belltech

INSTALLATION GUIDE

PART NUMBER: 152510
LIFT KIT
FORD F-150 4WD | 2021+

5” TO 7” HEIGHT ADJUSTABLE

****EXCLUDES HYBRID AND DIESEL MODELS****

300 W. PONTIAC WAY. CLOVIS, CA 93612
PHONE: 800-445-3767 | EMAIL: INFO@BELLTECH.COM

THANK YOU

Thank you for choosing our high quality Belltech product. We have spent a great deal of time developing our line of products so that you will receive maximum performance with minimal difficulty during installation. Soon your vehicle will be on the road looking and feeling much improved.

Please take a moment to read all instructions and warnings prior to installation of your new Belltech product and before operating your vehicle. If you have any questions or concerns regarding any step in the installation process, please do not hesitate to call or email our customer support specialists who are trained to help you through any portion of this process.

Before You Begin:

It is of the utmost importance that you confirm all the components listed on the parts list are in the kit. You can find this list located on the last page(s) of your instructions. Do not begin installation if any part is missing. Instead, please call our Belltech customer service specialists.

Belltech Customer Support:

Phone: 1-800-445-3767

Email: info@belltech.com

Safety Information:

Warning: Do not work under a vehicle supported only by a jack. Place support stands securely under the vehicle in the manufacturer's specified locations unless otherwise instructed.

Proper use of safety equipment and eye/face/hand protection is necessary when performing any of the following instructions.

We strive for an exceptional experience for all our valued customers. If for any reason you need assistance with your Belltech products, please do not return the product to the store you purchased from, but rather call our dedicated customer service experts, from 7am to 5pm PST.

We recommend that a qualified mechanic, in a properly equipped facility, perform this installation.

It is very helpful to have an assistant available during installation.

Before Driving Your Vehicle:

It is important to double check all brake hoses, cables, and other components to be sure there is no interference. You must also check for wheel/tire to chassis/body interference. If any issues are found, review your installation instructions to be sure no steps were missed, and any problems are corrected.

Make sure your vehicle is aligned immediately following installation.

Check all hardware and torque at intervals for the first 10, 100, and 1000 miles.

Some of Belltech's products are designed to improve your vehicle's off-road performance. Leveling/lifting your vehicle may result in an altered center of gravity. It is crucial to use extreme care when operating your vehicle to prevent rollover and/or loss of control.

Any changes in your vehicle's suspension may result in transformed handleability. Please test-drive your vehicle in a remote location so you can become accustomed to the revised driving characteristics.

Perform headlight check and adjustment.

Failure to drive any modified vehicle in a safe manner may result in harm or death.

Never operate your modified vehicle under the influence of drugs, alcohol, or lack of adequate sleep.

Always wear your seatbelt.

DIFFICULTY:

INSTALLATION TIME: 6-8 Hours + Alignment

RECOMMENDED TOOLS:

- Properly rated floor jack
- Support stands
- Wheel chocks
- Metric socket wrench set
- Metric wrench set
- Hex key set
- Tape measure
- Dead blow hammer
- Safety glasses
- Paint or marking pen
- Spray paint
- Torque wrench rated up to 200 ft lbs.

SPECIALTY TOOLS:

- Angle grinder or reciprocating saw
- Tie-rod end removal tool
- Ball joint removal tool
- Torx socket set

FITMENT GUIDE

35x12.50 with 18x9 or 20x9 and 4.5-5” backspacing

37x12.50 with 20x9 and 5.5.-5.75” backspacing

35x12.50 with 20x9 and 4.5-5.75” backspacing

FITMENT NOTE:

Not all possible wheel sizes and backspacing can be tested. Cautiously check the wheel assembly to the spindle, suspension component, and fender/body clearance before tightening the lug nuts and rotating the wheel assembly. Belltech is not responsible for any wheel, tire, suspension component, and/or body damage caused by failure to check for interference.

INSTALLATION PREPARATION:

Before beginning the installation process, measure the hub to fender heights for your vehicle and record them in the “Before” section. After your vehicle has been modified, record the new measurements in the “After” section. This way, you can compare the resulting height to the original. When taking the measurements, measure vertically from the center of the wheel to the inner edge of the fender.

Before:

LF:_____

RF:_____

LR:_____

RR:_____

After:

LF:_____

RF:_____

LR:_____

RR:_____

JACKING, SUPPORTING, AND PREPARING THE VEHICLE

1. Park your vehicle on a smooth, level, concrete, or seasoned asphalt surface.
2. Block the rear wheels of the vehicle using wheel chocks. Make sure the vehicle's transmission is in "PARK" (automatic) or first gear (manual).
3. Activate the parking brake.
4. Loosen, but do not remove, the front wheel lug nuts.
5. Lift the front of the vehicle off the ground using a properly rated floor jack. Lift the vehicle so the front tires are approximately 6-8 inches off the ground.
6. Place support stands rated for the vehicle's weight. The stands must be positioned in the factory specified locations. (Refer to the owner's manual). Prior to lowering the vehicle onto stands, make sure the support stands will contact the chassis. It is very important that the vehicle is properly supported to prevent any harm to oneself or to the vehicle.
7. Lower the vehicle slowly onto the stands.
8. Remove the front wheels.

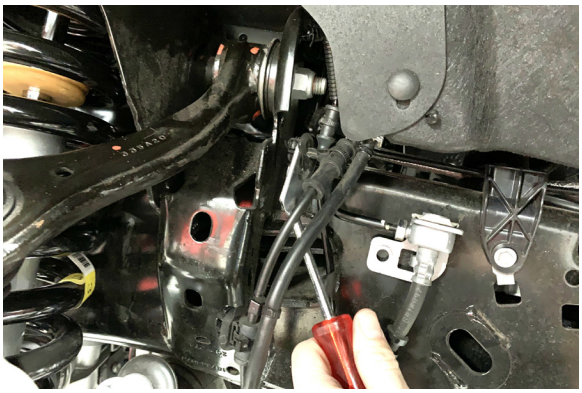
Technician reminder:

Never work under a vehicle supported only by a jack. It is necessary to place support stands securely under the vehicle in the manufacturer's specified locations unless otherwise instructed.

