



# 2007-PRESENT, MERCEDES SPRINTER 4X4, FALCON 3.5 aDAPT e-ADJUST SHOCK KIT

Version 1.0

## General Notes

- For the most up to date and current instructions, please visit our website at [www.vancompass.com](http://www.vancompass.com)
- Please read all instructions thoroughly before starting installing Van Compass products.
- This is a bolt on shock kit that can be installed with basic hand tools.
- The installation of the Van Compass tuned Falcon rear shock package can be performed with the vehicle sitting on the ground at ride height; however we find that it is easier for a single person to install if the vehicle's suspension is unloaded.
- This suspension kit can be completely removed, allowing the vehicle to be returned back to stock configuration if desired.

### **SP2 Mode Adjust shocks:**

- The mode adjust feature on the Falcon shocks allows the installer the choice of setting the base shock tune. The settings we have laid out in these instructions are our recommendations based on van weights but can be changed at a later time depending on driver preference and vehicle use. The internal shock tune in the Van Compass Falcon shock is a proprietary tune developed in partnership with Falcon and Van Compass and is specifically tuned for optimum ride quality in all road conditions for the Mercedes Sprinter Van.
- The shocks feature an internal bypass valve (free bleed circuit) that is adjusted by rotating the shaft only when the shock is fully extended.
- When rotating the shock shaft, it is easy to feel when the mode switches. Rotating the shaft at least 360 degrees in one direction guarantees the shock will be in the correct mode.
- These shocks feature Adapt e-Adjust cartridges that provides a massive range of compression adjustment for the customer to dial in their ride preference and to take full advantage of Van Compass's years of experience developing tuned shock packages for the Mercedes Sprinter.
- There are three settings which can be selected from the in-cab control switch to adjust the shocks on the vehicle: Soft, Firm, Auto. In Auto setting, the aDAPT Control Module automatically switches from Soft to a manually preselected Firm setting based on driver selectable minimum "G" threshold. This G threshold and duration is selected using the Falcon app. Multiple preset "Auto" programs can be created and saved for different driving conditions.
  - The aDAPT Control Module adjustment parameters are: forward acceleration, lateral acceleration, braking. Each parameter is set individually.
  - The Firm mode duration can be set between 1-5 seconds.
  - The desired Firm setting of the shock itself is preselected manually on each shock using the 8-position dial.

## Parts List

### **7105 – 2007-PRESENT, MERCEDES SPRINTER 4X4, FALCON 3.5 aDAPT e-ADJUST CORE KIT**

- (2) 1037-ADAPT MERCEDES SPRINTER 4X4, FALCON FRONT SHOCKS
- (1) ACM ADAPT CONTROL MODULE
- (1) VC-WIRE-SHOCK SPRINTER ADAPT SHOCK WIRING HARNESS
- (1) VC-WIRE-CONTROL SPRINTER ADAPT MODULE / POWER WIRING HARNESS

### **3041-ADAPT – 2007-PRESENT, MERCEDES SPRINTER 4X4, FALCON 3.5 aDAPT e-ADJUST PIGGYBACK REAR SHOCKS, LIGHT / MID TUNE**

- (2) 3041-ADAPT MERCEDES SPRINTER 4X4, FALCON REAR SHOCKS, LIGHT/ MID
- (2) WH8-9 THICK HARDENED FLAT WASHER, 9/16"

**OR**

### **3042-ADAPT – 2007-PRESENT, MERCEDES SPRINTER 4X4, FALCON 3.5 aDAPT e-ADJUST PIGGYBACK REAR SHOCKS, MID / HEAVY TUNE**

- (2) 3042-ADAPT MERCEDES SPRINTER 4X4, FALCON REAR SHOCKS, MID/ HEAVY
- (2) WH8-9 THICK HARDENED FLAT WASHER, 9/16"

## Tools Needed

- Quality Jack & Jack Stands
- Simple hand tools:
  - Basic wrench and socket set:
    - Metric sizes: 7mm, 10mm, 18mm, 21mm
    - SAE Sizes: 5/32" Allen
- Torque wrench
- Basic 12V wiring knowledge.
- Zipties for securing shock wiring harness to the chassis.
- Drill with ¼" metal cutting drill bit.

## Approximate Installation Time

- Professional shop: 4 – 6 hours (Does not include front shock bracket install)
- Driveway install: 6 – 8 hours (Does not include front shock bracket install)

## Installation

- 1) Refer to corresponding front shock bracket instructions for fitment of front shock brackets and front shocks.
  - a. Van Compass part number: 7004 for 2007-2018 NCV3 vans
  - b. Van Compass part number: 7041 for 2019+ VS30 vans
- 2) Raise the rear of the van with a floor jack under the rear hitch so the rear suspension can droop out.
  - a. Remove the factory shocks. Use an 18mm socket / wrench for the lower bolt and a 21mm socket / wrench for the upper. Retain both bolts as they will be re-installed.

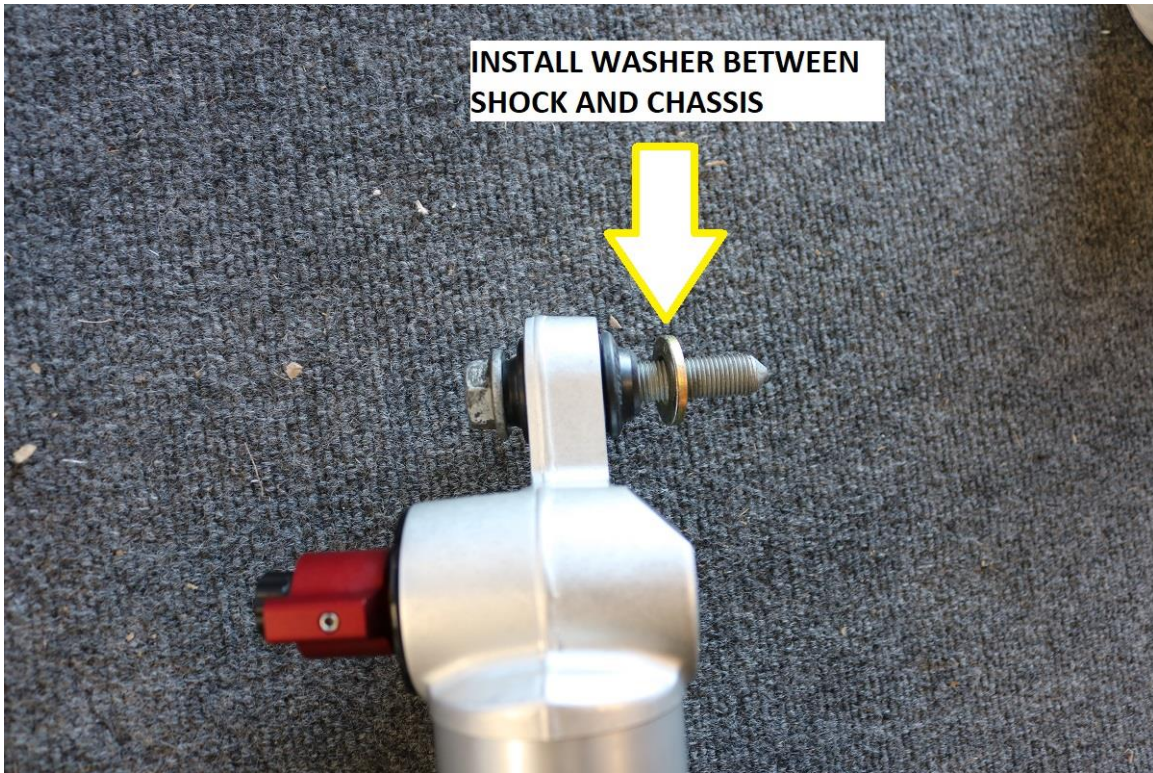


- 3) Note the shocks are left and right specific, refer to the part number etched on the shock body to ensure they are installed on the correct side.





