

2013 Chevrolet Colorado

Submodel: | Engine Type: | Liters:
Fuel Delivery: | Fuel:

The following approximate capacities are given in US English and metric conversions. See Fluid and Lubricant Recommendations for more information. All capacities are approximate. When adding, be sure to fill to the approximate level, as recommended in this manual. Recheck fluid level after filling.

Approximate Fluid Capacities

Application	Specification	
	Metric	US English
Engine Oil with Filter		
• 2.5L Engine (RPO LVN) 4X2	7.6 liters	8 quarts
• 2.8L Engine (RPO LWH) 4X2	6.7 liters	7 quarts
• 2.8L Engine (RPO LWH) 4X4	6.4 liters	6.7 quarts
Automatic Transmission 6L45/6L50/6L90		
• Pan Removal and Filter Replacement - Approximate Capacity (6L50/6L80)	6.3 liters	6.7 quarts
• Overhaul - Approximate Capacity (6L50)	9.3 liters	9.8 quarts
• Complete Trans System - Capacity (6L50)	10.6 liters	11.2 quarts
• Manual Transmission Eaton 5-Speed	3.0 liters	3.17 quarts
Transfer Case - AAM NQV	1.5 liters	1.6 quarts
Front Axle	.90 liters	.95 quarts
Rear Axle	2.30 liters	2.43 quarts

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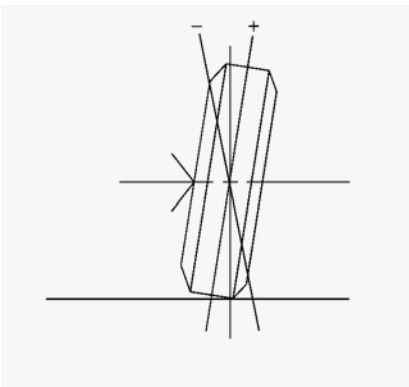
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Approximate Fluid Capacities

Application	Specification	
	Metric	US English
Engine Oil with Filter		
• 2.4L Engine (RPO LE6/LP8)	4.85 liters	5.12 quarts
• 2.5L Engine (RPO LVN)	Low Stance 7.6 liters	Low Stance 8.03 quarts
	High Stance 7.3 liters	High Stance 7.71 quarts
• 2.8L Engine (RPO LWH)	Low Stance 6.7 liters	Low Stance 7.08 quarts
	High Stance 6.4 liters	High Stance 6.76 quarts
• 3.6L Engine (RPO LY7)	5.2 liters	5.49 quarts
Engine Oil without Filter		
• 2.4L Engine (RPO LE6/LP8)	4.6 liters	4.86 quarts
• 3.6L Engine (RPO LY7)	5.2 liters	5.5 quarts
Automatic Transmission 6L45/6L50/6L90		
• Pan Removal and Filter Replacement - Approximate Capacity (6L50/6L80)	6.3 liters	6.7 quarts
• Overhaul - Approximate Capacity (6L50)	9.3 liters	9.8 quarts
• Complete Trans System - Capacity (6L50)	10.6 liters	11.2 quarts
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Camber is the tilting of the wheels from the vertical when viewed from the front of the vehicle. When the wheels tilt outward at the top, the camber is positive (+). When the wheel tilts inward at the top, the camber is negative (-). The amount of tilt is measured in degrees from the vertical. Camber settings influence the directional control and the tire wear.

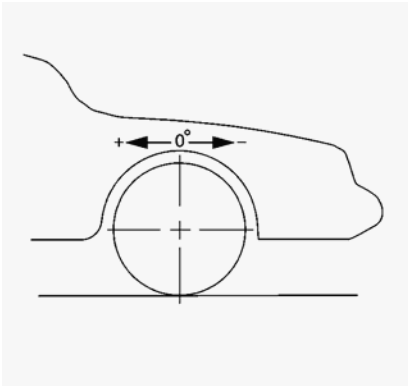
Too much positive camber will result in premature wear on the outside of the tire and cause excessive wear on the suspension parts.

