

INTERLINER

USER MANUAL

ANADOLU ISUZU

Revision No: 05



It is a symbolic photograph of Interliner vehicle.

INTRODUCTION

This User Manual is prepared to give general information about the efficient and most economical use of Interliner CNG vehicle.

We strongly encourage you to review the User Manual so you will have a better understanding of your vehicle's capabilities and limitations. Please follow the instructions and read warning notices carefully in the User Manual. Disregarding them may lead damage to the vehicle or personal injury. Vehicle damage results from the disregard of the instructions or restrictions is not covered by Anadolu Isuzu.

All information in the User Manual is current at the time of printing. Anadolu Isuzu reserves to make changes at any time without notice as a result of continual product improvement.

Keep the User Manual in the vehicle at all times. If you sell or rent the vehicle, always pass the User Manual on to the new owner or new user.

For further information about the vehicle, apply the authorized dealers and authorized services that are listed in the User Manual.

This User Manual cannot be reprinted, translated or reproduced, in whole or in part in any form or format, without written permission of Anadolu Isuzu.

Thank you for choosing an Anadolu Isuzu vehicle.

Anadolu Isuzu Automotive Industry and Trade Inc.

Headquarters : Fatih Sultan Mehmet Mah. Balkan Cad. No : 58 Buyaka E Blok

Tepeüstü 34771 Ümraniye / İSTANBUL

Factory : Şekerpınar Mah. Otomotiv Cad. No : 2 41435 Çayırova / KOCAELİ

Telephone 0850 200 1900

E – mail : isuzu@isuzu.com.tr



It is a symbolic photograph of Interliner vehicle.

TABLE OF CONTENTS

VEHICLE INFORMATION	1
About Warranty	1
Vehicle Identification Number (VIN) and Engine Number	1
IMPORTANT INFORMATION	6
Before Driving	6
Driving	9
Stopping and Parking	14
Automatic Greasing System	16
Engine Room Fire Detection System	16
Engine Room Fire Extinguishing System	16
Vehicle Data Collection	16
EQUIPMENT AND ACCESSORIES	18
Opening and Closing Doors	18
Emergency Exits	19
Disabled Lift	20
Seats	36
Preheater	44
Air Condition Control Unit	47
Tachograph	53
Mobile Digital Video Recorder	55
Mirrors	60
Roller Blind	60
Camera System	60
Destination Indicator	60
Amplifier	61
Radio	61
Multimedia System	63
Engine Compartment Fire Detection And Automatic Fire Supression System	64
Fire Detection The Control Unit	66
Automatic Greasing System	71
Remote Control Mirror Switch	74
Lighter	74

CONTROLS AND INSTRUMENTS	76
Starting and Stopping the Engine	76
Instruments, Warning Lights and Indicator Lights	77
Switches	94
Driving Controls	103
TIPS ON SAFE DRIVING	112
Driving Safely	112
On The Road	112
Cautions for Driving In Hot Regions	117
Cautions for Driving In Cold Regions	118
SERVICE AND MAINTENANCE	121
Before Service and Maintenance	121
Daily Checks	123
Engine-Related Service and Maintenance	124
Chassis-Related Service and Maintenance	141
Other Service and Maintenance	155
Interior and Exterior Maintenance	160
Maintenance Data	164
IN CASE OF EMERGENCY	168
Troubleshooting	168
When the Vehicle Breaks Down During Driving	168
When the Tire Goes Flat	168
When the Engine Stops While Driving	168
When the Engine Stalls and Cannot Be Restarted	169
When the Brakes Do Not Work	169
When the Battery Goes Flat	169
When the Fuel Runs Out	170
When the Warning Light Comes On	170
When the Engine Overheats	173
When the Bulb Does Not Come On	173
When Your Vehicle Is Involved In an Accident	174
When Driving On Bad Roads	174
When Towing	175

MAIN DATA	176
Main Data and Specifications	176
Fluid Specifications	177
Pressure Values	178
SERVICE NETWORK	180

VEHICLE INFORMATION

ABOUT WARRANTY

In the unlikely event that a failure occurs as a result of manufacturing liability, the vehicle will be repaired free of charge within the scope described in the warranty, so please read the warranty and contact your local sales company.

Anadolu Isuzu cannot guarantee the failure or accident that occurred due to carelessness in handling or failure to perform maintenance described in the maintenance note.

Please refer to Service Network for the location of the sales company.

VEHICLE IDENTIFICATION NUMBER (VIN) AND ENGINE NUMBER

The VIN and engine number are necessary for registering your vehicle. They are also necessary when your vehicle undergoes official inspections. Provide your Isuzu Dealer with these numbers when you are having the vehicle repaired or are ordering replacement parts. The Dealer will be able to do the requested jobs more competently and quickly.

VEHICLE IDENTIFICATION NUMBER (VIN)

VIN Location

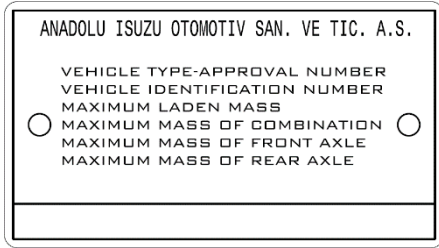
The VIN is stamped on under the right-side front seat.



ADVICE

- The location of the ID plate may differ depending on the market. For further details, ask your Isuzu Dealer.

ID Plate



The ID plate indicates type approval number, VIN, the sum of the maximum axle load, maximum front axle load and the maximum rear axle load. This single number contains multiple pieces of information including the vehicle and engine model codes as shown below. The identification plate is in the front door entry, under the right front seat.



It is a symbolic photograph of Interliner vehicle

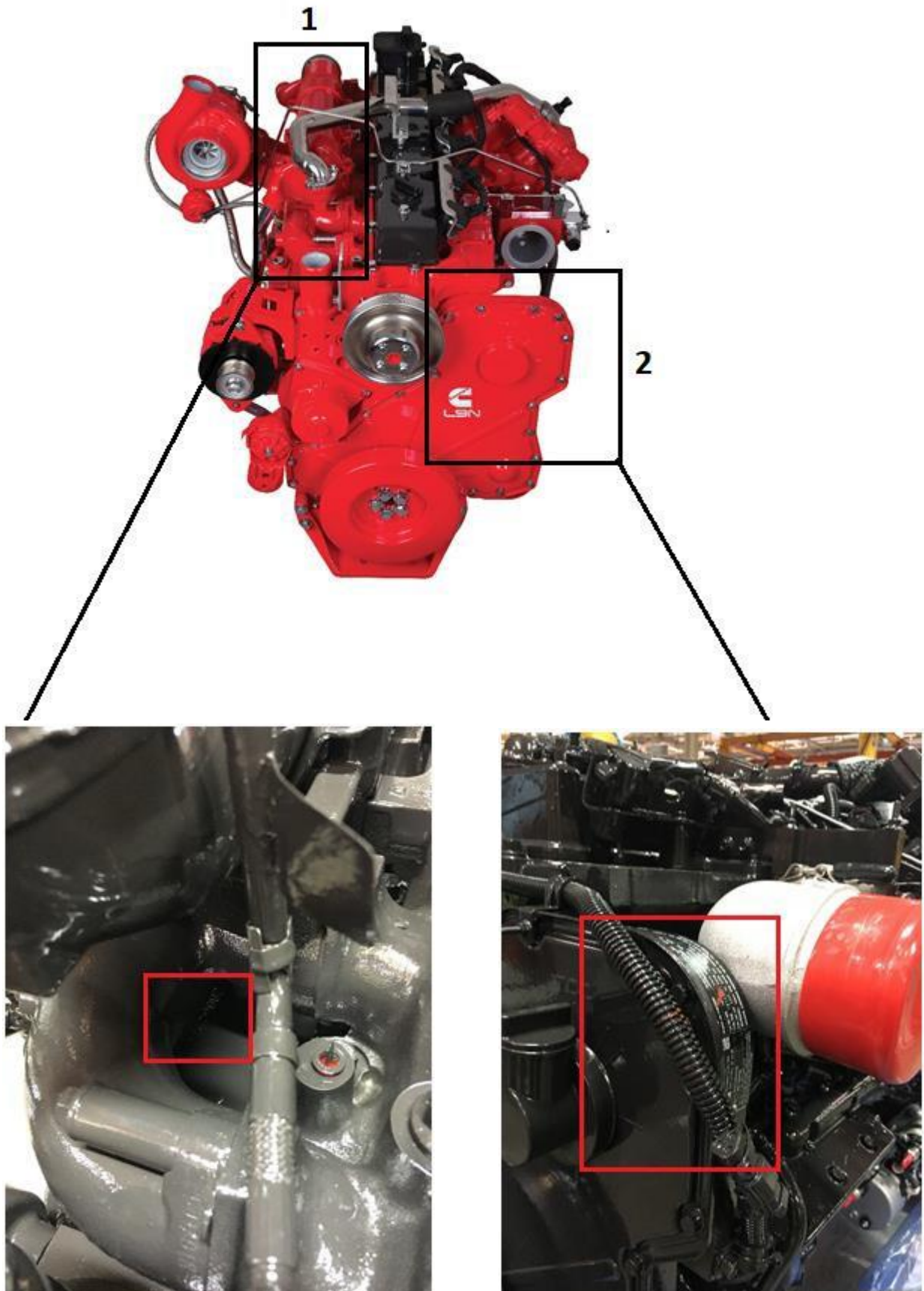
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
N	N	A	B	0	2	A	L	B	0	2	0	0	0	0	0	1
1 - 3	INTERNATIONAL WMI NO:					NNA:	(AIOS) ANADOLU ISUZU OTOMOTIV SANAYI VE TICARET ANONIM Sirketi									
4	MODEL LINE					B:	13M AND 12,3M BUS GROUP									
5	GVW OR CAPACITY RATING					3:	63 PASSENGER SEATS									
						2:	62 PASSENGER SEATS									
						1:	61 PASSENGER SEATS									
						S:	60 PASSENGER SEATS									
						9:	59 PASSENGER SEATS									
						8:	58 PASSENGER SEATS									
						7:	57 PASSENGER SEATS									
						6:	56 PASSENGER SEATS									
						5:	55 PASSENGER SEATS									
						4:	54 PASSENGER SEATS									
						0	INDEPENDENT FROM SEAT NUMBER									
6	MODEL EXTENSION					3:	CLASS 3 BUS									
						2	CLASS 2 BUS									
7	ENGINE MODEL					C:	CUMMINS L9E6D340B									
						A:	CUMMINS L9E6D370B									
						B:	CUMMINS L9NE6DII320									
8	DRIVING SYSTEM					L:	LEFT HAND DRIVE									
						R:	RIGHT HAND DRIVE									
9	WHEEL BASE					B:	6950 mm									
						C:	6265 mm									
10-11	MANUFACTURING PLANT					02:	AIOS GEBZE PLANT									
12-17	PRODUCTION SEQUENCE NO															

ADVICE

- Interpretation of the VIN may differ depending on the market. For further details, please ask your Isuzu Dealer.

ENGINE NUMBER

The engine number is stamped both on the engine identification label on the cylinder head cover and on the body of the oil cooler on the engine block.



IMPORTANT INFORMATION**BEFORE DRIVING**

Proper care and driving is important not only in extended service life of your vehicle, but also in improved fuel and oil economy. Drive carefully and defensively.

PERFORM DAILY INSPECTIONS

For safe and comfortable driving, keep record of the distances driven and the condition of the vehicle during operation. Perform inspections at appropriate intervals, and perform maintenance in accordance with the findings of the inspections. If an inspection reveals an abnormality or there was an abnormality the previous time the vehicle was driven, have the vehicle repaired by the nearest Isuzu Dealer before it is driven again.

Daily Inspections Check List:

1. Checking components that showed abnormalities during the previous operation
2. Belt looseness and damage
3. Engine oil level
4. Engine coolant level
5. Power steering fluid level
6. Fan hydraulic fluid level
7. Brake system air pressure level
8. Brake pedal free play
9. Exhaust sound from brake valve
10. Increase/decrease of air pressure level
11. Operation of meters, gauges and warning/indicator lights
12. Engine startability, abnormal noise and color of exhaust gases
13. Parking brake
14. Windshield washer fluid spray condition and windshield wiper effectiveness
15. Windshield washer fluid level
16. Steering wheel free play and mounting condition
17. Operation of horn and turn signal lights
18. Fuel level
19. Illumination, flashing or damaged lights
20. Battery fluid level
21. Condensation in air tank
22. Leakage of oil, engine coolant, fuel, brake fluid, power steering fluid, fan hydraulic fluid
23. Water collecting in the fuel filter
24. Air pressure
25. Cracks and other damage
26. Abnormal wear
27. Tread depth of tires
28. Disc wheel mounting condition
29. Brake effectiveness
30. Checking the engine at low speeds and acceleration

ECONOMICAL DRIVING

Driving too fast or driving so slowly that the engine knocks can lead to poor fuel economy.

In vehicles with exhaust brake, driving with the exhaust brake switched on all the time or using the exhaust brake frequently to adjust your speed can also lead to poor fuel economy.

Drive at a constant speed as much as possible. When accelerating, increase your speed gently and slowly, and up-shift early. Warming up the engine for longer than necessary and revving the engine are a waste of fuel. Driving with the vehicle overloaded is also a waste of fuel. Frequently check the tire pressures and make sure they are always correct.

DO NOT CARRY FUEL AND SPRAY CANS IN THE CAB



WARNING

- It is extremely dangerous to carry fuel and spray cans in the cab. If such a container were to ignite or rupture, it could cause a fire or explosion.

KEEP THE FLOOR AROUND THE DRIVER'S SEAT CLEAN AND TIDY



WARNING

- It is extremely dangerous to have empty cans, empty bottles or other items rolling around on the floor because they could get trapped under the brake pedal and prevent brake application. For proper pedal operation, it is also essential to lay floor mats properly. Incorrectly installed floor mats would hinder free movement of the pedals.
- Do not use the dashboard pocket or the top of the dashboard as a place to put items that could roll, which could interfere with your driving.

CHOOSE YOUR FOOTWEAR SUITABLE FOR DRIVING

CAUTION

- Choose footwear that ensures proper operation of pedals when driving the vehicle. Use of footwear unsuitable for driving may cause an accident.

CORRECT DRIVING POSTURE

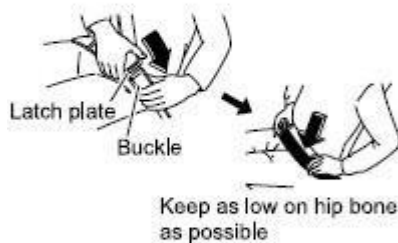
WARNING

- Before driving, be sure to adjust the seat, steering wheel and mirrors to positions that give you a correct driving posture. Make sure the seat is securely retained by trying to rock it forward and backward, and put on the seat belt. All other passengers must wear seat belts.



Seat Adjustment

Adjusting the seat for a correct driving posture is a fundamental part of safe driving.



Fastening Your Seat Belt

Be sure to wear your seat belt. Sit up straight with your lower back pressed against the seat and the lap belt as low on your hips as possible.



Seat adjustment recommendations

a	Make adjustments that allow you to easily turn the steering wheel with your elbows slightly bent.
b	Position the seatback so it is always touching your shoulders.
c	Make sure you can adequately press each pedal.

Seat belt fastening cautions

A	Position the lap belt as low on your hips as possible.
B	Position the shoulder belt so it is on your shoulder.
C	Make sure the seat belt is not twisted when you put it on.

DRIVING

Proper care and operation will not only extend the service life of your vehicle but also improve oil and fuel economy.

OPERATION OF NEW VEHICLE

The subsequent performance and the service life of your vehicle are under the direct influence of the care and treatment that your vehicle will receive during the initial break-in period. It is therefore always recommended that during the initial 1,000 km (600 miles) break-in period, the following few simple precautions are carefully observed.

1. It is recommended that the engine speed is restricted.
2. Avoid engine racing, abrupt starting and needless hard stops by popping the clutch.
3. Always let the engine idle until it becomes thoroughly warmed up.

CHECK AROUND THE VEHICLE BEFORE STARTING THE ENGINE

Before pulling away, perform a thorough safety check, making sure there are no children or obstructions around the vehicle.

WARNING

- Before starting the engine, make sure there is no flammable material under or around the vehicle. The presence of any such material could lead to a fire. If there is any wood within 50 cm (approximately 20 in) from the vehicle's heat source, it would represent a severe hazard as the wood could deform or discolor from the heat or it could catch fire.

BE CAREFUL ABOUT EXHAUST EMISSIONS

WARNING

- Exhaust emissions contain carbon monoxide, which is colorless, odorless and poisonous. If you inhale exhaust emissions, you may suffer carbon monoxide poisoning.
- Do not keep the engine running for any length of time in a place that is poorly ventilated. It is particularly dangerous to run the engine in a garage or other indoor place that could easily fill with exhaust gases because you could suffer carbon monoxide poisoning.
- Inspect the exhaust pipe from time to time. If you notice any defect (for example, a damaged joint, or a hole or crack caused by corrosion), have checks and maintenance performed by the nearest Isuzu Dealer. Continuing to use the vehicle without having the defect repaired would be dangerous because exhaust gases could get into the cab and cause carbon monoxide poisoning.
- If exhaust gases get into the cab, completely open all of the windows and place the inside/outside air selector of the heater or air conditioner to outside air. Promptly have checks and maintenance performed by the nearest Isuzu Dealer. Continuing to use the vehicle without having the defect repaired would be dangerous because exhaust gases could get into the cab and cause carbon monoxide poisoning.

STARTING THE ENGINE

CAUTION

[Manual transmission models or Smoother models without P-range]

- Make sure that the parking brake lever is securely pulled. On a manual transmission model, make sure the gearshift lever is in the "N" position and then hold the clutch pedal down fully before starting the engine. On Smoother models without P-range, hold the brake pedal down firmly and make sure the gearshift indicator is showing "N" before starting the engine.
- Be sure to sit in the driver's seat to start the engine. If you are not sitting in the driver's seat (if, for example, you reach through the window or through the door opening), you cannot confirm the "N" position. If you start the engine of a manual transmission model with the gearshift lever in a position other than "N", the vehicle could move.

[Smoother models with P-range]

- Make sure that the parking brake lever is securely pulled.
- Hold the brake pedal down, move the gearshift lever to the "P" position, and make sure that the gearshift indicator is showing "P" before starting the engine.

IF THE VEHICLE HAS NOT BEEN USED FOR A LONG PERIOD

ADVICE

- Before using a vehicle that has not been driven for a long period, check the engine, transmission and transfer case for oil leakage, and make sure the oil is at the required levels. If there is insufficient oil, it will not adequately reach and lubricate components, and a breakdown will result.
- Replace the AdBlue® for vehicles that have not been used for a year or more. Failure to do so may result a failure of the urea selective catalytic reduction (SCR) system.
- Start the engine and allow it to idle for at least 5 minutes. Check for abnormal noises.
- For instructions on warming up the engine, refer to "Starting the Engine".

RECOMMENDATIONS FOR WARMING UP THE ENGINE

The engine is sufficiently warmed up when the needle of the engine coolant temperature gauge starts to move.

ADVICE

- Do not rev the engine or quickly accelerate before the engine has sufficiently warmed up (in other words, when the engine is cold). Oil would not have adequately reached and lubricated components, so a breakdown would result.
- The exhaust pipe becomes extremely hot while the engine is idling. Before warming up the engine, make sure there is no flammable material (for example, grass, waste paper, oil or old tires) near the exhaust pipe.

DO NOT RUN THE ENGINE IN A GARAGE

WARNING

- Running the engine in a poorly ventilated place can lead to carbon monoxide poisoning. Start and warm up the engine only in places that have good ventilation.

DO NOT FORGET TO RELEASE THE PARKING BRAKE

CAUTION

- Pulling away with the parking brake still engaged can result in brake failure or a fire.

ADVICE

- The parking brake lever can be collapsed by pulling the latch (if equipped) when the parking brake is engaged.
- Pulling away with the parking brake still applied can damage the brake system.
- The red sticker under the latch (if equipped) on the parking brake lever should not be visible. Before pulling away, make sure the parking brake is not engaged by checking that the parking brake warning light is off.

NEVER STOP ENGINE WHILE DRIVING



WARNING

- Do not move the starter switch away from the "ON" position while the vehicle is being driven. If the engine stops while the vehicle is moving, the brakes would not work properly, and the steering wheel and clutch pedal would become extremely stiff and hard to operate. The engine could also be damaged.
- Stopping the engine while driving would be extremely dangerous because the power steering would stop working, making the steering wheel extremely hard to turn.
- Stopping the engine while driving would be extremely dangerous because the warning lights, indicator lights and other electrical circuitry would completely stop working.
- Placing the starter switch in the "LOCK" position while driving would be extremely dangerous because the key could come out, causing the steering wheel to lock so that you could not turn it.

DRIVING DOWN A LONG SLOPE

When driving down a long slope, use engine brake and the auxiliary brake together with the foot brakes. Using the auxiliary brake and low-gear engine brake reduces the work load on the foot brakes and yields greater braking force. Even so, use the foot brakes appropriately to prevent the engine over-revving.

In models with Smoother, select the manual mode and downshift to the lower gear to use the engine brake.

CAUTION

- Frequent use of the foot brakes can cause vapor lock and brake fade, resulting in reduced brake effectiveness. Even so, you should be very careful when using engine braking in a low gear because the engine is likely to over-rev.
- Do not adjust the exhaust brake valve.

NOTE

- Engine brake is the braking effect that occurs when you release the accelerator pedal while driving. The lower the gear, the stronger the engine brake.
- The exhaust brake is a system that closes the exhaust pipe and uses the force of the exhaust emissions to enhance the effectiveness of engine brake.
- If the brakes overheat due to frequent use, the heat can cause the brake fluid to boil so that air bubbles are created in the brake fluid. Pressing the brake pedal simply compresses the air bubbles; pressure is not transmitted to the wheel cylinders, so the brakes' effectiveness sharply deteriorates. This phenomenon is called vapor lock.
- Frequent use of the brakes can cause the brakes to overheat so that the frictional force of the brake linings decreases and the brakes become less effective than normal. This phenomenon is called brake fade.
- An engine overrun is an engine-speed increase that causes the tachometer needle to enter the red zone.

SIDEWINDS

ADVICE

- If the vehicle catches a sidewind and drifts sideways, firmly grip the steering wheel, decelerate to a speed that allows you to stay completely in control and make a directional correction. The vehicle may catch strong sidewinds in the following situations:
 - emerging from a tunnel; driving over a bridge, driving on an embankment
 - being overtaken by a large truck or bus
 - overtaking a large truck or bus

DEALING WITH A BLOWOUT OR FLAT TIRE WHILE DRIVING

WARNING

- If you feel any abnormality in a tire while driving, immediately stop in a safe place. If you continue to drive on a flat tire, undue force would be applied to the wheel bolts, possibly causing the bolts to break and the wheel to come off.

ADVICE

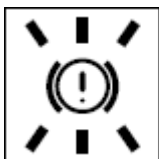
- If a blowout or flat tire occurs while you are driving, calmly grip the steering wheel and gradually apply the brakes to decelerate. (Hard braking would be dangerous because it could cause the steering wheel to be pulled to one side.) Stop the vehicle in a safe place, and change the tire.

IF THE UNDERSIDE OF THE VEHICLE RECEIVES A HARD BUMP

ADVICE

- If the underside of the vehicle receives a hard bump, stop in a safe place where the vehicle will not obstruct traffic and check for brake fluid leakage (hydraulic brake models), air leakage (full-air brake models), fuel leakage and component damage. If any part of the vehicle is damaged or broken, promptly have the vehicle inspected and repaired by the nearest Isuzu Dealer.

IF A WARNING LIGHT OR INDICATOR LIGHT COMES ON



ADVICE

- If a warning light comes on or flashes, do not ignore it and keep driving. Be sure to take corrective action referring to the explanation of the meters, warning lights and indicator lights.

STOPPING AND PARKING

PARKING

ADVICE

- Choose a flat place where stopping and parking are permitted and where the vehicle will not obstruct traffic. Firmly apply the parking brake and make sure the vehicle does not move.
- Remove all dirt from the vehicle's light lenses and reflectors to ensure that the vehicle can be seen from other vehicles.

APPLYING THE PARKING BRAKE

ADVICE

- Except in an emergency, do not apply the parking brake until the vehicle has come to a complete stop. Applying the parking brake before the vehicle has stopped can cause the tires to lock or the vehicle to spin, possibly causing an accident.

PARKING SAFELY ON A SLOPE

CAUTION

- Avoid parking your vehicle on a slope as much as possible and choose a level and flat place. If it is unavoidable to park your vehicle on a slope, be sure to set the parking brake fully, make sure that the vehicle does not move, and block the wheels with chocks for added safety. Also, leave the vehicle in gear to further ensure that it will not move.
- Leave the steering wheel turned such that the vehicle will be stopped by an obstruction (for example, the curb) in the unlikely event that it moves.

STOPPING AND PARKING WITH THE ENGINE RUNNING

WARNING

- When stopping and parking with the engine running: If your vehicle is equipped with a manual transmission, be sure to place the gearshift lever in the "N" position to select neutral. With a Smoother vehicle, make sure the shift indicator is showing "N" (Smoother models without P-range) or "P" (Smoother models with P-range). Then, firmly apply the parking brake. Unless you take these steps, any unintended pressure on the accelerator pedal could cause an accident.

CAUTION

- On diesel particulate diffuser (DPD) equipped models, the DPD may automatically start regeneration when the vehicle is stopped and parked with the engine running. To prevent a fire, make sure there is no flammable material near the muffler, DPD, urea selective catalytic reduction (SCR) system, and exhaust pipe. Be careful not to get burned by hot exhaust gases.



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

BE SURE TO HAVE THE ENGINE RUNNING WHEN THE VEHICLE IS MOVING

CAUTION

- When the engine is not running, the power steering system does not work so the steering wheel is hard to turn. Also, the brake booster does not work so there is little braking ability. If you coast down a slope without the engine running, you would not be able to properly control the vehicle and could have an accident.

LOOK AROUND BEFORE OPENING A DOOR

CAUTION

- Before opening a door, check the area around the vehicle by looking forward, rearward and to the sides. If you suddenly open a door without checking the surrounding area, the door could be hit by a vehicle behind you or a pedestrian.

LEAVING THE VEHICLE

WARNING

- When leaving the vehicle, be sure to apply the parking brake, stop the engine and lock the doors. Do not leave valuables where they can be seen from outside the vehicle.
- If you are traveling with a child, do not leave the child alone in the vehicle. If the child touches the controls or equipment, an accident could occur. (For example, the vehicle could move or a fire could start.) Also, the cab inside could become dangerously hot in hot weather.
- Do not leave eyeglasses or a lighter in the vehicle. If the cab inside becomes hot, a lighter left there could explode and plastic eyeglass lenses or frames could deform or crack.
- Do not leave your vehicle unattended with the engine running. If the engine should overheat, you would not be there to react to the temperature warning light or gauge. This could result in costly damage to your vehicle and its contents.

STARTING TO DRIVE WHEN THE VEHICLE HAS BEEN PARKED

Before pulling away, perform a thorough safety check, making sure there are no children or obstructions around the vehicle.

REVERSING

If you cannot see the area behind your vehicle well enough to confirm it is safe to back up, get out of the vehicle and check behind it.

PULLING AWAY AFTER A TEMPORARY STOP

CAUTION

- Make it a habit to look around and confirm that it is safe to pull away after a temporary stop (at traffic lights, for example).

AUTOMATIC GREASING SYSTEM



The automatic greasing system is for lubricating the front axle at certain periods.

If there is a malfunction in the system, the automatic greasing system warning light come on and warning buzzer will sound.

Detailed information about the automatic lubrication system is given in the EQUIPMENT AND ACCESSORIES section.

ENGINE ROOM FIRE DETECTION SYSTEM



If the engine room temperature increase more than normal operation of engine compartment temperature, fire detection warning light come on and warning buzzer will sound.

ENGINE ROOM FIRE EXTINGUISHING SYSTEM

The engine room fire extinguishing system is an automatic fire detection, alarm and extinguishing system.

Detailed information about the engine room fire extinguishing system is given in the EQUIPMENT AND ACCESSORIES section.

VEHICLE DATA COLLECTION

Your vehicle, like other modern motor vehicles, has a number of sophisticated computer systems that monitor and control several aspects of the vehicle's performance. Your vehicle uses on-board vehicle computers to monitor emission control components to optimize fuel economy, to monitor conditions for airbag deployment and, if so equipped, to provide anti-lock braking and to help the driver control the vehicle in difficult driving situations. Some information may be stored during regular operations to facilitate repair of detected malfunctions.

Isuzu may download and retrieve stored information for the purpose of diagnosing, servicing, or repairing your motor vehicle or improvement to future Isuzu motor vehicles.

EQUIPMENT AND ACCESSORIES

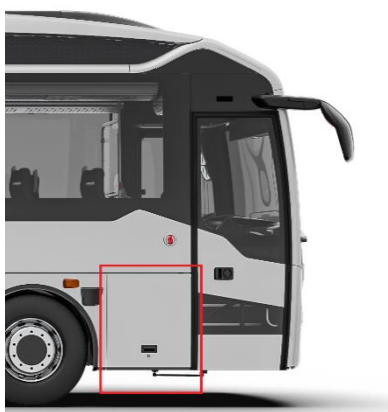
OPENING AND CLOSING DOORS

The front door of the vehicle is opened/closed from the outside with the remote control.

There are door open/close switches in front control panel in order the doors to be opened/closed from the inside.

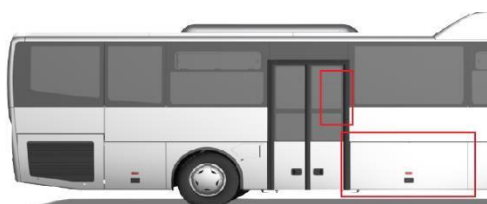
WARNING

- If vehicle speed is below 3 km/h, Doors will not open/close.
- If the stop brake is adjusted manually and the door is opened while moving; the doors close automatically when the vehicle reaches 3km/h.



- For working front door:

Baggage cap (front door area) must be closed.



- For rear door working front wing:

The seat (rear door area front wing) must be normal positioned

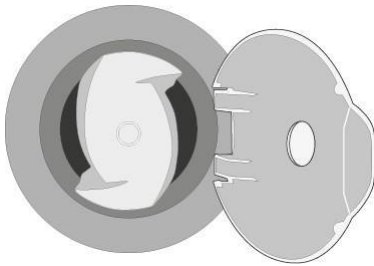
Baggage cap (rear door area front wing) must not be opened.

CAUTION

- Be sure to do the following whenever you leave the vehicle:
 1. Fully engage the parking brake.
 2. Stop the engine.
 3. Lock the doors.
- When you close the door after sitting behind the wheel, check that the door is fully closed. If the door is not properly closed, it may open while the vehicle is in motion.
- Before opening the door, carefully check all areas around the vehicle for safety, especially the area at the rear of the vehicle.
- Never leave the key in the vehicle.

OPENING DOORS IN AN EMERGENCY

Emergency Switch



The emergency switch is located above the doors.

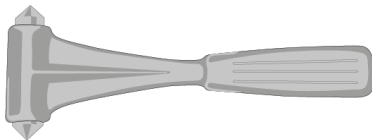
1. Open the emergency switch cover before operating the emergency switch.
2. Turn the emergency switch in the direction of the arrow from the drive position to the emergency position.
3. The door can be opened manually.

NOTE

- Exterior emergency switch next to the doors makes it possible for rescuers to gain access to the vehicle interior from the outside in the event of an emergency or an accident.

EMERGENCY EXITS

Emergency Hammer



In emergency cases, emergency exit may be ensured by breaking the windows at the with the help of emergency attractive.

DISABLED LIFT

WARNING

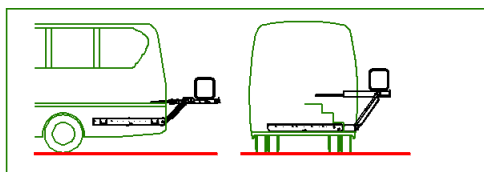
- When using the disabled lift, make sure to apply the parking brake and set the gear switch to "N" position. It is very dangerous if the car starts moving.

CAUTION

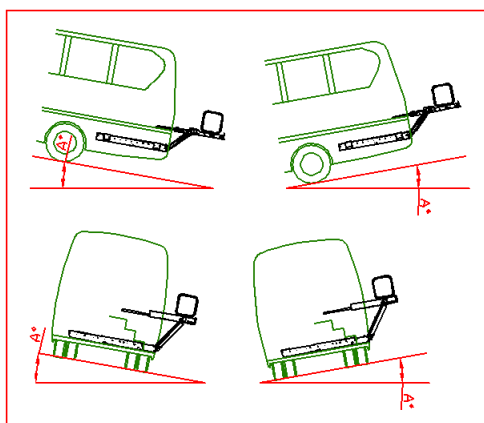


- The operator should use appropriate working clothes. Never wear loose-fitting clothes that may be trapped in the moving parts of the lift. Always wear safe footwear with steel protection tips and protective gloves.

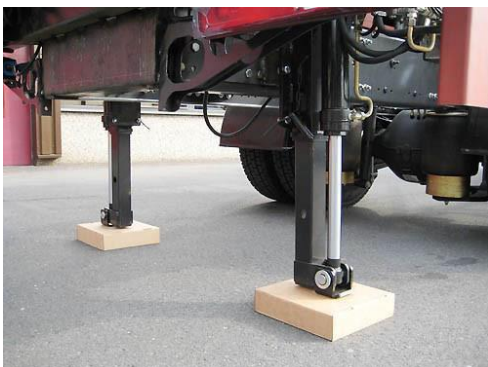
- Prior to opening the vehicle doors and releasing the mechanical platform lock of the lift, check if the lift can be used safely. Take precautions to guarantee your own safety, the safety of the platform occupants, and the safety of occasional bystanders and third parties in traffic.
- Clear the working area of any objects that could potentially impede the movements of the lift.
- Make sure the platform is visible from all approach directions (flashing lights, platform flags, traffic cones, etc...), and that the working area is sufficiently illuminated.



- The vehicle must be safely parked with the hand brake on, and the engine must be switched off. Only use the lift if the vehicle is parked on level ground. It is dangerous to use the lift when the vehicle is parked on a slope. Lock the vehicle doors, and fasten all other moving parts of the vehicle body.

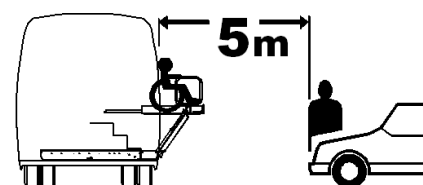


- Ensure that the vehicle cannot tip-over when putting heavy weights on the platform.

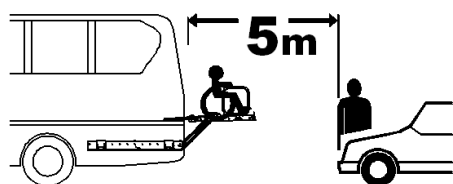


- If the vehicle or the lift are equipped with mechanical or hydraulic stabilising legs, deploy these before opening the platform. Ensure that the stabilising legs are positioned on solid even ground. In case of soft terrain (sand, gravel,...), solid support blocks must be used under the stabilising legs.

- The operator should overview and keep a clear visual control over the whole working area of the lift and its platform, and the wheelchair passenger on the platform at all times.
- The operation of the lift should be confined to a single operator. When opening / closing the lift, the operator should not permit anyone to stand near the moving platform.
- When lifting / lowering, the operator should not permit anybody, but himself and the wheelchair passenger, to be in the working zone of the lift and its platform. Ensure at all times that nobody stands under, behind or within reach of the moving platform.
- Careful supervision is necessary if used on behalf of, or near children.
- Inspect the lift prior to each use. If any unsafe condition exists or unusual noises or movements are noticed, DO NOT use the lift and contact an authorized ISUZU service agent for repair.
- Read and comply with all warning labels and symbols affixed to the lift.
- Respect the nominal capacity and the loading diagram of the lift.
- Never leave the lift behind in open position. Before leaving the vehicle behind unattended, stow the lift away, and close the doors of the vehicle.
- Don't move the vehicle with the lift in open position. Stow the lift away, and close the doors of the vehicle before moving position. Never move the vehicle while a person stands on the platform of the lift, or inside the vehicle body.
- To prevent injury by slipping, always wear professional safe footwear with a good non-slip sole. If the platform surface is slippery because covered with snow, mud and dirt, or slippery liquids, DO NOT use the lift and clean the platform first. Do not run on a tail lift platform.
- To prevent injury by tripping, pay attention to protruding items on the platform surface at all times (ex. Side barriers, roll-stop flap, etc...).
- The lift should not be used if the operator is intoxicated or impaired in any way.
- The tail lift should be used by means of original control units only.



- In traffic, always respect a safety distance of 5m to the following car, and ask other drivers to respect an equivalent distance when parking behind your tail lift.





- Hold arms, feet and clothing well clear of all moving parts of the lift. Beware at all times for potential risks of crushing or sheering fingers or hands, toes or feet between the moving parts of the lift arms, hydraulic cylinders and the moving platform. On the platform, the operator and wheelchair passenger should take hold of no other parts but the safety rails fore-seen for this purpose.
- Avoid the hazardous crushing zone between the raising platform and the rear frame of the vehicle floor. Ensure that the feet are not squeezed between the platform and the bumper, or any other protruding parts of the vehicle body.



- Do not allow anybody to stand on, or hinder the bridge plate at the front edge of the platform.
- Do not allow anybody to stand on, or hinder the automatic roll-stop at the rear end of the platform.

