

Vehicle Identification

Vehicle Specification Decal

The vehicle specification decal (**Fig. 1.1**) identifies the vehicle model, I.D. number, and major component models. It also lists the major assemblies and installations shown on the chassis specification sheet. A copy of 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**.

COMPONENT INFORMATION	
MANUFACTURED BY	USE VEHICLE ID NO. WHEN ORDERING PARTS
MODEL VEHICLE ID NO.	
DATE OF MFR	WHEELBASE
ENGINE MODEL	ENGINE NO.
TRANS MODEL MAIN	TRANS NO.
FRONT AXLE MODEL	FRT AXLE NO.
REAR AXLE MODEL	REAR AXLE NO.
	RATIO
PAINT MFR PAINT NO.	FOR COMPLETE PAINT INFORMATION SEE VEHICLE SPECIFICATION SHEET
PART NO. 24-00273-010	

02/12/98 f080077

Fig. 1.1, Vehicle Specification Decal, U.S.-Built Vehicle Shown

NOTE: Labels shown in this chapter are examples only.

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. These labels are attached to the left rear door post.

11/21/96	1 MFRD BY DATE GAWR VEHICLE ID NO.	2	3 FRONT AXLE GAWR FIRST INTERMEDIATE AXLE GAWR SECOND INTERMEDIATE AXLE GAWR THIRD INTERMEDIATE AXLE GAWR REAR AXLE GAWR	f080053

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 used for the system.

Fig. 1.2, Certification Label, U.S.

Vehicle Access and Features

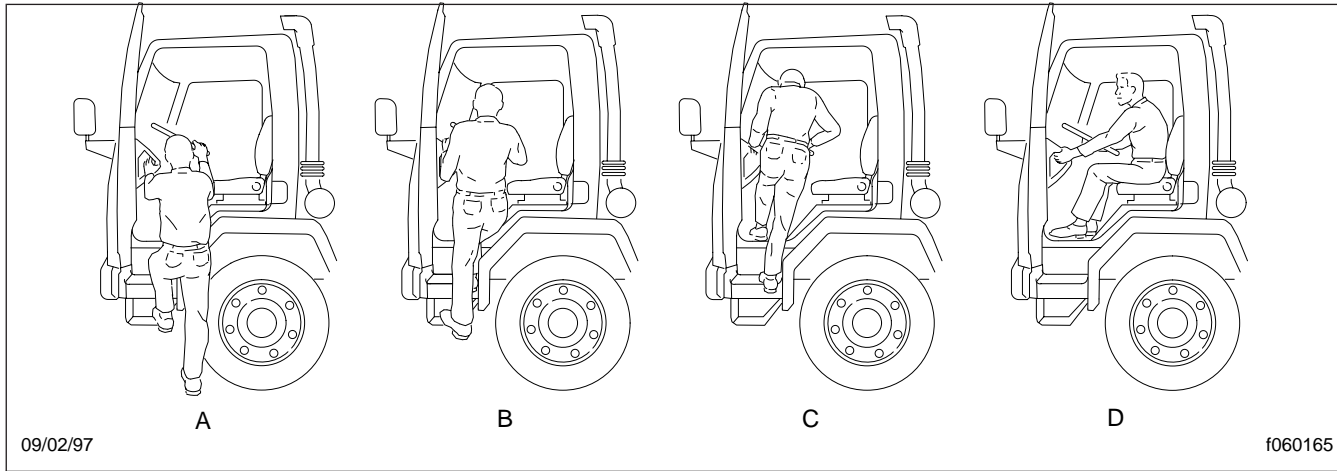


Fig. 2.3, Driver's Side Steps and Grab Handle

5. Place your right foot into the cab and seat yourself (Ref. D).
6. To exit the cab on the driver's side, grasp the instrument panel grab handle with your left hand and the steering wheel with your right hand.

IMPORTANT: Do not attempt to exit the cab while carrying any items in your hand.

7. Place your right foot on the top step.

8. Bring your left foot to the bottom step.
9. Bring your right foot down to the ground, then bring your left foot down to the ground.

Passenger's Side Entry and Exit

When entering or exiting the passenger's side of the cab, use the grab handles and access steps as follows, refer to [Fig. 2.4](#).

Vehicle Access and Features

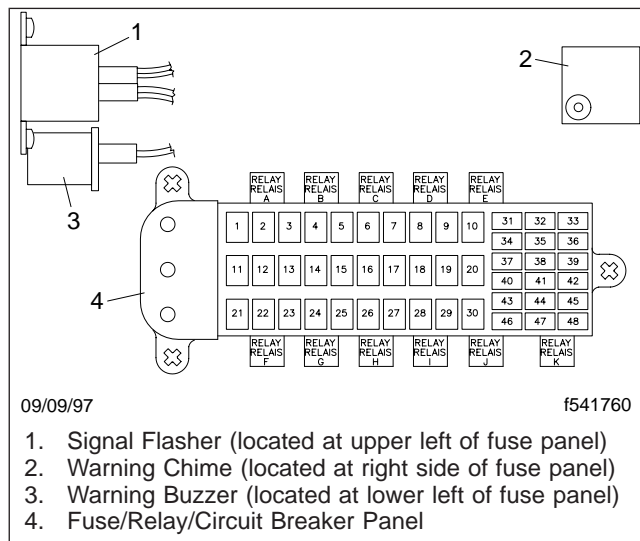


Fig. 2.13, Fuse/Relay/Circuit Breaker Identification

To Tilt the Cab

WARNING

Do not release the cab until the transmission has been put into neutral, the ignition turned off, and the parking brake set. Failure to observe these precautions could result in serious personal injury.

