

# ***INSTALLATION INSTRUCTION***



## **Suspension System RS66000 & RS66001**



**Jeep Cherokee (XJ) 1984-2001**

READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION

IMPORTANT NOTES!

**WARNING:** This suspension system will enhance the off-road performance of your vehicle. It will handle differently; both on and off-road, from a factory equipped passenger car or truck. Extreme care must be used to prevent loss of control or vehicle rollover during abrupt maneuvers. Failure to drive this vehicle safely may result in serious injury or death to the driver and passengers. ALWAYS WEAR your seat belts, REDUCE your speed, and AVOID sharp turns and other abrupt maneuvers.

A. Before installing this system, have the vehicle's alignment and frame checked at a state approved facility. The alignment must be within factory specifications and the frame must be sound (no cracks, damage, or corrosion).

B. Do not install a body lift kit with Rancho's suspension system or interchange parts from this system with components from another manufacturer. Use the following Rancho shock absorbers with this system:

RS5000 / RS7000 / RS9000

<u>Front</u>	<u>Rear</u>
RS5239	RS5129
RS7239	RS7129
RS99239	RS99129

C. Compare the contents of this system with the parts list in these instructions. If any parts are missing, including fasteners, contact the Rancho Technical Department at 1-734-384-7804. Each hardware kit in this system contains fasteners of high strength and specific size. Do not substitute a fastener of lesser strength or mix one hardware kit with another.

D. Apply THREAD LOCKING COMPOUND to all bolts during installation. One drop on the exposed threads of each bolt before installing the nut is sufficient to provide an adequate bond. CAUTION: Thread locking compound may irritate sensitive skin. Read warning label on container before use.

E. Install all nuts and bolts with a flat washer. When both SAE (small OD) and USS (large OD) washers are used in a fastener assembly, place the USS washer against the slotted hole and the SAE washer against the round hole.

F. Unless otherwise specified, tighten all bolts to the standard torque specifications listed at the end of the note's section. USE A TORQUE WRENCH for accurate measurements.

G. Rancho parts come with a protective coating. Do not powder coat, chrome, cadmium, or zinc plate any of the components in this system. If you wish to change the appearance of components enamel paint can be applied over the original coating.

H. Do not weld anything to these components, and do not weld any of these components to the vehicle unless specifically stated in the instructions. If any component breaks or bends, contact your local Rancho dealer or Rancho for replacement parts.

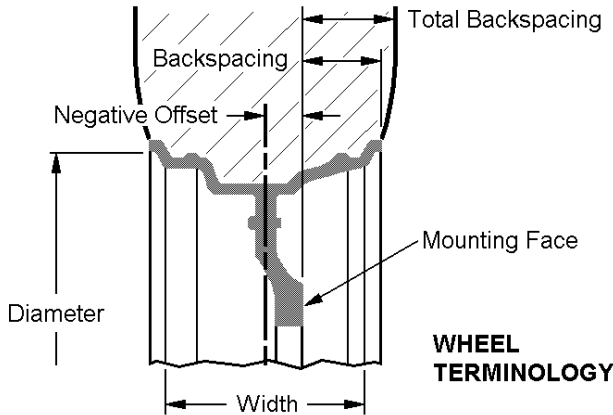
I. Some of the service procedures require the use of special tools designed for specific procedures. The following tools and supplies are recommended for proper installation of this kit.

- Jeep Service Manual
- Torque Wrench (250 FT-LB capacity)
- Hammer
- 1/2" Drive Ratchet and Sockets
- Combination Wrenches
- Hydraulic Floor Jack
- Heavy Duty Jack stands
- Wheel Chocks (Wooden Blocks)
- Safety Glasses**--Wear safety glasses at all times

J. It is extremely important to replace torsion bars, CV flanges, and front drive shaft/pinion relationships as original. Be sure to mark left/right, front/rear, and indexing of mating parts before disassembly. A paint marker or light colored nail polish is handy for this.

K. Suspension components that use rubber or urethane bushings should be tightened with the vehicle at normal ride height. This will prevent premature failure of the bushing and maintain ride comfort.

L. This suspension system was developed using a 31 x 11.50 x 15 tire on a 15" x 8" wheel with 3.75" of backspacing. Before installing any other combination, consult your local tire and wheel specialist. **Actual tire size varies by manufacturer.**



**WHEEL TERMINOLOGY**

M. The required installation time for this system is approximately 4 hours. Check off the box (  ) at the beginning of each step when you finish it. Then when you stop during the installation, it will be easier to find where you need to continue from.

