108 °C. No additives should be used in cooling fluid.

### ENGINE COOLING, CABIN HEATER and A/C SYSTEMS LINE FILLING AND AIR RELIEF

1. Position the vehicle on a level surface, the engine must be cold.
2. When there is a situation in which it is not necessary to run the cabin heater and A/C system, service maintenance is required, and the vehicle must be transferred to a place to start immediately, processes stated in the 12th and following articles must be applied.
3. Open the manual valves and air relief valves on the waterlines tied to cabin heater and A/C units (in the engine water Inlet and outlet).

4. Open the expansion tank cover.
5. Starts filling the engine cooling system fluid with the mixture of 50% antifreeze and 50% diluted water from the cap on the side surface of expansion tank.
6. When the expansion tank is full, stop filling. Wait for 1-2 minutes before starting the engine to make sure that air which entered in the system from natural ways is discharged and cooling fluid level is balanced. Then add water to the tank again.
7. Start the engine and open the entire heating system in the maximum position. Take the controller to manual maximum heating mode, quickly press the degree increasing key on the control panel to take to shocking mode and make sure that electronic three way cock is open. System pump and heated A/C pump will be operating thus and there will be an "operating" signal on the A/C controller screen.
8. As the vehicle runs, keep adding engine cooling system fluid up to the maximum level of the expansion tank.
9. After starting a cool engine, gradually increase the engine speed to make sure that sufficient amount of oil goes to engine bearings and oil pressure is balanced.
10. For air relief, start the engine in raised idling speed and release the air from air release valves on the cabin heaters (System's air must also be relieved from the air relief valves on the heated cabin heater).
11. Check whether the cabin heater temperatures have risen. Total air relief for cabin heater and A/C system lasts for about 15 minutes. Make sure that air relief is completed.
12. Close the manual valves on the waterlines tied to cabin heater and A/C units (engine water inlet and outlet).
13. Restart the engine and run the engine at high speed until cooling water temperature has reached the thermostat opening temperature values. Radiator frille may be covered with a cloth (linoleum etc.) to reach the high temperature quicker.
14. It must be continued to run the engine at raised idle speed for 5 minutes and keeping the engine cooling water thermostat opening temperature (90-95°C) range once these temperatures have been reached.
15. Run the engine in low idle for 1 minute before shutting off, which enables components such as piston, cylinder, bearings and turbocharge to cool adequately.
16. Shut off the engine and keep adding cooling fluid up to the maximum level of the expansion tank.
17. Restart the engine at raised idling speed and increase the engine cooling water temperatures to thermostat opening temperature values 90-95°C range and keep this temperature level for 1 minute.
18. Run the engine in low idle for 1 minute before shutting off, which enables components such as piston, cylinder, bearings and turbocharge to cool adequately.
19. Shut off the engine and fill the cooling fluid if it is possible to fill from expansion tank. If 1 lt or more cooling fluid can be added to the system, repeat the operations from the 17th article.

20. Check whether there is cooling fluid leakage in layout and main components during filling and air relief processes.
21. It is the customer's responsibility to daily check the cooling fluid level and fill if required.



Do not remove the filler cap when the engine is hot. When the radiator overheats, the temperature increases excessively and pressure builds up. When the cap is removed, the liquid will boil or spurt out and cause serious injury. Faces, hands, arms and shoulders are the most common places. Besides scalding, there is antifreeze that can cause chemical burns in radiator fluid.

## CONTROL OF BRAKE DISCS AND PADS



Pad warning indicator must be controlled regularly. It has to be taken to the authorized service when the pad indicator value is 10%. Right and left brake pads on the same axle must be replaced together. The original brake parts specified by the manufacturer of the vehicle must be used.

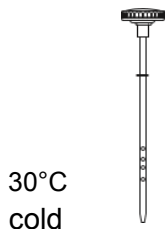
The brake discs have to be controlled and replaced if needed while replacing the pads. Otherwise the performance of the brakes could be effected negatively.

## TRANSMISSION MAINTENANCE

The oil type must be TE-ML20.110 according to ZF specs and 20E or 20F. The transmission contains 38 lt oil at first filling. While replacing the oil, it has to be waited approximately 10 minutes for the oil to discharge and then 24 lt oil must be added.

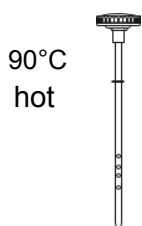
### Oil Level Control

Oil level control when the transmission is cold (30°C):



- Park the vehicle on a flat area
- Bring the transmission to "N" position
- Operate the engine at 1200–1500 rpm for 10-20 seconds
- Take the engine to idle
- Oil level should be 30 °C (cold) level on the oil dipstick.

Oil level control when the transmission is hot (90 °C)



- Park the vehicle on a flat area
- Bring the transmission to "N" position
- Operate the engine at 1200–1500 rpm for 10-20 seconds
- Take the engine to idle
- Oil level should be 90 °C (hot) level on the oil dipstick

### **Oil Replacing Interval**

The transmission oil must be changed at **120000 km or every 3 years**, whichever comes first. The gearbox pressure filter must also be changed with each oil change.

