

# SECTION 3A

## WHEEL ALIGNMENT

**NOTICE:** All wheel alignment fasteners are important attaching parts in that they could affect the performance of vital components and systems, and/or could result in major repair expense. They must be replaced with one of the same part number or with an equivalent part if replacement becomes necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to assure proper retention of these parts. For prevailing torque nut(s) and bolt(s), refer to the "Reuse of Prevailing Torque Nut(s) and Bolt(s)" chart in Section OA.

### ALL SERIES

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### GENERAL DESCRIPTION

Wheel alignment refers to the angular relationship between the wheels, the suspension parts and the ground. On J and N Series cars toe setting is the only adjustment normally required. However, in special circumstances, such as damage due to road hazard, collision, etc., camber may be adjusted after modifying the strut as shown in Section 3C. Caster is not adjustable. On A Series, camber and toe are the only adjustments required. All the other series vehicles use all three adjustments.

#### Caster

Caster is the tilting of the front steering axis either forward or backward from the vertical. A backward tilt is said to be positive (+) and a forward tilt is said to be negative (-).

#### Camber

Camber is the inward or outward tilting of the front wheels from the vertical. When the wheels tilt outward at the top, the camber is said to be positive (+). When the wheels tilt inward at the top, the camber is said to be negative (-). The amount of tilt is measured in degrees from the vertical and this measurement is called the camber angle.

#### Toe

Toe is a measurement of how much the front of the 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 serves to offset the small deflections of the wheel support system which occurs when the car is rolling forward. In other words, even when the wheels are set to toe-in slightly when the car is standing still, they tend to roll parallel on the road when the car is moving.

#### Steering Axis Inclination

Steering axis inclination is the inward tilt (at the top) of the steering knuckle from the vertical.

#### Toe-Out On Turns

Toe-out on turns refers to the difference in angles between the front wheels and the car frame during turns. Toe-out on turns is non-adjustable.

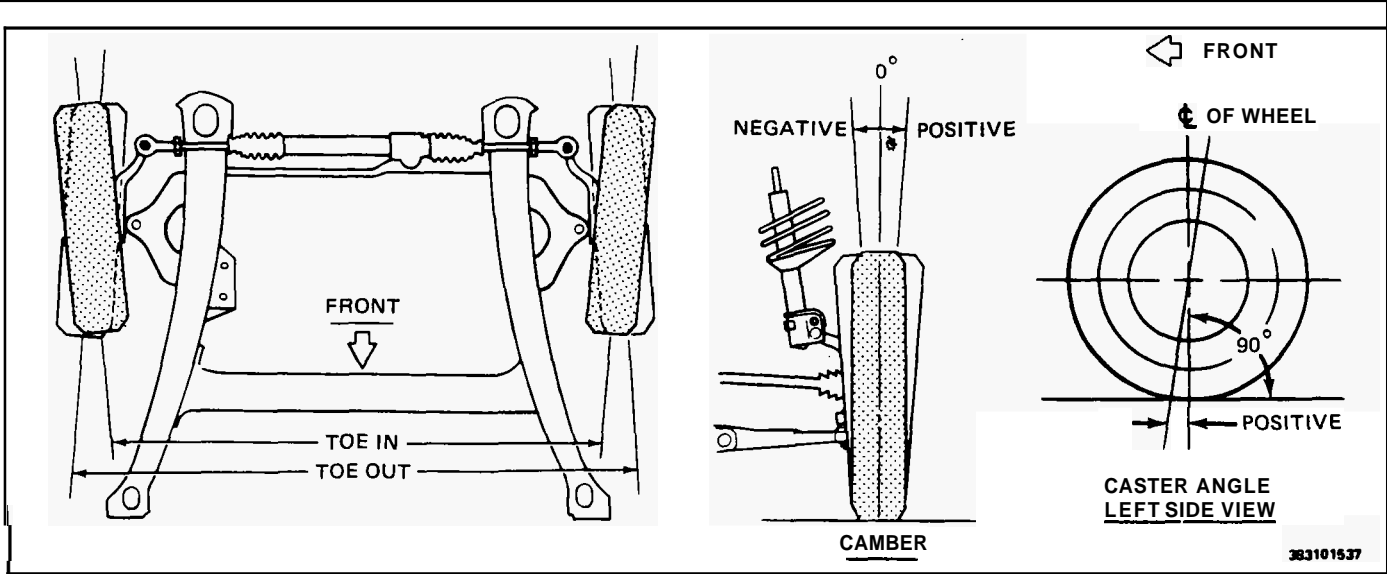


Figure 1 Caster, Camber and Toe

### ON CAR SERVICE

#### PRELIMINARY CHECKS PRIOR TO ADJUSTING FRONT ALIGNMENT

Steering and vibration complaints are not always the result of improper alignment. An additional item to be checked is the possibility of tire lead due to worn or improperly manufactured tires. "Lead" is the deviation of the car from a straight path on a level road without hand pressure on the steering wheel. Section 3 of this manual, "Wheels and Tires," contains a procedure for determining the presence of a tire lead problem.

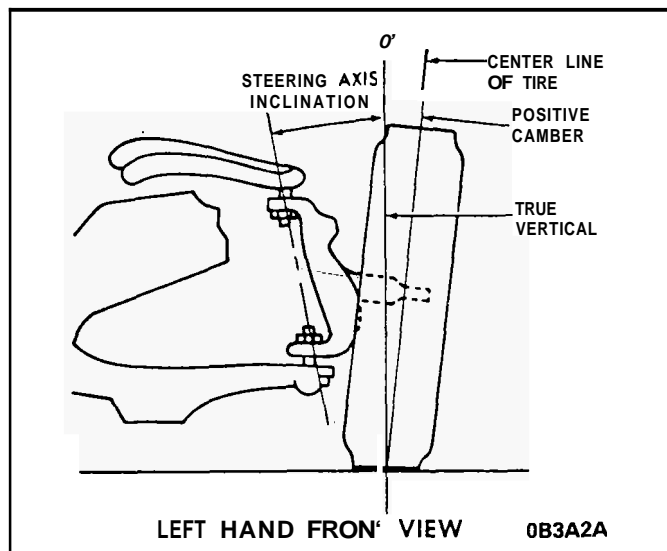


Figure 2 Steering Axis Inclination

Before making any adjustment affecting caster, camber or toe, the following checks and inspections should be made to insure correctness of alignment readings and alignment adjustments:

#### Inspect

1. All tires for proper inflation pressures and approximately the same tread wear.

2. Front wheel bearings for proper adjustment and correct if necessary.
3. Ball joints by following the inspection procedure. Check tie rod ends and steering intermediate rod; if excessive looseness is noted, it must be corrected before adjusting.
4. Run-out of wheels and tires.
5. Trim heights; if out of limits and a correction is to be made, the correction must be made before adjusting caster, camber or toe-in.
6. Steering gear for looseness at frame.
7. Shock absorbers or strut dampeners for proper operation.
8. Control arms for loose bushings.
9. Stabilizer bar for loose or missing parts.
10. Consideration must be given to excess loads, such as a tool box in the trunk.

