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## 7-2 SAFETY FEATURES AND EQUIPMENT

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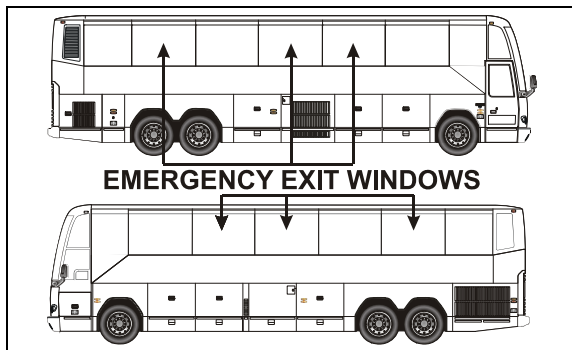
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## EMERGENCY EXITS

Locate and learn how to use all possible emergency exits. It is good practice to inform passengers of the location of exits and how to use them in case of an emergency.

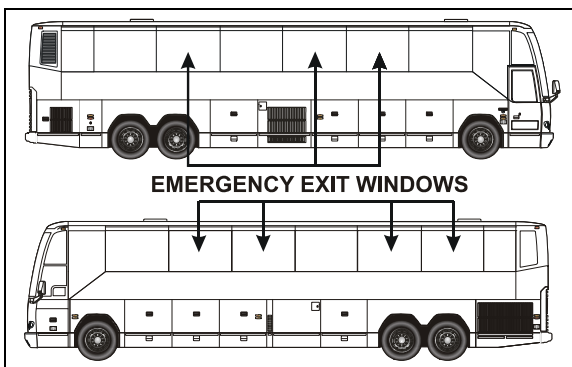
### SIDE WINDOWS

Some side windows can be open from the inside for emergency exit. A decal located on the bottom of each passenger window indicates the location of the nearest emergency exit. Also, blue lights close to the wall in the overhead storage compartments illuminate the emergency exit decals. These lights illuminate when the general lighting switch is on.



EMERGENCY EXIT WINDOWS (H3-41)

18520



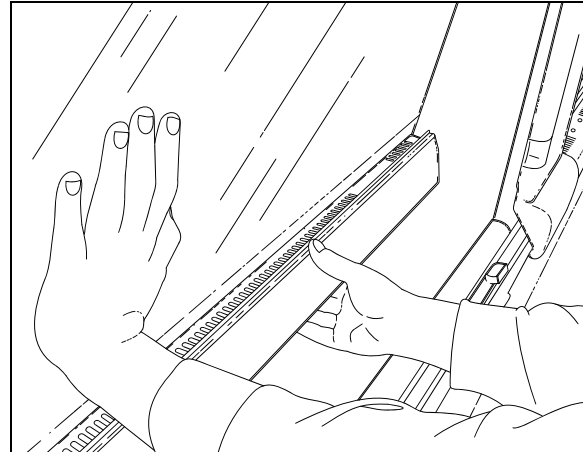
EMERGENCY EXIT WINDOWS (H3-45)

18519

To open a side window emergency exit, tilt up the release bar and push the bottom of the window outwards, as illustrated below. The window is hinged from the top and will not fall out.

A telltale light on the dashboard illuminates when a window is opened. Refer to Section 4 *Controls and Instruments* for more information.

To close the window, tilt up the release bar and pull the window back. Push down the release bar to lock shut.

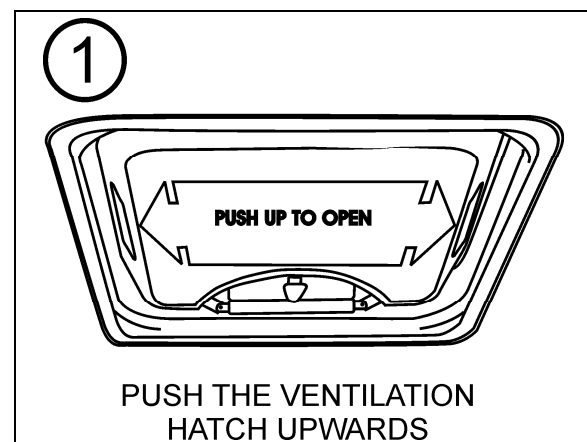


SIDE WINDOW EMERGENCY EXIT

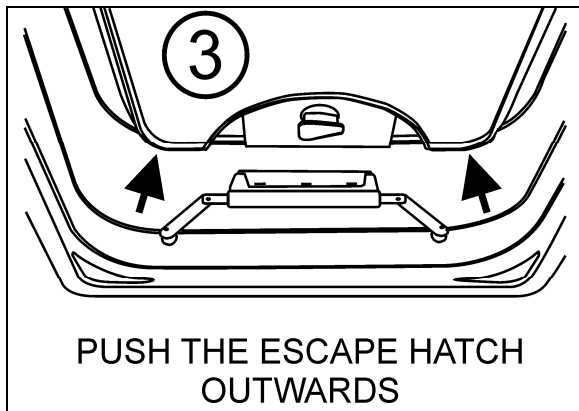
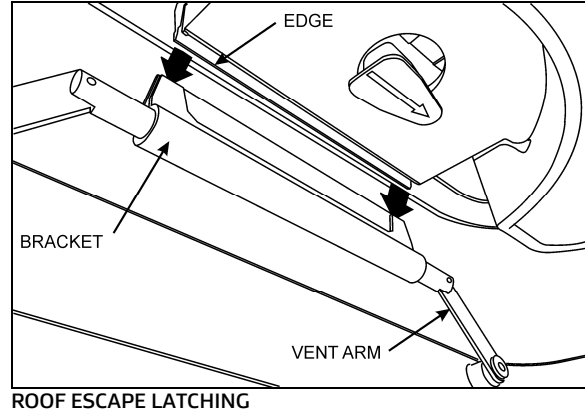
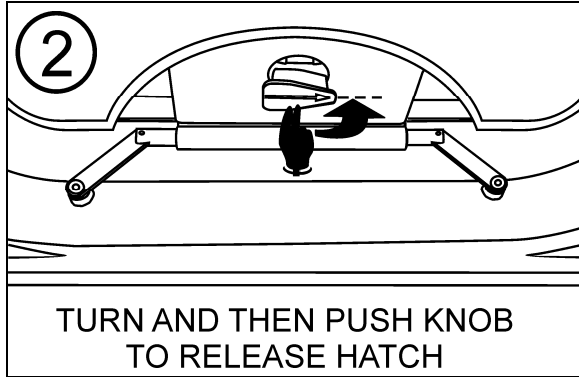
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### ROOF HATCH

A roof ventilation hatch, designed to be opened by occupants may be installed in the roof at the rear of the vehicle. Another optional roof hatch may be located in the front of the vehicle. The hatches can serve as emergency exits. In case of an emergency, push the ventilation hatch upwards (1). Turn knob ¼ turn (arrow pointing "TO EXIT") and then push knob to release the hatch (2). Push the escape hatch outwards (3). A decal with operating instructions is located on the hatch.



