Vehicle Identification

Vehicle Specification Decal

The vehicle specification decal lists the vehicle model, identification number, and major component models. It also recaps the major assemblies and installations shown on the chassis specification sheet. The specification decal is inside the rear cover of the *Owner's Warranty Information for North America* booklet. An illustration of the decal is shown in **Fig. 1.1**.

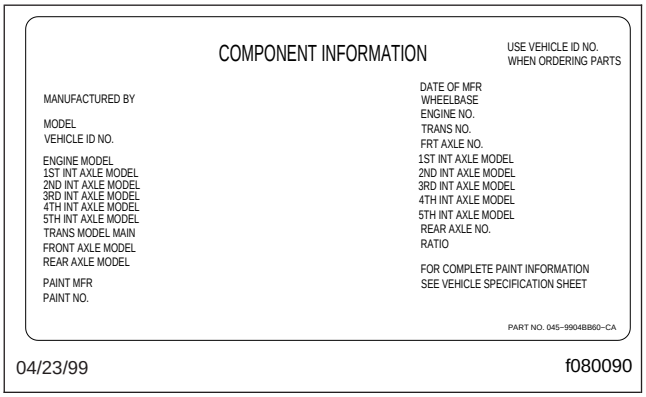


Fig. 1.1, Vehicle Specification Decal, Canadian-Built Vehicle Shown

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

Federal Motor Vehicle Safety Standard (FMVSS) Labels

NOTE: Due to the variety of FMVSS certification requirements, not all of the labels shown will apply to your vehicle.

Tractors with or without fifth wheels purchased in the U.S. are certified by means of a certification label (**Fig. 1.2**) and the tire and rim labels (**Fig. 1.3**). These labels are attached to the driver's side rear door post, as shown in **Fig. 1.4**.

If purchased for service in the U.S., trucks built without a cargo body have a certification label (**Fig. 1.5**) attached to the driver's side rear door post. See **Fig. 1.4**. In addition, after completion of the vehicle, a certification label similar to that shown in **Fig. 1.2** must be attached by the final-stage manufacturer. This label will be located on the driver's side rear door post and certifies that the vehicle conforms to

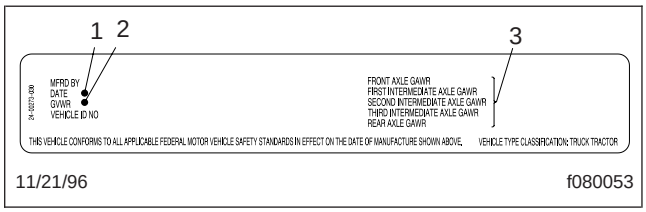
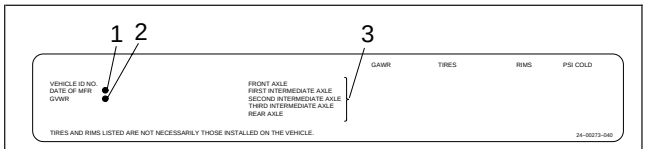
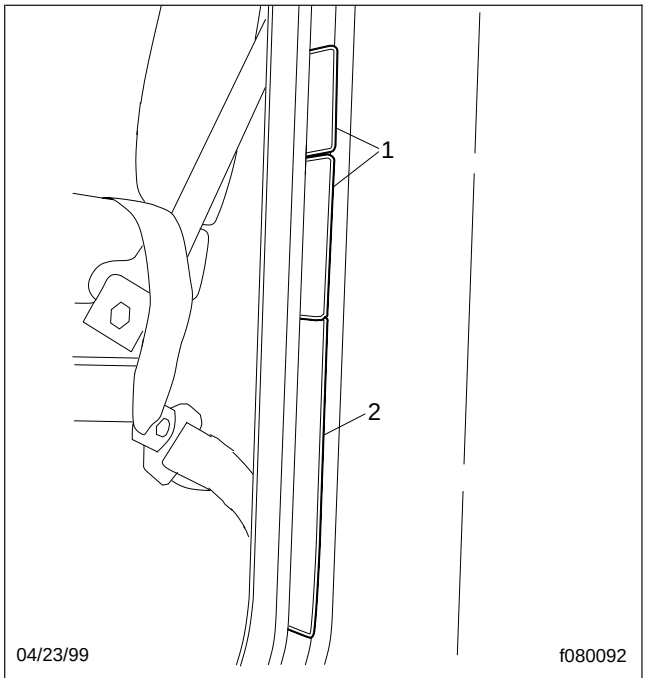


Fig. 1.2, Certification Label, U.S.



1. Date of manufacture by month and year.
2. Gross vehicle weight rating; developed by taking the sum of all the vehicle's gross axle ratings.
3. Gross axle weight ratings; developed by considering each component in an axle system, including suspension, axle, wheels, and tires. The lowest component capacity is the value for the system

Fig. 1.3, Tire and Rim Label



1. Tire and Rim Labels
2. Certification Label

Fig. 1.4, Labels Location (left-hand drive shown)

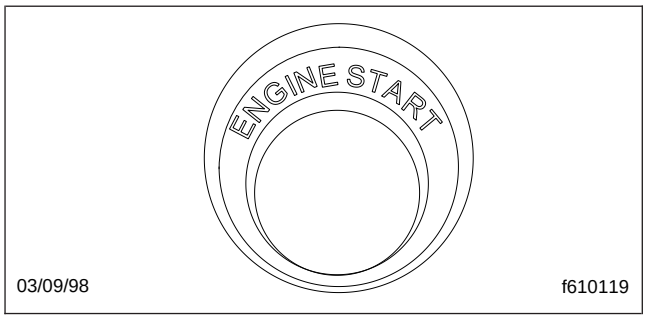


Fig. 2.2, Engine Start Button

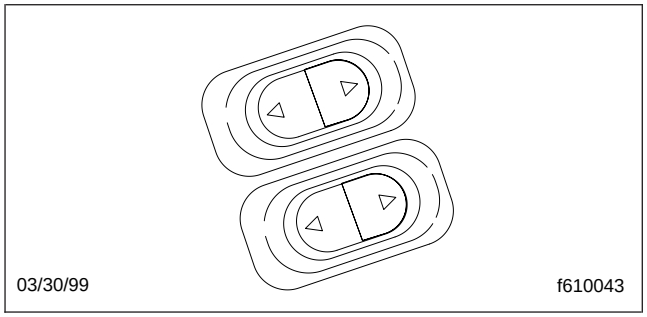


Fig. 2.3, Power Window Controls

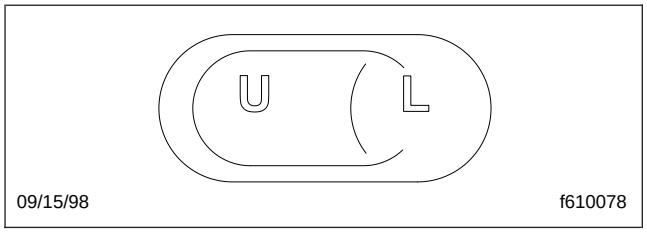


Fig. 2.4, Power Lock Control

Mirror Controls

Power Mirrors

The remote control mirrors are controlled by one switch located on the driver door panel by the door handle. Use the switch to select which mirror (left or right) is adjusted and to control the left/right movement of the large mirrors. See **Fig. 2.5**.