#### MEASURING FRONT ALIGNMENT ANGLES

#### Measure

#### See Figure 1

- o Install alignment equipment following equipment manufacturer's instructions. Measure alignment angles and record the readings. If adjustments are necessary, make them in the following order:
  1. Caster
  2. Camber
  3. Toe
- o Jounce front and rear bumper three times to normalize suspension before checking alignment.
- o If caster angles are not within the specified range on A-J-N series vehicles, inspect for bent or worn suspension components.

## CASTER AND CAMBER ADJUSTMENT

### B-G Series

See Figure 3

See NOTICE on Page 3A-1 of this section.

Before adjusting caster and camber angles, the front bumper should be raised and released three times to allow car to return to its normal height. See "Trim Heights."

Caster and camber adjustments are made by means of shims inserted between the upper control arm shaft and the frame bracket. Shims may be added, subtracted or transferred to change the readings as follows:

1. **CASTER** - Transfer shims, front to rear or rear to front.

The transfer of one shim from the rear bolt to the front bolt will decrease positive caster.

2. **CAMBER** - Change shims at both the front and rear of the shaft.

Adding an equal number of shims at both front and rear of the cross shaft will decrease positive camber, without affecting caster.

Caster and camber can be adjusted in one operation. Toe-in must be checked after changing camber or caster.

To adjust caster and camber, loosen the upper control arm shaft to frame nuts, add or subtract shims as required, per alignment correction charts, and retorque nuts.

A normal shim pack will leave at least two (2) threads of the bolt exposed beyond the nut. The difference between front and rear shim packs must not exceed .40 inches.

If these requirements cannot be met in order to reach specifications, check for damaged control arms and related parts. Always tighten the nut on the thinner shim pack first, for improved shaft to frame clamping force and torque retention.

## FRONT CASTER ADJUSTMENT

### C-H Series

See Figure 5

Tools Required:

Drill Motor

8.731 mm (11/32") Drill Bit

Round File

Prepare top strut mounting holes as follows:

1. Loosen 2 of the 3 top strut attaching nuts covering the slotted mounting holes.
2. Remove the remaining nut over the oval strut mounting hole.
3. Move the washer away from the oval strut mounting hole.
4. Lift front of car by body to separate strut from inner wheel house.
5. Drill (2) 8.731 mm (11/32") holes at front and rear of oval strut mounting hole.
6. File excess metal.
7. Lower front of car.
8. Reinstall washer and nut.



### Adjust

1. Caster by moving top of strut forward or rearward. Set to specifications.
2. Tighten top strut attaching nuts to 24 N·m (18 lb. ft.).

## FRONT CASTER ADJUSTMENT

### E Series

See Figure 4

Tools Required:

Drill

8.7 mm (11/32") Drill Bit

"Rat Tail" (Round) File

Prepare top strut mounting holes as follows:

1. With car supported by its wheels, remove the three top strut mounting nuts and washers.

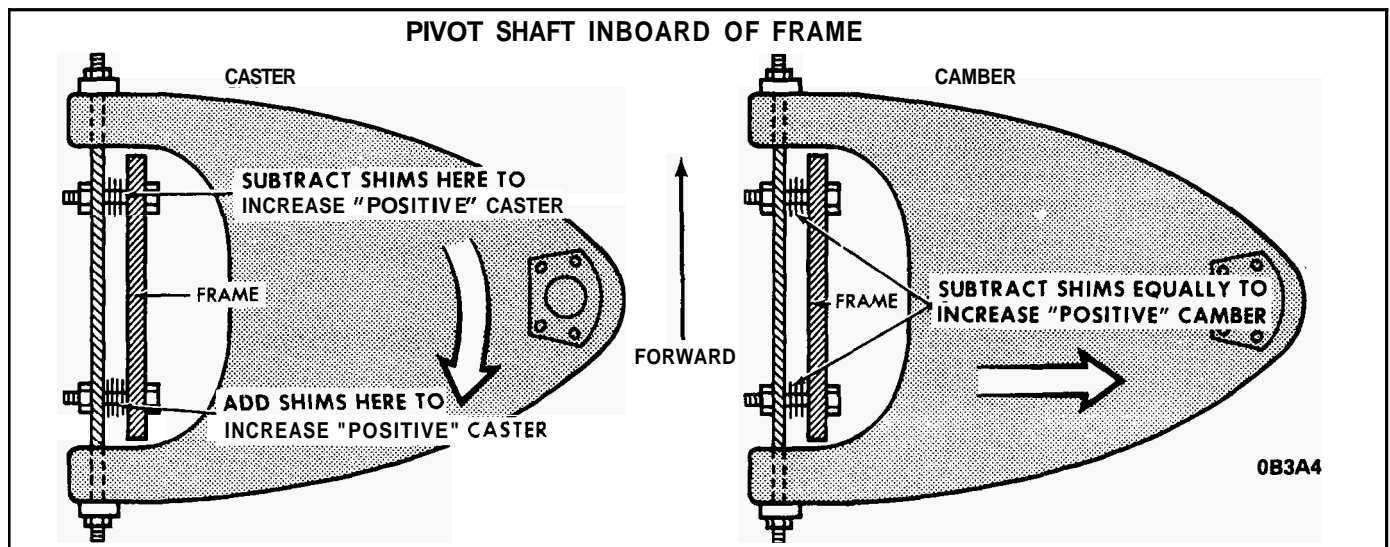


Figure 3 Caster and Camber Adjustment (B-G Series)

## 3A-4 WHEEL ALIGNMENT

- Lift front of car by the body (do not raise wheels or control arms) to separate top strut mount from inner wheelhouse.
- Drill (2) 8.7 mm (11/32") holes at front and rear of outboard strut mounting holes. Use a "rat tail" file to slot the outboard hole.
- For appearance and corrosion protection, paint any bare metal areas which result from filing with a rust preventative paint or primer.
- Reposition strut mount in hole and lower front of car.
- Reinstall washers and nuts.