## 7-4 SAFETY FEATURES AND EQUIPMENT



### EMERGENCY ENTRANCE DOOR OPENING

An unlatch air valve located on the front wall, close to the entrance door allows emergency depletion of the door and locking cylinders. Another unlatch valve is located in the front service compartment and allows emergency opening from outside the cabin. To open the door in an emergency situation, first turn the unlatch valve in the direction of the arrows and push (or pull) the door open. To close the door after emergency opening, return the valve to its initial position, open the door using the door operating switch, then close the door normally.

### NOTE

*In the event of ventilation blower motor failure, the roof hatch may be used to aid ventilation by pushing the hatch upwards.*

### NOTE

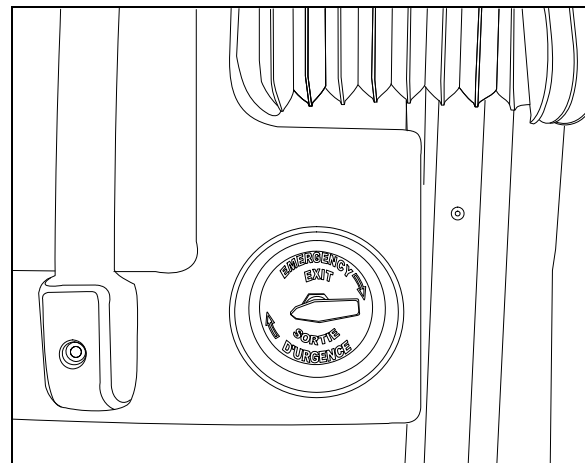
*To be able to open the entrance door in an emergency situation, the entrance door must first be unlock using the key or lock lever before unlatching the door from the outside or the inside.*

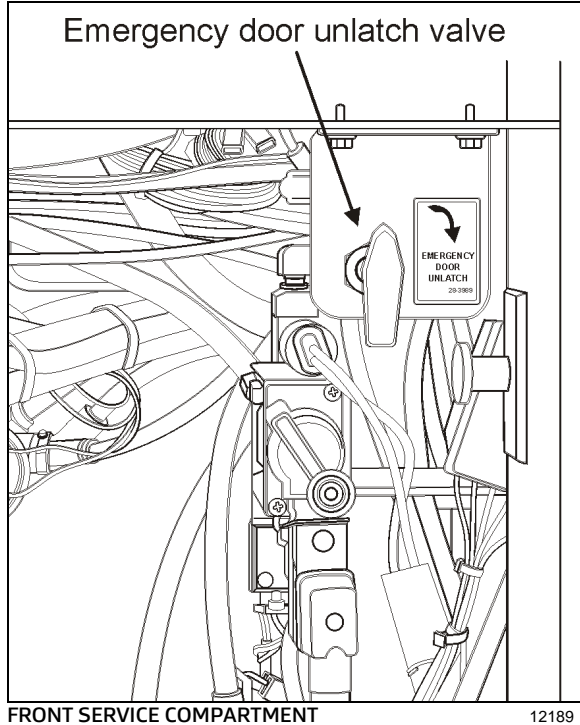


### CAUTION

**Be aware of reduced vehicle overhead clearance when driving under overpasses with the roof hatch open.**

To latch escape hatch after use, vent arms must be pushed upright in FULL OPEN VENT position. Insert edge firmly between the two sections of the bracket and then return knob to original position (arrow pointing "LATCHED") to lock the hatch. Finally, pull the hatch in to closed position, one side at a time.





## EMERGENCY EQUIPMENT

The coach is equipped with numerous safety features and equipment. Verify the equipment regularly and keep on-hand and in good condition at all times. Following is the enumeration and description of safety equipment found on board.

### FIRE EXTINGUISHERS

Fire extinguishers can be found at different locations in the coach according to the owner's choice.

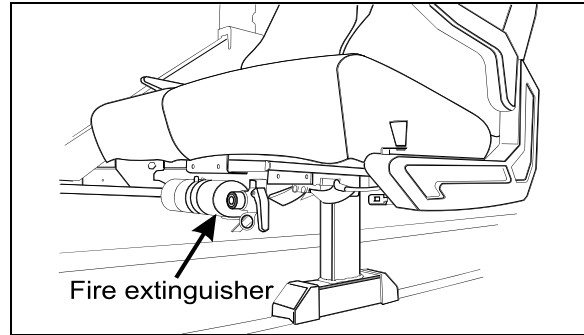
#### Under The First Row Seats

Depending on selected options, two fire extinguishers may be located under the first row seats. A decal at the bottom of each of the trapezoidal windows in the first row indicates the location of fire extinguishers. Instructions for use are found on the extinguishers.



## WARNING

Make sure you know how to operate the fire extinguishers in case of an emergency.



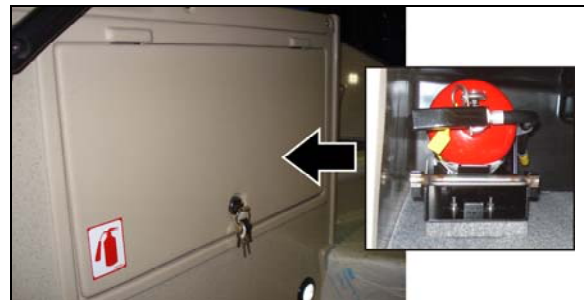
#### In The Driver's Personal Compartment

An optional fire extinguisher may be located in the driver's personal compartment located on the L.H. side of the entrance step well or inside one of the first overhead compartments. A decal on the compartment door confirms the presence of a fire extinguisher.



## WARNING

If a fire extinguisher is located in the driver's personal compartment, the compartment should remain unlocked whenever the vehicle is in operation.



A DECAL INDICATES THAT A FIRE EXTINGUISHER (OPTION) IS LOCATED IN THE DRIVER'S PERSONAL COMPARTMENT

23141

## 7-6 SAFETY FEATURES AND EQUIPMENT

### In An Overhead Compartment

An optional fire extinguisher can be located in an overhead compartment. A decal on the door of the compartment confirms the presence of a fire extinguisher.



A DECAL INDICATES THAT A FIRE HATCHET, A FIRE EXTINGUISHER AND A FIRST-AID KIT ARE LOCATED IN THIS OVERHEAD COMPARTMENT

### FIRST-AID KIT

The optional first-aid kit is stored in the first curb-side overhead storage compartment. A white cross over red background decal identifies the kit.

### FIRE HATCHET

An optional fire hatchet may be installed in the first curb-side overhead storage compartment.

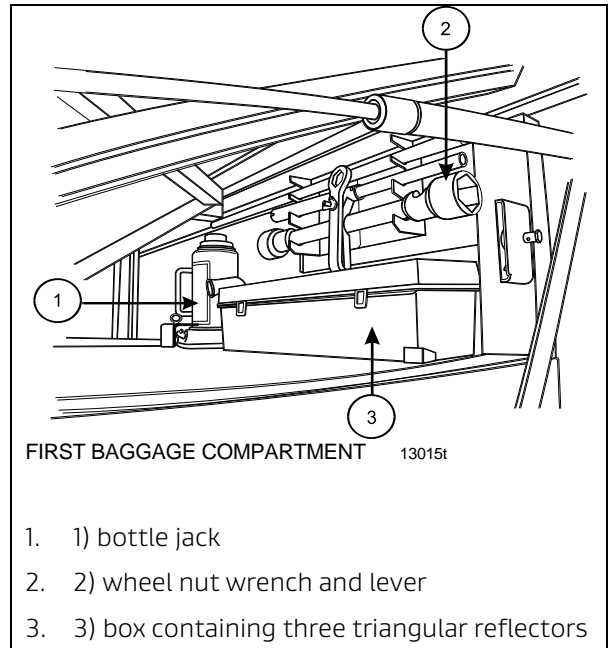
### WARNING REFLECTORS

A box containing three triangular reflectors is provided to warn other drivers on the road in case of a breakdown. The box is located with the jack and tools kit in the first curb-side baggage compartment. The reflectors provide visible warning of an emergency situation. The three reflectors should be placed as indicated on the box cover. These reflectors comply with FMVSS 125 (Federal Motor Vehicle Safety Standards).

