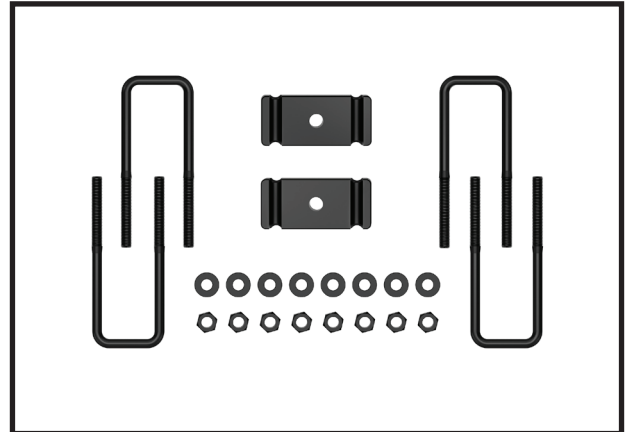




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PART #	DESCRIPTION
91200H	19-UP RANGER MULTI RATE LEAF SPRING HARDWARE KIT

COMPONENTS INCLUDED	
(2) 197035 19-UP RANGER U-BOLT BUMP PLATE	(1) 52050 8.0" U-BOLT KIT
TOOLS REQUIRED	
N/A	
TECH NOTES	
1. REQUIRES USE OF ICON MULIT RATE LEAF PACK (198520A).	



**WARNING!**

**\*\* READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION! IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED SEVERE FRAME, SUSPENSION AND TIRE DAMAGE MAY RESULT TO THE VEHICLE!**

**\*\* ICON VEHICLE DYNAMICS RECOMMENDS THAT YOU EXERCISE EXTREME CAUTION WHEN WORKING UNDER A VEHICLE THAT IS SUPPORTED WITH JACK STANDS.**

**\*\* ICON VEHICLE DYNAMICS RECOMMENDS ALL INSTALLATION TO BE PERFORMED BY A PROFESSIONAL SHOP/SERVICE TECHNICIAN. PRODUCT FAILURE CAUSED BY IMPROPER INSTALLATION WILL NOT BE COVERED UNDER ICON'S WARRANTY POLICY.**

**INSTALLATION**

1. Refer to ICON multi rate leaf spring (198520A) installation instructions.

**VERIFY ALL FASTENERS ARE PROPERLY TORQUED BEFORE DRIVING VEHICLE.**

**RETORQUE ALL NUTS, BOLTS AND LUGS AFTER 100 MILES AND PERIODICALLY THEREAFTER.**

**ICON VEHICLE DYNAMICS LIMITED LIFETIME WARRANTY**

ICON Vehicle Dynamics warrants to the original retail purchaser who owns the vehicle on which the product was originally installed. ICON Vehicle Dynamics does not warrant the product for finish, alterations, modifications and/or installation contrary to ICON Vehicle Dynamics instructions. ICON Vehicle Dynamics products are not designed, nor are they intended to be installed on vehicles used in race applications, for racing purposes or for similar activities. (A "race" is defined as any contest between two or more vehicles, or a contest of one or more vehicles against the clock, whether or not such contest is for a prize). This warranty does not include coverage for police or taxi vehicles, race vehicles, or vehicles used for government or commercial purposes. Also excluded from this warranty are sales outside of the United States of America and Canada.

ICON Vehicle Dynamics' obligation under this warranty is limited to the repair or replacement, at ICON Vehicle Dynamics' discretion, of the defective product. Any and all costs of removal, installation or re-installation, freight charges and incidental or consequential damages are expressly excluded from this warranty. Items that are subject to wear are not considered defective when worn and are not covered.

ICON Vehicle Dynamics components must be installed as a complete kit as shown in our current application guide. Any substitutions or exemptions of required components will immediately void the warranty. Some finish damage may happen to parts during shipping and is not covered under warranty.

This warranty is expressly in lieu of all other warranties expressed or implied. This warranty shall not apply to any product that has been improperly installed, modified or customized subject to accident, negligence, abuse or misuse.

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PART #	DESCRIPTION
91355	19-UP FORD RANGER EXTENDED TRAVEL 2.5 VS RR COILOVER KIT

### COMPONENTS INCLUDED

(1) 194931RD 19-UP RANGER EXT TRAVEL 2.5 VS RR COILOVER (DRVR)	(2) 250002O 7.5 OFFSET RESI MOUNT PLATE
(1) 194931RP 19-UP RANGER EXT TRAVEL 2.5 VS RR COILOVER (PASS)	(1) 611019 COILOVER HARDWARE KIT (PAIR)
	(1) 611051 STAINLESS STEEL HOSE CLAMP KIT
	(1) 611052 COILOVER LOWER HARDWARE KIT (PAIR)

### HARDWARE INCLUDED

(2) 605131 3/8" SPLIT LOCK WASHER	(2) 605144 3/8-12 X .750 SELF TAP BOLT
-----------------------------------	--

#### 611019 HARDWARE KIT

(6) 605101 3/8 X 1.00 BOLT	(6) 605131 3/8 SPLIT LOCK WASHER
----------------------------	----------------------------------

#### 611052 HARDWARE KIT

(4) 605205 7/16-14 X 2.750 BOLT	(4) 605231 WASHER 1.00
(4) 605230 7/16 FLAT WASHER	

### TOOLS REQUIRED

FLOOR JACK	TORQUE WRENCH
JACK STANDS	15MM SOCKET / WRENCH
DRILL	18MM SOCKET / WRENCH
11/32" DRILL BIT	5/16" SOCKET / WRENCH
AIR HAMMER	9/16" SOCKET / WRENCH
SAWZALL / ANGLE GRINDER	5/8" SOCKET / WRENCH

### TECH NOTES

1. THIS EXTENDED TRAVEL COILOVER REQUIRES AN UPPER CONTROL ARM (PN: 98510DJ) OR (PN: 98520DJ). FAILURE TO USE ICON UPPER CONTROL ARM WITH THIS SHOCK WILL LEAD TO FAILURE, NOT COVERED UNDER ICON'S WARRANTY POLICY.

2. YOUR ICON COILOVER ASSEMBLIES COME SHIPPED AT ICON'S RECOMMENDED RIDE HEIGHT. REDUCING DROOP TRAVEL WILL REDUCE RIDE QUALITY. DO NOT PRELOAD THE COIL LESS THAN .438" OR MORE THAN 2.25" OF EXPOSED THREADS BETWEEN THE BOTTOM OF THE TOP CAP AND THE TOP OF THE COIL. ADJUSTER NUT. ADJUSTING PRELOAD BEYOND THIS SETTING WILL CAUSE THE COIL TO BIND AND DAMAGE WILL OCCUR TO COILOVER AND/OR VEHICLE.

