



8/28/03

**98-03 V6 FORD 2WD RANGER
6" SUSPENSION SYSTEM**

**6 CYLINDER 10-42298
4 CYLINDER 10-42198**

NOTE: Kit to be used with larger front brake rotors found on vehicles manufactured 9/2000 and later. See "Notes" section on page 4 for details.

NOTE: Each lift kit, and options to lift kits, are packaged separately. Therefore installation procedures are covered in separate instructions. Familiarize yourself with each specific set of instructions before beginning.

PART LIST**ITEM****DESCRIPTION****QTY.****Box 1 of 5 (42198 &42298)**

20-52298-1	Bucket, Front Drvr. Lower Coil	1
20-52298-2	Bucket, Front Pass. Lower Coil	1
20-52298-8	Crossmember, Rear	1
20-69618	Hardware Pack Containing: (4" Bumpstop)	
13-22938-Z	Screw, 3/8"-16 x 1-1/4" Gr.8	2
13-30408-Z	Washer, 3/8" Hrdn.	4
13-10553-Z	Nut, 3/8" Top Lock	2
20-52298-7	Rear Bumpstop Extension, 4"	2
20-69553	Hardware Pack Containing: (Swaybar Block/Axle Shim)	
13-23380	Screw, 10mm-1.5 x 25mm Allen Head	8
20-52298-3	Block, Sway Bar Relocating	2
20-832804	Shim, 4 Degree	2
20-833700	Washer, degree shim	2
20-52498-18	Alignment Cam	4
20-69566	Hardware Pack Containing: (2WD bolts)	
13-21534-Z	Screw, 3/8"-16 x 1" Gr.8	16
13-23185-Z	Screw, 5/16"-18 x 2-1/4" Gr.8	1
13-30408-Z	Washer, 3/8" Hrdn.	32
13-30525-Z	Washer, 5/16" Lock	1
13-10553-Z	Nut, 3/8"-16 Top Lock	16
15-11148	Bushing, Red (Rear Shackles)	4
20-831997	Sleeve, 3/4" x .095W x 3" (Rear Shackles)	2
20-833531	Sleeve, 5/8" x .120 x 1.70" (Rear Brakeline Ext)	1
13-90607	Cotter, Pin, 1/8" x 1-1/2"	6
20-69709	Hardware Pack Containing: (Rear Crossmember)	
13-23055	Screw, 7/16"-14 x 1" Gr. 8 Allen Head	2
13-20847	Screw, 5/16"-18 x 1" Gr. 8 Allen Head	4
13-30304-Z	Washer, 7/16" Hrdn.	4
13-30421-Z	Washer, 5/16" Hrdn.	8
13-10384-Z	Nut, 7/16"-14 Top Lock	2
13-10566-Z	Nut, 5/16"-18 Top Lock	4

ITEM	DESCRIPTION	QTY.
<u>Box 2 of 5 (42198 & 42298)</u>		
20-52298-5D	Spindle, Ranger 98+ 2WD Drvr.	1
20-52298-6P	Spindle, Ranger, 98+ 2WD Pass.	1
<u>Box 3 of 5 (42298 ONLY)</u>		
20-20283-1	Coil, Ford 98+ 2WD Ranger V6 Motor	2
15-11642	Spacer, Coil Spring	2
<u>Box 3 of 5 (42198 ONLY)</u>		
20-20309-1	Coil, Ford 98+ 2WD Ranger 4 Cylinder	2
15-11642	Spacer, Coil Spring	2
<u>Box 4 of 5 (42198 & 42298)</u>		
20-52298-4	Shackle, Rear Ford Ranger	2
13-70156-1	Add-A-Leaf, Ford Ranger	2
13-90919	U-Bolt, 1/2"-20 x 8" Round	4
20-65991	Hardware Pack Containing: (U-Bolt Hardware)	
13-30382	Washer, 1/2" Hrdn.	8
13-10332	High Nut, 1/2" Fine	8
20-69579	Hardware Pack Containing: (7/16" Center Pin)	
13-90932	Pin, Center 7/16"-20 x 4" w/Nut	2
20-69696	Hardware Pack Containing: (Leaf Insert)	
15-11681	Insert, Spring Poly Tip	4
<u>Box 5 of 5 (42198 & 42298)</u>		
50-BE5-A466-T5	Shock, 2WD Ranger Front	2
50-BE5-A092-T5	Shock, 2WD Ranger Rear	2