### JACK AND TOOLS

A kit for jacking up the vehicle and changing wheels is stored in the first curb-side baggage compartment. The kit includes:

- One 12 ton bottle jack;
- A wheel nut wrench and lever;



- 1) bottle jack
- 2) wheel nut wrench and lever
- 3) box containing three triangular reflectors

### SPARE PARTS KIT

The vehicle may be equipped with a spare parts kit (optional). The kit contains parts such as bulbs, circuit breakers, belts, etc. The spare parts kit is stored in the first baggage compartment.

### AUTOMATIC FIRE DETECTION AND SUPPRESSION SYSTEM (AFSS) (OPTIONAL)

The coach may be equipped with the optional Automatic Fire Detection and Suppression System (AFSS).

### System Operation

When a fire is detected inside the engine compartment, the system sends a fire alarm signal to the **Protection Panel** located in the Driver's area near the lateral control panel. The **Protection Panel** immediately turns on the fire "ALARM" lamp and sounds the audio alarm. After a 15-second time delay the engine is automatically shut down. The fire extinguisher is discharged simultaneously with engine shutdown.

**NOTE**

The Manual Activation Switch is used when immediate discharge of the fire extinguisher and engine shutdown is desired.

**NOTE**

The Protection Panel continuously monitors system integrity and displays the information via the "SYSTEM OK" and fire "TROUBLE" indicators.

**Operational Sequence (Fire)**

1. A fire detector or liner thermal detector detects a fire in the engine compartment and sends a signal to the **Protection Panel** in the driver's area.
  2. The fire "ALARM" lamp on the **Protection Panel** will illuminate solid red and an audible alarm will sound.
  3. The operator shall bring the vehicle to a safe stop.
  4. The system automatically shuts down the vehicle engine and discharges the extinguisher into the engine compartment 15 seconds after the fire alarm starts unless advanced or delayed by the operator.
- If the operator presses the *Manual Activation Switch*, all delays will terminate and the engine shutdown and extinguisher discharge will occur immediately.
  - If the operator presses and releases the *Delay Engine Stop* switch once, the engine shutdown and extinguisher discharge will be delayed by an additional 15 seconds.

**WARNING**

The engine will stop 15 seconds after the fire alarm starts. The operator must be prepared to bring the vehicle to a safe stop as soon as the alarm sounds. Steering may become difficult after engine shutdown. If more time is required, the "DELAY ENGINE STOP" switch may be pressed and released for an additional 15 second delay.

**WARNING**

The extinguisher discharge may cause an obscuring cloud behind and near the vehicle.

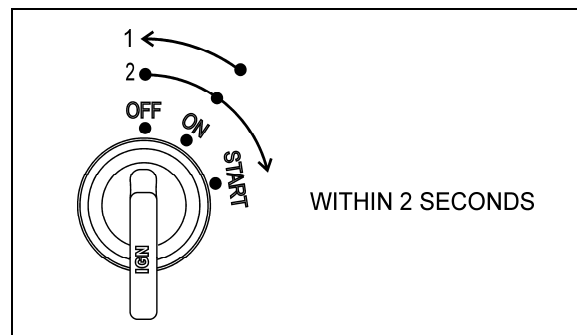
1. The red fire "ALARM" lamp and audible alarm will stay on. The yellow fire "TROUBLE" lamp will also be on indicating a discharged extinguisher.
2. The system must be reset and the fire extinguisher removed and replaced in accordance with the System Reset portion of the Kidde Dual Spectrum Operation & Maintenance Manual.

**Starting the Vehicle after Triggering Of a Fire Alarm**

The vehicle may be started after a fire alarm without resetting the system. Refer to ignition switch sequence below. This will not reset the system, rather it will instruct the vehicle's multiplex system to ignore vehicle interface outputs from the protection panel. This feature is intended to be used only in emergency situations that require the vehicle to be restarted and moved a short distance prior to system reset. It should not be performed if the cause of the fire has not been clearly identified and corrected.

To start the vehicle, perform this ignition switch (key) sequence within 2 seconds:

1. From the on position, turn to **OFF**
2. Return to ON and START.



## 7-8 SAFETY FEATURES AND EQUIPMENT

### TIRE PRESSURE MONITORING SYSTEM (TPMS) (OPTIONAL)

The coach may be equipped with the optional Tire Pressure Monitoring System (TPMS).

#### Description

System includes the following elements:

- Special tire valves;
- RF sensor inside each tire, fixed to the valve;
- 3 antennas to receive the sensors RF signal (one in the front spare tire compartment, one above the L.H. side rear wheels and one above the R.H. side rear wheels);
- A TPMS receiver connected to the antennas and located in the front electrical compartment, above the CECM;
- A TPMS display built in the L.H. dashboard panel;
- A “FLAT TIRE” telltale panel indicator.

The section of the special tire valves located inside the tire is dome-shaped to allow fixing the sensor.

Sensors provide continuous tire pressure and temperature reading.

The normal sensor battery lifespan is 5 years. The remaining lifespan is displayed as a percentage in the TPMS display.

#### NOTE

*It is recommended to check the remaining battery lifespan when changing the tires in order to replace the sensors at the same time if they are due for replacement before the next change.*

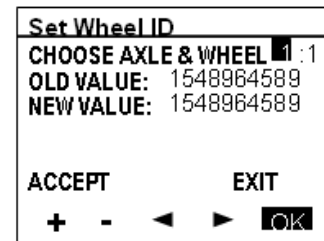
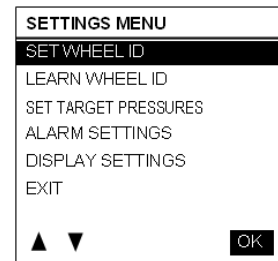
The screw fixing the sensor to the valve can only be used once because the threads are powder-coated to lock the sensor in place and prevent unfastening.

The telltale panel indicator illuminates for 3 seconds when the ignition switch is turned ON to check the display operation and the communication between the display and the vehicle multiplex system. This confirms the

communication between the TPMS display and CECM.

#### Settings Menu

- Set Wheel ID



- ◀ ▶ Navigate
- +/- Increase, decrease digits
- OK Navigate forward
- ACCEPT & OK Execute Change Old Value = New. Stay in Menu
- EXIT & OK Ignore changes in progress (new value) and EXIT menu

- Learn Wheel ID

This menu allows learning new wheel sensors ID. The user can learn only one wheel, several wheels or all wheels of the vehicle. The sequence automatically jumps to the next wheel such that a user can initiate all wheels without having to come back to the display between each wheel.

