

# Mazda Timing Belt Replacement

The 1983 Mazda 626 was the first Mazda to use a rubber timing belt. The newly designed 2.0 L engine replaced an OHC engine that had used a timing chain to spin the camshaft. Later, Mazda would modify this engine, and use it to power the redesigned 1986 B2000 truck.

Then, the engine was modified again, and its displacement increased to 2.2 L. Now it's found in the B2200, 626, and MX-6 models. The new B2200 is not to be confused with the old diesel powered truck, also known as the B2200.

Aside from the normal wrestling match with accessory brackets and belts, timing belt replacement is not extremely difficult on one of these engines once you know a few tricks. Timing belt configurations are different on 2.0 and 2.2 L engines.

The earlier FE 2.0 L engine we'll be working on had a belt tensioner but no idler. The timing belt had to make a pretty radical S-turn between the tensioner and the water pump sprocket.

The redesigned F2 2.2 L engine used wider sprockets, a wider belt, and added an idler to prolong belt life. The addition of the idler and a repositioning of the water pump on the F2 meant that the belt didn't have to make that back-breaking turn between the tensioner and the water pump any more. See our illustrations.

We chose a 1985 Mazda 626 equipped with air conditioning for our teardown. This is the FE 2.0 L configuration, but even here, we run into some complications. Not all FE engines use the same timing belt. Production changes and some dealer modifications can make ordering a new belt tricky business.

Some of the belts used had a shallow, square-toothed design. Others had a deeper, rounded tooth. Different belts also meant different drive sprockets, so you'll want to double check your application. You can't just assume that a production date and VIN number will get you the right belt. Your best bet is to take the number right off the old belt when ordering, to avoid confusion.

If you're removing the belt to do a related repair like a water pump replacement, and intend to reuse a low mileage belt, mark the belt with a crayon to show the direction it's been running. We don't want to reverse belt direction when reusing a belt.

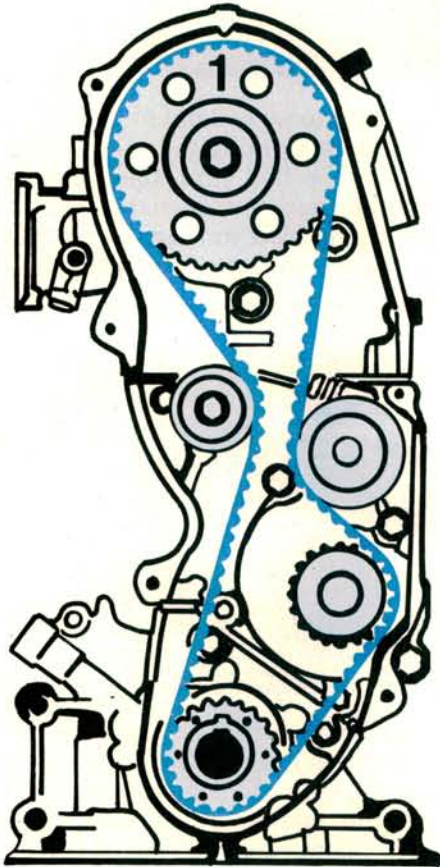
Belt replacement procedures on the B2000 and B2200 are different from those in the 626, since the engine sits longways instead of sideways in the vehicle. This change means that the distributor on the truck is located at the opposite side of the head from the 626. It also means that the truck uses a belt driven cooling fan that gets in your way. That is a story for another day, however.