INTRODUCTION

- Installation by a professional mechanic is recommended. Use of the appropriate power tools, a Ford service manual and a shop hoist can greatly reduce installation time.
- Prior to installation, carefully inspect the vehicle's steering and drive train systems, paying close attention to the tie rod ends, Pitman and Idler Arms, Ball Joints and wheel bearing preload. Also check steering-to-frame and suspension-to-frame attaching points for stress cracks. The overall vehicle must be in excellent working condition; repair or replace worn parts,

- Read instructions carefully and study the illustrations before attempting installation. Race Car Dynamics is not responsible for damage, failure or injury resulting from improper installation or parts substitution of this kit.
- Check the parts and hardware against the parts list to assure that your kit is complete. Report any shortages to Race Car Dynamics at (1-619-588-4723). The parts and hardware supplied are of high-grade material and must not be replaced by inferior parts or failure may result.
- Separate parts according to the areas they will be used. Placing the hardware with brackets before you begin will save installation time.
- All components in this kit come with a protective coating. Do not plate (i.e. chrome, cadmium, zinc etc.) or otherwise alter the finish in any way. This could weaken the structural strength of the components.
- Secure and properly block vehicle prior to beginning installation.
- Always wear safety glasses when using power tools.
- Foot-pound torque readings are listed on the Torque Specifications chart at the end of the instructions unless specifically stated in an instruction. **DO NOT USE AN IMPACT WRENCH TO TIGHTEN ANY OF THE BOLTS.**
- Thoroughly clean frame contact points where any new bolt-on brackets contact frame. Frame coatings or grime can eventually melt away and reduce torque values.

PLEASE NOTE

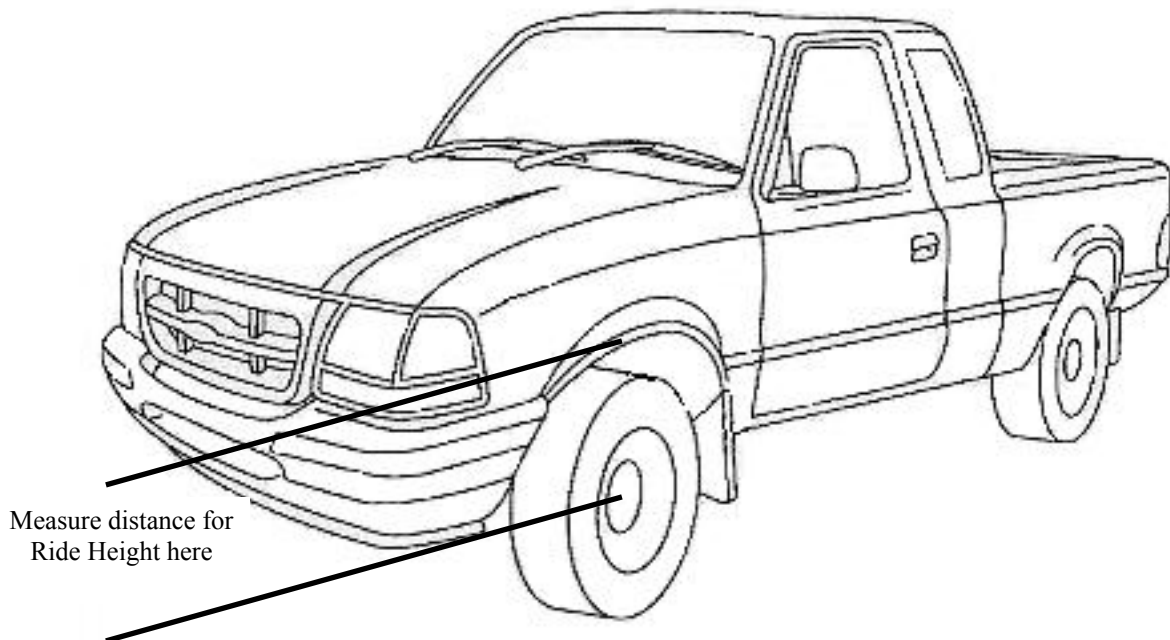
WARNING: DO NOT USE WHEEL SPACERS.

