Instructions

2015-2024 FORD F150 2WD

3 / 5 DROP KIT

PART NUMBER (PN): 656063-1

Technical Support

We strive to provide the utmost pre- and post-sales support for our products. Whether you just need upgrade advice, or assistance in adjusting or installing a product, our experienced support staff is always ready to help optimize your UMI product.

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Need installation advice or clarification on the instructions? Scan the QR code (right) to chat directly with a UMI Professional or use the contact information provided to talk to customer service.

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Hours: M-F 8:00-4:30 (EST)
Email: support@umiperformance.com
Call: +1 (814) 343-6315
Address: 509 Hemlock Street
Philipsburg, PA 16866

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Included Parts

Part Description	Quantity	PN
Viking Coilover Shock	2	C209-W
Coil Springs - 600	2	12DP600
Thrust Bearing Kit	2	7917-101
Upper Coilover Mount	2	6561
Lower Coilover Mount	2	6560
Front Hardware Kit	1	6561-BK
Front Leaf Spring Mount - Pass	1	6563PA
Front Leaf Spring Mount - Driver	1	6563DR
Adjustable Rear Lowering Shackle	2	6562
Flip Bracket	2	6563N
U-Bolt Clamp Plate	2	6563S
Rear Viking Shock Kit	1	6569
Bump Stop	2	8.9103
Rear Hardware Kit	1	6563-BK
Extended Length Center Pin	4	6563T
Wedge Shim	2	6563Q
Transmission Spacer	1	6563V

Tools Needed

- Floor Jack
- Jack Stands
- Metric socket set up to 27mm
- SAE wrench set up to ¾”
- Metric wrench set up to 27mm
- Hex Bit socket set
- Snap Ring Pliers
- Torque wrench up to 200 ft-lbs
- Angle grinder with cut off wheel
- Reciprocating saw with metal cutting blade.
- Locking Pliers
- Dead blow hammer

INSTALLATION INSTRUCTION

DISCLAIMER
UMI Performance shall not be held liable for any injuries or damages resulting from the improper installation of this product. It is the sole responsibility of the user to ensure that the product is installed correctly and in accordance with all applicable laws, codes, and regulations. The user assumes all risk and liability for any injuries or damages that may arise from the improper installation of this product. It is important to follow these steps carefully and use the proper tools to avoid damaging the vehicle or causing injury to yourself. If you are uncertain about any part of the installation process, it is recommended that you seek the assistance of a professional mechanic.

STEP 1: Preparing And Disassembling
Organize and layout all necessary parts and hardware prior to beginning the installation process. Carefully review the components and tools required to ensure that all necessary items are present. Once confirmed, proceed to disassemble the front suspension. The front shock and spring assembly will need to be removed. DO NOT remove the spring from the shock. The coil spring is under compression and could cause injury.

STEP 2: Lifting and Supporting Vehicle
Park the truck on a flat level surface and place the transmission in park. Activate the parking brake and chock the front wheels. Break the lugnuts loose to prepare for the wheels being removed.

IMPORTANT: Do not remove lug nuts, just break them loose.

Using a properly rated floor jack, lift the front of the truck off the ground so that the front suspension is in full droop. Place properly rated jack stands under the frame of the truck. Release floor jack and lower frame onto jack stands. Remove the lug nuts and the front wheels.

STEP 3: Front Suspension Disassembly
A) Remove the bolts that secure the ABS sensor cables to the spindle and frame (Fig 1.). 8mm and 10mm bolt heads.

B) Remove the nut for the sway bar end link. Use an 18mm wrench for the nut and an 8mm to keep the end link from rotating. (Fig 2.). Newer trucks have a 21mm bolt head and T45 on the end link.

C) Remove the nuts that secure the shock T-bar to the lower control arm. (Fig 3.). 19mm head.

D) Remove the nut that secures the tie rod end to the spindle. (Fig 4.) 21mm head.

E) Remove the nut that secures the upper control arm ball joint to the spindle. (Fig 5.). 18-21mm depending on the year.

CAUTION: The upper control arm may be under tension. When the ball joint is free'd from the spindle, the lower control arm may drop. Support the lower control arm with a jack stand or wooden block.

FIGURES FOR REFERENCE

Figure 1: ABS Cable Removal

Figure 2: Sway Bar End Link Removal

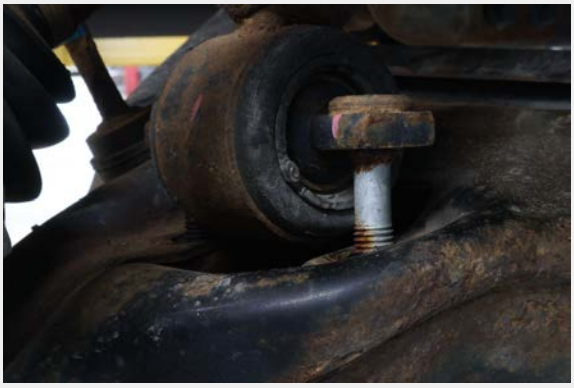

Figure 3: Shock Removal

Figure 4: Tie rod end removal

INSTALLATION INSTRUCTION

STEP 3 (Cont.):

F) Using an 18mm wrench, remove the nuts from the top strut mount. (Fig: 6).

G) On 4wd trucks, remove the CV axle nut cover and nut (13mm socket) (Fig 7.). Remove the strut assembly from the truck. Be sure not to overextend or stretch the ABS cable and brake hose.

Fig 7: Strut Removal

STEP 4: Front Coilover Assembly

A) Remove the coilover shocks from their packaging (Fig 8) and install the upper and lower bearing assemblies. Using snap ring pliers, install one snap ring in the designated groove on top and bottom of the coilover. Push bearings into shock eyelets and install remaining snap rings. (Fig 9.)