WARNING

Do not allow loose clothing to get near moving engine parts. To do so could result in serious personal injury.

CAUTION

Ensure the shift lever will clear the floor opening when the cab is tilted to prevent damage to the shift lever.

Do not raise the cab until all loose items inside the cab are removed or fastened down and the doors are closed. If the cab is equipped with exterior air lines, be sure the air lines will be clear of the body lock.

1. Apply the parking brakes and chock the tires.
2. The handle for the cab lock control is located on the lower front face of the driver's seat (**Fig. 2.14**). Remove the handle from the housing.
3. Insert the cab lock handle in the lock control located on the passenger's side of the rear cab panel (**Fig. 2.15**). Push the safety hook knob inward, then rotate the handle counterclockwise and pull the handle outward. The handle will still be engaged.

Driver Controls and Instruments

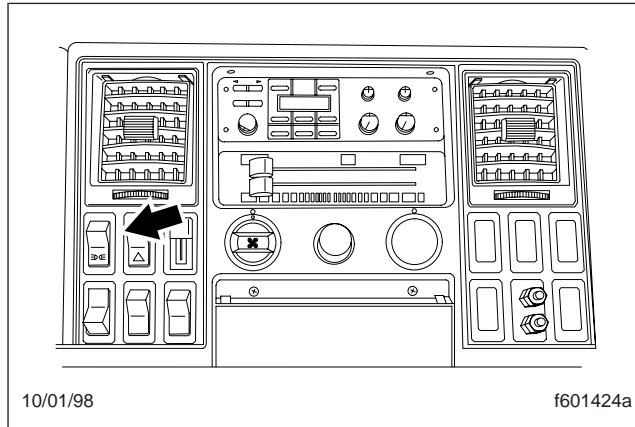


Fig. 3.8, Interrupt Switch

lights will come on and stay on as long as the problem exists.

If the yellow engine check light comes on while driving, some engine features will not work, but the vehicle can still be driven. If the red engine stop light comes on while driving, and if the engine will not accelerate, pull off the road and shut down the engine. In either situation, have the problem repaired as soon as possible. See **Group 54** in the *Cargo Workshop Manual* for troubleshooting procedures.

Cruise control and PTO governor are controlled with two switches. An ON/OFF switch allows the driver to select cruise control or to drive using the foot throttle. A spring-loaded SET/RESUME switch allows the driver to select the cruise speed or to resume the cruise speed after slowing down.

The power takeoff mode of operation is also controlled with the cruise control switches, when the vehicle is stationary. The engine speed can be set in the 800 to 1600 rpm range by placing the ON/OFF switch in the ON position, then pressing the SET/RESUME switch when the desired rpm is reached. See **Chapter 4** for detailed operating instructions.

Parking Brake Control Valve Knob

A diamond-shaped knob in the control panel operates the parking brake control valve. See **Fig. 3.9**. When the knob is out, the truck's spring parking brakes are applied. When the knob is in, the parking brakes are released. Before the parking brakes can be released, air pressure in either brake system must be at least 65 psi (447 kPa).

See **Chapter 7** for instructions on the use of the parking brake valve.

Engines

Cold Start Manifold Heater



Do not use starting fluid on an engine equipped with a manifold heater. Using starting fluid could cause an explosion, possibly resulting in severe personal injury and engine damage.

Turn the ignition switch to the ON position. If the temperature is below 32°F (0°C), the wait-to-start indicator will come on while the manifold heater warms up. After the indicator light goes out, start the engine. Run the engine slightly above idle until oil pressure shows on the gauge. If oil pressure doesn't show on the gauge within 30 seconds of starting, turn the key to the OFF position and wait 1 minute; then repeat the starting procedure.

Cold Weather Operation

Cummins Engines

Satisfactory performance of a diesel engine operating in low ambient temperatures requires modification of the engine, surrounding equipment, operating practices, and maintenance procedures. The lower the temperatures the greater the amount of modification required, and yet, with the modifications applied, the engines

must still be capable of operation in warmer climates without extensive changes.

The following information is provided to engine owners, operators, and maintenance personnel on how the modifications can be applied to get satisfactory performance from their diesel engines.

There are three basic objectives:

1. Reasonable starting characteristics followed by practical and dependable warm-up of the engine and equipment.
2. A unit or installation which is as independent as possible from external influences.
3. Modifications which maintain satisfactory operating temperatures with a minimum increase in maintenance of the equipment and accessories.

If satisfactory engine temperature is not maintained, higher maintenance cost will result, due to increased engine wear.

Special provisions to overcome low temperatures are definitely necessary, whereas a change to a warmer climate normally requires only a minimum of revision. Most of the accessories should be designed in such a way that they can be disconnected so there is little effect on the engine when they are not in use.

Clutches, Rear Axles, and Steering

completed the shift into the low range. Some vehicle motion is needed to ensure engagement of the axle.

