

FLA COE
> FLB COE
> FLD Conventional
> Business Class

> FLC 112 Conventional
> Century Class Conventional
> Argosy COE
Cargo

> Columbia
Coronado
Business Class M2
Cascadia

**Freightliner
Service Bulletin**

Description of Revisions: *This bulletin is canceled. The information can be found in the applicable vehicle workshop manuals.*

General Information

The standard height-control valve (or leveling valve) was changed to a Barksdale brand valve in July 1997 on Business Class and Century Class vehicles, and in August 1997 on FLB COEs, and FLD and FLC Conventionals. The Barksdale height-control valve is mounted on the forward drive axle on tandem-axle vehicles and features a non-adjustable linkage. The height-control valve changes were made for the following reasons:

1. **IMPROVED DRIVELINE PERFORMANCE:** With the valve mounted on the forward drive axle, the valve provides better ride-height control that also ensures better driveline performance. When the valve was mounted on the rear drive axle, frame deflection increased the distance between the rear drive axle and the frame and caused the valve to lower the ride height. Lowering the ride height reduced the forward axle planing angle and resulted in additional driveline wear because of the change in cancellation angles. Moving the valve to the forward drive axle reduced the effect of frame deflection and improved control of ride height and planing angle.
2. **REDUCE TAMPERING WITH THE RIDE HEIGHT:** The non-adjustable linkage was implemented to reduce the chance that the ride height would be tampered with. If the ride height is adjusted out of allowable specifications, driveline performance will be reduced because of the change in driveline angles. This is also a primary cause of transmission synchronizer damage.
3. **MORE CONSISTENT RIDE-HEIGHT ADJUSTMENT:** The ride height of the AirLiner has always been set using the left-hand forward axle stop and U-bolts. Moving the valve to the forward drive axle allowed the valve to control the height of the axle that determined the ride height.

Since the introduction of the Barksdale height-control valve as standard on the AirLiner rear suspension, there have been several changes in the product line and axle clamp group design. All of these changes affect the ride height measurement. This bulletin will outline those changes and clarify the ride height measurement for all possible installations.

- May 1997: "Low" and "Mid" ride heights were made available for the 40k AirLiner featuring a new single-leaf spring. These configurations also featured new-style axle stops and axle pads. The ride-height measurement remained the same, taken from the top of the U-bolts to the bottom of the axle stop.
- March 1999: The standard 40k AirLiner changed to a single-leaf spring instead of a dual-leaf spring. This configuration featured new-style axle stops and axle pads. The 40k Extra Duty and the 46k AirLiners continued to utilize the dual-leaf spring. The ride-height measurement remained the same, taken from the top of the U-bolts to the bottom of the axle stop.
- November 1999: The 10k, 12k, and 15k AirLiners were introduced on Business Class vehicles with a single-axle rear suspension. They were made available in "Mid", "Low", or "Extra Low" ride heights. The ride-height measurement remained the same, taken from the top of the U-bolts to the bottom of the axle stop.
- August 2001: The axle stop casting was changed on the 40k single-leaf, 10k, 12k, and 15k AirLiner rear suspensions. The ride-height measurement changed for these AirLiners only, to be taken from the top of the U-bolt pad (instead of the top of the U-bolts) to the bottom of the axle stop, while the actual dimension stayed unchanged.

IMPORTANT: To prevent voiding the warranty on Barksdale height-control valves, note the following:

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- Do not overtighten the bolts in the Barksdale height-control valve housing if you detect leaks in the housing. The bolts should not be loose, and should not require tightening. Only if necessary, tighten the valve housing bolts 45 lbf·in (500 N·cm). Any damage to the valve housing will void the warranty.
- If it is necessary to remove or loosen a Barksdale height-control valve from a mounting bracket, always hold the valve-side mounting studs in place with an Allen wrench while loosening or tightening the nuts that attach the valve to the bracket. Because the mounting studs are threaded into the valve body, loosening the nuts without holding the studs can tighten the studs, crushing the valve body and damaging the valve. Conversely, tightening the nuts without holding the studs can back the studs out, causing a separation of the two halves of the valve body, and possibly a leak.
- Do not attempt to disassemble the Barksdale valve body or the control lever. There are no serviceable parts in the valve, and any disassembly will void the warranty.

