KENWORTH

A PACCAR COMPANY

SERVICE MANUAL

Section	SUSPENSION MANUAL
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AIRGLIDE 400L / 210L
AIR SPRING SUSPENSION

Airglide 400L / 210L Air Spring Suspension

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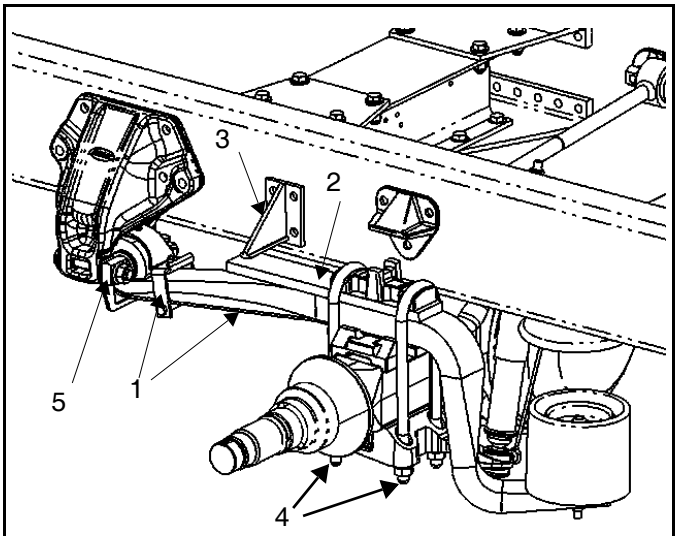
AG400L/AG210L Rear Suspension

The AG400L/AG210L suspension uses air springs in conjunction with taper leaf springs. It is designed for applications that require a low frame or fifth wheel height. A height control valve automatically maintains the correct chassis height and compensates for varying rear axle loads.

General

- The frame-mounted bracket positions and restrains the suspension.
- The leaf spring transmits driving and braking forces to the frame and provides resistance to body roll (side to side).
- The air spring is a rolling-lobe type. It consists of a rubberized fabric tube coupled to a piston.
- The air spring assembly connects the axle and leaf spring to the air spring and supports the air spring and the load.
- The shock absorber dampens road-induced vibrations and serves as an axle drop-out stop.
- The tracking rod is located on top of the axle, where it
  - helps to maintain axle alignment
  - transmits side loads into the frame rails
  - improves roll stiffness
- The U-bolt saddle, or pressure plate, distributes the U-bolt clamping force on the top of the leaf spring.
- The frame-mounted axle stop limits the upward travel of the axle.



1	Leaf Spring Tension Plate & Clip
2	Anti-lean Backup Spring Leaf
3	Bracket
4	U-bolt Nut With Integrated Washer
5	Spring Bar Pin Bushing

- The spring pivot eye and the drive bolt of the earlier suspension are replaced by a spring bar pin bushing that attaches the parabolic leaf spring directly to the frame bracket. The bar pin bushing replaces the rubber bushings in the spring pivot eye for suspension isolation.
- The axle clamp, together with the spring saddle, distributes the U-bolt clamping forces to the axle housing.

NOTE: If the axle seat requires replacement, DO NOT weld. The axle seats are bolt-on components, located by dowels.

- Air springs are mounted directly to the leaf spring.
- A leaf spring tension plate and clip provides a safety backup for monoleaf springs.
- Additional anti-lean backup spring leaf and bracket on single drive configurations prevents excessive chassis lean if main spring fails.
- The U-bolt nut has an integrated washer.

Inspection

The following schedule contains general recommendations and should be used as a guideline for inspecting a AG400L/AG210L suspension. As indicated by early inspection and/or service experience, the inspection frequencies may need to be accelerated.

- Refer to the "Rear Suspension Components and Servicing" part of this section for servicing guidelines.
- Refer to "Lubrication & Maintenance" in this manual for maintenance and lubrication schedules and specifications. The AG400L/AG210L suspension requires no periodic lubrication.

Every 5000 miles (8000 km):

- Inspect the spring leaves. Check for rust, cracks, nicks, or unusual wear patterns or spring scrubbing. If inspection reveals a cracked or broken spring leaf, replace the spring immediately.
- Inspect the rubber bushings in the tracking rod ends and the spring eye for squeeze-out and cracking. Replace the component if necessary.
- Inspect the shock absorber (refer to the "Rear Suspension Components and Servicing" part of this section).

Every 10,000 miles (16,000 km): Inspect the condition of the plastic shims (if installed) between the spring leaves at both ends of the spring; replace if damaged or worn (see F.S.B. # 2-79R).

Every 50,000 miles (80,000 km): Check the height control valve operation as outlined in the "Rear Suspension Components and Servicing" part at the end of this section.

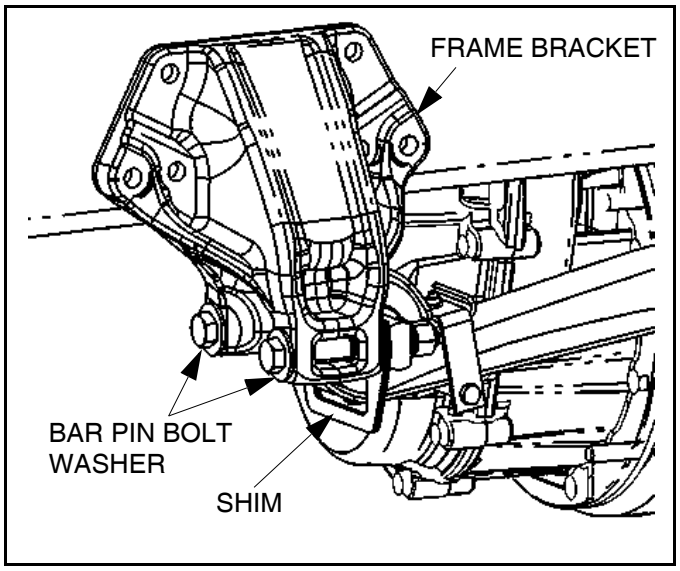
Every 100,000 miles (160,000 km): Check the ride height and pinion angles as outlined in the "Setting and Adjusting Ride Height and Rear Axle (Pinion) Angles" procedure at the end of this part.

As indicated in the Maintenance Schedule:

- Check the rear axle U-bolt torque (refer to "Rear Suspension Components and Servicing" in this section).
- Check the rear axle alignment as outlined in the "Total Vehicle Alignment" part of "Front Axle". If required by that procedure, the axle alignment can be adjusted by adding or removing shims.
  - Add shims between the bar pin and the aluminum frame bracket (see next illustration).

CAUTION: Shims for this suspension are not slotted. Slotting shims reduces contact area with aluminum frame bracket. This can lead to loss of bar pin bolt preload and possibly cause property damage. Do not modify shims; use solid shims.

NOTE: The bar pin bolt washer must be installed in the location and orientation shown. Do not use a smaller diameter washer or unhardened washer against the aluminum frame bracket.



For lateral alignment, add or subtract spacers from between the tracking rod and the axle housing tracking rod bracket.

Setting Pinion Angle

The correct pinion angle will depend on the original vehicle specification. Adjust the pinion angle by loosening the U-bolts on an axle, both left and right, and adding or removing angle-adjusting shims between the axle seat and the air spring support bracket on both sides. (Note: The use of a jack under the air spring support bracket will aid in1 the installation of shims.)