Too much negative camber will result in premature wear on the inside of the tire and cause excessive wear on the suspension parts.

Unequal side-to-side camber of 1 degree or more will cause the vehicle to pull or lead to the side with the most positive camber.

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Caster is the tilting of the uppermost point of the steering axis either forward or backward, when viewed from the side of the vehicle. A backward tilt is positive (+) and a forward tilt is negative (-). Caster influences directional control of the steering but does not affect the tire wear. Caster is affected by the vehicle height, therefore it is important to keep the body at its designed height. Overloading the vehicle or a weak or sagging rear spring will affect caster. When the rear of the vehicle is lower than its designated trim height, the front suspension moves to a more positive caster. If the rear of the vehicle is higher than its designated trim height, the front suspension moves to a less positive caster.

With too little positive caster, steering may be touchy at high speed and wheel returnability may be diminished when coming out of a turn. If one wheel has more positive caster than the other, that wheel will pull toward the center of the vehicle. This condition will cause the vehicle to pull or lead to the side with the least amount of positive caster.

Cross Caster is the difference between the left caster value and the right caster value.

Cross caster = L caster - R caster

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Fastener Tightening Specifications			
	Application	Specification	
		Metric	English
	Front Tie Rod Nut	70Y	52lb ft
	Lower Control Arm Nuts	186 Y	137 ft

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Fluid and Lubricant Recommendations	
Application	Fluid/Lubricant
Brake Fluid	DOT-4
Clutch Fluid	DOT-4
Engine Coolant	DEX-COOL®
Engine Oil	Dexos2 – 5W30
Manual Transaxle	DEXRON® III
Automatic Transaxle	DEXRON® VI
Power Steering Fluid	DEXRON® VI
Front and Rear Axle Lubricant	AC Delco 75W90

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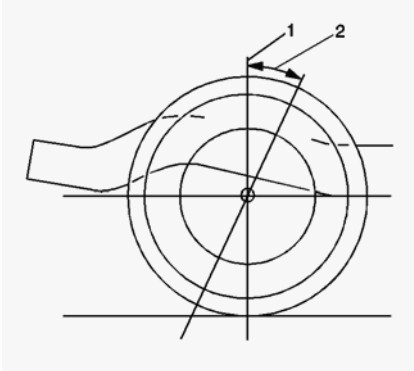
Fluid and Lubricant Recommendations

Application	Fluid/Lubricant
Brake Fluid	DOT-4
Engine Coolant	DEX-COOL®
Engine Oil (NLEV)	- SAE 5W/30 - API SL
Engine Oil (Euro 3)	- SAE 5W/30,10W/30, 15W40, 20W40 or 20W50 - API SJ
Manual Transaxle	SAE 75W/85
Power Steering System	DEXRON® II ACDelco
Refrigerant Fluid	R134A
Front and Rear Axle Lubricant	AC Delco 75W90

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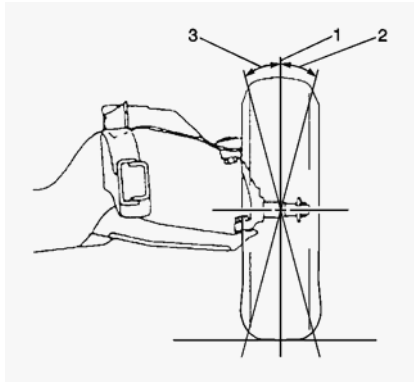
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1. The caster and camber adjustments are made by rotating the front and rear adjuster cam bolt which are located in the lower control arm.



Note: Be sure to compensate for frame angle where required.

2. Determine the caster angle (2).



3. Determine the positive camber (2) or negative camber (3) angle.



4. Loosen the front and rear control arm cam adjustment nuts (1).
5. Adjust the caster and the camber angle by turning the cam bolts until the specifications have been met.

Caution: Refer to Fastener Caution.