Meritor Drive Axles with Main Differential Lock

The Meritor main differential lock is a driver-controlled traction device operated from the vehicle cab. See **Fig. 6.2**. A rocker switch allows the driver to lock or unlock the differential. An indicator light in the switch comes on when the differential lock is engaged.

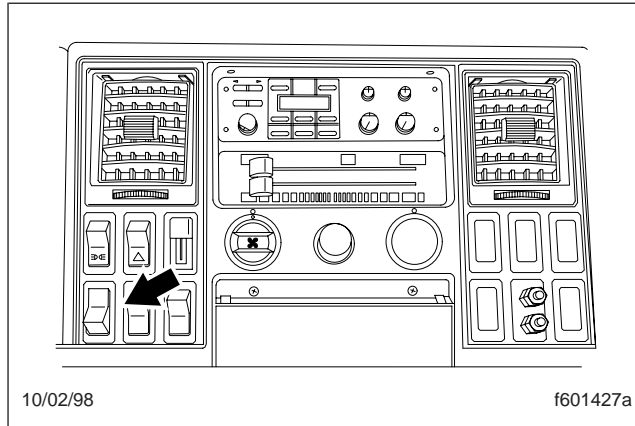


Fig. 6.2, Differential Lock Switch

The main differential lock provides maximum traction under slippery conditions. When the differential lock is engaged, the clutch collar completely locks the differential case, gearing, and axle shafts together, maximizing traction of both wheels and protecting against spinout. Under normal traction conditions, do not engage the differential lock.

Operate the axle with differential action between both wheels.

Meritor Main Differential Lock Operation

To lock the main differential and obtain maximum traction under slippery conditions, depress the control switch.



Lock the main differential only when the vehicle is standing still or moving less than 25 mph (40 km/h). Never lock the main differential when the vehicle is traveling down steep grades or when the wheels are slipping. This could damage the differential or lead to loss of vehicle control, causing personal injury and property damage.

If the vehicle is moving, maintain a constant vehicle speed while engaging the differential lock. Briefly let up

Pretrip Inspection and Daily Maintenance

⚠ CAUTION

Failure to maintain a sealed air intake system could allow the entry of dirt and contaminants into the engine. This could adversely affect engine performance and result in engine damage.

NOTE: After replacing the filter element, reset the restriction indicator by pressing the reset button.

12. Check the fluid level in the clutch fluid reservoir.

The reservoir is full when the fluid level is up to the MAX mark. The fluid level must always be above the MIN mark. Use only heavy-duty brake fluid, DOT 3, in the hydraulic-clutch system.

13. Check the engine oil level (Fig. 9.1).

The oil level should show between the upper and lower marks on the dipstick. Add enough oil to bring the level up to the operating range. See the engine manufacturer's operation and maintenance manual for recommended lubricants and capacities.

⚠ CAUTION

Operating the engine with the oil level below the low mark or above the high mark could result in engine damage.

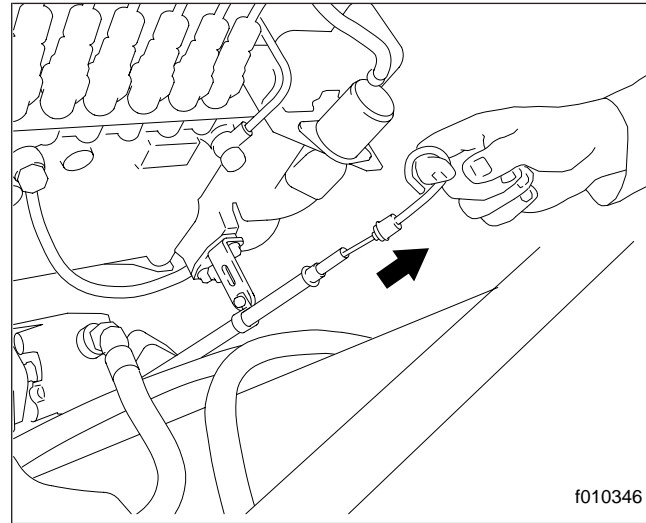


Fig. 9.1, Engine Oil Level Checking

14. Check the oil level in the automatic transmission (if equipped).

NOTE: The fluid must be warm to ensure an accurate check. The fluid level rises as temperature increases.

With the vehicle on a level surface, check the oil level in the transmission using one of the following procedures:

Pretrip Inspection and Daily Maintenance

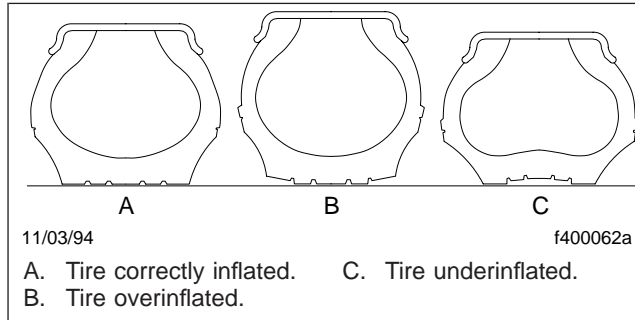


Fig. 9.6, Tire Inflation

38. Check for indications of loose wheel nuts or rim nuts and examine each wheel component.

Check the wheel nuts or rim nuts for indications of looseness. Remove all dirt and foreign material from the assembly. Dirt or rust streaks from the stud holes, metal buildup around stud holes or out-of-round or worn stud holes may be caused by loose wheel nuts. See **Group 40** of the *Cargo Maintenance Manual* for torque specifications and the correct tightening sequence.

