

CITIBUS

USER MANUAL

ANADOLU ISUZU

Revision No: 02

FOREWORD

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

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

Keep the user's manual in the vehicle continuously.

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

Thank you for choosing this product.

We wish you a nice drive.

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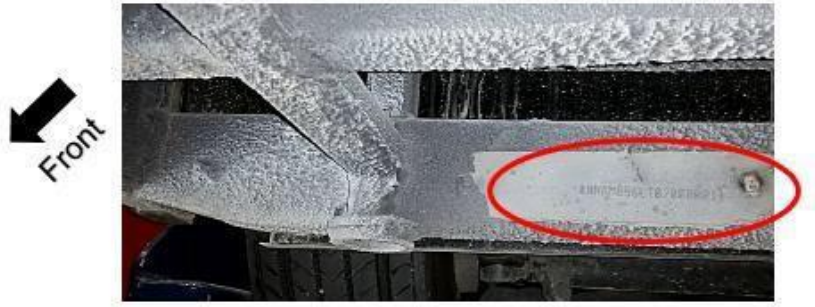
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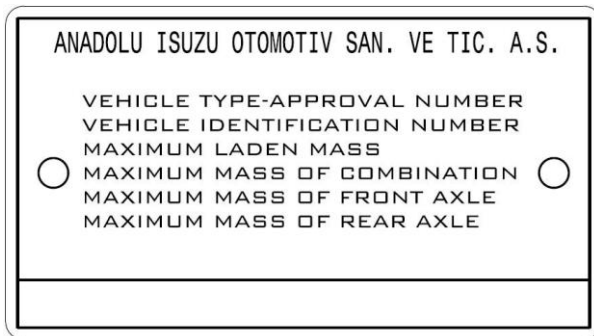
1.INTRODUCTION

CHASSIS NUMBER



The chassis number is stamped on the profile which is in front of the right front wheel.

IDENTIFICATION PLATE

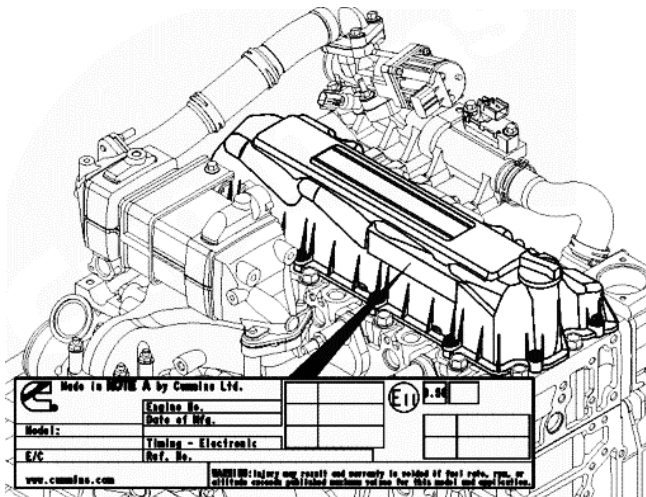


Identification plate is on the platform where the driver seat is located, at the front door entry. There are VIN number, maximum axle load sum, maximum front axle load, and maximum rear axle load on the identification plate.

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.

DESCRIPTION OF VIN COMPOSITION																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
N	N	A	M	0	B	8	L	T	0	2	0	0	0	0	0	1
(SAMPLE)																
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									
						I:	30 PASSENGER SEATS									
						K:	31 PASSENGER SEATS									
S:	32 PASSENGER SEATS															
U	33 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)									
2	INTERURBAN TYPE															
7	ENGINE MODEL					9	ISUZU - 4BD1									
						1:	ISUZU - 4HF1									
						2:	ISUZU - 4HF1-DE-RATED									
						3:	ISUZU - 4HE1-I									
						4:	ISUZU - 4HE1-XS									
						5:	ISUZU - 4HG1-I									
						7:	ISUZU - 4HK1-XS									
						A:	ISUZU - 4HK1E4C									
						S:	ISUZU - 4HK1E4S									
						N:	ISUZU - 4HK1E4N									
						I:	ISUZU - 4HK1E5C									
						U:	ISUZU - 4HK1E5S									
						V	ISUZU - 4HK1E5N									
						C:	ISUZU - 4HK1- 1 E2 (175 HP)									
						D:	ISUZU - 4HK1- 1 E2 (210 HP)									
						G:	CUMMINS BGe5 230									
6:	CUMMINS ISB4.5E6 210B															
8:	CUMMINS ISB4.5E6C210B															
8	DRIVING SYSTEM					L:	LEFT HAND DRIVE									
						R:	RIGHT HAND DRIVE									
9	WHEEL BASE					G:	2765mm									
						L:	3365mm									
						M:	3065mm									
						E:	3815mm									
						F:	4150mm									
						N:	3385mm									
						S:	4660mm									
T:	4435mm															
10-11	MANUFACTURING PLANT					01:	AIOS KARTAL PLANT									
						02:	AIOS GEBZE PLANT									
12-17	PRODUCTION SEQUENCE NO															

ENGINE DATAPLATE



The engine data plate shows specific facts about an engine. The data plate is typically located on the engine rocker lever cover. The engine serial number provides data for ordering parts and service.

A detailed diagram of the engine data plate with numbered callouts (1, 2, 3, 4) pointing to specific fields. The plate includes a logo, a 'Made in' statement, and various engine specifications.

	Made in NOTE A by Cummins Ltd.			D. 50
	Engine No.	Date of Mfg.		
Model:	Timing - Electronic			
F/C	Ref. No.			
www.cummins.com		WARNING: Injury may result and warranty is voided if fuel rate, rpm, or altitude exceeds published maximum values for this model and application.		

1. Engine serial number
2. Engine model information
3. Engine model FR number
4. Calibration code

VEHICLE WARRANTY

Vehicle's warranty term and conditions are stated in the "Warranty Certificate" provided along with the vehicle. Please see info provided in "Warranty Certificate" for warranty conditions and details of operations not covered by warranty.

OPTIONS

Apart from the standard features of the vehicle, the following options may be applied to the vehicle when requested.

- Preheater
- Tropical climate air conditioner
- Rear view camera
- Cameras for vehicle interior
- Fire extinguisher for engine compartment
- Day time running lamp
- Electrically controlled mirrors
- Digital destination line indicator(rear)
- Destination line pane (front-side and rear)
- Radio, CD Player, VCD, DVD, MP3 Player
- LCD

RECOMMENDATIONS / WARNINGS

- For spare keys or lost keys, the serial number on key switch is required to notify Isuzu service, so please note the serial number.
- Only use the fuel (DIN EN 590 compatible Sulphur rate max 10 ppm) with the stated characteristics for your vehicle.
- Diesel exhaust emission liquid must be compatible with ISO 22241-1 or DIN 70070 standards. These two standards are equivalent of each other.
- Do not load your vehicle over the passenger capacity, do not change the seat places. Our factory is not responsible for possible problems that may arise from change of load balance in the vehicle.
- Inspect the exhaust pipe occasionally. If you see any damage (for example, a damaged connection component or hole or crack caused by wear), have your vehicle checked and maintained at the closest Isuzu service.
- Check the tyre pressures frequently and always make sure that they are at accurate level.
- Check the main and dipped beam adjustments, do not travel at night with faulty lights.
- Frequently check brake, parking and plate lights. Do not travel with faulty or muddy brake, parking and plate lights.

- Be careful to have your vehicle maintained timely and regularly at Isuzu services to ensure maximum performance.
- When liquids such as waste oil, brake hydraulic or antifreeze, waste filters and scrap accumulators that you used in your vehicle are disposed randomly, they damage the environment to a great extent. Be careful for such hazardous wastes to be disposed in accordance with environmental regulations.
- It is very hazardous to have rolling empty boxes, empty bottles or other goods on the floor, pay particular attention to keep the floor around driver seat neat and tidy.
- Make sure that there are no inflammable materials under or around the vehicle before you start the engine. Such materials may start fire if they are around.
- Before driving, make sure that you adjusted the seat, steering wheel and mirrors to the positions which provide the correct driving position for you.
- Always fasten your seatbelt.
- Make sure that front window and side windows are clean. Keep the shades in a way not to prevent your view and driving.
- Do not increase the engine speed before it is heated enough.
- Drive your vehicle paying attention to traffic rules and road conditions.
- If you feel any abnormality in relation to the tyres when driving, stop at a safe place immediately. If you continue driving with a deflated tyre, this may lead to the breaking of the bolts and to the dislocation of the tyre due to excessive force on the wheel studs.
- Please drive with a constant speed as much as possible. Warming the engine longer than it is necessary and revving up the engine to high speeds lead to fuel wastage.
- If a warning lamp works or lights, please do not disregard it and do not keep on driving. Remember that you must conduct corrective actions by referring to the description of the counters, warning lamps and indicator lights.
- Start hazard flasher system and pull over to a safe place that will not prevent traffic if your vehicle malfunctions when driving. Place warning triangles to let other vehicles know about your presence. Let the other passengers get off and keep them waiting in a safe place. Inform the closest Isuzu service.
- Field of vision is reduced under adverse weather conditions and the slippery road surfaces increase the braking distances. Drive at a lower speed than your speed under fair weather conditions. Moreover, do not turn the steering wheel suddenly and do not brake abruptly. Use tyre chain and winter tyres on snowy and icy roads.
- Paraffinic fuels to be used (including hydrogen-treated vegetable oils (HVO) fuels) must meet the ASTM D975 standard together with the DIN EN15940 standard.
- If a biodiesel fuel mixture is to be used, the rate of biodiesel can be 20% at most.
- Fuel other than the above-mentioned fuels should not be used without consulting the relevant authorized service.

2. GENERAL INFORMATION

ENGINE START

Set the main switch "ON" and transmission "N". Set key switch "M", turn the key switch and press the starter ("D" position).



Do not run the starter for longer than 30 sec. and do not step on the accelerator pedal when starting. Wait for two minutes between each starting trial.



If engine oil warning lamp has not been deflated within 15 sec. stop the engine in order to prevent it from damage. Contact Isuzu service.



Run the engine in idle mode for 3-5 minutes once you have started it. Gradually increase the engine speed. Do not run the engine in a way to exceed maximum engine speed, it may seriously damage the engine.

Starting the Engine in Cold Weather

Set the main switch "ON" and transmission "N". Set key switch "M", turn the key switch and press the starter ("D" position) when ignition light goes off.



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

ENGINE STOP

Set the key switch "St" and stop the engine.



Do not turn off the main switch before 70 sec. have passed when key switch is open and after it has been closed.

OPENING AND CLOSING THE DOORS



There are opening/closing switches on front control panel to open/close the doors from the inside. Doors are automatically closed when the vehicle speed exceeds 5 km/h.

Front door is opened/closed through remote control from the outside.

Opening the 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 EXIT



Emergency exit is enabled by breaking the windows on the right and left side of the vehicle with the emergency hammer.

3. CONTROLS AND INDICATORS

DRIVER CONTROL PANEL

Driver control panel contains;

Front control panel
Instrument and warning lights panel.

FRONT CONTROL PANEL



Outer Rear View Mirror Resistance Switch



Outer rear view mirror resistance is activated when pressed the lower edge of the switch. It is deactivated when pressed for the second time. If heater is not turned off by the driver, it is automatically deactivated after 20 minutes.

Resistance Driver Side Window Switch



Resistance driver side window is activated when pressed the lower edge of the switch. It is deactivated when pressed for the second time. If heater is not turned off by the driver, it is automatically deactivated after 20 minutes.

Retarder Switch



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

Regeneration Switch



Regeneration is started by pressing the switch, warning light appears on the indicator.

Route Indicator Switch



It activates when pressed the lower edge of the switch, and deactivates when pressed the upper edge

Front Fog Lamp Switch



Front fog lamps are activated when pressed the lower edge of the switch. They are deactivated when pressed once more.

Roof Light Switch



Roof lights are turned on when pressed the lower edge of the switch. Roof lights are turned off when pressed the upper edge of the switch.

Spot Light Switch



Spot light on the upper driver's compartment is turned on when pressed the lower edge of the switch. The light is turned off when pressed the upper edge of the switch.

Hillholder Switch



System is switched on by pressing the lower edge of the switch. Brake system is kept activated to prevent the vehicle from slipping backwards on a hill. It locks the system if you remove your foot from the brake pedal. Brake system is turned on if you step on the accelerator pedal. System is turned off when pressed the upper edge of the switch.

Lighter



Lighter is pushed towards the heat element inside and it goes out automatically when heated.

Emergency Switch



Red security cap is opened by moving upwards to use the emergency switch. Electricity in the system is cut off, engine stops, all inner lighting and flasher are turned on and door switches become activated when it is pushed forward. System becomes normal when it is pulled back.

Front Door Control Switch



Front door is opened/closed when pressed the lower edge of the switch. The switch does not get activated when the vehicle speed exceeds 5 km.

Middle Door Control Switch



Middle door is opened/closed when pressed the lower edge of the switch. The switch does not get activated when the vehicle speed exceeds 5 km.

Rear Door Control Switch



Rear door is opened/closed when pressed the lower edge of the switch. The switch does not get activated when the vehicle speed exceeds 5 km.

ECAS Control Switch



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

The vehicle comes to normal driving level when pressed the upper edge of the Tilting / Normal Level Switch.

Tilting / Normal Level Switch



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

Bus Stop Brake Switch



When pressed the lower edge of the switch, bus stop brake system activates: the system holds the vehicle still if the speed is "0", and releases the vehicle when pressed gas pedal.

When pressed the upper edge of the switch, the system deactivates.

If disabled passengers ramp is open, regardless of position of the switch, bus stop brake system activates.

Flasher Switch



Flasher is opened when pressed the lower edge of the switch. Flasher is closed when pressed the upper edge of the switch. When flasher is open, signal warning lamps on the instrument panel and function lamp on the switch flash and give audio warning along with all signal lamps of the vehicle.