- 4) Install the shock into the upper mount using the factory bolt and included spacer washer as shown. Use a dab of red Loctite on the threads of the upper bolt.



- 5) Be sure to orient the shock body so the reservoir is positioned towards the rear and the adjuster faces out. Torque the upper bolt to 100 ft-lbs (108 N.m).



- 6) With the top of the shock bolted into the upper mount, ensure the shock shaft is extended out all the way. Adjust the SP2 mode adjust by rotating the shaft 360 degrees in the direction as specified below for the corresponding van weights:

VC Falcon Shock Settings			
VC Shock Part Number:	Van Weight (in lbs):	Rear Leaf Spring Configuration:	SP2 Mode:
3041-ADAPT	7,799 and Less	Factory	Open / Soft/Cold Setting
3041-ADAPT	7,800-9,000	Factory	Closed / Performance
3042-ADAPT	8,000-8,900	Factory	Open / Soft/Cold Setting
3042-ADAPT	8,901-11,000+	Factory	Closed / Performance
3041-ADAPT	8,000 and Less	Factory + Mini Pack (Stage 3 and up)	Open / Soft/Cold Setting
3041-ADAPT	8,001-9,200	Factory + Mini Pack (Stage 3 and up)	Closed / Performance
3042-ADAPT	8,000-9,100	Factory + Mini Pack (Stage 3 and up)	Open / Soft/Cold Setting
3042-ADAPT	9,101-11,000	Factory + Mini Pack (Stage 3 and up)	Closed / Performance

- 7) Rotate the lower shock eyelet in the same direction to align into the lower mount. Rotating in the opposite direction will cause the mode adjust to switch.
- 8) Use the OEM lower shock bolt and torque to 60 ft-lbs. (81 N.m)
- 9) Set the Firm setting for the shocks by manually positioning the 8-position dial on each shock to the desired setting. For a baseline, we recommend setting the dial to position 4. Position 8 is the firmest the shock will get; Position 1 is the softest.
- This firm setting is what the shocks will transition to when in Auto mode once the preselected G threshold is crossed.
  - Ultimately it is up to the consumer and their driving preference to fine tune and optimize their new Van Compass Falcon aDAPT e-Adjust shocks.

#### Control Module Mounting and Wiring

- 10) Begin wiring and mounting of Control Module by removing the front floor mats and disconnecting the ground terminal of the battery.
- For 2007-2018 NCV3 models, locate the three T25 Torx screws which secure the floor mat cover to the door sill. Remove these three screws and remove the driver side floor mat.



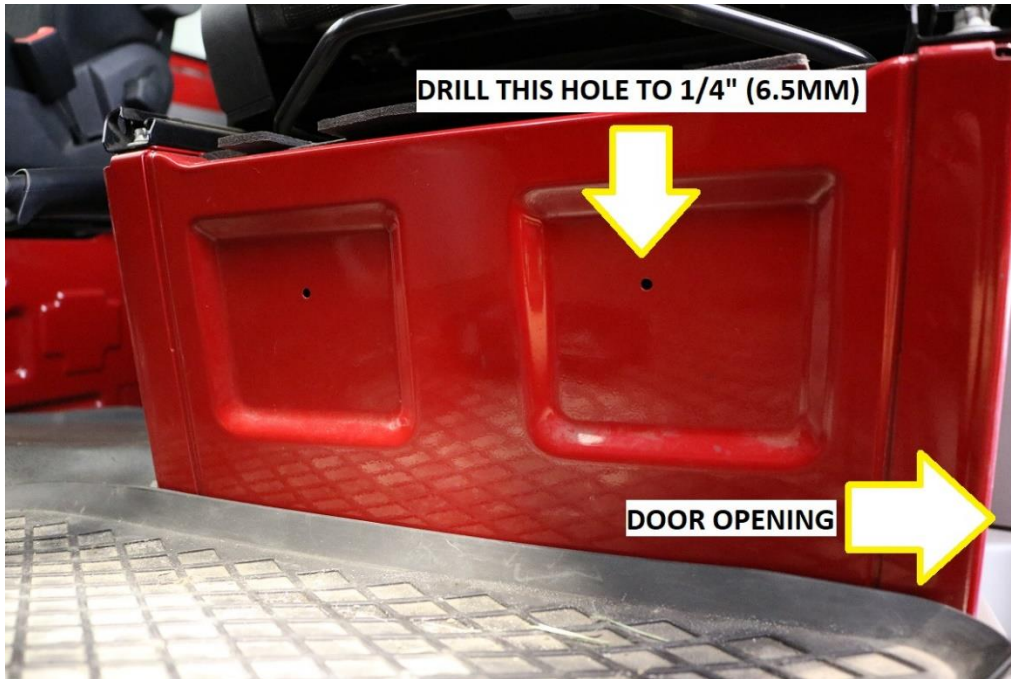


- b. For 2019+ VS30 models, locate the two T25 Torx screws securing the floor mat cover to the door sill. Remove these screws and remove the driver side floor mat.



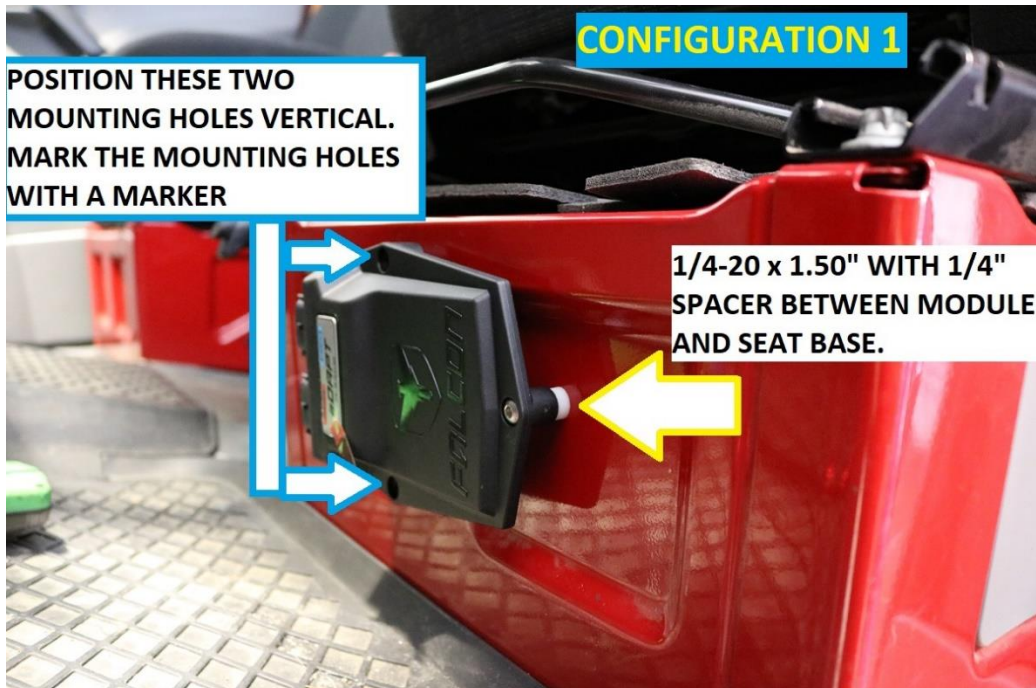
- 11) Once the floor mat is removed, locate the three T-27 torx screws securing the battery cover to the floor of the van. Loosen these 4 screws and slide the battery cover back and up for removal.
  - a. With the battery exposed, remove the ground cable from the negative side of the battery using a 10mm socket / wrench.
- 12) The control module is designed to be mounted underneath the drivers front seat, on the front plate of the seat mounting base. The wiring harness is labeled and built to specific lengths that will prevent the control module from being mounted in any other location.
  - a. Remove the front seat by unbolting the 4 Inverted Torx bolts securing it to the seat base. Use an E-14 inverted Torx or 11mm 12pt socket for removal.
  - b. Un-plug any seat wiring if needed to be able to set the seat clear of the seat base.