Examine the wheel assembly components (including rims, rings, flanges, studs, and nuts) for cracks or other damage.

See **Group 33** and **Group 35** of the *Cargo Workshop Manual* for service procedures on the studs

and hubs and see **Group 40** of the same manual for wheel and tire servicing. Replace broken, cracked, badly worn, bent, rusty, or sprung rings and rims. Be sure that the rim base, locking, and side ring are matched according to size and type.

WARNING

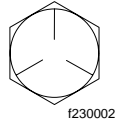
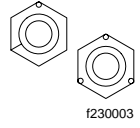
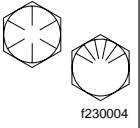
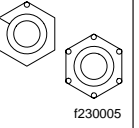
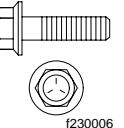
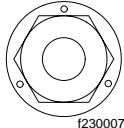
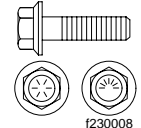
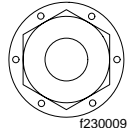
Have any worn or damaged wheel components replaced by a qualified person using the wheel manufacturer's instructions and the wheel industry's standard safety precautions and equipment. Otherwise a vehicle or workshop accident could occur, possibly resulting in serious personal injury or death.

CAUTION

Insufficient wheel nut (rim nut) torque can cause wheel shimmy, resulting in wheel damage, stud breakage, and extreme tire tread wear. Excessive wheel nut torque can break studs, damage threads, and crack discs in the stud hole area. Use the recommended torque values and follow the proper tightening sequence.

39. Check components of the air brake system for correct operation as follows:

Torque Specifications Tables: 00–03

Torque Values for U.S. Customary Thread Fasteners With Lubricated* or Plated Threads†								
Thread Diameter–Pitch	Regular Hex				Flanged			
	Grade 5 Bolt	Grade 5 or B Nut	Grade 8 or 8.2 Bolt	Grade 8 or C Nut	Grade 5 Bolt	Grade B Nut	Grade 8 or 8.2 Bolt	Grade G Nut
	Torque: lbf-ft (N-m)		Torque: lbf-ft (N-m)		Torque: lbf-ft (N-m)		Torque: lbf-ft (N-m)	
	 f230002	 f230003	 f230004	 f230005	 f230006	 f230007	 f230008	 f230009
1/4–20	7 (9)		8 (11)		6 (8)		10 (14)	
1/4–28	8 (11)		9 (12)		7 (9)		12 (16)	
5/16–18	15 (20)		16 (22)		13 (18)		21 (28)	
5/16–24	16 (22)		17 (23)		14 (19)		23 (31)	
3/8–16	26 (35)		28 (38)		23 (31)		37 (50)	
3/8–24	30 (41)		32 (43)		25 (34)		42 (57)	
7/16–14	42 (57)		45 (61)		35 (47)		60 (81)	
7/16–20	47 (64)		50 (68)		40 (54)		66 (89)	
1/2–13	64 (87)		68 (92)		55 (75)		91 (123)	
1/2–20	72 (98)		77 (104)		65 (88)		102 (138)	
9/16–12	92 (125)		98 (133)		80 (108)		130 (176)	
9/16–18	103 (140)		110 (149)		90 (122)		146 (198)	
5/8–11	128 (173)		136 (184)		110 (149)		180 (244)	
5/8–18	145 (197)		154 (209)		130 (176)		204 (277)	
3/4–10	226 (306)		241 (327)		200 (271)		320 (434)	
3/4–16	253 (343)		269 (365)		220 (298)		357 (484)	
7/8–9	365 (495)		388 (526)		320 (434)		515 (698)	
7/8–14	402 (545)		427 (579)		350 (475)		568 (770)	
1–8	—		582 (789)		—		—	
1–12	—		637 (863)		—		—	
1–14	—		652 (884)		—		—	

* Freightliner recommends that all plated and unplated fasteners be coated with oil before installation.

† Use these torque values if either the bolt or nut is lubricated or plated (zinc-phosphate conversion-coated, cadmium-plated, or waxed).

Table 1, Torque Values for U.S. Customary Thread Fasteners With Lubricated or Plated Threads

