

Vehicle Identification

Component Information Label

NOTE: Labels shown in this chapter are examples only. Actual specifications may vary from vehicle to vehicle.

The component information label lists the vehicle model, identification number, and major component models. It also lists the major assemblies and installations shown on the chassis specification sheet. One copy of the component information label is attached to the inside of the glove box; another copy is inside the rear cover of the *Owner's Warranty Information for North America* booklet. An illustration of the label is shown in [Fig. 1.1](#).

Western Star Trucks		COMPONENT INFORMATION		USE VEHICLE ID NUMBER WHEN ORDERING PARTS.	
MANUFACTURED BY	PRELIGHTLINER LTD				
VEHICLE ID NO	012345678901234567890123456789012345678901				
MODEL	X 11 CHAR X	BASE MODEL	XX 12 CHAR X	DATE OF MFR	XX 13 CHAR XX
VEHICLE ID NO	X 17 CHARACTERS X	CUSTOMER	6 CHAR	WHEELBASE	XX 13 CHAR XX
ENGINE NO	01234567890123456789012345678901	ENGINE NO	0123456789012345678901	TRANE NO	0123456789012345678901
MAIN TRANE NO	01234567890123456789012345678901	TRANE NO	0123456789012345678901	FUSE PUMP NO	0123456789012345678901
FUSE PUMP NO	01234567890123456789012345678901	FUSE PUMP NO	0123456789012345678901	FRONT AXLE NO	0123456789012345678901
FRONT AXLE NO	01234567890123456789012345678901	FRONT AXLE NO	0123456789012345678901	1ST INT AXLE NO	0123456789012345678901
1ST INT AXLE NO	01234567890123456789012345678901	1ST INT AXLE NO	0123456789012345678901	2ND INT AXLE NO	0123456789012345678901
2ND INT AXLE NO	01234567890123456789012345678901	2ND INT AXLE NO	0123456789012345678901	3RD INT AXLE NO	0123456789012345678901
3RD INT AXLE NO	01234567890123456789012345678901	3RD INT AXLE NO	0123456789012345678901	4TH INT AXLE NO	0123456789012345678901
4TH INT AXLE NO	01234567890123456789012345678901	4TH INT AXLE NO	0123456789012345678901	5TH INT AXLE NO	0123456789012345678901
5TH INT AXLE NO	01234567890123456789012345678901	5TH INT AXLE NO	0123456789012345678901	6TH INT AXLE NO	0123456789012345678901
6TH INT AXLE NO	01234567890123456789012345678901	6TH INT AXLE NO	0123456789012345678901	REAR AXLE NO	0123456789012345678901
REAR AXLE NO	01234567890123456789012345678901	REAR AXLE NO	0123456789012345678901	RAI10	0123456789012345678901
PALNT MFR	01234567890123456789012345678901	PALNT MFR	0123456789012345678901	FOR COMPLETE PAINT INFORMATION SEE VEHICLE SPECIFICATION SHEET.	
PAINT NUMBER	01234567890123456789012345678901	PAINT NUMBER	0123456789012345678901	PART NO. 24-01214-010 REV C	
06/28/2011		f080173			

Fig. 1.1, Component Information Label

Federal Motor Vehicle Safety Standard Labels

NOTE: Due to the variety of Federal Motor Vehicle Safety Standard (FMVSS) certification requirements, not all of the labels shown will apply to your vehicle.

The FMVSS labels are attached to the driver-side door frame B-pillar, as shown in [Fig. 1.2](#). Tractors with or without fifth wheels purchased in the U.S. are certified by means of a certification label. See [Fig. 1.3](#).

Trucks built without a cargo body that are intended for service in the U.S. have an incomplete vehicle certification label attached by the final-stage manufacturer. See [Fig. 1.4](#). This label will be attached to the incomplete vehicle document included with the vehicle, and certifies that the vehicle conforms to all applicable FMVSS regulations in effect on the date of completion.

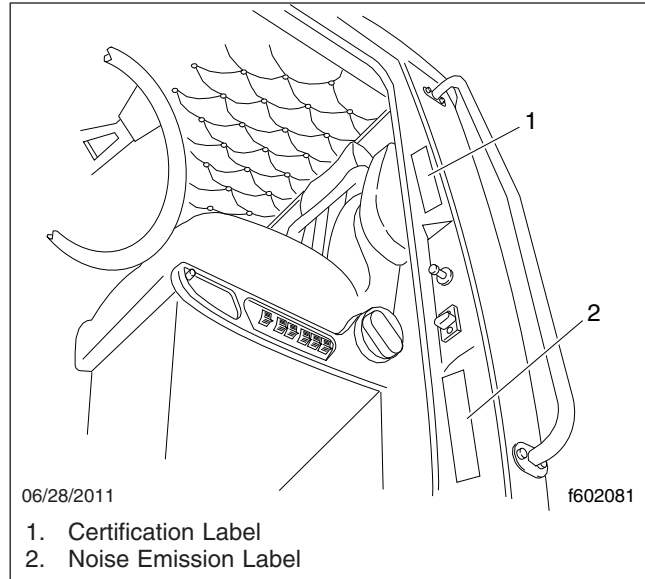


Fig. 1.2, Label Locations

Canadian Motor Vehicle Safety Standard Labels



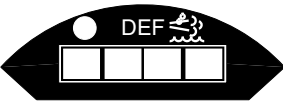
In Canada, tractors with fifth wheels are certified by means of a statement of compliance label with the Canadian National Safety Mark attached to the driver-side door frame B-pillar. See [Fig. 1.5](#).

Trucks built without a cargo body and tractors built without a fifth wheel that are intended for service in Canada have an incomplete vehicle certification label (similar to [Fig. 1.4](#)) attached to the driver-side B-pillar. After completion of the vehicle, a complete certification label must be attached by the final-stage manufacturer to certify that the vehicle conforms to all applicable Canada Motor Vehicle Safety Standard (CMVSS) regulations in effect on the date of completion.

Component GWR Label


The component GWR label is located on the A-pillar of the driver-side door frame. The label provides maximum GWR ratings for each component.

See [Fig. 1.6](#) for a typical component GWR label.

