



### IMPORTANT! READ THIS FIRST!

Installation of shock absorbers or other suspension components requires special tools and expert knowledge. Accordingly, installation of all BILSTEIN products must be performed by a professional automotive suspension technician.

When replacing other brands, BILSTEIN shock absorbers or other suspension components should always be installed as a set. All BILSTEIN products must only be used for the specific, intended application as indicated in the application guide. **Any use of any BILSTEIN product other than for its intended use may result in serious bodily injury or death.**

Always use a chassis hoist for the installation of BILSTEIN products and make certain that the raised vehicle is securely attached to the hoist and/or supported to prevent the vehicle from slipping, falling, or moving during the installation process.

**If you install any BILSTEIN product without the necessary special tools, expertise, and chassis hoist, you may subject yourself to the risk of serious bodily injury or death.**

BILSTEIN shock absorbers are gas-filled and are highly pressurized.

- Never place any BILSTEIN shock absorbers in a vise or use a clamp on any BILSTEIN shock absorber.
- Never apply heat near any BILSTEIN shock absorber.
- Never attempt to open or repair any BILSTEIN product, in order to prevent **serious bodily injury or death**.

Any attempt to misuse, misapply, modify, or tamper with any BILSTEIN suspension product voids any warranty and **may result in serious bodily injury or death**.

While installing any BILSTEIN product:

- Do not use impact tools for loosening or tightening fasteners, because this may destroy the screw threads.
- Self-locking fasteners must only be used **once**!
- Reuse original equipment components only if they are in good condition, otherwise replace them with new components.
- Never remove the slight film of oil on the shock absorber piston rod and seal.
- All mounting fasteners for shock absorbers and other suspension components must be securely tightened before tension is placed on the suspension system, unless otherwise specified in the manufacturer's service manual or in this instruction.

After installing any BILSTEIN product:

- The suspension caster and camber must be checked and/or adjusted to comply with the vehicle manufacturer's specifications.
- The (load dependent) brake compensator and the anti-lock brake system must be checked and/or reset to comply with the vehicle manufacturer's specifications.
- The headlight aim must be checked and adjusted. Or, if applicable, adaptive headlights must be checked and recalibrated to comply with the vehicle manufacturer's specifications.
- If applicable, any/all Advanced Driver Assistance Systems (ADAS) must be checked and recalibrated to comply with the vehicle manufacturer's specifications.

### **CAUTION for COILOVER TYPE SUSPENSIONS!!!**

**If disassembling a coilover type suspension, refer to the vehicle manufacturer's service manual for proper procedures. The coil spring is preloaded and must be compressed with a spring compressor to release load before the upper mount is disassembled. Failure to follow the vehicle manufacturer's procedures may cause serious injury or death, and may damage the vehicle.**

### **IMPORTANT!!!**

**This BILSTEIN product may or may not be compatible with non-BILSTEIN aftermarket products and/or vehicle modifications. It is the responsibility of the professional automotive suspension technician performing the installation to identify any non-OEM components and/or modifications on the vehicle that may interact with the suspension system. These must be evaluated for any potential physical static or dynamic interference with and/or effect on the function of this BILSTEIN product.**

This instruction is for the front 41-348529 Black Hawk shocks.

