

TURQUOISE

USER'S MANUAL



Revision No: 02

FOREWORD

This user's manual is prepared to give general information about the efficient and most economical use of **E6 Turquoise** 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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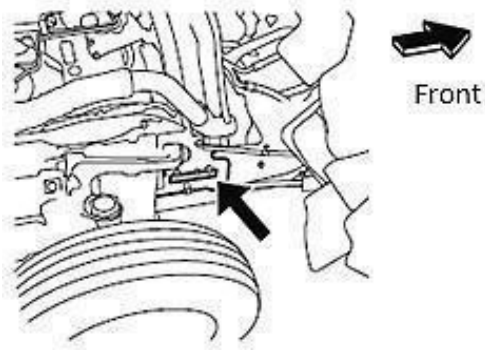
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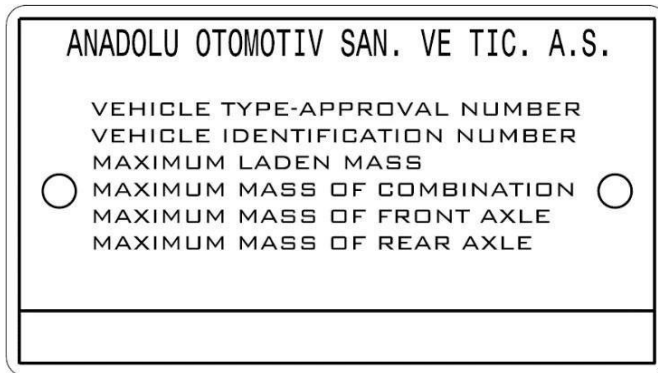
1.INTRODUCTION

CHASSIS NUMBER



The chassis number is stamped on the right-side front part of the frame.

IDENTIFICATION PLATE



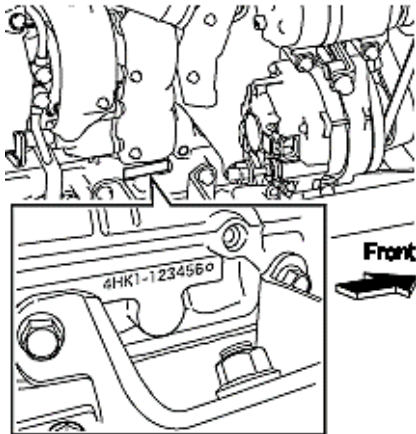
Identification plate is at the front door entry, at the step level on the left. There are type approval number, VIN number, maximum axle load sum, maximum front axle load and maximum rear axle load on the identification plate.

Vehicle Identification Number (VIN)

VIN number includes the datum of vehicle model, maximum loaded weight, type of engine, drive system, wheelbase, production location codes and the chassis number of the vehicle.

BUS VIN SYSTEM																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
N	N	A	M	0	A	8	L	E	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					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					8:	ISUZU - 4HK1E6 EUR06-C									
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									
10-11	MANUFACTURING PLANT					01:	AIOS KARTAL PLANT									
						02:	AIOS GEBZE PLANT									
12-17	PRODUCTION SEQUENCE NO															

ENGINE NUMBER



The engine number is stamped on the right-side front part of the engine block.

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

Options indicated below may be applied upon request apart from the standard features of vehicle.

- Central locking system
- Tropical climate A/C
- A/C with heater
- Ski box fitting bracket and socket
- Trailer towing system
- LDWS (Lane Departure Warning System)
- Foot rest
- Refrigerator (rear)
- Tea coffee machine
- Armrests (window side) for passenger seats
- Monitor/LCD
- 3 points safety belts for all seats
- WC

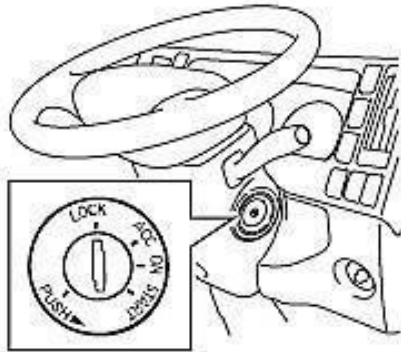
RECOMMENDATIONS / WARNINGS

- Use only specified fuel (DIN EN590 suitable sulfur content maximum 10 ppm) in your vehicle.
- Use diesel exhaust emission fluid suited for ISO 22241.
- Do not load your vehicle over its passenger capacity and do not change the places of the seats. Our factory is not responsible for the problems arising as a result of a change in the load balance of the vehicle.
- Examine exhaust pipe from time to time. If you see a damage (for example, a damaged connecting member caused by abrasion or a hole or a crack, corrosion and leaks in pipes ports), take it to the nearest authorized service for control and maintenance.
- Control the wheel pressures frequently and be sure that they are always at the right value.
- Control the main and dipped beam settings, do not drive with defective headlights.
- Control brake, parking and plate lamps frequently, do not drive with defective or mud covered brake, parking and plate lamps.
- Take care of the maintenance of your vehicle to be done in authorized services in time and regularly in order to provide maximum performance in your vehicle.
- When the fluids such as waste oil, brake fluid and antifreeze you use in your vehicle and scrap batteries are thrown away indiscriminately, this gives great damage to the environmental regulations.
- Empty cans, bottles or other articles rolling on the floor, is extremely dangerous, be sure that especially the floor around the driver's seat is clean and tidy.
- Be sure that there are no combustible materials under or around the vehicle before starting it. The existence of such materials may cause fire.
- Be sure that you had trimmed the seat, steering wheel and the mirrors suitable for your correct driving position before the drive.
- Always wear your seat belt.
- Take care of front and side windows to be clean, keep the blinds not hindering your visibility and driving.
- Do not raise the speed of the engine before it was heated enough.
- Drive your vehicle carefully by complying with traffic rules and the road condition.
- If you realize an abnormality in a wheel during the drive, stop immediately in a safe place.
- If you go on your way with a deflated tire, this may cause the breaking of the bolts and the remove of the wheel by applying too much force to the wheel studs.
- Drive at a constant speed to the utmost. It is the waste of fuel to heat the engine overmuch and to make the engine high-speed.
- Do not go on driving when a warning light turns on.
- When the vehicle malfunctions during the drive, turn on the hazard warning flashers and take the vehicle to a safe place not to block traffic. In order to inform the other vehicles that you wait in a safe place. Notify the nearest authorized service.
- Under bad weather conditions, visual angle reduces and slippery road surfaces increase the stopping distances. Drive slower than in good weather conditions.

2. GENERAL INFORMATION

ENGINE START

Starter switch



LOCK : In this position, the key can be inserted or removed. Remove the key and turn the steering wheel until it locks. The steering wheel will be locked to help prevent theft. To place the starter switch in the "LOCK" position, press and hold the key in the "ACC" position and then turn it to the "LOCK" position.

ACC : In this position, the audio and other accessories can be used with the engine stopped.

ON : The key stays in this position while the engine is running. This position is also used for preheating before starting the engine.

START : The engine is started in this position. Release the key as soon as the engine has started. The key automatically returns to the "ON" position.



If the key cannot be turned from the "LOCK" position to the "ON" position, lightly move the steering wheel clockwise and counterclockwise while trying to turn the key.



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

OPENING AND CLOSING THE DOORS



There are door opening/closing switches on front control panel to open/close the doors from the inside.

Opening the Doors in Emergencies



There are air cocks on the upper side of doors for emergencies. Turn the tap clockwise to discharge the air and push the door towards outside to open.



There are also air cocks on sides of the doors to open the doors from outside when necessary. Turn the tap clockwise and pull the door towards outside to open the door.



There is a red lock opening/closing control on the door to open the door if there is any passenger in the vehicle when it is locked from the outside with the key. Control is turned in the arrow's direction when necessary and air is discharged by turning the air cock on the upper side of the door, door is pushed towards outside to open.

EMERGENCY EXITS

There are two ways for emergency exit. One of them is breaking the window by using emergency hammer and the other is using the trapdoor.



In Turquoise Eco vehicles



3. CONTROLS AND INDICATORS

FRONT CONTROL PANEL

Retarder Control Lever



Retarder control lever is used for mountainous applications where retarder activation on long downgrades independent of the brake pedal is desired. To activate the retarder, simply move the hand lever to one of the four powered positions:

- Position 0: Retarder Power OFF
- Position 1: 25% Retarder Power
- Position 2: 50% Retarder Power
- Position 3: 75% Retarder Power
- Position 4: 100% Retarder Power



The retarder control does not automatically turn off at low speeds. Do not forget to reset the lever to "Position 0" when the vehicle is stationary or when the retarder is no longer required.

Lighter







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

Windshield Wiper Lever



The windshield wiper lever has the following positions, which correspond to the states of the wiper.

Lever position				
Wiper state	Stopped	Intermittent (Light rain)	Slow (Moderate rain)	Fast (Heavy rain)

When pressed the button on the right side of lever, windshield washer fluid is sprayed over the windshield and wiper levers are automatically activated, then stop after a while.

Signal Lever

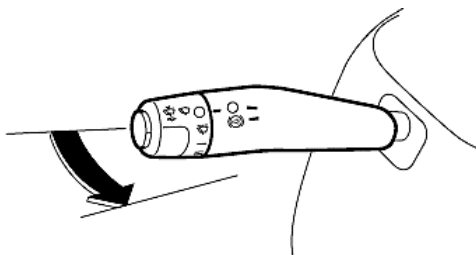


The lever gives signal to the right when it is directed upwards and to the left when directed downwards.

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.

Exhaust Brake Switch



Exhaust brake indicator light



To apply the exhaust brake while driving, pull the lever backward. The exhaust brake indicator light comes on. To disengage the exhaust brake, press the accelerator pedal or the clutch pedal (if your vehicle is a manual transmission vehicle). Releasing the pedal reengages the exhaust brake.

- If your vehicle is equipped with a Smoother, the exhaust brake is disengaged during gear shifting or when the engine speed is reduced before the vehicle comes to a stop.

The exhaust brake reengages when gear shifting is completed or when the engine speed increases sufficiently.



- It is extremely dangerous to apply the exhaust brake on slippery roads (with their surfaces being wet, frozen, or covered with compacted snow) as the tires can skid.
- If a warning buzzer sounds when the exhaust brake is in operation, promptly pull the vehicle over safely and contact the nearest authorized service for inspection.
- The exhaust brake indicator light flashes if there is a problem with the exhaust brake system. Have your vehicle inspected at the nearest authorized service as soon as possible.

Cruise Control Lever



You can fix the speed of your vehicle with cruise control lever. You can set and adjust any speed more than 30 km/h with it. Choose "ON" position to activate the system, "OFF" position to deactivate it. You can also increase and decrease the vehicle speed.

Idling Control Knob



This knob is used to warm up the engine.

You can increase the engine speed by turning the knob clockwise without the need to use the accelerator pedal.

Turn the knob back fully counterclockwise after you have used it for engine warm-up and keep it in this position.



Front Door Control Switch: Front door is opened/closed when pressed the lower edge of the switch.



Back Door Control Switch: Back door is opened/closed when pressed the lower edge of the switch.



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.



Warm-up Switch: This switch is used to allow engine coolant to warm up faster at low temperatures to increase the efficiency of the heater or to increase the efficiency of the heater while the vehicle is parked. Start the engine and press the lower edge of the switch. After the engine has warmed up, press the upper edge of the switch to turn it off.



AEBS Switch: This switch is used to deactivate the AEBS system. When the switch is pressed, AEBS light appears in the warning lens panel. Pressing the switch again activates the AEBS system. The AEBS light also appears when there is a failure in the system.



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.



LDWS Switch (optional) : You can disable the system for a period of 10 minutes on roads with no clear lane markings to avoid false alarms. Press this switch to disable the system.

The system is active and the green LED on the switch is lit:

- the vehicle is moving on roads with clear lane markings
- the vehicle is moving above a configured speed (default parameterised speed from 60 km/h or 37 miles/h).

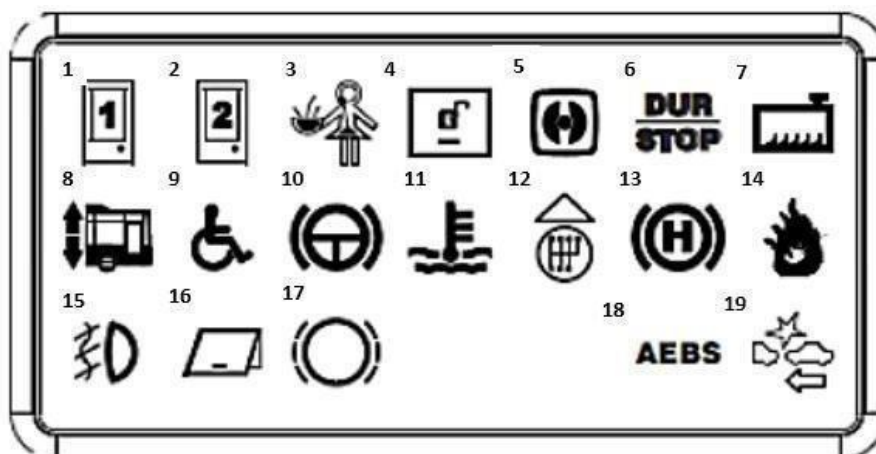
The system is not active and the green LED on the switch is off:

- the vehicle is moving on roads with no clear lane markings (e.g. frequently changing or missing lane markings)
- the vehicle is moving below the configured speed

The function of the system can be hindered or disabled by the following conditions:

- Dirty or damaged windscreen
- Poor light conditions, such as insufficient illumination of the lane or strong glare
- Poor weather conditions, such as snow, ice, heavy fog / rain
- Missing, worn, faded, damaged or covered lane markings
- Speed below the parameterised speed.
- Ignition off

Warning Lens Panel : It indicates the status in which functions or malfunctions are active.



Warnings

1	Front door is open
2	Rear door is open
3	Passenger calls the hostess
4	Trunk lid unlocked (optional)
5	Door emergency exit tap is open
6	Passenger presses the stop button
7	Cooling water level is low
8	Rear suspension is not at the normal level
9	Disabled passenger wants to get on (optional)
10	Retarder activated
11	Engine overheat
12	Up-Shift indicator
13	Bus stop activated (optional)
14	Fire warning (optional)
15	Front fog lamp is on
16	Trunk lid is open (optional)
17	Pads ended warning
18	AEBS (optional)
19	Collision Warning

SIDE CONTROL PANEL





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. For driving (vehicle activated), if brake air is insufficient when handbrake is disengaged (below 6 bars), warning light turns red. Wait for this light to go off before moving.



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.



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).



Driver Side Window Resistance Switch : 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.



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



Reading Lamp Switch : Switch works as two levels. It opens on the first level when pressed the lower edge and if reading lamp switch on the service set is turned on by the passenger, the lamp is on. It goes off if turned off. Reading lamps are turned on the second level when pressed the lower edge for the second time, it may not be controlled by the passenger.



Spot Light Switch : Spot light on the front door is turned on when pressed the lower edge of the switch. The light is turned off when pressed the upper edge of the switch.



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.



Trunk Lid Switch : Lights in the trunk are turned on when pressed the lower edge of the switch. Lights go off when pressed the upper edge of the switch.



Front Fog Lamp Switch : When keyswitch and park lamps are turned on and pressed the lower edge of the switch, front fog lamps are activated. They are deactivated when pressed once more. When keyswitch is turned off, fog lamps are deactivated.



Suspension Control Switch : This switch is used for a higher driving level than the normal one. When pressed the lower edge of the switch, the vehicle gets a higher level and when pressed the higher edge of the switch, the vehicle gets the normal driving level. When the switch is turned on, intermittent warning sound is activated.



DPD Switch : The DPD switch is used to manually regenerate the DPD.




Combi/Water Heater Switch (optional) : It has two levels. It gives energy to combi when the lower edge of the switch is pressed once, and to water heater when pressed once more. The energy is cut off when pressed the upper edge of the switch.


PREHEATER








Heating

Heating immediately with longpress

Press the  Longpress button for longer than 2 seconds. Heater On.





Display On, the Heating menu item is displayed. Press the  Longpress button for longer than 2 seconds. Heater Off.

Heating with shortpress




Press the  Shortpress button for less than 2 seconds. Use the  or  button to set the temperature setpoint. Press  the button to confirm the temperature setpoint. Press the  Shortpress button for less than 2 seconds. Heater Off.



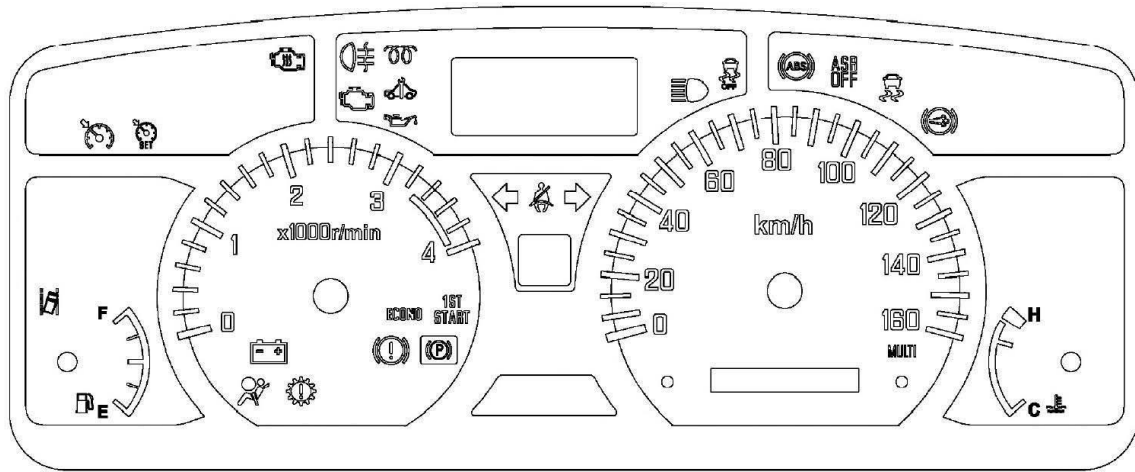
Settings












Use the  or  button to select the  symbol in the Menu bar. Confirm the Settings menu item by pressing the  button.















Use the  or  button for choosing the symbols to set the time format, time and weekday. Then confirm it by pressing the  button.