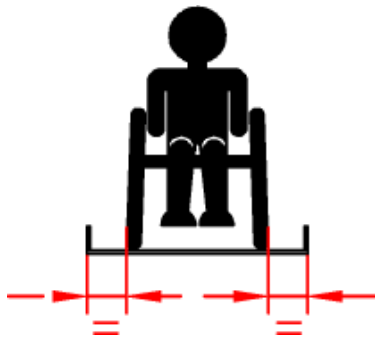
- The operator and the wheelchair passenger should not leave the platform before it has reached its final parking position, either at ground level, or at the loading floor of the vehicle. Third persons assigned to help the wheelchair passenger embark or disembark, should stay out reach of the platform until its has reached its final parking position, and has come to a complete stop.
- The roll-stop prevents the wheelchair from SLOW unexpected rolling off the platform during lifting and lowering.
- If possible, electric wheelchairs should be switched off to manual mode before accessing the platform, and be pushed manually onto the platform by the operator.
- It is recommended that wheelchair passengers are lifted / lowered facing outward, with the small front wheels of the wheelchair adjacent to the roll-stop at the rear edge of the platform.



- Standees should use the lift facing the direction of travel, toward the vehicle when embarking, or away from the vehicle when disembarking.



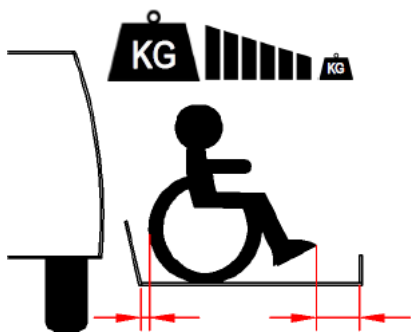
- Ensure the wheelchair fits safely on the platform, and doesn't extend over the edges of the platform, nor doesn't interfere with the automatic roll-stop at the rear, nor the bridge plate at the front of the platform.
- When exiting the vehicle, never back onto the platform. Always face outward, ensure the platform is safely in place at the load-ing floor of the vehicle, the side safety rails are locked into posi-tion, and the automatic roll-stop is up and locked into position.
- Use extreme care in wet or slippery conditions. Wheelchair brakes are less effective if the platform and / or wheels of the wheelchair are wet or dirty.



- Ensure the passengers take a central position between the lift arms.



- If available, the platform occupants should grip both side safety gates.



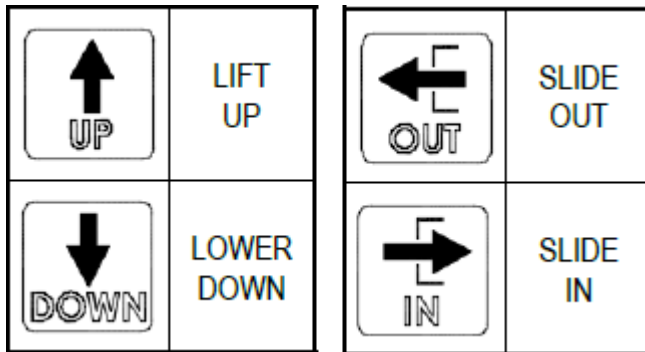
- Hydraulic lifts are not designed to LIFT / LOWER weights corresponding to their nominal capacity over the full surface of the platform. The nominal capacity is valid at a centre of gravity of 500 mm behind the vehicle body. Behind that point, the maximum safe working load diminishes.

- When LIFTING, the lift is normally protected against overload by the pressure relieve valve in the hydraulic circuit. Most of the overload, and consequential damage, happens when LOWERING loads.

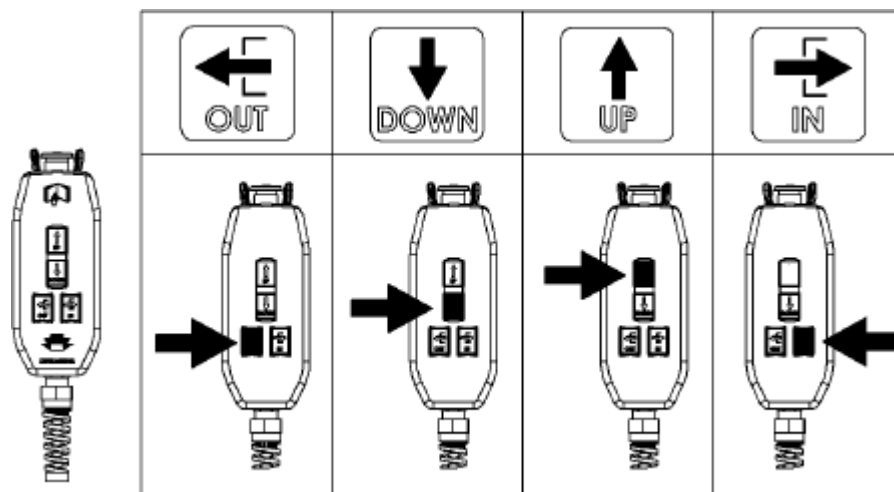
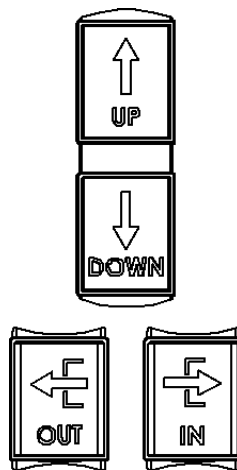
USING THE DISABLED LIFT

Introduction To The Control Units

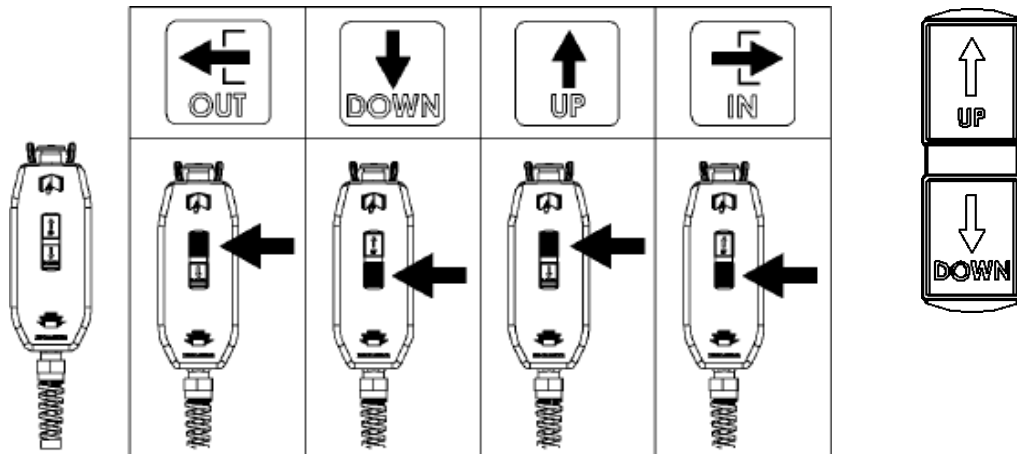
- Following symbols are used to refer to the various lift functions:



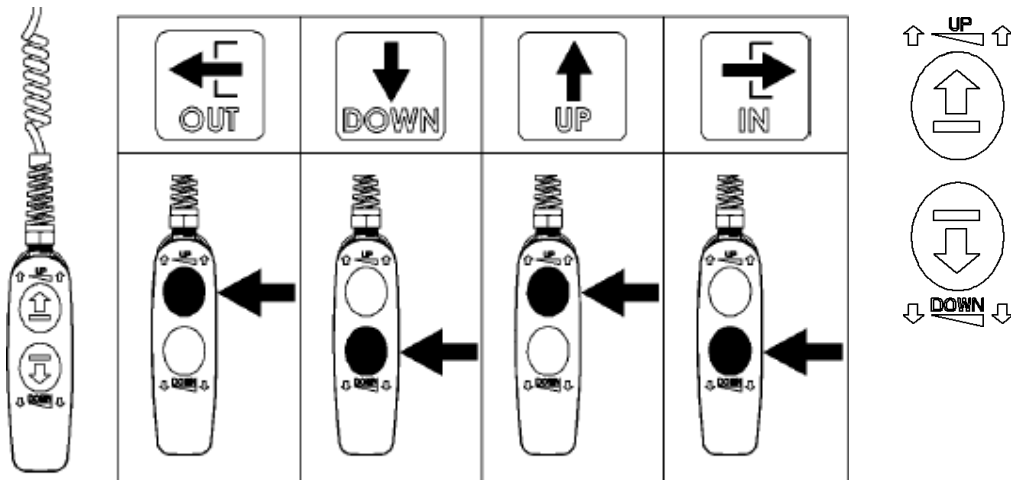
- The DH-CH100... series can be operated by a 4-button or a 2-button wander lead. This choice must be confirmed upon installation, by means of a dip-switch in the electric box.
- The 4-button wander lead has an individual button for each of the 4 functions SLIDE OUT / LIFT / LOWER / SLIDE IN.



- The 2-button wander lead uses the UP button to SLIDE OUT and LIFT; and the DOWN button to LOWER and SLIDE IN.



- The changeover from SLIDE OUT to LIFT, and from LOWER to SLIDE IN is controlled by a switch system mounted on the lift arms.



CAUTION

- The lifts should be used by means of the original control unit only.

Operating Instructions

Opening The Platform:



- Consult the user's manual before getting started.
Follow all safety instructions.

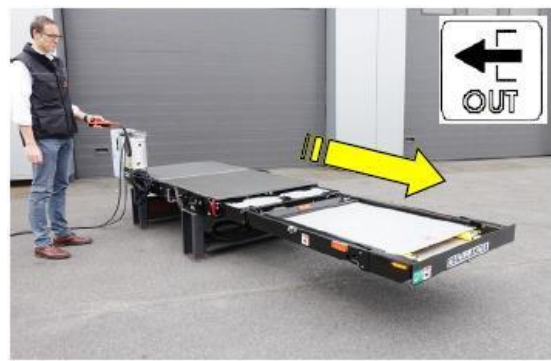


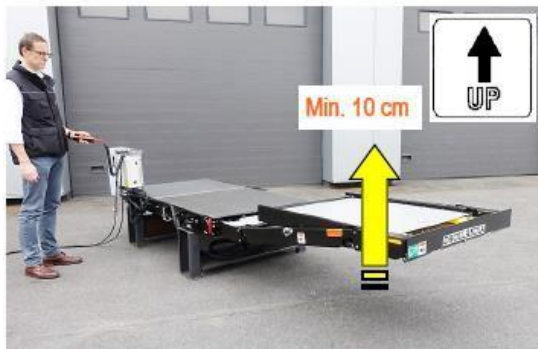
- Switch on the electrical power to the lift.



- Ensure the emergency button is disengaged.

- Press the button SLIDE OUT to slide the platform out of the cassette, until it hits the end stops at the work position.





- Press the button UP to lift the platform min. 10 cm.



- Open the bridge plate at the inboard platform edge.

- Raise the side safety rails, and lock them in vertical position.



Loading & Unloading:



- Press the button DOWN to lower the platform to the ground.



- Press the button UP to lift the platform off the ground to the vehicle floor.

NOTE

- When going DOWN, the bridge plate will automatically raise upon departure of the platform off the loading floor. When going UP, the bridge plate will automatically drop down upon arrival of the platform at the loading floor.



- When going DOWN, the roll-stop will automatically drop down upon arrival of the platform at the ground. When going UP, the roll-stop will automatically raise upon departure of the platform off the ground.



- Make sure the surface of the floor is level and flat, to guarantee the correct operation of the automatic roll-stop flap at the outboard platform edge.

Closing Up In Travel Position:



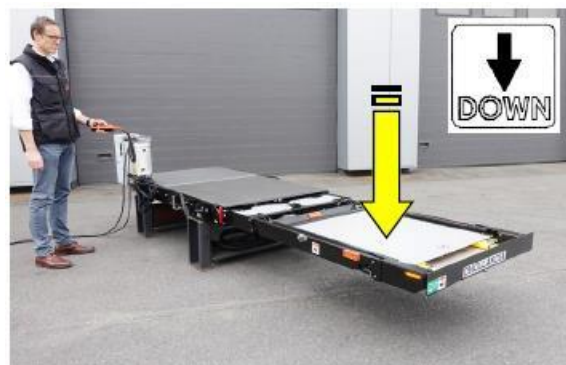
- Press the button UP to lift the platform min. 10 cm above the level of the cassette. Don't slide the platform in below this level!



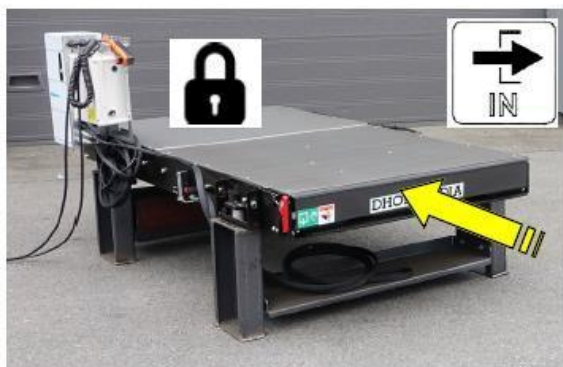
- Fold the side safety rails back onto the platform surface.



- Fold the bridge plate back on top of the safety rails.



- Press the button DOWN to lower the platform until it stops automatically at the level of the cassette.



- Press the button SLIDE IN to stow the platform in its travel position inside the cassette. SLIDE IN fully until the lift frame is locked by the automatic cassette lock.



- Switch-off the electric power to the lift.

Emergency Operation

- In case of electrical failure (battery deficiency, damaged fuse, damaged electrical controls,...), the various functions of the wheelchair lift can be operated manually as explained below.

WARNING

- Prior to manipulating the manual emergency controls of the lift, the operator should take full consideration of the safety instructions for use, for repair and maintenance, and the additional precautions outlined below.
- In case of doubt, DO NOT CONTINUE, but contact the ISUZU service for further help and instructions.
- Negligence can put the technical personnel, the operator and third parties at great risk, and could result in severe personal injury or death.

WARNING



- To avoid unexpected movements, electric power to lift must be switched off before starting emergency operation.

- Always stand clear of the platform area.
- Keep hands and feet clear of pinch points and moving parts.
- To proceed, refer to the work sequences above, and replace each electric function by its manual emergency back-up system.

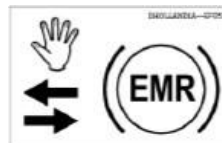
Emergency Operation To SLIDE OUT

Manual Operation OUT:

- At rest, the movement of the platform is blocked by the electric motor inside the cassette; and by the emergency release handle at the mouth of the cassette.



- Locate the EMR switch on the electric box. Turn the switch to put the motor idle mode.



EMR = Emergency Motor Release



- Locate the emergency release handle at the mouth of the cassette. Pull the red handle to disengage the automatic cassette lock.

- PULL the platform OUT by hand, until it reaches its works position.



- When finished, turn the EMR switch back in its original position, to put the motor back in auto-block mode.

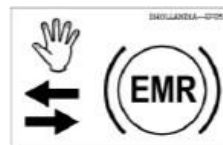
Emergency operation to SLIDE IN

Manual operation IN:

- At rest, the movement of the platform is blocked by the electric motor inside the cassette.



- Locate the EMR switch on the electric box. Turn the switch to put the motor idle mode.



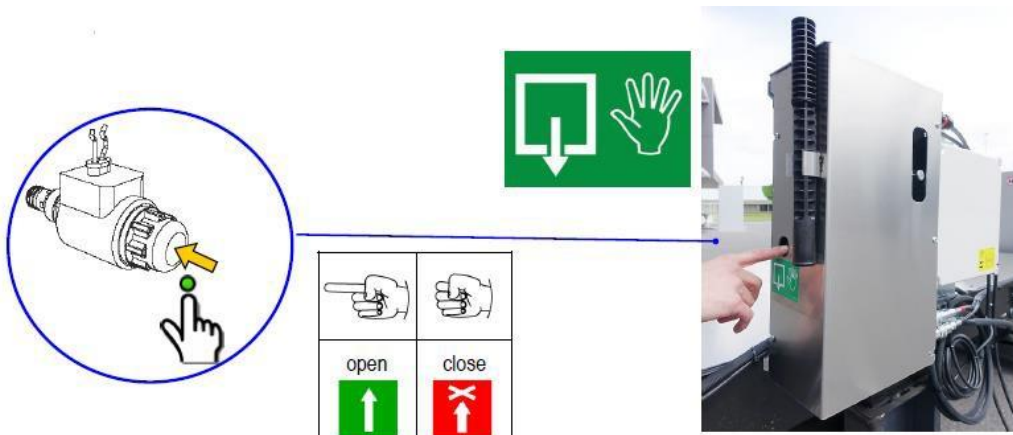
EMR = Emergency Motor Release

- Emergency release handle is not needed.
- PUSH the platform IN by hand, until it reaches its travel position, and the automatic cassette lock at the opposite end locks the lift frame firmly.
- When finished, turn the EMR switch back in its original position, to put the motor back in auto-block mode.

Emergency Operation To LOWER The Platform

Manual Operation DOWN:

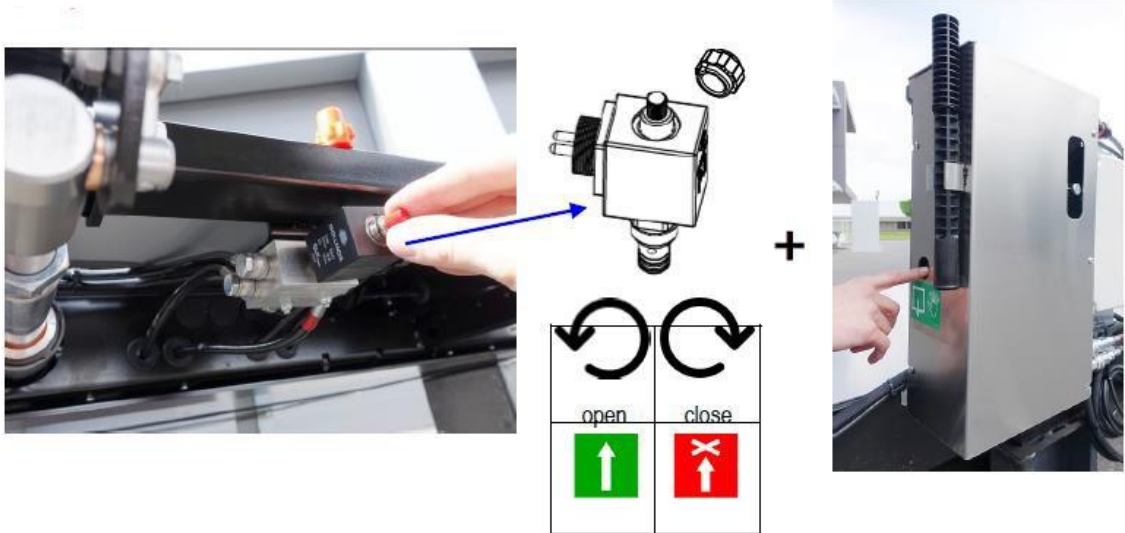
- Locate the electrovalve on the power pack. This valve has an emergency button, concealed under the elastic skin of the nut. Push-in the elastic skin, and the emergency button under it to LOWER the platform. The platform stops as soon as the button is released.



Emergency Operation To Lower The Roll-Stop At The Outboard Platform Edge

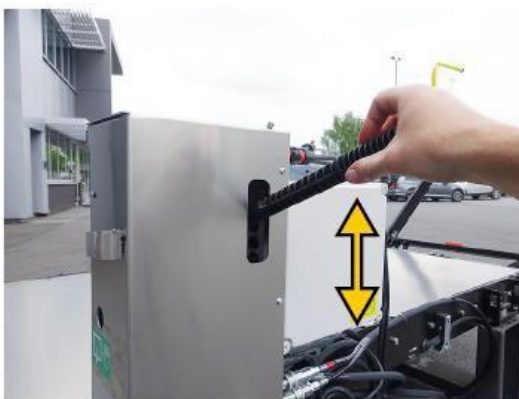
Manual Operation ROLL-STOP DOWN:

- Locate the electrovalve on lift frame. Under the nut sits a button that can be turned clockwise / counter clockwise. Remove the nut, and turn the button counter-clockwise to open the valve.
- Then go to the electrovalve in the power pack. Push-in the elastic skin, and the emergency button under it to LOWER the roll-stop of the platform. The roll-stop stops as soon as the button in the power pack is released.



Emergency Operation To LIFT The Platform

Manual Operation LIFT:



- Locate the handle for the hand pump on the cover of the power pack. Fit it over the lever arm of the hand pump. Pump the lever up and down to LIFT the platform. The platform stops as soon as the pump action is ended.

- In order to put any of the emergency systems out of service again, proceed in opposite order

Electric Emergency Stop, Dead-Man Switch



- The control unit is equipped with an external or integrated emergency switch, enabling to switch off the electric power to the control unit and cause an immediate stop of all electrically actuated movements.



- Push the emergency button to cut-off the electric power.
- Turn the emergency button to restore electric power.

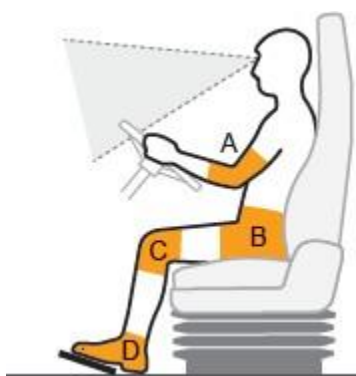
SEATS

DRIVER'S SEAT

NOTE

- The location of the seat functions may vary depending on the vehicle.

Ergonomic Position



Before you start driving, the seat must be adjusted to an optimal position for your body and the correct seating posture must be taken, particularly when switching vehicles.

Attention to detail is imperative to adjust the seat to an optimal position for your body. An incorrectly set seat or a wrong seating posture may have a negative impact on the ergonomics, driver's body, and operating capacity the vehicle.

An improper adjusted seat may affect the ability to operate of the vehicle properly in a safe manner. Proper settings prevent accidents which may cause serious or fatal injuries.

A	Angle of elbow joints	95° - 135°
B	Angle of hip joint	100° - 115°
C	Angle of knee joint	110° - 120°
D	Angle of feet joint	90°

WARNING

- Adjust the seat only before you start driving. Adjusting the seat while the vehicle is in motion must be avoided not only because the unlocked seat will move back and forth unstably, preventing you from taking the correct position, but might also cause you to lose control of the vehicle, possibly resulting in an accident.
- Try to move the seat without unlatching it after making adjustments to check that it is completely locked. A loosely locked seat may move unexpectedly and your position might then become unstable; this could lead to an accident. Take the vehicle to your Isuzu Dealer for service if you find that your seat adjusters do not latch.
- Driving with the seat excessively reclined could be very dangerous in a collision or sudden stop. Raise the seatback, and wear the seat belt correctly while sitting well back and straight up in the seat.
- Do not place a cushion or similar object between your back and the seatback. Doing so not only affects the stability of your driving position but also prevents the seat belt from working effectively in the event of a collision.
- Do not place any objects under the seat. If there are any objects under the seat, the seat could be locked in an improper position.
- Before making adjustments, check that the seat rails are free of anything that could obstruct the locking of the seat. Be careful that your hand or foot does not become trapped in the seat or rails when adjusting the seat.

Horizontal Slides



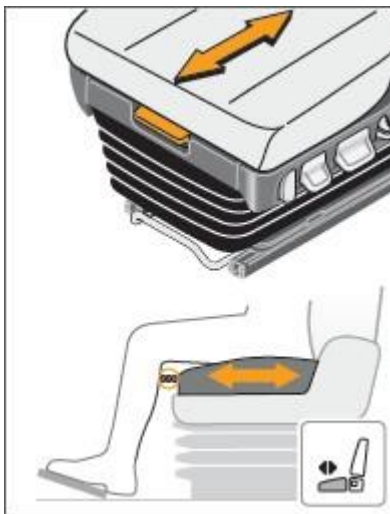
This enables the drivers to perform their job in a comfortable position. It provides a better view and easier access to the dashboard.

Pull the lever completely and move seat forwards/backwards. Once you have found your desired position, release the lever to lock the seat in place.

CAUTION

- Make sure that you adjust the horizontal slides to a position, where you can reach and press the pedals to the stop without effort. Do not put your feet on the slide handle.

Seat Cushion Adjustment



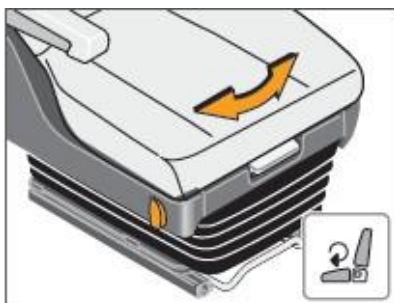
Enables the drivers to adapt the length of the cushion to the length of their thighs for optimal support.

It helps to keep the feet and lower legs from “falling asleep” and provides a safer and more fatigue-proof posture.

Pull the lever and move the seat cushion forward/backward. Adjust the cushion so that 3 fingers fit in between the cushion's front edge and behind the operator's knee.

Release the lever to lock the seat cushion.

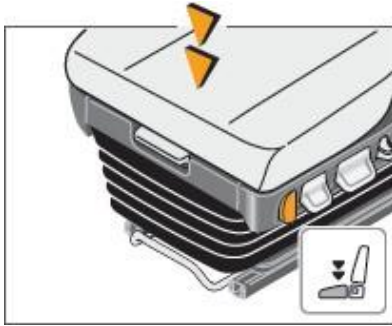
Swivel Adjustment



Serves as an help when entering and leaving the vehicle and preserves the seat cushions's edge. Furthermore it enables the driver to take a frontal direction also during jobs on the side like collecting.

Press switch and swing the seat. The seat can only be locked facing the engine. Turn the seat slowly to the locking position, to avoid a damage of the blocking catch and the stop.

Seat Lowering



Enables the drivers to enter and to leave the vehicle much easier. Protects the seat cushion's side edge by reducing load and friction.

Press button down:

Seat moves downwards to the lowest position for easy exit and easy entry.

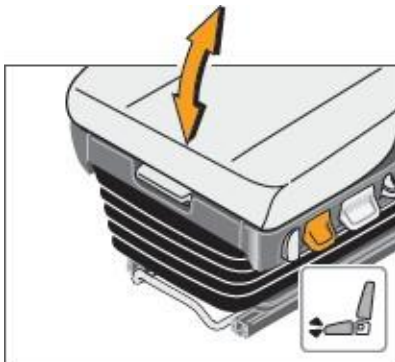
Press button up (when seat is lowered):

Seat returns by memory function to the previously set position.

CAUTION

- Such a completely lowered seat is not allowed for driving because there is no air suspension available in that position.
- Before driving, the seat must be removed to the previously set position by pushing the button up.
- This lever is not a height adjustment (see below).

Tilt Adjustment



Enables the driver to reduce the load on the underside of the thighs and the back, respectively the intervertebral disc. The load depends on the inclination of seat and backrest.

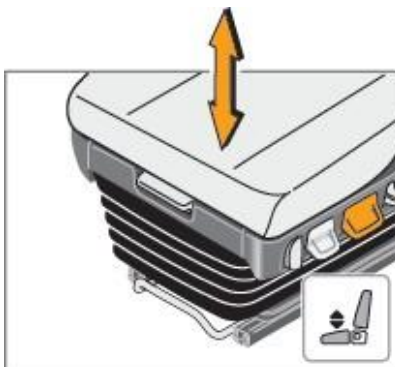
Pull lever and adjust the tilt by loading/unloading the front seat cushion area.

After this the backrest shall be readjusted to an upright position.

CAUTION

- Make sure that you adjust the seat inclination to a position, where you can reach and press the pedals to the stop without effort.
- The Backrest must not touch the cabin wall after adjustment.

Height Adjustment



It supports the driver to reach the pedals comfortably and to pass through all the way without force.

Pull lever and adjust the desired height.

The higher the seat is lifted, the harder he will be suspended. The hardness can be readjusted by control "damper adjustment"

CAUTION

- Don't adjust the height so low that on rough roads the seat can knock through. Adjust the seat height in such a way, that the occupant on each road condition has enough head clearance to the ceiling of the cabin.
- Pedals must be actuated without stretching the legs completely.

Damper Adjustment

Protects the spine of the driver, as the damper absorbs the vertical shocks and vibrations.

By adjusting the damper, the suspension characteristics of the seat can be optimally adapted to every roadway and every driver.

Lever up:	Soft suspension	- Minimum damper force for flat roads.
Lever down:	Hard suspension	- Maximum damper force for rough roads.

CAUTION

- Damper adjustment must be adapted in case of changing road conditions.
- The damper shall be adjusted stiff enough, so that in rough road conditions the driver's feet never lose contact with the pedals.
- Don't adjust the damper so soft that on rough roads the seat can knock through. Take care for a sufficient distance to the cabin's ceiling.
- In general heavy drivers don't have to use a soft adjusted damper.

Lower Lumbar Support

Promotes an upright posture and prevents fatigue by tuning the backrest contour. This modifiable shape of the lower backrest adjusts the position of the driver's pelvis by turning the pelvis forward and upright.

Relaxation of muscles
Load relief in the spine
Increase in comfort

Press upper area of the button for blowing the air-chamber respectively the lower area for exhausting for turning the pelvis forward and upright.

This turns your spine into its ideal double S-shape.

The lumbar support prevents driving in a slouched or hunched position and prevents driving in a hollow-back position

Upper Lumbar Support



Promotes an upright posture and prevents fatigue by tuning the backrest contour. This modifiable shape of the lower backrest compensates driver's hollow back.

Relaxation of muscles
Load relief in the spine
Increase in comfort

Press upper area of the button for blowing the air-chamber respectively the lower area for exhausting to match the shape of the lower backrest contour in order to support fully the driver's back.

The lumbar support prevents driving in a slouched, hunched or in a hollowback position.

Please note that your whole back must touch the backrest from the buttocks to the shoulders. Therefore the lower lumbar support shall be adjusted firstly.

It is recommended to change the sitting position from time to time.

Side Bolster Support



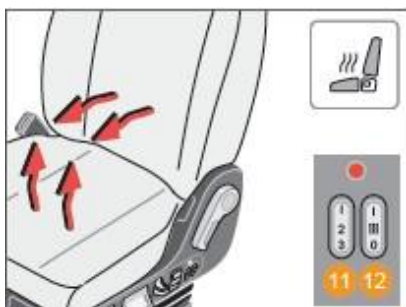
Promotes an upright posture and prevents fatigue by tuning the backrest's side contour. It prevents the back from sliding continuously across the backrest from side to side.

Relaxation of muscles
Load relief in the spine
Increase in comfort

Press upper area of the button for blowing the air-chamber respectively the lower area for exhausting to adjust the bolsters of the backrest optimally to the driver's back width.

The side bolster support prevents driving in a slouched position. It is recommended to change the sitting position from time to time.

Heating



Avoids temperature-induced tension and fatigue by adjusting the temperature to your personal preference (in a close body region/microclimate area).

The heating for seat cushion and backrest is thermostatically regulated.

Push button **12** and switch heater on (I) respectively off (0).

Up: Heater switched on (red light).

Down: Heater switched off.

Press switch **11** to adjust heater in 3 steps from low to high.

CAUTION

- Misuse of the seat heating system can lead to overheating or damage to the seat. Misuse includes a wrong connection or using the seat for purposes it was not designed for, such as drying of wet clothes.
- Do not place anything - like for example jackets, blankets, pillows or bags. (on the seat or over the backrest)
- Protective covers are also not allowed to be used.
- It is not permitted to have the heater switched on, while the seat is unoccupied.
- Also for the passenger seat it is the driver's responsibility to make carefully sure, that the heater is switched off when not occupied.

Backrest Adjustment

The backrest adjustment is needed to enable the driver an upright posture for having a good view to the traffic.

Press your back slightly against the backrest. Pull handle completely over the full adjustment stroke and adjust the backrest to the desired inclination by moving your back for- or rearwards.

CAUTION

- The distance from the back of the head to the backrest should be kept as low as possible by a steeply adjusted backrest.
- Don't drive with a too much backwards folded backrest - this also applies to the passenger - in order to avoid the risk of sliding out of the belt during a full brake situation.
- Adjust the backrest to an inclination where the steering wheel can be reached with angled arms.
- Adjust the backrest only when sitting, otherwise the backrest moves forward quickly.
- Don't fold the backrest completely down to the seat cushion with force, in order to preserve the backrest's side bolsters.
- Don't sit or place anything on a backrest while folded down.
- A folded down backrests shall not be used as a method of ascent while entering the vehicle.
- After backrest adjustment readjust shoulder adaption and belt high adjustment.
- The Backrest must not touch the cabin wall after adjustment.

Shoulder Adjustment



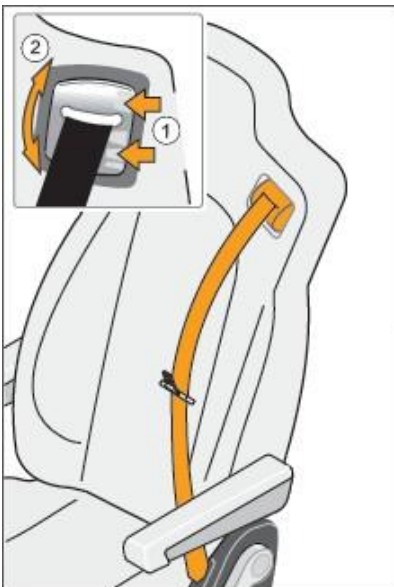
The shoulder adjustment enables a full flat contact with the backrest by inclination adjustment of the upper Backrest area. This adjustment allows an individually adaption of the seat to the length of the upper body.

Push switch and adjust the upper backrest area in the desired position.

CAUTION

- The distance from the back of the head to the backrest should be kept as low as possible.
- The adjustment of the shoulder adaption must be matched to backrest inclination and belt height adjustment.

3-Point-Belt / Belt Height Adjustment



The belt height adjustment enables the adaption of the belt outlet to the body height of the driver. The Belt height adjustment must be matched to the inclination of the shoulder adaption.

Press roller on the outside (1) and swing the belt to the desired height (2) (7 steps possible). After releasing the roller, locking mechanism must engage hearable.

For adjusting the correct belt height, turn belt retainer in a way that the belt strap is running over the middle of the shoulder.

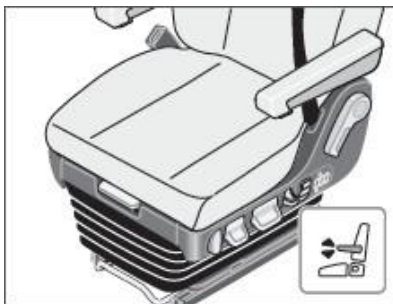
CAUTION

- Take the buckle latch and pull the belt strap over your shoulder, upper body and pelvis. Push the buckle latch, hearable engaging, into the buckle. If you want to release the belt, push the red button at the buckle, take the buckle latch and lead the belt back to the rolled - up position.
- Make sure to use your seat belt always correctly for the whole duration of your drive. If you

don't fasten your safety belt or if you don't fasten it correctly, the risk of severe injuries increases. Correctly fastened seat belts may abate the severity of injuries in case of accidents, hurling or hard braking. Never belt in more than one person per seat belt. Do not fasten anything else on the passenger seat than the person sitting there on or an accredited and suitable child seat.

- Don't twist the seat belt when fastening. Make sure that the belt tongue engages correctly and audibly in the belt buckle. The belt must stay close to the body. When unfasten, guide the belt tongue back to the belt exit in the backrest because an uncontrolled uprolling belt can evoke damages by the belt tongue or the belt doesn't roll up centrally, so that the edges of the belt webbing scrub.
- The leading of the belt strap is all important for an optimal protective effect of safety belts. Don't lead the belt strap in a way that it runs over breakable objects like mobiles or glasses because this can cause injuries or damages to the objects. Don't clamp the belt strap.
- Don't ever lead the belt anywhere else than over your shoulder and over your pelvis area.
- The belt must run over the middle of the shoulder, never along the neck and must lay tightly on the upper body.
- The belt must cross the pelvis area, tightly in front of the pelvis, never across the stomach.
- Voluminous and loose clothing decreases a correct running of the belt and by that an optimal function.
- Never change the belt's path by mounting belt strap clamps, belt stop knobs or the like.

Armrests



Optimal adjustment of the armrests to relieve muscles in the spine and back.

Enables relaxation of muscles in shoulder and neck area.
Reduces the load on the spinal disc in the lower spine area.
Adjust the armrest to a position where the elbows lay lightly on it.

Lift up armrest a little and adjust inclination stepless by turning the wheel at the underneath.

CAUTION

- The armrest shall not be used as a method of ascent while entering the vehicle.

PASSENGER SEAT

Passenger seats can be adjusted similar to driver seat. The maximum number of wheelchairs, seated and standing passenger capacity of the vehicle is marked on the inside in the vicinity of the front service door.

CAUTION

- Baggage must not be placed on the center seat. If the baggage falls on the floor when the vehicle is braked, it may lead to an accident

PREHEATER

The preheater can be used for preheating the engine at low temperatures in winter before starting.

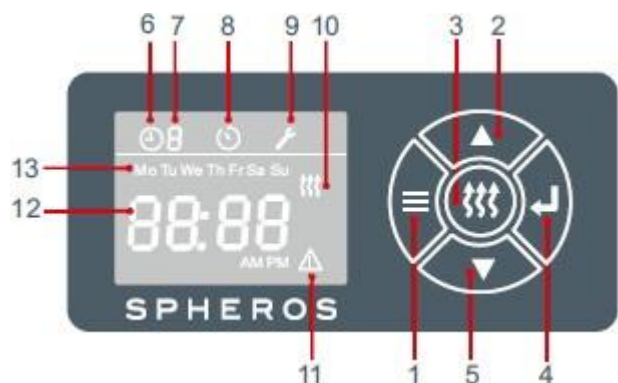
The preselection timer enables you to preset the start of the heater operation up to 7 days in advance. It is possible to program 7 different starting times, only one of which can be activated.