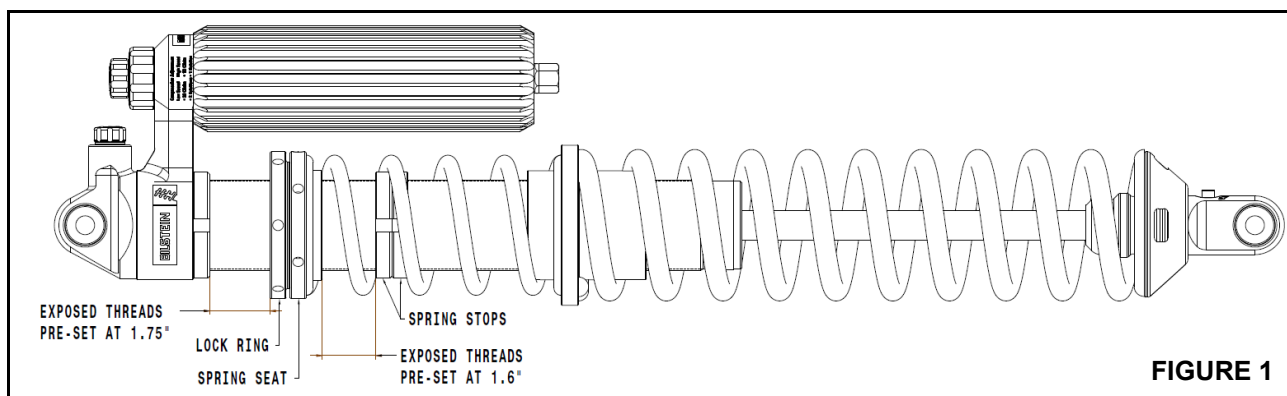
## **Black Hawk Shock Installation Procedure:**

**NOTE:** The below procedure and images are of the front left shock unless otherwise stated.

- A. Using a chassis hoist, lift the vehicle off the ground and support the A arm with jack stands.
- B. Remove the existing shock module from the vehicle following all procedures in the vehicle manufacturer's service manual.
- C. The Black Hawk shocks come pre-set to a specific lift height. After installation, If the pre-set lift height is not what is desired, follow the steps below and refer to Figure 1 for adjusting the lift height.

### **Front Lift Height Adjustment Procedure**

- D. Break the lock ring loose from the spring seat using the supplied spanner wrenches. Refer to the figure below.
- E. Using an appropriate spring compressor, compress the lower spring until it can be rotated freely by hand. Then, spin the spring seat up or down depending on what the desired lift height is. Moving the spring seat up will reduce the vehicle lift height and down will increase the vehicle lift height. Do not set the spring seat outside the minimum and maximum setting listed below to avoid coil bind under maximum compression and unloading under maximum extension.



Maximum pre-load setting: 2- $\frac{5}{8}$ " of exposed thread

Minimum pre-load setting:  $\frac{1}{2}$ " of exposed thread

\*This range is dependent on the position of the Spring Stops to the Spring Seat. If the exposed thread value in the image above is changed, this range will be affected and needs to be adjusted accordingly.

- F. Once the desired lift height is set, tighten the lock ring against the spring seat using the supplied spanner wrench.

**Torque lock ring to spring seat 37 ft-lb (50 Nm).**

- G. Slowly release the spring compressor.

# E-WM05-0000118

## MOUNTING INSTRUCTION



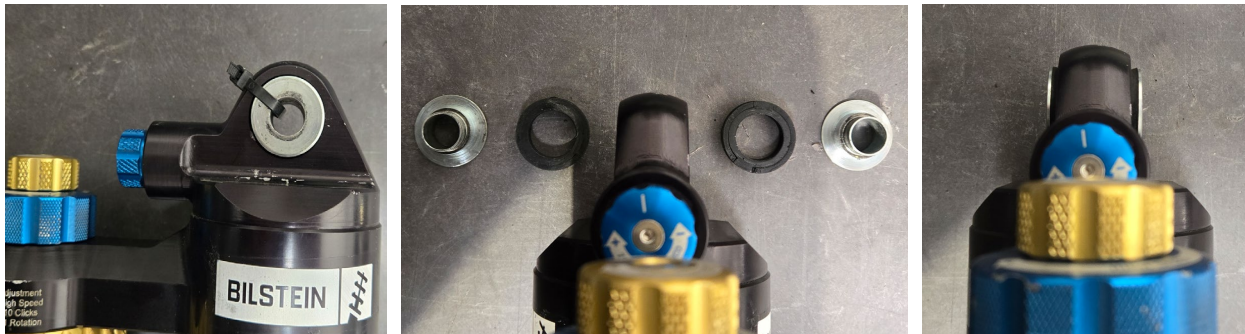
### Front Module Installation Procedure

**NOTE:** After installation of the new Bilstein Black Hawk shocks, the front plastic Hood and Hood Trim will need to be trimmed in order for the large finned piggyback reservoir to clear during the compression cycle. Instructions for trimming the plastics are at the end of this installation procedure.