FRONT OEM SUSPENSION REMOVAL

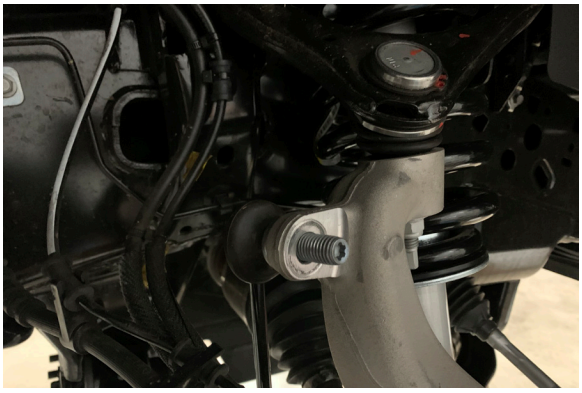
9. Remove the 15mm bolts to detach the original splash guards from under the engine and transmission.

10. Use a panel removal tool to carefully detach the actuator line clips from the frame near the upper control arm.



11. Remove the 10mm bolts to the brake line and ABS wire brackets on the spindle and the frame near the upper control arm.

12. Remove the 21mm upper end link nuts at the spindle. A T45 Torx socket may need to be used to stop the stud from spinning. Remove the 15mm nuts at the pivot bushings to detach the sway bar assembly from the vehicle.

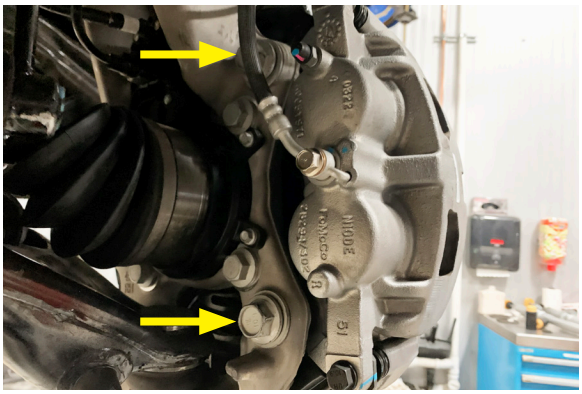


FRONT OEM SUSPENSION REMOVAL CONTINUED

13. Break loose the 21mm steering tie rod end nut. Use a tie rod end removal tool to detach the tie rod end from the spindle. If a tie rod puller is not available, strike the spindle mount with a hammer to dislodge the tie rod end. Do not hit the boot.

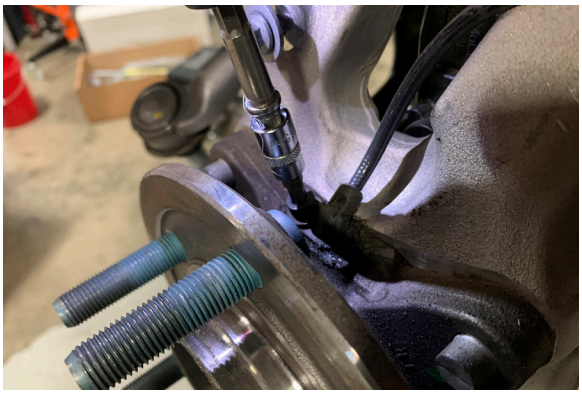
14. Remove the cap in the center of the hub assembly with pliers or a pry tool to expose the axle nut. Remove the 13mm nut.

15. Remove the 21mm bolts holding brake caliper assembly to the steering knuckle. With a metal wire or bungee cord attach the caliper to the chassis to prevent damage to the brake line. Next, remove the brake rotor and set it aside.



16. Remove the three 8mm bolts to detach the dust shield from the steering knuckle.

17. Use a 5mm hex key to detach the ABS sensor from the steering knuckle. Place the sensor away from the working area.

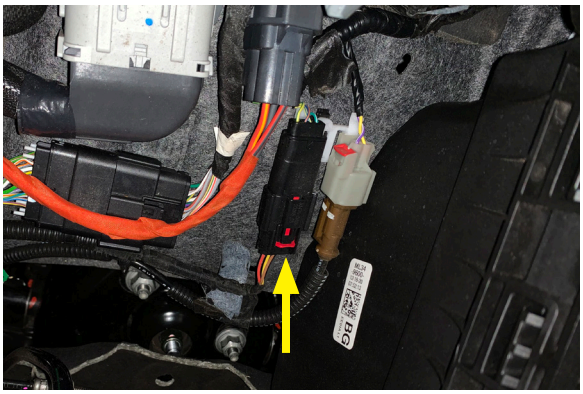


FRONT OEM SUSPENSION REMOVAL CONTINUED

18. Disconnect the actuator lines from the main harness under the hood. There is one behind the battery on the passenger side and one by the air box on the driver side.

Technician reminder:

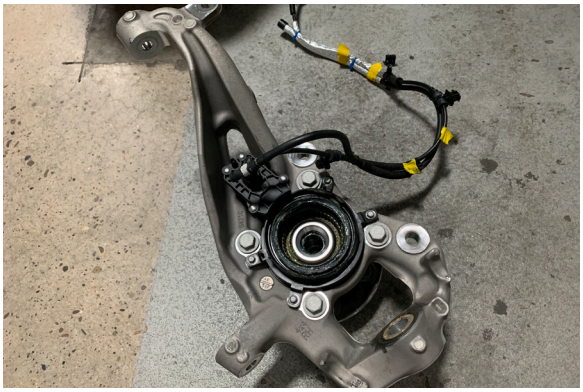
Pay close attention to how the lines are routed through the fender. Ensure the lines are completely free from the chassis and only attached to the actuator



19. Loosen but do not remove the 18mm upper ball joint nut and the 21mm lower ball joint nut. Use a dead blow hammer or puller tool to dislodge the ball joints from the steering knuckle. Once the upper and lower ball joints are dislodged, remove the nuts, and detach the steering knuckle from the vehicle.