Figure 9: Assembled bearing

B) Apply nickel based anti seize lubricant to threads of the coilover shock. Thread the lower perch nut onto the shock with the flat side facing down followed by the upper perch nut. (Figure 10.)

C) Place thrust bearing set onto the top perch followed by the spring.

D) Install the spring cap onto the Spring and seat it into the top eyelet. (Fig 11.)

E) Using a tape measure, set the spring perch at 3-¼" measured from the bottom of the shock. (Fig. 12). This will set the front ride height at approximately a 4" drop from factory ride height. Further adjustment may be needed.

FIGURES FOR REFERENCE

Figure 5: Ball joint removal

Figure 6: Remove nuts

Figure 8: Bearing Installation

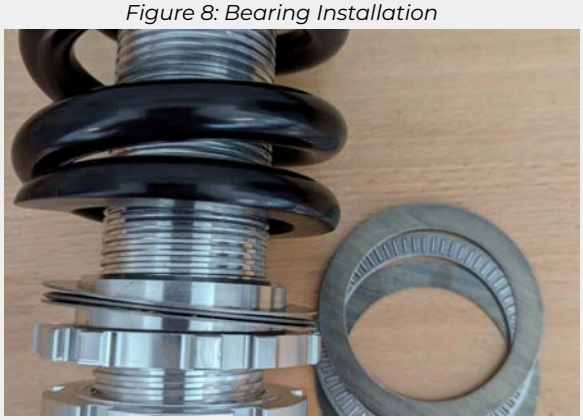

Figure 10: Perch Nuts, Thrust Bearing installed

INSTALLATION INSTRUCTION

F) Using the supplied ½" x 2-¾" bolts, ½" nuts and ½" washers, attach 6560 and 6561 coilover mounting brackets to the viking coilover. (Fig. 13)

G) Install the coilover assembly using the supplied hardware (M12x1.5 nuts for top mount, M14x2 bolts, M14x2 nuts and M14 washers for bottom mount) (Fig 14 and Fig 15).

PROTIP: Now is a good time to set a starting point on compression and rebound for the front shocks. We have found that 10 clicks on compression and 14 clicks on rebound is a good starting point. Further adjustment may be needed based on desired shock characteristics.

Figure 14: Upper mount Install

Figure 15: Lower Mount Install

H) Torque upper 12mmx1.5 coilover nuts to 70 ft/lbs. Torque Lower M14x2 nuts to 125 ft/lbs. ½"-13 upper and lower coilover thru bolts get torqued to 90 ft/lbs.

G) Reinstall all factory components in reverse order of instructions with manufacturer torque specs. (Fig 13b).

FIGURES FOR REFERENCE

Figure 11: Spring Cap

Figure 12: Set Ride Height

Figure 13: Full Coilover assembly

Figure 13b: Front Reassembled

INSTALLATION INSTRUCTION

STEP 5: Rear Disassembly

A)Break the rear lug nuts loose.

IMPORTANT: Do not remove lug nuts, just break them loose.

A) Support the rear of the truck by the frame with properly rated jack stands. The rear differential needs to be able to move up and down. A floor jack can be used under the diff to raise and lower. 2 jacks are best so that the axle can be evenly supported. Ratchet straps can also be wrapped around the axle tubes from the frame if 2 jacks are not available. The rear diff will be totally disconnected from the springs so it's important to keep it stable while also being able to move it up and down.

B)Remove the wheels.

C)Raise the rear diff up slightly to remove the tension from the rear shocks. Using a 15mm wrench/18mm socket, remove the upper and lower shock thru bolts. These can now be set aside. They will be replaced with Viking double adjustable shocks. (Fig 16)

D) Remove the factory bump stops using a 13mm Socket.

E) Mark the leaf springs Driver and Passenger. It's important that the springs get reinstalled on the proper side of the truck.

F) 2015 to 2017 trucks may have a cable operated emergency brake. If yours does, unbolt the bracket from the driver side front spring hanger (10mm socket). Retain the hardware to be used for reinstallation. Remove the bolts securing the E-brake cables and brake lines to the spring saddles. These bolts are too long and will interfere with the flip bracket. Shorter replacement bolts are provided in the kit. (Fig 17)

G)Remove the U-bolts and axle clamps using a 21mm socket. (Fig 18)

H)Lower the floor jack under the rear axle to unload the leaf springs. Careful not to strain the brake lines. Create a couple inches of space between the spring perch and the leaf spring. If your truck has a spacer installed on the leaf, this can be removed now.

I)Unbolt and remove leaf springs from the front leaf spring mount. These bolts cannot be removed without pulling the fuel tank and exhaust. The easiest way to remove these bolts is to cut them. We recommend using a reciprocating saw with a carbide tooth blade. Using a 24mm wrench/socket, loosen the nut enough to expose the shank of the bolt under the head. Cut the bolt heads off being careful not to damage the fuel tank or frame. (Fig 19)

PROTIP: You should be able to cut both bolts with a single carbide blade. We used 3 normal bimetal blades the first time we cut them. The carbide blade makes quick work of cutting through the bolts and is worth buying.

J)Support the front of the spring and remove the bolts from the front leaf spring mounts.

K)Using a 24mm socket and a 21mm wrench, remove the lower bolts from the rear leaf spring shackle. The leaf springs can now be removed from the truck with the shackles.

FIGURES FOR REFERENCE

Figure 16: Rear Shock Removal

Figure 17: E-Brake cable mounts

Figure 18: U-Bolt Removal

Figure 19: Cut Front Spring Mount Bolt

INSTALLATION INSTRUCTION

STEP 6: Rear Assembly

A)Now that both leaf springs are removed from the truck, the packs need to be modified to accept the flip bracket. Use a set of locking pliers to hold onto the leaf spring alignment pins (Fig 20) and remove the nuts with a 19mm socket. Remove the pins and set aside. These will be replaced with new pins. The nuts will be reused on the bottom side of the leaf spring.

