

## WHEEL ALIGNMENT PROCEDURES

### PRE-ALIGNMENT CHECKS

Ensure steering wheel is centered and front wheels are in straight-ahead position (to correct, shorten one tie rod adjusting sleeve and lengthen the opposite sleeve in equal amounts). Ensure none of the following conditions exist:

- Incorrect vehicle ride height (see **RIDE HEIGHT** ).
- Incorrect tire pressure, mismatched tires (differing size or type), excessive tire runout, unbalanced tire and wheel assemblies, loose wheel bearings, or loose wheel lug nuts.
- Loose or worn steering linkage/suspension components, or excessive play in steering gear box.

### CAMBER & CASTER ADJUSTMENT

#### "C", "G" & "K" Series Except 1999 Sierra & Silverado C1500 & C2500 (Caster Adjustment)

1. Check frame angle. See **"C", "G", "K" & "P" (FRAME ANGLE)** . If corrected caster is not within specification, remove frame bracket slots. See **"C", "G" & "K" SERIES (FRAME BRACKET SLOT REMOVAL)** . Reset caster by loosening nut on end of each cam bolt securing upper control arm to frame brackets. See **Fig. 18** .
2. Rotate cam bolts until caster is within specification. See **WHEEL ALIGNMENT SPECIFICATIONS** table. Tighten nuts to specification. See **TORQUE SPECIFICATIONS** table.

#### "C", "G" & "K" Series Except 1999 Sierra & Silverado C1500 & C2500 (Camber Adjustment)

1. If camber is not within specification, remove frame bracket slots. See **"C", "G" & "K" SERIES (FRAME BRACKET SLOT REMOVAL)** . Reset camber by loosening nut on end of each cam bolt securing upper control arm to frame brackets. See **Fig. 18** .
2. Rotate cam bolts until camber is within specification. See **WHEEL ALIGNMENT SPECIFICATIONS** table. Tighten nuts to specification. See **TORQUE SPECIFICATIONS** table.

#### "C", "G", "K" & "P" (Frame Angle)

1. Position vehicle on smooth, level surface. Using inclinometer or bubble protractor, measure frame angle. Determine if frame angle is up-in-rear or down-in-rear.
2. To determine corrected caster reading with various frame angles and caster readings apply one of the following rules:
  - Down-in-rear frame angle must be subtracted from a positive caster reading.
  - Up-in-rear frame angle must be added to a positive caster reading.
  - Down-in-rear frame angle must be added to a negative caster reading.
  - Up-in-rear frame angle must be subtracted from a negative caster reading.

If corrected caster is not within specification, adjust caster to specified setting.

**"C", "G" & "K" Series (Frame Bracket Slot Removal)**

1. Raise and support vehicle with a jack (or jackstand) under each lower control arm. Remove wheel. Remove nuts, cams, and bolts from frame brackets at upper control arm. See **Fig. 18** .
2. Lift control arm upward and set it aside. Note perforations at bolt hole in each frame bracket. If a protective wax coating is covering perforations, remove wax. Assemble Knockout Remover (J-38794) on frame brackets. See **Fig. 19** . Limited clearance may require that you remove the knockout from the outside inward (opposite of direction indicated in illustration).
3. The head of the "T" bolt and the channel of the bridge must be horizontal, aligned with knockout. Turn nut until knockout breaks loose, but do not exceed 75 ft. lbs. (102 N.m) of torque. If more torque is required, stop procedure and remove knockout with a die grinder.
4. Set control arm into position. Install bolts, cams, and nuts. Go to adjustment procedure.

**1999 Sierra & Silverado C1500 & C2500 (Caster Adjustment)**

If caster is not within specification, remove and discard pinned adjusting cam insert. Loosen upper control arm adjusting cam nuts. Rotate cambolts until caster is within specification. See **WHEEL ALIGNMENT SPECIFICATIONS** table. Tighten nuts to specification. See **TORQUE SPECIFICATIONS** table. See **Fig. 20** .

**1999 Sierra & Silverado C1500 & C2500 (Camber Adjustment)**

If camber is not within specification, remove and discard pinned adjusting cam inserts. Loosen upper control arm adjusting cam nuts. Rotate cambolts until camber is within specification. See **WHEEL ALIGNMENT SPECIFICATIONS** table. Tighten nuts to specification. See **TORQUE SPECIFICATIONS** table. See **Fig. 20** .

