

INSTALLATION INSTRUCTIONS



Suspension Systems RS66109BR5 and RS66109BR9

2007 – 2013 Jeep Wrangler 4 Door Sport and Rubicon Models
(2" SPORT SYSTEM)
— FMVSS 126 Certified —



Jeep Wrangler (JK)
2007 - 2013

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:

RS5000X / RS9000X

Front

Rear

RS55326

RS55330

RS999326

RS999330

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.

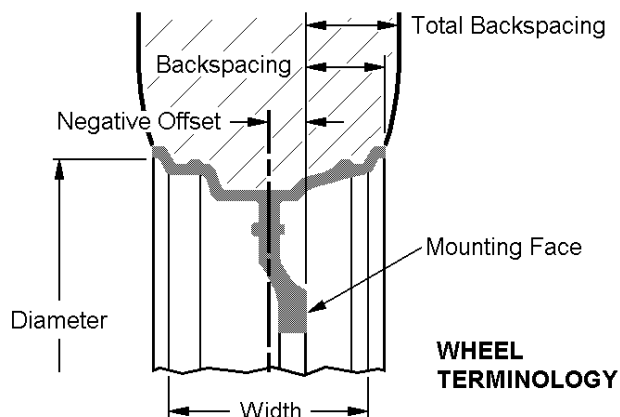
I. Some of the service procedures require the use of special tools designed for specific procedures. The following tools and supplies are recommended for proper installation of this kit. ☒

- ☐ Jeep Service Manual
- ☐ Torque Wrench (250 FT-LB capacity)
- ☐ Hammer
- ☐ 1/2" Drive Ratchet and Sockets
- ☐ Combination Wrenches
- ☐ 3/8-16 Tap
- ☐ File
- ☐ 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 BF Goodrich® Mud-Terrain T/A KM2 LT255/80R17 tire on a 17" x 9" wheel with 4.5" of backspacing. Total backspacing is 5.9". Before installing any other combination, consult your local tire and wheel specialist. **Actual tire size varies by manufacturer.**



Compatible With OE Wheels	Development Tire Size (actual)	Wheel Size (backspacing)
Yes ¹	LT305/65R17 (33."x11.5")	17x9 (4.5")

¹ OE wheels compatible with stock size tires only.

² Fitment of the optional tire size may require trimming to provide proper clearance.

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.**

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	165FT-LB	210 FT-LB
3/4	185 FT-LB	280 FT-LB	M18	170 FT-LB	240FT-LB	290 FT-LB
BOLT IDENTIFICATION						
1/2-13x1.75 HHCS D T L X G = Grade Marking (bolt strength) D = Nominal Diameter (inches) T = Thread Pitch (threads per inch)			M12-1.25x50 HHCS D T L X P = Property Class (bolt strength) D = Nominal Diameter (millimeters) T = Thread Pitch (thread width, mm)			



PARTS LIST

P/N	DESCRIPTION	QTY.	P/N	DESCRIPTION	QTY.
818B*	JK Front Coil Spring - 2"	2	7784	Washer - 1/4 SAE.	4
176443	Front Bump Stop	2	89109	Instructions RS66109B	1
860710	Front Bump Stop Kit	1	94180	Information Pack	1
7713	HHTS 3/8-16 x 1.5	2		66109BR5 ONLY:	
176662*	Rear Coil Spacer - .750 - Blk.*	2	55326	RS5000X Shock Absorber - front	2
860711	Rear Brake Line Brkt. Kit	1	55330	RS5000X Shock Absorber - rear	2
176442	JK Rear Brake Line Drop Brkt.	2		66109BR9 ONLY:	
603615	HHCS 1/4-20 X .75	2	999326	RS9000 Shock Absorber - front	2
7907	Nut - 1/4-20 Stover	2	999330	RS9000 Shock Absorber - rear	2

* Service Part — contact the Rancho Technical Department at 1-734-384-7804 for replacement.

ATTENTION: Measure and record distance from center of each wheel to top edge of fender opening.