13) Locate the two small holes in the front face of the driver side seat base. Use a 1/4" drill bit to open up the hole closest to the door.

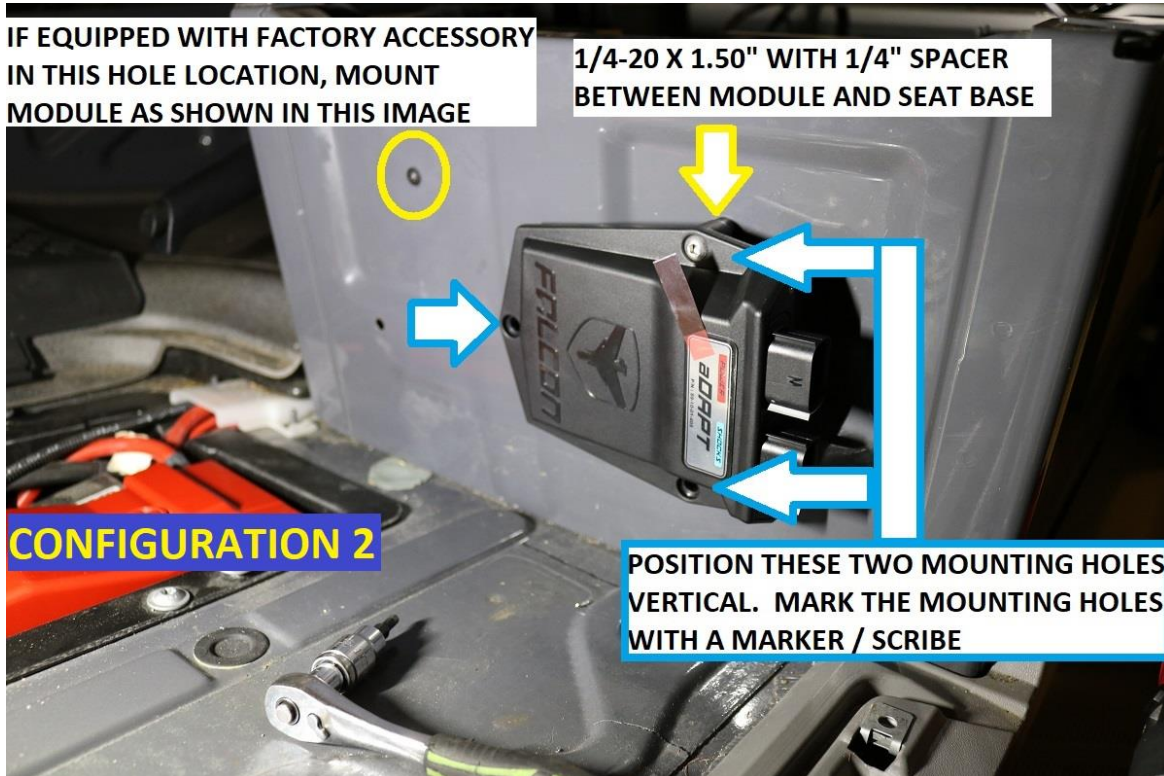


14) Mark the module's other two mounting holes by using the included 1/4-20 x 1.5" long button head bolt with a 1/4" spacer between the module and seat base. Bolt the module to the seat base as shown below using one of the included 1/4" flange nuts. Position the other two mounting holes of the module vertical, or near vertical and mark their positions.

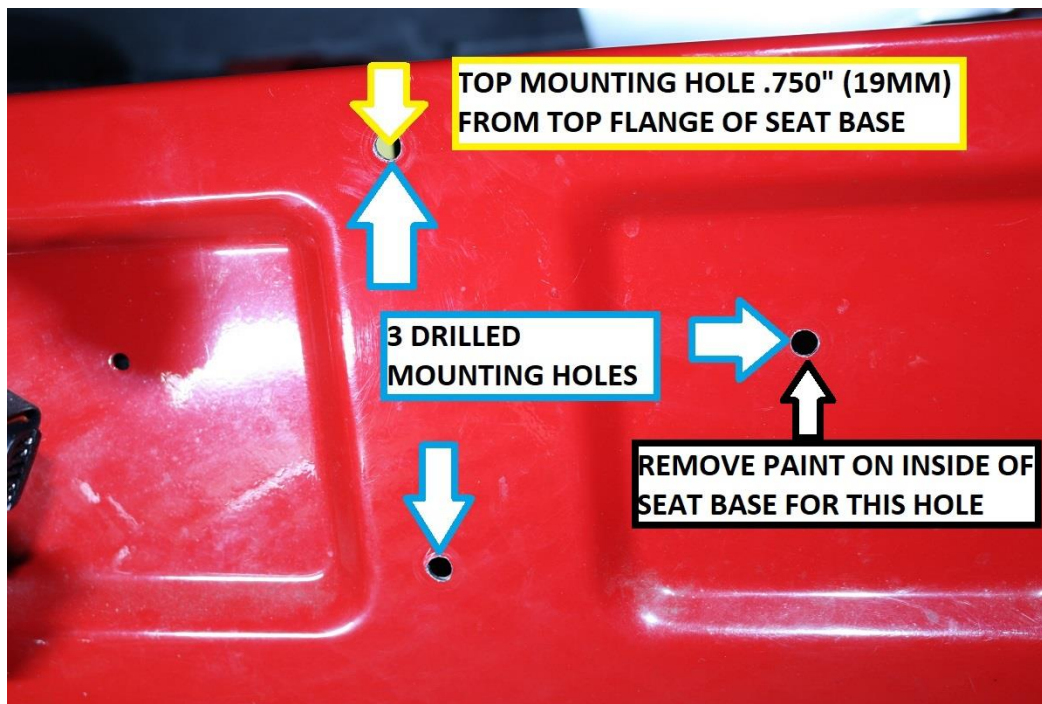
- a. Note; for reference the top bolt hole location should be at least .750" (19mm) down from the top of the seat base. This is CONFIGURATION 1
- b. Note; Some vans will have an additional accessory mounted to the front of the seat base. If your van has something bolted to the inner front hole, position the module as shown in the image labeled CONFIGURATION 2