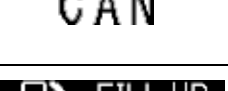


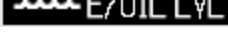
INSTRUMENT and WARNING LIGHTS PANEL






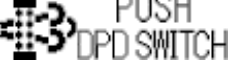













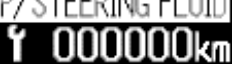
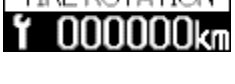
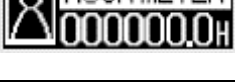



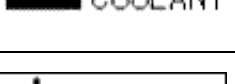
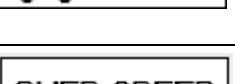
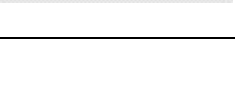
	Check engine warning light
	Rear fog light indicator light
	Glow plug indicator light
	SVS indicator light
	Engine oil pressure warning light
	High beam indicator light
	ABS warning light
	Exhaust brake indicator light
	ESC warning light
	ESC OFF indicator light
	ASR OFF warning light




	Cruise control MAIN indicator light
	Cruise control SET indicator light
	LDWS warning light
	Warm-up system indicator light
	SRS airbag warning light
	Generator warning light
	Smoother warning light
	Hydraulic warning light
	Parking brake warning light
ECONO	ECONO mode indicator light
1ST START	1st start mode indicator light
	Turn signal and hazard warning flasher indicator light – left
	Turn signal and hazard warning flasher indicator light – right
	Seat belt warning light

Multi – Information Display Warning Lights

	Normal voltage
	Abnormal voltage low
	Abnormal voltage high
	Speed limit
	Engine torque reduction
	Incorrect AdBlue
	Critical emission fail
	Overheat
	Can system error
	AdBlue refill
	AdBlue level low
	Check engine oil level

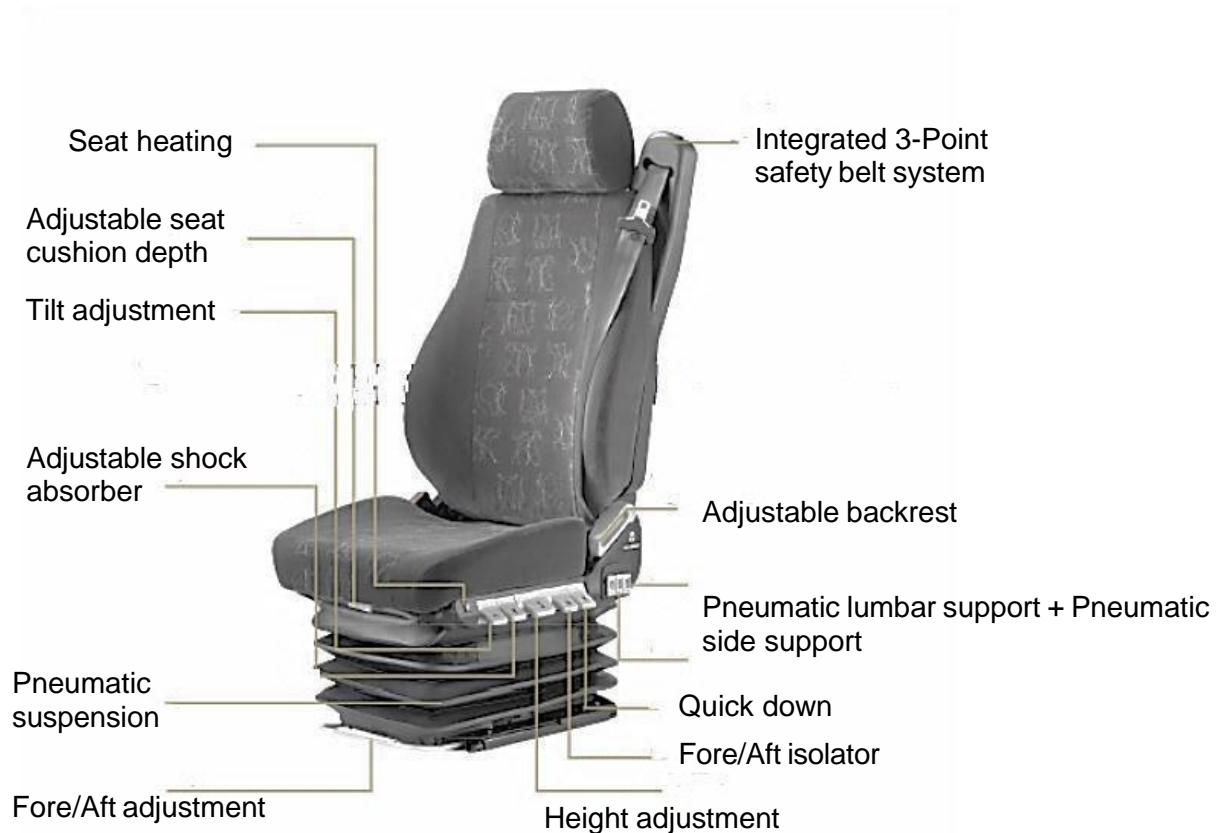
	AdBlue injection system
	AdBlue DOS malfunction
	PM level being checked for selectable DPD regeneration
	Manual regeneration of DPD in progress
	Air cleaner
	Push DPD switch
	Automatic regeneration of DPD
	DPD PM accumulation level
	Low fuel
	Total fuel economy
	Per trip fuel economy
	Instantaneous fuel economy
	Progress of DPD regeneration

	Engine oil and filter
	Transmission oil
	Clutch oil
	Fuel filter
	Power steering fluid
	Tire rotation
	Hour meter
	Speed warning
	Nighttime dimmer
	ASR is active
	Low Coolant
	Cab tilt
	Over speed

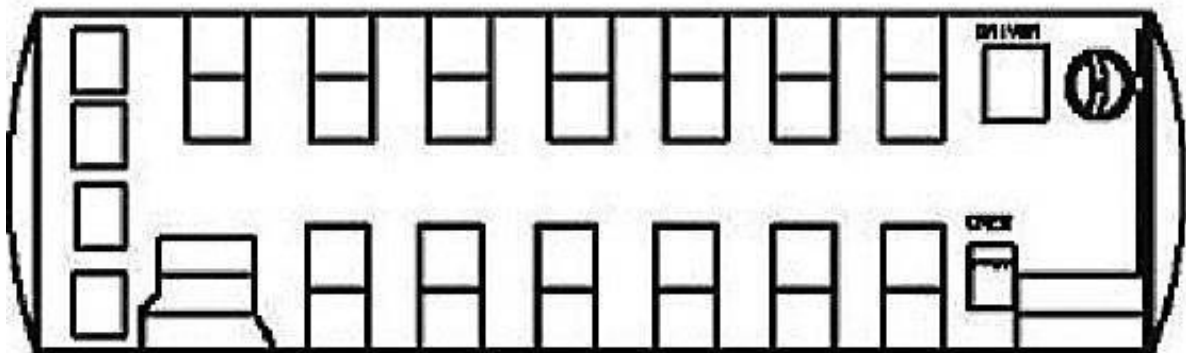
 WATER SEPARATOR	Water separator (fuel filter)
 ASR ASR FAILURE	ASR failure
 ERROR	Error

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. Right and left double seats have armrests by the aisle.

DIGITAL CLOCK



There is a digital clock at the upper region in front of the vehicle.



HEATING SYSTEM CONTROL PANEL



Front Heater Blower Speed Adjustment : Turning left will reduce the blower speed, turning right will increase the speed.



Heating Position Adjustment : This is used to adjust the heat according to the climate condition. Turning left will close the heater for warm climate. Turning right will open the heating system and warms the inside of the vehicle.



Rear Heater Blower Speed Adjustment : This is used to adjust the rear blower speed. Turning left will reduce the speed of rear blower, turning right will increase the rear blower speed.

Blower Positions



DEFROST BUTTON : When the button is pressed, a led lamp will light to show it has been activated and the blower will be on defrost position.



FOOT-FACE-DEFROST BUTTON : When the button is pressed, a led lamp will light to show it has been activated and the blower will be on FOOT-FACE-DEFROST position.



FOOT-FACE BUTTON : When the button is pressed, a led lamp will light to show it has been activated and the blower will be on FOOT-FACE position.



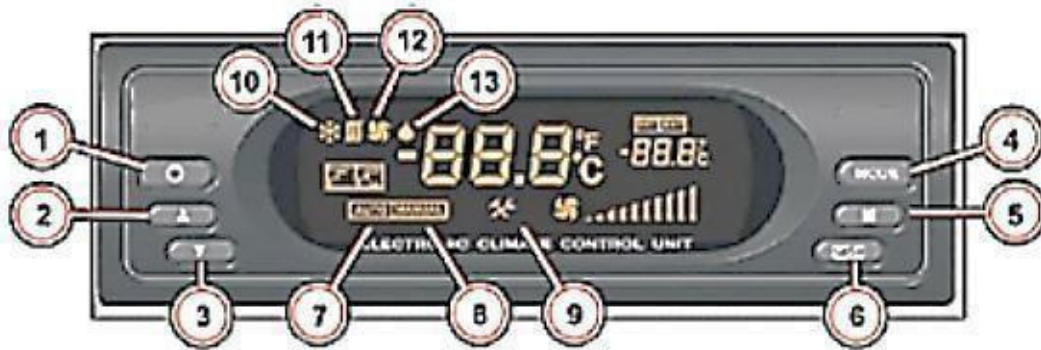
IN-OUT AIR SUCTION BUTTON : Default value for the air suction is from outside(Fresh air). If the button is pressed, led light will light and air suction will be from inside of the vehicle.



AIR CONDITON ACTIVATION BUTTON : When the button is pressed, a led lamp will light and front blower will work with % 80 performance.


NOTE : When the vehicle door is opened, blower will stop for 10 seconds. If there is a problem with the control panel, control panel led lamps will blink to warn the driver.


AIR CONDITIONER CONTROL PANEL




1	Opening/closing button	8	Manual
2	Increment button	9	Failure warning
3	Decrement button	10	Cooling
4	Mode selection button	11	Heating
5	Fan speed selection button	12	Fan (ventilation)
6	Fresh air clock button	13	Moisture absorption
7	Automatic(heating-cooling) button		

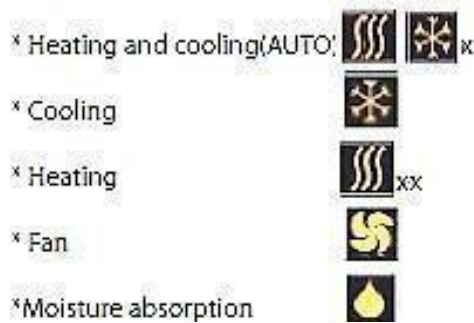
There aren't 6. and 12. features in Turquoise eco vehicles.


1. Opening/Closing Button  : The system is opened by pressing the button. When the system is opened, the last set mode and values are shown on the display and the system is activated. To close the system, press the same button for 3 seconds. As the ignition key is closed, the system and therefore the control panel can not be operated.


2. Increment Button  : Increasing button is used to increase the set value. When first pressed to the button, the SET icon lights on and the last adjusted temperature set value is shown. After that at every pressing, the set value will increase one by one. If reached to be required temperature value and the button is released, the selected value will flash for 3 seconds on the display, at the end of 3 seconds, the selected value begins to continually flash and as a result the new temperature value is set. New set values are shown for 5 seconds on the display, then the exterior temperature is shown by lighting the EXT icon on.

3. Decrement Button  : It is used in decreasing temperature and parameter set values. When first pressed to the button, the SET icon lights on and the last adjusted temperature set value is shown. If reached to the required temperature value and the button is released, the selected value will flash for 3 sec. on the display, at the end of 3 sec., the selected value begins to continually flash and as a result the new temperature value is set. New set values are shown for 5 sec. on the display, then the exterior temperature is shown by lighting the EXT icon on.

4. Mode Selection Button : When pressed, modes will be shown in the following priority seen below, These modes are;



AUTOMATIC (Heating and cooling) : In this mode all processes are operated automatically. The set temperature can be changed by using increment and decrement buttons. When the automatic mode is selected, the icon seen below will light on indicating the selected mode.  In the automatic mode, the fan speed level will be controlled automatically and can not be adjusted. The system will make heating and cooling according to the adjusted temperature.

MANUAL  : When manual mode is selected, the icon above will appear continually on the display.

x is active in vehicle with automatic heater system. In vehicle without automatic heater system, only cooling mode will be active and automatic heating mode will not be mentioned. xx is active in vehicle with automatic heater system.



COOLING : Manual cooling will be made in this mode. The temperature can be adjusted by changing the set temperatures. The fan speed can be changed. When the required temperature is reached, cooling process will stop, fan will continue to work. When the fan speed is set to 0, cooling will stop.



HEATING : Manual heating will be made in this mode. The temperature can be adjusted by changing the set temperatures. The fan speed can be changed. When the required temperature is reached, cooling process will stop, fan will continue to work. When the fan speed is set to 0, cooling will stop. In models without roof heating option, heating will not stop when the fan speed is set to 0.



FAN (Ventilation) : Heating and cooling is not performed in this mode, only air is ventilated. Fan intensity can be adjusted by the fan selection button. Turquoise eco vehicles don't have this feature.



MOISTURE ABSORPTION : By operating heater and air conditioner at the same time, ventilation at the max. speed is made. Ventilation time is 3 min. at the end of the ventilation period, the air conditioner continues to operate in the previous position.

NOTE : Vehicles without automatic heater system, the heater button must be switched on at max. level during moisture absorption mode.



FAILURE WARNING : When a failure happens in air conditioning system the failure sign will be seen on display, the fans will continue to work but the cooling operation will stop. If this symbol is seen, contact your service.

5. Fan Speed Selection Button



: It is used to change the fan speed. The fan speed will increase every time the button is pressed and the fan speed level will be shown on the display. When the fan speed reaches its maximum level, pressing again the button will result the fan speed to become 0 and then a later pressing will start from the minimum value. Fan speed cannot be changed in the automatic mode. When the fan speed is 0, heating/cooling process is stopped.

6. Fresh Air Clack Button



: It is used to state where the air that is used by the fans will be taken (interior - exterior environment) in order to replace the adjusted environment air with fresh air or to return the air, which is flown through the cooling/heating system to the same environment. There are two options, which are "circulation" and "fresh air control". When first pressed on the button, the icon related to the operating mode lights on. If the button is pressed again, the operating mode will be changed and the other icon will light on. If the clack button is pressed for 2 sec., the automatic clack mode will be activated. Passing to this mode, the clack icon will flash at first and the next one minute. In this mode, the clack is held open and close for a specific. When the clack button is pressed again, the system will close automatic clack mode. Turquoise eco vehicles don't have this feature.

DVD PLAYER

There is a USB and AUX-IN entry DVD player in the vehicle



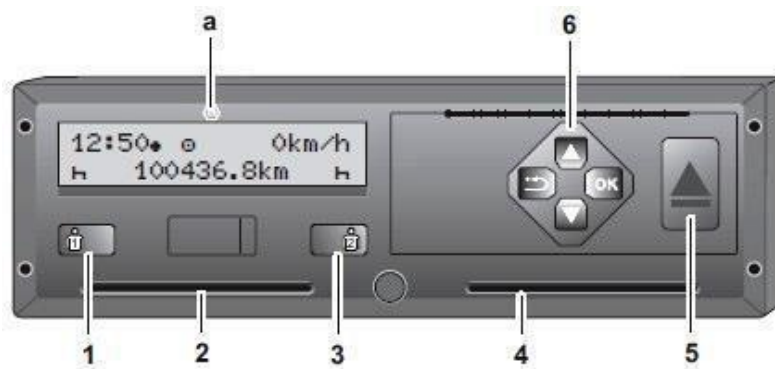
AMPLIFIER



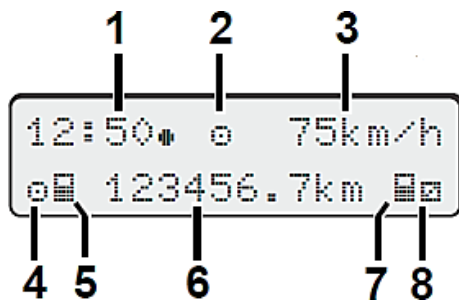
Amplifier enables one to turn the volume of speaker and microphone up/down.

TACHOGRAPH

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



1 Driver 1	Activity button and ejection button
2 Card slot 1	
3 Driver 2	Activity button and ejection button
4 Card slot 2	
5 Unlock button	
6 Menu buttons	<ul style="list-style-type: none"> Select desired function Acknowledge function or confirm actions Leave menu



1	Time
2	Operating mode
3	Speed
4	Driver 1 active
5	Driver 1 card symbol
6	Total kilometer
7	Driver 2 card symbol
8	Driver 2 active

LANE DEPARTURE WARNING SYSTEM (LDWS) (Optional)

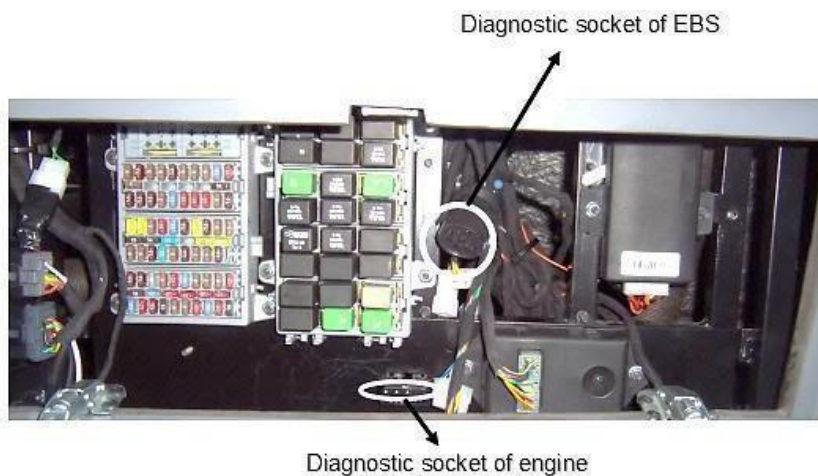
LDWS is a lane departure warning system which warns the driver in the event of any inadvertent lane-change. There is a camera in the windscreen, it watches the lane markings. The system monitors indicator signalling, the brake light switch and the driving speed. The system is thus able to detect intended lane-changes and as a result does not warn you.

- LDWS is active when the vehicle is moving above 60 km/h or 37 miles/h.
- When the system is active, the green LED on the switch is lit.
- When the system is not active, the green LED on the switch is off.
- The function of the system can be hindered or disabled by the following conditions:
 - Dirty or damaged windscreen
 - Poor light conditions, such as insufficient illumination of the lane or strong glare
 - Poor weather conditions, such as snow, ice, heavy fog / rain
 - Missing, worn, faded, damaged or covered lane markings

- Speed below the parameterised speed
- Ignition off
- The system can be disabled for a period of 10 minutes on roads with no clear lane markings to avoid false alarms. The yellow LED is lit until the automatic reset occurs.

DIAGNOSTIC SOCKETS

Diagnostic sockets are in fuse and relay section which is located at front panel on the right. These sockets are used to load and change parameters on engine and EBS/ESC control units and fault diagnosis.



MIRRORS



There is one inside mirror in the vehicle.

