

2014 GMC Acadia Denali

2014 SUSPENSION Suspension General Diagnosis - Acadia, Enclave And Traverse

2014 SUSPENSION**Suspension General Diagnosis - Acadia, Enclave And Traverse****SPECIFICATIONS****TRIM HEIGHT SPECIFICATIONS****D and Z Trim Height**

Model	RPO	Tire Size	Service Preferred	Cross Tolerance
D Trim Height - Rear Suspension				
All	All	All	82 mm (3.22 in) ± 10 mm (0.39 in)	0 ± 10 mm (0.39 in)
Z Trim Height - Front Suspension				
All	All	All	57 mm (2.24 in) ± 10 mm (0.39 in)	0 ± 10 mm (0.39 in)

P and R Trim Height

Program	Model	Options	Tire Size	P Height	Cross P	R Height	Cross R
Buick	R14526 V14526	QPR	P245/70R17	842 mm (33.14 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)	869 mm (34.21 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)
		QLW, QUP, QCW, QQD	P255/65R18 P255/60R19 P255/55R20	853 mm (33.58 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)	880 mm (34.64 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)
GMC	R14526 V14526	QPR	P245/70R17	840 mm (33.07 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)	866 mm (34.09 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)
		QLW, QUP, QCW, QQD	P255/65R18 P255/60R19 P255/55R20	851 mm (33.5 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)	877 mm (34.52 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)
Chevrolet	R14526 V14526	QPR	P245/70R17	848 mm (33.38 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)	870 mm (34.25 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)
		QLW, QUP, QCW, QQD	P255/65R18 P255/60R19 P255/55R20	859 mm (33.81 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)	881 mm (34.68 in) ± 12 mm (0.47 in)	0 ± 12 mm (0.47 in)

DIAGNOSTIC INFORMATION AND PROCEDURES

SYMPTOMS - SUSPENSION GENERAL DIAGNOSIS

IMPORTANT: The following steps must be completed before using the symptom tables.

Review the system description and operation in order to familiarize yourself with the system functions. Refer to the appropriate description and operation:

- Front Suspension Description and Operation
- Rear Suspension Description and Operation
- General Description

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of any of the suspension subsystems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.
- Inspect for proper tire size and inflation pressure. Refer to Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- Ride Diagnosis
- Vehicle Leads/Pulls
- Body Leans or Sways in Corners
- Radial Tire Lead/Pull Correction
- Suspension Bottoms
- Torque Steer
- Memory Steer
- Noise Diagnosis - Front Suspension
- Noise Diagnosis - Rear Suspension
- Suspension Strut and Shock Absorber Testing - On Vehicle
- Wheel Bearings Diagnosis
- Trim Height Inspection

RIDE DIAGNOSIS

Ride Diagnosis

Step	Action	Yes	No
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1	Did you review the General Description and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Suspension General Diagnosis
2	IMPORTANT: Verify the vehicle suspension package RPO. Verify that the ride is too soft or too hard. Does the vehicle ride normally?	System OK	Go to Step 3
3	Check the tire inflation and adjust to specifications. Refer to Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label . Did you adjust the tire pressure?	Go to Step 6	Go to Step 4
4	Inspect the vehicle trim height. Refer to Trim Height Inspection . Did you find and correct the condition?	Go to Step 6	Go to Step 5
5	Inspect the following suspension components for wear or damage: - Shock Absorbers-Refer to Suspension Strut and Shock Absorber Testing - On Vehicle. - Springs Did you find and correct the condition?	Go to Step 6	-
6	Drive the vehicle in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

VEHICLE LEADS/PULLS

Vehicle Leads/Pulls

Step	Action	Yes	No
DEFINITION: At a constant highway speed on a typical straight road, lead/pull is the amount of effort required at the steering wheel to maintain the vehicle's straight path.			
1	Did you review the General Description and perform the visual/physical inspections?	Go to Step 2	Go to Symptoms - Suspension General Diagnosis
2	Road test the vehicle in order to verify the complaint. Does the vehicle operate normally?	System OK	Go to Step 3
	Inspect the tire/wheel assemblies for the following conditions:		