Lighted Mirrors, Optional

These lights act like marker lights. The mirror lights will come on when the marker lights are turned on.

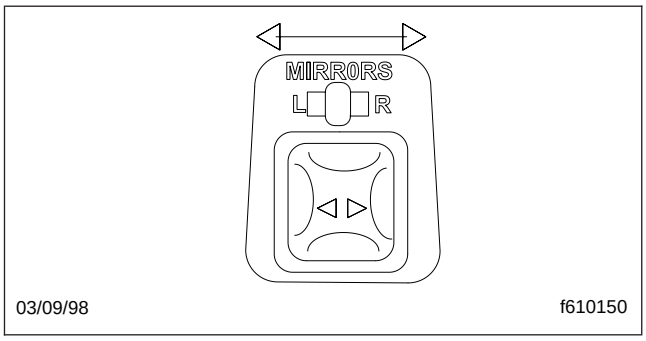


Fig. 2.5, Power Mirror Control

Heated Mirrors, Optional

Press the top part of the heated mirror switch to heat the mirrors. See **Fig. 2.6**. An indicator light will illuminate above the switch when it is activated.

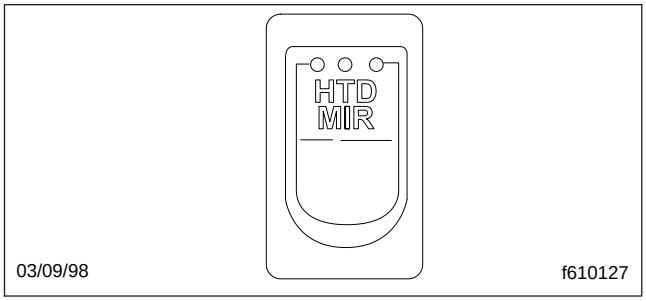


Fig. 2.6, Heated Mirror Switch, Optional

Aero Side-View Mirrors, Optional

The heated, dual-axis mirrors are controlled by two switches located on the driver door panel near the door handle.

- The L-R control on each switch selects which mirror (left or right) is adjusted.
- The upper control controls the large flat mirror.
- The lower control controls the convex mirror.

Instrument Panel Dimmer Switch

The instrument panel dimmer switch is located to the left of the instrument cluster. The instrument panel lights can be brightened or dimmed by moving the switch up or down. The dome light can be turned ON by moving the switch all the way up.

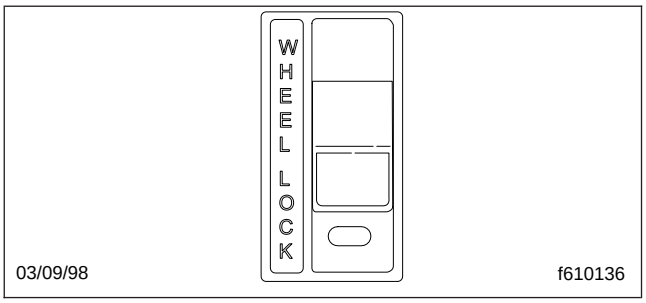


Fig. 2.14, Wheel Lock Switch

2-Speed Axle, Optional

The 2-speed axle switch allows you to put the axle in HI or LO range. This feature is only available with automatic transmissions. See **Fig. 2.15**.

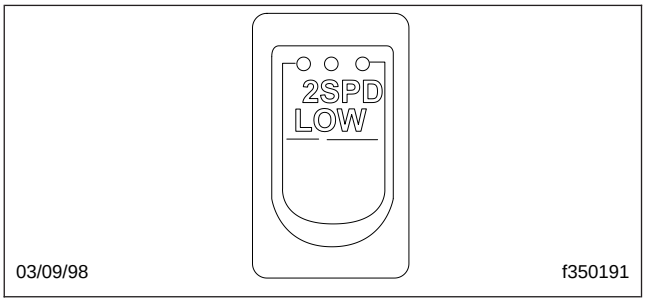


Fig. 2.15, 2-Speed Axle Switch, Optional

Fifth Wheel Air Slide Control Valve Switch

CAUTION

Do not activate the fifth wheel slide control valve while the vehicle is in motion. To do so could cause damage to the fifth wheel member, the kingpin, the cab or trailer, and ultimately to the drivetrain.

The fifth wheel air slide valve permits repositioning of the sliding fifth wheel from inside the cab. Moving the air slide control switch to the center position deactivates the control valve and locks the fifth wheel to the baseplate. Moving the switch up from the center position activates the control valve and unlocks the fifth wheel slide mechanism, allowing changes to the total length of the tractor-trailer and changes to axle loads to comply with varying state or provincial laws. See **Fig. 2.16**. A red indicator light, if equipped, is illuminated whenever the fifth wheel slide is unlocked.

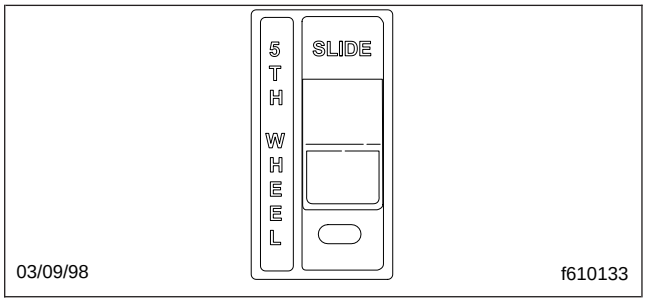
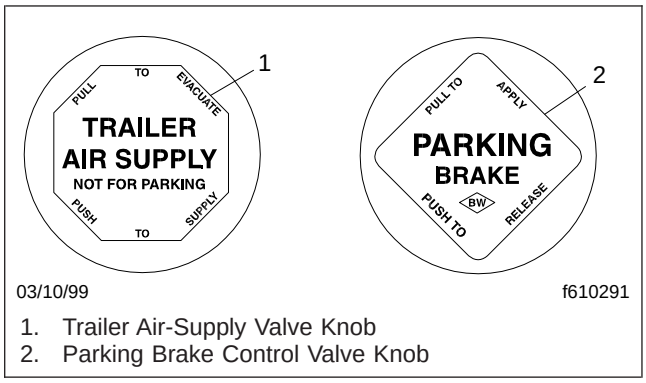


Fig. 2.16, Fifth Wheel Air Slide Switch

Parking Brake Valve

The yellow diamond-shaped knob operates the parking brake valve. See **Fig. 2.17**. Pull out the knob to apply both the tractor and the trailer spring brakes. Push in the knob to release the tractor spring brakes. Before the spring brakes can be released, the air pressure in either air brake system must be at least 65 psi (447 kPa).



1. Trailer Air-Supply Valve Knob
2. Parking Brake Control Valve Knob

Fig. 2.17, Brake Valves

See **Chapter 6** under the heading "Brake System" for instructions regarding use of the trailer air-supply valve and parking brake valve.

