



GEARED UP - GEAR 2

LIKE THE DRUM DIFF THAT WE TURFED IN ISSUE 121, THE FOUR-SPEED JATCO AUTOMATIC GEARBOX FROM MY VL HAD OVERSTAYED ITS WELCOME
STORY BY LIAM QUIRK PICS BY SC STAFF

My first forays with manual gearboxes were not at all pleasant. I freaked out on hill starts, rode the clutch and got angry at myself for not mastering manual driving straightaway. I did, however, love the notion of controlling how hard you pushed the car and feeling like you were actually driving it. When the VL was given to me it had an auto gearbox, which was exactly

what I was looking for at the time due to my temporary dislike of that infernal clutch. I happily punted around in the auto and clocked up hours on my Ls, but it wasn't until I was on my Ps that I really started to want a five-speed box behind the RB30. The auto was convenient, but the manual had to be more fun. I didn't just come across this manual box; it took 18 months of talking myself in and out of doing the swap for me to commit. When this example came

up on the forums for a bargain price, I snapped it up, tidied it up and waited for it to be installed. Watch as I finally gather the motivation to put the manual box in and really open up the Nissan 3L. We warn those who plan to embark on the conversion, you must allow at least three times the amount of time you're thinking it will take (think days), and be prepared to develop a certain distaste for your car - it is not an easy job.

1. First and foremost, the car will need to be jacked up. Ideally, you'd be able to get the whole car on stands. It's also probably not a bad idea to disconnect the negative terminal of the battery, considering all the electrical connections you'll encounter.

2. Start by removing the console surrounding the automatic shifter. This panel simply unclips and slides over the top of the shifter. Disconnect the light from the surround before you lift it out

3. Remove the shifter assembly; you'll need to drill out the rivets that hold the shifter in. This plate will be useless with your manual shifter anyway.

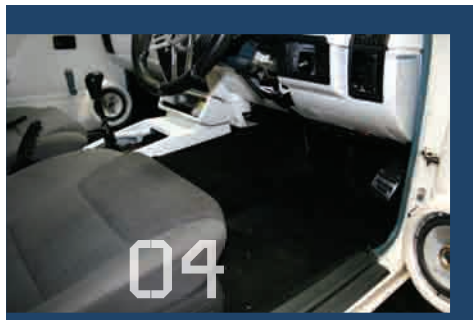
4. Instead of removing the auto pedal box and replacing it with an entirely new manual item, we trimmed down the auto brake pedal and added a clutch pedal that we happened to have lying around.

5. The auto and manual starter motors are different, so the auto one had to come off. While unbolting the starter motor, you can begin to unbolt the bellhousing.

6. It's now time to get back under the car. The wiring plugs need to be disconnected from the auto box and the speedo cable needs to be removed.

7. Start unbolting your tailshaft. Work your way from the gearbox and backwards towards the diff. Some fluid will leak from it, so have your drip tray handy. Drop the whole assembly out.

8. Undo the bolts holding the gearbox to the gearbox mounts and drop the gearbox out. Place a trolley jack under the gearbox to take the weight and undo the remaining bolts.



9. The gearbox may need a little persuading. Just keep at it and get it out anyway that you can. Allow the fluid to leak from the back into the drip tray you've become best mates with. Slide it out and place it next to the bin.

10. If the torque converter is still attached to the motor, get rid of it. Joining it will be the auto flexplate, which can be put with your 'now redundant' parts pile. Extra leverage may be needed to crack the bolts.

11. Here are three different sets of flywheel bolts. Working from left to right, we have the old auto ones, an old set of manual ones and a set of new ones from Nissan. Always use new flywheel bolts.

12. Remove the auto spigot bush by any means necessary. We started removing it hydraulically, packing the hole with grease and ramming a bolt in to force it out, but ended up grinding it out. With the auto spigot out of your way you can install your manual one. Gently knock it back into place; gently being the key word.