The display uses a pressure change as the criteria to recognize which wheel sensor the operator wants to get assigned to a given location. The amount of pressure change required is established at 2 PSI.

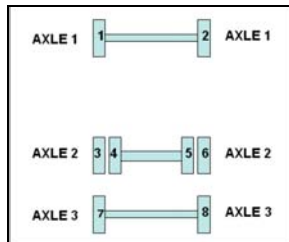
A pressure change of about 3 PSI is needed to wake up a sensor and then an extra amount of pressure change of 2 PSI is needed to trigger the display. The operator has to create a pressure change by at least 6 PSI and then wait for the display to recognize the pressure change. The wait time correspond to the sensor sampling rate.

When entering the menu, the axle 1, wheel 1 is selected by default as a starting point for the learning. The user can select another axle with +/- , move the cursor to the wheel number with the right arrow and select another wheel with the +/- or move the cursor down to the start learning button.



After the start learning button is selected, the display stores the first transmission it gets from each sensor ID into the “initial pressure” for that sensor ID. Then it compares each subsequent pressures received for that sensor ID with the initial one and when the comparison shows a delta pressure exceeding the defined level required, this sensor ID is assigned to the selected tire location.

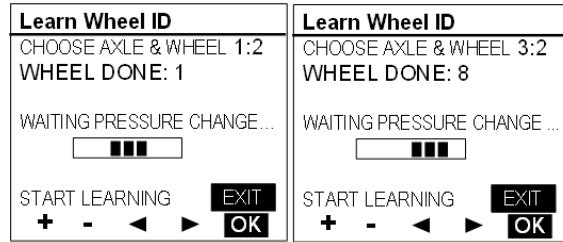
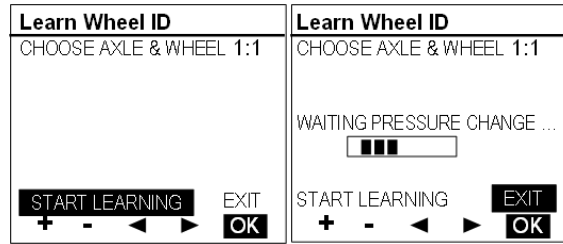
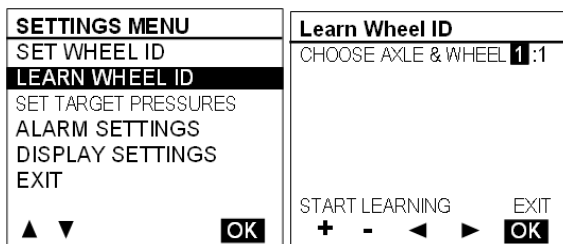
Once a wheel ID has been assigned, the display increments the number of Wheels done and it moves the axle/wheel to the next one in the sequence waiting for another sensor to come up with a pressure change. Within one learning session, the display remembers which sensor has been assigned and it will not assign it twice.



The sequence increments to the next wheel on the same axle counting wheels from left to right and then moves to the next axle counting axles from front to rear.

The display activates the next wheel parameter each time a wheel is done. This parameter is used by the vehicle electronic to activate an audible signal on the vehicle thus providing a feedback to the user that he can move to the next wheel.

The spare Tire can be done by selecting the axle/wheel “spare” which is internally encoded to 15:1.

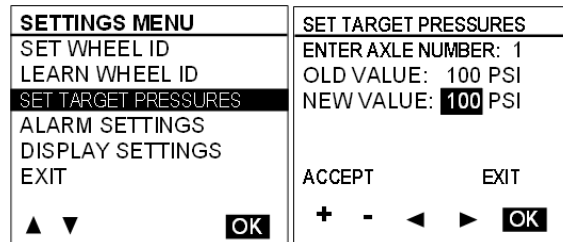


• Set Target Pressures

This menu allows the end user fine tuning the target pressure setting to account for the specific operating conditions (cold weather operation or unloaded operation). The end user can readjust the target pressure within +30% and -20% of the factory set target pressure but not outside this range.

The factory set target pressure is always kept in permanent memory into the TPMS display and cannot be edited by the end user.

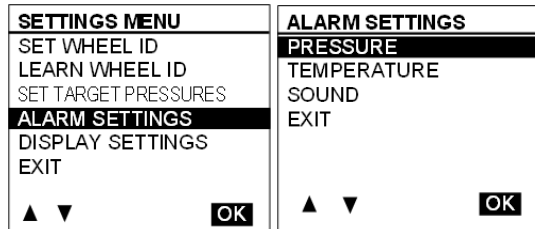
When the user enters a new target value, the user cannot select values outside the valid range.



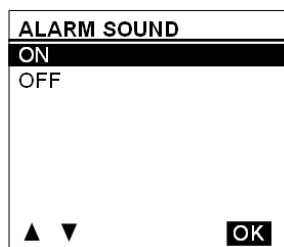
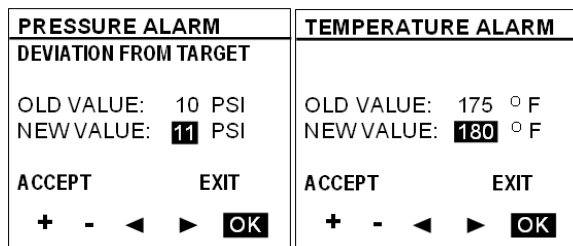
• Alarm Settings

When selecting the Alarm Settings Menu, a sub menu containing Pressure Alarm and Temperature Alarm appears.

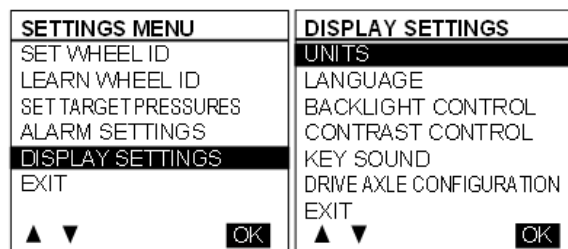
## 7-10 SAFETY FEATURES AND EQUIPMENT



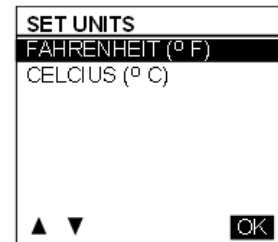
When selecting Pressure Alarm the screen pressure alarm shown below appears. A similar screen is defined for temperature settings. The cursor can be moved to highlight the number beside "new value", "ACCEPT" or "EXIT". +/- allows increasing or decreasing the numbers. Pressure alarms changes are allowed in steps of 1 PSI in the range from 5 to 20 PSI. Temperature alarms in steps of 5°F (2°C) in the range from 150 to 180 °F (64 to 82 °C). Pressing OK with "ACCEPT" highlighted applies the change and exits to the previous menu. Pressing OK when "EXIT" is highlighted exits without changes.