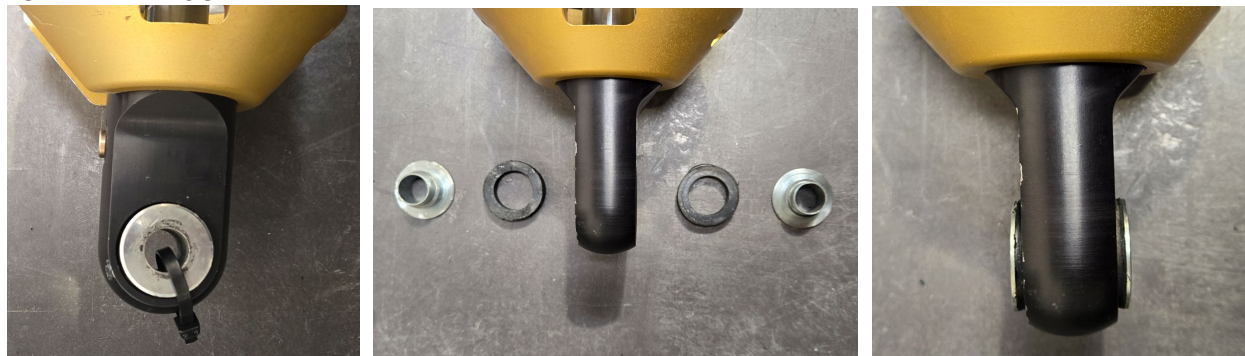
**NOTE:** All installation photos are of the front left unless otherwise state.

H. Heim Spacers and Rubber Washers should come installed on the shocks secured by zip ties. Remove the zip ties prior to installing the shocks on the vehicle. If the Heim Spacers and Rubber Washers have been removed from the Heim Joints, install the Heim Spacers and Rubber Washers onto the upper and lower Heim Joints as shown below.

### UPPER HEIM JOINT



### LOWER HEIM JOINT



# E-WM05-0000118

## MOUNTING INSTRUCTION



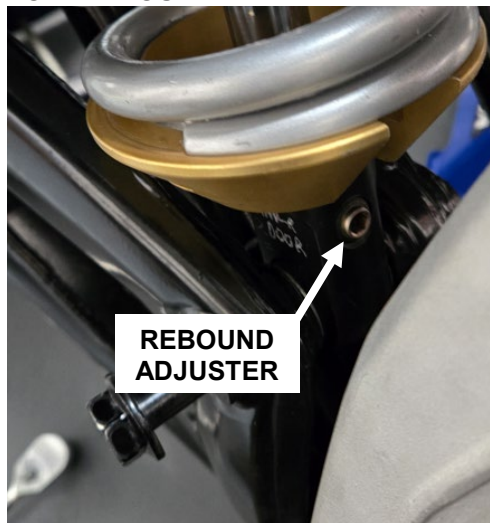
- I. After removing the Hood Trim, install the shock on the vehicle so that the piggyback reservoir faces outboard the vehicle as shown below. You may need to remove some of the Hood screws in order to lift the hood to install the Blackhawk shocks down through the top of the Hood.
- J. Using the OE mount bolts and nuts, install the upper and lower mounts of the shock as shown below and hand-tighten. Ensure the lower Rod End is mounted so that the Rebound Adjuster is facing outboard as shown below in order for access to the Rebound Adjuster.

**NOTE:** Images below are shown with the plastics already trimmed. Installing the shocks without the trimmed plastics will interfere with the reservoir and adjuster when the shocks are fully installed. Removing some of the Hood screws may be necessary if you haven't already done so.