IMPORTANT	
<p style="text-align: center;">DPF Regen Needed</p> <div style="text-align: center;">  </div>	<ul style="list-style-type: none"> Diesel Particulate Filter (DPF) regeneration is needed. If flashing, regenerate as soon as possible. Engine derate possible.
<p style="text-align: center;">Hot Exhaust</p> <div style="text-align: center;">  </div>	<ul style="list-style-type: none"> Hot exhaust can cause fire. Keep flammables and people away from exhaust.
<p style="text-align: center;">DEF Refill Needed</p> <div style="text-align: center;">  </div>	<ul style="list-style-type: none"> Diesel Exhaust Fluid (DEF) level is low. Engine derate likely. Refill tank with certified DEF.
<p>See operator's manual for complete instructions.</p>	
<p style="text-align: right;">24-01656-000</p>	

11/30/2010 f080162

Fig. 1.8, ATS Indicators, EPA10 and Newer


VEHICLE NOISE EMISSION CONTROL INFORMATION
 FREIGHTLINER LLC DATE OF MANUFACTURE: 01234

THIS INCOMPLETE VEHICLE, AS DELIVERED BY WESTERN STAR TRUCKS CONFORMS TO EPA REGULATIONS FOR NOISE EMISSION APPLICABLE TO MEDIUM AND HEAVY TRUCKS. IT IS THE RESPONSIBILITY OF THE FINAL STAGE MANUFACTURER TO COMPLETE THIS VEHICLE WHILE MAINTAINING CONFORMANCE TO 40 CFR PART 205, INCLUDING LABELLING FOR COMPLIANCE (SEC. 205.65-4).


L PART NO. 24-01216-000 REV C

06/28/2011 f080171

Fig. 1.9, Vehicle Noise Emission Control Label

VEHICLE EMISSION CONTROL INFORMATION

MANUFACTURED BY:	REGULATORY CLASS:	DATE OF MANUFACTURE:
TYPE:		
VEH FAMILY CD:	EMISSION CONTROL IDENTIFIERS:	
GVWR-kg:		
GVWR-lbs:		


 THIS VEHICLE COMPLIES WITH U. S. EPA REGULATIONS FOR XXXX HEAVY DUTY VEHICLES. SEE OWNER'S MANUAL FOR PROPER MAINTENANCE OF THIS VEHICLE. U PART NO. 24-01177-060 REV A

03/06/2012 f080184

Fig. 1.10, Vehicle Emission Control Information Label

A Vehicle Emission Control Information Label is located on the driver-side door. See [Fig. 1.10](#). It is the owner's responsibility to maintain the vehicle so that it conforms to EPA and NHTSA regulations.

Certified Clean Idle Label

The California Air Resources Board (CARB) requires model year 2008 and newer heavy-duty diesel engines to be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling in order to limit emissions of particulate matter and NOx.

Certified vehicles are equipped with a label placed near the bottom edge of the driver-side door. See [Fig. 1.11](#).

Drive Axle Oil Temperature Gauges

NOTICE

A sudden increase in oil temperature that is not caused by a load increase may indicate mechanical failure. Bring the vehicle to a safe stop and investigate the cause to prevent further damage. Do not operate the vehicle until the cause has been determined and corrected.

During normal operation, drive axle oil temperature gauges (Fig. 3.12) should read between 160 and 220°F (71 and 104°C).

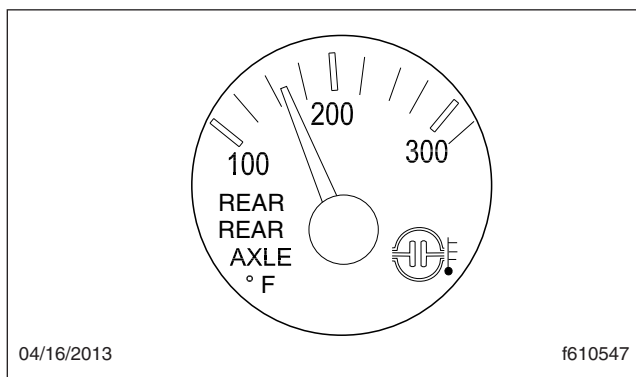


Fig. 3.12, Rear Drive Axle Oil Temperature Gauge

Under heavy loads, such as when climbing steep grades, temperatures that exceed the normal oil temperature range for a short period are not unusual. If the temperature returns to normal when the load decreases, there is no problem.

Engine Oil Temperature Gauge

NOTICE

A sudden increase in oil temperature that is not caused by a load increase may indicate mechanical failure. Bring the vehicle to a safe stop and investigate the cause to prevent further damage. Do not operate the engine until the cause has been determined and corrected.

During normal operation, the engine oil temperature gauge (Fig. 3.13) should read as follows:

- *Cummins engines:* 180 to 225°F (82 to 107°C)
- *Detroit Diesel engines:* 200 to 230°F (93 to 110°C)

Under heavy loads, such as when climbing steep grades, temperatures that exceed the normal oil temperature range for a short period are not unusual. If the temperature returns to normal when the load decreases, there is no problem.

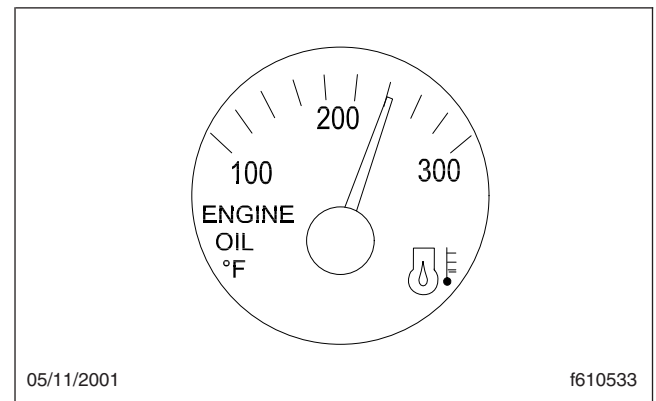


Fig. 3.13, Engine Oil Temperature Gauge

Turbocharger Boost Pressure Gauge

The turbocharger boost pressure gauge (Fig. 3.14) measures the pressure in the intake manifold, in excess of atmospheric pressure, being created by the turbocharger.

