



Setup Specifications and Procedures

The following setup specifications and procedures are recommended starting points for the FR500S. Optimal ride height and alignment will vary by track.

Preparing the vehicle for setup:

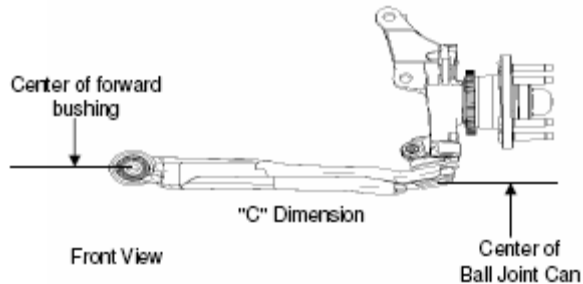
- Fill the vehicle with fuel. The saddle type fuel tank in this vehicle does not maintain even fuel levels between the two sides, so the only way to ensure consistent left/right balance and setup is to fill the tank.
- Make sure that the vehicle is setup in as-raced conditions, with all extra equipment and ballast installed.
- Install an unused (or clean, lightly used) set of tires if possible; the variation in diameter and stuck-on rubber bits typical of used tires can affect corner weights. Set tire pressures to 30psi, or another nominal setting that is the same on both axles.
- Ballast the driver's seat to simulate the driver's weight, or use the actual driver (if you have a very patient driver with nothing better to do)
- Optional - setting the shocks to full soft in compression and rebound will help the car to settle more consistently and will result in a more accurate setup.
- Make sure that the vehicle has been rolled forward in a straight line and bounced up and down to settle the suspension before making any measurements.
- Changes to ride heights, corner weights, and alignment will have effects on each other. Getting these settings correct is an iterative process. If you are making a major change or a new installation/re-installation, make a rough setup of height and alignment before starting with fine adjustments

Measuring and setting front ride height:

- Front ride height is defined by the "C" dimension, which is the difference in height between the inner pivot of the front lower control arm and the bottom of the balljoint can. This measurement is used because it is a consistent measure of suspension position, independent of wheels, tires, bodywork, etc.
- Measuring the height of the center of the balljoint can be difficult because it is inside the wheel. One method is to use a dial indicator base with a pointer, setting the base on a ground reference and setting the pointer on the center of the can; with the pointer locked in, remove the base/pointer and set it on a flat surface and measure the height. This measurement is independent of ride height, and will not change as long as the same wheel/tire/pressure is used, so it only needs to be measured once per setup session.
- The inner pivot height can be measured with a tape measure from the ground to the center of the bolt.
- Before adjusting ride height, jack up the corner to relieve the spring pressure and use the threaded perches on the struts to adjust ride height. Each full turn of the perch is a change of approximately 1.5mm.

**"C"
Dimension
Measurement:**

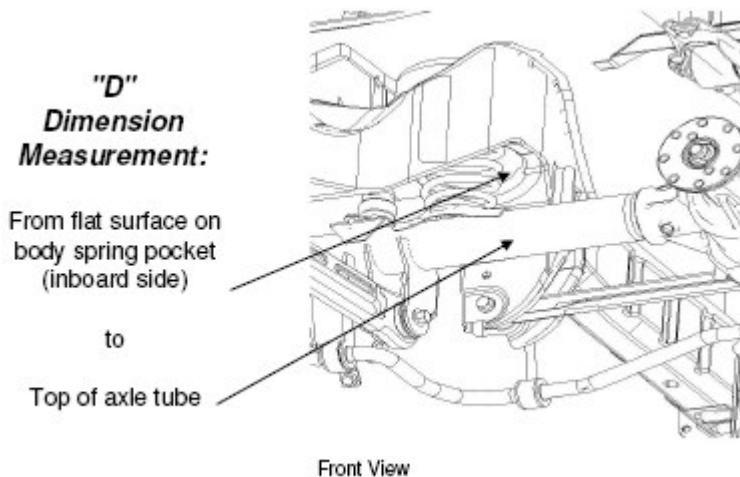
Center of bolt of lower arm forward bushing is higher than center of bottom surface / end cap of ball joint can



**Front "C" Dimension = 11mm
(Inner pivot higher than balljoint)**

Measuring and setting rear ride height:

- Rear ride height is defined by the "D" dimension, which is the distance between the top of the axle tube and the flat surface on the inboard side of the spring pocket. This measurement is used because it is a consistent measure of suspension position, independent of wheels, tires, bodywork, etc.
- A tool can be easily made to help make this measurement, such as two flat pieces of metal with a bolt and wingnut to lock them together at a given setting. This can be used to measure the current height (setting it on the vehicle, then removing and measuring the length), or it can be set to the desired height and used as a "go/no-go" gauge.
- Before adjusting ride height, jack up the corner to relieve the spring pressure and use the threaded perches on the struts to adjust ride height. Each full turn of the perch is a change of approximately 1.5mm.



Rear "D" Dimension = 90mm

Each ride height adjustment can have an effect on the other three, so it may take several iterations to get all 4 corners set.

