

# SECTION 8

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## CLEANING

The cleaning information provided in this section is regarded as recommended cleaning practices. Cleaning results may vary depending on the condition of the stain. Always clean stains promptly for best results.

### NOTE

*Use only approved cleaning products such as Prevost A.P.C., all-purpose cleaner (Prevost # 683664). Never use stain protection products on new fabrics. To prevent permanent staining of fabrics, clean stains soon after they occur. Incorrect treatment of stains can worsen them. Get help from a cleaning specialist to remove stubborn stains.*



### CAUTION

Custom fabrics and materials may require different cleaning and maintenance practices. Consult your supplier.

## SEAT UPHOLSTERY

Firmly beat the fabric with a blunt object, such as a wooden paddle, to release dust and dirt. Vacuum the seat fabric in the direction of the stitching using an upholstery nozzle.

### NOTE

*The abrasive nature of dirt and grit will reduce upholstery life expectancy. Vacuum regularly.*

### Removal Of Stains And Marks

Depending on the nature of the stain, apply one of the two methods explained below to remove stains and marks on wool plush.

Method One:

Apply a nonflammable solvent to stained area with a clean, white absorbent rag;

Clean stain by starting at the outer edges of the stain and working in toward the center;

Blot affected area frequently with a clean, dry absorbent cloth to prevent stain rings caused by excess solvent.



### WARNING

Use solvents in a well-ventilated area. Open all windows and doors.

Method Two:

Wet the stain with a solution of household detergent and lukewarm water. Do not soak the stain;

Rub the stain with a damp cloth;

Rinse cloth after each application.



### CAUTION

Do not use soap, soap powder, ammonia, soda, bleach or cleaning products containing any of these compounds.

### Beverage Stains

Remove beverage stains by following method one. If stain persists, repeat method one using methylated spirits instead of solvent.

### Alcoholic Beverage Stains

Remove alcoholic beverage stains by wetting the stain with water, then cleaning following method two.

### Burns

Scrape burnt area using a knife or razor blade then clean following method two. Consult an upholstery specialist when dealing with extensive burns.

### Cosmetic Stains

Remove stains left by cosmetics by following method one then, method two.

### Ink Stains

Remove ink stains following method two. If stain persists, apply a warm oxalic acid solution. Rinse with water.

### Blood, Urine Or Vomit Stains

Remove such stains by following method two.

### Copying Ink - Ball-Point Pen Ink

Treat with methylated spirits, blotting frequently to avoid spreading stain, followed by method two.

### Marking Ink (Felt-tip Pens)

Treat with Methyl Ethyl Ketone (MEK) followed by method two.

## 8-4 Care and Maintenance

### Oil, Grease And Paint

Remove excess using a knife. Treat with method one followed by method two. If stain persists, repeat procedure.

### Rust Stains

Remove rust stains by following method two. Apply a warm oxalic acid solution to stained area. Rinse with water.

### Tar

Soften tar with mineral spirits, then treat using method one followed by method two.

### Chewing Gum

Soften gum with cyclohexane. Carefully scrape off stains using a sharp knife or razor blade.

## PLASTIC AND VINYL

Clean plastic and vinyl trim using a clean damp cloth or sponge. For vinyl trim marks, use a lukewarm all-purpose cleaner or a mild saddle soap. Remove water spots and soap traces using a clean damp cloth or sponge. Dry with a clean soft cloth.

Remove grease, tar or oil stains with a clean cloth or sponge and an all-purpose or solvent-type vinyl cleaner.

Apply a colorless vinyl or leather protective product to maintain the luster and pliability of the plastic or vinyl surface.

## WINDOWS

Clean the inside of the windows with a solution of one part vinegar to ten parts water.

## STAINLESS STEEL

Use a stainless steel cleaner and follow the manufacturer's instructions. Stainless steel cleaning solution may be ordered from Prevest quoting part number 680356.

## HIGH PRESSURE LAMINATE

Remove stains on laminated surfaces with a household detergent, methylated spirits or mineral spirits. Clean with a mild liquid abrasive and water solution if stain persists.

## RUBBER COMPONENTS

Use only pure water or glycerin to clean stains on rubber components.



### CAUTION

Never use solvents on rubber components.

## FLOOR CLEANING

To keep its original appearance, wash the floor regularly. Clean vinyl floors with a quality nonionic detergent cleaner or a household all-purpose cleaner. Follow the manufacturer's recommendations for cleaning.

Remove any excess detergent solution using a wet/dry vacuum or mop. Rinse floor with a solution of one part Clorox to ten parts warm water.

Polish dry floor using a high-speed buffer and a smooth red 3-M polishing pad.

Mop floor periodically with a solution of 5 percent Clorox in warm water.

### NOTE

*For custom or special floor covering materials, consult the manufacturer or your converter for information on how to clean and maintain these types of floors.*



### CAUTION

Using a water hose to clean the floor is prohibited since it could cause electrical shorts or damage the electrical system.

## EXTERIOR SURFACES

Frequent washing and waxing of the vehicle exterior will help protect the finish and luster. The paint finish is attacked by the abrasive effects of airborne particles and corrosive pollutants.

Before washing the exterior of the vehicle, close the fresh air dampers using the "REC" button located on HVAC control panel and on the air intake duct in the evaporator compartment. Install keyhole protectors to prevent water from penetrating. Rinse vehicle with water to remove all loose dirt. Wash vehicle using quality brand car wash soap. Follow

manufacturer's recommendations for cleaning. Rinse well with water.

The vehicle exterior should be cleaned, waxed and buffed when water droplets no longer form on the painted surfaces.



**CAUTION**

Hot water can damage paint. Keep water cool or lukewarm.



**CAUTION**

Make sure cleaning solutions are not harmful to painted surfaces. Read the manufacturer's instructions before using.



**CAUTION**

Do not spray water jet directly into fresh air inlet dampers.



**CAUTION**

Do not aim high pressure water jet at radiator or condenser doors. This could damage the fins.

To prevent corrosion, remove caked-on dirt and road salt from the vehicle underbody using a high pressure water jet. Clean wheel housings, bumpers, muffler, tailpipe and brackets.

Carry out corrosion prevention cleaning at least twice a year. Spray underneath of the vehicle and let soak before cleaning. Let engine and exhaust system cool down before cleaning.

**Tar Or Oil**

Remove tar or oil as soon as possible with an approved automotive tar and oil remover or turpentine. Thoroughly clean area with car wash soap and water. Let dry, then wax.

**Insects**

Remove insect stains as soon as possible with lukewarm soap and water or insect remover.

**Tree Sap**

Remove tree sap or bird droppings with lukewarm soap and water. Do not allow to harden.

**WINDSHIELD**

To prevent windshield wiper streaking, keep silicone sprays away from windshield. Remove road film and wax build-up from windows with lukewarm soap and water or with an alcohol-based cleaning agent. If a chamois is used to dry and polish glass, use it exclusively for that purpose.

**Wiper Blades**

To avoid tearing frozen wiper blades, loosen them before removing. Remove and clean wiper blades periodically with an alcohol-based cleaning solution. Clean wiper blades using a sponge or soft cloth.

**FLUID LEVEL VERIFICATION**

Periodic inspection of oil and fluids levels is the most economical and easiest way to help your vehicle perform at its best. Rigorous oil level inspection and replacement will greatly help minimize expensive and unscheduled repairs.