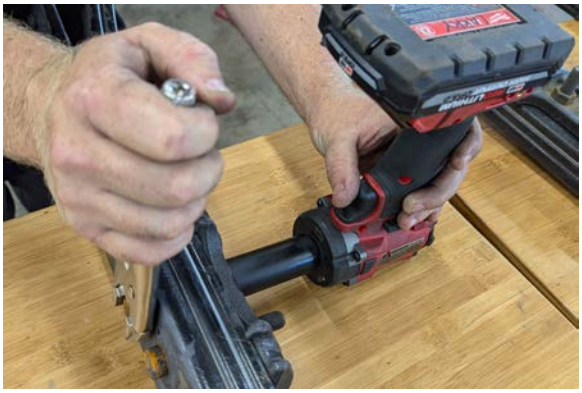

Figure 20: Leaf Spring Alignment Pin Removal

B) Separate the springs and remove the factory shims. New offset shims are included in the kit. As you can see in (Fig 21), there are 2 different shims. 6563G is used in the middle of the spring and 6563H is used on the bottom. Install with the holes offset to the front of the truck. If you have a 2wd truck with a composite spring, the notch on 6563G is meant to fit onto the notch in the spring. Reinstall with supplied extended length center pins with the nuts on the bottom of the spring pack (Fig 22). Torque to 55 ft/lbs.

D) Install the new adjustable leaf spring shackles onto the leaf springs using the supplied M16 hardware (Fig 23). The bolt needs to be installed in the same direction as factory. Insert bolt from the frame side. Nut towards the outside. Do not torque yet.

C)Locate 6563DR and 6563PA in the kit (Fig 24). These are the new front leaf spring mounts. DR and PA refer to the side of the truck they are installed on. Mount the new leaf spring mounts in their corresponding location using the supplied hardware (Fig 24). ¾-16 bolts (1-⅛" wrench) are used on the front hole and M18x2.5 (27mm wrench) are used where the spring formerly bolted up (Fig 25). Torque both to 200 ft/lbs.

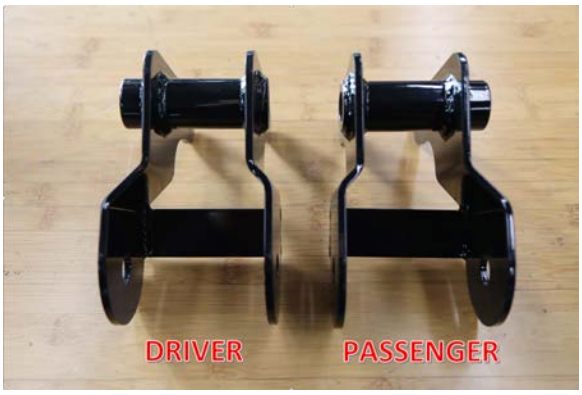

Figure 24: Front leaf spring mounts

FIGURES FOR REFERENCE

Figure 21: Offset Shims

Figure 22: Spring Pack Reassembly

Figure 23: Adjustable Rear Shackles

Figure 25: Installed Front Leaf Spring Mount

INSTALLATION INSTRUCTION

STEP 6 Cont:

E)We are now ready to reinstall the leaf spring packs. Raise the rear differential up so that there is enough clearance to get the spring packs back in under the axle (Fig 26). Place

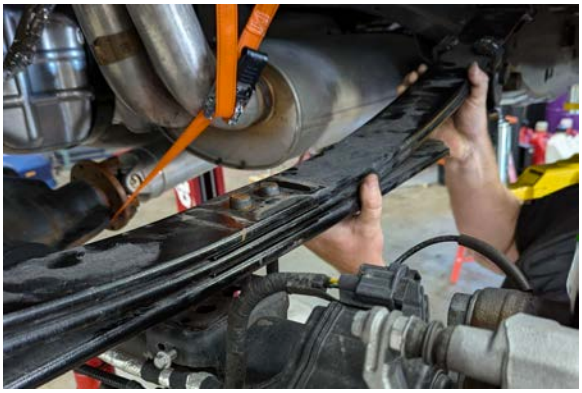

Figure 26: Leaf Spring Install

F) Using the supplied hardware, bolt the spring onto the front spring mount (Fig 27.) and the adjustable rear shackle. The hole adjustment on the rear shackle changes the rear ride height approximately ½" per hole. The bottom hole is #1; top hole is #4. For a 5" drop in the rear, start on hole #2. The amount of drop will be more if your truck had a factory spacer block. Do not torque yet.

G.) Once both leaf springs are back in the truck, it is time to install the flip bracket and get the spring pack secured to the axle. Locate the flips brackets and inspect. As seen in (Fig 29), one side of the flip bracket is higher than the other. The higher side has a notch cut into it. The notched side faces the front or rear based on what spring pack you have. For a steel leaf spring, the notch faces the front. For a composite spring, the notch faces the rear. Insert the flip bracket up into the bottom of the spring saddle in the correct orientation based on which spring pack you have (Fig 30).

H)Place the angle shim onto the spring pack with the thick side to the front (Fig 31).

Figure 31: Install Angle Shim

FIGURES FOR REFERENCE

Figure 27: Installed Front Leaf Spring Mount

Figure 28: Installed Adjustable Leaf Spring Shackle

Figure 29: Flip Bracket

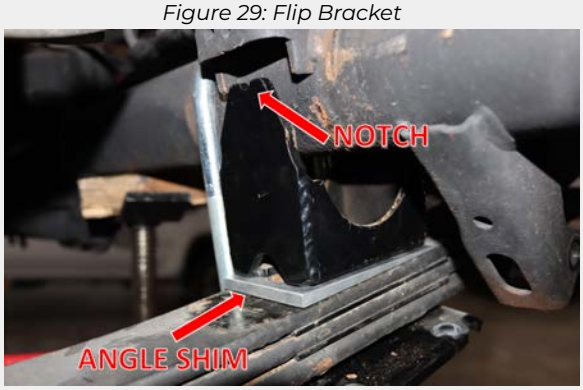

Figure 30: Flip Bracket Install

INSTALLATION INSTRUCTION

STEP 6 Cont:

I) Once you have both flip brackets and shims placed, you can lower the differential back onto the spring pack. Make sure to line up the front 2 holes of the flip bracket with the spring locating pins. Refer back to Figure 30 for correct placement.

