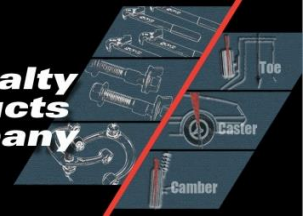


TECHNICAL BULLETIN-0001 DEATH WOBBLE BASICS- SEVERE FRONT END SHAKE AND SHIMMY



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Some types of front end geometry are prone to experiencing severe shimmy that does not damp out. It is commonly referred to as “Death Wobble”. Vehicles particularly vulnerable typically have a solid front axle held in place with a track bar, and a steering drag link roughly parallel to the track bar. (Jeep XJ/ZJ/TJ/WJ/JK, Dodge trucks, Older Toyotas and Broncos) The following represents a summary of checks and information that may help you solve your DW problems and prevent them from re-occurring.

Common causes/contributors:

- Worn Steering components (Tie Rods ends, Track Bar ends/bushings, Steering Gear, Ball Joints)
- Bad Steering Damper (or damper mounted upside-down, such that the shaft is pointing slightly down instead of up)
- Tires out of round, out of balance, or bent wheel.
- Cracked frame at or near steering box or track bar mounting points
- Loose or broken steering box mounting bolts
- Worn control arm bushings
- Too much tire pressure for the load condition. (Start with the pressure on the door, NOT the tire sidewall, larger than OEM tires will need slightly less pressure than the OEM door sticker suggests.)
- If DW always occurs at certain speeds rather than when hitting bumps, you have a tire problem such as out of round, out of balance, or wobbling tire/wheel combo. On these vehicles you MUST Dynamically Balance the tires. (Weights on both sides of the wheel) For best results, use a machine with a tire roller, which can also balance to account for Road Force Variation.
- If DW occurs mostly under braking, the rotors are very likely warped.
- If you have a “leveling kit” installed, remove it, or install a slightly lower kit, as increased operating angle on trailing arms, steering components, and track bars tends to make DW more likely.

There is sometimes not something obviously wrong. In this case, many small things can add up to a DW problem, and improving just one thing is not going to eliminate it. (i.e., Tie rod ends are a little loose + Track bar is a little loose + Steering box has a little play + Control arm bushings a little loose à Vehicle has DW...) Also, if the vehicle has been driven with DW for some time, it is likely that most of the components in the front steering and suspension are a little loose from the abuse endured while in DW. In this case, you need to attack several things at once to make a difference:

- DYNAMICALLY BALANCE the tires and account for Road Force Variation. (Requires a roller against the tire tread when mounted to the machine) Note: If there aren’t weights on the inside AND outside of your wheels, they are likely not dynamically balanced.
- Check and Adjust lash in the steering gear on high mileage vehicles
- New HD steering damper
- New track bar or bushings.
- New tie rod ends

- New upper and lower control arm bushings, particularly on high mileage or well used vehicles. Still occasionally getting DW? • Remove some caster, particularly if your vehicle is lifted. This may require offset upper balljoints, or may be accomplished with the OEM adjustment at the Lower Control Arm axle or frame mounting bolts. Shoot for the low end of factory spec, or even a little less.
- Set toe to the min spec, or zero if allowed.
- Some tires seem to be more prone than others. Tires with a very square profile, like BFG AT's, are notorious for promoting DW on Jeeps and Dodge trucks. Try a different style of tire. We have seen numerous cases where DW has completely disappeared after switching to another style or brand of tire, so tires can be a significant contributor to DW on these vehicles.
- Install a Steering box brace
- Install a Track bar brace or HD replacement with poly bushings