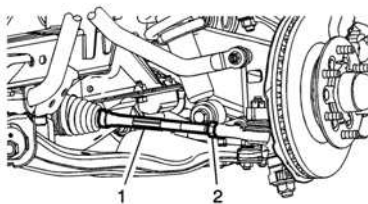
Note: When the adjustments are complete, hold the cam bolt in order to ensure the cam bolt position does not change while tightening the nut.

6. Tighten the front and rear adjuster nuts to **186 Y (137 lb ft.)**.
7. Verify that the caster and the camber are still within specifications. Refer to Wheel Alignment Measurement.
8. With the caster and camber in specifications, adjust the toe. Refer to Wheel Alignment - Steering Wheel Angle and/or Front Toe Adjustment.

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1. Loosen the tie rod nut (2).
2. Rotate the tie rod (1) the required toe specification setting. Refer to Wheel Alignment Measurement.

Caution: Refer to Fastener Caution.

3. Tighten the jam nut on the tie rod to **70 Y (52 lb ft)**.
4. Check the toe setting after tightening.
5. Re-adjust the toe setting if necessary.

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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.

Important: Vehicles will tend to lead/pull in the direction of the road slope as part of normal operation.

Lead/pull is usually caused by the following factors:

- Road slope
- Variability in tire construction
- Wheel alignment (front cross caster and camber)
- Unbalanced steering gear
- Electronic Power Steering (EPS) steering position and torque sensors not calibrated correctly, if equipped.

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Radial Tire Lead/Pull Correction

Step	Action	Yes	No
DEFINITION: Lead/pull is the deviation of the vehicle from a straight path on a level road with no pressure on the steering wheel.			
1	Did you perform the Vehicle Leads/Pull diagnostic table?	Go to Step 2	Go to Vehicle Leads/Pulls
2	Road test the vehicle to verify the complaint. Select a smooth level surface to perform the test. Does the condition exist?	Go to Step 3	System OK
3	1. Cross-switch the front tire/wheel assemblies. Refer to Tire and Wheel Removal and Installation. 2. Road test the vehicle on a smooth level surface. Does the vehicle still lead/pull?	Go to Step 4	System OK
4	Does the vehicle lead/pull in the opposite direction?	Go to Step 5	Go to Wheel Alignment Measurement
5	1. Cross-switch the left front tire/wheel assembly with the left rear tire/wheel assembly. Refer to Tire and Wheel Removal and Installation. 2. Road test the vehicle on a smooth level surface. Does the vehicle still lead/pull?	Go to Step 6	Go to Step 7
6	1. Cross-switch the right front tire/wheel assembly with the right rear tire/wheel assembly. Refer to Tire and Wheel Removal and Installation. 2. Road test the vehicle on a smooth level surface. Does the vehicle still lead/pull?	Go to Wheel Alignment Measurement	Go to Step 8
7	Replace the left rear tire. Refer to Tire Dismounting and Mounting. Is the repair complete?	Go to Step 9	—
8	Replace the right rear tire. Refer to Tire Dismounting and Mounting. Is the repair complete?	Go to Step 9	—
9	Verify proper vehicle operation. Does the original condition still exist?	Go to Step 1	System OK

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Ideally, the scrub radius is as small as possible. Normally, the SAI angle and the centerline of the tire and the wheel intersect below the road surface, causing a positive scrub radius. With struts, the SAI angle is much larger than the long arm/short arm type of suspension. This allows the SAI angle to intersect the camber angle above the road surface, forming a negative scrub radius. The smaller the scrub radius, the better the directional stability. Installing aftermarket wheels that have additional offset will dramatically increase the scrub radius. The newly installed wheels may cause the centerline of the tires to move further away from the spindle. This will increase the scrub radius.

A large amount of scrub radius can cause severe shimmy after hitting a bump. Four-wheel drive vehicles with large tires use a steering damper to compensate for an increased scrub radius. Scrub radius is not directly measurable by the conventional methods. Scrub radius is projected geometrically by engineers during the design phase of the suspension.