**ENGINE OIL LEVEL**



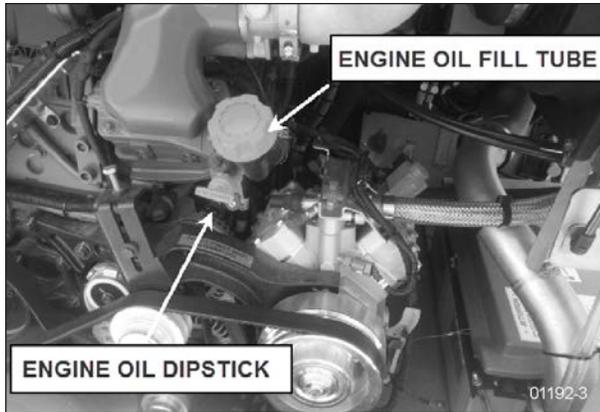
**WARNING**

Check the engine oil level with vehicle parked on a level surface and with the parking brake engaged.

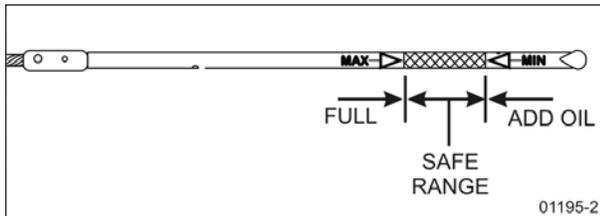
Check engine oil level when engine is still warm. Shut off engine and wait at least 10 minutes for oil to drain into oil pan before checking. Check engine oil level daily or before each trip. Add oil as required. Do not overfill. Remove dipstick, wipe clean and fully reinsert to ensure an accurate reading. Remove dipstick and check engine oil level.

**Do not** let the oil level fall below the marking on the dipstick. **Do not** overfill so the level is above the upper marking on the dipstick. Add oil through the oil filler pipe as required in order to maintain level within the safe range

## 8-6 Care and Maintenance



ENGINE OIL DIPSTICK - VOLVO D13 ENGINE



VOLVO D13 ENGINE OIL LEVEL DIPSTICK

### TRANSMISSION FLUID LEVEL



#### DANGER

To prevent personal injury, do not service transmission wearing loose clothing. Stand clear of the engine and rotating components while checking the oil level.



#### CAUTION

Do not mix fluid types or brands because of possible incompatibility.



#### CAUTION

Use clean fluid and containers when filling transmission. Never use containers that have contained water or antifreeze (Glycol).

### Allison Automatic Transmission Fluid Level

The transmission fluid level can be checked with the dipstick or with the use of the shift selector display. For more information on how to use the shift selector display to check the transmission oil level, refer to "[OIL LEVEL CHECK USING THE PUSHBUTTON SHIFT SELECTOR](#)" on page 2 in Appendix C.

The transmission fluid level dipstick is accessible through the engine compartment rear door and is located on the left side of the engine.

To check the transmission fluid level, a "cold check" and a "hot check" must be performed. A cold check must be made when the transmission fluid is between 60°F and 120°F (16°C and 50°C).

#### NOTE

*Perform the cold check first to verify the transmission fluid level before performing the hot check.*

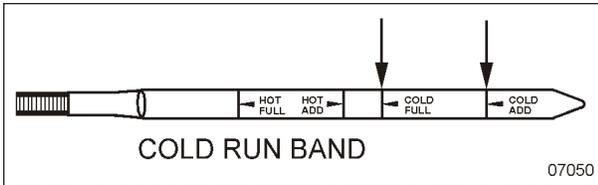
To prevent dirt and foreign matter from entering the transmission, clean the end of the oil fill tube before removing dipstick. To remove dipstick, unscrew filler cap approximately three turns and pull out dipstick.



ENGINE L. H. SIDE (X3 SERIES)

#### • Cold Check

Run the engine until the transmission fluid temperature is between 60°F and 120°F (16°C and 50°C). With the engine idling, make sure the parking brake is applied and the transmission is in neutral (N). Remove and wipe the dipstick with a clean cloth. Check fluid level. If the fluid level is within the COLD RUN band, the fluid level is correct and a hot check can be performed. If the fluid level is on or below the lower line of the COLD RUN band, add fluid until the level lies within the COLD RUN band. If the fluid level is above the COLD RUN band, drain fluid until the level is within the band.



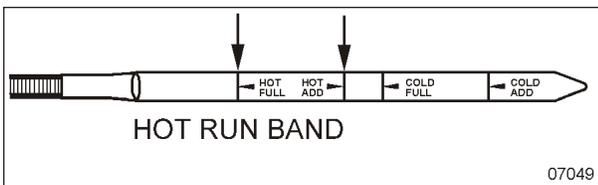
TRANSMISSION FLUID LEVEL DIPSTICK (TYPICAL)

**CAUTION**

The fluid level rises as fluid temperature rises. Do not add fluid above the "cold run" band before the transmission reaches 180°F to 220°F (82°C to 104°C).

• **Hot Check**

Make sure the transmission fluid temperature is between 160°F and 200°F (71°C and 93°C) before performing the hot check. Run the engine between 1,000 and 1,200 RPM for approximately one minute to purge air from the system. With the engine idling and the parking brake applied, shift transmission from forward (D) to reverse (R) and back into neutral (N) to fill clutch cavities with fluid. Remove and clean dipstick, then check fluid level. If the fluid level is on or under the lower HOT RUN line, add just enough fluid to bring up the level to the middle of the HOT RUN band.



TRANSMISSION FLUID LEVEL DIPSTICK (TYPICAL)

Replace dipstick and tighten the filler tube cap until the rubber seal is correctly seated.

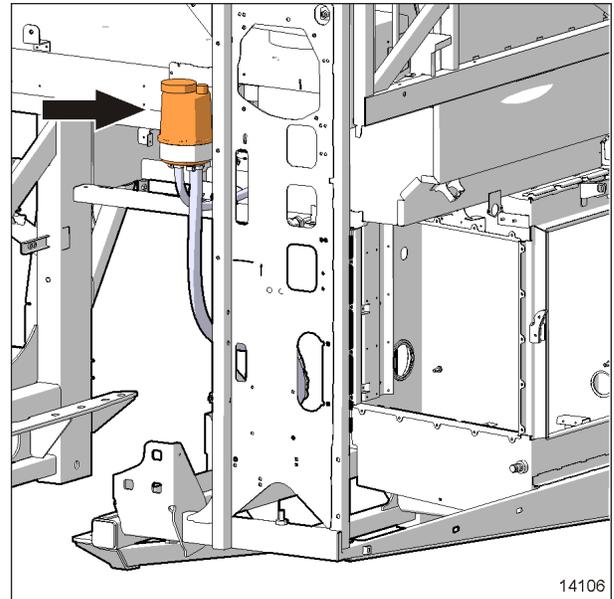
**CAUTION**

Do not overfill transmission fluid reservoir. Severe damage may result.

**POWER STEERING FLUID LEVEL**

The power steering reservoir is located on the R.H. side of the engine compartment.

On X series vehicles it is located at the upper right side of the engine compartment, accessible by the engine compartment door.