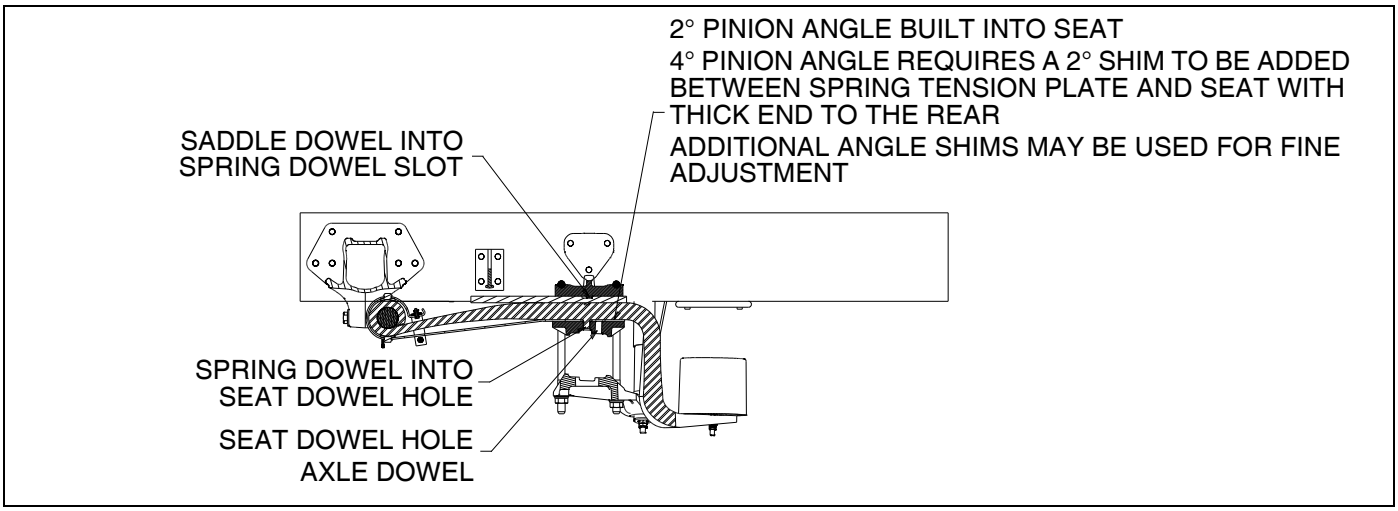


Figure 1-1 Single Drive AG400L/AG210L

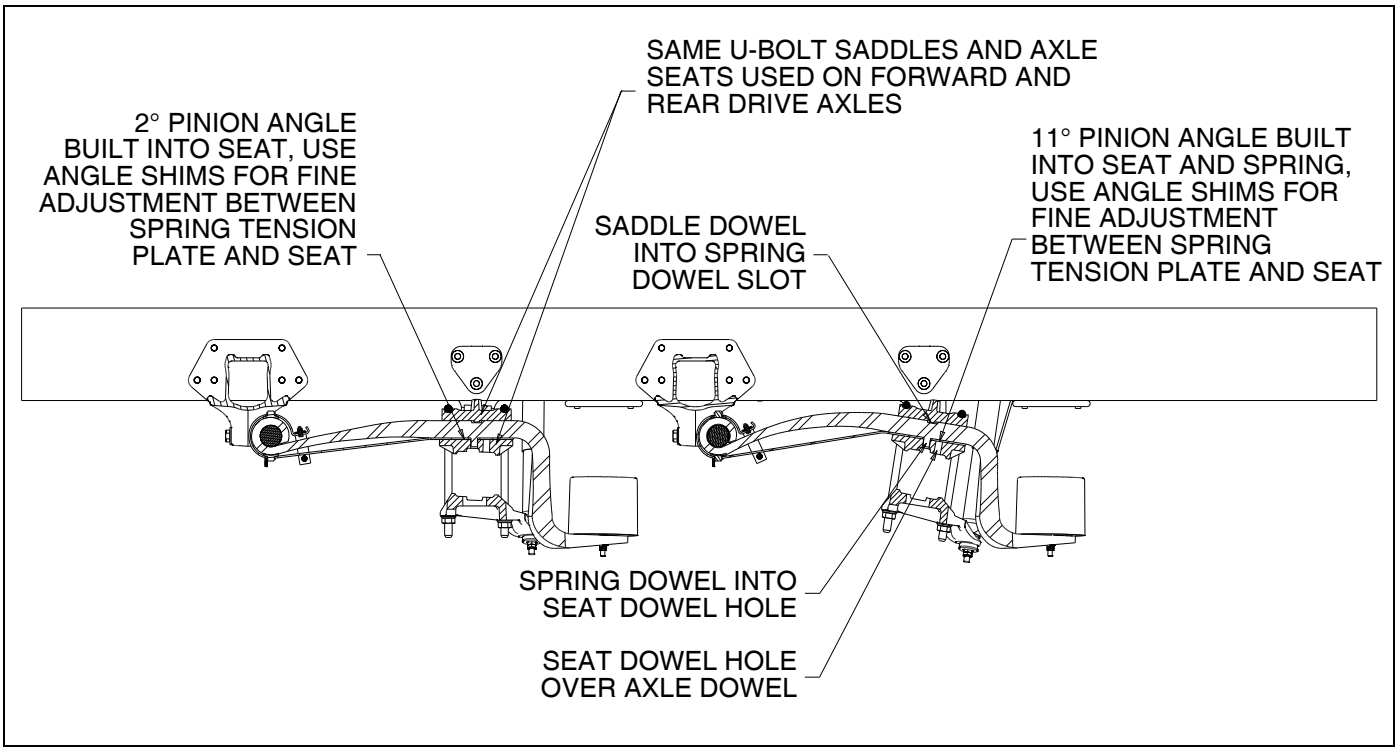


Figure 1-2 Tandem Drive AG400L/AG210L

Balancing Springs

The AG400L/AG210L does not require spring balancing.

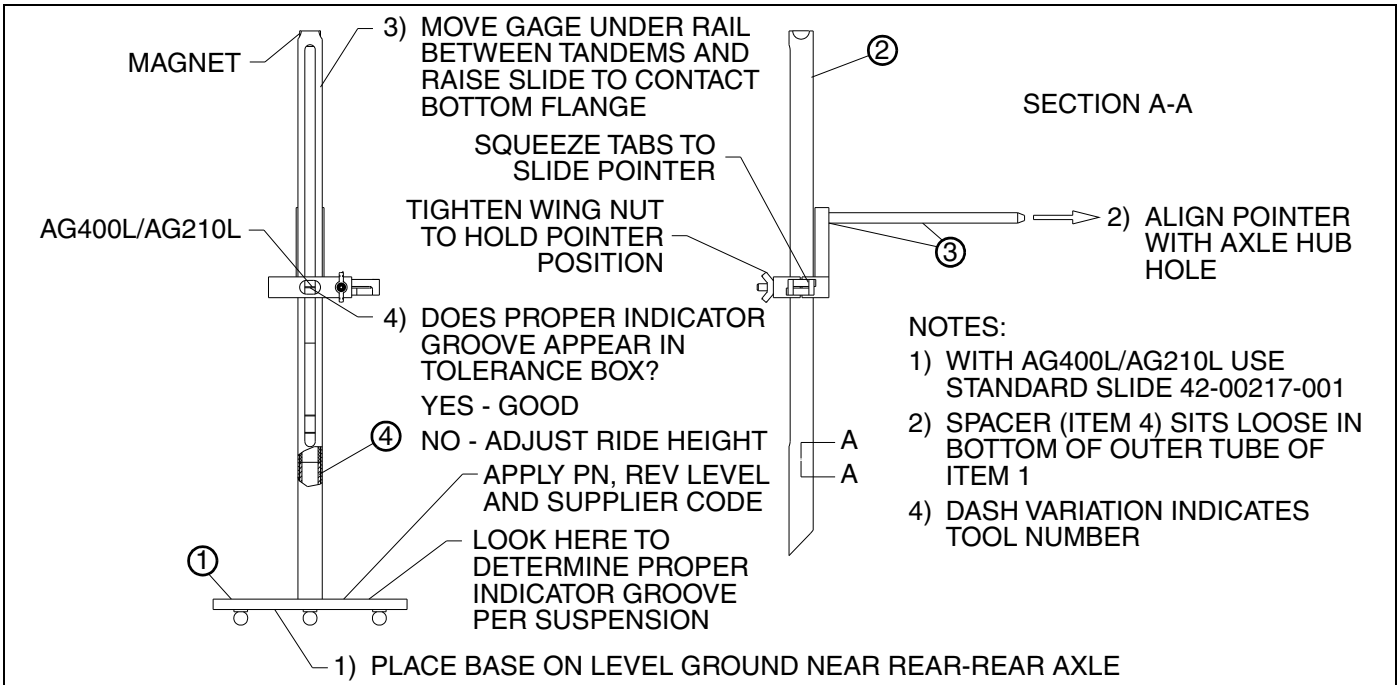
Setting and Adjusting Ride Height and Rear Axle (Pinion) Angles

WARNING! This procedure requires servicing the vehicle with the transmission in neutral and the parking brakes released. The vehicle must be parked on a completely flat/level surface with both front wheels chocked front and rear. Failure to adequately chock the wheels may lead to the vehicle rolling into someone/something, causing an accident and possible serious personal injury and/or equipment damage.

NOTE: Suitable wheel chocks are at a minimum an 18 in. (46 cm) long 4x4.

This adjustment procedure removes the effect of frame rake variation on pinion angles. Using this method permits setting rear driver and interaxle driveshaft angles to provide the best possible axle travel and U-joint cancellation as well as keep torsional acceleration within specifications. Follow this procedure to set ride height and adjust rear axle angles (pinion angles).

1. Ensure that the following tools are available:
   - Ride height tool (gauge) P/N 42-00219-001
   - Pro-3600 or Pro-360 Anglemaster (inclinometer)
2. Drive the vehicle onto a flat/level surface. Back straight out for the length of the vehicle and slowly drive back onto the flat/level surface. Gently roll to a stop. Place the transmission in neutral and set the parking brakes.
3. Chock the front wheels on both sides.
4. Release the parking brakes.
5. Ensure that the ride height gauge has the correct slide installed for the suspension on the vehicle (see “NOTES” in Figure 1-3).
6. Place the ride height gauge near the rearmost axle such that the base is on level ground (see Figure 1-3 and Figure 1-4).
7. Align the pointer of the gauge with the axle hub hole (see Figure 1-4).
   a. Squeeze the tabs to slide the pointer into proper position.
   b. Tighten the wing nut to hold the pointer in that position.