Ride-Height Adjustment Procedure

⚠ CAUTION

Failure to adjust the height control valve could adversely affect driveline angles. Also, if the air springs are set too high, the driver may have difficulty (or be prevented from) backing the vehicle under a trailer. If the air springs are set too low, rapid wear of suspension parts could result.

IMPORTANT: Before checking the suspension height, make sure there is no load on the chassis. For tractors, unhitch the trailer. Trucks must be empty.

1. Park the vehicle on a level surface, using a light application of the brakes. Do not apply the parking brakes. Put the transmission in neutral.
2. Build the secondary air pressure to at least 100 psi (690 kPa), then shut down the engine.
3. Mark the location of the front and rear tires on the floor; then chock the tires on one axle only.

NOTE: The stud bolt that fastens the control lever to the vertical linkage is oriented correctly when the linkage is vertical as viewed from the side of the vehicle. See [Fig. 1](#) and [Fig. 2](#).

4. Select [Table 1](#), [Table 2](#), [Table 3](#), or [Table 4](#), based on the vehicle's suspension configuration, rating, and ride-height category. Measure the distance between the left forwardmost axle stop and the suspension as indicated.

Single Leaf 40k, 10k, 12k, 15k, and 18k built after August 24, 2001: Measure between the top of the U-bolt pad and the bottom of the axle stop (Ref. B).

All others: Measure between the top of the U-bolt and the bottom of the axle stop (Ref. A).

NOTE: The suspension rating and/or ride-height category ("Mid", "Low", or "Extra Low"), if applicable, may be determined from the title of the rear suspension installation diagram for that vehicle. In PartsPro, enter the vehicle serial number, go to Module 622, then scroll to the bottom of the parts list to find the installation diagram.

If the suspension rating is not included in the installation diagram title, enter the serial number in ServicePro to display the vehicle's "Basic Info". The suspension rating is listed as "Weight lb. Rear".

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- Compare this measurement to the acceptable range of heights for each suspension.

If the measurement is acceptable, no more work is necessary. Apply the parking brakes.

If the measurement is not acceptable, go to the next step.

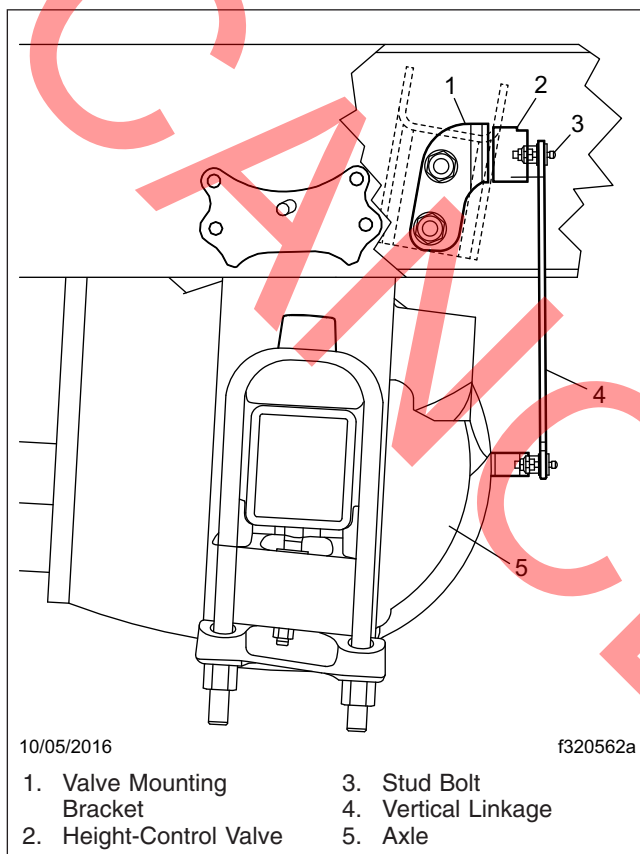


Fig. 1, Barksdale Height-Control Valve Installation (side view)