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



RIGHT OUTSIDE MIRROR



LEFT OUTSIDE MIRROR

TRAPDOOR



There is one trapdoor in the vehicle. Trapdoor is designed in a way to allow use for emergency exit in addition to use for ventilation purposes. There is a tag in the middle, indicating what to do in emergencies.

In Turquoise Eco vehicles



SERVICE SET



There are service sets on the overhead of seats. There are 2 air discharge nozzles, 1 speaker and speaker on/off button, 1 hostess button and buttons to activate reading lamps on service sets.

Nozzles are opened by pressing the wings on air discharge nozzles to enable air discharge. Wings may be moved backwards and forwards to adjust the amount of air. The direction may be changed by turning.

DISABLED LIFT (OPTIONAL)

Disabled lift is under the middle door on the right side of the bus.



To get on the bus;

Disabled passengers press the button



and



lights on the

In this case,

- Stop the bus
- Get off the bus and open the middle door
- Demount 4 seats which are close to the middle door
- Open the cap where the lift is located in
- Take the remote control on the left side.
-



Always stand clear of the platform area.
Lift hazards can result in crushing or falling.
Keep hands and feet clear of pinch points and moving parts.
If riding the lift, make sure the load is stable, and your footing is solid.



Always board platform slowly and cautiously.
Lift and lowerwheelchair passengers facing outward.
On the platform, wheel brakes should be engaged.



In case of electrical failure or any unsafe condition exists or unusual noises or movements are noticed, do not use the lift and contact an authorized service for repair.


Close the cap and middle door, after disabled passenger gets on the bus.

When the cap is closed, light  on the warning lens panel goes off.

Stop Button for Disabled Passengers



Disabled passengers who want to get off the bus, inform the driver by pressing on this button.

Then,  lights on the warning lens panel and also audible warning activates.
Help the disabled passengers to get off by using the lift in the same way.

CAUTION



- The trunk lid on the right side of the vehicle should not be opened when the door reserved for disabled passengers is open.
- Suitable and unsuitable situations are shown in the images above.

WC (OPTIONAL)

Functions

Hand Wash Button :



When this button is pushed water flows for a certain period of time from the faucet. After water flow stops, flow is provided by pushing this button again.

Flush Button



Pushing this button opens the flap, ensures the flow of water for a certain period of time, toilet content in toilet bowl is transferred to sewage tank. After the cessation of water flow, flow is provided by pushing the button again.

Brush



A brush exists under the sink for the toilet bowl cleaning.

Paper Towel Dispense



Paper tissues can be used by taking them from dispense.

Dust Bin



It is located under the dustbin cover for disposal of waste items like paper etc. Throw your disposals to the dust bin as shown on WC interior label.

Spot Lamp



There are two spot lamps to lighten the WC interior. The first lamp lights on when the WC is activated by driver. The second lamp lights on when a passenger is inside.




Fan Motor



It is used to ventilate WC interior, activated when a passenger is inside, deactivated when the passenger leaves. It takes the unwanted odors.


Toilet



Open the cover, use the toilet only seated. Clean the bowl by flushing water with  button.

Hand Wash



To wash your hands push  button. Water flows for a certain period of time. Water outlet head can be adjusted to a desirable position. Push the same button again when water flow has stopped. Dirty water will be drained to the sewage tank through the sink.

Door Lock



The door lock opens by turning the mechanism counter clock wise direction which is shown on the picture. The door lock has two keys. The door is lockable with keys.



To lock the door from inside , the mechanism is turned counter clock wise direction which is shown on the picture. To unlock the door the mechanism is taken to previous position.

WC Busy Warning

While WC is used a warning lamp lights for other passengers understand it is busy. It is at the top front of the WC cabin.

Filling The Clean Water Tank


- Open the cover which is under the sink of WC. Connect a ½ inch* size hose to the check valve which is shown in the picture and provide water flow through the hoses. Do not leave the WC until it is full.

* : A hose has same outer diameter size with the hose which has been connected to check valve.



Emptying The Sewage Tank

A warning message appears on front console when the sewage tank is full. After this

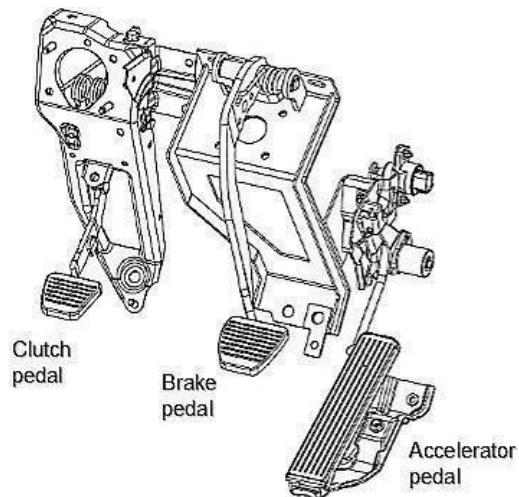
declaration the booster  does not work and toilet bowl flap prevents overflow of tank by getting deactivated.

After declaration, deactivate the WC and take the bus for emptying the sewage tank to a suitable place where is arranged for this type of operations.

After taking the vehicle to a suitable place, open the appropriate cover on the vehicle, turn the valve handle and wait until it is completely empty.

It is recommended that to clean the sewage tank after three emptying processes.

PEDALS



Brake Pedal

Brake pedal is a part of electronic braking 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.

Retarder activates automatically when the brake pedal is applied. It is integrated into the vehicle braking system and will function as the brake pedal is depressed. Slight pressure on the brake pedal gradually applies the retarder. Retarder activates before the service brakes are applied.

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.

Off-throttle control allows the retarder to be automatically engaged when the driver lets off the accelerator pedal. Retarder control lever can be used to select the number of retarder stages that will activate when the accelerator pedal is released.

STEERING WHEEL ADJUSTMENT



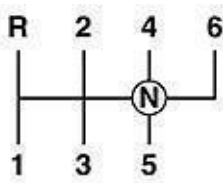
Steering wheel is tilt and telescopic. The lever located below the steering wheel on the right side is pulled upwards for this adjustment. Lever is pushed back when the desired position is reached.

HONK

Honk sounds when pressed the center of steering wheel.

TRANSMISSION

1) Manual Transmission Model

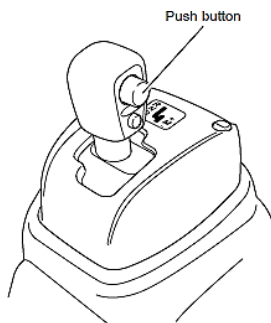


A manual transmission model requires fully depressing the clutch pedal when making a gearshift.



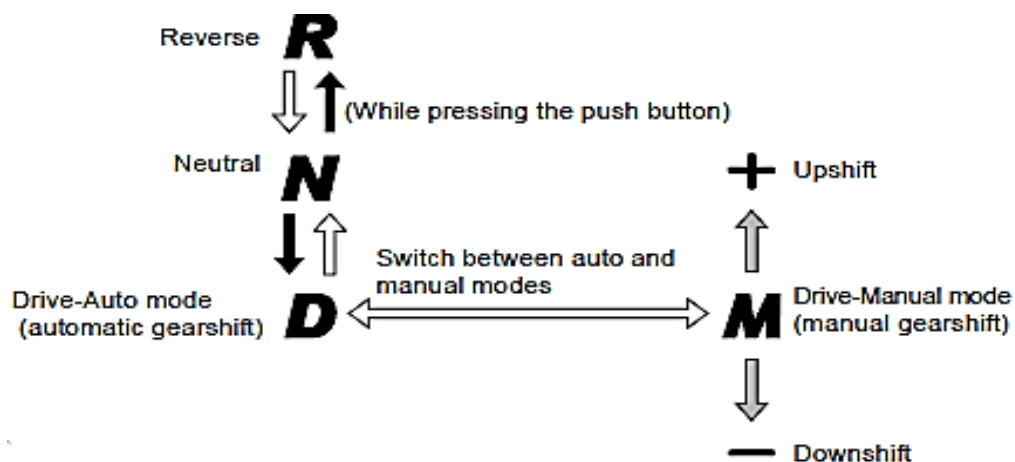
When the gearshift lever is placed into "R (Reverse)", the back up lights come on and, in a model with back up warning, a buzzer will also sound.

2) Model With Smoother



Smoother is a transmission system that allows the driver to move the vehicle from a standstill, drive the vehicle with gears automatically changing and bring the vehicle to a stop by only using the gearshift lever, accelerator pedal and brake pedal, without needing to use the clutch pedal.

Move the gearshift lever to make it shift into each gear.



⇒ : Shift is possible without depressing the brake pedal.

→ : Shift is possible only with the brake pedal depressed.

⇨ : Lever automatically returns to the "M" position after movement in the direction of the arrow when it is released.

Gearshift lever position	Shift indicator display in instrument panel	Gear position
R	R	Reverse: Used when backing up the vehicle.
N	N	Neutral: Used when starting the engine.
D	^D 1- ^D 5, ^D 6 [6-speed transmission model]	Drive-Auto mode (automatic gearshift): The system automatically selects an optimum gear according to the vehicle speed.
M	<div> <div>+</div> <div>1, 2, 3, 4</div> <div>-</div> <div>5, 6</div> </div> <div>[6-speed transmission model]</div>	Drive-Manual mode (manual gearshift): Manually selecting the "+" (upshift) or the "-" (downshift) position allows the driver to select the desired gear.



- Before starting the engine, place the gearshift lever into "N", make sure the shift indicator indicates "N", pull up the parking brake lever and fully depress the brake pedal.
- When moving the gearshift lever from "N" into "D" or "R", be sure to depress the brake pedal.
- Never leave the driver seat with the gearshift lever placed in "D", "M" or "R" while the engine is running. The vehicle may start moving. When leaving the driver seat, be sure to place the gearshift lever into "N" and securely set the parking brake.

To Start Your Vehicle

1. Fully depress the brake pedal. After making sure the gearshift lever is placed in "N" and the parking brake lever is fully pulled up, place the starter switch into the "ON" position.
2. Start the engine while fully pressing the brake pedal with your right foot. Place the gearshift lever into "D" for forward movement or into "R" for backward movement. The clutch disengages automatically upon operation of the gearshift lever, the gear is changed, and then the clutch is re-engaged automatically. The gear is then controlled in the auto mode (automatic gearshift).
3. Make sure that the shift indicator indicates "D" or "R" at the left upper portion, release the parking brake, release the brake pedal, and then slowly press the accelerator pedal. The vehicle starts moving as you depress the accelerator pedal further.

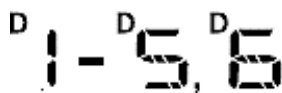
To Stop the Vehicle

1. Press the brake pedal with your right foot to slow down and stop the vehicle. No special gear shifting is required. After the vehicle has stopped, the gear is automatically shifted into the starting gear in both the manual mode and auto mode.
2. While the vehicle is stopped, place the gearshift lever into the "N" position. When the vehicle must be stationary for several minutes, set the parking brake.



When leaving the driver's seat, be sure to place the gearshift lever into the "N" position, make sure that the shift indicator displays "N" and firmly set the parking brake.

To Change Gears - Auto Mode



[6-speed transmission mode]

When you change the gearshift lever from "N" into "D", shifting takes place in the automatic mode. Check that "D" is displayed on the upper left of the shift indicator.

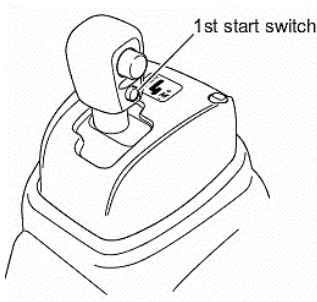
To Shift Gears - Manual Mode

1,2,3,4
5,6

[6-speed transmission model]

- When changing the gear in the manual mode, place the gearshift lever into the "M" position and move the lever towards the "+" (upshift)" or "– (downshift)" direction as necessary to select the desired gear. Check that the desired gear is displayed on the shift indicator.
- The clutch is automatically disengaged upon operation of the gearshift lever. When the shift has completed, the clutch is automatically re-engaged. You can make both upshifts and downshifts in a similar manner.
- Gears are not automatically shifted in the manual mode. To return to the auto mode, place the gearshift lever into the "D" position. Make sure that "D" is displayed on the upper left of the shift indicator.

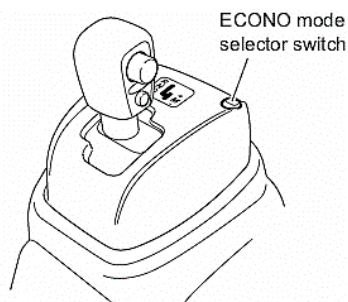
1st Start Mode



The vehicle normally moves off from a standstill in 2nd gear. Use the 1st start mode when you need powerful torque to start the vehicle, for example, when it is heavily loaded.

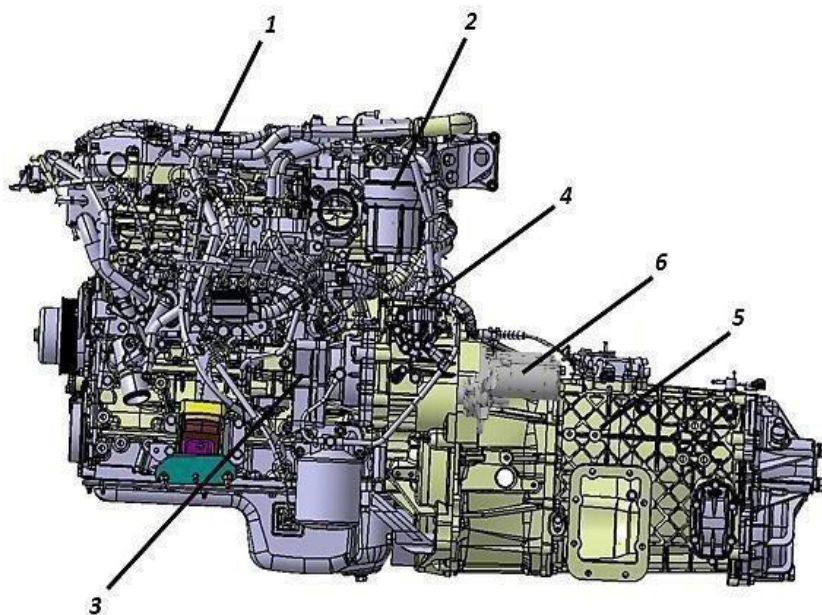
When you press the 1st start switch in auto mode (i.e., when the vehicle is stopped and either the foot brake or parking brake is applied), the 1st start mode indicator light comes on, indicating that the transmission has switched to 1st start mode. Return the transmission to the normal start mode (2nd start mode) by pressing the 1st start switch again.

ECONO Mode

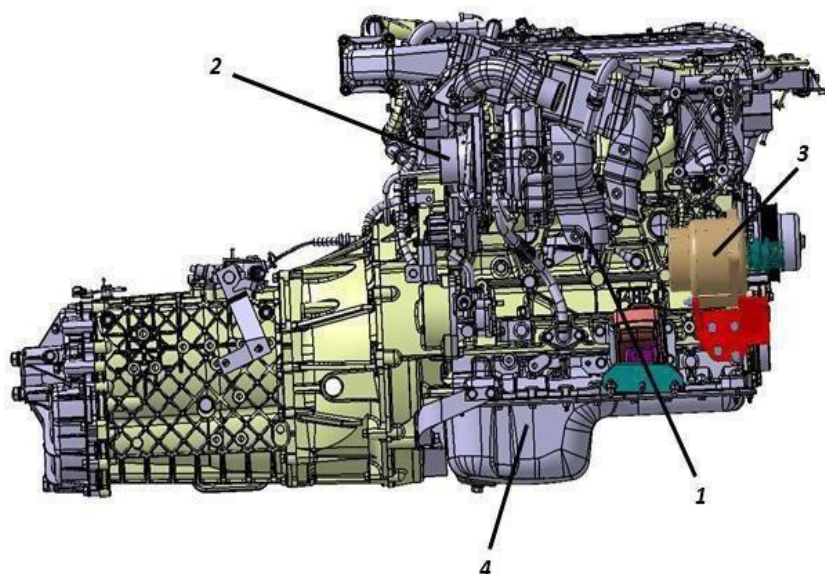


You can improve fuel economy if you select the ECONO mode when the vehicle is driven with the transmission in the auto mode (automatic gearshift mode). When you press the ECONO mode selector switch, the ECONO mode is selected and the ECONO mode indicator light comes on.

ENGINE



1. Engine Oil Filling Plug
2. Fuel Filter
3. Air Compressor
4. Fuel Pump
5. Transmission
6. Starter



1. Exhaust Manifold
2. Air Intake
3. Alternator
4. Engine Oil Sump

RETARDER

Your vehicle is equipped with a retarder. It provides you with essential safety, cost effectiveness, accurate and reliable braking.

In town

Even at the lowest speeds, the retarder is very effective for common braking situations (junctions, bends, turns, etc.) and for stops, virtually without using the service brakes. Its highly flexible operation provides smooth braking and improves passenger comfort.

On the highway

Your retarder will provide the necessary braking, whether at high road speeds or in dense traffic. Its efficient usage will reduce fuel consumption and permit higher average speeds in safety, whilst increasing brake and tyre service life.

In hilly terrain

Use the retarder in conjunction with the engine braking for an optimum use of the gear ratios. This will allow you to achieve the speed best suited to changes in gradient and to the road conditions as quickly as possible.

For very long downhill gradients

After the vehicle stabilises at the required speed, we recommend that you use the retarder in position 2 to obtain maximum endurance efficiency.

Intermittently it may be useful to combine the use of the service brakes with the operation of the retarder to adapt the vehicle's speed to the road conditions (particularly entering bends).

Snow, ice, mud

When tyre adhesion is poor, the retarder is particularly valuable : it allows you not only to brake progressively, but may also be used for smooth startups on slippery ground. Try position 1 and position 2 successively, checking the vehicle's stability and tyre adhesion.

ABS Interface

The retarder system is equipped with an electronic interface designed to work with your vehicle's Anti-Lock Braking System (ABS). During an ABS event (an ABS event is defined as any wheel lock-up) the retarder will automatically turn off, allowing the ABS to control the brakes without interference from retarder. After the ABS event, the retarder will reactivate progressively to assure proper braking.

NOTE:

If the vehicle's ABS warning light remains on, the retarder will not operate. When the ABS warning light is on, there is a problem with the ABS. The ABS must be serviced before the retarder will operate.

Important Points to Remember

The retarder operates by normally applying the brake pedal. You will notice that less pedal travel is needed to obtain sufficient braking.

It will automatically shut off at low speeds (below approximately 3 km/h).

Make sure dashboard indicator light on when the brake pedal is fully engaged. If the light does not turn on, it is possible that the retarder may not be working properly.

When the vehicle's ABS warning light stays on, the retarder will not operate.

The retarder should be pressure washed periodically. Please make sure that it is clean and free of debris before operation of the vehicle.