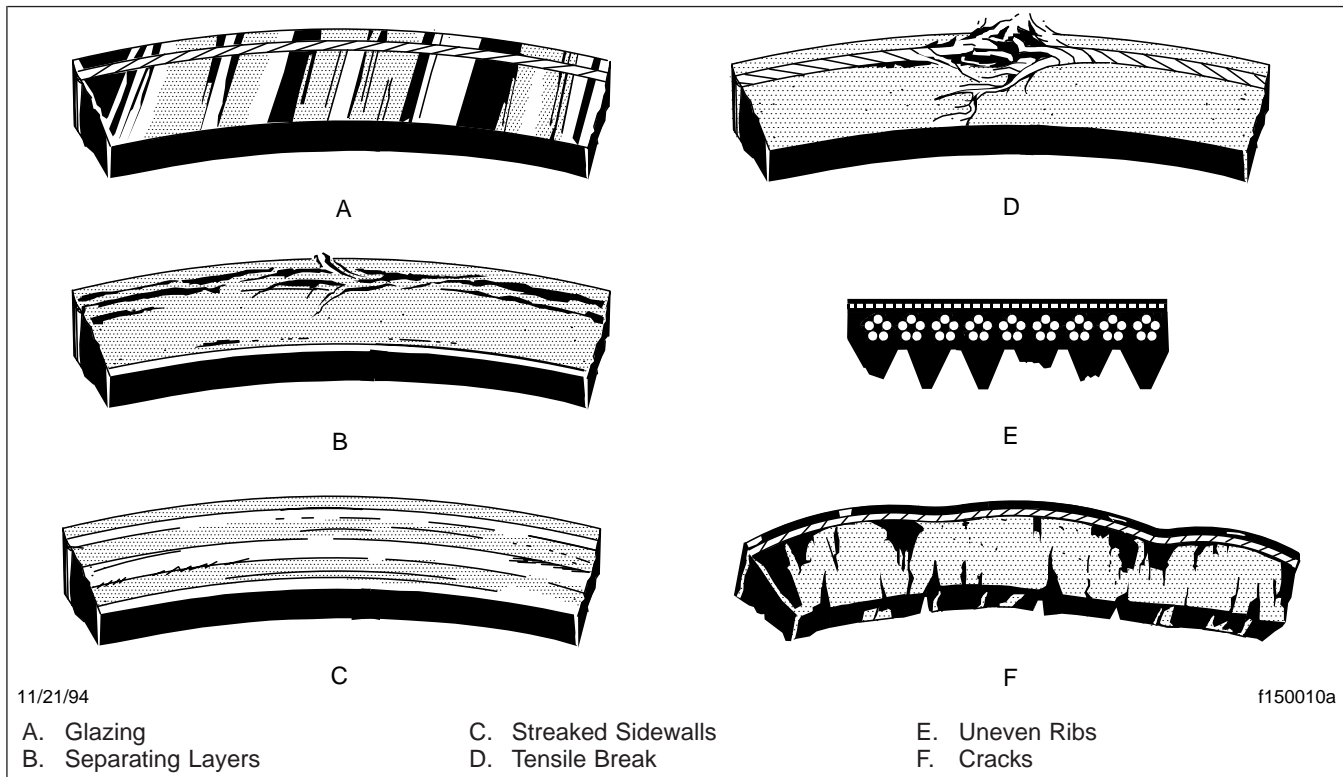


Fig. 2, Drive Belt Replacement Conditions

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 locations 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.

Belt Tension Inspection

NOTE: If engine drive belts require adjustment, refer to **Group 01** in the *Cargo Workshop Manual*.

On belts equipped with a spring tensioner, the belt tension is automatically adjusted. Check that the tensioner is holding tension on the belt by inserting the

end of a breaker bar in the 1/2 inch square hole on the forward face of the tensioner, and rotating the tensioner down, away from the belt. When the breaker bar is slowly released, the tensioner should return to its original position. If not, refer to **Group 01** in the *Cargo Workshop Manual* for replacement instructions.

wrench to install these hose clamps correctly. The correct installation torque for Breeze Constant-Torque hose clamps is as follows:

For Breeze Constant-Torque hose clamps with a 5/16-inch tightening screw hex: 55 lbf-in (620 N-cm).

For Breeze Constant-Torque hose clamps with a 3/8-inch tightening screw hex: 90 lbf-in (1020 N-cm).

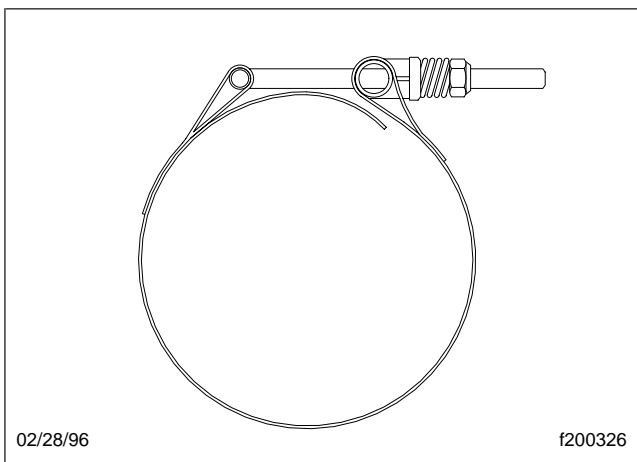


Fig. 1, T-Bolt Type Hose Clamp

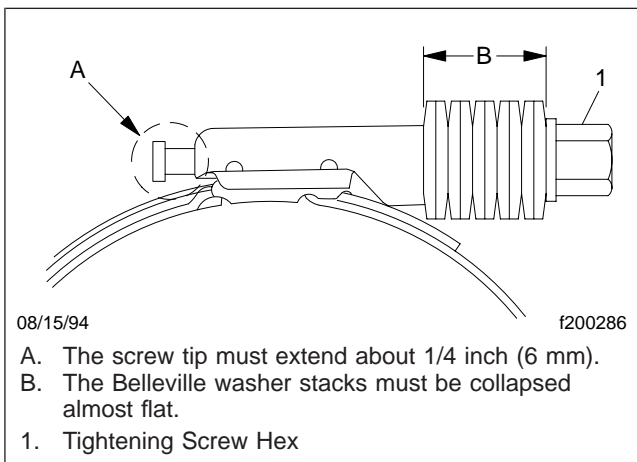


Fig. 2, Breeze Constant-Torque Hose Clamp Installation

NOTE: All hose clamps will lose torque after installation due to "compression set." However, when correctly installed, Breeze Constant-Torque clamps will hold enough torque to automatically adjust and keep consistent sealing

pressure. During vehicle operation and shut-down, the screw tip may adjust according to temperature and pressure changes. The torque may need to be adjusted for individual applications.

