
RCS
Renton Coil Spring
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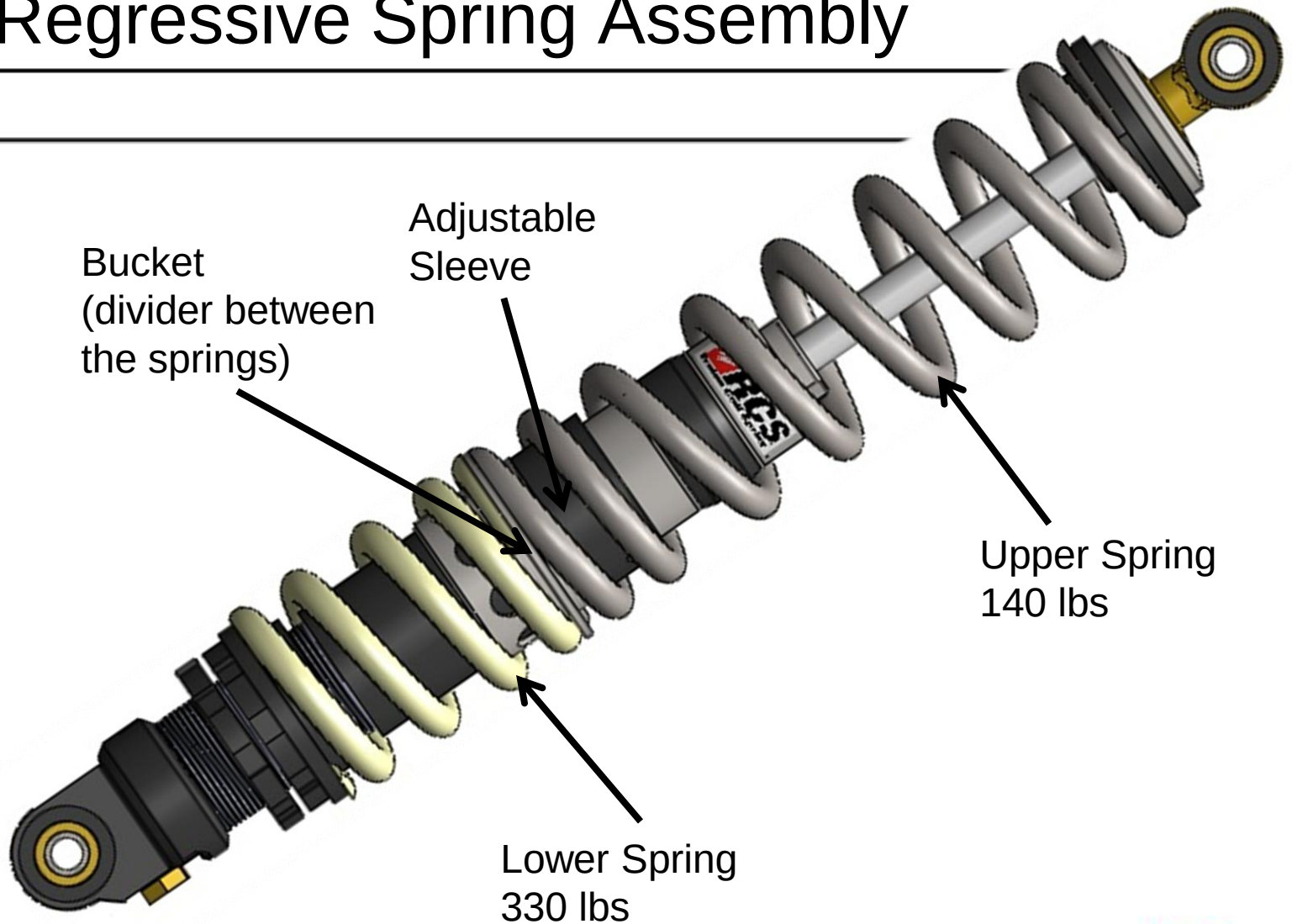
Regressive Spring Assembly



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Spring Rate

Because the springs are arranged in series, the effective spring rate K_{EFF} is:

$$K_{eff} = (1/K_1 + 1/K_2)^{-1}$$

Thus, when two springs are active rather than one, the spring rate is always lower than that of either spring by itself.