It will function effectively in reverse (above approximately 3 km/h).

It will not magnetically attract metal objects.

The retarder is integrated into the vehicle's braking system. To avoid vehicle malfunction do not tamper with or disable it.

Maintenance of the retarder system

The power to the retarder system must be disconnected before any maintenance on the system. Before reconnecting the power to the retarder system, make sure that all controls of the retarder are set to the OFF position.

Maintenance Interval (x 1000 km)	20	40	60	80	100	120
Retarder	I	I	I	I	I	I
Carry out a full function check of the control system	I	I	I	I	I	I
Retarder air-gaps and adjust if necessary	I	I	I	I	I	I
Fastener torques are within specification	I	I	I	I	I	I
Oil leakage from the gearbox or axle flange seals	I	I	I	I	I	I
Retarder electrical cables	I	I	I	I	I	I
Cable terminations, tightening torques	I	I	I	I	I	I

Pressure washing

Maintain a distance of at least 1 metre between the nozzle of the jet washer and the retarder.

Do not exceed a pressure of 25 bar or a water temperature of 50 °C, and do not use chemicals or detergents.

The power to the retarder, along with any retarder electronic control modules, must be disconnected before charging the batteries.

FUEL TANK CAP



Opening and Closing the Fuel Tank

1. Turn the cap counterclockwise to open.
2. Fill the tank.
3. Turn the cap clockwise to close.
4. Be sure that the fuel tank cap is tightly closed.



If the fuel tank cap is not tightly closed, leaking fuel could start a fire while driving.

BATTERY



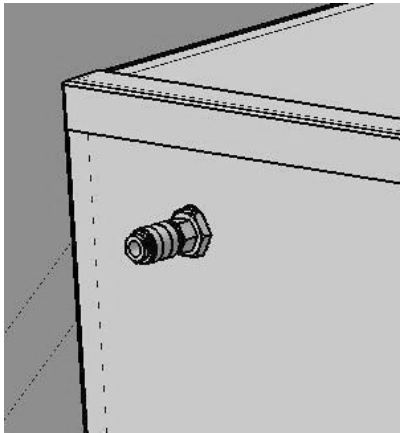
There are two batteries in the vehicle, each of them is 12 V and 125 Ah.

The batteries are located at the front side of the front wheel, they are installed on the sliding rails in the manner that can be easily inserted and removed.

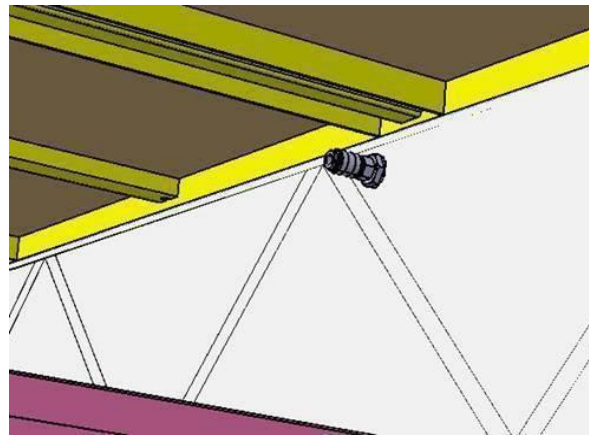
TYRE INFLATION SET

If the air pressure of tyres reduces, tyre inflation set in the toolbox is used to adjust tyre pressure. 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 “N” and start the engine.
- Take the tyre inflation set.
- Insert end of the hose to end of the air outlet which is located in rear deck, on the left of the vehicle. (In Turquoise eco vehicles insert it to end of the air outlet which is located in central baggage)
- Complete tyre inflation by accelerating the engine.



In Turquoise eco vehicles



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 a 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 :

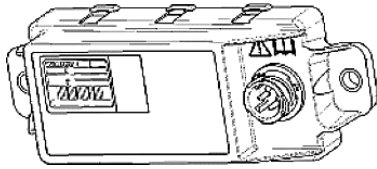
- 1) ABS (Anti Blockage Brake System)** : It prevents the vehicle from slipping by preventing the wheels from locking when braking. It ensures steering wheel stability in sudden braking.
- 2) ASR (Anti Skating System)** : ASR becomes activated and increases driving safety by minimizing skating when drive wheels skate on ramps, slippery grounds and when accelerating.
- 3) Drift Torque Control (DTC)** : W heels 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 Equalising (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.

Safety functions do not operate, brake performance decreases in the case of an electronic fault. The driver must contact the closest authorized 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.

ESC (Electronic Stability Control)

It is possible to intervene in the wheel brakes independently in sudden maneuverings in vehicles which carry load and passengers with electronic control. The purpose is to prevent possible accidents such as vehicle skidding or rolling over. So more determined driving dynamic is guaranteed.

Angular Acceleration Sensor



Acceleration sensor is positioned on the floor casing in the trunk space close to the center of gravity of vehicle.

Axial deviation in the vehicle is perceived as instant angular acceleration and conveyed to braking system control unit as electronic signal. It is controlled how much the vehicle has deviated from the route in a critical state. It gives information about how stability control functions must be activated.

Steering Wheel Angle Sensor



Angle sensor passes through steering Wheel column and positioned below the signal group. It conveys the maneuvering request of the driver to the braking system control unit according to the rotation amount of steering wheel. Conveyed information is sent as electronic signal. Calibration is performed when the system is first installed to match the signals from sensor and direction angle of the vehicle.



ESC system will be faulty in the event that steering wheel is dismantled and mounted, changed or renewed in front alignment adjustment. In such cases, installation must be made in authorized services.

ADVANCED EMERGENCY BRAKING SYSTEM (AEBS)

Advanced Emergency Braking System is a system that automatically detect the emergency situation and activates the braking system to slow down the vehicle in order to avoid the collision or to reduce the impact of collision. AEBS is a requirement of General Safety Regulations and it is the user's responsibility to disable the system.

The operating speed range of the AEBS is 15 – 125 km/h. It will switch off at speeds above and below this range and switch to "Temporarily Out of Service" mode.

For AEBS system performance;

- Do not change radar position and radar cover position.
- Do not paint the sensor cover.
- Do not change the radar cover.
- Do not place any objects (plates, labels, etc.) on or in front of the radar cover.

If the AEBS is not deactivated in the following situations, the vehicle may self-brake and create a hazardous situation:

- If the vehicle towed with the ignition switch on
- When the vehicle is in a stable position, it moves to a mechanism where wheels rotate
- If the wheels are turned by lifting the vehicle from front or rear axle to the air

AEBS function contains the sub-functions described in the following sections.

1. FCW Function - Front Collision Warning

- Visual and audible (FCW) warnings are given on the warning lens panel display.



- Along with the visual and audible warning signal, the wheel brakes are briefly given a tactile feedback (HCW) to reinforce the collision warning given to the driver.

2. AEB Function

The AEB function detects moving and stationary objects in the event of a potential collision from the rear and applies the wheel brakes. It does not react to oncoming traffic. Up to 70 km/h for moving objects and up to 20 km/h for stationary objects the vehicle is slowed down in order to reduce the impact of accident. However, depending on various factors, such as road friction, the prevention of the accident cannot be guaranteed even in case of moving objects.

3. Warning and Brake Levels

The standard sequence of a complete AEBS reaction is as follows:

- Start of visual and audible warning (FCW)
- Application of tactile feedback (HCW)
- Short braking and activation of FCW
- Automatic start of emergency braking

4. Response to Objects That Intercept the Main Vehicle

If the criteria for starting the FCW cannot be fulfilled early enough, the AEB ranking may change. For example; if an object cuts off the main vehicle at a short distance.

The situation is extremely critical after the collision warning is given and the AEB braking starts shortly after the FCW. In this case, it is not possible to avoid collision due to the limited AEB slowdown at the beginning of the event.

5. AEBS Limitations

The following limitations shows the different AEBS restrictions that can lead to an unexpected response and impaired system performance.

- Sudden changes that correct a critical situation and that have already been recognized by the driver cause warnings that are perceived as unnecessary by the driver.
- The response may be delayed if the system detects that an upcoming collision can be avoided by a maneuver of the driver.
- The system uses an avoidance path at low speeds for stationary objects.
- The system may not be able to prevent the collision if the ideal braking conditions due to weather conditions or road surface are not met.
- The tolerances the radar sensor uses for measurements may cause an accident without any system response.
- If the system cannot detect the center of the object in the road, there will be no braking.
- For narrow road bends, the sensor must be in the middle of the main vehicle path since the sensor has limited detection performance.
- If the brake lights do not flash for the minimum time required before emergency braking, the desired braking is restricted.
- The system is approved up to 90 km/h. At speeds above this, the braking level of the system is reduced.
- If the vehicle passes through a narrow road bend, the desired deceleration is restricted by the system to prevent the loss of cornering force.
- In high lateral acceleration road bends, system braking requirements are restricted in order to keep the deceleration below the critical level.
- If the system detects driving in tunnel, it limits the maximum deceleration as the radar sensor is affected by reflections on the tunnel wall and can create greater false detection risks.
- If any of the vehicle stability control functions are actively interfering, AEBS brake requests are restricted.
- The system will be in the restricted sensitivity operating mode after engine start, for at least 10 km, and in which the rolling rate probability control will use more protective parameters than its normal operation if it has not yet delivered a successful result.
- If the AEBS is in "Temporarily Out of Service" mode, no warnings and emergency braking will occur.

6. AEB Event Counter

The AEB event counter counts unrestricted emergency brake events initiated by AEBS. If the 3 event threshold is exceeded, the system enters a fault state. The event counter will reset if the maximum event threshold has not exceeded and the predefined minimum distance has been covered without increasing the counter.

7. Driver Disabling Conditions

After the AEBS has been deactivated by the driver, it is deactivated until it is manually reactivated or the ignition is reset. The hazard light switch and AEBS switch are used to deactivate the AEBS. AEBS must be deactivated if the vehicle is to be towed and the wheels must be rotated in a stable position. When the system is disabled, depending on the information display application, collision warning is not displayed to the driver.

EBA (Extended Brake Assistance)

The extended braking aid reinforces the driver's manual brake request to avoid an oncoming collision at times of collision. In the event of an active collision warning, the EBA will send a request for the required deceleration to the brake system, depending on the current brake pedal position, to avoid an accident if the driver has started to depress the brake pedal slightly. The EBA is not activated if the driver does not have an active collision warning when the brake pedal is depressed. If the object disappears during an active EBA event, the last deceleration request is maintained as long as the EBA is active.

DIESEL EXHAUST EMISSION FLUID HEATING SYSTEM

The diesel exhaust emission fluid used in the vehicle begins to freeze at -11 °C. The engine begins to spray urea to the exhaust system when its heat has increased. If the fluid in the tank remained frozen when the engine heated, the engine cuts power since there would be no urea spraying operation. Therefore, under cold acclimatization (at temperatures of -7 °C or lower), the engine heats the diesel exhaust emission fluid tank and the diesel exhaust emission fluid line going from tank to the injector with hot water.

DIESEL PARTICULATE DEFUSER (DPD)

DPD reduces particulate matter (PM) in the exhaust emissions. The DPD filter captures PM. When a certain amount of PM has accumulated in the DPD filter, the filter is automatically regenerated. (The PM is burned away.) To prevent a DPD failure, be sure to observe the following points:

- The DPD, urea selective catalytic reduction (SCR), muffler and exhaust pipe are extremely hot while the engine is running, during DPD filter regeneration (PM combustion) and immediately after vehicle operation. Be careful not to inadvertently touch them. Otherwise, you could be burned.
- Any grass, waste paper or other flammable material near the vehicle could catch fire.
- Before doing maintenance work on the vehicle, shut down the engine and allow it to cool down. Otherwise, you could be burned.

DPD Switch



The DPD switch is used to manually burn PM (regenerate the filter). You should take the steps for manually regenerating the DPD when the "PUSH DPD SWITCH" indication flashes.

Perform the manual regeneration of the DPD while parking the vehicle after the day's operation, for example, following the instructions under "DPD Manual Regeneration Procedure".

DPD Manual Regeneration Procedure



1. Stop the vehicle at a safe place free of flammable materials such as grass and waste paper.
2. In a manual transmission model, place the gearshift lever into "N" and firmly engage the parking brake.
In a Smoother model, place the gearshift lever into "N", confirm that the "N" indication appears, and firmly engage the parking brake.
3. Run the engine at idle. Return the idling control knob to the fully counterclockwise position to decrease the engine speed when the engine speed has been increased using the idling control knob.
4. Press the DPD switch.
5. The "PUSH DPD SWITCH" message will stop flashing and change to a steady "MANUAL REGEN." message, while the engine speed is automatically increased to start regeneration.
6. Do not leave the vehicle during regeneration. Regeneration normally is completed in 15 to 20 minutes.

7. When the "MANUAL REGEN." message goes out, regeneration is completed. Normal driving is then possible.

Interruption of Manual Regeneration

If you must interrupt regeneration for an unavoidable reason, press the DPD switch again.

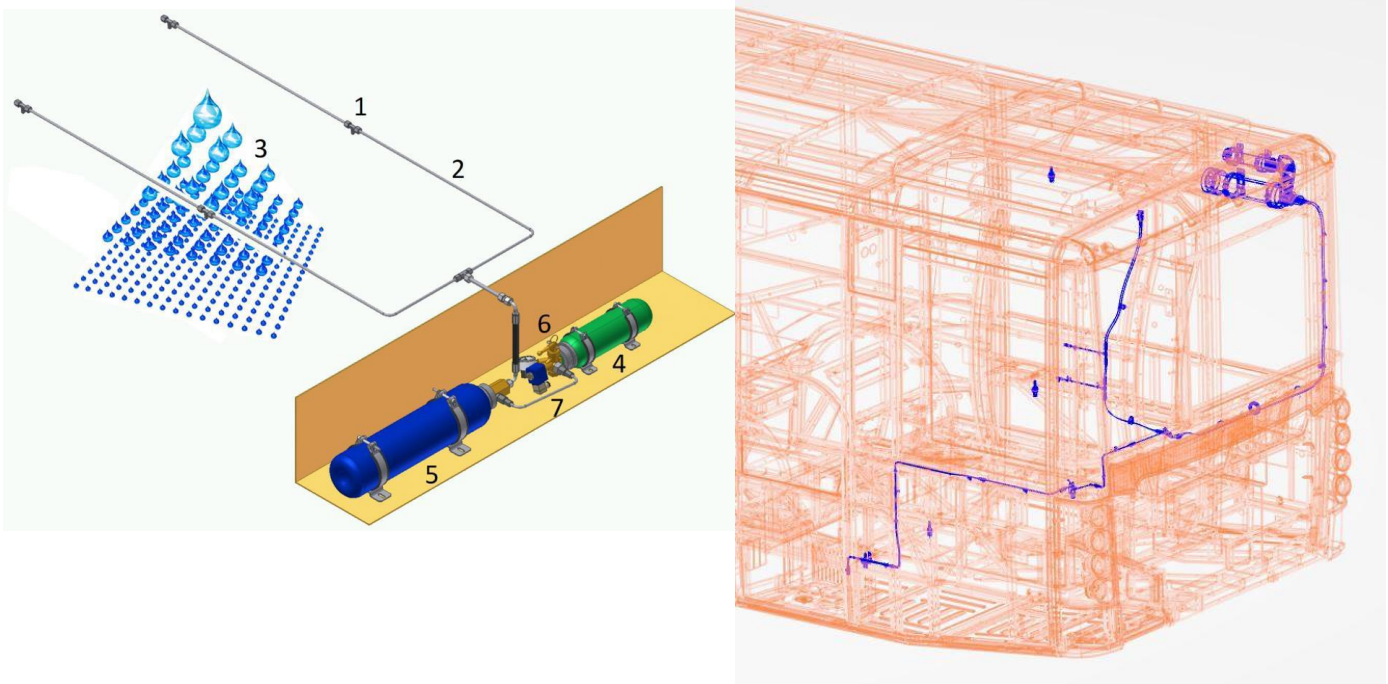
The "MANUAL REGEN." message changes to a flashing "PUSH DPD SWITCH" message. Then, you can drive the vehicle. If you interrupt regeneration, you need to perform the regeneration again. Perform manual regeneration beginning with step 1 as soon as possible.

Automatic Regeneration of DPD



The engine speed may increase and the exhaust brake may activate while the vehicle is stopped with the engine idling. When this occurs, the DPD is automatically regenerated. This does not indicate a failure. The automatic regeneration causes the "AUTO REGEN." message to be displayed.

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 fire extinguishing 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

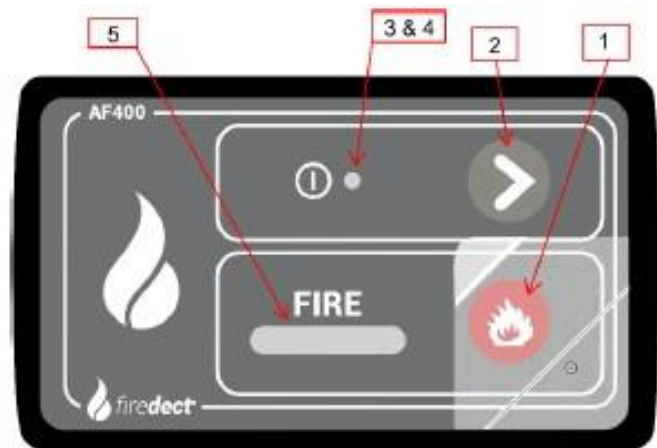
The following operations should be performed when the fire extinguishing system activated because of a reason other than fire and the tanks emptied:

- 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

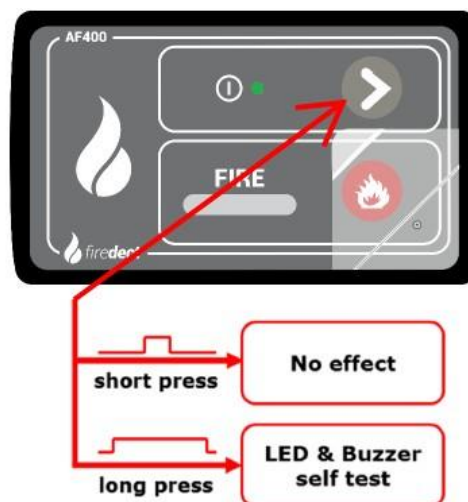
Alarm activated.

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.