J) Now that the axle is sitting on top of the leaf springs, the viking shocks can be installed. Unbox the shocks and locate 6563R shock spacers. Install the shock spacers into the shock eye bushings using a dead blow hammer. (Fig 32a). Use a silicon based lubricant such as SuperLube on the spacers and shock bushings

Figure 32a: Shock Spacers Install

K) Once the U-bolts and clamp plates are installed, there is very little clearance to install the driver side lower shock bolt. Due to this, the bolt needs to be installed before those items and from the outside in (Fig 32).Use the provided M12 hardware to bolt the shocks into the factory shock mounts. The shocks can be either body up or body down. This makes no difference in performance but we have found that body down provides the most clearance when using the factory shock mounts. On the 21+ year trucks, the driver side shock will interfere with the top mount if installed body up. Torque shock bolts to 90 ft/lbs.

PROTIP: Now is a good time to set a starting point on compression and rebound for the rear shocks. We have found that 8 clicks on compression and 12 clicks on rebound is a good starting point. Further adjustment may be needed based on desired shock characteristics.

L)Now that the axle is in place on top of the springs (Fig 33.), the U-bolts and bottom clamp plate can now be installed. Set the U-Bolts over the axle tubes and lift the clamp plate up through the U-Bolts. The offset holes on the clamp plate go towards the front. See Fig 34.

M)Use the provided ⅝ nuts and washers to secure the U-bolts to the clamp plate. (Fig 35). Torque U-Bolts nuts to 150 ft/lbs.

FIGURES FOR REFERENCE

Figure 32: Driver Side Lower Shock Bolt

Figure 33: Seated Axle tube

Figure 34: U-Bolt Clamp Plates

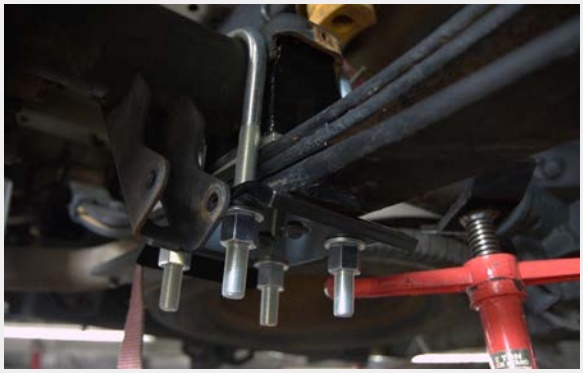

Figure 35: Install U-Bolts

INSTALLATION INSTRUCTION

STEP 6 Cont:

N)Use a 8mm hex key socket and the provided M10 button head bolts to install the new bump stops (Fig 37). Torque bump stop bolts to 50 ft/lbs.

O) The mounts securing the brake lines and E-brake cables can now be reinstalled with the new M10 hardware. (Fig 38)(Fig 38b)

P) For 2015-17 trucks with a cable actuated E-Brake, the driver side mount securing the cable to the front leaf spring mount can now be reinstalled. Before doing so ,the mount needs to be notched out slightly to fit with the new leaf spring mount. Use and angle grinder and remove material slowly stopping to check fitment. See Fig 39 for notch location. Torque factory installed mount bolts to manufacturer specs.

Figure 39: Clearance E-Brake Cable Mount

Q) The flip brackets combined with the wedge shim have been designed to properly locate the rear axle to eliminate driveline vibrations.

For trucks with a 2 piece driveshaft, depending on the amount lowered, it may be necessary to relocate the carrier bearing. Our 6573 Carrier Bearing Bearing relocation kit will move the carrier bearing up to improve all angles on the 2 piece driveshaft and is adjustable in ¼" increments. Please visit www.umiperformance.com for more information on this kit.

Included in this kit is a ¼" spacer for the transmission mount. This can be used to fine tune the pinion angle if necessary.

If the truck exhibits any driveline vibration, take the truck to a reputable driveline shop immediately. **Do not drive the truck with severe driveline vibration as there could be damage done to the U-Joints.**

R) The wheels can now be reinstalled and the truck sat back on the ground. Be sure to torque lug nuts to 150 ft/lbs. Wheel stands will make the next step much easier but aren't absolutely necessary.

S) With the weight of the vehicle on the suspension, torque the rear spring hanger bolts as well as the front spring mount bolts. The rear bolts get torqued to 150 ft/lbs and the front gets torqued to 200 ft/lbs.

T) Once torqued, Grease the rear spring hanger until you can see grease squeeze out from between the Delrin bushing and factory mount (Fig 40).

FIGURES FOR REFERENCE

Figure 37: Install Bump Stops

Figure 38: E-Brake cable mounts

Figure 38b: Brake Line Mounts

Figure 40: Grease Rear Spring Shackle

INSTALLATION INSTRUCTION

STEP 7: Shock Adjustment

Locate the compression and rebound knobs on your new double adjustable Viking shocks (Fig 41). Viking shocks have a total of 19 positions (18 clicks plus a zero position) of adjustment per knob, for a total of 361 different valvings. Position 0 is the softest setting and position 18 is the stiffest. Trucks used on the street, drag and autocross will have different needs in terms of shock valving.

Drive the truck and take notes on ride quality vs handling. Make small adjustments (1-2 clicks at a time) until the truck feels satisfactory. Below are some recommendations from Viking for approximate settings.