### **Discharging Oil**

- Discharge the transmission oil during 10 minutes when the transmission was hot
- Stop the engine
- Remove the oil plug
- Discharge the oil in filter chamber by removing the plug on the filter cap
- Remove the filter cap
- Replace the cartridge filter (pressure filter) and o-ring on the filter cap plug.

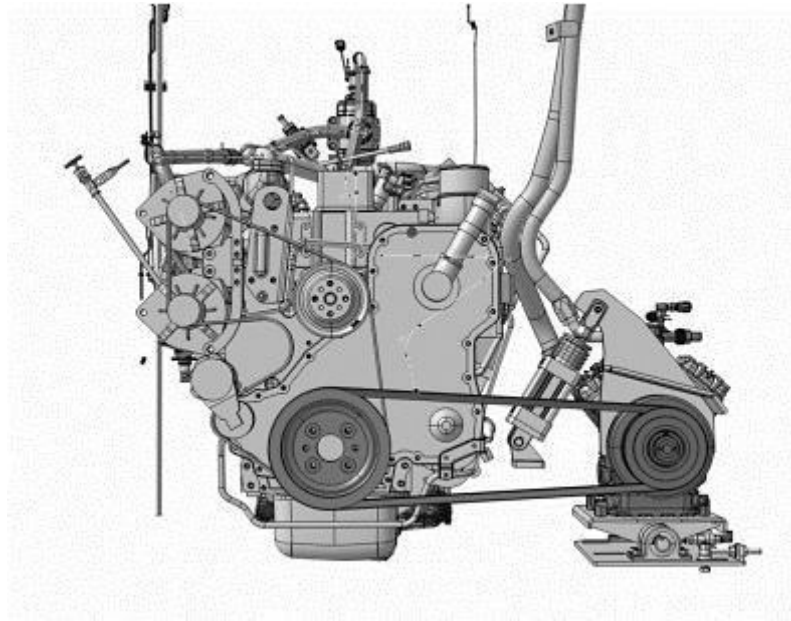
### **Filling Oil**

- Tighten the bolts with 29 Nm torque while inserting the filter cap, take care of the bolt lengths
- Insert the plug on the the filter cap (tightening torque is 25 Nm)
- Tighten the oil plug with 35 Nm torque
- Supply oil from oil filling collar
- Control the oil level with dipstick.

## **DIFFERENTIAL OIL CHANGE**

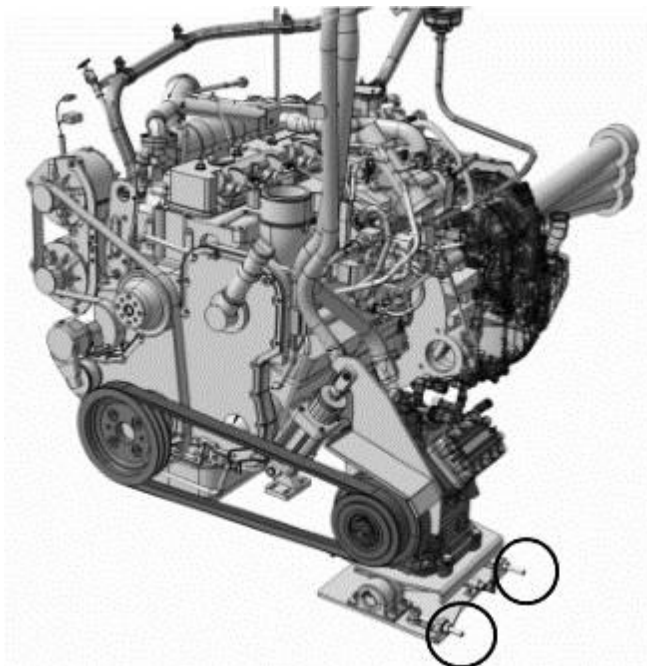
- Locate an oil drain container for oil draining under differential sleeve
- Remove the oil drain plugs under the sleeve, drain the oil to the container
- After draining replace the plug washers and tighten the plugs with 35-40 Nm torque
- Remove the filling plug while the level control plug was off and do the oil filling (the oil capacity of the differential is 16.5 lt)
- Wait for 15 minutes in order the oil to suffuse on axles
- Remove the level control plug for controlling the filled oil level (the oil level must be at the level of plug socket)
- Replace and tighten the plug washers with 130 Nm torque when the desired level is reached.

## AIR CONDITION COMPRESSOR BELT



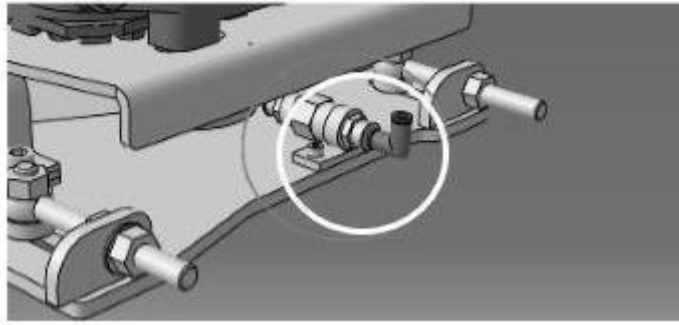
Air condition compressor belt is double 17, V belt. The codes on the belt are shown below. When the belts damage or break, apply to the authorized service for change.