ITEM	MATERIAL LIST
1	42-00218-001, BASE
2	42-00217-001, SLIDE (ALTERNATE SLIDE 42-00220-001, SEE NOTE 1)
3	SPACER (M/F .750" ALUMINUM TUBING, 4-15/16" LONG)

Figure 1-3 Illustration of Ride Height Gauge

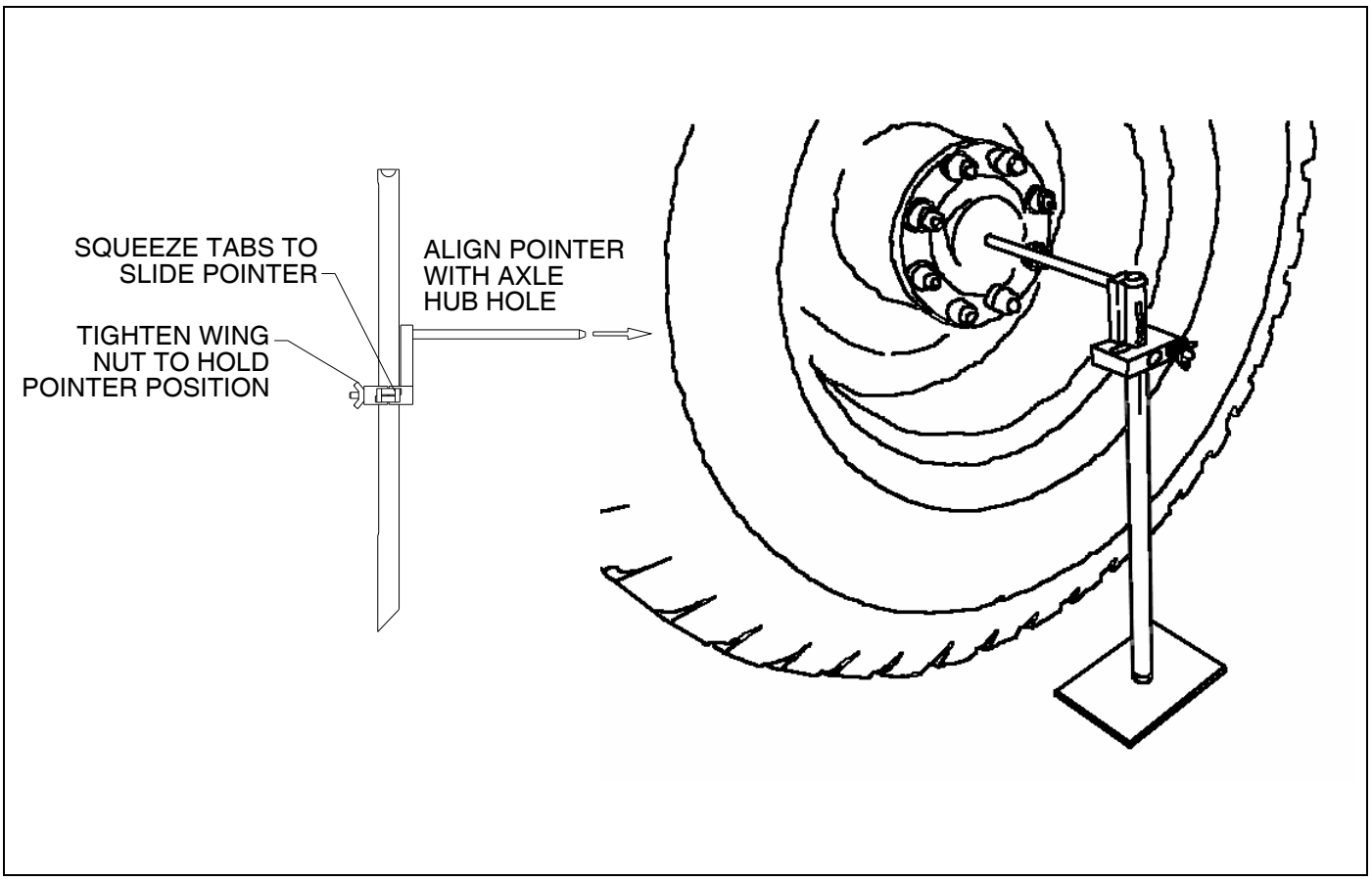


Figure 1-4 Illustration of Aligning The Pointer of a Ride Height Gauge

8. Move the ride height gauge under the frame rail, either forward of a single axle (but not forward of the suspension bracket) or between tandem axles (see Figure 1-5).
9. Raise the slide to bring the magnet at its tip into contact with the bottom flange of the frame rail.
10. Look in the tolerance box and note what indicator groove appears (see Figure 1-6).
    - If the proper groove appears, skip to Step 16 in this procedure.
    - If the proper groove doesn't appear, perform all remaining steps in this procedure.

