

INSTALLATION INSTRUCTION



Suspension System RS66901R9
Fits 2016-2005 Toyota Tacoma 4WD / 2WD 6 Lug
Excludes TRD PRO and 5 Lug Vehicles



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 supplied Rancho shock absorbers with this system:

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 this instruction. **USE A TORQUE WRENCH** for accurate measurements.

G. Rancho parts come with a protective coating. Do not powdercoat, 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. If you do not know how to safely use any of these tools, or do not have them, stop the project and consult a qualified mechanic. See tool list

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. 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.

M. 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.

N. 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.

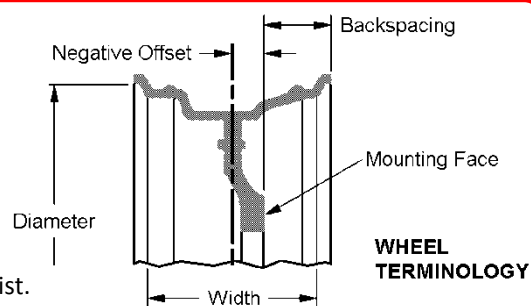
O. Thank you for purchasing the best suspension system available. For the best installed system, follow these instructions. If you do not have the tools or are unsure of your abilities, have this system installed by a certified technician. **RANCHO IS NOT RESPONSIBLE FOR DAMAGE OR FAILURE RESULTING FROM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

Wheels and Tires

Compatible With OE Wheels	Recommended Tire Sizes ¹ (Actual)	Wheel Size (Backspacing)
Yes	265/70R17 (31.6"x10.4") or 255/75R17 (32.1"x10.0)	17x8 (4.5-5.0")

¹ May require trimming and provide proper clearance.

Before installing any other combination, consult your local tire and wheel specialist.



WHEEL TERMINOLOGY

Tools and Supplies (BECAUSE OF VEHICLE VARIATIONS, THIS MAY NOT BE A COMPLETE LIST)

- | | | |
|------------------------------------|--|--|
| Safety Glasses | Hydraulic Floor Jack | 1/2" Drive Ratchet, Sockets, and Extensions |
| (wear safety glasses at all times) | Wire Brush (to clean mounting surfaces) | Grease Gun with NLGI 2 GC-LB Lithium Complex Grease* |
| Ball Joint Puller | Torque Wrench (200 LB-FT capacity) | Assorted Combination Wrenches |
| Heavy Duty Jack Stands | Red Loctite | Degrease/Cleaner or Solvent |
| Hammer | 1/2" Breaker Bar | Assorted Metric Allen Wrenches |
| Wheel Chocks | Penetrating Lube | Cotter Pins |
| Rubber Mallet | (to aid removal of corroded and frozen hardware) | |

*NOTE: Rancho components come lubed with lithium or lithium complex grease. Use of a different type (base) of grease can cause grease separation and breakdown of the grease and cause the component to fail.



PARTS LIST

P/N	DESCRIPTION	QTY.
	Box 1 Of 2	1
RS176678B	Left Upper Control Arm	1
RS176679B	Right Upper Control Arm	1
RS602640	Upper Ball Joint (Installed in Control Arm)	2
RS999319	RS9000XL Shock	2
RS15112	Rear Riser Block	2
RS740035	U Bolts, 9/16-18	4
RS8662	Rear Riser Block Hardware Kit	1
RS10500	Pin .562 X .875	2
RS8102	U Bolt Hardware Kit	1
RS7737	Nut, 9/16-18 Nylock	8
RS7738	Washer, 9/16 SAE	8
RS860725	Control Arm Bushing Kit	1
RS520053-4	Bushing	8
RS420102	Sleeve	4
RS603513	Shim	8
RS860805	Ball Joint Mount Plug Kit	1
RS770279	Ball Joint Mount Plug	2
RS89901	Instructions RS66901B9	1
RS94180	Information Pack	1

