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E36 m3 manual swap

SHOP BY MODEL GARAGE SALE INSTRUCTIONS ABOUT UUC CONTACT US TERMS AND CONDITIONS SHIPPING RATES / TRANSIT TIMES HISTORY CONFERENCE TECH TIPS Well maybe this project is not as bad as a glove, but it's actually a big business. My car started my life as well sat avus Blue M3, which was in the same family because it rolled off the showroom floor. Service records jam wrapped a hanging set of ingredients, from water pumps to blade wipers, if it needed anything, the previous owner had taken care of it. But she got into a state of neglect and needed some attention. With 228k miles, the car was just tired, and frankly , slushbox automatic whining, taking a little longer to move to the device every time, and I thought it was time to make some moves in getting the manual gearbox into it. This isn't the dimmest DIY out there, but it can bring a glimpse of your project or give just another look at what it takes if you're thinking of a swap. Step one. What I need and how do I get it. Piecing everything together is an option, but quite costly when you start smashing the individual cost of everything. So why not buy the whole car? I found a 1996 328is with 199k miles on Craigslist for $500, had a ruptured radiator neck, and was very rusty, but it was manual and shifted fine, so that's all I cared about. Why is 328 instead of 325? Simple, the 328i has the same transmission as the M3, which is ZF trans (unlike Gertrag). While Gertrag would bolt up to this car, I wanted the M3 to have the same equipment that it would have from the factory. ZF is also rated for a little more torque, and seems to be beating better. I hooked up to the trailer, and before I knew it, I owned a donor car. The next step was to get what I needed out of the car. Here's the list: Driveshaft (Gertrag, ZF trans, and vending machines all have matching drive shaft lengths), so make sure you get a shaft that matches your trans. Pedal set master cylinder hardline from main cylinder to bodywork (some cars do not have bodywork, but that's fine) Transfer gearbox crossmember if you're not buying new ones (which I suggest), then you'll also need a flywheel/pressure plate/clutch shift shoe, shift knob, foam thermal insulation (under shift boot) Shift selector rod Snip reverse plug with enough wire so you can wire into the replaced car The next step is to accumulate parts that you should probably buy new ones. I took this opportunity to upgrade a few things here and there, and replace the wear and tear of the item when I was doing this swap. Here's a quick list of new parts. Flex Disk Central Underpant New LTW 14.6 Pound FX Chromol Flywheel OEM Sachs Clutch, Pressure Plate, Pilot Bearing, and Blow Bearing Metal Clutch Pin Pin From UUC stainless steel clutch line designed for z3 (eliminates small trans bracket and screws directly into slave cylinder) New hose from brake tray to main cylinder (must be OEM, or something similar, because the brake fluid will eat through the normal hose of the auto parts store ECS shifting kit Delrin clutch pedal case OEM pressure plate screws Slave cylinder Pro trans: new input shaft seal, output shaft seal, selector rod seal, shift pin service, shift detent service for 5. The donor car goes up on jack racks, remove the full exhaust, heat shield, drive shaft, slave cylinder (DO NOT PRESS CLUTCH PEDAL when the slave is out of manual gearbox, if you plan to re-use), disconnect the shifting assembly from trans, disconnect the reversing light strap from trans. Once everything is unhooked, the next step is pain as the bellhousing bolts off. The best ones are the hardest to get into, but I found an extremely long extension from the cargo port, along with a set of woe drawers did just the trick. Here shows my ridiculously long extension (along with a long woe extension), and my half inch breaker bar with a 3/8 inch adapter. You can snake it (with a reverse torx socket of course) over the transmission to get into the screw. I found it was beneficial to block the wood under the front of the engine and give it a slight jack to tilt the engine down, giving you a larger area between the transmission tunnel and the trans. If you're like me, and you're lucky with a new starter style, then you won't have to take the suction pipe off to hold the key to the nut to get it. I will say that you should at least remove the suction/airbox to get a good look at the launch area and peek at a few bellhousing bolts. Before you know it, you're going to end up with something like this. Congratulations, it's out there. It was a pain, but the knowledge gained from his admission from the donor car would be very beneficial for bringing them back in Now would be a good time to drain the fluid, remove the flex disc & trans crossmember, and give them both a good wash. Not bad for 199,000 miles. Removing the pedal set from the donor car is pretty straight forward, but there are more detailed DIY on the subject. I'll be doing a long list of links that I used at the end of this post. As soon as I got everything I needed from a donor car, I took the time to watch a pelican DIY article on replacing shift pins and 5th/Reverse detents. This was the whole project of my own, but with some borrowed detent tools from a fellow bimmerforums member, I got it done. Upon completion of the detent/shift pin service, the next to shift was the installation of the output shaft seal, the inlet shaft seal, seal of the selector rod. I was able to get the voter pole sealing out and no problem, the others however were real pain, a quick trip to the local mechanic and he had a new one for me for less than an hour for $25. It's worth it. I installed a new flex disc, shifting the rod joint (it comes with an ECS rebuild kit), filled the trans with fluid, put on new trans brackets and then freshly cleaned the trans crossmember. Now it's starting to look like a decent piece. I also cleaned the shift selector rod, and installed new cases and clips. The next step was to get the M3 ready to take all these new parts. Everything I had previously done with the donor car had to be done on the M3. It went up on jackstands, wheels off, exhaust off, heat-shield, drive shaft, etc. The exception was that many other parts of the interior needed to come out of the M3 to