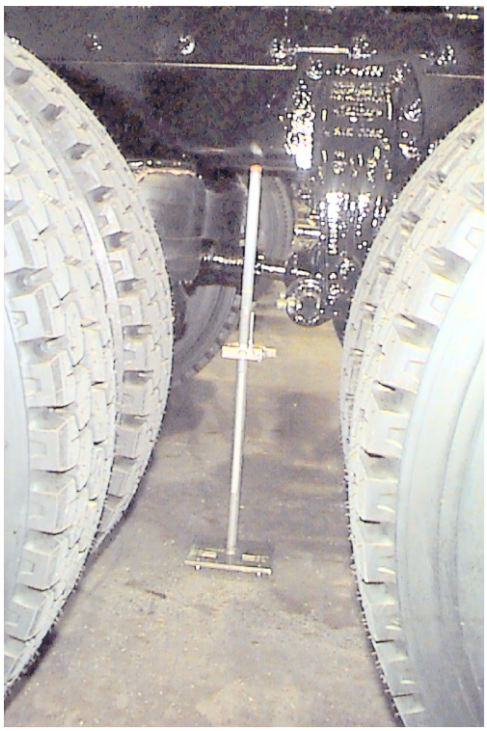


Figure 1-5 Illustration of Measuring The Ride Height on a Tandem Suspension

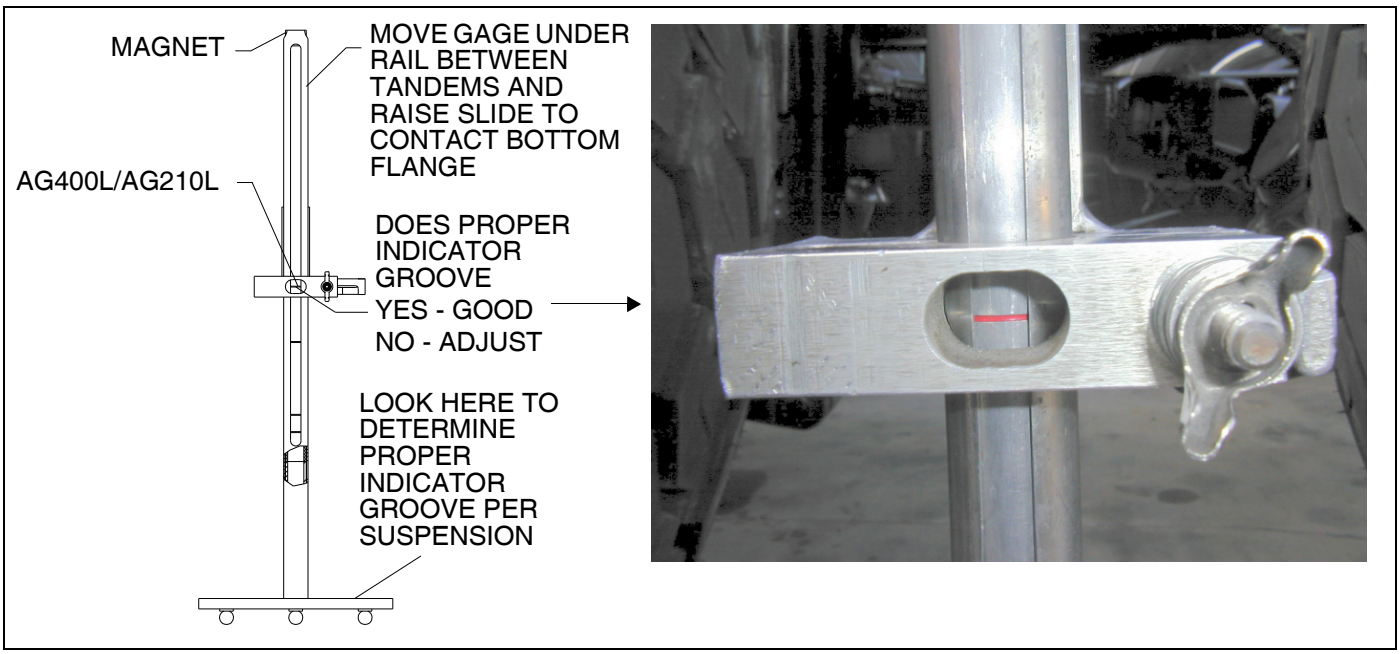
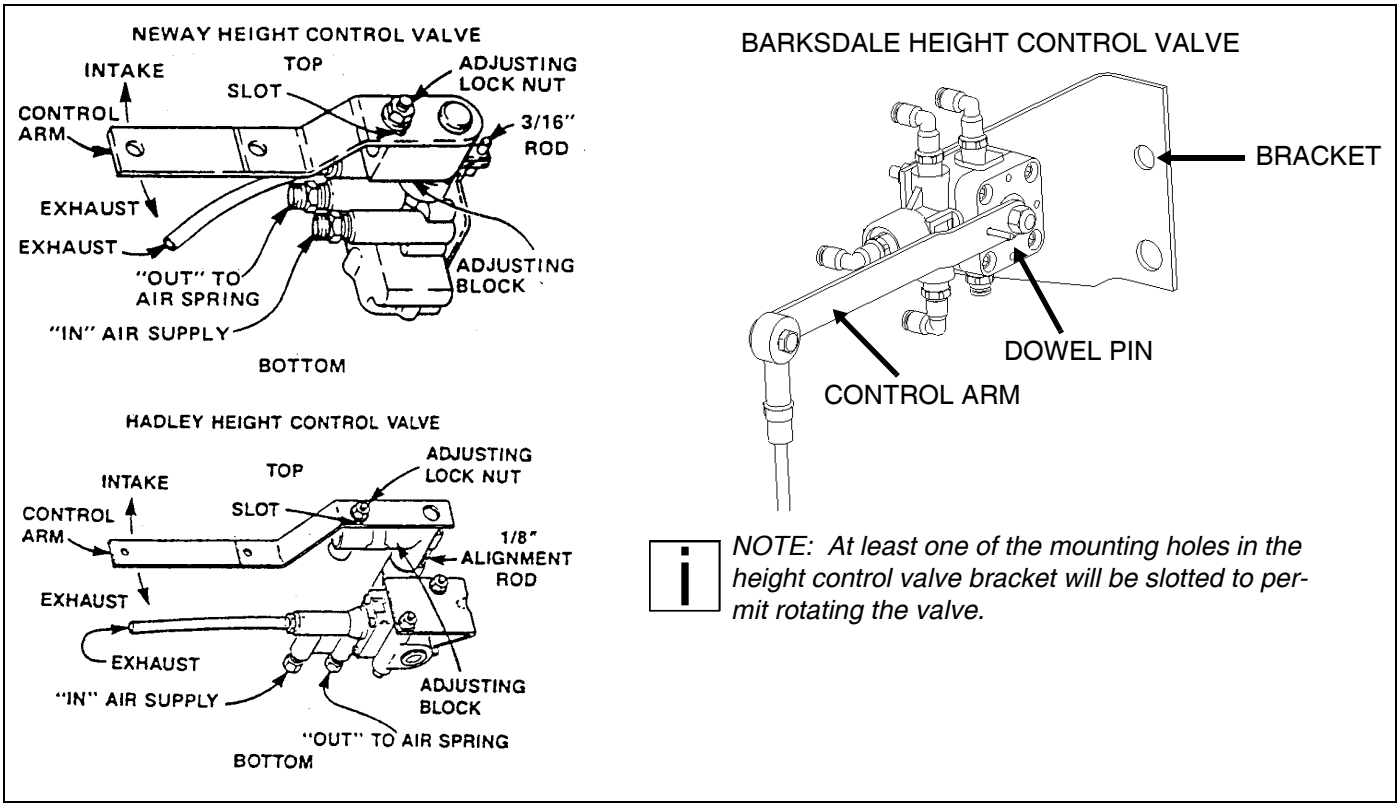


Figure 1-6 Illustration of Checking Ride Height Indicator

11. Loosen the fasteners mounting the height control valve to its bracket. See Figure 1-7 for examples.



NOTE: At least one of the mounting holes in the height control valve bracket will be slotted to permit rotating the valve.

Figure 1-7 Illustrations of Height Control Valves

12. Rotate the valve either clockwise or counterclockwise to obtain the appropriate ride height as measured with the ride height gauge.
13. When at the appropriate ride height, ensure that the height control valve lever is in the neutral position, then install either the built-in alignment pin or a 1/8 in. (3 mm) dowel.
14. Torque the mounting fasteners to 55-75 lb-in. (6.2-8.5 N·m).
15. Remove the alignment pin or dowel.

NOTE: Contact PACCAR Parts Research (1-800-477-0251) to obtain rear axle angle information for newer vehicles whose records are not yet in ECAT.

16. Obtain the specified forward-rear axle angle from the vehicle's final chassis bill of material (FCBM). This information is located in the vehicle's record in the electronic parts catalog (ECAT). Refer to Figure 1-8 and Figure 1-9 for examples of rear axle angle bills. See F.S.B. # 3-00R for axle angle charts.

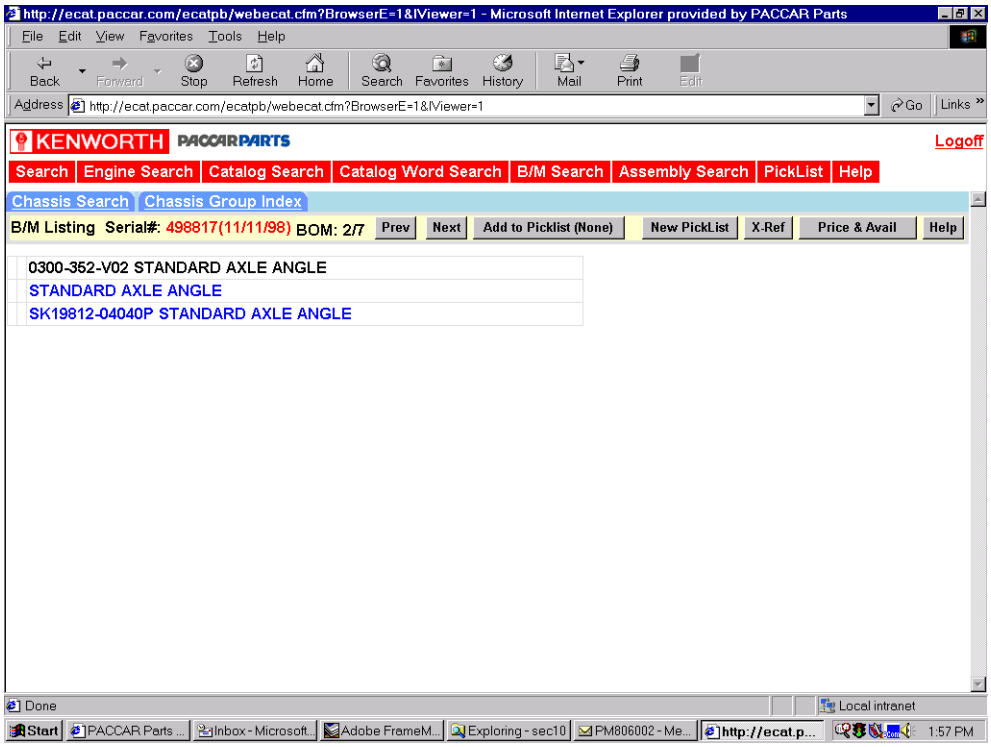


Figure 1-8 Example of Rear Axle Angle Information Bill (Parallel Axle Configuration)

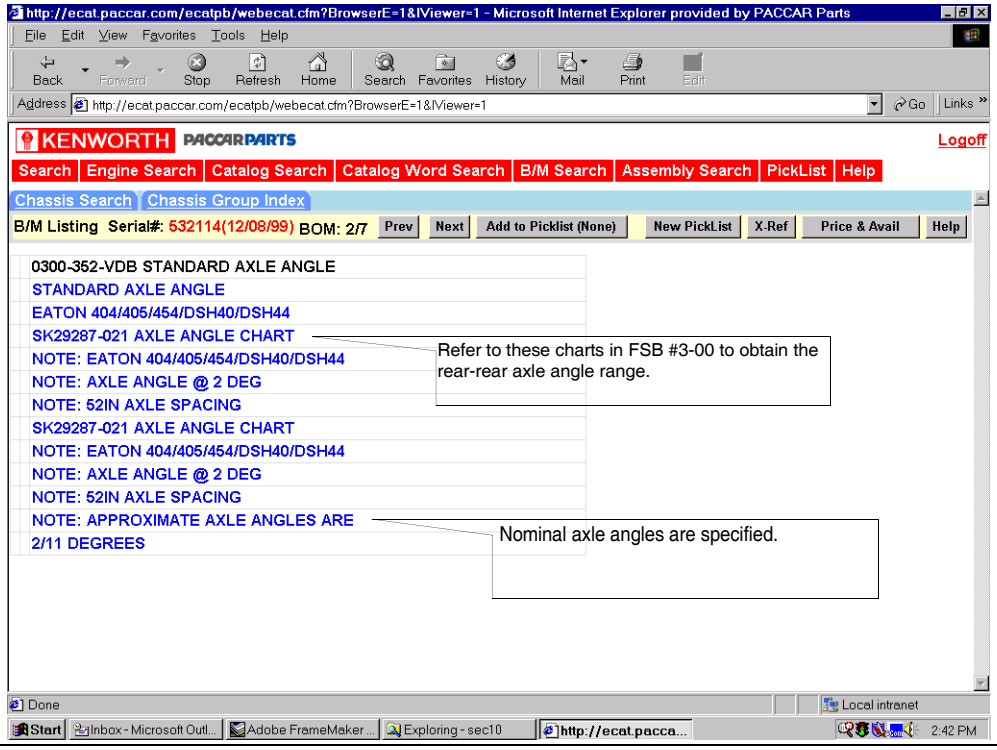


Figure 1-9 Example of Rear Axle Angle Information Bill (Broken-back Axle Configuration)

For rear air suspensions, the pinion angle is the inclination of the drive axle relative to either the frame rail or level ground. The inclination of the drive axle relative to the frame rail is referred to as the “frame pinion angle”. The inclination of the drive axle relative to the ground; i.e., true horizontal, is referred to as the “ground pinion angle”. When setting pinion angles for proprietary air suspensions, both frame and ground pinion angles are used (see Figure 1-10).