Ride Quality/Street: Front: 1 - 4 compression; 4 - 8 rebound
Rear: 0 - 3 compression; 2 - 5 rebound

Handling: Front: 8 - 10 compression; 10 - 14 rebound
Rear: 6 - 8 compression; 8 - 12 rebound

Autocross: Front: 10 - 14 compression; 14 - 18 rebound
Rear: 6 - 10 compression; 10 - 14 rebound

Drag Racing: (<600 HP) Front: 12 - 18 compression; 0 - 4 rebound
Rear (Weight Transfer): 0 - 4 compression; 4 - 10 rebound
Rear (Separation): 6 - 10 compression; 2 - 6 rebound

STEP 8: Camber Adjustment

When the front suspension is lowered, it will gain negative camber. We have found that for a drop of 3" or less, this can be adjusted out via the lower control arms(Fig 42). The lower control arm mount is notched on both sides where the lower control arms bolts up (Fig 43). Break both bolts loose and the lower control arm can be moved in towards the center of the truck. For a 3" drop, move the control arm in all of the way and lock it down with the bolts. This will put the front camber at approximately .9 degrees negative which is within Ford spec. The front toe will now need to be adjusted after setting camber.

For more precise camber adjustment, 6572 camber adjustment kit can be ordered. Alternatively, the upper control arm can be swapped out for one of our control arms. These are available in adjustable and non-adjustable versions. Please visit www.umiperformance.com for more information on the products.

FIGURES FOR REFERENCE

Figure 41: Viking Adjustment Knobs

Figure 42: Camber Adjustment

Figure 43: Camber Adjustment

Instructions

2015-2024 FORD F150 4WD

3 / 5 DROP KIT

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IMPORTANT: Do not remove lug nuts, just break them loose.

Using a properly rated floor jack, lift the front of the truck off the ground so that the front suspension is in full droop. Place properly rated jack stands under the frame of the truck. Release floor jack and lower frame onto jack stands. Remove the lug nuts and the front wheels.

STEP 3: Front Suspension Disassembly
A) Remove the bolts that secure the ABS sensor cables to the spindle and frame (Fig 1.). 8mm and 10mm bolt heads.

B) Remove the nut for the sway bar end link. Use an 18mm wrench for the nut and an 8mm to keep the end link from rotating. (Fig 2.). Newer trucks have a 21mm bolt head and T45 on the end link.

C) Remove the nuts that secure the shock T-bar to the lower control arm. (Fig 3.). 19mm head.

D) Remove the nut that secures the tie rod end to the spindle. (Fig 4.) 21mm head.

E) Remove the nut that secures the upper control arm ball joint to the spindle. (Fig 5.). 18-21mm depending on the year.

CAUTION: The upper control arm may be under tension. When the ball joint is free'd from the spindle, the lower control arm may drop. Support the lower control arm with a jack stand or wooden block.

FIGURES FOR REFERENCE

Figure 1: ABS Cable Removal

Figure 2: Sway Bar End Link Removal

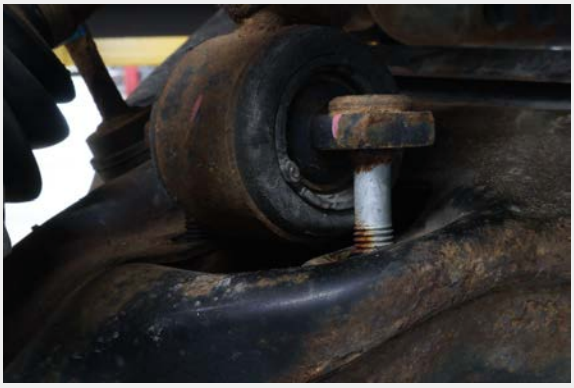

Figure 3: Shock Removal

Figure 4: Tie rod end removal

INSTALLATION INSTRUCTION

STEP 3 (Cont.):

F) Using an 18mm wrench, remove the nuts from the top strut mount. (Fig: 6).

G) On 4wd trucks, remove the CV axle nut cover and nut (13mm socket) (Fig 7.). Remove the strut assembly from the truck. Be sure not to overextend or stretch the ABS cable and brake hose.

Fig 7: Strut Removal

STEP 4: Front Coilover Assembly

A) Remove the coilover shocks from their packaging (Fig 8) and install the upper and lower bearing assemblies. Using snap ring pliers, install one snap ring in the designated groove on top and bottom of the coilover. Push bearings into shock eyelets and install remaining snap rings. (Fig 9.)

Figure 9: Assembled bearing

B) Apply nickel based anti seize lubricant to threads of the coilover shock. Thread the lower perch nut onto the shock with the flat side facing down followed by the upper perch nut. (Figure 10.)

C) Place thrust bearing set onto the top perch followed by the spring.

D) Install the spring cap onto the Spring and seat it into the top eyelet. (Fig 11.)

E) Using a tape measure, set the spring perch at 3-¼" measured from the bottom of the shock. (Fig. 12). This will set the front ride height at approximately a 4" drop from factory ride height. Further adjustment may be needed.

FIGURES FOR REFERENCE

Figure 5: Ball joint removal

Figure 6: Remove nuts

Figure 8: Bearing Installation

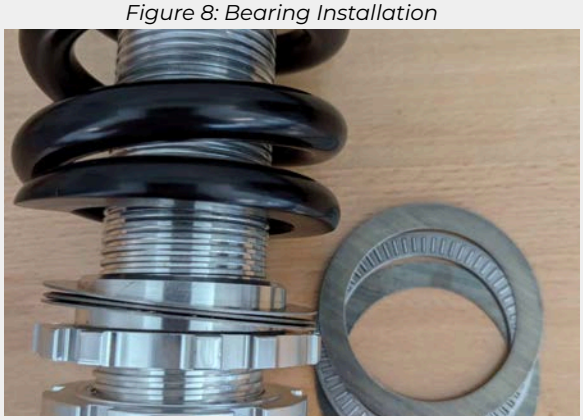

Figure 10: Perch Nuts, Thrust Bearing Kit installed

INSTALLATION INSTRUCTION

F) Using the supplied ½" x 2-¾" bolts, ½" nuts and ½" washers, attach 6560 and 6561 coilover mounting brackets to the viking coilover. (Fig. 13)

G) Install the coilover assembly using the supplied hardware (M12x1.5 nuts for top mount, M14x2 bolts, M14x2 nuts and M14 washers for bottom mount) (Fig 14 and Fig 15).