### Adjust

- Set caster by moving top of strut forward or rearward as required.
- Top strut mounting nuts - 24 N·m (18 ft. lbs.).

## FRONT CAMBER ADJUSTMENT

### A Series

See Figure 6

### Adjust

- Position the vehicle on your alignment equipment, and follow the manufacturers instructions to obtain a camber reading.
- LOOSEN both strut-to-knuckle bolts enough to allow movement between the strut and the knuckle. Remove the tools.
- Grasp the top of the tire firmly, and move it in or out until the correct camber reading is obtained. At this point, it may be necessary to adjust the torque on EITHER or BOTH bolts. The desired torque will:
  - allow slight movement between the strut and the knuckle, and still
  - be sufficient to hold the correct camber reading.
- Tighten both strut to knuckle nuts to 190 N·m (140 lb. ft.).
- If the accessibility to the bolts prevents applying complete torque, it will be necessary to apply only PARTIAL torque (just enough to hold the correct camber position), then to remove the wheel-and-tire in order to apply FINAL torque. After complete tightening, install the wheel-and-tire.
- Repeat on other side.

## FRONT CAMBER ADJUSTMENT

### C-H SERIES

See Figure 7

Tools Required:

**J-29862** Camber Adjusting Tool

### Adjust

- Loosen both strut to knuckle nuts.

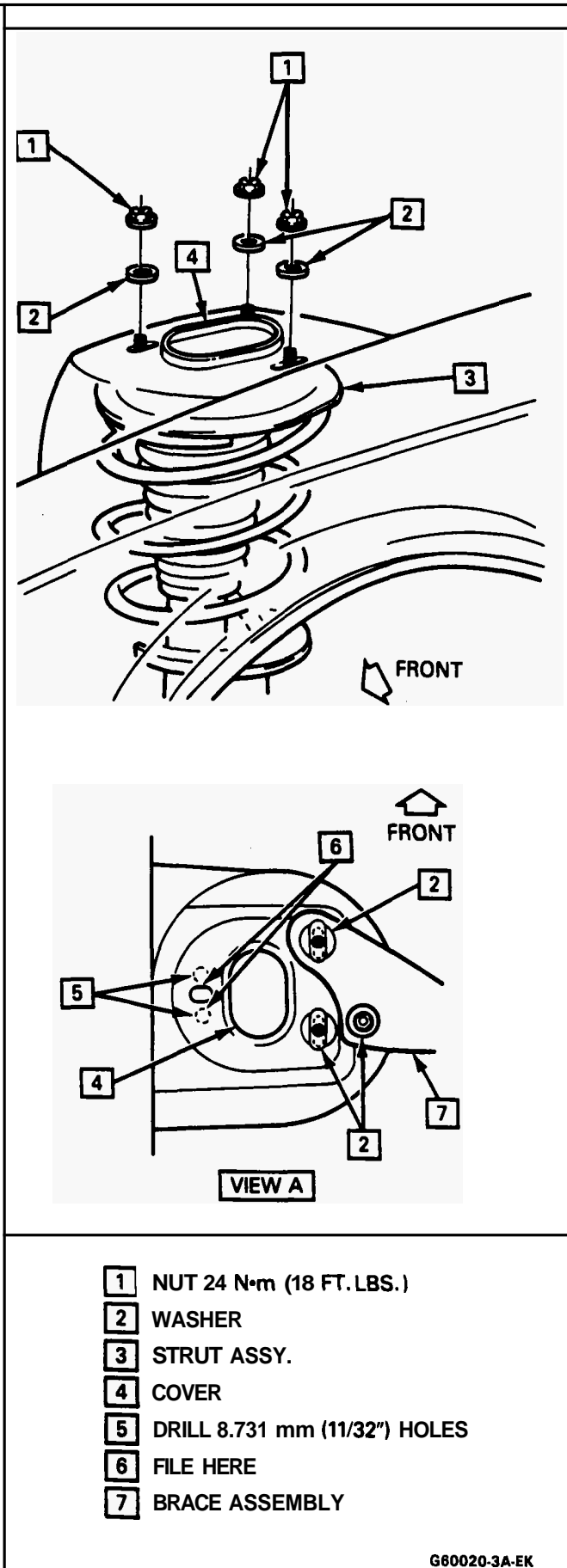


Figure 4 Caster Adjustment E Series

2. Install camber adjusting tool J-29862.
3. Tighten or loosen tool as necessary to set camber to specifications.
4. With camber set to specs, tighten both strut to knuckle nuts to 195 N·m (144 lb. ft.).
5. Remove Tool J-29862.

### FRONT CAMBER ADJUSTMENT

#### E Series

##### Adjust

1. Loosen both strut to knuckle arms.
2. Set camber to specifications using camber adjustment bolt.
3. Both strut to knuckle nuts • 195 N·m (144 lbs. ft.)
4. Camber adjustment bolt • 10 N·m (7 lbs. ft.)

### FRONT CAMBER ADJUSTMENT

#### J-N Series

See Figure 6

##### Adjust

- When camber adjustment is necessary, refer to Section 3C for instructions on modifying the front strut.
  1. Loosen both strut to knuckle nuts just enough to allow movement.

2. Set camber to specifications by moving top of wheel in or out.
3. Tighten strut to knuckle nuts to 180 N·m (135 lb. ft.).

### FRONT TOE ADJUSTMENT

#### (A-C-H-E-J-N Series)

See Figures 7, 8 and 9

1. Position the car on your alignment equipment, and follow the manufacturer's instructions to obtain a toe-in reading.
2. Loosen the jam nuts or clamp bolts on the tie rod.
3. Rotate the tie rod adjuster to adjust the toe to specifications.
4. Tighten the jam nuts or clamp bolts to 60 N·m (45 lb. ft.) for A-C Series or 55 N·m (41 lb. ft.) for J-N Series.
5. Adjust the boots to prevent damage.