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3	• Correct tire pressure-Refer to the tire placard. • Correct tire size-Refer to the tire placard. • Abnormal tire wear or damage		
	Did you find and correct the condition?	Go to Step 9	Go to Step 4
4	Perform the Radial Tire Lead/Pull Correction .		
	Did you find and correct the condition?	Go to Step 9	Go to Step 5
5	Inspect and correct/adjust the suspension and steering systems for the following conditions: • Vehicle trim height-Refer to Trim Height Specifications. • Excessively worn, loose, or damaged components		
	Did you find and correct the condition?	Go to Step 9	Go to Step 6
6	Inspect the brake system for brake drag. With the vehicle suspended on a hoist, brake drag can be identified by rotating each wheel several times and observing whether more force is need to rotate the left wheel or the right wheel. Refer to Disc Brake System Diagnosis .		
	Did you find and correct the condition?	Go to Step 9	Go to Step 7
7	Inspect the wheel alignment and adjust as necessary. Refer to Wheel Alignment Measurement .		
	Did you correct the condition?	Go to Step 9	Go to Step 8
8	Inspect the steering gear for unequal effort. The vehicle must be suspended on a hoist, the engine running, and the transmission in PARK or NEUTRAL. Grasp the tire assembly and manually simulate a turn from the left of center and the right of center observing whether more force is needed to turn to the left or to the right. If this condition exists replace the steering gear.		
	Did you correct the condition?	System OK	Go to Step 3
9	Operate the vehicle in order to verify the repair.		
	Did you correct the condition?	System OK	Go to Step 3

BODY LEANS OR SWAYS IN CORNERS

Body Leans or Sways in Corners

Step	Action	Yes	No
1	Did you review the General Description and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Suspension General Diagnosis
2	Verify the vehicle leans or sways in corners. Does the vehicle operate normally?	System OK	Go to Step 3
3	Inspect the following components for wear or damage: • Rear Coil Springs • Front Coil Springs Are the components worn or damaged?	Go to Step 5	Go to Step 4
4	1. Inspect the stabilizer shaft link for wear or damage. 2. Repair as necessary. Did you find and correct the condition?	Go to Step 6	Go to Step 2
5	Replace the springs as necessary. Did you complete the repair?	Go to Step 6	-
6	Operate the vehicle in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

SUSPENSION BOTTOMS**Suspension Bottoms**

Step	Action	Yes	No
DEFINITION: A loud bang or thump that can usually be felt and/or heard when the vehicle is driven over bumps. This condition is commonly noticed when the vehicle trim height is too low.			
1	Did you review the General Description and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Suspension General Diagnosis
2	Verify that the suspension bottoms. Does the vehicle operate normally?	System OK	Go to Step 3
3	Inspect for vehicle overloading and correct the overloading condition as necessary. Refer to Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label for specifications. Did you find and correct the condition?	Go to Step 6	Go to Step 4
	Inspect the following components:		

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4	- Inspect the shock absorbers. Refer to <u>Suspension Strut and Shock Absorber Testing - On Vehicle</u>. - Inspect for damaged coil springs, torsion bar or leaf springs and replace as necessary.		
	Did you find and correct the condition?	Go to Step 6	Go to Step 5
5	Inspect the vehicle trim height. Refer to <u>Trim Height Inspection</u> . Did you complete the trim height inspection procedure?	Go to Step 6	-
6	Operate the vehicle in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

TORQUE STEER

Torque Steer

Step	Action	Yes	No
DEFINITION: On a dry, smooth, flat road, the vehicle has a left or right steering force only during acceleration.			
1	Did you review the General Description and perform the necessary inspections?	Go to Step 2	Go to <u>Symptoms - Suspension General Diagnosis</u>
2	1. Drive the vehicle on a straight, smooth, flat road. 2. Press the accelerator and determine if any additional steering input is required to maintain a straight ahead direction. 3. Repeat this test with the vehicle traveling in the opposite direction in order to eliminate crosswind effects. Lead/pull caused by unlevel roads and crosswinds are considered normal. Does the vehicle exhibit torque steer when the accelerator is pressed?	Go to Step 3	System OK
	1. Drive the vehicle on a straight, smooth, flat road at 64-97 km/h (40-60 mph). 2. Remove your foot from the accelerator. 3. Shift the transmission into NEUTRAL in order to allow the vehicle to coast.		

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3	4. Is any additional steering input required to maintain a straight ahead direction. 5. Repeat this test with the vehicle traveling in the opposite direction in order to eliminate crosswind effects. Lead/pull caused by unlevel roads and crosswinds are considered normal.		
	Does the vehicle direction change when the steering wheel is momentarily released?	Go to Vehicle Leads/Pulls	Go to Step 4
4	Inspect the front suspension and powertrain mounts for worn or damaged components and repair as necessary. Did you find and correct the condition?	Go to Step 6	Go to Step 5
5	Inspect the vehicle trim height. Refer to Trim Height Inspection. Did you find and correct the condition?	Go to Step 6	-
6	Operate the vehicle in order to verify the repair. Did you correct the condition?	System OK	-