P/N	DESCRIPTION	QTY.
	Box 2 Of 2	1
RS999915	Loaded Quick Lift	2
RS860722	Front Hardware Kit	1
RS770164	Nut M14-1.5 Toplock	2
RS770109	Washer, M14	4
RS770095	1/2" Loop Strap	2
RS603615	HHCS, 1/4-20 X .75	2
RS7710	Nut, 1/4-20 Nylock	2
RS77841	Washer 1/4" SAE	4
RS7877	Nut, M14-2.00 Top Lock	2
RS770146	HHCS, M14-2.0X150mm	2
RS176689	Differential Drop Spacer	2
RS176690	Middle Carrier Bearing Spacer	2
RS770138	HHCS, M10-1.25X35mm	2
RS7755	Washer, 3/8 USS	2
RS603545	Skid Plate Spacer	4
RS7649	HHCS, M8-1.25mmX40mm	4
RS7733	Washer, 5/16 USS	4

FRONT SUSPENSION

PREPARATION

- 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. Remove the front wheels and set them aside.
- 3) Remove front skid plate and differential skid plate.
- 4) Remove clips holding top of rubber fender well liners to body. See illustration 1.

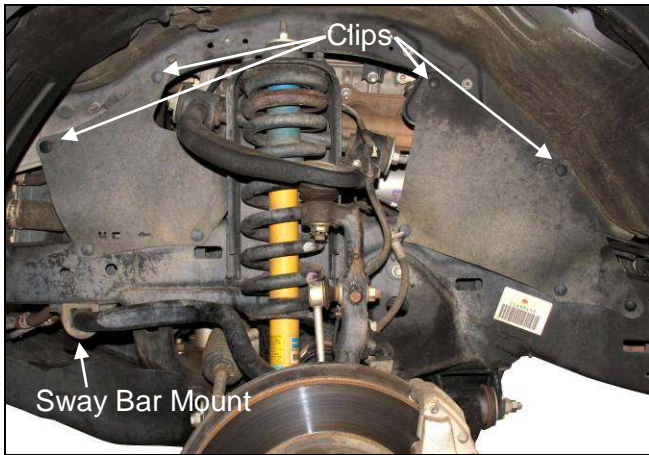


Illustration 1

- 5) Remove brake line mounts from steering knuckles and frame rails.
- 6) Remove ABS wire mounts from upper control arms.
- 7) Remove sway bar end links from steering knuckles. See illustration 2.
- 8) Mark drivers side of sway bar. Remove sway bar mounts from frame. See illustration 1.

SHOCK ABSORBER REMOVAL

- 1) Remove cotter pin and loosen tie rod nut at steering knuckle. Do not remove nut yet. Use puller to loosen tie rod from knuckle.
- 2) Remove cotter pin and loosen upper ball joint to steering knuckle nut. Do not remove nut yet. Use puller to loosen ball joint from knuckle.
- 3) Remove tie rod nut and remove tie rod from steering knuckle.
- 4) Pull down on upper control arm and remove ball joint nut. Slowly allow upper control arm to return to neutral position, separating ball joint from steering knuckle.

Attention: Do not allow knuckle to pull hard on axle shaft or hang by any hoses or wires. Damage to CV boots or brake and ABS lines may result.

- 5) Remove lower shock absorber mounting bolt.
- 6) Remove upper shock absorber mounting nuts.
- 7) Remove shock absorber.