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Setback applies to both the front and the rear wheels. Setback is the amount that one wheel may be aligned behind the other wheel. Setback may be the result of a road hazard or a collision. The first clue is a caster difference from side-to-side of more than 1 degree.

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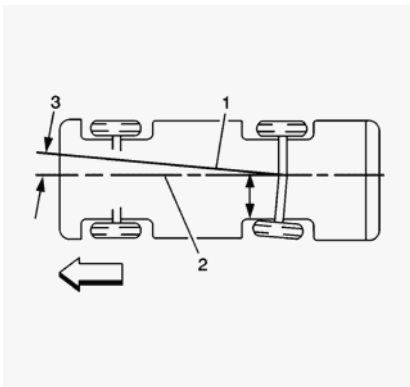
Fuel Delivery: | Fuel:

Suspension Strut and Shock Absorber Testing - On Vehicle

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 a 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 Trim Height Inspection. Replace the strut or shock absorber. Refer to Shock Absorber, Shock Absorber Component, or Spring Replacement for the front suspension or Shock Absorber Replacement for the rear suspension. 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

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The front wheels aim or steer the vehicle. The rear wheels control tracking. This tracking action relates to the thrust angle (3). The thrust angle is the path that the rear wheels take. Ideally, the thrust angle is geometrically aligned with the body centerline (2).

In the illustration, toe-in is shown on the left rear wheel, moving the thrust line (1) off center. The resulting deviation from the centerline is the thrust angle.

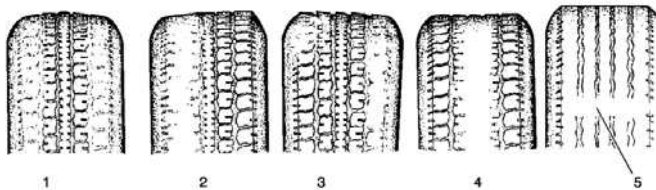
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The tires on all new production models have a tire performance criteria (TPC) rating number molded on the sidewall. The TPC rating will appear as a 4-digit number preceded by the letters TPC SPEC on the tire wall near the tire size. A replacement tire should have the same TPC rating.

[Tire Wear](#)



- (1) Hard Cornering/Underinflation
- (2) Incorrect Alignment/Lack of Rotation
- (3) Incorrect Alignment/Non-uniform Tire
- (4) Heavy Acceleration/Over inflation
- (5) Wear Indicator

Inspect the tire and wheel assemblies for the following conditions:

- Unusual wear such as cupping, flat spots, and/or heel-and-toe wear

These conditions can cause tire growl, tire howl, slapping noises, and/or vibrations throughout the vehicle.

- Proper inflation to specifications for the vehicle
- Bulges in the sidewalls

Do not confuse bulges, which are an abnormal condition, with normal ply splices which are commonly seen as indentations in the sidewall.

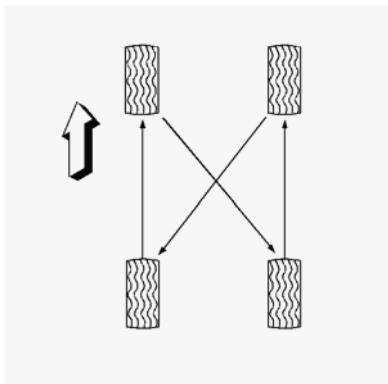
- Bent rim flanges

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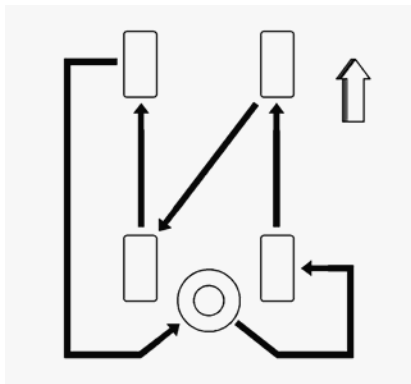
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In order to equalize wear, rotate the tires at the specified intervals. Also, rotate the tire and wheel assembly whenever you notice uneven tire wear.

