Level 4 Short Course
Spring Kit
YXZ

Thank you for purchasing the Shock Therapy Level 4 Short Course YXZ spring kit. This kit will convert the factory spring system into a true dual rate spring system using our “silent” cross over rings and new custom rate springs. Included in the kit: eight “silent” cross over rings four O-rings, four spring dividers and 8 new springs, two helper spring dividers and two helper springs. Other than basic hand tools you will need a jack, spring compressor (optional) and preferably a bench vice.

Step one: Remove the front shocks from your YXZ. This is best done by jacking up your car until the tires are barely off the ground. You can remove the bottom and top bolts holding the shock to the chassis. If you lift up a bit on the tire while you remove the

bolts it will make sliding the bolt out easier. Once the shock is off the YXZ, remove the mounting spacers and O-rings on each end of the shock so they are not lost.

Step two: Remove the factory springs. Place the shock upside down in a vice so it is tight in the vertical position. Next, spin pre-load collars (two black tooth rings on the top spring) toward the top of the shock loosening the tension on the springs. Remember, the shock is upside down in your vice. After a few inches the springs will become loose. Next, push the bump stop inside the lower spring retainer down the shock shaft and out of the way of the spring retainer. With the springs loose, remove the lower spring retainer from the bottom shock mount. You can now remove the springs and the plastic spring divider from the shock.

Step three: Install the small helper springs. They are the lightest, 4" tall springs. Then install the helper spring dividers (short ones). Install the "silent" cross over nuts. Grab a tape measure to locate the pre load and "silent" cross over ring locations. All measurements are taken from the bottom of the reservoir bridge on the top of the shock. Pic above. From this point, measure down 7.25" and make a mark for the location of the BOTTOM of the "silent" cross over ring. The cross over rings have a flat side and a radius groove side to them. Install the rings so that the recess groove is facing up and down with the flat surface touching each other so they can be jammed together nice and tight. Take a punch or screw driver and a hammer to tap the rings tightly together. Now slide the O-ring on the shock and roll it all the way to the "silent" cross over nut. See pic to the right.

Now you can install the new upper spring. Next, install the factory plastic spring divider. Make sure the plastic divider has the long portion facing the bottom of the shock. Also, there are 2 arrows on the plastic divider. This is where the end of each spring should sit. The top spring ends on one arrow and the bottom spring on the other arrow. If you do not have the orientation correct, the plastic divider will be very noisy as it slides up and down the shock body. If you don't have arrows on your divider then place the ends of both springs 180 degrees apart from each other where they touch the plastic divider. Compress the new springs and install the lower spring retainer and spin the pre load collar tighter to re-establish your pre load on the springs. The pre-load setting is 4.5" to the top of the upper helper spring. See pic at the top of the page. Install the mounting

spacers and O-rings again. You may want to use a little grease on the O-rings because if they get dry they will squeak when you are driving.

Step four: Install the shock on the car lifting the tire slightly to get the bolts started. Go back to step one and repeat the steps on the second shock. Once both shocks are back on the YXZ, let the jack down and set the car on the ground.

Step five: Remove the rear shocks and place the shock upside down in the vice and loosen the pre-load collars until the springs are loose. Lower the bump stop and remove the lower spring perch. Remove the springs and plastic divider. Grab your tape measure and mark the location of the cross over ring at 9.5". Pic to the right. Install the helper springs, then helper spring sliders. Install the cross over ring with the O-ring groove facing the bottom of the shock. Install the O-ring. Install the new upper spring. Install the plastic divider and the lower spring with the springs clocked 180 degrees apart where they touch the divider. Compress the springs and install the lower spring perch. Lower the pre load collars down to 4.750". Install the shock on the rear of your car and repeat with the other shock. Lower the car on the ground and get ready to set your ride height.

You must drive it 100 yards or so to get the springs and suspension to settle properly for an accurate measurement. Stop the YXZ slowly without much brake on a level spot. The FRONT ride height should be between 10" and 10.5" with YOU IN THE CAR. This measurement is taken from the bottom of the frame where the lower control arm bolts to the chassis next to the fire wall. If you are low or high jack up the car and adjust the pre-load collar up to lower the car or down to raise it. Pre-load collar adjustments are about half of what you need in ride height. Example, if you need ½" more ride height you should lower the collar about ¼". The rear should be about 1/2" lower than the front or between 9.5" and 10" of ground clearance. This is measured in the center of the YXZ, from the bottom of the chassis between rear arm mounts. Always drive the car between adjustments to settle the springs. You are done!

The "silent" cross over ring is designed to bring the higher spring rate of the lower spring into play as you compress the suspension. The lower spring is much stiffer than the upper springs are. The combined spring rate of both the upper and lower springs

together is considerably lighter than the lower spring rate. By adjusting the cross over up on the shock further away from the plastic spring divider, you can produce a much more plush ride longer. However, by doing so, you affect the timing in which the lower spring would come into play giving you less assistance from bottoming out. With one person in the car you are good with ½" of space between the divider and the bottom of the cross over ring. Another thing to consider is that the lower you run the cross over the sooner the bottom spring comes in which will limit front end dive under braking and front end roll in turns. Feel free to adjust the "silent" cross over rings and find out what you prefer. Our starting point is an all-around good place to be for most drivers. In the rear, you need a little more space between the cross over nut and the spring divider so that the rear stays plush and softer for longer. 1.5-2" gap. This keeps the rear settled down in the whoops as well as less kicking and lower when jumping. Start with the compression adjusters all the way loose which is turned counter clock wise. This will be the plushest ride possible. Only adjust the compression adjusters on the shocks stiffer (clockwise) if you bottom the YXZ out in big landings routinely. If you bottom it out a few times in a race you need to stiffen it up. Only adjust what is bottoming out. If it is just the front that hits then turn just the front shocks up 2-3 clicks (clockwise). Start with the larger 17mm nut that is High Speed Compression. This controls big hits and bottom outs. If the bottoming is cured then leave it alone. If it continues then turn another 2-3 clicks into it until it stops. The small brass adjuster that uses a standard screw driver to adjust is for Low Speed Compression. This is slow, boaty movements. As you turn these clock wise the car will start to move less like an old Cadillac and more like a Corvette. If you turn these adjusters in too far you will start to feel all the shop and chatter and ruts you drive over. Once this happens then back them off a half a turn and leave them alone. The Rebound adjusters are on the bottom of the shock below the spring perch. If you jump the car then pay attention to the landing. If the lands and recovers past ride height more than once you should add a half a turn of rebound to slow it down. If you land the car and it recovers right back to ride height one time then your rebound is spot on. Once you find a happy place for the adjusters and your driving style, then and only then should you play with the height of the "silent" cross over rings to further tune your suspension. The order in which you NEED to proceed with tuning is:

1. Ride Height
2. Compression and Rebound adjusters
3. "Silent" cross over rings (maybe)

The cross over rings are designed to be rubbed by the coil springs. As the spring compresses it vibrates side to side and can rub the cross over ring. THIS IS NORMAL. Sometimes you may not have your springs clocked correctly on the plastic spring divider and this can cause the divider to not slide straight on the shock body. This can bow the upper spring and cause more wear on the cross over rings. Make sure your springs end on the divider 180 degrees apart to keep the divider as straight as possible and limit your cross over wear.

Now don't think about it anymore. Go drive it!