- Display Settings



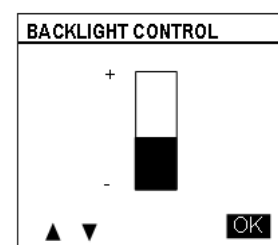
Units



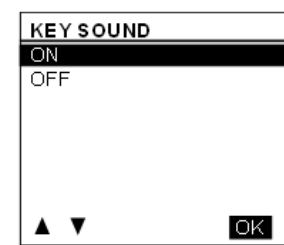
Languages



Backlight Intensity

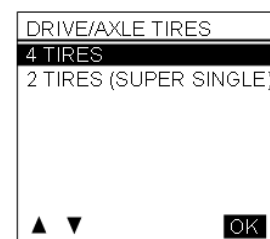


Key Sound



turns key press sound ON/OFF

Tire / Axle Configuration



Pressing the up down arrow when the number of tires is highlighted allows flipping the number to 2 or 4 which are the only valid choices.

Refer to *Appendix E* for Troubleshooting Guide on TPMS system.

### LIMP-HOME BELT

In case of mechanical failure of the lower alternator, install the limp-home belt on the upper alternator. The installation of the belt allows the coach to be driven to a repair facility after only minor manipulations.

#### NOTE

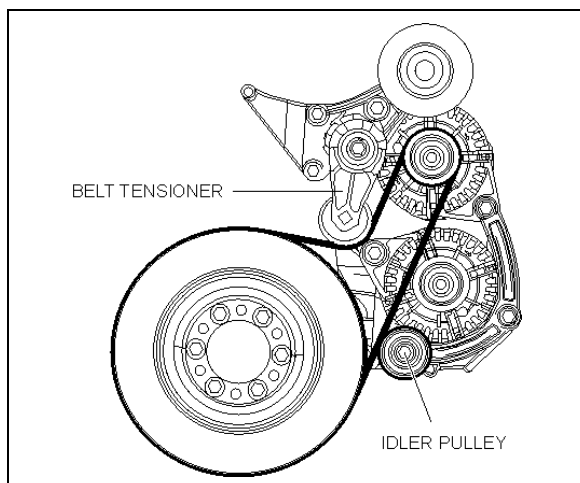
*Because of the arrangement of the alternators and the belt tensioner, a limp-home belt on the lower alternator is not possible.*

### Lower Alternator Failure

1. Raise the belt tensioner. Use a breaker bar with a  $\frac{3}{4}$  inch drive to rotate the tensioner pulley upward and relieve alternator belt tension. Remove belt;
2. Install the limp-home drive belt on the drive and top alternator pulleys first;
3. Complete installation of the limp-home belt as shown;
4. Slide the belt on the idler pulley.
5. Gently release the belt tensioner.

#### NOTE

To prevent the batteries from being discharged, the HVAC system will turn OFF automatically if the battery state of charge falls below 50%.



LIMP-HOME BELT ON TOP ALTERNATOR

01194

### SPARE WHEEL

The spare wheel and tire is located in a compartment behind the reclining front bumper.

In case of a flat tire:

- Turn ON the hazard flashers;
- Bring the coach to a stop on the side of the road;
- Apply the parking brake;

- Make sure the coach is parked safely away from traffic;
- Set up the triangular reflectors in accordance with applicable highway regulations.

### CHANGING A WHEEL

To access the spare wheel compartment, lower the front reclining bumper. To do so, pull on the release handle located in the front electrical and service compartment.

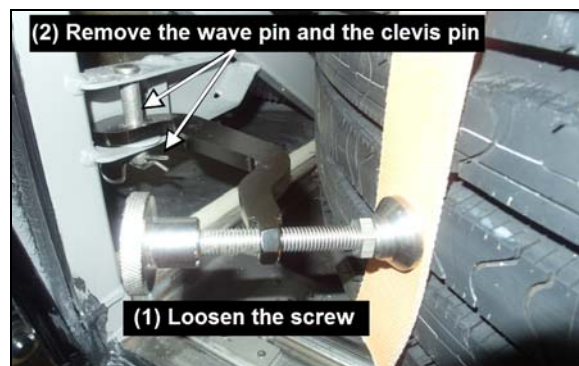
The bumper will lower gradually. When closing the compartment, be sure the bumper is firmly in place.

#### NOTE

The bumper is equipped with spring hinges to allow handling by one person.

To remove the spare wheel from the compartment:

1. Loosen the screw holding the tire in place (see image).
2. Remove the wave pin and the clevis pin.
3. Pull the spare wheel out of the compartment using the strap.



REMOVING THE SPARE WHEEL

13038

Installation of the spare wheel

#### NOTE

The jack and tools are located in the first baggage compartment.

1. Loosen the wheel nuts about one turn;
2. Raise the vehicle by the closest jacking point (See "Jacking points" in this section);

## 7-12 SAFETY FEATURES AND EQUIPMENT

3. Remove the wheel nuts and remove the wheel;
4. Mount the spare wheel over the studs, being careful not to damage the stud threads;
5. Screw in the wheel nuts according to the sequence shown in the following figure and tighten slightly more and repeat the sequence a few times to position the wheel correctly. Once tightening induces wheel spin, lower the coach for final tightening;
6. Tighten the nuts progressively in the sequence shown. Final tightening should be done using a torque wrench. Dry tightening torque is 450 – 500 lbf-ft (610 – 680 Nm) for steel as well as for aluminum wheels.



TIGHTENING SEQUENCE

13018

### NOTE

*Periodically check the spare tire inflation pressure. Tire pressure should be the maximum pressure specified in the chart.*

### NOTE

*Periodically check that the spare is securely fastened in its compartment.*



### CAUTION

Before driving, be sure the flat tire, track, jack and tools are securely reinstalled in their

respective compartments.



### CAUTION

**Check that the bumper is securely closed shut before driving.**

### SUPER SINGLE TIRE REPLACEMENT

Increase tire pressure to 125 lbs/in<sup>2</sup> (862 kPa) if you are using the supplied 365/70 R 22.5 spare tire to replace a super single tire on the drive axle.

In this particular configuration, spare wheel is to be used for emergency situation only and for temporary use.

- Do not exceed 50 mph (80 km/h).
- Repair and re-install original super single wheel and tire as soon as possible.

Adapt your driving while riding with spare tire.

### EMERGENCY AIR-FILL VALVES

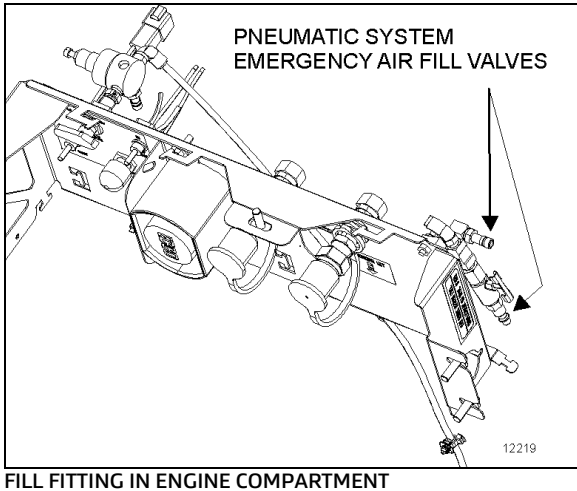
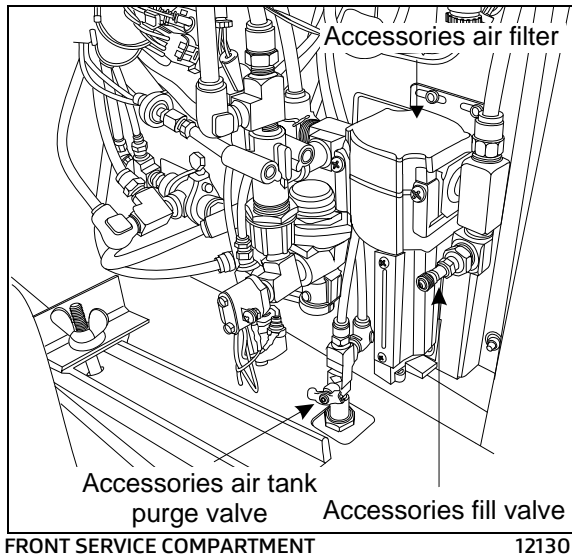
The vehicle is equipped with two air system emergency fill valves to supplement the air system when air pressure is low and the engine cannot be operated. One valve is located inside the front service compartment. The other valve is located inside the engine compartment.