BANDO RPF-J 2-5702P 2X17X1750Li



The compressor belt must be stretched by tightening the bolt nuts from specified points (must be performed by the authorized service).

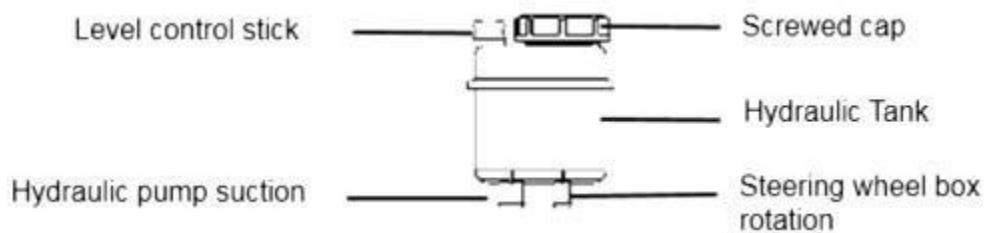
In addition, the stretching system always stretches the belt with a pneumatic piston actively. Before the first start, it has to be controlled whether the air valve below is opened or not. The air valve must be open. 6 bars air stretches the compressor with piston.



Do not start the engine if the valve is closed. There is the risk of burst and breaking since the belt was not stretched.

Do not get close while the engine was running and the belt was on the way and do not touch the belt with hand.

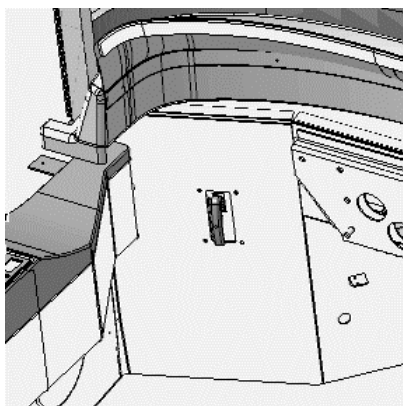
## STEERING WHEEL HYDRAULIC TANK



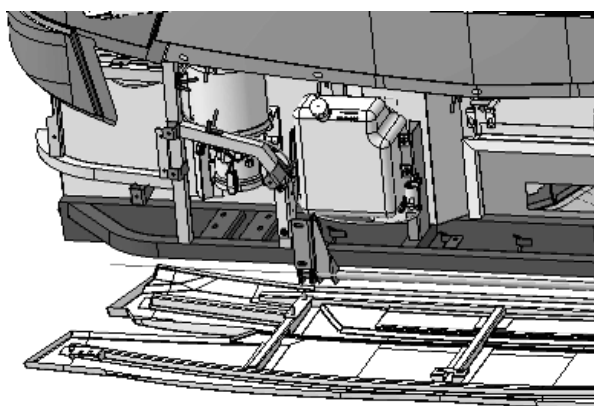
It is located at right side of the engine when the engine rear maintenance cap was opened. There is a screw cap and a dipstick available on the tank. Oil level control must be realized in every 3000 km. For oil level control, level dipstick of the tanks is removed, there is a minimum and a maximum line on the dipstick, the oil level must be between these two lines. The oil specified by the manufacturer of the vehicle must be used for the working of hydraulic steering wheel without problems. The vehicle must not be started if there is not enough oil in the steering wheel system, the steering wheel pump may damage. If the oil is reduced, it is supplied with oil up to the maximum line of the dipstick.

## GLASS FOUNTAIN WATER TANK

Picture 1



The dashboard cover of the vehicle is opened (Picture 2) with the help of lever at the level of left knee of the driver (Picture 1). After the cover was opened, maximum till to the level of 10 lt window washing water can be put into the tank.

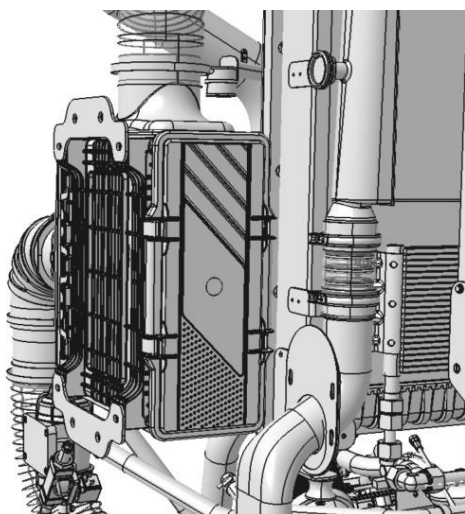


Picture 2



Antifreezed window water must be used in cold weathers in order to prevent the freezing of water.

## AIR FILTER



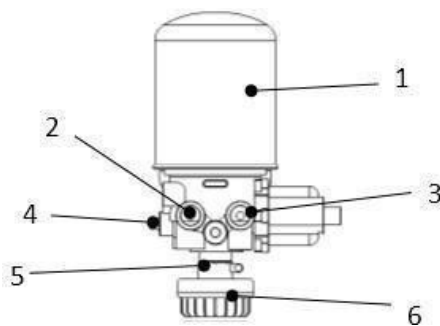
The air filter can be reached by opening the left rear side cover of the vehicle. The rubber dust valve below is used to discharge the accumulated dust by squeezing the edges in order to clean the air filter.