Technician reminder:

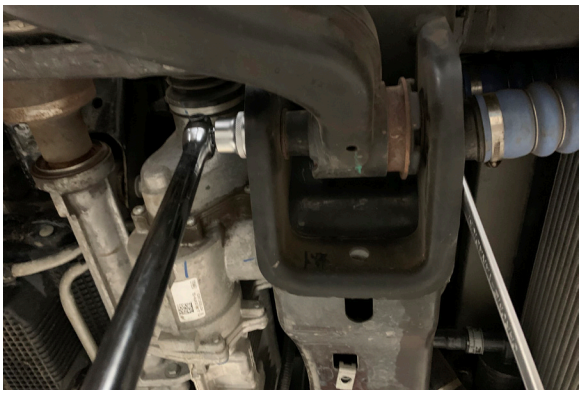
Ensure the axle shaft does not damage the actuator or grease seals with while removing or installing steering knuckles.



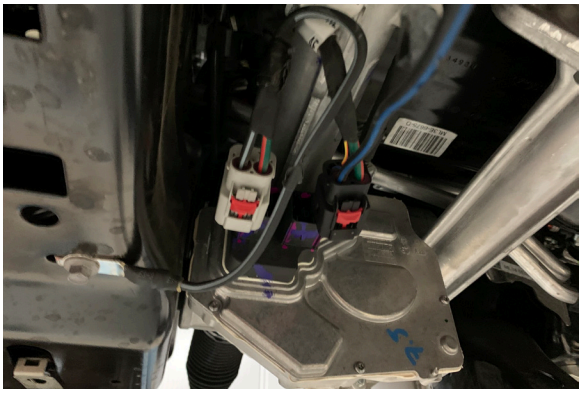
20. Remove the two lower strut 18mm nuts from the lower control arm and the three top mount 18mm nuts. Detach the strut from the vehicle.

FRONT OEM SUSPENSION REMOVAL CONTINUED

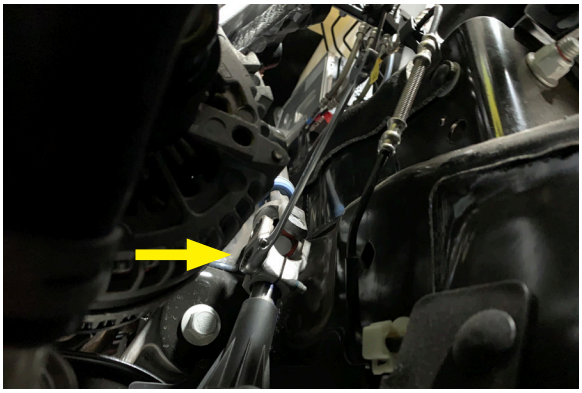
21. Remove the 21mm bolts and 27mm nuts to detach both lower control arms from the vehicle.



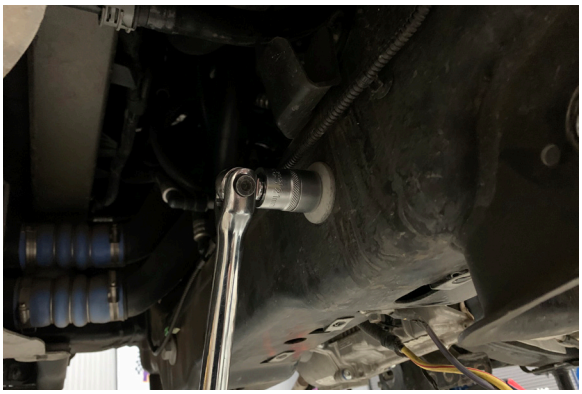
22. Pull back the red lock tabs and press the release buttons to disconnect the plugs on the electronic power steering rack.

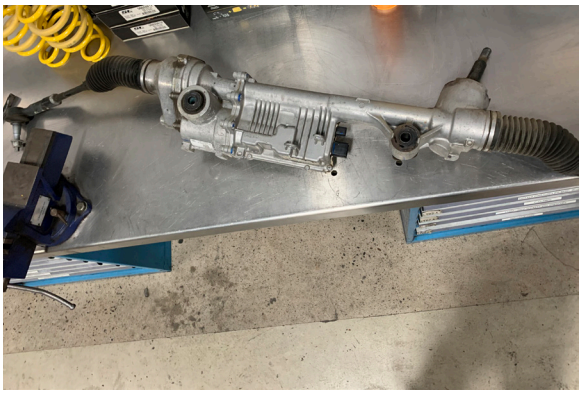


23. Use the driver's seatbelt or a steering wheel holder tool to keep the steering wheel from rotating. Next, remove the pinch bolt from the steering input shaft and separate the shaft from the steering rack.



24. Using a 21mm and 24mm wrench, remove the two bolts holding the steering rack to the frame and detach the power steering rack. Do not turn the input shaft, so it can be reinstalled in the same orientation.





FRONT OEM SUSPENSION REMOVAL CONTINUED

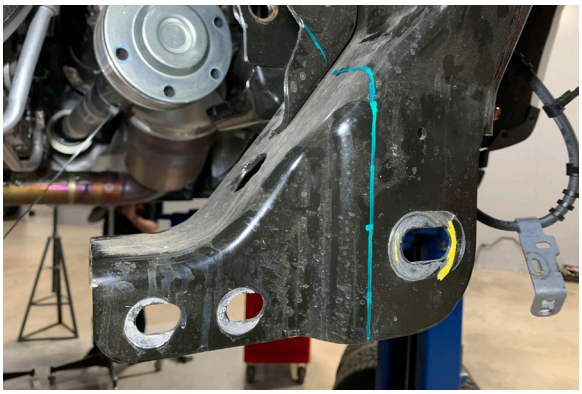
25. Remove the six 10mm bolts that connect the front driveshaft to the differential. Disconnect the driveshaft and support it to prevent damage.