The activation of the preset time is only possible for the same and the following day. Activation for Sunday and Monday is already on Friday, activation for Monday is possible on Saturday.





With switched on ignition, the display shows the current time and day of the week.





No.	Name
1	Menu button
2	Selection button UP
3	Instant heating button
4	Confirmation button
5	Selection button DOWN
6	Preselection time
7	Active preselection time
8	Operation duration
9	Settings
10	Heater is on
11	Error message
12	Time
13	Weekday






Operation

To access a menu using the  button, the heating function must be disabled. Any selection and setting of values is made using the selection buttons  and , and confirmed by the  button.


If 10 seconds no action, the preselection timer returns to the standard display.

If the buttons  and  are pressed longer than 0.5 seconds, the fast scroll is activated.

Menu selection

Get the menu bar (6 - 9) by pressing the  button. Use the buttons  and  to select the menu  / "Active preselection time" (7) /  or  and confirm by pressing the button. 

NOTE

- Using the button  allows to return from all menus to the standard display (unsaved settings will be lost).

Switch the preselection timer on








switch on ignition,

- if ignition is off - press button  (instant heating), or
- automatically if preselection time is activated


Switch the preselection timer off

- switch off ignition (the preselection timer goes into the sleep mode)
- the timer turns off after the expiry of remaining time or the programmed operation duration.





Setting time/day of the week

Select menü . Use the buttons  and  to select the 12h or 24h mode - confirm by pressing . Use the buttons  and  to select the day of the week, the hours and the minutes. Confirm each respectively using. 




NOTE

- In the 12h mode, after setting of the minutes, further AM or PM by the selection buttons
- confirm using. 

Programming operation duration








Select menü  the operation duration flashes. Using  and  adjust the operation duration - confirm with. 

Setting the remaining operation time

The remaining operating time refers to the time the heater is still in operation after the ignition is turned off. On the display appears the preselected time, which can be changed using the buttons  and . Confirm changes with. 

If within 10 seconds no confirmation of the remaining operation time has been done, the heater is switched off.

Programming heater starting time




Select the menu  the memory location  is flashing. Use the buttons  and  to select the memory location - confirm using . By pressing the buttons  and  select the day of the week, the hours and the minutes.

Confirm each respectively using .

NOTE

- In the 12h mode, after setting of the minutes, further choose AM or PM by the selection buttons - confirm using.



Activate preselection time


Select menu “Active preselection time” (7). By using the buttons  and  choose the memory place with the preselected time - confirm with .





Deactivate preselection time

Select menu “Active preselection time” (7). Press  or  repeatedly until symbol  appears confirm using .




Instant heating

Press  for continuous operation, with activated ignition -  flashes on the display and appears permanently after a positive feedback of the heater.

If button  is pressed with deactivated ignition, the display shows the default value of the programmed operation time.

By pressing the buttons  and  the operation duration can be adjusted and with  confirmed. On the display appears  and the heater is operated for the time as programmed.

Read out heater errors

During heater malfunctions the symbol  flashes. Error code display by simultaneously pressing the buttons  and .

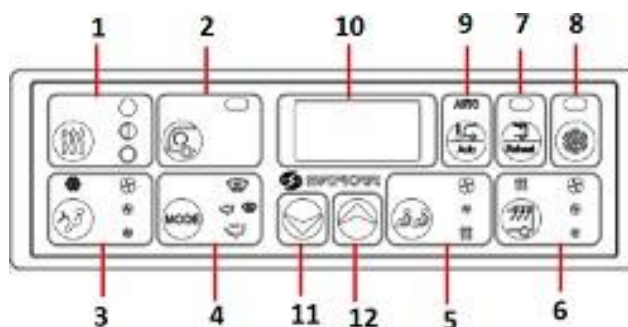
Remote control

Equivalent of the function instant heat.

AIR CONDITION CONTROL UNIT

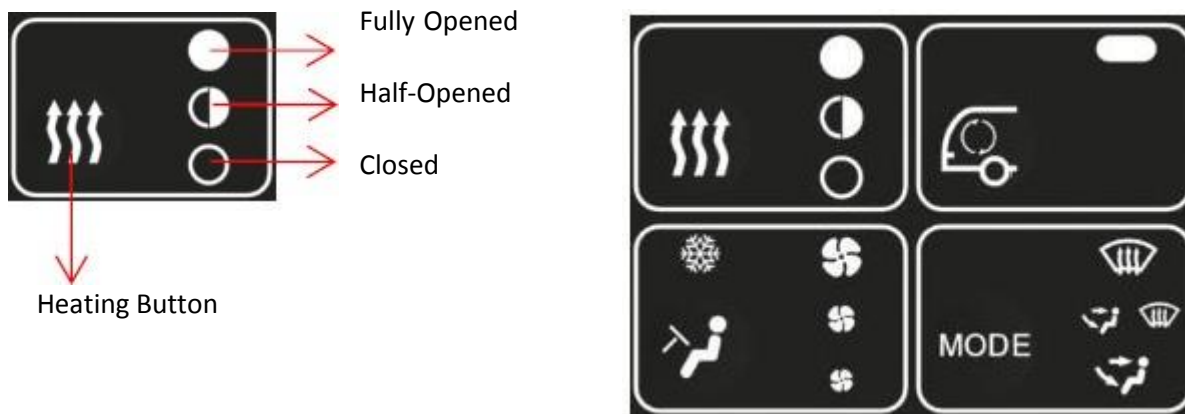



No.	Name
1	Driver's cab heating
2	Driver's cab fresh air
3	Driver's cab fan level setting / driver's cab air conditioner
4	Driver's cab flap control
5	Passenger's cab heating
6	Roof fan level setting/roof heating
7	Passenger's cab fresh air/reheat
8	Passenger's cab air conditioner
9	Automatic operation / outer temperature display
10	Led display
11	Function down
12	Function up



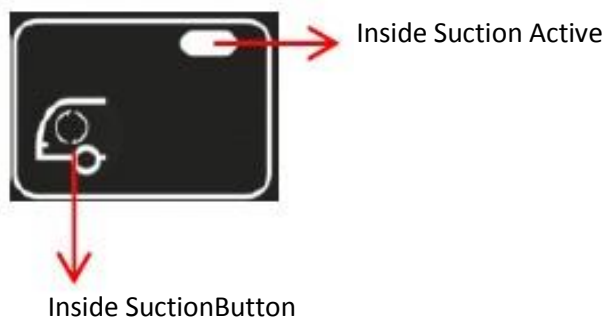
DRIVER'S CAB SIDE

Driver's Cab Heating



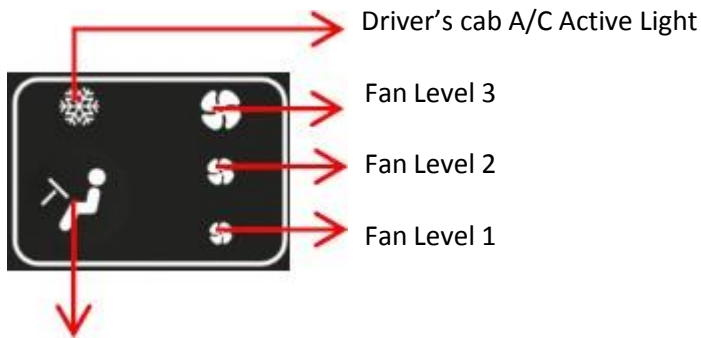
Driver's cab heating button regulates position of front heater valve. Positions are closed, half opened and fully opened. When it is activated, closing icon '  ' blinks until motor temperature information come from, If motor temperature is suitable value, blinking is ended and half-opened position is activated automatically. When the heating button is activated, circulation pump and vehicle main valve become active. Proportional control based on set temperature value. When driver's cab air conditioning function is activated, circulation pump and vehicle main valve are turned down automatically. When the pre-heater activated which information comes from CANbus, motor heat diagnostic situation is bypassed.

Driver's Cab Fresh Air




Driver fresh air button allows air suction from inside or outside of vehicle. It shows air suction from inside when led is active. It shows air suction from outside when led is passive.

Driver's Cab Fan Level Setting / Driver's Cab Air Conditioner



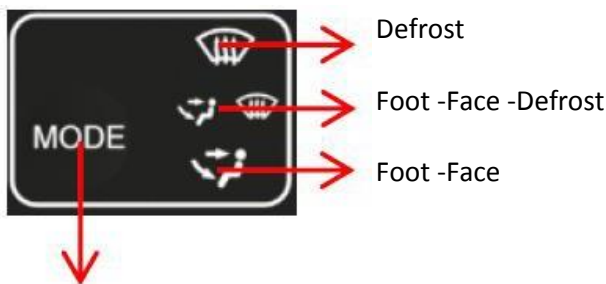
Short Press; Fan Level Setting

Long Press (3sec); Driver's cab air conditioning active


When it is pressed shortly, driver fan setting button allows to adjust front box fan with three level. Levels are %40, %70 and %100. If button is pressed over three second driver's cab air conditioning will be activated '  ' and air conditioning led is illuminated with blue light. When driver air conditioning is activated, roof air conditioning is activated automatically too. Roof and defroster fans starts to run with minimum level. If air conditioning fails or outside temperature is below to 5°C, air conditioning blue light starts to blink and functions will not be activated. If air conditioning is activated, fan levels never comes to closed position. When air conditioning is activated condenser fan, driver air conditioning compressor or gas valve relay output is activated. Compressor is activated and deactivated according to set value. Time period between activated and deactivated is 30 second as a default. Press over three seconds to the button for closing air conditioning functions. Heating and cooling functions can not be used together.

 (Defrosting function activates heating and cooling functions together.)

Driver's Cab Flap Control

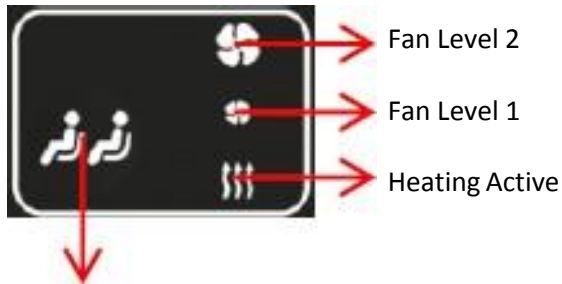


Flap Control Button / Up-Down and Approval Button for Service Menu

Driver flap control button regulates position of front box heater air flap. The positions are defrost, foot-face and foot-face-defrost ventilation. Active positions are illuminated.  When Defrosting function is activated both heating and cooling functions are active and driver's cab fan starts to run at minimum level. Window defrost grid is activated for 10 minutes when defrosting function is activated. At the end of the 10 minutes, function is turned off. To be reactivated this function, it should be exited from defrost position and defrost position should be selected again. (It can be canceled out from service menu.)

PASSENGER'S CAB SIDE

Passenger's Cab Heating



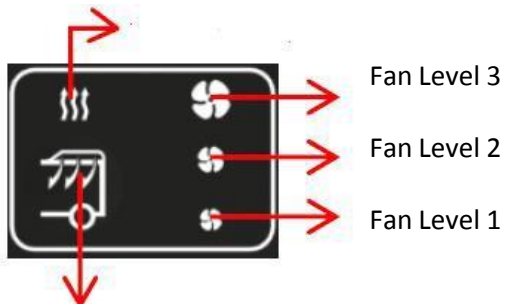
Passenger Floor Heater Button



Passenger heater button, (Button is nonfunctional. Function is operated automatically when D+ signal come from vehicle.) for information about working condition, please check out automatic mode section. Blinking of heating function led means that engine temperature has not reached suitable value. When pre-heater activated, engine heat diagnostic function will be passed.

Roof Fan Level Setting

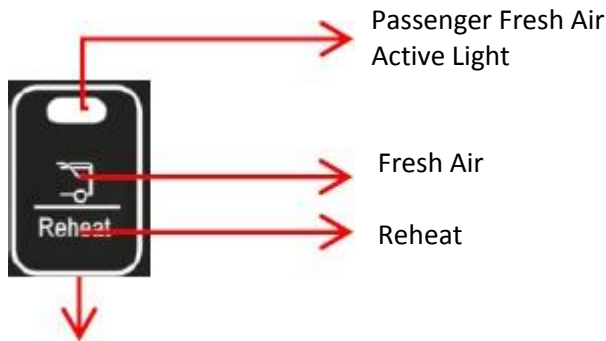
Top Heater




Roof Fan level Setting

Roof fan level setting button, (Button is nonfunctional. Function is operated automatically when D+ signal come from vehicle.) for information about working condition, please check out automatic mode section. When cooling and heating function is activated, fans start to run at minimum level automatically. It can not be closed. (At the heating function, it can be only operated at 1'st stage.)

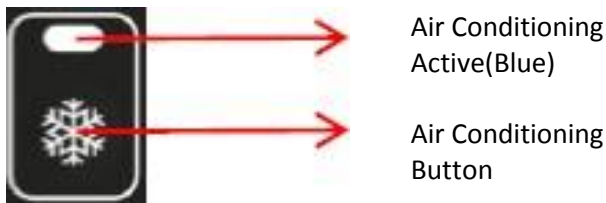
Passenger's Cab Fresh Air / Reheat



Short Press; Passenger's Cab Fresh Air
Long Press (3sec) ; Reheat (Passenger Defrosting)

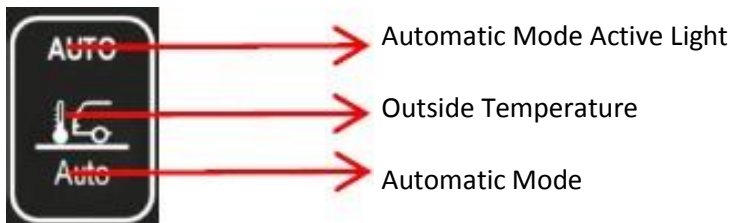
Passenger fresh air button, allows air suction from inside or outside of vehicle. If led is activated it means that suction from outside, if led is not activated it means that suction from inside of vehicle. When external suction is activated. If passenger air conditioning is opened, flap is positioned internal suction automatically. External suction can be activated manually again. If button is pressed for three seconds. Passenger defrosting is active and display  shows that with inside temperature alternately. It is active throughout 6 minutes. Reheat function is passive by pressing for 3 seconds again. (Roof fans can be operated at maximum 1'st level when roof heating was activated.)

Passenger's Cab Air Conditioner



Passenger air conditioning button; (Button is nonfunctional. Function is operated automatically when D+ signal come from vehicle.) For information about working condition, please check out automatic mode section. When the air conditioner is activated, Evaporator fans and air conditioner compressor is activated. Compressor output is activated or deactivated according to the set value. Time period between activated and deactivated is 30 second as a default. Heating and cooling functions can not be used together. (Except reheat mode) When the air conditioner is on, passenger fresh air mode is turned off automatically. It can be turned on again later.

Automatic Operation / Outer Temperature Display

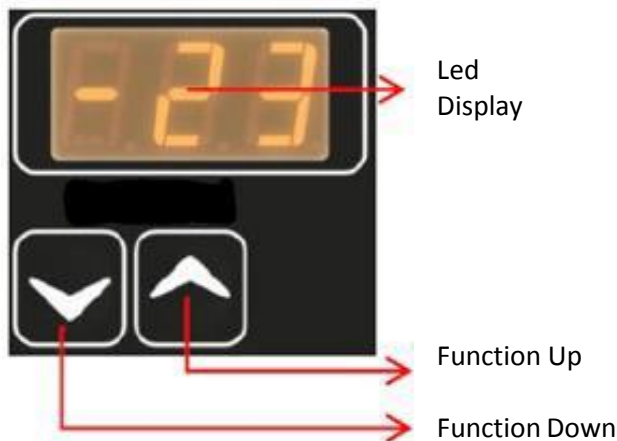




Short Press; Outside Temperature

Short pressing the button shows outside temperature value by blinking for five seconds. (Button is nonfunctional. Function is operated automatically when D+ signal come from vehicle. **AUTO** Led is illuminated.) For information about working condition, please check out automatic mode section.

When the ignition is switched on, driver's cab functions starts in automatic mode and goes on unless driver intervene to change.

Led Display



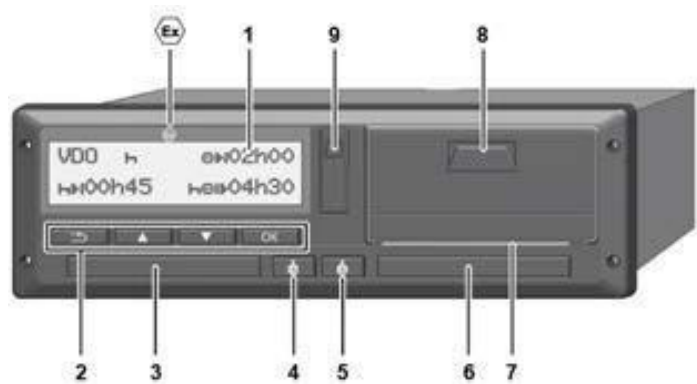
Temperature adjustment button, is used to set temperature and to change functions. Set values are adjusted manually between 18°C and 28°C values for driver cabin and $\pm 2^\circ\text{C}$ for passenger cabin. In permanent mode, It is displayed ambient mean temperature. When function down button  is pressed for more than three seconds, set value starts to blink on screen and it is allowed to adjust temperature set value of driver's cab. Unless any button is pressed in three seconds, recent set value which blinks on screen is saved. When function up button  is pressed for more than three seconds, set value starts to blink on screen and it is allowed to adjust temperature set value of passenger's cab. Unless any button is pressed in three seconds, recent set value which blinks on screen is saved.

TACHOGRAPH

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



No.	Name
1	Display
2	Menu buttons
3	Card drawer 1 with cover
4	Combination button driver-1
5	Combination key driver 2
6	Card drawer 2 with cover
7	Tear-off edge printer
8	Printer drawer
9	Front interface
	Label for ADR version (ex version – option)



Led Display

Contrast and brightness of the display cannot be changed.

Menu buttons

Please use the following buttons to enter, display or print data;

/ Press the button of the desired direction several times: Scroll through the menu level to the de- sired function.

Keep the button pressed: Scroll automatically.

Press the button briefly: Con- firm the function/selection.

Press the button briefly: Return to the previous entry field, abort the country entry or exit the menu levels step by step

Card drawer 1 with cover

The driver 1 who will drive the vehicle inserts his driver card into the card drawer 1.

Combination button driver-1



Press the button briefly: Change activity.

Keep the button pressed: (at least 2 seconds): Open the card drawer.

Combination key driver 2



Press the button briefly: Change activity.

Keep the button pressed: (at least 2 seconds): Open the card drawer.

Card drawer 2 with cover

Driver 2, who is not driving the vehicle at this moment in time, inserts his driver card into drawer 2 (crew operation).

Tear-off edge printer

You can tear off the paper printout of the printer at the tear-off edge.

Printer drawer

Printer drawer for inserting the paper roll.

Front interface

The download of the data and the parametrisation is done through the front interface (workshop).

The front interface is located under a cover.

The access rights to the functions of this interface depend on the inserted tachograph card.

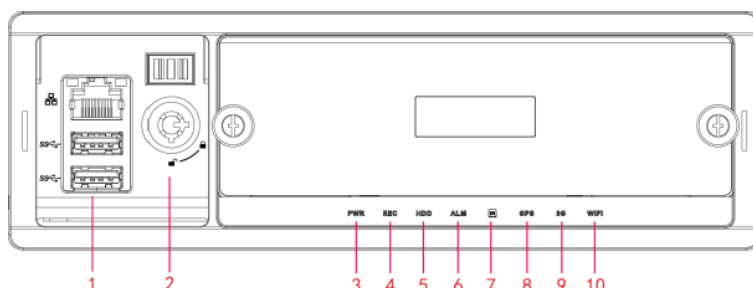
Mobile Digital Video Recorder

It integrates image process technology, wireless network technology, GPS technology, structure technology and vehicle information sampling and process technology together. Installed on the vehicle, it can realize local audio/video storage and vehicle information sampling, at the same time it can transmit real time video and vehicle information to the remote management center and establish real time remote wireless surveillance management system.



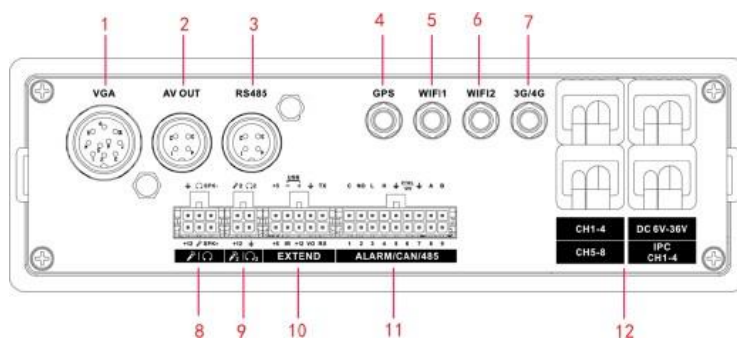
No.	Name
1	RJ45 Ethernet port USB port
2	Door lock/unlock (Device on/off button)
3	PWR
4	REC
5	HDD
6	ALM
7	IR
8	GPS
9	3G
10	Wi-Fi

Front Panel



No.	Name
1	VGA
2	AV OUT
3	RS485
4	GPS
5	Wi-Fi 1
6	Wi-Fi 2
7	3G/4G
8	Bidirectional talk input and output port.
9	Bidirectional talk input and output port2.
10	EXTEND
11	ALARM/CAN/485
12	CH1-4 CH5-8 DC 6V-36V IPC CH1-4

Rear Panel



RJ45 Ethernet port / USB port

1 network port. 2 USB ports to connect to mouse or flash disk to backup data.

Door lock/unlock

Please unlock the device before you remove the HDD box. Otherwise system is going to shut down automatically. System cannot boot up once the button is unlock. Please lock the device first and then boot up the device. It is to protect the HDD.

PWR

Power indicator light. The red light is on when the device is running. The light is off when the device is off.

REC

Record indicator light. The blue light is on when system is recording. The light is off when system is not recording.

HDD

HDD indicator light. The blue light is on when there is HDD. The light is off when there is no HDD.

ALM

Alarm indicator light. The blue light is on when there is an alarm. The light is off when there is no alarm.

IR

It is to receive the signal from the remote control.

GPS

GPS indicator light. The blue light is on when GPS function is OK. The light is off when GPS function is disabled.

NOTE

- Only the device of GPS module supports this function.

3G

3G indicator light. The blue light is on when 3G connection is OK. The light is off when 3G connection is offline.

NOTE

- Only the device of 3G module supports this function.

Wi-Fi

Wi-Fi indicator light. The blue light is on when Wi-Fi connection is OK. The light is off when Wi-Fi connection is offline.

NOTE

- Only the device of Wi-Fi module supports this function.

VGA

VGA port, including VGA all kinds of signal ports.

AV OUT

Audio/video output port. Connect to mobile screen.

RS485

Reserved port.

GPS

GPS antenna port.

NOTE

- Only the device of GPS module supports this function.

Wi-Fi 1

Wi-Fi antenna port.

NOTE

- Only the device of Wi-Fi module supports this function.

Wi-Fi 2

Reserved port.

3G/4G




3G/4G antenna port.

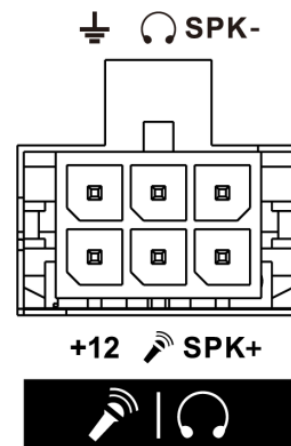
NOTE

- Only the device of 3G/4G module supports this function.

Bidirectional Talk Input And Output Port




Bidirectional input and output port.

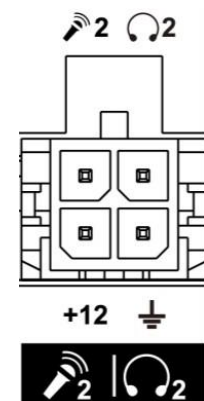
No.	Name	Function
1	+12	+12V output
2		GND
3		Mic In. Connect to speaker
4		Mic Out. Connect to earphone.
5	SPK+	Speak positive.
6	SPK-	Speak negative.



Bidirectional Talk Input And Output Port2


Connect to pickup.

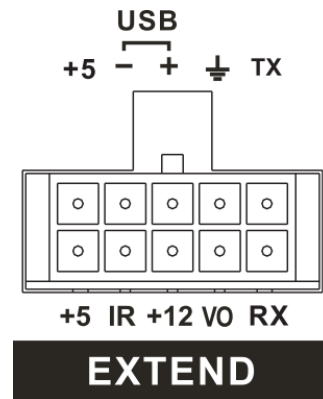
No.	Name	Function
1	+12	+12V output
2		GND
3		Mic In. Connect to peripheral pickup.
4		NC



EXTEND

Extension port. Each port has specified function.

No.	Name	Function
1	+5	+5V Output(Bottom line)
2	+5	USB 5V(Top line)
3	IR	IR receiver port
4	-	USB data-. Connect to peripheral USB port.
5	+12	+12V output
6	+	USB data+. Connect to peripheral USB port.
7	VO	AV video output
8		GND
9	RX	RS232 RX. Connect to peripheral RS232 port.
10	TX	RS232 TX. Connect to peripheral RS232 port.



ALARM/CAN/485

Alarm input/output port. It includes alarm input port, alarm output port, GND cable and 12V output.

CAN BUS port: Reserved port. It is to exchange data with the vehicle CAN network and other devices of CAN port. A,B : Control PTZ.

CH1-4/ CH5-8/ DC 6V-36V/ IPC CH1-4

CH1-4/ CH5-8 connect to HDCVI mobile camera or analog mobile camera. DC 6V-36V power input port. IPC CH1-4 reserved function. Connect to network camera.

MIRRORS

Sit in the correct driving position on the properly adjusted seat, and then check each mirror to ensure that it provides a proper view of the rear, the sides, the area just in front of the vehicle, and the area directly opposite to the driver's seat. Make adjustments if necessary and clean any dirty mirrors.

CAUTION

- Adjust the mirrors when the vehicle is stationary, not while the vehicle is in motion.
- When checking the rear of the vehicle with mirrors, be careful that this does not distract your attention from the traffic ahead.
- Rearview mirrors may make the vehicle behind you appear farther away than it really is. Use these mirrors very carefully until you are able to correctly determine distances from the images.
- Keep the mirrors in mind when passing another vehicle on a narrow road, moving the vehicle into a garage or driving near pedestrians.
- Do not drive with the mirrors folded.

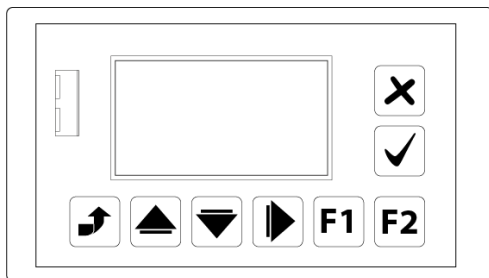
ROLLER BLIND

The roller blind protects your eyes in strong sunlight. Use it when sunlight is too bright.

CAMERA SYSTEM

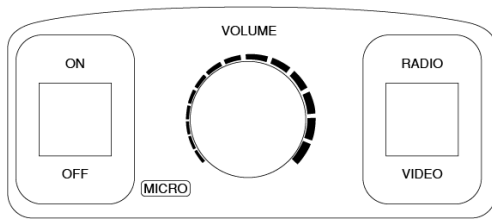
The vehicle is equipped with interior and exterior cameras to record every action taken inside and around.

DESTINATION INDICATOR



Information transfer to panels, querying panel status, line number entry etc. A few of the operations performed through the control unit. There is an LCD display and keypad on the front of the control unit. Command input to the control unit is made through the membrane keypad. The graphic LCD panel enables the user to enter commands easily and to be informed. Data upload to the control device and line indicators is done via USB flash memory.

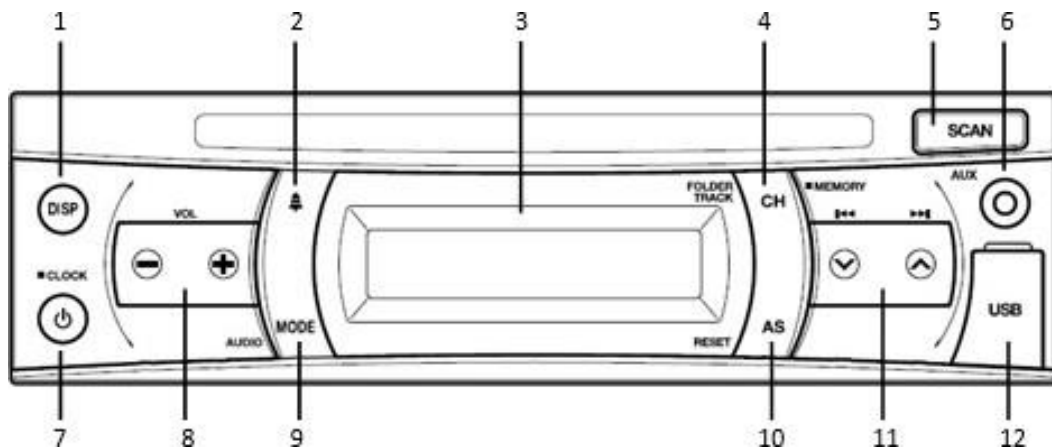
AMPLIFIER



The amplifier can be used for broadcasting indoor.

The amplifier can be used when the starter switch is in the "ACC" or "ON" position.

RADIO



No.	Name
1	Display button (DISP)
2	Alarm button
3	Display
4	Channel button (CH) - Folder/Track change button (FOLDER/TRACK) - Memory button (MEMORY)
5	Scan button (SCAN)
6	Auxiliary input (AUX)
7	Power button - Time adjustment button (CLOCK)
8	Volume buttons (VOL)
9	Mode button (MODE) - Audio button (AUDIO)
10	Auto-store button (AS) - Reset button (RESET) - Repeat/random button (RPT/RDM)
11	Tuning buttons - Search buttons
12	USB slot

Display button (DISP)

Press the "DISP" button to change display between "time" and "frequency".

Alarm button

Press the alarm button to set the alarm.

NOTE

- The alarm can be set regardless of whether the radio power is "ON" or "OFF".

Channel button (CH) - Folder/Track change button (FOLDER/TRACK) - Memory button (MEMORY)

Press and hold the "MODE" button to enter the tone/balance adjustment mode. Press and hold the "MEMORY/CH" button until you hear the beep to enter the preset memory mode. Press the "CH/FOLDER TRACK" button to select the "FOLDER".

Scan button (SCAN)

Press the "SCAN" button to start an automatic scan-seek tuning upwards through frequencies.

Auxiliary input (AUX)

Connect the portable audio player to the auxiliary input (AUX) using a 3.5 mm stereo mini plug cable.

Power button - Time adjustment button (CLOCK)

Press the power button to turn the power on. Press it again to turn it off.

Volume buttons (VOL)

The volume will increase/decrease in 1-step increments each time the "+" or "-" buttons are pressed.

Mode button (MODE) - Audio button (AUDIO)

Press the "MODE" button to select the mode. Each time you press the button, the mode cycles through AM, FM1, FM2, USB and AUX.

Auto-store button (AS) - Reset button (RESET) - Repeat/random button (RPT/RDM)

Press the auto-store button to store regional radio stations in memory.

Press the "AS/RESET" button while the time adjustment mode is active to set the time to the hour.

Press the repeat/random button "AS/RPT/RDM" to select repeat playback.

Tuning buttons - Search buttons

Press the tuning buttons to manually select a track/radio station or to advance in the settings.

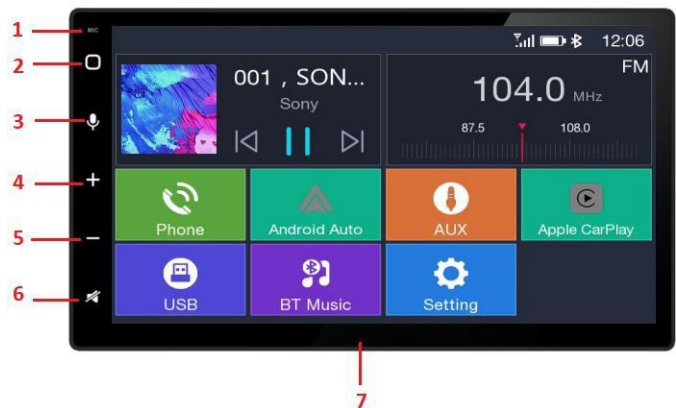
USB slot

Connect USB memory device to the USB slot, press the "MODE" button to switch to USB mode.

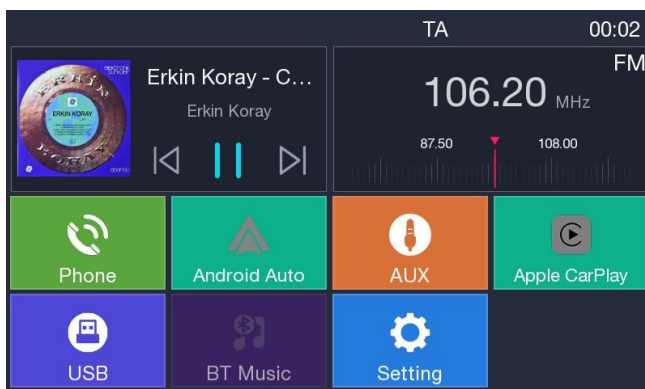
MULTIMEDIA SYSTEM

Introduction of Front Panel and Buttons

No.	Name
1	Bluetooth Microphone
2	Power / Home Button
3	Siri Voice Command Button
4	Volume + Button
5	Volume - Button
6	Mute Button
7	Touch Screen

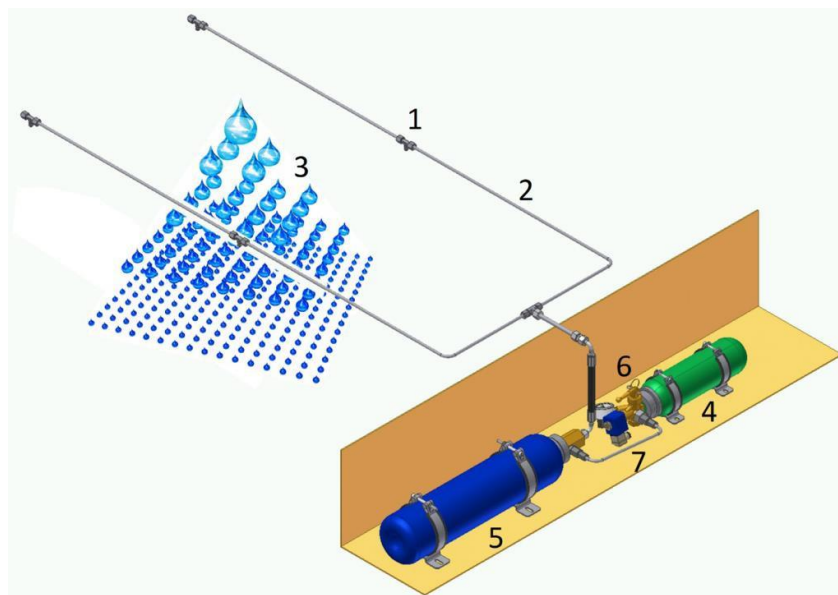


Main Menu



- FM Radio: Listen to FM / AM Radio program.
- Phone: Make a Bluetooth call.
- BT Music: Listen to music on Bluetooth.
- Settings: Change the settings of the device.
- Apple CarPlay: Connect iPhone.
- Android Auto: Connect the supported Android phone.
- USB: Play music / video from your USB disk.

ENGINE COMPARTMENT FIRE DETECTION AND AUTOMATIC FIRE SUPPRESSION SYSTEM



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 50µ 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:

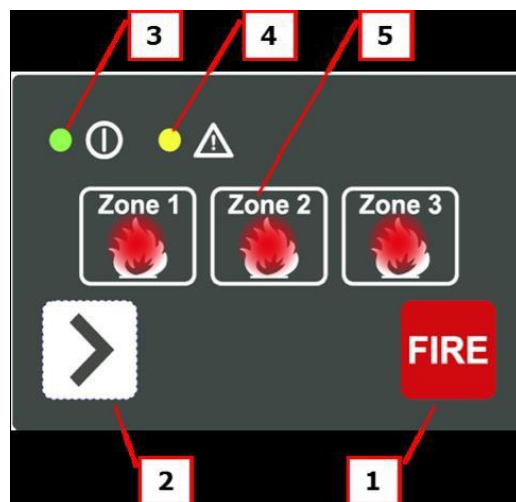
- Wash all component surfaces with water in order for the parts in the engine room effected by the system not to corrode.
- Wash inside of the pipes and nozzles by giving water to the fire extinguishing piping system, but if it was too late for this, remove the nozzles and clean nozzles and pipes with 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 everytime the fire button 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.