Example:
K_1 = 100 lbs/in
K_2 = 200 lbs/in
$K_{eff} = (1/100 + 1/200)^{-1} = 66.7$ lbs/in

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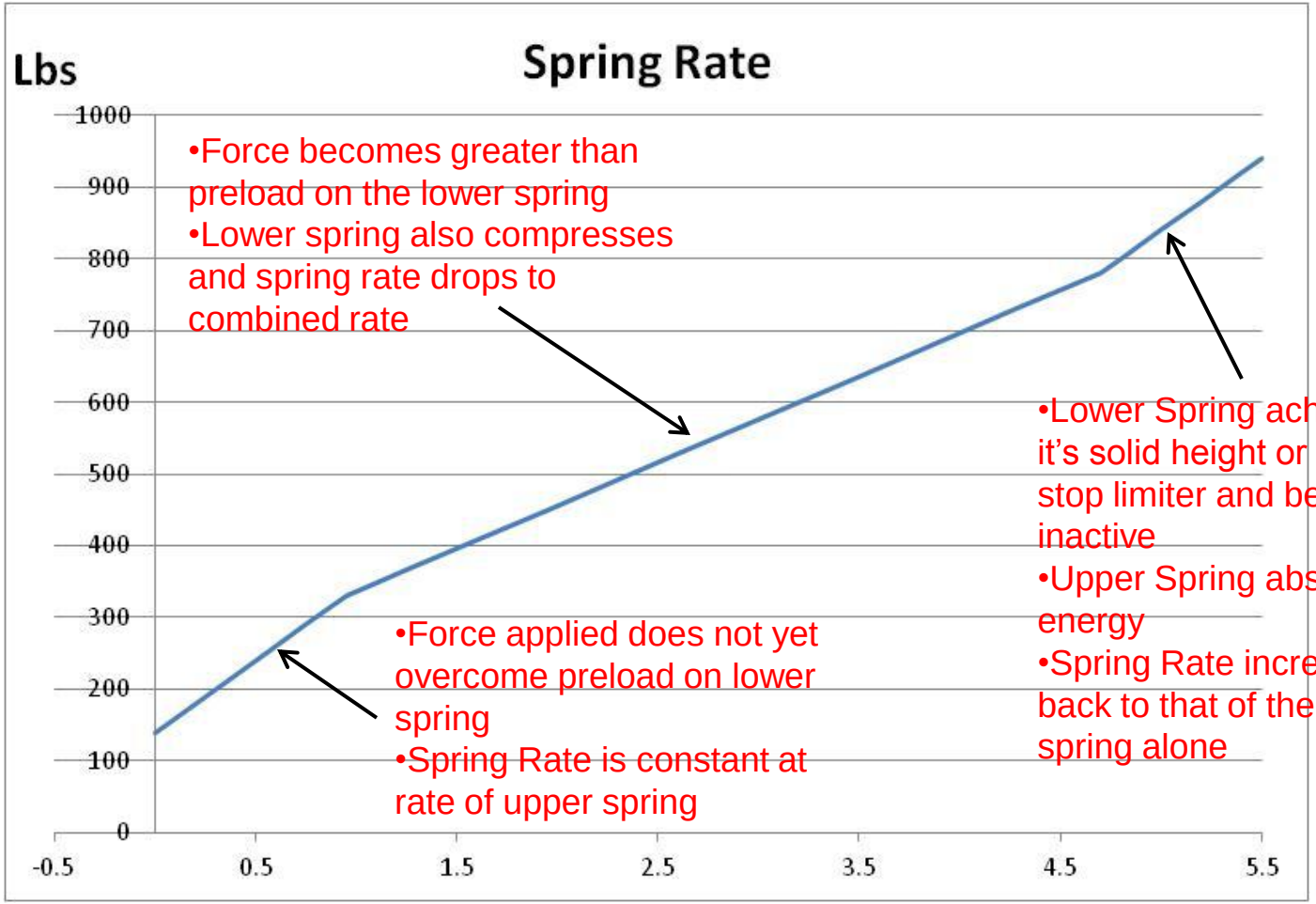
Regressive Spring