N. Welding on a vehicle creates an electrical charge throughout the body and frame. Disconnect the vehicle's battery prior to any welding. Place welding ground clamps as near as possible to the weld. Never use a vehicle suspension component as a welding ground point.

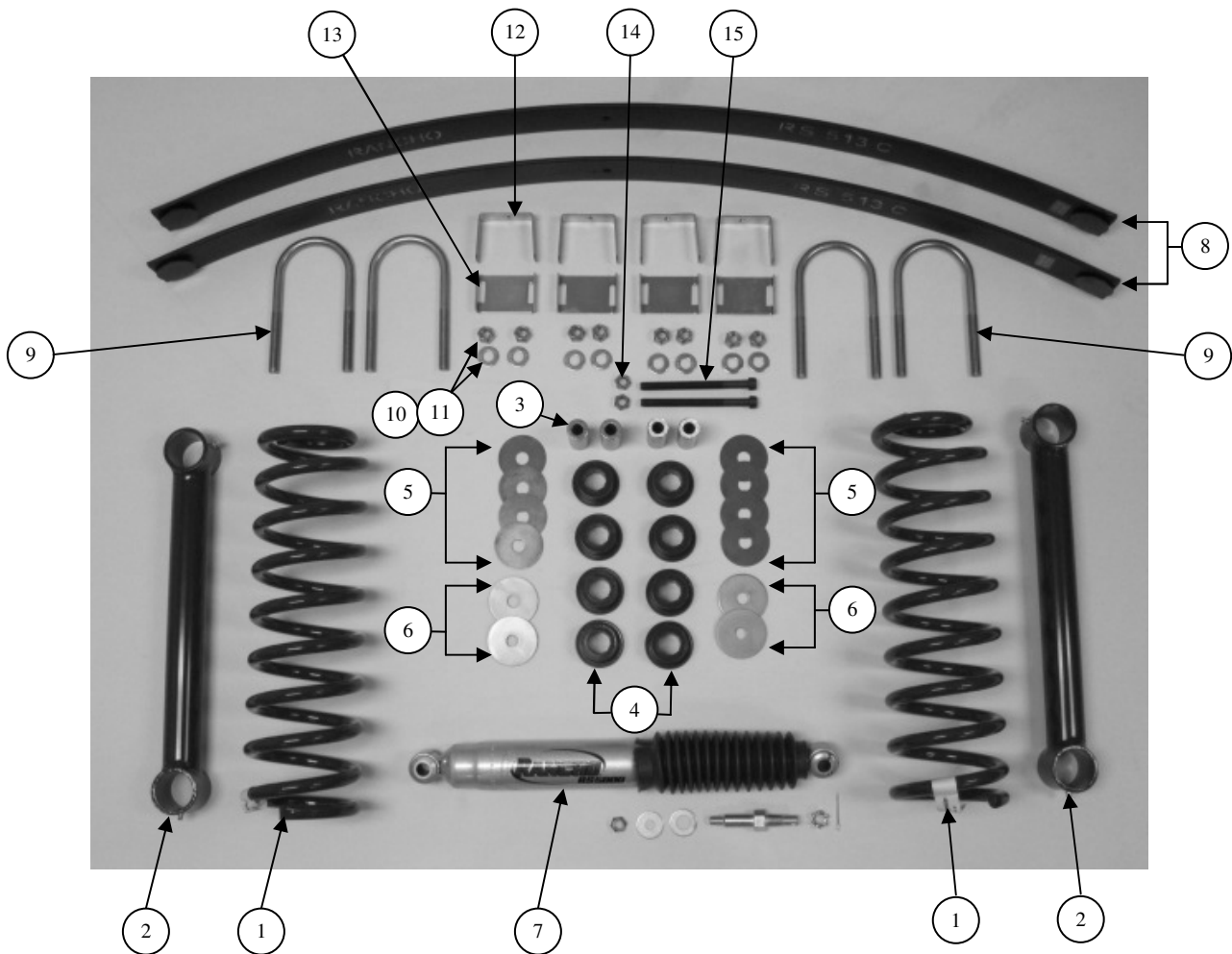
O. Important information for the end user is contained in the consumer/installer information pack. If you are installing this system for someone else, place the information pack on the driver's seat. Please include the installation instructions when you finish.

P. Thank you for purchasing the best suspension system available. For the best installed system, follow these instructions. If you do not have the tools or are unsure of your abilities, have this system installed by a certified technician. RANCHO IS NOT RESPONSIBLE FOR DAMAGE OR FAILURE RESULTING FROM AN IMPROPER INSTALLATION.