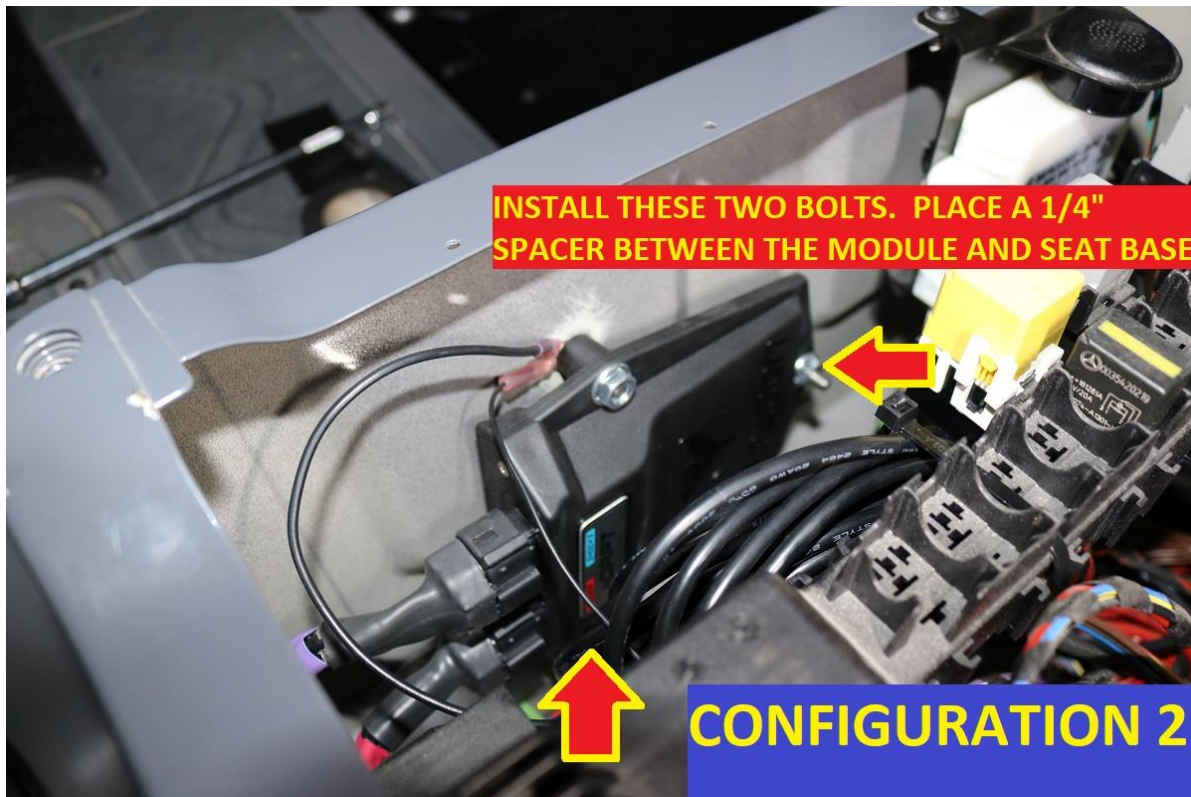
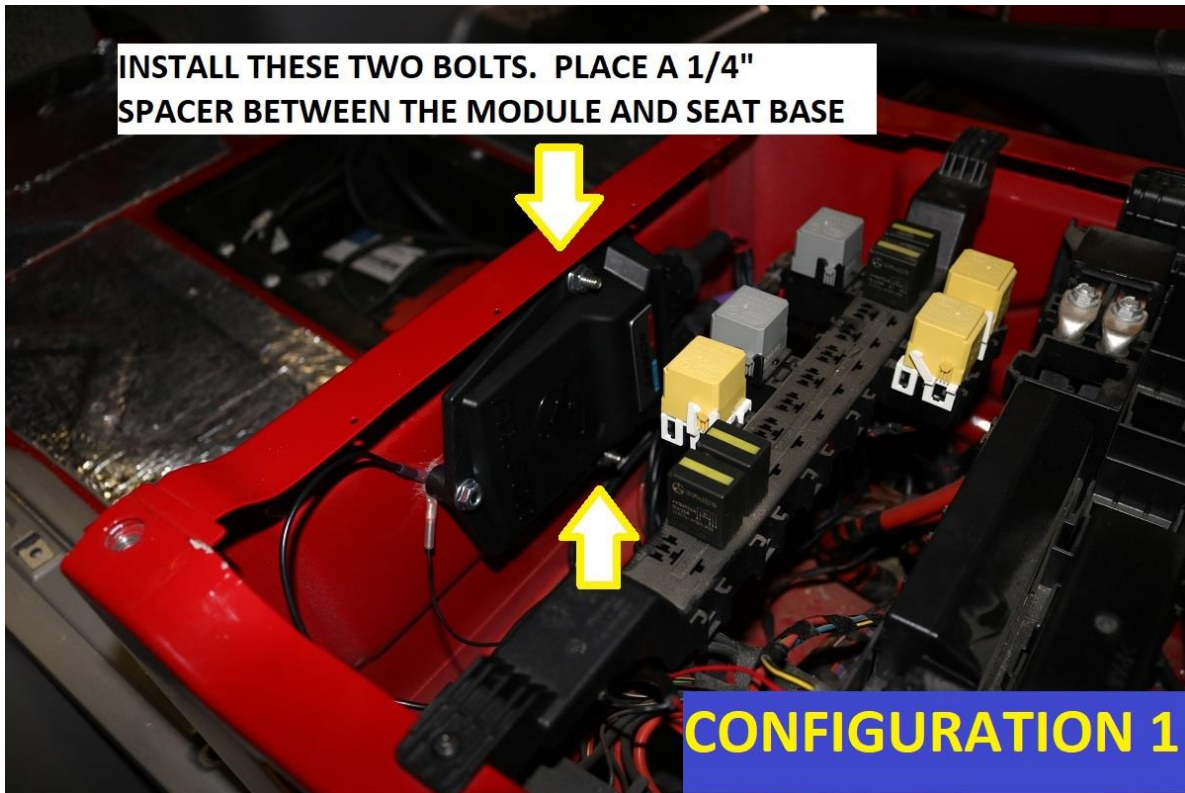
- 15) Remove the module, center punch and carefully drill the two marked mounting holes.
- c. Take caution that there is no wiring behind the front seat base plate that could potentially be damaged during drilling.
  - d. Once all 3 holes are drilled, remove the paint on the inside of the seat base where the first hole was drilled. This location will be used as a ground wire location.



- 16) Bolt the module to the inside of the seat base using the included 1/4-20 x 1.5" long button head bolts. Use the included spacers as shown and snug all hardware. Torque to 5 ft-lbs using a 5/32" allen wrench. Omit installing the 3<sup>rd</sup> bolt at this time; this is the outer bolt where the paint was removed for ground wire hookup.