4 Door OE Measured Static Height – Soft Top

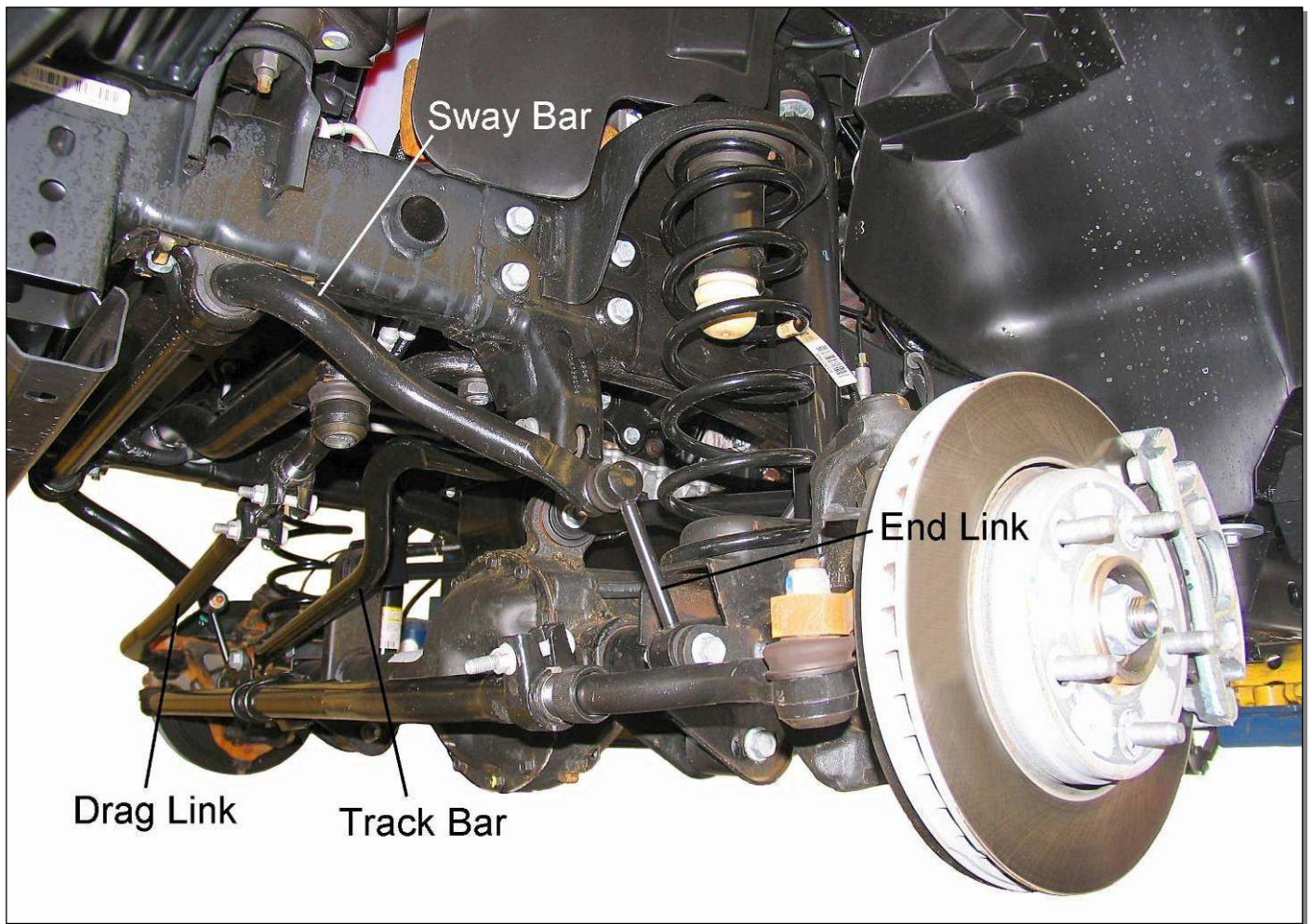
Front	
20.2"	20.2"
21.5"	21.5"
Rear	

RS66109BR5/9 Measured Static Height – Soft Top

Front	
22.5"	22.5"
22.3"	22.3"
Rear	

If vehicle is equipped with metal front bumper and winch, .75" spacer kit RS70082* can be used to achieve recorded lift height.