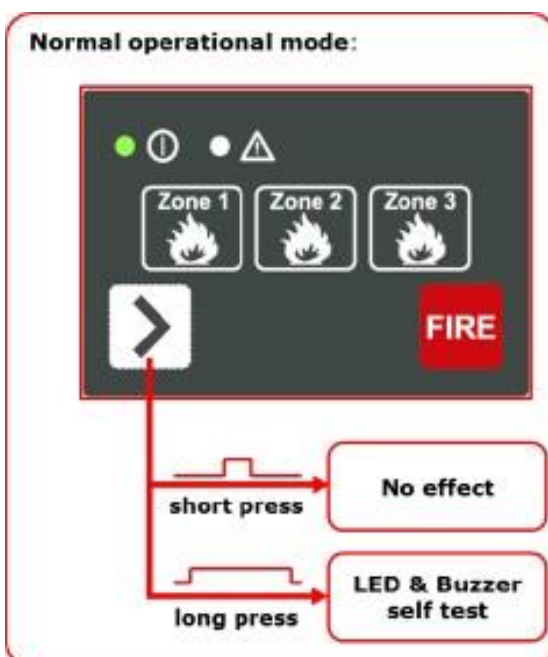
- Blinking
Alarm countdown for activation.
- Constantly
Alarm activated.

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.

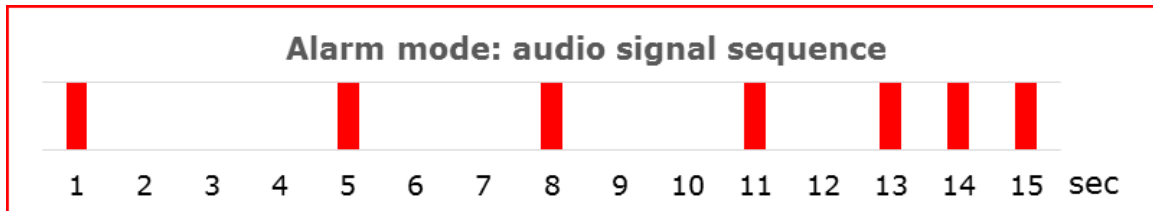
Normal Operational Mode

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.





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:

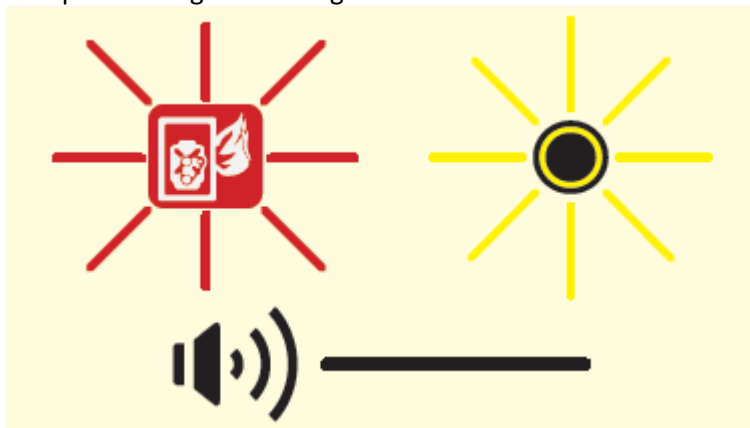
See bus manufacturer's manual.

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.

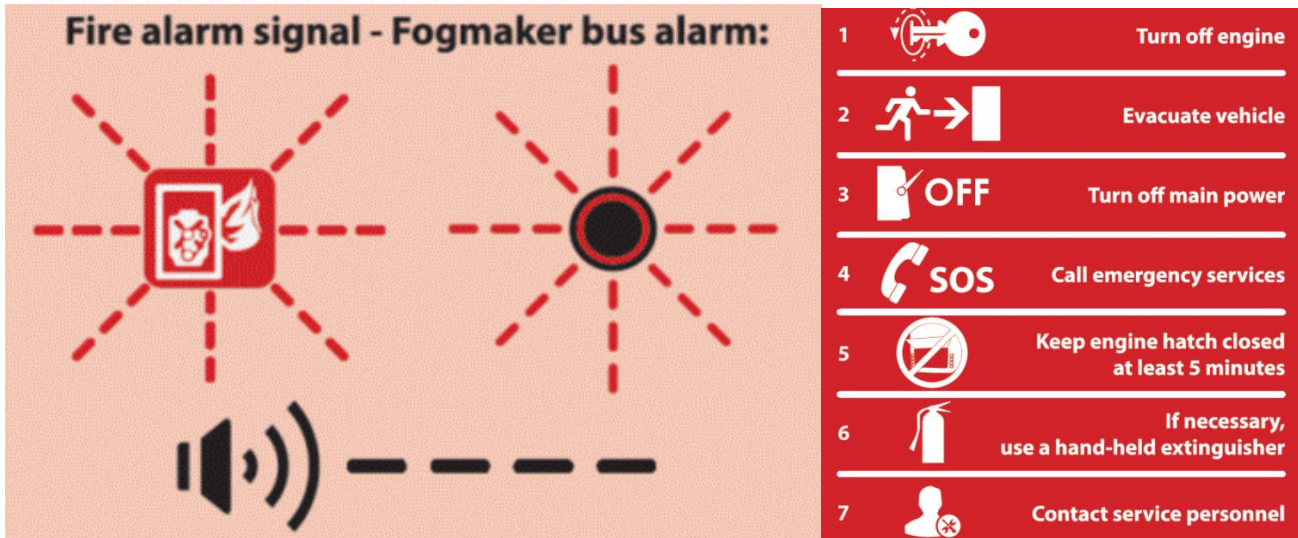
Engine wash after fire

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

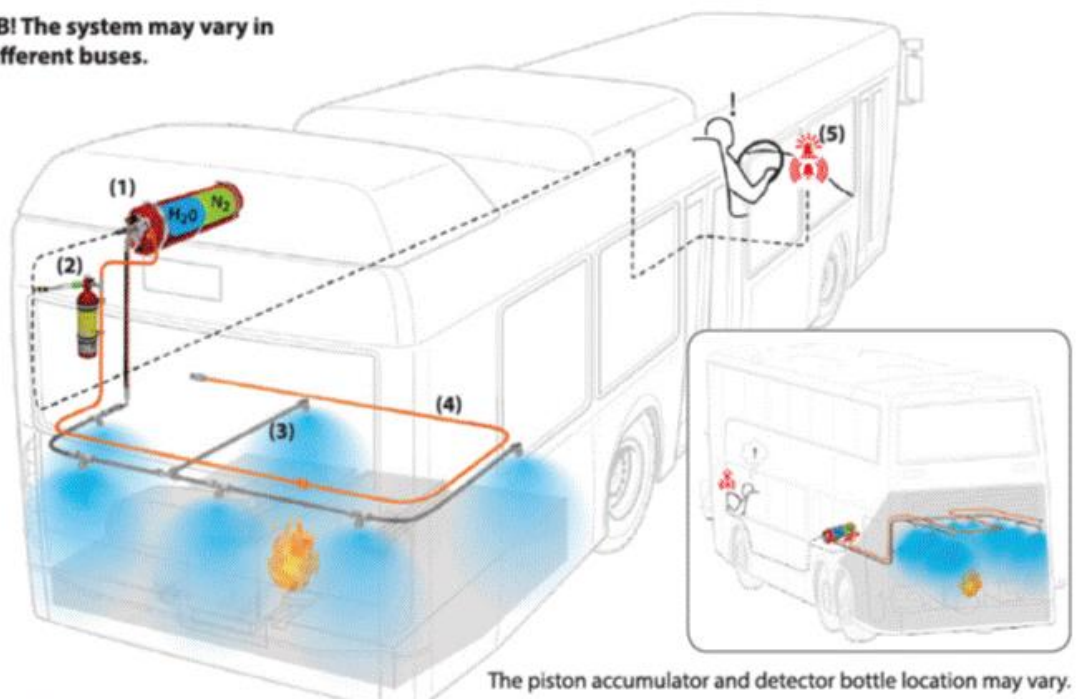


Overview, Fogmaker's Fire Protection System

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.

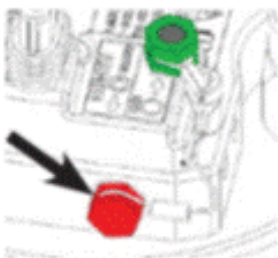


Alarm test – bus manufacturer's system:

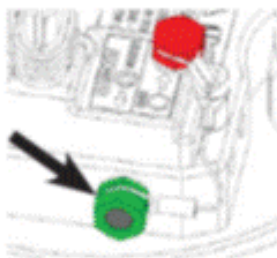
See bus manufacturer's manual.

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

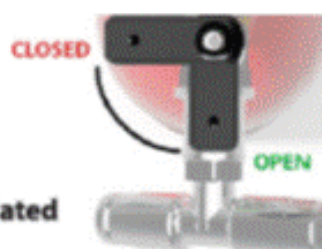


Green screw mounted
in the side of the valve
unlocks the system so
it can deploy

Detector bottle: 20-24 bar at 20°C



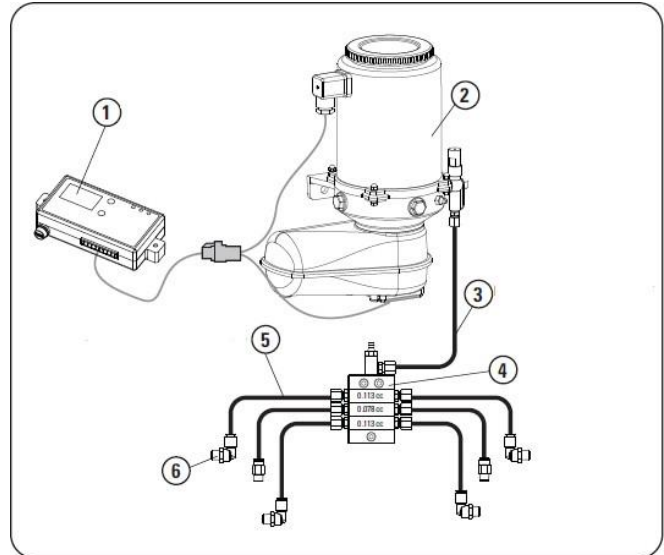
The detection system is **isolated**
by **closing the ball valve**:



AUTOMATIC GREASING SYSTEM

Centralized lubrication system consists with 6 individual elements working together.

No.	Name
1	Electronic Control Unit
2	Electrical Grease Pump
3	Main Lubrication Line Ø6
4	Progressive Distributor
5	Lubrication Point Lines Ø6
6	Fittings



Each fitting is connected to lubrication points on front axle of your vehicle. These points are lubricated in every working period of system.

Operating Principle

Electronic control unit activates by ignition start of vehicle. After starting the engine, electrical energy operates control unit of lubrication system.

CAUTION

- Electronic control unit saves time period data into memory. In case of power breakdown while pump operates at waiting or working time periods, control unit will remain its position before breakdown and resume after power comes.

WORKING time period at control unit is started. Electronic control unit send signal to electrical motor of pump to operate. Pump starts to operate and sends grease to the progressive distributor. Electronic control unit green led is lit continuously while pump is operating.

Necessary dosage for each lubrication point is controlled by the progressive distributor.

With pilot control system in the progressive distributor block, the amount of grease coming from the pump is divided into lubrication lines connected to the front axle.

CAUTION

- Operating pressure needed by lubrication changes depending on environmental conditions, tube diameter and length and also lubricant type.

During operation time of the pump, each lubrication point gets required amount of grease. Total amount of grease required by all lubrication points is set by the electronic control units WORKING period.

CAUTION

- Electronic control unit is set for 2 minutes WORKING period and 6 hours WAITING period by factory default. Time values can be different if environmental conditions are extreme.

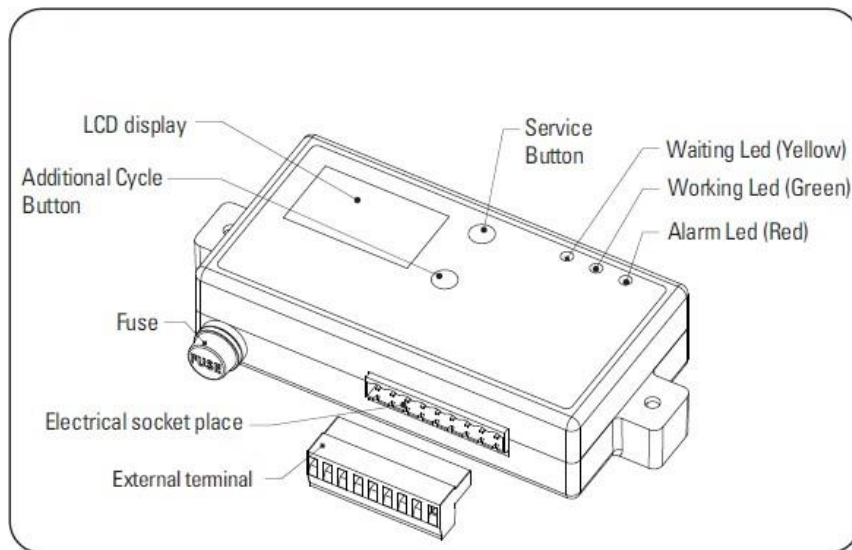
When WORKING time period ends, control unit stops sending signal to pump. Control unit gets into WAITING time period for system. In this case, control unit will keep the automatic lubrication system ready for the next lubrication period. Electronic control unit green led is flashing while system is WAITING.

Single lubrication period of system is completed. Lubrication period can be adjusted for different waiting time values depending on vehicle operating conditions.

ELECTRONIC CONTROL UNIT

Operation of the automatic lubrication system is controlled by the electronic control unit. It is possible to monitor system operation and fault conditions. Working time period of system is set by factory default to 2 minutes. Waiting time period of system is set by factory default to 6 hours. These values can be programmed to different values.





While control card is operating, adjusted program details is shown on program display.

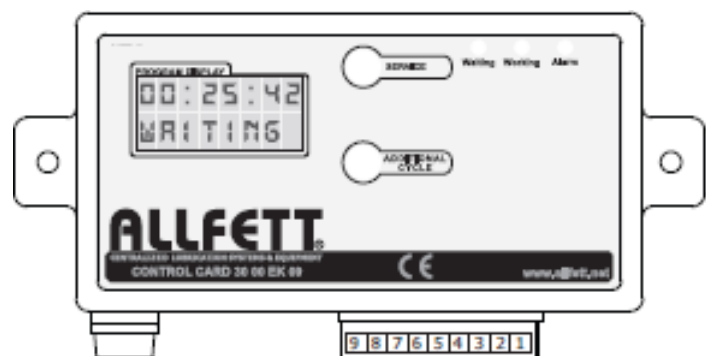
Programmed time period values are shown as count down in related period.

Working time period can be set up to 60 minutes (59 minute and 59 second). Waiting time period can be set up to 100 hours (99 hours, 59 minutes and 59 seconds).

In case of any alarm occurred, related alarm description will be displayed on program display while red LED is on. Also alarm time will be displayed and saved into card memory.

If any electrical shut down occurs, EK-9 electronic control card saves the values into memory to resume after electricity comes back.

No.	Name
1	Waiting
2	Working
3	Alarm
4	Program Display
5	Service
6	Additional Cycle



Waiting

Waiting time period (Yellow LED)

Working

Working time period (Green LED)

Alarm

Warning mode (Red LED)

Program Display

All necessary information is shown on program display.

Service

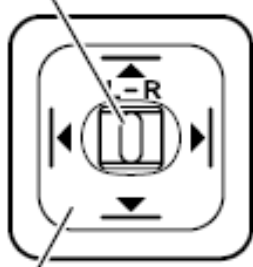
Programming button, and enters to programming mode.

Additional Cycle

Programming button. If pressed in waiting time, creates an additional single lubrication period.

REMOTE CONTROL MIRROR SWITCH

Left/Right selector switch



Angle adjustment switch

The remote control mirror switch is active only when the starter switch is in the "ACC" or "ON" position.

Adjust

Press the left/right selector switch on the "L" or "R" side to move the mirror to the desired direction.

Press the angle adjustment switch to adjust the mirror angle.

ADVICE

- Do not try to forcefully move the mirror surface by hand. Otherwise, the mirror motor may sustain damage.

LIGHTER

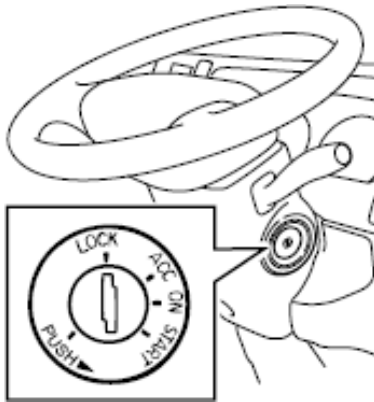


The lighter is pushed towards the heating element inside of it, it gets out automatically when heated.

CONTROLS AND INSTRUMENTS

STARTING AND STOPPING THE ENGINE

STARTING THE ENGINE



Make sure that the switches, including those for the windshield wiper, light control and air conditioner, are in the off position.

Turn the starter switch to the "ON" position to check that the warning and indicator lights turn on normally and the fuel level is proper.

CAUTION

- When the engine does not start, wait for at least 2 seconds and then turn the starter switch again.

1. Make sure that the gearshift switch is in the "N" position and firmly press the brake pedal.
2. When the starter switch is turned to the "ON" position, the glow plug indicator light comes on and it goes out in about 0.5 seconds when the engine is warm, or in about 4 seconds when the engine is cold.
3. After confirming that the glow plug indicator light has gone out, turn the starter switch to the "START" position to start the engine.

WARNING

- Do not keep the starter switch in the "START" position for more than about 10 seconds. Operating the starter for too long might cause battery failure or might result in overheating and even a fire.

STOPPING THE ENGINE



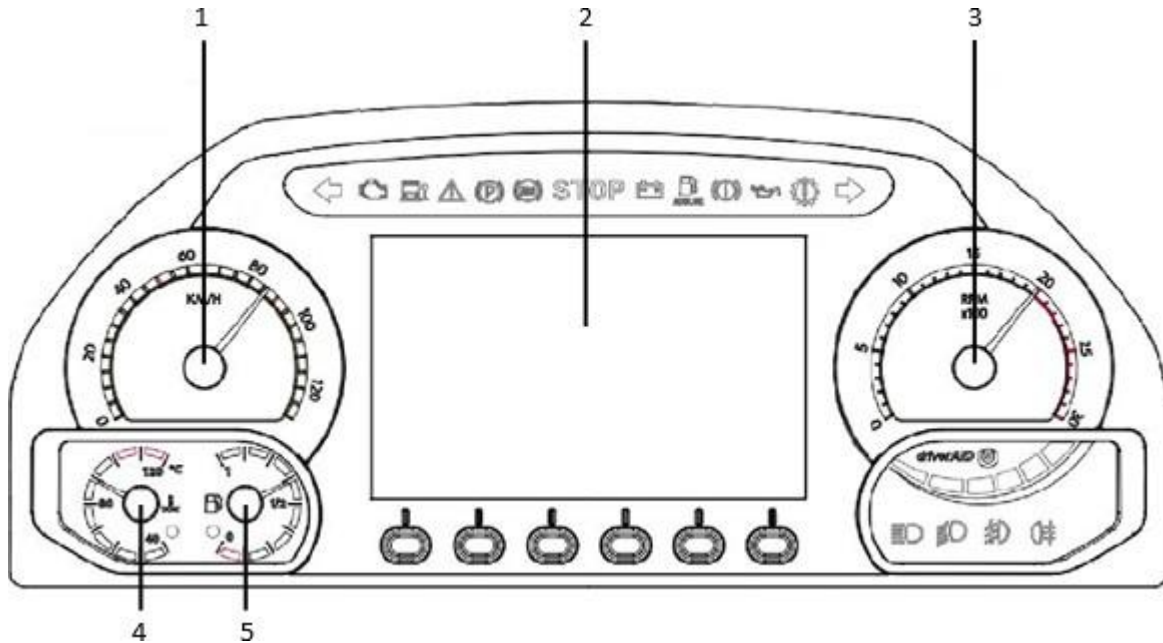
Firmly apply the parking brake. With the accelerator pedal released, turn the starter switch to the "ACC" or "LOCK" position.

ADVICE

- Do not shut down the engine immediately after driving the vehicle. Otherwise, a seizure or other failures may result. Before stopping the engine, run the engine at idle for approximately 3 minutes to cool it down after applying the parking brake and making sure of the following: The gearshift switch is in the "N" position and the shift indicator shows "N".
- To prevent the battery from going dead, turn the starter switch to the "ACC" or "LOCK" position after stopping the engine. If you leave the vehicle for an extended period of time, place the starter switch in the "LOCK" position

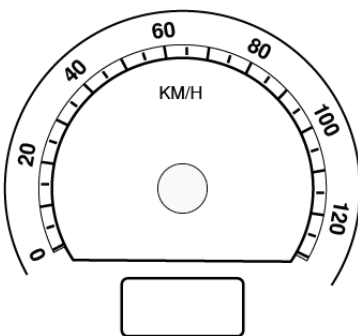
INSTRUMENTS, WARNING LIGHTS AND INDICATOR LIGHTS

INSTRUMENTS LAYOUT



No.	Name
1	Speedometer
2	Multi-Information Display (MID)
3	Tachometer
4	Engine coolant temperature gauge
5	Fuel gauge

SPEEDOMETER



The speedometer indicates the vehicle speed in km/h or MPH. The speedometer is an integral unit with the odometer/trip meter.

The total distance traveled by your vehicle is indicated in km if the speedometer is graduated in kilometer units.

Use the trip meter to learn the distance between the specific points or the distance traveled during a specific period of time.

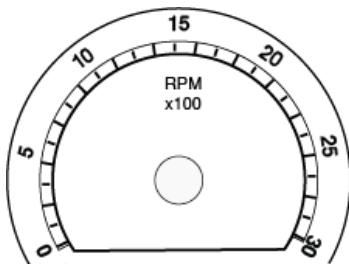
MULTI-INFORMATION DISPLAY (MID)



The MID in the instrument panel can display the following information.

- Warning and indicator lights
- Operation-related information
- Brake pressure
- Maintenance data
- Calendar and clock

THE ENGINE SPEED (RPM) GAUGE

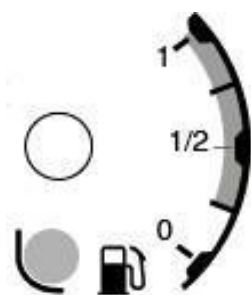


The tachometer indicates the engine speed in revolutions per minute (r/min). (Graduation "5" on the scale indicates 500 r/min.) The red zone indicates a range of dangerous engine speeds beyond permissible levels. Do not drive your vehicle with the needle of the tachometer in the red zone. The graduation and the red zone of tachometer are various depending on the models fitted.

ADVICE

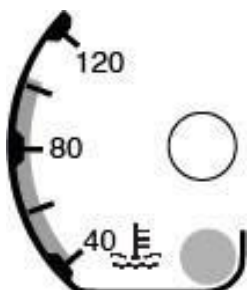
- Exercise extreme caution when shifting down on a steep downslope. The engine speed may easily exceed the critical speed, which can seriously damage the engine.

FUEL GAUGE



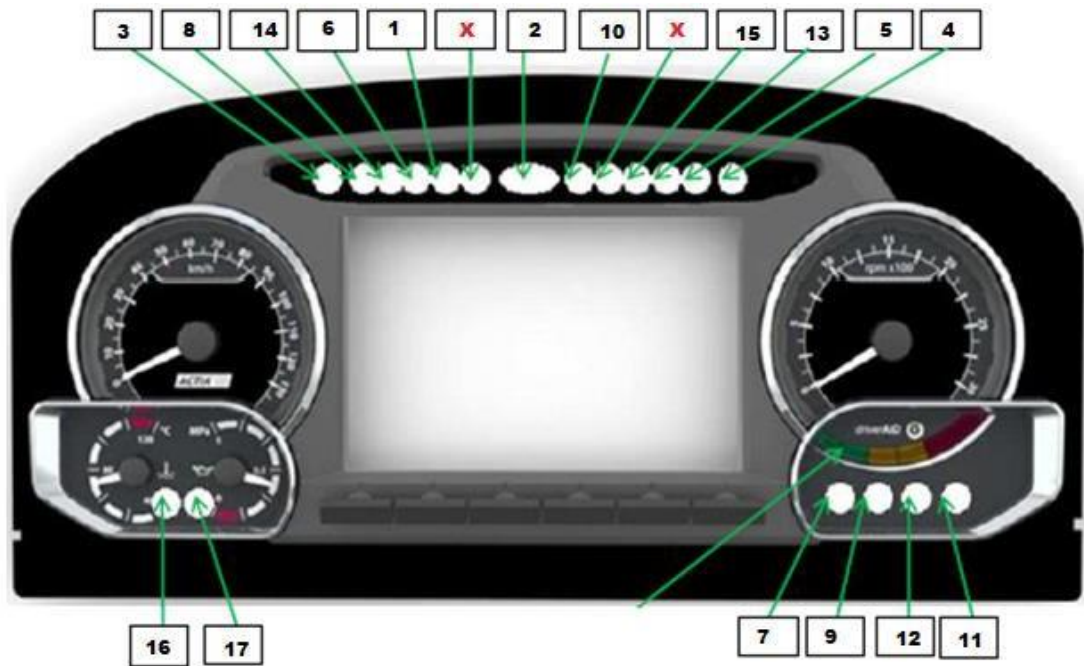
With the starter switch in the "ON" position, this gauge indicates the quantity of fuel remaining in the fuel tank. "1" means the tank is full while "0" means the tank is almost empty.

ENGINE COOLANT TEMPERATURE GAUGE



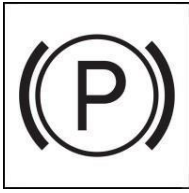
With the starter switch in the "ON" position, this gauge indicates the temperature of the engine coolant. If the engine overheats, the engine overheat warning light comes on and a warning buzzer sounds. During operation, the needle should stay in the safety zone.

WARNING AND INDICATOR LIGHTS



No.	Name
1	Parking Brake Warning Light
2	Engine STOP Warning
3	Turn Left Signal Warning Light
4	Turn Right Signal Warning Light
5	Transmission Warning Light
6	Ecm Warning Light
7	High Beam Indicator Light
8	Check Engine Warning Light
9	Low Beam Indicator Light
10	Generator Warning Light
11	Rear Fog Light Indicator Light
12	Front Fog Light Indicator Light
13	Engine Oil Pressure Warning Light
14	Halt Brake Active
15	Brake Warning Light
16	Engine Overheat Warning Light
17	Low Fuel Warning Light

Parking Brake Warning Light



This warning light comes on when the parking brake lever is pulled up.

CAUTION

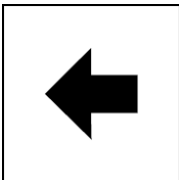
- The illumination of the warning light does not necessarily ensure firm application of the parking brake. The parking brake lever must be sufficiently pulled up and locked.

Engine STOP Warning Light



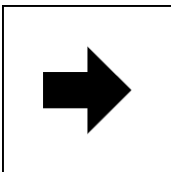
The red warning is a warning from the ECM. If the warning is ON, the engine must be stopped immediately. Check which errors are in the motor diagnostics.

Turn Left Signal Warning Light



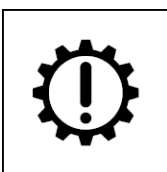
If the left signal switch is active, the warning is ON.

Turn Right Signal Warning Light



If the right signal switch is active, the warning is ON.

Transmission Warning Light



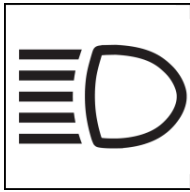
The red warning is a warning from the transmission. If the warning is ON, Check which errors are in the transmission diagnostics.

Ecm Warning Light



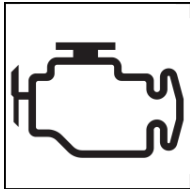
The red warning is a warning from the ECM. If the warning is ON, Check which errors are in the motor diagnostics

High Beam Indicator Light



This indicator light comes on when high beam is selected or the headlights are cycled between high and low beams (passing signal).

Check Engine Warning Light



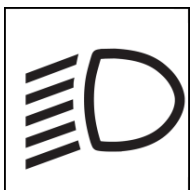
This warning light should come on when the starter switch is turned to the "ON" position, and then should go out after the engine is started.

If this warning light comes on while the engine is running, this alerts you to a problem with the engine electronic control system.

ADVICE

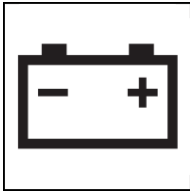
- If this warning light comes on while the engine is running, avoid driving at high speeds and promptly have the vehicle inspected at the nearest Isuzu Dealer.
- If this warning light comes on either intermittently or continuously while driving, service is required. Even if the vehicle is drivable, and does not require towing, see your Isuzu Dealer as soon as possible for service of the system. Continued driving without having the system serviced could cause damage to the emission control system. It could also affect fuel economy and drivability.

Low Beam Indicator Light



This indicator light comes on when low beam is selected.

Generator Warning Light



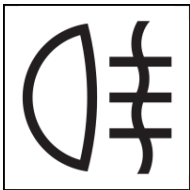
This warning light should come on when the starter switch is turned to the "ON" position, and then should go out after the engine is started.

This warning light comes on when, while the engine is running, there is a problem with the charging system (such as a loose or broken fan belt).

ADVICE

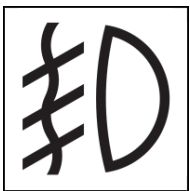
- If this warning light comes on while the engine is running, immediately pull off to a safe place well clear of traffic and promptly contact the nearest Isuzu Dealer for inspection.

Rear Fog Light Indicator Light



This indicator light stays on while the rear fog lights are on.

Front Fog Light Indicator Light



This indicator light stays on while the front fog lights are on.

Engine Oil Pressure Warning Light



This warning light should come on when the starter switch is turned to the "ON" position, and then should go out after the engine is started.

While the engine is running, this warning light comes on if the engine oil pressure, which lubricates the engine components, is abnormal.

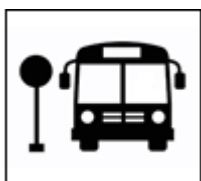
ADVICE

- If this warning light comes on while the engine is running, immediately pull off to a safe place well clear of traffic. Stop the engine immediately and check the engine oil level.
- The lubrication system may be faulty. Promptly have your vehicle inspected at the nearest Isuzu Dealer.

NOTE

- If your vehicle is equipped with MID, the check engine oil level warning light appears on the display when the engine oil level is too low.

Halt Brake Active



If the door brake system is active, the warning is ON.

Brake Warning Light



This warning light should come on when the starter switch is turned to the "ON" position, and then should go out after approximately 3 seconds.

This warning light comes on when the electronic braking system (EBS) has a problem.

CAUTION

- When the brake warning light is illuminated, it signals that an EBS malfunction has occurred. If the warning is ON, the engine must be stopped immediately. Check which errors are in the EBS diagnostics.
- In this case, although the feeling of the brakes will change considerably due to the inoperation of the EBS, the regular brakes will still operate normally. If the EBS malfunctions, firmly depress the brake pedal, stop the vehicle, and contact your nearest Isuzu Dealer.

Engine Overheat Warning Light



This warning light comes on when the engine has overheated. When the engine overheats, the engine coolant temperature gauge needle reaches the red zone, and the engine overheat warning light comes on, and at the same time a buzzer sounds. Immediately pull off to a safe place, and check the vehicle and take necessary actions.

WARNING

- Do not remove the radiator cap or reserve tank cap when the engine coolant is still hot. Careless removal could result in burns caused by hot vapor being released. Burns may also be caused by boiling water released due to the high temperature of the coolant. Perform inspection, refilling, and replacement of coolant only when its temperature has cooled.

Low Fuel Warning Light





























This warning light comes on when the fuel level in the tank becomes too low while the engine is running.














ADVICE

- If the vehicle runs out of fuel, air bleeding procedure must be performed.

WARNING LAMPS (7" SCREEN)

Icon	Icon Name	Color	Function
	Lining pad	Amber	If at least one of the lining pads is low, the warning is ON.
	CC active	Green	If Cruise control is active, the warning is ON.
	CC is ready for active	White	If Cruise control is ready for active, the warning is ON.
	Hill Holder	Green	If Hill Holder system is ready for use, the warning is ON.
	AEBS warning	Amber	The red warning is a warning from the AEBS. If the warning is ON, Check which errors are in the AEBS diagnostics.
	ASR off	Amber	If the ASR system is disabled, the warning is ON.
	ASR on	Amber	If the ASR system is active, the warning is ON.
	DPF warning	Amber	Indicates that the aftertreatment Diesel Particulate Filter (DPF) requires regeneration.
	High Exhaust System Temperature	Amber	If Exhaust System Temperature is high, the warning is ON.
	Air filter warning	Amber	If Air filter is fault, the warning is ON.
	Engine Brake	Green	If Engine Brake is active, the warning is ON.
	Water in fuel	Amber	If Water in fuel, the warning is ON.
	Engine warning	Amber	The amber warning is a warning from the ECM. If the warning is ON, Check which errors are in the motor diagnostics
	AEBS collision warning	Amber	AEBS collision warning.




















Icon	Icon Name	Color	Function
	EBS amber warning	Amber	The amber warning is a warning from the EBS. If the warning is ON, Check which errors are in the EBS diagnostics
	Transmission amber warning	Amber	The amber warning is a warning from the Transmission. If the warning is ON, Check which errors are in the Transmission diagnostics
	Transmission amber warning	Amber	The amber warning is a warning from the Transmission. If the warning is ON, Check which errors are in the Transmission diagnostics
	LDWS left warning	Amber	LDWS left warning
	LDWS right warning	Amber	LDWS right warning
	LDWS is ready for active	Green	If LDWS system is ready for use, the warning is ON.
	LDWS system warning	Amber	The amber warning is a warning from the LDWS. If the warning is ON, Check which errors are in the LDWS diagnostics
	Fire warning	Red	If fire system is active, the warning is ON.
	Door valve warning	Red	If Door valve is open, the warning is ON.
	Greasing system Red warning	Red	The red warning is a warning from the Greasing module. If the warning is ON, Check which errors are in the Greasing module.
	Greasing system Green warning	Green	If Greasing module is active, the warning is ON.
	Engine coolant level warning	Red	If the Engine coolant level is low, the warning will be ON. If the warning is ON, the engine must be stopped immediately. Check which errors are in the motor diagnostics.

Icon	Icon Name	Color	Function
	Seat belt warning	Red	Seat Belt Warning. If the vehicle is below 20 km / h, only visual; on top, it gives both visual and audible warning.
	Hostess warning	Amber	If passengers press the button for hostess on the air duct, the warning is ON.
	Baggage lock warning	Red	All luggage in the central locking system is a locked warning. If it flashes, there is a malfunction.
	Passenger stop request warning	Red	Passenger stop request warning.
	Destination table warning	Amber	If Destination table is active, the warning is ON.
	Disable Passenger stop request warning	Red	Disable Passenger stop request warning
	Retarder Active warning	Amber	If foot or hand retarder Active is active, the warning is ON.
	Passenger door lock warning	Red	If At least one of the Passenger door is locked, the warning is ON.
	ELC warning	Amber	The amber warning is a warning from the ELC. If the warning is ON, Check which errors are in the ELC diagnostics
	ELC warning	Red	The red warning is a warning from the ELC. If the warning is ON, Check which errors are in the ELC diagnostics
	Fuel filling cap open	Amber	If Fuel filling cap is opened, the warning is ON.
	Baggage cap open	Red	If At least one of the Baggage cap is opened, the warning is ON.
	Press clutch pedal warning	Amber	Info for press clutch pedal.

KEYPAD FUNCTION

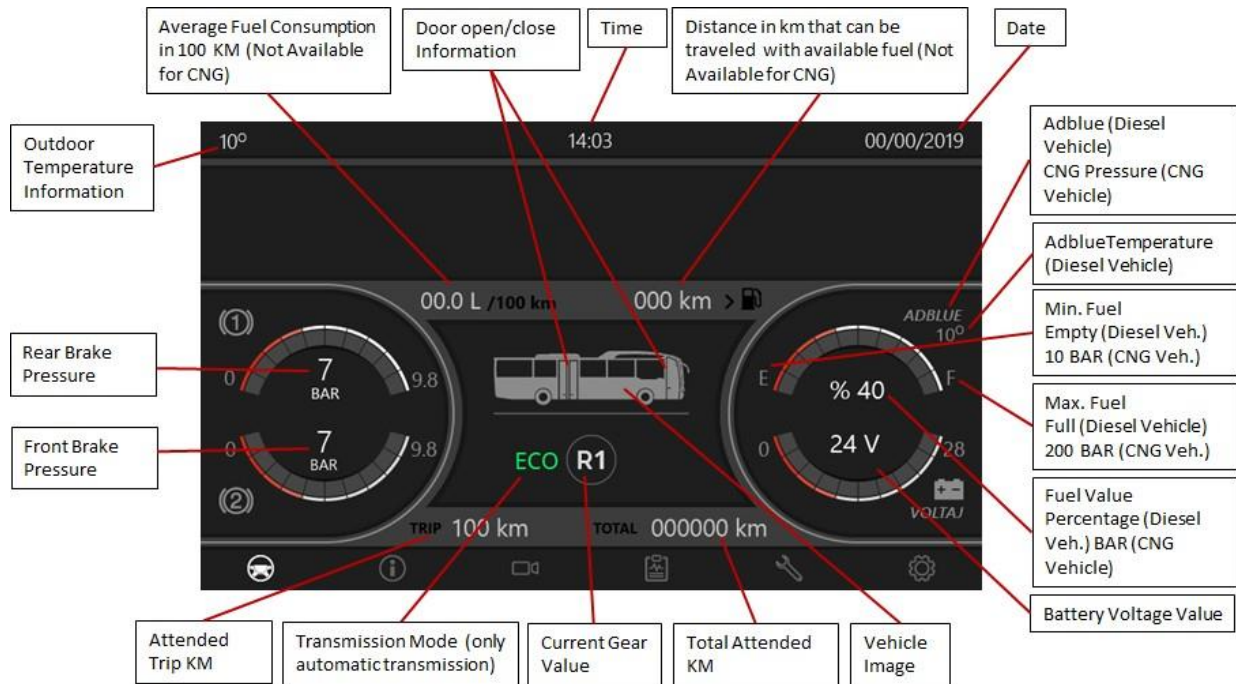


ICON	Name	Function
	ICON, FRONT DOOR	Sends command to open/close front door.
	ICON, REAR DOOR	Sends command to open/close rear door.
	ICON, ALL DOOR	Sends command to open/close all door.
	ICON, HAZARDS	Sends command to activate the hazards.
	ICON, RIGHT SIDE DOOR SELECT	Sends command to select the right side.
	ICON, WINDOW RESISTANCE	Sends command to activate resistance of window Heating works as 8 minutes working-4 minutes waiting. During this 4- minute waiting period, the driver cannot start the system again.
	ICON, MIRROR RESISTANCE	Sends command to activate resistance of mirror. Heating works as 8 minutes working-4 minutes waiting. During this 4-minute waiting period, the driver cannot start the system again.
	ICON, LDWS DISABLE	Sends command to cancel LDWS system.
	ICON, AEBS DISABLE	Sends command to cancel AEBS system.