3. YOUR ICON SHOCK ASSEMBLIES COME FACTORY CHARGED TO 250 PSI. RELEASING NITROGEN PRESSURE MAY LEAD TO SHOCK MALFUNCTION AND REDUCED RIDE QUALITY. FAILURE CAUSED BY LOW NITROGEN PRESSURE IS NOT COVERED UNDER ICON'S WARRANTY POLICY.

4. TO FIT ICON'S RECOMMENDED TIRE SIZE, THE FRAME HORN EXTENSION MUST BE REMOVED. ALTHOUGH THE BARS ARE EASILY UNBOLTED THEY CAN NOT SLIDE OUT OF THE MOUNTS WITHOUT CONTACTING THE BODY. THEREFORE, IT IS NECESSARY TO CUT THE BARS AND REMOVE THEM IN 2 PIECES.



### WARNING!

\*\* READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION! IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED SEVERE FRAME, SUSPENSION AND TIRE DAMAGE MAY RESULT TO THE VEHICLE!

\*\* ICON VEHICLE DYNAMICS RECOMMENDS THAT YOU EXERCISE EXTREME CAUTION WHEN WORKING UNDER A VEHICLE THAT IS SUPPORTED WITH JACK STANDS.

\*\* ICON VEHICLE DYNAMICS RECOMMENDS ALL INSTALLATION TO BE PERFORMED BY A PROFESSIONAL SHOP/SERVICE TECHNICIAN. PRODUCT FAILURE CAUSED BY IMPROPER INSTALLATION WILL NOT BE COVERED UNDER ICON'S WARRANTY POLICY.

## INSTALLATION

- Using a properly rated jack, raise the front of the vehicle and support the frame rails with jack stands. Ensure the jack stands are secure and set properly before lowering the jack. NEVER WORK UNDER AN UNSUPPORTED VEHICLE. Remove the front wheels.
- Disconnect the UCA from the spindle using an 18mm. Loosen the nut to the end of the shank but do not remove entirely so that the nut protects the threads. Dislodge the taper by either using a ball joint separator or by striking the spindle on the outside of the taper with a large hammer. [FIGURE 1]

FIG.1



FIG.2



- Remove the studs from the lower shock bar pin mount where it attaches to the lower arm. This can be difficult, it is recommended to use an air hammer to knock the studs out. It can be done with a heavy hammer or hand sledge. [FIGURE 2]

- Remove the nut from the rear stud first, leaving the front one tight, as this is the harder one to get to. Doing this will help to hold the bar pin securely while you hammer the rear one out. The stud has a press fit knurled surface. Hammer the stud up and out of the bar pin. Now remove the nut from the front of the bar pin and hammer out the other stud.

**5.** Disconnect the tie rod from the spindle using an 18mm. Loosen the nut to the end of the shank but do not remove entirely so that the nut protects the threads. Dislodge the taper by using a ball joint separator or by striking the spindle on the outside of the taper with a large hammer. [FIGURE 3]

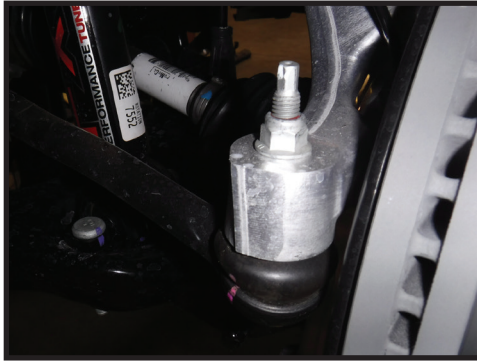


FIG.3



FIG.4

**6.** Using a 15mm, remove the (3) nuts from the upper mount. DO NOT loosen or remove the large nut in the center of the coil assembly! [FIGURE 4]

**7.** Install the ICON coilover. This may require you to pry downward on the lower arm to get the rod end into the lower control arm pocket.

**8.** Mount the top of the coilover to the frame using (3) bolts and washers from the (611019) hardware kit. Rotate the charge port of the shock outward and forward 30 degrees so that the correct set of threaded holes aligns with the coil bucket. Fasten using a 9/16". [Torque to 30 ft-lbs] [FIGURE 5]



FIG.5



FIG.6

**9.** Mount the bar pin to the lower control arm: Confirm that the nut on the bar pin is facing forward. Use the supplied (611052) hardware kit to install the 7/16" bolts and washers up through the arm and into the bar pin. There are two washers per bolt, the heavy black washer goes against the arm and the standard washer goes against the head of the bolt. Start the bolts, slide the bottom of the coilover as far forward as you can in the pocket and then tighten with a 5/8" socket wrench. [Torque to 50 ft-lbs] [FIGURE 6]

**10.** Position the reservoir on the reservoir bracket against the frame to find the mounting hole location. Mark the hole position for drilling. [FIGURE 7]

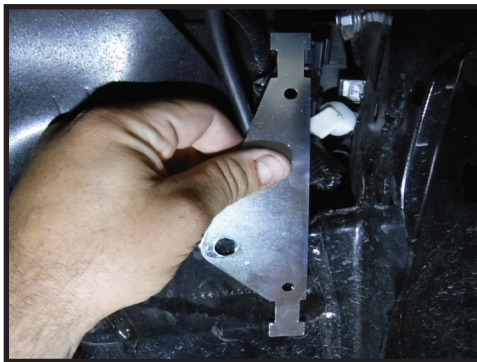


FIG.7



FIG.8

**11.** Use an 11/32" drill bit to drill a hole in the position indicated. [FIGURE 8]

**12.** Using the supplied 3/8" self tapping screws and a 9/16" socket, tighten the screws to form threads in the hole. After the hole is fully threaded, remove the screw. [FIGURE 9]

FIG.9



**13.** Mount the reservoir bracket using the self-tapping screw and a 9/16".

**14.** Mount the reservoir to the bracket using the supplied hose clamps and a 5/16". [FIGURE 10 & 11]

FIG.10



FIG.11



**15.** Refer to the appropriate ICON UCA instructions and follow directions for installation.

**16.** Connect the tie rod to the spindle using an 18mm. [Torque to factory spec]

**17.** To fit ICON's recommended tire size, the frame horn extension must be removed. Although the bars are easily unbolted they can not slide out of the mounts without contacting the body. Therefore, it is necessary to cut the bars and remove them in 2 pieces. Using a sawzall or cutting disc cut the tubes as shown. Unbolt and remove the remaining inner pieces. [FIGURE 12 & 13]

FIG.12



FIG.13



**18.** Repeat steps for opposite side.

**19.** Install the front wheels and lower the vehicle to the ground. [Torque lugs to factory spec]

**20.** Have the vehicle professionally aligned.

**VERIFY ALL FASTENERS ARE PROPERLY TORQUED BEFORE DRIVING VEHICLE.  
RETORQUE ALL NUTS, BOLTS AND LUGS AFTER 100 MILES AND PERIODICALLY THEREAFTER.**

## 2.5 VS SERIES SHOCK & COILOVER TECHNICAL INFORMATION

### MAINTENANCE

ICON shock absorbers are a high quality rebuildable race style shock absorber designed for optimal performance. With a unit of this caliber on your vehicle, routine maintenance is required to keep them looking and operating in like new condition. Residual oil and assembly lube may be present at all seal paths from the factory out of the box and is considered normal. Pooling of oil however is not acceptable at any time and one should contact the ICON dealer where purchased.