### UPPER MOUNT



### LOWER MOUNT



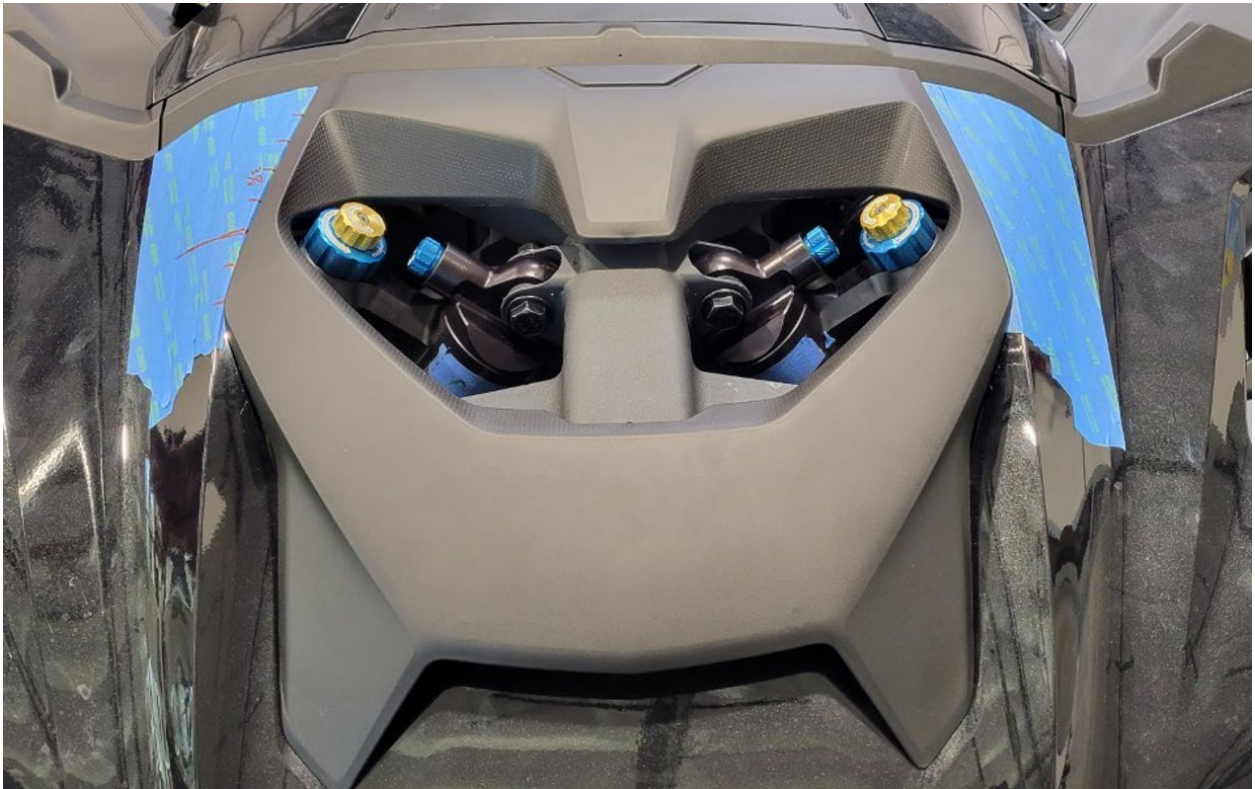
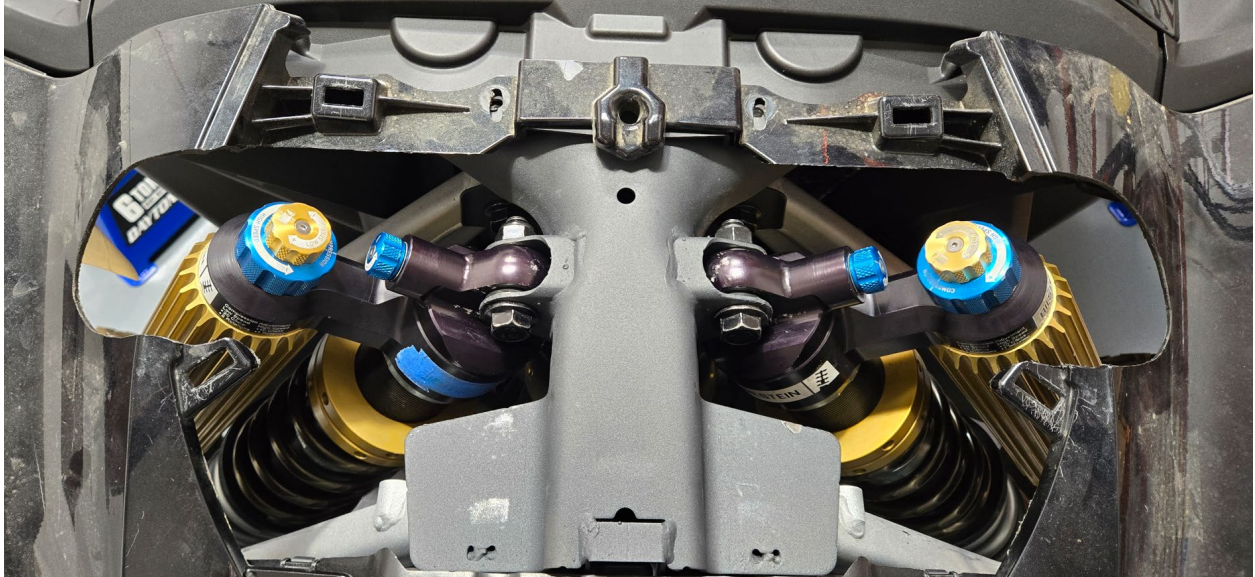
- K. Once the mount bolts and nuts have been hand-tightened, raise the vehicle so that the full weight is off the suspension and the shocks are fully extended. Apply non-permanent thread locker and torque both upper and lower bolts and nuts to  $103 \pm 7$  ft-lb ( $140 \pm 10$  N·m).