**"L", "P" & "S" Series (Caster & Camber)**

On "P" series, check frame angle. See **"C", "G", "K" & "P" (FRAME ANGLE)** . On all models, loosen nuts securing upper control arm shaft to frame. See **Fig. 21** . Remove original shims from bolts, and add or remove shims until caster and camber are within specification. See **WHEEL ALIGNMENT SPECIFICATIONS** table. Tighten nuts to specification. See **TORQUE SPECIFICATIONS** table.

**"M" & "T" Series (Caster & Camber)**

Loosen nut on end of each bolt securing upper control arm to frame brackets. See **Fig. 22** . Rotate bolts until camber and caster are within specification. See **WHEEL ALIGNMENT SPECIFICATIONS** table. Tighten nuts to specification. See **TORQUE SPECIFICATIONS** table.

**Tracker (Caster & Camber)**

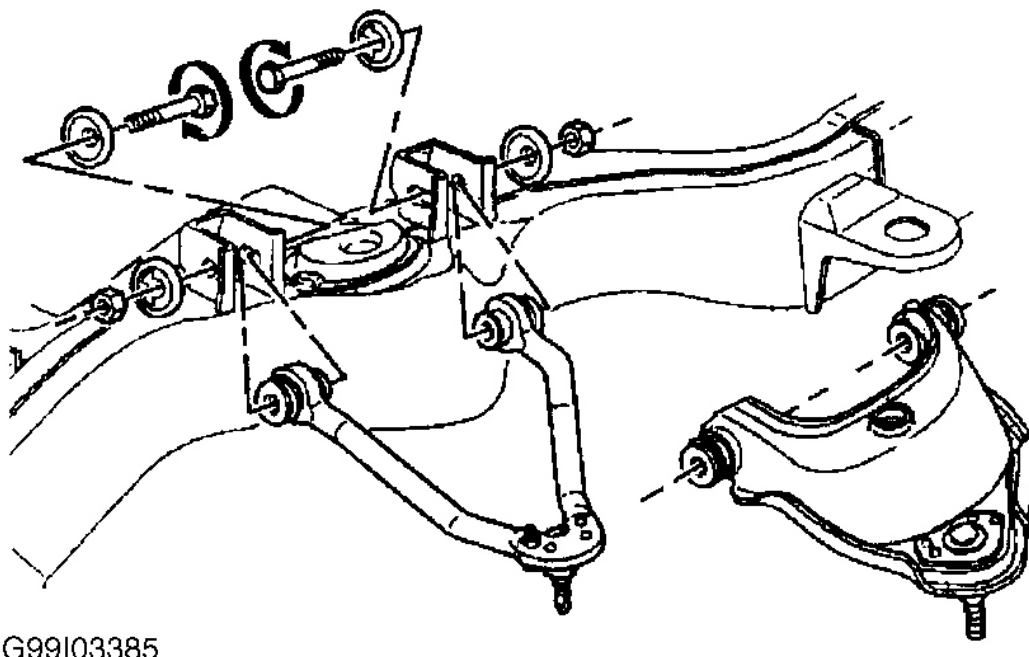
Caster and camber is not adjustable. Measure caster and camber to check for bent or damaged parts. See **WHEEL ALIGNMENT SPECIFICATIONS** table. Replace damaged components if necessary.

**"U" Series (Caster)**

Caster is not adjustable. Measure caster to check for bent or damaged parts. See **WHEEL ALIGNMENT SPECIFICATIONS** table. Replace damaged components if necessary.