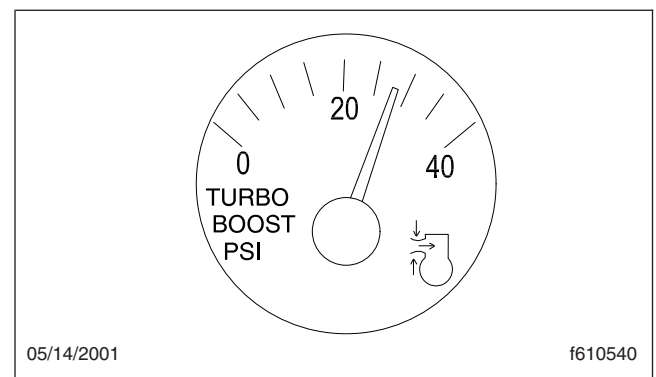


Fig. 3.14, Turbocharger Boost Pressure Gauge

Overhead Instrument Panel, Optional

The optional overhead instrument panel may hold a citizen's band (C/B) radio, AM/FM radio, and storage area with netting. The underside of the overhead

The climate control panel allows you to control the heating, ventilating, defrosting, and air conditioning functions. Western Star vehicles have several heater and air conditioner options.

Options for the cab include:

- heater only
- heater and air conditioner
- heater and air conditioner with automatic temperature control (ATC)

Options for a sleeper unit include:

- no heater or air conditioner
- heater only
- heater and air conditioner
- heater and air conditioner with ATC

The ATC feature automatically controls the heating and cooling system to maintain the cab and sleeper air temperature close to the temperature set by the user. The ATC adjusts the air temperature blown through the air outlets to maintain the selected temperature.

Seat Controls

NOTE: See [Chapter 6](#) for detailed information about seat controls and adjustments.

WARNING

Keep hands, tools, and other objects away from the scissor points under the seats. Failure to do so could cause personal injury.

The following is a description of adjustments that can be made to various Western Star seats. Not all seats have all of the adjustments listed below. See [Fig. 4.28](#).

- **Isolator:** This feature reduces the amount of road shock by isolating the occupant from the motion of the vehicle, and allowing the upper seat to move in a simple pendulum motion. A lockout feature is used whenever the isolator is not desired.
 - **Height Adjustment:** This adjustment moves the entire seat up or down. The adjustment is either manually- or air-controlled, depending on the make of the seat.
 - **Bottom Cushion Angle (fore-and-aft bottom cushion height):** This adjustment enables the occupant to raise or lower the front or back of the bottom cushion. This adjustment is easier to perform when all weight is removed from the seat.
 - **Fore-and-Aft Seat Slide (seat track adjustment):** This adjustment moves the entire seat forward or backward on its track.
 - **Seat Tilt:** This adjustment allows the seat assembly (back and bottom cushions) to tilt forward or backward.
 - **Headrest Adjustment:** This adjustment changes the angle of the upper part of the backrest to provide head and upper back support.
- **Backrest Tilt:** This adjustment enables the backrest to pivot forward or backward.
 - **Lumbar Support:** Lumbar support changes the shape of the backrest to give more or less support to the occupant's lumbar (lower back) area. This adjustment is either mechanical or air controlled, depending on make and model of the seat.

Cab and Sleeper Features

WINDOW) may be located on the door, or on the dash control panel.

To raise the window, press the upper half of the switch. To lower the window, press the lower half of the switch. See **Fig. 7.4**.

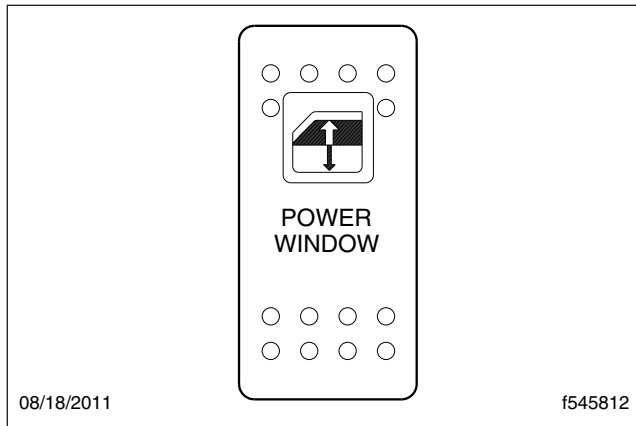


Fig. 7.4, Power Window Switch

Cab Amenities

Western Star vehicles are available with many optional features. The following are some of those options.

Cigar Lighter/Accessory Plug

The cigar lighter/accessory plug (**Fig. 7.5**) is located on the lower right-hand dash panel, above the ignition switch. The ash tray is located to the left of the cigar lighter.

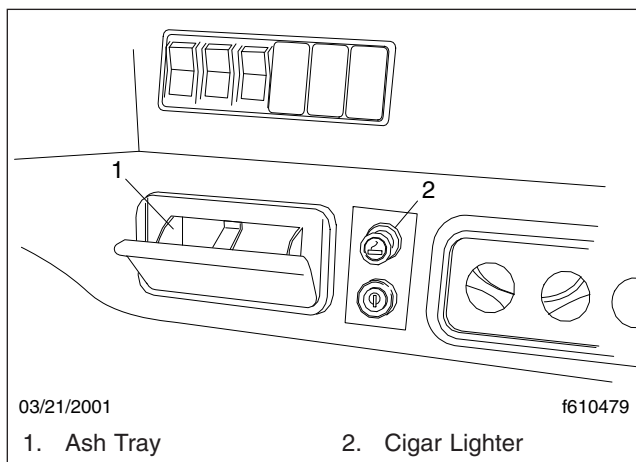


Fig. 7.5, Ash Tray and Lighter

To activate the cigar lighter, push in the element knob. It will pop out when heated. Grasp the element knob and pull it out of the socket.

To remove the ash tray, push down on the center bar, and swing outwards. To install the ash tray, insert in the opening then swing upwards until the bar snaps into place.

Cup Holders

Single and dual cup holders are optional, and are located below the right-hand dash control panel.

Glove Box

The glove box (**Fig. 7.6**) is located on the right side of the dash face, and is equipped with a lock. To lock the latch, insert the key in the lock, and turn it 1/2-turn clockwise. Remove the key. To unlock the latch, insert the key in the lock, and turn it 1/2-turn counter-clockwise.