access the wiring and pedal set, along with the removal of automatic shifting. When looking at the pedal set the area with the kick panel removed. You just unscrew that factory clutch and pull off the rug. There you will see plugs in the firewall that you can enforce or pop up. You will run the line from the top of the main cylinder to the nipple on the brake tank under the hood. You will also use another hole in the firewall for a hard line on the bottom of the main cylinder that connects to the slave. Above is the nipple, which must be cut out, and then slide the line to the incoming from the main cylinder. I bought a hose from turner, it is designed to withstand harsh brake fluid conditions. Circled in red, you can see one of the holes in the firewall insulation, which simply needs to be pushed through. To remove the factory automatic shifting knob, just pull the trigger, and pull really hard. Be careful not to put your face directly over it, and be aware of maybe punching out your rearview mirror (seriously). You can see the automatic attachment straps that you will use to guide this project. It's a larger black plug left about halfway through the photo. On my car, I snipped wires 5 & 7 (they are marked on the plug), and then used extra wire and ran them along a bunch of wires to the left (drivers side of the right knee area, it will make sense I promise) to brake switch. Take the next brake switch that you now have, because remember that you bought another complete set of pedals, and go ahead and put it in the position of the switch on the clutch pedal. You will need to use exacto knife and knock down a little edge, but then it will fit fine. You connect the two wires to either the top two or bottom two terminals on that brake switch. It doesn't matter which, just choose two. Great, now your cruise control works, and you have to push the clutch to start the car as well as intended. That was easy. You also see solenoid locking one wire to the right of the huge hole in the car? Soak it under the carpet, unplug it and throw it in the container. You don't need the garbage anymore. Here's a quick look under the car without a drive shaft, exhaust or heat shield. Getting the transfer out is again a pain. But you've done it before, so this is a piece of cake. Automatic is very difficult, use the transfer connector and friend if you can. Just like that, you've got an automatic gearbox out. There's a small plug on automatic trans that you have to take out, and then give you access to the torque converter screws. I used the Bently manual for this project, I highly recommend you borrow or buy one, it was a very useful and quick guide when you want to know the torque value or how to do something. I used it on more than one occasion, especially for the questions I had regarding the automatic transmission. Now that the automatic gearbox is out, check the rear main seal and decide if you need to change it. You probably should, because getting the transfer off is not a fun task. Unfortunately I came across an unforeseen time limit with my swap and didn't get a chance to change it, but I wish I had a piece of mind. Also, it's a good look at where you put it in your new pilot bearing. I used some very find sand paper just to get some of the corrosion off where the bearing slides, then perfectly fit the socket to use it in place. The hole has a break in it, so you'll know when you've gone far enough with the pilot bearing. This is a great view of the hard line that you have to run. It is a line that comes from the upper right corner of the photo, down towards the center. Connects to the brace on the body. Mine didn't have that brace, so when I did I ended up using a zip tie to secure it. I find it infinitely easier to go from the bottom of the car, and connect the hard line that way to the bottom of the main cylinder. Many people go from inside the car out, but end up bending the lines. It took about 10 minutes alone. Just run your hand down the road and get an idea of where it's going to go. The leaky output shaft on this automatic transmission made a mess of it. No wonder it was whining, it probably didn't have much fluid left in it. So skip forward a little bit, the process of putting a manual gearbox is simply the opposite. I put a trans on the trans jack, then scooted it under the car, and slowly worked on it. Just take your time and make sure that when you drawer/torque the bell-body screws on, the socket sits all the way. The very last thing you want to do on this project is deal with a rounded or stripped bolt on top of the housing bell. The cost allocation of the donor car was purchased for $500, then sold for $250 after the parts were taken out (list parts taken from the car below) Pedal Set Gear Shift Linkage Hardline From Slave to Master Driveshaft Gearbox Crossmember Shift Boot w/Insulator Cut Wiring for rearview light plug (with as much slate as possible) Custom Locking Nut (x6) – $7.74 Exhaust Seal – $9.3 Exhaust Seal Matrix - $7.50 Trans Holders - $42.74 Shift pin/detent repair kit - $73.32 stainless steel clutch pivot pin - $30 Slave cylinder - $36 Flex drive - no friend Delrin Clutch pedal case - $30 Slave drive - no friend Delrin Clutch pedal case case - $36 Flex drive - no friend Delrin Clutch Pedal Case - $36 Flex Drive - No Friend Delrin Clutch Pedal Case - $36 Flex Drive - No Friend Delrin Clutch Pedal Case - Free Friend Delrin Clutch Pedal Case - $36 Flex Drive - Free Friend Delrin Clutch Pedal Case - $36 Flex Drive - Free Friend Delrin Clutch Pedal Holster - $36 Flex 16 Shaft Seal - $5.49 Clutch/Flywheel/Pressure Plate - $460 Output Shaft Seal - $13 Input Shaft Seal - $29 UUC Stainless Steel Clutch Line - $30 OEM pressure plate screws - $10 Trans fluid - $50 OEM hose from brake tray to master cylinder - $28 OEM pilot bearing - $21.40 Hex screws - $29.58 Driveshaft center support - $23.95 I took a very short video of the car, and I tried to hit some key notes for this project, give him a watch! I'll update this post with links and part of the numbers as I remember importing things that may have helped me along the way too. I hope any/some of it can help others out. Please feel free to contact me with any questions, and I can try to help with the correct answer! Answer!

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