26. Use 15mm and 18mm wrenches to remove the center of the rear crossmember at the rear of the front differential.

27. Disconnect the rubber vent hose from the front differential. Use a jack to support the differential and remove the three mounting bolts with 18mm and 21mm wrenches. Detach the front differential from the vehicle.

28. After the differential has been detached, install the power steering rack in its original position. Fasten with the original mounting nuts and bolts, torque to 184 ft lbs. Attach the steering input shaft and torque the pinch bolt to 22 ft lbs. Remove the steering wheel holder. Reconnect the plugs on the steering rack.

29. Use template 152510-887 (included in the kit) to mark a guideline on both sides of the driver side rear crossmember mount.



FRONT OEM SUSPENSION REMOVAL CONTINUED

30. Use a reciprocating saw with a long metal cutting blade to cut along the marked lines. It may be helpful to use a cut off disc on an angle grinder to score the marked lines before using the reciprocating saw. Remove the marked section of the rear crossmember. Deburr any rough edges.

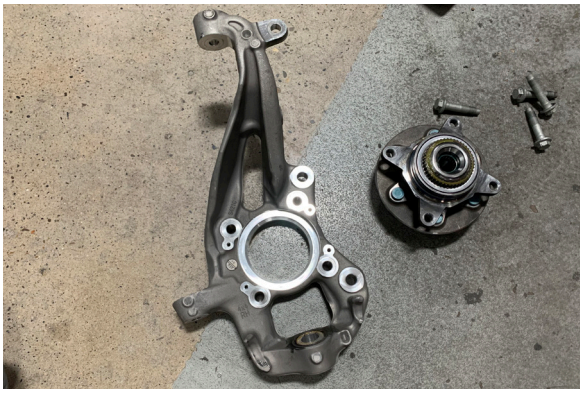
Technician reminder:

It is important to smooth out the cut with a grinder or file then spray paint the exposed metal to prevent corrosion.

31. Remove the four 8mm bolts to detach the actuator from the steering knuckle. Remove the four 18mm bolts to detach the wheel hub from the original spindle.

Technician note:

Note the original position of the wheel hub as the ABS sensor that mounts to the hub must be placed in the same way on the new lift spindles.

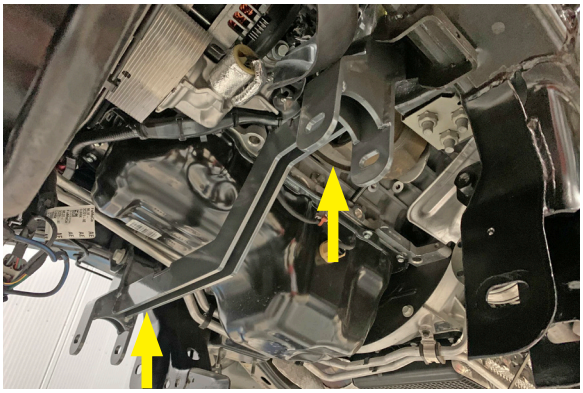


BELLTECH FRONT LIFT KIT INSTALLATION

32. Place the Belltech front differential drop bracket in the original mounting locations using the original hardware. Hand tighten but do not torque until the differential is fully installed.

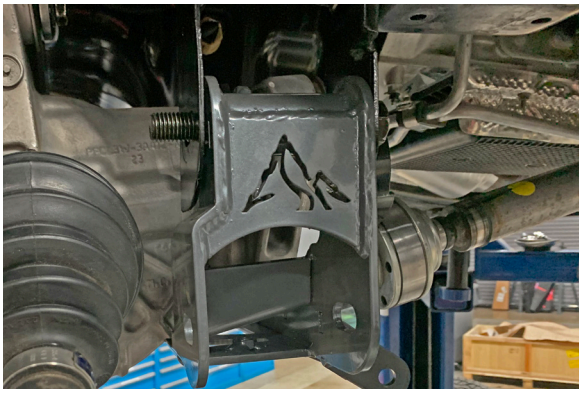
Technician note:

For clearance with the steering rack, place the bolts in from the front.

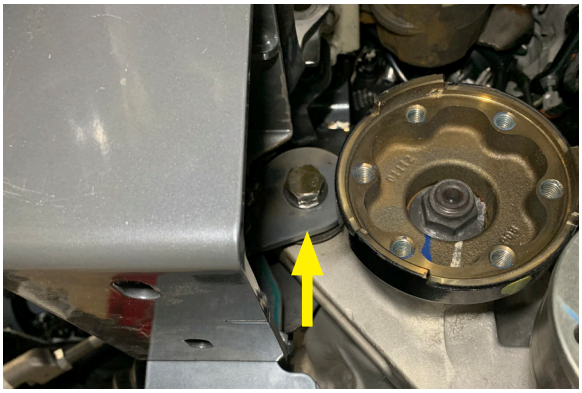


33. Place the front differential on a jack and lift the differential into place on the Belltech drop bracket. Fasten both mounts with the supplied M14 x 2.0-100mm bolts, M14 washers, and M14 Nyloc nuts. Hand tighten but do not torque yet.

34. Mount the rear crossmember into the frame using the supplied M18 x 2.5-140MM bolts only. Do not place the M18 nuts and washers on the bolt yet.