The glove box door is hinged at the bottom. To open the unlocked door, push the button in with your thumb and pull gently on the tang-style latch. The door will swing downwards, then stop in the open position. To close the door, swing it upwards, and put gentle pressure on the latch. The door will be secured, but not locked.

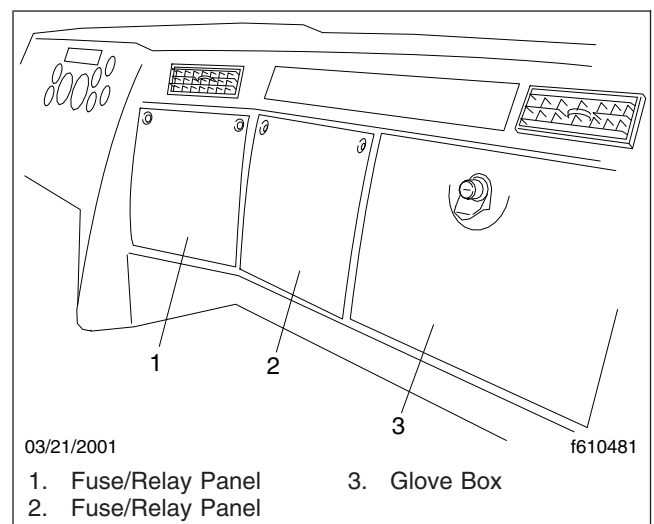


Fig. 7.6, Passenger-Side Dash Panels

Optional Engine Systems

Exhaust Brake Operation



Do not use the exhaust brake when driving on slippery or low-traction road surfaces. Failure to follow this precaution could result in a loss of vehicle control and possible personal injury or property damage.

1. Before starting the engine, make sure that the exhaust brake is off. Wait until the engine has reached normal operating temperature before activating the exhaust brake.
2. When approaching a downhill grade, press the upper half of the exhaust brake switch to turn the exhaust brake on. When the exhaust brake is on, the status bar is illuminated.
3. Remove your feet from the accelerator and clutch pedals.

NOTICE

Do not allow the engine to exceed its governed speed, or serious engine damage could result.

NOTE: The exhaust brake is only active when engine speed is between 1100 and 2700 rpm.

4. While going down a grade, use a low enough gear to safely descend with a minimum application of the service brakes. As a general guideline, use the same gear as you would to ascend the hill.

The following conditions should exist if the brake is operating properly:

- A slight change in the sound of the engine may be noticeable.
- Exhaust smoke should appear normal.
- Engine temperature should remain in the normal operating range.
- Road speed will usually decrease when the exhaust brake is applied during a descent. When the vehicle is carrying a heavy load or the grade is extremely steep, you may need to apply the service brakes occasionally.

- The exhaust brake retards the vehicle with a smooth braking effect.
- During a descent, the tachometer usually shows a drop in rpm, depending on the grade and the vehicle load.
- Depending on the grade and vehicle load, the retarding force of the exhaust brake may be noticeable.

5. Apply the service brakes to reduce engine rpm or make a slower descent by using a lower gear.
6. Make sure the exhaust brake is turned off before shutting down the engine.

Power Takeoff (PTO) Governor

Engine power takeoffs (PTO) are devices used to tap into engine power to run auxiliary devices, such as hydraulic pumps that power additional equipment. The following are general guidelines for operating a PTO.

- Set the parking brake and put the transmission in neutral.
- Press the upper half of the PTO switch. When the status bar light is steadily illuminated, the PTO is engaged and ready to operate. In stationary mode, the vehicle must remain in neutral with the parking brake set.
- To activate the mobile mode, shift from neutral to reverse, 1st, or 2nd gear. The clutch will open and the PTO will disengage for a moment.
- Touch the accelerator pedal to close the clutch and engage the PTO in mobile mode. The PTO may be operated with the transmission in neutral or reverse, 1st, or 2nd gears only. Do not attempt to change gears while the vehicle is moving. The transmission will ignore the request.
- To deactivate mobile mode, bring the vehicle to a stop. The clutch will open and shut down power to the PTO.
- To resume stationary mode, shift to neutral. The PTO will engage.
- To deactivate stationary mode, press the lower half of the PTO switch. When the light in the switch goes out, power to the PTO is shut off.

Manual Transmissions and Clutch

through into 4th gear, engage the clutch, and accelerate.

- Continue downshifting from 4th overdrive to 4th direct, then 4th direct to 3rd overdrive, etc. Double-clutch when moving the gear shift lever (4th to 3th, etc.); single-clutch during split shifts (4th direct to 3rd overdrive, etc.).

Eaton Fuller 10-Speed Range-Shift Transmissions

Eaton Fuller 10-speed transmissions have ten selective, evenly-spaced forward ratios. Each transmission consists of a 5-speed front section, and a 2-speed auxiliary section. The ten forward speeds are obtained by twice using a 5-speed shift pattern: the first time in low range, the second time in high range. See Fig. 14.3 for the shift patterns, noting that the 4th/9th and the 5th/10th shift positions in the RT (direct ratio) transmissions are directly opposite in the RTO (overdrive ratio) transmissions.

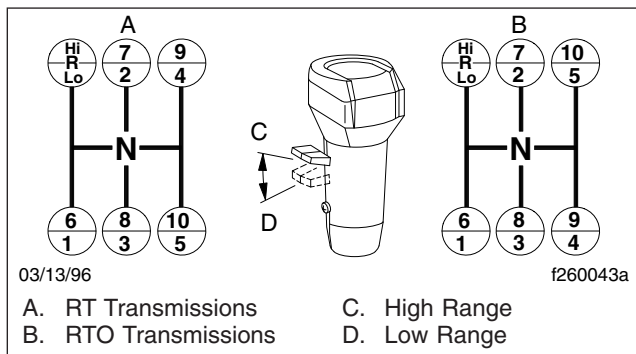


Fig. 14.3, Eaton Fuller 10-Speed RT and RTO Transmissions Shift Patterns

Upshifting

- Put the transmission in neutral. Start the engine and bring the air system pressure up to 100 to 120 psi (689 to 827 kPa).
- Position the range-preselection lever down, in low range.
- To start the vehicle moving, press the clutch pedal to the floor; shift into 1st gear, then engage the clutch with the engine at or near idle speed. Accelerate to 80 percent of engine governed speed.