**NOTICE:** Care must be taken that the boots are not twisted, or damage to the boots may result.

### FRONT TOE ADJUSTMENT

#### B-G Series

See Figure 10

See Notice on Page 3A-1 of this section. **Tie rod adjuster parts often become rusted in service. In such cases, it is recommended that if the torque required to remove the nut from the**

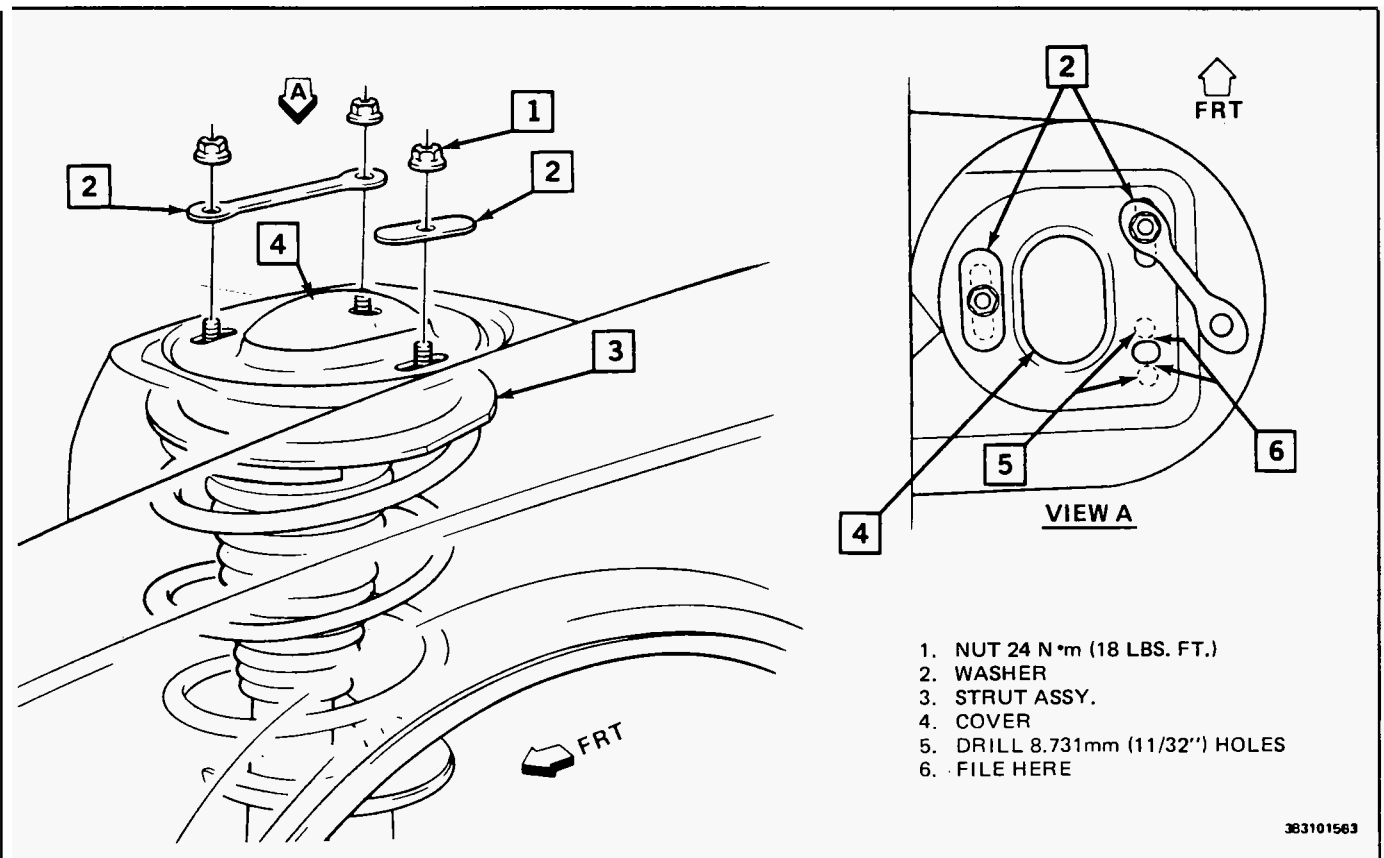


Figure 5 Front Caster Adjustment (C-H Series)

### 3A-6 WHEEL ALIGNMENT

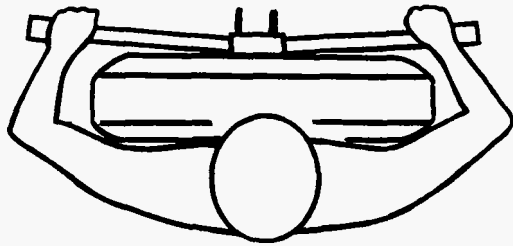
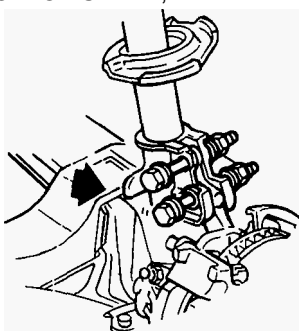
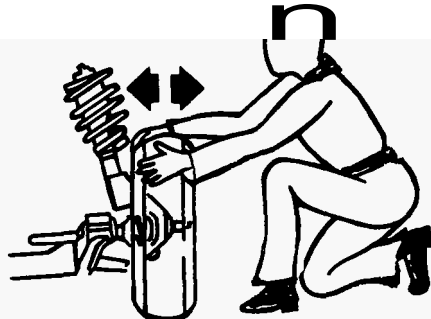
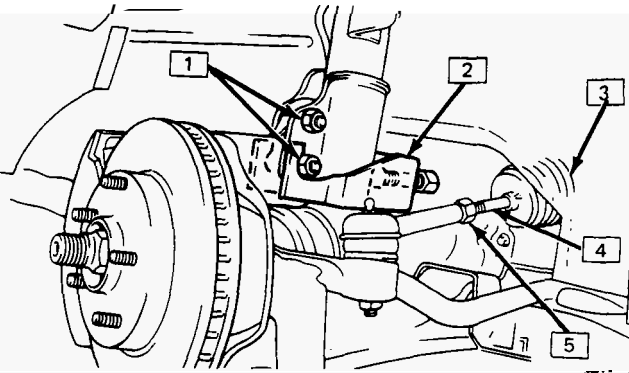
<p>1 <b>TOP VIEW</b> - REACH AROUND THE TIRE AS SHOWN, USING APPROPRIATE EXTENSION AND SOCKETS.. .</p> 	<p>2 ...AND LOOSEN, BUT DO NOT REMOVE THESE TWO BOLTS.</p> 
<p>3 THEN GRASP THE TOP OF THE TIRE FIRMLY AND MOVE INBOARD OR OUTBOARD UNTIL THE CORRECT READING IS OBTAINED.</p> 	<p>4</p> <ul style="list-style-type: none"> <li>● IF ACCESSABILITY IS LIMITED IT MAY BE NECESSARY NOW TO REMOVE THE WHEEL-AND-TIRE TO..</li> <li>● APPLY FINAL TORQUE TO BOLTS/NUTS TO RETAIN THE CORRECT CAMBER SETTING.</li> </ul>