Compatible With OE Wheels	Development Tire Size (actual)	Optional Tire Size <sup>1</sup> (actual)	Wheel Size (backspacing)
Yes <sup>1</sup>	31x11.5xR15	33x12.5xR15	15x8 (3.75")

<sup>1</sup> Fitment of the optional tire size may require trimming to provide proper clearance.

STANDARD BOLT TORQUE SPECIFICATIONS						
INCH SYSTEM			METRIC SYSTEM			
Bolt Size	Grade 5	Grade 8	Bolt Size	Class 9.8	Class 10.9	Class 12.9
5/16	15 FT-LB	20 FT-LB	M6	5 FT-LB	9 FT-LB	12 FT-LB
3/8	30 FT-LB	35 FT-LB	M8	18 FT-LB	23 FT-LB	27 FT-LB
7/16	45 FT-LB	60 FT-LB	M10	32 FT-LB	45 FT-LB	50 FT-LB
1/2	65 FT-LB	90 FT-LB	M12	55 FT-LB	75 FT-LB	90 FT-LB
9/16	95 FT-LB	130 FT-LB	M14	85 FT-LB	120 FT-LB	145 FT-LB
5/8	135 FT-LB	175 FT-LB	M16	130 FT-LB	165 FT-LB	210 FT-LB
3/4	185 FT-LB	280 FT-LB	M18	170 FT-LB	240 FT-LB	290 FT-LB
BOLT IDENTIFICATION						
<p>1/2-13x1.75 HHCS</p> <p>D T L X</p>			<p>M12-1.25x50 HHCS</p> <p>D T L X</p>			
<p>G = Grade Marking (bolt strength)    L = Length (inches)</p> <p>D = Nominal Diameter (inches)        X = Description (hex head cap screw)</p> <p>T = Thread Pitch (threads per inch)</p>			<p>P = Property Class (bolt strength)    L = Length (millimeters)</p> <p>D = Nominal Diameter (millimeters)    X = Description (hex head cap screw)</p> <p>T = Thread Pitch (thread width, mm)</p>			



### PARTS LIST

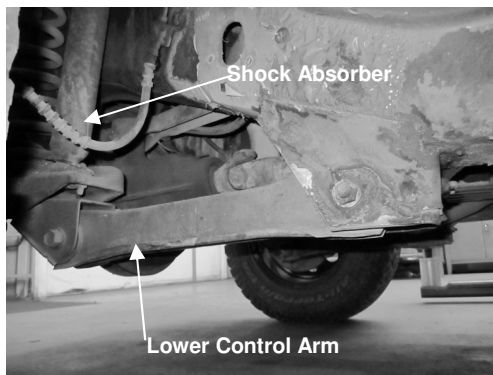
<u>No.</u>	<u>P/N</u>	<u>DESCRIPTION</u>	<u>QTY.</u>	<u>No.</u>	<u>P/N</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
<b>Box 1 of 2</b>				<b>Box 2 of 2</b>			
1	RS608	Front Coil Spring	2	8	RS513	Add-A-Leaf	2
2	RS176637	Lower Link	2	9	RS7455	U Bolt (Chrysler type Rear Axle)	4
	RS860702	Bushing Assy Hardware Kit	1	9	RS7405	U Bolt (Dana 35 Rear Axle)	4
3		Sleeve	4		RS8011	U-Bolt Nut/Washer Hardware Kit	1
4		Lower Link Bushing	8	10		1/2-20 Nylock Nut	8
5		Shim .040 x 2.47 x .60	8	11		1/2 Washer	8
6		Washer .120 x 2.25 x .563	4		RS8011	U-Clip Hardware Kit	1
7	RS5401	Steering Stabilizer	1	12		U-Clip	4
	94180	Information Pack	1	13		Cap	4
	780281	Rancho Decal	1		RS8302	Center Bolt Nut Kit	1
	RS89000	Instructions	1	14		5/16-24 Center Bolt Nut	2
	94119	Consumer/Warranty Information	1		RS8366	Center Bolt Kit	1
	94177	Warning Sticker	1	15		5/16-24 Center Bolt	2