- Upshift progressively from 1st gear through 5th gear, double-clutching when moving the gear shift lever.
- When in 5th gear and ready to move to 6th gear, pull the range-preselection lever up into the high range. Double-clutch into 6th gear, engage the clutch, and accelerate.

NOTE: If after attempting to shift into the high range the transmission remains in neutral, the range synchronizer protection device may be activated. Move the gear shift lever to neutral to allow the range shift to complete, then shift back into gear.

- Upshift progressively through the high range gears, double-clutching when moving the gear shift lever and accelerating to 80 percent of engine governed speed.

Downshifting

IMPORTANT: Never use the clutch brake when downshifting, or as a brake to slow the vehicle.

- Downshift progressively through each of the high range gears, double-clutching between shifts.
- When in 5th gear and ready to move to 4th gear, push the range-preselection lever down into the low range. Double-clutch into 4th gear, engage the clutch, and accelerate.
- Downshift progressively through the low range gears, double-clutching when moving the gear shift lever, as conditions require.

Eaton Fuller Deep Reduction Transmissions

General Information

Eaton Fuller 10-speed deep reduction transmissions have a 5-speed front section, and a 2-speed auxiliary section, with a deep reduction gear. The low-low, deep reduction gear is used only when operating under adverse conditions. Low gear in the front section is used only for rough, off-highway conditions, as a starting ratio. The remaining four forward positions are used once in the low range and once in the high range. See Fig. 14.4 for the shift pattern, noting that the 3rd/7th and 4th/8th shift positions in RT-LL transmissions are opposite of the RTO-LL transmissions.

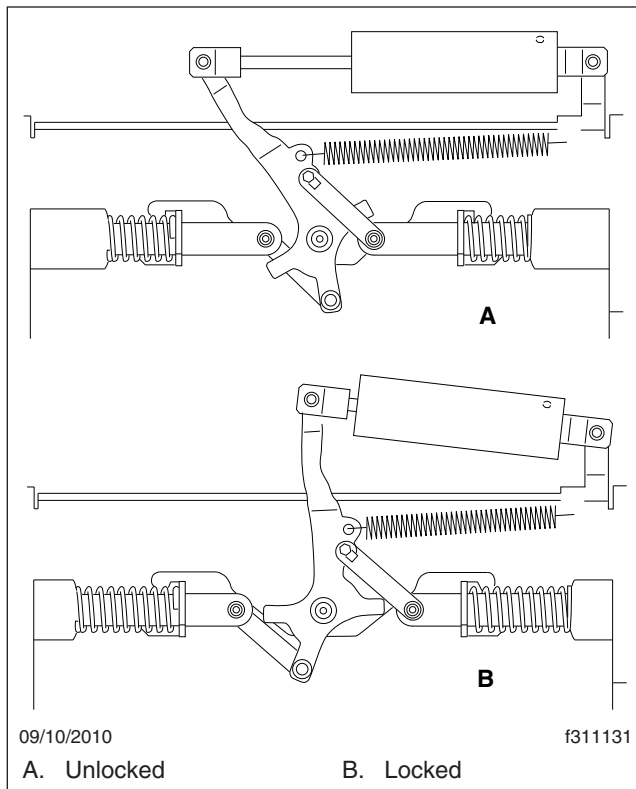


Fig. 17.17, Jost Sliding Fifth Wheel

that the plungers have engaged by tugging the tractor forward while the trailer brakes are locked and the tires are chocked.

NOTE: The fifth wheel may need to be moved slightly to enable the locking wedges to fully lock.

NOTICE

Ensure the trailer landing gear does not come in contact with the tractor frame or other components, and that the front of the trailer will not come in contact with the rear of the cab or other components if they extend beyond the rear of the cab.

5. Set the tractor parking brake.

WARNING

Check that the locking wedges have seated in the slots. Failure to achieve complete lockup may allow disengagement of the tractor from the trailer, possibly resulting in serious personal injury or death.

6. Press the lower half of the air-slide switch to disable the air-slide feature. Visually inspect the locking wedges or plungers to make sure that they are fully inserted in the slide rail slots. Verify

Pre- and Post-Trip Checklists

Periodic Inspections and Maintenance, General Information

Regulations in Canada and the U.S. clearly indicate that it is the driver's responsibility to perform an inspection, and ensure the complete road-worthiness of a vehicle, before placing it into service. Commercial vehicles may be subject to inspection by authorized inspectors, and an unsafe vehicle can be taken "out of service" until the driver or owner repairs it.

Use the following checklists to ensure that vehicle components are in good working condition before each trip. Careful inspections eliminate stops later to fix overlooked or forgotten items.

The checklists in this chapter can be copied and kept as a record that the procedures have been completed. For details on how to inspect each item on the checklists, see the corresponding procedure (step number) in [Chapter 23](#).

Checklists

NOTE: Checklists in this chapter correspond with the procedures and steps in [Chapter 23](#), *Pre- and Post-Trip Inspections and Maintenance*. Your vehicle may not be equipped with all components listed below.

Daily Pretrip Inspection Checklists

See the following tables for a list of procedures that should be performed daily, before the first trip. Place a check mark in the complete (**Comp.**) column to indicate a procedure has been performed.