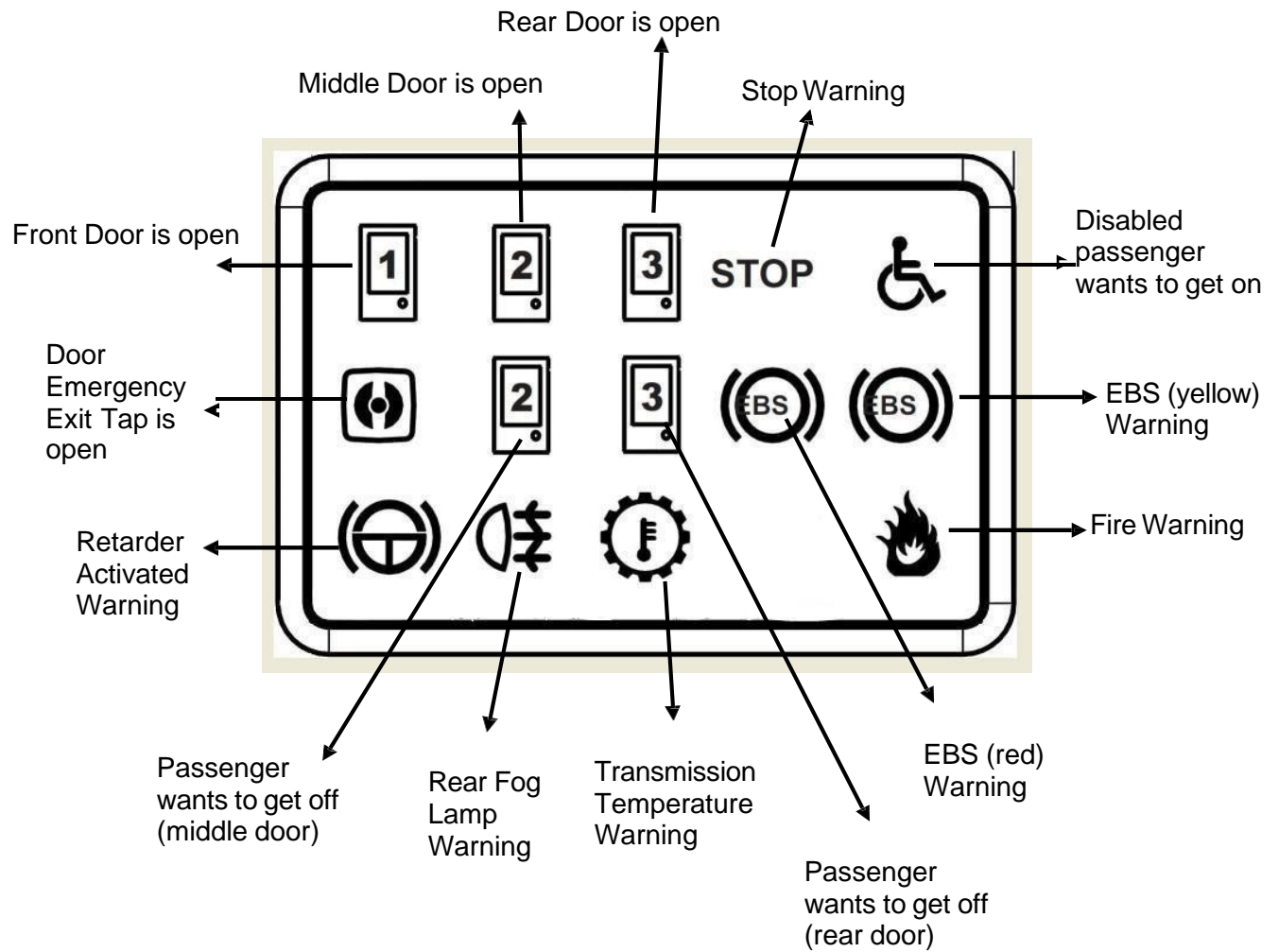
LCD Screen Switch (Optional)



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

Warning Lens Panel

It indicates the status in which functions or malfunctions are active.



Wiper Lever



Wiper lever works in 3 levels.

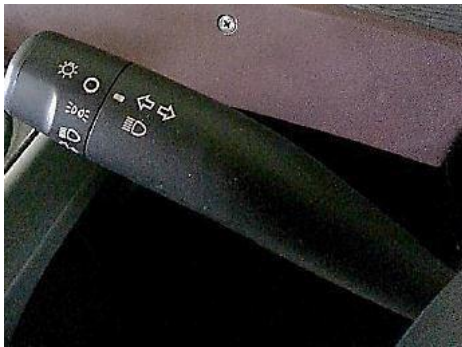
Level intermittent: It works by turning the lever towards the front window. Wiper levers work automatically at certain time intervals.

Level normal speed: It is turned towards the front door again after the 1st level, wiper levers continuously work at normal speed.

Level high speed: It is turned towards the front door again after the 2nd level, wiper levers continuously work at high speed.

When pressed the button on the right side of wiper lever, sprinkler works. When sprinkler operates, wiper levers are automatically activated and then stop after a while.

Signal Lever



The lever gives signal to the right when it is directed upwards and to the left when directed downwards.

Park lamps are turned on when it is turned for the first time and dipped beams are turned on when it is turned for the second time. If the lever is pushed downwards when dipped beams are on, main beams are continuously on.

Selector: Main beams are on as long as the lever is pulled if the signal lever is pulled upwards. It goes off when it is released.

Mirror Control Switch



This switch is used for the driver to adjust the directions of rear view mirror according to himself. Mirror is turned towards the desired direction by turning the arrow mark on the switch towards the mirror to be adjusted and directing the switch (right, left, upwards, downwards).

Handbrake



Handbrake system is air-driven and spring wound. Handbrake lever is on the left side control panel. When the vehicle is stopped, handbrake is pulled backwards and lever must be locked at the lower position. Lock latch on the lower part of the lever is slightly pulled upwards and lever is released frontwards to disengage the brake. There is a warning light on the instrument panel to indicate whether handbrake system is enabled.

Transmission goes N position automatically and drive position on the LCD of the shift selector will start to flash when handbrake system is activated. Transmission will stay in N position even handbrake lever is released. Drive/Reverse position must be reselected to drive the vehicle. For driving (vehicle activated), if brake air is insufficient when handbrake is disengaged (below 6 bars), warning light turns red. One must wait for this light to go off before moving.

INSTRUMENT AND WARNING LIGHTS PANEL



Brake System Pressure Warning: Red and audio warning light is on when brake system pressure falls below 6 bars.



Battery Warning: Red warning light is on when ignition switch is on and is off when engine is started and passes idle speed. It indicates a malfunction in charging system if it is on when driving.



Transmission Malfunction Warning: Yellow warning light indicates a malfunction in transmission.



Engine Coolant Temperature Warning: Red warning light is on when engine coolant temperature is 103 °C.



Lining Wear Warning: Red warning light is on when lining thickness percentage falls below 10%.



Driver Warning: Yellow warning light is on for the driver to identify the problems on NOx control system and their causes.

Driver warning is on;

- If diesel exhaust emission fluid level is below warning level,
- If diesel exhaust emission fluid of incompatible quality is used,
- If diesel exhaust emission fluid of incompatible amount is used, when diesel exhaust emission fluid is sprayed in an intermittent way, When EGR valve or system sensors do not work compatibly.



Engine STOP Warning: Red warning light is on when ignition switch is on and goes off when engine is started. If warning is on when engine is on, vehicle must be stopped safely to stop the engine.

Engine STOP warning will be on;

- If there is an important error in the vehicle,
- If automatic engine will be protected and stopped,
- If there is a malfunction in SCR system,
- If there is diagnostic error code in the system.



Engine Oil Warning: Red warning light is on when there is an error detection in engine grease system.

Engine must be stopped when warning light is on;

If oil level is low,
If oil's viscosity is not compatible,
If oil filter is blocked,
If oil pressure sensor is faulty,
If oil pump is faulty.



Malfunction Indication Warning: Yellow warning light is on in the case of a malfunction related to emission control system. When the warning is on, the vehicle must be taken to the closest Isuzu service.



Engine Warning: When an error, which does not prevent the vehicle from moving and is not active or critical, is identified, yellow warning light is on. If warning light is on when the engine is running, the vehicle must be taken to the closest Isuzu service.

Engine warning light is on;

If it is closed in the idle mode,
If it flashes when the ignition is turned on,
If there are maintenance errors and a diagnostic error code on the system.



DPF Warning: Yellow warning light is on when DPF (diesel particle filter) is full. Warning light is constantly on when the filter is full, regeneration must be started. When the particle amount reaches the critical level, warning flashes, at the same time malfunction indicating warning light is also on and engine power decreases.

The vehicle must be parked to start regeneration. Red engine warning light is on if regeneration is not conducted, the vehicle must be stopped in a safe way and you must contact Isuzu service.



Exhaust System High Temperature Warning: When active regeneration starts in the vehicle or exhaust temperature exceeds a programmable limit, a yellow warning light is on. When exhaust temperature decreases to suitable temperatures, warning light goes off. There must not be any inflammable materials at the exit of exhaust pipe when warning light is on while the vehicle is parked.



Diesel Exhaust Emission Fluid Low Level Warning: Yellow warning light is on when the diesel exhaust emission fluid level is low.



Signal Warnings: Green audio warnings that flash when hazard flasher switch or signal lever on the steering wheel indicating turns to the left and right are used.



Front Fog Warning: Green warning light is on when front fog lamps are used.



Glow Plug Warning: Yellow warning light is on when the ignition is turned on and goes off after a while. You need to wait for the lamp to go off to press the starter.



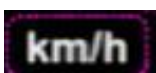
Warning for Water in Fuel System: Yellow warning light is on when there is water in the fuel. Fuel quality control must be made if the warning light is constantly on.



Fuel Level Warning: Yellow warning light is on when fuel level decreases. The vehicle may go 50 km more after the warning light is on.



High Beam Warning: Blue warning light is on when main beams are used or headlights are flashed.



Speed Unit: Unit of the value in the speed indicator.

Engine Speed Indicator



Engine speed indicator measures the engine speed per minute. It starts working when the engine is started.

Speed (km/h) Indicator



It shows the vehicle speed as km/h, it starts working after the vehicle has started.

Fuel Indicator



Fuel indicator shows the fuel level in fuel tank. When pointer gets close to “E”, yellow light at the bottom right part of the indicator is on, this means that fuel has decreased. Fuel must be added before the fuel in the tank is completely used up, or else the system draws air.

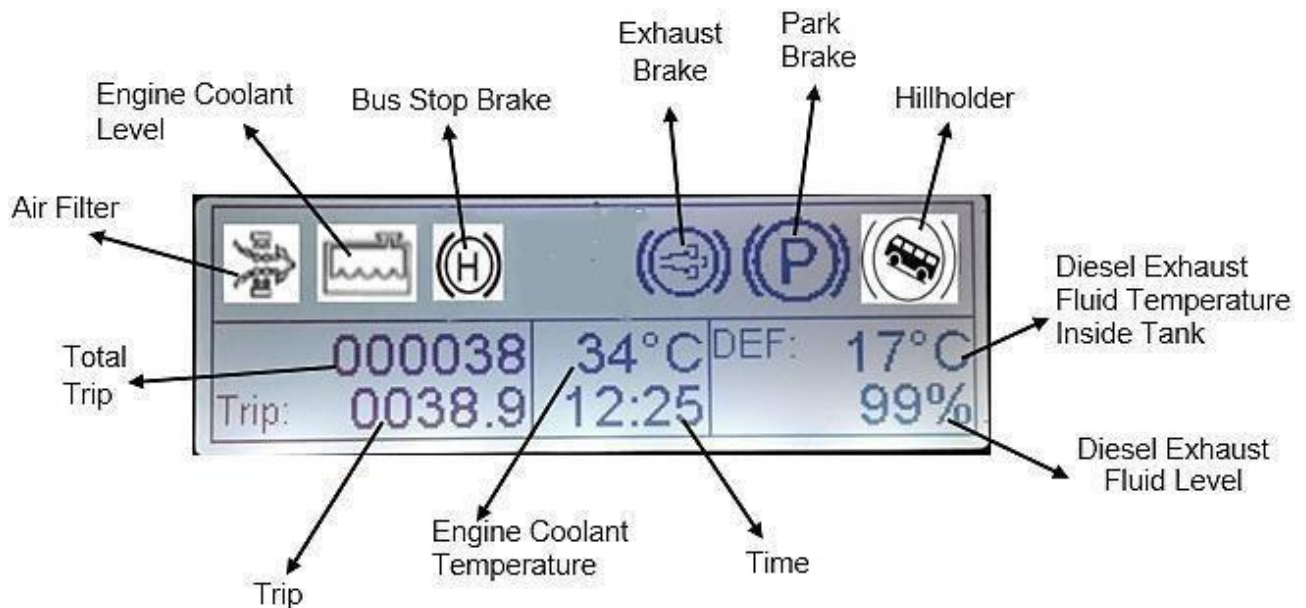
Brake Pressure Indicators: It shows the front brake and rear brake air pressure values.



Front brake pressure indicator

Rear brake pressure indicator

INFORMATION SCREEN



CONTROL PANEL OF DESTINATION LINE INDICATOR



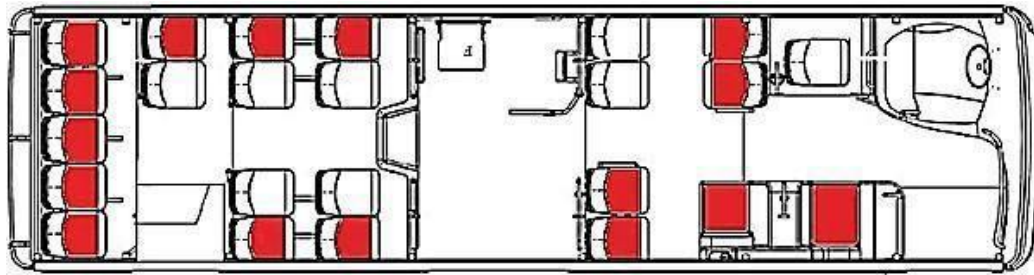
There is a route indicator control panel on the upper part of driver's compartment. The route information is selected/changed via the control panel.

4. VEHICLE EQUIPMENT

DRIVER SEAT



PASSENGER SEATS



Passenger seats are covered in cloth. Leather upholstery is offered as an option. There is one hostess seat at the front door entrance. Passenger seats may be laid backwards, seats by the aisle may spread to the side. The front right and left double seats and middle seat of the back five seats have 3 points seat belt while the other passenger seats have 2 points seat belt.

	24\1	24\0	24\0
	0	0	1
	43	45	37
=	68	69	62

There is a passenger capacity label in front of the vehicle at the upper region. The capacity of the number of sitting and standing passengers is shown on this label.

PASSENGER INFORMATION PANEL



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

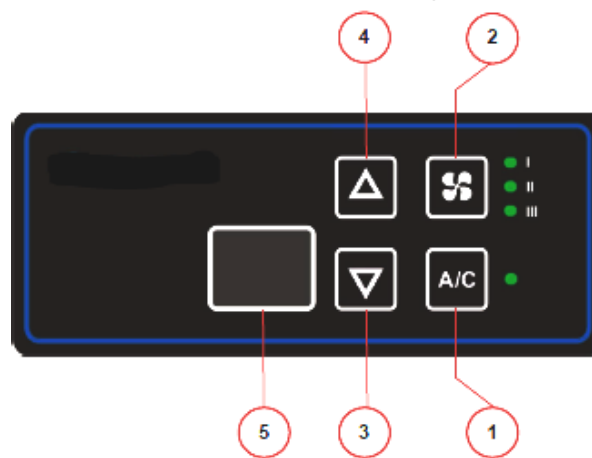
Additionally, the “STOP” warning is monitorized on the passenger information panel when pressed on the stop buttons.

RADIO & MP3 PLAYER



There is a radio & MP3 player with USB and AUX input in the vehicle. You can store 30 radio channels in the memory.