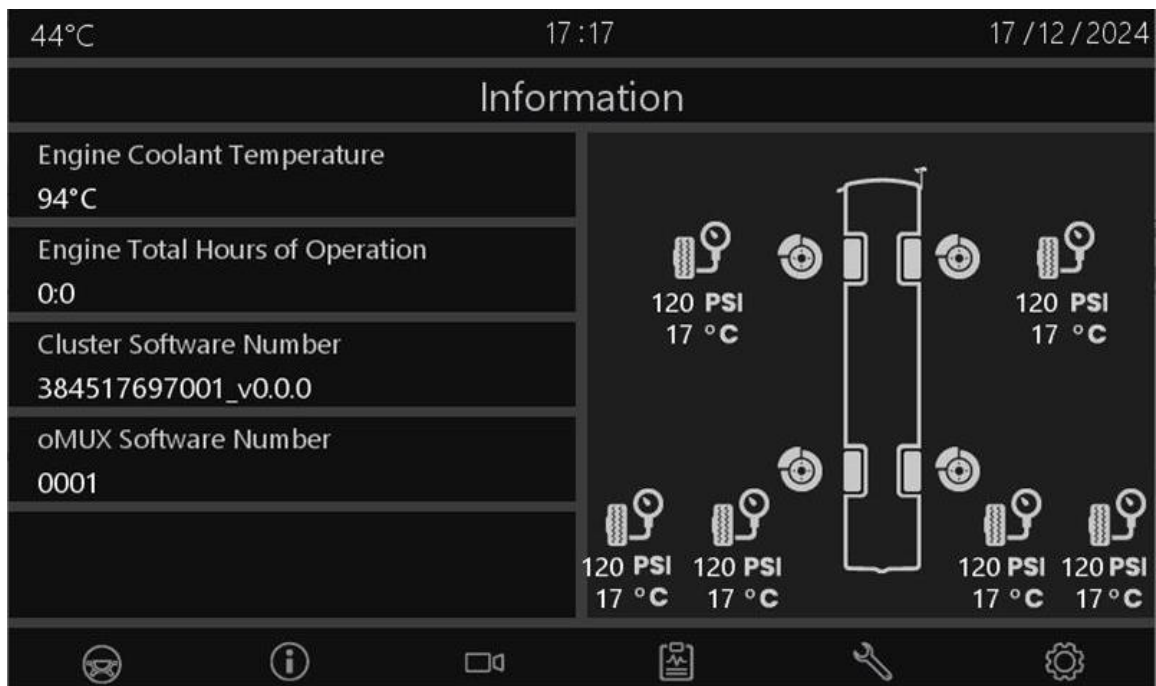
ICON	Name	Function
	ICON, ASR DISABLE	Sends command to cancel ASR system.
	ICON, FOOT RETARDER DISABLE	Sends command to cancel foot retarder system.
	ICON, INDOOR LIGHTING	Sends command to activate the indoor lighting.
	ICON, FRONT FOG	Sends command to activate front fog.
	ICON, READING LAMP	Sends command to activate reading lamp.
	ICON, REAR FOG	Sends command to activate rear fog.
	ICON, NIGHT LAMP	Sends command to activate night lamp.
	ICON, LOW BEAM	Sends command to activate low beam.
	ICON, BAGGAGE LAMP	Sends command to activate baggage lamp.
	ICON, PARKING LAMP	Sends command to activate parking lamp.
	ICON, DRIVER LAMP	Sends command to activate driver lamp.
	ICON, AUTO LAMP	Sends command to activate auto lamp system. If this key is active and the cluster sleeps, it becomes active automatically when the ignition is turned on and the cluster wakes up.
	ICON, HOSTES LAMP	Sends command to activate hostes lamp.
	ICON, TV/VIDEO	Sends command to activate TV.
	ICON, HILL HOLDER	Sends command to activate hill holder system.
	ICON, UPSIDE ELC	Sends command to activate upside ELC.
	ICON, DOWNSIDE ELC	Sends command to activate downside ELC.
	ICON, DRIVER POSITION ELC	Sends command to activate driver positon ELC.
	ICON, MAIN LAMP	For regulation. There is no any function at button.

CLUSTER SCREENS

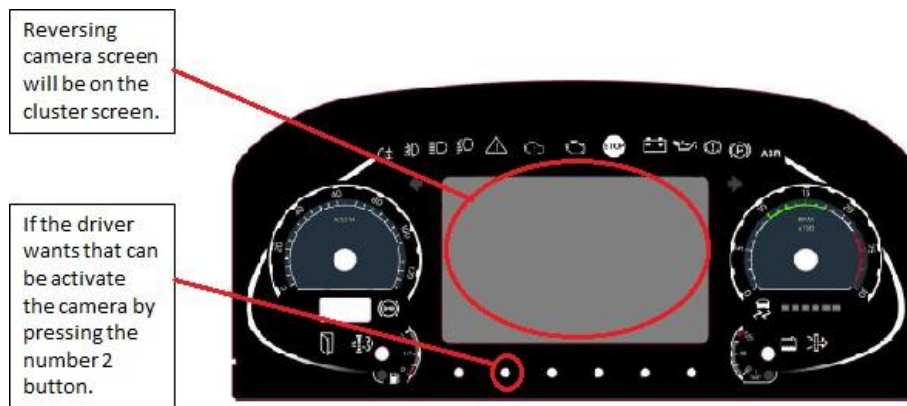
Main Screen



Information Screen

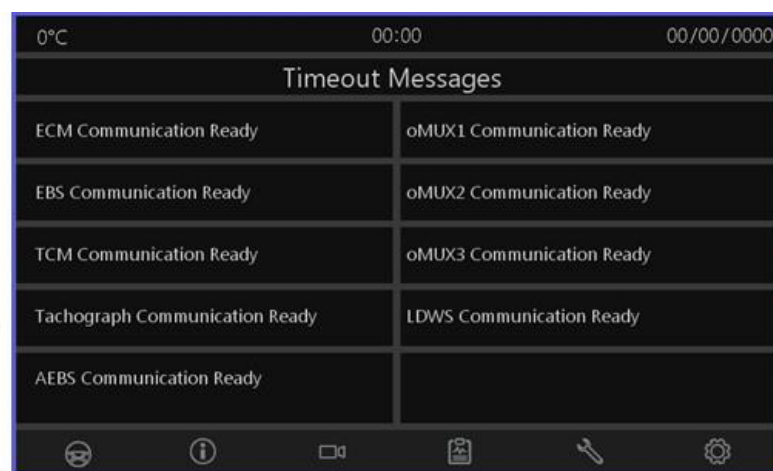


Rear Camera Screen



Timeouts Screen

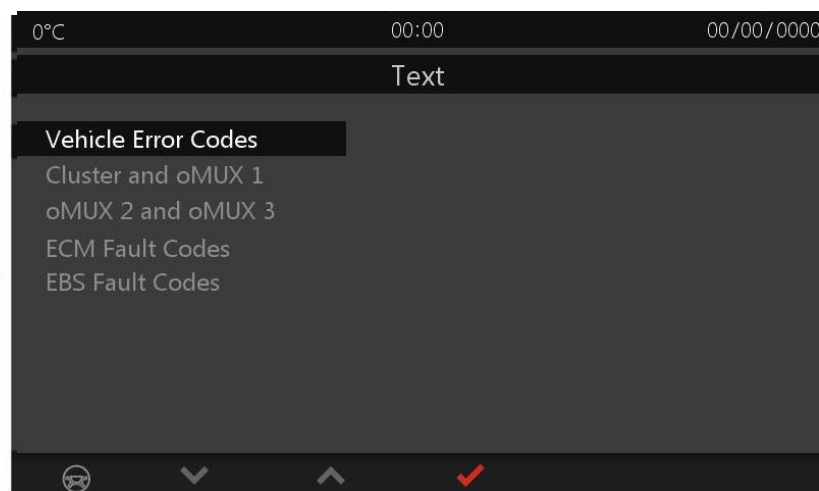
It gives a warning if there is a problem in the Can Bus line with the systems specified in the vehicle. (Systems that are non-existent won't show up on the timeout page.)



Diagnostic Screen

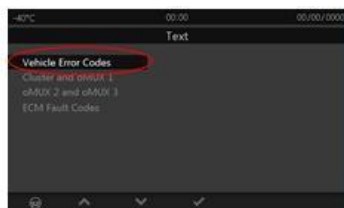
DiagnosticScreen:

- Vehicle Error Codes
- Cluster ve oMUX 1
- oMUX 2 ve oMUX 3
- ECM Error Codes



Selected screen opens when the 4th button is pressed

Maintenance Screen



The specified error codes will be in the vehicle manual. The driver will be able to find the equivalent of the specified codes from the user manual.
For example: AEC001, right front dipped beam malfunction



Code	Function	Code	Function	Code	Function
AEC001	Front Door Step Lamp Fault	AEC031	Driver Window Up Fault	AEC061	Rear Right Indicator Lamp Fault
AEC002	Rear Door Opening Buzzer Fault	AEC032	Driver Window Down Fault	AEC062	Rear Door Step Lamp Fault
AEC003	Disabled Stop Warning Lamp	AEC033	n/a	AEC063	Hydraulic Fan Motor Control Fault
AEC004	TV Relay Fault	AEC034	Left High Beam Fault	AEC064	Rear Left Park Fault
AEC005	Bus Stop Warning Signal Fault	AEC035	Front Left Low Beam Fault	AEC065	n/a
AEC006	Rear Door Spot Light Fault	AEC036	Pictogram Table Fault	AEC066	Accelerator InterLock Switch Relay Fault
AEC007	Reverse Gear Signal Fault	AEC037	LED Park Lamp Fault	AEC067	PreHeater Water Pump Open Fault
AEC008	Destination Relay Fault	AEC038	Mirror Resistance Fault	AEC068	ECM KL15 Relay Fault
AEC009	Driver Lamp Fault	AEC039	DRL Left Fault	AEC069	Rear Door Rear Wing Solenoid Fault
AEC010	Hostess Lamp Fault	AEC040	PreHeater KL15 Signal Fault	AEC070	Main Water Valve Module Signal Fault
AEC011	n/a	AEC041	Left Side Marker Fault	AEC071	Rear Left Right Fog Lamp Fault
AEC012	Front Reading Lamp State1 Fault	AEC042	Right Side Marker Fault	AEC072	CNG Regulator Supply Fault
AEC013	Front Park Lamp Fault	AEC043	Front Right Indicator Lamps Fault	AEC073	Rear Left Indicator Lamp Fault
AEC014	Front Reading Lamp State2 Fault	AEC044	n/a	AEC074	Roof Heating Signal Fault
AEC015	Front Roof Lamp State1 Fault	AEC045	Front Right Fog Lamp Fault	AEC075	n/a
AEC016	Front Left Fog Lamp Fault	AEC046	Night Lamp Fault	AEC076	Heater Water Pump Signal Fault
AEC017	DRL Right Fault	AEC047	Horn Fault	AEC077	Rear Brake Lamps Fault
AEC018	n/a	AEC048	CNG Tube Supply1 Fault	AEC078	n/a
AEC019	Wiper Motor High Speed Fault	AEC049	Front Left Indicator Lamp Fault	AEC079	n/a
AEC020	Wiper Motor Low Speed Fault	AEC050	Opening Door Security Valve Fault	AEC080	ASR Disabled Signal Fault
AEC021	Rear Door Front Wing Solenoid Fault	AEC051	Dplus Signal Fault	AEC081	n/a
AEC022	Front Right Low Beam Fault	AEC052	n/a	AEC082	Rear Doors Open Signal Fault
AEC023	Front High Beam Fault	AEC053	n/a	AEC083	Fire System Fault
AEC024	CNG Tube Supply2 Fault	AEC054	Window Resistance Relay Fault	AEC084	Air Pressure Sensor 1 Fault
AEC025	n/a	AEC055	Stor Curtain Up Fault	AEC085	Air Pressure Sensor 2 Fault
AEC026	Front Roof Lamp State2 Fault	AEC056	Stor Curtain Down Fault	AEC086	Fuel Sensor Fault
AEC027	Wiper Water Pump Fault	AEC057	n/a		
AEC028	Front Left Right Luggage Lamp Fault	AEC058	Disable Lift InterLock Fault		
AEC029	Brake Lamps Active Fault	AEC059	InterLock Relay Fault		
AEC030	Front Door Solenoid Fault	AEC060	Reverse Lamps Fault		

0°C 00:00 00/00/0000

Cluster Inputs / Outputs

WK1 CN5/1: passive	IN19 CN6/31: passive	UBN19 CN6/23: passive
WK2 CN5/2: passive	UBN1 CN3/1: passive	UBN20 CN6/25: passive
WK3 CN5/3: active	IN20 CN6/32: passive	UBN21 CN3/9: passive
WK4 CN5/4: passive	IN21 CN6/18: passive	UBN22 CN3/10: passive
IN1 CN4/1: passive	IN22 CN6/35: passive	UBN23 CN3/11: passive
IN2 CN4/2: passive	UBN2 CN3/2: passive	UBN24 CN3/12: passive
IN3 CN4/3: passive	UBN3 CN3/3: passive	
IN4 CN4/4: passive	UBN4 CN3/4: passive	OUT1 CN3/13: passive
IN5 CN6/26: passive	UBN5 CN3/5: passive	OUT2 CN3/14: passive
IN6 CN6/28: passive	UBN6 CN3/6: passive	OUT3 CN3/15: passive
IN7 CN6/27: passive	UBN7 CN3/7: passive	OUT4 CN3/16: passive
IN8 CN6/34: passive	UBN8 CN3/8: passive	OUT5 CN6/9: passive
IN9 CN4/5: passive	UBN9 CN5/5: passive	OUT6 CN6/11: passive
IN10 CN4/6: passive	UBN10 CN5/6: passive	OUT7 CN6/13: active
IN11 CN4/7: passive	UBN11 CN5/7: passive	OUT8 CN6/15: passive
IN12 CN4/8: passive	UBN12 CN5/8: passive	OUT9 CN2/7: passive
IN13 CN4/9: passive	UBN13 CN6/17: passive	OUT10 CN2/8: passive
IN14 CN4/10: passive	UBN14 CN6/20: passive	
IN15 CN4/11: passive	UBN15 CN6/19: passive	
IN16 CN4/12: passive	UBN16 CN6/22: passive	
IN17 CN6/29: passive	UBN17 CN6/21: passive	
IN18 CN6/30: passive	UBN18 CN6/24: passive	

oMUX1 Inputs / Outputs

IN1 P3/2: passive	OUT2 P4/2: passive
IN2 P1/3: passive	OUT3 P4/7: passive
IN3 P5/8: passive	OUT4 P4/4: passive
IN4 P5/7: passive	OUT5 P4/9: passive
IN5 P5/11: passive	OUT6 P4/8: passive
IN6 P5/5: passive	OUT7 P5/15: passive
IN7 P5/6: passive	OUT8 P5/14: passive
IN8 P5/12: passive	OUT9 P5/4: passive
IN9 P5/9: active	OUT10 P5/1: passive
IN10 P2/14: passive	OUT11 P5/13: passive
IN11 P2/12: passive	OUT12 P5/10: passive
IN12 P2/11: passive	OUT13 P2/10: passive
IN13 P2/15: passive	OUT14 P2/7: passive
IN14 P2/2: passive	OUT15 P2/16: passive
IN15 P2/3: passive	OUT16 P2/13: passive
IN16 P1/7: passive	OUT17 P2/4: passive
IN17 P1/18: passive	OUT18 P2/1: passive
IN18 P3/12: passive	OUT19 P1/16: passive
IN19 P1/12: passive	OUT20 P1/13: passive
IN20 P1/9: passive	OUT21 P1/1: passive
IN21 P1/6: passive	OUT22 P1/2: passive
IN22 P1/5: passive	OUT23 P1/10: passive
OUT1 P4/1: passive	OUT24 P1/4: passive

Cluster ve oMux 1 module has input/output signals.

If there are input/output signals «active» if not present it is indicated «passive»

There are engine active warnings in Diagnostic Screen 3. Active malfunctions can be viewed from this screen instead of Cummins Insite.

Diagnostic Screen 3

ECM Active Messages

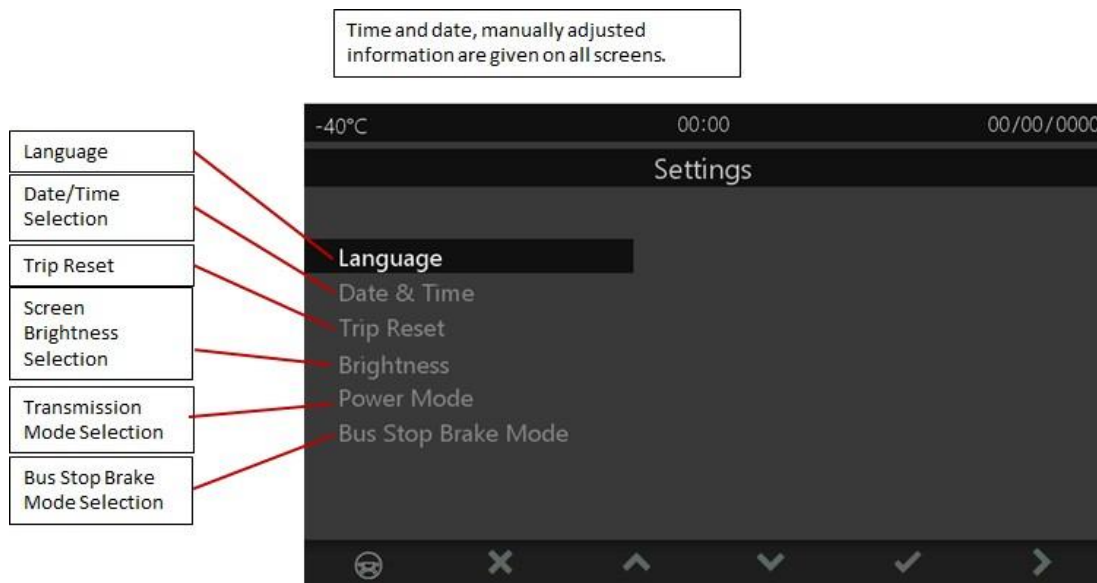
FaultCode	Count	Description
111	0	Engine Control Module Critical Internal Failure ? Bad Intelligent Device or Component
124	0	Intake Manifold 1 Pressure ? Data Valid But Above Normal Operating Range ? Moderately Severe Level
132	0	Accelerator Pedal or Lever Position Sensor 1 Circuit ? Voltage Below Normal or Shorted to Low Source
134	0	Remote Accelerator Pedal or Lever Position Sensor 1 Circuit ? Voltage Below Normal or Shorted to Low Source
585	0	Engine Starter Motor Relay Circuit ? Voltage Below Normal or Shorted to Low Source
1839	0	Gas Supply (Regulated) Pressure Sensor Circuit - Voltage Above Normal or Shorted to High Source
3843	0	Cruise Control Disable Command ? Abnormal Update Rate
2777	0	Aftertreatment Regeneration Inhibited Due to Inhibit Switch ? Condition Exists
7245	0	Fuel Control Module - Bad Intelligent Device or Component
7384	0	Engine Turbocharger 1 Boost Pressure - Data Not Rational - Drifted Low

-40°C 00:00 00/00/0000

EBS Active Messages

FaultCode	Count	Description
001004	3	ECU - Diagnostic override-This is a state. System forced to back-up via diagnostic.
001006	2	ECU - Internal error-Download new dataset. Download software update to the central ECU. Erase fault memory. If the error is reported again, the central ECU is to be replaced.
001156	4	ECU - Internal error-SW incompatibility-Download a proper software to the ECU.
001040	5	ECU - Wake-up error-Check the ECU-to-FBM wiring and the FBM. Erase fault memory. If the error is reported again, the central ECU is to be replaced.
053214	1	Yaw rate sensor - Longterm calibration incorrect-Check the mounting of the sensor - If mounting of the sensor is OK and the error is still reported, change the sensor
132045	2	EPM at wheel 3 - Electro-Electro-Pneumatic Module Internal error-Replace the EPM

Setting Screen



SWITCHES

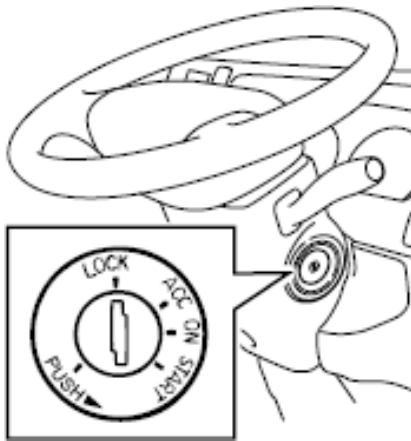
STARTER SWITCH

WARNING

- While driving, never turn the starter switch to the "LOCK" position. The key could be removed from the switch, which then locks the steering wheel. This is extremely dangerous.

ADVICE

- Using a key sticking with dirt or dust, etc. may possibly damage the starter switch. Make sure to wipe off any dirt or dust, etc. before inserting the key.
- After starting the engine, do not turn the starter switch to the "START" position. Otherwise, the starter motor may be damaged.
- Using electrical devices such as the audio system for an extended time period with the engine stopped can completely discharge the battery.



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.

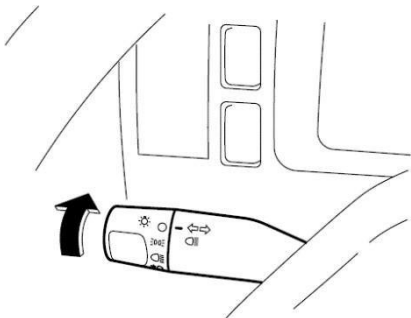
ON : The key stays in this position while the engine is running.

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.

NOTE

- 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.

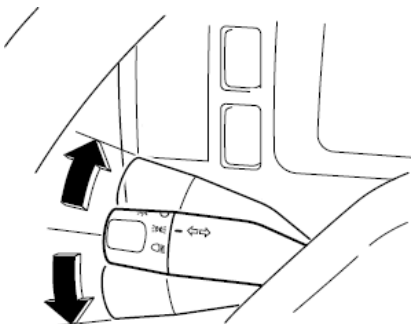
LIGHT CONTROL SWITCH



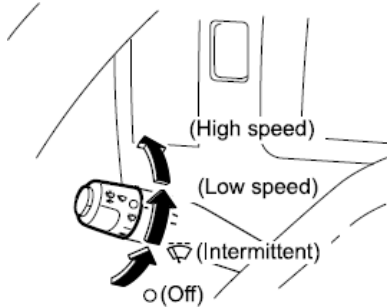
Turning the light control switch to the position indicated in the table causes the relevant lights to illuminate.

The light control switch can be used when the starter switch is placed in the "LOCK" or "ACC" position.

TURN SIGNAL AND WINDSHIELD WIPER SWITCH



When turning left or right, move the lever up or down to flash the turn signal light.



NOTE

- If the steering wheel is only turned a small amount, turn off the signal manually. Lightly press and hold the lever up or down when overtaking or changing lanes. The turn signal light continues flashing as long as the lever is held up or down. The lever moves back to neutral as soon as it is released.

To use the windshield wiper and washer lever, the starter switch must be in the "ON" position.

Windshield washer fluid is sprayed over the windshield when this lever is pulled. At the same time, the windshield wiper operates.

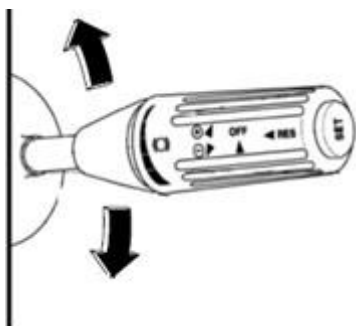
CAUTION

- At extremely low temperatures, washer fluid may freeze on the windshield after being sprayed, obstructing your forward view. In such a case, warm up the windshield before using the windshield washer.

ADVICE

- The safety system may work to stop the wiper when excessive load is applied on the motor. In this case, turn the switch to the off position and, a few minutes later, check to see if the wiper is back to normal operation. If the wiper frequently stops operation, refrain from using it and contact the nearest Isuzu Dealer.
- Before operating the wiper, ensure that the wiper rubber is not stuck on to the windshield. If the wiper rubber is stuck to the windshield and you still operate the wiper, the wiper may break or the wiper motor may fail.
- Do not operate the wiper on a dry windshield surface. Otherwise, the windshield surface may sustain damage. Always use the windshield washer when wiping a dry glass surface.
- If windshield washer fluid does not come out in sufficient quantity, immediately release the switch. Otherwise, the motor may seize up.
- Do not hold the lever pulled for more than 30 seconds. Otherwise, the washer pump may sustain damage.
- When the vehicle is used in a cold-climate region, use washer fluid with appropriate concentration for the season to prevent frozen fluid.

RETARDER SWITCH



To apply the retarder while driving, move the lever down.

CAUTION

- It is extremely dangerous to apply the retarder on slippery roads (with their surfaces being wet, frozen, or covered with compacted snow) as the tires can skid.

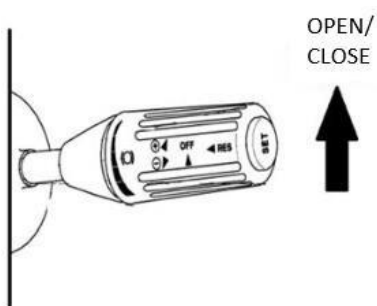
Conditions for Inoperable Retarder

Under the following conditions, the retarder does not engage.

- The accelerator pedal is pressed.
- The gearshift switch is in the "N" position.
- The vehicle is traveling at 5 km/h (3 MPH) or lower speeds.
- The engine speed is close to idling.
- During gear shifting.

CRUISE CONTROL

Open-Close



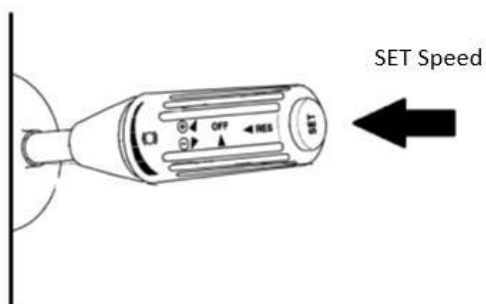
When "CruiseControl" is not open, «CruiseControl» is activated when the lever is moved 1 time in the direction of the up arrow. White warning is displayed on the screen. The speed value has not been set yet.



“CruiseControl” becomes disabled when the handle is moved once in the up arrow direction while “Cruise Control” is on. The white alert that appears on the screen disappears.



Set Speed



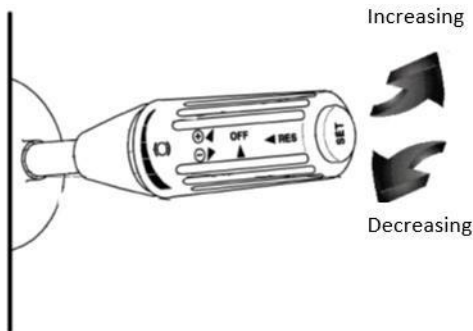
When the set button on the «CruiseControl» lever is pressed in the direction of the sign, the vehicle is set to the current speed value. A green warning and the set speed value are displayed on the screen.



By pressing the set button on the “Cruise Control” lever in the direction of the arrow, the vehicle is set to the current speed value. The green warning and the speed value set on the display appear on the screen.



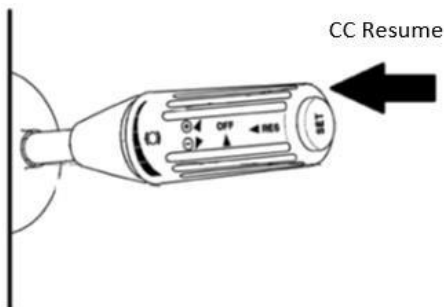
Control Speed Increase/Decrease



The "Cruise Control" lever is moved in the direction of increasing to increase the set speed value. When pressed and pulled one by one, the Set value seen on the screen will increase by 2-3 each. When pressed for 1 second in increment direction, speed value will increase by 2-3 by 0.5 seconds.

The "CruiseControl" lever is moved in the decreasing direction to decrease the set speed value. When pressed and pulled one by one, the Set value displayed on the screen will decrease by 2-3 each. When pressed for 1 second in the decrease direction, the speed value will decrease by 2-3 by 0.5 seconds.

Resume (Resuming The Old Setpoint)



Click the "RES" button on the "Cruise Control" lever pushed in the direction; "Cruise Control" will continue at the old Set value canceled due to the brake, clutch, retarder or exhaust brake. The green warning and the previous set speed value appear on the display. The next process will work the same way again.



HILL HOLD ASSIST OFF SWITCH



Press the switch to deactivate Hill Hold Assist. Press the switch again to reactivate the Hill Hold Assist.

DISABLED LIFT SWITCH



Use the disabled lift switch to activate the disabled lift.

DESTINATION INDICATOR SWITCH



Use the destination indicator to activate the destination route display. With the starter switch in the "ON" position, press the destination indicator switch to turn on the destination indicator display. Press the switch again to turn it to "OFF".

LCD SCREEN SWITCH



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.

HILLHOLDER SWITCH



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

If the automatic mode is active, the station brake is activated under the following conditions;

- Vehicle speed should be under 3km / h,
- If any door is open,
- If any luggage is open,
- If the rear engine cover is open,
- Fuel fiiling cover is open,
- Disable lift is open,
- Keypad or rocker switch is pressed
-

Deactivation takes place by pressing the accelerator pedal after all doors and covers are closed.

If manual mode is active;

- Fuel fiiling cover is open,
- Disable lift is open,
- Keypad or rocker switch is pressed.

PICTOGRAM SWITCH



It enables the pictogram in front of and behind the vehicle to be activated.

CENTRAL LOCK KEY



The trunk is unlocked when pressed the lower edge of the switch. The trunk is locked when pressed the upper edge of the switch.

EMERGENCY SWITCH SYSTEM



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

If the emergency switch is active,

- Indoor lighting II. Stage will be active.
- Door step lamp will be active.
- Hazards will be active,
- Driver lamp will be active,
- Hostes will be active,
- Cluster gives audible and visual warning.

SMART OPTIONS

Follow Me Options

If it is dark and The driver close ignition key to leave the vehicle, the headlights will remain on for a certain period of time for illumination.

Welcome to The Vehicle

If it is dark and the driver opens the doors with the remote control when driver comes to the vehicle, headlights will stay on for a certain period of time.

Cornering Lamp

When the steering wheel is turned to the right and left, the fog lights on the relevant side are activated and the cornering lighting system is activated.

If the vehicle speed is below 30 km/h, the fog lights on the relevant side are activated when the right or left signal is given.

Smart Wiper

If the wiper speed is in the last step, the wiper speed decreases automatically when the vehicle stops, and the driver can take it to the desired level while stationary.

Transmission Economi-Normal-Power Mode Interfaces

Transmission power mode options can be selected by the driver from the Cluster.

FMS Standard 4.0

Fleet Management System Standard 4.0 (All of Can bus messages according to FMS 4.0 standart)

ECM Diagnostic Fault Code

Error message are displayed on the Cluster screen instead of connecting to the ECM with Cummins Insite.

MUX System Diagnostic Menu

It shows the activity of the input/output signals of the Cluster and MUX modules.

Driver Scoring

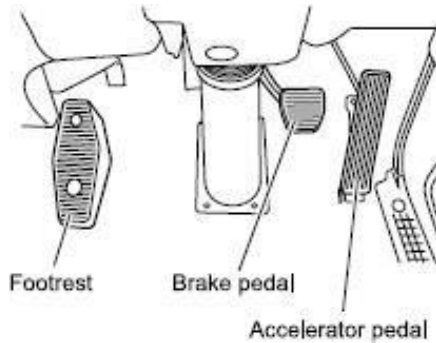
For the driver, scoring the vehicle driving characteristic is colored green-yellow-red. Each color consists of 2 levels. There are 6 levels in total. From green to red shows how efficiently the vehicle is used.

Language Options

There are 9 language options, Turkish-English-French-German-Italian-Spanish-Hungarian-Czech-Welsh. If desired, other languages can be added.

DRIVING CONTROLS

PEDALS



Sit in a correct driving position on the seat and operate the brake pedal and accelerator pedal with your right foot.

To avoid accidentally pressing the wrong pedal, check the pedal positions and practice putting your foot on the desired pedal.

NOTE

- If the accelerator pedal is depressed further after being almost fully depressed, it will be possible to forcibly shift into a lower gear (kick down). This will enable the rapid acceleration necessary to overtake other vehicles or climb steep slopes, etc.

GEARSHIFT SWITCH

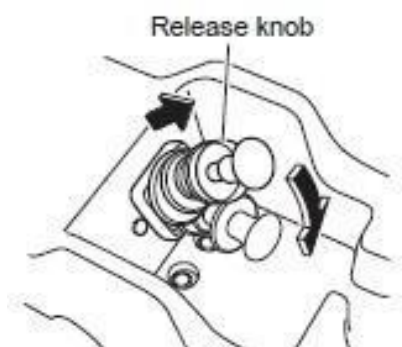


Smoother is a transmission system that allows the driver to move the vehicle from a standstill, drive the vehicle with gears automatically changing and bring the vehicle to a stop by only using the gearshift switch, accelerator pedal and brake pedal.

CAUTION

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

PARKING BRAKE LEVER



Parking brake warning light



Pull the parking brake lever from the fully released position to the lever locked position. The parking brake warning light will then come on. Make sure that you hear the air being released from the system.

To release the parking brake, lower the parking brake lever while raising the release knob. The parking brake warning light will then go out.

CAUTION

- When parking or stopping your vehicle, pull the parking brake lever and make sure that the vehicle does not start moving.
- Avoid parking your vehicle on a slope as much as possible and choose a level and flat place. If it is unavoidable to park your vehicle on a slope, be sure to set the parking brake fully, make sure that the vehicle does not move, and block the wheels with chocks for added safety. Engage the transmission in a gear for more secure parking.
- Do not use the parking brake while the vehicle is in motion except in an emergency. Applying the parking brake before the vehicle has stopped can cause the tires to lock or the vehicle to spin, possibly causing an accident.
- Unless the parking brake is fully released during driving, a fault and/or a fire may be caused.
- Illumination of the parking brake warning light does not mean that the parking brake is fully applied. The parking brake lever must be fully pulled up.
- After using the parking brake during driving, be sure to check if any failure has been caused.

ANTI-LOCK BRAKE SYSTEM (ABS)

Wheels may be locked and slip during sudden braking or braking on a slippery road surface such as a snowy road. ABS is a device to prevent the wheels from locking by detecting a slippery condition during braking and to secure directional stability and handling stability of the vehicle. ABS is only to assist in slippery conditions and will not prevent an accident if you exceed safe driving speeds for road conditions. Always drive safely.

CAUTION

- ABS does not prevent accidents if you do not drive safely. Drive the vehicle at a safe speed.
- Install tires of the specified size, same brand and same tread design (including winter tires) on all wheels. If different tires are installed, the braking distance becomes longer and directional control stability of the vehicle decreases. This is very dangerous.
- Steering during sudden braking (when the ABS is working) will feel slightly different than it does when the brakes are not applied. Operate the steering wheel carefully keeping this in mind.
- For full-air brake models, ABS operation consumes the brake system air. When the air pressure drops and the air pressure warning light and the buzzer are activated, immediately stop the vehicle at a safe place and wait for the required air pressure to be recovered before driving.

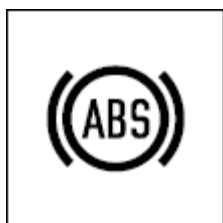
ADVICE

- Driving in sand or on a muddy road may adversely affect the brakes and ABS sensors. Wash the vehicle to remove sand and mud after operating the vehicle in sandy or muddy conditions.
- Before washing the vehicle, provide necessary protection to prevent water from being splashed on the ABS components (sensors and actuators). Especially when using high-pressure washing, be careful not to allow water to be directly sprayed onto the ABS components and their harness connectors.

NOTE

- ABS is not activated immediately after starting the vehicle. It is activated only when the vehicle speed reaches approx. 10 km/h (6 MPH). ABS operation is inactive when the vehicle speed reduces to approx. 5 km/h (3 MPH).

ABS Operation Indications and Signs



When the starter switch is placed into the "ON" position, the ABS warning light comes on and then goes out in approx. 2 seconds. The ABS is normal if the warning light goes out.

When ABS is activated, slight vibration is generated on the steering wheel and an operating sound can be heard from the ABS equipment.

