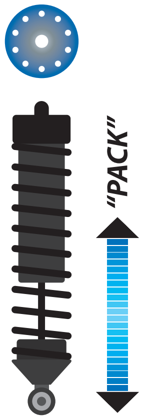
Suspension Adjustments

DAMPING

Shock damping manages the resistance of shock movement as the shock piston moves through the shock oil. Damping comes into play when the suspension is moving (either vertical movement or chassis movement or due to chassis roll). When the shock is compressing or rebounding, the shock oil resists the movement of the piston through it. The amount of resistance is affected by several factors.

- Viscosity (thickness) of the shock oil
- Restriction of oil fl ow through the piston (affected by the number of holes in the piston and the hole diameter)
- Velocity (speed) of the piston

PISTONS/PACK



Shock pistons come in a variety of hole size/number of holes variations. The size of the holes or number of holes affect shock damping by altering the flow of oil through the holes. More holes or larger holes give softer damping. Fewer holes or smaller holes give harder damping.

Pack: The faster the piston travels through it's stroke, the thicker the oil will feel. This phenomenon becomes more pronounced with smaller piston holes and is called "pack".

Smaller Piston Holes

Increase the pack of the shock, which is better suited to big-jump tracks where you will often land on the flat surface and not the down side of the jump. It slows the shock stroke on compression and rebound and is not well suited to very bumpy tracks.

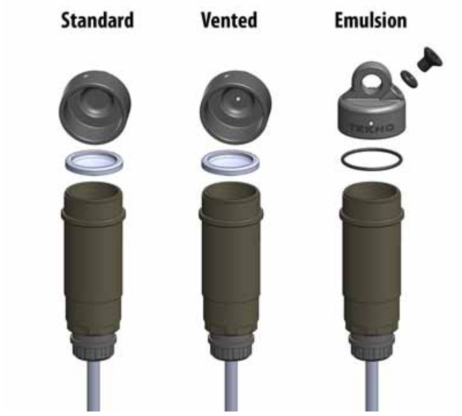
Larger Piston Holes

Decrease the pack of the shock, which is better suited to bumpy tracks and jump sections where you land on the down side of the jump. Compression and rebound are faster.

SHOCK OIL

Shock oil is rated with a "viscosity" number that indicates the thickness of the oil. This determines how much resistance is given to the shock piston as it travels through the stroke. Typically you should use piston hole sizes to suit the track conditions rather than alter the oil viscosity. Start by determining the ideal amount of pack nessesary for your track and use an oil viscosity to suit that piston. Shock oil is also effected by the cold/hot varience of external weather conditions and must be changed to accomidate that varience.

SHOCK BUILD



Standard

The standard build is the most common and widely used shock building method for 1/8th scale shocks. It employs the use of bladder sitting on top of the assembly that compensates for the volume of the shock shaft as it enters the shock body, traveling in to the oil. Because the shock cap is sealed in this build, there is pressure being formed in the air space on top of the bladder as the shock is compressed.

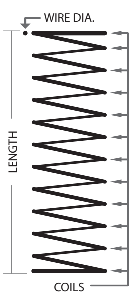
Vented

The vented build is also a very common method of building 1/8th scale shocks. It also employs a bladder sitting on top of the assembly that compensates for the volume of the shock shaft as it enters the shock body, traveling in to the oil. The only difference is that the shock cap has a very small hole or "vent" in the top that allows air to escape as the shock is compressed. This hole alleviates any pressure building up and has less rebound effect than the standard build.

Emulsion

The emulsion build is the least common shock building method for 1/8th scale shocks. It employs a special shock cap that has an angled bleeder hole with a screw and seal (TKR6018). It does not use a bladder and instead only uses a black o-ring to seal the top cap to the shock body. This method…

SPRINGS



Spring tension determines how much the shock resists compression, which is commonly referred to as the "hardness" of the spring. Different spring tensions determine how much of the vehicles weight is transferred to the wheel relative to the other shocks. Spring tension also influences the speed at which a shock rebounds after compression. Spring tension is usually rated in a "spring weight" ; higher spring weights are stiffer, while lower spring weights are softer.