AIR CONDITIONER



- 1)** When the A/C button is pressed, set point which is adjusted lastly, automatically appear on the display and A/C LED lightens. If internal temperature value is higher than set value, A/C unit starts to run. Set value tolerance is $\pm 1,5$ °C.
- 2)** When the fan button is pressed, fan speed increase by one level. When the A/C unit runs, fan speed changes as 1-2-3- 1-2-, otherwise it changes as 1-2- 3-0-1-2
- 3)** It can be used when the A/C unit runs. It decreases set value by 1°C. Set value can be decreased until 15 °C.
- 4)** It can be used when the A/C unit runs. It increases set value by 1°C. Set value can be increased until 30 °C.
- 5)** Normally, display shows internal temperature value. When the up or down button is pressed, it shows set value during 3 seconds. In case of the sensor failure, "E1" is shown on the display. In case of the pressure failure, "Er" is shown on the display.

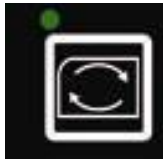
HEATER





This button starts and stops rear heaters. When the vehicle is started, the rear heaters are off and the LEDs are in dimmed position. Green LED of the heater I lights and 1st stage of the heater works, when pressed this button.

When pressed once more, green LED showing that the position II lights with position I, in this case heater works in 2nd stage. When pressed again, the green LED goes off, heater stops. Operation of both heating, stage settings and stopping are done with this button. When the vehicle is stopped, the lights will go out.



When pressed the button, green LED lights. In this position, air needed by front heater is taken through the vehicle. When pressed again, green LED goes off and fresh air is taken from outside.



Hot-Cold valve control button; When pressed the button, if blue LED is on, it is in summer position. Hot water does not go to heater. Pressing the button, red LED position I lights and the valve opens in position by 1/2. In this situation warm air is obtained.

When pressed once more, red LED position II lights with position I. Valve is fully open in position II. Heater operates at full capacity and it is in winter position. When pressed again, red LED goes out, blue LED is on, it returns to the summer position.



This button provides speed control of the blower unit which is in front heater. While the lights are off, blower does not work.

When pressed the button, green LED position I lights. Blower works in low flow.

When pressed the button once more, green LED position II lights with position I. Blower works in midrange. Pressing the button again, green LED position III lights with position I and II. Blower works in the highest speed. The lights turn off when pressed once more and blower fan stops.

While in summer position, the blower is activated for air conditioning. When the air conditioner is open, if pressed position I, a signal goes to air conditioner.



When pressed the button, green LED lights. It is used for defrosting windshield.



When pressed the button, green LED lights. Some air is directed to the windshield and nozzles.

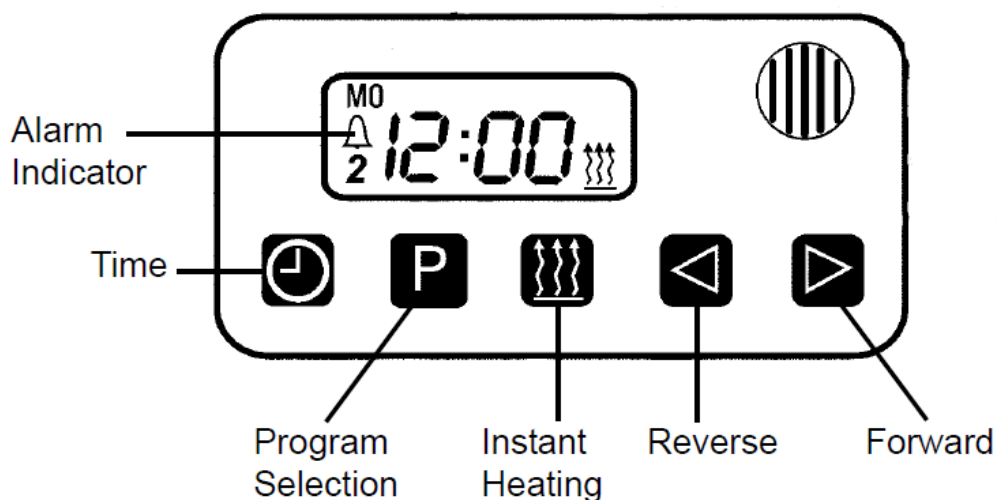


When pressed the button, green led lights. All of the air is directed to the nozzles.



When pressed the button for 5 seconds, it makes shocking. All valves are opened in maximum. The driver should not use this function; it should only be used in services for water-pumping.

PREHEATER (OPTIONAL)




Switching the heater on

Manually: By pressing the  button (continuous heating mode).

Automatically: By programming the heater starting time.

The  button will be illuminated during operation.




Switching the heater off

Manual: By pressing the  button.

Automatically: After the programmed operating time has elapsed.

With the heater running: By programming the remaining operating time.

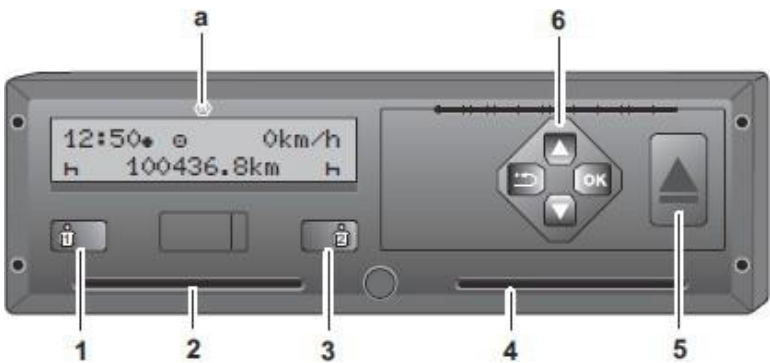
Setting time and day of the week


Press the  button for more than 2 seconds time flashes, press  and  buttons to set the clock.

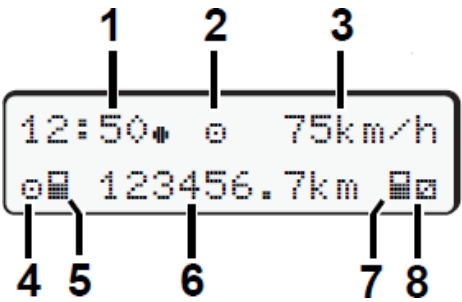
Day of the week flashes – adjust the day of the week.


TACHOGRAPH

The tachograph records vehicle speeds, time, distance travelled and other information. It can be useful in achieving economic driving and optimum management of operations.

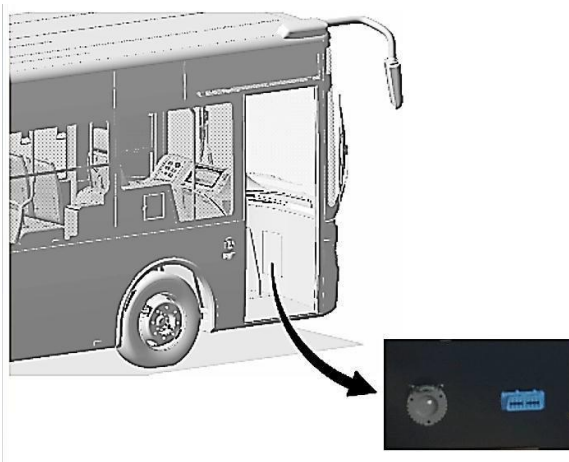


1 Driver 1 combination button	Setting of activities and ejection of the driver card
2 Card slot 1	
3 Driver 2 combination button	Setting of activities and ejection of the driver card
4 Card slot 2	
5 Unlock button	
6 Menu buttons	<div>▲ / ▼ Select function / selection</div> <div>OK Confirm function / selection</div> <div>⏪ Exit, abort menu</div> <div>(a)  Symbol for ADR variant</div>



1	Time (with  = set local time)
2	Operational mode
3	Speed
4	Activity, driver 1
5	Card symbol, driver 1
6	Total odometer
7	Card symbol, driver 2
8	Activity, driver 2

DIAGNOSTIC SOCKET



Diagnostic socket is used for loading and changing parameters on engine control unit and diagnostic fault.

MIRRORS



There is one internal rearview mirror available in the vehicle.

There are two external rearview mirrors, one of which is at right and one is at left.



RIGHT EXTERNAL REARVIEW



LEFT EXTERNAL REARVIEW

DIGITAL DESTINATION LINE INDICATOR

There is one digital destination line indicator at the front (rounding header). There is also one at the rear as an option.

TRAPDOOR



There is a trapdoor for ventilation which is opened/closed manually.

HANDLES



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

STOP BUTTONS

There are three kinds of stop buttons in the vehicle; standard, for disabled passengers and for priority passengers.



The passengers who want to get off the vehicle, inform the driver by pressing on these buttons. The related door switch 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 switch turn off.

PACK AREA



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

WHEEL CHAIR FIXING AREA





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

DISABLED PASSENGERS RAMP

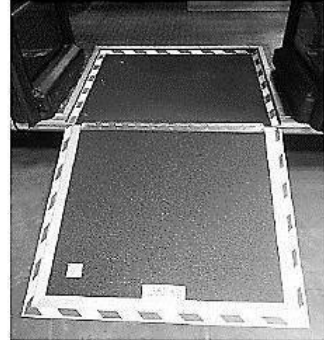
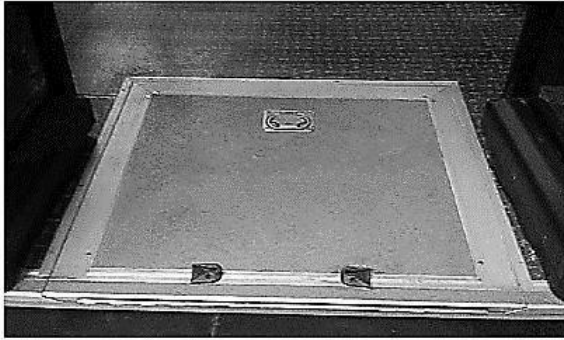
A manual opening/closing ramp is installed to the middle door in order to ease the entry/exit of the disabled passengers with wheel chairs.

The Use of Ramp

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

button,  warning lights. In this case;

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

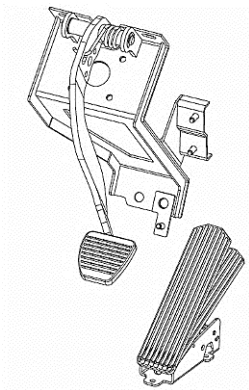


- Open the middle door.
- Open the ramp by holding it from its handle on it and by pushing towards the outside of the vehicle.
- Provide the entry/exit of disabled passengers.
- Close the ramp by folding towards inside of the vehicle.



When the ramp is open, (middle door is open) warning lights.

PEDALS



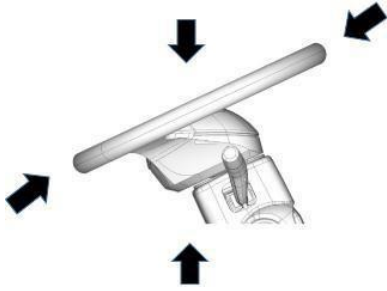
Brake Pedal

Pedal on the left (suspended type) is the brake pedal, which is a part of electronic brake system (EBS). Electrical signal is sent to the central control unit and air is distributed to brake elements once the brake pedal is stepped on.

Accelerator Pedal

Pedal on the right is the accelerator pedal. Electronic signal sent by the position sensor tied to accelerator pedal is assessed by ECU (Electronic Control Unit) and the amount of fuel going to the engine is adjusted. There is a rocketing button at the end of accelerator pedal to increase the engine speed.

STEERING WHEEL ADJUSTMENT



Steering wheel is tilt and telescopic. The lever located below the steering wheel on the right side is pulled upwards for this adjustment. Lever is pushed back when the desired position is reached.

HONK

Honk sounds when one presses the center of steering wheel.

TRANSMISSION

The vehicle may be used both in automatic and manual modes. Transmission shift selector features are as follows:

+↑ Shifting up
-↓ Shifting down

D Forward gear
N In neutral
R Reverse gear
M Performance/economy mode selection*

* According to the transmission calibration

Automatic Mode: This mode is indicated by the digit (highest gear number) “6” on the LCD of the shift selector and information screen. For example, “64” means automatic mode and 4th gear is attained.

Manual mode: This mode is automatically selected when up/down arrow button is pressed. The sign of the manual mode is the left digit on the LCD of the shift selector. Any gear number regarding the count of pressing the button is seen as the left digit. This means, selected gear position is the limit of shifting. Drive position is reselected automatically by the transmission control unit if any button is not pressed.

Transmission Use

Automatic Mode

When the vehicle is at a still state, depress the brake pedal and select D position. The LCD screen will display “61”. Drive gear is automatically engaged and the vehicle starts to move when the brake pedal is released and throttle pedal is depressed. Transmission will shift up/down automatically during the journey. In any moment of journey, such as hard use conditions, it is possible to select drive gear position manually by pressing the up/down arrow buttons on the shift selector.

Manual Mode

Depress the brake pedal and select D position when the vehicle is still state. Then press down arrow button and left digit will be the lowest gear position, “11”. Drive gear is automatically engaged and the vehicle starts to move when the brake pedal is released and throttle pedal is depressed. Upper drive gear positions can be selected via pressing the up arrow button or lower drive gear positions can be selected via pressing the down arrow button. When the vehicle is moving, left digit will be equal to the right digit if the down arrow button is pressed.

Engine START

When the vehicle is in a still state, depress brake pedal, select N position and turn the ignition run position. Engine will start.

Using Reverse Gear

“R” can be selected when the vehicle is in still state or the vehicle speed is lower than 5 km/h. If the vehicle is in still state, depress brake pedal and select R position. If the vehicle is in motion, select R position. Left digit will display as “R” after both selection operation. “R” position cannot be selected when the vehicle speed is over 5 km/h.

Transmission Malfunctions and Indicator Warning

The meaning of this indicator is that there is an electronic fault. Park the vehicle in a safe place if necessary. Turn the ignition off and on again. Check if the fault is still active. If it is back, call the service.

The control module produce a fail code regarding the problem and it can be seen on the LCD of the shift selector. To access diagnostic display mode, press up and down arrow buttons simultaneously twice. Only one fault code is displayed on LCD. Mode button can be used to see the other fault codes. To return to the display of gear position screen, any gear position can be selected or the display will return to themain display automatically if any button is pressed.

Kickdown (shifting down) Feature

Kickdown feature allows shifting down when high engine power is needed. It is activated when the kickdown switch under the throttle pedal is switched.