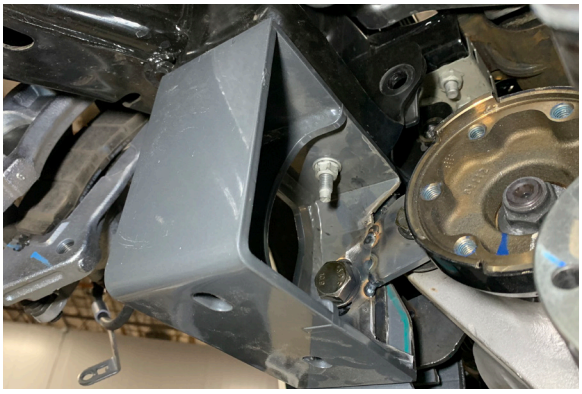


35. Attach the rear driver side differential mount to the rear crossmember tab with the supplied M14 x 2.0-100mm bolt, M14 washer, and M14 Nyloc nut. Hand tighten but do not torque yet.

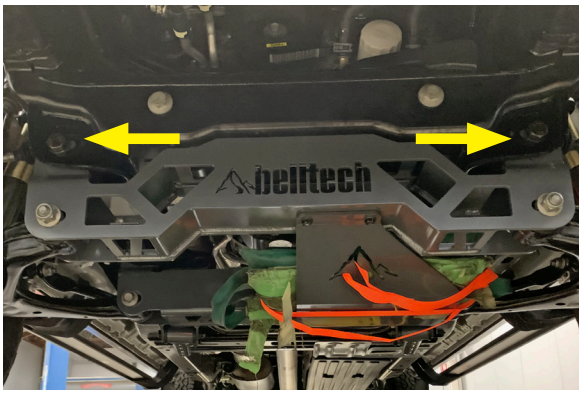


BELLTECH FRONT LIFT KIT INSTALLATION CONTINUED

36. Support the rear crossmember and remove the M18 bolt to position the sway bar drop bracket under the original pivot bushing mount. Slide the M18 bolt through the bolt hole on the sway bar drop down bracket and the crossmember. Secure the top of the drop down bracket with the original bolt plate, use the original nuts. Place the M18 nuts and washers on the M18 crossmember bolt. Hand tighten but do not torque yet.



37. Torque the two differential drop down bracket bolts to 129 ft lbs.
38. Torque the driver and passenger side differential mount bolts to 129 ft lbs. and the rear differential mount bolt to 136 ft lbs.
39. Torque the two rear crossmember bolts to 180 ft lbs.
40. Torque the sway bar drop bracket nuts to 46 ft lbs. Ensure sway bar drops brackets are fully seated against the frame.
41. Attach the supplied extended differential vent hose to the original plastic hose and to the differential fitting.
42. Attach the front driveshaft to the differential with the original flange cup retaining straps and bolts. Torque to 41 ft lbs.
43. Place the front crossmember on the frame with the Belltech toward the front. Secure it with the M18 x 2.5-140MM bolts, M18 nuts and washers. Torque the bolts to 180 ft lbs.



44. Attach the lower control arms to the new crossmembers with the original nuts and bolts. Hand tighten but do not torque yet.

BELLTECH FRONT LIFT KIT INSTALLATION CONTINUED

Technician reminder:

STRUT SPACER INSTALLATION:

Please refer to the instructions included for strut spacer kit LK2003.

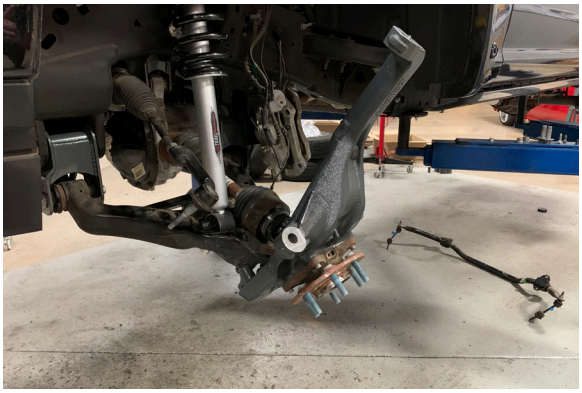
TRAIL PERFORMANCE STRUT OR COILOVER INSTALLATION:

Please refer to the instructions included for strut kit 28027 or coilover kits 15307 and 16307.

45. Attach the wheel hub to the Belltech lift spindle with the original bolts. Ensure proper alignment of the ABS sensor port. Tighten in a cross pattern and torque to 129 ft lbs.

46. Attach the actuator to the Belltech lift spindle with the original bolts, torque to *106 in lbs.*

47. Mount the Belltech spindle assembly onto the lower ball joint and secure the original nut so it is hand tight, do not torque yet. Guide the axle shaft into the wheel hub to avoid damage. Ensure the axle splines are lined up and fully seated into the hub. Attach the upper ball joint to the lift spindle and secure it with the original nut. Torque the lower ball joint nut to 98 ft lbs. Torque the upper ball joint nut to 46 ft lbs.



48. Mount the steering tie rod end onto the Belltech spindle and torque to 66 ft lbs.

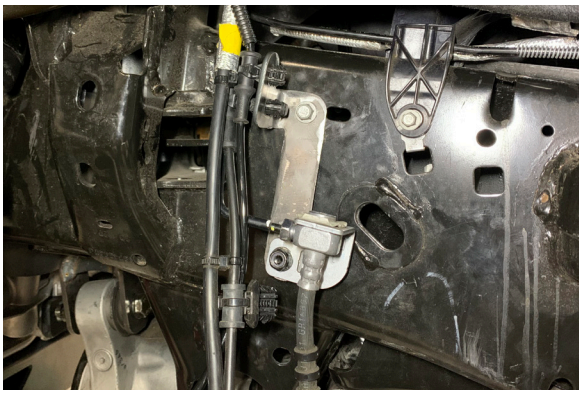
49. Place the axle nut on the axle shaft and torque to 30 ft lbs. Place the dust cap in the center of the hub.