Inspector	Date

Suspension and Slack Adjusters		Comp.
1	Suspension components	
2	Slack adjusters	

Wheels and Tires		Comp.
1	Wheel Covers	
2	Tire condition	
3	Tire inflation	
4	Rims and wheel components	

Wheels and Tires		Comp.
5	Wheel bearing oil seals and lubrication levels	
6	Mud Flaps	

Saddle Tank Areas		Comp.
1	Drain air reservoirs (without automatic drain valves)	
2	Fuel tank(s) secure	
3	Frame rails and crossmembers	
4	Visible exhaust components	

Engine Compartment		Comp.
1	Leakage under engine	
2	Air intake system	
3	Engine oil level	
4	Power steering reservoir level	
5	Engine coolant level	
6	Visible engine wiring	
7	Frame rails	

Cab		Comp.
1	Reset dash-mounted air intake restriction indicator	
2	Air-pressure warning systems	
3	Air governor cut-in and cut-out pressures	
4	Air pressure build-up time	
5	Air system leakage	
6	Air pressure reserve	
7	Mirrors, windows, windshield	
8	Horn, windshield wipers, windshield washers	
9	Heater and defroster	
10	Interior lights	
11	Exterior lights	
12	Seat belts and tether belts	
13	Fuel level	
14	Mirror adjustment	
15	Service brakes	
16	Backup alarm	

Pre- and Post-Trip Inspections and Maintenance

Air Intake Maximum Restriction Values (inH ₂ O)			
Engine Make	Pre-EPA07 Engines	EPA07 and EPA10 Engines	GHG14 Engines
Detroit	20	22	18
Cummins	25	25	25
Mercedes-Benz	22	22	–
Caterpillar	25	–	–

Table 23.2, Air Intake Maximum Restriction Values

- 2.2 If air restriction exceeds the maximum allowable value, operate the vehicle for one more day, making sure not to run the engine over rated rpm. Refer to the engine operation manual for more information on rated rpm for your engine.
- 2.3 If air restriction exceeds the maximum value again, replace the air cleaner. For instructions, refer to **Group 09** of the *Western Star Workshop Manual*.
3. If the vehicle is equipped with an Allison automatic transmission, check the automatic transmission fluid level.
4. Check for water in the fuel/water separator, if equipped.

IMPORTANT: When draining fluid from a fuel/water separator, drain the fluid into an appropriate container and dispose of it properly. Many jurisdictions now issue fines for draining fuel/water separators onto the ground.

- 4.1 Place a suitable container under the fuel/water separator.

NOTE: A hose may be used to direct water into the container. Use a hose with a ½-inch pipe thread on DAVCO models.

- 4.2 If the engine is equipped with a built-in water separator, loosen the drain valve, and allow the water to run out. Close the drain valve, taking care not to overtighten it.
- 4.3 *Alliance/Racor Models:* Turn the drain plug counterclockwise to open it. See [Fig. 23.13](#).

DAVCO Models: Remove the vent cap and open the drain. See [Fig. 23.14](#).

ConMet Models: Check the water level in the sight bowl, if so equipped. To drain the water, loosen the valve at the bottom and allow the water to run out. See [Fig. 23.15](#).

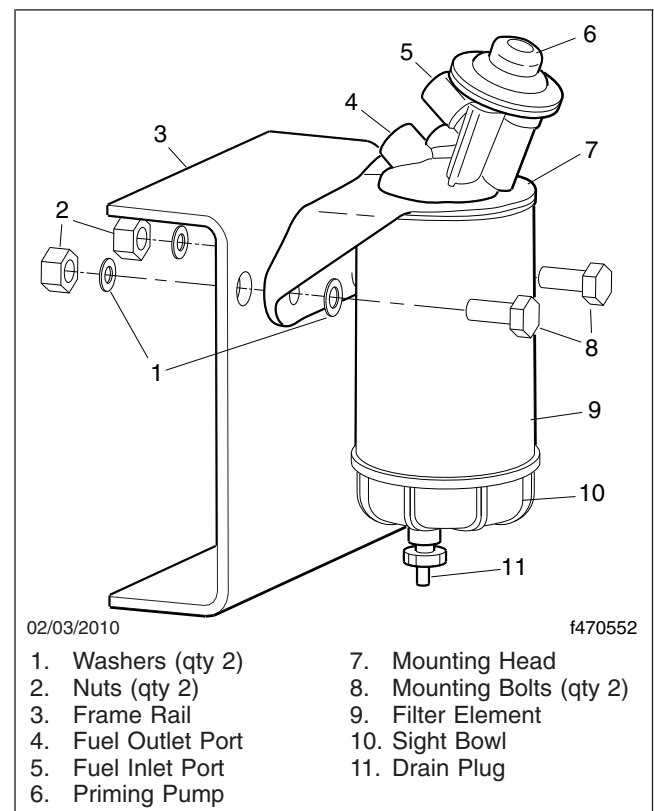


Fig. 23.13, Alliance Fuel/Water Separator Assembly and Installation

- 4.4 Stop draining fluid when fuel begins to drain out.

Alliance/Racor Models: turn the drain plug clockwise to close it.

DAVCO Models: close the drain valve. Install and hand-tighten the vent cap.

ConMet Models: close and tighten the valve finger-tight.

5. Inspect the steering components.

Lubrication and Fluid Level Check: 00–06

Table 8 summarizes all operations that must be performed to complete Lubrication and Fluid Level Check Operation 00–06 called for as an M1 maintenance interval for Service Schedule I and II vehicles.

Maintenance operation numbers given in the table are reference numbers used to help you find detailed instructions in the manual on the lubrication or fluid checking.

Maintenance Operation 00–06, Lubrication and Fluid Level Check for Service		
Maintenance Operation No.	Operation Description	Check
25–01	Clutch Release Bearing Lubrication*	
25–02	Clutch Release Cross-Shaft Lubrication	
25–03	Sleeve Assembly Bronze Bushing Lubrication	
25–04	Fluid Level Check, Hydraulic Clutch Control	
26–01	Transmission Fluid Level Inspection	
31–02	Fifth Wheel Lubrication	
31–05	Trailer Electrical Connector Lubrication	
32–02	Suspension Lubrication	
33–01	Knuckle Pin Lubrication†	
33–02	Tie Rod Lubrication†	
33–04	Front Axle Wheel Bearing Lubrication	
33–05	Front Drive Axle Lubricant Level Check	
35–01	Drive Axle Lubricant Level Check	
41–02	Driveline Lubrication	
42–05	Camshaft Bracket Lubrication	
42–06	Slack Adjuster Lubrication	
46–02	Drag Link Lubrication	
46–04	Power Steering Fluid Level Inspection	
46–05	Power Steering Gear Lubrication	
46–06	Steering Shaft Lubrication	
72–01	Door Seal, Door Latch, and Door Hinge Lubrication	
88–01	Hood Rear Support Lubrication	

* For Eaton Easy Pedal Advantage clutches, the interval is 50,000 miles (161 000 km) for linehaul applications.