Figure 6 Camber Adjustment (AJ-N Series)

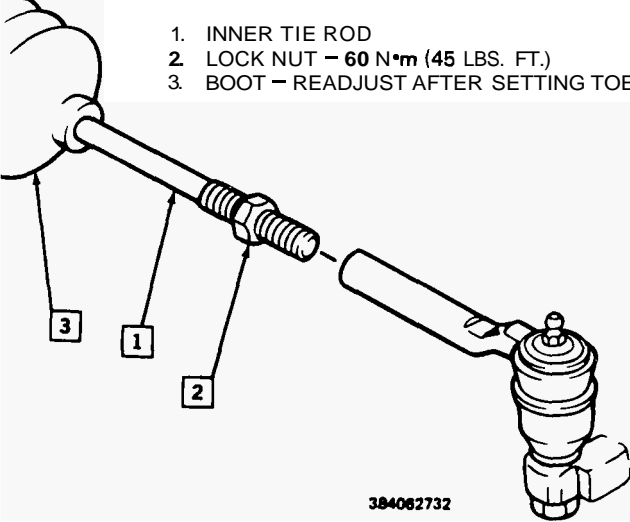
10103:



1 195 N·m (144 LB. FT.)	4 INNER TIE ROD—TURN TO ADJUST TOE
2 J-29862	5 60 N·m (45 LB. FT.)
3 BOOT—READJUST AFTER SETTING TOE	

5B3A01

Figure 7 Front Camber and Toe Adjustment (C-H Series Shown)



1. INNER TIE ROD
2. LOCK NUT - 60 N·m (45 LBS. FT.)
3. BOOT - READJUST AFTER SETTING TOE

3B4062732

Figure 8 Toe Adjustment (A Series)

**bolt after breakaway exceeds 9.0 N·m (7 ft. lbs.), discard the nuts and bolts. Apply penetrating oil between the clamp and tube and rotate the clamps until they move freely. Install new bolts and nuts having the same part number to assure proper clamping at the specified nut torque.**

Toe-in can be increased or decreased by changing the length of the tie rods. A threaded sleeve is provided for this purpose.

When the tie rods are mounted ahead of the steering knuckle, they must be decreased in length in order to increase toe-in.

1. Loosen the clamp bolts at each end of the tie rod adjustable sleeves.
2. With steering wheel set in the straight ahead position, turn tie rod adjusting sleeves to get the proper toe-in adjustment.
3. When adjustment has been set to specifications, check to see that the number of threads showing on each end of sleeve and torque nuts to 20 N·m (15 ft. lbs.).

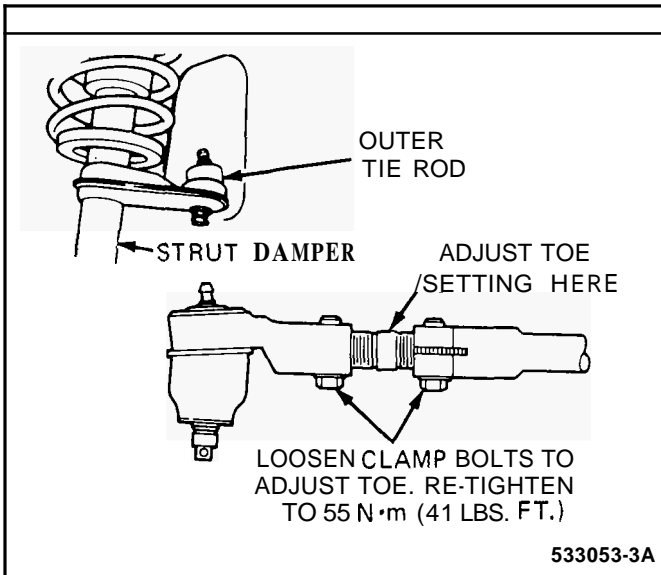


Figure 9 Toe Adjustment (J-N Series)

Before locking clamp bolts on the rods, make sure that the tie rod ends are in alignment with their ball studs by rotating both tie rod ends in the same direction as far as they will go and then tighten adjuster tube clamps to specified torque. Make certain that adjuster tubes and clamps are positioned.

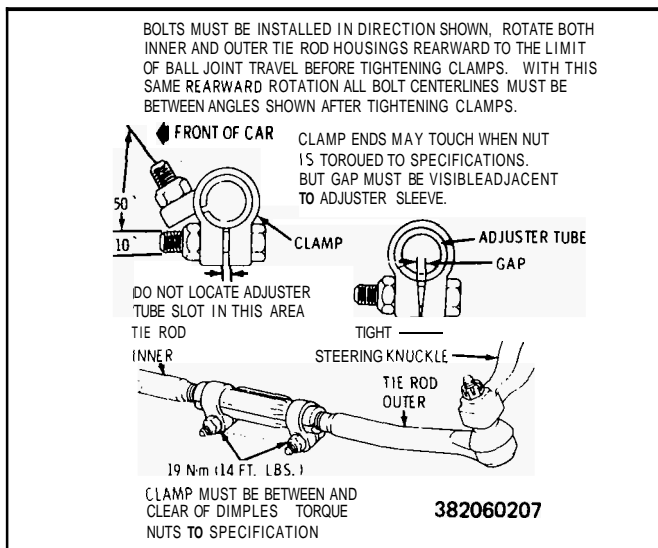


Figure 10 Tie Rod Clamp and Sleeve Positioning (B-G Series)

## REAR WHEEL ALIGNMENT

### C-H Series

See Figure 11

#### Measure

Before checking rear trim height or measuring rear alignment angles, the following procedure should be performed to ensure that the rear air-adjustable struts are filled with residual pressure only:

1. Place a minimum of 137 Kg (300 lb.) of weight in the trunk of the car.
2. Turn ignition on. This will activate the ELC compressor.