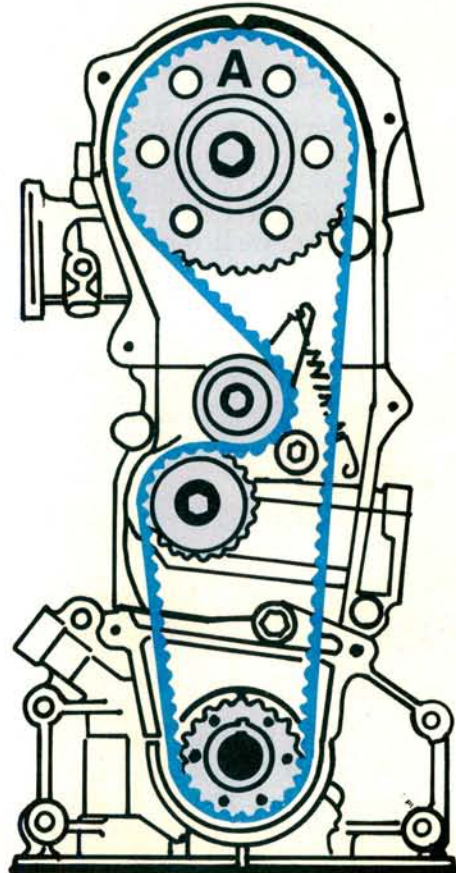
Finally, when it comes to accessory belt replacement, be aware that those new belts like to stretch pretty quickly during the first few miles of operation. Even if you take the time to use a belt tension gauge to check newly-installed belt tension, the new belts will often squeal very loudly after a short drive,

especially with the air conditioner on. Take the time to test drive the car a few miles with the air conditioning on. Then recheck belt tension. It could save you some embarrassment.

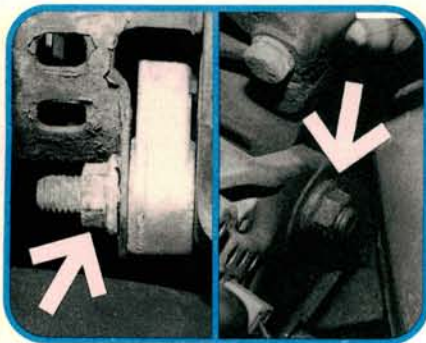
—By Ralph Birnbaum



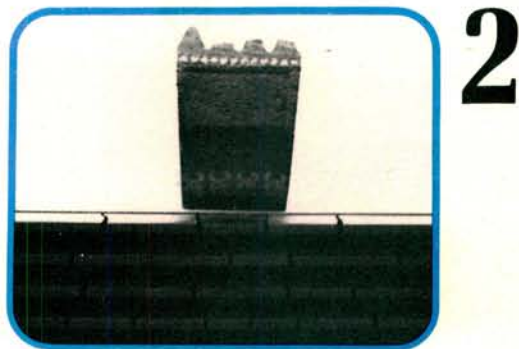
F2 Engine



FE Engine

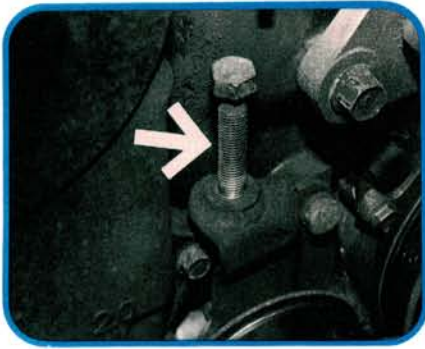


Remove the alternator belt. Back off the lock-nut before you loosen this through-bolt in the adjusted slide, since the bolt screws into the alternator boss. Also loosen the nut on the alternator pivot bolt (arrow), and the 6 mm bolt on the alternator fan shield.



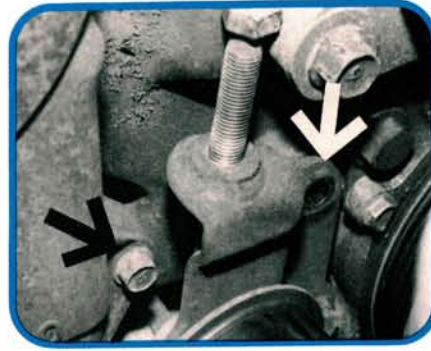
I've never seen one of the ribbed alternator belts that didn't have some cracking across the ribs. That doesn't automatically mean the belt is bad. But if entire ribs are missing, or if pieces of ribbing have fallen out like the ones in our cross sectioned belt, replace the belt.





# 3

Loosen the bolt in the center of the air conditioning idler pulley and back off the adjusting bolt in the idler bracket to loosen the A/C belt. Slide the belt off the idler, compressor, and power steering pump. Let the belt hang free for now. We'll remove the belt from below the car in a moment.