† For Detroit axles, complete this procedure once a year or at the following applicable interval, whichever comes first: every 5000 miles (8000 km) for Schedule I vehicles; or every 100,000 miles (161 000 km) for Schedule II vehicles.

Table 8, Maintenance Operation 00-06, Lubrication and Fluid Level Check for Service Schedules I and II

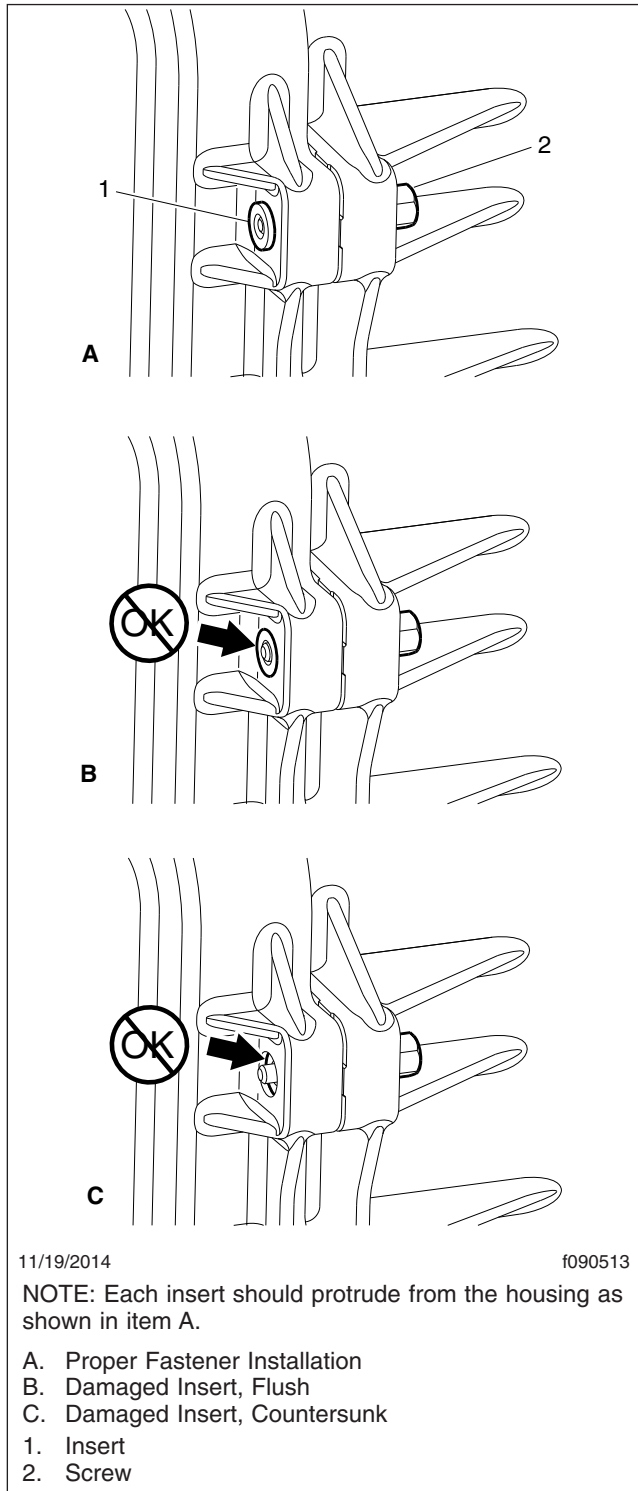


Fig. 9, Air-Cleaner-Housing Fasteners, 5700 Models

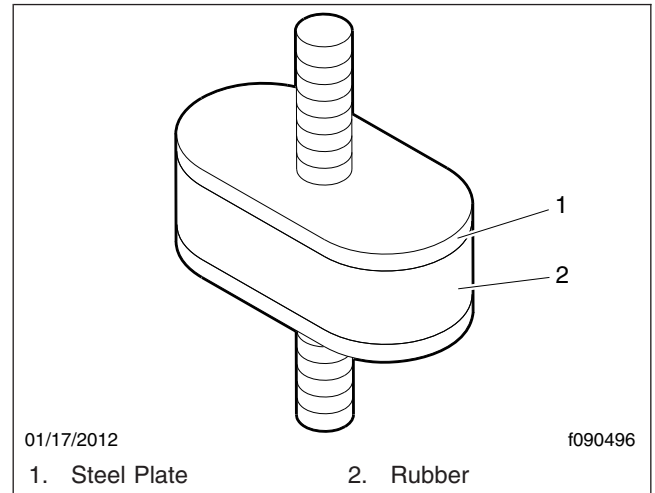


Fig. 10, Mounting Isolator

2. If necessary, replace the air cleaner element. For air cleaner element replacement instructions, see **Group 09** of the *Western Star Workshop Manual*.
3. Inspect the air cleaner housing for cracks, leaks, or any other damage. If the air cleaner housing or element is damaged, replace it.
4. Reset the air restriction indicator.
5. Each time the air cleaner housing is replaced, perform the procedures in **MOP 13-01**.

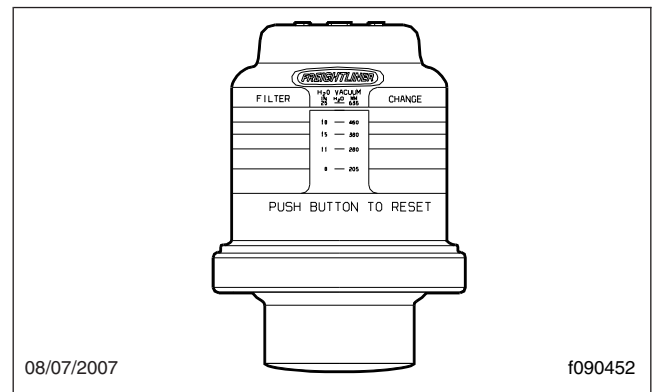


Fig. 11, Manual-Reset Air Restriction Indicator, Graduated

Cowl-Mounted Air Cleaner

The standard cowl-mounted air cleaner system used on Western Star trucks is a reverse air flow design. The air flow in this system flows from the inside of

20–03 Pressure/Filler Cap Test

WARNING

Do not remove or loosen the radiator cap until the engine and cooling system have completely cooled. Use extreme care when removing the cap. A sudden release of pressure from removing the cap prior to the system cooling can result in a surge of scalding coolant that could cause serious personal injury.