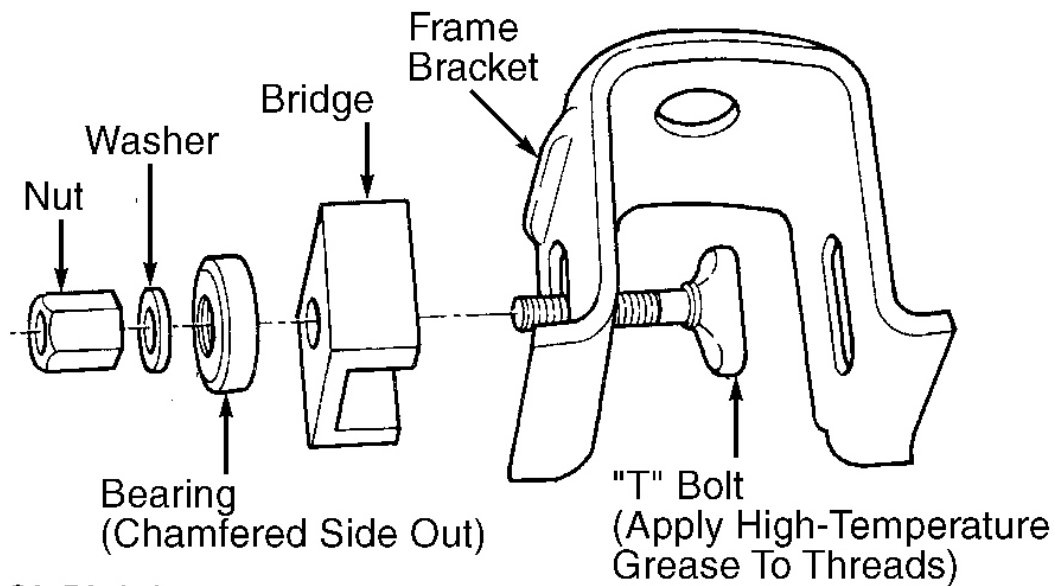
**"U" Series (Camber)**

1. Raise and support vehicle. Remove rear wheel. Remove strut. Put strut in a vise. File bolt hole at lower end of strut to make it oblong. See **Fig. 23** .
2. Install strut, but DO NOT fully tighten strut mounting bolts at steering knuckle. Lower vehicle. Adjust camber to specification. See **WHEEL ALIGNMENT SPECIFICATIONS** table. Tighten bolts to specification. See **TORQUE SPECIFICATIONS** table.



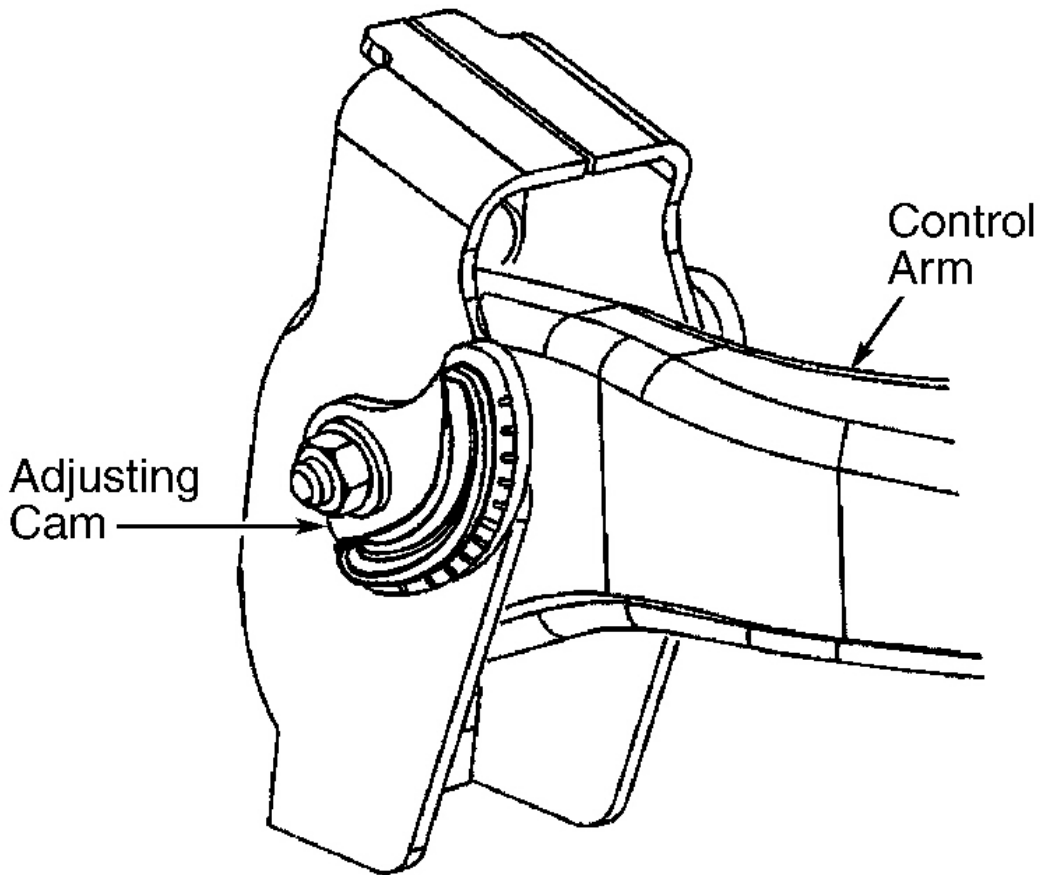
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**Fig. 18: View Of Typical Upper Control Arm & Frame Brackets ("C", "G" & "K" Series)**  
Courtesy of GENERAL MOTORS CORP.