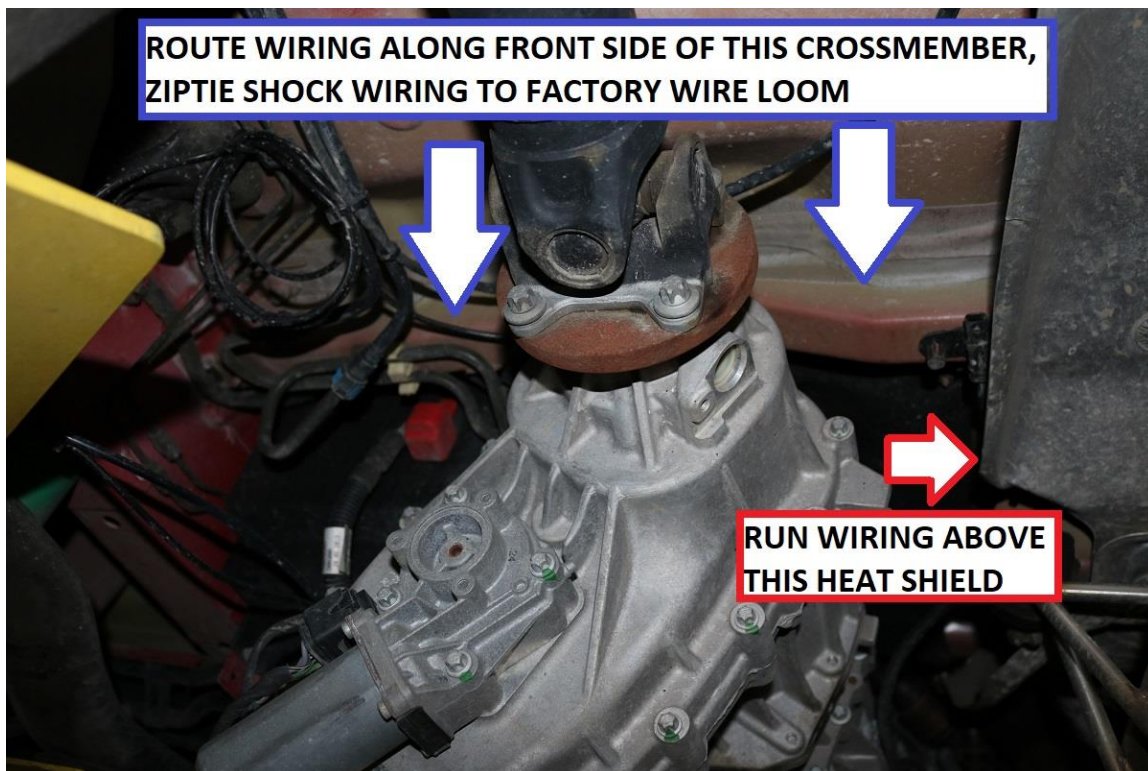
- a. See photos below of the complete installed module of each configuration.



- 17) There are two wiring harnesses included with this kit. One is the power / control harness and the other is the shock harness. Install the shock harness by first cutting the zip tie on the body builder's boot under the driver seat and feeding the large plug labeled "SHOCKS" up through the boot from below. Plug it into the module port labeled "SHOCKS".

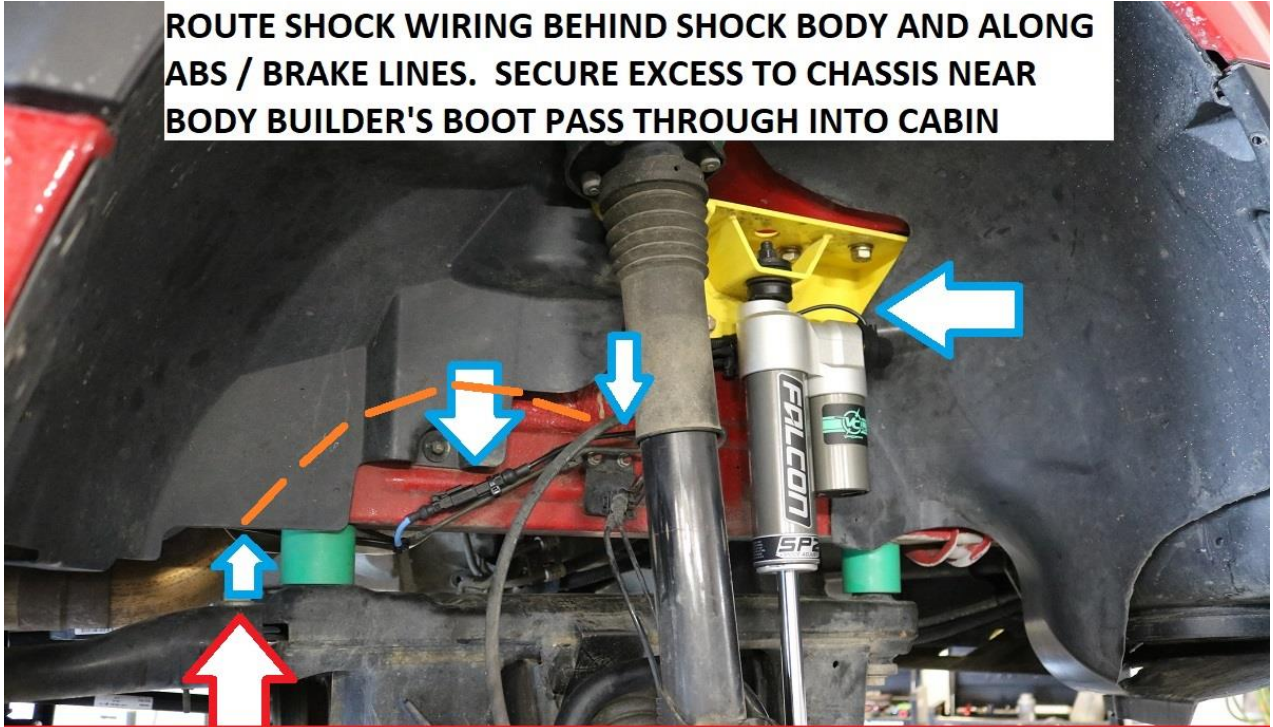


- 18) Run the individual plug to each shock. Note that each shock plug is labeled. Route the wiring as shown in the images below and secure to the chassis using zip ties. Follow ABS cables and hard brake lines for securing front shocks wiring.
- a. For the passenger side front shock, route the wire above the transfer case and the exhaust heat shield. Secure to the factory wiring loom clipped to the crossmember.





**ROUTE SHOCK WIRING BEHIND SHOCK BODY AND ALONG ABS / BRAKE LINES. SECURE EXCESS TO CHASSIS NEAR BODY BUILDER'S BOOT PASS THROUGH INTO CABIN**