*Must be purchased separately



Front Suspension

FRONT SUSPENSION

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) ☐ Measure and record ride height (see previous page).
- 3) ☐ Remove the track bar to frame bracket nut and bolt.
- 4) ☐ Raise the front of the vehicle and support the frame with jack stands. Remove the front wheels and set them aside.
- 5) ☐ Support the front axle with a floor jack.
- 6) ☐ Disconnect the end links from the axle brackets.
- 7) ☐ Reference mark the drive shaft to the front differential. Disconnect the drive shaft from the differential. Support drive shaft with a tie wrap or wire.
- 8) ☐ Remove the shock absorber upper nut, retainer, and bushing.
- 9) ☐ Remove the shock absorber lower nut and bolt. Remove the front shock absorber.
- 10) ☐ Repeat steps 6 and 7 for the other side. **DO NOT REUSE ORIGINAL SHOCK ABSORBERS.**
- 11) ☐ Remove bolts and separate the brake hoses from the frame rails. If necessary, disconnect any vent hoses and electrical wiring from the axle.
- 12) ☐ Carefully lower the front axle and remove the coil springs. Push down on axle if necessary.

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

BUMP STOP SPACER, COIL SPRING & SHOCK ABSORBER INSTALLATION

- 1) ☐ Drill a 5/16" hole through the center of the coil spring axle pad. For ease of installation, tap the hole (3/8-16).
- 2) ☐ Place bump stop spacer 176443 inside the coil spring.
- 3) ☐ Insert the spring assembly into the upper pocket against OE isolator and onto the axle pad. Align pig tail with groove in axle pad. See illustration 1.
- 4) ☐ Attach the bump stop spacer to the axle pad with the self-tapping screw from kit 860574. See illustration 1.



Illus. 1

- 5) ☐ Repeat steps 2 through 5 for the other side.
- 6) ☐ 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.
- 7) ☐ Raise front axle and attach shock lower mounts to axle brackets with the original hardware. Tighten nuts and bolts to manufacturer's specifications.
- 8) ☐ Reattach drive shaft to front differential, aligning marks. Tighten bolts to manufacturer's specifications.
- 9) ☐ Reattach vent hose and electrical wiring if necessary.
- 10) ☐ Install front wheels and lower vehicle to the ground. Tighten lug nuts to 80--110 ft. lbs.
- 11) ☐ Reattach end links to axle bracket. Tighten nuts to 40 ft. lbs.
- 12) ☐ Reattach track bar to frame bracket. Tighten the track bar nut and bolt to 120 ft. lbs.

REAR SUSPENSION

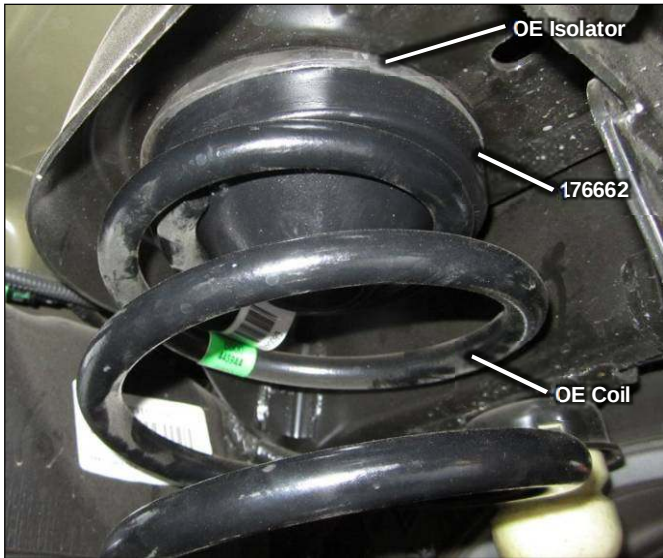
SHOCK ABSORBER & COIL SPRING REMOVAL

- 1) ☐ Chock front wheels.
- 2) ☐ Remove the track bar to frame bracket nut and bolt.
- 3) ☐ Raise the rear of the vehicle and support the frame with jack stands. Remove the rear wheels.
- 4) ☐ Support the rear axle with a floor jack.
- 5) ☐ Disconnect the end links from the sway bar.
- 6) ☐ Remove bolts and separate the brake hoses from the frame rails. If necessary, disconnect any vent hoses and electrical wiring from the axle.
- 7) ☐ Remove the nuts from the brake cable hanger above the rear axle.
- 8) ☐ Remove the shock absorber upper mounting bolts. Remove the lower nut and bolt from the axle bracket. Remove the shock absorber. Repeat for other side.
- 9) ☐ Carefully lower the rear axle until the coil springs are free from the upper mount seat. Remove the coil springs.