- Suspension system is designed to be used with larger front brake rotors found on vehicles manufactured after September of 2000. These larger front brake rotors measure 11.25" in diameter. Models manufactured from the 1998 model year through September of 2000 have a smaller rotor that measures 10.25". If your vehicle has a smaller rotor a newer larger rotor will need to be purchased and used on your vehicle.
- No special drive shaft is required. Stock drive shafts are retained.
- Some models may require an exhaust modification to clear shackles. Recommended routing of exhaust is to run the tailpipe straight out the rear of the truck or turn it out in front of the rear tire.

- Front-end alignment is necessary.
- Clears 33" x 12.50" tires on recommended wheel size of 15" x 8" with a maximum of 4" backspacing.
- Speedometer recalibration is necessary if bigger tires (10% more than stock diameter) are installed.
- The following special tools are required for safe removal and installation of coils:

Coil Compressor

Illustration 1



FRONT DISASSEMBLY

1. GETTING STARTED: Measure ride height with vehicle supporting its own weight. Ride height is the measured distance from center of spindle-to-top of the fender well. **(Illustration 1)** Raise the vehicle. If working without a shop hoist support vehicle with suitable safety jack stands. Put vehicle in gear, set emergency brake and block rear wheels, in front and behind tires. Loosen front wheel lug nuts. Place floor jack under the lower control arm's front Crossmember and raise vehicle. Place safety jack stands under frame rails, behind front wheel wells, and lower the frame onto the stands. Remove front wheels.
2. Remove upper shock absorber nut and bushing assembly. Remove two nuts on lower shock mount and remove shock absorber.

3. Remove the front stabilizer bar link nut.

4. Place jack under lower control arm and apply pressure, do not lift vehicle. Remove lower ball joint nut. Use puller to separate the lower ball joint from the front wheel spindle.

5. Lower floor jack allowing the lower control arm to droop and remove coil spring.

6. Remove two bolts at pivot points of lower control arm and remove lower control arm.

7. Repeat removal of lower control arm on opposite side of vehicle.

8. Unbolt the entire Brake Caliper Assembly from spindle and use a piece of wire or ziptie to secure it out of the way in the wheel well. **DO NOT LET IT HANG BY THE BRAKE LINE.**

9. Remove nut holding tie rod end to spindle. Use a tie rod puller and remove tie rod from spindle.

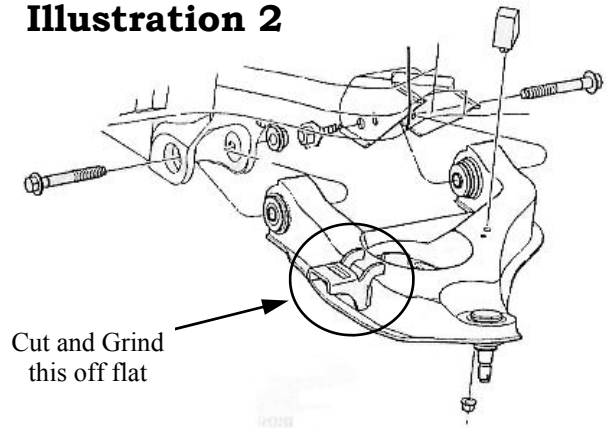
10. Disconnect ABS sensor from spindle if equipped.

