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Congratulations on your purchase of Viking Crusader™ double adjustable shock absorbers! You can rest assured that you are getting the best value for your dollar with Viking high performance shocks.

**INSTALLATION / TUNING GUIDE FOR
VIKING CRUSADER™ DOUBLE ADJUSTABLE
CUSTOM MOUNT (EYE / EYE) SHOCKS
[Part Numbers C301xx – C3xxxx]**

⚠ WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

WARNING! (This warning does NOT apply to “CD” valving)

CRUSADER SERIES SHOCKS ARE DESIGNED FOR COMPETITION ONLY AND NOT INTENDED FOR STREET USE. WHEN VEHICLE IS OFF-TRACK OR BEING TRAIERED, CRUSADER SHOCKS MUST BE AT VIKING’S SPECIFIED OFF-TRACK SETTINGS ON BOTH COMPRESSION AND REBOUND. FAILURE TO USE THE SPECIFIED SETTINGS MAY DAMAGE THE SHOCK AND WILL VOID YOUR WARRANTY, AND MAY RESULT IN INJURY OR DEATH.

NOTE!

Like many performance parts, aftermarket performance shocks may make more noise than factory shocks, due to bearing mounts and/or poly bushing mounts as compared to factory rubber mounts. This is often more noticeable more in rear IRS equipped vehicles. Shocks that have been installed are not eligible for return.

INSTALLATION

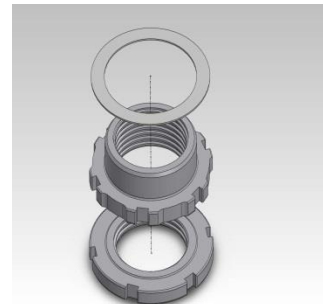
Please read these instructions carefully and entirely prior to installing your new Viking shocks.

*It is strongly recommended that you purchase a spanner wrench and thrust bearing kit (part #7995-102) for ease of adjustment.

It is important to note that your **shocks should never be used as a travel limiter**. Straps or cables made for travel limitation should be used prevent topping out. Vehicles used in a manner where they could bottom out the shocks (such as drag racing) should use a higher rate spring and a bump stop to help prevent shock damage. Any shock can be damaged from wheel stands despite bump stops. The installation of the shock is recommended at the ride heights listed in the Viking catalog in order to avoid having the shock possibly top or bottom out, which could cause damage to the shock that is not covered by warranty.

1. Verify that your shocks are the correct lengths and mount style before beginning installation. Contact your chassis builder, supplier or Viking if you have any questions. **Products that are used, installed or modified in any way are not eligible for return.** See our full Terms & Conditions of Sale at www.vi-king.com.
2. Measure your vehicle’s ride height by measuring from the center point of the fender lip down to the ground. Mark the spot you measured to for later reference.
3. Reference your vehicle’s owner’s manual to find the proper jacking locations, and the instructions for removing the shocks and springs. **FAILURE TO FOLLOW THE INSTRUCTIONS CAN RESULT IN SERIOUS INJURY OR DEATH.**