MEMORY STEER

Memory Steer

Step	Action	Yes	No
DEFINITION: A lead or pull in the direction the driver previously turned the vehicle. Additionally, after turning in the opposite direction, the vehicle will want to lead or pull in that direction.			
1	Did you review the General Description and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Suspension General Diagnosis
2	Verify that memory steer is present. Does the system operate normally?	System OK	Go to Step 3
3	1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 2. Lubricate the tie rod ends and the ball joints if applicable. 3. Inspect the suspension system for worn or damaged components. 4. Repair as necessary. Did you find and correct the condition?	Go to Step 7	Go to Step 4
	Inspect for binding strut bearings. 1. Disconnect the strut from the steering		

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4	knuckle. 2. If the strut is abnormally difficult to rotate, repair or replace the upper bearing mount.		
	Did you find and complete the repair?	Go to Step 7	Go to Step 5
5	Inspect for binding in the lower ball joints. If joint is binding, replace the joint.		
	Did you find and complete the repair?	Go to Step 7	Go to Step 6
6	Inspect the wheel alignment and adjust as necessary. Refer to Wheel Alignment Measurement .		-
	Did you complete the wheel alignment?	Go to Step 7	
7	Operate the vehicle in order to verify the repair.		-
	Did you correct the condition?	System OK	

NOISE DIAGNOSIS - FRONT SUSPENSION

Noise Diagnosis - Front Suspension

Step	Action	Yes	No
DEFINITION: Any noise emitted from the front of the vehicle that is induced by VEHICLE SPEED or DRIVING TERRAIN as related to the front suspension.			
1	Did you review the General Description and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Suspension General Diagnosis
2	Attempt to duplicate the condition. Road test the vehicle. Did you duplicate the condition?	Go to Step 3	System OK
3	Is the noise reactive to vehicle load or speed?	Go to Step 4	Go to Step 7
4	Inspect the tires for the following condition: • Proper tire inflation and adjust as necessary-Refer to Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label. • Unusual tire wear-Refer to Vibration Analysis - Tire and Wheel. • Inspect the wheel nuts for looseness and tighten as necessary. Refer to Fastener Tightening Specifications.		

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	Did you find and correct the condition?	Go to Step 14	Go to Step 5
5	Inspect the front wheel bearings. Refer to Wheel Bearings Diagnosis . Did you find and correct the condition?	Go to Step 14	Go to Step 6
6	If applicable inspect for front axle or transaxle noises. Refer to the following: • Symptoms - Vehicle • Symptoms - Automatic Transmission Did you find and correct the condition?	Go to Step 14	Go to Step 7
7	Bounce the front of the vehicle in order to duplicate the noise. Did you duplicate the noise?	Go to Step 8	Go to Step 9
8	1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 2. Inspect the front suspension components for looseness. Refer to Fastener Tightening Specifications. 3. Inspect the front suspension components for damage and repair as necessary. Did you find and correct the condition?	Go to Step 14	Go to Step 9
9	1. Install the J 39570 Chassis Ear or equivalent. 2. Bounce the front of the vehicle, using the J 39570 Chassis Ear or equivalent in order to locate the source of the noise. If necessary road test the vehicle. 3. Repair or replace any damaged components as necessary. Did you find and correct the condition?	Go to Step 14	Go to Step 10
10	Inspect the ball joints and steering components for the following conditions. • Lack of lubrication where applicable • Looseness in the ball joints-Refer to Front Ball Joint Inspection. • Looseness in the tie rods-Refer to Symptoms - Vehicle.		

	Did you find and correct the condition?	Go to Step 14	Go to Step 11
11	Inspect for damaged shock absorbers. Refer to <u>Suspension Strut and Shock Absorber Testing - On Vehicle</u> . Did you find and correct the condition?	Go to Step 14	Go to Step 12
12	Inspect the front stabilizer shaft and stabilizer shaft links for damage and repair as necessary. Refer to <u>Stabilizer Shaft Replacement</u> , or <u>Stabilizer Shaft Link Replacement</u> . Did you find and correct the condition?	Go to Step 14	Go to Step 13
13	Inspect for control arm damage and repair as necessary. Refer to <u>Lower Control Arm Replacement</u> . Did you find and correct the condition?	Go to Step 14	-
14	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

