

LCE ENGINEERING

PERFORMANCE TOYOTA

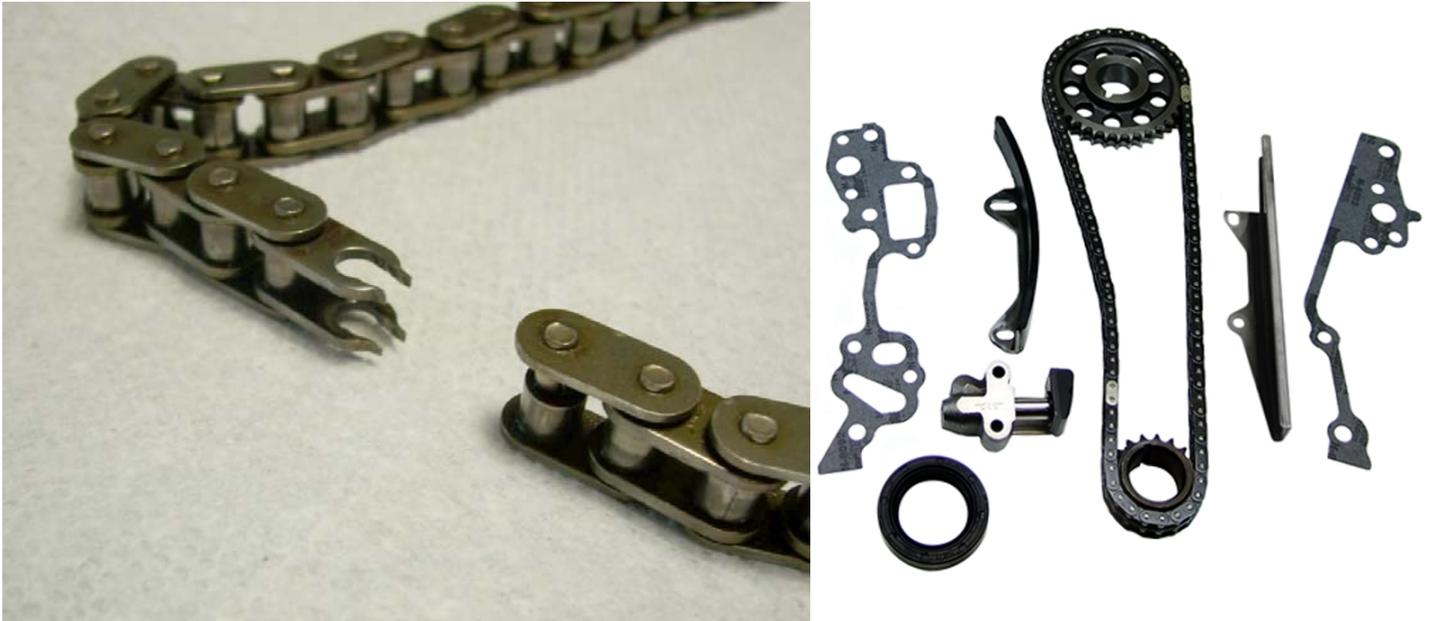
A Good Intention With A Bad Result!

If you were to talk with any Toyota owner, you would hear them say “Bulletproof” and “reliable”. Toyota is very well known in the industry for making great products and very few mistakes are made on behalf of the company. One of the very few things that most everyone will agree on is the mistake made by Toyota regarding the timing chain evolution on the 22r/re. We will cover a little history on this and explain why it is so important to pay particular attention to the timing chain in your 22r/re.

From 1975 to 1982, Toyota produced the 20R & 22R four-cylinder engines that utilized a dual timing chain system. It proved to be very dependable and included steel timing chain guides. Then in 1983, Toyota decided to install the single row chain with plastic guides on all of their 22R engines. The single row timing chain is prone to stretching beyond the tensioner's limits, resulting in a loose chain. As the chain stretches, several things can occur. You experience improper camshaft timing, the plastic guides eventually break, the timing chain can either wear a hole in the timing cover or break entirely sending the pistons and valves to meet their fate. Not a pretty picture. LCE does supply a very heavy-duty single row chain with metal guides to give a little more life expectancy. Below you will see pictures of the 22R/RE motor that had a guide fail, resulting in coolant mixing with the oil.