4. Jack your vehicle up until the tires do not touch the ground and the suspension hangs freely and remove the wheels. Remove the shocks and springs and retain all mounting hardware.
5. Test fit your shocks into the chassis without mounting the springs. Move the suspension through the entire travel range to ensure that it does not bind at any point.
6. Fully extend the piston rod and ensure that the jam nut under the bearing housing is secure.
7. Screw the lock nut (shoulder up) and the spring nut (shoulder up) down to the last thread **only** (see figure on the right).
8. Apply anti-seize to the threads on the nuts and the shock. **If the Viking thrust bearing kit is used (recommended)**, coat both washers with anti-seize. Install the spring seat washer, then the bearing, then the second washer. **If you do not use the thrust bearing kit**, then coat one side of the washer supplied with the shock with anti-seize and place it coated side down on the spring nut. **THE WARRANTY IS VOID AND DOES NOT COVER DAMAGE TO THE SHOCK RESULTING FROM THE FAILURE TO APPLY ANTI-SEIZE PRIOR TO MAKING RIDE HEIGHT ADJUSTMENTS.**
9. Slide the spring over the shock, put the spring cap into position (may require compressing the spring), and adjust the spring nut up until the spring is slightly compressed. Make certain that the spring is seated squarely in the cap and on the spring nut. All parts should be aligned.
10. Insert the proper poly sleeves or bearing mounts into the shock ends. For bearing mount shocks, insert the bearing in a twisting motion. It may be necessary to press the bearings into the shock. If so, do **not** press on the ball; press only on the race surrounding the ball. Install snap rings on both sides of each bearing and ensure they are fully seated in the loops.
11. **For stud top shocks only**, install the upper stud bushing, washer and nut. Tighten the nut firmly until the bushing OD exceeds the washer OD by roughly .20". **WARNING: Leaving the stud bushing nut too loose will cause excess movement allowing the piston rod to rub on the frame. Over-tightening the stud bushing nut will over-compress the bushing causing failure of the bushing assembly.**
12. Install the assembled coil-over on the vehicle and adjust the spring nut up about 1/3 of the way from the bottom of the threads on the shock.
13. Reattach the wheels and torque everything to the specifications defined by the vehicle's manufacturer.
14. Verify that there is clearance around the coil-over shock and that the suspension does not bind at all, even when wheels are turned to full lock position.
15. Remove the jack stands and carefully place the car on the ground to check clearances again. Lightly bounce the vehicle at each corner to verify that there are not any clearance issues.
16. Measure the ride height as you did prior to installation and ensure that there is sufficient travel in both directions. Ideally, 60% of the shock stroke is available for compression. Adjust the ride height **only** with the weight of the vehicle fully off of the tires. **THE WARRANTY IS VOID AND DOES NOT COVER DAMAGE TO THE SHOCK DUE TO INCORRECT RIDE HEIGHT OR BY MAKING RIDE HEIGHT ADJUSTMENTS WITHOUT THE TIRES RAISED OFF THE GROUND.** Raise or lower the ride height by adjusting the spring nut to achieve the desired ride height. If it is at the extreme top or bottom of the threads, then you may need a softer or heavier spring.
17. Once ride height is correct, spin the lock nut up to the bottom of the spring nut and lock them together using the two spanner wrenches.
18. Have your front end realigned upon completion of installation.



VIKING CRUSADER™ TUNING AND ADJUSTMENT INSTRUCTIONS

Vehicles used on for drag racing, road racing and auto cross will all have different needs in terms of shock valving. However, it does not stop there. Driver style / capability, road / track conditions, vehicle type (car vs. pickup, etc.), vehicle weight, horsepower, tires, etc. all create different needs in terms of shock valving. That is the beauty of a double adjustable shock. Your Viking Crusader™ shocks have a total of 19 positions (18 clicks plus a zero position) of compression adjustment and a total of 22 positions (21 clicks plus a zero position) of rebound adjustment, for a total of 418 different valvings. The “C” knob adjusts compression, while the “R” knob adjusts rebound. Every Viking shock is tested on a dynamometer prior to shipment to ensure that it is functioning properly. Manually moving a shock is not an accurate testing method for ensuring that shocks are functioning properly. Position zero is the softest setting and is found by turning the knob counterclockwise until the positive stop is located. Only very light force is needed to adjust the knobs; do not ever force the knob past its intended stop as doing so will damage the shock.

Recommended baseline points for adjusting your shocks are outlined below based on the various shock Crusader™ valving options. Also, please consider the following:

Off Track (e.g. Trailering):

The rebound and compression settings must be at Viking’s specified off-track settings or lower when the vehicle is off-track, such as when it is being trailered or driven off-track/off-road.

Handling (Auto-Cross/Road Race):

The handling and autocross settings will vary depending on spring rate. For example, if very firm springs are utilized, the compression setting might be set softer and the rebound setting firmer. In addition, the track condition will also have an impact on the settings. For a rough track, it may be necessary to soften the rebound, as the vehicle may have a tendency to skip across the track if you encounter a rough surface in a corner.

Drag Race:

For drag racing, a lot will depend on how the driver wants the car to react. Does the racer want to maximize weight transfer? If so, the front will be set with a stiffer compression and soft rebound, while the rear will have a soft compression and stiffer rebound. If the racer desires to limit weight transfer, the setting will go in the opposite direction. Track conditions will also impact the settings. For example, a hot slick track will often require stiffer compression and rebound. In addition, as a general rule of thumb, if the tires spin at the hit, soften the rebound. If the tires spin after the initial hook, stiffen the rebound (the compression can also be stiffened in this instance).