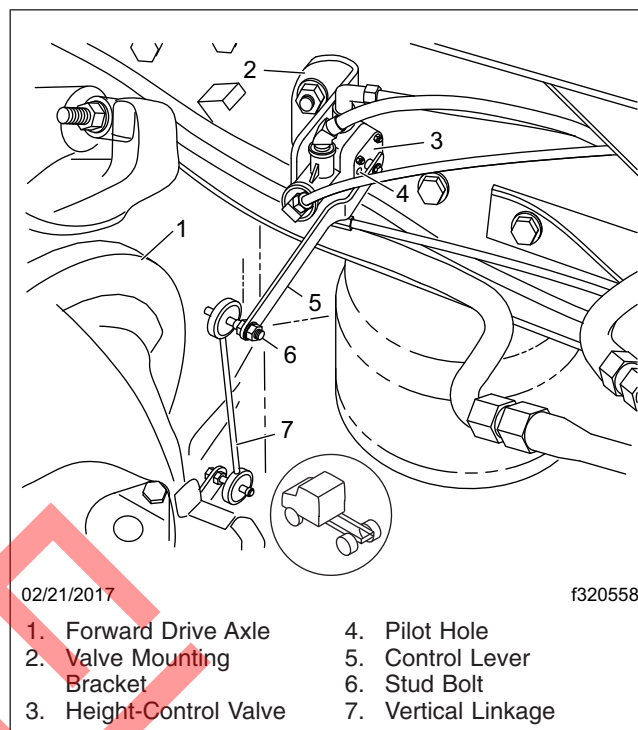


Fig. 2, Barksdale Height-Control Valve Installation

WARNING

Keep your hands and all objects away from the area under and around the slack adjusters and suspension components when adjusting the position of the height-control valve. The movement of the control lever will cause the suspension parts to move as air is released from or is added into the springs, and can cause personal injury or damage to any objects that are between the moving parts.

- Adjust the suspension height, as follows. See [Table 1](#), [Table 2](#), [Table 3](#), or [Table 4](#) for the correct distances.

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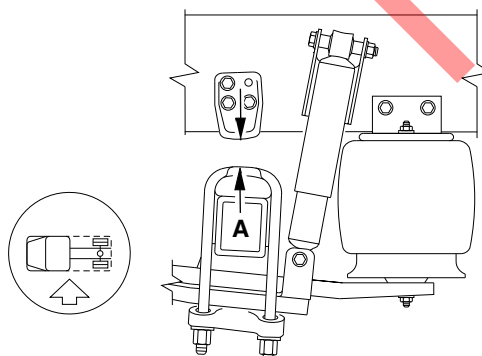
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CAUTION

When removing or loosening a Barksdale height-control valve from a mounting bracket, always hold the valve-side mounting studs in place with an Allen wrench while loosening or tightening the nuts that attach the valve to the bracket. Because the mounting studs are threaded into the valve body, loosening the nuts without holding the studs can tighten the studs, which can crush the valve body and damage the valve. Conversely, tightening the nuts without holding the studs can back the studs out, causing a separation of the two halves of the valve body, and possibly a leak.

- 6.1 Using a 3/8-inch Allen wrench to hold the valve-side mounting studs in place, loosen the two nuts that attach the valve to the valve mounting bracket.
- 6.2 Adjust the position of the valve body until the distance from the bottom of the left axle stop to the top of the U-bolt is correct.
- 6.3 Center the control lever on the valve by inserting a 5/32-inch (4-mm) pin or drill bit into the hole in the control lever and the valve body.
- 6.4 Using a 3/8-inch Allen wrench to hold the valve-side mounting studs in place, tighten the two nuts that attach the valve to the valve mounting bracket.
- 6.5 Remove the pin from the control lever.
7. Drive the vehicle unloaded for about 1/4 mile (1/2 km), then park the vehicle in the exact location (as previously marked) of the original measurement, using a light brake application. Chock the tires on one axle only, and put the transmission in neutral. Do not apply the parking brakes.
8. Check the distance between the bottom of the left axle stop and the top of the axle U-bolt.
9. If the distance is not correct, repeat the adjustment procedure.



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A = Measure here.