Both air system emergency fill valves are fitted with standard tire valve stems. The air systems can be filled using any standard external air supply line. The fill valve located in the engine compartment supplies air for all systems (brakes, suspension and accessories). The fill valve located in the front service compartment supplies air for accessories only.



### CAUTION

Air filled through the two emergency fill valves will pass through the standard air filtering-drying system. Do not fill air at any other location. Do not exceed 120 psi (827 kPa).



**WARNING**

Always apply the parking brake before leaving the driver's seat.

**NOTE**

Only use the parking brake to supplement the service brake to stop the vehicle in emergency conditions. The stopping distance will be considerably longer than when using normal service brake.

**NOTE**

Before releasing the parking brake by pushing down the control valve knob, check the pressure gauges to make sure that the brake system air pressure is greater than or equal to 95 psi (655 kPa).

**NOTE**

The telltale panel audible alarm will sound if the ignition switch has been turned to OFF without applying the parking brake. The same beep will sound if pressure is still applied to the service brake pedal.

**NOTE**

The stoplights automatically turn on when the parking brake is applied and the engine is running.

**EMERGENCY AND PARKING BRAKES**

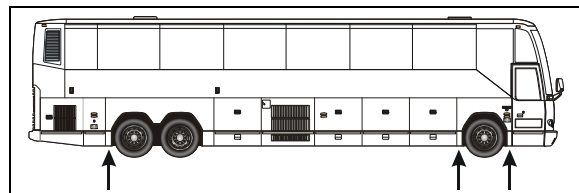
During normal operation, if air pressure in any brake circuit drops below 40 psi (276 kPa), spring-loaded emergency brake will be immediately applied at full capacity to the drive axle wheels to stop the vehicle.

Spring-loaded parking brake is applied by pulling up the control valve knob located on the L.H. lateral console.

Parking brake is not designed to be used as a service brake. For normal driving conditions, the control valve knob must remain in the down position.

**JACKING POINTS**

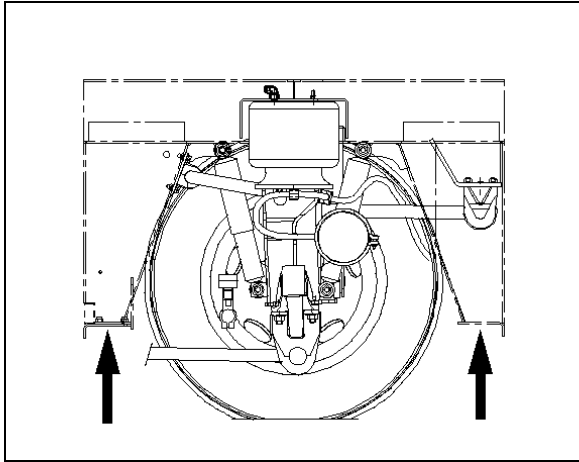
Twelve jacking points are located on the vehicle: three are located on each side of the frame and two are located under each axle. Refer to the following illustrations for the location of jacking points.



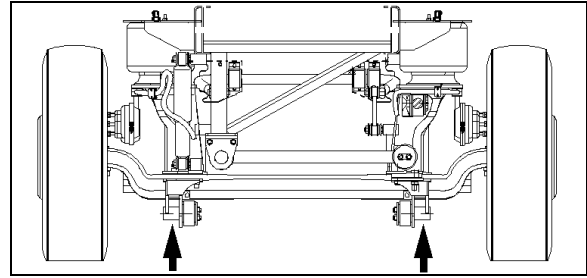
JACKING POINTS ON FRAME

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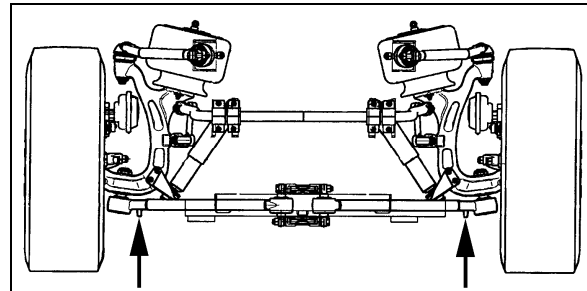
7-14 SAFETY FEATURES AND EQUIPMENT



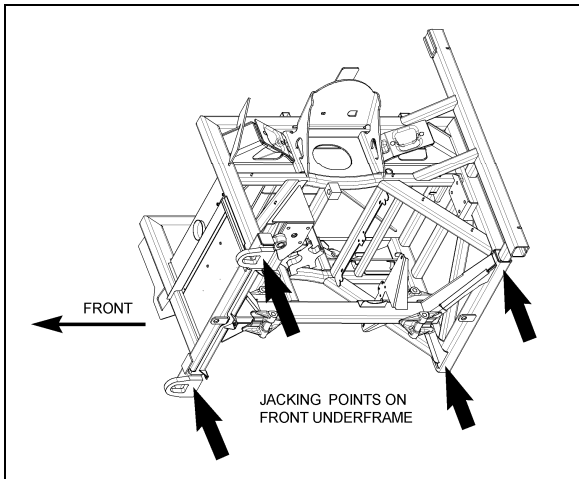
JACKING POINTS ON FRONT UNDERFRAME – I BEAM AXLE 16183



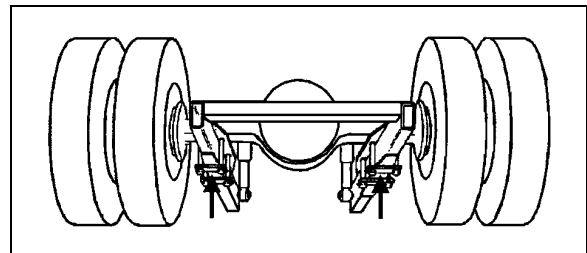
JACKING POINTS ON FRONT AXLE – I BEAM AXLE 10000



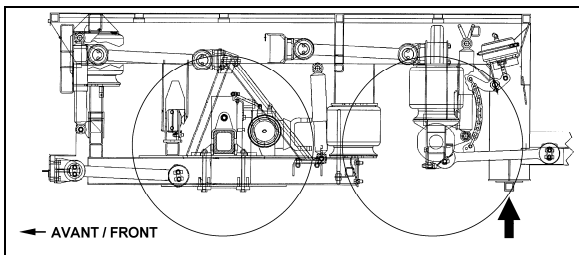
JACKING POINTS ON FRONT AXLE - IFS 16095



JACKING POINTS ON FRONT UNDERFRAME – IFS 16182



JACKING POINTS ON DRIVE AXLE 11005



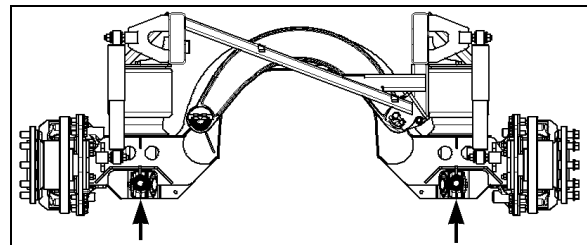
JACKING POINTS ON REAR FRAME

**⚠ WARNING**

Always unload or retract the tag axle before jacking the vehicle from the front and drive axle jacking points to prevent damage to suspension components.