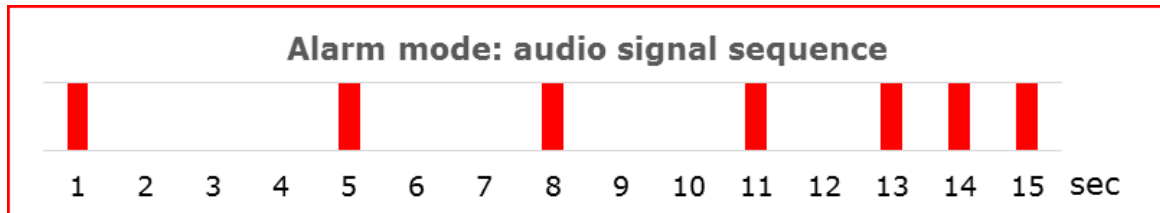
Normal Operational Mode

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

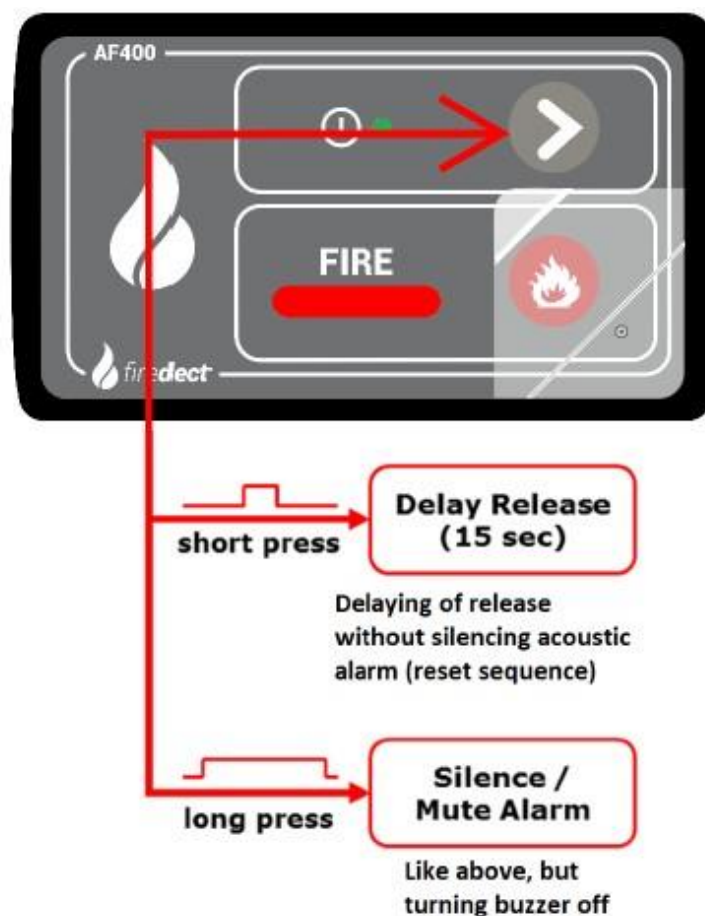


Alarm Mode

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



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



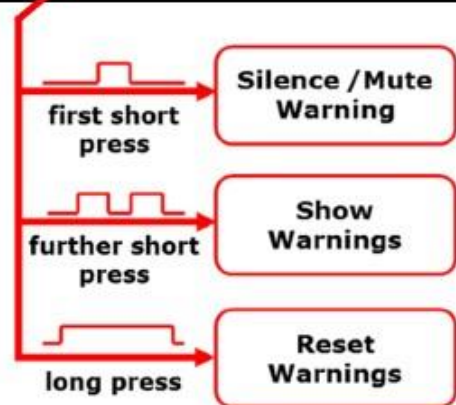
Warning / Diagnosis Mode

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



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

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



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

Control Module

In Case Of Alarm - Fire

Red motor fire symbol/red lamp flashes red.

Alarm siren gives repeating acoustic signal.

Fire alarm signal – bus manufacturer's system:

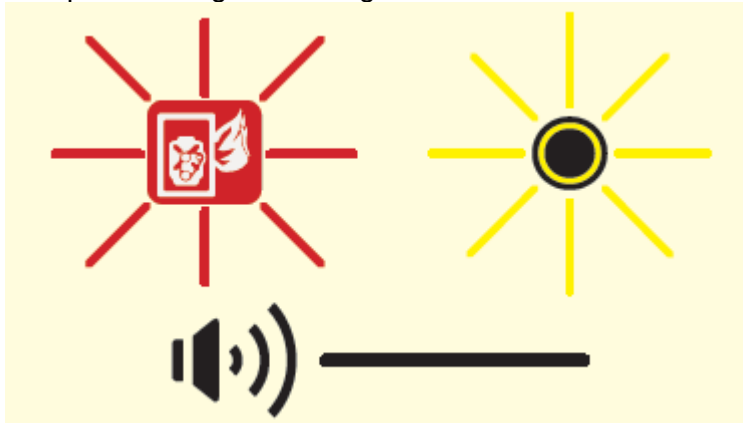
See bus manufacturer's manual.

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

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

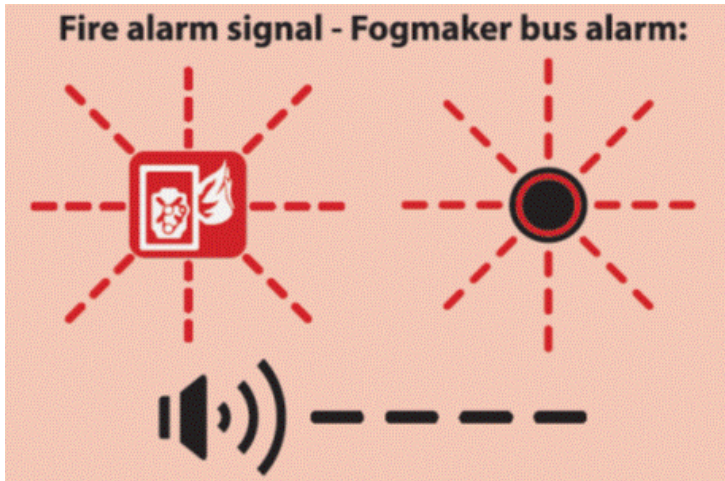
Engine wash after fire

Low pressure signal with fogmaker bus alarm:



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

In Case Of Alarm – Fire

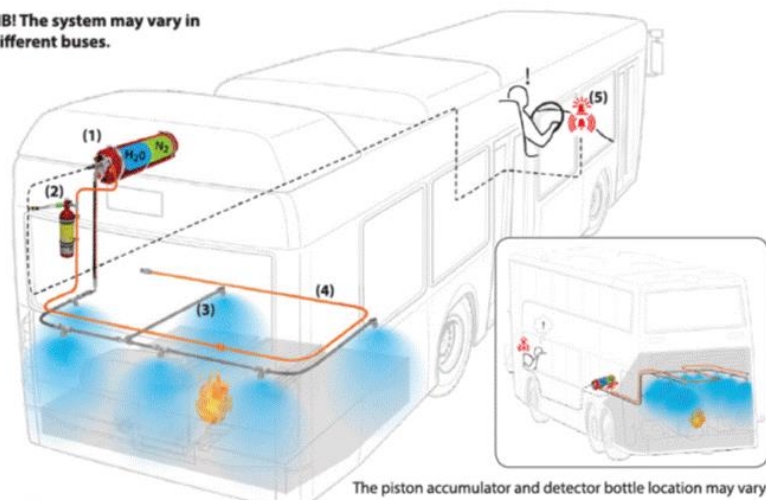


Overview, Fogmaker's Fire Protection System

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

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

NB! The system may vary in different buses.



Routine Maintenance

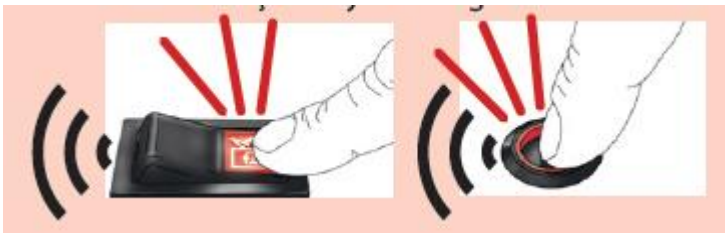
Pressure switch installed: Check that lamps indicating low pressure are not alight on the bus alarm button.

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:

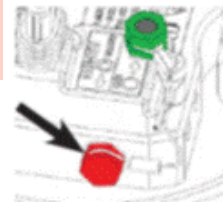
- Press down the button- two variants, see below:
- Check that there are both a sound and light signal.



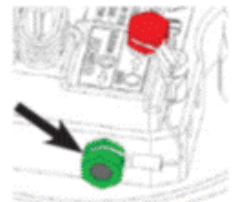
Alarm test – bus manufacturer's system:
See bus manufacturer's manual.

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

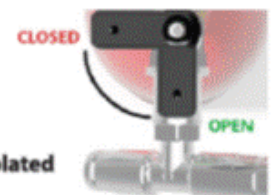


Green screw mounted
in the side of the valve **unlocks the system** so
it can deploy

Detector bottle: 20-24 bar at 20°C



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



1. SERVICE AND MAINTENANCE

CLEANING VEHICLE

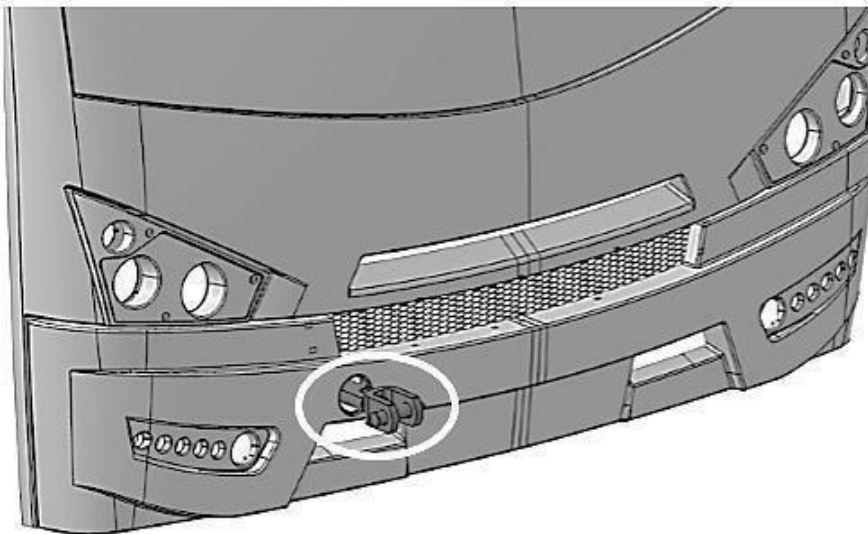
External Cleaning

- 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 washleather.
- 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.

Internal Cleaning

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

TOWING VEHICLE



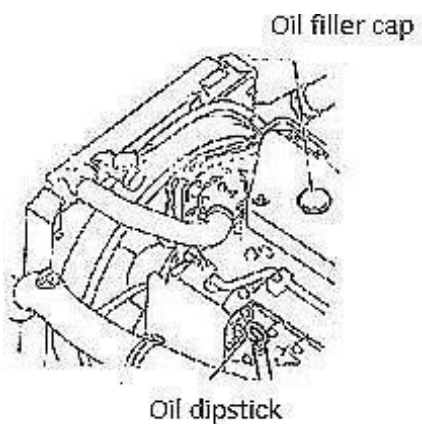
- Open the tow hook cap which is on the bumper.
- Take the tow hook by opening cap front left.
- Screw the tow hook to the hole on the casing and make sure that it fits.

ENGINE OIL

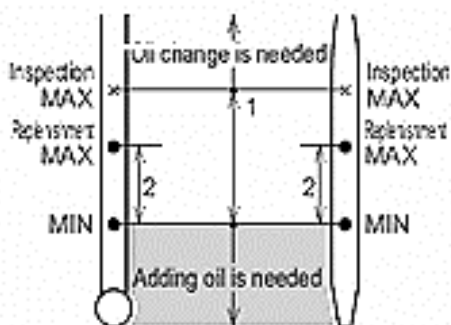
Engine oil is an important factor determining engine performance and longevity. Be sure to use only the specified oil and oil filters. The engine oil level must be checked and the oil should be changed regularly according to the Maintenance Schedule.

NOTE : When particulate matter (PM) has accumulated to a preset level in the diesel particulate defuser (DPD) filter, the filter is automatically regenerated through combustion. To make this regeneration (combustion) possible, a small amount of fuel is injected into the engine combustion chamber after firing. This causes fuel to gradually become mixed with the engine oil, and the engine oil level will rise beyond the original level. This does not indicate a malfunction of the engine.

Checking the Engine Oil Level



Park the vehicle on a flat surface and check the engine oil level before starting 30 minutes after turning off the engine. To check the oil level;



1. Remove the oil dipstick and wipe off the end with a clean cloth.
2. Reinsert the oil dipstick fully and then gently remove it.
3. If the oil level is between the "Inspection MAX" and "MIN" marks (range 1), the oil is at the correct level. Also check if there are any oil leaks.
4. If the oil level is too low, add oil to the "Replenishment MAX" mark (range 2). If the oil level is beyond the "Inspection MAX" level, then change the oil.
5. Reinstall the oil dipstick into position after checking the oil level.



- Any oil level above the "Inspection MAX" mark on the oil dipstick may cause engine malfunctions. Change the oil whenever its level exceeds the "Inspection MAX" mark.
- Fuel will gradually become mixed with the engine oil, thinning it out. Be sure to change the oil at the specified intervals.
-

NOTE :

- Perform all engine oil level checks on a level surface before starting the engine.
- The oil level cannot be checked correctly when the engine is running.
- Fuel will gradually become mixed with the engine oil, and the engine oil level will rise beyond the original level. This does not indicate an engine malfunction.
- Wait for at least 30 minutes after stopping the engine when measuring the oil level after the engine has been operated.

Adding the Engine Oil

When the engine oil level is near the "MIN" mark on the oil level gauge rod (oil dipstick), remove the oil filler cap and add the oil. Remove the oil dipstick at this time. Use only the specified engine oil.

- Engine oil lubricates and cools the engine's internal components. The quality of the oil is degraded and the quantity of oil is reduced by evaporation, discharge and combustion during the engine's operation. Continually using the same oil without checking the level, or without replenishing and changing it could cause seizure or damage to the engine. Add or change the oil when the quality of the oil has been degraded or the quantity is reduced, even if this occurs before expiration of the specified intervals in the Maintenance Schedule, which will differ depending on the conditions of use.
- Prevent dirt from entering the filler port when adding the oil. If foreign matter mixes with the oil, it could damage the engine.
- Adding oil above the "Inspection MAX" mark on the oil dipstick could result in faulty engine operation. Be sure to check the oil level by using the oil dipstick.
- Failure to use DPD compatible oil could result in engine or DPD breakdown, or in poor fuel efficiency. Be sure to use DPD compatible engine oil.



- When adding oil, be careful not to spill any, but keep a workshop rag handy just in case there are any spills. If any oil should spill onto the engine, carefully wipe it away. If this precaution is not taken, the spilled oil could ignite and a fire could spread.
- Do not leave flammable items, such as rags or gloves, in the engine compartment. They could cause a fire.
- The engine oil is hot after driving, so when changing the oil after driving, be careful not to be scalded.

Changing the Engine Oil and Oil Filter

Engine oil and oil filter are important factors in engine performance and life time. Be sure to use only the specified oil and oil filters. The engine oil level must be checked and the oil should be changed regularly according to the Maintenance Schedule.

Changing the Oil

1. Clean around the oil filler cap so that foreign matter does not enter. Remove the oil filler cap.
2. Place a container for receiving the oil beneath the oil pan and the oil filter.
3. Remove the oil pan drain plug to discharge the oil into the container.
4. Use the special oil filter wrench to remove the oil filter.
5. Lightly coat the gasket of the new oil filter with clean engine oil.
6. Install the new oil filter. After the filter gasket comes in contact with the surface to which it will be attached, use the special oil filter wrench and tighten it by 1 1/4 (one and a quarter) turns.

When installing the oil filter, make sure the gasket is not caught in the screw threads. This could cause oil leaks.

7. Make sure that the oil pan drain plug is securely tightened.

Drain plug tightening torque	
Oil pan	83 N·m (8.5 kgf·m/61 lb·ft)

The dirt on the plug must be wiped off before reinstalling it.

8. Remove the oil dipstick and carefully fill the specified oil into the oil filler.
9. Install the oil dipstick and the oil filler cap. Start the engine 5 minutes after refilling it with the new oil and let it idle. While the engine is idling, check to see if any oil leaks around the oil filter or drain plug.
10. Shut off the engine. Then, after waiting at least 30 minutes, check the oil level using the oil dipstick.



- Bringing flames or other heat sources near spilled engine oil could cause a fire. Make sure to wipe it all up.
- Do not leave flammable items, such as rags or gloves in the engine compartment beneath the cab. They could cause a fire. Also, do not forget your tools.
- Avoid revving up the engine, as it could damage the engine.
- Do not fill the engine with oil above the "Replenishment MAX" mark on the oil dipstick. Overfilling could damage the engine.

ENGINE COOLANT

The engine coolant must be changed according to the Maintenance Schedule.

- Replace the engine coolant periodically. If the engine coolant is not replaced periodically, rust is generated due to degradation of the engine coolant, which may cause a failure such as water leakage, clogging of the radiator or heater core, or damage to the urea SCR system.



- Check, replenish or change the engine coolant only after the engine has sufficiently cooled down.
- Do not loosen or remove the cap of the radiator or reserve tank cap when the engine coolant is still hot. Hot vapor or boiling water may burst out and cause a burn. Cover the cap with a cloth, etc. and remove it gradually after the engine is fully cooled down and the temperature of the engine coolant becomes low.
- When removing the radiator cap or reserve tank cap, use a thick cloth to cover the cap and turn it slowly.
- Engine coolant is toxic and must not be ingested. If the engine coolant is mistakenly ingested, immediately vomit it and seek prompt medical attention.
- If the engine coolant gets in your eyes, rinse it off immediately with a large amount of water for 15 minutes or longer. Also, if still abnormality such as irritation is felt, seek medical attention.
- If the engine coolant gets on your skin, rinse it off using a soap with a large amount of water. Also, if abnormality is seen, seek medical attention.
- Engine coolant is flammable, and therefore, it must be kept away from flames and other heat sources. Engine coolant also could ignite if it comes in contact with a hot surface, such as the exhaust manifold. Exercise caution to prevent this from happening.

NOTE :

Engine coolant is fluid which is made by mixing coolant and water at an appropriate concentration.

Preparing Engine Coolant

To prevent the engine damage due to freezing of the engine coolant and to protect the cooling system from corrosion, mix the AOS recommended coolant and water to be at 50% concentration.

For other than AOS genuine coolant (Caltex/Texaco/Chevron, etc.), it is recommended to use directly "50/50 Pre-diluted" product which is already diluted to 50% concentration.

- AOS does not guarantee the use of the engine or vehicle at the outside temperature of -30°C (-22°F) or below.
- However, if the engine or vehicle is used at the outside temperature of -30°C (-22°F) or below, the coolant concentration of 55% is recommended.