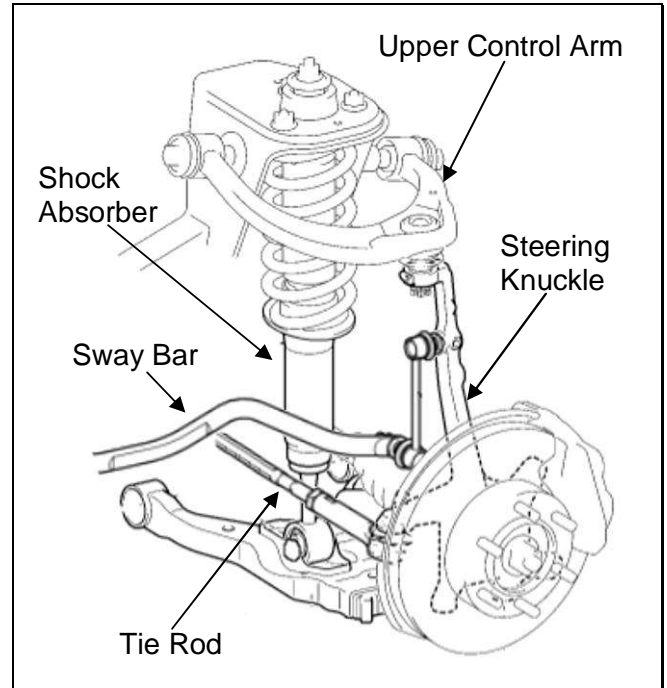


Illustration 2

UPPER CONTROL ARM PREPARATION

- 1) Apply a thin coating of lithium grease to upper control arm bushings and sleeve from kit RS860725.
- 2) Press bushings into upper control arm. See illustration 3.



Illustration 3

- 3) Press sleeves into control arm bushings using a rubber mallet, bench vise, or C-clamp. Ensure bushings are seated completely into control arm to ease installation of control arm.

UPPER CONTROL ARM REMOVAL

- 1) Remove control arm nut and washer.
- 2) Push upper control arm bolt forward until it contacts body. Mark where bolt contacts body. Push bolt back into control arm.
- 3) Using pliers, or adjustable crescent wrench, slowly bend body out at mark to clear upper control arm bolt. See illustration 4.



Illustration 4

- 4) Open engine compartment hood and note obstructions to upper control arm bolt. See illustration 5.

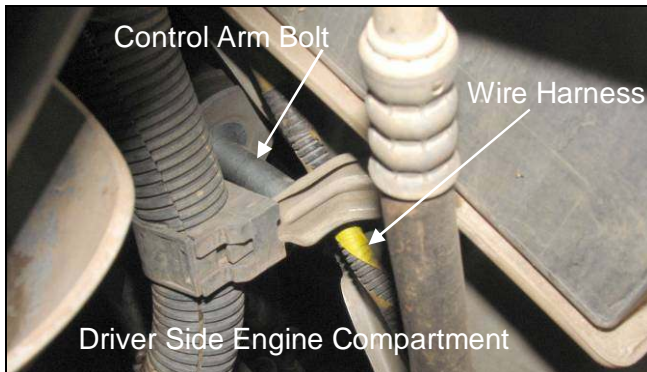


Illustration 5 A

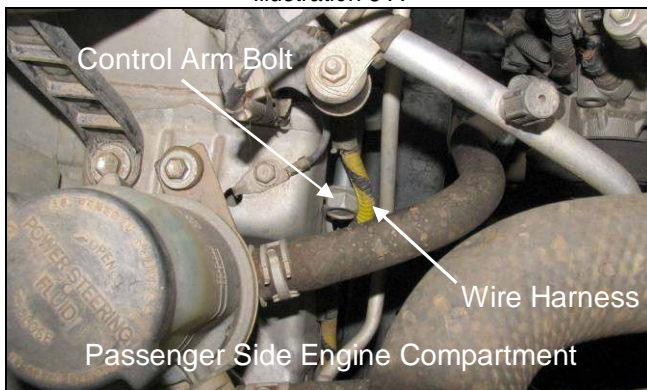


Illustration 5 B

- 5) Slowly push upper control arm bolt forward and behind bent lip of body, bending more if needed. Guide bolt through any obstructions in engine compartment. Bolt will have to be guided between wire harness and body to prevent damage to wire harness. A punch or 3/8" socket extension may be used to tap bolt out.
- 6) Remove upper control arm and remaining washer. Bolt does not have to be removed from engine compartment

UPPER CONTROL ARM INSTALLATION

- 1) Push bolt toward upper control arm mount, and install one shim from kit RS860725 on bolt, leaving enough room to place upper control arm over mount.
- 2) Hold Rancho upper control arm in position and slide bolt into control arm sleeve. When bolt comes through sleeve, install another shim on bolt. See illustration 6.