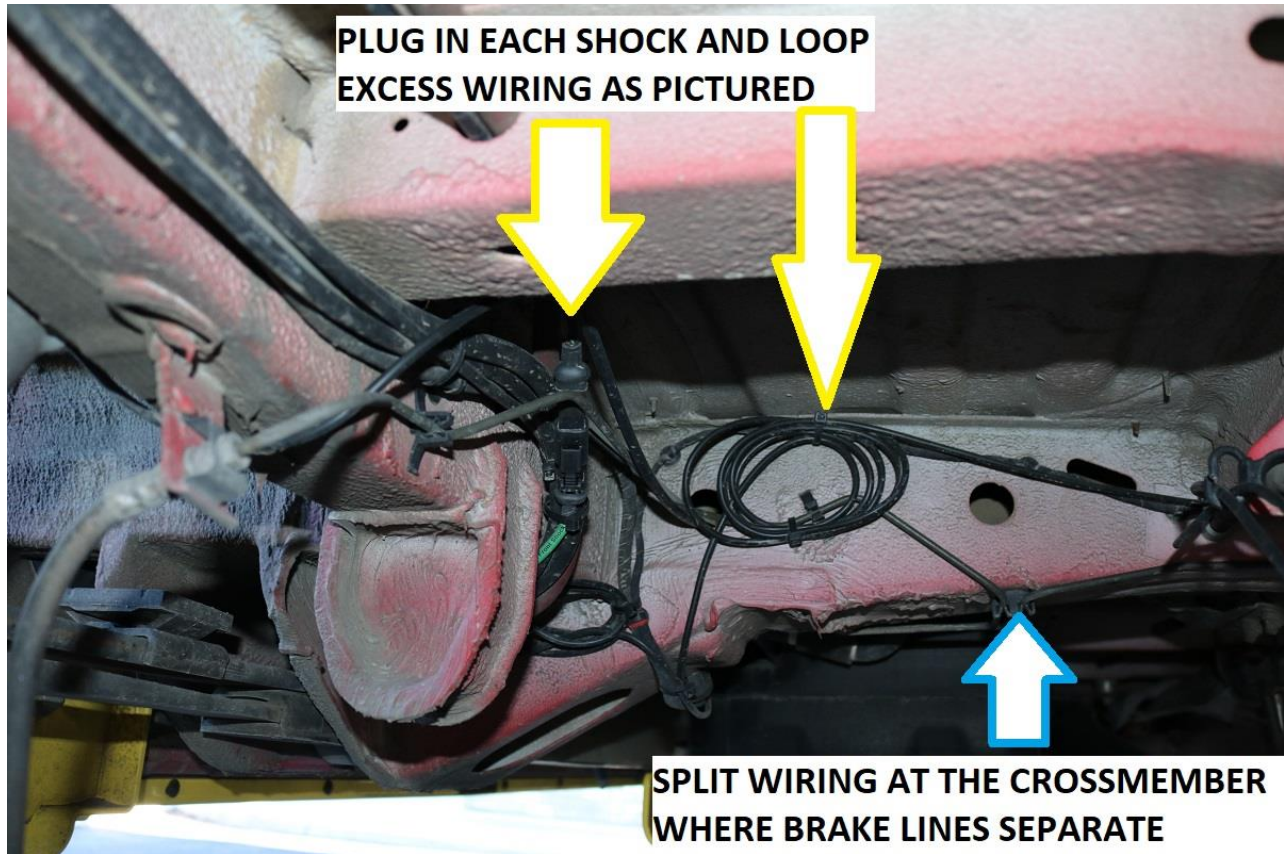
**NOTE THIS VAN IS EQUIPPED WITH A VC 2" STRIKER LIFT KIT. VANS WITHOUT A LIFT KIT INSTALLED WILL HAVE THE WIRING EXIT TO THE WHEEL WELL IN THIS LOCATION. FOLLOW THE DASHED ORANGE LINE FOR ROUTING BEHIND THE FENDER LINER**

- 19) For the rear shocks, run the wiring down the driver side chassis "frame rail"
- Note, the wiring harness is the same for 170" WB vans and 144" WB vans. 144" WB vans will have extra wiring to loop up and secure to the chassis.

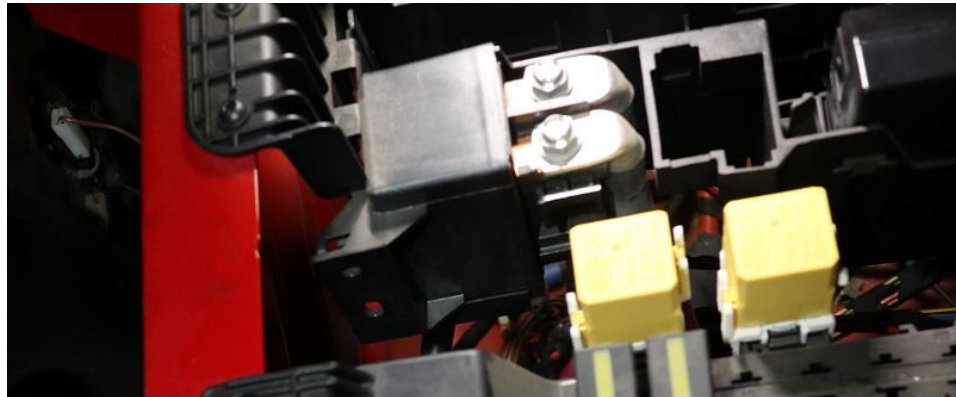




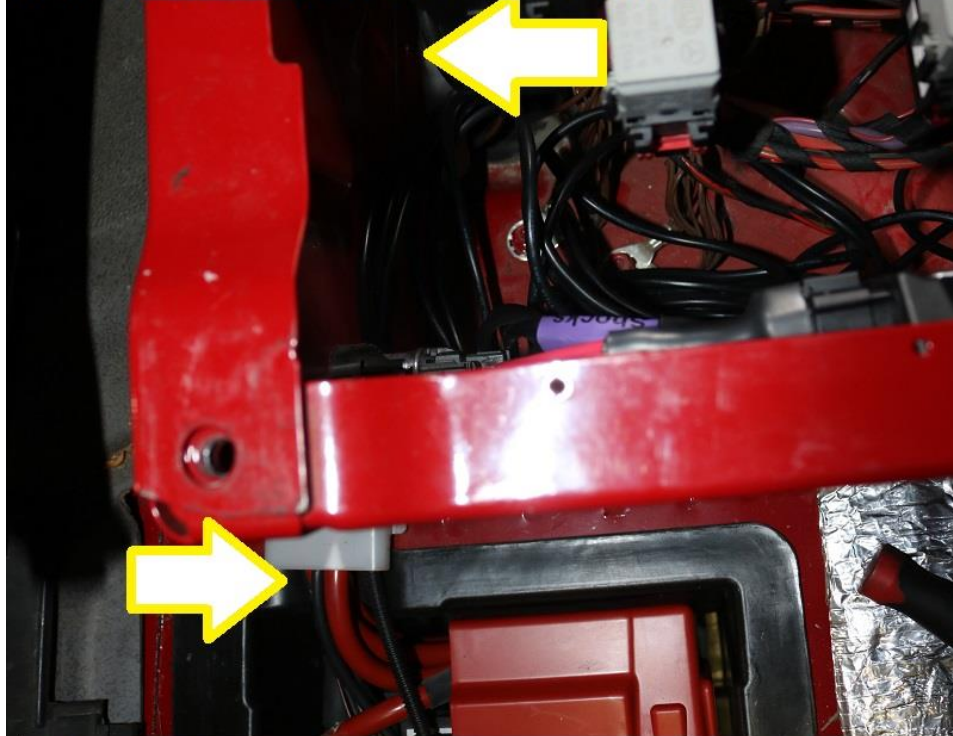
20) Split the driver / passenger side rear shock wiring at the crossmember where the rear brake lines are run. Plug the shocks in and loop up any excess wiring at the chassis.



- 21) Choose a factory accessory blank location to route the "Switch" wire up to. Remove the blank location insert in preparation to install the mini-rocker switch panel included with the kit. Use an automotive trim removal tool and carefully pry free the accessory blank panel.
- 22) Next, plug the Power harness into the Control Module and run the "Switch" wiring under the floor up to the dash.
- 23) Route the wire through the seat base using the factory wiring pass through. This is the white plastic channel near the emergency brake.
  - a. Route switch wiring through plastic channel, into battery box and out the front of the battery box where the ground cable wire for the battery passes through.



