

## Injector Sleeve Removal and Install Tool instructions

1. Drain the coolant from engine. See engine service manual for proper procedure.
2. It is recommended that ALL 8 Injector Sleeves be replaced even if you only have an issue with just one Sleeve.
3. Remove the fuel injectors. See engine service manual for proper procedure.
4. Place a small piece of a rag in the bottom of the Injector Sleeve to block the hole where the nozzle protrudes into the combustion chamber.
5. Make sure the nut on the Sleeve Removal Tool is at least ½ way up the threads on the threaded section. You must use a high quality cutting oil while using this tool. Insert the tool into the Injector Bore and into the old Sleeve, and slide the alignment bushing down to make contact with the cylinder head. Using a 9/16" socket, turn the Removal Tool clockwise and begin threading the Tool into the Injector Sleeve. It will be quite difficult to turn as you are cutting threads into the old Sleeve.
6. Continue to turn the Tool for approximately 5 complete turns.
7. Back the Tool out about 1/2 turn. This will aid in removing the Sleeve from the end of the Tool once it is removed.
8. Using a 15/16" Deep Well socket screw the nut down the thread until it contacts the alignment bushing. Continue to turn the nut until the Sleeve comes loose.
9. Lift up on the Tool and remove it from the Injector Bore and the Sleeve will be attached to the bottom of the Tool. Carefully unscrew the old Sleeve from the Tool. If you have difficulty turning the Sleeve off of the Tool, place the Tool into a vise with the sleeve facing upward, gently grab the sleeve with pliers and begin to unscrew. You may use a torch on the sleeve for about 10 seconds to soften up the sleeve to break it free from the tool. You do NOT want to grip the Sleeve with pliers anywhere that the Tool is threaded into the Sleeve. This may crush the sleeve around the Tool and you will need to cut the Sleeve off and possibly damage the Tool in the process.
10. Clean the Injector Bore where the Sleeve seats to remove the old retaining compound (Loctite) with a long screw driver, vacuum, etc. Be careful not to damage the cylinder head in the process, you just want to scrape the old compound loose and remove it from the bore. Be careful to not allow any debris to fall into the combustion chamber via the nozzle hole in the Injector Bore.
11. Lube the o-ring on the bottom of the Insertion tool with motor oil then slide the new Brass Sleeve over the end of the Insertion Tool making sure the alignment dowel protrudes through the hole in the bottom of the new Brass Sleeve. The o-ring should then keep the Sleeve secured to the tool.
12. It is recommend to apply Green Loctite to the very bottom flat surface, and lower lip, and very upper lips of the new Sleeve to properly seal it in the head. You can look at the old Sleeve that you removed for reference. The shiny areas at the very bottom and very top are where the Sleeve makes contact in the Bore and this is where the sealant needs to be placed.
13. Carefully set the Tool with the Sleeve into the Injector Bore and set it in place, visually aligning as accurately as possible. Several hits with a dead blow hammer will set the Sleeve into place. Tap it until it won't go down any more, about 3/8" or so before it fully seats and bottoms out in the Bore.