**BELOW ARE GUIDELINES BASED ON HOW YOU USE YOUR VEHICLE BUT YOUR MILEAGE MAY VARY:**

#### **STREET USE:**

- Send in for factory servicing every 40,000 miles or if a leak develops, ride quality decreases, or they begin to make excessive noise.
- Remove any buildup of road salt, mud, or debris from shocks and coil springs anytime accrued
- Clean with mild soap and water with each oil change or anytime you notice build up.
- Wax the cylinders yearly with automotive wax to prevent corrosion.
- Check nitrogen pressure yearly. (252004 charge needle assembly available at any ICON distributor)
- Check bearings for excessive wear yearly.
- DO NOT apply any type of lube to the upper and lower bearings.

#### **STREET/DIRT:**

- Send in for factory servicing every 15,000 miles or if a leak develops, ride quality decreases, or they begin to make excessive noise.
- Clean with mild soap and water with each oil change, offroad trip, or anytime you notice build up.
- Wax the cylinders yearly with automotive wax to prevent corrosion.
- Check nitrogen pressure each dirt outing. (252004 charge needle assembly available at any ICON distributor)
- Check bearings for excessive wear yearly.
- DO NOT apply any type of lube to the upper and lower bearings.

#### **DIRT USE:**

- Send in for factory servicing every 1,000 miles.
- Check nitrogen pressure each outing. (252004 charge needle assembly available at any ICON distributor)
- Remove any buildup of mud or debris from shocks and coil springs after every outing.

#### **SELF-SERVICE:**

- Contact ICON for service kits & tools at (951) 689-4266.

### PRODUCT REGISTRATION

Please visit: <http://www.iconvehicledynamics.com/tech-support/registration/> to register your product.

### ICON VEHICLE DYNAMICS SHOCK ABSORBER WARRANTY

This shock absorber has a 1 year warranty against any manufacturer's defects. If a shock fails within the initial year of ownership, the shock must be shipped to ICON Vehicle Dynamics for inspection and service. If a shock is inspected and it has been determined the shock failed due to neglect, damage caused by improper installation or any other reason besides "normal wear and tear", the owner of said shock is responsible for all service costs. This includes labor, parts, and shipping.

ICON Vehicle Dynamics warrants to the original retail purchaser who owns the vehicle on which the product was originally installed. ICON Vehicle Dynamics does not warrant the product for finish, alterations, modifications and/or installation contrary to ICON Vehicle Dynamics instructions. ICON Vehicle Dynamics products are not designed, nor are they intended to be installed on vehicles used in race applications, for racing purposes or for similar activities. (A "race" is defined as any contest between two or more vehicles, or a contest of one or more vehicles against the clock, whether or not such contest is for a prize). This warranty does not include coverage for police or taxi vehicles, race vehicles, or vehicles used for government or commercial purposes. Also excluded from this warranty are sales outside of the United States of America and Canada.

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ICON Vehicle Dynamics components must be installed as a complete kit as shown in our current application guide. Any substitutions or exemptions of required components will immediately void the warranty. Some finish damage may happen to parts during shipping and is not covered under warranty.

This warranty is expressly in lieu of all other warranties expressed or implied. This warranty shall not apply to any product that has been improperly installed, modified or customized subject to accident, negligence, abuse or misuse.

To send a shock in for warranty please visit our website <http://www.iconvehicledynamics.com/tech-support/shock-service/>



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PART #	DESCRIPTION
97730P	19-UP FORD RANGER REAR 2.5 PIGGYBACK RESERVOIR SHOCKS

COMPONENTS INCLUDED	
(2) 194932 19-UP RANGER REAR 2.5 PIGGYBACK RESERVOIR	(4) 198400 19-UP RANGER OVERLOAD CONTACT PAD
TOOLS REQUIRED	
FLOOR JACK JACK STANDS	TORQUE WRENCH 15MM SOCKET / WRENCH
TECH NOTES	
1. YOUR ICON SHOCK ASSEMBLIES COME FACTORY CHARGED TO 250 PSI. RELEASING NITROGEN PRESSURE MAY LEAD TO SHOCK MALFUNCTION AND REDUCED RIDE QUALITY. FAILURE CAUSED BY LOW NITROGEN PRESSURE IS NOT COVERED UNDER ICON'S WARRANTY POLICY.	



**WARNING!**

**\*\* READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION! IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED SEVERE FRAME, SUSPENSION AND TIRE DAMAGE MAY RESULT TO THE VEHICLE!**

**\*\* ICON VEHICLE DYNAMICS RECOMMENDS THAT YOU EXERCISE EXTREME CAUTION WHEN WORKING UNDER A VEHICLE THAT IS SUPPORTED WITH JACK STANDS.**

**\*\* ICON VEHICLE DYNAMICS RECOMMENDS ALL INSTALLATION TO BE PERFORMED BY A PROFESSIONAL SHOP/SERVICE TECHNICIAN. PRODUCT FAILURE CAUSED BY IMPROPER INSTALLATION WILL NOT BE COVERED UNDER ICON'S WARRANTY POLICY.**

**INSTALLATION**

1. Using a properly rated jack, raise the back of the vehicle and support the frame rails with jack stands. Ensure the jack stands are secure and set properly before lowering the jack. NEVER WORK UNDER AN UNSUPPORTED VEHICLE.
2. Remove the factory rear shock using a 15mm socket/wrench.
3. Install the rod end of the ICON shock in the upper mount. [FIGURE 1]

FIG.1



**4.** Install the ICON shock in the lower mount. Make sure the reservoir is inboard and slightly toward the differential as shown. Firmly pull down on the differential enough to line up the shock with the lower mounting hole and start the bolt. Make sure the nuts are properly retained in the sheet metal retainers. When tightening the lower shock bolt, push up on the shock as much as possible to prevent contact with the mounting tabs. Slight sanding of the mounting tabs may be necessary. Torque upper and lower shock bolts to factory spec using a 15mm. [FIGURE 2] & [FIGURE 3]

FIG.2



FIG.3



**5.** Replace the overload leaf spring contact pads. Pop out the existing rubber tip contact pads located on both ends of the overload leaf. Press in the supplied low profile tip contact pads. This will allow the overload to engage further into the travel of the suspension, improving the ride and performance while reducing rear spring kick.