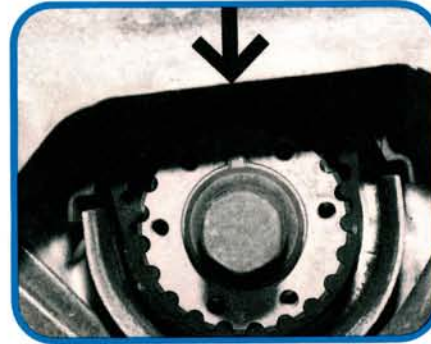
# 4

With the air conditioner belt out of your way, you can reach the two bolts holding the idler bracket to the engine. Remove the bolt from the top hole (white arrow) in the idler bracket. Loosen the lower bolt. Push the bracket forward. Now you can reach the front/bottom bolt in the top timing cover (black arrow).



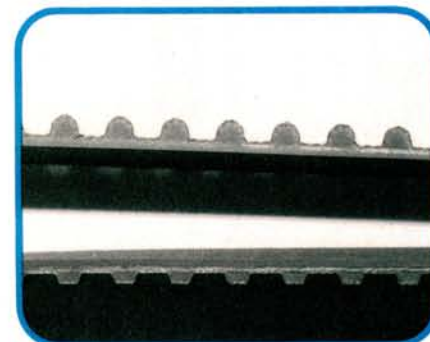
# 5

Remove the three bolts holding the top timing belt cover. Remove the cover. Ignore most of the alphabet soup on the sprocket face. The 'A' mark is the one we'll be using. See the arrow on the cylinder head just below the ground wire stud? That's our reference point when we go to install the new belt.



# 6

With the number 1 piston at TDC, the key in the crankshaft will be at the 12 o'clock. There's also a timing mark on the side of the engine that aligns with a notch on the crankshaft sprocket. If you line everything up before removing the old belt, installing the new belt is a lot easier.



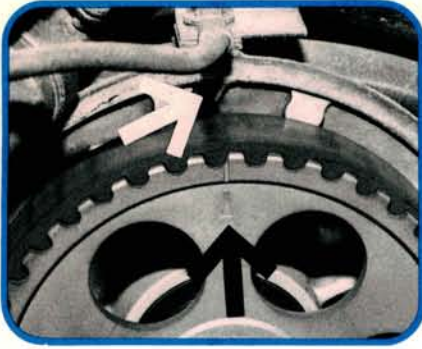
# 7

As we said in the introduction, there are three separate belts available for FE engines, so you'll want to jot down the part number from the old belt. These are the two most commonly used belts on FE engines. As you can see, unless you're into sprocket swapping, the belts won't interchange.



# 8

Raise the car. Remove the plastic splash shield that protects the lower pulley and finish removing the air conditioning belt. It's possible to remove and replace the belt from above with the splash shield in place, but it's a tight squeeze. It's just easier to remove it with the shield out of the way.



# 9

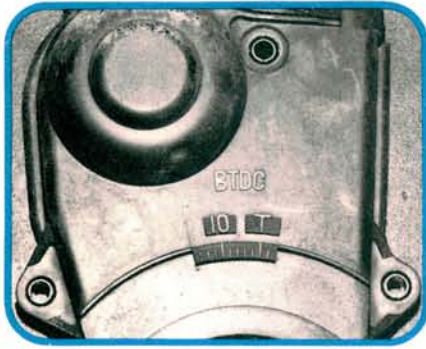
Turn the crankshaft in a clockwise direction until the reference marks on the camshaft are aligned as shown. This sprocket is used with a round-toothed belt and has a CX stamped on its face. Earlier sprockets used with the square-toothed belt were marked with the letter C.



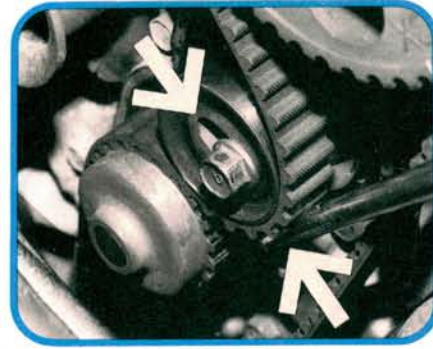
# 10

Remove the main crankshaft center bolt and the ring of 6 mm bolts holding the crankshaft pulley to the crankshaft drive sprocket. If the pulley sticks, a few taps with a soft mallet should free it. You'll find a baffle plate behind the pulley. Remove it also to expose the timing belt.