3. Turn ignition off and remove weight from trunk.
4. Wait 30 seconds for the ELC system to exhaust.
5. Roll vehicle forward or backward several complete wheel rotations to eliminate the effects of camber change.
6. Normalize position of springs by bouncing bumper up and down, gradually reducing the force applied and allowing the car to come to rest.
7. Install alignment equipment following equipment manufacturers instructions. Measure alignment angles and record the readings. If adjustments are necessary, make them in the following order:
  - a. Camber
  - b. Toe

## REAR CAMBER ADJUSTMENT

### C-H Series

Tools Required:

J-29862 Camber Adjusting Tool

#### Adjust

1. Loosen strut to knuckle mounting nuts.
2. Install camber adjusting tool J-29862.
3. Tighten or loosen Tool J-29862 as necessary to set camber to specifications.
4. With camber set to specifications, tighten strut to knuckle nuts to 195 N·m (144 lb. ft.).
5. Remove Tool J-29862.

## REAR TOE ADJUSTMENT

### C-H Series

#### Important

- Left and right side toe is to be set separately per wheel. Toe link must be adjusted to the full toe-out position and then adjusted inward to the correct setting. The proper alignment can only be made with adjustment direction being from toe-out to toe-in.

#### Adjust

1. Loose lock nut at both tie rod ends.
2. Set toe to specifications by turning inner tie rod.
3. Tighten lock nut at both tie rod ends to 65 N·m (48 lb. ft.).

## REAR TOE ADJUSTMENT

### E Series

See Figure 12

Before checking rear trim height or measuring rear alignment angles, the following procedure should be performed to ensure that the rear air-adjustable struts are filled with residual pressure only:

1. Place a minimum of 137 Kg (300 lb.) of weight in the trunk of the car.
2. Turn ignition on. This will activate the ELC compressor. Wait for the "Car is Leveling" telltale to light.

### 3A-8 WHEEL ALIGNMENT

3. Turn ignition off and remove weight from trunk.
4. Wait 30 seconds for the ELC system to exhaust.
5. Roll vehicle forward or backward several complete wheel rotations to eliminate the effects of camber change.
6. Normalize position of springs by bouncing bumper up and down, gradually reducing the force applied and allowing the car to come to rest.

#### Adjust

1. Loosen front and rear inside control arm mounting bolts.
2. Insert a screwdriver or pry bar between the inside rear control arm mounting bolt and the rear support assembly. Move the control arm to change toe, and set to specification.
  - o Inside rear control arm mounting bolt to 90 N·m (66 lbs. ft.)
  - o Inside front control arm mounting bolt to 90 N·m (66 lbs. ft.)

### AXLE HOUSING ALIGNMENT

#### inspect

If rear tire wear indicates that the axle housing may be bent, the alignment can be checked as follows:

1. Back the car squarely onto an alignment machine.
2. Compensate for wheel runout the same as for checking front wheel toe-in.
3. Check camber reading which should be .3° negative to .5° positive.
4. Check the amount of toe-out which should be 0° to 0.05" (0" to 1/16").

**Due to the fact that the car is backed onto an alignment machine, the actual toe-out will be read on the scale as toe-in. However, if the toe-out is checked with a tram gauge, disregard this notice.**

5. If a tram is used for checking toe-out, it will still be necessary to perform Steps 1 and 2 in order to check camber. The necessary straightening operations may be performed using frame straightening equipment without removing the axle housing from the car. This procedure will allow checks during the straightening operation to determine when the housing is within the prescribed limits.

### INSTRUCTIONS FOR ALIGNMENT CHART (B SERIES EXAMPLE)

To select the correct number of shims to be added (+) or subtracted (-), after a reading has been recorded of what the present caster-camber is, refer to alignment correction charts for the appropriate car.

**EXAMPLE: (Present Reading) - "B" Series - +1.8" Caster**

By reading down chart from +1.8" caster to +0.4° camber, you will find that front bolt requires a -101 and rear bolt requires a +010. Refer to example at lower right corner of chart. You will find that this would require removing one .120" shim and .030" shim from front bolt shim pack and adding one .060" shim to rear bolt shim pack. This will now bring this wheel

alignment into a reading of +3.0° caster and +0.8° camber.

**Difference between front and rear shim packs must not exceed .400".**

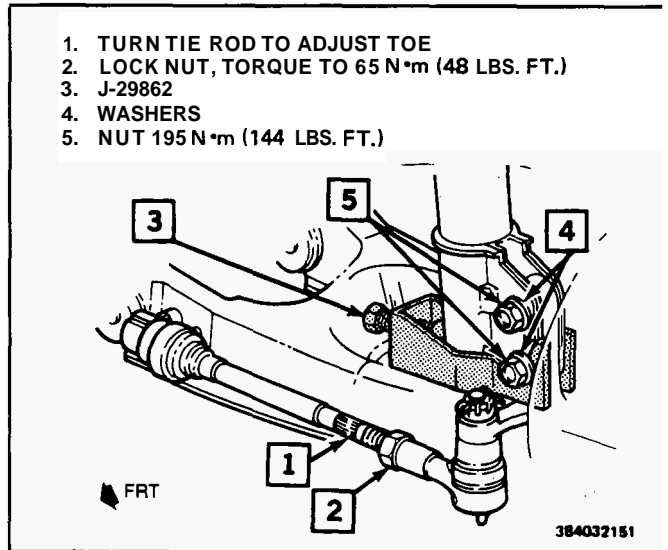
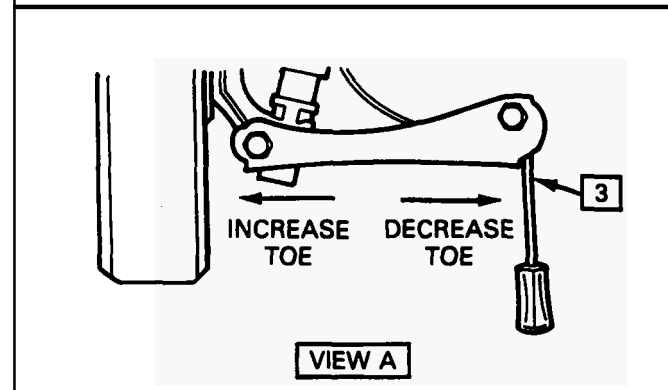
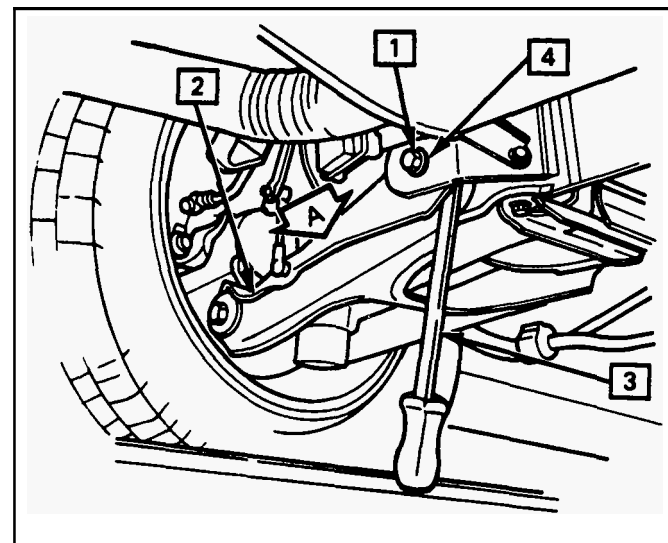