PROTIP: Now is a good time to set a starting point on compression and rebound for the front shocks. We have found that 10 clicks on compression and 14 clicks on rebound is a good starting point. Further adjustment may be needed based on desired shock characteristics.

Figure 14: Upper mount Install

Figure 15: Lower Mount Install

H) Torque upper 12mmx1.5 coilover nuts to 70 ft/lbs. Torque Lower M14x2 nuts to 125 ft/lbs. ½"-13 upper and lower coilover thru bolts get torqued to 90 ft/lbs.

G) Reinstall all factory components in reverse order of instructions with manufacturer torque specs. (Fig 13b).

FIGURES FOR REFERENCE

Figure 11: Spring Cap

Figure 12: Set Ride Height

Figure 13: Full Coilover assembly

Figure 13b: Front Reassembled

INSTALLATION INSTRUCTION

STEP 5: Rear Disassembly

A)Break the rear lug nuts loose.

IMPORTANT: Do not remove lug nuts, just break them loose.

A) Support the rear of the truck by the frame with properly rated jack stands. The rear differential needs to be able to move up and down. A floor jack can be used under the diff to raise and lower. 2 jacks are best so that the axle can be evenly supported. Ratchet straps can also be wrapped around the axle tubes from the frame if 2 jacks are not available. The rear diff will be totally disconnected from the springs so it's important to keep it stable while also being able to move it up and down.

B)Remove the wheels.

C)Raise the rear diff up slightly to remove the tension from the rear shocks. Using a 15mm wrench/18mm socket, remove the upper and lower shock thru bolts. These can now be set aside. They will be replaced with Viking double adjustable shocks. (Fig 16)

D) Remove the factory bump stops using a 13mm Socket.

E) Mark the leaf springs Driver and Passenger. It's important that the springs get reinstalled on the proper side of the truck.

F) 2015 to 2017 trucks may have a cable operated emergency brake. If yours does, unbolt the bracket from the driver side front spring hanger (10mm socket). Retain the hardware to be used for reinstallation. Remove the bolts securing the E-brake cables and brake lines to the spring saddles. These bolts are too long and will interfere with the flip bracket. Shorter replacement bolts are provided in the kit. (Fig 17)

G)Remove the U-bolts and axle clamps using a 21mm socket. (Fig 18)

H)Lower the floor jack under the rear axle to unload the leaf springs. Careful not to strain the brake lines. Create a couple inches of space between the spring perch and the leaf spring. If your truck has a spacer installed on the leaf, this can be removed now.

I)Unbolt and remove leaf springs from the front leaf spring mount. These bolts cannot be removed without pulling the fuel tank and exhaust. The easiest way to remove these bolts is to cut them. We recommend using a reciprocating saw with a carbide tooth blade. Using a 24mm wrench/socket, loosen the nut enough to expose the shank of the bolt under the head. Cut the bolt heads off being careful not to damage the fuel tank or frame. (Fig 19)

PROTIP: You should be able to cut both bolts with a single carbide blade. We used 3 normal bimetal blades the first time we cut them. The carbide blade makes quick work of cutting through the bolts and is worth buying.

J)Support the front of the spring and remove the bolts from the front leaf spring mounts.

K)Using a 24mm socket and a 21mm wrench, remove the lower bolts from the rear leaf spring shackle. The leaf springs can now be removed from the truck with the shackles.

FIGURES FOR REFERENCE

Figure 16: Rear Shock Removal

Figure 17: E-Brake cable mounts

Figure 18: U-Bolt Removal

Figure 19: Cut Front Spring Mount Bolt

INSTALLATION INSTRUCTION

STEP 6: Rear Assembly

A)Now that both leaf springs are removed from the truck, the packs need to be modified to accept the flip bracket. Use a set of locking pliers to hold onto the leaf spring alignment pins (Fig 20) and remove the nuts with a 19mm socket. Remove the pins and set aside. These will be replaced with new pins. The nuts will be reused on the bottom side of the leaf spring.

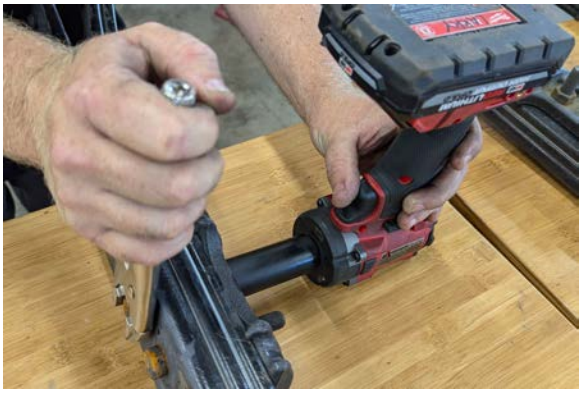

Figure 20: Leaf Spring Alignment Pin Removal

B) Separate the springs and remove the factory shims. New offset shims are included in the kit. As you can see in (Fig 21), there are 2 different shims. 6563G is used in the middle of the spring and 6563H is used on the bottom. Install with the holes offset to the front of the truck. If you have a 2wd truck with a composite spring, the notch on 6563G is meant to fit onto the notch in the spring. Reinstall with supplied extended length center pins with the nuts on the bottom of the spring pack (Fig 22). Torque to 55 ft/lbs.

D) Install the new adjustable leaf spring shackles onto the leaf springs using the supplied M16 hardware (Fig 23). The bolt needs to be installed in the same direction as factory. Insert bolt from the frame side. Nut towards the outside. Do not torque yet.