## Air Filter Elements

The replacement of air filter elements must be realized in every 30000 km, for replacement the steps below must be followed:

1. Open the lock on the cap.
2. Turn the cap in the opposite direction of the clockwise.
3. Remove the cap by pulling it towards yourself.
4. Remove the filter element.
5. Clean the air filter box and cap.
6. Mount the filter element.
7. Replace the cap, air-venting valve must face downward when the cap was locked.

## AIR DRYER

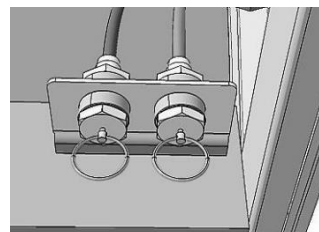
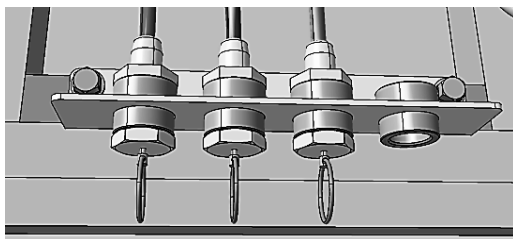


1. Cartridge
2. Compressor connection
3. Four-way valve connection
4. Heater
5. Air drain
6. Silencer

The air dryer is located on the front region of right rear wheel. The mission of the air dryer is to adjust the air pressure and to reduce the humidity and oil in the air pumped from the compressor. The dryer has the heater specification which prevents itself to freeze in cold weathers, this qualification activates in low temperatures, and breakdowns in high temperatures. The air dryer pumps air to the system at 9.8 bars until cut-off drain. After the filling has completed, the dryer throws out the accumulated water and oil from the silencer located under it. Thus, it cleans itself. The cartridge of the air dryer must be replaced after the usage of **1 year or 30000 km**.

## DRAINING WATER IN AIR TANKS

There are 3 air tank drain valves under driver region and 2 air tank drain valves in the lower part, between middle door and rear wheel on the right.



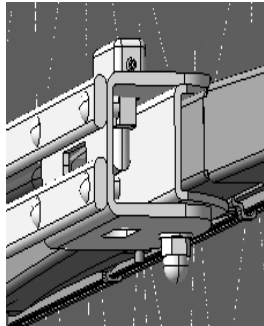
Drain water in air tanks daily, by pressing on the valves.



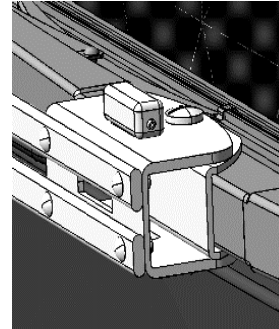
## REPLACING WIPERS

There are 2 external wiper levers in the vehicle at right and left.

For the replacement of the wiper, the bolts and nuts on the middle side of the wiper are removed (Picture 1 and Picture 2).

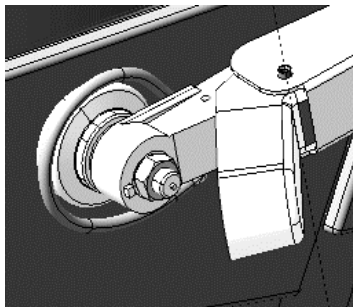


Picture 1

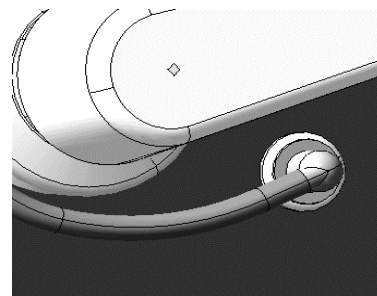


Picture 2

For the complete replacement of external wiper lever, the plastic cap on the point where it connects to the vehicle's body is opened, the wiper lever is removed by removing the nuts there (Picture 3). During the removal of wiper lever, the sprinkler hose connected to the lever must be removed by pulling from the point where it was connected to the body of the vehicle (Picture 4).



Picture 3



Picture 4



The wiper blades must be checked in winter, they have to renewed if needed.

The replacement of the internal mechanism of the wiper must be realized by the authorized services.

## FUSES / RELAYS

Fuse and relays panel is located on the left ventilation cap coming from over of the battery cabinet. The fuse settlement and their values are written on the fuse label below the cap. The fuses used in the vehicle are blade-type fuses.

The fuse blows as an open-circuit in order to prevent the electrical components when a short circuit or current leakage occurred in the system. After the error was resolved, the fuse is replaced with a fuse equivalent of the same amperage.