BELLTECH FRONT LIFT KIT INSTALLATION CONTINUED

50. Route and plug in the actuator lines to the main harness under the hood, behind the battery on the passenger side and by the air box on the driver side.

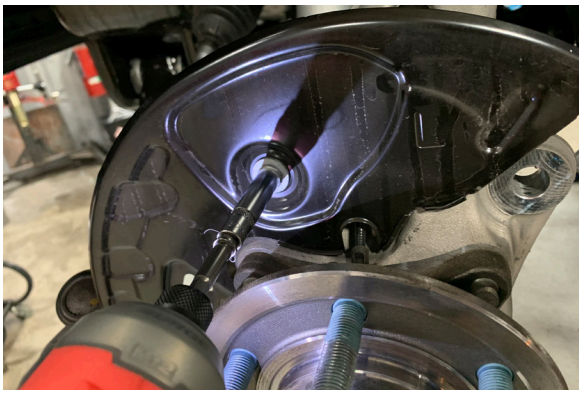
51. Place a new Belltech brake line drop bracket in the original position on the frame. The drop brackets are side specific, ensure the bracket is placed on the correct side of the vehicle (152501-113R is for the passenger side and 152501-113L is for the driver side). Torque to 22 ft lbs.

52. Attach the original brake line bracket to the new brake line drop bracket with the M8 X 1.0-16MM bolts, M8 nuts and washers. Remove any retaining clips necessary to allow the hard lines to flex downward toward the new bracket. Torque to 22 ft lbs.



53. Attach the ABS sensor to the new Belltech spindle and torque to *150 in lb.*

54. Attach the dust shield onto the new Belltech spindle with the three original bolts. Torque to *133 in lb.*



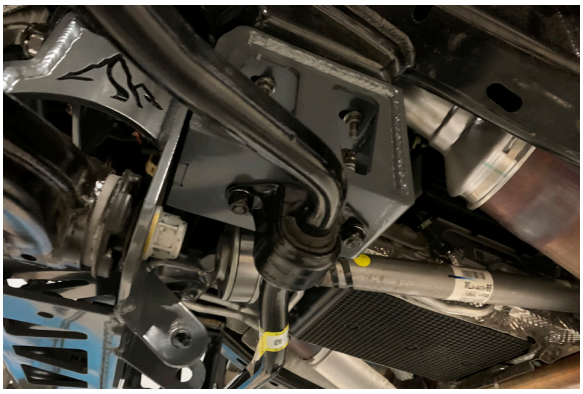
55. Place the brake rotor on the wheel hub and attach the brake caliper onto the Belltech spindle with the original bolts. Torque the two bolts to 184 ft lbs.

56. Attach ABS and brake lines to the brake line drop brackets. Ensure they will not interfere with moving parts or overstretched while steering.

57. Place the original sway bar onto the new sway bar drop brackets. Fasten the pivot bushing brackets with the supplied M10 X 1.25-25MM bolts, M10 nuts and washers. Torque to 46 ft lbs. Attach the upper end links to the lift spindle, torque the original nuts to 111 ft lbs.

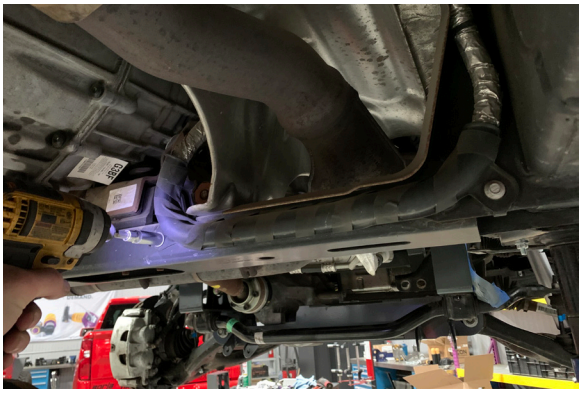
Technician note:

To install Belltech front sway bar 5461, please refer to the instructions supplied with the sway bar.



BELLTECH FRONT LIFT KIT INSTALLATION CONTINUED

58. Use 15mm and 18mm wrenches to remove the nuts (DO NOT REMOVE THE BOLTS) from the center crossmember near the transmission. Some models may have a wire harness on the passenger side. If equipped, temporarily remove the bolts holding the harness to the crossmember to access the crossmember bolts.



59. Attach the compression arm rear mounting brackets using original nuts and bolts, torque to 76 ft lbs. If the wire harness was removed, attach it to the crossmember and torque the original bolts to *177 in lbs.*

60. Press the supplied flange bushings and sleeves into the compression arms. Attach the compression arms into the brackets on the rear crossmember and the previously installed brackets with the supplied M12 X 1.75-110MM bolts, M12 nuts, and washers. Torque the four bolts to 75 ft lbs.

BELLTECH FRONT LIFT KIT INSTALLATION CONTINUED

61. Mount the Belltech skid plate below the front differential and across the front and rear Belltech crossmembers. Fasten the skid plate with four supplied M10 X 1.50-25MM bolts. Torque to 45 ft lbs.

62. Mount the front wheels and tighten the lug nuts.
63. Lift the vehicle and remove the support stands.
64. Carefully lower the vehicle onto the flat ground.
65. Torque the front lug nuts to 150 ft lbs.
66. Confirm all fasteners are torqued to factory specifications and check for interference on all brake lines and moving parts.

REAR OEM SUSPENSION REMOVAL

67. Block the front wheels of the vehicle using wheel chocks. Make sure the vehicle's transmission is in "PARK" (automatic) or first gear (manual).
68. Loosen, but do not remove, the rear wheel lug nuts.
69. Lift the rear of the vehicle off the ground using a properly rated floor jack. Lift the vehicle so the rear tires are approximately 6-8 inches off the ground.
70. Place support stands rated for the vehicle's weight. The stands must be positioned in the factory specified locations. (Refer to the owner's manual). Prior to lowering the vehicle onto stands, make sure the support stands will contact the chassis. It is very important that the vehicle is properly supported to prevent any harm to oneself or to the vehicle.
71. Lower the vehicle slowly onto the stands. Allow the rear suspension to hang.
72. Remove the rear wheels.
73. Support the rear axle with a floor jack. Use 15mm and 18mm wrenches to remove the rear shocks.