Trailer Air-Supply Valve

The red octagonal-shaped knob operates the trailer air-supply valve. See **Fig. 2.17**. After the vehicle air hoses are connected to a trailer, and the pressure in the air system is at least 65 psi (447 kPa), push in the trailer air-supply valve knob (it should stay in) to charge the trailer air supply system, and release the trailer spring brakes. Before disconnecting a trailer,

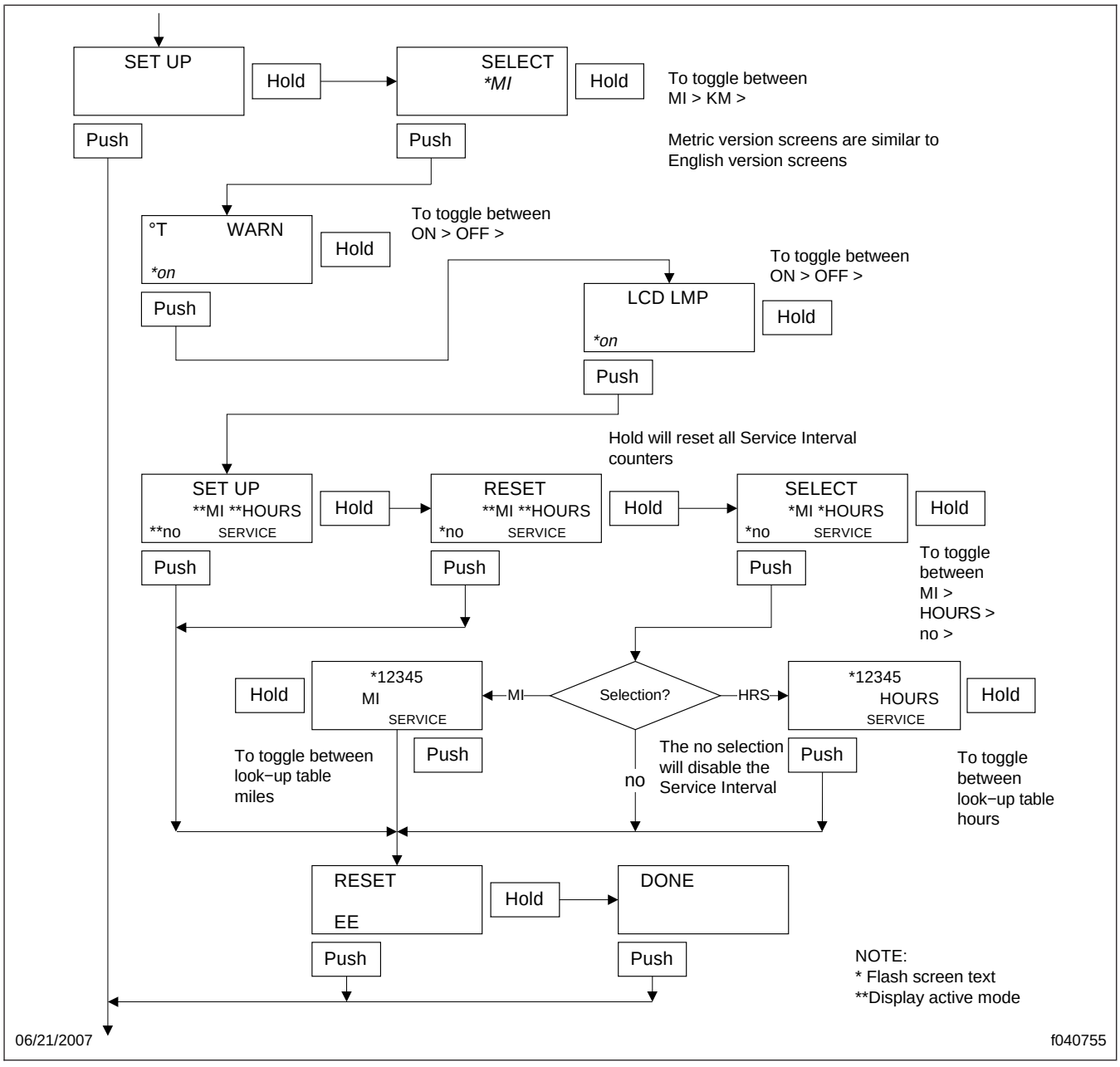
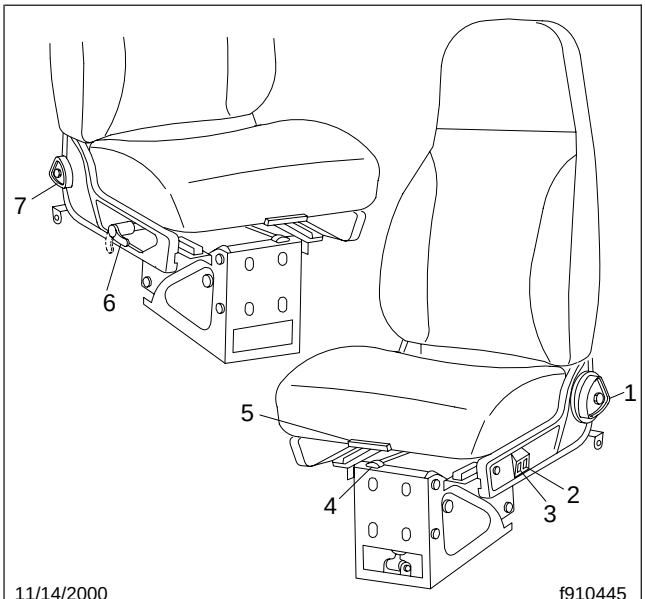


Fig. 2.43, ICU4 Setup Screens

- High Coolant Temperature Warning
- Low Engine Oil Pressure Warning
- Low Air Pressure Warning
- Parking Brake On Indicator
- All engine warning lights, including Engine Protection, Check Engine, and Stop Engine (Cummins only)
- All ABS warning lights, including Wheel Spin, Tractor ABS, and (if installed) Trailer ABS



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1. Back Cushion Tilt Knob
2. Lumbar Support Switch
3. Height Adjustment Switch
4. Fore and Aft Seat Adjustment Lever
5. Bottom Cushion Front Height Adjustment Handle
6. Isolator Handle
7. Rear Cushion Adjustment Knob

Fig. 5.5, National 2000 Series Seat Adjustment Controls

Fore and Aft Seat Adjustment

To adjust the fore and aft position of the entire seat, move the fore and aft seat adjustment lever to the left and slide the seat forward or backward to the desired position. Move the lever back to its original position to lock the seat in place.

Rear Cushion Adjustment

To adjust the height of the rear of the seat cushion, remove your weight from the seat and turn the rear cushion adjustment knob to one of three positions.

Isolator

Also called a Chugger Snubber®, the isolator reduces the amount of road shock by isolating the occupant from the motion of the vehicle and allowing the seat to move in a simple pendulum motion. To use the isolator feature, turn the isolator handle to the horizontal position. Turn the isolator handle down when the isolator feature is not desired.

Lumbar Support

To adjust the lumbar support, use the lumbar support switch on the side of the seat to give more or less support to your lower back.