## **REPLACEMENT OF BULBS**

### **The Replacement of Low Beam Bulb**

- Open the front hood
- Remove the rubber protective behind the headlights unit by pulling
- Remove the bulb by pressing the wire clips inwards
- Replace with an equivalent bulb
- Insert it in the position of rubber protective hole facing downward

### **The Replacement of Main Beam/Parking Bulbs**

The replacement of the main beam bulb

- Open the front hood
- Remove the rubber protective behind the headlights unit by pulling
- Remove the bulb by pressing the wire clips inwards
- Replace with an equivalent bulb
- Insert it in the position of rubber protective hole facing downward

Replacement of parking light bulb

- Open the front hood
- Pull the socket end on which there is a bulb and which is located under the headlights unit
- Replace with an equivalent bulb
- Insert the socket again

### **The Replacement of Side Signal Bulbs**

- Remove the lens from the case
- Pull the bulb outwards by removing the screws of the case
- Remove the socket
- Replace with an equivalent bulb
- Insert the lens by screwing the case to its place

### **The Replacement of Rear Signal, Rear Brake/Parking, Reverse Gear, Rear Fog Lights Bulbs**

- Remove the lens by removing its screws
- Remove the bulb by turning
- Replace with an equivalent bulb
- Screw the lens with its rubber gasket

### **The Replacement of the Front Signal Bulbs**

- Open the front hood
- Remove the headlights cap completely
- Remove the front signal lights screws
- Remove it from the socket
- Replace with an equivalent bulb
- Insert the front signal bulb to its place by screwing

**The Replacement of the Day Drive Bulbs**

- Open the hood
- Remove the headlights cap
- Remove the brackets which prevent the bulbs on the cap dislodging by removing their screws
- Remove the bulbs from their slots
- Remove the adapter (driver)
- Replace with the equivalent bulb set
- Insert the headlights cap by screwing the brackets
- Insert the adapter (driver) by screwing

**The Replacement of the Front Fog Lights Lamp**

- Remove the rubber protective behind the headlights unit by pulling
- Remove the bulb by pressing the wire clips inwards
- Replace with an equivalent bulb
- Insert it in the position of rubber protective hole facing downward

**The Replacement of the Ceiling Lights Leds**

There are illumination lamps at right and left side of the ceiling. These lamps consist of led groups at specified sizes. When there is a problem in the leds in ceiling illumination, the operation is concluded by changing the problematic leds/led groups with new ones by removing the polycarbonate lens on the illumination.

**The Replacement of the Rear Reflector**

- Remove the rear reflector
- Clean the adhesive residues on the fender
- Remove the adhesive protector on the rear reflector
- Paste the rear reflector to its place

**The Replacement of the Front and Rear Clearance Bulbs**

- Remove the bulb
- Remove it from the socket by pulling outwards
- Replace with an equivalent bulb
- Insert the bulb to its place with the gasket

**The Replacement of the Sidemarker Bulbs**

- Remove the sidemarker bulb by removing the screws
- Remove the bulb from the socket by pulling outwards
- Replace with an equivalent bulb
- Insert the bulb to its place by screwing with gaskets

**The Replacement of the Engine Lighting Bulbs**

- Open the rear radiator cap
- Remove the engine illumination bulb by removing its screws
- Remove it from the socket
- Replace with an equivalent bulb
- Insert the engine illumination bulb by screwing

### The Replacement of the Rear Plate Bulbs

- Remove the bulb by loosening screws
- Remove it from the socket
- Replace with an equivalent bulb
- Insert the bulb by screwing

## USE OF THE JACK AND TIRE REPLACEMENT

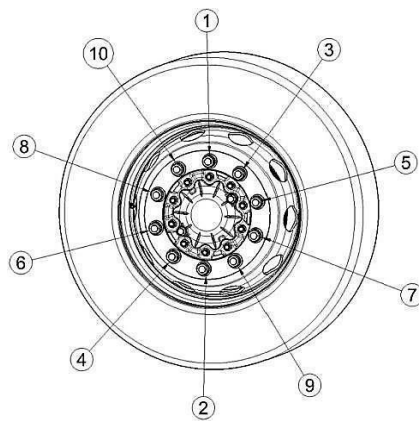
The jacking points of the vehicle are on the body and behind the front and rear wheels.

### The Usage of Jack

- Be sure that the drain plug is tightened
- Use its own jack handle in order to hold the jack
- For downing the jack, turn the drain plug two turns to left.

### Replacement of Wheels

- Put a chock to the wheel cross on the opposite side of the wheel you would hold
- Loosen the wheel nuts on the side of the wheel which would be replaced, but do not remove from its place.
- Hold the vehicle from the jacking point behind the wheel which would be replaced till the wheel is completely off the ground
- Remove the wheel nuts and remove the wheel
- Insert the spare wheel
- Get the cavity of the wheel nuts and ensure the wheel to fit into its slot
- Tighten the wheel nuts in cross-order and at three stages with **600 +/- 60 Nm** torque



Down the vehicle by loosening the drain plug slightly.

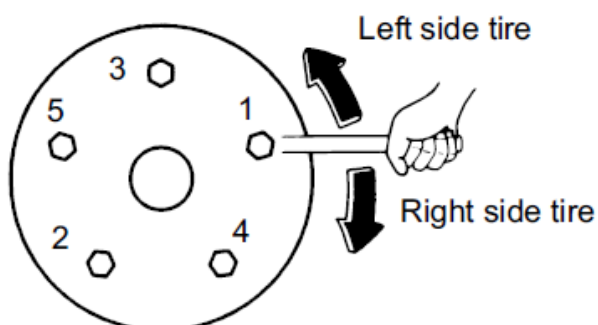


Be sure that the jack is placed on a flat and a solid ground. Do not start the engine when the vehicle is on jack. Do not crawl under the vehicle while using the jack. Debus the passengers during the replacement of wheels, be sure that the gear is in the parking position, pull the handbrake and light the hazards.