Adjusting corner weights:

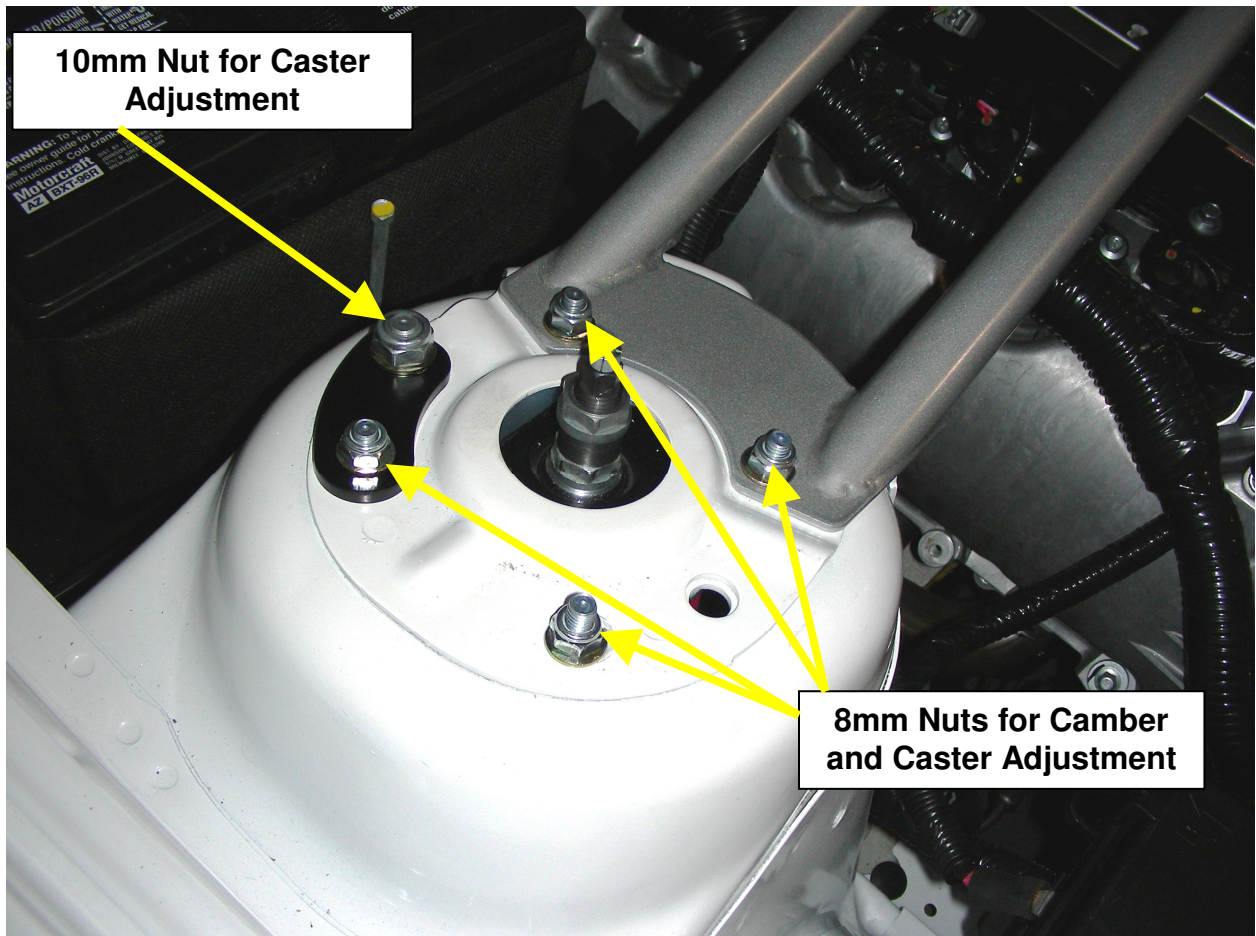
- Once initial ride heights are set, use corner scales to measure and adjust corner weights so that the diagonal (RF+LR and LF+RR) weights are 50%. The "Cross Weight %" (shown on many scales) is the RF+LR Percentage
- It is recommended that all corner weight adjustments be made at the rear of the car, raising or lowering the appropriate side as needed. (See chart)
- Note that the process of setting corner weights will change the ride heights and they will no longer be equal side-to-side.

To RAISE Cross Weight % (RF+LR)	
LF LOWER	RF RAISE
LR RAISE	RR LOWER

To LOWER Cross Weight % (RF+LR)	
LF RAISE	RF LOWER
LR LOWER	RR RAISE

Adjusting alignment:

- Caster and camber adjustments are both made at the top of the strut.
- To adjust Caster, loosen the (4) 8mm nuts and (1) 10mm nut. Once the 10mm nut is tightened, Caster is locked in.
- To adjust Camber, loosen the (4) 8mm nuts only



- Set caster first. Recommended setting is to use as much Caster as possible, but equal on both sides; typically 7° - 7.5°
- Set Camber on both sides to -2.5°
- Set Toe to 0 degrees