Wheel Alignment

WHEEL ALIGNMENT TROUBLE SHOOTING

CONDITION & POSSIBLE CAUSE	CONDITION & POSSIBLE CAUSE
Uneven or Premature Tire Wear • Improper tire inflation. • Front end alignment out of tolerance. • Suspension and/or steering system components worn or damaged. • Toe-in incorrect. • Improper standing height. • Brake dragging. • Excessive wheel bearing play. • Poor driving habits. • Uneven or sagging springs. • Bent wheel. • Improper torsion bar adjustment. • Loose or worn wheel bearings. • Worn or defective shock absorbers. • Tires out of balance. • Bent wheel rotor. • Overloaded vehicle.	**Hard Steering** • Idler arm bushing too tight. • Ball joint tight or seized. • Steering linkage too tight. • Ball joints and steering linkage need lubrication. • Power steering fluid low. • Power steering drive belt loose or broken. • Power steering pump defective. • Steering gear not adjusted properly (sector shaft or worm gear too tight). • Incorrect wheel alignment (excessive caster). • Damaged steering gear or suspension components. • Bent steering knuckle or supports. **Vehicle "Wanders"** • Idler arm, ball joints or steering linkage worn or binding. • Strut rod or control arm bushings worn. • Loose or worn wheel bearings. • Improper tire pressure. • Stabilizer bar missing or defective. • Wheel alignment out of tolerance. • Broken springs. • Defective shock absorbers. • Damaged steering gear or suspension components.
Pulls to One Side • Improper tire inflation. • Brake dragging. • Mismatched tires (uneven diameter, different tread design or construction). • Broken or sagging spring or torsion bar. • Power steering valve not centered. • Front end alignment out of tolerance. • Defective wheel bearing. • Uneven sway bar links. • Bent frame. • Steering system bushings worn. • Idler arm bushing too tight. • Uneven loading.	**Front End Shimmy** • Tire out of balance. • Tire and/or wheel out of round. • Excessive wheel runout. • Insufficient or improper caster. • Worn suspenson or steering system components. • Defective shock absorbers. • Wheel bearings worn or loose. • Power steering reaction bracket loose. • Tire stiffness variation. • Steering gear rack or box mounting loose. • Steering gear adjustment loose. • Worn spherical joints (front wheel drive).

Radial Tire Lead – Some alignment problems involving "lead" or pull to one side have been caused by off-center belts on radial tires. To diagnose this problem inflate tires to recommended pressure and drive vehicle both directions on an uncrowned road. Observe and note any "lead", then switch front tires and road test again. If lead is corrected without roughness, leave tires in position. If roughness results, replace tires. If lead reverses, install a known good tire on one side and repeat road test. If lead remains, install a known good tire in place of other front tire. If lead remains, recheck alignment. It may be necessary to adjust caster so that leading side is 1° more positive than other side.