Radial tires tend to wear faster in the shoulder area, particularly in front positions, due to design. Radial tires in non-drive locations may develop an irregular wear pattern that can generate tire noise. This especially makes regular tire rotation necessary.



- For vehicles with single rear wheels (4 tires), rotate the tires as shown.

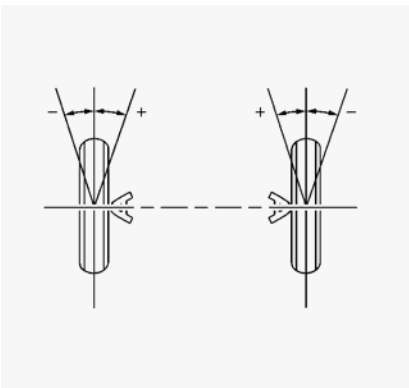


- For vehicles with single rear wheels (5 tires), rotate the tires as shown.

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Toe is a measurement of how much the front and/or rear wheels are turned in or out from a straight-ahead position. When the wheels are turned in, toe is positive (+). When the wheels are turned out, toe is negative (-). The actual amount of toe is normally only a fraction of a degree. The purpose of toe is to ensure that the wheels roll parallel.

Toe also offsets the small deflections of the wheel support system that occur when the vehicle is rolling forward. In other words, with the vehicle standing still and the wheels set with toe-in, the wheels tend to roll parallel on the road when the vehicle is moving.

Improper toe adjustment will cause premature tire wear and cause steering instability.

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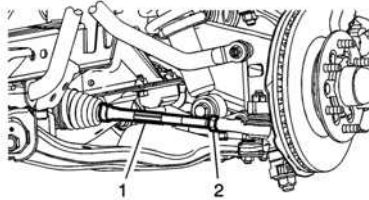
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Wander is the undesired drifting or deviation of a vehicle to either side from a straight path with hand pressure on the steering wheel. Wander is a symptom of the vehicle's sensitivity to external disturbances, such as road crown and crosswind, and accentuated by poor on-center steering feel.

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1. Loosen the tie rod nut (2).
2. Rotate the tie rod (1) the required toe specification setting. Refer to Wheel Alignment Measurement.

Caution: Refer to Fastener Caution.

3. Tighten the jam nut on the tie rod to **70 Y (52 lb ft)**.
4. Check the toe setting after tightening.
5. Re-adjust the toe setting if necessary.

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Steering and vibration complaints are not always the result of improper alignment. One possible cause is wheel and tire imbalance. Another possibility is tire lead due to worn or improperly manufactured tires. Lead/pull is defined as follows: 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. Lead is the vehicle deviation from a straight path on a level road without pressure on the steering wheel. Refer to Radial Tire Lead/Pull Correction in order to determine if the vehicle has a tire lead problem.

Before performing any adjustment affecting wheel alignment, perform the following inspections in order to ensure correct alignment readings:

- Inspect for visible damage to the suspension components and replace as necessary.
- Inspect the tires for the proper inflation and irregular tire wear. Refer to Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label and Tire Diagnosis - Irregular or Premature Wear.
- Inspect the runout of the wheels and the tires. Refer to Tire and Wheel Runout Specifications.
- Inspect the wheel bearings for backlash and excessive play. Refer to Wheel Bearings Diagnosis.
- Inspect the ball joints for looseness or wear.
- Inspect the tie rod ends for looseness or wear.
- Inspect the control arms and stabilizer shaft for looseness or wear.
- Inspect the steering gear for looseness at the frame. Refer to Fastener Tightening Specifications.
- Inspect the struts/shock absorbers for wear, leaks, and any noticeable noises. Refer to Suspension Strut and Shock Absorber Testing - On Vehicle.
- Inspect the vehicle trim height. Refer to Trim Height Inspection.
- Inspect the steering wheel for excessive drag or poor return due to stiff or rusted linkage or suspension components.
- Inspect the fuel level. The fuel tank should be full or the vehicle should have a compensating load added.