Bottom Cushion Front Height

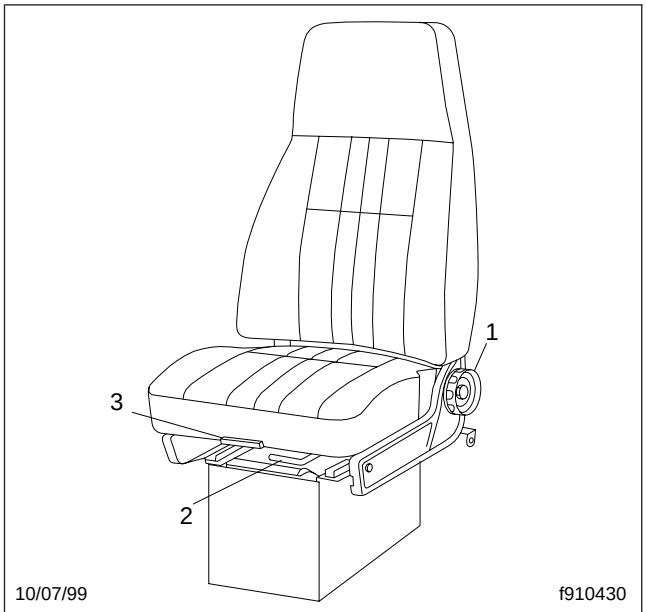
To adjust the height of the front of the bottom cushion, lift the bottom cushion front height adjustment handle, and pull forward or push back to the desired setting.

National Nonsuspended Seat

See **Fig. 5.6** for seat adjustment controls.

Back Cushion Tilt

To tilt the back cushion, turn the back cushion tilt knob and lean forward or backward.



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1. Back Cushion Tilt Knob
2. Fore and Aft Seat Adjustment Lever
3. Fore and Aft Bottom Cushion Adjustment Handle

Fig. 5.6, National Nonsuspended Seat Adjustment Controls

Fore and Aft Seat Adjustment

To adjust the fore and aft position of the entire seat, move the fore and aft seat adjustment lever to the

3. Continue to upshift until cruising speed is reached. Use only the rpm needed to make an upshift into the next gear. The engine speed needed to make an upshift increases as the vehicle speed increases or if upshifts are made on uphill grades. If the vehicle can be operated in a higher gear after reaching the desired speed, select the highest gear available that will pull the load. Experience with your vehicle will show you what rpm is needed to make upshifts under various conditions. This "progressive shifting" technique will lower fuel costs because the engine will be operating at the lowest rpm needed to pull the load.

   Caterpillar electronic engines can be programmed to limit engine rpm while the vehicle is operated in the lower and higher gears. This feature assists the driver in following "progressive shifting" techniques.

4. On uphill grades, begin downshifting when the engine rpm falls to 1200 rpm for C–10, C–12, and 3406E electronic engines. Fuel economy will be best if you let the engine lug back to around this speed before you downshift. Downshift until a gear is reached in which the engine will pull the load. Let the engine lug down if you can make it to the top of a hill without downshifting.

IMPORTANT: Don't let C–10, C–12, and 3406E electronic engines exceed 2300 rpm (2100 rpm if equipped with an exhaust brake).

5. On a downhill grade, do not coast or put the transmission in neutral. Select the correct gear that does not allow the engine to exceed its maximum speed. Use the brakes to limit the vehicle speed.

   A simple rule to follow is to select the same gear (or one gear lower) that would be needed to go up the grade.

6. As with any engine, prolonged idling of Caterpillar engines is not recommended. An idling engine wastes fuel and if left unattended, is also unsafe.

   Caterpillar engines can be programmed to shut off automatically after a specified idling time. The vehicle transmission must be in neutral and the parking brake must be set for the automatic shutoff option to work.

Power Takeoff (PTO) Governor

Caterpillar electronic engines may be equipped with a PTO governor. This mode is used only when the vehicle is parked. The PTO mode is activated by the On/Off and SET/RESUME switches.

1. To engage the PTO:
   - 1.1 Flip the On/Off switch on the instrument control panel to On.
   - 1.2 Hold the throttle down until the tachometer reaches the desired engine speed.
   - 1.3 Momentarily move the SET/RESUME switch on the instrument control panel to Set or push the Set button on the transmission shift knob.
2. To disengage the PTO:
   - 2.1 Depress the brake pedal or clutch pedal, *or*
   - 2.2 Flip the On/Off switch on the instrument control panel to Off or press the PAUSE button on the shift knob.
3. To resume a previously selected engine speed:
   - 3.1 If the On/Off switch on the instrument control panel is in the Off position, flip it to On.
   - 3.2 Momentarily move the SET/RESUME switch on the instrument control panel to RESUME or press the RESUME button on the transmission shift knob.

     To adjust engine speed up or down, hold the SET/RESUME switch on the instrument control panel at SET to accelerate or at RESUME to decelerate until the desired speed is reached; or, press the SET button on the transmission shift knob to accelerate or the RESUME button to decelerate until the desired speed is reached.

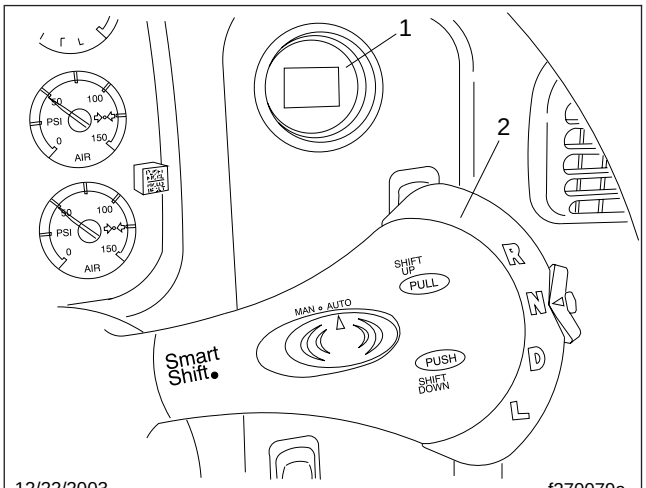
NOTE: The resume engine speed memory is not maintained if the ignition is shut off.

Cummins Engine Operation

Cummins diesel engines have been built by Cummins to comply with the requirements of the Federal (U.S.) Clean Air Act. Once the engine is placed in service, the responsibility for meeting both state and

UltraShift DM uses a dry clutch system which is offered only on this automated transmission system.

The UltraShift transmission uses the four-position SmartShift lever on the steering column to select gears. To know what gear the transmission is in, look at the round current gear indicator on the right-hand control panel as shown in **Fig. 8.4**. All forward shifts can be made either manually or automatically, at the driver's choice.



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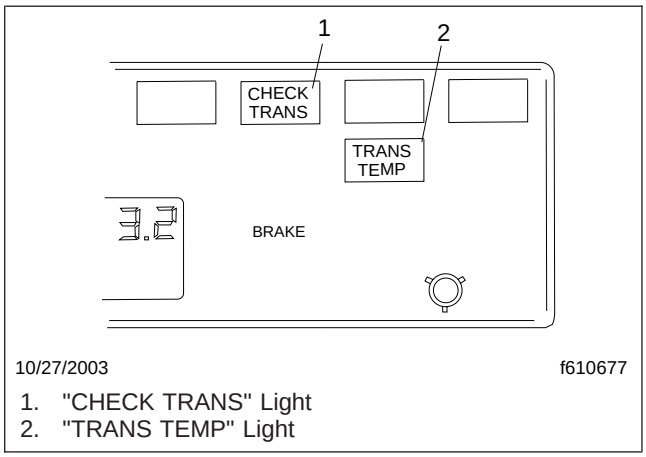
To know what gear the transmission is in, look at the current gear indicator.