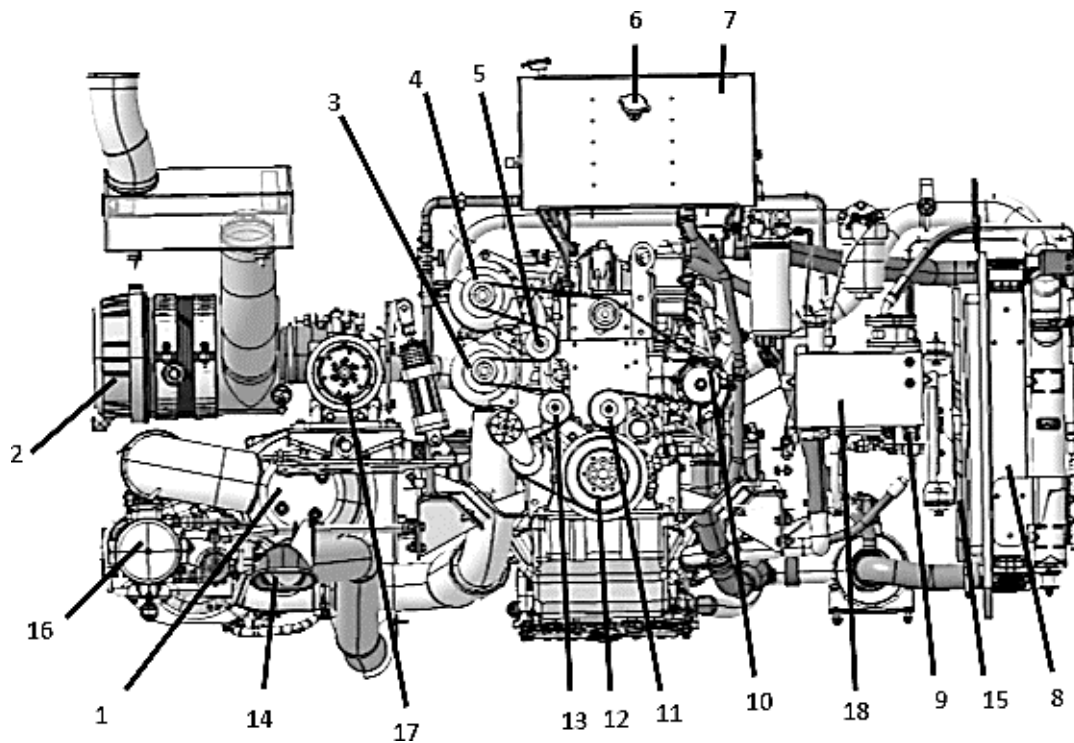


Usage of the kickdown feature increases the fuel consumption.

Retarder Feature

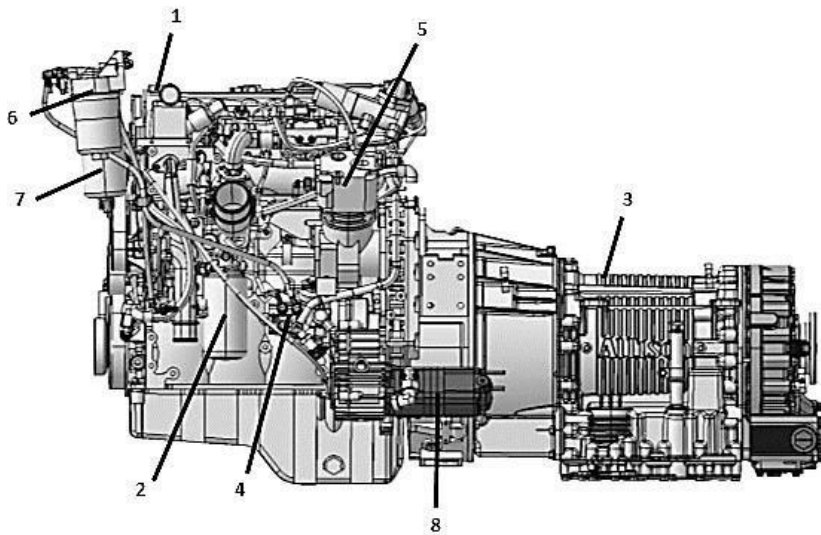
The vehicle has a hydraulically controlled retarder system which is equipped on transmission. Because of the hydraulic system, retarder operation will increase the oil temperature, so be careful if the oil temperature indicator is activated on dashboard. Retarder, which is activated by depressing the brake pedal extends the service brake life. It can be disabled via the retarder switch on dashboard if required.

ENGINE



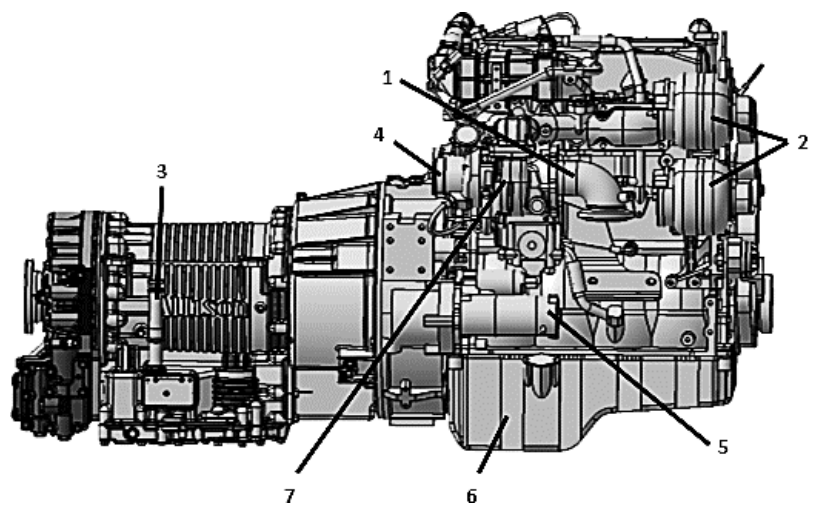
1. Exhaust Gas Processor Unit
2. Air filter
3. Alternator
4. Alternator
5. Idle Pulley
6. Water Filler Cap
7. Expansion Tank
8. Cooling Unit

9. Hydro fan Motor
10. Water Pump
11. Idle Pulley
12. Crankshaft Pulley
13. Idle Pulley
14. Tail Pipe
15. Fan propeller
16. Preheater



1. Engine Oil Filler Cap
2. Oil filter
3. Transmission
4. Fuel Pump
5. Air Compressor
6. Fuel Filter
7. Fuel Water Separator Filter
8. Fan-Steering Pump

1. Exhaust Manifold
2. Alternator
3. Transmission Oil Filler
4. Air suction
5. Starter
6. Crankcase
7. Turbo Unit



Start / Stop Button Group

If it is required to start the engine during a maintenance and repair activity related to engine, vehicle's rear cap is opened and the start/stop button group is used.



FUEL TANK AND CAP



Fuel tank cap is on the right side of the vehicle on the front wheel. Fuel tank is on the right axle. Tank capacity is 215 lt.

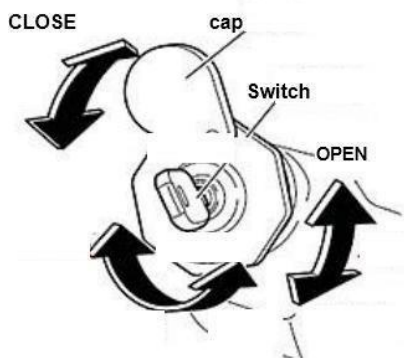
Open the protective cap before reaching the fuel tank cap. Cap is opened with fuel tank key. After filling, tank cap is locked by turning clockwise.

Below the front axle of the vehicle and just above the casing structure is the fuel tank's discharge cork. Cork is turned open and residues in the fuel tank are discharged.



Fuel must not be delivered when the engine runs. One must not smoke when fuel is being delivered. Or else, a fire may start in the fire. Fuel tank filler cap must be tightly closed after the fuel delivery. If not, fuel leakage may start a fire when driving.

Opening and Closing the Fuel Tank Cap



- Before opening the fuel tank filler cap, get rid of the static electricity on your body.
- Open the cap and insert the key fully and turn it to the “OPEN” position.
- Turn the cap counter clockwise in order to open it.
- Fill the tank.
- Fix the fuel tank filler cap on the fuel tank safely.
- Turn the key to the “CLOSE” position in order to lock the fuel tank filler cap.
- Pull and remove the key and then, make sure that the fuel tank filler cap is closed safely.

BATTERY

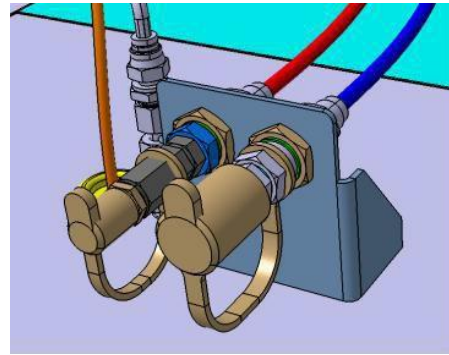
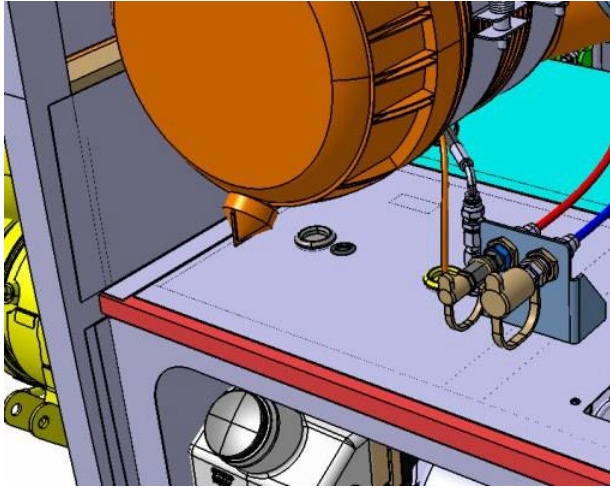


Accumulators are located in the cabinet on the backside of the left rear wheel and positioned on sliding rails in a way to allow easy mounting and dismounting. There are 2 accumulators on the vehicle. Each accumulator is 12 V and 150 Ah.

Battery

TYRE INFLATION SET

Air intake / outlet ports are at the left rear side of the vehicle, under the air filter. Port on the right side is used for air intake and port on the left side is used for air outlet.

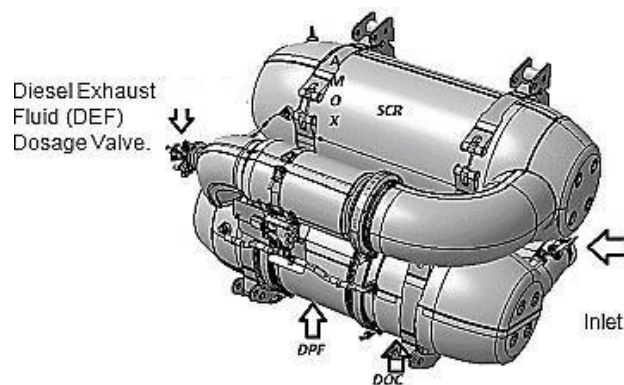
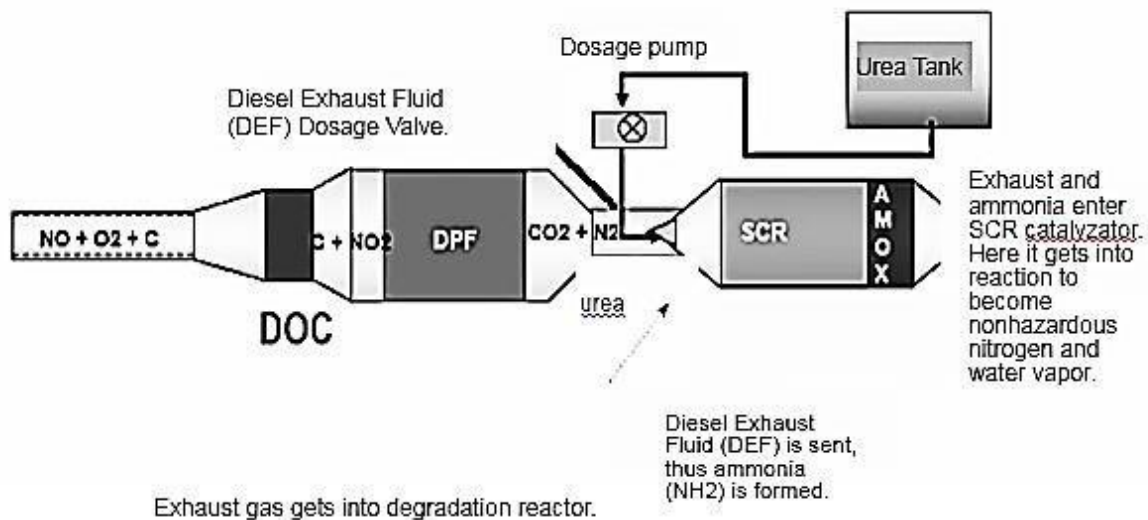


If the air pressure in vehicle tyres are low, tyre inflation set among the tools are used to adjust tyre pressures. In order to do that:

- Park the vehicle in a way not to block the traffic.
- Pull the parking brake and shift the gear to neutral and start the engine.
- Take the tyre inflation set.
- Attach one end of the hose to the tyre valve to be inflated and the other end to the air outlet end.
- Complete tyre inflation by accelerating the engine.

SCR SYSTEM and DIESEL EXHAUST EMISSION FLUID TANK

There is EGR (Exhaust Gas Treatment Unit) system in the vehicle for the engine to allow Euro 6 emission. EGR system allows NOx level to decrease by cooling burnt exhaust gases and sending them back to the system, consequently reducing combustion temperatures. Because this is not sufficient on its own in Euro 6 applications, there is exhaust gas treatment unit in the features below.



Diesel exhaust emission fluid is solution of urea at the rate of 32,5% in demineralized water. It is a fluid consumed to decrease the engine emission rates.

Diesel exhaust emission fluid is sprayed into the exhaust gases by dosage pump. It gets into reaction with nitrogen-oxide gases formed when burning and discharged to make such gases pure nitrogen and water. This process is called "Selective Catalytic Reduction" (SCR).

Diesel exhaust emission fluid tank filler cap is located behind the left rear wheel. Diesel exhaust emission fluid tank's capacity is 19 lt. Fluid level on the tank is continuously controlled, if the level falls below a certain value, warning light on the indicator becomes yellow. In such case, it is necessary to complete the fluid level in the shortest time. There must be minimum 18% fluid in the tank all the time for the vehicle to run properly. Engine will turn on the warning light under it. Engine gives malfunction code and cuts off the power when diesel exhaust emission fluid level falls below 6% value. For SCR system to run efficiently and be durable, it must be certificated that the purchased diesel exhaust emission fluid is compatible with DIN 70700 or ISO 22241-1 standards. Compatibility to these standards guarantees the fluid having the appropriate purity and concentration (32.5%). No addition agent must be added in the diesel exhaust emission fluid.

REGENERATION

Regeneration is the burning process of particles, accumulated in the DPF (diesel particle filter) system in the exhaust treatment system, carried out by the system according to blocking amount or a certain time interval. System may conduct passive and active regeneration.

Passive regeneration: The particle burning process when exhaust gases reach high temperatures under normal use conditions.

Active regeneration: The particle burning process conducted by increasing the exhaust temperature by spraying fuel into the system. Temperature reaches 550 - 700°C. If the system does not reach regeneration temperatures, DPF warning light on the instrument panel is turned on according to the blocking level. Two different types of regeneration must be started when DPF warning light is on.