NOTE: The bent tube of the control arm goes to the front of the mount; the straight tube goes to the rear. See illustration 6.

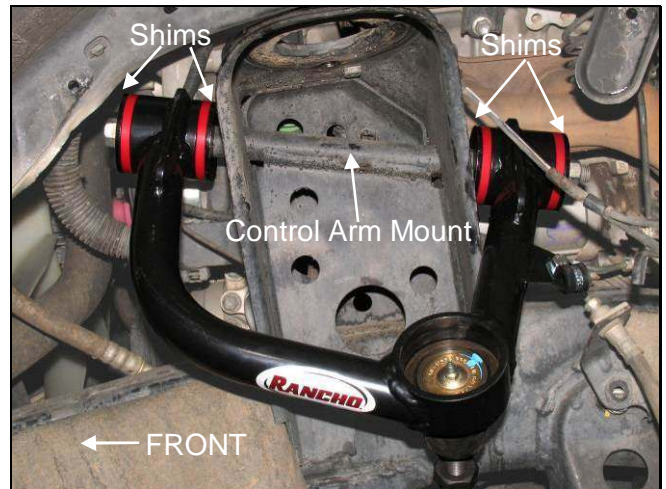


Illustration 6

- 3) Slide bolt through control arm mount. When bolt comes through mount, install another shim on bolt. Shim may need to be tapped in place between control arm mount and bushing.
- 4) Slide bolt into aft control arm sleeve and continue until bolt is completely through control arm mount and both sleeves.
- 5) Install another shim on bolt, along with supplied M14-1.5 toplock nut from kit RS860722.

Note: On some vehicles control arm mounting bolt can be installed from the back to front to ease installation. Shims must still be used against each bushing.

- 6) Tighten control arm mounting bolt and nut to 85 ft lbs.

- 7) Grease control arm bushings at grease fittings. Stop as soon as any grease is visible. **DO NOT OVER GREASE!**

SHOCK ABSORBER INSTALLATION

- 1) Insert top of new Rancho shock absorber into upper shock mount. Loosely attach with supplied nuts.
- 2) Pry lower shock loop into lower control arm shock mount. Install lower shock mounting bolt and nut. Tighten upper shock mounting nuts to 47 ft lbs. Tighten lower shock mounting bolt and nut to 61 ft lbs.
- 3) Insert upper ball joint into steering knuckle and install nut. Tighten to 81 ft lbs and install new cotter pin.
- 4) Grease upper ball joint until boot starts to swell. **DO NOT OVER GREASE!** Install ball joint mount plug RS770279 in ball joint mount of upper control arm.
- 5) Install tie rod end into steering knuckle. Install nut and tighten to 67 ft lbs. Install new cotter pin.
- 6) Install brake hose and ABS wire brackets to frame and steering knuckle.
- 7) Remove ABS to upper control arm bracket from the ABS wire by bending bracket, taking care not to damage ABS wire. See illustration 7.



Illustration 7

- 8) Attach ABS wire to upper control arm using loop strap and ¼" hardware from kit RS860722.
- 9) Reattach sway bar and brackets to frame, using reference mark to ensure correct orientation. Tighten to 30 ft lbs.
- 10) Reattach sway bar end links to steering knuckle. Tighten to 52 ft lbs.
- 11) Reattach top of rubber fender well liners to body.

DIFFERENTIAL DROP SPACER INSTALLATION

- 1) Support front differential with floor jack.
- 2) Remove the two forward front differential mounting brackets to crossmember mounting bolts. See illustration 8.