POWER STEERING RESERVOIR X3-SERIES

Check fluid level as follows:

1. Stop engine and open compartment door.
2. Thoroughly clean the reservoir and its immediate vicinity to protect the fluid from being soiled by impurities.
3. Remove the dipstick on top of the tank, wipe with a clean rag and check fluid level;
4. Top up level to the "FULL" mark on the dipstick.
5. Put back the dipstick and close compartment door.

**DRIVE AXLE WHEEL BEARING OIL LEVEL**

Drive axle wheel bearings are lubricated by the differential oil. Maintain differential oil at correct level to ensure adequate lubrication of drive axle wheel bearings at all times.

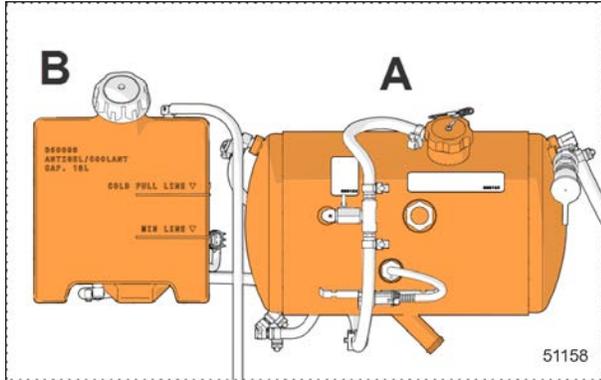
**FRONT AND TAG AXLE WHEEL HUBS**

The unitized hub bearings used on the NDS range of axles are non-serviceable items. Bearings are pre-adjusted, lubricated and have seals fitted as part of the manufacturing process. The bearings are greased for life and there is no need or facility for re-lubrication.

## 8-8 Care and Maintenance

### COOLANT FLUID LEVEL

The coolant system has two tanks; the surge tank (A) and the recovery tank (B).



Check the coolant level into the recovery tank (B) when the engine is cold (room or ambient temperature).

- If the coolant level into the recovery tank is lower than the MIN LINE, use the recovery tank filler cap to add coolant until reaching the FULL LINE.



Fill the recovery tank with the same 50/50 water-antifreeze mixture already in the cooling system. Do not mix two different types of coolant. Refer to the Maintenance Manual for proper coolant type specifications or see the label affixed near the coolant surge tank on the vehicle.

### Level Switches

Both tanks are equipped with a level switch. A message will appear on the cluster according to which switch is activated.

The table below shows the message and the description.

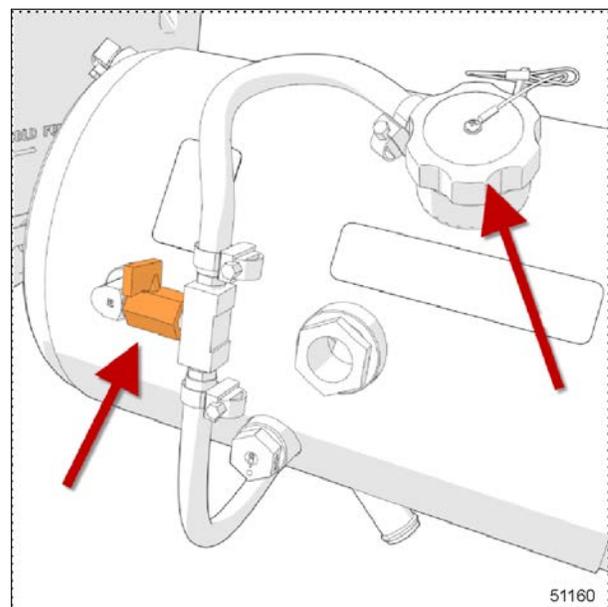
MESSAGE	DESCRIPTION
Check Engine Coolant Level at next stop	Low engine coolant level Warns the driver that the engine coolant level has reached the recovery tank low level switch. Add coolant whenever possible. Use recovery tank filler cap.
Engine Coolant Level critically Low	Critically low coolant level Warns the driver that the engine coolant level has reached the surge tank low level switch. Stop and add coolant. Use recovery tank filler cap.

Level from the level switches does not match with the level lines on the recovery tank.



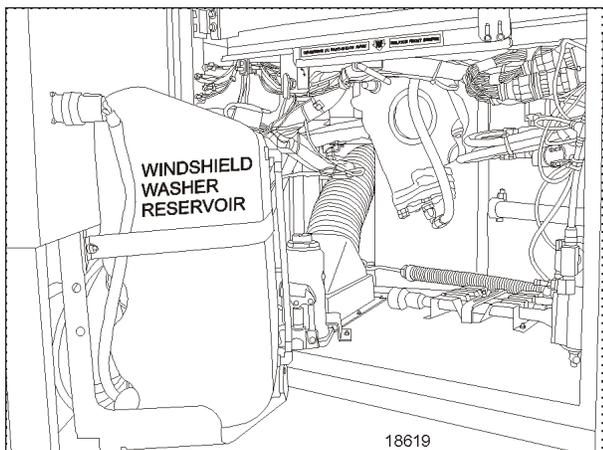
### WARNING

Allow engine to cool down before adding coolant. There is no pressure into the recovery tank. If necessary, use the valve attached to the surge tank to release the pressure into the surge tank and the cooling system. Close the valve after releasing the pressure.



### WINDSHIELD WASHER & HEADLIGHTS WASHER RESERVOIRS

The windshield washer reservoir and headlights washer reservoir are located in the front service compartment door. The windshield washer reservoir has a capacity of 5.3 US gallons (20 liters) while the headlights washer reservoir has a capacity of 2.6 US gallons (10 liters). Check fluid level regularly.



WINDSHIELD WASHER RESERVOIR (X3 SERIES)

The windshield spray jets are located on the windshield wipers and are angled to spray towards the center of the windshield.

Adjust the headlights washer nozzles according to the instructions found in section 23 of the maintenance manual. You may use water or windshield washer fluid as well.



#### CAUTION

During cold weather days, use windshield washer fluid suitable for freezing temperature.

### OTHER VERIFICATIONS

It is good practice to regularly inspect the vehicle for signs of component wear and to perform safety and maintenance routines.

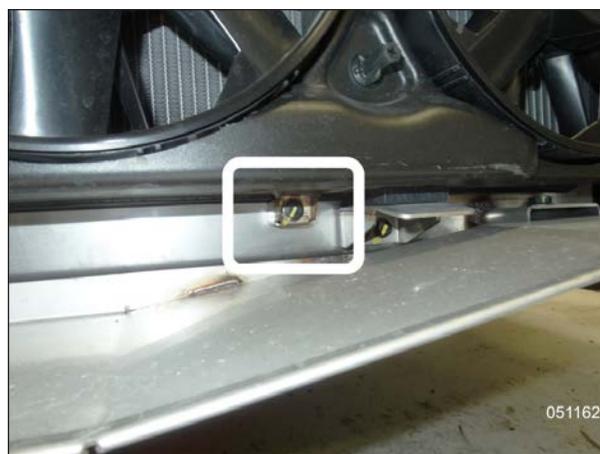
### ELECTRIC COOLING FANS

Inspect fan blades regularly, check for dirt or grime accumulations on the blade that could cause vibrations, clean as necessary using water and regular strength degreaser:

Check for cracks and signs of abrasion on the blades that could indicate contact with debris or obstruction during operation;