1. Drive the vehicle at a high speed (for example on highway) for minimum 20 minutes to increase exhaust temperatures. If the light is not off or there are no road conditions to increase the vehicle to a high speed,
2. Conduct stable regeneration on the system. For stable regeneration:
 - Stop the vehicle in a suitable place, do not pass before the exhaust stack because exhaust gas temperatures will rise to very high levels and stay away from inflammable materials.
 - Switch the gear to neutral and step on the brake.
 - Do not step on the accelerator pedal.
 - There must not be an engine fault in the vehicle.
 - Press the exhaust system cleaning switch for regeneration.

When system blocking level reaches upper points, DPF warning will start to flash and engine warning light is on, in which case stable regeneration must be conducted. If regeneration is not conducted, the vehicle starts power take-off. If the blocking continues, engine stop warning and fault indication warning light becomes on in the instrument panel. The engine will not exceed 1200 rpm cycle. The vehicle must be taken to Isuzu service as soon as possible.

DIESEL EXHAUST EMISSION FLUID HEATING SYSTEM

Diesel exhaust emission fluid used in the vehicle starts to freeze at -11°C. Engine starts spraying urea to the exhaust system when the temperature rises. If the fluid in the tank has remained frozen when the engine heated, engine will have power turn-off because urea will not be sprayed. So the engine heats the diesel exhaust emission fluid tank with hot water and diesel exhaust emission fluid line going from tank to injector with electrical heater in cold climate conditions (-7°C and below).

ELECTRONIC BRAKE SYSTEM (EBS)

Electronic brake system has an infrastructure both electronic and pneumatic. Brake system is controlled electronically in normal conditions. Brake request from the driver is treated by the control unit and the most suitable braking is created in that condition. This system has higher performance than conventional systems. In the case of electronic fault, the system does not shut down itself, it keeps running pneumatically.

EBS includes the functions below:

- 1) **ABS (Anti Blockage Brake System):** It prevents the vehicle from slipping by preventing the wheels from locking when braking. It ensures steering wheel stability in sudden braking.
- 2) **ASR (Anti Skating System):** ASR becomes activated and increases driving safety by minimizing skating when drive wheels skate on ramps, slippery grounds and when accelerating.
- 3) **Drift Torque Control (DTC):** Wheels may get locked due to inertia of transmission organs on slippery grounds, this system gets activated and increase engine torque and tries to ensure road handling.)
- 4) **Electronic Brake Equalizing (EBD):** It distributes the brake force necessary according to the load status and lining wear to the wheels.
- 5) Lining wear is controllable, lining thickness is continuously followed on the instrument panel.
- 6) **Retarder Integration:** System is in a continuous interaction with retarder. Retarder gets activated in slight brakes to prevent the linings from wearing. It also reinforces the braking system under normal conditions. Retarder system is deactivated when ABS function operates.

Safety functions do not operate, brake performance decreases in the case of an electronic fault. The driver must contact the closest Isuzu service carefully in such case. Safety functions such as ABS, ASR and DTC are effective to decrease accident risk; however, the actual important issue is to drive the vehicle in a way suitable for traffic and road conditions.

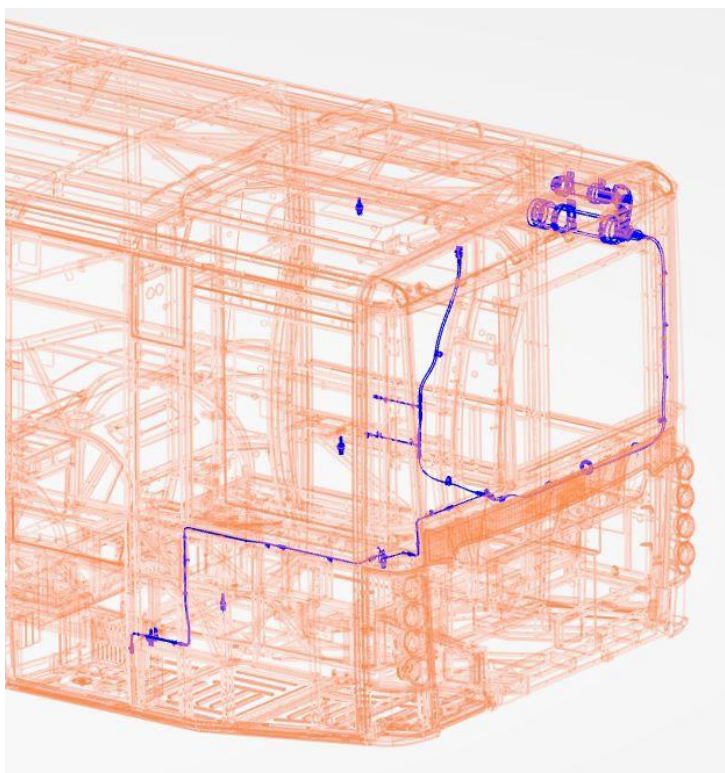
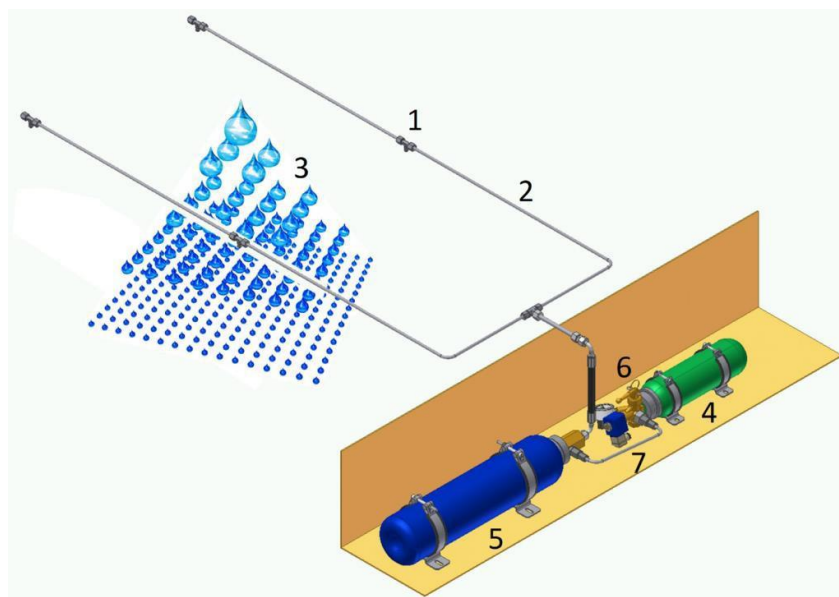
ENGINE ROOM FIRE DETECTION SYSTEM

A system which gives red light and audio warning in warning lens panel



when the engine room temperature exceeds 175 °C .

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 μ 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

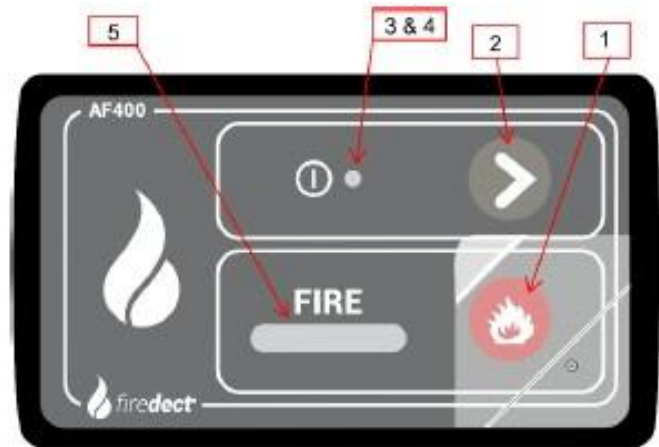
The following operations should be performed when the fire extinguishing system activated because of a reason other than fire and the tanks emptied:

- 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

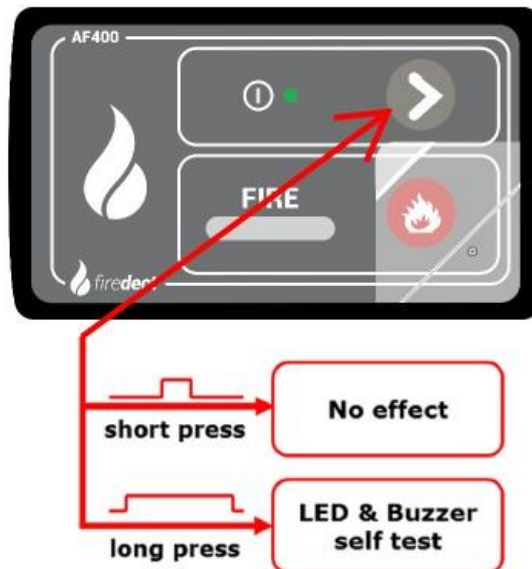
Alarm activated.

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.

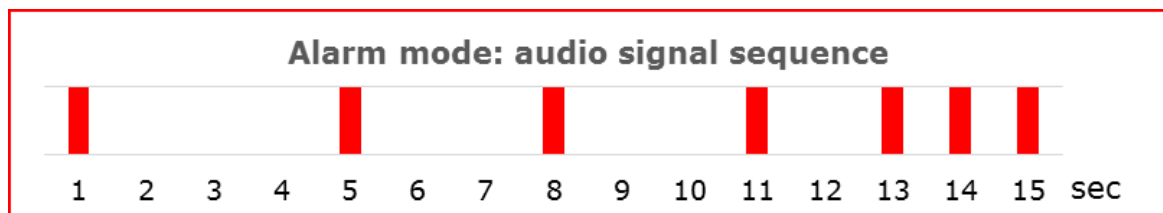
Normal Operational Mode

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.



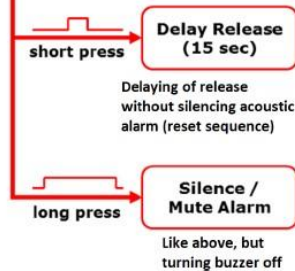
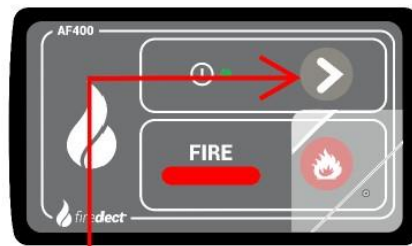
Alarm Mode

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.



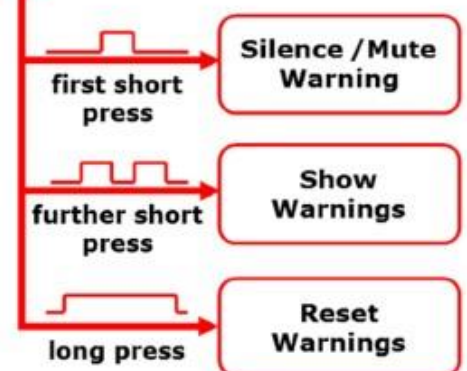
Warning / Diagnosis Mode

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	FireSensor/Terminating -Resistor -> bad value/not connected	On	Off	Off
2	Low-Pressure/not connected	Off	On	Off
3	Defect in Valve-Connection	Off	Off	On
4	Fire Alarm	On	On	On
5	Wrong Battery	Off	Off	Off



ENGINE ROOM FIRE DETECTION SYSTEM AND CONTROL UNIT (FOGMAKER-OPTIONAL-2)

Control Module

In Case Of Alarm- Fire

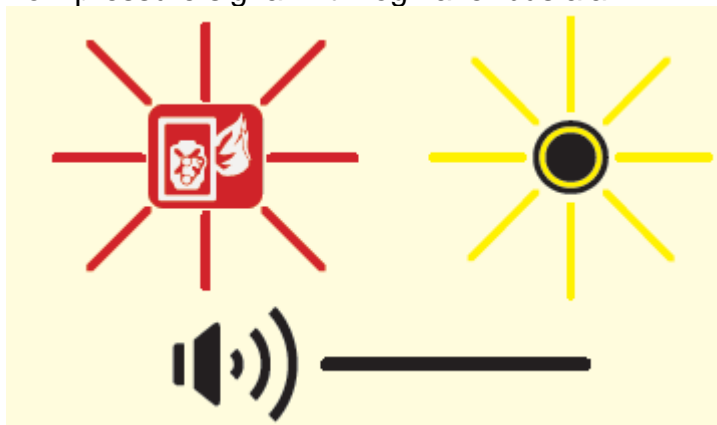
- Red motor fire symbol/red lamp flashes red.
- Alarm siren gives repeating acoustic signal.
- Fire alarm signal – bus manufacturer's system:
- See bus manufacturer's manual.

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

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

Engine wash after fire

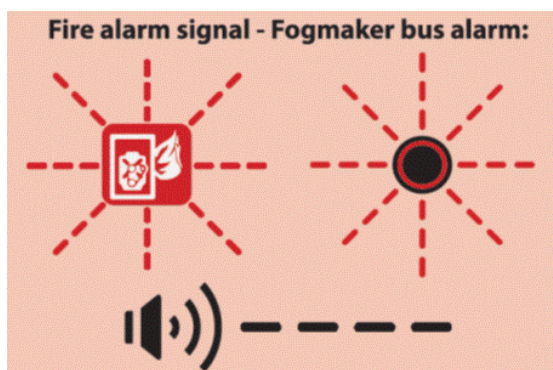
Low pressure signal with fogmaker bus alarm:



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

Contact the nearest authorized service.

In Case Of Alarm – Fire

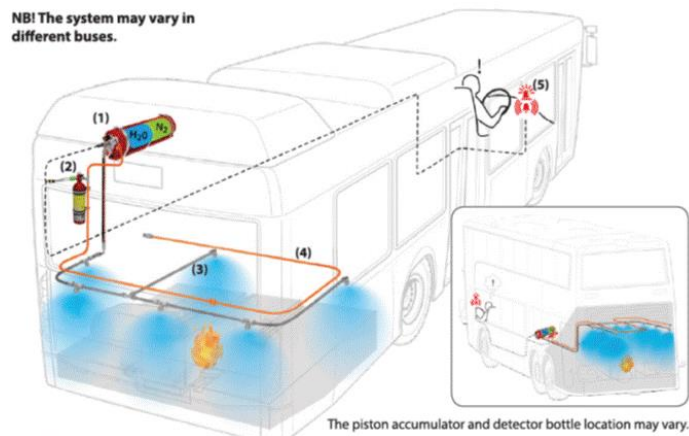


Overview, Fogmaker's Fire Protection System

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

The system comprises:

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



Routine Maintenance

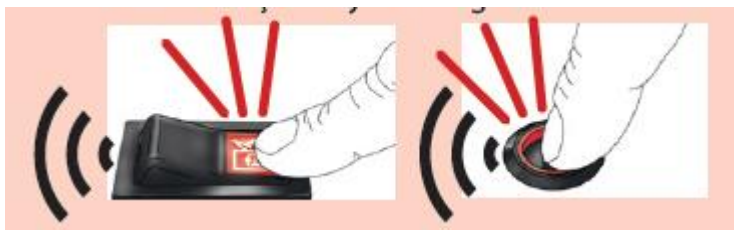
Pressure switch installed: Check that lamps indicating low pressure are not alight on the bus alarm button.