C)Locate 6563DR and 6563PA in the kit (Fig 24). These are the new front leaf spring mounts. DR and PA refer to the side of the truck they are installed on. Mount the new leaf spring mounts in their corresponding location using the supplied hardware (Fig 24). ¾-16 bolts (1-⅛" wrench) are used on the front hole and M18x2.5 (27mm wrench) are used where the spring formerly bolted up (Fig 25). Torque both to 200 ft/lbs.

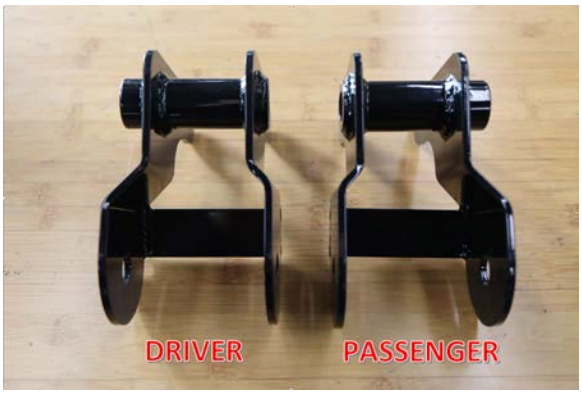

Figure 24: Front leaf spring mounts

FIGURES FOR REFERENCE

Figure 21: Offset Shims

Figure 22: Spring Pack Reassembly

Figure 23: Adjustable Rear Shackles

Figure 25: Installed Front Leaf Spring Mount

INSTALLATION INSTRUCTION

STEP 6 Cont:

E)We are now ready to reinstall the leaf spring packs. Raise the rear differential up so that there is enough clearance to get the spring packs back in under the axle (Fig 26). Place

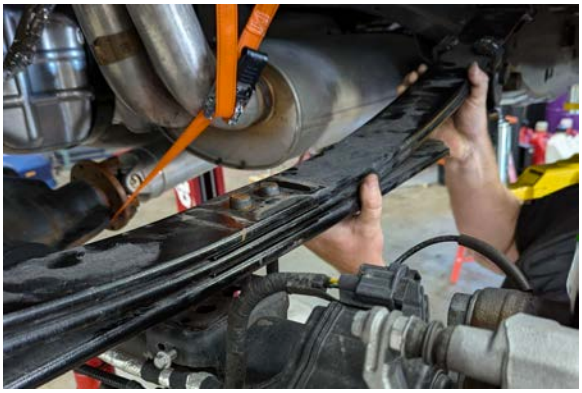

Figure 26: Leaf Spring Install

F) Using the supplied hardware, bolt the spring onto the front spring mount (Fig 27.) and the adjustable rear shackle. The hole adjustment on the rear shackle changes the rear ride height approximately ½" per hole. The bottom hole is #1; top hole is #4. For a 5" drop in the rear, start on hole #2. The amount of drop will be more if your truck had a factory spacer block. Do not torque yet.

G.) Once both leaf springs are back in the truck, it is time to install the flip bracket and get the spring pack secured to the axle. Locate the flips brackets and inspect. As seen in (Fig 29), one side of the flip bracket is higher than the other. The higher side has a notch cut into it. The notched side faces the front or rear based on what spring pack you have. For a steel leaf spring, the notch faces the front. For a composite spring, the notch faces the rear. Insert the flip bracket up into the bottom of the spring saddle in the correct orientation based on which spring pack you have (Fig 30).

H)Place the angle shim onto the spring pack with the thick side to the front (Fig 31).

Figure 31: Install Angle Shim

FIGURES FOR REFERENCE

Figure 27: Installed Front Leaf Spring Mount

Figure 28: Installed Adjustable Leaf Spring Shackle

Figure 29: Flip Bracket

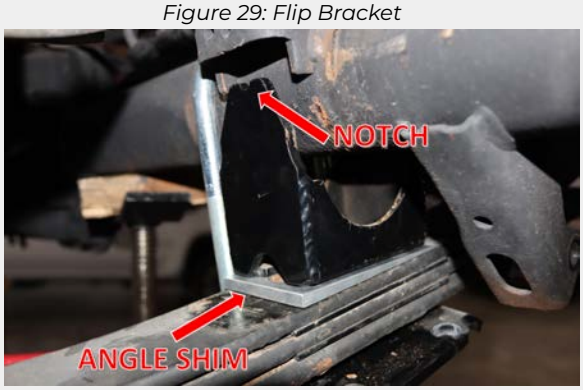

Figure 30: Flip Bracket Install

INSTALLATION INSTRUCTION

STEP 6 Cont:

I) Once you have both flip brackets and shims placed, you can lower the differential back onto the spring pack. Make sure to line up the front 2 holes of the flip bracket with the spring locating pins. Refer back to Figure 30 for correct placement.

J) Now that the axle is sitting on top of the leaf springs, the viking shocks can be installed. Unbox the shocks and locate 6563R shock spacers. Install the shock spacers into the shock eye bushings using a dead blow hammer. (Fig 32a). Use a silicon based lubricant such as SuperLube on the spacers and shock bushings

Figure 32a: Shock Spacers Install

K) Once the U-bolts and clamp plates are installed, there is very little clearance to install the driver side lower shock bolt. Due to this, the bolt needs to be installed before those items and from the outside in (Fig 32).Use the provided M12 hardware to bolt the shocks into the factory shock mounts. The shocks can be either body up or body down. This makes no difference in performance but we have found that body down provides the most clearance when using the factory shock mounts. On the 21+ year trucks, the driver side shock will interfere with the top mount if installed body up. Torque shock bolts to 90 ft/lbs.

PROTIP: Now is a good time to set a starting point on compression and rebound for the rear shocks. We have found that 8 clicks on compression and 12 clicks on rebound is a good starting point. Further adjustment may be needed based on desired shock characteristics.