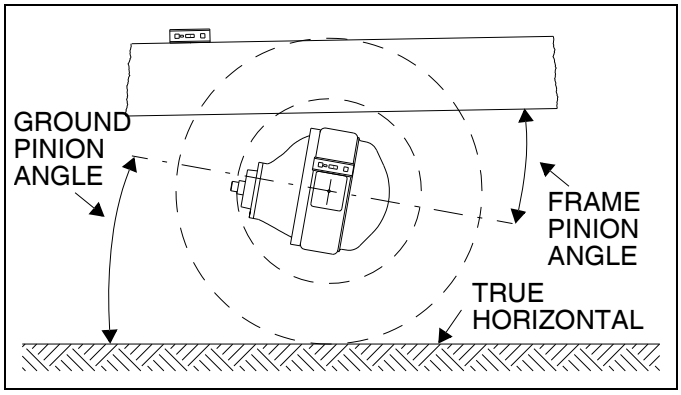


Figure 1-10 Illustrations of Pinion Angles

For broken-back tandem configurations, the rear-rear drive axle ground pinion angle must lie within a range based on a properly-set forward-rear drive axle.

17. Zero the inclinometer to the LH frame rail with the face of the inclinometer oriented inboard (i.e., toward the passenger side of the chassis) as shown in Figure 1-11.

Figure 1-11 Illustration of Inclinometer on the Left-Hand Frame Rail

18. Measure and record the forward-rear frame pinion angle at either the top or bottom of the housing, near the axle seat, on the long arm of the axle, with the inclinometer oriented inboard as shown in Figure 1-12.

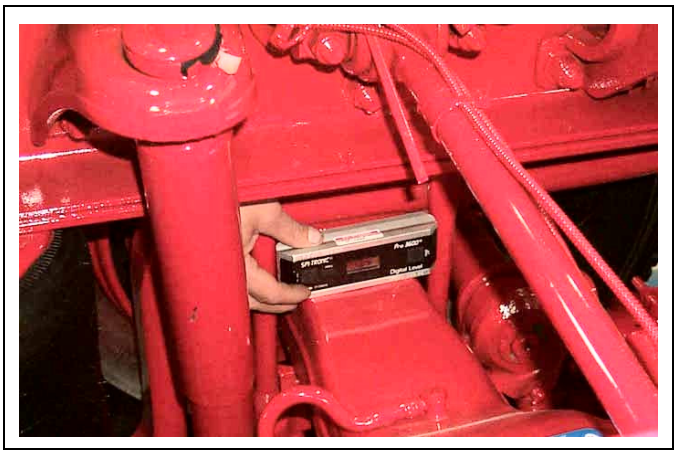


Figure 1-12 Illustration of Using an Inclinometer to Determine Forward-rear Frame Pinion Angle

19. Compare the forward-rear axle angle you obtained to the value listed in the FCBM:
    - If the angle is within ± 0.5 degree of that value, either stop (for single axle configurations) or proceed to Step 20 (for tandem axle configurations).

NOTES:

- *Shimming may not be required if the proper axle angle can be obtained by adjusting the ride height within the tolerance window.*
- *Ensure that the specified ride height is maintained during axle angle adjustment so that a valid inclination measurement is achieved.*

    - If the angle differs by more than ± 0.5 degree from the value, shim the axle, then repeat Step 11 through Step 18.

20. Turn the inclinometer off, then back on (this will zero it to true horizontal).

NOTE: If frame rake exists, the measurement that you obtain in the next step will be different from the one you obtained in Step 18. That measurement was made relative to the frame rail (for “frame pinion angle”), while this measurement is being made relative to true horizontal (for “ground pinion angle”).

21. Remeasure and record the forward-rear axle angle (now with respect to the true horizontal) at either the top or bottom of the housing, near the axle seat, on the long arm of the axle, with the inclinometer oriented inboard as shown in Figure 1-12. This will be the forward-rear ground pinion angle.

22. Measure and record the rear-rear axle angle either at the top of the housing, next to the axle seat, or at the bottom of the housing, next to the axle clamp, on the long arm of the axle with the inclinometer oriented inboard as shown in Figure 1-13. This will be the rear-rear ground pinion angle.

    - For parallel axle configurations: Compare the rear-rear ground pinion angle to the forward-rear ground pinion angle you obtained in Step 21. If the angles differ by more than ± 0.5 degree, shim the rear-rear axle until its angle is within that tolerance.

        – For AG400L/AG210L suspensions, see page 1-5

    - For broken-back axle configurations: Locate the forward-rear ground pinion angle (from Step 21) in the chart for the applicable axle (see F.S.B. # 3-00R). Determine if the rear-rear ground pinion angle is within the range specified for the rear driver. If the value is outside the range, shim the rear-rear axle until its angle is within that range.

Figure 1-13 Illustration of Using an Inclinometer to Determine Rear-Rear Axle Angle

Rear Suspension Components and Servicing

Air Spring

CAUTION: To prevent possible injury and damage to property, ensure that a vehicle is parked and the wheels chocked before performing either of these procedures.

NOTE: Suitable wheel chocks are at a minimum an 18 in. (46 cm) long 4x4.

Servicing an Air Spring

Follow the procedure below to inspect an air spring.

1. Visually inspect an air spring for oil, hydraulic fluid, or other surface contamination. Fluid leaks that cause such contamination must be repaired.
2. Steam clean the surface of an air spring to remove contamination, then inspect the spring for cracks, nicks, unusual wear patterns or signs of “scrubbing.”

Follow this procedure to remove and install an air spring.

1. Remove the 1/4 in. nut and bolt holding the height control valve link to the valve control arm.

CAUTION: The rear of a vehicle will drop about 3-1/2 in. (88 mm) when the air springs are deflated. Ensure that no personnel or objects that could be damaged are under the vehicle before deflating the air springs.

2. Lower the control arm 45 degrees and hold in that position until all air is exhausted from the air springs, then return the control arm to the neutral position.
3. Jack up the rear of the frame until the rear suspension is at its full articulation with the rear wheels just off of the ground; support the frame with jack stands.
4. Perform the steps in the appropriate choice below:

- Vehicle With Air Spring Support Bracket
  a. Remove the air fittings and lock nut from the spigot at the top of the air spring.
  b. Remove the air spring stud and nut.
  c. Push up and in on the bottom of the spring until it clears the platform.
  d. Remove the fasteners securing the top of the spring to the support bracket.

NOTE: To install an air spring at this point, perform Steps 4.a. through 4.d. in reverse order, then complete the remaining steps in this procedure. Ensure that you do not overtighten the air fittings or lock nut on the top of an air spring; observe the following guidelines:

- *Tighten air fittings finger tight plus one turn*
- *Torque the lock nut to 130-150 lb-in. (15-16 N·m)*

- Vehicle Without Air Spring Support Bracket
  a. Remove the air fitting at the top of the air spring.
  b. Remove the air spring stud and nut.
  c. Push up and in on the bottom of the spring until it clears the platform.
  d. Remove the fasteners securing the top of the spring to the frame rail.

NOTE: To install an air spring at this point, perform Steps 4.a. through 4.d. in reverse order, then complete the remaining steps in this procedure.

5. Jack up the frame and remove the jack stands, then lower the vehicle to the deflated spring position.
6. Raise the valve control arm 45 degrees and hold until the air springs inflate and support the vehicle at the “temporary” ride height for that suspension as shown in the next illustration and table.