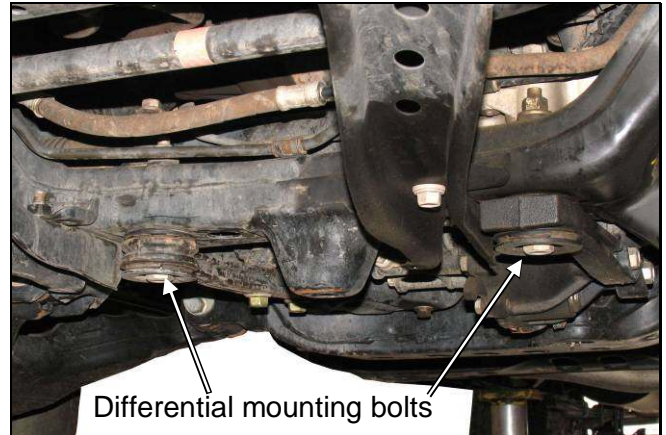


Illustration 8

- 3) Lower differential enough to insert spacers between crossmember and mounting bracket.
- 4) Install Rancho front differential drop spacers RS176689 between crossmember and differential mounting bracket using M14-2.0X150mm bolts, washers and toplock nuts from kit RS860722. Tighten to 100 ft lbs. See illustration 9.

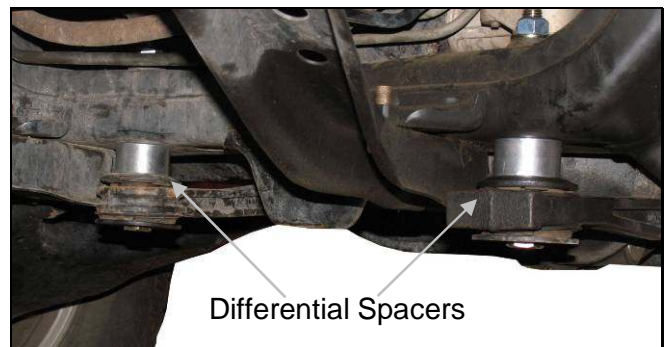


Illustration 9

- 5) Install the front skid plate using the OEM bolts on the front, and the M8-1.25X40mm bolts, 5/16" USS washers and round spacers from kit RS860722 on the rear. Install spacers between the frame and skid plate.
- 6) Install rear skid plate using the M8-1.25X40mm bolts, 5/16" USS washers and round spacers from kit RS860722 on the front. Install spacers between the frame and skid plate. Re-use the OEM bolts on the rear of the skid plate.
- 7) Install front wheels and lower vehicle to the ground. Tighten lug nuts to 95 ft lbs.

REAR SUSPENSION

- 1) Chock front wheels. Raise the rear of the vehicle and support the frame with jack stands. Remove the rear wheels.
- 2) Support the rear axle assembly with a floor jack.
- 3) Remove both rear shock absorbers. Do not reuse OEM shock absorbers.
- 4) Loosen the U-bolt nuts on both sides of the vehicle.
- 5) Remove the passenger side U-bolts only. Carefully lower the rear axle enough to insert riser block.

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

- 6) Insert center pin from kit RS8662 into hole in axle pad.
- 7) Place Rancho riser block on the axle pad and center pin, and raise rear axle until riser block contacts leaf spring.
- 8) Loosely attach the leaf spring to the axle with the new U-bolts and hardware from kit RS8102. See illustration 10.



Illustration 10

- 9) Repeat steps 4 and 8 for the driver side.
- 10) Cross tighten all U-bolt nuts evenly to 65 ft. lbs.
- 11) Install new Rancho shock absorbers.
- 12) Support drive shaft with floor jack.
- 13) Remove driveshaft carrier bearing mounting hardware.
- 14) Install rectangular carrier bearing spacers from kit RS860722 between bearing and frame using supplied

M10-1.25X35mm bolts and 3/8" USS washers. See illustration 11.



Illustration 11

- 15) Install rear wheels and lower vehicle to ground. Tighten lug nuts to 95 ft. lbs.