1. Current Gear Indicator
2. SmartShift Control

Fig. 8.4, Shift Controls and Indicators, UltraShift Transmissions



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1. "CHECK TRANS" Light
2. "TRANS TEMP" Light

Fig. 8.5, Telltale Lights

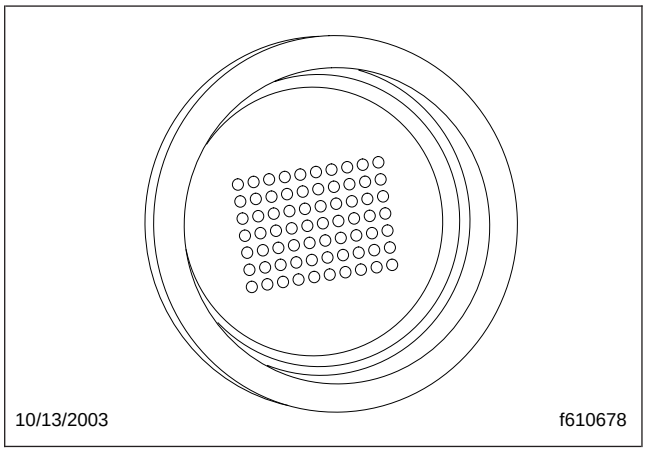

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Fig. 8.6, Power Up Dot Display

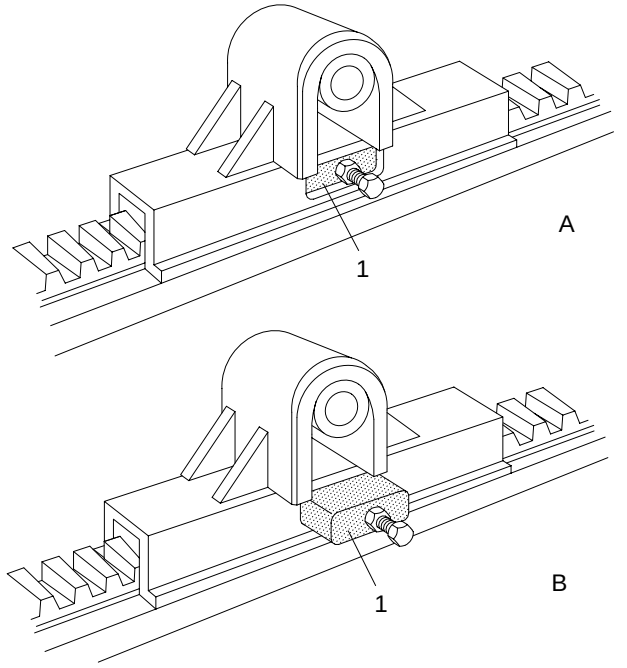
Operation, UltraShift DM

Power Up

1. With the parking brake set, select neutral (N) by moving the selector switch to the N position.
2. With the transmission in neutral, turn on the ignition switch. The "CHECK TRANS" and "TRANS TEMP" telltale lights come on and go out again (bulb check). See **Fig. 8.5**.
3. After the ignition is turned on, the current gear indicator shows the dot display, arranged in a square pattern. All dots in the pattern should light up, without gaps or spaces. See **Fig. 8.6**.
4. Wait for the current gear indicator to show a solid "N." When the "N" is solid, rather than flashing, the UltraShift DM TCU is powered up. Apply the service brake and start the engine.
5. Select drive (D) by pressing in the neutral lock button and moving the selector switch downward to the position below neutral. Release the parking brake. The gear is displayed on the current gear indicator.

NOTE: When D is selected, the transmission controller starts up in second gear. If desired, the driver can select to start up in first. No other start gear is available.

6. On a level grade, release the service brake and press down on the throttle pedal to allow the vehicle to move forward.



A. Locked (engaged) B. Unlocked (released)
1. Plunger

Fig. 10.7, Plunger Positions

This applies the trailer service brakes only. As air bleeds from the trailer brake system, brake application is lost. This could allow the unattended vehicle to roll away, possibly resulting in serious personal injury or death.

⚠ CAUTION

After moving the fifth wheel to the desired position, be sure the trailer landing gear will not, at any time, come in contact with the tractor frame or other components. Make sure that the front of the trailer will not come in contact with the rear of the cab or with other components if they extend beyond the rear of the cab.

6. Slowly move the tractor forward or backward until the fifth wheel is in the desired location.
7. Apply the tractor parking brakes.

NOTE: The fifth wheel may have to be moved slightly to enable the locking plungers to enter the fully locked position.

8. Lock the sliding member into position using one of the following methods:

⚠ WARNING

Check to be sure that the slide plungers are in the locked position. Failure to achieve complete lockup may allow disengagement of the tractor from the trailer, possibly resulting in serious personal injury or death.

8.1 For air-operated models, set the cab-operated control switch to LOCK. Visually check the slide plungers to make sure they are engaged in the fully locked position. See **Fig. 10.7**.

8.2 For manual release models, trip the release lever (**Fig. 10.3**) using a release hook or other suitable tool. Make sure that both plungers have locked (retracted into their pockets), and are fully engaged in the rack teeth. See **Fig. 10.7**. It may be necessary to move the tractor slightly while keeping the trailer brakes locked.

9. The amount of load distribution on the front steering axle and rear drive axle(s) will have a direct effect on the steering control of the vehicle.

   Determine the front and rear axle weights by weighing the vehicle on scales designed for this purpose.

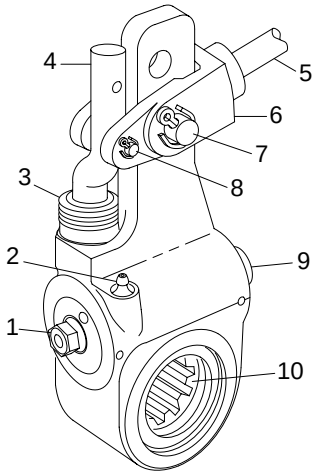
   The maximum axle weight ratings are shown on the Federal Motor Vehicle Safety Standard (FMVSS) label or Canadian Motor Vehicle Safety Standard (CMVSS) label attached to the left rear door post of the tractor. The desired load on the axle is no less than 80 percent of the maximum axle weight rating, but in no instances should the axle load exceed the maximum axle weight rating given on the FMVSS or CMVSS label.

⚠ WARNING

Do not overload any tractor axle by improperly loading the trailer. This could cause erratic steering and loss of vehicle control, possibly resulting in serious personal injury or death.

24.2 *Gunite Slack Adjusters:* Inspect the slack adjuster for any signs of damage. If damaged, have the slack adjuster replaced.

Inspect the slack adjuster boot for cuts or tears. If the boot is damaged, have it replaced. See **Fig. 11.11**.