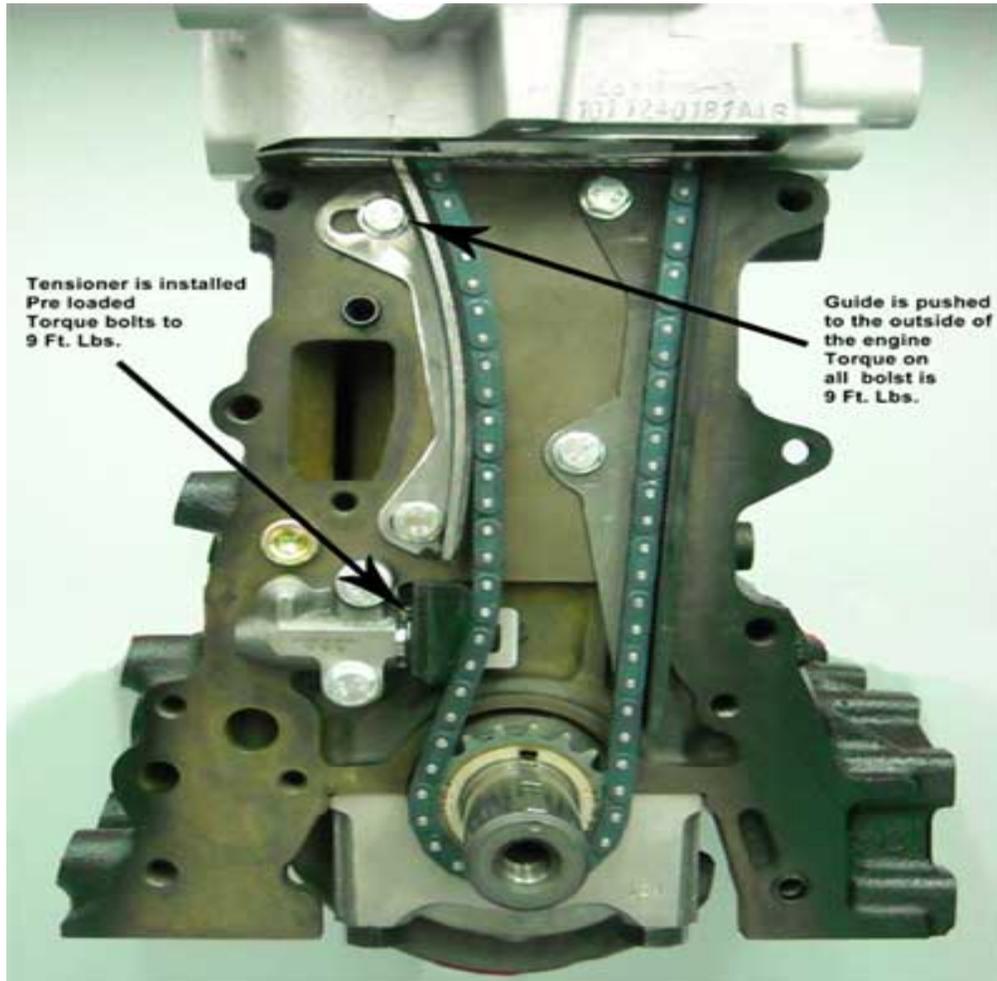
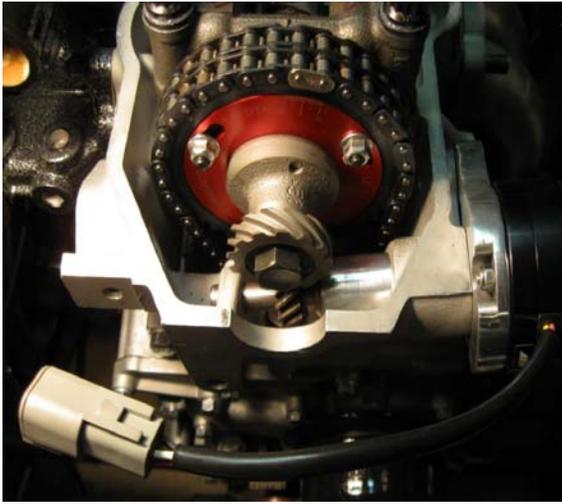
From 1985 to 1995, Toyota was still producing the single row timing chain for the 22R series engine, but made the deck height of the block and cylinder head shorter. This changed the centerline distance between the crankshaft and camshaft resulting in a shorter chain. Toyota recommends that you replace the single row chain every 80k miles depending on how hard the vehicle has been driven. When replacing the chain make sure that you do not cheap out or settle for an “off the shelf” or “local parts store” kit. It is not uncommon to see a lot of Chinese product in the automotive industry, we are all aware of how those hold up!



As the evolution of our performance engines took place, LC Engineering was experiencing problems with the single row timing chain failure. So, in 1985 when the new generation of the 22 was released, we anticipated this to be a weak decision and built an updated kit. What a positive impact this made on the quality and performance of our engine packages. This kit is also available for those who want to convert their 1983 and 84' 22R series engine over to the dual row chain.

LC Engineering has three ways to prevent or improve the problem's that result from the guides breaking or worse being the chain breaking:

- 1) Toyota recommends changing the Chain Kit every 80k miles on a stock engine light duty application or when excessive chain slap or rattle is noticed.
- 2) Change the Chain Kit every 80k and upgrade to a Single Chain Late Steel Guide Kit. **Warning:** This will not prevent the chain from stretching. Prolonged engine usage will result in the chain breaking and that is much worse than a water leak. Suggested for use in light duty operation only.
- 3) **The LC Engineering Exclusive!** Timing Chain Conversion Kit was designed in 1985 when we experienced these issues. This kit provides the customer with all the necessary components required to install a double chain with steel guides on your 1985-95 22R/RE engine. This Timing Chain Conversion Kit will outlast the vehicle and handle all the high performance demands that you require. Problem solved!



LCE has spent countless hours on our engine dyno machine developing the proven quality products that we have provided our customers for the past 28 years. Please refer to our catalog, web site or call a very experienced sales staff at 928-505-2501 for details.

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