NOISE DIAGNOSIS - REAR SUSPENSION

Noise Diagnosis - Rear Suspension

Step	Action	Yes	No
DEFINITION: Any noise emitted from the rear of the vehicle that is induced by VEHICLE SPEED or DRIVING TERRAIN as related to the rear suspension.			
1	Did you review the General Description and perform the necessary inspections?	Go to Step 2	Go to <u>Symptoms - Suspension General Diagnosis</u>
2	Attempt to duplicate the condition. Road test the vehicle. Did you duplicate the condition?	Go to Step 3	System OK
3	Is the noise reactive to vehicle load or speed?	Go to Step 4	Go to Step 6
4	Perform the following inspections: - Inspect and adjust the tire inflation. - Inspect for unusual tire wear. Refer to <u>Vibration Analysis - Tire and Wheel</u> . - Inspect the wheel nuts for looseness. Refer to <u>Fastener Tightening Specifications</u> . Did you find and correct the condition?	Go to Step 10	Go to Step 5
	Inspect the rear wheel bearings. Refer to		

5	<u>Wheel Bearings Diagnosis.</u> Did you find and correct the condition?	Go to Step 10	Go to Step 6
6	Bounce the rear of the vehicle in order to duplicate the noise. Did you duplicate the noise?	Go to Step 7	Go to Step 9
7	1. Raise the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Inspect the rear suspension components for looseness. Refer to <u>Fastener Tightening Specifications</u> . 3. Inspect the rear suspension components for damage and repair as necessary. Did you find and correct the condition?	Go to Step 10	Go to Step 8
8	Inspect the rear shock absorber. Refer to <u>Suspension Strut and Shock Absorber Testing - On Vehicle.</u> Did you find and correct the condition?	Go to Step 10	Go to Step 9
9	1. Install the J 39570 Chassis Ear or equivalent. 2. Bounce the rear of the vehicle, using the J 39570 Chassis Ear or equivalent, in order to locate the source of the noise. If necessary, road test the vehicle. 3. Repair or replace any defective component as necessary. Did you find and correct the condition?	Go to Step 10	System OK
10	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

FRONT BALL JOINT INSPECTION

Special Tools

J 8001 Dial Indicator Set

1. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** .

IMPORTANT:

- The vehicle must rest on a level surface.
- The vehicle must be stable. Do not rock the vehicle on the floor stands.

2. Clean and inspect the ball joint seal for cuts or tears. If the ball joint seal is damaged, replace the ball joint. Refer to **Lower Control Arm Ball Joint Replacement** .
3. Support the lower control arm with a floor stand as far outboard as possible and raise the suspension to just below ride height.
4. Install **J 8001** Dial Indicator Set or a suitable dial indicator in a way to measure vehicle lash in the ball joint.

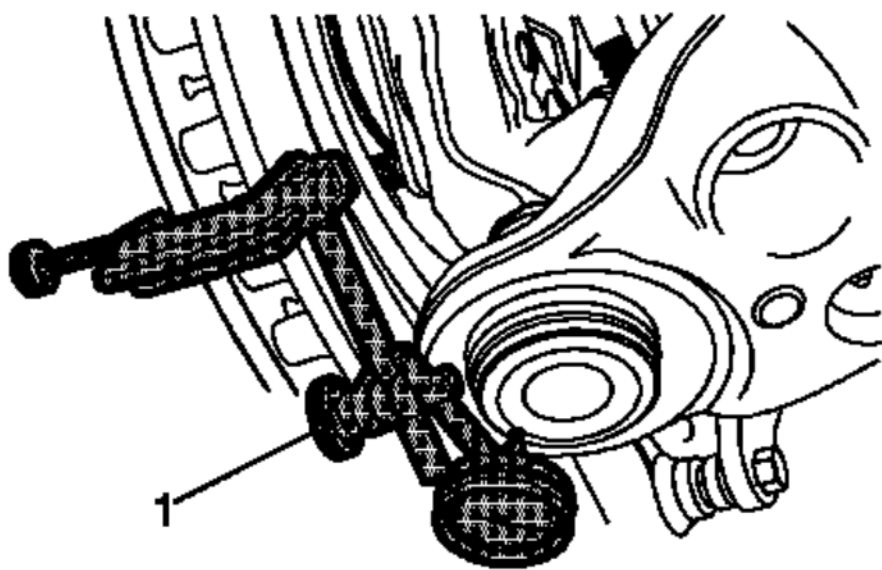


Fig. 1: Measuring Vertical Lash In Ball Joint
Courtesy of GENERAL MOTORS COMPANY

5. Gently lift or pry the suspension to induce ball joint movement.

IMPORTANT: Do not pry between the lower control arm and the wheel drive shaft boot.

6. If the dial indicator reading is more than 0.5 mm (0.020 in), replace the ball joint. Refer to **Lower Control Arm Ball Joint Replacement** .