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1. 7/16-inch Adjusting Nut
2. Grease Fitting
3. Boot
4. Link
5. Brake Chamber Piston Rod
6. Clevis
7. 1/2-inch Clevis Pin
8. 1/4-inch Clevis Pin
9. Grease Relief Opening
10. Slack Adjuster Spline

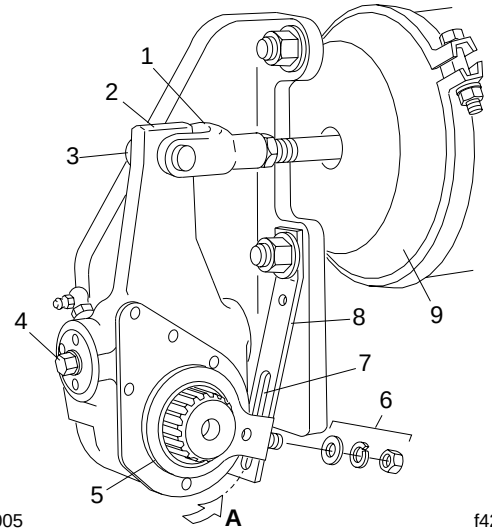
Fig. 11.11, Gunite Automatic Slack Adjuster

24.3 *Haldex Slack Adjusters:* Inspect each slack adjuster and anchor strap for damage. See **Fig. 11.12**. Have any damaged components replaced.

25. *Check the air brake system for proper operation.*

25.1 Check the air governor cut-in and cut-out pressures as follows.

Run the engine at fast idle. The air governor should cut out the air compressor at approximately 120 psi (827 kPa). With the engine idling, apply the brake pedal several times. The air governor should cut in the air compressor at approximately 100 psi (689 kPa). If the air governor does not cut in and out as described above, it must be adjusted to these specifications. If the air governor cannot be adjusted or repaired, replace it before operating the vehicle.



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A. Rotate the control arm toward the brake chamber until you can feel it contacting the internal stop.

1. Clevis
2. Slack Adjuster
3. Clevis Pin
4. Manual Adjusting Nut
5. Control Arm
6. Control-Arm Washers and Nut
7. Anchor Strap Slot
8. Anchor Strap
9. Brake Chamber

Fig. 11.12, Haldex Automatic Slack Adjuster

25.2 Check the air pressure buildup time as follows.

With the air system fully charged to 120 psi (827 kPa), make one full brake application and note the air pressure reading on the gauge. Continue to reduce the air pressure by moderate brake applications to a maximum of 90 psi (620 kPa), then run the engine at governed rpm. If the time required to raise the air pressure to 120 psi (827 kPa) (from the pressure noted after one brake application) is more than 30 seconds, eliminate any leaks or replace the air compressor before operating the vehicle.

25.3 Check the air pressure reserve as follows.

With the air system fully charged to 120 psi (827 kPa), stop the engine and note the air pressure. Then make one full brake

In an Emergency

Hazard Warning Lights

The hazard warning light switch tab is located on the left side of the steering column. To operate the hazard lights, press the orange control once. All of the turn signal lights and both of the indicator lights on the control panel will flash.

To cancel the hazard warning lights, press the control again.

Fire Extinguisher

A fire extinguisher is located in the cab by the driver's door.

Emergency Kit, Optional

An optional emergency kit package is located between the seats, at the front of the center console, if the vehicle does not have a sleeper compartment. If there is a sleeper compartment, the emergency kit is located elsewhere, depending on vehicle configuration. The package includes one or more of each of the following: first aid kit, a reflective vest, and a triangular reflector and flare kit.

If there is an emergency while driving, cautiously pull off the road, paying attention to other traffic. Turn on the hazard warning lights. Place the flares and reflector along the side of the road, to alert other drivers that an emergency situation exists.

⚠ WARNING

Use extreme care when placing flares in emergency situations that involve exposure to flammable substances such as fuel. An explosion or fire could occur causing serious personal injury.

Emergency Starting with Jumper Cables

When using jumper cables, use the following instructions.

⚠ WARNING

Batteries release explosive gas. Do not smoke when working around batteries. Put out all flames and remove all sources of sparks or intense heat in the vicinity of the battery. Do not allow the vehicles to touch each other. Do not lean over the batteries when making connections, and keep all other persons away from the batteries. Failure to follow these precautions could lead to severe personal injury as a result of an explosion or acid burns.

⚠ CAUTION

Make sure both starting systems have the same voltage outputs, and avoid making sparks. Otherwise the vehicle charging systems could be severely damaged. Also, do not attempt to charge isolated, deep-cycle batteries with jumper cables. Follow the battery manufacturer's instructions when charging deep-cycle batteries.

On vehicles equipped with optional jump-start posts, attach the positive cable clamp to the positive post instead of to the battery, and attach the negative cable clamp to the negative post.

⚠ CAUTION

Connecting the jumper cables to the vehicle frame rail or to the engine block can cause severe damage to the engine wiring.

On vehicles without jump-start posts, the positive cable clamp can be attached to the starter positive lug terminal.

1. Apply the parking brakes and turn off the lights and all other electrical loads.
2. Connect an end of one jumper cable to the positive terminal of the booster battery (or jump-start post, if equipped), and connect the other end of the cable to the positive terminal of the discharged battery (or jump-start post, if equipped).

⚠ WARNING

Do the next step exactly as instructed and do not allow the clamps of one cable to touch the clamps of the other cable. Otherwise, a spark could occur near a battery, possibly resulting in severe personal injury from explosion and acid burns.

3. Connect one end of the second jumper cable to the negative terminal of the booster battery and connect the other end to the negative jump-start post or the starter ground lug. The starter ground

Vehicle Maintenance Schedule Tables: 00–03

1st through 35th Vehicle Maintenance Intervals for Service Schedule I					
Maint. Number	Required Maintenance Operation Interval	Service Date	Service I		
			Miles	km	Hours
1st	Initial Maintenance (IM) and M1		1000	1600	100
2nd	M1		2000	3200	200
3rd	M1		3000	4800	300
4th	M1		4000	6400	400
5th	M1 and M2		5000	8000	500
6th	M1		6000	9600	600
7th	M1		7000	11 200	700
8th	M1		8000	12 800	800
9th	M1		9000	14 400	900
10th	M1, M2 and M3		10,000	16 000	1000
11th	M1		11,000	17 600	1100
12th	M1		12,000	19 200	1200
13th	M1		13,000	20 800	1300
14th	M1		14,000	22 400	1400
15th	M1 and M2		15,000	24 000	1500
16th	M1		16,000	25 600	1600
17th	M1		17,000	27 200	1700
18th	M1		18,000	28 800	1800
19th	M1		19,000	30 400	1900
20th	M1, M2, M3 and M4		20,000	32 000	2000
21st	M1		21,000	33 600	2000
22nd	M1		22,000	35 200	2200
23rd	M1		23,000	36 800	2300
24th	M1		24,000	38 400	2400
25th	M1 and M2		25,000	40 000	2500
26th	M1		26,000	41 600	2600
27th	M1		27,000	43 200	2700
28th	M1		28,000	44 800	2800
29th	M1		29,000	46 400	2900
30th	M1, M2 and M3		30,000	48 000	3000
31st	M1		31,000	49 600	3100
32nd	M1		32,000	51 200	3200
33rd	M1		33,000	52 800	3300
34th	M1		34,000	54 400	3400

Noise Emission Controls Maintenance: 00–11

General Information

Federal Law, Part 205: Transportation Equipment Noise Emission Controls

Part 205, Transportation Equipment Noise Emission Controls, requires the vehicle manufacturer to furnish, with each new vehicle, such written instructions for the proper maintenance, use, and repair of the vehicle by the ultimate purchaser to provide reasonable assurance of the elimination or minimization of noise-emission-control degradation throughout the life of the vehicle. In compliance with the law, the noise emission controls maintenance information in each applicable group of this manual, in conjunction with the vehicle service manual, provides these instructions to owners.