Engine Coolant Quantity

The quantity of engine coolant is indicated below for your use as a guideline when changing the engine coolant. After changing the engine coolant, check that the engine coolant is up to the specified level.

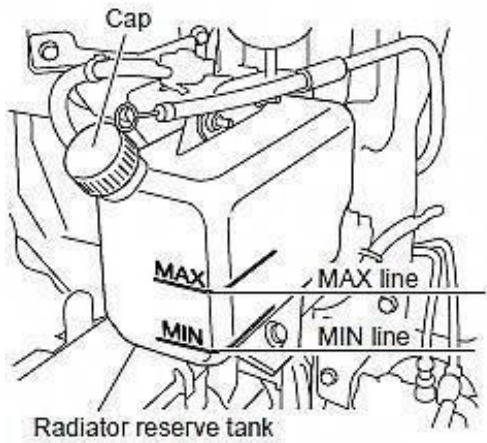
Engine coolant quantity (Reference value)
19 liters



- Coolant is toxic and must not be ingested. If the coolant is mistakenly ingested, immediately vomit it and seek prompt medical attention.
- If the coolant gets in your eyes, rinse it off immediately with a large amount of water for 15 minutes or longer. Also, if still abnormality such as irritation is felt, seek medical attention.
- If the coolant gets on your skin, rinse it off using a soap with a large amount of water. Also, if abnormality is seen, seek medical attention.
- For storage, close the cap securely and keep it in a place inaccessible to children.
- Coolant is flammable, and therefore, it must be kept away from flames and other heat sources. Coolant also could ignite if it comes in contact with a hot surface, such as the exhaust manifold. Exercise caution to prevent this from happening.
- Use only an AOS recommended coolant.
- Using any coolant other than that AOS recommended could cause damage to the engine, radiator or heater core. In particular, use of coolants containing borate salts or silicates may result in engine, urea selective catalytic reduction (SCR) system, or radiator corrosion, causing engine coolant leaks and other problems.
- To dilute the coolant, use distilled water or deionized water.
- Do not use the coolant at any coolant concentration other than that specified. If the coolant concentration is 60% or higher, overheating is likely to occur, while if it is 30% or lower, anti-corrosion function is not provided sufficiently.
- Using coolant at any coolant concentration other than that specified may reduce anti-freezing performance, and engine coolant may freeze.
- If the engine coolant decreases rapidly, go immediately to the nearest authorized service for a check or repair.

Checking the Engine Coolant Level

The reserve tank is located behind of the engine in the engine compartment.



When the engine has cooled down, make sure that the fluid level in the reserve tank is no lower than the "MIN" line. In addition, carefully remove the radiator cap and check that the engine coolant is full to the filler neck. Check the engine coolant level only when it is cold.



The radiator cap is a double-action type that must be opened and closed in two turning motions. When removing the cap, take care not to damage the cap or filler.

- Turn the cap slowly to the left until it reaches a stop. Do not press down while turning the cap.
- Wait until any remaining pressure (indicated by a hissing sound) is relieved, then press down on the cap and continue turning it to the left.

Also, check to make sure there are no leaks from the radiator or radiator hose. Check for fluid or stains on the ground showing leaks where the vehicle is parked. Contact authorized service when you discover leaks. Using the vehicle when there are leaks can lead to engine seizure.

Adding the Engine Coolant

When the engine coolant level is too low, open the cap on the radiator sub-tank or the reserve tank and fill the tank almost to the "MAX" line with a solution of water and engine coolant at an appropriate concentration. Tighten the cap securely after the engine coolant has been replenished.



- Check, replenish or change the engine coolant only after the engine has sufficiently cooled down.
- Do not overfill the reserve tank.
- Check the reserve tank to determine engine coolant level. In situations, however, where the level in the reserve tank rises or falls suddenly, open the radiator cap and check the level within the radiator itself.
- When the engine is still hot, take care to prevent engine coolant from contact with the exhaust manifold. Any such contact could result in exhaust manifold damage.
- If the level of engine coolant changes rapidly, have your vehicle inspected at the nearest authorized service.

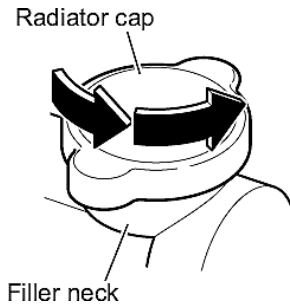
Changing the Engine Coolant

Change the engine coolant according to the Maintenance Schedule.

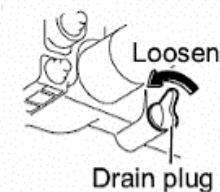
- Drained engine coolant must be disposed of in a method conforming to the regulatory requirements in your country.

Draining the Cooling System

When changing the engine coolant, also clean the radiator cap, radiator, intercooler and engine coolant passages.



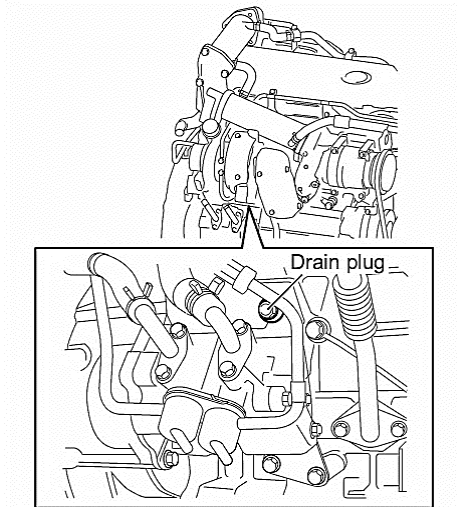
1. Confirm that the engine has fully cooled down before starting work.
2. Remove the radiator cap.



3. Open the drain plugs on the radiator and the engine to let the engine coolant run out. Drain the engine coolant from the reserve tank as well.

4. Tighten the drain plugs on the radiator and the engine. Replace the gasket of the engine drain plug with a new one before installing it.

Engine drain plug tightening torque : **22,1 Nm**



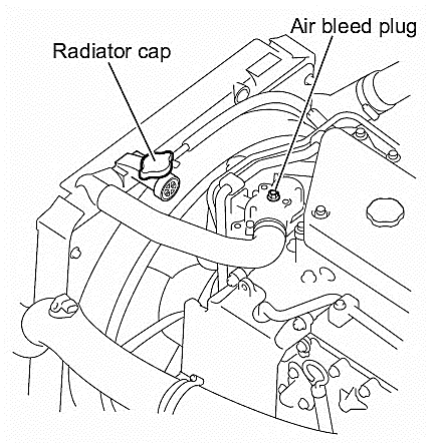
Cleaning the Radiator Core and Intercooler Core

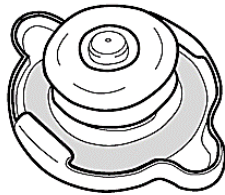
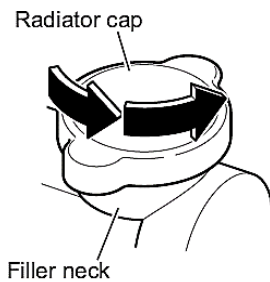
Cooling efficiency is compromised when there is dirt or dust plugging air passages in the radiator core and intercooler core. It also could cause corrosion of the core. Periodically wash the core with water.

Cleaning the Engine Coolant Passages

1. Remove the air bleed plug from the water outlet (if equipped). Refill the radiator with tap water up to the top of the opening. After refilling, tighten the air bleed plug.

Water outlet air bleed plug tightening torque : **14 - 24 Nm**





2. Check and clean the radiator cap. Replace the cap if there is anything abnormal with it.
3. Securely fasten the radiator cap.
4. Engine coolant may leak from even minor cracks. Replace damaged rubber hoses.
5. Refill the reserve tank with tap water to the "MAX" line.
6. Close the cap of the reserve tank.
7. Start the engine and let it idle for 20 minutes. Stop the engine, wait until it cools down, and then drain out the water.

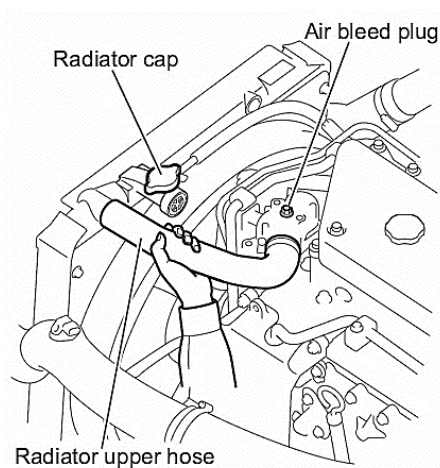
Filling the Cooling System

1. Confirm that the engine has fully cooled down before starting work.
2. Tighten the drain plugs on the radiator and the engine. Replace the gasket of the engine drain plug with a new one before installing it.

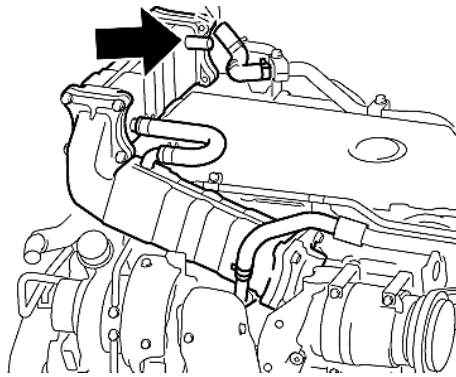
Engine drain plug tightening torque : **22,1 Nm**

3. Remove the air bleed plug from the water outlet (if equipped) and pour engine coolant in the specified concentration. After filling with engine coolant, replace the gasket of air bleed plug with a new one and tighten the air bleed plug.

Water outlet air bleed plug tightening torque : **14 - 24 Nm**



4. Squeeze the radiator upper hose two or three times. If this action results in air being discharged from the hose and the level of engine coolant goes down, add engine coolant up to the top of the radiator filler opening from the radiator cap section. Repeat until the level of the engine coolant no longer decreases.



5. Close the radiator cap.
6. Fill the reserve tank with engine coolant to the "MAX" line. Close the cap of the reserve tank.
7. Start the engine, let it idle for 5 minutes or more and then stop the engine.
8. After checking that the engine has sufficiently cooled down, remove the radiator cap. If the engine coolant level has decreased, replenish with engine coolant up to the radiator filler opening. If the engine coolant level has abnormally decreased, check for leaks from the radiator, the engine coolant passages, or the reserve tank hose.
9. After firmly closing the radiator cap, idle the engine until the needle of the coolant temperature gauge reaches the center and the thermostat opens. In order to save time, if the vehicle is equipped with a warm-up switch, turn the switch on to warm up the engine. If the vehicle is not equipped with a warm-up switch, maintain the engine speed approximately 2,000 r/min to warm up the engine. After the needle of the coolant temperature gauge reaches the center, increase the engine speed to approximately 2,000 r/min, and maintain this speed for 5 minutes. If the vehicle is equipped with an air conditioner, turn the A/C switch off to facilitate warming. If the vehicle is equipped with a heater, turn off the fan to facilitate warming. Check if the thermostat is open or not by checking whether the upper hose and lower hose are hot. If the vehicle is equipped with a heater, turn the temperature control to the maximum setting and make sure that hot air comes out.
10. Let the engine idle for 5 minutes and then stop the engine.
11. After checking that the engine has sufficiently cooled down, remove the radiator cap and check the engine coolant level. If the engine coolant level has decreased, replenish with engine coolant up to the radiator filler opening from the radiator cap section. If the engine coolant level has abnormally decreased, check for engine coolant leaks.
12. Repeat steps 9 through 11 until the engine coolant level in the radiator filler opening stops declining.
13. Firmly close the radiator cap.
14. Replenish the engine coolant in the reserve tank up to the "MAX" line, and then close the reserve tank cap.
15. Check the engine coolant level of the reserve tank the next morning. If the engine coolant level has decreased, refill with engine coolant to the "MAX" line.

TRANSMISSION OIL

Change the transmission oil according to the Maintenance Schedule.

Checking the Oil Level

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

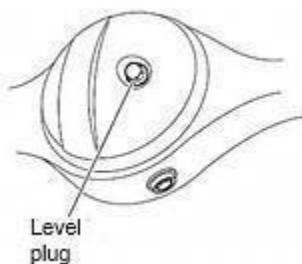
Changing the Oil

1. Place a container under the drain plug(s) to receive oil.
2. Remove both oil level plug and drain plug(s) to discharge the oil into the container.
3. After installing the drain plug(s) by tightening it to the specified torque (39 Nm), refill the transmission with new oil through the oil level plug hole up to the lower edge of the hole.
4. After refilling, confirm that the oil level is up to the lower edge of the oil level plug hole.
5. Install the oil level plug by tightening it to the specified torque (39 Nm)

REAR AXLE DIFFERENTIAL GEAR OIL

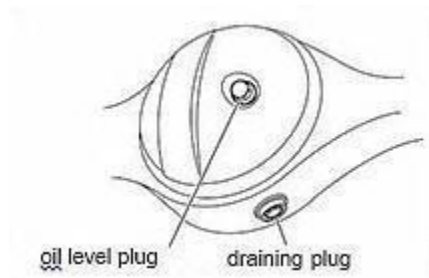
The rear axle differential gear oil level must be checked for its level and it must be changed according to the Maintenance Schedule.

Checking the Oil Level



1. Remove the oil level plug.
2. Check that the oil level is up to the lower edge of the oil level plug hole. If the oil level is too low, add oil through the oil level plug hole.
3. Fasten the oil level plug to the specified torque (84 Nm).

Changing the Oil



1. Place a container under the drain plug to receive oil.
2. Remove the plugs indicated in the figure to discharge the oil into the container.
3. After installing the drain plug by tightening it to the specified torque (84 Nm), refill the rear axle differential with new oil through the oil level plug hole up to the lower edge of the hole.
4. After refilling, confirm that the oil level is up to the lower edge of the oil level plug hole.
5. Install the oil level plug by tightening it to the specified torque (84 Nm).

POWER STEERING FLUID

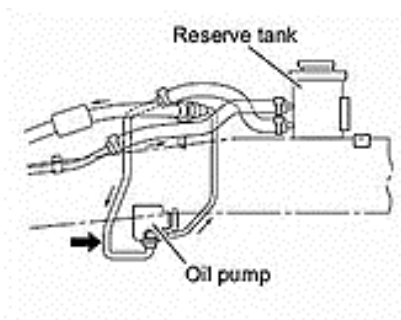
The power steering fluid level must be checked and it must be changed according to the Maintenance Schedule.

Checking the Power Steering Fluid Level

The fluid level is correct if it is between the "MAX" and "MIN" lines on the reserve tank. If the level is lower than the "MIN" line, add fluid up to the "MAX" line. The reserve tank is located at the engine compartment left of the engine. When you have finished checking the fluid level, securely install the cap and cover.

Changing the Power Steering Fluid

Draining



1. Apply the parking brake firmly and chock the rear wheels.
2. Firmly apply the head of the jack to the jacking point.
3. Raise the vehicle until the front wheels are completely clear of the ground.
4. Disconnect the oil pipe between the steering unit and reserve tank as well as the oil hose between the oil pump and reserve tank, and discharge the power steering fluid.

5. When the power steering fluid has been completely discharged, turn the steering wheel fully to the left and right several times to remove fluid left in the piping.

Refilling

1. Securely connect the oil pipe and oil hose, and then refill the reserve tank with the specified power steering fluid.
2. When the reservoir tank is filled with the fluid up to the specified level, wait for 2 to 3 minutes to allow the fluid level to lower.
3. Without running the engine, fully turn the steering wheel in both directions a few times.
4. Lower the vehicle and start the engine. While running the engine at idle, fully turn the steering wheel in both directions a few times. If you do not hear any abnormal sounds, the system has been properly bled.

Bleeding

If you hear any abnormal sounds when you turn the steering wheel, air has gotten trapped in the hydraulic system. Follow the steps below to bleed the system.

1. Apply the parking brake firmly and chock the rear wheels.
2. Apply the head of the jack to the jacking point firmly.
3. Raise the vehicle until the front wheels are completely clear of the ground.
4. Start the engine. Turn the steering wheel fully in both directions a few times.
5. Lower the vehicle. With the engine still running, fully turn the steering wheel in both directions a few times. If you do not hear any abnormal sounds, the system has been properly bled. If you still hear any abnormal sounds, this means there is air remaining in the power steering system. To remove the remaining air from the system, fully turn the steering wheel in both directions a few times to increase the fluid temperature. When the fluid temperature has risen to between 60 to 80 °C (140 to 176°F), stop the engine and wait for about 5 minutes (allowing air to be collected from high temperature fluid).
6. Check the level of the fluid in the reservoir and also check the joints for fluid leaks.
7. Test drive the vehicle on a road while checking that the steering wheel turns smoothly and the system produces no abnormal sounds when you turn the steering wheel.

FUEL FILTER

Change the fuel filter in accordance with the Maintenance Schedule.

Drain the water when the water separator (fuel filter) warning light comes on.

Water Separator (Fuel Filter) Warning Light

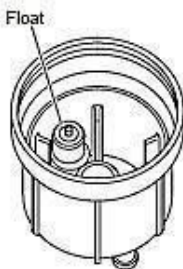
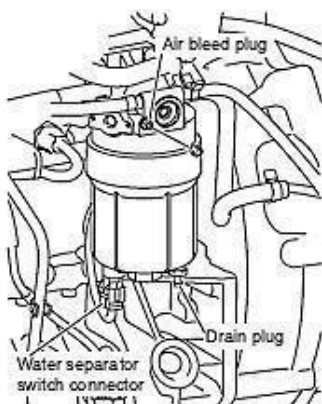


When a certain amount of water has collected in the water separator (the engine-side fuel filter), the water separator (fuel filter) warning light comes on. When this happens, drain the water and make sure that the warning light has gone out. (For vehicles with a pre-fuel filter, drain the water from the chassis-side and engine-side fuel filters and make sure that the warning light has gone out.)



- Water remaining that is not discharged from the water separator could freeze and damage the vehicle.
- If the warning light comes on while the engine is in operation, immediately drain the water from the water separator (fuel filter). Continuing to drive with the light remaining on could damage the fuel injection system. If this happens, have the vehicle checked and serviced by the nearest authorized service.