Give consideration to excess loads, such as tool boxes, sample cases, etc. If normally carried in the vehicle, these items should remain in the vehicle during alignment adjustments. Give consideration also to the condition of the equipment being used for the alignment. Follow the equipment manufacturer's instructions.

Satisfactory vehicle operation may occur over a wide range of alignment settings. However, if the setting exceeds the service allowable specifications, correct the alignment to the service preferred specifications. Refer to Wheel Alignment Specifications.

Perform the following steps in order to measure the front and rear alignment angles:

1. Install the alignment equipment according to the manufacturer's instructions.
2. Jounce the front and the rear bumpers 3 times prior to checking the wheel alignment.
3. Measure the alignment angles and record the readings.

Note:

- Record the "Before" and "After" alignment measurements.
 - When performing adjustments to vehicles requiring a 4-wheel alignment, set the rear toe adjustment first in order to obtain proper front alignment angles.
4. Adjust alignment angles to vehicle specification, if necessary. Refer to Wheel Alignment Specifications.

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Alignment Condition: Full tank of fuel, no passengers and placed on flat level surface.

Wheel Alignment Specifications

Front Suspension Wheel Alignment

Service at Curb

RPO	Wheels	Caster		Cross Caster	Camber		Cross Camber	Total Toe	Steering Wheel Angle	Thrust Angle
		Left	Right	(Left – Right)	Left	Right	(Left – Right)	(Left + Right)		(Left – Right)
F88	Front Dim. nominal	3°35' ± 45	3°35' ± 45	—	0'± 30'	0'± 30'	—	0± 2 (mm)	—	—
	Front Production	2,83° to 4,33°	2,83° to 4,33°	30' or less	–0,5° to 0,5°	–0,5° to 0,5°	30' or less	–2 to 2 (mm)	—	—
	Front Service	2,83° to 4,33°	2,83° to 4,33°	30' or less	–0,5° to 0,5°	–0,5° to 0,5°	30' or less	–2 to 2 (mm)	—	—
	Front Dim. nominal	3°20' ± 45	3°20' ± 45	—	0'± 30'	0'± 30'	—	0± 2 (mm)	—	—
F89	Front Production	2,58° to 4,08°	2,58° to 4,08°	30' or less	–0,5° to 0,5°	–0,5° to 0,5°	30' or less	–2 to 2 (mm)	—	—
	Front Service	2,58° to 4,08°	2,58° to 4,08°	30' or less	–0,5° to 0,5°	–0,5° to 0,5°	30' or less	–2 to 2 (mm)	—	—

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Wheel Bearings Diagnosis

Special Tools

GE-8001 Dial Indicator Set

For equivalent regional tool, refer to Special Tools.

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
2	Road test the vehicle in order to verify the customer complaint. Does the vehicle operate normally?	—	System OK	Go to Step 3
3	1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 2. Inspect for tire or wheel damage. Refer to Tire and Wheel Assembly Runout Measurement - On-Vehicle. Did you find and correct the condition?	—	Go to Step 7	Go to Step 4
4	Road test the vehicle to verify the location of the wheel bearing noise Did you locate the source of the wheel bearing noise?	—	Go to Step 6	Go to Step 5
5	Note: Support the vehicle by the lower control arms or the rear axle to prevent movement during wheel bearing/hub inspection. 1. Mount and secure the GE-8001 set . 2. Ensure that the dial indicator contacts the vertical surface of the wheel as close as possible to the top wheel stud. 3. Push and pull on the top of the tire in order to inspect the total travel indicated by the dial indicator. Is the measurement greater then the specified value?	0.035 mm (0.001 in)	Go to Step 6	System OK
6	Replace the wheel bearing. Refer to Front Wheel Hub, Bearing, and Seal Replacement. Did you complete the repair?	—	Go to Step 7	—
7	Road test the vehicle to verify the repair. Does the vehicle operate normally?	—	System OK	Go to Step 3