74. Detach the brake line bracket from inside the driver side frame rail, above the axle.

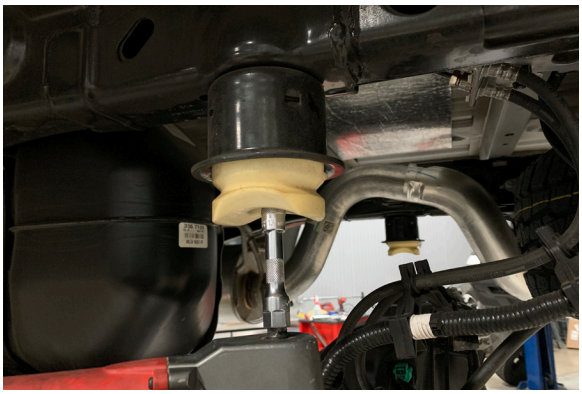
75. Use a pry tool to release both rear brake line retention clips from the frame rail.

Technician note:

This will allow the brake line bracket to be lowered without damage to the hard lines.

REAR OEM SUSPENSION REMOVAL CONTINUED

76. Use a 13mm socket and extension to remove the original bump stop cup from the frame.

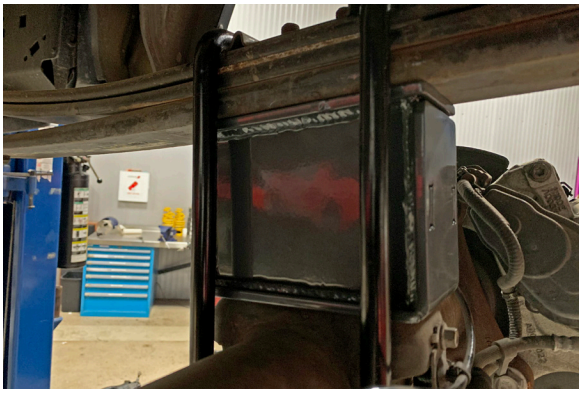


77. With the axle fully supported, lower the axle until the leaf springs are fully decompressed.
78. Remove the eight 21MM U-bolt nuts and U-bolts. Keep the lower U-bolt plates for installation.

79. Lower the axle to gain room for the new lift blocks. If the vehicle is equipped with original blocks, please remove them.

BELLTECH REAR LIFT KIT INSTALLATION

80. Position the rear Belltech lift blocks on the leaf spring pad. The taller end must sit toward the rear of the vehicle to ensure proper pinion position.



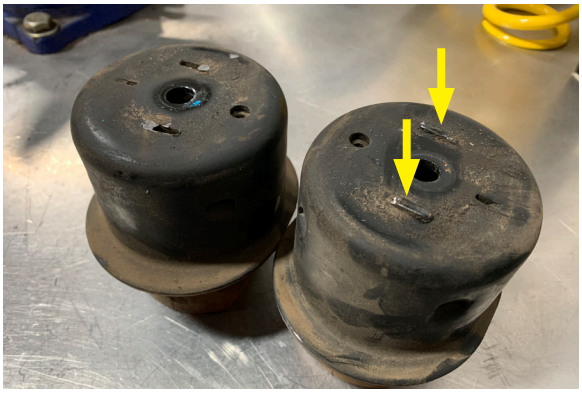
81. Ensure the pins and holes on the blocks, axle, and leaf spring are aligned and seated. Raise the axle against the leaf springs to close gaps between the three.

82. Place the new Belltech U-bolts over the leaf springs and position the original lower U-bolt plate under the axle. Fasten with the supplied M14 X 2.0 nuts and washers. Torque to 90 ft lbs.

83. Attach the new Belltech rear shocks with original nuts and bolts. Torque to 66 ft lbs.

84. Attach the Belltech break line drop bracket to the original position on frame using the original bolt. Attach the original brake lines bracket to the new drop bracket using the provided M8 X 1.0 - 16MM bolt, M8 X 1.0 nut, and washer. Torque both bolts to *159 in lbs.*

85. Flatten or cut off the locating dowels on original bump stop cups and attach the bump stops to the frame, stacked with the supplied composite extenders. Fasten with the 10MM X 1.5-130MM socket head bolts, ensure they are rotated in the original orientation. Torque the bolt to 41 ft lbs.

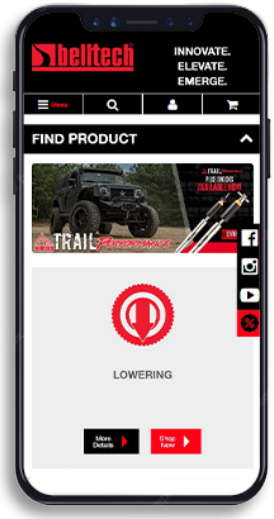


FINALIZING THE INSTALLATION

86. Mount the rear wheels and tighten the lug nuts.
87. Lift the vehicle and remove the support stands.
88. Carefully lower the vehicle onto flat ground.
89. Torque the lug nuts to 150 ft lbs.
90. Check that all components and fasteners have been properly installed and torqued.
91. Read and perform all tasks in the “Before Driving Your Vehicle” section of page 1 of your instructions.

THANK YOU FOR CHOOSING BELLTECH.