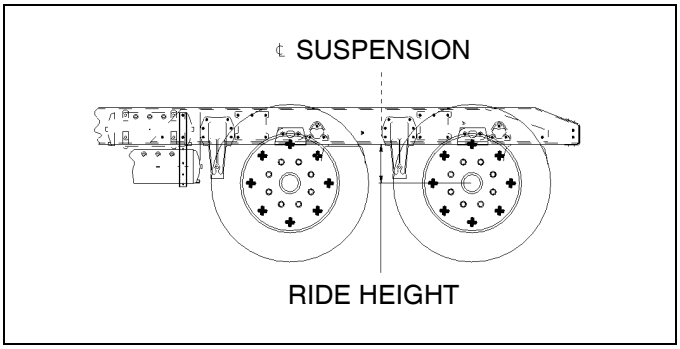


Figure 1-14 “Temporary” Ride Height Measurement

Rear Air Suspension	Ride Height [in. (mm)]*	
	Single Drive	Tandem Drive
AG400L/AG210L	6.50 (165)	8.50 (216)
*These values are for a fully-loaded vehicle		

7. Rebolt the height control valve link to the valve control arm. Torque the link bolt fastener to 24-48 lb-in. (2.7-5.4 N·m).
8. Torque these fasteners to the value shown:

- Air Spring Stud Nut: 25-35 lb-ft (34-47 N·m)
- Upper Air Spring Bolt/Nut: 25-30 lb-ft (34-41 N·m)

9. Set the ride height & pinion angles of the suspension.

Adjusting Air Spring Height

1. Ensure that the air supply and delivery plumbing of the height control valve is correct (see Figure 1-15).

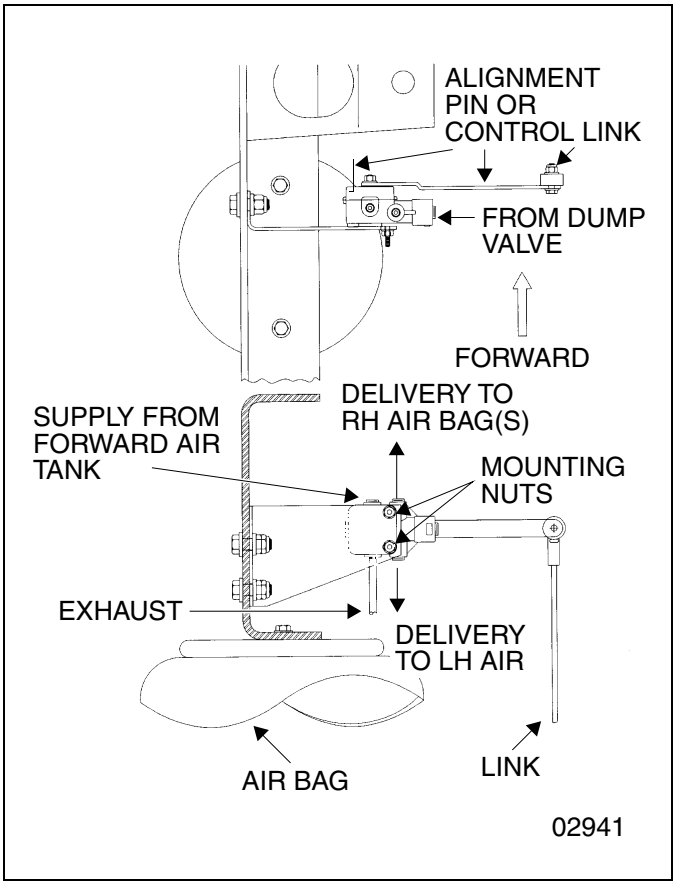


Figure 1-15 Typical Height Control Valve Plumbing

CAUTION:

- ***The rear of a vehicle will drop about 3-1/2 in. (88 mm) when the air springs are deflated. Ensure that no persons or objects that could be injured or damaged are under the vehicle before deflating the air springs.***
- ***To minimize risk of damage or injury, do not use a dump valve to deflate the air springs. Operate the height control valve(s) manually to ensure positive control of air spring deflation.***
- ***To minimize risk of injury, keep away from air springs as they are being inflated.***

2. Loosen the fasteners mounting a height control valve to its bracket.

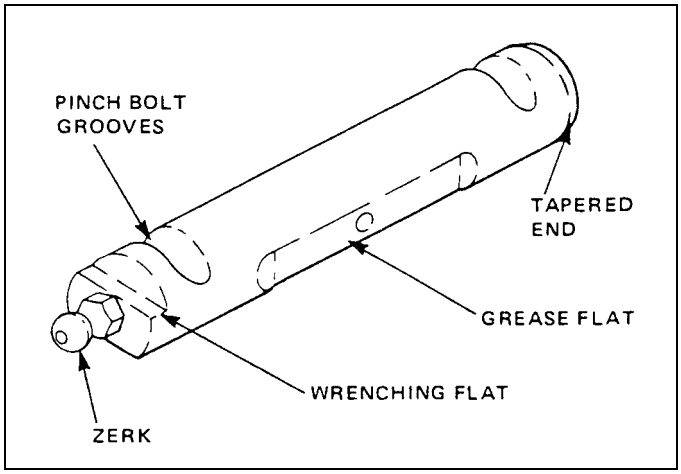
NOTE: At least one of the mounting holes in the height control valve bracket will be slotted to permit rotating the valve.

3. Rotate the valve either clockwise or counterclockwise until air pressure in the air springs provides the desired inflation.
4. When at the desired inflation, ensure that the height control valve lever is in the neutral position, then install either the built-in alignment pin or a 1/8 in. (3 mm) dowel (see page 13).
5. Torque the mounting fasteners to 55-75 lb-in. (6.2-8.5 N·m).
6. Remove the alignment pin or dowel.

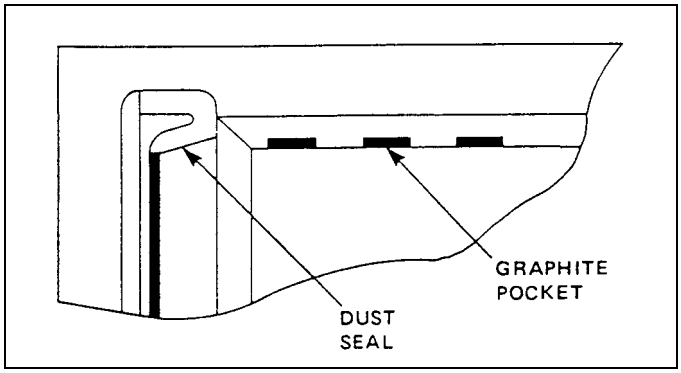
Spring Pins and Bushings

A spring pin is a component of a single drive spring suspension's front spring hanger joint:

- Grease flats on each side allow for even spreading of lubricant within the bushing of the joint
- A tapered end permits ease of installation
- A wrenching flat permits aligning the pin with pinch bolts or set screws during assembly

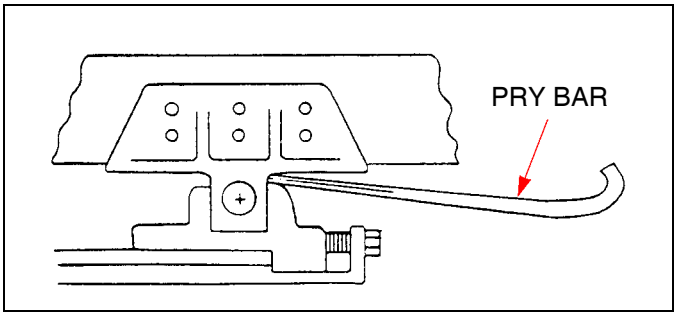


Spring pin bushings are constructed of steel-backed bronze with graphite pockets for additional lubrication protection. Dust seals are used at each end of the bushings.



Follow this procedure to check a spring pin joint for wear.

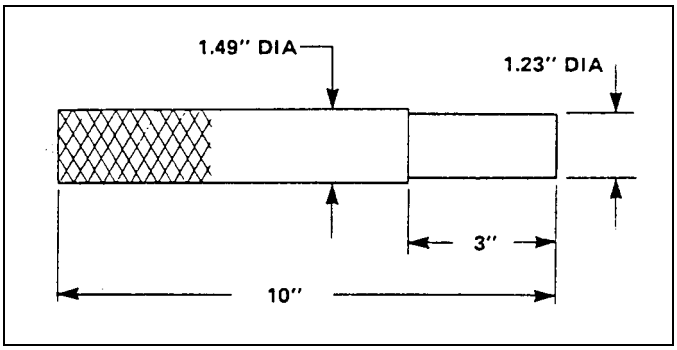
1. Grease a spring pin joint until grease is flushed out both ends of the bushing. Inspect a spring pin and bushing for wear if
   - there are signs of rust or water in the flushed grease
   - a spring pin will not accept grease
2. Insert a small prybar between the spring eye and the front spring hanger/bracket.
3. Pry down on the bar to force the spring away from the hanger. If the spring moves more than 1/16 in. (2 mm), remove the spring pin and bushings and inspect them for wear.



Follow the procedure below to remove and install a spring pin and bushing.

CAUTION: To prevent possible injury and damage to property, ensure that a vehicle is parked and the wheels chocked before performing this procedure.

1. Lift or jack the rear end of the vehicle until the load is removed from the spring pin. Place jack stands under the frame.
2. Remove the spring clamp bolts and spring pin from the front spring bracket and eye. Inspect the pin for wear; replace it if wear is excessive.
3. Remove the spring eye from the spring. Inspect the spring pin bushing for wear; replace it if wear is excessive:
   a. Remove the bushing from the spring eye with a stepped steel driving tool (similar to the one shown below).



NOTE: The bushings are sized for proper inside diameter after assembly. Do not ream the bushing inside diameter.

   b. Install a new bushing using the same tool.
4. Prelube the spring pin and bushing with grease.
5. Install the spring eye on the spring. Torque the spring eye U-bolt to 90-110 lb-ft (122-149 N·m).
6. Install the spring pin in the front bracket and spring eye.