Recommendations for Replacement Parts

Replacement parts used for maintenance or repair of noise emission controls should be genuine Sterling parts. If using other than genuine Sterling parts, the owner should be sure that such parts are warranted by their manufacturer to be equivalent to genuine Sterling parts in performance and durability.

Sterling Noise Emission Controls Warranty

Refer to the vehicle owner's warranty information book for warranty information concerning noise emission controls.

Tampering With Noise Controls is Prohibited

Federal law prohibits the following acts or the causing thereof:

1. The removal or rendering inoperative by any person (other than for purposes of maintenance, repair, or replacement) of any device or element of design incorporated into any new vehicle for the purpose of noise control, prior to its sale or delivery to the ultimate purchaser, or while it is in use.
2. The use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

   Among those acts presumed to constitute tampering are the acts listed below:

   A. Removal of engine noise-deadening panels.

   B. Removal of cab-tunnel or hood noise-deadening panels.

   C. Removal of, or rendering inoperative, the engine speed governor so as to allow engine speed to exceed manufacturer's specifications.

   D. Removal of, or rendering inoperative, the fan clutch, including bypassing the control on any thermostatic fan drive to cause it to operate continuously.

   E. Removal of the fan shroud.

   F. Removal of, or rendering inoperative, exhaust components, including exhaust pipe clamping.

   G. Removal of air intake components.

Maintenance Instructions

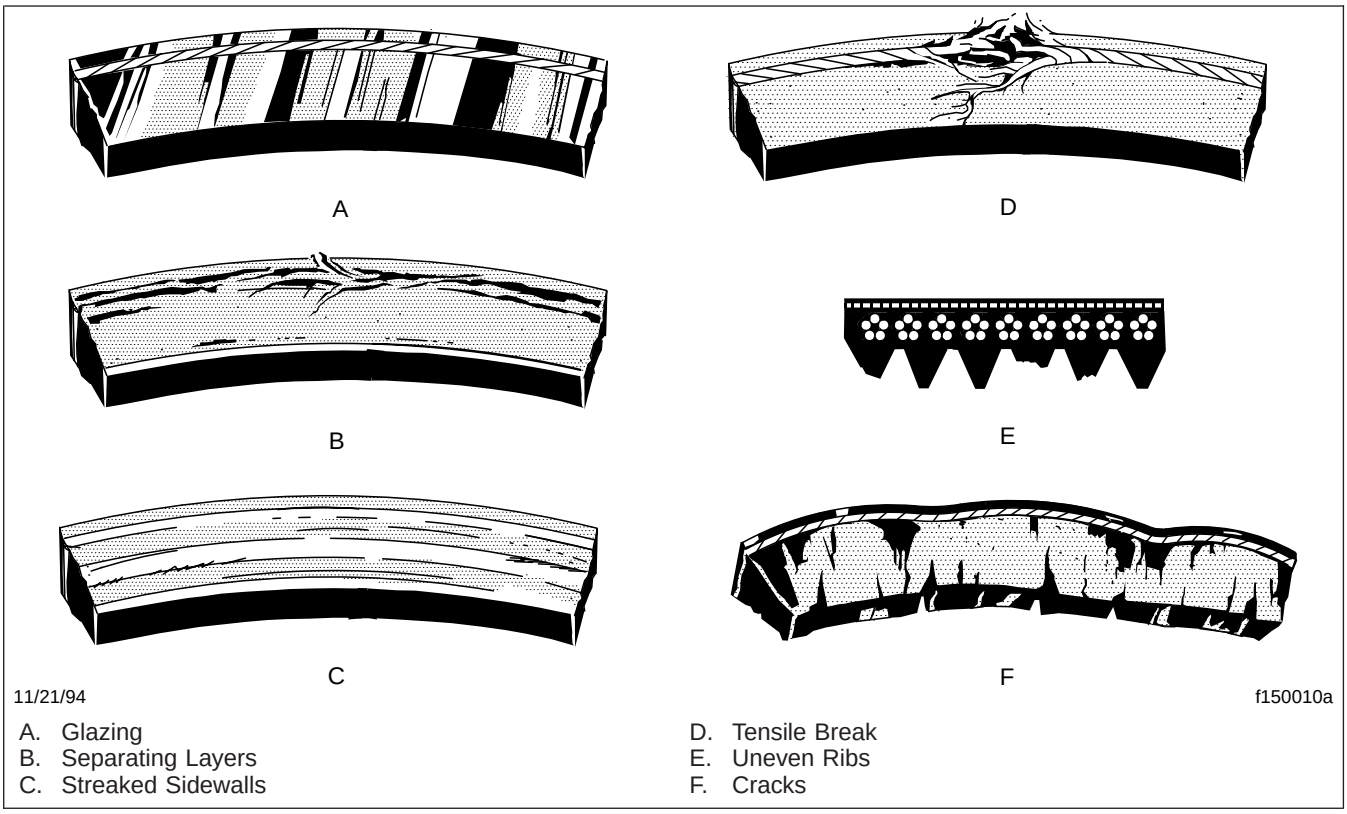
Scheduled intervals are in the maintenance tables in this group. "Verification of Inspections Log" (Groups 01 and 20, and Group 49) follows, and should be filled in each time noise emission controls on the vehicle are maintained or repaired.

in the pulleys. It can also be caused by oil or grease contamination on the pulleys.

2. Check the belt for ply separation. See **Fig. 4**, Ref. B. Oil, grease, or belt dressing can cause the belt to fall apart in layers. Repair any oil or coolant leaks that are affecting the belts before replacing the drive belts. Do not use belt dressing on any belt.
3. Check the belt for a jagged or streaked sidewall. See **Fig. 4**, Ref. C. Jagged or streaked sidewalls are the result of foreign objects, such as sand or gravel in the pulley, or a rough pulley surface.
4. Check for tensile breaks; breaks in the cord body. See **Fig. 4**, Ref. D. Cuts in a belt are usually caused by foreign objects in the pulley, or by prying or forcing the belt during removal or installation.
5. Check for uneven ribs on serpentine (poly-V) belts. See **Fig. 4**, Ref. E. Foreign objects in the pulley will erode the undercord ribs, causing the belt to lose its gripping power.
6. Check the drive belts for cracks. See **Fig. 4**, Ref. F. Small irregular cracks are usually the signs of an old belt.
7. Visually inspect the pulleys for excessive play or wobble. Excessive play or wobble indicates a failure of the pulley bearing. Check for belt squealing or squeaking. Replace the bearings as necessary.

