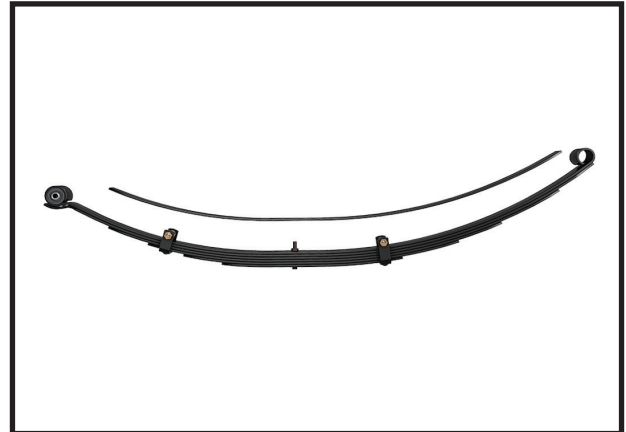


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PART #	DESCRIPTION
198520A	19-UP RANGER MULTI-RATE LEAF SPRING W/ADD IN LEAF

COMPONENTS INCLUDED	
(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.

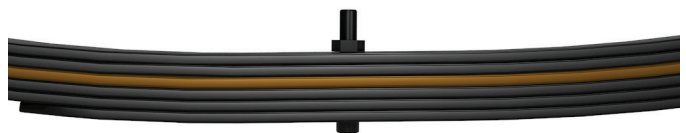
Option #2: Recommended for constant loads from 250-500lbs.

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]

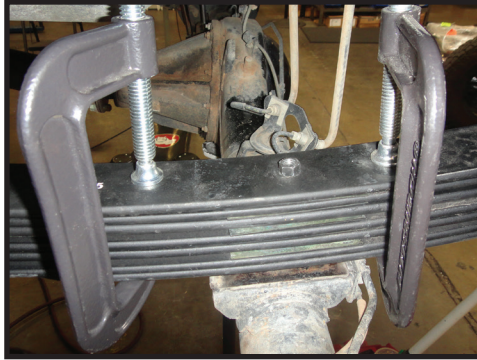
FIG.3



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]

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)



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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