Cruising (“CR” kit) - Crusader™ “CD” Front & “CD” Rear Valving

Off Track:	Front (“CD”):	6 - 10 compression; 8 - 12 rebound
	Rear (“CD”):	4 – 8 compression; 5 - 9 rebound

Drag-Lower Horsepower (“DL” kit) – Crusader™ “AD” Front & “AJ” Rear Valving

Off Track:	Front (“AD”):	1 - 4 compression; 5 - 9 rebound
	Rear (“AJ”):	0 - 3 compression; 3 - 7 rebound
Handling:	Front (“AD”):	8 - 12 compression; 14 - 18 rebound
	Rear (“AJ”):	7 - 11 compression; 11 - 15 rebound
Drag Racing:	Front (“AD”):	12 - 16 compression; 0 - 4 rebound
(weight transfer)	Rear (“AJ”):	0 - 4 compression; 6 - 10 rebound

Drag-Higher Horsepower (“DH” kit) – Crusader™ “AK” Front & “AM” Rear Valving

Off Track:	Front (“AK”):	1 - 4 compression; 3 - 5 rebound
	Rear (“AM”):	0 - 3 compression; 0 rebound
Handling:	Front (“AK”):	8 - 12 compression; 10 - 14 rebound
	Rear (“AM”):	7 - 11 compression; 12 - 16 rebound
Drag Racing: (front tie-down)	Front (“AK”):	8 - 12 compression; 15 - 19 rebound
	Rear (“AM”):	7 - 11 compression; 8 - 14 rebound
Drag Racing: (weight transfer)	Front (“AK”):	12 - 16 compression; 0 - 4 rebound
	Rear (“AM”):	0 - 4 compression; 6 - 12 rebound

Pro-Touring (“PT” kit) - Crusader™ “AP” Valving

Off Track:	Front (“AP”):	1 - 4 compression; 0 rebound
	Rear (“AP”):	0 - 3 compression; 0 rebound
Handling:	Front (“AP”):	8 - 12 compression; 10 - 14 rebound
	Rear (“AP”):	7 - 11 compression; 8 - 12 rebound
Drag Racing: (front tie-down)	Front (“AP”):	8 - 12 compression; 15 - 19 rebound
	Rear (“AP”):	7 - 11 compression; 6 - 10 rebound
Drag Racing: (weight transfer)	Front (“AP”):	12 - 16 compression; 0 - 4 rebound
	Rear (“AP”):	0 - 4 compression; 4 - 8 rebound

NOTE: The above recommended starting points are suggestions. These settings may or may not work for your application. Certain vehicle/driver/track combinations may have optimal shock settings completely outside of these ranges. That is the beauty of a double adjustable shock absorber... you can set it where it works the best for you and your set-up!

WARRANTY

Viking warrants that the products will be free from defects in material and workmanship for two years from date of sale to the original purchaser. Viking makes no other warranty of any kind, express or implied. Viking shall have no obligation under the foregoing warranty where the defect is the result of improper or abnormal use, your negligence, vehicle accident, improper or incorrect installation or maintenance, nor when the product has been repaired or altered in any way. Viking’s liability in the case of defective products subject to the foregoing warranty shall be limited to the repair or replacement only, at Viking’s option, of the defective products. In no event shall Viking be liable for the cost of procurement of substitute products, or liable for any indirect, special, incidental, consequential or exemplary damages for any reason. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

In order to be eligible for service under this warranty, return the defective part to Viking together with the pre-approved R.G.A. number issued by Viking. Tag each item with the part number and the specific explanation of defect. All returns must be shipped prepaid to: Viking Performance, Inc., RGA # _____, 21401 Hemlock Ave., Lakeville, MN 55044.

Purchaser acknowledges that parts and services sold by Viking are exposed to a wide variety of conditions, and that Viking does not have full knowledge of the intended use of the goods. Purchaser agrees to indemnify and hold Viking harmless upon demand against all claims, actions, loss, damage or injury resulting from the direct or indirect use of the products, or purchaser’s inability to determine the proper use or application of the products. Viking shall not be liable for any claims, demands, injuries, damages, actions, or causes of action whatsoever to buyer arising out of or connected with the use of any Viking products. MOTORSPORTS ARE DANGEROUS; AS SUCH, NO WARRANTY OR REPRESENTATION IS MADE AS TO THE PRODUCTS’ ABILITY TO PROTECT THE USER FROM INJURY OR DEATH. THE USER FULLY ASSUMES THAT RISK. ALL PRODUCTS ARE INTENDED FOR RACING AND OFF-ROAD USE AND MAY NOT BE LEGALLY USED ON THE HIGHWAY. We reserve the right to change specifications without notice.