**⚠ WARNING**

The suspension of the vehicle must be in the normal ride position before jacking.



JACKING POINTS ON TAG AXLE 11029

**WARNING**

The jacking points on the tag axle must be used for raising the tag axle only.

Several kinds of hydraulic jacks can be used. Only jack at the specified jacking points. Jack must support the following weight:

Front axle: 20,000 lbs. (9 100 kg);

Drive axle: 40,000 lbs. (18 200 kg).

**WARNING**

Do not jack vehicle with passengers inside. Coach weight depends on equipment and cargo within. Check before jacking.

**HYDRAULIC JACK**

To raise: turn release valve clockwise. Insert handle in socket and raise by pumping.

To lower: remove handle and turn the release valve slowly counterclockwise.

Always keep ram and extension screw retracted when jack is not in use.

Service: Check oil level when jack fails to raise to full height. Lower ram completely with release valve open and jack in upright position, remove filler plug and refill to level of filler hole with hydraulic jack oil. Never use brake fluid.

**WARNING**

Jack is intended for lifting only. Do not get under the vehicle or load for any reason unless it is properly supported with safety stands and securely blocked.

**WARNING**

Do not load jack above rated capacity. Prevent "side loading"; make sure load is centered on ram. Do not push or tilt load off jack.

**TOWING THE VEHICLE**

The vehicle can be transported on a low bed semi-trailer of adequate gross axle weight capacity. When transporting a vehicle in this manner, apply parking brake and shut down the engine. Block all wheels and secure vehicle with tie-downs. Check that overall height will clear obstacles on the route to follow, and obtain required permits.

The vehicle can also be towed by lifting the front axle or by towing from the front with all wheels on the ground. These two methods are described below under their respective headings. Whatever the method used, the vehicle should be towed by truck operators authorized and experienced in towing highway coaches.

Observe normal precautions including, but not limited to, the ones listed below when towing the vehicle:

- Make sure the parking brake is released before towing.
- Do not allow passengers to ride onboard the towed vehicle.
- Tow the vehicle at a safe speed as dictated by road and weather conditions.
- Accelerate and decelerate slowly and cautiously.

**WARNING**

**Do not carry passengers while the coach is being towed.**

**CAUTION**

Never tow the vehicle from the rear, as this will cause serious damage to the chassis and engine cradle. In case of damage to the drive train components, use a low bed semi-trailer to support the rear end.

**LIFTING AND TOWING**

The towed vehicle must be lifted from the front end only. The tow truck must be equipped with



## 7-16 SAFETY FEATURES AND EQUIPMENT

the proper lifting equipment to reach under the front axle or the front tow eyes since no other lifting points are recommended. Lifting and towing from any other point are unauthorized as it may cause serious damage to the structure. Do not unload or raise the tag axle when lifting and towing to prevent overloading the drive axle.

1. Remove both drive axle shafts to prevent damage to the transmission. Plug axle tube to prevent oil loss. Refer to Rockwell's "Maintenance manual no.5" annexed at the end of Section 11: Rear Axle of the maintenance manual.



### CAUTION

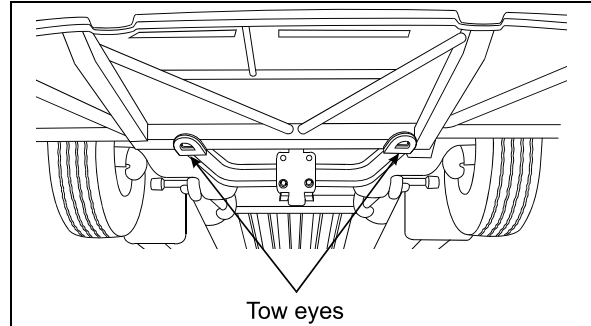
Transmission lubrication is inadequate when towing. With automatic, semi-automatic or manual transmission, the axle shafts or driveshaft must be disconnected to avoid serious damage to the transmission. Do not attempt to push or pull-start the coach.

2. If required, raise the front of the coach then install wooden blocks underneath front tires to allow lifting equipment to reach under the front axle.



### Tow eyes as lifting point

1. Use the tow eyes fixed to the vehicle frame between the front axle and the front bumper.



TOW EYES UNDER VEHICLE

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2. Install axle forks onto tow bar, position axle forks around beam and into tow eyes.



ADEQUATELY SECURE THE TOW EYES TO THE TOW TRUCK LIFTING ATTACHMENT WITH CHAINS



AXLE FORK

### Front axle as lifting point

1. Use axle forks and lift the vehicle from under the front axle, and adequately secure the axle onto the tow truck lifting attachment with chains.





LIFTING FROM UNDER THE FRONT AXLE

2. Operate the engine when towing to maintain brake system air pressure. If the engine cannot be operated, connect an external air pressure line from the tow truck to the emergency fill valve in the engine R.H. side compartment. The emergency fill valve in the front service compartment does not supply air pressure to the brake system. The air pressure must be a minimum of 75 psi (520 kPa), and the line should be attached to the air line with a clip-on chuck.

**CAUTION**

Do not tow the vehicle without external air pressure applied to the emergency fill valve if the engine does not operate. Without brake system air pressure, the brakes may apply automatically if system air drops below 40 psi (275 kPa). If failure prevents releasing the parking brakes with air pressure, disengage the parking brakes mechanically.

3. Observe safety precautions when towing.

**CAUTION**

Make sure a safe distance is kept between the front of the coach and the tow truck. This space ensures that coach does not suffer damages when being towed.

**CAUTION**

Make sure axle shafts or driveshaft are installed correctly after towing. Tighten axle shaft and driveshaft nuts to the correct torque settings. Do not invert shafts.

**TOWING WITHOUT LIFTING****CAUTION**

When towing vehicle without lifting, use only a tow truck with a solid link tow bar and related equipment. All other means of towing are unauthorized. Tow only from the front of the vehicle.

1. Remove both drive axle shafts to prevent damage to the transmission. Plug axle tube to prevent oil loss. Refer to Rockwell's "Maintenance manual no.5" annexed at the end of Section 11: Rear Axle of the maintenance manual.

**CAUTION**

Transmission lubrication is inadequate when towing. With automatic, semi-automatic or manual transmission, the axle shafts or driveshaft must be disconnected to avoid serious damage to the transmission. Do not attempt to push or pull-start the coach.