***VERIFY ALL FASTENERS ARE PROPERLY TORQUED BEFORE DRIVING VEHICLE.***

***RETORQUE ALL NUTS, BOLTS AND LUGS AFTER 100 MILES AND PERIODICALLY THEREAFTER.***

## 2.5 VS SERIES SHOCK & COILOVER TECHNICAL INFORMATION

### MAINTENANCE

ICON shock absorbers are a high quality rebuildable race style shock absorber designed for optimal performance. With a unit of this caliber on your vehicle, routine maintenance is required to keep them looking and operating in like new condition. Residual oil and assembly lube may be present at all seal paths from the factory out of the box and is considered normal. Pooling of oil however is not acceptable at any time and one should contact the ICON dealer where purchased.

**BELOW ARE GUIDELINES BASED ON HOW YOU USE YOUR VEHICLE BUT YOUR MILEAGE MAY VARY:**

#### **STREET USE:**

- Send in for factory servicing every 40,000 miles or if a leak develops, ride quality decreases, or they begin to make excessive noise.
- Remove any buildup of road salt, mud, or debris from shocks and coil springs anytime accrued
- Clean with mild soap and water with each oil change or anytime you notice build up.
- Wax the cylinders yearly with automotive wax to prevent corrosion.
- Check nitrogen pressure yearly. (252004 charge needle assembly available at any ICON distributor)
- Check bearings for excessive wear yearly.
- DO NOT apply any type of lube to the upper and lower bearings.

#### **STREET/DIRT:**

- Send in for factory servicing every 15,000 miles or if a leak develops, ride quality decreases, or they begin to make excessive noise.
- Clean with mild soap and water with each oil change, offroad trip, or anytime you notice build up.
- Wax the cylinders yearly with automotive wax to prevent corrosion.
- Check nitrogen pressure each dirt outing. (252004 charge needle assembly available at any ICON distributor)
- Check bearings for excessive wear yearly.
- DO NOT apply any type of lube to the upper and lower bearings.

#### **DIRT USE:**

- Send in for factory servicing every 1,000 miles.
- Check nitrogen pressure each outing. (252004 charge needle assembly available at any ICON distributor)
- Remove any buildup of mud or debris from shocks and coil springs after every outing.

#### **SELF-SERVICE:**

- Contact ICON for service kits & tools at (951) 689-4266.

### PRODUCT REGISTRATION

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### ICON VEHICLE DYNAMICS SHOCK ABSORBER WARRANTY

This shock absorber has a 1 year warranty against any manufacturer's defects. If a shock fails within the initial year of ownership, the shock must be shipped to ICON Vehicle Dynamics for inspection and service. If a shock is inspected and it has been determined the shock failed due to neglect, damage caused by improper installation or any other reason besides "normal wear and tear", the owner of said shock is responsible for all service costs. This includes labor, parts, and shipping.

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To send a shock in for warranty please visit our website <http://www.iconvehicledynamics.com/tech-support/shock-service/>



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PART #	DESCRIPTION
98510DJ	2019-UP FORD RANGER TUBULAR UCA DJ KIT

COMPONENTS INCLUDED	
(1) 194604 19+ RANGER TUBULAR UCA (DRVR) (1) 194605 19+ RANGER TUBULAR UCA (PASS)	(2) 194606 19+ RANGER TUBULAR UCA BUCKET BRACKET
HARDWARE INCLUDED	
(2) 177200BJ DELTA JOINT (4) 179106 SLEEVE 1.000 X .563 X 2.440	(8) 297034 HAT BUSHING 1.625 X 1.000 X .850 (4) 297042 POLY RING 1.590 X 1.005 X .450
TOOLS REQUIRED	
JACK JACK STANDS TORQUE WRENCH FLATHEAD SCREWDRIVER	5/16" SOCKET / WRENCH 18MM SOCKET / WRENCH 21MM SOCKET / WRENCH
TECH NOTES	
<p>1. ICON RECOMMENDS OPTIONAL BILLET DUST COVER SET (191011) TO PREVENT DEBRIS FROM PACKING UP AROUND THE ZERK FITTING.</p> <p>2. ALL ICON UPPER CONTROL ARMS HAVE BEEN ENGINEERED TO ALLOW FOR THE MOST POSSIBLE CASTER, WHILE STILL ALLOWING THE VEHICLE TO BE PROPERLY ALIGNED. NOTIFY YOUR PROFESSIONAL ALIGNMENT SHOP OF THIS INFORMATION SO THAT MAXIMUM RIDE QUALITY CAN BE ACHIEVED.</p> <p>3. ICON DELTA JOINTS ARE PRE-GREASED FROM THE FACTORY. ICON RECOMMENDS GREASING THE DELTA JOINT EVERY 3,000 MILES (OR EVERY OIL CHANGE). ADD NEW GREASE UNTIL ALL OF THE OLD GREASE IS EXPELLED FROM THE BOTTOM OF THE DELTA JOINT ASSEMBLY, WIPE AWAY EXCESS WITH A RAG OR SHOP TOWEL.</p>	



WARNING!
<p>** READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION! IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED SEVERE FRAME, SUSPENSION AND TIRE DAMAGE MAY RESULT TO THE VEHICLE!</p> <p>** ICON VEHICLE DYNAMICS RECOMMENDS THAT YOU EXERCISE EXTREME CAUTION WHEN WORKING UNDER A VEHICLE THAT IS SUPPORTED WITH JACK STANDS.</p> <p>** ICON VEHICLE DYNAMICS RECOMMENDS ALL INSTALLATION TO BE PERFORMED BY A PROFESSIONAL SHOP/SERVICE TECHNICIAN. PRODUCT FAILURE CAUSED BY IMPROPER INSTALLATION WILL NOT BE COVERED UNDER ICON'S WARRANTY POLICY.</p>

## INSTALLATION

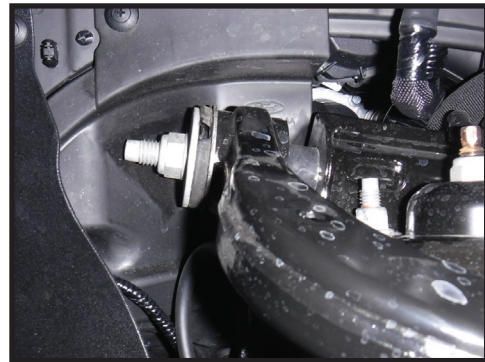
1. Using a properly rated jack, raise the front of the vehicle and support the frame rails with jack stands. Ensure the jack stands are secure and set properly before lowering the jack. NEVER WORK UNDER AN UNSUPPORTED VEHICLE. Remove the front wheels.