Figure 11 Rear Camber and Toe Adjustment (C-H Series)



- 1 BOLT
- 2 CONTROL ARM
- 3 SCREW DRIVER OR PLY BAR
- 4 SLOTTED HOLE

G60050-3A-EK

Figure 12 Rear Wheel Alignment E Series



Model		Caster	Cross Caster	Camber	Cross Camber	Toe (total)
Century	• Front	+1.7° ± 1°	0 ± 2°	0 ± .5°	0 ± .1°	0 ± .2°
Electra, Park Avenue & LeSabre	• Front • Rear	+2.5° ± .5°	0 ± .75°	+2.0° ± .5° -.3° ± .5°	0 ± .75°	0 ± .2° +.1° ± .2°
Riviera	• Front • Rear	+2.3° ± .1°	0 ± 1°	0 ± .8° -.7° ± .3°	0 ± 1°	0 ± .2° +.2° ± .2°
Skyhawk, Somerset, & Skylark	• Front	+1.7° ± 1°	0 ± 1°	+1.8° ± .6°	0 ± 1°	0 ± .2°
Regal, & Regal Grand National	• Front	+2.8° ± 1°	0 ± 1°	+1.5° ± .8°	0 ± 1°	+1.1° ± .2°
Electra Estate Wagon & LeSabre Estate Wagon	• Front	+2.8° ± 1°	0 ± 1°	+1.8° ± .8°	0 ± 1°	+1.1° ± .2°

Figure 13 Wheel Alignment Specifications

**"G" SERIES – FRONT SUSPENSION ALIGNMENT CHART**

3A-10 WHEEL ALIGNMENT

with Power Steering		DEGREES CASTER ↓															
		+4.6°	+4.4°	+4.2°	+4.0°	+3.8°	+3.6°	+3.4°	+3.2°	+3.0°	+2.8°	+2.6°	+2.4°	+2.2°	+2.0°	+1.8°	+1.6°
+2.0°	BOLT																
	FRONT	+301	+300	+211	+211	+210	+210	+201	+201	+200	+200	+200	+201	+210	+210	+211	+211
	REAR	+101	+110	+110	+110	+111	+111	+200	+200	+200	+201	+201	+210	+210	+211	+211	+211
+1.8°	FRONT	+211	+211	+210	+210	+201	+201	+200	+200	+111	+111	+110	+110	+101	+101	+100	+100
	REAR	+100	+101	+101	+101	+110	+110	+110	+111	+111	+200	+200	+201	+201	+201	+210	+210
+1.6°	FRONT	+210	+210	+201	+201	+200	+200	+111	+111	+110	+101	+101	+100	+100	+011	+011	+011
	REAR	+011	+011	+100	+100	+101	+101	+101	+110	+110	+111	+111	+111	+200	+200	+201	+201
+1.4°	FRONT	+201	+201	+200	+200	+111	+110	+110	+101	+101	+100	+100	+011	+011	+010	+010	+001
	REAR	+010	+010	+011	+011	+011	+100	+100	+101	+101	+110	+110	+110	+111	+111	+200	+200
+1.2°	FRONT	+200	+200	+111	+110	+110	+101	+101	+100	+100	+011	+011	+010	+010	+001	+001	+000
	REAR	+001	+001	+010	+010	+010	+011	+011	+100	+100	+100	+101	+101	+110	+110	+111	+111
+1.0°	FRONT	+111	+110	+110	+101	+101	+100	+100	+011	+011	+010	+010	+001	+001	+000	+000	+001
	REAR	+000	+000	+000	+001	+001	+010	+010	+010	+011	+011	+010	+010	+001	+001	+000	+000
+0.8°	FRONT	+110	+101	+101	+100	+100	+011	+011	+010	+010	+001	+001	+000	+000	+001	+001	+010
	REAR	-001	-001	-001	-000	+000	+001	+001	+001	+010	+010	+011	+011	+011	+011	+100	+101
+0.6°	FRONT	+101	+100	+100	+011	+011	+010	+010	+001	+001	+000	+000	+001	+001	+010	+010	+011
	REAR	-011	-010	-010	-001	-001	-001	-000	+000	+001	+001	+001	+010	+010	+011	+011	+100
+0.5°	FRONT	+100	+100	+011	+011	+010	+010	+001	+000	-000	-001	-001	-010	-010	-010	-011	-011
	REAR	-011	-011	-010	-010	-010	-001	-001	-000	+000	+000	+001	+001	+010	+010	+011	+011
+0.4°	FRONT	+100	+011	+011	+010	+010	+001	+000	-000	-001	-001	-010	-010	-011	-011	-100	-100
	REAR	-100	-011	-011	-010	-010	-010	-001	-001	-000	-000	+000	+001	+001	+010	+010	+011
+0.2°	FRONT	+011	+010	+010	+001	+000	-000	-001	-001	-010	-010	-001	-000	+000	+001	+001	+001
	REAR	-101	-100	-100	-100	-011	-011	-010	-010	-010	-010	-011	-011	-100	-100	-101	-101
0.0°	FRONT	+010	+001	+000	+000	-001	-001	-010	-010	-011	-011	-100	-100	-101	-101	-000	+000
	REAR	-110	-101	-101	-101	-100	-100	-100	-011	-011	-010	-010	-001	-001	-001	-000	+000
-0.2°	FRONT	+001	-000	-001	-001	-010	-010	-011	-011	-100	-100	-101	-101	-110	-110	-111	-111
	REAR	-111	-111	-110	-110	-101	-101	-101	-100	-100	-011	-011	-011	-010	-010	-001	-001
-0.4°	FRONT	-001	-001	-010	-010	-011	-011	-100	-100	-101	-101	-110	-110	-111	-111	-200	-200
	REAR	-200	-200	-111	-111	-111	-110	-110	-101	-101	-101	-100	-100	-011	-011	-010	-010
-0.6°	FRONT	-010	-010	-011	-011	-100	-100	-101	-101	-110	-110	-111	-111	-200	-200	-200	-201
	REAR	-201	-201	-200	-200	-200	-111	-111	-110	-110	-110	-101	-101	-100	-100	-011	-011
-0.8°	FRONT	-011	-011	-100	-100	-101	-110	-110	-111	-111	-200	-200	-201	-201	-210	-210	-210
	REAR	-210	-210	-210	-201	-201	-200	-200	-111	-111	-110	-110	-101	-101	-101	-101	-100

