

FLYIN' MIATA TIMING BELT TOOL KIT 35-6XXXX



Congrats on purchasing our tool kit! This should make installing your timing belt much easier. The use of these tools is pretty straightforward, but you'll find specific suggestions below. Please call or email us if you have installation questions. Our number and email are below.

WARNING: Not everyone can perform every installation. It is critical that you be honest with yourself in regards to your ability. We're more than happy to help, but there are only so many things we can do from the other end of a phone / computer. If in doubt, discuss the install with us before you dive in. Improper installation could cause injury and / or death!

Required tools:

- Ratchet wrench
- 10, 14, and 21mm sockets

Torque specs:

- Small nose crank bolt: 80-87 lb-ft
- Big nose crank bolt: 116-122 lb-ft
- Non-VVT cam gears: 36-44 lb-ft
- VVT cam gears: 47-61 lb-ft
- Timing cover bolts: 69-95 lb-in
- Idler and tensioner pulleys: 28-38 lb-ft
- Water pump pulley: 69-95 lb-in
- Crank Damper pulley: 9-12 lb-ft
- Valve cover: 44-78 lb-in
- Spark plugs: 11-16 lb-ft
- Thermostat housing to head: 14-18 lb-ft
- Water pump: 14-18 lb-ft

Crank Bolt Tool (stock pulley):

If you have an ATI damper, refer to its instructions, don't use these.

First, while the belts are still tight, start by cracking loose the three bolts holding the water pump pulley to the water pump but don't remove them. Remove the accessory belts and then the water pump pulley. Next remove the crank pulley / damper, valve cover, and timing belt covers. The crank pulley is removed by first removing the four 10mm-head (M6 size) bolts surrounding the large 21mm-head bolt on the inside of the crank pulley. You do NOT need to remove the center bolt first on any 90-05 Miatas. Trust us. The crank pulley should easily pull off once those four bolts have been removed. If it doesn't, it's probably rusted in place. Use penetrant and try to work the pulley back and forth. If it still doesn't come loose you can try prying it off, but be careful with what you're prying against. Once the pulley is off, bolt the appropriate end of the crank bolt tool to the plate that the crank pulley was originally bolted to, using two of the original bolts. If you're not sure what end of the tool to use, you can experiment or count the number of slots on the face of the crank pulley. Four slots = "small nose" 1.6L, eight slots = "big nose" 1.6L. 94-97, 1.8L have no slots. The wider pattern on the "big nose" side is for the ATI damper. Be sure that the tool doesn't have any play once bolted down. It shouldn't, but if you have a special situation use washers or shorter bolts to ensure it can't move (fore-aft) at all. Rotation with the crank is fine (and the whole idea, really). Rotate the crank until the tool interferes with the water pump neck. Let it rest here (ensuring the crank won't rotate) while you loosen the 21mm bolt. Tightening the bolt is the same, just rest it against the opposite side of the water pump neck. Be sure to use blue Loctite (242) on the bolt and tighten it to 80-87 lb-ft (small nose) or 116-122 lb-ft (big nose). Loctite usage and proper torque is critical, don't skip or guess!



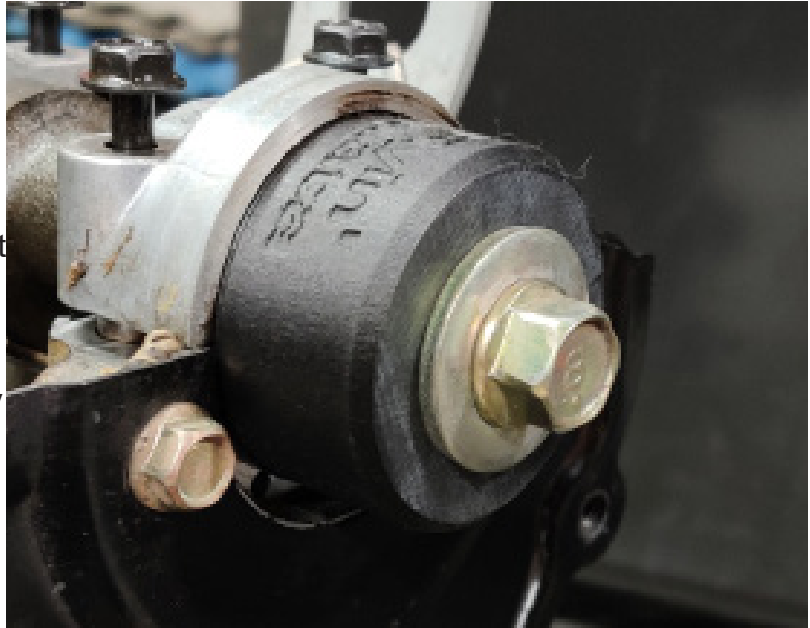
Flyin' Miata now sells both aluminum and 3D printed versions of the seal installers and ninja tools. They may appear different than what is shown but their functions are identical.

Ninja tool (cam gear aligner):

This tool has its own instruction set, please follow that.

Seal Installer:

All seal installers (front crank, rear crank (not included with the timing belt tool kit, has separate instructions), cam, VVT cam) function in the same manner. Grab the appropriate seal (part numbers below), and adequately lubricate the INSIDE edge (where the cam or crank will spin) with some grease or oil. Do NOT use any lube on the outside edge, and be sure the area where the seal will be installed is free of any lube. Slip the seal onto the shaft making sure the seal lip did not fold over, then press it gently into place. Don't get it all the way into place (that's what the tool is for), just push it up until it contacts the head / oil pump. Slip the tool over the end of the shaft, and use the original bolt (that holds the cam gear / crank pulley plate on) to press the tool (and hence the seal) into place. The tool is designed to press it to the proper depth, so tighten the bolt until it stops - a specific torque isn't needed. Once the tool won't move anymore, remove the bolt and tool, and you're done. Easy!



90 - 91 (small nose) crank seal: 04-29020 (FM PN) / BP01-10-602A (Mazda PN)

91 - 05 (big nose) crank seal: 04-29021 / B3C7-10-602A

Cam seal (all but 01-05 non-MSM intake cam): 04-26030 / FS05-10-602A

VVT cam seal (01-05 non-MSM intake cam only): 04-26031 / ZL09-10-602