11. Supporting spindle remove pinch bolt mounted through spindle at upper ball joint and remove spindle from upper control arm.

12. Remove four bolts securing swaybar to frame and set swaybar aside for reuse.

13. On lower control arm notice a factory bracket on the forward facing edge of the bracket. This needs to be cut off and the lower control arm should be ground down so that it is smooth to allow new RCD Lower Coil Bucket to mount. **(Illustration 2)**

Illustration 2



FRONT ASSEMBLY

1. Position new Driver side Lower Coil Bucket (20-52298-1) on top of Driver side lower control arm. RCD logo should wrap over front edge of control arm. Lip wrapping over inner edge of control arm should fit tight against it.

2. On the new Lower Coil Bucket there are eight holes for 3/8" bolts to secure the plate to the control arm. **Mark just one of the holes to be drilled.** Remove Lower Coil Bucket and drill marked hole out to 3/8". Re-position Lower Control Bucket properly on Lower Control arm and using **one** 3/8" x 1" bolt and hardware provided bolt it down. Once tightly bolted down mark the remaining 7 holes to be drilled. Remove Lower Control Bucket from Lower Control Arm and drill 7 marked holes to 3/8".

3. Mount Lower Coil Bucket on Lower Control Arm and torque bolts to 35 ft.lbs.

4. Install urethane coil pocket insert (15-11642) into tube on Lower Coil Bucket. Thickest part of urethane insert should be lined up into the deepest part of the tube so that the top surface ends up being flat with the top of the tube.
5. Install factory bumpstop on raised pad of Lower Coil Bucket.
6. Install Rear Crossmember (20-52298-8) in between pockets where the rear mounting bolts for the Lower Control Arm mount. Notice the slot running up the center of the pockets with the large hole at the end. Position Crossmember so that the large "V" shape is upwards. Install 7/16" x 1" Bolts and hardware supplied and tighten. Mark holes in other 4 locations of crossmember to be drilled in frame.
7. Remove Crossmember and drill marked locations to 5/16". Reinstall Rear Crossmember with bolt heads facing towards outside of vehicle using previous two 7/16" x 1" bolts and four 5/16" x 1" bolts and all hardware. Torque 7/16" bolt to 60 ft. lbs. And torque 5/16" bolts to 20 ft. lbs.
8. Install Lower control arm on vehicle. Do not torque pivot bolts at this time.
- 9. Repeat steps 1-5 and step 8 on opposite side of vehicle.**
10. The alignment is done through cams found on the upper control arm pivot bolts. From the factory the side with the nut on it has a plate that blocks these off. Remove the nut from all 4 upper pivot bolts (2 per side) and remove block off plate. Install the new alignment cams (20-52498-18) and reinstall factory nut.

Note: Some vehicles may need additional alignment hardware.

11. Install new Sway Bar Mount Blocks (20-52298-3) on frame rails. The blocks need to be installed so that the sway bar is pushed rearward on the vehicle.
12. On the original spindle pry off the dust cap and remove the spindle nut, wheel bearings, brake rotor, and dust shield. As seen in the **Illustration 3**.