2. Carefully pull the ABS wire retainers from the UCA. [FIGURE 1]

FIG.1



FIG.2



3. Remove the nut from the pivot bolt using an 18mm on the bolt head and 21mm on the nut. [FIGURE 2]

**4.** Disconnect the UCA from the spindle using an 18mm. Loosen the nut to the end of the shank but do not remove entirely so that the nut protects the threads. Dislodge the taper by either using a ball joint separator or by striking the spindle on the outside of the taper with a large hammer or hand sledge. [FIGURE 3]

FIG.3



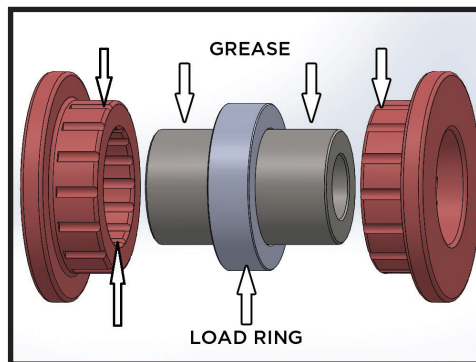
**5.** Separate the UCA from the spindle and support the spindle so that it does not overextend the CV joints when detached.

**6.** Slide the pivot bolt out from the back of the UCA and remove the assembly from the vehicle.

**7.** Slide the UCA bucket bracket over the UCA frame mount. The cutout should be toward the motor. On the driver side, there are ground wires that will contact the UCA bucket bracket. To protect the wires, use the supplied hose protectors (PN: 258202) and zip-ties on the wires.

**8.** Before installing the new ICON upper control arms, care must be taken to grease the bushings prior to installing the assembly. Failure to grease properly will cause premature bushing wear and increased noise. [FIGURE 4]

FIG.4



**9.** Install the supplied zerk fittings using a 5/16". Do not overtighten.

**10.** Install the ICON UCA. Hold the UCA in position and slide the frame bolt in from the back of the UCA. Make sure that the supplied washers are placed on the outside face (outer front and outer rear) of the hat bushings. Install the nut and tighten using an 18mm and 21mm. [Torque to factory spec]

**11.** Pivot the Delta Joint stem so that it is inline with the taper bore in the spindle. The new Delta Joint will be very stiff the first time you move it. Rotate the upper control arm downward and install the stem through the spindle taper. Install TWO washers per side with the supplied flanged nut on the taper pin. Connect the UCA to the spindle using an 18mm. [Torque to 60 ft-lbs]

**12.** Connect the ABS lines to the UCA.

**13.** Repeat steps on opposite side.

**14.** Reinstall wheels and carefully lower vehicle to the ground. [Torque lugs to factory spec]

**15.** Have the vehicle professionally aligned.

**VERIFY ALL FASTENERS ARE PROPERLY TORQUED BEFORE DRIVING VEHICLE.**

**RETORQUE ALL NUTS, BOLTS AND LUGS AFTER 100 MILES AND PERIODICALLY THEREAFTER.**

#### ALIGNMENT NOTE

A MAJOR PERFORMANCE ADVANTAGE OF ALL ICON UPPER CONTROL ARMS IS INCREASED CASTER OVER STOCK. DISCUSS WITH A PROFESSIONAL ALIGNMENT SHOP THAT YOU WANT THE VEHICLE ALIGNED WITH THE CASTER AT THE MAX OF THE FACTORY RECOMMENDED SETTINGS IF YOU WANT TO TAKE ADVANTAGE OF THE DYNAMIC EFFECTS OF INCREASED CASTER.



### **ICON VEHICLE DYNAMICS LIMITED LIFETIME WARRANTY**

ICON Vehicle Dynamics warrants to the original retail purchaser who owns the vehicle on which the product was originally installed. ICON Vehicle Dynamics does not warrant the product for finish, alterations, modifications and/or installation contrary to ICON Vehicle Dynamics instructions. ICON Vehicle Dynamics products are not designed, nor are they intended to be installed on vehicles used in race applications, for racing purposes or for similar activities. (A "race" is defined as any contest between two or more vehicles, or a contest of one or more vehicles against the clock, whether or not such contest is for a prize). This warranty does not include coverage for police or taxi vehicles, race vehicles, or vehicles used for government or commercial purposes. Also excluded from this warranty are sales outside of the United States of America and Canada.

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ICON Vehicle Dynamics components must be installed as a complete kit as shown in our current application guide. Any substitutions or exemptions of required components will immediately void the warranty. Some finish damage may happen to parts during shipping and is not covered under warranty.

This warranty is expressly in lieu of all other warranties expressed or implied. This warranty shall not apply to any product that has been improperly installed, modified or customized subject to accident, negligence, abuse or misuse.



**ICON VEHICLE DYNAMICS®**  
PERFORMANCE SUSPENSION SYSTEMS AND SHOCK ABSORBERS

7929 Lincoln Ave. Riverside, CA 92504 Phone: 951.689.ICON Fax: 951.689.1016  
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PART #	DESCRIPTION
191205	UNIVERSAL FOAM BUMP STOP KIT

COMPONENTS INCLUDED	
(2) 255150 UNIVERSAL FOAM BUMP STOP	(2) 297052 UNIVERSAL BUMP STOP CUP
HARDWARE INCLUDED	
(2) 605144 3/8-12 X .750 FLANGED SELF TAP BOLT	
TOOLS REQUIRED	
TOOLS REQUIRED WILL VARY DEPENDING ON APPLICATION	
TECH NOTES	
<p>1. THIS IS A UNIVERSAL BUMP STOP KIT. THE INSTALLER IS RESPONSIBLE FOR PROPER MOUNTING OF THESE COMPONENTS. ICON RECOMMENDS CYCLING THE SUSPENSION TO ENSURE PROPER FITMENT OF THIS KIT.</p>	



**WARNING!**

**\*\* READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION! IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED SEVERE FRAME, SUSPENSION AND TIRE DAMAGE MAY RESULT TO THE VEHICLE!**

**\*\* ICON VEHICLE DYNAMICS RECOMMENDS THAT YOU EXERCISE EXTREME CAUTION WHEN WORKING UNDER A VEHICLE THAT IS SUPPORTED WITH JACK STANDS.**

**\*\* ICON VEHICLE DYNAMICS RECOMMENDS ALL INSTALLATION TO BE PERFORMED BY A PROFESSIONAL SHOP/SERVICE TECHNICIAN. PRODUCT FAILURE CAUSED BY IMPROPER INSTALLATION WILL NOT BE COVERED UNDER ICON'S WARRANTY POLICY.**