NOTE: The vehicle may have to be raised or lowered for alignment.

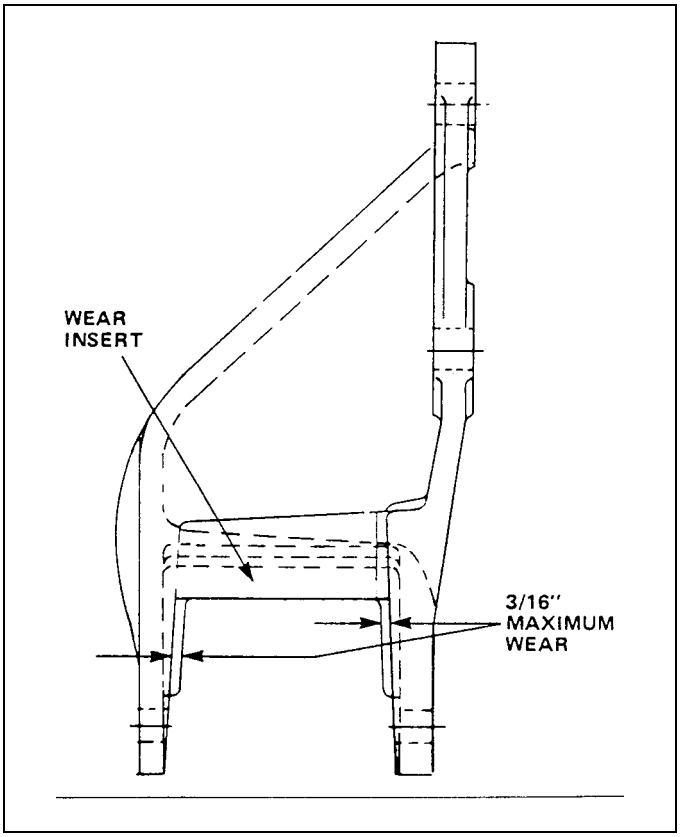
7. Install the spring clamp bolts and torque them to 180-210 lb-ft. (244-285 N·m).
8. Lower the rear end of the vehicle.

Rubber Rebound Bushing

Replace the rubber rebound bushing in the rear spring bracket of a single drive spring suspension when it shows excessive wear, deterioration, or lack of elasticity.

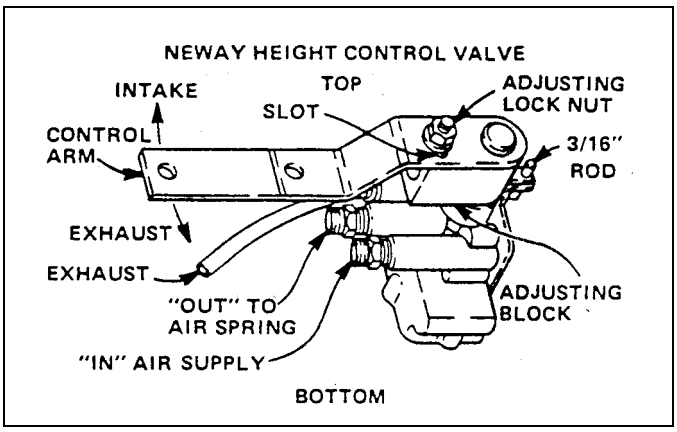
Spring Suspension Wear Plates and Pads

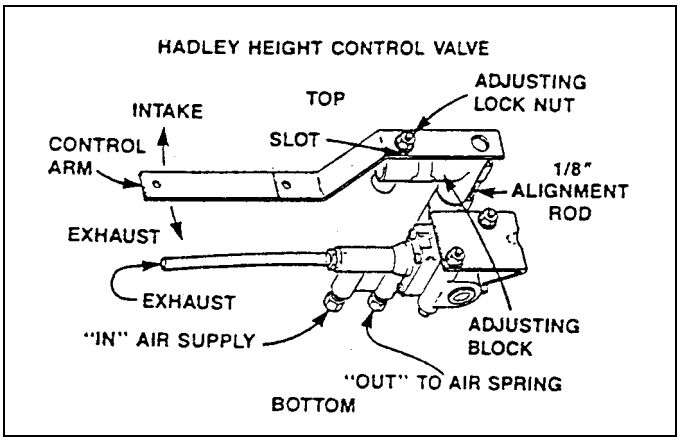
- Replace a spring wear plate in the rear spring bracket of a single drive spring suspension when the spring has worn away more than 3/16 in. (5 mm) of wear plate material.
- Replace a wear pad in the end bracket of a Quadraflex spring suspension when it has worn to the point that the pilot hole for the retaining hardware is visible.
- Replace a steel wear insert in the end bracket of a Four Spring suspension when the spring has worn away more than 3/16 in. (5 mm) of wear pad material from the surfaces shown below.

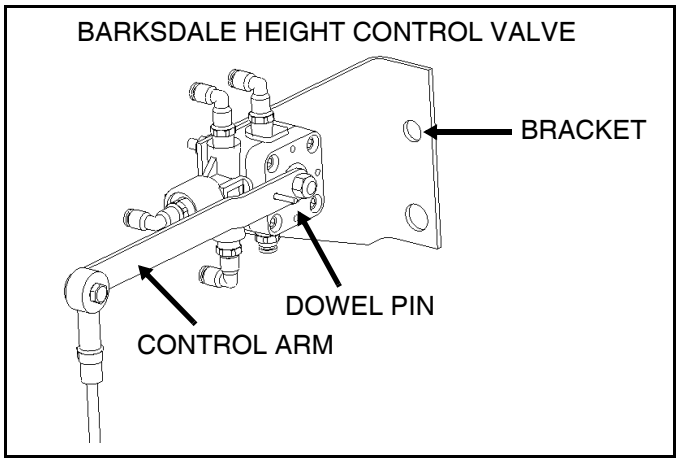


Height Control Valve

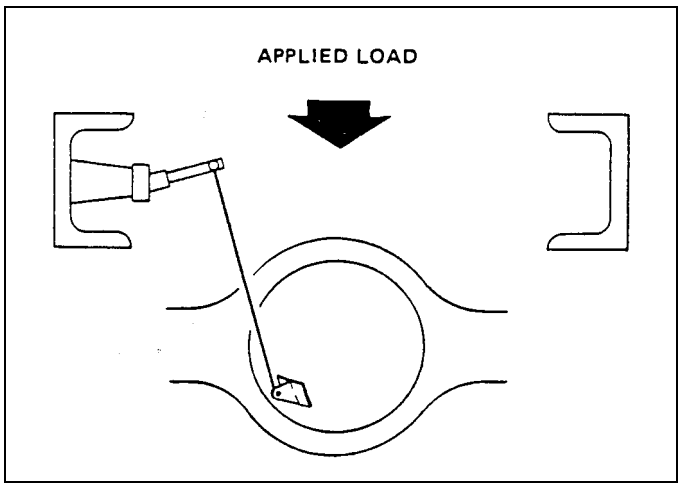
The height control valve maintains the frame at a constant height. It accomplishes this by varying the pressure within the air spring to allow for changing load conditions.



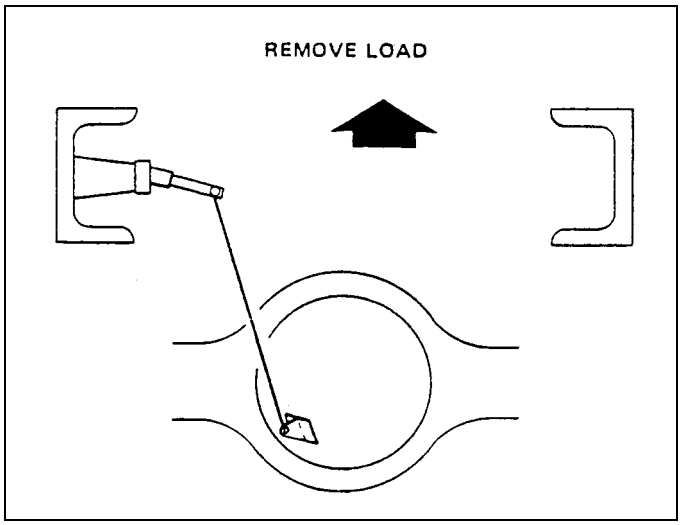




- When a load is applied to the vehicle, the frame lowers. This activates the height control valve through the linkage and allows additional air to enter the spring, causing the frame to rise.



- When a load is removed, the height control valve exhausts air from the air spring, causing the frame to lower.



- When the height control lever arm in the neutral position, the valve is closed; there is no air flow into or out of the air spring.

The height control valve is equipped with a dashpot regulator that conserves air by delaying the influence of minor control arm fluctuations caused by rough road surfaces.

Operational Check

Proper operational checks can eliminate unnecessary replacement of the height control valve. Follow the procedure below to conduct an operational check on a height control valve. If air does not flow or stop as specified in a step, refer to the “Maintenance” procedure that follows this one.