Check the bottom of the shroud cover and remove debris that could have accumulated. In sub-zero winter area, also check for snow and ice accumulation that could block the fan blades rotation;

Open the fan shroud as necessary (remove top and bottom hex screws shown below) to facilitate cleaning and debris removal;



FAN SHROUD TOP & BOTTOM HOLD-DOWN SCREWS

#### NOTE

*Electric cooling fan motors are sealed and certified IP6K9K and IP68. They can therefore be safely power/pressure washed.*

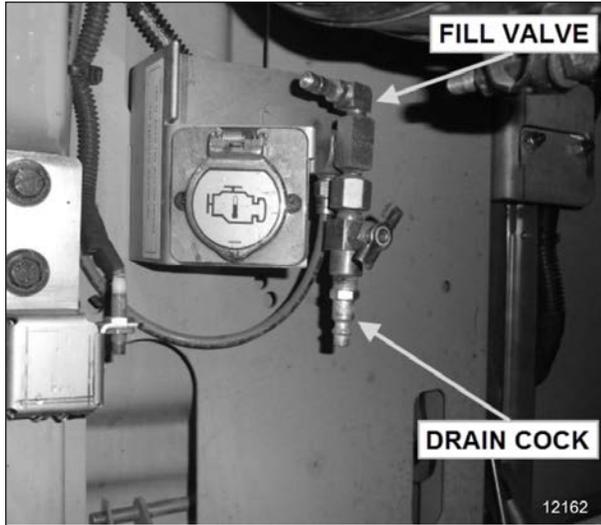
### AIR TANK PURGE

The vehicle is equipped with many air tanks. Purge the accessory air tank before each trip. The

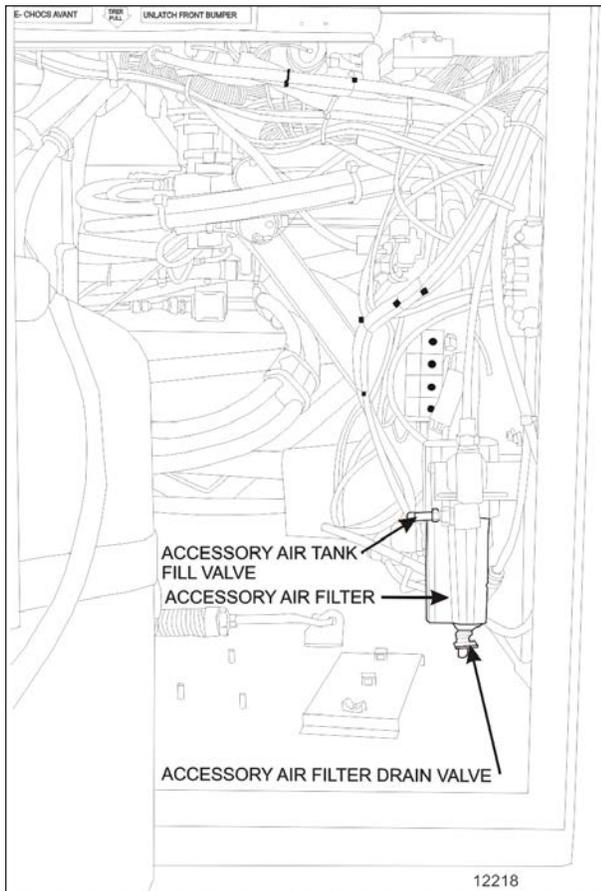
## 8-10 Care and Maintenance

accessory air tank drain cock is accessible from the front service compartment.

The wet, primary, secondary and optional air tanks must be purged at every oil change or at least every 12,500 miles (20 000 km). They are equipped with a drain cock underneath the tank. Drain tanks by turning cocks counterclockwise.



ENGINE COMPARTMENT FILL VALVES



### FRONT SERVICE COMPARTMENT

#### FIRE EXTINGUISHERS

Inspect fire extinguishers monthly to ensure operation in emergency situations.

On extinguishers with a pressure gauge, the needle should be in the green or NORMAL range. Refill or replace extinguisher if pressure is below normal;

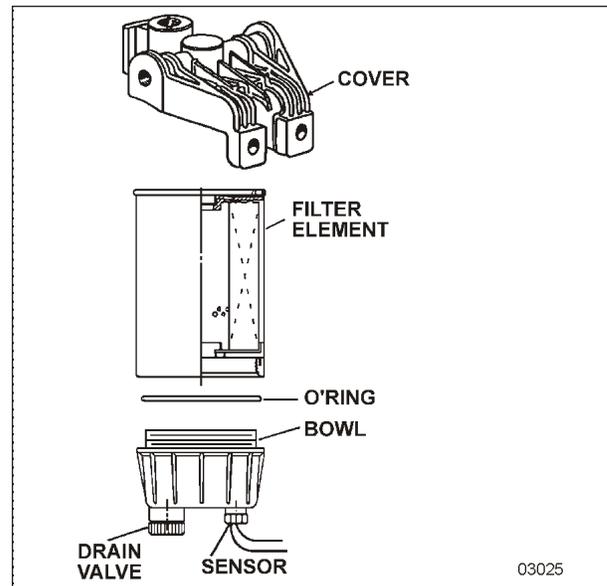
Check that seal on handle is intact;

Check that hose nozzle is in good condition and the nozzle is free of obstructions;

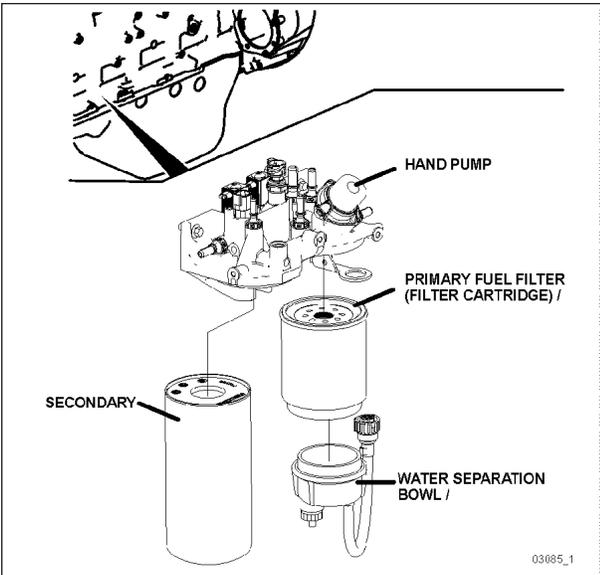
Keep fire extinguishers clean.

#### PRIMARY FUEL FILTER

A primary fuel filter is installed on the engine. This filter may consist of a filter cartridge with a drain valve at the bottom, or a filter cartridge, a water separation bowl and may have a fuel heater built in. It is used to prevent water from entering the fuel system. The primary fuel filter should be drained periodically or when the telltale light on the dashboard illuminates if equipped with this system. To drain water, loosen the drain valve below the separator. Close the drain valve when finished.