## INSTALLATION

1. Remove factory bump stop from factory bump stop cup. [FIGURE 1 & 2]

FIG.1

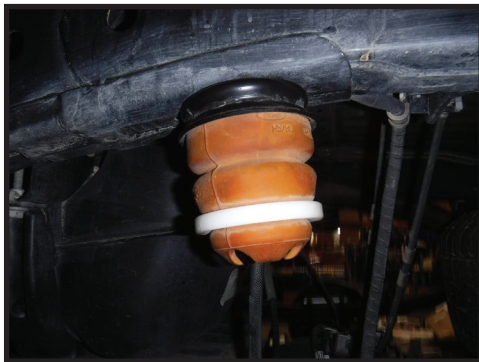


FIG.2



2. Using appropriate tools, remove the factory BUMP STOP cup by removing the center bolt.

3. Using the factory bolt, fasten the Bump Cup (PN: 297052). [FIGURE 3 & 4] [Torque to factory spec]

FIG.3

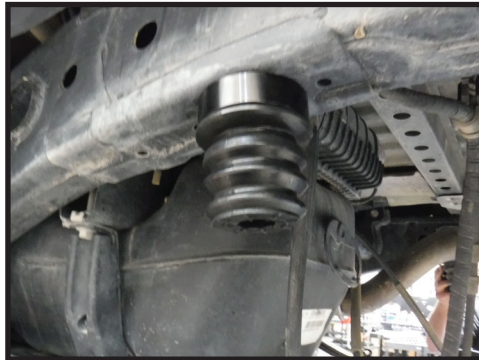


FIG.4



4. Snap the bump stop into the bump cup as shown. [FIGURE 5]

FIG.5



***VERIFY ALL FASTENERS ARE PROPERLY TORQUED BEFORE DRIVING VEHICLE.***

***RETORQUE ALL NUTS, BOLTS AND LUGS AFTER 100 MILES AND PERIODICALLY THEREAFTER.***

### ***ICON VEHICLE DYNAMICS LIMITED LIFETIME WARRANTY***

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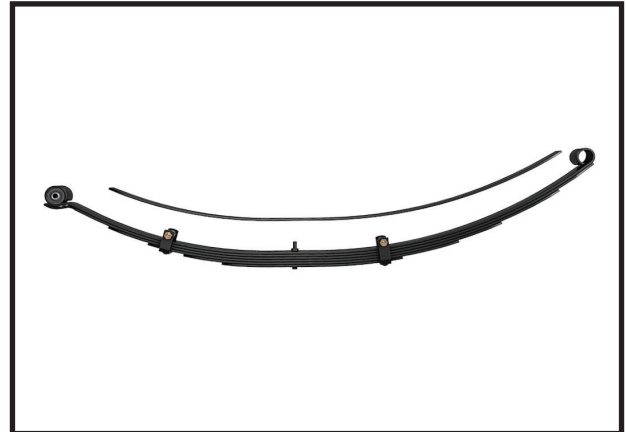
ICON Vehicle Dynamics components must be installed as a complete kit as shown in our current application guide. Any substitutions or exemptions of required components will immediately void the warranty. Some finish damage may happen to parts during shipping and is not covered under warranty.

This warranty is expressly in lieu of all other warranties expressed or implied. This warranty shall not apply to any product that has been improperly installed, modified or customized subject to accident, negligence, abuse or misuse.

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PART #	DESCRIPTION
198520A	19-UP RANGER MULTI-RATE LEAF SPRING W/ADD IN LEAF

COMPONENTS REQUIRED	
(1) 91200H 19-UP RANGER MULTI RATE LEAF PACK U-BOLT KIT	(2) 198520 19-UP RANGER MULTI RATE LEAF PACK
HARDWARE INCLUDED	
N/A	
TOOLS REQUIRED	
FLOOR JACK JACK STANDS TORQUE WRENCH 9/16" SOCKET / WRENCH 7/8" SOCKET / WRENCH	15MM SOCKET / WRENCH 18MM SOCKET / WRENCH 19MM SOCKET / WRENCH 21MM SOCKET / WRENCH
TECH NOTES	
<p>1. ICON MULTI-RATE LEAF SPRING KIT REQUIRES HARDWARE KIT (91200H) FOR INSTALLATION.</p> <p>2. THE ICON MULTI-RATE LEAF SPRING IS MODULAR, MEANING THAT YOU CAN CONFIGURE THE SPRING PACK TO YOUR DESIRED SETTING FROM THESE AVAILABLE OPTIONS:</p> <p>OPTION #1 - THE SPRING IS SHIPPED AT THIS SETTING (LIGHTEST SPRING RATE). OPTION #1 IS RECOMMENDED FOR CONSTANT LOADS FROM 0-250LBS.</p> <p>OPTION #2 - REPLACE THE 3RD SPRING (COUNTING FROM THE TOP DOWN) WITH THE ADDITIONAL LEAF. OPTION #2 IS RECOMMENDED FOR CONSTANT LOADS FROM 250-500LBS.</p> <p>OPTION #3 - PLACE THE ADDITIONAL LEAF BETWEEN THE 2ND AND 3RD SPRING (COUNTING FROM THE TOP DOWN). DO NOT REMOVE LEAF FROM SPRING PACK. OPTION #3 IS RECOMMENDED FOR CONSTANT LOADS FROM 500-750LBS.</p> <p>ICON'S MEASURED SPECS FROM OUR TEST TRUCK (2019 4WD CREW CAB RANGER):</p> <p>OPTION #1 - LIFT HEIGHT OVER STOCK: + .375" (UNLOADED)</p> <p>OPTION #2 - LIFT HEIGHT OVER STOCK + 1.125" (UNLOADED) LIFT HEIGHT OVER STOCK WITH 350LBS IN BED: 0"</p> <p>OPTION #3 - LIFT HEIGHT OVER STOCK: + 2.00" (UNLOADED) LIFT HEIGHT OVER STOCK WITH 600LBS IN BED: 0"</p>	



WARNING!
<p>** READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION! IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED SEVERE FRAME, SUSPENSION AND TIRE DAMAGE MAY RESULT TO THE VEHICLE!</p> <p>** ICON VEHICLE DYNAMICS RECOMMENDS THAT YOU EXERCISE EXTREME CAUTION WHEN WORKING UNDER A VEHICLE THAT IS SUPPORTED WITH JACK STANDS.</p> <p>** ICON VEHICLE DYNAMICS RECOMMENDS ALL INSTALLATION TO BE PERFORMED BY A PROFESSIONAL SHOP/SERVICE TECHNICIAN. PRODUCT FAILURE CAUSED BY IMPROPER INSTALLATION WILL NOT BE COVERED UNDER ICON'S WARRANTY POLICY.</p>