You are now a part of the Belltech family and we are eager to catch a glimpse of your newly modified vehicle. Give us a shout out and let us know how much you love our product. Don’t forget, we offer other Belltech related merchandise for you and your vehicle on our website www.belltech.com



belltechsuspension

Belltech Suspension

@belltechsuspension

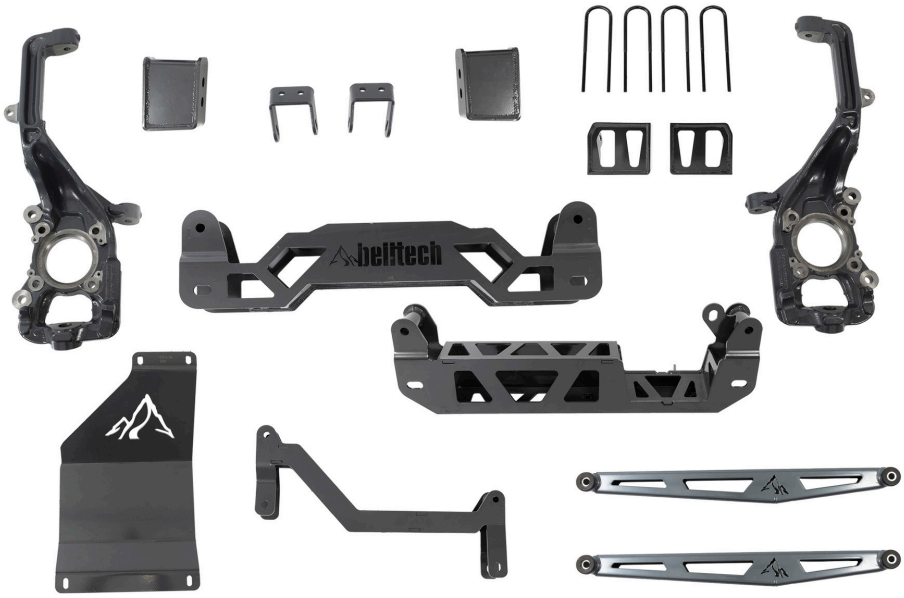
If you have any questions, concerns, or warranty related issues regarding your Belltech product, please call or email our experienced customer service specialists.

Belltech Customer Support:

Phone: 1-800-445-3767

Email: info@belltech.com

KIT CONTENTS



LK20001		
Part number	Description	Qty
152501-101-99	FRONT CROSSMEMBER	1
152501-107L-99	COMPRESSION ARM BRACKET (LH)	1
152501-107R-99	COMPRESSION ARM BRACKET (RH)	1
152501-201-992	REAR LIFT BLOCK	2

LK20002		
Part number	Description	Qty
152501-106-99	COMPRESSION ARM	2
LK20002A	SUB KIT A	1

LK2353		
Part number	Description	Qty
152510-103R	LIFT SPINDLE (RH)	1
152510-103L	LIFT SPINDLE (LH)	1

LK20003		
Part number	Description	Qty
152501-113R-992	SWAY BAR DROP DOWN BRACKET (RH)	1
152501-113L-992	SWAY BAR DROP DOWN BRACKET (LH)	1
152510-104-992	DIFFERENTIAL DROP DOWN BRACKET	1
152510-102-992	REAR CROSSMEMBER	1
152510-108-992	SKID PLATE	1
11U3001-951	ROUND U-BOLT	4
152501D-777	HARDWARE KIT	1
152510-887	CROSSMEMBER TEMPLATE	1

KIT CONTENTS

SUB KIT A LK20002A		
Part number	Description	Qty
152501-225-99	ZINC BRAKE LINE BRACKET	1
152510-111L-992	BRAKE LINE BRACKET (LH)	1
152510-111R-992	BRAKE LINE BRACKET (RH)	1
150210-203	REAR BUMP STOP EXTENDER	2
152501-141	VENT TUBE EXTENSION	1
152501A-777	HARDWARE KIT	1
152501C-777	HARDWARE KIT	1
152501F-777	HARDWARE KIT	1
152501G-777	HARDWARE KIT	1
152501J777	HARDWARE KIT	1
152510B-777	HARDWARE KIT	1

CROSS MEMBER HARDWARE KIT 152501A-777		
Part number	Description	Qty
112131	M18 X 2.5 - 140MM BOLT	4
112132	M18 X 2.5 NYLOC NUT	4
112133	M18 WASHER	8

COMPRESSION ARM HARDWARE KIT 152501C-777		
Part number	Description	Qty
110227	M12 X 1.75 - 110MM BOLT	4
110228	M12 WASHER	8
110243	M12 X 1.75 NYLOC NUT	4
150201-100-HW	HARDWARE KIT	1

U-BOLT AND BUMP STOP HARDWARE KIT 152501D-777		
Part number	Description	Qty
110222	M14 X 2.0 NYLOC NUT	8
110223	M14 WASHER	8
110287	10MM X 1.5 - 130MM SOCKET HEAD BOLT	2

SKID PLATE HARDWARE KIT 152501F-777		
Part number	Description	Qty
112142	M10 X 1.50 - 25MM BOLT	4

BRAKE LINE BRACKET HARDWARE KIT 152501G-777		
Part number	Description	Qty
110232	M8 X 1.0 - 16MM BOLT	4
110233	M8 X 1.0 NYLOC NUT	4
110245	M8 WASHER	8

FRONT SWAY BAR HARDWARE KIT 152501J-777		
Part number	Description	Qty
110230	M10 X 1.25 - 25MM BOLT	4
110239	M10 WASHER	8
110244	M10 X 1.25 NYLOC NUT	4

DIFFERENTIAL DROP DOWN HARDWARE KIT 152510B-777		
Part number	Description	Qty
110220	M14 X 2.0 - 100MM BOLT	3
110222	M14 X 2.0 NYLOC NUT	3
110223	M14 WASHER	6

BUSHING HARDWARE KIT 1150201-100-HW		
Part number	Description	Qty
113251	FLANGE BUSHING	8
8615-003-95	SPACER TUBE	4