Softer Springs

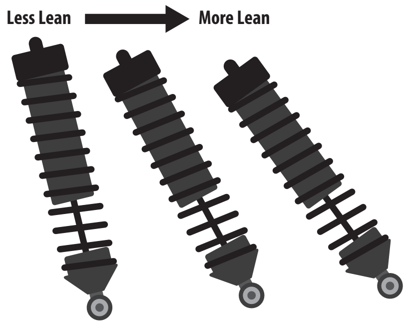
- More Chassis Roll
- More Traction
- Better On Bumpier Tracks
- Increases Chance of Bottoming Out

Stiffer Springs

- Less Chassis Roll
- Less Traction
- More Responsive
- Better on Smooth Tracks
- Decreases Chance of Bottoming Out

Suspension Adjustments

SHOCK MOUNTING POSITIONS



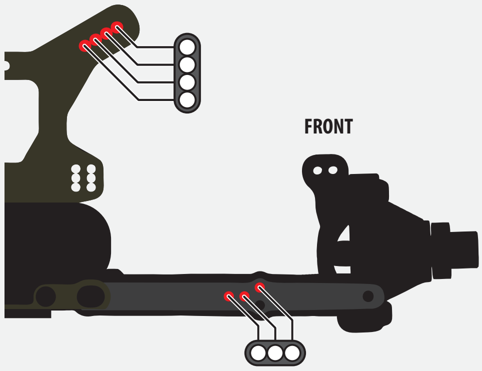
You can manipulate the handling characteristics of the vehicle by changing the shock mounting position. Leaning the shocks at different angles and moving the shock closer or further from the centerline of the vehicle will have different effects on handling.

Less Lean

- Harder Dampening
- More Linear Dampening
- Less Side Traction
- More Responsive
- Better Suited for Technical Tracks

More Lean

- Softer Initial Dampening
- More Progressive Dampening Through Entire Stroke
- More Side Traction
- More Forgiving Handling
- Better for High Bite Tracks
- Easier to Drive



Front Shock Tower Mounting Positions

Inner Holes

- Easier to Drive
- More Side Bite
- Slower Initial Dampening

Outer Holes

- Faster Steering
- Better on Bumps and Jumps

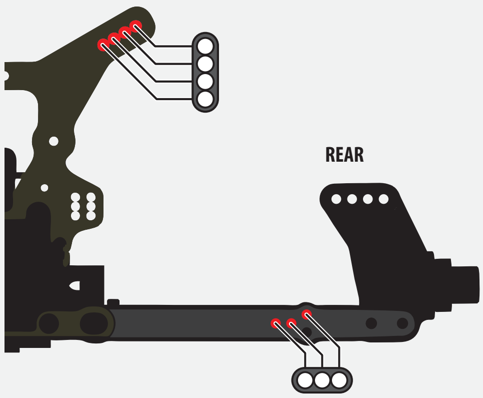
Front Arm Mounting Positions

Inner Holes

- Faster Steering
- Better on Bumps and Jumps

Outer Holes

- Increases Stability
- Easier to Drive
- Bigger Turning Radius



Rear Shock Tower Mounting Positions

Inner Holes

- More Steering Entering Corner
- More Mid-Corner Grip

Outer Holes

- More Traction Entering Corner
- Less Mid-Corner Grip
- Squares Up Rear End Better on Exit

Rear Arm Mounting Positions

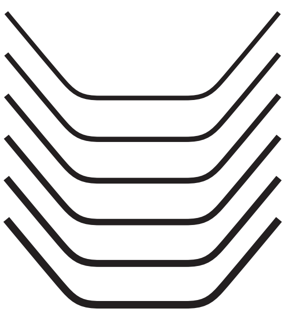
Inner Holes

- Better for Bumps and Jumps
- Less Side Bite
- More Traction on Corner Exit

Outer Holes

- More Stability
- More Lateral Grip in Turns

SWAY BARS



Sway bars are used to adjust a vehicles side (lateral) grip. They can also be used in conjunction with a softer spring rate to handle bumpy tracks more efficiently without excessive chassis roll at mid-corner. Sway bars resist chassis roll and by doing so transfer wheel load from the inside wheel to the outside wheel. The stiffer the sway bar, the more load is transferred. However, as the outside wheel is not able to convert the extra wheel load into extra grip, the sum of the grip of both wheels is actually reduced. Increasing the stiffness of an sway bar on one particular end of the vehicle (front or rear) decreases the side grip that end will have and increases the side grip of the other end of the vehicle.

The overall traction of a vehicle cannot be changed, but it can be balanced by distributing wheel loads. Sway bars are a useful tool to change the balance of the vehicle. Chassis stiffness plays an important role in the effectiveness of sway bars, and a stiffer chassis makes the vehicle more responsive to sway bar changes.

The front sway bar affects mainly off-power steering at corner entry. The rear sway bar affects mainly on-power steering and stability in mid-corner and at corner exit.

Front Sway Bar

Thinner

Increases Front Chassis Roll
Increases Front Traction
Decreases Rear Traction
Increases Off-Power Steering

Thicker

Decreases Front Chassis Roll
Decreases Front Traction
Decreases Off-Power Steering Entering Corner
Quicker Steering Response

Rear Sway Bar

Thinner

Increases Rear Chassis Roll
Increases Rear Traction
Decreases Front Traction
Decreases On-Power Steering

Thicker

Decreases Chassis Roll
Decreases Rear Traction
Increases Front Traction
Increases On-Power Steering