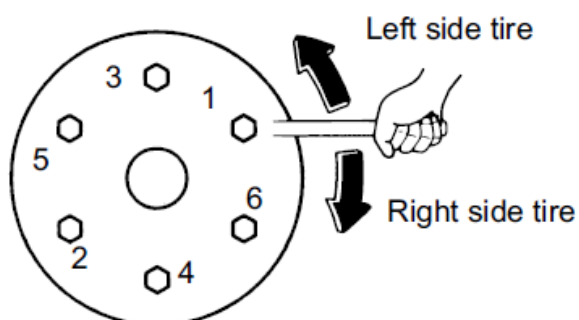
**NOTE :** If the pressure of the wheel reduces continuously, there may be an object stuck in the tire. Additionally, it has to be controlled that whether there had been a leakage from the rims or valves.

## 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	600 N·m	6	-	-
Dual tire	-	-	600 N·m	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.

## **THE PERIODIC MAINTENANCE**

### **DAILY MAINTENANCE**

- Check the tires
- Check the operation of the brakes
- Check the engine coolant level
- Check the engine oil level
- Empty the water in the air tanks (especially in winter)
- Check that the outdoor lighting is suitable for safe driving.
- Check air suction hoses, exhaust pipes, belts
- Check the brake system for hydraulic leakage.
- Check the radiator hose.
- Check the crankcase ventilation pipe.
- Drain the water from the fuel filter.
- Test the accelerator pedal response.
- Check bus accident and original parts situation.
- Check corrosion chassis and parts of body

### **WEEKLY MAINTENANCE**

- Check tire pressures with an air clock
- Check the level of the steering hydraulic reservoir
- Check the air suspension bellows when the motor is running (hole, damage etc.)
- Check the air filter contamination
- Check the glass wash water level.
- Check washing the entire bus weekly, making sure to remove all road chemicals
- Check corrosion chassis and parts of body

Maintenance required every 250 hours or 3 months

- Check the intercooler.
- Check the intercooler pipes for leaks.

Maintenance required for 500 hours or 6 months

- Check the catalyst.
- Check the antifreeze concentration.
- Check the radiator pressure cap.

1000 hours or 1-year maintenance

- Check the motor belts.
- Check the compressor belt tension.
- Check the fan pulley and the belt.
- Check the circulation pump.

Maintenance required for 2000 hours or 1 year

- Replace the crankcase ventilation filter.

Maintenance required every 2000 or 2 years

- Check the carbon thickness accumulated in the air compressor pressure line.
- Check the cooling system hose and the loose clamp.
- Check the turbo unit.
- Check the motor vibration damper and the rubber element (viscous element, if present)

## **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 car wash brush
- Informing the authorized service in case of accident
- Regular maintenance in authorized service

## **TABLE OF PERIODIC MAINTENANCE**

The main maintenance interval for the vehicle is 15000 km. The operations that shall be realized in every 15000 km are shown on the table of periodic maintenance.

Table of periodic maintenance is prepared for 120000 km. The maintenances after 120.000 km should be done at the same periodic intervals.

I : Inspect then clean, repair or replace as necessary

A : Adjust

R : Replace

L : Lubricate

Maintenance Interval (x1000 km)	15	30	45	60	75	90	105	120	Period Info
<b>ENGINE <sup>1</sup></b>									
Diagnostic control of engine failures	I	I	I	I	I	I	I	I	
Engine oil	I	R	I	R	I	R	I	R	1000 h or 1 year
Engine oil refill	I	R	I	R	I	R	I	R	1 year
Valve adjustment <sup>2</sup>		A				A			2000 h or 2 years
Spark plugs			R			R			1500 h
Spark plug cable				I				I	
Coil extension	R : 300.000 km or 10.000 h or 5 years								
Oil filter	I	R	I	R	I	R	I	R	1000 h
Fuel filter	I	R	I	R	I	R	I	R	1000 h
Coolant filter	R	R	R	R	R	R	R	R	500 h or 6 months
Crankcase ventilation filter				R				R	2000 h or 1 year
Air filter element	I	R	I	R	I	R	I	R	
Air dryer filter		R		R		R		R	1 year
Fuel filter – High Pressure (TEE)		R		R		R		R	1 year
Fuel pipes and hoses	I	I	I	I	I	I	I	I	
Draining of condensation tank	I	I	I	I	I	I	I	I	
Cooling system leak control	I	I	I	I	I	I	I	I	
Hydrostatic fan driving oil and filter				R				R	
The oil level of hydrostatic fan drive, leakage and the control of functions	I	I	I	I	I	I	I	I	
External cleaning of honeycomb radiators		I		I		I		I	
Belt tension and damage	I	I	I	I	I	R	I	I	
Pulley and belt alignments	I	I	I	I	I	I	I	I	
Crankcase ventilation hoses				I				I	
<b>DRIVETRAIN</b>									
Grease lubrication	I	I	I	I	L	I	I	I	1 year
Automatic greasing oil filling					L				
Transmission oil and filter <sup>3</sup>	I	I	I	I	I	I	I	R	3 years
Transmission ventilation valve cleaning		I		I		I		I	
Transmission oil leak control	I	I	I	I	I	I	I	I	
Torque of transmission bolts		I		I		I		I	
Front axle pins and bushings	I	I	I	I	I	I	I	I	
Differential oil <sup>4</sup>	I	I	I	I	I	I	I	R	2 years
Rear axle and brake calipers connection bolts	I	I	I	I	I	I	I	I	
Rear axle breather tube	I	I	I	I	I	I	I	I	
Hydraulic steering oil	I	I	I	I	I	I	I	R	2 years
Leakage and connection control of hydraulic steering system	I	I	I	I	I	I	I	I	
Hydraulic steering hose	I	I	I	I	I	I	I	I	
Tire bolts	I	I	I	I	I	I	I	I	
Wheel air pressure <sup>5</sup>	I	I	I	I	I	I	I	I	
Wheel hub bearing <sup>6</sup>	L : 500.000 km or 4 years								
Brake pipes and hoses	I	I	I	I	I	I	I	I	
Brake pads and discs	I	I	I	I	I	I	I	I	
Shock absorbers and connectors	I	I	I	I	I	I	I	I	