SUSPENSION STRUT AND SHOCK ABSORBER TESTING - ON VEHICLE

Suspension Strut and Shock Absorber Testing - On Vehicle

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Step	Action	Yes	No
1	Did you review the General Description and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Suspension General Diagnosis
2	Verify that the customer's concern is present. Does the vehicle operate normally?	System OK	Go to Step 3
3	IMPORTANT: A light film of oil on the top portion of the shock reservoir is normal. Inspect each strut or shock absorber for external fluid leakage. Is a strut or shock absorber leaking?	Go to Step 5	Go to Step 4
4	1. Use your hands in order to lift up and push down each corner of the vehicle 3 times. 2. Remove your hands from the vehicle. 3. Locate a shock or strut that exceeds 2 cycles. Did you locate shock or strut that exceeds 2 cycles?	Go to Step 5	Go to Step 6
5	IMPORTANT: Inspect the vehicle trim height in order to correct any possible causes of shock/strut failures. Refer to <u>Trim Height Inspection</u>. Replace the strut or shock absorber. Refer to <u>Strut, Strut Component, or Spring Replacement</u> , or <u>Shock Absorber Replacement</u> . Did you complete the repair?	Go to Step 6	-
6	Operate the vehicle in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

WHEEL BEARINGS DIAGNOSIS

Wheel Bearings Diagnosis

Step	Action	Values	Yes	No
1	Did you review the General Description and perform the necessary inspections?	-	Go to Step 2	Go to Symptoms - Suspension General Diagnosis
	1. Install the J 39570 Chassis Ear Chassis Ear. 2. Road test the vehicle to verify the location of the noise. Drive			

2	the vehicle on a smooth road at a moderate speed range. While driving, turn the wheel to the left and the right to apply loads to each wheel corner. IMPORTANT: A noise heard during left turns is a good indicator of a noisy right wheel bearing. A noise heard during right turns is a good indicator of a noisy left wheel bearing. Is the noise present at the wheel bearing?	48-72 km/h (30-45 mph)	Go to Step 7	Go to Step 3
3	1. Raise and support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u>. 2. Remove the tire and wheel. Refer to <u>Tire and Wheel Removal and Installation</u>. 3. Ensure the wheel drive shaft nut is properly tightened. Refer to <u>Fastener Tightening Specifications</u>. Are the nuts fastened to the correct specified value?	-	Go to Step 4	Go to Step 8
4	1. Mount and secure the J 8001 Dial Indicator to the steering knuckle. IMPORTANT: Support the vehicle by the lower control arms or the rear axle to prevent movement during wheel bearing/hub inspection. 2. Firmly push the hub flange towards the vehicle. 3. Ensure that the dial indicator contacts the vertical surface of the hub as close as possible to the center of the flange.	0.127 mm (0.005 in)		

	4. Firmly pull the hub flange away from the vehicle in order to inspect the total travel indicator by the dial indicator. Is the measurement greater then the specified value?		Go to Step 7	Go to Step 5
5	Inspect for tire or wheel damage. Refer to <u>Tire and Wheel Assembly Runout Measurement - On-Vehicle</u> . Did you find and correct the condition?		Go to Step 9	Go to Step 6
6	Inspect the front and/or rear suspension. Refer to <u>Noise Diagnosis - Front Suspension</u> or <u>Noise Diagnosis - Rear Suspension</u> . Did you find and correct the condition?	-	Go to Step 9	Go to Step 2
7	Replace the wheel bearing. Refer to <u>Front Wheel Bearing and Hub Replacement , Rear Wheel Bearing and Hub Replacement (AWD)</u> or <u>Rear Wheel Bearing and Hub Replacement (FWD)</u> . Did you complete the repair?	-	Go to Step 9	-
8	Remove the old wheel drive shaft nut and install a NEW wheel drive shaft nut. Tighten to the specified value. Refer to <u>Fastener Tightening Specifications</u> . Did you complete the repair?	-	Go to Step 9	-
9	Road test the vehicle to verify the repair. Does the vehicle operate normally?	-	System OK	Go to Step 3

TRIM HEIGHT INSPECTION

Trim Height Measurement

Trim height is a predetermined measurement relating to vehicle ride height. Incorrect trim heights can cause the vehicle to bottom out over bumps, damage to the suspension components and symptoms similar to wheel alignment problems. Check the trim heights when diagnosing suspension concerns and before checking the wheel alignment.

Perform the following before measuring the trim heights:

- Set the tire pressure to the specifications shown on the certification label. Refer to **Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label** .

- Check the fuel level. Add additional weight if necessary to simulate a full tank.

One U.S. gallon of gasoline weighs approximately 6.5 lbs. One liter of gasoline weighs approximately 0.70 kg.