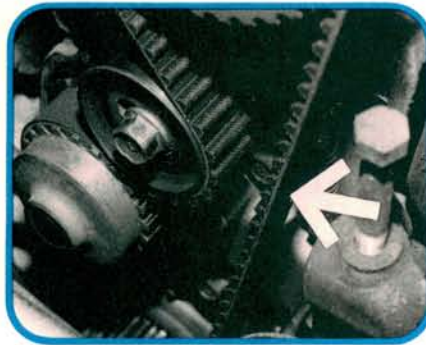




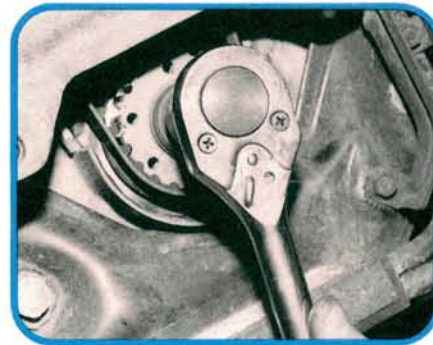
Finding the bolts in the lower timing belt cover can be tricky the first time. We couldn't get a camera between the inner fender and the engine to show you the bolt locations with the cover installed, so we removed the cover and photographed it so you'll have some idea of the bolt locations.



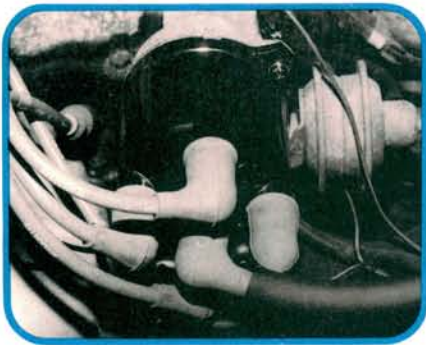
If you're replacing the belt, the easiest way to remove it is to loosen the tensioner bolt and pry right against the belt. Hold the tensioner back and snug the bolt to hold the tensioner. If you're reusing the belt, you'll have to move the tensioner without prying directly on the belt face.



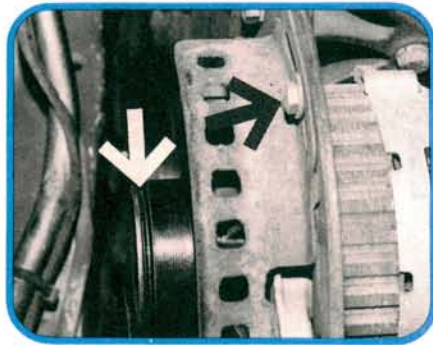
Now remove the old belt and install the new one. Keep the side of the belt away from the tensioner pulled tight between the cam and crank sprockets. Route the slack side of the belt around the tensioner and water pump. Loosen the bolt on the tensioner and let the spring on the tensioner pull the belt tight.



Snug the bolt on the tensioner so it can't move. Make sure the belt is centered on the sprockets. Reinstall the center bolt on the crankshaft and turn the engine over by hand, two full turns. Double check your timing marks. Loosen the bolt on the tensioner and retighten it again.



Now replace the lower timing belt cover, baffle, and pulley. I normally install the alternator belt and start the engine at this point. I run the car long enough to let it warm up. This gives me enough time to double check ignition timing. It also runs the belt enough to take out some initial stretch.



See how the alternator belt fits on the pulley? There's one more rib on the pulley than there is on the belt. Leave the open rib away from the alternator as shown. Make sure you retighten all the alternator bolts, including the one on the fan shield (black arrow).



# 17

As you can see, the bolt on the tensioner is still within reach, even with the lower cover in place. After the engine has run a while, I shut it down and loosen the bolt on the tensioner one final time. The spring on the tensioner takes out any belt stretch that occurred during the first minutes of operation.



# 18

Torque the tensioner retaining bolt. Reinstall the top timing cover. Reinstall the air conditioner belt and the lower splash shield. Tension the accessory belts. Take the car for a drive to make sure those new accessory belts don't squeal with everything on. Readjust the belts as needed.