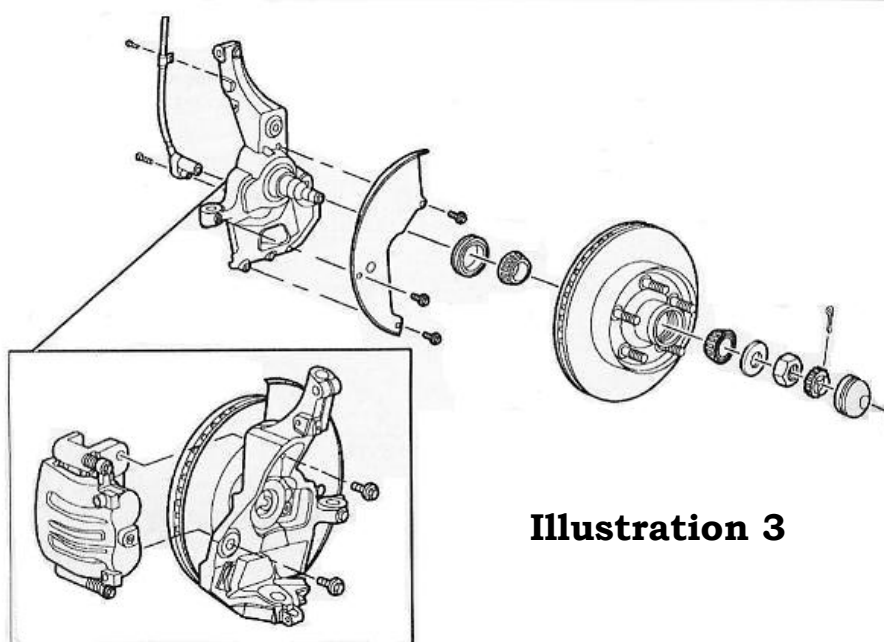


Illustration 3

13. Install the brake rotor, wheel bearings, and spindle nut onto the new spindle (20-52298-5D, 20-52298-6P) in the reverse order they came off of the original. Make sure to repack the wheel bearings thoroughly with grease. While spinning the disk brake and hub tighten the spindle nut to 17-24 ft. lbs, loosen the spindle nut and retorque the nut to 17 in. lbs. Install nut retainer, cotter pin, and grease cap. The new spindle does not reuse the dust shield.
14. Using coil compressor insert new coil (20-20283-1 V6 Trucks, 20-20309-1 4 Cylinder Trucks) into place between upper coil pocket and on top of Urethane Coil insert on top of the lower control arm.
15. Slide new Front Shock (50-BE5-A466-T5) up through center of coil. Install upper locking nut (Torque to 40 ft. lbs.) and install two mounting nuts on lower shock mount (Torque to 18 ft. lbs.).
16. Lift spindle into ball joint on upper control arm and install pinch bolt. Torque to 45 ft. lbs.
NOTE: Head of pinch bolt **MUST** face towards rear of vehicle and nut **MUST** be on the forward facing side of the spindle.
17. Position lower Ball Joint on Lower Control arm into spindle. Torque Ball Joint and install new cotter pin (13-90607).
NOTE: Turn spindle left and right checking clearance between spindle and lower control arm. Clearance lower control arm if necessary.
18. Position Tie Rod into ball joint and torque properly.
19. Bolt Sway bar link back into original position on lower control arm.
20. Install brake caliper on to new spindle. Torque caliper bolts to 72-97 ft. lbs.
21. Install ABS sensor on new spindle, unclip the wires from the frame if needed for extra slack on the wire.
22. **Repeat steps 12—21 on opposite side of vehicle.**
23. Reinstall front tires, torque lug nuts and lower vehicle to ground.
24. Torque lower control arm pivot bolts (83-113 ft. lbs.).

REAR DISASSEMBLY / INSTALLATION

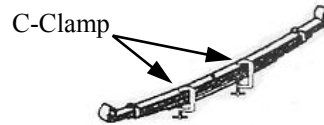
1. Raise the vehicle. If working without a shop hoist, support vehicle with suitable safety stands. To do this put vehicle in gear, block front wheels, both in front and behind tires, then disengage emergency brake. Place floor jack underneath rear axle and raise vehicle. Place suitable safety stands under frame to support vehicle and lower vehicle onto safety stands. Remove rear tire/wheel assemblies.
2. With floor jack, raise the rear axle enough to relieve tension on the shock absorbers and remove shocks.
3. Remove rear U-Bolts attaching rear axle to driver side leaf spring. Carefully lower rear axle.

WARNING: Do not allow axle to hang by any hoses or cables.