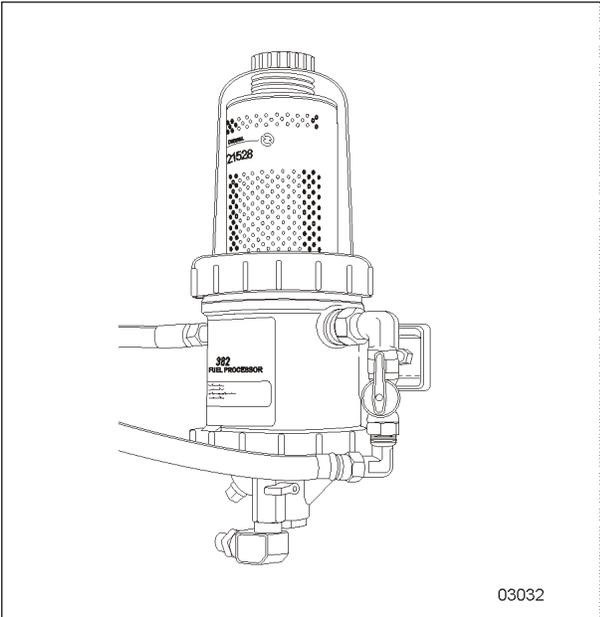


FUEL FILTER/WATER SEPARATOR



FUEL FILTERS WITH VOLVO D13 ENGINE

The optional Fuel Pro 382 diesel fuel filter system consists of a permanently mounted fuel processor, a replaceable filter element, a filter element cover and collar and a fluid filter base assembly. This system is installed between the fuel tank and the fuel pump and replaces the primary fuel filter. The filter serves as a water separator as well as a fuel filter. To drain water, loosen the drain valve below the separator one quarter turn. Close the drain valve when finished.

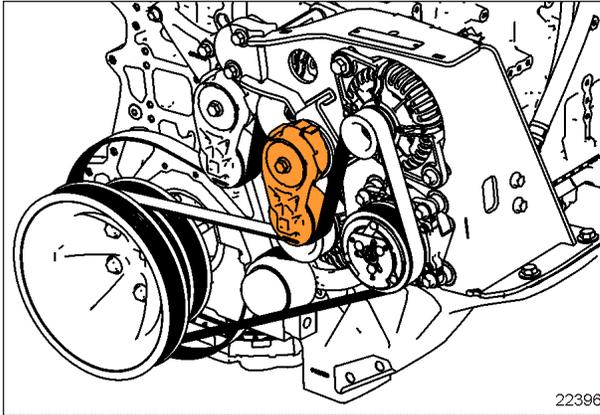


DAVCO FUEL PRO 382 INSTALLATION

**DRIVER'S A/C COMPRESSOR BELT**

For vehicles equipped with driver's A/C, the air conditioning compressor is driven by a multi-V-belt.

Belt tension is achieved by an automatic belt tensioner. No adjustment is required.

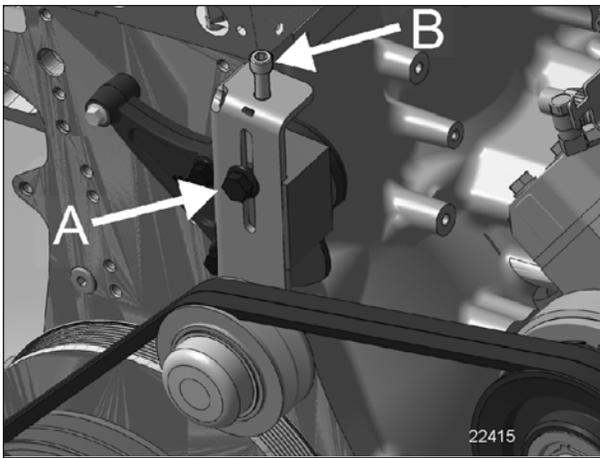


**BELT TENSIONER**

- Do not treat belts with any compounds. Keep belts dry.
- Periodically inspect belt and pulleys for wear or damage;

**CENTRAL A/C COMPRESSOR BELTS**

The air conditioning compressor is driven by two V-belts.



**BELT TENSIONER**

Belt tensioning is applied through the tensioner adjustment screw B. Loosen lock bolt A prior adjustment. Tighten lock bolt A to 43 lbf-ft once completed.

## 8-12 Care and Maintenance

Belt tension should be within the following values:

- New belts: 90-100 lbs.
- Used belts: 75-85 lbs.

Check belt tension using a belt strand tension gauge.

- Once adjustment completed, allow the engine to run for about ten minutes. Check belt tension and adjust if needed.
- Do not treat belts with any compounds. Keep belts dry.
- Periodically inspect belt and pulleys for wear or damage;

### ALTERNATOR DRIVE BELTS

These belts have automatic belt tensioners to keep the correct tension without adjustment.

### BACK-UP CAMERA

The optional back up camera is located on the rear cap. As soon as the transmission is put in reverse (R), back up camera and monitor are turned on automatically. To clean the camera's protective glass, spray with soapy water. Wipe with a clean damp rag or wiper blade.



#### WARNING

To avoid injury, do not clean camera with transmission in reverse (R). Shut off engine and apply parking brake before cleaning.



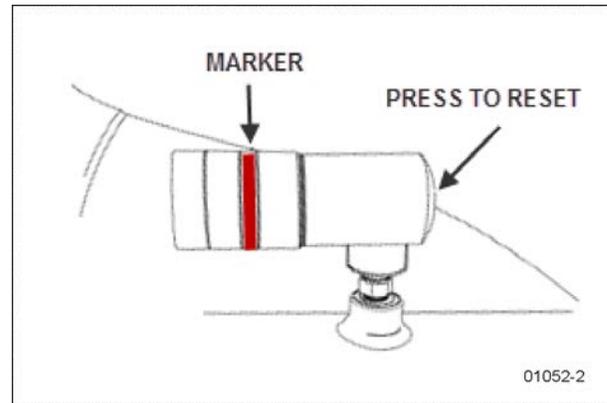
#### CAUTION

To prevent scratches to the camera protective glass, do not wipe with dry rag. Use a clean damp rag.

### AIR FILTER RESTRICTION INDICATOR

An optional filter restriction indicator is used to monitor the vacuum level between the air filter and engine. A red marker is displayed when the air filter is clogged. Replace the air filter when a red marker is displayed or after a maximum of two years. Reset by pressing on the indicator's extremity.

The filter restriction indicator is located on the engine air intake duct.



AIR FILTER RESTRICTION INDICATOR

### A/C AND HEATING SYSTEM AIR FILTERS

For maximum air conditioning and heating system efficiency, air filters should be inspected and cleaned as required in maintenance schedule to ensure proper ventilation of the evaporator and heating radiator cores. To clean filters, remove lint using a nylon brush, back flush with water, then dry with air.



#### CAUTION

Do not use high pressure water jet to avoid damaging filter.



#### CAUTION

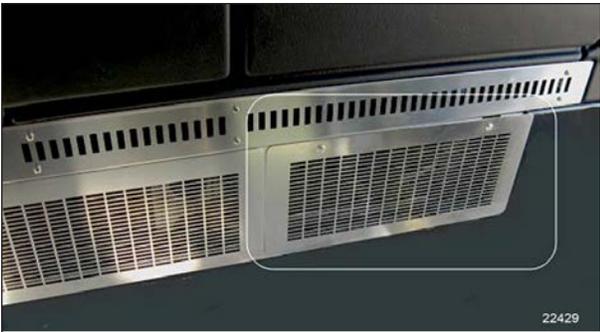
Be sure not to reverse filter upon installation.