Suspension Rating	Ride Height	Suspension Height Measurement: Inches (mm)		
		Min	Target	Max
20k/40k	High (Standard)	2-3/8 (60)	2-5/8 (67)	2-7/8 (73)
23k/46k	High (Standard)	2-3/4 (70)	3 (76)	3-1/4 (83)

Table 1, Suspension Ride Height Measurement, Dual-Leaf Spring, 20k/40k and 23k/46k

CANCELED: AirLiner Suspension Height Measurement

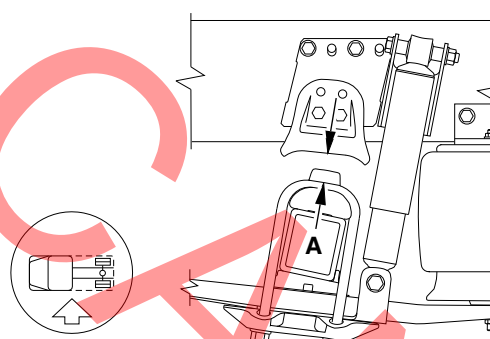
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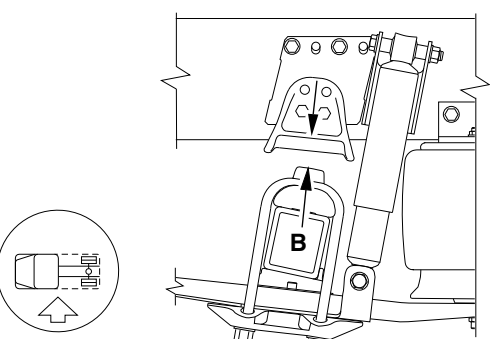
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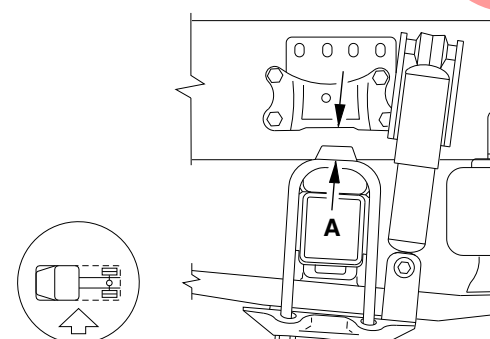


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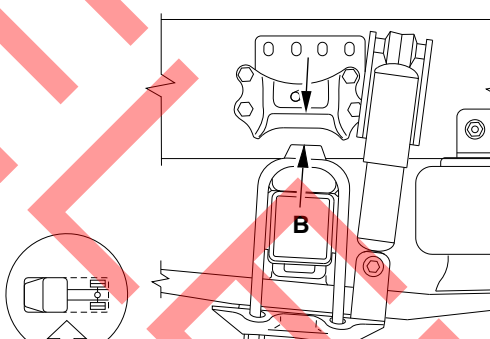
A = Vehicles Built Before August 24, 2001; measure here.
B = Vehicles Built Since August 24, 2001; measure here.

Suspension Rating	Ride Height	Suspension Height Measurement: Inches (mm)		
		Min	Target	Max
40k Only	7-13/16 Inches, Unladen	2-1/8 (54)	2-1/4 (58)	2-5/8 (67)

Table 2, Suspension Ride Height Measurement, Single-Leaf Spring, 40k



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A = Vehicles Built Before August 24, 2001; measure here.
B = Vehicles Built Since August 24, 2001; measure here.

Suspension Rating	Ride Height	Suspension Height Measurement: Inches (mm)		
		Min	Target	Max
18k	Mid	2-3/8 (60)	2-1/2 (64)	2-7/8 (73)
40k	Low or Mid			

Table 3, Suspension Ride Height Measurement, Single-Leaf Spring, 18k Mid, 40k Low, and 40k Mid Ride Height

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A = Vehicles Built Before August 24, 2001; measure here.
B = Vehicles Built Since August 24, 2001; measure here.

Suspension Rating	Ride Height	Suspension Height Measurement: Inches (mm)		
		Min	Target	Max
10k/12k/15k	Low or Extra Low	2-1/8 (54)	2-1/4 (58)	2-5/8 (67)
	Mid	2-3/8 (60)	2-1/2 (64)	2-7/8 (73)

Table 4, Suspension Ride Height Measurement, Single-Leaf Spring, 10k, 12k, and 15k

Warranty

This is an informational bulletin only; warranty does not apply.