## FRONT SUSPENSION

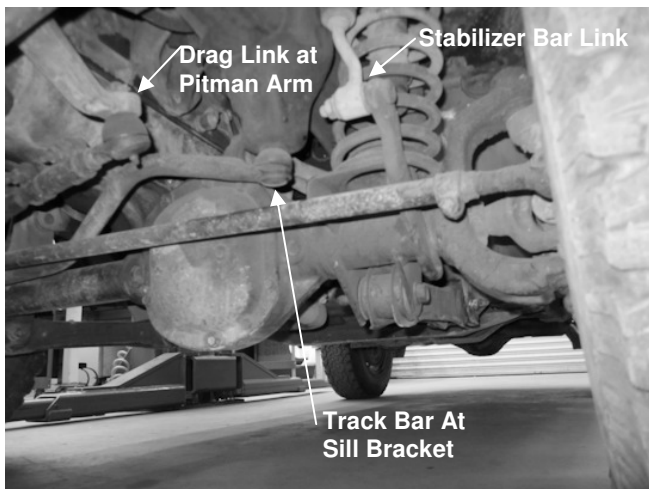
### LOWER CONTROL ARM, SHOCK ABSORBER, & COIL SPRING REMOVAL

- 1)  Park vehicle on a level surface. Set the parking brake and chock rear wheels. Disconnect the negative ground cable from the battery.
- 2)  Raise the front of the vehicle and support the frame with jack stands, allowing the front wheels to hang. Remove the front wheels and set them aside.
- 3)  Support the front axle with a floor jack.

Note: to keep the axle from tipping, work on one side of the vehicle at a time.



Illus. 1



Illus. 2

- 4)  Disconnect the stabilizer bar links and the shock absorber at the axle (See Illus 1 & 2).
- 5)  Remove bolts and separate the brake hoses from the frame rails. If necessary, disconnect any vent hoses and electrical wiring from the axle.

6)  Disconnect the drag link at the pitman arm by removing the retaining nut.

7)  Remove the shock absorber upper nut, retainer, and bushing. Remove the front shock absorber. **DO NOT REUSE ORIGINAL SHOCK ABSORBERS.**

8)  Disconnect the Track Bar at the Sill Bracket.

9)  Remove the passenger side lower control Arm from the axle and frame bracket. (See Illus. 1). Retain bolts and nuts as they will be used later for installing the new Lower Control Arms.

10)  Carefully lower the axle assembly using the jack. Loosen the spring retainer and remove the coil spring.

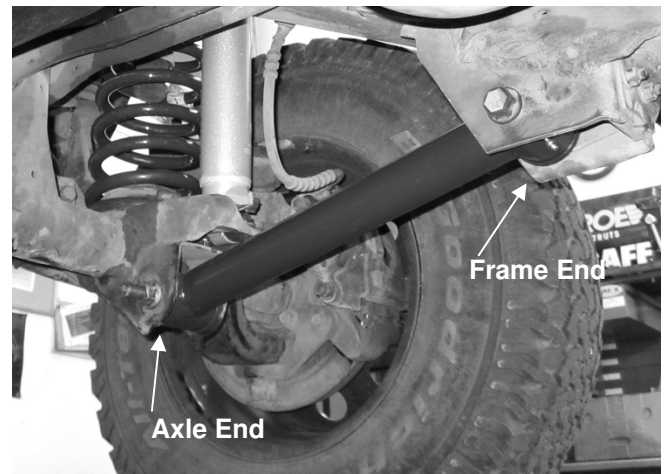
**CAUTION:** Do not allow the front axle to hang by any hoses or cables.

### FRONT LOWER CONTROL ARM INSTALLATION

11)  Push the 8 bushings (item no. 4) into the ends of the two Lower Links (item no. 2). They generally press in by hand, or you can use a vice.

12)  Lubricate the inside of the bushings with chassis grease.

13)  Press 4 sleeves (item no. 3) into the ends of the Links. Use a vice or a large C-clamp, if necessary.



Illus. 3

14)  Determine the spacers (item 5 or 6) required for the **FRAME END** of the link.

Usually these are:

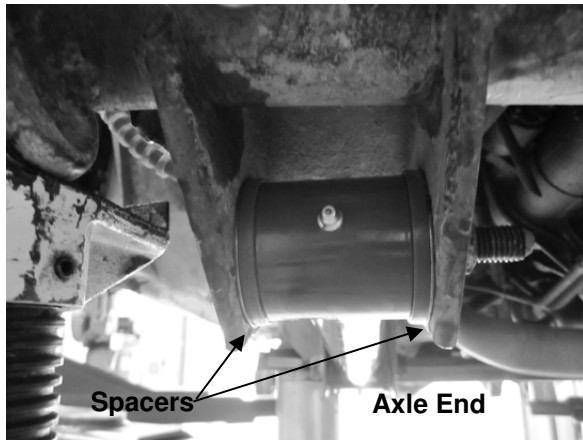
Early model XJ = 2 Thin Spacers (Item 5)

Later model XJ = 2 Thick Spacers (Item 6)

(Ref Illus. 3 and 4)

Verify the spacer selection by placing the selected washers onto the sleeve on the assembled control arm. Adjust the number of washers, if required. You should not need to force the combination into the pocket.