NOTE

- If the ABS warning light does any of the following, the ABS may be faulty. Please contact the nearest Isuzu Dealer.
 - If the ABS warning light comes on during driving
 - The light does not come on when the starter switch is placed into the "ON" position
- Even if a problem has occurred with the ABS, the regular brakes will still work normally. However, ABS will not operate.

Precautions for Driving an ABS-Equipped Vehicle

ABS is not a device that enables driving and stopping under conditions exceeding safe driving limits. Always drive safely.

CAUTION

- When braking suddenly, continue pressing brake pedal hard so that the ABS can take effect.
- When braking suddenly, do not pump the brakes (pushing and releasing the brake pedal little by little). Pumping brakes will increase the braking distance.
- The braking distance on slippery road surfaces is longer than that on a normal dry paved road even with an ABS-equipped vehicle. When ABS is activated in the following road surface conditions, the braking distance may be slightly longer compared to that of vehicles not equipped with an ABS. Therefore, always be aware of the road and tire condition (tire type and wear condition), observe safe driving habits and drive the vehicle while keeping a safe following distance.
 - When driving on a gravel road, or a road with a deep snow covering.
 - When tire chains are used.
 - When driving over road joints or bumps such as light reflectors on the road.
 - When driving on a bumpy road, stone-paved road or track.
 - When driving over an iron plate or manhole lid.
- ABS does not work for wheel skid during a standing start, acceleration and cornering which do not involve braking. On a very slippery icy road, tires may lose grip and steering wheel operation may not be able to control the vehicle's direction, resulting in very unstable driving. Always drive the vehicle observing a safe speed well matched with both road surface and tire conditions, and avoid sudden braking.
- If powerful engine braking is applied on a very slippery icy road, the drive wheels may be locked (the ABS then does not work), resulting in loss of vehicle control. If this happens with a manual transmission vehicle, disengage the clutch or place the gearshift switch into the "N" position to prevent engine braking from acting on the drive wheels. Then, drive the vehicle with the gearshift switch placed in an appropriate gear.
- When ABS is activated, a slight vibration (especially when the road surface is different between right and left wheels) and pulling may be felt on the steering wheel. In addition, an operating sound is produced from the ABS actuators. This does not indicate any abnormal condition. Stay calm and operate the steering wheel properly.

ANTI-SLIP REGULATOR (ASR)

ASR is a device that helps prevent the drive wheels from spinning and improve vehicle motion stability when driving on a snowy or otherwise slippery road surface. The ASR is automatically activated when the engine is started. You may cancel the ASR operation using the ASR OFF switch.

CAUTION

- When ASR is activated, the ASR indicator light (green) comes on. The road surface at this time is very slippery. If the indicator light comes on, drive carefully and reduce the speed sufficiently before negotiating a curve.
- Even with the ASR-equipped model, when driving on a snowy or icy road, carefully drive the vehicle, installing tire chains or winter tires.
- ASR is not a device to drastically improve the vehicle starting performance. Carefully operate the accelerator pedal when moving on an icy slope.
- When tire chains are installed, it may be easier for you to start the vehicle to move on an icy slope if the ASR is canceled. Be aware, however, that ASR deactivation will result in reduced stability of vehicle operation.

NOTE

- You may notice minimal vibrations or operating sound when starting and accelerating the vehicle on a slippery road. This sound is generated when ASR is operating.
- The engine speed may suddenly decrease, but this is because the ASR device is operating.

ASR OFF Switch



Use this icon when you want to cancel the ASR. When you press this icon while the ASR is active after starting the engine, the ASR is cancelled and the icon is pressed again, the ASR function turns back on.

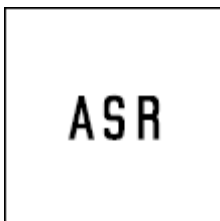
ADVICE

- When you turn off the ASR, it will not be available to assist you in slippery driving conditions. Always use caution when driving on slippery roads.
- Be sure to enable the ASR during normal driving.

NOTE

- If the ASR is off when the engine is turned off, it is automatically re-enabled when you restart the engine.

ASR Operation Check and ASR Operation



When the starter switch is turned to the "ON" position, the ASR indicator light comes on amber and then turns green before it goes out in about 2 seconds. ASR is normal if the indicator light goes out.

When ASR is operating, the ASR indicator light (green) comes on. When the ASR OFF switch is pressed, the ASR indicator light (amber) comes on.

NOTE

- If the ASR indicator light does any of the following, ASR may be faulty. Please contact the nearest Isuzu Dealer.
 - When the ASR indicator light (green) remains on while driving on a firm, dry road.
 - When the ASR indicator light (amber) comes on during driving (when the ASR OFF switch is not operated).
 - The ASR indicator light does not come on when the starter switch is turned to the "ON" position.
- If the ASR is faulty, it does not interfere with normal driving. However, the ASR will not function.

Precautions for Driving an ASR-equipped Vehicle

ASR is not a device that enables driving under conditions exceeding safe limits. Always drive safely.

CAUTION

- The ASR does not increase the road grip of tires although it improves the starting and accelerating performance on a slippery road surface when compared to a model without ASR. On an icy or otherwise slippery road, the grip of tires decreases which also reduces steering control, resulting in unstable vehicle behavior. Always drive the vehicle observing a safe speed well matched to the road surface and tire conditions, and also avoid speeding.
- Even if ASR is equipped, avoid sudden operation of the accelerator pedal and steering wheel. Especially when starting the vehicle on a slippery road, start up slowly as you would in a vehicle without ASR.

NOTE

- When you drive up a slippery, long slope by increasing the engine speed, where the tires may slip, or when you want to dislodge the vehicle from a deep snowy road or mud, you can press the ASR OFF switch to disable the ASR system.

ELECTRONIC BRAKE SYSTEM (EBS)

EBS (Electronic Brake System) is a system that adds electronic signals to the brake air control system (sent by the brake pedal when it is depressed) in order to improve air brake responsiveness. The EBS maintains the same brake feel regardless of whether the vehicle is loaded or not and is a device that enhances driver operability and safety.

CAUTION

- The EBS is not a device to counteract unsafe driving practices. Always maintain a safe speed as well as a safe distance between yourself and other vehicles.
- All tires installed to the vehicle should be of the specified size, as well as be of the same brand and with the same tread design (this includes winter tires). Installing different types of tires to the vehicle is dangerous and could result in reduced braking ability and unstable vehicle operability.

EBS Operation Check, Operation, Malfunction



When the starter switch is turned to the "ON" position, the brake warning light comes on before going out approximately 3 seconds later. The EBS is normal if the warning light goes out. If the warning light does not come on even when the starter switch is turned to the "ON" position, it may be possible that the bulb has burned out or there is an EBS malfunction.

When EBS is operating, operating sounds can be heard from the EBS components.

If the brake warning light comes on or flashes during driving, the EBS, ABS/ASR may be malfunctioning. Please contact the nearest Isuzu Dealer.

NOTE

- Even if the EBS has malfunctioned, the regular brakes will still operate normally. Because the EBS will be inoperable at this time, it will be necessary for the brake pedal to be depressed more strongly than normal in order to achieve the required brake force.

Driving Precautions for Vehicles Equipped with EBS

The EBS is not so versatile that it enables driving under conditions that exceed safe limits. Always drive safely.

WARNING

- If the starter switch is turned to the "ON" position (engine start-up) on a slope, etc., the EBS may be affected due to a battery voltage decrease, resulting in the vehicle moving down the slope. After either pulling the parking brake lever or fully depressing the brake pedal, turn the starter switch to the "ON" position (engine start-up).

CAUTION

- Although models with EBS may have enhanced brake responsiveness when compared to models without EBS, the EBS is not a device to counteract unsafe driving practices. Always drive the vehicle while observing a safe speed.
- In models with EBS, the EBS is activated when the brake pedal is depressed, regardless of whether the starter switch is turned to the "LOCK" position. Even if the starter switch is turned to the "ON" position with the brake pedal depressed, emissions from the EBS device are not vented. (In this case, the EBS system operation check will not be performed.) If exhaust sounds cannot be heard from the EBS system when the brake pedal is depressed and released, the EBS exhaust port may be frozen or blocked by snow or ice which must be removed.
- If battery voltage becomes low, EBS operation may be affected. Periodically inspect the battery.
- In models equipped with EBS, the vehicle's computer detects loading conditions, making it unnecessary for drivers to adjust how they depress the brake pedal, regardless of whether or not the vehicle is loaded or empty. However, as with vehicles not equipped with an EBS system, braking distance will be increased if the brake pedal is not sufficiently depressed when the vehicle is empty.
- The EBS will not function to its full capacity if the driver pumps the brake pedal instead of depressing it fully. Pumping the brakes will also lead to a decrease in brake performance caused by an increase in air. ("Pumping" the brakes is defined as continually depressing the brakes at a rate of once or more each second.)

ADVICE

- When installing an electronic device such as a radio, pay attention to the installation position and routing so that EBS functionality is not affected. Also, when installing, please contact the nearest Isuzu Dealer.

How to Make the EBS Function Correctly

Using the brake pedal stroke amount together with the vehicle deceleration rate, the EBS calculates loading conditions and determines the braking strength. If loading conditions change, the EBS recalculates the weight. This recalculation will be completed only after the vehicle has been brought to a complete stop from a speed of 30 km/h (19 MPH) or more a total of 3 to 4 times without the brakes being pumped.

CAUTION

- When the brake warning light is illuminated, it signals that an EBS malfunction has occurred. In this case, although the feeling of the brakes will change considerably due to the in operation of the EBS, the regular brakes will still operate normally. If the EBS malfunctions, firmly depress the brake pedal, stop the vehicle, and contact your nearest Isuzu Dealer.

DRIVER SUPPORT SYSTEMS

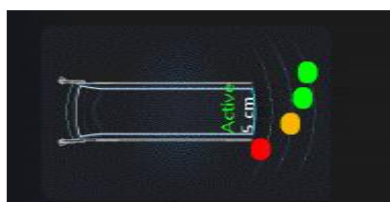
REVERSING DETECTION

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

Optical signal & Acoustic signal

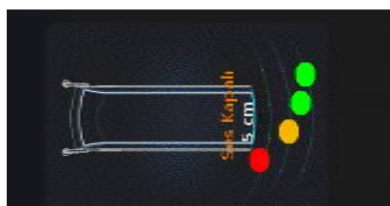
- The system is activated when the ignition key is turned on and is activated when the vehicle is put into reverse gear. When the sensors detect an object behind, the optical signal gives a warning as follows, accompanied by the acoustic signal.

Parking Sensor Active, Sound On



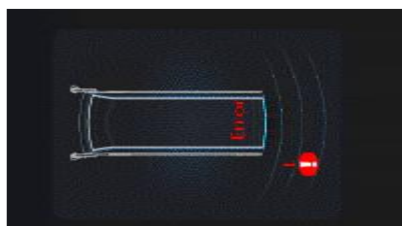
- Disabling the acoustic signal to avoid disturbing it is done via the menu. In this case, the following image will appear on the screen.











Parking Sensor Active, Sound Off




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

In case of parking sensor error;



ISA active	
ISA deactive	
ISA Faiure Warning Signal	
ISA Faiure Warning Signal no communication gps or camera & Mulfunction Warning -	
ISA Faiure Warning Signal communication with only camera or gps	
BSIS Collusion Warning Signal	
MOIS Information Signal	
MOIS Warning Signal	
BSIS/MOIS/PLCA Failure SignalBSIS Automatic Deactivation MOIS Manual & Automatic DeactivationBSIS/MOIS/PLCA Deactivation	
PLCA Warning Signal	

DDAW Warning	
DDAW Deactivated & Malfunction Warning	
Cyber gateway secure	
Cyber Gateway Not Secure	
Cyber Gateway Not available	

TPMS(Tire Pressure Monitoring System)

- Tyre pressure information is transmitted to the driver.

The TPMS warning should illuminate in the following situations.

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

ISA(Intelligent Speed Assistant)

The function works in conjunction with GPS and the camera.

- The driver is informed of the speed limit on the route.
- When the specified speed limit is exceeded, the driver receives a visual and acoustic warning.

LDWS(Lane Departure Warning System)

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

AEBS(Advanced Emergency Braking System)

- The system works to prevent potential collisions with passenger cars, vans, trucks, lorries etc.
- It gives at least 2 warnings, at least 1 of which is acoustic, before braking.
- AEBS operates with a 3-phase brake intervention strategy;
 - **Warning phase:** Gives visual and acoustic warning before potential braking.
 - **Partial braking phase:** If the driver has not braked after the warnings in the first phase, the system decelerates the vehicle with an average braking acceleration of -3.5m/s^2 .
 - **Emergency braking (full brake) phase:** If the driver cannot prevent a potential collision in the first 2 braking phases, the system decelerates the vehicle with the maximum braking acceleration required.
- The function does not work when the accelerator pedal is in the kick down position.

PAEBS(Pedestrian Advanced Emergency Braking System)

- The function is activated in the speed range 10km/h-60km/h.
- It is activated to prevent collision with cyclists and pedestrians/reduce the collision speed.
- PAEBS operates with a 3-phase brake intervention strategy;
 - **Warning phase:** Gives visual and acoustic warning before potential braking.
 - **Partial braking phase:** If the driver has not braked after the warnings in the first phase, the system decelerates the vehicle with an average braking acceleration of -3.5m/s^2 .
 - **Emergency braking (full brake) phase:** If the driver cannot prevent a potential collision in the first 2 braking phases, the system decelerates the vehicle with the maximum braking acceleration required.
- The function does not work when the accelerator pedal is in the kick down position.

MOIS

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

When objects enter the radar scanning area;

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

BSIS

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

When objects enter the radar scanning area;

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

LCDA(Side Lane Vehicle Warning)

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

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

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

ACC(Adaptive Cruise Control)

- The system detects the distance and speed of the vehicle in front and adapts its speed according to the vehicle in front.
- While applying the distance control strategy, the system uses the engine and service brakes according to the current conditions.

TIPS ON SAFE DRIVING**DRIVING SAFELY****GET PLENTY OF REST**

If you drive when you are tired, you will get sleepy and lose concentration. Please get plenty of rest before you drive.

TAKE BREAKS DURING LONG JOURNEYS

Driving long distances is tiring. Please take rest breaks from time to time.

ON THE ROAD**CAUTIONS FOR DRIVING**

perform checks.

- Concentrate on driving safely, obeying all legally designated speed limits, road signs and traffic signals.
- Do not place the starter switch to any position other than the "ON" position while driving. The power steering would stop working, making steering extremely difficult. Also, the brakes would not work well, putting you in extreme danger.
- If you notice any abnormal noise, abnormal smell or abnormal vibration from any part of the vehicle, immediately stop the vehicle in a safe place and perform checks.
- If a warning light comes on or a buzzer sounds while you are driving, immediately stop the vehicle in a safe place and

- Do not put your foot on the clutch pedal except when using the gearshift lever. Doing so would cause premature clutch wear.
- Slow down sufficiently when approaching a curve. Applying the brakes or sharply turning the steering wheel while turning the curve could cause the cargo to shift, the tires to slip and the vehicle to tip onto its side.
- While driving, do not place your hand on the gearshift lever except when changing gears. Doing so could cause the transmission to fail.
- Avoid scraping the tire sidewalls against curbstones or driving over dips and protrusions in the road surface. You could damage the tires, resulting in a blowout or flat tire.
- Never take your hand off the steering wheel while driving.

DRIVING UPHILL OR DOWNHILL

Uphill

Shift down well ahead of time in order to avoid a heavy load to the engine.

Downhill

- Be careful not to drive too fast on a downhill road.
- Use the same gear(s) that you used to drive up the hill. Also, if your vehicle is equipped with an exhaust brake, use the exhaust brake in order to avoid going too fast.
- Do not let the engine overrun.
- When going down on a steep slope, avoid driving the vehicle backward as much as possible. Drive it forward slowly on the down slope.
- Compared with forward movement, the braking distance of backward movement is longer, and the steering response of that is worse.
- If you must drive the vehicle backward, drive it very carefully and gradually by moving and stopping repeatedly in order to stop it any time.

NOTE

- An engine overrun is an engine speed increase that causes the tachometer needle to enter the red zone. It is dangerous because it can cause engine failure.

BRAKE OPERATION

The brakes give strong braking force with only light pressure on the pedal. Do not press the brake pedal hard except in the event of an emergency.

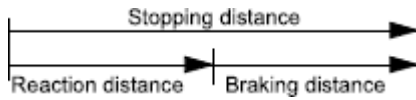
Model with Full-Air Brake System

1. Braking distances vary according to the vehicle speed and road conditions. First, slow down sufficiently using the engine brake and the exhaust brake.
2. Press the brake pedal and keep it pressed until just before the point at which you want the vehicle to stop.
3. Ease off the brake pedal.
4. Immediately before the point where you want the vehicle to stop, gently press the brake pedal to bring the vehicle to a halt.

CAUTION

- Do not allow the brake pedal to fully return. If you allow the brake pedal to fully return, there will be a short delay before the brakes start to work the next time you press the pedal, meaning that the stopping distance may be increased.
- Unnecessary frequent depression and release of the brake pedal reduces the vehicle's air pressure, thereby detracting from brake effectiveness.

Stopping distance




The vehicle's stopping distance consists of a reaction distance (from the point where the driver senses danger and presses the pedal to the point where the brakes start to work) and a braking distance (from the point where the brakes start to work to the point where the vehicle comes

to a halt). When driving, bear the stopping distance in mind. Maintain a speed and headway distance that allow you to stop safely even if a hazard occurs.

MAINTAINING A CLEAR FIELD OF VIEW

If the Windshield Fogs Up

Use the heater to blow hot air on the windshield or dehumidify the cabin using the air conditioner and place the vent knob in the  position. Place the inside/outside air selector in the outside-air position. Also, use commercially available antifog spray.

Night Time Visibility

If there is an oil film on the windshield, the lights of oncoming traffic will be reflected in many directions, making it hard for you to see ahead. Use glass cleaner to clean the glass and the wiper blades.

NOTE

- Worn wiper blades cannot wipe the windshield clean and thus cannot maintain visibility. When the wiper blades become worn, replace them with new ones.

DRIVING AT NIGHT

Nighttime driving is more dangerous than daytime driving because the field of view is narrower. Keep your speed down, and maintain an ample headway distance.

DRIVING IN FOG

Turn on the fog lights and drive slowly, using the road's center line as a guide. It is dangerous only to follow the lights of the preceding vehicle because they can cause optical illusions. Drive with caution.

HIGHWAYS

1. Speeds on highways are higher than those on regular roads, so there is more danger. Also, a breakdown on a highway represents a hazard to other vehicles and can cause an accident. Concentrate on safe driving. Remember to perform daily pre-operation inspections and use highway driving techniques. When performing daily pre-operation inspections, perform the checks shown in the table on the left with particularly great care.
2. When merging with traffic on a highway, use the turn signal lights to indicate your intentions ahead of time. Speed up sufficiently when you are in the acceleration lane. Pay attention to vehicles behind you and to conditions in the lane you are joining. Merge in such a way that you do not obstruct vehicles in the lane.
3. Your sense of how fast you are traveling becomes distorted on long highway drives. Constantly keep an eye on the speedometer, and maintain a suitable headway distance.
4. During high-speed driving, even a little turn of the steering wheel causes a big movement of the vehicle. Turn the steering wheel slowly.
5. Excessive use of the brake pedal is extremely dangerous because it rapidly wears the brake linings and causes brake fade. Make effective use of the engine brake and (if your vehicle is so equipped) the exhaust brake when you wish to decelerate.
6. When you wish to turn off a highway, use the turn signal lights to indicate your intentions ahead of time. Paying attention to vehicles behind you, turn off the highway smoothly so as not to obstruct other vehicles.

NOTE

- Frequent use of the brakes can cause the brakes to overheat so that the frictional force of the brake linings decreases and the brakes become less effective than normal. This phenomenon is called brake fade.

DRIVING ON SNOWY OR FROZEN ROADS

CAUTION

- On slippery roads, never accelerate rapidly, brake hard, decelerate rapidly or make sharp turns of the steering wheel.
- There is a risk of reduced grip between the tires and road surface and of increased braking distances. The danger of icy road surfaces is particularly great on bridges, in shady places and where there are puddles. Keep your speed down and be sure to use tire chains or winter tires on snowy or frozen road surfaces.
- Use lower gears to overcome the retardation effect of the engine. Apply the foot brakes lightly.

ADVICE

- With a Smoother vehicle, you can make a standing start in the manual-mode 3rd gear if you first hold down the brake pedal and move the gearshift lever to the "+" (upshift)" position.

NOTE

- For models that are equipped with anti-slip regulator (ASR), when you want to free the vehicle from snow where the tires may slip slightly by increasing the engine speed, you can press the ASR OFF switch to disable the ASR.

- For models that are equipped with electronic stability control (ESC) and the ESC OFF switch, when you want to free the vehicle from snow where the tires may slip slightly by increasing the engine speed, you can press the ESC OFF switch to disable just the anti-slip regulator (ASR).

BEFORE DRIVING IN COLD REGIONS

Getting In and Out of the Vehicle

The step can get icy in cold regions. Be careful not to slip when getting in and out of the vehicle.

Before Sitting in the Driver's Seat

Remove snow and ice from your shoes when getting into the vehicle. If you try to drive with snow on your shoes, your shoes would slip on the pedals and you would not be able to press the pedals properly, meaning that your driving would be inconsistent. Also, the cabin could become more humid, causing the glass to fog up.

Starting the Engine

When you start the engine, check that the accelerator pedal works smoothly.

NOTE

- For Smoother models, when the ambient temperature or the temperature inside the garage is lower than -25°C, the transmission needs to be warmed up in addition to the engine. To start the engine and operate the transmission correctly, warm them up sufficiently.

DRIVING ON SNOWY OR FROZEN ROADS (FENDERS)

CAUTION

- On snowy roads, water and snow splashed up by the tires can freeze and accumulate inside the fenders, making the steering wheel hard to turn. From time to time, get out of the vehicle and remove any accumulated snow. Do not use a sharp implement to remove the snow. Sharp edges could damage rubber parts.
- When the vehicle is driven or parked on a snowy surface, ice can form on the brakes, decreasing their effectiveness. From time to time while you are driving, press the brake pedal lightly and check the brake's effectiveness. Pay attention to vehicles both ahead and behind you when checking the brakes in this way.
- Also, check the brake's effectiveness as soon as possible when starting to drive the vehicle after it has been parked. If the brakes do not work well, drive slowly and gently press the brake pedal several times until the brakes dry out and start working normally.

REMOVING SNOW FROM THE GLASS AND UNDERBODY

To maintain an adequate field of view, use a plastic scraper to remove snow and frost from the glass surfaces. By using a plastic scraper, you can remove the snow and frost without scratching the glass. At this time, check whether the wiper blades are frozen onto the glass. Also, look under the vehicle and remove any lumps of ice that are stuck to the underbody. Be careful not to damage components.

ADVICE

- Do not use a sharp implement to remove snow. Sharp edges could damage rubber parts.

DRIVING ON POOR ROAD SURFACES (SAND OR MUD)

If the vehicle gets stuck in mud, pressing the accelerator pedal more than necessary will simply dig the vehicle deeper into the mud and make it harder to extricate. Either put stones, tree branches or blankets under the tires to gain traction or repeatedly drive forward and backward to use the vehicle's momentum to extricate it.

When you cannot avoid driving through deep mud, using tire chains is an effective way to avoid getting stuck.

ADVICE

- When driving in sand or mud, avoid hard braking, sudden acceleration and sharp turns of the steering wheel. Such actions could get the vehicle stuck and make it impossible to extricate.
- After driving through deep mud, any mud stuck to the vehicle can harm the steering, brakes and powertrain. Wash the vehicle and remove all mud and other incrustation.
- On anti-lock brake system (ABS) equipped model, the vehicle speed sensors are fitted on the wheels. When removing mud and other incrustation, take great care not to damage the components.
- Do not use a sharp implement to remove mud. Sharp edges could damage rubber parts.

NOTE

- For models that are equipped with anti-slip regulator (ASR), when you want to free the vehicle from mud where the tires may slip slightly by increasing the engine speed, you can press the ASR OFF switch to disable the ASR.

CAUTIONS FOR DRIVING IN HOT REGIONS

The engine will be prone to overheating in an environment where the ambient temperature is high. To prevent the engine from overheating, pay attention to the following points:

CAUTION

- Do not put well water, river water or other hard water in the engine cooling system. It would hasten the formation of rust and scale.

If foreign matter (insects, mud, etc.) gets stuck in the radiator's air passages, the cooling system's performance will deteriorate. Check the air passages for clogging, and remove any foreign matter using water under low pressure.

ADVICE

- When the ambient temperature is high, evaporation of battery fluid will become quicker. Frequently check the battery fluid level and, when necessary, add more fluid.

CAUTIONS FOR DRIVING IN COLD REGIONS

The following cautions apply to snowbound regions and to mountainous regions, ski resorts and other areas of extreme cold and/or snowfall. Please use them also for reference in winter in other regions.

For the sake of your vehicle, have your Isuzu Dealer make the winter preparations described hereafter. Also have these preparations made before driving to a cold region.

CAUTION

- Do not cover the front of the radiator with newspapers, cardboard or any other flammable material to raise the engine coolant temperature.
- If you allow the engine to warm up but the engine coolant temperature does not rise, have the nearest Isuzu Dealer inspect the thermostat.
- If you park in a place where there is a lot of snowfall, snow accumulating around the vehicle could limit ventilation. Running the engine with the vehicle in such a situation could cause exhaust gases to enter into the cab, resulting in carbonmonoxide poisoning. Take preventive action by, for example, clearing the snow around the vehicle.

PROTECTION OF ENGINE AGAINST OVERCOOLING

Overcooling of the engine not only accelerates wear of the vital engine parts but also deteriorates fuel economy.

COOLANT

To prevent the engine damage due to freezing of the engine coolant, mix the coolant and water at a ratio of 50/50. Replace damaged rubber hoses as the engine coolant becomes liable to leak even past minor cracks when the engine coolant solution is used.

REPLACING THE ENGINE OIL

The engine oil tends to harden with lowering temperatures. Use engine oil with a viscosity suited to ambient temperature.

WHEN ICE PREVENTS YOU FROM OPENING THE DOOR

If you try to force the key into the door, you could bend it. And if you try to pull the door open with undue force, the rubber seal around the door could come unstuck or become damaged. Use warm water to melt the ice, then quickly wipe it away and open the door.

If the wipers, electric door mirrors, or power windows freeze up, also use warm water to melt the ice and then operate the system. Otherwise, you could damage the mechanism and drain the battery. After that, wipe the water away.

WINTER TIRES

Use winter tires of the same sizes as the standard tires. Also, use wheels of the same size as those with the standard tires. A winter tire has reached its wear limit when the tread grooves have worn to half of the depth of the new tire. At this time, platforms indicating that the tire can no longer give adequate performance on snow become visible in the grooves. Replace the tire with a new one.

CAUTION

- Avoid sharp turns of the steering wheel and hard braking. Use the engine brake to decelerate. When applying the brakes on snowy or frozen road, lightly press the pedal several times rather than giving it one hard press. A single hard press of the pedal would be dangerous because it could cause the vehicle to slip or skid.
- If your vehicle is equipped with an exhaust brake, and you use the exhaust brake on a slippery road when the vehicle is not loaded, the resulting hard deceleration can cause the back of the vehicle to swing sideways. Exercise caution.
- Avoid driving at high speeds on a dry road with winter tires.
- Comply with local legal requirements when using winter tires.

CLEANING THE VEHICLE AFTER DRIVING ON SNOWY ROADS

CAUTION

- Remove snow that has stuck to the inside of the fenders and to the brake hoses. Otherwise, it may damage components. After driving on a salted road, wash the underside of the vehicle as soon as possible to prevent the salt from causing rust. Spraying water under high pressure is an effective way to get the salt off.
- After washing the vehicle, wipe the door openings dry.

NOTE

- On anti-lock brake system (ABS) equipped model, the vehicle speed sensors are fitted on the wheels. When removing snow, ice and other incrustation, take great care not to damage the components.
- Do not use a sharp implement to remove snow. Sharp edges could damage rubber parts.

SERVICE AND MAINTENANCE

BEFORE SERVICE AND MAINTENANCE

PRECAUTIONS FOR CHECKING AND ADJUSTMENTS

WARNING

- Make sure to turn off the engine and remove the key from the starter switch before performing any checks.
- Pull firmly on the parking brake lever and put the transmission in neutral.
 - If your vehicle is equipped with a manual transmission, make sure the gearshift lever is in "N".
 - If your vehicle is equipped with a Smoother system, place the gearshift lever in "N" and make sure the shift indicator displays "N" (for Smoother models with P-range, place the gearshift lever in the "P" position and check that the shift indicator displays "P").
- Select a place with a solid and level surface to perform the checking and maintenance work. Make sure to chock the wheels. It would be very dangerous if the vehicle started to move.
- To prevent personal injury, keep hands, tools and clothing clear of the engine cooling fan when the engine is running.
- When raising the vehicle, use a suitable jack, not the one provided on the vehicle.
- After raising the vehicle and before going underneath to perform work, make sure the vehicle is supported with jack stands.
- When performing work on the electrical system, begin by turning the starter switch to the "LOCK" position, wait at least 2 minutes, and then disconnect the negative cable from the negative terminal on battery. If the negative cable is disconnected within 2 minutes, the engine control module may malfunction.
- The engine, exhaust pipe and radiator will be hot immediately after the vehicle is driven. Be careful around these parts to prevent burns. Perform all checks when the engine is cold.
- Do not perform work near an open flame or other heat sources.
- When working on the fuel line, remove the fuel tank filler cap. The fuel system is under pressure and the fuel will overspill unless the pressure is relieved, possibly leading to combustion or a fire.
- Do not let the engine run in poorly ventilated garages or sheds. This could cause carbon monoxide poisoning.

CAUTION

- Discarded parts, oil, grease and fluids could have an adverse effect on the environment. It is difficult to dispose of these, so have your Isuzu Dealer handle all checks and replacements.

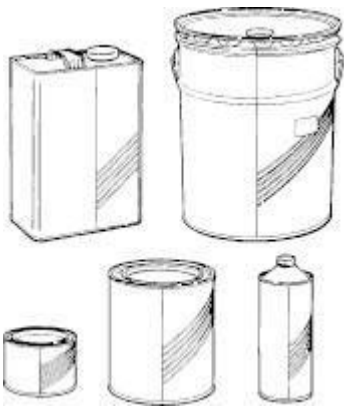
ADVICE

- Use only appropriate tools.
- Oils, brake fluid, battery fluid and engine coolant have lubrication, cooling and rust prevention functions. If these liquids deteriorate through loss or contamination, it will cause a decline in the performance of the parts and such problems as seizure or malfunctioning. Replenish or change these liquids when performing the checks (daily and periodic checks) as required by the relevant regulations or in accordance with the Maintenance Schedule (when either the specified driving distance or period of time, whichever comes first, has expired).
- Confirm that all systems and components are normal after performing the work.
- Do not leave the removed parts or tools in the engine compartment. They could damage the equipment if caught in the belts or other moving components.
- Dirty water, dirt and other impurities seriously impair the effectiveness of the oil, grease and fluids, and damage the parts. Exercise all due caution to prevent waste or other refuse from coming in contact with parts or materials that have been removed when changing or replenishing them.

DISCARDED PARTS, OILS AND OTHER LIQUIDS

- When changing oils, filters, engine coolant or other liquids, be sure to have a container ready in advance for their disposal.
- Use methods conforming to legal requirements for discarding or disposing of parts, oils, filters or engine coolant after change or replacement.

ISUZU GENUINE OILS AND GREASE



Periodically replenishing and changing the oil and grease is extremely important for maintaining your vehicle's performance and preventing malfunctions. Isuzu Motors guarantees the quality and performance of the Isuzu genuine oils and grease. We recommend the use of Isuzu genuine oils and grease for maintenance and service of your vehicle.

CAUTION

- Flames or other heat sources near spilled oil can cause a fire.
- Make sure to clean up all oil spills.

ENGINE-RELATED SERVICE AND MAINTENANCE

ENGINE CONDITIONS

Checking the Engine for Startability and Abnormal Noises

1. Make sure the parking brake is securely engaged. Step firmly on the brake pedal.
2. Make sure the transmission is in neutral.
3. Turn the starter switch to start the engine.

Check that the engine starts quickly with no abnormal noises.

CAUTION

- If your vehicle is equipped with the Smoother system, the engine will not start unless the transmission is actually in neutral.
- For safety, firmly press the brake pedal before starting the engine.

Checking Condition of the Engine at Low Speeds and during Acceleration



1. Make sure the transmission is in neutral and the parking brake is securely engaged.
2. Turn the starter switch to start the engine, and run it to warm up.
3. Check that the engine is running at a speed within the standard idle speed range.
4. Drive the vehicle, making sure the accelerator pedal does not stick when gradually accelerating, the engine speed rises smoothly and it does not knock.

ENGINE OIL

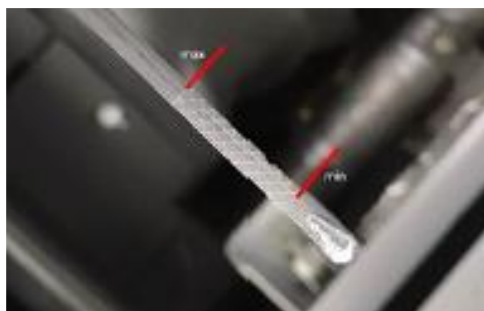
Engine oil is an important factor determining engine performance and longevity. Be sure to use only the specified oil and oil filters. The engine oil level must be checked and the oil should be changed regularly according to the Maintenance Schedule.

Checking the Engine Oil Level

Park the vehicle on a level surface and check the engine oil level before starting or at least 30 minutes after turning off the engine. To check the oil level, remove the oil dipstick, wipe off the end with a clean cloth, reinsert it and then gently remove it. If the oil level is between the "Inspection MAX" and "MIN" marks, the oil is at the correct level. Also check to see if there are any oil leaks.

ADVICE

- 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 dipstick, remove the oil filler cap and add the oil. Remove the oil dipstick at this time. Use only the specified engine oil.

WARNING

- 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.

ADVICE

- 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.

Changing the Engine Oil and Oil Filter

Engine oil and the oil filter are important factors in engine performance and lifespan. 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.

WARNING

- Hot engine oil can cause severe skin burns. Allow the engine to cool before draining the engine oil.

ENGINE COOLANT

The engine cooling system is a device for keeping the engine temperature at an appropriate level.

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

WARNING

- 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.

ADVICE

- 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.

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 Isuzu recommended coolant and water to be at 50% concentration.

For other than Isuzu genuine coolant (Arteco/BASF, etc.), it is recommended to use directly "50/50 Pre-diluted" product which is already diluted to 50% concentration.

ADVICE

- Isuzu does not guarantee the use of the engine or vehicle at the outside temperature of -30°C or below.
- If the engine or vehicle is used at the outside temperature of -30°C or below, the coolant concentration of 55% is recommended.

WARNING

- 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.

CAUTION

- Use only an Isuzu recommended coolant.
- Using any coolant other than that Isuzu 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 or radiator corrosion, causing engine coolant leaks and other problems.

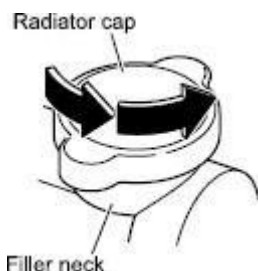
ADVICE

- 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 Isuzu Dealer for a check or repair.

Checking the Engine Coolant Level

The reserve tank is located behind the front-right wheel. 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.



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 your Isuzu Dealer when you discover leaks.

CAUTION

- Using the vehicle when there are leaks can lead to engine seizure.

Adding the Engine Coolant

When the engine coolant level in the reserve tank is below the "MIN" line, open the tank cap and fill to near the "MAX" line with engine coolant. Tighten the cap securely after the engine coolant has been replenished.

WARNING

- Check, replenish or change the engine coolant only after the engine has sufficiently cooled down.

ADVICE

- 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 your Isuzu Dealer.

Changing the Engine Coolant

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.
5. 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.
6. 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.
7. Fill the reserve tank with engine coolant to the "MAX" line. Close the cap of the reserve tank.
8. Start the engine, let it idle for 5 minutes or more and then stop the engine.
9. 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.
10. After firmly closing the radiator cap, idle the engine until the needle of the coolant temperature gauge reaches the center and the thermostat opens.
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.
If the vehicle is equipped with a heater, turn the temperature control to the maximum setting and make sure that hot air comes out.
11. Let the engine idle for 5 minutes and then stop the engine.
12. 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.
13. Repeat steps 10 through 12 until the engine coolant level in the radiator filler opening stops declining.
14. Firmly close the radiator cap.
15. Replenish the engine coolant in the reserve tank up to the "MAX" line, and then close the reserve tank cap.
16. 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.

CAUTION

- Do not start the engine when engine coolant has been drained from the radiator. This could cause the engine to seize up.

ADVICE

- Tighten the radiator drain plug by hand. Tightening with pliers or some other tool could damage it.

AIR CLEANER

Use of clogged air cleaner element not only causes a deterioration in the engine output but also increased fuel consumption.

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

NOTE

- Your air cleaner service cover may be in a different position than shown.

Changing the Air Cleaner Element

Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular scheduled service.

Check Vacuator Valve & Pre-Cleaner Tubes

Shut off the engine. Inspect the Vacuator Valve (or scavenge line) for damage. If damaged, replace. If plugged or full of contaminant, check the pre-cleaner tubes, which should be free of contaminant. If plugged or excess contaminant is visible, the pre-cleaner tubes will need to be cleaned.