- Fill the radiator with coolant. Use a mixture of 50 percent water and 50 percent corrosion-inhibiting antifreeze to protect the engine to -34°F (-37°C) year round.

See **Table 1** for engine cooling system capacity and **Table 2** for approved antifreezes.

Coolant Capacities		
Engine Make and Model	Radiator Core and System Capacity*	
	2 Row quarts (liters)	3 Row quarts (liters)
Cummins ISB	30.5 (28.9)	31.0 (29.3)

* System capacity includes all hoses, fittings, and the heater core.

Table 1, Coolant Capacities

Approved Coolants		
Engine Type	Coolant Manufacturer	Coolant Designation*
Diesel	Texaco	JC04 Antifreeze
	Van Waters and Rogers Ltd. (Canada)	Diesel Antifreeze No. 6038

* Freightliner-approved antifreeze must meet one of the following conditions: A. Ethylene glycol solution that meets GM 6038-M Engineering Standards. B. Ethylene glycol solution that has less than 0.1% anhydrous sodium metasilicate, and meets either GM 1825-M or GM 1899-M Engineering Standards.

Table 2, Approved Coolants

NOTE: You can mix purple-pink coolant (pre-charged with a borate/nitrate-based additive) with the common green coolant, although some color change will be apparent.

Checking the Fluid Level

Cold Check

Clean all dirt away from around the end of the fluid fill tube before removing the dipstick.

CAUTION

Do not allow foreign matter to enter the transmission. Dirt or foreign matter in the hydraulic system may cause undue wear of transmission parts, make valves stick, and clog passages.

It is important to check the fluid level cold to determine if the transmission has a sufficient amount of fluid to be safely operated until a hot check can be performed.

1. Park the vehicle on a flat surface.
2. Apply the parking brake and chock the tires.
3. Run the engine for at least one minute.
4. Shift from DRIVE to NEUTRAL, and then shift to REVERSE to fill the hydraulic system.
5. Shift to NEUTRAL and allow the engine to idle at 500 to 800 rpm.
6. With the engine running at idle, remove the dipstick from the tube and wipe clean.
7. Insert the dipstick into the tube and remove the dipstick.
8. Check the fluid level reading and repeat the check procedure to verify the reading.

If the fluid level is within the COLD RUN band, the transmission may be operated until the fluid is hot enough to perform a HOT RUN check.

If the fluid level is not within the COLD RUN band, add or drain fluid as needed to adjust the fluid level to the middle of the COLD RUN band. See [Fig. 11](#) for the AT and MD Series, and [Fig. 12](#) for the MT Series.

CAUTION

Do not fill above the COLD RUN band if the transmission fluid is below normal operating temperature. As fluid temperature increases, so does the fluid level. Filling above the COLD RUN band when the transmission is below normal operating