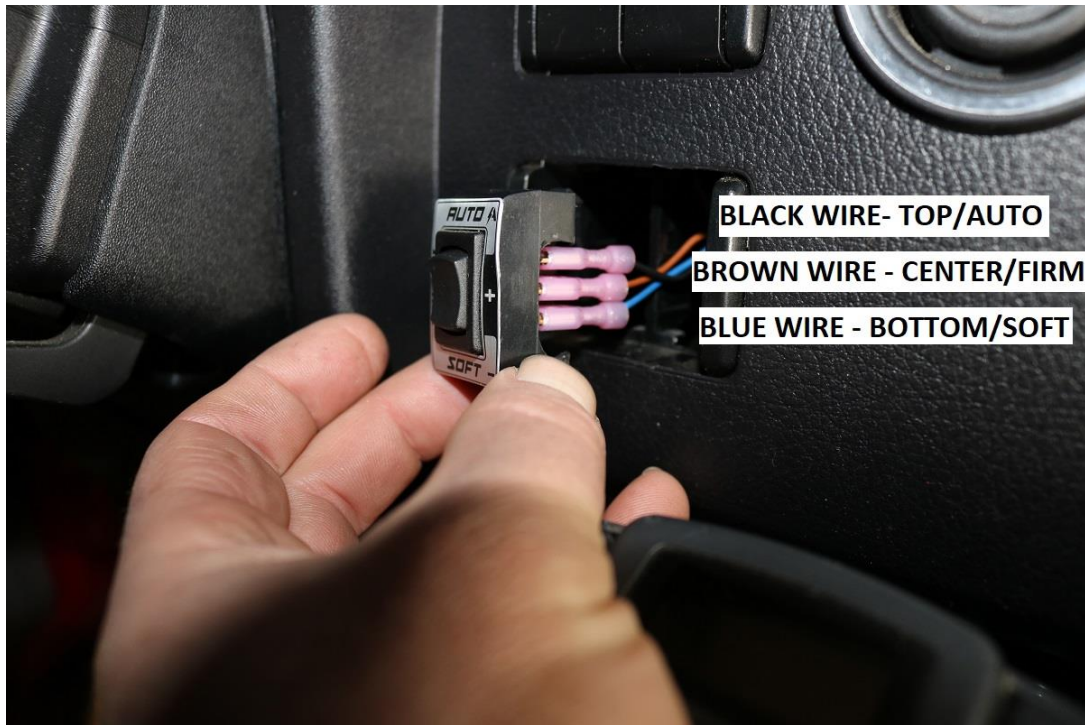
**ROUTE SWITCH WIRING THROUGH PLASTIC CHANNEL  
AT BOTTOM OF SEAT BASE NEAR THIS LOCATION**



**ROUTE SWITCH WIRING OUT THROUGH THIS  
CHANNEL AND INTO BATTERY BOX. CONTINUE  
ROUTING THE WIRING THROUGH BATTERY BOX  
ALONG BATTERYGROUND CABLE AND UP TO DASH**

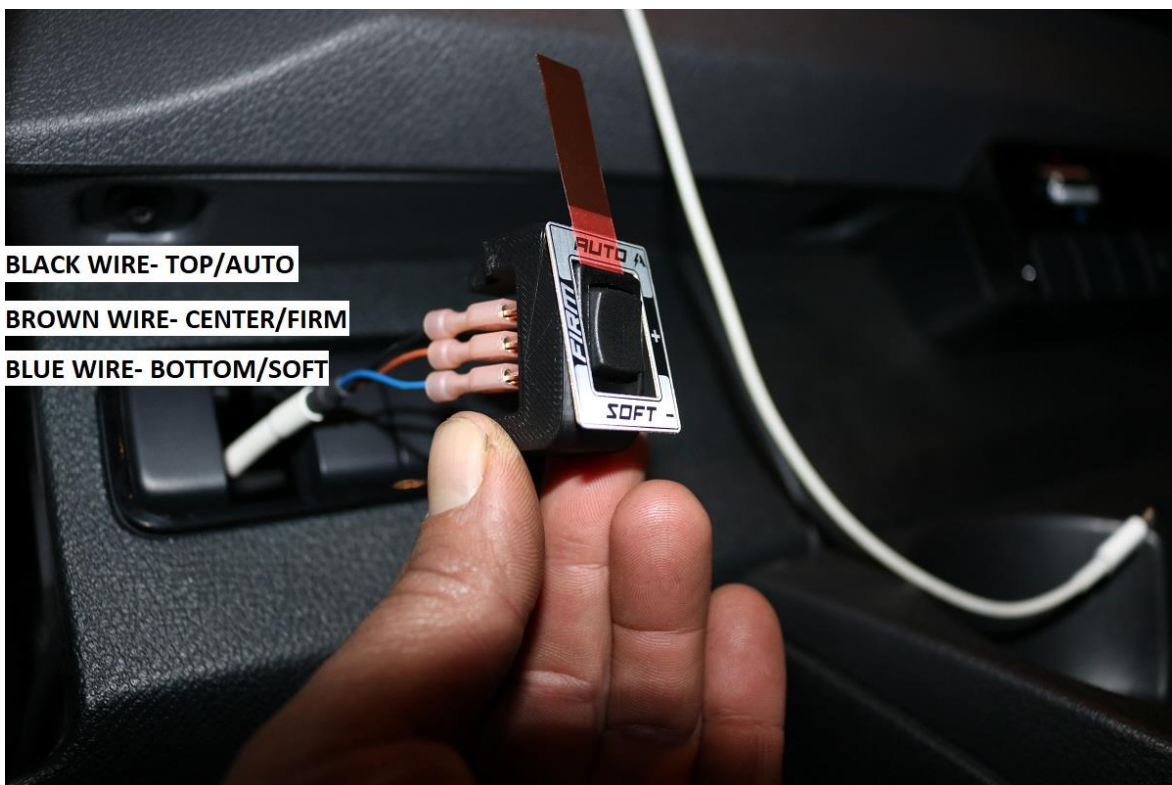
- 24) For 2007-2018 NCV3 models, we will document installation of the switch just below the 4wd / Low range button location. Carefully use an automotive trim removal tool to pry free one of the accessory blanks.
- e. Route the Switch wiring up to pass through the dash in this location.
  - f. Hook up the wiring to the switch as shown below.
  - g. Once hooked up, snap the included switch housing into the dash and fit the included aDAPT sticker around the switch.