FRONT = SHIM REQUIRED AT FRONT BOLT  
 REAR = SHIM REQUIRED AT REAR BOLT

+ = SHIM ADDITION  
 - = SHIM REMOVAL

**EXAMPLE**

2				No. of .030" Shims (0)
0				No. of .060" Shims (0)
0				No. of .120" Shims (2)

Figure 14 Alignment Correction Chart (G Series)

**"B" SERIES – FRONT SUSPENSION ALIGNMENT CHART**

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**DEGREES CASTER**

		+4.4°	+4.2°	+4.0°	+3.8°	+3.6°	+3.4°	+3.2°	+3.0°	+2.8°	+2.6°	+2.4°	+2.2°	+2.0°	+1.8°	+1.6°
	<b>BOLT</b>															
+2.2°	FRONT	+300	+211	+211	+210	+210	+201	+201	+201	+200	+200	+111	+111	+110	+110	+110
	REAR	+101	+101	+110	+110	+111	+200	+200	+201	+210	+210	+211	+211	+300	+301	+301
+2.0°	FRONT	+210	+210	+210	+201	+201	+200	+200	+111	+111	+110	+110	+110	+110	+101	+100
	REAR	+011	+100	+101	+101	+110	+110	+111	+200	+200	+201	+210	+210	+211	+300	+300
+1.8°	FRONT	+201	+201	+200	+200	+111	+111	+110	+110	+110	+101	+101	+100	+100	+100	+011
	REAR	+010	+011	+011	+100	+101	+101	+110	+110	+111	+200	+200	+201	+210	+210	+211
+1.6°	FRONT	+200	+200	+111	+111	+110	+110	+101	+101	+100	+100	+100	+011	+011	+010	+010
	REAR	+001	+001	+010	+011	+011	+100	+100	+101	+110	+110	+111	+200	+200	+201	+210
+1.4°	FRONT	+111	+110	+110	+101	+101	+100	+100	+100	+011	+011	+010	+010	+010	+001	+001
	REAR	-000	+000	+001	+001	+010	+011	+011	+100	+100	+101	+110	+110	+111	+200	+200
+1.2°	FRONT	+110	+101	+101	+100	+100	+011	+011	+010	+010	+010	+010	+001	+001	+000	-000
	REAR	-010	-001	-000	+000	+001	+001	+010	+011	+011	+100	+101	+101	+110	+111	+111
+1.0°	FRONT	+100	+100	+011	+011	+010	+010	+010	+001	+001	+000	-000	-000	-001	-001	-010
	REAR	-011	-010	-010	-001	-000	+000	+001	+001	+010	+011	+011	+100	+101	+101	+110
+0.8°	FRONT	+011	+011	+010	+010	+001	+001	+000	-000	-000	-001	-001	-010	-010	-010	-011
	REAR	-100	-100	-011	-010	-010	-001	-001	+000	+001	+001	+010	+011	+011	+100	+101
+0.6°	FRONT	+010	+001	+001	+001	+000	-000	-001	-001	-010	-010	-010	-011	-011	-100	-100
	REAR	-101	-101	-100	-100	-011	-010	-010	-001	-001	+000	+001	+001	+010	+011	+011
+0.4°	FRONT	+001	+000	-000	-001	-001	-010	-010	-010	-011	-011	-100	-100	-100	-101	-101
	REAR	-111	-110	-101	-101	-100	-100	-011	-010	-010	-001	-000	+000	+001	+010	+010
+0.2°	FRONT	-001	-001	-001	-010	-010	-011	-011	-100	-100	-101	-101	-110	-110	-110	-110
	REAR	-200	-111	-111	-110	-101	-101	-100	-100	-011	-010	-010	-001	-000	+000	+001
0.0°	FRONT	-010	-010	-011	-011	-100	-100	-100	-101	-101	-110	-110	-111	-111	-111	-200
	REAR	-201	-201	-200	-111	-111	-110	-101	-101	-100	-100	-011	-010	-010	-001	-000
-0.2°	FRONT	-011	-011	-100	-100	-101	-101	-110	-110	-111	-111	-111	-200	-200	-201	-201
	REAR	-210	-210	-201	-201	-200	-111	-111	-110	-101	-101	-100	-100	-011	-010	-010
-0.4°	FRONT	-100	-101	-101	-110	-110	-110	-111	-111	-200	-200	-201	-201	-201	-210	-210
	REAR	-300	-211	-210	-210	-201	-201	-200	-111	-111	-110	-101	-101	-100	-011	-011

FRONT = SHIM REQUIRED AT FRONT BOLT  
REAR = SHIM REQUIRED AT REAR BOLT

+ = SHIM ADDITION  
- = SHIM REMOVAL

**EXAMPLE**

2 0

No. of .030" Shims (1)  
No. of .060" Shims (0)  
No. of .120" Shims (2)

Figure 1-9 Alignment Correction Chart (B Series)