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:

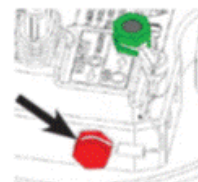
- Press down the button- two variants, see below:
- Check that there are both a sound and light signal.



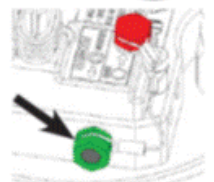
Alarm test – bus manufacturer's system:
See bus manufacturer's manual.

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

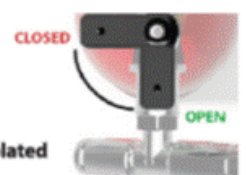


Green screw mounted
in the side of the valve
unlocks the system so
it can deploy

Detector bottle: 20-24 bar at 20°C



The detection system is isolated
by closing the ball valve:



5.SERVICE AND MAINTENANCE

CLEANING VEHICLE

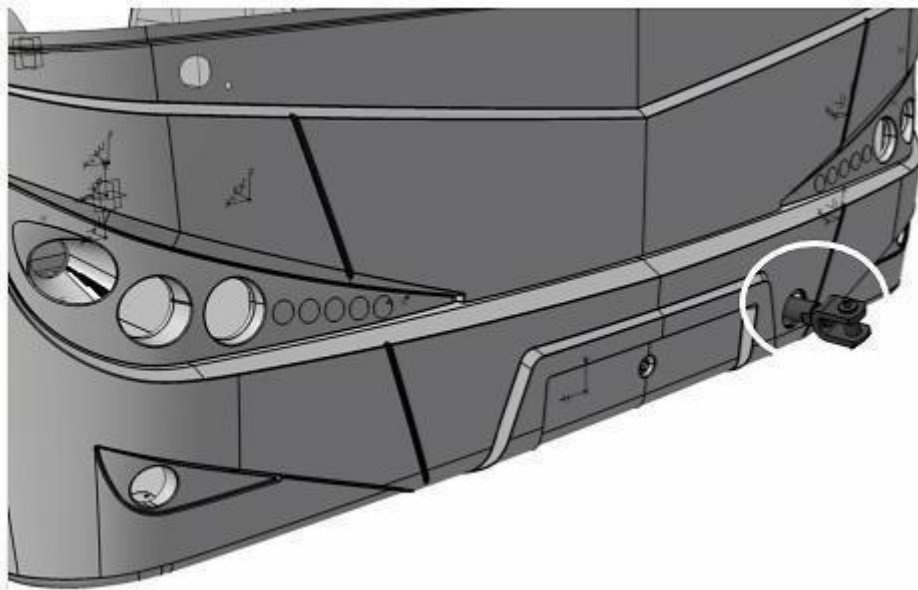
Outside Cleaning

- Do not clean your vehicle with detergent and chemical materials, do not wipe with gas.
- Use pressurized water for vehicle cleaning (except for engine area), do not leave the extra water on the vehicle after cleaning, remove the extra water with a cloth or wash leather.
- Do not wash your vehicle under hot sunlight.
- Keep the inside of mudguards clean during winter.
- Use only soap and water to clean the air bellows on the vehicle.

Inside Cleaning

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

TOWING VEHICLE



- Open the tow hook cap which is on the bumper.
- Take the tow hook by opening cap which is behind the rear quinary seat in the vehicle.
- Screw the tow hook to the hole on the casing and make sure that it fits.

ENGINE OIL AND OIL FILTER CHANGE

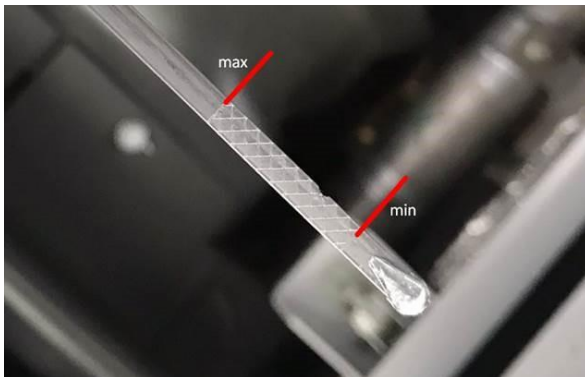
To change engine oil and oil filter:

- Run the engine until engine water temperature reaches 60 °C.
- Shut off the engine.
- Remove the crankcase plug, pour the oil to oil collection tank.
- Clean the oil filter head and dismount the filter using filter dismounting tool.
- Fill the new filter with clean engine oil.
- Lay a thin layer of engine oil to oil filter O-ring.
- Tighten the oil filter by hand until the rubber contacts with the gasket surface, and then tighten the filter with filter tool for another round.
- Mount the crankcase plug with a new seal washer and tighten with 24 Nm torque.
- Fill the engine oil until H level.
- Start the engine in idle and check for leakage.
- After waiting for the oil to percolate for 5 minutes, premeasure the engine oil level and refill until H level if it has decreased.



Use an engine oil compatible with the fluid specifications.

Oil Level Control



You may reach the oil level control stick by opening the rear engine cap. For oil level control;

- Pull the oil level stick
- Wipe with a clean cloth
- Mount the stick and then pull again
- Check the oil level
- Fill until H level.

ENGINE COOLING SYSTEM

Engine cooling system keeps the engine temperature in the suitable temperature range, which lets the engine run efficiently and prevents the engine parts from wearing by preserving the suitable oil viscosity.

System also cools the transmission. It also covers the hot water need of cabin heater system and heats the diesel exhaust emission fluid tank in very low temperatures. Cooling fluid used in the cooling system is a mixture of 50% water and 50% antifreeze. This mixture has a freezing point of - 36 °C and boiling point of +108 °C. No additional agents must be used in the cooling fluid.

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

1. Position the vehicle on a flat ground.
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 (in the engine water inlet and outlet) tied to cabin heater and A/C units.
4. Open the top and side caps of expansion tank.
5. Start 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 valve 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 cold 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 high idle speed and release the air from air relief 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 idle speed until cooling water temperature has reached the thermostat opening temperature values. Radiator grille may be covered with a cloth (linoleum etc.) to reach the high temperature quicker.
14. It must be continued to run the engine at high idle speed for 5 minutes, by 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 speed 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 high 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.

FUEL FILTER CHANGE

It is possible to reach fuel filter under the vehicle and from the rear cap. For fuel filter change:

- Dismount the fuel filter
- Remove the paper filter element in the filter.
- Remove the O-ring in the filter.
- Properly mount the new filter element in the filter.
- Mount the new O-ring to the filter.
- Oil the fuel filter O-ring with clean lubrication oil.
- Fill the fuel filter with fuel.
- Mount the oil filter to fuel filter hear in a way to allow one gear to hold.
- Tighten the filter with 32 Nm torque.

FUEL WATER SEPARATOR

Fuel water separator is mounted on the body on the right side when rear cap is opened. Its function is to ensure that fuel is efficiently used by distilling the water in the fuel.

Changing the Fuel Water Separator Filter:

It is possible to reach the fuel water separator filter from vehicle's rear cap. For fuel water separator filter change:

- Remove the connecting cable of fuel water control indicator.
- Dismount the fuel filter
- Empty the fuel filter, dismount the fuel water control indicator from the fuel filter.
- Check whether there is any damage or crack on the indicator.
- Mount the fuel water control indicator to the new filter
- Oil the fuel filter O-ring with clean engine oil.
- Mount the filter.

CONTROL OF BRAKE DISCS AND LININGS



Lining water indicator must be regularly controlled. When lining indicator value is 10%, one must contact Isuzu service to change it.

Left and right brake linings on the same axle must be changed together. Original brake part defined by the vehicle manufacturer must be used.

Brake discs must be controlled when changing linings and they must also be changed if necessary. Or else brake performance may be affected negatively.

TRANSMISSION MAINTENANCE

TRANSMISSION FLUID AND FILTER CHANGE PROCEDURE

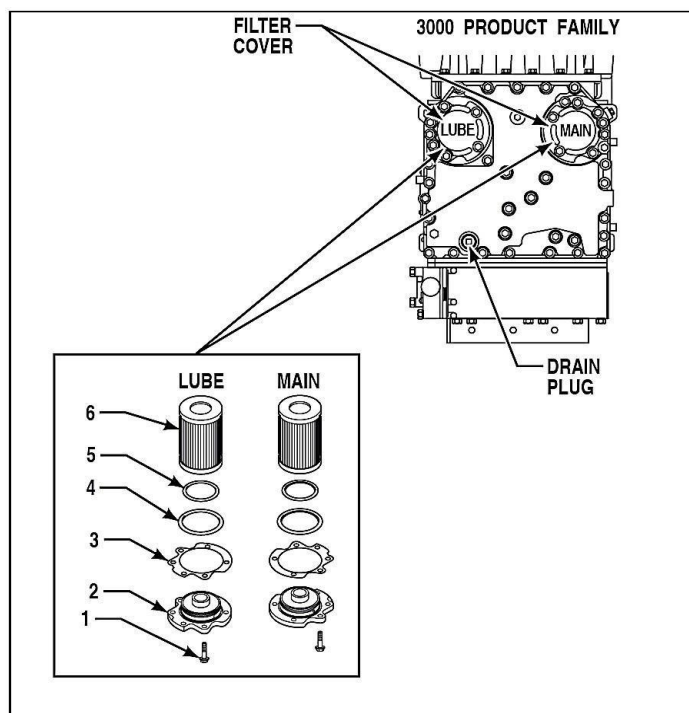
a. Drain Fluid

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



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

1. Drain the fluid when the transmission is at normal operating sump temperature 71°C – 93°C (160°F–200°F). Hot fluid flows quicker and drains more completely.
2. Remove the drain plug from the oil pan and allow the fluid to drain into a suitable container.
3. Examine the fluid



Location of Filters for Service

b. Replace Filters

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



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

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

c. Refill Transmission

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

Initial fill: 30 lt

Refill : 17.5 lt

TRANSMISSION FLUID LEVEL CHECKS

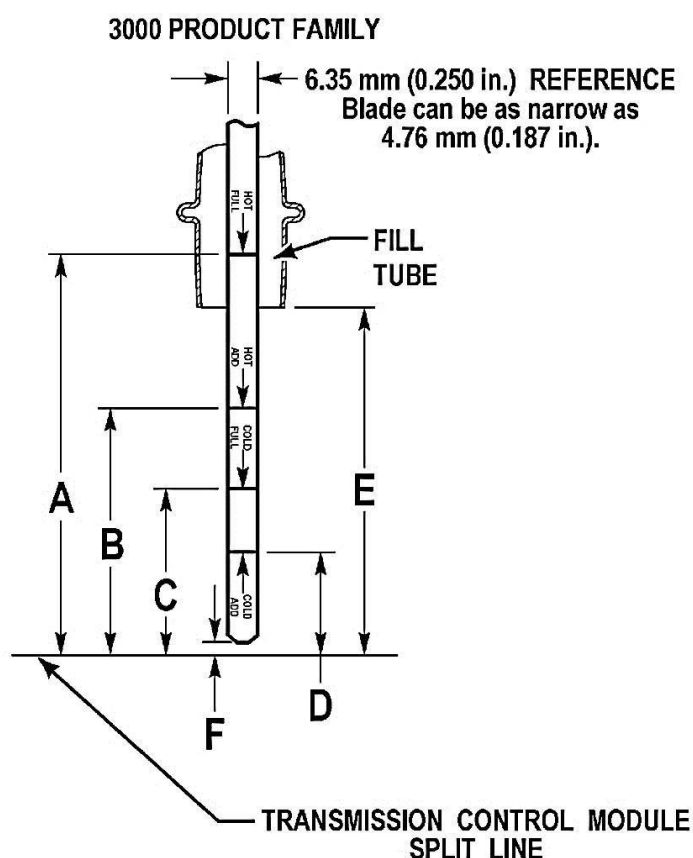
Cold Check Procedure (Dipstick Method)

A COLD CHECK determines if the transmission has enough fluid to be operated safely until a HOT CHECK can be made. Complete a COLD CHECK after the presence of transmission fluid has been confirmed with the engine off. The transmission fluid temperature should be between 16 - 49°C (61-120°F).

Complete a COLD CHECK procedure using the dipstick as follows:

1. Move the vehicle to a level surface, put the transmission in N (Neutral) and set the parking brake.
2. With the engine idling (500–800 rpm), shift to D (Drive) and then to R (Reverse) to clear air from the hydraulic circuits.
3. Run the engine at idle (500–800 rpm) in N (Neutral) for about one minute.
4. Clean debris from around the end of the fill tube before removing the dipstick.
5. Remove the dipstick and wipe it clean.
6. Insert the dipstick into the fill tube, pushing down until it stops, but still in its loose or unscrewed position.

7. Remove the dipstick and observe the fluid level. If the fluid on the dipstick is within the COLD CHECK band, the fluid level is satisfactory. If the fluid level is not within this band, add or drain as necessary to bring the level within the COLD CHECK band. Refer to the Operator's Manual Section Transmission Fluid Refill as necessary to bring the level within the COLD CHECK band.
8. Perform a HOT CHECK at the first opportunity after normal operating temperature of 71 – 93°C (160–200°F) is reached.



OIL SUMP	TRANSMISSION/SUMP DESCRIPTION	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION E	DIMENSION F**
2.00 in.	3000 PRODUCT FAMILY	101.6 mm (4.00 in.)	73.7 mm (2.90 in.)	50.8 mm (2.00 in.)	*	86.6 mm (3.41 in.)	5.9 mm (0.23 in.)

NOTE: Calibrate level marking locations with respect to transmission control module split line and fill tube.

Scale none.

*Dimension determined by installation.

**Reference dimension only. Actual dimension to be determined by installation.

Hot Check Procedure (Dipstick Method)

To complete a HOT CHECK procedure using the dipstick do the following:

1. Be sure fluid has reached normal operating temperature of 71-93°C (160-200°F). If a transmission temperature gauge is not present, measure fluid level when the engine water temperature gauge has stabilized.
2. Park the vehicle on a level surface and shift to N (Neutral).
3. Apply the parking brake and allow the engine to idle (500-800 rpm).
4. Clean debris from around the end of the fill tube before removing the dipstick.
5. Remove the dipstick and wipe it clean.
6. Insert the dipstick into the fill tube, pushing down until it stops, but still in its loose or unscrewed position.
7. Remove the dipstick and observe the fluid level. The safe operating level is anywhere within the HOT RUN band on the dipstick.
8. If the level is not within the HOT RUN band, add or drain fluid as necessary to bring the level within the HOT RUN band.
9. Measure fluid level more than once. Be sure fluid level measurements are consistent. If readings are not consistent, be sure the transmission breather is clean and not clogged.
10. If readings are still not consistent, contact your nearest Isuzu service.