L)Now that the axle is in place on top of the springs (Fig 33.), the U-bolts and bottom clamp plate can now be installed. Set the U-Bolts over the axle tubes and lift the clamp plate up through the U-Bolts. The offset holes on the clamp plate go towards the front. See Fig 34.

M)Use the provided ⅝ nuts and washers to secure the U-bolts to the clamp plate. (Fig 35). Torque U-Bolts nuts to 150 ft/lbs.

FIGURES FOR REFERENCE

Figure 32: Driver Side Lower Shock Bolt

Figure 33: Seated Axle tube

Figure 34: U-Bolt Clamp Plates

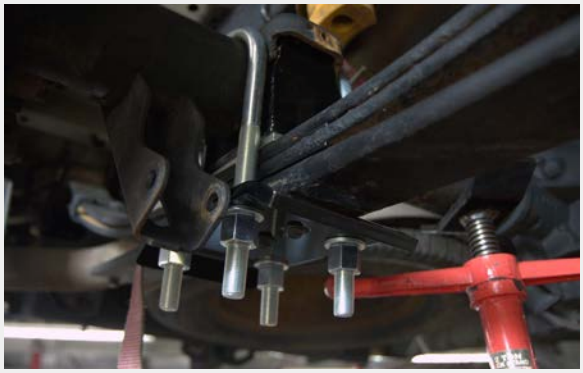

Figure 35: Install U-Bolts

INSTALLATION INSTRUCTION

STEP 6 Cont:

N)Use a 8mm hex key socket and the provided M10 button head bolts to install the new bump stops (Fig 37). Torque bump stop bolts to 50 ft/lbs.

O) The mounts securing the brake lines and E-brake cables can now be reinstalled with the new M10 hardware. (Fig 38)(Fig 38b)

P) For 2015-17 trucks with a cable actuated E-Brake, the driver side mount securing the cable to the front leaf spring mount can now be reinstalled. Before doing so ,the mount needs to be notched out slightly to fit with the new leaf spring mount. Use and angle grinder and remove material slowly stopping to check fitment. See Fig 39 for notch location. Torque factory installed mount bolts to manufacturer specs.

Figure 39: Clearance E-Brake Cable Mount

Q) The flip brackets combined with the wedge shim have been designed to properly locate the rear axle to eliminate driveline vibrations.

For trucks with a 2 piece driveshaft, depending on the amount lowered, it may be necessary to relocate the carrier bearing. Our 6573 Carrier Bearing Bearing relocation kit will move the carrier bearing up to improve all angles on the 2 piece driveshaft and is adjustable in ¼" increments. Please visit www.umiperformance.com for more information on this kit.

Included in this kit is a ¼" spacer for the transmission mount. This can be used to fine tune the pinion angle if necessary.

If the truck exhibits any driveline vibration, take the truck to a reputable driveline shop immediately. **Do not drive the truck with severe driveline vibration as there could be damage done to the U-Joints.**

R) The wheels can now be reinstalled and the truck sat back on the ground. Be sure to torque lug nuts to 150 ft/lbs. Wheel stands will make the next step much easier but aren't absolutely necessary.

S) With the weight of the vehicle on the suspension, torque the rear spring hanger bolts as well as the front spring mount bolts. The rear bolts get torqued to 150 ft/lbs and the front gets torqued to 200 ft/lbs.

T) Once torqued, Grease the rear spring hanger until you can see grease squeeze out from between the Delrin bushing and factory mount (Fig 40).

FIGURES FOR REFERENCE

Figure 37: Install Bump Stops

Figure 38: E-Brake cable mounts

Figure 38b: Brake Line Mounts

Figure 40: Grease Rear Spring Shackle

INSTALLATION INSTRUCTION

STEP 7: Shock Adjustment

Locate the compression and rebound knobs on your new double adjustable Viking shocks (Fig 41). Viking shocks have a total of 19 positions (18 clicks plus a zero position) of adjustment per knob, for a total of 361 different valvings. Position 0 is the softest setting and position 18 is the stiffest. Trucks used on the street, drag and autocross will have different needs in terms of shock valving.

Drive the truck and take notes on ride quality vs handling. Make small adjustments (1-2 clicks at a time) until the truck feels satisfactory. Below are some recommendations from Viking for approximate settings.

Ride Quality/Street: Front: 1 - 4 compression; 4 - 8 rebound
Rear: 0 - 3 compression; 2 - 5 rebound

Handling: Front: 8 - 10 compression; 10 - 14 rebound
Rear: 6 - 8 compression; 8 - 12 rebound

Autocross: Front: 10 - 14 compression; 14 - 18 rebound
Rear: 6 - 10 compression; 10 - 14 rebound

Drag Racing: (<600 HP) Front: 12 - 18 compression; 0 - 4 rebound
Rear (Weight Transfer): 0 - 4 compression; 4 - 10 rebound
Rear (Separation): 6 - 10 compression; 2 - 6 rebound

STEP 8: Camber Adjustment

When the front suspension is lowered, it will gain negative camber. We have found that for a drop of 3" or less, this can be adjusted out via the lower control arms(Fig 42). The lower control arm mount is notched on both sides where the lower control arms bolts up (Fig 43). Break both bolts loose and the lower control arm can be moved in towards the center of the truck. For a 3" drop, move the control arm in all of the way and lock it down with the bolts. This will put the front camber at approximately .9 degrees negative which is within Ford spec. The front toe will now need to be adjusted after setting camber.

For more precise camber adjustment, 6572 camber adjustment kit can be ordered. Alternatively, the upper control arm can be swapped out for one of our control arms. These are available in adjustable and non-adjustable versions. Please visit www.umiperformance.com for more information on the products.

FIGURES FOR REFERENCE

Figure 41: Viking Adjustment Knobs

Figure 42: Camber Adjustment

Figure 43: Camber Adjustment