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- L. Install the Hood (if removed) and/or hood screws that were removed. Also install the Hood Trim as shown below.



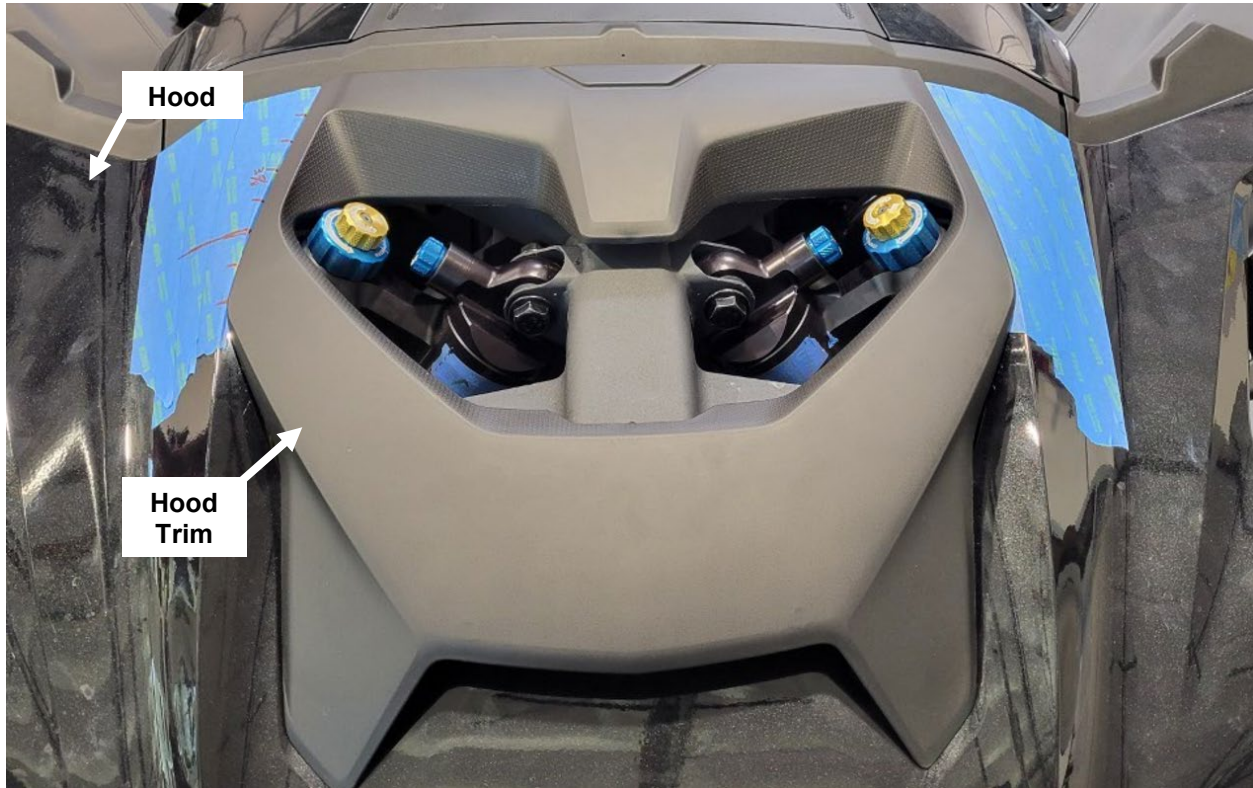


# E-WM05-0000118

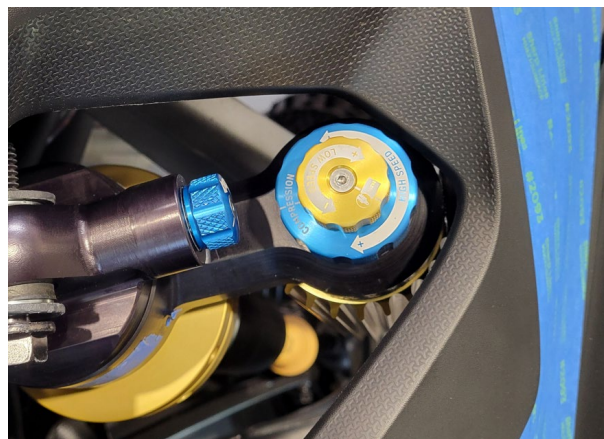
## MOUNTING INSTRUCTION



- M.** Once the shocks are installed, the Hood and Hood trim need to be trimmed in order to clear the piggyback finned reservoir. Tape off the hood as shown below.



- N.** With the shocks at full droop, mark the Hood Trim where it will need to be cut. The Hood Trim will need to be cut all the way through on both sides to make two separate pieces. Also, mark the Hood where the Hood needs to be trimmed in order to match these cuts with each other. Be sure not to cut through the mount tabs on the bottom side of the Hood Trim and Hood as these will be used to mount the Hood Trim when trimming is complete.