Maintenance Interval (x1000 km)	15	30	45	60	75	90	105	120	Period Info
ECAS settings	I	I	I	I	I	I	I	I	
Air bellows	I	I	I	I	I	I	I	I	
OTHER									
Function control of headlights, signals, parking, fog and brake lights	I	I	I	I	I	I	I	I	
Internal illumination control	I	I	I	I	I	I	I	I	
Function of wipers and window washing system	I	I	I	I	I	I	I	I	
General control of fuse panel, electric cables and sockets	I	I	I	I	I	I	I	I	
Battery connection control	I	I	I	I	I	I	I	I	
Battery electrolyte density	I	I	I	I	I	I	I	I	
Starter electric connections			I			I			
Pneumatic door adjustment	I	I	I	I	I	I	I	I	
Safety gear control of all doors	I	I	I	I	I	I	I	I	
Control of door elements	I	I	I	I	I	I	I	I	
Rearview connectors	I	I	I	I	I	I	I	I	
Gas, brake and clutch pedals	I	I	I	I	I	I	I	I	
Corrosion control of chassis and parts of body			I			I			
Additional heater fuel filter		R		R		R		R	
Underbody wax checking and repairing	I: weekly								
Washing the entire bus, making sure to remove all road chemicals	I: weekly								
Check bus accident and original parts situation.	I: daily								
Air condition compressor oil	R : 5000 h or 3 years								
Air condition gas and oil	R : 4000 h or 2 years								
Air condition air suction filters	I : 6 months & R : 1 year								
Antifreeze	I:12 months / R:18 months or 1500 h								
Fire extinguishing fluid and tanks <sup>7</sup>	R : 5 years								
Real time clock battery				I				I	2 years

#### NOTE:

<sup>1</sup> Information under the heading of the engine is given for an average speed of 30 km/h.

<sup>2</sup> First valve adjustment should be done at the end of 30.000 km or 1000 hours or 1 year. Subsequent valve settings should be done every 60.000 km or every 2000 hours or every 2 years.

<sup>3</sup> Check official ZF website for up to date oil catalogue.

<sup>4</sup> Axle oil replacement is defined for hot countries. In hot countries; the average temperature is above 25°C for two months during the year or above 40°C for 7 days during the year.

<sup>5</sup> Wheel air pressure must be inspected daily.

<sup>7</sup> Wheel hub bearings must be greased with grade 12H oil.

<sup>7</sup> For fire extinguishing system; extinguishing fluid must be replaced every 5 years, tanks must be replaced every 10 years.

Maintenance table is prepared for 120.000 km. Maintenances after 120.000 km should be done at the same periodic intervals.

Suspension bushings (stabilizer and other) should be replaced if 15,000 km wear control is required.

When driver and bus back to fleet\parking – don't stop engine and give to him to work a few minutes until Consep will drop water from self body

## **6. TECHNICAL INFORMATION**

<b>Dimensions (mm)</b>	
Maximum length	12030
Maximum width	2550
Maximum height	3136 (including CNG TUPS)
Wheelbase	5850
Front overhang	2700
Rear overhang	3480
Front track width	2152
Rear track width	1872
<b>Masses (kg)</b>	
Gross Vehicle Mass	17900
Empty mass	Max. 11400 kg
Front axle capacity	6840
Rear axle capacity	11500
<b>Engine</b>	
Model	CUMMINS L9NE6D320
Type	Natural Gas Turbocharged
Number of cylinders	6
Engine volume (cm3)	8900
Maximum power (KW/rpm)	320 / 2000
Maximum Torque (Nm/rpm)	1356 / 1300
Exhaust emission class	Euro VI
<b>Gearbox</b>	Automatic
Model	ZF ECOLIFE6 AP 1400 EMF
Number of gears, Type	6 forward, 1 reverse
Final gear ratio	5,73
Steering system	Hydraulic
<b>Tyres</b>	275/70 R22,5
<b>Minimum turning radius (mm)</b>	9110
<b>Gradeability (at GVM)</b>	25,10%
<b>Suspension</b>	electronically controlled (ECAS)
Front	Air suspension - 2 bellowsIndependent
Rear	Air suspension - 4 bellows electronically
<b>Brake system</b>	
Front / Rear	Disc / Disc
Brief expalantion	Full air brake system with EBS (Automatic oil, water seperator system isoptional)
Parking brake	Air actuated acted on rear axle
Auxiliary brake	Intarder
<b>Fuel tank (lt)</b>	1400 lt (S)-1600 lt (O)
<b>Generator</b>	2x120 A
Nominal voltage	24V
Battery	24V - 2x240 Ah
Starter Engine	24V-7.2 kW