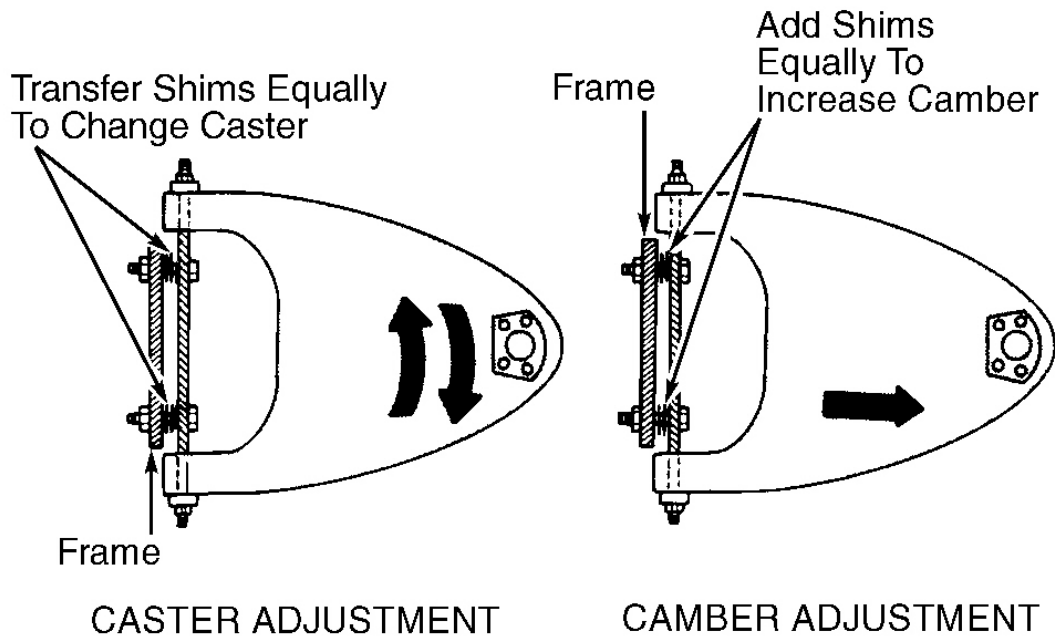
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**Fig. 19: Installing Knockout Remover ("C", "G" & "K" Series)**  
Courtesy of GENERAL MOTORS CORP.