Electronic Fluid Check

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

Full Function Pushbutton

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

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

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

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

3. Correct fluid level.



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

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



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

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



6. To exit the oil level display mode:

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

Invalid for Display Codes

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

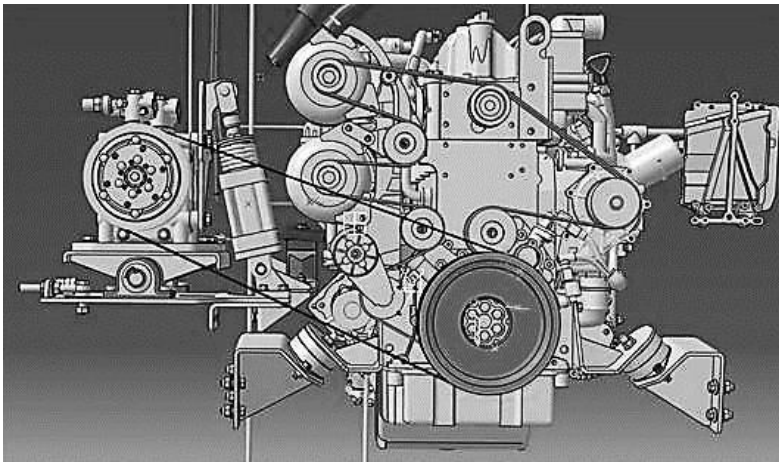
If these conditions cannot be corrected, contact the nearest Isuzu service.

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

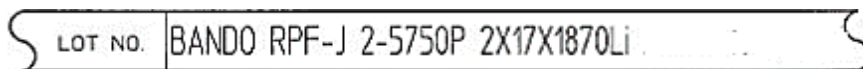
DIFFERENTIAL OIL CHANGE

- Put an oil discharge tank under the differential cage for oil discharge.
- Dismount the oil discharge plug under the cage and pour the oil into the tank.
- Mount the oil discharge plug again after discharging and tighten with 54 ~ 81 Nm torque.
- Dismount the filler plug and fill the oil (differential oil capacity 9.5 lt)
- Wait 15 minutes after filling for oil to spread on axles.
- Mount the filler plug back and tighten with 54 ~ 81 Nm torque.

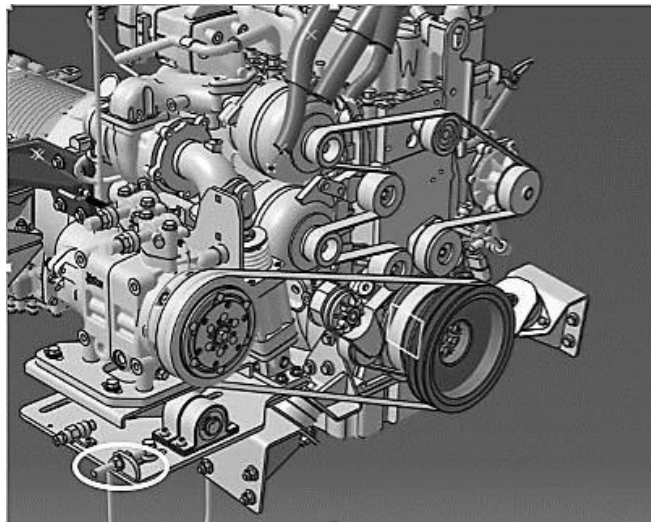
AIR CONDITIONER COMPRESSOR BELT



A/C compressor belt is double 17 V belt. Codes on the belt are indicated below.

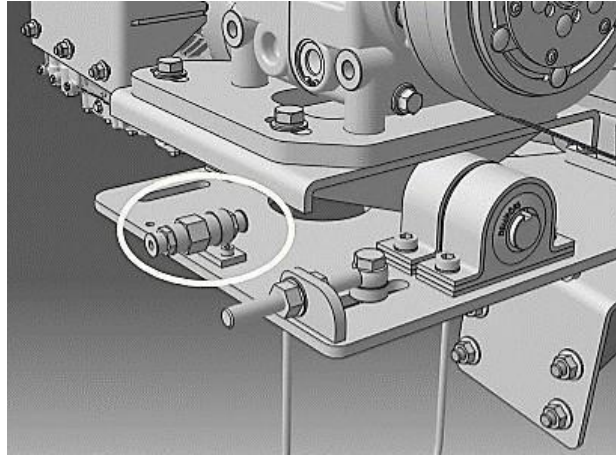


Contact Isuzu service to change the belt when it gets damaged or severed.



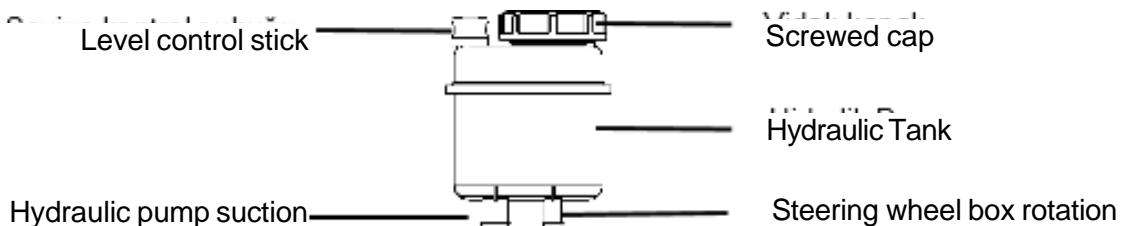
Compressor belt must be stretched by tightening the ring nuts on the indicated point (must be performed by Isuzu service).

Also stretching system always stretches the belt actively with a pneumatic piston. It must be checked whether air cock below is open before the first start. Air cock must be open. It stretches the compressor along with 6 bar pneumatic piston.



If the cock is closed, do not start the engine. There is a risk of darting and snapping because the belt is not tight. Do not come close and do not touch the belt when the engine runs and belt rotates.

STEERING WHEEL HYDRAULIC TANK



It is located on the right side of engine when the engine rear inspection hatch is opened. There is a screwed cap and oil level control stick on the tank. Oil level control must be performed once in every 3000 km. Level stick of tank is dismantled for oil level control, there is minimum and maximum line on the stick, oil level must be between these two lines. For hydraulic steering wheel and pump to run problem-free, the oil defined by the vehicle manufacturer must be used. Vehicle must not be started if there is not sufficient oil in the steering wheel system, steering wheel may get damaged. If oil has decreased, oil is filled until the maximum line of stick.

WINDOW SPRINKLER WATER TANK



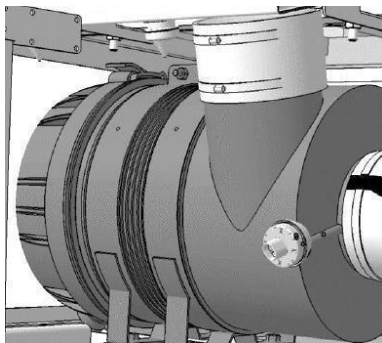
It is possible to reach window sprinkler water tank by opening trunk cap front left.

Window washing water up to maximum 10 lt may be filled to the tank after the cap has been opened.



In cold weather, antifreeze water must be used to prevent the water from freezing.

AIR FILTER



It is possible to reach air filter by opening the rear left side filter cap.

In order to clean the air filter, rubber dust valve in the bottom part is tightened from the edges to empty the accumulated dust.

Air filter element

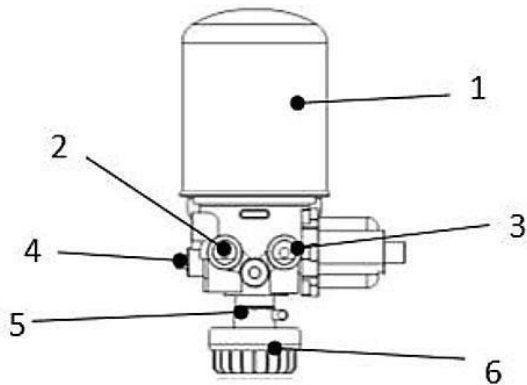
It is possible to reach air filter by opening the rear left side filter cap.

In order to clean the air filter, rubber dust valve in the bottom part is tightened from the edges to empty the accumulated dust.

Air filter element change must be made in every 30000 km. Follow the steps below to change:

1. Unlock the lock on the cover
2. Turn the cover counterclockwise
3. Remove the cover from the housing
4. Remove filter element
5. Clean the housing and cover from dust
6. Install filter element
7. Install the cover; dust ejection valve on the cover must be on the bottom position when cover locked.

AIR DRYER

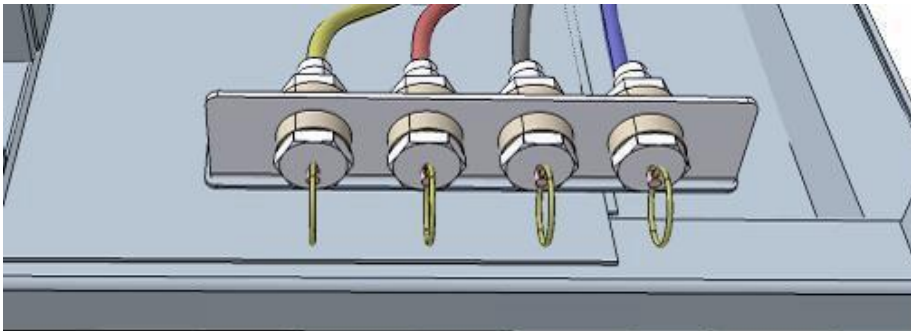


1. Cartridge
2. Compressor connection
3. Four-way valve connection
4. Heater
5. Air drain
6. Silencer

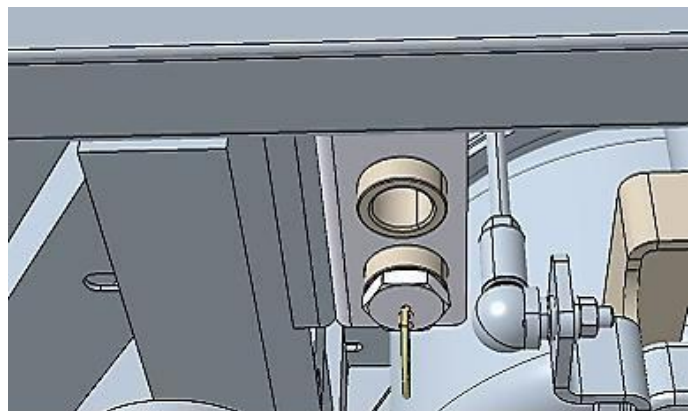
The air dryer is located behind rear axle, on the left. Function of air dryer is to adjust the air system pressure and decrease the moisture and air in the air pressed from the compressor. Dryer has a heater that prevents freezing in cold weather, which is activated in low temperatures in particular and deactivated in high temperatures. Air dryer fills air into the system until the circuit cutting discharge at 9.8 bar. When filling is completed, dryer discharges the water and oil accumulated from the muffler in the bottom part with pressure, thus cleaning itself. Air dryer's cartridge must be replaced at the end of use for 1 year or 40000 km.

DRAINING WATER IN AIR TANKS

There are 4 air tank drain valves under driver region and 1 air tank drain valve in the lower part, between rear door and right rear wheel.



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



WINDSHIELD WIPERS CHANGE

There are two outside wiper arms, right and left.

To change wiper blade, the bolt and ring nut in the center of blade are dismantled (Image 1 and Image 2)

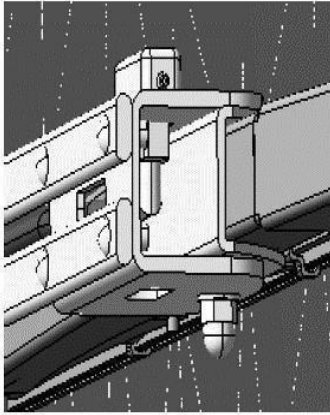


Image 1

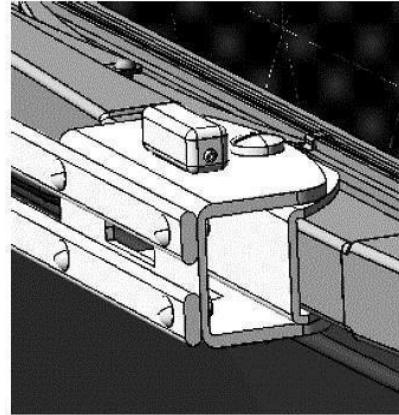


Image 2

For complete change of outside wiper arm, plastic cap at the point where it is connected to the vehicle body is open, ring nut here is dismantled to remove the wiper arm (Image 3). When removing the wiper arm, sprinkler hose connected to the arm must be pulled and removed from the point where it is connected to the vehicle body.

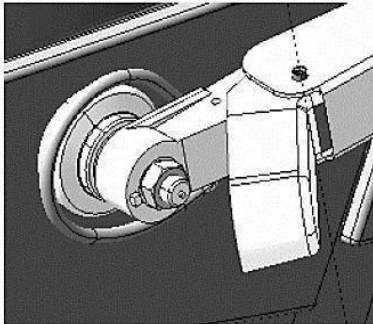


Image 3

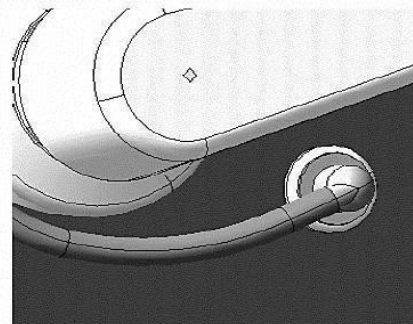
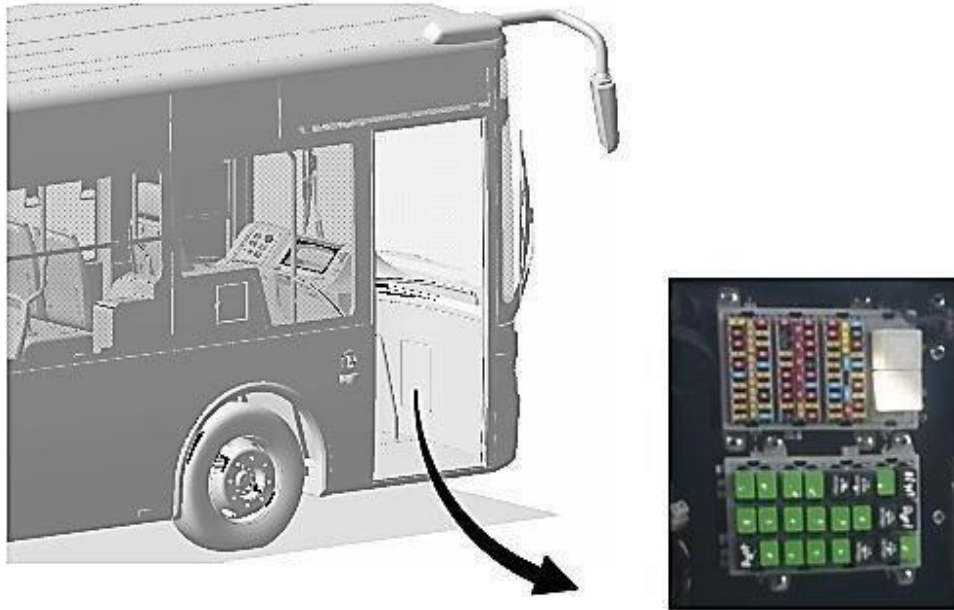


Image 4



Wiper blades must be controlled definitely and renewed if necessary during winter. Change of inner mechanism of wipers must be performed by Isuzu services.

