

Installation Instructions

SPORT TUNING

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Part Number: 10.310.075K-10.310.080K

Description: Installation of 5th Gear Conversion

NOTE: If you do not have a strong mechanical background, you may wish to seek professional assistance with this installation.

TOOLS REQUIRED: (1) 12mm 12 point driver, (1) rubber mallet, (1) screwdriver, (1) 13mm box wrench or socket, (1) gear puller, (1) gasket scraper, (1) 17mm allen wrench for oil drain, (2) 6mm thick 19mm open-end wrenches

1. Degrease the outside of the transmission housing to prevent debris from getting inside the transmission.
2. Jack up the vehicle and put on secure jackstands.
3. Using the 17mm allen wrench, drain the transmission oil into a pan.
4. Remove the left front wheel for access to the transmission end housing.
5. Using a drip pan underneath the end of the transmission, remove the end cone carefully. **NOTE:** The clutch release mechanism can be disassembled at this time. Remove the gear shift linkage shaft.
6. Push the shift fork downward in order to engage both the 5th gear and the reverse gear so the mainshaft will not rotate(Access through linkage shaft hole).
7. Using the 12 point multi-driver(part #US 4483), remove the special M17 bolt from the mainshaft. When applicable, also remove the dished washer underneath. Count the turns when removing the bolt & reinstall the same amount of turns.
8. Return the transmission gears to neutral. Some transmissions may require prying loose the locking plate(which you can do with a screwdriver).
9. Unscrew the tube from the 5th gear shift fork with special tool number 3059 or 3038, supplied by the dealer. This tool can be provided at no charge if you are attempting this installation yourself by Autotech(part #10.012.310). Make sure you log the number of turns it took to remove the the tube and return it to its original position when reinstalling.

CAUTION: Do not pull off the selector rod. If it is slid out, the shift fork assembly will fall apart inside the transaxle and the entire transmission will need to be disassembled to reassemble to shift fork!

10. Remove the 5th gear shift fork and clutch assembly. The 5th gear mainshaft will also come out with the synchronizer ring and thrust washer.
 11. Remove the small side of the 5th gear by removing the circlip and washer on the end of the pinion shaft, while using a gear puller to remove the gear.
 12. Wash off the gears supplied in the 5th gear conversion kit with a non-flammable solvent. The coating on the gears is a protective lubricant from the factory for storage purposes.
 13. Clean off the solvent and let dry completely.
 14. Heat the small gear in an oven at 212°F.
 15. Using gloves or clean rags, carry the 5th gear to the transmission drive pinion shaft and install with the grooved side of the gear facing outwards.
 16. Reinstall the washer and circlip to hold the gear in place.
 17. Loosely assemble the 5th gear clutch gear assembly with the synchronizer ring, mainshaft, needle bearings, thrust washer, and shift fork. While installing the components, you should screw the tube of the 5th gear selector link into the shift fork. **NOTE:** The tubes with a groove use an adjusting sleeve, while the tubes with a shoulder use a locking plate.
- CAUTION:** When turning the shift fork with the special tubular shaped tool(#10.012.310), **do not let the shift fork rod slide out** or the transmission will have to be completely disassembled.
18. Adjust the position of the tube on the 5th gear shift link until it projects 5mm (or .200") beyond the shift fork.
 19. Push the shift fork back down into the trans so the 5th and reverse gears engage at the same time to tighten your new 12point M17 bolt. When installing the new bolt, use the new dished washer. Torque the bolt to 111 ft/lbs. The red coating on the outside of the bolt is a thread locking compound that aids in holding it in place.
 20. Return the gears to neutral and reinstall the gear shift linkage shaft.
 21. Pull the gear shift linkage shaft fully out and turn it counterclockwise. This will allow you to engage 5th gear.
 22. Lift up the shift fork so that there is no play between it and the operation sleeve of the clutch gear assembly. Make sure the operating sleeve's position is correct. (The lower edge of the operation sleeve to the edge of the synchronizing teeth of 5th gear should be 1mm or .039".)
 23. Secure the adjustment by:
 - A. (on transmissions through #29 029) peen, but do not deform, the adjusting sleeve with a blunt chisel. The peening point should be 19mm or 3/4" from the edge of the selector link tube.
 - B. (on transmissions #01 030 and later) drive on the locking plate with a dealer service tool #3097. The shift fork can be supported by the 2 19mm open-end

- wrenches that add up to a 12mm or 15/32" thickness stacked together.
24. Make sure that the selector rod springs back when depressed and released. If the rod sticks, the shift linkage tube may have deformed and must be repaired.
 25. Reinstall the end-cone on the transmission with the new gasket supplied. Do not use any gasket sealer or compound when installing.
 26. Tighten the 6 bolts that hold the end-cone on by torquing diagonally to a factory spec of 18 ft/lbs.
 27. With the car elevated, move the wheel or axle and have another person reaching in the vehicle shift gears. Make sure all gears are accessed without foreign sounds or hang-ups in the transmission.
 28. Check drain plug for tightness and reinstall fresh transmission fluid.
(The transmission will require 2.1 US quarts, SAE 80W)
 29. Check for leaks, replace left wheel of vehicle and torque to 66 ft/lbs.
 30. Lower vehicle back to ground.
 31. After starting the vehicle, make sure that you engage each gear at a slow and carefull speed, listening for any foreign noises. If a howling occurs in 5th gear, the reassembly tolerances may be off. This situation will cause premature wear and should be addressed immediately.

SPECIAL NOTE: Some models of cars do not have enough clearance from the end of the transmission cone to the body for easy removal. These vehicles require the removal of the transmission mount so the end of the transmission can be lowered on a jack until it clears the body. The shift linkage must also be out of harm's way when this operation is performed. **CAUTION:** When removing the end-cone at this angle, you should reach in and prevent the selector rod from sliding out. Once the cone is off, you should hook some string around the transmission to keep the selector rod in place.

The best reference book with illustrations for this assembly is the Robert Bentley Service manual available through us or your local dealer.