Changing the Fuel Filter



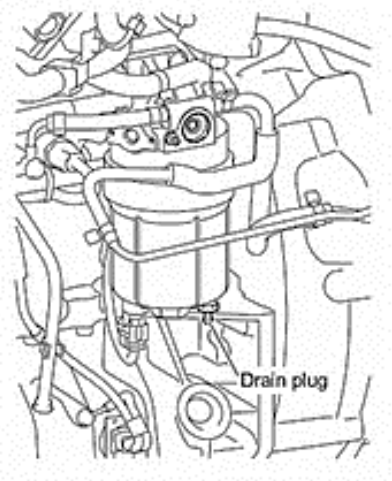
1. Loosen the drain plug at the bottom of the filter element case. Remove the rubber cap of the air bleed plug and then loosen the plug. This will allow the fuel in the filter element case to drain through the drain plug. Tighten the air bleed plug.
2. Disconnect the water separator switch connector.
3. Use a tool (like a 29 mm (1.14 in) socket wrench) to turn the hexagonal part at the bottom of the element case counterclockwise and remove the element case.
4. Pull out the filter element downward and remove the o-ring. Use a clean cloth to wipe off any foreign matter that has accumulated on the inside surface of the filter body.
5. Attach the new o-ring to the filter body, making sure that it is not damaged by the screw threads.
6. After lightly coating the inner and outer gaskets of the new filter element with diesel fuel, insert the element until it touches the filter body.
7. After lightly coating the inner surface of the element case or the o-ring, turn the element case clockwise until it touches the filter body. If the element case end fails to touch the filter body, the filter element has not been inserted fully. Reinsert the element while turning it.

8. Install the element case.
9. Tighten (30 - 36 Nm torque) the drain plug and connect the water separator switch connector.
10. Bleed air from the fuel system.

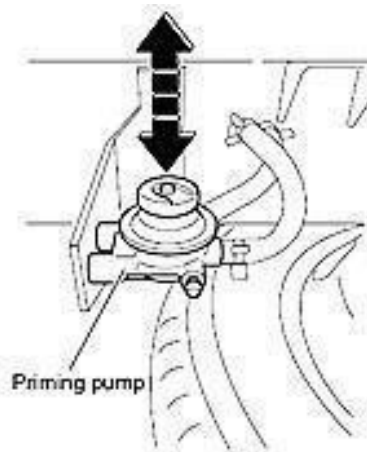


After changing the fuel filter, operate the engine to check that there are no leaks around the filter. Fuel leaks could cause a fire.

Draining Water from the Fuel Filter



1. Connect one end of a plastic hose to the drain plug at the bottom of the fuel filter and place the other end of the hose inside a container to receive the drained fluid.



2. Loosen the drain plug and move the priming pump up and down by hand between 10 and 20 times.
3. Fully tighten the drain plug and move the priming pump several times.
4. Test run the engine and check that there are no fuel leaks from the drain plugs of the fuel filter. Also check that the water separator (fuel filter) warning light stays off.



- Clean off any fuel that has adhered to the vehicle body.
- Starting the engine immediately after draining the water from the fuel filter requires a little more time than usual. If the engine doesn't start in 10 seconds, wait for a while and try again.
- Fuel will be mixed in the drained water. Dispose of it in a method conforming to the regulatory requirements in your country.
- If the water separator (fuel filter) requires frequent draining, have the fuel tank drained at your authorized service. It would be better not to use the water separator (fuel filter), since it may possibly exert a bad effect on the fuel system.

UREA SELECTIVE CATALYTIC REDUCTION (SCR)

The urea SCR system reduces nitrogen oxides (NOx) in exhaust emissions. The system uses diesel exhaust emission fluid (DEF) as a reducing agent and hydrolyzes it into ammonia (NH₃) using the heat from exhaust emissions. The nitrogen oxides (NOx) are then reduced to nitrogen and water and purified by the generated ammonia. Diesel exhaust emission fluid is a clear, colorless and harmless aqueous solution. It is normal for diesel exhaust emission fluid to emit an odor in some circumstances.

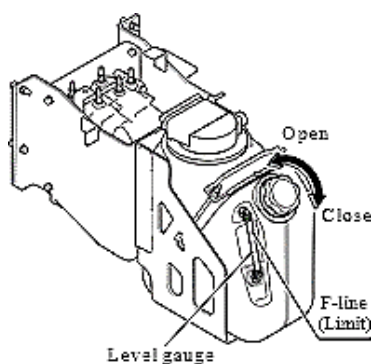
When storing ;

- Seal the diesel exhaust emission fluid container to prevent evaporation and store it indoors or in places that are well ventilated and not exposed to direct sunlight.
- When stored, the expiration date of diesel exhaust emission fluid varies depending on the temperature of the storage location. Contact your service for details.

When refilling ;

- Do not put anything other than diesel exhaust emission fluid in the diesel exhaust emission fluid tank.
- When refilling diesel exhaust emission fluid, doing any of the following may cause a fire or malfunction of the urea SCR system.
 - Diluting with water or other liquids
 - Adding gasoline or diesel fuel

How to add diesel exhaust emission fluid



1. Set the starter switch to the "LOCK" position and stop the engine.
2. Slightly loosen the cap of the DEF tank and wipe off any dust or dirt adhered to the cap or supply inlet.
3. Turn the tank cap slowly to open the tank.
4. Add DEF up to the "F" line while viewing the level gauge mounted in front of the DEF tank.
5. Turn the tank cap to securely install it to the DEF tank.

6. Confirm that the tank cap is securely installed.

DEF tank capacity : 16.5 liters

Because 3.6 liters of DEF will usually remain in the DEF tank, the effective capacity of the tank is 12.9 liters.

CONTROL OF BRAKE DISC and LININGS

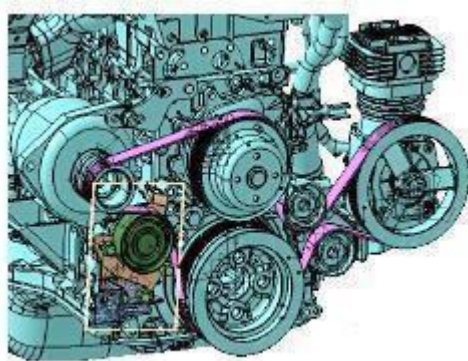


Lining wear indicator must be regularly controlled. When lining indicator value is 10%, contact authorized service to change it.

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.

FAN BELT



Press the center of the span between pulleys of the belt with a force of 98 N (10.0 kgf/22 lb) and check the amount of flection. The amount of flection must fall within the standard value range indicated below. Also check the fan belt for cracks. If there are cracks, replace the belt.

Generator	Standart value [Amount of flection]		Standart value [Vibration frequency]
120 A	Newbelt	5 - 7 mm.	200 - 220 Hz
120 A	Usedbelt	7 - 9 mm.	165 - 185 Hz

Adjustment

1. Loosen the tensioner's lock nut.
2. Adjust the belt tension with the adjusting bolt.
3. When the tension has been adjusted, securely fasten the tensioner's lock nut.

Changing the Belt

1. Loosen the tensioner's lock nut.
2. Loosen the adjusting bolt and remove the belt from the pulleys.
3. Take out the belt through the opening in the fan.
4. Insert the new belt through the opening in the fan, and install the belt while aligning its grooves with those in the pulleys.
5. Turn the adjusting bolt until the belt tension is within the standard value range.
6. When the tension has been adjusted, securely fasten the tensioner's lock nut.



- The V ribbed fan belt used in your engine requires the tension be adjusted more accurately than is required with conventional V belts. Inappropriate tension could cause the belt to make noise or break. When the fan belt is damaged, electricity is not properly generated or becomes a cause of engine overheating. You must check the tension of the fan belt carefully.
 - Use AOS genuine parts when changing the fan belt.

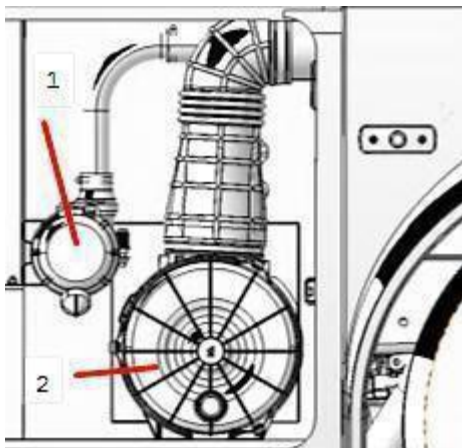
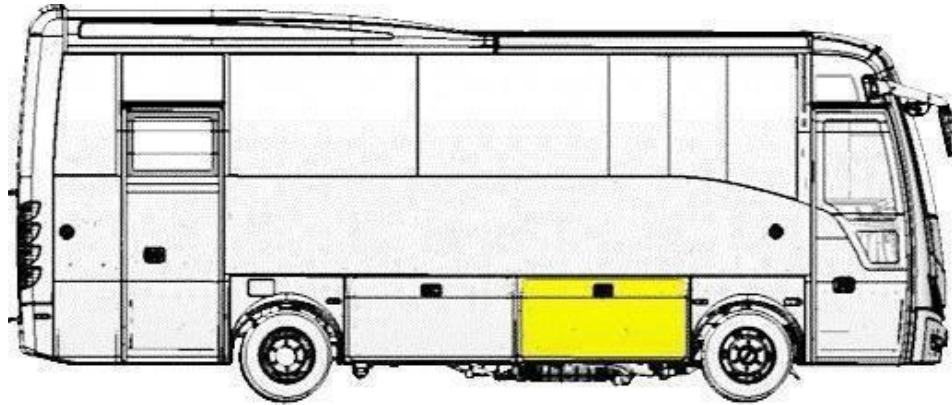
Follow this to properly adjust belt tension

Initial stretching takes place in any new belt after installation. For better seating of the belt in pulley grooves, make the following adjustments after installing either a new or used belt.

- Align the belt and pulley grooves and adjust the belt tension using the indicated method.
- Start the engine, and let it idle for at least 5 minutes to allow the belt to settle into the pulley grooves.
- Stop the engine, and once again adjust the belt tension to the specified value.

AIR CLEANER

Air cleaners are located on the right side of the vehicle, just behind of the front wheel. There are two filters in this area; while small one provides air to the compressor on the engine, bigger one is used on the layout of the engine intake.



- 1- Air compressor filter
- 2- Engine air intake filter

Use of clogged air cleaner element not only causes a deterioration in the engine output but also increased fuel consumption. The air cleaner element should be serviced in the following manner.

Change the air cleaner element in accordance with the Maintenance Schedule.

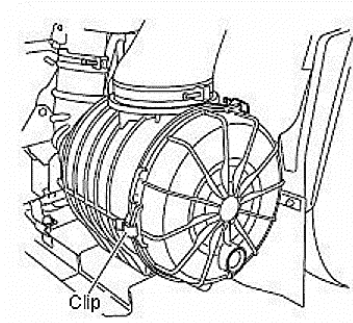
- Be sure to use an AOS genuine air cleaner element.

Checking the Air Cleaner

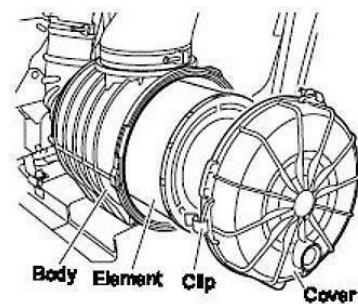


Remove the air cleaner element and check to see if it is blocked by dirt. If the air cleaner indicator light comes on, check the air cleaner element regardless of whether or not it is due for inspection.

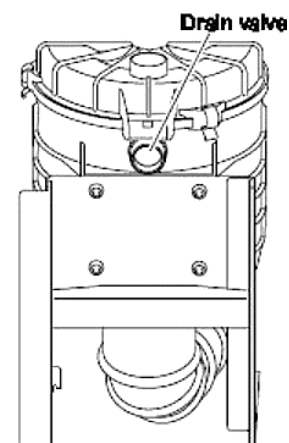
Changing the Air Cleaner Element



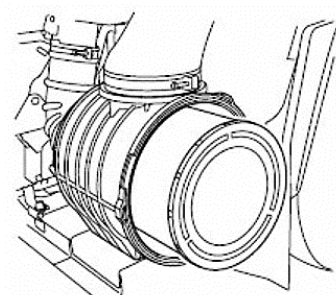
1. Unfasten the 3 clips and remove the air cleaner cover.



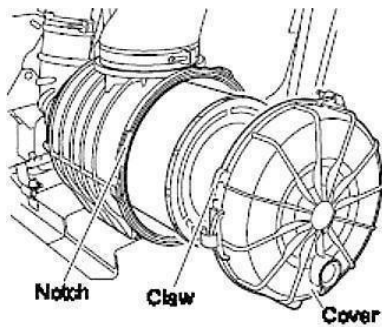
2. Remove the air cleaner element by pulling it out toward you.



3. Remove the dirt that has accumulated on the air cleaner cover and the air cleaner body.
4. Clean the drain valve at the bottom of the air cleaner.



5. Push the element back into position in the air cleaner body.



6. Install the air cleaner cover. Line up the notch on the left side of the body with the claw on the cover. Secure the cover in position by fastening the 3 clips.

Cleaning the Air Cleaner Element



Choose one of the following cleaning methods depending on how the element has become dirty.

1. When dry dust has adhered to the element;
 - a) Blow compressed air at a pressure of up to 690 kPa against the inside of the element while turning it to remove the dust.
 - b) Check to see if the element has been damaged or become thin in places.
 - Do not apply compressed air to the outer face of the element as it causes the dust to lodge in the inner face.
2. When the element has become blackened by oily smoke or soot;
 - a) Soak the element in a mixture of water and neutral detergent for about 30 minutes.
 - b) Remove the element from the detergent solution and rinse well using tap water.
 - c) After cleaning, allow the element to dry naturally in a well-ventilated place.
 - Do not hit or strike the element, as this might damage it.
 - Air drying will take 2 or 3 days. We recommend using a spare element.

AIR DRYER

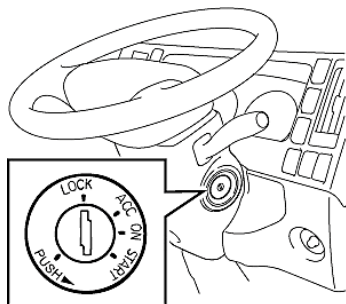


Air dryer is in front of the rear axle under the vehicle. Function of air dryer is to adjust the air system pressure and decrease the moisture and air in the air pressed from the compressor. Dryer has a heater that prevents freezing in cold weather, which is activated in low temperatures in particular and deactivated in high temperatures. Air dryer fills air into the system until the circuit cutting discharge at 8.3 bar. When filling is completed, dryer discharges the water and oil accumulated from the muffler in the bottom part with pressure, thus cleaning itself.

BATTERY HANDLING PRECAUTIONS

Keep the battery clean. If the battery is left in a dirty condition, contaminants can get mixed into the battery fluid, the battery plates can be damaged, short circuits can occur on the top surface of the battery and the battery's service life can be reduced.

When Performing Inspection or Maintenance



Before starting inspection and maintenance of the battery and other parts of the electrical system, set the starter switch to the "LOCK" position, turn all other switches "OFF" and disconnect the battery's negative cables from the terminals.

There is a danger that electrical components could be damaged if inspection or maintenance is carried out if the battery remains connected.

Removing the Battery

When the battery is to be removed, disconnect the battery cable from the negative terminal first. If the battery cable remains connected to the negative terminal, any contact made by tools and the like between the positive terminal and the vehicle body could lead to a short-circuit and dangerous electrical shocks. The electrical system can also be damaged.



When the battery is to be removed, turn the starter switch to the "LOCK" position, wait at least 3 minutes.

Charging the Battery

- Before charging the battery, remove it from the vehicle to a location with good ventilation and take off the battery caps. If, on the other hand, the battery is to be charged while still on the vehicle, be sure to first disconnect the battery cables.
- Whenever a charger is being connected to or disconnected from a battery, ensure that it is turned off.
- Battery cables must always be disconnected when performing quick charging. Failure to observe this precaution can result in generator burnout.

Installing the Battery

1. When installing the battery in your vehicle, ensure that it is oriented correctly and securely fastened without any looseness. If the battery is not installed correctly, the battery case and battery plates can be damaged as a result of vibrations during driving.
2. When connecting the battery cables, start with the positive terminal and then connect the negative terminal.

Using the Battery as a Direct Power Source

The battery should not be used as a direct source of 12 -Volt power.

If your battery must be used as a direct power source, please consult with your authorized service.

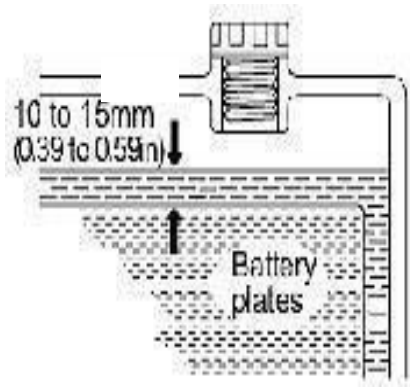
Checking the Battery Fluid Level

Daily Check

Remove the battery cover and confirm whether the level of fluid inside the battery case is within the specified range.

The surface of the battery fluid should be between the "UPPER LEVEL" and "LOW ER LEVEL" lines. If the surface of the fluid cannot easily be seen, rock the vehicle gently. If no level marks are indicated on the case, a range between 10 and 15 mm (0.39 to 1.59 inches) from the top of the battery plates is considered appropriate.

Filling Battery Fluid



If the quantity of battery fluid inside the battery is insufficient, remove the cover and cap, and then add distilled water until the surface is close to the "UPPER LEVEL" mark or in a range between 10 and 15 mm (0.39 to 0.59 inches) from the top of the battery plates. When you have finished adding the distilled water, securely install the cap and battery cover.



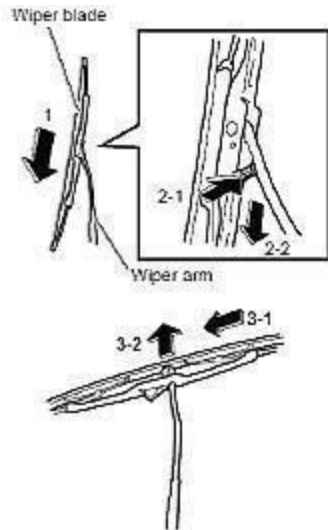
- Battery fluid should never be filled beyond the "UPPER LEVEL" line. Failure to observe this precaution can result in battery fluid spillage and corrosion of battery terminals and other components. Any spilled battery fluid should be immediately washed away with water.
- Whenever battery fluid has been added, the battery should be recharged (by driving the vehicle). In winter months in particular, battery fluid can freeze and damage the battery case if you fail to recharge the battery.
- If the battery fluid level continues to drop at an unusually fast rate, have an inspection carried out immediately by the nearest authorized service.

WINDSHIELD WIPERS CHANGE

Check the level of fluid in the windshield washer tank. In addition, spray windshield washer fluid and operate the windshield wipers to check for any areas not properly wiped. At this time, also check the windshield washer's spraying condition.

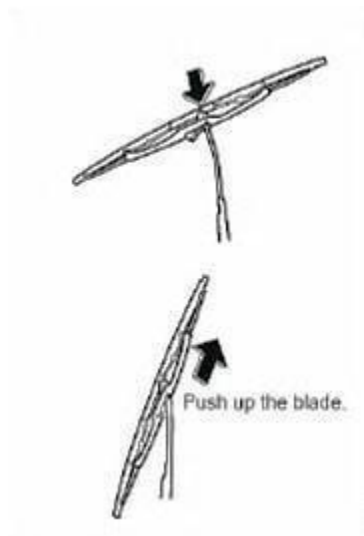
1. The windshield washer fluid tank is located under the instrument panel on the passenger side.
2. Open the cap and fill the tank with windshield washer fluid to the opening.