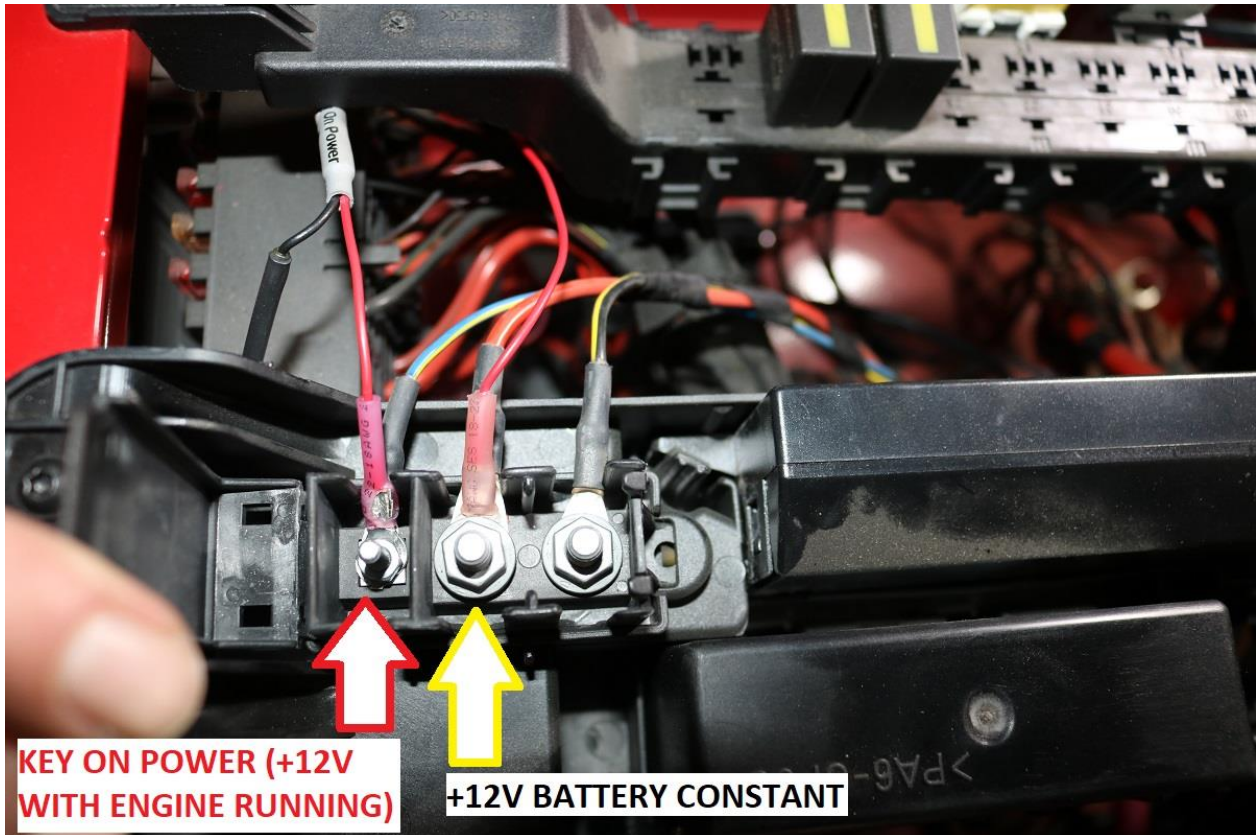
25) For 2019+ VS30 models, we will document installation of the switch in one of the accessory blank locations just below the "Ignition Start" button. Carefully use an automotive trim removal tool to pry free one of the accessory blanks. NOTE; the included switch housing cannot be used in one of the end locations on the accessory blank panel as those are shaped slightly different.

- h. Route the Switch wiring up to pass through the dash in this location.
- i. Hook up the wiring to the switch as shown below.
- j. Once hooked up, snap the included switch housing into the dash and fit the aDAPT sticker around the switch.





- 26) Tie off / secure any additional wiring either under the seat or under / behind the dash.
- 27) Lastly, power the Control Module by tapping into the “X145 Terminal” under the driver seat. Most vans will have this “EK1” option on them. This is the 3-post terminal strip pictured below.
- k. Hook up the red wire labeled “Battery” to the center post. This is a constant 12V power post. 10mm socket for nut removal.
  - l. Hook up the red wire labeled “Key On Power” to the left stud with the blue / yellow wire. This is a 12V power with the engine running. 7mm socket for nut removal
  - m. Hook up both black wires (one ground for “Key on Power” one for “Battery” to a ground post or to the last remaining bolt for the module. See step 15 and the image for step 16 for reference.
  - n. Tie off and secure any additional wiring.



- 28) Re-assemble any removed dash / floor components and re-install seat.
- a. **BE SURE TO PLUG ANY SEAT WIRING BACK IN BEFORE RECONNECTING THE VEHICLE'S GROUND CONNECTION!! Failure to do so will trigger an SRS warning light.**
- 29) Re-connect the battery ground post.
- 30) Download the Falcon App onto your smart phone and follow the steps to calibrate the Control Module.
- 31) Watch this video for additional information on Control Module Calibration and functionality:
- b. <https://www.youtube.com/watch?v=ZEH8wBmqS1E&t=13s>
- 32) Enjoy your van's new electronically controlled suspension system 😊
- 33) Re-check all bolt torques after 100 miles of driving.

Installation is Complete

RELEASE OF LIABILITY

I, the customer, do hereby release and forever discharge Van Compass LLC, their agents, employees, successors and assigns, and their respective heirs, personal representatives, affiliates, successors and assigns, and any and all persons, firms or corporations liable or who might be claimed to be liable, whether or not herein named, from any and all claims, demands, damages, actions, causes of action or suits of any kind or nature whatsoever, whether known or unknown, fixed or contingent, which I now have or may hereafter have or claim to have, as a result of or in any way relating to the following: Parts sold & installed by Van Compass LLC or parts sold & installed by end-user; any parts sold online, any parts sold online or installed by a re-seller, any parts installed by an installation shop.

It is understood and agreed that this payment is made and received in full and complete settlement and satisfaction of the aforesaid actions, causes of action, claims and demands; that this Release contains the entire agreement between the parties; and that the terms of this Agreement are contractual and not merely a recital. Furthermore, this Release shall be binding upon the undersigned, and his respective heirs, executors, administrators, personal representatives, successors and assigns. This Release shall be subject to and governed by the laws of the State of Idaho.

#### PRODUCT SAFETY WARNING:

Van Compass LLC strongly recommends the installation of products be done by a certified mechanic. If this does not occur, be certain the person(s) installing the product read, understand and follow all instructions and warnings pertaining to the application before installation. Do not add, alter, or fabricate any factory or aftermarket parts to increase vehicle height over the intended height of the Van Compass LLC product purchased. Mixing component brands is not recommended.

Installation of suspension lift kits or any other lifting kits or devices will raise the center of gravity. For this reason, Van Compass LLC urges that extreme caution be used when encountering driving conditions which may cause vehicle imbalance. Furthermore, the driver's field of vision and judgment will not be as good due to the height of the vehicle. Due to the installation of larger tires, the speedometer will read slower than the actual speed being traveled and more distance will be required to stop the vehicle. It is the owner's responsibility to caution and warn any potential driver of the vehicle about these driving and handling conditions. Van Compass LLC will not be held liable or responsible for damages or personal injuries resulting from the use of lifting devices and or related products. The tires and rims should be changed to sufficiently increase the vehicle's total overall width and stability to help accommodate lifting devices.

Van Compass LLC aftermarket suspension products and accessories modify a vehicle for uses which exceed conditions anticipated by the vehicle manufacturer. The uses include the high performance demands required during off-road. These conditions vary in the degree of extremity and cannot be controlled by the vehicle or product manufacturer. If the components within the suspension system or accessories become worn due to frequent and/or extreme use, the safety and reliability of the vehicle is at risk. The maintenance of aftermarket equipment to ensure the vehicle occupants safety is entirely your responsibility. Do not purchase Van Compass LLC products unless you are willing to accept this responsibility. Do not install any Van Compass LLC suspension products or accessories unless you feel competent at installing the product without causing present or future injury to yourself or other vehicle occupants; seek an authorized installation center.

Most states have some type of law limiting vehicle height. The amount of lift allowed, and how the lift can be achieved, varies greatly. Several states offer exemptions for farm and commercial registered vehicles. It is the vehicle owner's responsibility to check state and local laws to ensure that their vehicle will be in compliance.

Van Compass LLC reserves the right to make changes in design, materials and specifications as deemed necessary without prior notice and without assuming obligation to modify any product previously manufactured. Obligation or liabilities will not be assumed with respect to similar products previously advertised.

This Release of Liability and Product Safety Warning has been read and fully understood by the undersigned and has been explained to me.