(Ref Illus. 3 and 4)



Illus. 4

15)  Once spacer selection is determined lightly grease the spacers.

16)  Slide the rear of the Rancho link into the frame with the spacers. Correct orientation of the link is determined by positioning the straight-out grease fitting is located under the axle (see illus. 4), and the other one points down and to the rear.

17)  Insert the stock bolt through the frame bracket and sleeve. If a washer was there originally, reuse it. (see Illus. 3).

18)  Run the stock nut on by hand until stopped by the self locking feature.

19)  Install the front of the Rancho link, with a combination of spacers between the bushing and the axle bracket using the criteria used in step number 13. Be sure to lightly grease the spacers before installation.

20)  Insert the stock bolt through the axle bracket and sleeve. If a washer was there originally, reuse it. (see Illus. 3).

21)  Run the stock nut on by hand until stopped by the self locking feature.

22)  Repeat Steps 10 thru 20 on the other side of the vehicle.

## **SHOCK ABSORBER, COIL SPRING & STEERING STABILIZER INSTALLATION**

23)  Install retaining washer and bushing on NEW shock absorber, insert shock into upper mounting hole. Install bushing, washer and nut. Tighten nut to 17 ft-lbs. Repeat for other side.



Illus. 5



Illus. 6

24)  Install new coil spring (item 1) and tighten the spring retainer. (see illus. 5 & 6)

25)  Raise front axle and attach shock lower mounts to axle brackets with the original hardware. Tighten nuts and bolts to 14 ft-lbs.

26)  While raising the axle into position, locating the top of the spring as shown in Illus 5.

27)  Reconnect the track bar to the sill bracket and torque to 62 ft-lbs. (Ref Illus 2)

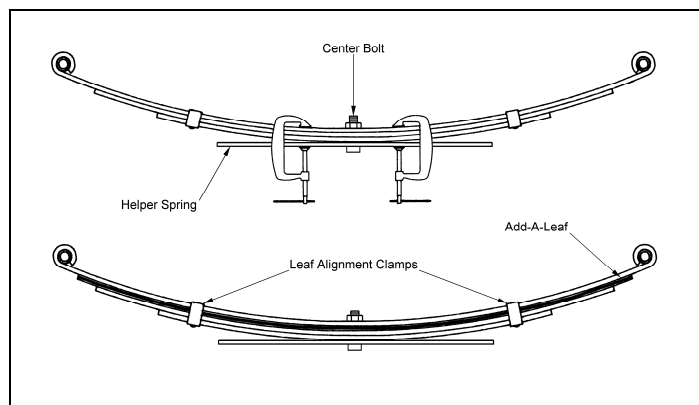
28)  Reconnect the stabilizer bar link and torque to 55 ft-lbs. (Ref Illus 2).

- 29)  Reconnect brake hose bolts and hoses to the frame rails. (Ref Illus 2).
- 30)  Reconnect the drag link to the pitman using the retaining nut. Torque to 60 ft-lbs. (Ref Illus 2).
- 31)  Remove steering stabilizer and replace with Rancho steering stabilizer and hardware provided in the kit (item no. 7). Torque stabilizer to axle to 55 ft-lbs and stabilizer to drag link to 35 ft-lbs.
- 32)  Install the wheel/tire assemblies.
- 33)  Remove the jackstands and lower the vehicle back to the ground.
- 34)  Tighten axle and frame lower control arm nuts to 135 Ft-Lbs on both side of the vehicle.
- 35)  Grease each end of both links. As with any grease fitting, WATCH CLOSELY, and stop greasing when grease first appears at the ends, or if the bushings begin to move.
- 36)  Have a front end alignment performed at a certified alignment facility. Rancho recommends the following specs: Caster =  $7.5^{\circ} \pm 0.5^{\circ}$ , Toe In = 0 to 1/32"