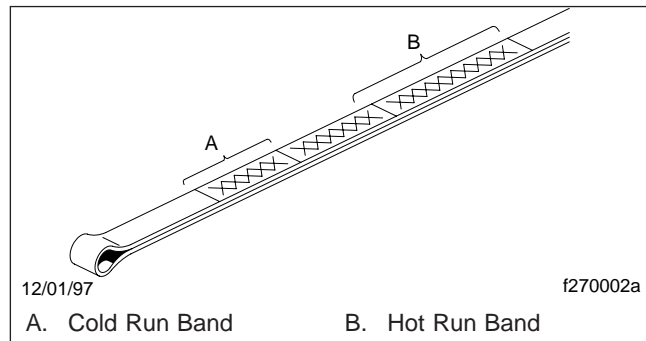


Fig. 11, AT and MD Series Dipstick Markings

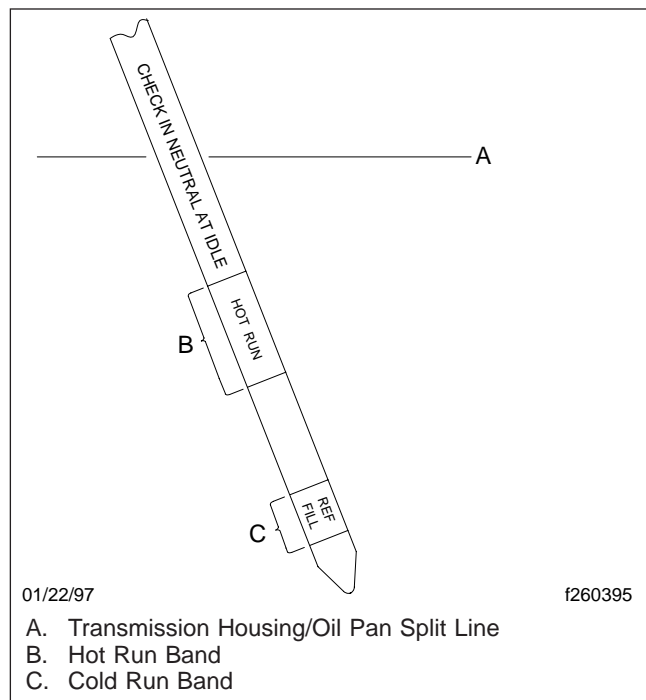


Fig. 12, MT Series Dipstick Markings, 5.1-Inch Depth Oil Pan

temperature may result in an overfilled transmission, which causes fluid foaming and aeration. Fluid foaming and aeration cause transmission overheating and erratic shifting.

NOTE: Perform a hot check at the first opportunity after the normal operating temperature, 160° to 200°F (71° to 93°C) has been reached.

fully inflated, see **Group 32** of the *Cargo Workshop Manual*.

3. Inspect each air spring for wear at its connection to its pedestal. Replace any worn air springs; for instructions, see **Group 32** of the *Cargo Workshop Manual*.
4. Check the axle connection welds (beam-seat to equalizing-beam) and axle-adapter to axle for cracks. If welds are cracked, grind them out and reweld the parts.
5. Move the axle up and down while checking for signs of looseness due to worn parts at the front pivot connections. Replace any worn parts by following the procedures in **Group 32** of the *Cargo Workshop Manual*.
6. Inspect the shock absorbers for oil leaks and worn rubber bushings. Replace the shock absorbers and/or rubber bushings if wear or damage is noted. For instructions, see **Group 32** of the *Cargo Workshop Manual*.
7. Remove the safety stands and lower the rear of the vehicle to the ground. Run the engine until air pressure of at least 100 psi (689 kPa) is maintained throughout the system.
8. Check that all air springs are inflated. If the air springs do not inflate, see **Group 32** of the *Cargo Workshop Manual* for possible causes and corrections.

Freightliner AirLiner Control Rod Check

1. Without disconnecting the control rods, attempt to move (by hand) each of the control rod ends up, down, in, and out. If there is any movement, examine the control rods for wear or damage. Replace if necessary.
2. Inspect the rubber bushings for cracks or cuts.
3. Check for any shifting of the barpin.
4. Check for cracks in the metal components and welds.

Cab Mount Shock Absorber Check

Make sure that the shock absorber brackets are tight, and that the shock absorber is not striking or rubbing on the frame or some other part of the chas-

sis. Check the rubber mounting bushings and replace if worn. Inspect the shock absorber for oil leakage.

If the shock absorber is worn or damaged, replace it with a new one.

32-02 Suspension Lubrication

Freightliner Spring Front Suspension

Wipe all dirt from the grease fittings at the forward spring pin and the spring shackle pins; then apply multipurpose chassis grease with a pressure gun until the old grease is forced out.

Freightliner Spring Rear Suspension

Lubricate the spring pin by applying multipurpose chassis grease at the grease fitting. See **Fig. 1**. Lubricate with a grease gun until grease appears at the base of the fitting.

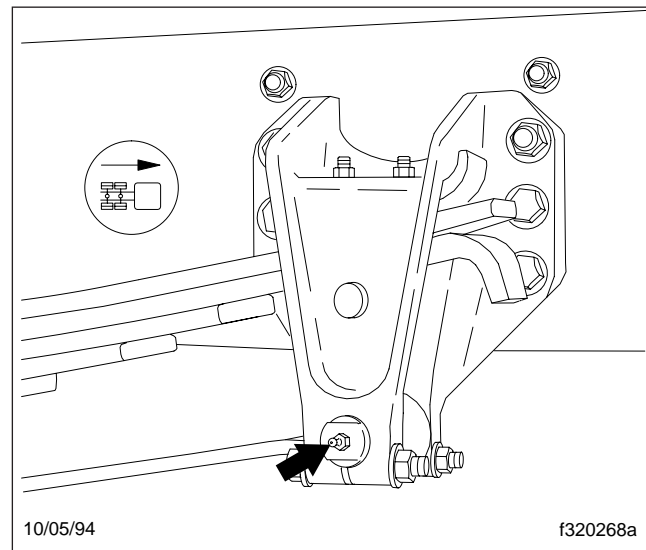


Fig. 1, Forward Spring Bracket Spring Pin Grease Fitting

Hendrickson Equalizer Beam End Bushings and Rubber Center Bushings

No lubrication is required for the equalizer beam end bushings or equalizer beam rubber center bushings.

35–02 Axle Breather Check

The axle housing breather must remain clean. Whenever the axle lubricant level is checked, check that the axle breather is open. Check more often under poor operating conditions. If the breather is plugged, clean or replace it as needed.

35–03 Axle Lubricant Change and Magnetic Plug Clean

A regular schedule for changing the axle lubricant in a particular vehicle and operation can be accurately determined by analyzing oil samples taken from the axle at specified intervals or mileages. Lubricant suppliers frequently make their laboratory facilities available for determining the useful life of their product under actual service conditions. The final schedule that is recommended may, for economic reasons, be correlated with lubricant changes that are governed by climatic conditions and magnetic plug maintenance. Change lubricant type and viscosity as climatic temperatures demand, regardless of vehicle mileage or established change schedule.