1. Apply at least 65 psi (448 kPa) of air pressure to the “In” air supply port.
2. Disconnect the valve link from the valve control arm.
3. Raise the valve control arm 45 degrees and hold for 10 seconds. Air should flow to the air springs.
4. Move the control arm to the neutral position. The air flow should stop.
5. Lower the valve control arm 45 degrees and hold for 10 seconds. Air should exhaust from the air springs.
6. If all these characteristics are evident, the valve is operating properly. If so, rebolt the height control valve link to the valve control arm. Torque the link bolt fastener to 24-48 lb-in. (2.7-5.4 N·m).

Maintenance

Follow this procedure to maintain a height control valve.

NOTE: The internal valve mechanism is not repairable. Replace a height control valve if it is damaged or nonoperational.

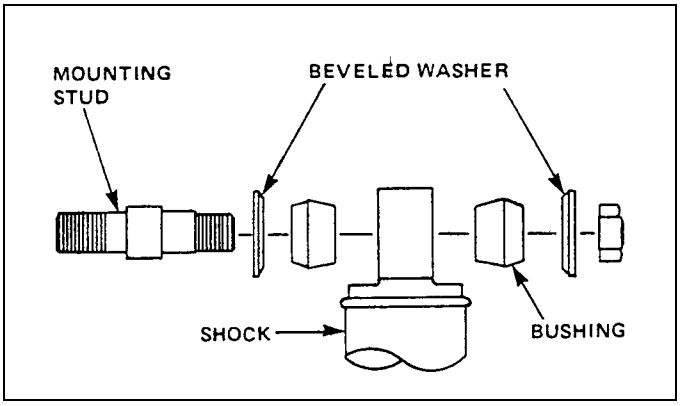
1. Regularly inspect the valve for proper clearance around the valve control arm. Also check for damage to the control arm or adjusting block as well as any air leaks. Repair or replace components as required.
2. Ensure that the air filter is not clogged or restricting the air flow. The filter is located with the shut-off valve at the forward dry air tank. Check the valve’s supply and delivery ports for obstruction.

Shock Absorbers

Follow the procedure below to inspect a shock absorber.

1. Inspect the rubber mounting bushings for wear or deterioration. There should be no metal-to-metal contact. Replace rubber bushings if necessary.

NOTE: The beveled washers do not "cup" the bushings—they point away from the shock absorber.



2. Inspect the mounting brackets for loose, worn, bent, or broken parts. Torque the mounting nut to 100 lb-ft (136 N·m).

NOTE: If the shock absorber is tested off of the vehicle, ensure that tests are performed with the shock absorber in the same orientation as when operating on the vehicle. Upside-down or horizontal testing may trap air and give false results.

3. Perform these steps to test a shock absorber:
   a. Disconnect the shock absorber at the lower mount.
   b. Pull down until the shock absorber is fully extended.
   c. Move the shock absorber from fully open to fully closed several times. Resistance should be smooth and constant throughout the entire stroke. Check for fluid loss onto the shock absorber body.
4. Replace a shock absorber if there is any binding, skipping, fluid loss, or unusual noises. If a shock absorber needs replacement, always replace both shock absorbers at the same time. If one shock absorber has worn out, the other is usually not far behind. However, if a shock absorber fails early (less than 25,000 miles/40,000 km), the problem may be a manufacturing defect. In this case, only one shock absorber may need to be replaced.
5. See also F.S.B. #9-97 for more information.

Rear Axle U-Bolts

Rear axles use two styles of U-bolts (see Figure 1-16):

- Cut-thread U-bolts, which have a major (threaded) diameter of the same dimension as the unthreaded diameter of the U-bolt
- Rolled-thread U-boats, which have a major (threaded) diameter of a greater dimension than the unthreaded diameter of the U-bolt

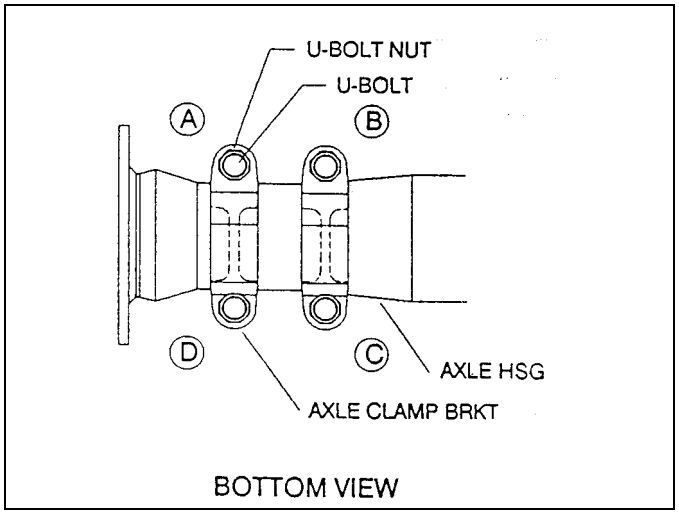
A rolled-thread U-bolt provides the same clamp force for a lower tightening torque as compared to a cut-thread U-bolt. Because of the different torque tension relationships, rolled- and cut-thread U-boats should not be mixed in applications on the same vehicle.

WARNING! Ensure that U-bolts are properly torqued. Loose U-bolts may cause spring leaf breakage, improper axle alignment, and abnormal tire wear. This could result in loss of control of a vehicle and could cause an accident.

The vehicle should be loaded to its normal gross weight when tightening U-bolts.

AG400L/AG210L

Follow these procedures to torque a rear axle U-bolt (refer to the next illustration):



1. For all suspensions: Apply an even load to all U-bolt legs (“A” through “D” in the previous illustration) during preliminary assembly.

NOTE: For all suspensions: When uniform torque is applied to all four U-bolt legs simultaneously by a four-spindle nut runner, disregard the criss-cross- pattern steps given below for a specific suspension. Instead, simultaneously torque all U-bolts to the value listed for that suspension in the table on the next page.

2. Choose the appropriate steps listed below:
   - For AG400L/AG210L:
     a. Torque U-bolt legs “A” and “C” to 275-320 lb-ft (373-434 N·m)
     b. Torque U-bolt legs “B” and “D” to the value specified in the table.
     c. Torque U-bolt legs “A” and “C” to the value specified in the table.

Rear axle U-bolt torque specifications

NOTE: The torque limit values are for threads lubricated with SAE 20 oil or oil and white lead.

U-Bolt Size	Application	Torque [lb-ft (N·m)]	
		Cut Threads	Rolled Threads
1” UNF	AG400L/AG210L	550-600 (746-813)	505-550 (685-746)
U-bolt w/ nut w/ integral washer	AG400L/AG210L	—	425 (576)

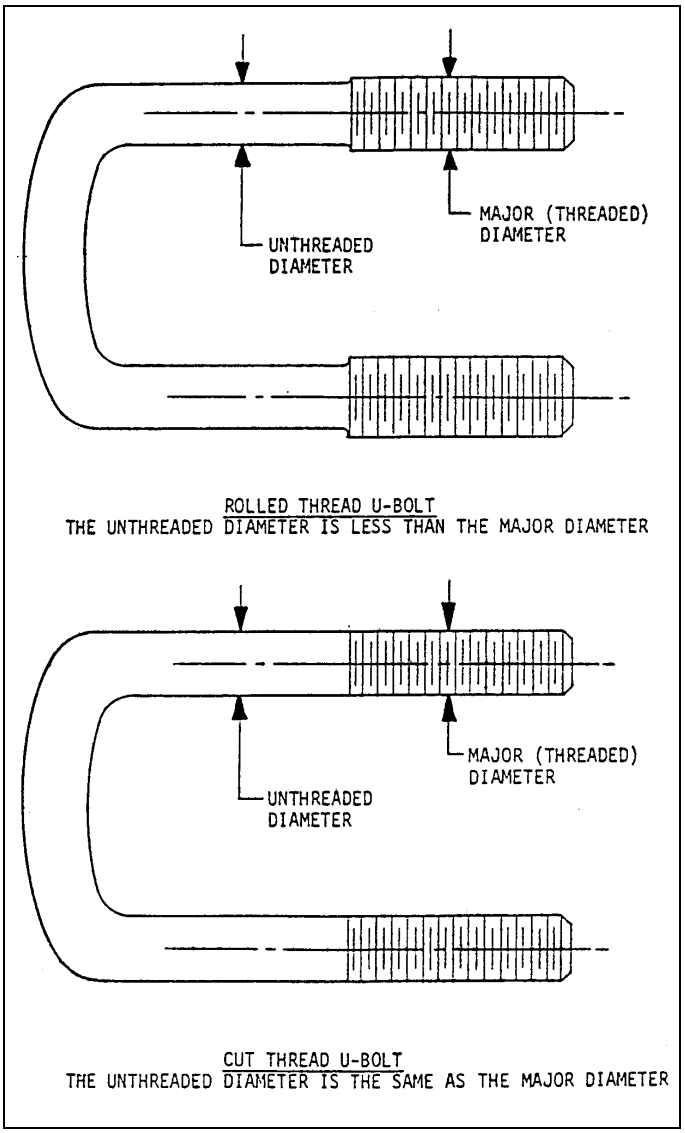


Figure 1-16 Comparison of Rolled-Thread and Cut-Thread U-Bolts