- Make sure the passenger and rear compartments are empty, except for the spare tire.
- Make sure the vehicle is on a flat and level surface, such as an alignment rack.
- For vehicles equipped with automatic level control, ensure the system is functioning properly.
- Check that all the vehicle doors are securely closed.
- Check that the vehicle hood and rear deck lids are securely closed.
- Check for installed after market accessories or modifications that could affect trim height measurement:
 - Larger or smaller than production wheels and tires
 - Lifting or lowering kits
 - Wheel opening flares or ground affects

Measuring the Z Height

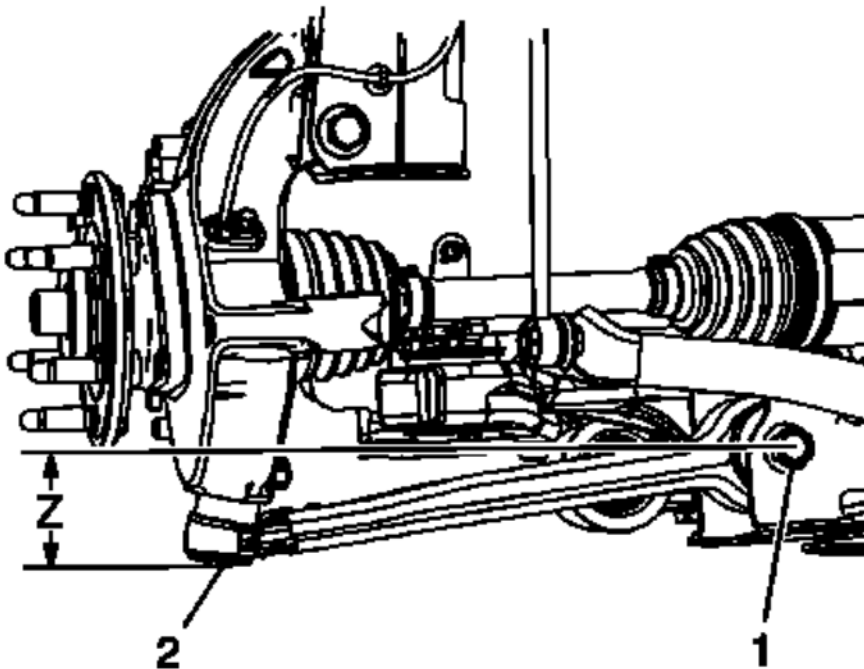


Fig. 2: Measuring Z Height Dimension
Courtesy of GENERAL MOTORS COMPANY

IMPORTANT:

- In order to obtain the proper measurement, Z will equal inner minus the outer.
- The left and right Z height difference should be no more than 12 mm (0.47 in).

Use the following procedure to measure the Z height:

1. Lift the front bumper of the vehicle up about 38 mm (1.5 in).
2. Gently remove your hands and let the vehicle settle.
3. Repeat this operation 2 more times for a total of 3 times.
4. Repeat this jouncing operation 2 more times for a total of 3 times.
5. Measure from the center of the lower ball joint (outer) 2 to the center of the lower control arm bolt (inner) 1.
6. Push the front bumper of the vehicle down about 38 mm (1.5 in).
7. Gently remove your hands and let the vehicle settle.
8. Repeat this operation 2 more times for a total of 3 times.
9. Re-measure the Z height as in step 5.
10. The true Z height is the average of the measurements taken in steps 5 and 8. Refer to **Trim Height Specifications**.

If any of these measurements are out of specifications, inspect for the following conditions:

- Worn or damage suspension components
- Collision damage

Measuring the D Height

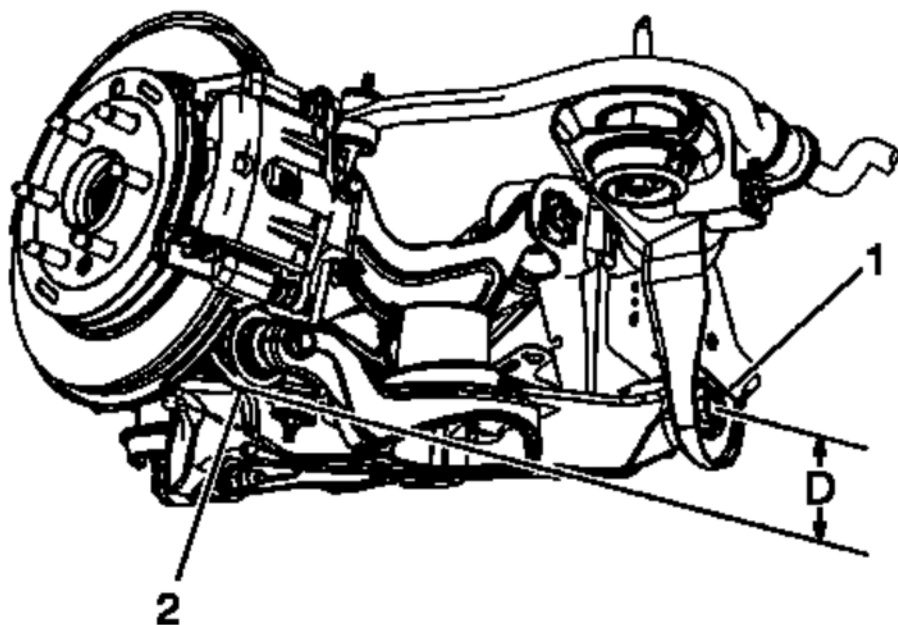


Fig. 3: Measuring D Height Dimension

Courtesy of GENERAL MOTORS COMPANY

IMPORTANT:

- In order to obtain the proper measurement, D will equal inner minus the outer.
- The left and right D height difference should be no more than 12 mm (0.47 in).

Use the following procedure to measure the D height:

1. Lift the rear bumper of the vehicle up about 38 mm (1.5 in).
2. Gently remove your hands and let the vehicle settle.
3. Repeat this operation 2 more times for a total of 3 times.
4. Use the outer flat spot 2 on the knuckle as the reference point for the D height measurement.
5. Measure from the outer on the knuckle to the center of the lower control arm bolt (1).
6. The difference between these 2 measurements is the D height.
7. Lift the rear bumper of the vehicle up about 38 mm (1.5 in).
8. Gently remove your hands and let the vehicle settle.

9. Repeat this operation 2 more times for a total of 3 times.
10. Re-measure the D height as in step 4.
11. The true D height is the average of the measurements taken in steps 4 and 8. Refer to **Trim Height Specifications**.

If any of these measurements are out of specifications, inspect for the following conditions:

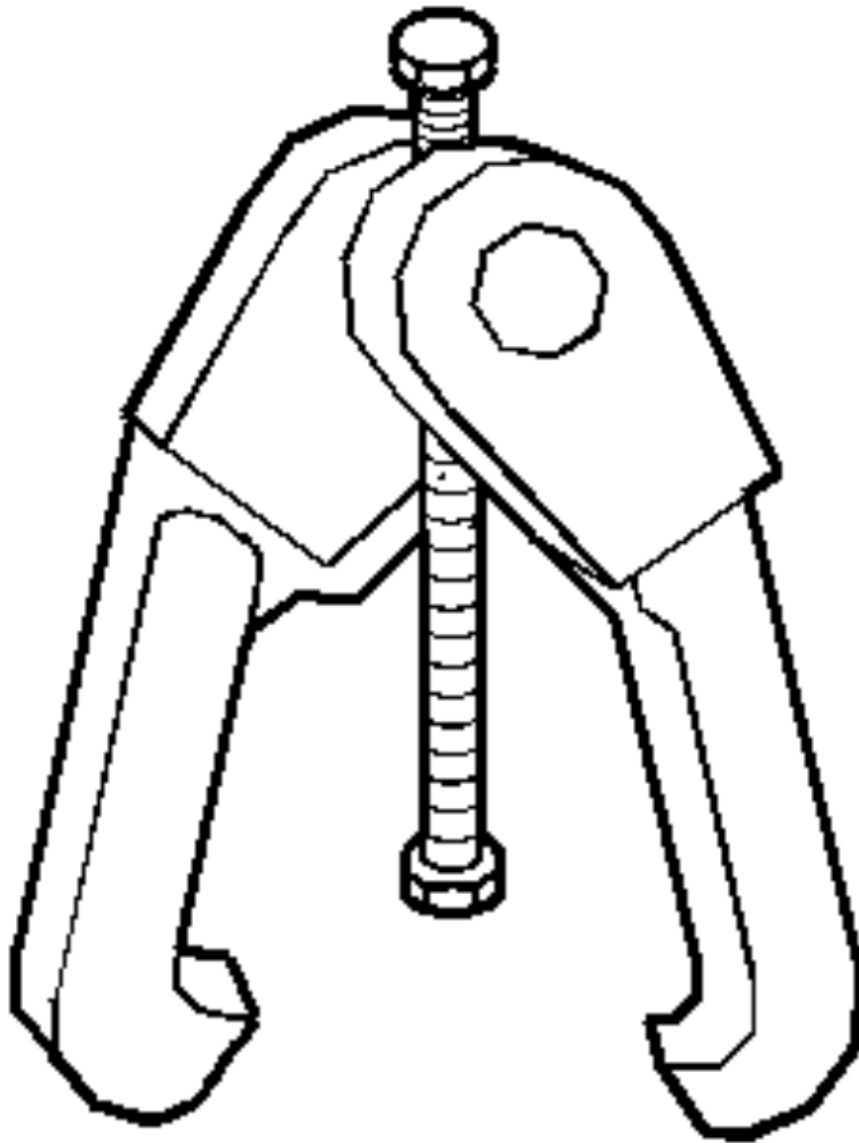
- Worn or damage suspension components
- Collision damage