NOTE: If it is difficult to distinguish the location of a supposed bearing noise, place a stethoscope on the component being checked, not the pulley, to isolate the area from outside interference.

8. Inspect all pulleys for foreign objects, oil, or grease in the grooves.



A. Glazing
B. Separating Layers
C. Streaked Sidewalls
D. Tensile Break
E. Uneven Ribs
F. Cracks

Fig. 4, Drive Belt Replacement Conditions

25–01 Clutch Release Bearing Lubricating

NOTE: For a clutch with a sealed release bearing, the release bearing is lubricated at the time of manufacture and requires no additional grease for the life of the bearing. This type of release bearing is not equipped with a grease fitting.

For a clutch with a grease-type release bearing (see **Fig. 1**), wipe the dirt from the grease fitting.

⚠ CAUTION

Do not over-lubricate the clutch release bearing. Over-lubrication could contaminate the clutch internally, causing clutch slippage and premature failure. Do not use chassis grease or multipurpose lubricants.

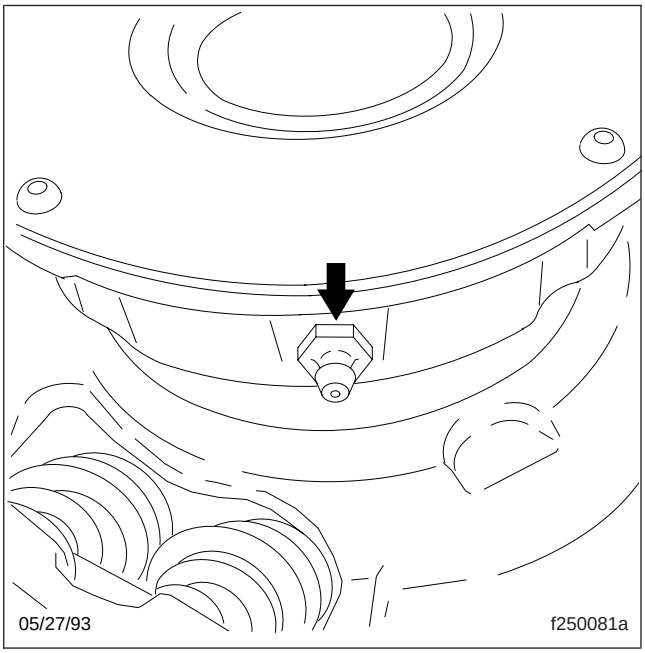
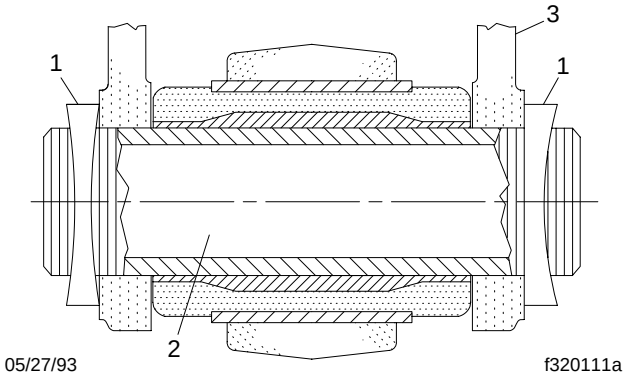


Fig. 1, Release Bearing Grease Fitting

IMPORTANT: If the release bearing is *not* equipped with a grease-fitting extension that extends outside the bell housing, lubricate the bearing with the engine stopped. If equipped with a grease-fitting extension that does extend outside the bell housing, lubricate the bearing with the engine running.

Using a pressure gun and high-temperature grease only, lubricate the release bearing at the grease fitting until grease starts coming out of the fitting. *Do not* use chassis lube or multipurpose lubricants.



1. Nut
2. End Tube
3. Beam Hanger

Fig. 8, Tube-Type Beam End Connection

5. Without detaching the radius rods, attempt to move (by hand) each radius-rod end up, down, in, and out. If there is any movement, replace the radius rod. If a radius rod needs to be replaced, see **Group 32** of the *L-Line and A-Line Workshop Manual* for instructions.
6. Inspect the rubber bushing ends. Replace the radius rod for any of the following reasons:
   - If there are gaps between the rubber bushing and the pin or outer steel sleeve.
   - If either bushing end contacts a radius rod pin mounting bolt.
   - If there are cracks in the bushing.
   - If part of the rubber bushing extends beyond the outer circumference of the outer bushing sleeve.

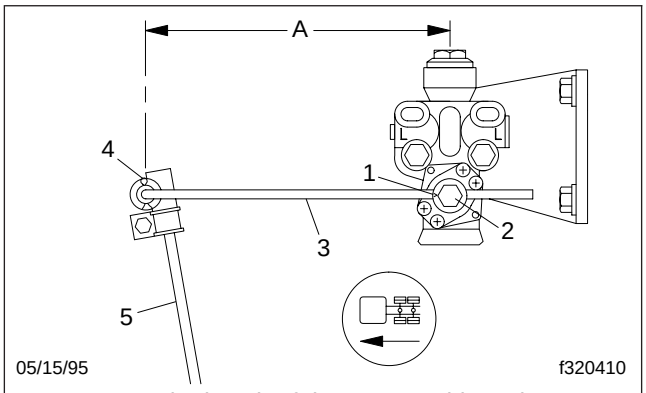
AirLiner Suspension

⚠ WARNING

Do not replace individual leaves of a damaged leaf spring assembly; replace the complete spring assembly. Visible damage (cracks or breaks) to one leaf causes hidden damage to other leaves. Replacement of only the visibly damaged part(s) is no assurance that the spring is safe. On front spring assemblies, if cracks or breaks exist in the two top leaves, a loss of vehicle control could occur. Failure to replace a damaged spring assembly could cause an accident resulting in property damage, serious personal injury, or death.

IMPORTANT: Before checking the AirLiner suspension height, make sure there is no load on the chassis, and the trailer is unhitched.

1. Park the vehicle on a level surface, using a light application of the brakes. Do not apply the parking brakes. Shift the transmission into neutral, and build the secondary air pressure to at least 100 psi (690 kPa). Shut down the engine.
2. Check that the air line support brackets are positioned so the air lines do not rub against anything. Reposition any configurations that could contact and result in friction or wear. There must be at least 1-inch (25-mm) clearance around the rubber air spring when inflated. If clearance is less than 1-inch (25-mm), relocate the obstructing parts.
3. Mark the location of the front and rear tires on the floor, and chock the tires on one axle only.
4. Check the length of the overtravel lever between its pivot points. See **Fig. 9**, Ref. A.



A. Measure the length of the overtravel lever between these two points.
1. V-Shaped Mark
2. Adjustment Locknut
3. Overtravel Lever
4. Cotter Pin
5. Linkage Rod

Fig. 9, AirLiner Overtravel Lever and Linkage Rod Measurement

4.1 If the vehicle is equipped with an adjustable-mount leveling valve, the length should be 8 inches (203 mm). If the length is incorrect, see **Group 32** of the *L-Line and A-Line Workshop Manual* for adjustment procedures.

4.2 If the vehicle is equipped with a fixed-mount leveling valve, see **Group 32** of