## REAR SUSPENSION

### IMPORTANT NOTES:

- To contain the potential energy stored in a leaf spring assembly, secure the leaves with two large C-clamps. See illustration 7.
- Some springs will have a factory helper spring consisting of one or more flat or nearly flat leaves installed at the bottom of the leaf pack. Do not install your Add-A-Leaf spring in or below the helper spring assembly.
- These instructions use general procedures for installing an Add-A-Leaf. Obtain and review your vehicle's service manual for specific procedures and specifications



Illus. 7

- 1)  Park the vehicle on a level surface. Set parking brake and chock front wheels. Raise the rear of the vehicle and support the frame with jack stands.
- 2)  Remove the rear wheels.
- 3)  Support the rear axle with a floor jack to relieve the tension on the leaf spring.
- 4)  Remove the rear shock absorbers. Disconnect the axle vent hose from the axle housing.
- Note:** Removing and installing one leaf spring assembly at a time will prevent the rear axle from tipping.
- 5)  Loosen all the rear axle U-bolt nuts, but do not remove.
- 6)  Starting with one side, remove rear axle U-bolts and anchor plate. Remove the spring eye bolts and/or shackles. Carefully lower the rear axle enough to remove the leaf spring from the vehicle. Do not allow the axle to hang from any brake lines or cables.
- 7)  Hold the spring assembly securely together with C-clamps. See illustration 7. If applicable, remove any leaf spring alignment clamps.

- 8)  Remove the center bolt using vise-grips to hold the round head. If the bolt is rusted, it may be necessary to drive the bolt out with a hammer and drift punch.
- 9)  Carefully remove the C-Clamps.
- 10)  Apply a small amount of grease to the top ends of the new Add-A-Leaf (item no.8), and insert it into the leaf pack in a pyramid fashion. Keep the progressive order of longer leaf on top.
- 11)  Reinstall C-clamps on leaf assembly and install a NEW center bolt and nut (item no. 14 & 15). Align leaves and tighten center bolt to specifications (20 ft-lbs for 5/16 center bolt).

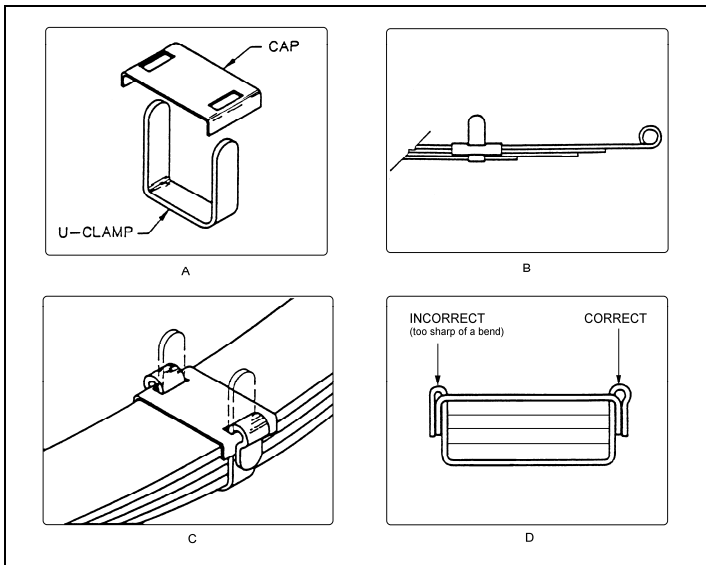
**Note:** It may be necessary to cut off the center bolt if the length is too long.

- 12)  Remove C-clamps and reinstall the spring assembly onto the axle with U-bolts, anchor plate, washers and nuts. Do not tighten at this time.
- 13)  Raise the axle and install the original eye bolts and/or shackles. Do not tighten at this time.
- 14)  Repeat steps 5 through 13 for installing the Add-A-Leaf into the remaining leaf spring assembly.

- 15)  Tighten U-bolt nuts to 55 ft-lbs.
- 16)  Install shock absorbers and torque upper and lower nuts to 44 ft-lbs.
- 17)  Reconnect axle vent hose
- 18)  Install the rear wheels and lower the vehicle to the ground. Do not release parking brake or remove wheel chocks.
- 19)  Jounce vehicle to settle springs. Torque eye bolts and/or shackles to 80 ft-lbs.
- 20)  Install the NEW leaf alignment clamps as shown in illustration 8. Apply light pressure to the clamps when installing them and do not bend the tabs of the clamps sharply.

**Note:** The leaf alignment clamps will prevent lateral shifting or “fanning” of the spring leaves. They are not intended to hold the leaves against one another.

- 21)  Check the vehicle’s alignment and adjust headlamps.



Illus. 8

Please retain this publication for future reference. See Important Note O.