Removal



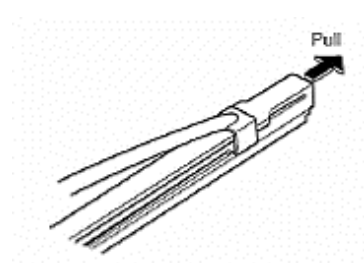
1. Pull the wiper arm up to the vertical position.
2. While pressing the wiper-blade hook towards the arm, slide the blade downwards (towards the base of the arm).
3. With the blade and arm almost perpendicular, remove the blade from the arm.

Installation



1. Insert the blade while holding it almost perpendicular to the arm. Push up the blade.
2. Then, with the blade and arm oriented in the same direction, push up the blade until it locks into place on the arm.

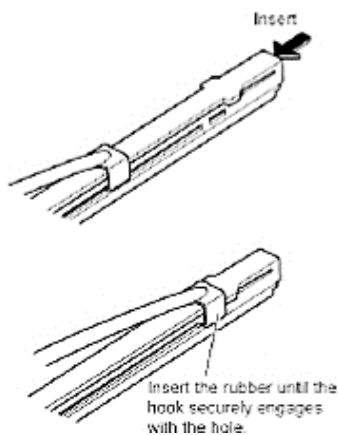
Replacement of Wiper Rubber Insert



Removal

1. Remove the wiper blade from the wiper arm.
2. Pull the wiper rubber insert in the direction indicated by the arrow and extract it from the wiper blade.

Installation



1. Insert a new wiper rubber insert into the wiper blade.
2. Continue pushing in the wiper rubber insert until the wiper blade's hook engages with the hole in it, and then confirm that the rubber insert is securely held in place.
3. Attach the wiper blade to the wiper arm.

WHEELS AND TYRES

The wheels have a major influence upon the safety and comfort of driving. If any wheel fall off the vehicle, it not only causes the vehicle to break down on the road and block other traffic, but it may also lead to a serious accident. We strongly recommend that you check the wheels and tyres daily and maintain them in satisfactory condition.

Checking Tyres

Air Pressure

Too low or too high a tyre air pressure not only affects the ride or causes damage to the cargo but also causes abnormal heat buildup, premature wear, a tyre puncture, or may even cause the tyre to burst.

Use an appropriate tyre air pressure gauge when measuring the air pressure of a tyre. Tyre air pressure should be measured when the tyre is cold, or before the vehicle is driven. (After driving, tyre air pressure increases by about 10%.)

As the tyre air pressure varies depending on the vehicle model and tyre size, refer to the air pressure label on the driver's door opening frame or the tyre air pressure tables on the following pages.

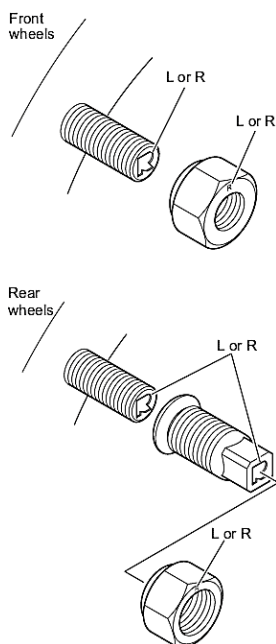
Also check the air pressure of the spare tyre using a tyre air pressure gauge at the intervals specified by the Maintenance Schedule.

Tyre size		Tyre air pressure (bar / psi)	
Front	Rear	Front	Rear
235/75R17,5	235/75R17,5	7,75 / 112	7,75 / 112



- If you drive on under-inflated or flat tyres, the wheel bolts will be placed under excessive stress. Under such conditions, the bolts may break and the wheel may detach from the vehicle, possibly causing an accident.
- Over-inflated tyres result in a harsh ride and are likely to cause damage to the cargo. Under-inflated tyres build up heat and could burst. Always keep the tyres of your vehicle adjusted at the standard air pressures.

Changing Tyres



Change a tyre on a level and solid surface after checking safety in the surrounding area. Every stud or nut for right-hand wheels is marked "R" or " ", and each stud or nut for left-hand wheels is marked "L" or " ".

Preparation

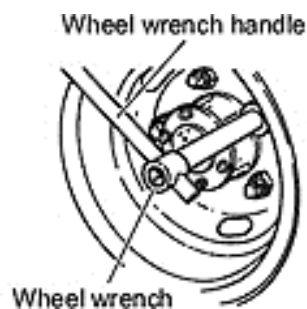
When you park the vehicle to change tyres, choose a place where ;

- Your vehicle does not hinder other traffic,
- The surface is level, flat and solid

When changing tyres on a road, use the hazard warning flasher and triangle reflectors to alert other traffic to the presence of your vehicle.

Fully pull the parking brake lever. Chock both the front and back sides of the wheel diagonally opposite to the one to be changed with chocks (or stones, wood blocks, etc.). (Example: When changing the right rear wheel, chock the left front wheel.) Have the passengers get out of the vehicle.

Removing a Wheel



1. Firmly apply the parking brake. When changing a front wheel, chock the rear wheel diagonally opposite to the front wheel. When changing a rear wheel, chock the front wheel diagonally opposite to the rear wheel.
2. Firmly apply the head of the jack to the jacking point.
3. Raise the vehicle enough so that the tyre not quite clear of the ground.
4. Using the wheel nut wrench, loosen the wheel nuts just enough so that the wheel remains stable in position. Do not remove the wheel nuts yet.
5. Jack up the vehicle so that the tyre is clear of the ground completely.
6. Remove all the wheel nuts that have been loosened, and then remove the wheel. Remove the wheel being careful to not damage the threads of the wheel studs.
7. When removing either of the dual rear wheels, first remove the wheel nuts from the outer wheel and remove that wheel. Then, lower the vehicle and loosen the inner wheel nuts.
8. Raise the vehicle again, and then remove the inner wheel.
9. Check the following parts: the disc wheel for deformation and damage such as cracks; the hub for excessive wear of the disc wheel fitting surface; and the wheel studs and nuts for damage to the threads. If anything abnormal is found in the above parts, check other parts as well, and replace any defective part with a new one.

Installing a Wheel

1. Check the disc wheel for the following:
 - Cracks or other damage around the stud holes and decorative holes

- Cracks or other damage or deformation on the wheel nut seating surfaces (tapered surfaces)
- Cracks or other damage on welds
- Wear or other damage on the hub fitting surface or wheel-to-wheel mating surface

2. Check the wheel studs and wheel nuts for the following:

- Cracks or other damage
- Stud elongation or excessive rust
- Crushed, thinned or seized threads



- Remove rust and dirt from a wheel stud and nut, lightly lubricate the threads with engine oil, gear oil or power steering fluid and turn the nut on the stud. If the nut does not turn smoothly, the threads are defective.
- If the threads are defective, replace both wheel stud and wheel nut as a set.
- If any wheel stud is broken, change all the wheel studs and wheel nuts on the wheel.

3. Remove rust, dust and mud from the fitting surface, hub fitting surface or wheel-to-wheel mating surfaces, and wheel nut seating surfaces (tapered surfaces) of the disc wheel, and from the threads of the wheel studs and nuts.
4. Install the wheel while aligning the stud holes in the disc wheel with the wheel studs. When installing the rear wheel, place the outer wheel so that its tyre air valve will be 180 degrees apart from that of the inner wheel to enable inflating both inner and outer tyres.
5. Screw in each wheel nut by hand until it touches the nut seating surface on the disc wheel, and then finger tighten all wheel nuts until the wheel is held in position without any looseness. Face the tapered end of wheel nuts inward.
6. Turn the bleeder screw of the jack counterclockwise to lower the vehicle slowly.
7. Tighten the wheel nuts in a diagonal sequence and in two or three passes. When installing a rear wheel, tighten the nuts of the inner wheel first and then the nuts of the outer wheel.
8. Finally, tighten all wheel nuts using a torque wrench to the specified torque. You must tighten the nuts of the rear inner wheel before tightening the nuts of the rear outer wheel even when you change only the rear outer wheel.

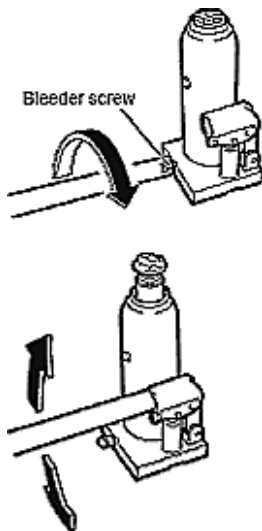
Front wheel nuts		Rear wheel nuts	
Tightening torque	Quantity	Tightening torque	Quantity
490 ± 49 Nm	6	490 ± 49 Nm	6

Operating the Jack

Raising the Vehicle

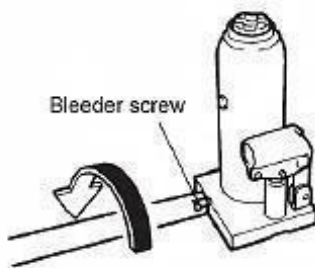


1. Place the jack immediately below the jacking point and ensure that it is upright. The jack must be placed on a flat, solid surface.



2. Turn the head of the jack to extend it to the height of the jacking point. Turn it counterclockwise to extend.
3. Insert the jack handle into the socket. Before jacking up, use the notched end of the jack handle to turn the bleeder screw fully clockwise.
4. Move the jack handle gently up and down to extend it slightly.
5. Confirm that the jack is in good contact with the jacking point, and then continue to raise the vehicle.

Lowering the Vehicle



1. Line up the jack handle end notch with the bleeder screw.
2. Slowly turn the bleeder screw counterclockwise to lower the vehicle.
3. When the vehicle has been fully lowered, turn the bleeder screw as far as it will go in the clockwise direction.
4. Turn the jack head fully clockwise.

MAINTENANCE SCHEDULE

DAILY MAINTENANCE

- Check bus accident and original parts situation.
- Check corrosion chassis and parts of body

WEEKLY MAINTENANCE

- Check washing the entire bus weekly, making sure to remove all road chemicals
- Check corrosion chassis and parts of body

CAUTION

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

To drive your vehicle safely and at minimum cost, it is essential to have your vehicle regularly inspected.

I: Inspect, clean, repair

A: Adjust

R: Replace

T: Tighten to the specified torque

L: Lubricate

Maintenance interval for the vehicle is prepared for 120.000 km. The maintenances after 120.000 km are the same with the maintenance intervals starting from 20.000 km and going on. In severe conditions (operations involving frequent starts and stops, driving in dusty areas, driving on rough roads, mountain roads), maintenance intervals have to be decreased in half.

MaintenanceInterval (x 1000 km)	20	40	60	80	100	120	Month or Km whichevercomes first
ENGINE							
Engine oil	R	R	R	R	R	R	or every 12 months
Engine oil filter	R	R	R	R	R	R	or every 12 months
Fuel filter	-	R	-	R	-	R	or every 12 months
Air cleaner element	I	R	I	R	I	R	or every 24 months
Air compressor filter	I	R	I	R	I	R	or every 12 months
Air dryer filter	I	R	I	R	I	R	or every 12 months
Idle speed and acceleration	I	I	I	I	I	I	or every 12 months
Valve clearance	-	A	-	A	-	A	or every 12 months
Functions of air compressor and air system valves	-	I	-	I	-	I	or every 15 months
Looseness in or damage to fuel tank cap and fuel line	-	I	-	I	-	I	or every 24 months
Drive belt tension and damage	I	I	I	I	I	I	or every 6 months
Engine coolant	I: Every 12 months ; R: Every 24 months						
Damage to or looseness in exhaust pipe, exhaust brake and their mounting	I	I	I	I	I	I	or every 12 months
Damage to air intake ducts	I	I	I	I	I	I	or every 12 months
CLUTCH							
Clutch fluid	I	R	I	R	I	R	or every 24 months
Smoother clutch oil	I	R	I	R	I	R	or every 24 months
Clutch, gas and brake pedal stroke and free play	I	I	I	I	I	I	or every 3 months
TRANSMISSION							
Transmission oil	R		R		R		or every 24 months
Gear control mechanism	I		I		I		or every 24 months
Gear control cable	A	A	A	A	A	A	or every 12 months
SHAFT							
Propeller shaft, universal joints	L	L	L	L	L	L	or every 6 months
Propeller shaft, sliding sleeves	L	L	L	L	L	L	or every 6 months
Propeller shaft center bearing	L	L	L	L	L	L	or every 6 months
REAR AXLE							
Differential gear oil	I	R	I	R	I	R	or every 24 months
FRONT AXLE							
King pin (model with rigid frontsuspension)	L	L	L	L	L	L	or every 6 months
STEERING							
Oil leaks from power steering system	I	I	I	I	I	I	or every 6 months
Power steering fluid	-	R	-	R	-	R	or every 24 months

Maintenance Interval (x 1000 km)	20	40	60	80	100	120	Month or Km whichever comes first
Power steering hose	-	R	-	R	-	R	or every 48 months
Looseness in rod end connection	I	I	I	I	I	I	or every 6 months
Looseness in or damage to steering mechanism	-	I	-	I	-	I	or every 24 months
Wheel alignment	-	I	-	I	-	I	or every 24 months
BRAKES							
Leaks from brake system air tanks, air valves, hoses, pipes	I	I	I	I	I	I	or every 12 months
Air tanks	I	I	I	I	I	I	or every 6 months
Disc brake pad and disc wear	I	I	I	I	I	I	or every 6 months
Looseness in or damage to brake hose connections	I	I	I	I	I	I	or every 6 months
Air leak of parking brake	I	I	I	I	I	I	or every 6 months
Function of brake chamber	I: Every 50.000 km						or every 12 months
SUSPENSION							
Leaf spring damage	I	I	I	I	I	I	or every 6 months
Looseness in or damage to suspension mounting	I	I	I	I	I	I	or every 6 months
Shock absorber oil leaks	I	I	I	I	I	I	or every 6 months
Shock absorber mounting looseness	I	I	I	I	I	I	or every 6 months
WHEELS							
Wheel nuts and wheel bolts	T	T	T	T	T	T	or every 12 months
Disc wheel damage	I	I	I	I	I	I	or every 12 months
Wheel hub bearing grease (rear axle only)	-	R	-	R	-	R	or every 24 months
Tire air pressure and damage	I	I	I	I	I	I	or every 6 months
ELECTRICITY							
Battery fluid specific gravity	I	I	I	I	I	I	or every 6 months
Inspection of lights, horn, windshield wiper and	I	I	I	I	I	I	or every 6 months
Battery and starter connections	I	I	I	I	I	I	or every 6 months
General control of fuse panel, electric cables and sockets	I	I	I	I	I	I	or every 6 months
OTHER							
Inspection of DPD filter pressure difference or DPD filter cleaning	-	-	-	-	I	-	or every 12 months
Sensor hoses of DPD pressure difference	-	R	-	R	-	R	or every 12 months
DEF filter	R: Every 200.000 km						or every 120 months
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						
Inspection of nuts and bolts on chassis and body	-	I	-	I	-	I	or every 6 months
Draining of condensation tank	I	I	I	I	I	I	or every maintenance

6. TECHNICAL INFORMATION

Dimensions (mm)	
Maximum length	7720
Maximum width	2320
Maximum height	3330
Wheelbase	3815
Front overhang	1673
Rear overhang	2232
Front track width	1904
Rear track width	1650
Inner height	1910
Masses (kg)	
Gross vehicle mass	max. 10400
Empty mass	6300 - 7500
Front axle capacity	4000
Rear axle capacity	6400
Engine	
Model	ISUZU 4HK1E6 (Euro VI)
Type	Commonrail Turbo Diesel Intercooler
Number of cylinders	4
Engine volume (cm ³)	5193
Maximum Power (PS/rpm)	190 / 2600
Maximum Torque (Nm/rpm (Kgm/rpm)	(510 /1600-2600) (52 /1600-2600)
Exhaust gas emission class	Euro VI
Clutch	Hydraulic actuated, diaphragm spring and single dry plate
Gearbox	
Model	ISUZU MZZ-6F (S) / NEES AMT (Option)
Number of gears, Type	6 forward, 1 rear , Manuel, overdrive
Final gear ratio	4,777
Steering system	Hydraulic

Tyres	235/75 R17,5
Minimum turning radius	7610
Gradeability % (at GVW)	38,70%
Suspensions	
Front	Parabolic alloyed steel leaf spring
Rear	Air suspension or Parabolic alloyed steel leaf spring(in vehicle with mechanical suspension and eco)
Brake system	
Front / Rear	Disc / Disc
Short description	Full air brake with EBS and ABS, dual circuit, automatic adjuster
Parking brake	Acted on rear axle air actuated
Auxiliary Brake	Vacuum assisted exhaust brake, parking brake acted on rear tyres and retarder
Fuel tank (lt)	190
Diesel Exhaust Fluid Tank (lt)	16
Luggage compartment	
Volume (m ³)	3,6
Volume (m ³) (in Turquoise eco vehicle)	3,07
Generator	24V - 120A
Nominal voltage	24V
Battery	24V (2X12V)-125 Ah
Starter motor	24V - 4,5kW

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

PRESSURE VALUES		
FourWay Protective Valve	Static Closing Pressure	≥ 5.5 bar
Air Dryer	Minimum Opening Pressure	7.1 bar
Air Dryer	Maximum Closing Pressure	9.1 bar
Tyres	Cold Inflation Pressure	8.25 bar / 120 psi

FLUID SPECIFICATIONS

DEFINITION	CAPACITY	VISCOSITY	OIL GRADE (API)	OIL GRADE (ACEA)
Engine oil	12,6 lt (with oil filter) 10,6 lt (without oil filter)	10W-30, 10W-40	CJ4	E9
Transmission oil	4,4 lt	5W-30, 5W-40	CH4, CI4	E4, E7
Differential oil	4,8 lt	80W-90	API GL5	
Suspension and greasing	0,3 kg		NLGI-2	
Shaft spiders	Molybdenum grease			
Clutch and brake fluid	DOT 4			
Power steering fluid	1,5 lt	ATF III		
Antifreeze (%50) + Water (%50)	37 lt	LLC		
DEF	16,5 lt	AdBlue®		

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	STP Krapina Presečki Grupa d.o.o.	Frana Galovića 15 49 000 Krapina	+385 (049)328-045
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	Sejari Ltd. Belgrade	Auto-put za Zagreb 15 11199 Novi Beograd	+381 112608 700
SLOVAKIA	Turancar	Bratislavská 29 94901 Nitra	+421 37 6555 777

OCTOBER 2019