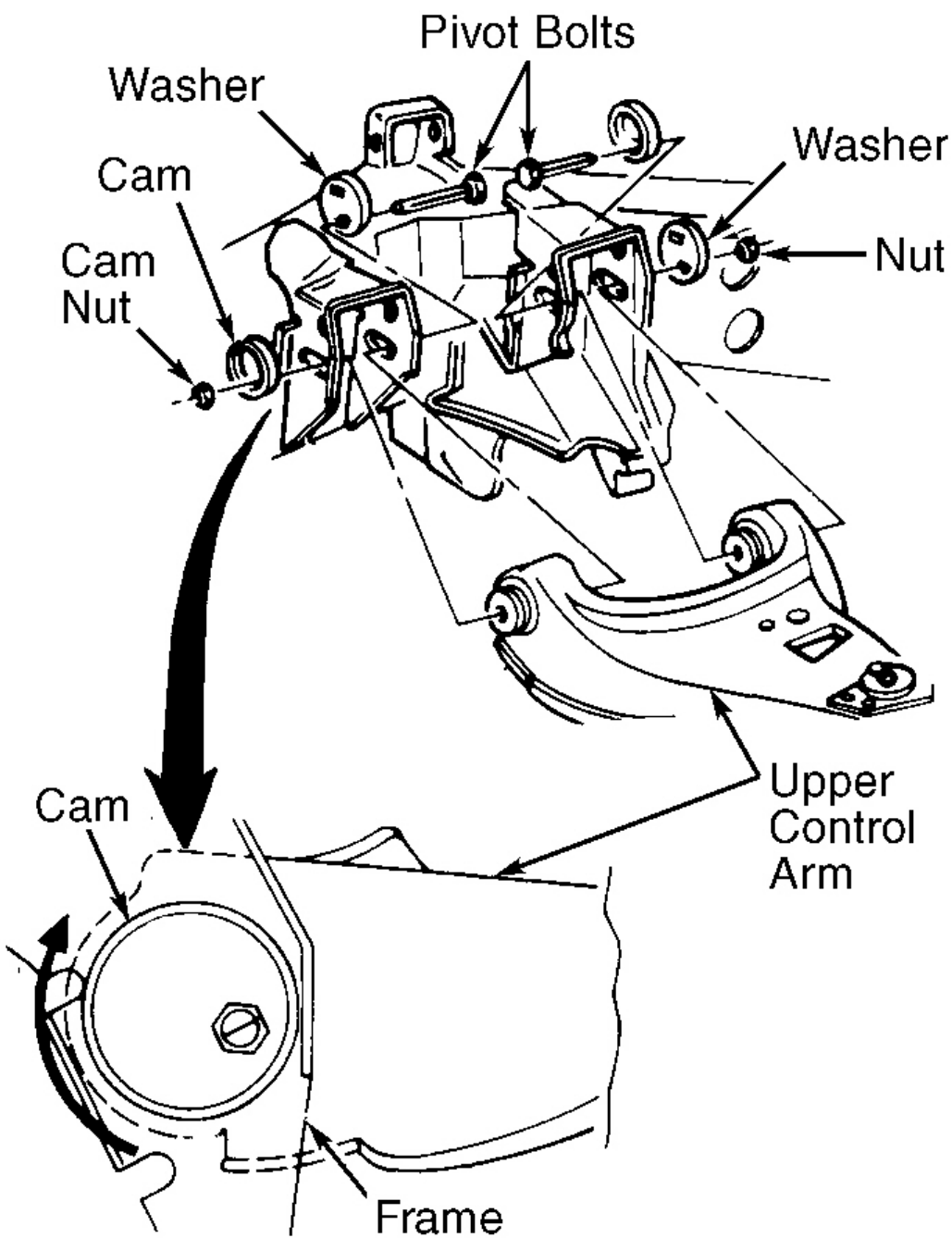
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**Fig. 20: Adjusting Caster & Camber (1999 Sierra & Silverado C1500 & C2500)**  
Courtesy of GENERAL MOTORS CORP.



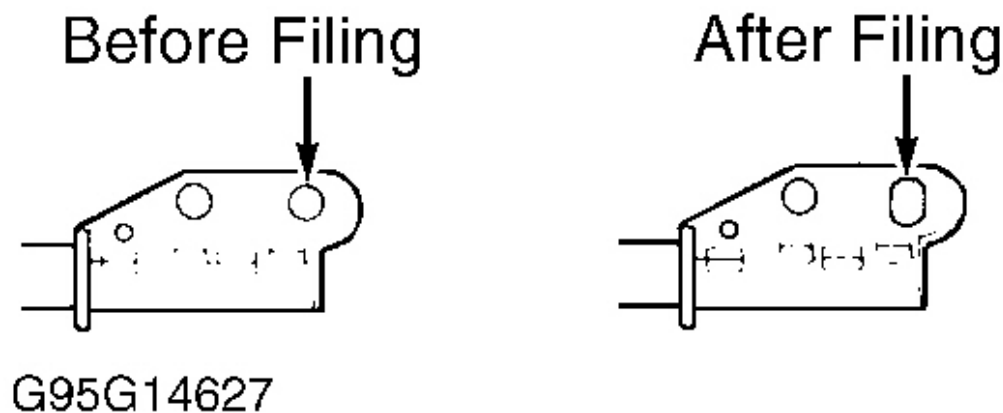
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**Fig. 21: Adjusting Caster & Camber ("M", "P" & "S" Series)**  
Courtesy of GENERAL MOTORS CORP.



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**Fig. 22: Adjusting Caster & Camber ("L" & "T" Series)**  
Courtesy of GENERAL MOTORS CORP.



**Fig. 23: Elongating Bolt Hole For Camber Adjustment ("U" Series)**  
Courtesy of GENERAL MOTORS CORP.

#### TOE-IN ADJUSTMENT

1. Center steering wheel and hold with steering wheel clamp. Loosen tie rod lock nuts or adjustment sleeve clamp bolts. Rotate inner tie rods or adjustment sleeves to align toe to specification. See **WHEEL ALIGNMENT SPECIFICATIONS** table.
2. Ensure number of threads showing on each tie rod or inside each adjustment sleeve is nearly equal. Ensure tie rod ends are square before tightening lock nuts. Tighten tie rod lock nuts or adjustment sleeve clamp bolts to specification. See **TORQUE SPECIFICATIONS** table.