The normal operating temperature of compounded lubricants during the summer season is about 160° to 220°F (71° to 104°C). The chemicals and additives that give these lubricants increased load-carrying capacity, oxidize faster at temperatures above 220°F (104°C), contributing to more rapid lubricant deterioration. For this reason, lubricants of this type, that operate continuously at high temperatures, must be changed more frequently.

CAUTION

Failure to change the axle lubricant at more frequent intervals, when adverse operating conditions require, could result in axle damage.

Axle Drain and Flush

1. Remove the plug at the bottom of the housing and drain the lubricant while the unit is warm. Allow enough time for all the old lubricant to drain completely.
2. Flush the unit with clean flushing oil, then drain it completely.

IMPORTANT: Do not flush axles with solvent, such as kerosene.

3. Clean the drain plugs. For magnetic drain plugs, a piece of key stock or any other convenient steel slug may be used to short the two magnetic poles and divert the magnetic field.

NOTE: Meritor recommends using magnetic plugs with elements having a minimum pickup capacity of 2 pounds (1 kg) of low-carbon steel, in plate or bar form. Magnets will rapidly lose effectiveness as collected material bridges the gap between the two poles. Clean or change the plugs before this occurs. It may be necessary to clean or change the plugs one or more times between lubrication change intervals.

4. After cleaning the drain plugs, install and tighten them 35 lbf-ft (47 N·m).

Axle Fill

1. With the vehicle on a level surface, fill the axle housings to the bottom of the oil fill hole (in the carrier or housing) with lubricant. See [Table 1](#) for approved axle lubricants and see [Table 2](#) for axle capacities.

NOTE: Meritor axles have a small tapped and plugged hole located near and below the housing oil fill hole. This smaller hole is for the lubricant temperature sensor only, and must not be used as a fill or level hole.

2. Install the fill hole plug, and tighten it 35 lbf-ft (47 N·m).
3. After filling the carrier and housing assembly with lubricant, drive the vehicle, unloaded, for 1 or 2 miles (2 or 3 kilometers) at speeds not to exceed 25 mph (40 km/h), to thoroughly circulate the lubricant throughout the assembly.

42–01 Air Dryer Inspection, Bendix AD–9

1. Check the reservoirs for moisture. A small amount (teaspoon or less) is normal. Larger amounts may mean that the desiccant needs to be replaced. Check the mounting and connecting lines.
2. Tighten the fasteners attaching the air dryer to the vehicle. Use the following torque values:
 - 28 lbf-ft (38 N-m) for SAE grade 5, 3/8–16 fasteners
 - 135 lbf-ft (183 N-m) for SAE grade 5, 5/8–11 fasteners
3. Check all air lines, fittings, and electrical connections for damage, leakage, or looseness.
4. Replace damaged or leaking parts, and tighten loose fittings or electrical connections.

42–02 Foot Brake Valve Actuator Lubrication

1. Clean any dirt, gravel, and other foreign debris from the plunger boot and brake base bracket.
2. Check the brake plunger boot for cracks, holes, or deterioration. Replace if necessary.
3. Lift up the edge of the brake plunger boot and check the plunger for existing lubrication. If the plunger is dry, remove it by removing the cotter pin from the clevis pin and pulling the clevis pin out. Remove the piston rod and boot. Lift out the plunger. Lubricate the plunger and the tip of the piston rod with barium grease part number BW 246671, or Penzoil Adhezoplex EP 2. Install the piston rod, boot, clevis pin, and cotter pin.

If the plunger has grease on it, lift the edge of the brake plunger boot enough to apply 2 to 4 drops of light oil around the brake plunger. Do not over-oil. Install the plunger boot.

4. Lubricate the clevis pin with light oil.
5. Check for leakage; see **Group 42** of the *Cargo Workshop Manual* for instructions.

42–03 Air Brake Valve Operation Check

Check for proper operation; see **Group 42** of the *Cargo Workshop Manual*.

42–04 Relay Valve Check

Chock the tires. Start the engine and run it long enough to pressurize the air system to at least 80 psi (550 kPa), then turn off the engine.

Repeat as necessary, to maintain 80 psi (550 kPa) pressure during this check.

Clean off road grime from the relay valve, and any debris from the valve exhaust port. Listen for air leakage around the fittings or exhaust port. Tighten the fittings as necessary. Use two wrenches to avoid twisting the tubing.

If the valve fails this check, or is damaged, repair or replace it; see **Group 42** of the *Cargo Workshop Manual* for instructions. Remove the chocks from the tires.

42–05 Quick Release and Flipper Valves Check

Chock the tires. Start the engine and run it long enough to pressurize the air system to at least 80 psi (550 kPa), then turn off the engine.

Repeat as necessary, to maintain 80 psi (550 kPa) pressure during these checks.

Clean off road grime from the valves, and any material from the valves' exhaust ports. Listen for air leakage around the fittings and exhaust ports. Tighten the fittings, as necessary. Use two wrenches to avoid twisting the tubing.

If any valve fails this check, or is damaged, repair or replace it; see **Group 42** of the *Cargo Workshop Manual* for instructions. Remove the chocks from the tires.