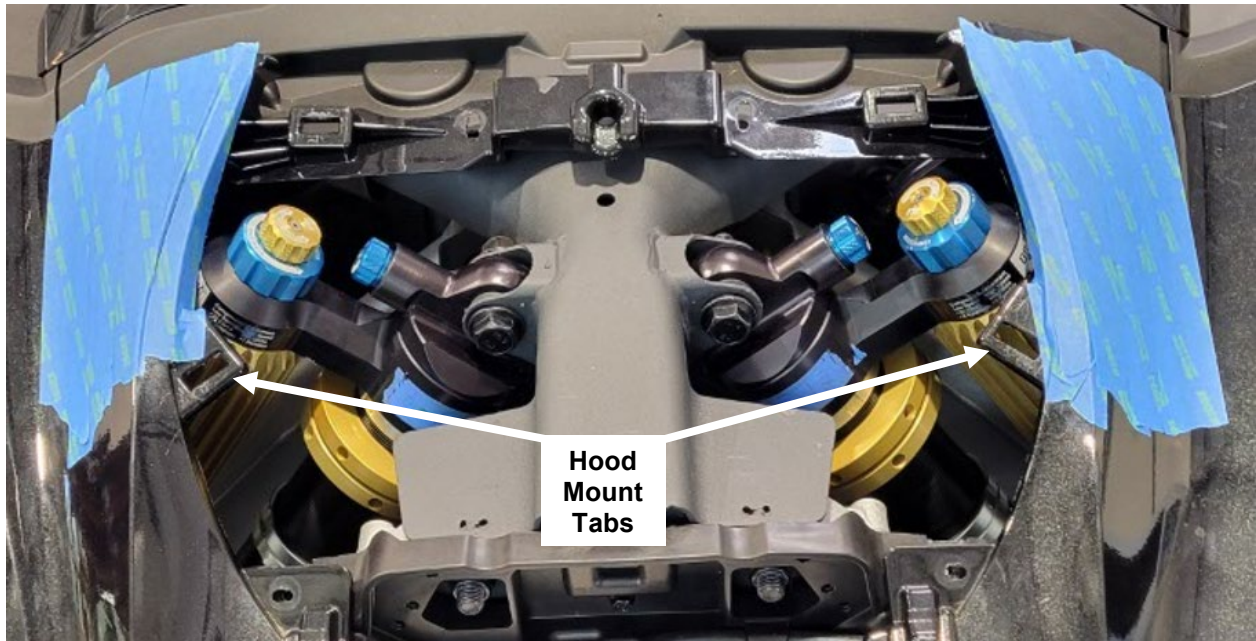


# E-WM05-0000118

## MOUNTING INSTRUCTION

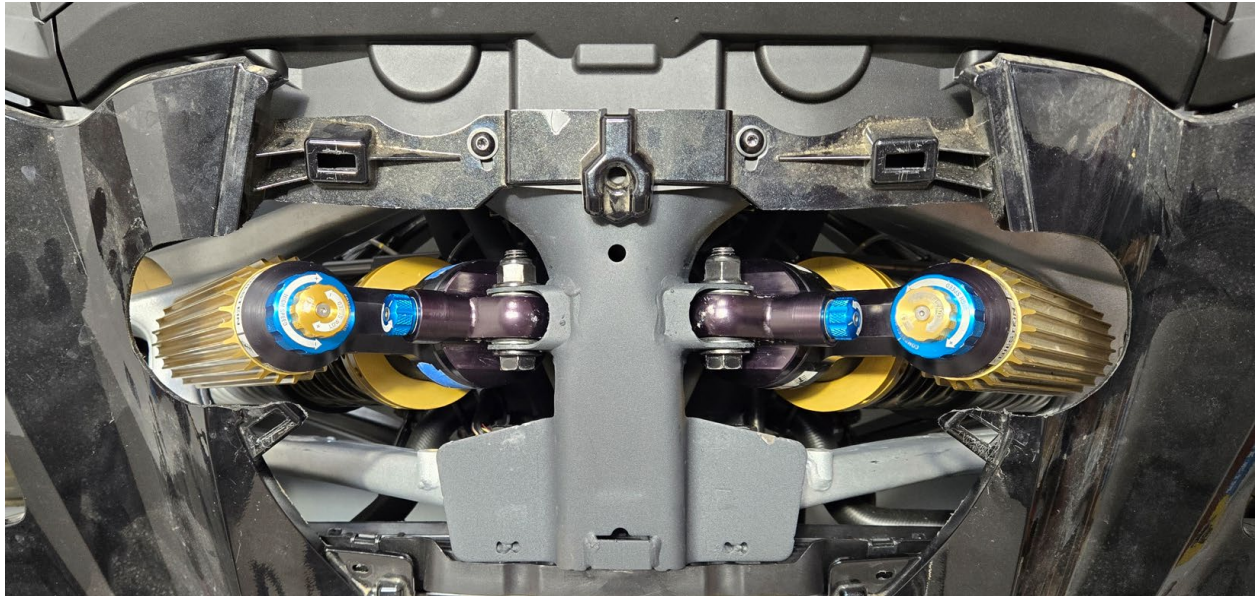


**NOTE:** It is OK to trim some of the front Hood Mount Tabs shown below but trim as little as possible in order to preserve the rigidity of the tabs for mounting the Hood Trim. Be careful not to trim the Hood Trim Mount Clips though.