NOTICE

The radiator cap currently installed may not be the same one installed when the vehicle was built. If the radiator cap must be replaced, make sure that it is the correct cap for the cooling system of the vehicle. Because the radiator cap pressure rating affects the operating temperature of the engine, installing an improperly rated radiator cap may have adverse effects on the cooling system, and engine operating temperatures. This could cause premature engine wear or damage.

1. Park the vehicle on a level surface, set the parking brake, and chock the wheels. Open the hood.
2. After the coolant has cooled, loosen the pressure/filler cap to relieve system pressure.
3. Remove the pressure/filler cap. Using a radiator-cap pressure tester, check the cap to see if it maintains pressure to within 10 percent of the pressure rating marked on the cap. If it doesn't, replace the cap. Make sure that the replacement cap is correctly rated for the cooling system of the vehicle.
4. Inspect the pressure/filler cap gaskets. Replace the cap if the gasket shows any signs of deterioration or damage. Install the cap and check that the cap seals properly on the surge tank filler neck. Replace the cap if it appears not to seat properly.
5. There is a valve on the bottom of the pressure/filler cap that opens under vacuum. This prevents components in the cooling/heating systems from collapsing. Inspect the vacuum-relief valve to be sure it is not stuck. Replace the cap if the vacuum-relief valve is stuck.

20–04 Cooling System Pressure-Flush

NOTE: See the engine manufacturer's operation and maintenance manual for cooling system maintenance. The engine manufacturer's manual is provided with each new vehicle at the time of delivery.

1. Park the vehicle on a level surface, set the parking brake, and chock the wheels. Open the hood.
2. Place a suitable container under the lower elbow of the radiator outlet pipe and under the radiator. The container should be capable of holding 60 quarts (57 L) of fluid.

WARNING

Do not remove or loosen the radiator cap until the engine and cooling system have completely cooled. Use extreme care when removing the cap. A sudden release of pressure from removing the cap prior to the system cooling can result in a surge of scalding coolant that could cause serious personal injury.

3. Remove the surge tank pressure/filler cap.
4. Remove the drain plug located at the elbow of the lower radiator outlet pipe. Allow the coolant to drain.

NOTE: Coolant, conditioners, and coolant filters must be sent to proper recyclers.

5. Disconnect the radiator upper and lower hoses. Attach the flushing gun nozzle to the radiator at the lower radiator hose opening. Run the water until the radiator is full.

NOTE: When flushing the radiator, do not apply more than 10 psi (103 kPa) air pressure. Excessive pressure can damage the radiator.

6. Gradually, apply air pressure to help dislodge sediment build up in the radiator core.

IMPORTANT: All liquid that is flushed out of the radiator must be collected and disposed of properly. Pouring contaminated water down the drain is illegal.

7. Shut off the air at the pressure gun nozzle and allow the radiator to refill with water, then repeat

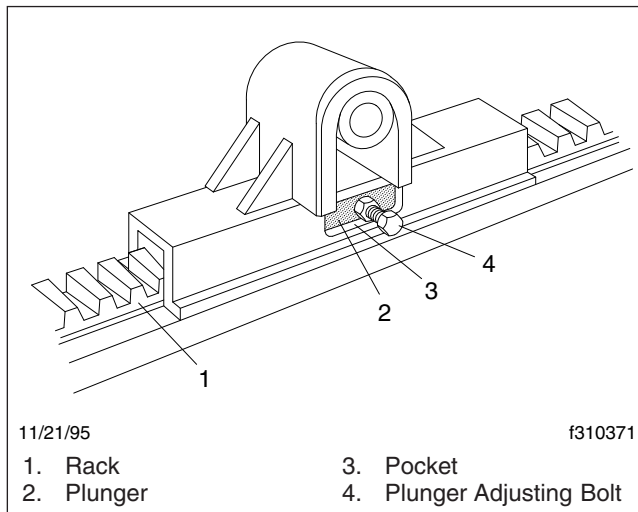


Fig. 13, Holland Fifth Wheel Sliding Mechanism

31-04 Frame Fastener Torque Check

Frame brackets and components are to be checked at initial maintenance (IM). Check the torque of frame fasteners to offset the effects of "bedding in" (or seating). When possible, always check the torque of the nut, not the bolt head. This will give a true torque reading by eliminating bolt body friction. When checking the torque of frame fasteners, inspect the frame for cracks and other damage. Set a click-type torque wrench to the maximum torque of the fastener you are checking. Apply pressure until the torque wrench clicks. **Do not** loosen the fastener to check the torque. See the applicable torque table in **Group 00** for torque specifications.

NOTICE

Make sure frame fasteners are properly tightened. Continued vehicle operation with loose fasteners could result in bracket or frame damage.

NOTE: Engine supports on vehicles built from January 2007 do not require checking.

Inspect and check the fasteners at the following locations:

- Air Tank Mounting Brackets
- Axle Stops
- Cab Mount Brackets

- Battery and Tool Box Brackets
- Engine Supports
- Equalizer Brackets
- Exhaust Brackets
- Fifth Wheel Legs
- Fifth Wheel Mounting
- Frame Crossmembers and Gussets
- Front Frame Brackets
- Front Suspension Spring Brackets
- Fuel Tank Brackets
- Radius Rods
- Rear Engine Supports
- Rear Suspension Spring Brackets
- Shock Absorbers
- All Other Frame Fasteners

Any component that shows signs of cracking or other damage must be repaired or replaced.

31-05 Trailer Electrical Connector Lubrication

In some cases, failure of trailer cables occurs due to intrusion of chloride-based road deicing chemicals into the trailer connector. Once inside the connector, the chloride-based chemicals corrode the brass terminals and create bridging between positive and ground terminals.

NOTE: The use of soap is not recommended for cleaning the electrical connector, as some soaps may increase the corrosion process.

1. Wash out any existing grease, dirt, and corrosion on the trailer connectors with electrical contact cleaner spray.
2. Grease the trailer connector with a lithium-based dielectric grease.

31-06 Premier 690 Coupling Inspection

IMPORTANT: Before servicing the Premier coupling, refer to the Premier web site at