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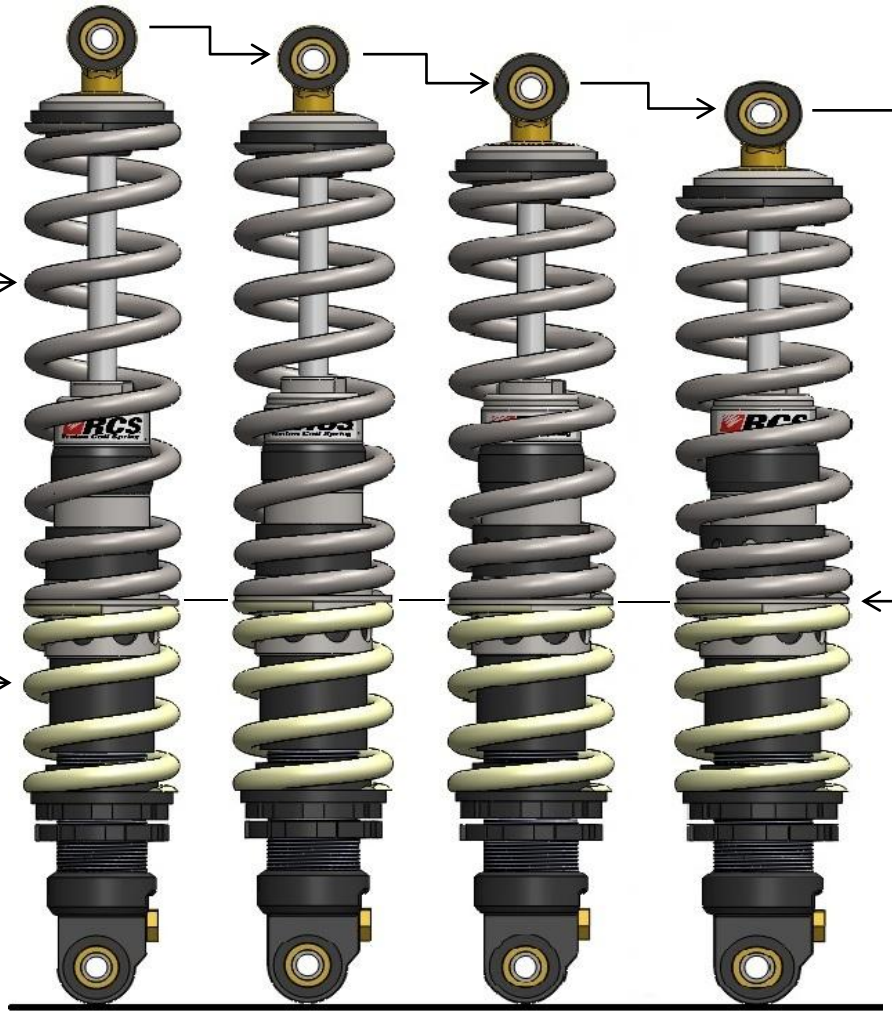
Upper Spring Compressed



Upper Spring Preload: 140 lbs

Lower Spring Preload: 330 lbs

Upper spring compresses

The Lower spring does not compress because the preload on the lower spring has not been exceeded