- O. Trim the Hood in a half circle shape like below. The Hood will need to be trimmed approximately down to where the angled section of the Hood meets the flat section. This may vary from vehicle to vehicle so it is best to check this at fully compressed after trimming. The best way to check this is to install the shocks without the coil springs.





- P.** Once trimmed, install the two pieces of the Hood Trim back on the vehicle using the Mount Tabs and Clips. The Hood and Hood Trim should look like the image below.



- Q.** If the coil springs were removed during trimming, you can now install them back on the shocks and install the shocks back on the vehicle referring to the “front module installation procedure.”

**Final front 41-348529 Black Hawk shock installed on vehicle:**



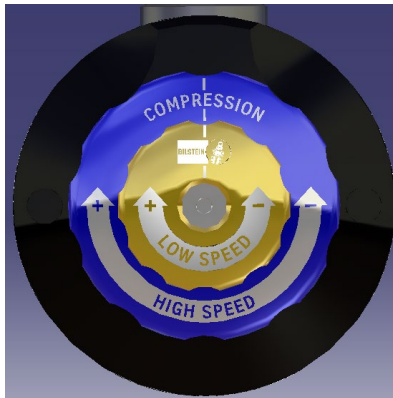


## Dual Speed Reservoir Adjustment

These dampers come equipped with independent high and low speed compression damping adjusters located on the reservoir. The high speed is the blue knob and is labeled as such, and the low speed is the gold knob and is labeled as such. The **FULL FIRM** setting for each adjuster knob is achieved when the knob is turned all the way **CLOCKWISE**. The **FULL SOFT** setting for each adjuster knob is achieved when the knob is turned all the way **COUNTER-CLOCKWISE**. To make high or low speed adjustments, simply turn each knob individually until the desired level of control is achieved. To stiffen the ride, turn the knobs clockwise. To soften the ride, turn the knobs counter-clockwise.

The factory setting of these adjusters are as follows:

- High Speed (blue knob) – 6 clicks counter-clockwise from fully firm.  
(10 total settings are available which translates to 9 clicks; 1 rotation)
- Low Speed (gold knob) – 13 clicks counter-clockwise from fully firm.  
(20 total settings are available which translates to 19 clicks; 2 rotations)



**Dual Speed Reservoir Adjuster**

## Zone Control JCO (Jounce Cut-off) Adjustment

These dampers also come equipped with an adjuster for the JCO (jounce cut-off) system. This blue adjuster knob is located on the mount cap above the coil spring. The **FULL FIRM** setting for the adjuster knob is achieved when the knob is turned all the way **CLOCKWISE**. The **FULL SOFT** setting for the adjuster knob is achieved when the knob is turned all the way **COUNTER-CLOCKWISE**. To make JCO adjustments, simply turn the adjuster knob clockwise for more bottom out control and counter-clockwise for less bottom out control. The adjustment will not affect the ride quality when the vehicle is in the main damping zone at regular ride height.

The JCO adjuster factory setting is:

- 6 clicks counter-clockwise from fully firm.  
(10 total settings are available which translates to 9 clicks; 1 rotation)



**JCO (Jounce Cut-off) Adjuster**

## **Rebound Adjustment**

These dampers come equipped with a rebound damping adjuster located on the rod end. The **FULL FIRM** setting is achieved when the adjuster is turned all the way **CLOCKWISE**. The **FULL SOFT** setting is achieved when the adjuster is turned all the way **COUNTER-CLOCKWISE**. To make adjustments, simply turn the adjuster with a 6mm hex driver until the desired level of control is achieved. To stiffen the ride, turn the adjuster clockwise. To soften the ride, turn the adjuster counter-clockwise.

The Rebound adjuster factory setting is:

- 14 clicks counter-clockwise from fully firm.  
(15 total settings are available which translates to 14 clicks; 1 rotation)