FUSES/RELAYS



Fuses and relays are in a cabinet on the front right side of the vehicle. Fuse label is on the dashboard cover. Fuses used in the vehicle are blade type. Relevant fuse trips as open circuit to protect electrical components when a short circuit or fault current occurs in the system. Fuse is replaced with a fuse of the same ampere equivalence after the electrical fault has been removed.

USING JACK AND CHANGING TYRES

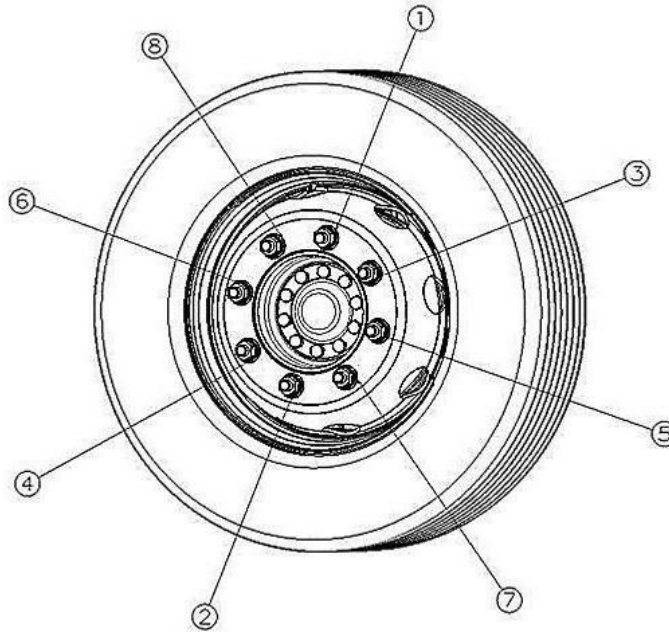
Jack points of the vehicle are located in front of the front wheels and behind the rear wheels on the body.

Using jack;

- Make sure relief screw is tight.
- Use its own jack lever to lift the jack.
- Rotate the relief screw two rounds to the left to lower the jack.

Changing tyres;

- Place a wedge to the wheel which is diagonally opposite of the wheel you are jacking up.
- Loosen but do not remove the wheel nuts by the tyre to be changed.
- Lift the vehicle with jack until the tyre is completely lifted off the ground from the jack point behind the tyre to be changed.
- Dismount the wheel nuts, remove the tyre.
- Mount the spare tyre.
- Take the space of wheel nuts to make sure that the tyre fits.
- Tighten the wheel nuts in diagonal opposite and in three phases with 385 ~ 430 Nm torque.



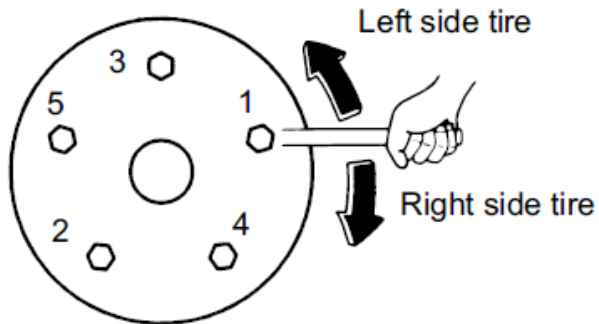
- Slightly loosen the relief screw of the jack to lift down the vehicle.



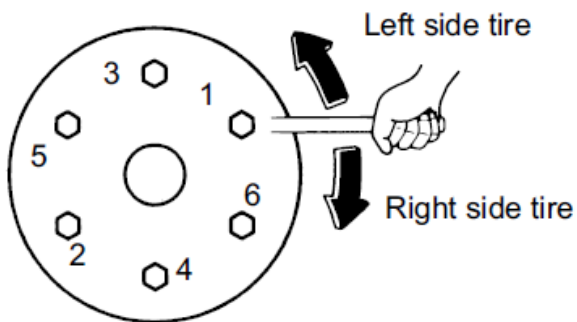
- Make sure that the jack is placed on a flat and firm ground.
- Do not start the engine when the vehicle is on the jack.
- Do not enter the vehicle when using the jack.
- Let the passengers get off during tyre change.
- Make sure that gear is in the parking position, pull the handbrake and turn on the hazard flashers.

NOTE: If tyre pressure is continuously decreasing, there may be an object sticking into the tyre. One must also check whether there is air leak from the wheel or valve.

Wheel nut tightening sequence
Wheel with 5 nuts



Wheel with 6 nuts



Model or specification	Front wheel nuts		Rear wheel nuts	
	Tightening torque	Quantity	Tightening torque	Quantity
Single tire	430 Nm	6	-	-
Dual tire	-	-	430 Nm	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.

PERIODIC MAINTENANCE

Daily Maintenance

- Check the tyres
- Check the brakes operation
- Check the engine cooling water level
- Check engine oil level
- Discharge the water which condenses in air tanks particularly during winter
- Check diesel exhaust emission fluid level
- Check transmission oil (electronic check)
- Check the outside illumination lamps operation compatible with safe driving
- Check the air suction hoses, exhaust pipes, and belts
- Check whether there is a hydraulic leakage in fan system
- Discharge the water accumulated in fuel water separator.
- Check bus accident and original parts situation
- Check corrosion chassis and parts of body

Weekly Maintenance

- Check the tyre pressures with air watch
- Check the level of direction hydraulic tank
- Check the air suspension bellows (holes, damage etc.) when the engine is running
- Check the air cleaner restriction
- Check the window cleaning water level
- Check washing the entire bus weekly, making sure to remove all roadchemicals
- Check corrosion chassis and parts of body

CAUTION

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

Maintenance Schedule

Main periodic maintenance range is for 390000 km. Maintenances after 390000 km are the same as maintenance ranges which continue again starting from 30000 km.

I: Inspect then clean, repair or replace as necessary

A: Adjust

R: Replace

NOTE: Change filters/fluid at or before recommended mileage, months, have elapsed, whichever occurs first.

Maintenance Range (x1000 km)	30	60	90	120	150	180	210	240	270	300	330	360	390	Period
Diagnostic control of engine faults	I	I	I	I	I	I	I	I	I	I	I	I	I	
Engine oil	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	1500 hour
Valve space adjustment				A				A				A		2000 hour
Oil filter	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	500 hour
Fuel filter	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	500 hour
Fuel water separator filter	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	1600 hour
Fuel water separator filter water discharge	daily													
Air filter element	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	R (or 6 months)	750 hour
Draining of condensation tank		I		I		I		I		I		I		
Fuel pipes and hoses	I	I	I	I	I	I	I	I	I	I	I	I	I	
Cooling system leakage control	I	I	I	I	I	I	I	I	I	I	I	I	I	
Hydrostatic fan drive system oil	I	I	I	R (or 1 year)	I	I	I	R (or 1 year)	I	I	I	R (or 1 year)	I	1000 hour
Replacement of hydrostatic fan driving oil filter (with the replacement of the oil)				R (or 1 year)				R (or 1 year)				R (or 1 year)		1000 hour
Hydrostatic, fan drive oil level, leakage and function control	I	I	I	I	I	I	I	I	I	I	I	I	I	
DEF system leakage control	I	I	I	I	I	I	I	I	I	I	I	I	I	
Exhaust treatment – Particulate Filter cleaning	I : Every 9000 hours or 300000 km													
Replacement of DEF pumpfilter	R: Every 9000 hours or 300000 km													
The external cleaning of honeycomb radiators		I		I		I		I		I		I		
Antifreeze	I	I	I	I	R	I	I	I	I	R	I	I	I	500 hour
Crankcase ventilation hoses and radiator pressure cap			I			I			I			I		1500 hour
Belt tension and damage	I	I	I	I	R	I	I	I	I	R	I	I	I	1000 hour
Intercooler, pipe and air compressor	I	I	I	I	I	I	I	I	I	I	I	I	I	
Vibration damper					I					I				
* Transmission oil								R (or 4 years)						6000 hour
* Transmission filter				R (or 3 years)				R (or 3 years)				R (or 3 years)		3000 hour
Transmission oil leakage control	I	I	I	I	I	I	I	I	I	I	I	I	I	
Transmission connecting bolts torque control		I		I		I		I		I		I		
Front axle pins	I	I	I	I	I	I	I	I	I	I	I	I	I	
Front axle bushes	I	I	I	I	I	I	I	I	I	I	I	I	I	
Differential oil	R (65000 km or 1 year)													
Rear axle and brake caliper connecting bolts	I	I	I	I	I	I	I	I	I	I	I	I	I	
Hydraulic steering wheel oil	I	I	I	I	I	I	I	R (or 2 years)	I	I	I	I	I	24 months

Maintenance Range (x1000 km)	30	60	90	120	150	180	210	240	270	300	330	360	390	Period
Fluid leakage at power steering system	I	I	I	I	I	I	I	I	I	I	I	I	I	
Hydraulic power steering connections	I	I	I	I	I	I	I	I	I	I	I	I	I	
Power steering hose	I	I	I	I	I	I	I	I	I	I	I	I	I	
Wheel nuts	I	I	I	I	I	I	I	I	I	I	I	I	I	
Tyre air pressure	I	I	I	I	I	I	I	I	I	I	I	I	I	
Wheel hub bearing	I	I	I	I	I	I	I	I	I	I	I	I	I	
Brake pipe and hoses, leakages	I	I	I	I	I	I	I	I	I	I	I	I	I	
Brake lining and disc visual inspection	I	I	I	I	I	I	I	I	I	I	I	I	I	
Looseness in shock absorber and connection elements	I	I	I	I	I	I	I	I	I	I	I	I	I	
Leveling valves	I	I	I	I	I	I	I	I	I	I	I	I	I	
Air bellows	I	I	I	I	I	I	I	I	I	I	I	I	I	
Function control of brake, signal, parking, fog and brake lamps	I	I	I	I	I	I	I	I	I	I	I	I	I	
Inside illumination control	I	I	I	I	I	I	I	I	I	I	I	I	I	
Windshield wiper and window washing system function control	I	I	I	I	I	I	I	I	I	I	I	I	I	
General control of fuse panel electric cable and sockets	I	I	I	I	I	I	I	I	I	I	I	I	I	
Gas, brake and clutch pedal control	I	I	I	I	I	I	I	I	I	I	I	I	I	
Accumulator connecting cables	I	I	I	I	I	I	I	I	I	I	I	I	I	500 hour
Accumulator electrolit density	I	I	I	I	I	I	I	I	I	I	I	I	I	500 hour
Starter electric connections			I			I			I			I		
Air door adjustment	I	I	I	I	I	I	I	I	I	I	I	I	I	
Function control of safety installations of all doors	I	I	I	I	I	I	I	I	I	I	I	I	I	
Air leakage, damage, tightness of door elements and door function control	I	I	I	I	I	I	I	I	I	I	I	I	I	
Rear view mirrors (including mirror heating system) connectors control	I	I	I	I	I	I	I	I	I	I	I	I	I	
Corrosion control of chassis and body parts			I			I			I			I		
Changing extra heater fuel filter (change earlier when necessary)		R		R		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													
A/C compressor oil	Must be controlled every 2 years and changed if decreased.													
A/C gas and oil	Must be controlled every 2 years and changed if decreased.													

- A/C air suction filters must be cleaned with air every 6 months and replaced with a new filter once a year.
- For fire extinguishing system; extinguishing fluid must be replaced every 5 years, tanks must be replaced every 10 years.
- Crankcase ventilation hoses must be controlled every 60000 km.
- Real time clock battery must be replaced every 2 years.
- Air dryer filter must be replaced every 30000 km or every year.
- * Change times may differ depending on the dust density in the environment.
- Suspension bushings (stabilizer and other) should be replaced if 30000 km wear control is required.
- The antifreeze must be replaced once a year.

6. TECHNICAL INFORMATION

Dimensions (mm)	
Maximum length	9515
Maximum width	2409
Maximum height	3117 (with A/C unit)
Wheelbase	4435
Front overhang	2135
Rear overhang	2945
Front track width	2012
Rear track width	1751
Inner height	min.: 1940 - max.: 2460 (2100 at front entrance)
Masses (kg)	
Gross vehicle mass	13500
Empty mass	min.: 7800 - max.: 8200
Front axle capacity	4500
Rear axle capacity	9000
Engine	
Model	CUMMINS B4.5E6D210B
Type	Commonrail Turbo Diesel Intercooler
Number of cylinders	4
Engine volume (cm3)	4500
Maximum Power (HP/rpm)	202 / 2300
Maximum Torque (Nm/rpm)	832 /1200-1450
Exhaust gas emission class	Euro VI
Clutch	With torque converter
Gearbox	
Model	Automatic, ALLISON T 280 R
Number of gears, Type	6 forward, 1 reverse, overdrive
Final gear ratio	5,83
Steering System	Hydraulic
Tyres	265/70 R19,5
Minimum Turning radius	6960
Gradeability % (at GVW)	36 %
Suspensions	
Front	Air suspension - 2 air springs Independent suspension
Rear	Air suspension - 4 air springs
Brake system	
Front / Rear	Disc / Disc
System	Full air brake system with EBS and ABS, Dual circuit, Auto adjusted
Parking brake	Air actuated acted on the rear axle
Auxiliary Brake	VGT Brake, Retarder
Fuel tank	215 (plastic)
Volume of luggage compartment	
Volume (m3)	0,15
Generator	28V - 2x120A
Nominal voltage	24V
Battery	24V (2X12V)-150 Ah
Starter motor	24V - 3,6kW

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

PRESSURE VALUES		
Four Way Protective Valve	Static Closing Pressure	> 5.5 Bar
Air Dryer	Minimum Opening Pressure	8.1 Bar
Air Dryer	Maximum Closing Pressure	10.45 Bar
Tyres	Cold Inflation Pressure	7.75 bar / 112 psi

FLUID SPECIFICATIONS			
DEFINITION	CAPACITY	NORM	CLASS
Engine oil	14 lt	SAE 15W 40	CES-20086, API CK-4 or CES-20081, ACEA E-9
Transmission oil	17,5 lt	TES295	ALLISON CASTROL TRANSYND
Differential oil & rear axle	9,5 lt	90,80W-90,85W-140	API GL5
Power steering fluid	5,5 lt	ISO VG 46 or VG 68	RDE 90245 – Bosch Rexroth Fluid Rating List
Hydrostatic fan oil	8 lt	ISO VG 46 or VG 68	RDE 90245 – Bosch Rexroth Fluid Rating List
A/C compressor oil	1050 cc	Viscosity ISO 46	ZXL 100PG POE oil
Antifreeze (50%) + water (50%)	44 lt	CES 14603	Extended Life Compleat (Cummins Fleetguard)
A/C gas	7 kg	1,1,1,2-Tetrafluoretan (Cooler gas R134a)	LINDE

7. 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 - Bakü	+(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

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