2. Operate the engine when towing to maintain brake system air pressure. If the engine cannot be operated, connect an external air pressure line from the tow truck

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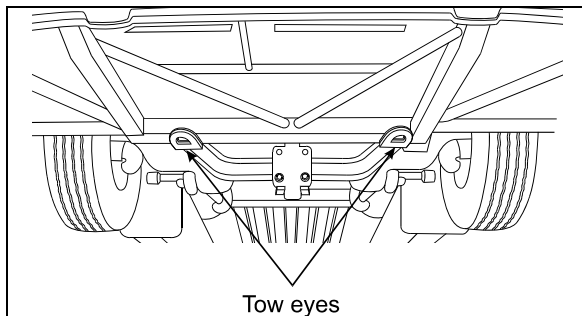
to the emergency fill valve in the engine R.H. side compartment. The emergency fill valve in the front service compartment does not supply air pressure to the brake system. The air pressure must be a minimum of 75 psi (520 kPa), and the line should be attached to the air line with a clip-on chuck.



### CAUTION

Do not tow the vehicle without external air pressure applied to the emergency fill valve if the engine does not operate. Without brake system air pressure, the brakes may apply automatically if system air drops below 40 psi (275 kPa). If failure prevents releasing the parking brakes with air pressure, disengage the parking brakes mechanically.

3. Position the tow truck so that the tow bar contacts the front bumper of the vehicle.
4. Attach the tow truck chains only in the tow eyes of the vehicle and take up all the slack.
5. Use a safety chain as applicable.
6. Observe safety precautions when towing.



TOW EYES UNDER VEHICLE

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### CAUTION

Make sure axle shafts or driveshaft are installed correctly after towing. Tighten axle shaft and driveshaft nuts to the correct torque settings. Do not invert shafts.

### VOLVO I-SHIFT ALTERNATE TOWING MODE

If the standard towing procedure can't be followed due to road condition or local road

regulations (tunnels, bridges, etc.), follow the alternate procedure described below.



### CAUTION

This procedure applies only to coaches with D series Volvo I-Shift transmissions (AMT-D) provided with alternate towing mode software.

Forward towing only! Reverse towing (backing-up) is not allowed with this procedure or damage to the gearbox will occur.



### CAUTION

This procedure should not be used in replacement of the standard towing procedure.

This procedure does not have any indicator, therefore, if any of the steps below are not fulfilled, transmission damage may occur.

Applying the procedure will allow tow mode to be activated and vehicle to be towed without the removal of the driveshaft for whatever distance the vehicle needs to be towed.

Towing gear **3 HR** will be engaged if conditions below are fulfilled in the following sequence:

1. Ignition key must be in the "ON" position.
2. Engine not running.
3. Adequate air pressure to the gearbox/  
Vehicle must have electrical power.
4. Shift pad must be in neutral.
5. Vehicle must be towed FORWARD only.

### DAYTIME RUNNING LIGHTS

The daytime running lights system provide added safety by making the front of the vehicle more visible to other drivers during the day.

The daytime running lights system turns the headlights on when:

Engine is running;

Parking brake is released;

The exterior lighting switch is set to the OFF position or depressed to the first position.



## WARNING

Do not drive with only the daytime running lights at night because the taillights and the side marker lights are not turned on in that situation and the high beam can blind other drivers. For night driving, turn *ON* the headlights by depressing the headlights and exterior lighting rocker switch to the second position.

## FOG LIGHTS

Fog lights provide better visibility in fog and precipitation. They improve visibility immediately in front of the vehicle. They also provide added safety.

## NOTE

*Some states or provinces may restrict the use of fog lights. Verify local state or provincial regulations before using.*

## COMPARTMENT LIGHTING

Baggage compartments, front and rear service compartments and main power compartment lights are automatically turned ON when the corresponding compartment door is opened. A telltale light on the dashboard illuminates when a baggage compartment door is open.

## MUD FLAPS AND SPLASH GUARDS

Mud flaps are installed behind each front wheel and the tag axles. Mud flaps minimize dirt on the lower panels of the vehicle and prevent stones and debris from being thrown at vehicles travelling behind the vehicle. Splash guards may be installed behind each dual wheel of the drive axle to prevent stone projectiles from being thrown at the tag axle wheels.

## BACK UP CAMERA

An optional back up camera is available which provides the driver with visual assistance when backing-up.

The TV monitor is mounted on the left side pillar. It switches ON automatically when the transmission is in the reverse (R) range.

## BACK UP ALARM

The back up alarm alerts pedestrians and other drivers when the vehicle is being backed-up. Take extra precautions whenever backing-up. If necessary, use a guide to provide directions when backing-up. Both the alarm and optional camera are automatically activated when the transmission is put in the reverse (R) range.

## ESSENTIAL FUNCTIONS TO OPERATE THE VEHICLE (BASIC LIMP-HOME FUNCTIONS)

Even with a defective CECM (Chassis Electronic Control Module) or a CAN network problem, essential base functions are maintained to rear start the vehicle from the engine compartment and drive in a secure manner.

### Available Functions

- Startup: Turn on the ignition in the driver's area and rear start the vehicle from the engine compartment,
- Opening the door: Functions normally,
- Closing the door: Manually pull on the door and it will lock automatically,
- Windshield wipers: Wipers functions at 1st speed only,
- Windshield washer fluid: Lower windshield washer only,
- Headlights: Low beams only,
- Directional signals: Rear and front only,
- Stoplights: 2 upper stoplights + high-mounted stoplight are functional,

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- HVAC: Functional with set point fixed at 70°F (22°C), evaporator and condenser fixed at speed 1, defroster fixed at speed 4.



### CAUTION

The following directives must be followed.

- Never connect a battery charger when the ignition is at the ON position on a vehicle with a CAN defective or certain functions will start up by themselves,
- Disconnect the charger before starting the vehicle, if not the default functions will not activate,
- If the default mode does not activate, try to turn the ignition OFF while ensuring that no charger is connected and then restart the vehicle.

### ENGINE PROTECTION SYSTEM

The engine protection will automatically derate or stop the engine when certain engine conditions reach a critical stage.

In the event of a serious fault, the red STOP telltale light comes on and an audible alarm will sound if the engine is running.



An illuminated STOP telltale light indicates a serious problem has been detected, and the driver must respond immediately to the problem. The vehicle must be safely pulled off the road and stopped. In some instances, the engine must be switched off immediately.

### AUTOMATIC ENGINE SHUTDOWN

Prior to an actual automatic shutdown, the engine will automatically derate, go to idle, and then stop as the vehicle speed gets below 2 mph (3 km/h).

The engine shutdown protection will automatically derate and stop the engine when one or more of the conditions listed below reaches a critical point:

- High engine coolant temperature
- High engine oil temperature
- Low engine oil pressure
- High crankcase pressure (rate of change)

After the automatic engine shutdown sequence, the engine may be restarted. To do so, turn the ignition switch to the OFF position during 7 seconds and then turn it back to ON. However, it will only operate for 30 seconds unless the problem is resolved.

Use this function sparingly and in order to move the vehicle to a safe parking place only. Excessive use may result in severe engine damage.



### WARNING

Failure to take necessary action when the STOP telltale light is on ultimately result in automatic engine derate and shutdown.