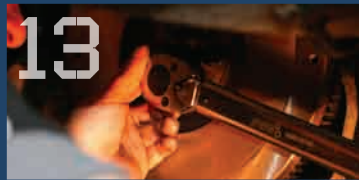
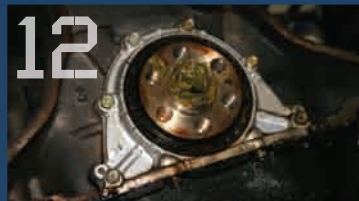
13. With things starting to go back on, it's time to install the manual flywheel. There is a difference between auto and manual flywheel bolts, so make sure you use the bolts with MT cast into them. Do them up as tight as you can without stripping them. With the flywheel in place, thoroughly clean it.

14. No manual gearbox will work without a clutch. You'll need a new (or other) clutch, and a pressure plate to suit. Don't fully tighten the bolts around the pressure plate as yet.

15. It's going to be easier to install the box without the shifter in the way, so remove it now. If you're particularly chummy with any bodybuilders, convince them to give you a hand installing the box. Failing that, use a trolley jack. Fit your slave cylinder and actuator.

16. Tighten the bolts on the bell-housing, securing the new box to the back of the motor. Reinstall the starter motor. We found out the hard way that the auto bolts are too short to be used again.

17. With the box in place, you can reinstall the shifter and bolt in the gearbox crossmember.





DIY - UL MANUAL CONVERSION



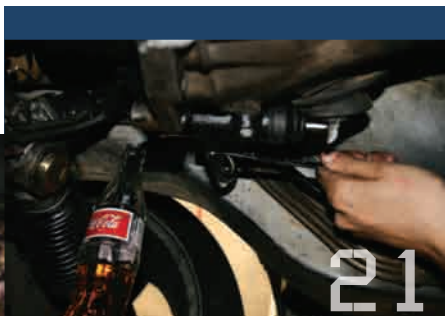
18. Here you can see the difference between the manual and auto tailshaft yokes (the manual is on the right). It's important that you use a manual tailshaft, and not just the yoke, as the tailshafts themselves are different lengths.

19. Replace the tailshaft, bolting it in at the gearbox and diff ends. We intended to replace the yoke, but after realising it wasn't a straightforward swap, we ducked down the road to Demir's Auto Wreckers for a new tailshaft. We also picked up a manual pedal box.



20. Install the clutch pedal and trim down the auto brake pedal. We could have replaced the entire pedal box, but saw this as an easier option, with the same result. You'll also need to trim down the lower half of the dash to accommodate the new pedal.

21. Install your clutch line and bleed the system. We made our clutch line with the help of Accurate Brake and Clutch. Check out the mini-tech on making your own line next issue.



22. Change over the computers. It lives behind your passenger-side kick panel, and there are two screws holding it in.

23. You'll need to bridge these two wires if you haven't got a manual wiring loom. These two receive feedback from the neutral start switch on the auto box, and without them bridged, the car won't start.

24. Block the transmission cooler lines in the back of the radiator to avoid mess.

25. Before you're going anywhere you'll need to top up the box with fluid. The fill hole is on the passenger's side, and it should take just a touch under 2L of oil if it's bone dry.



Double-check that all of the bolts are tightened to the torque specifications listed in your workshop manual. Check that your clutch and shifter are fully operational, as well as your reverse lights and speedometer. With all of these boxes ticked, you can get out on the road and perfect your gear changes. Don't forget that it is a 19-year-old piece of hardware, so it's probably not a great idea to shift hard, double-clutch and generally thrash the guts out of your new box.

The conversion would have been hard without a clutch and clutch components, so thanks to Race Brakes for the clutch and hydraulics, to SAS for the use of their tools and their answers when we hit a snag, and to Accurate Brake and Clutch for the clutch line. For a more detailed account, or to have any questions you have answered, jump on our online forum and have a look in our Power Play section. *SC*