### Driver's Area Air Filter

The driver HVAC system's air filter is located behind the dashboard R.H. side and it can be removed for cleaning or replacement. To gain access to the A/C filter, unscrew the grill located at the top step of the entrance door steps, remove the plastic cover holding the filter and slide out the air filter.

#### NOTE

*If the windshield is continuously fogged, check that the driver's air filter is not clogged*



DRIVER'S AREA AIR FILTER GRILL REMOVAL



REMOVING DRIVER'S SECTION AIR FILTER

	<b>CAUTION</b>
Be sure not to install filter in inverted position.	

**HOSE INSPECTION**

Inspect hoses for leaks regularly to ensure efficient, economical and safe operation of the engine and related equipment. Carefully inspect all fittings, clamps and ties. To prevent chafing, make sure hoses are not touching shafts, couplings, heated surfaces, sharp edges or other parts. Since hose clamps and ties can vibrate loose or fail over time, frequently inspect and tighten or replace as necessary.

Correct leaking hoses immediately. Failure to correct leaks can cause severe damage to the equipment, as well as increase operating costs due to lost fluids. Treat fuel and oil leaks as an immediate fire hazard.

	<b>WARNING</b>
Personal injury and property damage may result from fire caused by leaking flammable fluids.	

**Hose Service Life**

Hoses have a limited service life. Thoroughly inspect hoses annually. Look for surface damage or indications of twisted, worn, crimped, cracked or leaking lines. Replace damaged hoses immediately.

Hoses should be replaced during major overhaul or after a maximum of seven service years. Be certain replacement hoses are matching the original equipment manufacturer's specifications.

**LUBRICATION**

Grease all lubrication points during scheduled maintenance. For heavy loads or extended use, lubricate more often. Refer to the Maintenance Manual, section 24 for information on lubrication.

**WHEELS AND TIRES**

Check for loose wheel nuts. Inspect all types of rims for cracks. Cracks can appear in many places but typically radiate out from where a load is applied. Both aluminum alloy and steel wheel nuts should be tightened to 450 to 500 foot-pounds (610 to 680 N.m.) torque.

Keep the tires inflated to the recommended inflation pressure to prolong tire life and for safety.

<b>NOTE</b>
<i>The cold tire inflation pressures are found on the DOT certification plate located under the L.H. console or behind the driver's seat.</i>

	<b>WARNING</b>
Do not exceed maximum inflation pressure. Incorrect tire pressure increases tire wear and could lead to loss of driving control because of reduced road handling. Check tire pressure regularly.	

	<b>WARNING</b>
If replacement tires are different from those specified on the certification plate, pressure must be adjusted following manufacturer recommendations.	

- Vehicles equipped with BERU TPMS

On vehicles equipped with the Beru Tire Pressure Monitoring System (TPMS), it is better to use the TPMS display as the primary reference to judge when tire pressure needs adjustment.

## 8-14 Care and Maintenance

The TPMS presents pressure readings of each tire as a +/- deviation from the wanted target.

If a tire reads within +/- 3 PSI no adjustment is needed.

If a tire reads -4 PSI and below, re-inflate by the marked amount.

If a tire reads +4 PSI and above, deflate by the marked amount.

Relying on the TPMS system is better than relying on a hand gage since the TPMS is temperature compensated and remain accurate no matter if the tires are cold or hot.

Tires take up to 3 hours to get down to ambient temperature after a ride. A common mistake consists of checking pressure while the tires have not fully cooled down which leads into under-inflated tires. Relying on the TPMS eliminate this mistake.

Running tires at optimal pressure reduce tire wear, improve safety and fuel economy.

### WHEEL BEARINGS

Check wheel bearing cover for overheating (especially after using the service brakes) during fuel stops by touching the wheel bearing cover.

### SERVICE BRAKE TEST

Check for correct pressure build-up. Stop engine and check pressure gauge. Pressure loss should not exceed 3 psi/min (21 kPa/min) with engine stopped and without brake pedal applied. Air loss should not exceed 7 psi/min (48 kPa/min) with engine stopped and brake pedal fully applied.

A convenient way to proceed to the service brake test is with the use of the DID menu "Air Leakage Monitor". For more information, refer to ["DRIVER INFORMATION DISPLAY" on page 33](#) in Section 5 Other Features.

### PARKING BRAKE TEST

Release parking/emergency brake. Pump service brake pedal until air pressure drops to 65 psi (448 kPa). Make sure the warning buzzer operates and that the emergency brakes apply (the control valve knob lifts up). Allow air pressure to reach 95 psi (655 kPa) before releasing parking brake.

Driving the vehicle while the parking brake is applied should not be possible.

### EXTERIOR LIGHTING VERIFICATION WITH TEST MODE

This useful function allows quick verification of the vehicle exterior lights.

#### Activating The Test Mode:

When the vehicle is stationary (parking brake applied), pull up the multi-function lever 3 times within 3 seconds to activate the test mode. This test can be done when the engine is not running providing that the battery charge is sufficient (above 24.0 volts).

The telltale panel alarm emits a sound each second to remind that the test mode is in progress.

#### NOTE

*Lighting test mode can also be initiated and stopped using the DID menu "Exterior Lamp Inspection". For more information, refer to ["DRIVER INFORMATION DISPLAY" on page 33](#) in Section 5 Other Features.*

#### Stopping The Test Mode:

To stop the test mode, pull up the multi-function lever once or turn the ignition OFF or remove the parking brake.

#### NOTE

*The test mode is useful to check the operation of the multiplex outputs and the exterior lights. It doesn't test the functionality of the commands related to the exterior lighting. For a complete testing, the directional signal commands, the headlights commands and the brake pedal have to be checked before. Once these commands tested, activate the test mode to check the exterior lighting.*

### Using The Test Mode:

First, test the functionality of the commands related to the exterior lighting:

- Activate the right directional signal and check that the corresponding cluster telltale light illuminates.
- Activate the left directional signal and check that the corresponding cluster telltale light illuminates.
- Activate the hazard warning flashers and check that the corresponding cluster telltale lights illuminate.
- Press the headlights rocker switch in first position and confirm that the instrument panel illuminates. Press the headlights rocker switch in second position and confirm that the headlights illuminate.
- Turn on the high beams and check that the corresponding cluster telltale light illuminates.
- Press on the brake pedal and check that the STOP telltale light illuminates.

Once these commands tested, activate the test mode to check the exterior lighting by pulling up the multi-function lever 3 times within 3 seconds.

Go to the front of the vehicle and check the lights:

- Left and right directional signals.
- Identification lights and clearance lights.
- Low beams.
- High beams.