## INSTALLATION

- Using a properly rated jack, raise the rear of the vehicle and support the frame rails with jack stands. Ensure the jack stands are secure and set properly before lowering the jack. NEVER WORK UNDER AN UNSUPPORTED VEHICLE. Remove the rear wheels.
- With a floor jack under the rear end, slightly raise the rear axle housing from full droop to remove tension from the shock, loosen and remove the shocks using a 15mm and 18mm. Make sure the axle is well supported. Keep all of the hardware, it will be reused.
- Slowly lower the axle to unload the tension from the leaf spring. When the axle reaches full droop on the leaf springs, raise the rear end back up about 1" to relieve any negative pressure in the spring and to insure that the axle weight is being supported by the jack.
- Replace one side at a time so that the other side helps maintain pinion angle and prevents the drive shaft from pulling out. However, loosening the U-bolts slightly on both sides during the installation process reduces bind and aids in the installation.
- Starting on the driver's side, remove the U-bolts and lower U-bolt plate. Lower the axle slightly to disengage the center pins from the axle pad. Remove the shim that is under the driver side leaf pack but do not discard, this will be used later.
- Using a 19mm, remove the upper and lower shackle nuts. Remove the outer shackle side plate.
- CAUTION! This is a heavy assembly, take care when removing the bolts and use a helper if possible. Remove the front spring bolt and slide the spring off of the shackle stud. Remove the spring from the vehicle.
- Transfer the OE bushing hats from the rear eyelet to the ICON spring. Check the hat bushings for wear or damage and replace if necessary.

9. Install the ICON spring; Again, it is heavy so a helper is highly recommended. Install the front spring bolt first. [FIGURE 1]

FIG.1

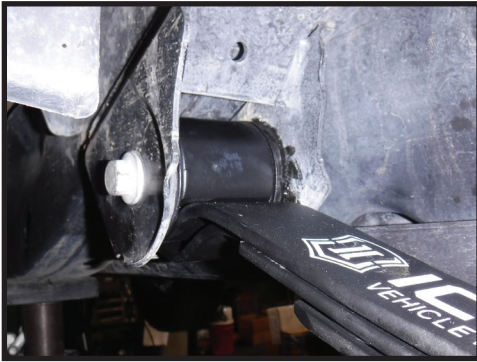


FIG.2



10. Slide the rear eyelet and hat bushings over the shackle stud. It may be helpful to pull down slightly on the back of the spring to effectively lengthen it enough to slide onto the shackle. [FIGURE 2]

**READ BEFORE INSTALLING SPRING!**

Configure the spring pack as desired from the available options: You can either install the spring as delivered, replace the #3 leaf (counting from the top down) with the additional leaf, or add the additional leaf between spring #2 and #3. Please refer to the infographic included in this instruction manual.

**OPTION #1**

Option #1: Standard (as delivered) = 35% softer rate than stock. (+.375" lift over stock unloaded)

Option #1: 6 leaves

**OPTION #2**

Option #2: Remove and replace leaf #3 with the included additional leaf = 32% softer rate than stock. (+1.125" lift over stock unloaded)

Option #2: 350lbs in bed brings it to approx 0" lift

Option #2: 6 leafs

**OPTION #3**

Option #3: Do not remove any leaves and install the additional leaf between spring #2 and spring #3 = 22% softer rate than stock. (+2.00" lift over stock unloaded)

Option #3: 250lbs in bed brings it to approx 1.125" lift OR 600lbs in bed brings it to approx 0" lift

Option #3: 7 leafs

**RECOMMENDATIONS:**

Option #1: Recommended for constant loads from 0-250lbs.

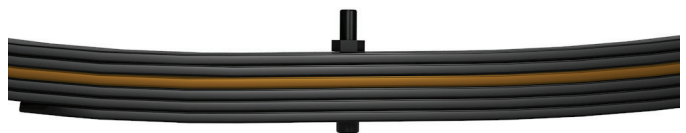
Option #2: Recommended for constant loads from 250-500lbs.

Option #3: Recommended for constant loads from 500-750lbs.

11. Remove the cross bolts and sleeves from the spring retainers using a 9/16".

12. Counting from the top down(with spring upright), you can either replace the 3rd spring with the add-a-leaf or leave the existing spring installed and make the add-a-leaf the new 3rd spring. [FIGURE 3]

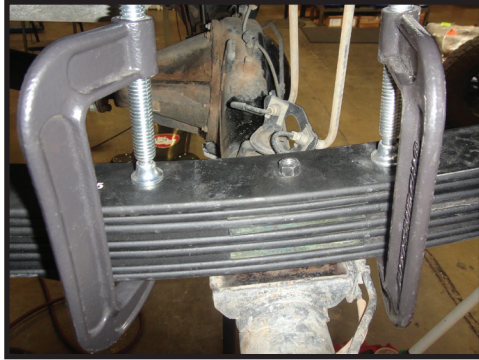
FIG.3



**13.** Add or replace the additional leaf and additional separator plate to the pack. Be sure the plastic pads in the spring tips are in place. Line up all the holes and put the new center pins through the pack. The center pins are fine thread, use care not to damage the threads on assembly.

**14.** Put the bottom half of the pack back in the vehicle guiding the center pins up through the upper 3 leaves. A long drift punch helps to align the holes. It may be helpful to loosen the 2 C-clamps slightly on the front and rear to help shift all leaves into position. Use a large C-clamp near the middle to pull everything together until you can get the nuts started on the center pin. [FIGURE 4]

FIG.4



**15.** Tighten the center pins to 25 ft-lbs. Reinstall the cross bolts and sleeves in the retainer clips. Make sure the bolt go from the inside out with the head toward the frame for clearance. Trim the center pins: Cut off the excess thread 2-3 threads above the nut on the center pins.

**16.** Connect the cross bolts and sleeves to the spring retainers using a 9/16". Do not over tighten!.

**ONCE SPRING IS SET TO DESIRED CONFIGURATION:**

**17.** Position the U-Bolt plate over the center pin on top of the spring. Place the U-bolts over the plate. [FIGURE 5]

FIG.5



**18.** Install the factory leaf spring shim between the spring and the axle pad on the driver side.

**19.** Raise the axle up to the spring and align the center pins in the spring pad. Place the U-bolt plate on top of the leaf pack. Install the U-bolts using the openings in the spring plate to locate them correctly. Install the factory lower spring plate, washers and nuts.

**20.** Take up the slack in the U-bolts but do not tighten them yet.

**21.** Repeat steps on opposite side.

**22.** Using a jack, raise the axle enough to reinstall the shocks. Connect the shocks using a 15mm and 18mm. [Torque to factory spec] [FIGURE 6]

FIG.6



**23.** Tighten the U-bolts until they are snug but do not torque them yet. Final torque will be set with the vehicle on the ground.