SPECIAL TOOLS AND EQUIPMENT

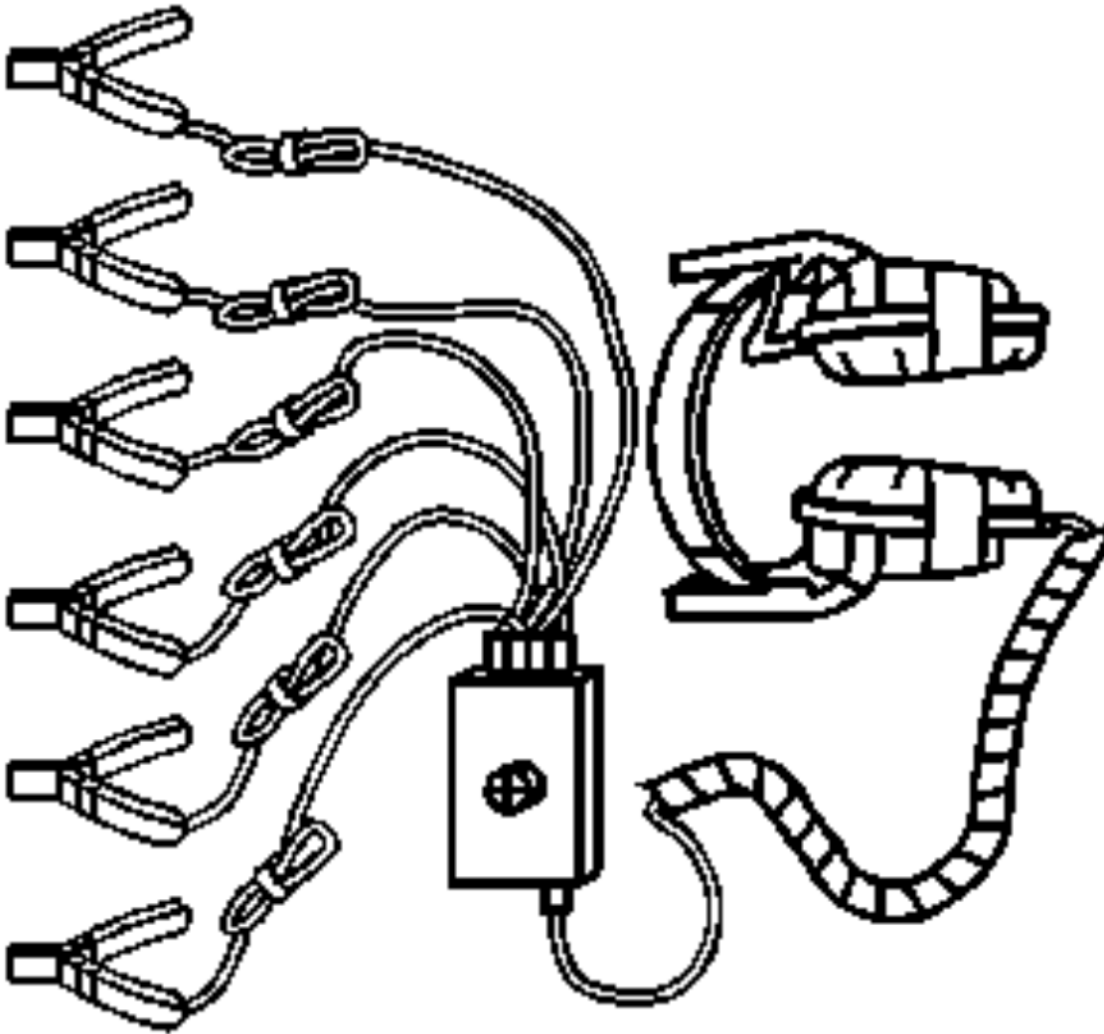
SPECIAL TOOLS

Special Tools

Illustration	Tool Number/Descrip
	J 8001 Dial Indicator



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J 39570
Chassis Ear

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