To clean the pre-cleaner tubes, remove the housing service cover and Vacuator Valve and leave the filter installed (to avoid dust from entering the air induction outlet). Use a low-volume of compressed air to gently blow out the separator tubes. The compressed air can be pushed through both sides of the tubes AND from the drop tube where the Vacuator Valve attaches.



If compressed air is not available or the use of compressed air was not effective due to dried contaminant within the housing, remove the air cleaner from the machine, cover the air intake pipe to prevent contaminant. Remove the primary and secondary filters and Vacuator Valve. Use a low pressure water (e.g., garden hose) to clean the tubes and inside of housing. Direct the flow of water through the separator tubes from both ends and repeat as needed to clean out the housing. Spray out the Vacuator Valve port, alternating between it and the separator tubes. Make sure that all internal housing surfaces are dry prior to reinstalling the filters, Vacuator Valve, and unit on the machine.



CAUTION

- NEVER use a pressure sprayer to clean out the air cleaner housing while it is installed on the machine. Avoid using excessive pressure when spraying out the separator tubes as damage can occur.

Remove the Primary Filter



For end service pull the filter out of the housing. For side service push down on the service handle to tilt the filter to a 5° angle. This will loosen the seal. Then, pull up on the service handle to remove the filter from the housing.

Visually Inspect the Safety Filter



Remove any excess dirt and wipe out the housing with a damp cloth before servicing the safety filter. Visually inspect the safety filter but do not remove it unless it is damaged or due for changeout. Verify that the safety filter is properly seated in the housing. The safety filter should be replaced every three primary filter changes.

NOTE

- The safety filter should be replaced every three primary filter changes.

Remove Safety Filter if Indicated or if Excessively Contaminated



To remove the safety filter, use the plastic handle on the face of the safety filter. Pull the filter toward the center of the housing and remove it. Ensure that the outlet tube sealing area is clean and undamaged. If the safety filter is removed and the new filter is not to be installed immediately, be sure to cover the seal tube with a cloth so that dirt is not admitted. After removing the safety filter, wipe the air cleaner housing interior and seal surfaces with a clean, damp cloth.

Inspect the New Filters



Visually check for cuts, tears or indentations on the sealing surfaces and the media pack before installation. If any damage is visible, do not install.

Replace the Safety Filter



If replacing the safety filter, use the plastic handle. Slide the filter at an angle into the outlet side and push it in place until the filter seats firmly and evenly within the housing.

On side-service access models, insert the safety filter tab into the positioning slot before pushing the filter into place.

Insert the Primary Filter



For end service access models, slide the primary filter into the housing until the gasket seats against the housing. For side service access models, slide the filter down at approximately a 5° angle until it makes contact with the end of the housing. Rotate the filter toward the outlet section to complete the seal.

Replace the Service Cover



For end service access models with hinge tabs, insert the hinge tabs into the housing, tilt the service cover into place and secure latches. For end service models without hinge tabs, put the service cover into place and secure the latches. For side-service Access models, place the service cover in position and fasten the metal or rubber (PSD14)



latches. If the cover doesn't seat, remove and re-check the filter position and access cover orientation.

Inspect the Entire Air Cleaner System



Make sure that inlet and outlet connections are in good condition. Torque to and do not exceed 40 in lb. Replace rubber connectors if necessary and reset the service indicator.

FUEL FILTER

WARNING

- Natural gas is explosive and flammable. Always be sure to maintain adequate ventilation in the work area. Keep all cigarettes, flames, pilot lights, arcing equipment, and switches out of the work area and areas with shared ventilation to reduce the possibility of severe personal injury or death when working on a natural gas system.
- **This article is valid for vehicles using TYPE4 fuel tube.**
- CNG tube must have a minimum pressure of 2 bar. If there is no 2 bar pressure inside the tube as a result of a sudden pressure drop, such as triggering the PPRD or TPRD sensors on the tubes, there is a possibility that the structure of the tube will be damaged. In these cases, before using the tubes, approval for reuse must be obtained by authorized teams. In addition, the working pressure of the tube should be 200 bar.

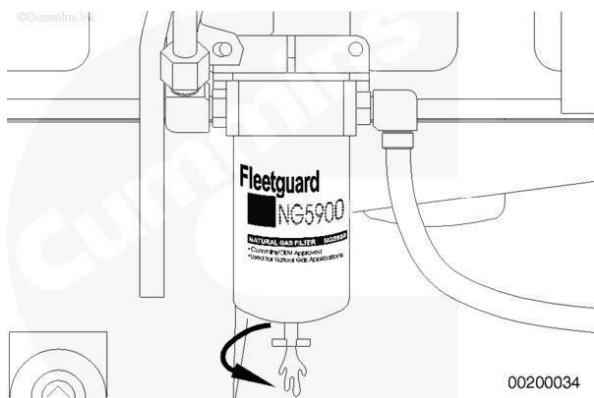
NOTE

- When performing daily maintenance drain the fuel filter only. Do not remove the fuel filter.
- Filtration and separation of oil from the fuel is important for trouble-free operation and long life of the fuel system. In certain cases, oil is introduced into the fuel from gas compressors when the fuel is pressurized. Some of the components in the fuel system are susceptible to oil contamination.
- Each fuel filter element has a valve that must be opened daily to drain the collected oil. Regular maintenance, including draining oil from the filter, is essential to keep the oil out of the fuel system.

Drain

NOTE

- The fuel filter can be remote mounted.

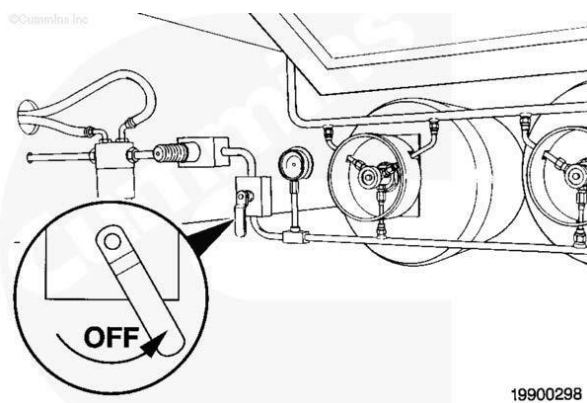


Shut the engine OFF. Use your hand to open the drain valve. Turn the valve counterclockwise approximately 1-1/2 to 2 turns until draining occurs.

Drain the oil from the fuel filter.

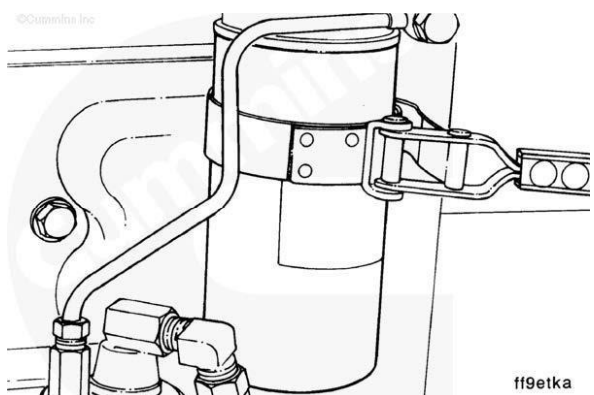
When closing the drain valve, do not overtighten the valve. Overtightening can damage the threads. Turn the valve clockwise to close the drain valve.

Remove



Before removing any component, turn OFF the fuel supply at the vehicle's main fuel shutoff valve.

Start the engine and allow it to run at idle. Allow the engine to run until it shuts down.



Drain the fuel filter.
Clean the area around the fuel filter area.
Clean the gasket surface of the fuel filter head.

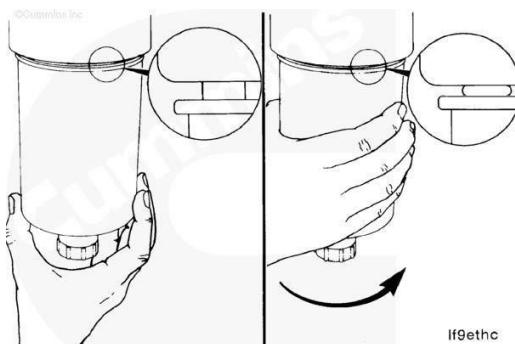
Install

CAUTION

- Mechanical overtightening can distort the threads as well as damage the filter element seal or filter canister.



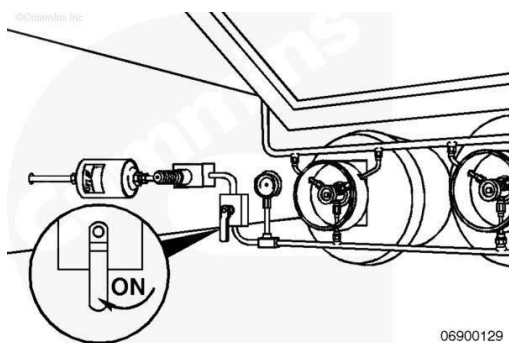
Use the following procedure for information on use of the correct filter. Refer to Procedure 018-024 in Section V for the correct fuel filter part number. (</qs3/pubsys2/xml/en/procedures/521/521-018-024.html>)



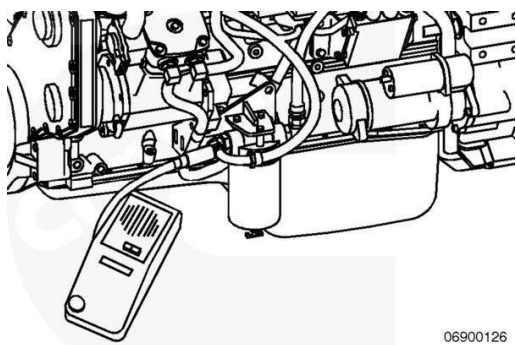
Install the fuel filter on the fuel filter head.

Turn the filter until the gasket contacts the filter head surface.

Tighten the filter by hand an additional $\frac{1}{2}$ to $\frac{3}{4}$ turn after the gasket contacts the fuel filter head surface.

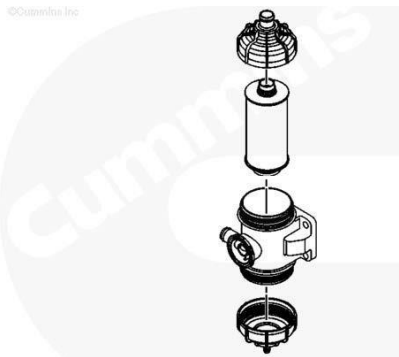


Turn ON the vehicle's main fuel shutoff valve.



If leaks are found, close the valve, turn the key to the OFF position, and repair leaks immediately.

CRANKCASE VENTILATION FILTER



03900220

Crankcase vapors, or blowby gases, are gases that escape past the piston rings during engine cycling. These gases accumulate in the crankcase, and in an open system, vent to the atmosphere. Closed crankcase ventilation incorporates a filter and pressure regulator system. Blowby gases evacuate from the crankcase through a hose and travel toward a closed crankcase ventilation unit. The unit then uses a pressure regulator to control crankcase pressure and a coalescing filter to remove the oil from the crankcase vapors. The filtered gases return through the intake air side of the turbocharger, while the filtered oil returns to the oil pan.

Preparatory Steps

WARNING

- Batteries can emit explosive gases. To reduce the possibility of personal injury, always ventilate the compartment before servicing the batteries. To reduce the possibility of farcing, remove the negative (-) battery cable first and attach the negative (-) battery cable last.
- Disconnect the batteries. See equipment manufacturer service information.

Remove

WARNING

- To reduce the possibility of personal injury, avoid direct contact of hot oil with your skin.

WARNING

- Some state and federal agencies have determined that used engine oil can be carcinogenic and cause reproductive toxicity. Avoid inhalation of vapors, ingestion, and prolonged contact with used engine oil. If not reused, dispose of in accordance with local environmental regulations.

NOTE

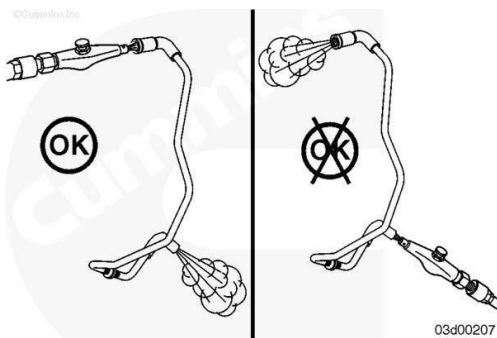
- The replaceable filter element can be removed from either the top or the bottom.
- Loosen the crankcase breather hose clamp (service from above) or drain hose clamp (service from below) and remove the crankcase ventilation hose or drain hose.
- Turn the cover counterclockwise by hand or with a rubber strap wrench or cloth strap wrench.
- Remove the used filter and o-ring from the base.

NOTE

- Do not attempt to clean the filter element with solvent or any other cleaning agent in order to extend the filter element's life.

NOTE

- During normal use the filter element collects engine oil, engine wear debris, and by products of combustion. The used filter element must be disposed of in the same manner as a used oil filter by following local environmental regulations.

Inspect For Reuse

Inspect the crankcase ventilation oil drain tube check valve for correct operation.

The check valve should:

Allow oil to drain from the crankcase ventilation filter housing to the oil pan.

Prevent crankcase gases from traveling up to the crankcase ventilation filter housing.

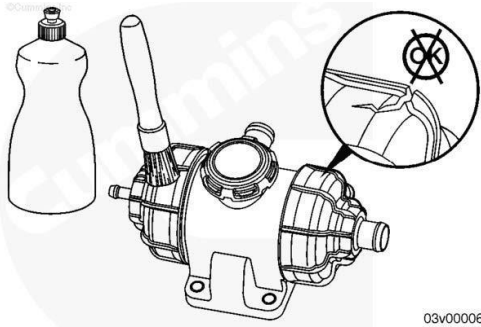
A small amount of air can be blown through the line (less than 34 kPa [5 psi]) to test the operation of the check valve. If the check valve does not hold pressure, replace the crankcase ventilation oil drain tube.

WARNING

- Wear appropriate eye and face protection when using compressed air. Flying debris and dirt can cause personal injury.

CAUTION

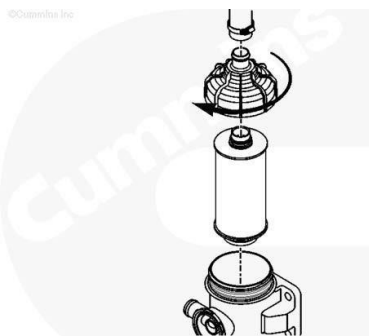
- Do not submerge the crankcase filter in fluid. This will result in damage to the crankcase ventilation filter.



Clean the exterior surface of the crankcase ventilation filter housing with hot soapy water.

Dry with compressed air.

Inspect the crankcase ventilation filter housing for cracks. Replace the entire assembly if any damage is found.

Install

Lubricate the new housing o-ring with clean engine oil. Install the new o-ring onto the reusable base.

Install a new filter element.

The filter element can be installed with either end up. Install the breather housing cover that was removed to access the filter by rotating it clockwise. Tighten hand-tight.

NOTE

- The cover with the 10 mm [0.394 in] drain port must always point downward. The cover with the 25.4mm [1 in] crankcase breather supply port must always point upward.

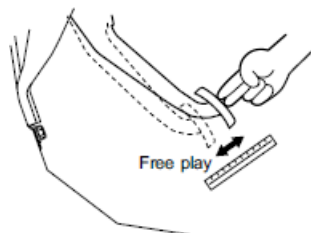
Install the crankcase ventilation hose or drain hose as appropriate.

Finishing Steps**WARNING**

- Batteries can emit explosive gases. To reduce the possibility of personal injury, always ventilate the compartment before servicing the batteries. To reduce the possibility of arcing, remove the negative (-) battery cable first and attach the negative (-) battery cable last.

CHASSIS-RELATED SERVICE AND MAINTENANCE

BRAKES



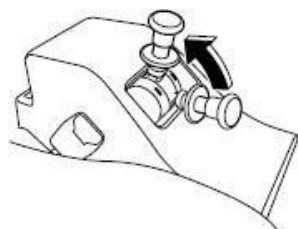
Shut off the engine and depress the brake pedal about 10 times strongly, then check the brake pedal for free play by lightly pushing it by hand until you feel resistance.

Run the vehicle slowly on a dry road and apply the brakes. Check that the brakes fully work and the vehicle does not pull on one side.

CAUTION

- A brake performance check should be performed on a wide road with good visibility while paying adequate attention to the traffic behind and the surroundings.

PARKING BRAKE



Pull the parking brake lever from the fully released position to the lever locked position to check that the air exhaust sound is heard and the lever stays in position. Also, on a dry sloping road, check that the parking brake can hold the vehicle stationary.

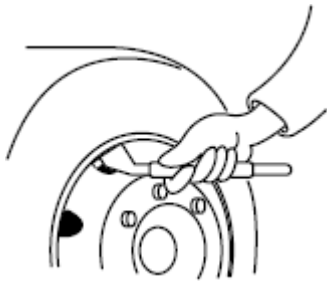
WHEELS AND TIRES

The wheels have a major influence upon the safety and comfort of driving. Should 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 tires daily and maintain them in satisfactory condition.

WARNING

- Do not drive the vehicle unless the tires are properly inflated and in safe condition.
- If you find anything abnormal with wheel bolts, wheel nuts or disc wheels when you check them, avoid driving the vehicle and contact the nearest Isuzu Dealer as soon as possible.
- If you find anything abnormal on the left wheels, check the right wheels carefully for similar defects. A defect on a wheel may be a sign of defects on other wheels.

Checking Tires



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

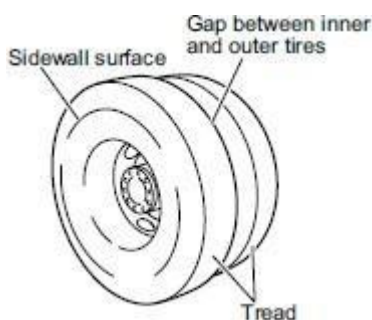
Use an appropriate tire air pressure gauge when measuring the air pressure of a tire. Tire air pressure should be measured when the tire is cold, or before the vehicle is driven.

WARNING

- Insufficiently inflated or worn-out tires are highly dangerous as they easily skid and can even burst. Should they burst, the tires may burn and this could cause a fire in the vehicle.
- If you drive on under-inflated or flat tires, 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.

ADVICE

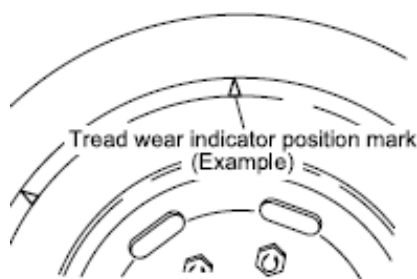
- There should not be a difference in air pressure between the inside and outside tires on a dual-tire wheel.
- It is not easy to visually identify an under-inflated dual-wheel tire or low aspect ratio tire (aspect ratio at 70% or 75%). Always use a tire air pressure gauge to check the air pressure of any tire.
- If your vehicle is equipped with aluminum wheels, use an extension attached to the inner tire valve together with a standard tire air pressure gauge or use a special air pressure gauge when checking the air pressure of a dual-wheel's inner tire. This facilitates checking.



Check the tread and sidewall surfaces of each tire for cracks or other damage. Especially check the tread for nails or other metal pieces embedded in grooves and also the gap between the inner and outer tires of a dual-tire wheel for pebbles lodged in it.

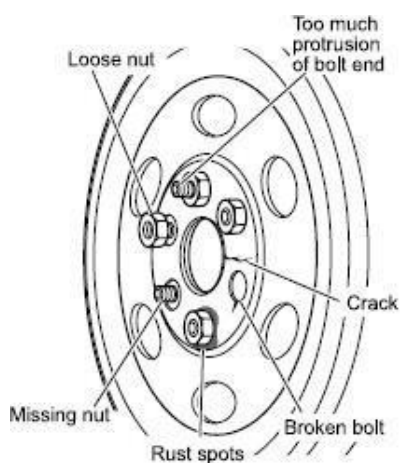
ADVICE

- When checking tires, pay attention to: low air pressure; pebbles or nails in tread grooves; cracks or other damage on tire surfaces; uneven wear; and pebbles lodged in the gap between tires of dual-wheel tires.



Using worn-out tires is dangerous because they might have an increased chance of getting punctured or bursting while driving. Check all tires to see if tread wear indicators appear on their treads and also check their entire tread for its depth with a depth gauge to make sure that the grooves are deeper than the specified depth.

A tire with tread wear indicators appearing must be changed. Also, check the tires for uneven or otherwise abnormal wear.



Visually check the condition of installation of each disc wheel.

1. Check that there are no missing wheel bolts and wheel nuts.
2. Check each disc wheel to see if there is any rust seepage from wheel bolts or nuts. Also check the disc wheel for cracks or other damage.
3. Check the end of each wheel bolt for proper length of protrusion from the wheel nut. The protrusion should be uniform among all bolts on a wheel and among all wheels.

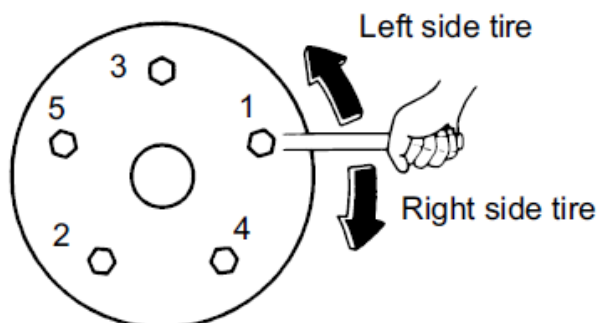
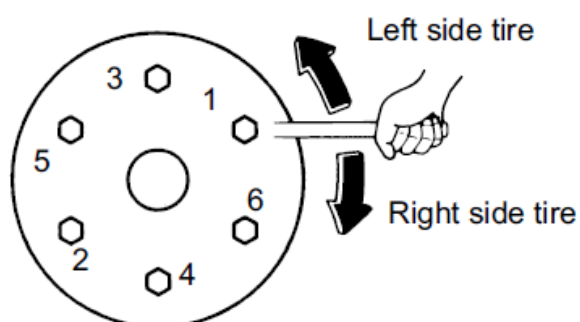
TIRE ROTATION

Tires at different locations wear differently. For uniform tire wear and longer tire life, you should rotate the tires on your vehicle regularly.

Make sure to use tires of the same type on the same axle. If you install tires of different types on the same axle, the vehicle may drift right or left when you apply the brakes. New tires are more likely to build up heat and wear faster than old tires, so they should be installed on the front axle where the load is smaller.

CAUTION

- Your vehicle may be equipped with special tires whose direction of rotation is specified. A tire of this type has a set of arrows on the sidewall. The larger arrow shows the direction of rotation for forward movement of the vehicle. When installing the wheel assembly consisting of a tire of this type and a disc wheel, install the assembly so that the larger arrow points in the direction of rotation when the vehicle moves forward. (If the tread depth is 5 mm (0.20 in) or less when measured, it is possible to install the assembly so that the smaller arrow points in the direction of rotation when the vehicle moves forward. The tread depth can be checked with a depth gauge in either of the two center grooves among the four.)

Wheel nut tightening sequence**Wheel with 5 nuts****Wheel with 6 nuts**

Model or specification	Front wheel nuts		Rear wheel nuts	
	Tightening torque	Quantity	Tightening torque	Quantity
Single tire	600 N·m	6	-	-
Dual tire	-	-	600 N·m	5 or 6

Advice

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

STEERING WHEEL

Checking the Steering Wheel



While the engine is idling, place the steering wheel in the straight forward position, then gently turn it to the left and right by hand, and check the play in the steering wheel as the peripheral distance to the point where the tires start moving.



Grasp the steering wheel with both hands, and move it in the axial direction and also up and down, and left and right to see if there is any looseness.

Also, drive the vehicle and check for abnormal shaking of the steering wheel, steering pull, sluggish steering, or inability to return to the straight forward position.

POWER STEERING FLUID

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

HUB BEARING GREASE

As disassembly and reassembly will be required in order to replace front and rear bearing grease, have these operations performed by your Isuzu Dealer.

GREASING CHASSIS COMPONENTS

The type (characteristics) of the grease specified for use with a chassis component differs from that of the grease specified for use with another component. Be sure to use only the specified grease for each component and perform greasing according to the Maintenance Schedule.

REAR AXLES, HYPOID AXLES

CAUTION

- Before starting operation, make sure to adhere to the correct oil capacity and comply with the oil specification.

Preparation For Operation

Brake system

WARNING

- If the brake system is malfunctioning, braking characteristics may change or the brake system may fail. If you notice a reduction in braking power when testing the brakes, stop the vehicle as soon as possible while paying attention to traffic conditions. Have the brake system checked and repaired at a ISUZU Dealer.
- If you ignore warning and indicator lamps or messages in the display, you will not recognise failures and malfunctions affecting the brake system. Braking characteristics may change. The pedal travel and pedal force required to brake the vehicle may increase. Have the brake system checked and repaired at a ISUZU Dealer. Always pay attention to the warning and indicator lamps or messages in the display.

Checking Compressed-Air Brake System For Leaks

WARNING

- Braking performance is reduced if the compressed-air brake system is leaking or if the charge pressure is too low. The vehicle's braking distance is thereby increased. If the charge pressure drops further during the journey then the brake system could even fail.
- There is a risk of an accident.
- Do not pull away until the required charge pressure has been reached.
- In the event of loss of pressure while driving, immediately bring the vehicle to a halt in accordance with the traffic conditions.
- Consult a ISUZU Dealer immediately to repair the compressed-air system.

WARNING

- If the supply of compressed air is not stable then the spring-loaded parking brake could be activated during the journey and the vehicle could be braked in an uncontrolled manner. As a result, you could lose control of the vehicle. There is a risk of an accident.
- Check the compressed-air brake system for leaks before every journey and make sure the required minimum pressure is attained.

Make sure that a charge pressure of at least 6.5 bar is attained.

Pressure loss can be caused through:

- damaged compressed-air lines
- leaking compressed-air valves and pressure connections

If the compressed-air brake system is leaking, have it checked a ISUZU Dealer.

Axle Load

WARNING

- If the permissible axle loads are exceeded, driving safety is compromised. The handling as well as steering and braking characteristics may be significantly impaired. There is a risk of an accident.
- When transporting a load, always observe the permissible axle loads for the vehicle (with occupants).

WARNING

- Overloading or incorrectly loading the vehicle increases the danger of the vehicle overturning. Do not exceed the gross axle weight rating and keep the vehicle's centre of gravity as low as possible.

CAUTION

- Do not exceed the permissible axle loads and wheel loads. Do not exceed the permissible gross weight. The difference between wheel loads must not exceed 10 % of the axle load.
- The following parts of the vehicle may otherwise be damaged:
 - Tyres
 - Chassis Frame
 - Axles

While driving, pay regular attention to the indicator and warning lamps and any displays on the on-board computer.

Driving Tips

Driving Off-Road

Important Safety Notes

WARNING

- When driving off-road, your body is subject to forces from all directions due to the uneven surface. You could be thrown from your seat, for instance. There is a danger of injury.
- Always wear a seat belt, even when driving offroad.

If the vehicle is being driven off-road, it can be damaged by obstacles.

Obstacles may damage vehicle parts such as:

- Axles
- Propeller Shafts
- Fuel Tank

- Compressed-Air Reservoir
- Engine
- Transmission
- For this reason, you should always drive slowly when off-road. Ask passengers for guidance when driving over obstacles. Always observe the vehicle's ground clearance. Avoid obstacles if possible.

CAUTION

- When driving the vehicle on rough terrain, ensure that the drive wheels always have sufficient traction. Avoid wheelspin of the drive wheels. You could otherwise damage the differential gear system.
- Driving off-road increases the possibility of vehicle damage which can result in the failure of assemblies or systems. Adapt your driving style to the off-road conditions. Drive carefully. Arrange for vehicle damage to be rectified in a ISUZU Dealer without delay.
- When driving off-road, dirt, sand, mud and water, also mixed with oil, can get into the brakes. This can lead to reduced braking power or to total failure of the brakes, also as a result of increased wear. The braking characteristics change depending on the material that has entered the braking system. Clean the brakes after driving off-road. If you detect a reduced braking effect or a scraping noise after driving off-road, have the brake system checked as soon as possible at a ISUZU Dealer. Adapt your driving style to the changed braking conditions.

Differential Lock

WARNING

- If you engage the differential locks when driving on a firm, high-traction surface, the steerability of the vehicle is severely impaired. You could lose control of the vehicle, especially when activating on a bend. There is a risk of an accident.
- Disengage the differential locks immediately on a firm, high-traction surface.

CAUTION

Observe the following points. You could otherwise damage the differential lock.

- Do not engage the differential lock if the drive wheels are spinning.
- Engage the differential lock only when the vehicle is stationary or when travelling at walking pace.
- Do not engage the differential lock while depressing the accelerator or brake pedal.
- Pull away slowly after engaging the differential lock. The differential lock teeth may not be fully engaged.
- Do not drive on high-grip surfaces with the differential lock engaged.
- Do not exceed a maximum speed of 50 km/h with the differential lock engaged.

Rules For Off-Road Driving

WARNING

- If you drive over obstacles or in ruts, the steering wheel may jerk out of your grip, causing injury to your hands.
- Always hold the steering wheel firmly with both hands. When driving over obstacles, you must expect steering forces to increase briefly and suddenly.

Cleaning After Driving Off-Road Or On Construction Sites

WARNING

- The water jet of circular-jet nozzles (dirt grinders) can cause damage not visible from the outside to tyres or chassis components. Components damaged in this way can unexpectedly fail. There is a risk of an accident.
- Do not use high-pressure cleaners with circular-jet nozzles to clean the vehicle. Have damaged tyres or chassis components replaced immediately.

CAUTION

- When using a high-pressure cleaner, keep a minimum distance of approximately 30 cm between the high pressure nozzle and the vehicle parts. Do not use a high-pressure cleaner with a round jet nozzle. Parts of the vehicle or engine can otherwise be damaged.

CAUTION

- Keep the water jet moving constantly while cleaning. In this way, you will avoid causing damage.
- Do not point the water jet at:
 - Brake hoses
 - Electrical components
 - Electrical plug connectors
 - Seals

CAUTION

- If your axle has protective sealing, do not use a high-pressure cleaner. You could otherwise damage the protective sealing.

Foreign bodies that have become trapped can be expelled during the journey, e.g. stones in the tyre tread or between the tyres (twin tyres). This could cause other road users to be injured or vehicles, especially the windscreens, to be damaged.

Check the tyres for foreign bodies that have become trapped after every journey off-road or on a construction site and before journeys on public roads. Remove any trapped foreign bodies.

- Clean wheels, tyres and wheel installations and remove foreign objects, e.g. stones.

After operation in mud, sand, water or after exposure to similar dirty conditions:

- Clean brake discs, brake linings, wheels and axle joints and check them for damage.
- Test the brakes, while paying attention to the road and traffic conditions.

Driving On Inclines

WARNING

- If you drive on a steep incline at an angle or turn on a steep incline, the vehicle could slip sideways, tip and overturn. There is a risk of an accident.
- When driving on an incline, drive into the line of fall (upwards or downwards in a straight line) and do not turn.

Winter Operation

CAUTION

- Vehicles without acceleration skid control (ASR): quick changes from slippery to high grip surfaces whilst the drive wheels are spinning can result in damage to the differential gear system. For this reason, avoid wheelspin of the drive wheels.
- Make sure that the correct oil is added.

Service Products And Capacities

Important Safety Notes

WARNING

- Service products are hazardous to health. They contain toxic and caustic substances.
- Service products are highly flammable.
- For this reason, observe the following instructions to prevent injuries to yourself and others:
 - Do not inhale the vapours. When indoors, always ensure there is sufficient ventilation to prevent intoxication.
 - Do not let service products come into contact with skin, eyes or clothing. Should contact occur, however, clean the affected areas of skin with water to prevent caustic burns and other injuries. In the event of eye contact, wash eyes thoroughly with plenty of clean water.
 - Fire, naked flames and smoking are forbidden when handling service products due to their high flammability.
 - Observe the usage and warning notices on the containers.

NOTE

- Dispose of service products in an environmentally-responsible manner.

CAUTION

- For approved service products additives are neither necessary nor are they permitted. Additives may cause damage to major assemblies. Therefore, do not mix any additives with service products. You are responsible for the results of using fuel additives.
- The use of approved service products is an integral part of the implied warranty.
- Service products are, for example, lubricants such as engine and transmission oils, hydraulic fluids or greases.
- Approved service products fulfil the highest quality standards and are documented in the ISUZU Specifications for Service Products. Damage caused by the use of service products that have not been approved invalidates the implied warranty. For this reason, only use approved service products for your axles.

Other labels and recommendations relating to the quality or indicating that the product meets a certain specification are not necessarily approved by ISUZU.

Transmission Oil**General Notes**

You must observe the safety instructions relevant to service products.

CAUTION

- The hypoid gear oils may differ in their viscosity. This depends on the operating conditions and therefore the operating temperature.

The following transmission oil are approved:

- **Sheet No. 235.8 (synthetic oil)**
- Use a synthetic engine oil of a type approved by ISUZU for temperatures below -30 °C. Mineral oil is insufficiently fluid at these temperatures. Lack of lubrication may lead to damage of the axle components.
- The use of synthetic oil is recommended, as this achieves more efficient results. Furthermore, longer maintenance intervals are possible with synthetic oils.

Hypoid Gear Oil Filling Capacities**CAUTION**

- Hypoid gear oil filling capacities only apply to the axle.

- You can find the filling capacities for an oil change in the table. In exceptional circumstances, it is possible to fill the axle up so that oil overflows from the oil filler hole. As a result, the efficiency of the axle could be reduced.

	R325 RO325	R390 RO390 RT390T R440 ¹ RO440	RT390 R485	RT440
Filling capacity	6 L	11 L	14 L	15 L
Service product specifications according to Sheet No.	235.0	235.0	235.0	235.8
	235.6	235.6	235.6	
	235.8	235.8	235.8	
	235.20	235.20 235.31 ²	235.20	

Important Safety Notes

WARNING

- On uphill and downhill slopes, the jack could tip over with the vehicle raised. There is a danger of injury.
- Do not change wheels on uphill or downhill gradients. Contact a ISUZU Dealer.

WARNING

- If you do not position the jack correctly at the appropriate jacking point of the vehicle, the jack could tip over with the vehicle raised.
- There is a risk of injury.
- Only position the jack at the appropriate jacking point of the vehicle. The base of the jack must be positioned vertically, directly under the jacking point of the vehicle.

WARNING

- Oiled or greased wheel bolts/wheel nuts as well as damaged wheel bolts/wheel nut threads or wheel hub/wheel bolt threads could cause the wheel bolts/wheel nuts to loosen. As a result, you could lose a wheel while driving. There is a risk of an accident.
- Never oil or grease wheel bolts/wheel nuts. In the event of damage to the threads, contact a ISUZU Dealer immediately.
- Have damaged wheel screws/wheel nuts/ wheel bolts or the damaged wheel hub thread replaced. Do not drive any further.

When changing a wheel:

- Use only wheel nuts that are approved for your vehicle.
- Note that the wheel nuts for steel and light alloy wheels may be different.
- Note that the wheel nuts for light-alloy wheels on the front and rear axles may be different.

Flat Tyre

Positioning The Jack

Please pay attention to the important safety notes.

CAUTION

- Raise the laden vehicle only at the jacking points specified by the vehicle manufacturer.

Vehicle Tow-Starting And Towing Away

Important Safety Notes

If, in exceptional circumstances, the vehicle needs to be towed away, make sure that:

- The engine is running correctly
- There is a sufficient amount of fuel in the tank
- There is a power supply and the on-board electrical system is operating without problems

WARNING

- The rear axle locks if:
 - The engine is not running
 - The engine remains at a standstill when the vehicle is tow started
- There is a risk of an accident.
- Always have the vehicle towed away in the event of a breakdown.

WARNING

- If you have the vehicle towed with the engine not running, power-steering assistance and the compressed air supply will not be available. The vehicle can therefore only be steered with an increased amount of effort. If there is a loss of compressed air, the spring-loaded parking brake may be activated. As a result, you could veer of the road on bends or collide with the towing vehicle.
- Always use a tow bar for the towing procedure.
- Ensure the compressed-air supply using an external compressed-air source.
- Before towing, agree on a clear signal with the towing vehicle driver.
- Both you and the towing vehicle driver must adapt your driving styles to the more difficult conditions.

Specialist knowledge beyond the scope of these Operating Instructions is required for towing/tow-starting. Only have your vehicle towed away/tow started by a professional towing/recovery company.

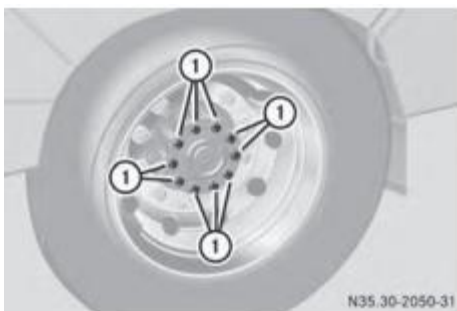
Only in exceptional cases, e.g. when leaving areas of danger, should the vehicle be towed with the propeller shaft installed.

WARNING

- The propeller shaft can fall and injure you as it is being removed. Secure the propeller shaft before removal to prevent it from falling down, e.g. with the aid of another person or by securing it in position by tying it up.
 - Do not turn the vehicle key to the drive position in the ignition lock if the front axle is raised. Otherwise, the ASR function could automatically brake the rear axle wheels unexpectedly during towing. The vehicle could then lose directional stability and skid.
- Shift into neutral.
 - Remove the propeller shafts leading to the driven axles.
 - If it is not possible to remove the propeller shaft, remove the axle half shaft.