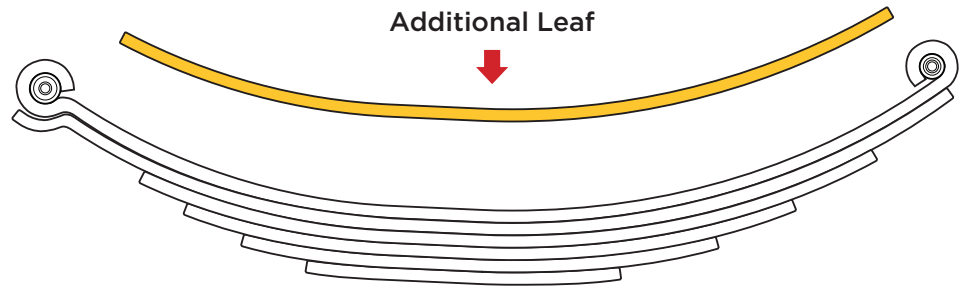
**24.** Reinstall the tires and lower the vehicle to the ground. [Torque U-bolts to 90 ft-lbs]

# MULTI-RATE LEAF SPRING RATE CHANGE OPTIONS

(General application for all models. Refer to these instructions for specific rates)

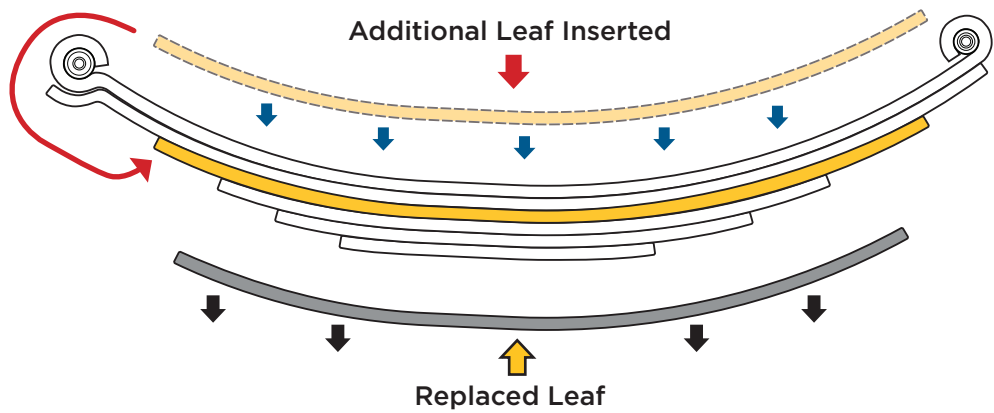
## OPTION 1

ADDITIONAL  
LEAF  
NOT USED



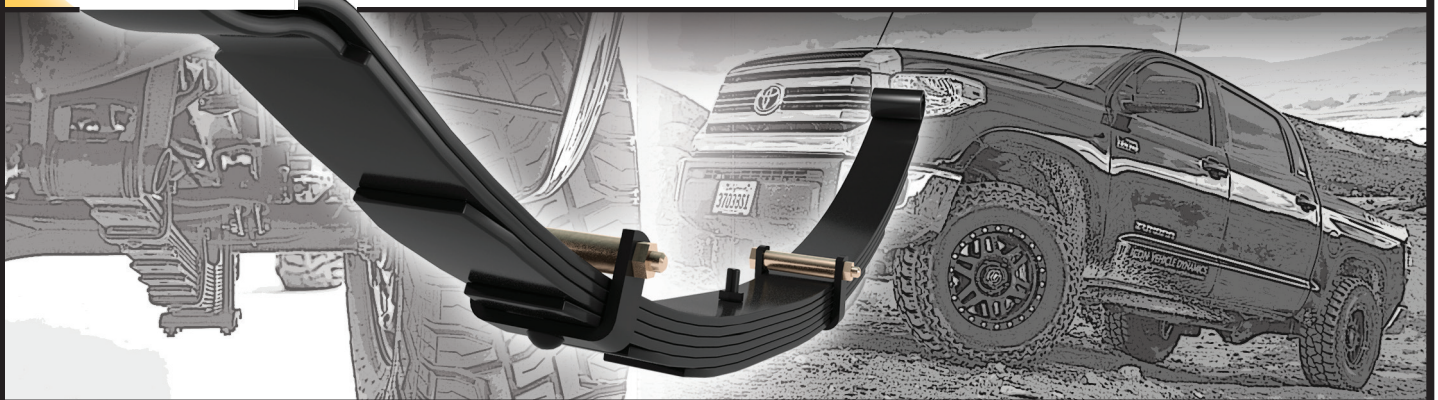
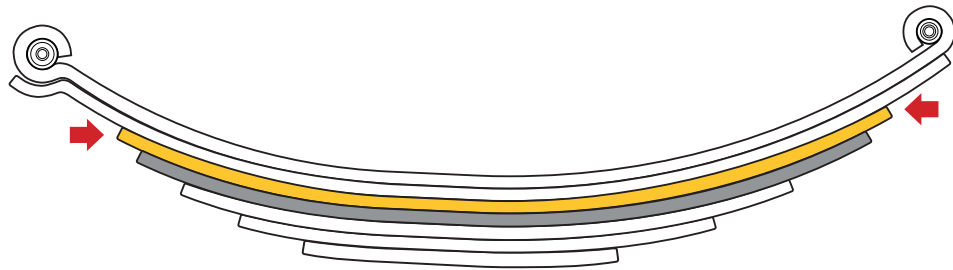
## OPTION 2

ADDITIONAL  
LEAF  
REPLACES  
LEAF



## OPTION 3

ADDITIONAL  
LEAF ADDED  
TO PACK



VERIFY ALL FASTENERS ARE PROPERLY TORQUED BEFORE DRIVING VEHICLE.  
RETORQUE ALL NUTS, BOLTS AND LUGS AFTER 100 MILES AND PERIODICALLY THEREAFTER.



## 2019-UP FORD RANGER MULTI-RATE LEAF SPRING

### OPTION 1

### AS SHIPPED

INSTALL SPRING IN ORIGINAL  
CONFIGURATION, LEAVING  
ADDITIONAL LEAF OUT

LIFT HEIGHT OVER STOCK:  
**.375"**  
(UNLOADED)



### OPTION 2

### LEAF REPLACEMENT

REPLACE THE 3RD SPRING IN THE  
PACK WITH THE ADDITIONAL LEAF  
PROVIDED IN KIT

LIFT HEIGHT OVER STOCK:  
**1.125"**  
(UNLOADED)

**0"**

(350LB LOAD)



### OPTION 3

### LEAF ADDITION

ADD THE ADDITIONAL LEAF  
PROVIDED TO THE PACK, IN  
BETWEEN THE 2ND  
AND 3RD SPRING

LIFT HEIGHT OVER STOCK:  
**2.00"**  
(UNLOADED)

**0"**

(600LB LOAD)



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