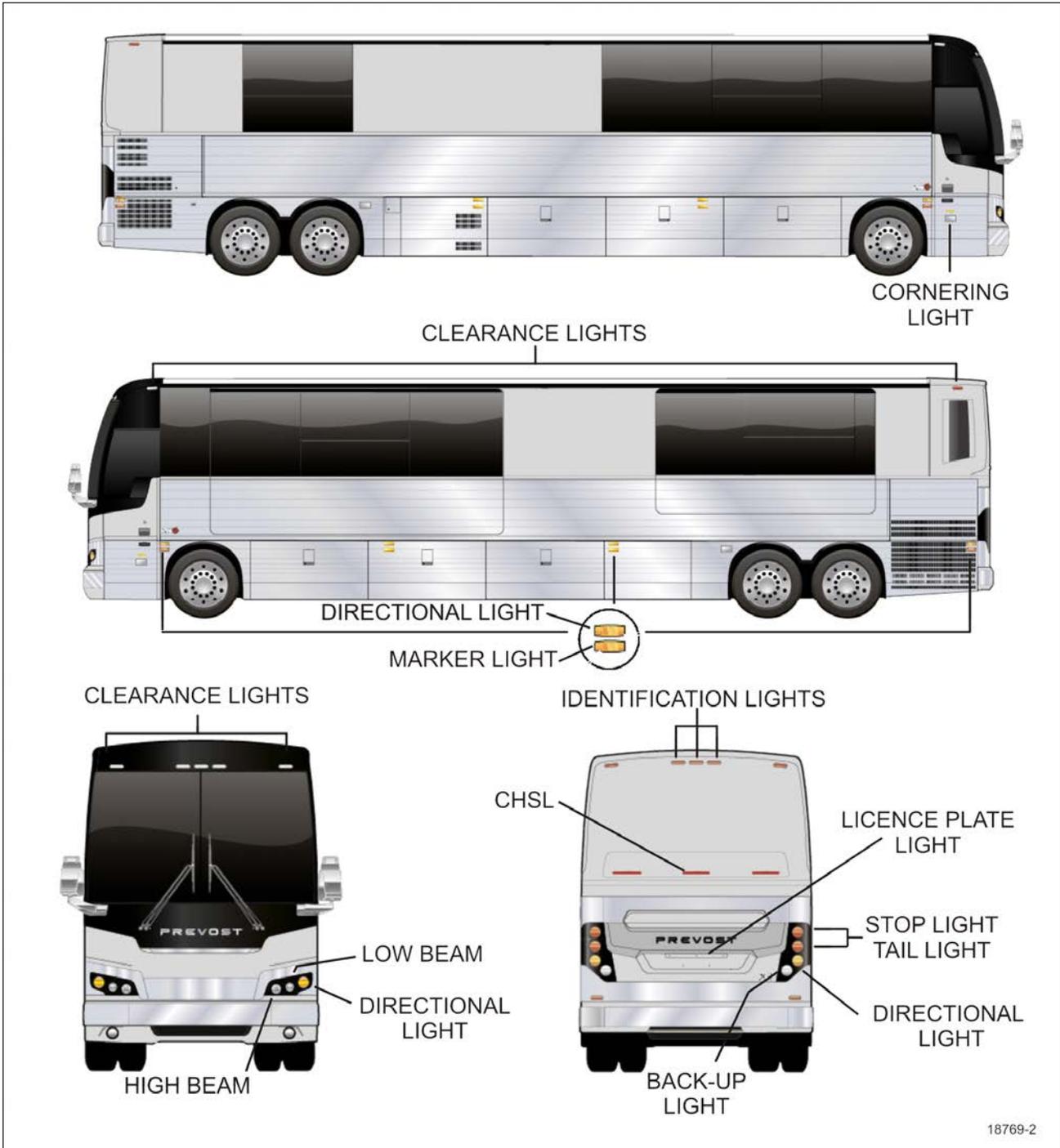
Left side and right side of the vehicle:

- Directional signals.
- Marker lights.

Rear of the vehicle:

- Directional signals.
- Identification lights and clearance lights.
- Stoplights and tail lights.
- Back-up light.
- Center High mounted Stop Light (CHSL)

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EXTERIOR LIGHTING (X3-VIP)

## GENERAL RECOMMENDATIONS

- Understand the basic principles of vehicle operation;
- Always maintain the vehicle in good running condition;
- Do not drive with low fuel. If the fuel tank runs dry, the engine will not start until the air is bled from the fuel system. Refer to "Maintenance Manual" for more information;
- Allow engine to run for at least two minutes at normal idle before shutting off;
- Engine should be at idle when shifting from neutral (N) to forward (D) or from neutral (N) to reverse (R);



### CAUTION

Fast idle should always be turned off before releasing the parking brake and putting the coach in gear. Driveline damage can result if the fast idle switch is always left on.

- The automatic transmission does not have a park (P) position. Place transmission in neutral (N) position and apply parking brake when the vehicle is stopped. A warning buzzer will sound if the engine is stopped and the parking brake has not been applied when foot pressure is removed from the brake pedal;
- Always follow the procedures described in this manual;
- Unless stated otherwise, shut off the engine before performing all servicing, lubrication and maintenance tasks;
- Do not attempt to push or pull-start the coach;
- The vehicle may be damaged if towed with the axle shafts or driveshaft connected;
- Two chemical fire extinguishers are provided with the vehicle. Placement may vary depending on options and models. Take a moment to locate them in your vehicle.
- In case of fire, immediately evacuate all occupants. Occupant safety is the first priority. Do not attempt to extinguish the fire if there is immediate danger or risk for personal injury;
- When driving on ice and snow, accelerate and decelerate gradually;



### WARNING

Report all problems affecting passenger or driver safety to a Prevost service center. Have problems corrected immediately.

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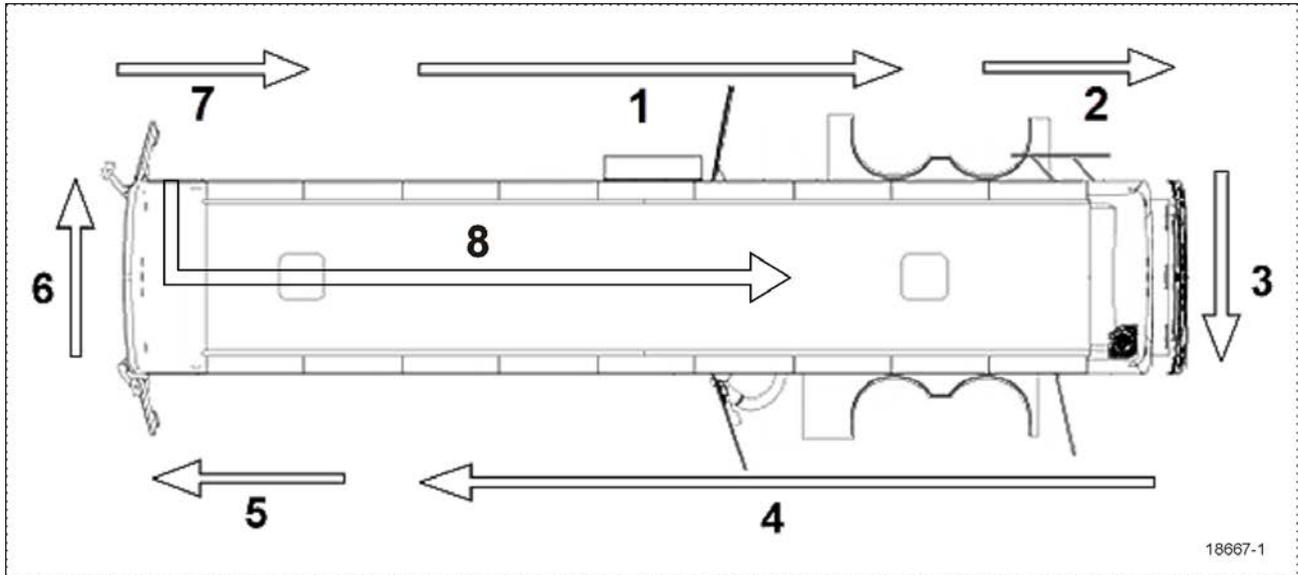
X3 SERIES COMPONENT IDENTIFICATION (MAY DIFFER SLIGHTLY FROM ACTUAL VEHICLE)