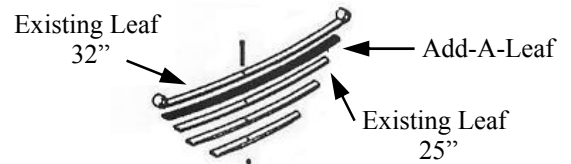
4. Secure the spring assembly together with suitable "C-Clamps". (**Illustration 4**) Remove any spring leaf alignment clamps. Remove the spring center bolt. A hammer and drift punch may be used to drive bolt out if necessary.
5. Carefully remove "C-Clamps" and set the helper spring aside if installed.

NOTE: Add-A-Leaf will be placed in the spring assembly progressively according to length. For Example, if two existing leaves are 32" long and the next is 25" long, and the new Add-A-Leaf is 28" long, place the Add-A-Leaf between the existing leaves.

6. Push in a new Spring Poly Tip Insert (15-11681) on each end of the new Add-A-Leaf (13-70156-1) and place it in the spring assembly as described in the note above and assemble the leaf spring using the "C-Clamps"
7. Slide Degree Shim washer (20-833700) over new Center Pin (13-90932) with lip of washer facing away from head of bolt. Place Degree shim (20-833402) onto center pin so that the lip of the washer centers itself in the shim. Insert Center Pin and Degree Shim assembly into leaf pack with the thicker end of the shim facing towards the front of the vehicle. Install Center Pin Nut and torque to 20 ft. lbs.



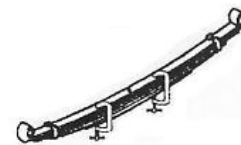
Secure spring assembly together with suitable C-Clamps. Remove spring center bolt. Remove C-Clamps and Insert Add-A-Leaf.



Position Add-A-Leaf in spring pack progressively according to length. EX: Two existing leaves are 32" & 25" so place 29" Add-A-Leaf between existing leaves.



Do not install Add-A-Leaf below a Helper Spring



Install C-Clamps then Center Bolt. Do not attempt to pull springs together with Center Bolt.

Illustration 4

NOTE: Hole on U-Bolt plate needs to be enlarged to allow clearance for nut on center pin.

WARNING: Do not try to compress the spring with the center pin.

8. Install new U-Bolts. Torque to 85-100 ft. lbs.
9. Cut exhaust tail pipe off right before it makes the final turn out to the side of vehicle at far end of exhaust system. This is only needed on stock exhaust systems where the new shackle and leaf spring system will interfere with it. Recommended routing is to extend tail pipe straight out the rear of the vehicle and have it exit in front of the rear tire to the side.
10. Supporting the rear axle with a jack. Unbolt rear shackles from both rear leaf spring eyelet and frame. Remove stock shackles.
11. Install new bushings (15-11148) and sleeve (20-831997) into new Shackle (20-52298-4) and bolt assembly in place of stock shackle using original hardware. Flat side of shackles with holes must face rear of vehicle. Torque upper and lower bolts to 85 ft. lbs.
12. Remove stock rear bumpstop and bolt to narrower end of new Bumpstop Extension (20-52298-7). Bolt Bumpstop with Extension in stock bumpstop location on vehicle using supplied hardware.
13. Unbolt rear brakeline junction block from top of differential center section. Using supplied 5/16" x 2-1/4" bolt and locking washer and tube (20-833531) lift the block up and use the tube as a spacer setting the junction block on top and running longer bolt through block and tube. Tighten into differential center section.
14. Install new shocks and torque both upper and lower nuts to 45 ft. lbs. (50-BE5-A092-T5).
15. Reinstall tires, lower vehicle and tighten wheels.

5/16" NUTS	20 FT. LBS.	M6	9 FT. LBS.
3/8" NUTS	35 FT. LBS.	M8	23 FT. LBS.
7/16" NUTS	60 FT. LBS.	M10	45 FT. LBS.
1/2" NUTS	90 FT. LBS.	M12	75 FT. LBS.
9/16" NUTS	160 FT. LBS.	M14	120 FT. LBS.
5/8" NUTS	175 FT. LBS.	M16	165 FT. LBS.