Towing a vehicle with rear-axle damage.

- Observe the general information on towing.
- Engage the differential (cross-axle) lock.
- Remove both half shafts.
- Vehicles with two driven rear axles: remove the half shafts on both rear axles.
- All-wheel-drive vehicles: remove the propeller shaft between the front axle and the transfer case.



Example

Removing the half shafts on the rear axle.

- Remove bolts ① on the wheel flange.
- Pull the half shaft out at the wheel.
- Collect the oil that drains out in a suitable oilcollecting tray.



Example

- Additionally on rear axle RO440: screw in the bolts again to secure be ②.
- Cover up the wheel flange so that the bearing does not become dirty.

Warning And Indicator Lamps

Warning and indicator lamps provide you with:

- Warnings
- Fault messages
- Operating information

Malfunction Notes

Notes On Warning And Indicator Lamps

If you ignore warning and indicator lamps, you will not be able to recognise failures and malfunctions in components or systems. Driving/braking characteristics may be different and the operating and road safety of your vehicle may be limited. Have the affected system checked and repaired at a ISUZU Dealer. Always observe the warning and indicator lamps and follow the corresponding corrective actions.

Problem	Possible Causes/Consequences And Solutions
The ABS warning and indicator lamp is displayed while the engine is running.	<p>Risk of accident ABS (anti-lock braking system) has been deactivated due to a malfunction. The compressed-air brake system continues to operate normally, but without ABS. The wheels could therefore lock up if you brake hard.</p> <ul style="list-style-type: none"> • Drive on carefully. • Visit a ISUZU Dealer.
The brakes have insufficient or no braking power.	<p>Risk of accident The charge pressure in the compressed-air brake system is too low. The compressed-air brake system is leaking.</p> <ul style="list-style-type: none"> • Stop the vehicle at once, paying attention to road traffic conditions. • Have the compressed-air brake system checked at a ISUZU Dealer.
	<p>Risk of accident The brake pads/linings have reached their wear limit.</p> <ul style="list-style-type: none"> • Visit a ISUZU Dealer.
	<p>Risk of accident The temperature of one of the vehicle brakes is too high. The brake may overheat.</p> <ul style="list-style-type: none"> • Drive with even greater care. • Shift to a lower gear. • Brake the vehicle with the continuous brake. • Only depress the brake pedal if the continuous brake cannot decelerate the vehicle sufficiently. • Have the compressed-air brake system checked at a ISUZU Dealer.

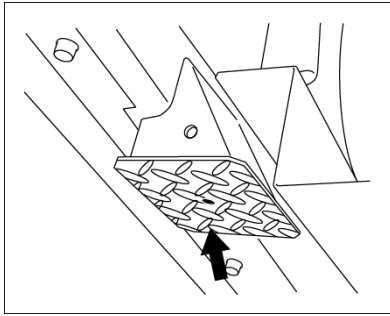
OTHER SERVICE AND MAINTENANCE

HANDLING THE JACK

WARNING

- Raising the vehicle with a jack could lead to an accident when carried out on soft or inclined surfaces. Ensure that you always carry out this operation on flat, solid surfaces.
- Always apply the parking brake fully and correctly chock the wheels before jacking the vehicle. Applying only the parking brake is insufficient to prevent the vehicle from moving; when a rear wheel is jacked up, the vehicle blocked only by the parking brake could move, creating a very dangerous situation.
- Ensure that there are no people or objects present in the vehicle before it is jacked up.
- In order to ensure safety, doors should never be opened and the engine should never be started during a jack-up operation. In addition, you should never have any part of your body below the vehicle at this time, nor allow anybody else to do so. Failure to observe this precaution could lead to an accident if the jack were to slip.
- If the underside of the vehicle is to be worked on after jacking up, jack stands must be used to support the vehicle.
- The jack must only be used at one of the specified jacking points. In addition, you must confirm that it makes good contact with the specified point.
- In order to provide extra safety should the jack slip, once a spare tire has been removed, it should be placed under the vehicle near the jack.
- Before starting a jacking operation, ensure that the jack and the jacking point to be used are clear of dirt, oil and grease. Failure to observe this precaution could lead to an accident should the dirt or oil cause the jack to slip.
- If your vehicle is equipped with a differential lock system or limited slip differential (LSD), it might start moving when the engine power is transmitted to the rear axle even when one of the wheels on the axle is raised clear of the ground. Do not start the engine with any rear wheel in contact with the ground.
- The jack provided with your vehicle must be used only for changing tires and fitting or removing tire chains. In order to ensure safety, furthermore, only one wheel should be jacked up at a time.
- If using a two-stage, extension type jack and the stop mark (yellow) becomes visible, stop raising the vehicle. Failure to observe this precaution can result in jack breakage.
- Do not use more than one jack at any one time.
- The jack supplied with your vehicle is specifically for that vehicle. Do not use it on another vehicle and never use another vehicle's jack.
- Turn the bleeder screw slowly. Turning it quickly will cause the vehicle to drop and the jack may slip off.

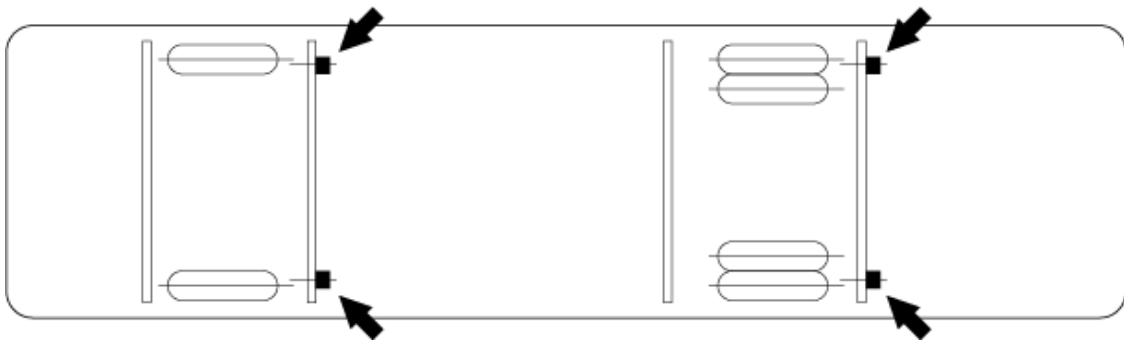
Jacking Points



Apply the jack to the jacking point of the bracket.

WARNING

- Do not jack up or lift up except at specified locations.
- Do not work on or leave the vehicle supported only by a jack.



WINDSHIELD WASHER FLUID

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.

Refilling Windshield Washer Fluid

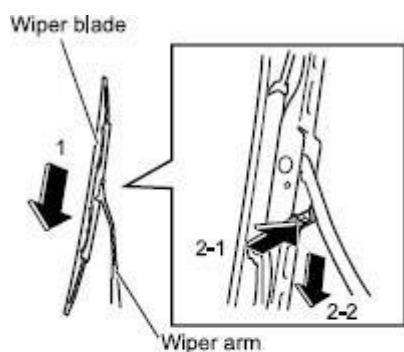
1. The windshield washer fluid tank is located under the instrument panel on the passenger side.
2. Open the cap and fill the tank with windshield washer fluid to the opening.

ADVICE

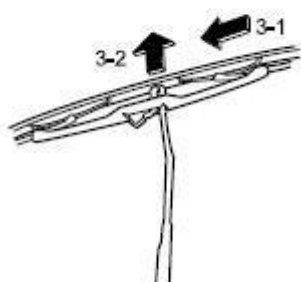
- Upon factory shipment, new vehicles contain only tap water in the washer fluid tank. Adjust the concentration of the fluid to suit your own usage.
- Follow the instructions provided with the windshield washer fluid regarding the ratio for mixing with tap water.
- Poor quality products, engine coolant, and soapy water must not be used. Failure to observe this precaution can result in nozzle blockage or damage to painted surfaces.
- The washer should never be used while the tank is empty. Operating the washer with the tank empty can result in motor damage.

WINDSHIELD WIPER BLADES

Windshield Wiper Blade Replacement



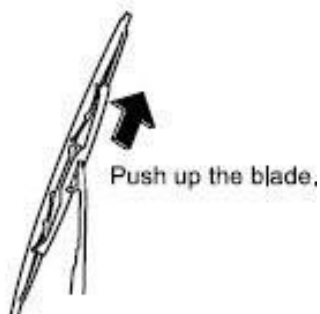
1. Pull the wiper arm up to the vertical position.
2. While pressing the wiper-blade hook towards the arm, slide the blade downwards (towards the base of the arm).



3. With the blade and arm almost perpendicular, remove the blade from the arm.

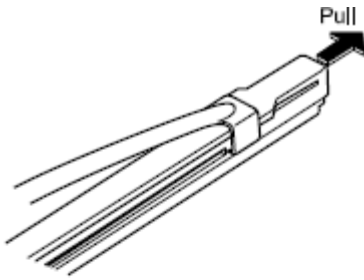


4. Insert the blade while holding it almost perpendicular to the arm.

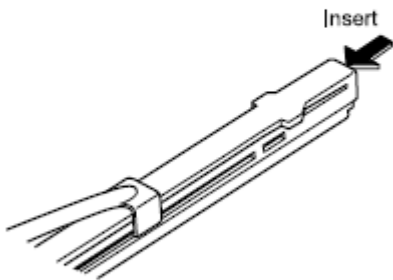


5. Then, with the blade and arm oriented in the same direction, push up the blade until it locks into place on the arm.

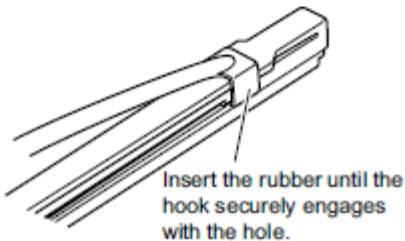
Replacement of Wiper Rubber Insert



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.



3. Insert a new wiper rubber insert into the wiper blade.



4. 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.
5. Attach the wiper blade to the wiper arm.

HEADLIGHTS AND TURN SIGNAL LIGHTS

Turn the starter switch to the "ON" position, and then check the way in which the headlights, turn signal lights, and other exterior lights come on and flash.

In addition, depress the brake pedal to confirm whether the stop lights come on, and shift the transmission to "R" position to confirm whether the back up lights come on.

Also examine the lights for discoloration, damage, and looseness.

HANDLING THE BATTERY

DANGER

- Usage or charging of the battery when the battery fluid is below the "LOWER LEVEL" line can accelerate deterioration and give rise to dangerous situations such as the generation of heat and even explosion.
- If battery fluid should come in contact with an eye, immediately wash away using a large amount of water and continue washing for at least 5 minutes. Following this, you should seek medical assistance.
- When using tools or other metal objects in the vicinity of the battery, take care to prevent them from coming into contact with the positive terminal. As the vehicle itself will conduct electricity, any such contact can result in a short-circuit and a highly dangerous electric shock.
- A vehicle battery generates extremely flammable hydrogen gas. For this reason, operations producing sparks or requiring the usage of an open flame must never be carried out near a vehicle battery. Failure to observe this precaution can result in explosion if the hydrogen gas ignites. Whenever wiping up battery fluid, a damp cloth should be used.

WARNING

- Always stop the engine whenever the battery is to be inspected.
- Dilute sulfuric acid is used as the battery fluid. Special care must be taken to ensure that this fluid does not come into contact with skin, clothing, or metal surfaces.
- When disconnecting cables, turn the starter switch to the "LOCK" position, wait at least 2 minutes, and then disconnect the cables starting with the negative cable from the terminals. If the negative cable is disconnected for 2 minutes, the engine control module may malfunction. When reconnecting them, the negative cable should be reconnected last.

REFRIGERANT

The air conditioning system will not be able to cool the cab interior effectively if the refrigerant level is low. Accordingly, the refrigerant level must be topped up whenever necessary.

Please contact your Isuzu Dealer whenever refrigerant must be added.

ADVICE

- Operating the air conditioning while the refrigerant level is too low leads not only to poor cooling performance but also to air conditioning system damage.

INTERIOR AND EXTERIOR MAINTENANCE

EXTERIOR MAINTENANCE

Washing

If the vehicle is operated with foreign material adhering to the exterior, this material may react chemically with paint or plating, resulting in staining, discoloration, rusting or corrosion of components. Also, the material may become trapped within mechanical components, adversely affecting their functions or forming an aerodynamic resistance. In the following cases, therefore, the vehicle must be washed and all foreign matter removed.

- When soot, iron powder, dead bugs, bird droppings, tree sap or oily matter from coal tar and smoke has adhered to painted surfaces.
- When the vehicle has been driven in coastal areas.
- When the vehicle has been driven on roads where road chemicals have been applied.
- When a large amount of mud or dirt has adhered to the exterior.
 1. Fully turn on the tap, and wash out the undercarriage and suspension.
 2. Close all openings and wash the cab and cargo body panels using a neutral detergent.
 3. Clean wheels and tires using a brush and detergent.
 4. After washing away all remaining detergent, use a shammy or other clean cloth to fully remove all moisture and water droplets.

CAUTION

- Do not apply water directly in order to clean the cab interior. Failure to observe this precaution can result in malfunction or breakdown of electronic control units and electrical components, or in rusting of the cab floor.
- Do not apply water from a high-pressure washer nozzle directly to the electric connectors. Failure to observe this precaution can lead to faulty operation of the electrical system.

ADVICE

- If an automatic car or truck-wash is used with vehicles having dark or metallic coating, the painted surfaces can be damaged by the brushes, lose their luster or be very noticeably scratched.
- Do not direct a large amount of water at the air inlet openings.
- Do not apply water to the engine compartment or at electrical components. Failure to observe this precaution can lead to a poorly starting and operating engine and problems in the electrical system.
- Ensure that mirrors and the antenna are retracted before washing the vehicle.
- If an automatic car or truck-wash must be used, avoid a high-temperature, high pressure type machine. Failure to observe this precaution can lead to heat deformation and breakage of plastic components, or to water leaks into the cab.
- When using an automatic car or truck-wash, ensure that a distance of at least 0.4 m is maintained between the nozzle and the vehicle, and when washing door windows, that the spray is perpendicular to the surface of the glass.
- Ensure that all detergent is fully washed and wiped away. Particularly in the case of strong alkaline detergents (typically those for industrial uses), there is a danger that hairline cracks can develop in lighting-cluster lenses if the vehicle is operated without detergent being fully wiped away. Always read the detergent manufacturer's instructions carefully before use.
- Airborne dirt that adheres to plastic front bumpers as a result of rain, for example, can be difficult to remove.

In such a case, use a commercially-available cleaner to clean away the dirt, and then apply a wax for use with plastic components.

Vehicle Storage

In order to maintain your vehicle's attractive appearance as long as possible, special consideration must be given to its storage location.

If the vehicle is stored or kept for an extended period of time in any of the following locations, a chemical change may occur in the paintwork, resulting in staining, discoloration, rusting, and corrosion of components.

- Locations where a large amount of oily matter, soot, heavy smoke or metal powder can adhere to the vehicle.
- Areas around pharmaceutical plants and other facilities that discharge chemical matter.
- Coastal areas
- Locations where a large amount of dead bugs, bird droppings or tree sap can adhere to the vehicle.

Waxing

Painted and chrome-plated surfaces should be waxed once or twice a month, or whenever water is being poorly repelled on the surfaces. Ensure that wax is not applied in direct sunlight, and that the temperature of the painted surface is no more than 40°C.

Always follow the instructions provided with your wax product.

CAUTION

- Wax must not be applied to the windshield. Failure to observe this precaution can result in irregular reflection of light, impairing your view.

ADVICE

- Do not use wax containing abrasive material. Failure to observe this precaution can lead to scratching of painted surfaces or plastic components.
- The application of wax to rubber component surfaces can result in permanent whitening.

NOTE

- Wax must not be applied to the windshield. A layer of wax can impair your view in rainy weather and can also lead to rough movements of the windshield wiper.
- If engine oil or grease comes into contact with the windshield, staining or discoloration may result. It must be immediately cleaned away.

Windshield Care



If not fully cleaned by the windshield wipers, the windshield should be cleaned using Isuzu genuine glass cleaner.

INTERIOR MAINTENANCE

Remove dust and dirt from the interior of the cab using an automotive cleaner or vacuum cleaner, and gently wipe surfaces clean using a cloth wet with warm or cold water.

WARNING

- Petroleum ether, gasoline and other organic solvents should not be used to clean seat belts. In addition, seat belt webbing should be neither bleached nor redyed. Failure to observe these precautions can lead to the performance or strength of the seat belts being impaired. In the case of a collision, therefore, the belts could be insufficiently effective, and serious life-threatening injuries could result. When cleaning, use warm water in which a small amount of neutral detergent has been dissolved to gently wipe the seat belts.

CAUTION

- The interior of the vehicle must never be cleaned using acidic or alkaline solvents, or petroleum ether, gasoline, and other organic solvents. Failure to observe this precaution can result in discoloration and staining. It should be noted that certain types of cleaning products contain these compounds. Be sure to read cleaning product labels carefully.
- Air fresheners (liquid, solid, gel or plate types) must not come into direct contact with, or spill onto, interior components such as the air conditioning or audio system. Compounds contained in these products can cause discoloration, staining or peeling of paint.
- Glass cleaners that contain these compounds must not be used to clean the inside of the windshield or window glass. To clean the glass, wipe using a cloth wet with warm or cold water.

Seat Belt Care

A dirty seat belt can develop retracting problems, and for this reason, regular inspection and upkeep are required.

CAUTION

- Seat belt webbing can lose its strength when bleached or redyed, or when cleaned using gasoline, paint thinners or other volatile substances.
- Do not disassemble the seat belt mechanism in order to remove any foreign material or objects that may have entered the buckle. Instead, arrange for inspection and maintenance to be carried out by your Isuzu Dealer.

Fabric Seat Covering and Carpet Care

Remove dirt and dust using a home-use electric vacuum cleaner.

Do not remove the carpet. Use standard household cleaning products and methods to remove stains from food, drink and the like.

Be sure to use neutral detergents or cleaning products indicated as higher alcohol based detergents.

MAINTENANCE DATA

For safe and economy driving, we recommend that you have your vehicle inspected and serviced regularly according to the schedule indicated in this chapter.

THE PERIODIC MAINTENANCE

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 roadchemicals
- Check corrosion chassis and parts of body

CAUTION

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

MAINTENANCE SCHEDULE

To drive your vehicle safely and at minimum cost, it is essential to have your vehicle regularly inspected and serviced at your Isuzu Dealer as per the specified maintenance schedule.

Letters Used to Indicate Maintenance Service Types:

I : Inspect then clean, adjust, repair, or replace as necessary

A: Adjust

R: Replace

T: Tighten to the specified torque

L: Lubricate

ADVICE

- When inspecting the items listed below, also inspect the routine inspection items as well.

Service Interval (x1000 km)	10	20	30	40	50	60	70	80	90	Period Info
Service Interval (Hours)	500	1000	1500	2000	2500	3000	3500	4000	4500	
Diagnostic control of engine failures	I	I	I	I	I	I	I	I	I	
Engine oil	I	I	R	I	I	R	I	I	R	1500 hour / 12 month
Engine oil refill	I	I	R	I	I	R	I	I	R	1500 hour / 12 month
Valve Space Adjustment		A		A		A		A		1000 hour / 12 month
Oil filter	I	I	R	I	I	R	I	I	R	1500 hour / 12 month
Fuel filter – High Pressure	I	I	R	I	I	R	I	I	R	1500 hour / 12 month
Fuel Filter – On High Pressure Regulator *	I	I	I	I	I	I	I	I	I	R: 1500 hour / 12 month
Fuel filter – Low Pressure	I	R	I	R	I	R	I	R	I	1000 hour / 12 month
Fuel water separator filter	-	-	-	-	-	-	-	-	-	N/A
Fuel water separator filter: water level	N/A									
Air filter element	I	I	R	I	I	R	I	I	R	1500 hour / 12 month
Fuel pipes and hoses	I	I	I	I	I	I	I	I	I	
Draining of condensation tank		I		I		I		I		
Cooling system leakage control	I	I	I	I	I	I	I	I	I	
Replacement of hydrostatic fan driving oil filter (with the replacement of oil)						R				3000 hour / 24 month
Hydrostatic fan drive oil level, leakage and function control	I	I	I	I	I	I	I	I	I	
Catalyst Housing	I	I	I	I	I	I	I	I	I	500 hour / 6month
Oxidation Catalyst		I		I		I		I		1000 hour / 12 month
Urea tank filter	-	-	-	-	-	-	-	-	-	N/A
DEF system leakage control	-	-	-	-	-	-	-	-	-	N/A
Urea dosing unit filter	N/A									
External cleaning of honeycomb radiators	I	I	I	I	I	I	I	I	I	
Supplemental Coolant Additive (SCA) and antifreeze Con.	I	I	I	I	I	I	I	I	I	500 hour/6month
Coolant Filter	R	R	R	R	R	R	R	R	R	500 hour / 6month
Coolant Fluid	I	I	R	I	I	R	I	I	R	
Radiator Pressure Cap		I		I		I		I		1000 hour /12 month
Water Pump		I		I		I		I		1000 hour /12 month
Belt tension and damage	I	I	I	I	I	R	I	I	I	1500 hour/12month

Service Interval (x1000 km)	10	20	30	40	50	60	70	80	90	Period Info
Service Interval (Hours)	500	1000	1500	2000	2500	3000	3500	4000	4500	
Brake pads and disc control										
Caliper adjusting bolt										
Measuring caliper gap										
Caliper piston blowers										
Measuring caliper control movement										
Overheating of rims										
Looseness in shock absorbers and connectors										
ECAS settings										
Air bellows										
Function control of headlights, signals, parking lights, fog lights and brake lights										
Internal illumination control										
Function control of wipers and window washing system										
General control of fuse panel, electric cables and sockets										
Gas, brake and clutch pedal										
Battery connection										
Battery electrolyte density										
Starter electric connections										
Pneumatic door adjustment										
Function control of the safety gear of all doors										
Air leakage, damage, tightness and door function control of door elements										
Compressor Pressure Line										
Control of rearview connectors										
Corrosion control of chassis and parts of body										

Service Interval (x1000 km)	10	20	30	40	50	60	70	80	90	Period Info
Service Interval (Hours)	500	1000	1500	2000	2500	3000	3500	4000	4500	
Underbody wax checking and repairing	I: weekly									
Washing the entire bus, making sure to remove all road chemicals	I: weekly									
Check bus accident and original parts situation.	I: daily									
Air condition compressor oil	I: every 5000 hours or every 36 months									
Air condition gas and oil	I: every 4000 hours or every 24 months									
Fire extinguishing fluid										
Fire extinguishing tank										
Real time clock battery	R: every 24 months									
Air dryer filter	I	R	I	R	I	R	I	R	I	12
CNG Cylinders	I	I	I	I	I	I	I	I	I	I
Fuel Line Leakage	I	I	I	I	I	I	I	I	I	I

NOTE

- Hot Country: The average temperature exceeds 25°C during 2 months in a year or the temperature exceeds 40°C during 7 days in a year.
- Check official ZF website for up to date oil catalogue.
- Wheel hub bearings must be greased with grade 12H oil.
- Replace Coil Extension at every 200.000km or 10.000 engine working hours or 60 months whichever comes first
- Replace CNG Cylinders due to the dates on the Cylinders
- Replace Fuel Filter – On High Pressure Regulator 160.000km or 1500 engine working hours or 12 months whichever comes first
- Suspension bushings (stabilizer and other) should be replaced if 12.000 km wear control is required.
- ISA MAP must be updated offline every year. Updating is required every year / for 7 years after the sale.

Information under the heading of the engine is given for an average speed of 20 km/h.

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

For fire extinguishing system; extinguishing fluid must be replaced every 5 years, tanks must be replaced every 10 years.

Maintenance table is prepared for 90.000 km. Maintenances after 90.000 km should be done at the same periodic intervals.

IN CASE OF EMERGENCY

TROUBLESHOOTING

Performing regular inspections and maintenance prevents damage. Be sure to perform inspections and maintenance at regular intervals. Also, quickly rectify any fault in the vehicle (even a small fault) to prevent it from becoming more serious.

If a symptom shown in the following table occurs, perform inspections and take corrective action in accordance with the table. If you are unable to perform a repair, the corrective action shown in the table does not eliminate a symptom or you cannot locate a fault, contact the nearest Isuzu Dealer.

WHEN THE VEHICLE BREAKS DOWN DURING DRIVING

1. Operate the hazard warning flasher and pull the vehicle immediately over to a safe place that does not impede traffic (shoulder, verge). Place the triangle reflectors to alert other traffic to the presence of your vehicle.
2. Have the other passengers get out and wait in a safe place.
3. Walk to a safe place and take appropriate measures by using the closest telephone, etc.

WARNING

- Leaking fuel from the vehicle is dangerous due to possible combustion or explosion. Stop the engine immediately.

WHEN THE TIRE GOES FLAT

When the tire gets flat while driving, avoid hard braking, hold on to the steering wheel firmly and stop the vehicle.

The tire should be changed on a flat space to prevent obstructing other vehicles or pedestrians.

WARNING

- If you continue to drive on a flat tire, undue force will be applied to the wheel bolts, possibly causing the bolts to break and the wheel to come off.

WHEN THE ENGINE STOPS WHILE DRIVING



For full-air brake models, the brake air pressure will not rise, so immediately stop the vehicle at a safe place. Do not panic.

Press the brake pedal to reduce speed, head immediately for a safe place, stop the vehicle and perform an inspection. If the engine cannot be started, promptly have the vehicle inspected and repaired by the nearest Isuzu Dealer.

If the engine stopped because the vehicle ran out of fuel while driving, refueling alone will not be enough to restart the engine. Bleed the fuel system after refueling the vehicle.

WHEN THE ENGINE STALLS AND CANNOT BE RESTARTED

Place the gearshift lever in the "N" position, and if the shift indicator shows "N", push the vehicle to a safe place. If the shift indicator displays a shift position other than "N", place the emergency switch to "ON" and the gearshift lever into the "N" position. Then, make sure that the shift indicator displays "N" and push the vehicle to a safe place.

NOTE

- For vehicles with hill start aid (HSA), cancel the HSA by pressing the HSA OFF switch.
- For vehicles with Hill Hold Assist, cancel the Hill Hold Assist by pressing the Hill Hold Assist OFF switch.

WHEN THE BRAKES DO NOT WORK

If the brakes become ineffective unexpectedly, reduce speed by quickly shifting down. Gradually pull the parking brake lever while firmly holding on to the steering wheel. Stop the vehicle on the side of the road.

CAUTION

- It is very dangerous to suddenly pull the parking brake lever all the way while moving at high speed. Reduce speed first by shifting down and then gradually pull the parking brake lever.

NOTE

- In worst case conditions on a mountain road or similar situations, stop the vehicle by scraping along a guardrail or cliff, or drop the front and rear wheels of one side into a ditch at the side of the road.

WHEN THE BATTERY GOES FLAT

Use a jumper cable (sold separately) and the batteries of another vehicle to start the engine in this sequence.

1. Check the battery fluid level in the disabled vehicle.
2. Use a vehicle that has a charged battery with the same voltage.
3. Remove the battery cover and connect the jumper cables in the numbered sequence in the drawing.
4. After connecting the cables, start the engine of the vehicle with the booster battery.
5. Slightly rev up the engine of the vehicle with the booster battery and start the engine of the disabled vehicle.
6. If the engine in the disabled vehicle starts, remove the jumper cables in the reverse sequence as they were connected.

CAUTION

- For safety and the protection of the vehicle, do not push-start the vehicle.
- Make sure that the booster batteries in the vehicle providing the charge have the same voltage as the disabled vehicle.
- Under no circumstances should the battery's positive and negative terminals be put in contact with one another.
- When connecting the cables, under no circumstances should the clips be allowed to touch each other.
- Ask the nearest Isuzu Dealer to recharge the battery.
- Do not disconnect a battery terminal with the engine running. It could cause a breakdown in the electrical system.

WHEN THE WARNING LIGHT COMES ON**BRAKE SYSTEM WARNING LIGHT**

The brake system warning light comes on while the engine is running (after startup) in the following situations:

- Drop in the level of brake fluid (due to brake lining wear or fluid leakage, etc.)
- Abnormality in the charging system (such as a generator malfunction, etc.)
- On an anti-lock brake system (ABS) model, abnormality in the ABS.

CAUTION

- If this warning light comes on while the engine is running, immediately stop the vehicle in a safe place well clear of traffic and promptly contact the nearest Isuzu Dealer for inspection.

AIR PRESSURE WARNING LIGHT



When this warning light comes on, there is insufficient air pressure in the air tank and the brakes will not work properly. A warning buzzer will sound at this time.

Immediately stop the vehicle in a safe place, perform checks and take corrective action. The warning buzzer will stop when the parking brake lever is pulled.

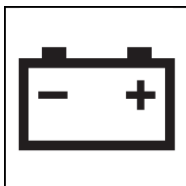
Check and Corrective Action

- Run the engine at idle and raise the air pressure until the warning light goes out.
- When the warning light does not go out or when it takes longer than the specified time for the light to go out after an air pressure of 0 kPa (0 kgf/cm²/0 psi) is reached, repair is required.
Contact the nearest Isuzu Dealer.

WARNING

- Do not drive the vehicle when the warning light is on. Brakes are not fully functional, so the vehicle is in a dangerous condition to operate.

GENERATOR WARNING LIGHT



When this warning light comes on, the charging system may have failed.

Immediately stop the vehicle in a safe place, perform checks and take corrective action.

Check and Corrective Action

1. Check to see if the fan belt is broken or loose.
2. If the fan belt is loose, adjust the tension.
3. If there is no abnormality in the fan belt, contact the nearest Isuzu Dealer.

CAUTION

- Do not drive the vehicle when the warning light is on. The battery can be discharged.

NOTE

- Since disassembling is required to replace the fan belt, have it performed by the nearest Isuzu Dealer.

ENGINE OIL PRESSURE WARNING LIGHT



When this warning light comes on, the oil pressure is too low.

Immediately stop the vehicle in a safe place, stop the engine, perform checks and then take corrective action.

Check and Corrective Action

1. Check the engine oil level.
2. If the engine oil level is too low, check for leaks and add oil.
3. When the oil level is normal and there are no oil leaks, the oil filter may be clogged.
Replace the oil filter.
4. When the oil level is normal and the oil filter is not clogged, but there are oil leaks, contact the nearest Isuzu Dealer.

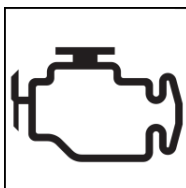
CAUTION

- Do not drive the vehicle when the warning light is on. It could damage the engine.

NOTE

- In winter, when the engine oil temperature is low and the oil viscosity is high, the light might come on for a time. It will go out when the engine warms up.

CHECK ENGINE WARNING LIGHT



If this warning light comes on while the engine is running, there may be a problem with the engine electronic control system. Since checking and repairing the control system is required, immediately contact the nearest Isuzu Dealer.

WHEN THE ENGINE OVERHEATS



If engine power drops and the needle on the engine coolant temperature gauge goes up above the upper limit of the safety zone and enters the "H" zone, the engine is overheating. The engine overheat warning light will come on and the warning buzzer will sound. Either steam or boiling water will squirt out of the radiator. Take the following corrective actions immediately.

1. Operate the hazard warning flasher and pull the vehicle immediately over to a safe place that does not impede traffic (shoulder, verge) and park it.
2. Lower the temperature of the engine for a while with the engine idling.
3. When the needle of the engine coolant temperature gauge returns to the middle of the safety zone, stop the engine.
4. Check the engine coolant level in the reserve tank and radiator after the engine has sufficiently cooled. If the level is insufficient, add engine coolant. Also, check to see if the fan belt is loose or has been damaged.
5. Inspect to see if there is any dirt, etc. attached to the front surface of the radiator and intercooler. Also, inspect to see if there is anything blocking the core. If there is anything attached, clean and remove it.

WHEN THE BULB DOES NOT COME ON

1. Check each bulb for blowout.
2. If a bulb has blown out, replace it. Always place the starter switch in the "LOCK" position and place all the other switches in the off position before replacing the blown bulbs.
3. If the bulb has not blown out, the fault may be in the wiring. Contact the nearest Isuzu Dealer.

CAUTION

- Using bulbs with a wattage other than that specified could cause the bulb or the wiring to become hot. This could result in the warping of the lens and case, and it could also lead to the outbreak of fire.
- Bulbs are hot immediately after they go out. When replacing the bulbs, avoid being burned by making sure they are fully cooled.
- Never drive the vehicle with the bulbs not working. This could result in an accident.

WHEN YOUR VEHICLE IS INVOLVED IN AN ACCIDENT

Stay calm and take the following steps:

1. Avoid a chain of accidents
Operate the hazard warning flasher, pull the vehicle immediately over to a safe place that does not impede traffic (shoulder, verge) and stop the engine.
2. Aid the injured
Render whatever first aid is possible to injured people until a doctor or ambulance arrives. In particular, do not move people with head injuries. If there is a danger of a series of accidents, move them to a safe place.
3. Contact the police
Contact the police, give them the information on the location of the accident, the conditions, injured people and the extent of their injuries, and then receive instructions.
4. Confirm information from other parties (name, address and telephone number) and the conditions of the accident.
5. If necessary, contact the insurance company or the dealer you purchased the vehicle from.

ADVICE

- Make sure to notify the police and consult a doctor even for small accidents and light injuries. When receiving a blow to the head in particular, it is possible for symptoms to develop later even if there are no external wounds.

WHEN DRIVING ON BAD ROADS

Pressing the accelerator pedal will dig the vehicle deeper into the mud and make it harder to extricate. Either put stones, tree branches or blankets under the tires to gain traction, or repeatedly drive forward and in reverse and use the vehicle's momentum to extricate it.

WHEN TOWING

To move a disabled vehicle, it is best to rely on someone in the wrecker or tow truck business. If that is not possible, follow these procedures.

When towing, use appropriate equipment and comply with local legal requirements. Do not try to start the engine by towing or pushing the vehicle.

WARNING

- Be sure to chock the wheels when disconnecting the propeller shaft. The vehicle could start to move and cause a serious accident.

When it is possible to operate the steering wheel, the vehicle can be towed with all wheels on the ground. However, the power steering will not be able to provide any power assist when the engine cannot be started.

If the engine of a full-air brake vehicle cannot be started, the air pressure will be low and the brakes will not work. If the engine cannot be started, use a tow truck to move the disabled vehicle. If the transmission is damaged, disconnect the propeller shaft at the rear axle flange and secure it to the frame.

If the rear axle fails or rear axle failure is suspected, remove the axle shaft and plug up the opening of the hub to prevent differential gear oil from leaking, or to prevent dirt or foreign objects from entering the axle.

MAIN DATA

MAIN DATA AND SPECIFICATIONS

Dimension (mm)	
Max. Length	12990
Max. Width	2550
Max. Height	3634
Wheelbase	6950
Front Overhang	2660
Rear Overhang	3380
Gross Vehicle Mass	19500
Front Axle Capacity	7100
Rear Axle Capacity	13000
Engine	
Model	CUMMINS L9NE6D320
Type	CNG
Number of Cylinders	6
Engine Volume (cm ³)	8900
Max. Power (kW/rpm)	239 (320 hp) / 2000 rpm
Max. Torque (Nm/rpm)	1356 Nm @ 1300 rpm
Exhaust Emission Class	Euro VI
Clutch	with torque converter
Gearbox	
Model	ZF Ecolife 6AP 1400
Type	A/T(S)
Number of Gears	6 front, 1 rear
Steering System	Hydraulic
Tyres	
Tyre Sizes	295/80 R22,5
Suspension	
Front	2 air bellows, independent suspension
Rear	4 air bellows
Brake System	
Front / Rear	Disc / Disc
Brief Explanation	Full Air Brake System with ABS (EBS) and ASR (EBS)
Parking Brake	Air actuated acted on rear axle
Auxiliary Brake	Intarder
Fuel Tank	
Fuel Tank Capacity (lt)	1520 lt (5 x 304 lt)
Generator	
	2 x 120A
Nominal Voltage	24V
Battery	2 x 12V - 240 Ah
Performance	
Maximum Speed	100 km/h
Luggage Compartment	
Luggage Capacity (m3)	6.9 m3 (with lift) 7.5 m3 (without lift)

FLUID SPECIFICATIONS

Description	Capacity	Norm	Class
Engine Oil	26 Lt	SAE15W 40	CES-20092
Complement of Engine Oil	6 Lt	SAE15W 40	CES-20092
Transmission Oil and Filter	24 Lt	ZF TE-ML 20B/20G	H55.6335XX
Differential Oil and Rear Axle	11 Lt	SAE75W 90	MERCEDES 235.8
Presuspension Greasing	-	DIN51825: KP2K-20 ISO-L-XBCEB2	ZFTE-ML12G
Steering Wheel Hydraulic Oil and Hydrostatic Fan Oil	18 Lt	ISO VG 46 or VG 68	RDE 90245 - BOSCH REXROTH FLUID RATING LIST
Air Condition Compressor Oil	2 Lt	Viscosity ISO 46	ZXL 100PG POE oil
Antifreeze and Water	60 Lt	ASTMD6210	Cummins Fleet Guard Complete
Air Condition Gas	11 kg	R134a	Linde

PRESSURE VALUES

Name	Description	Pressure
Four Way Protector Valve	Static Closing Pressure	≥ 5,5 Bars
Air Dryer	Minimum Opening Pressure	8,1 Bars
Air Dryer	Maximum Closing Pressure	10,45 Bars
Wheels	Cold Mixed Inflation Pressure	9 Bars / 131 Psi

SERVICE NETWORK

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