**NOTE:** Mentioned technical values are approximate values, they can vary dependingon the type of the vehicle and options.

## FLUID SPECIFICATIONS

DESCRIPT ION	CAPACITY	NORM	CLASS
Engine Oil	26 lt	SAE15W 40	CES-20092
Complement of Engine Oil (Optional)	6 lt	SAE15W 40	CES-20092
Transmission Oil and Filter	24 lt (38 litres in the first filling)	TE-ML20.110	20F according to TE-ML20.110
Differential Oil & Rear Axle	16,5 lt	SAE80W 90	ZFTE-ML12-EcofluidX,12M
Presuspension Greasing		Accordingto DIN51825; KP2K-20  According to ISO6743-9; ISO-L-XBCEB2	ZFTE-ML12G
Steering Wheel Hydraulic Oil	8 lt	ISO VG 46 yada VG 68	RDE 90245 – Bosch Rexroth Fluid Rating List
Hydrostatic Fan Oil	9,5 lt	ISO VG 46 yada VG 68	RDE 90245 – Bosch Rexroth Fluid Rating List
Air Condition Compressor Oil	2 lt	DIN 51 503 : KD,KE	FUCHS Reniso Triton SE 55
Antifreeze(50%) + Water(50%)	60 lt	CES 14603	Extended Life Compleat (Cummins Fleetguard)
Air Condition Gas and Oil	11 kg	1,1,1,2 - Tetrafloretan (Cooling gas R134a)	Linde

<b>PRESSURE VALUES</b>		
Four Way Protector Valve	Static Closing Pressure	≥5,5 Bars
Air Dryer	Minimum Opening Pressure	8,1 Bars
Air Dryer	Maximum Closing Pressure	10,45 Bars
Wheels	Cold Mixed Inflation Pressure	9 bars / 131 psi

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

COUNTRY	STORE NAME	STORE ADDRESS	CONTACT NUMBER
ALGERIA	Spa Elsecom	Rue Baha H'med, BP 200 Bab Ezzouar - Alger	+213 (0)23 85 30 86
AZERBAIJAN	AZ Auto LLC	2207 Nobel avenue AZ1006 - Bakū	+(994) 124964598
BOSNIA	Sejari d.o.o. Sarajevo	Blažuj 78, 71215 Blažuj - Sarajevo	+387 33 770 306
BULGARIA	Isubus Ltd.	Botevgradsko Shose Blvd. 1839 Sofia	+(359) 28182929
CROATIA	Presečki grupa d.o.o.	Frana Galovića 15 49 000Krapina	+385 (0)49 328 000
CZECH REPUBLIC	Turancar CZ. s.r.o.	Bavorská 856/14 155 00 Praha 5	+420 776 111 113
FRANCE	Fast Concept Car	Z.I La Ribotiere 85170 Le Poire Sur Vie	+33 25 13 41 034
GERMANY	Omnicar Fahrzeughandel GmbH	Weinbrennerstrasse 10 77815 BÜHL	+49 (0)7223 8061930
GREECE	Petros Petropoulos S.A.	96-104 Iera Odos 122 10 Athens	+(30) 210349 92 00
HUNGARY	Anadolu Rom Hungary	1135 Budapest Robert Karoly Ket. 96-98	+36 703730637
ISRAEL	Universal Trucks Israel Ltd.	Industrial Area Segula, P.O. Box 4599 Petach-Tikva 49145	+972-3-9120010
ITALY	Midi Europe SRL	Via Crosaron, s.n. 37053 Cerea VR	+39 0442 328 212
LITHUANIA	UAB Saločiai Ir Partneriai	Mokyklos str. 1B, Bukiskės LT-14182 Vilniaus raj.	+370 5 2793000
MOROCCO	Maroc SDAMA	Route principale de Rabat 1, km 6,3 Ain Sebaa - Casablanca	+212 (0) 529 029 300
POLAND	Busimport PL Sp. z.o.o.	Gierłatowo 10A 62-330 Nekla Wielkopolskie	+48 61 43 86 905
ROMANIA	Anadolu Automobil Rom. Srl	Soseaua Bucuresti- Ploiesti Nr. 110 Comuna CiolPani	+4021-266 8300
SERBIA	Auto Cacak Komerc Doo	Bore Stankovica 16 11 030 Belgrade, Makiš	+381 32 376 228
SLOVAKIA	Turancar	Bratislavská 29 94901 Nitra	+421 37 6555 777

**OCTOBER 2025**