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.
- 2) 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.
- 3) Ensure that the vehicle brake system operates correctly. If new brake hoses were installed, verify that each hose allows for full suspension movement.
- 4) Readjust headlamps. Have vehicle Aligned to manufacturer's specifications.

Alignment Specifications

Adjustment	Preferred	Range
<u>Caster</u>	<u>2.00°</u>	<u>±0.75°</u>
<u>Camber</u>	<u>0.4°</u>	<u>±0.75°</u>
<u>Toe-In (each wheel)</u>	<u>0.06"</u>	<u>±0.08"</u>
<u>Thrust Angle</u>	<u>0</u>	<u>±0.15°</u>

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

Torque Specs

FRONT

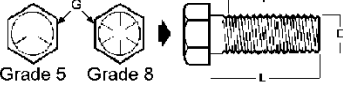
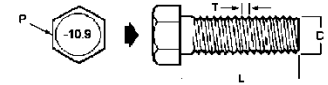
Upper Strut Mounting Nuts	47 lb-ft.
Lower Strut Mounting Bolt	61 lb-ft.
Tie Rod End Ball Stud Nut	67 lb-ft.
Upper Ball Joint Nut	81 lb-ft.
Sway Bar Mounting Bolts	30 lb-ft.
Sway Bar End Link to Steering Knuckle	52 lb-ft.
Sway Bar End Link to Sway Bar	52 lb-ft.
Upper Control Arm	85 lb-ft.
Brake Line Bracket to Steering Knuckle	21 lb-ft.
ABS Wire Bracket to Upper Control Arm	9 lb-ft.
Differential Mount to Cross Member	116 lb-ft
Skid Plate	20 lb-ft
Wheel Lug Nuts Aluminum Wheel	95 lb-ft.

REAR

U-Bolts (Rancho 9/16")	75 lb-ft.
Brake & ABS Brackets to Axle	10 lb-ft.
Carrier bearing bolts	30 lb-ft.
Lower Shock Mount	74 lb-ft.
Wheel Lug Nuts Aluminum Wheel	97 lb-ft.
Wheel Lug Nuts Steel Wheel	154 lb-ft.

STANDARD BOLT TORQUE & IDENTIFICATION

INCH SYSTEM			METRIC SYSTEM			
Bolt Size	Grade 5	Grade 8	Bolt Size	Class 8.8	Class 10.9	Class 12.9
5/16	15 LB-FT	20 LB-FT	M6	5 LB-FT	9 LB-FT	12 LB-FT
3/8	30 LB-FT	35 LB-FT	M8	18 LB-FT	23 LB-FT	27 LB-FT
7/16	45 LB-FT	60 LB-FT	M10	32 LB-FT	45 LB-FT	50 LB-FT
1/2	65 LB-FT	90 LB-FT	M12	55 LB-FT	75 LB-FT	90 LB-FT
9/16	95 LB-FT	130 LB-FT	M14	85 LB-FT	120 LB-FT	145 LB-FT
5/8	135 LB-FT	175 LB-FT	M16	130 LB-FT	165 LB-FT	210 LB-FT
3/4	185 LB-FT	280 LB-FT	M18	170 LB-FT	240 LB-FT	290 LB-FT

<p>1/2-13x1.75 HHCS</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>D T L X</p> </div> <div style="text-align: center;">  <p>Grade 5 Grade 8</p> </div> </div> <p>G = Grade Marking (bolt strength) D = Nominal Diameter (inches) T = Thread Pitch (threads per inch) L = Length (inches) X = Description (hex head cap screw)</p>	<p>M12-1.25x50 HHCS</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>D T L X</p> </div> <div style="text-align: center;">  <p>P</p> </div> </div> <p>P = Property Class (bolt strength) D = Nominal Diameter (millimeters) T = Thread Pitch (thread width, mm) L = Length (millimeters) X = Description (hex head cap screw)</p>
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Rancho Technical Department at 1-734-384-7804.