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

COIL SPRING & SHOCK ABSORBER INSTALLATION

- 1) ☐ Place the rear coil spacer 176662 on top of the OE coil
 - 2) ☐ Place the coil spring and spacer onto the axle pads. Align upper pigtails towards the front of the vehicle. Raise the axle until the coil springs seat on the upper isolators. See illustration 2.
- NOTE:** When installing coil springs, make sure that the rubber isolator is positioned in the upper mount and the small egg-shaped coil end is at the bottom.
- 3) ☐ Repeat steps 1 through 2 for the other side.
 - 4) ☐ Attach new Rancho rear shocks to the upper mounting brackets with the original bolts. Tighten bolts to 23 FT-LBS.

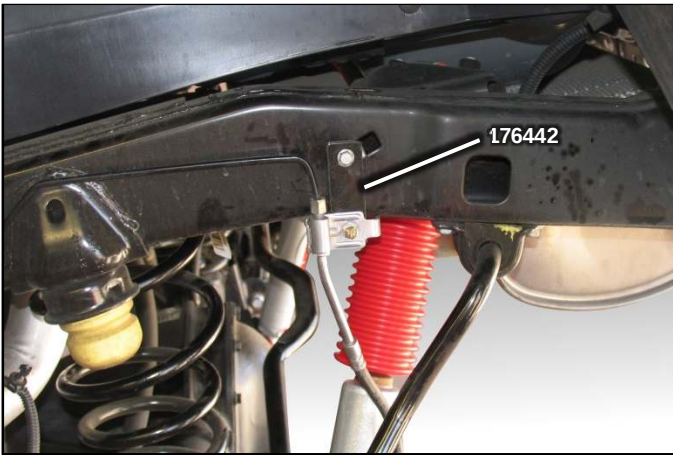


Illus. 2

- 5) ☐ Loosely attach shocks to the axle brackets with the original hardware.
- 6) ☐ Reattach the brake cable hanger above the rear axle.

BRAKE LINE BRACKET INSTALLATION

- 1) ☐ Attach brake line bracket 176442 to the frame rail with the original brake line bolt.



Illus. 3

- 2) ☐ Attach brake line to the inside of bracket 176442 with the 1/4" hardware from kit 860575. Tighten nuts and bolts to 12 ft lbs. See illustration 3.
- 3) ☐ Repeat steps 1 through 2 for other side.
- 4) ☐ Install rear wheels and lower vehicle to the ground. Tighten lug nuts to 80-110 FT-LBS.
- 5) ☐ Reattach end links to sway bar. Tighten nuts to 40 ft. lbs.

- 6) ☐ Reattach track bar to frame bracket. Tighten the track bar nut and bolt to 120 ft. lbs.
- 7) ☐ Tighten the shock absorber lower mounting bolts to 74 ft. lbs.
- 8) ☐ Reconnect the battery ground cable.

FINAL CHECKS & ADJUSTMENTS

- 1) • Turn the front wheels completely left then right. Verify adequate tire, wheel, brake hose and ABS wire clearance. Inspect steering and suspension for tightness and proper operation.
- 9) ☐ With the suspension at maximum extension (full droop), inspect and rotate all axles and drive shafts. Check for binding and proper slip yoke insertion. The slip yoke should be inserted a minimum of one inch into the transfer case and/or transmission.
- 10) ☐ Ensure that the vehicle brake system operates correctly. If new brake hoses were installed, verify that each hose allows for full suspension movement.
- 11) ☐ Readjust headlamps. Have vehicle Aligned to manufacturer's specifications.

Alignment Specifications

Adjustment	Preferred	Range
Caster	4.6°	±1.0°
Camber (fixed angle)	-0.25°	±0.63°
Toe-In (each wheel)	0.15°	±0.15°
Thrust Angle	0	±0.15°

NOTE: Castor alignment cams are recommended.

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