- |                                   |  |
|-----------------------------------|--|
| 1 Accessories air tank drain cock | 21 Primary fuel filter                     |
| 2 Accessories air filter          | 22 Secondary fuel filter                   |
| 3 Steering drag link              | 23 Power steering fluid tank               |
| 4 Height control valve (front)    | 24 Engine oil filter                       |
| 5 Steering tie rod                | 25 Road Side Alternator                    |
| 6 Accessories air tank            | 26 Allison transmission oil dipstick       |
| 7 Steering column U-joints        | 27 Engine coolant surge tank               |
| 8 Steering knuckle pins           | 28 Coolant filter & conditioner            |
| 9 Steering damper cylinder        | 29 Engine air filter restriction indicator |
| 10 Secondary air tank             | 30 Engine air filter                       |
| 11 Kneeling air tank              | 31 Engine oil dipstick and filler tube     |
| 12 Air dryer                      | 32 DEF tank                                |
| 13 Height control valve (rear)    | 33 Diesel particulate filter               |
| 14 Wet air tank                   | 34 SCR catalytic converter                 |
| 15 Primary air tank               | 35 Diesel fuel tank                        |
| 16 Differential                   | 36 Davco Fuel Pro 382 fuel filter          |
| 17 Propeller shaft                | 37 Power steering pump                     |
| 18 Tag axle lever pivot           | 38 Air compressor                          |
| 19 Transmission                   | 39 Curb Side Alternators                   |
| 20 Starter                        | 40 Cooling Assembly (Radiator & CAC)       |

## 8-20 Care and Maintenance

### WALK-AROUND INSPECTION (BEFORE EVERY TRIP)

It is good practice to make a visual inspection of key areas on the vehicle every day (or before every trip for private coaches) and to correct any problem found.



X3 SERIES WALK-AROUND INSPECTION

#### **NOTE**

*Inspect the coach in a circular manner as shown in the illustration.*

### APPROACHING THE VEHICLE

- Check under the coach for oil, fuel or coolant leaks or other signs of damage.
- Check exterior body surfaces for signs of damage.

### PREPARATION

- Drain accumulated water from accessories air tanks.
- Close air tank drain valves.
- Start the engine and let the air pressure build up to normal. Stop engine.
- Switch on hazard warning flashers.
- Make sure parking brakes are applied.

### STEP 1: RIGHT SIDE

- Check that the vehicle is equipped with a wheel nut wrench, spare door keys, spare belts, reflectors and jack.
- Check that baggage doors and service compartment doors close properly. Check for good tightness and fit.
- Check condition of wheels and rims. Especially look for cracks, missing nuts, bent or broken studs.

- Check condition of tires: properly inflated, no serious cuts, bulges, tread wear or any signs of misalignment; valve stems not touching wheels or rims; valve caps in place and no objects stuck between the wheels.

### **STEP 2: ENGINE COMPARTMENT RIGHT SIDE AREA**

- Drain wet air tank by opening drain cock. Close drain cock when completed.
- Check engine and surrounding areas for coolant, oil and fuel leaks.
- Check primary fuel filter/water separator and drain if necessary. Close drain valve after draining.
- Check power steering reservoir fluid level, add if necessary.
- Check wiring harness for signs of damage.

### **STEP 3: ENGINE COMPARTMENT**

- Check engine and surrounding areas for coolant, oil and fuel leaks.
- Check wiring harness for signs of damage.
- Check for loose, worn or broken belts.
- Check belts tension adjustment.
- Check engine crankcase oil level, add if necessary.
- Check Allison transmission fluid level (can also be checked from push-button shift selector), add if necessary.
- Check coolant surge tank fluid level, add if necessary.
- Check air cleaner restriction indicator, replace air cleaner when red signal locks in full view.
- Check stop light, tail light, directional signal light and back-up light assembly, they should be clean.

### **STEP 4: REAR LEFT SIDE**

- Check condition of wheels and rims. Especially look for cracks, missing nuts, bent or broken studs.
- Check that baggage doors and service compartment doors close properly. Check for good tightness and fit.
- Check optional auxiliary coolant heater for fuel leaks.
- Check condition of tires: properly inflated, no serious cuts, bulges, tread wear or any signs of misalignment; valve stems not touching wheels or rims; valve caps in place and no objects stuck between the wheels.

### **STEP 5: FRONT LEFT SIDE**

- Check condition of wheel rim. Especially look for cracks, missing nuts, bent or broken studs.
- Check condition of tire: properly inflated, no serious cuts, bulges, tread wear or any signs of misalignment; valve stem not touching wheel or rim; valve cap in place.
- Check windshield and headlights washer reservoir fluid level and add if necessary.
- Drain accessory air tank by opening drain cock. Close drain cock when completed.

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### STEP 6: FRONT

- Check for damage and clean if dirty.
- Check windshield wiper arms for proper spring tension.
- Check wiper blades for any damage, “dead” rubber and attachment to arm.
- Check clearance and identification lights, they should be clean.
- Check high and low beams, they should be clean. If equipped, check fog lights.
- Check left and right directional signals, they should be clean.
- Check to see that there is no mud, snow, ice build-up or other obstruction in front of the ACB radar sensor if applicable.

### STEP 7: FRONT RIGHT SIDE

- Check condition of wheel rim. Especially look for cracks, missing nuts, bent or broken studs.
- Check condition of tire: properly inflated, no serious cuts, bulges, tread wear or any signs of misalignment; valve stem not touching wheel or rim; valve cap in place.

### STEP 8: INSIDE THE VEHICLE

- Check for proper operation of the entrance door.
- Check steps; clean them if there is any substance that makes them slippery, which makes coach entry/exit hazardous.
- Adjust and clean mirrors for adequate rear view vision.
- Verify proper operation of windshield wiper/ washer.
- Check for fire extinguishers to make sure they are ready for operation.

### WITH ENGINE RUNNING

- Start engine and check for proper operation of all gauges. Perform a telltale light test (see [“TELLTALE LIGHTS” on page 30](#) in Section 4 Controls and Instruments). Indicator lights and buzzers should all be OFF before driving.
- Using the message center display, perform a system diagnostic to check if error codes and anomalies were recorded in the vehicle electronic modules.
- Check for proper operation of electric and air horns and back-up alarm.
- Check automatic transmission oil level, using the pushbutton shift selector (see [“OIL LEVEL CHECK USING THE PUSHBUTTON SHIFT SELECTOR” on page 2](#) in Appendix C).
- Check that there is enough fuel in the tank.
- Perform a parking brake test. Check both primary and secondary pressure gauges. Refer to “Other Verifications” in this section.
- Perform the exterior lighting verification using the test mode. Refer to [“OTHER VERIFICATIONS” on page 9](#) in this section.
- Walk around the vehicle and listen for air leaks.
- Check for leaks and listen for unusual sounds coming from the turbocharger.