



Interference Engines and Timing Belts

By: Ralph Hoffmann

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Interference Engines: Useful information by [AutoTruckData.com](#)

An interference engine is an engine design that has been avoided by some manufacturers for well over 80 years. General Motors, Chrysler, etc., typically use a metal chain-type timing belt on push-rod engines (often called a timing chain) to transmit torque from the engine crankshaft to the engine camshaft that opens the valves that admit air and fuel. (Note: on some new cars the fuel is admitted not through the valves but through injectors in the top of the cylinder. Rather than use a steel timing chain, interference engines may use a rubber timing belt with its limited life, whereas steel timing belts typically last 150,000 to 200,000 miles or more.

Valves open further in an interference engine and project further into the combustion chamber than in a 'free-running' engine. This allows outside air at atmospheric pressure flow faster into the combustion chamber through the larger valve opening. The engine can therefore inhale more air, be a little smaller, and still create as much power while reducing its manufactured cost and also guaranteeing future repair business for its dealer. If a rubber timing belt breaks by not being replaced soon enough, some of the valves stuck in their open position will collide with the top of the pistons, thereby breaking or irreversibly damaging one or the other or both. To make matters worse, it is not possible to measure the wear on such a rubber belt so that it could be replaced when there is some indication of imminent failure. Failure in these belts is catastrophic, without warning. This will require a whole new engine be installed. Woe to the owner. Finally, the rubber belt may have to be replaced long before 60,000 miles solely due to its age. This is really playing a bad poker hand. Interference engines are like a time bomb waiting to explode unless replacing the timing belt at the recommended interval. Be aware of that guaranteed future expense before buying a new car, or especially a used car, " with such an engine.

For details on this subject or for recommended mileage to replace rubber timing belts on interference engines, connect on the Internet to ©Gates Rubber Company, a worldwide manufacturer of such belts. When its web site appears, click on Replacement parts/Automotive. Look for 'Timing belt replacement Guide'.

When buying a used car always insist on determining if the vehicle has a rubber timing-belt. Be aware that about five years ago an International Oil Company did a follow up on 5,000 cars it had turned back after 3 year leases and traced them to their eventual private owners. All the cars had by then passed through wholesale auction markets and likely one or more retail dealers before being sold to a private owner. The survey disclosed that 50% of the cars had their odometers illegally turned back.

When buying a used car, supposedly with 40,000 miles for example, and determining it has a rubber timing belt, insist on a written guarantee from the seller to guarantee in writing to replace the timing belt at no charge if it fails

within another 20,000 miles, a typical recommended total amount (call any Dealer to get the recommended amount for the particular make of vehicle). After all, the vehicle may in fact already have 55,000 miles on it. If the seller will not make that guarantee, then he is admitting that the mileage is probably not accurate and by implication may well have been turned back. If the seller will not make that guarantee, consider a compromise, such as \$100 maximum cost. If not acceptable, walk away and look elsewhere."

Before buying any car, especially 4-cylinder foreign cars, or even 6-cyl. BMW's, be aware of the unavoidable cost of \$400-\$800 to replace the timing belt at anywhere from 50,000 to 70,000 miles if the car has an interference type of engine. The sales person will invariably not mention that an interference type engine powers the vehicle and may not even know what one is. If a timing belt on an interference engine is not replaced at recommended intervals, the repair cost when the belt breaks (not gradually, but always catastrophically) could increase to \$3,000 to \$5,000 due to engine failure because parts have smashed into each other

If the sales person does not know if the vehicle has an interference engine, walk out to the repair shop and ask the 'Service writer', who is probably a former mechanic. Finally, since words are cheap, write on the purchase order that the seller guarantees the engine is not a "interference engine" and will indemnify you 100% if it turns out that it is and the engine breaks when the rubber timing belt breaks.

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About The Author

Ralph Hoffmann majored in Applied Mathematics at the Univ. of Wisconsin, but worked largely in machine tool manufacturing. When he was 16 he replaced the rod bearings on a '34 Pontiac, which involved melting out the old ones and having new ones poured in place, then hand scraped to fit. Got lots of oil pressure for sure. His Experience with cars based on bitter and expensive experience.

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Other Articles by Ralph Hoffmann

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