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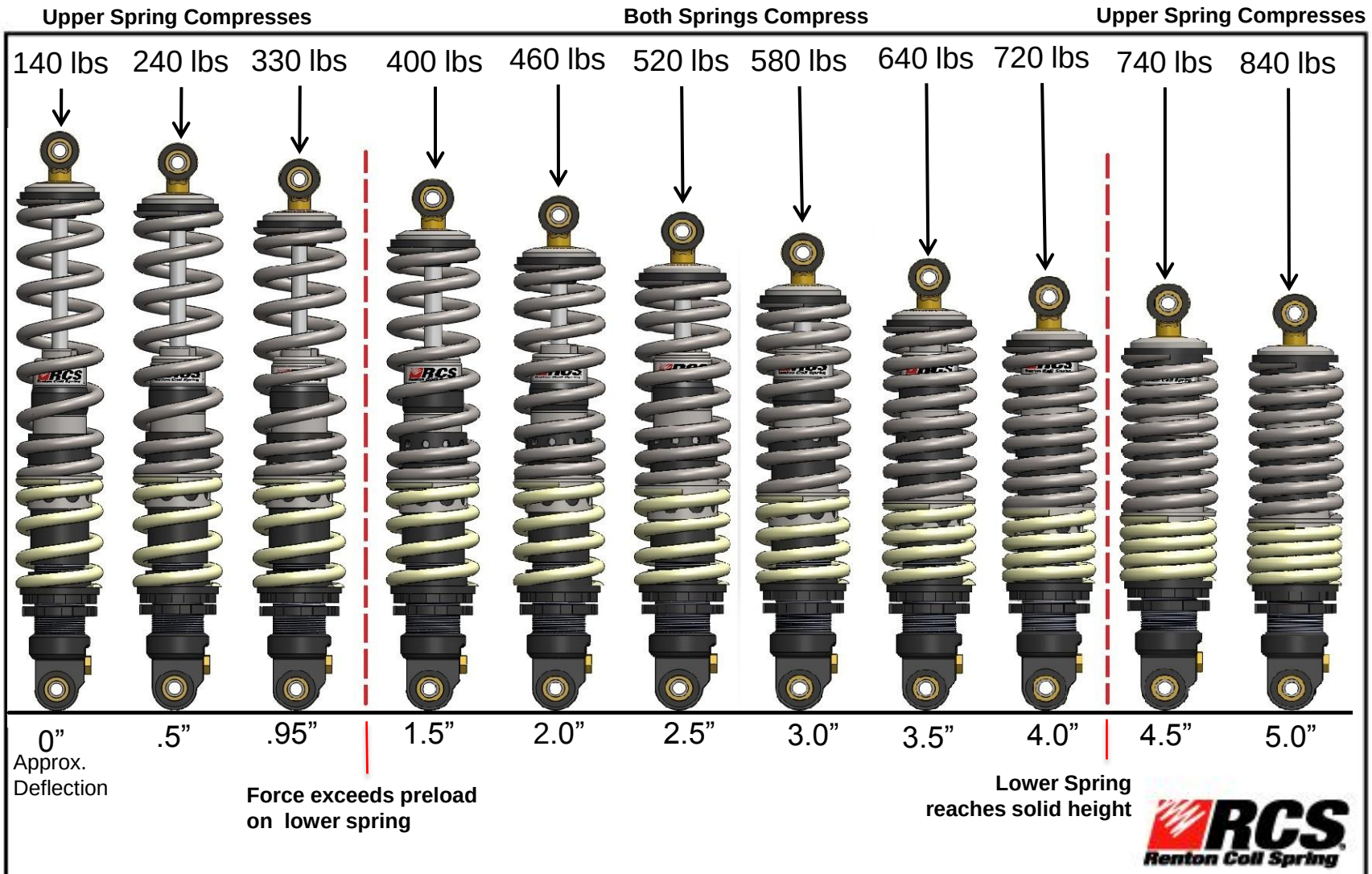
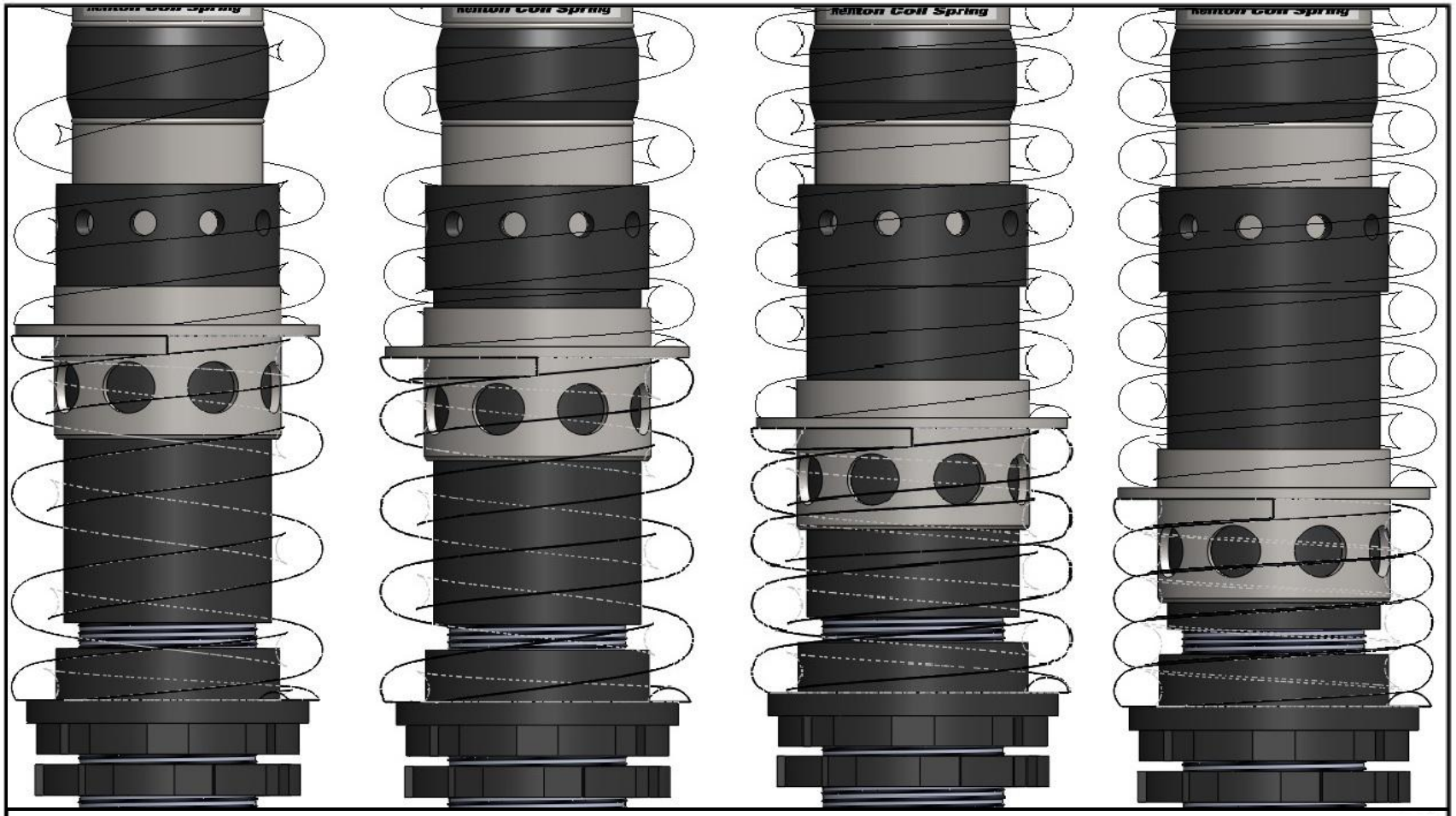
Lower Spring at Solid Height or Stop Limit



Bucket Release



Upper Spring

Both Springs & Bucket Release

Both Springs

Lower Spring Stacked Out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