Critical Ordering Information

Getting the correct part for your application

Too often customers claim their transmission problem was not resolved after replacing the transmission. The vehicle continued to experience the same symptoms it was brought to the repair shop for. Why is that? The reason for this is simple, it is misdiagnosis of the vehicle issue and not correcting the root cause of the problem.

What if there is a problem after replacement but it is different than the original issue? At this point, most automatically assume that the new part (in this case the transmission) must be faulty. Thoughts like "The builder must have forgotten (X)" or "They must not replace (Y)" These very thoughts ring loudly in your head when you are faced with the reality that the customers vehicle is still not fixed after the repair was made.

Technology adding complexity

When ordering *any parts* for a vehicle, there are variables that need to be considered to get the correct part, variables in how the vehicle was equipped from the factory come into play. Did the vehicle come 2wd or 4wd? Is there a provision for Power Take Off (PTO)? Is it a 6-speed or a 10-speed transmission. Does the vehicle have start/stop? This one is certainly important when ordering a transmission because that system requires a provision for the accumulator needed to keep the transmission pressurized while the engine is off in preparation of the restart and acceleration when the driver demands.

Modern electrical components are controlled and monitored by a module of some type by way of a feedback wire in the circuit, the module looks at the voltage coming back to it to determine if there is an issue with the circuit or component. The module uses this feedback to determine when and what codes to set when there is an issue. Now, if the wrong component is installed, and the module sees the wrong voltage signal it could lead to some challenging and interesting diagnostics.

When it comes to transmissions, the importance of ordering the correct part is magnified by the immense amount of labor to install this component.

Case study

We discussed ordering the wrong transmission, but what about parts that control/affect transmission operation, like the PCM?

A customer was experiencing electrical fault codes, one was for the PCM, and the other for Transmission Fluid Sensor (TFS) circuit. After diagnosis including inspection of the wiring, the shop decided to replace the PCM, and one was sourced from a reputable supplier. After replacing the PCM a new code was present, code 83, and again, code 79 for the TFS. The shop then decided, with combination of the codes and the fluid looking a little burnt with some debris to replace the transmission, so they got approval from the vehicle owner to replace it.

After replacement, wouldn't you know it, code 83 came back. After some choice words and some grumbling, the shop called into the tech line. After a line of questioning to get the repair history of the vehicle and details of what the technician had done for testing, we started by looking up the codes for this vehicle application. The transmission we are talking about is a 4L60e from 1994 GM vehicle. We were receiving Code 83 from the PCM and could not find it in the service information for a 1994 model GM. Something we learned long ago, if the information you seek doesn't exist, such as a wiring diagram or in this case, DTC

information, try a different year.
Bingo, code 83 is listed for a 1995 of the same vehicle application. The code was for "PWM solenoid circuit fault", *the problem is*, in 1994 this transmission used an on/off TCC solenoid to control lock-up, not a Pulse Width Modulated lock up system. So, we called the shop back and found out that code 83 only showed up after the PCM was replaced. Knowing that this code that shouldn't be in this vehicle only appeared replacing the PCM, we recommended the shop contact the PCM manufacturer with this newfound information. There hasn't been a return call from the shop, so we can only deduce that the PCM was configured incorrectly, and it was looking for a signal from a circuit that was not there.
While we can only assume based on the info that was provided that the PCM and Transmission needed to be replaced, we're sure that had we not caught the PCM issue at this stage, replacement of good components may have been made potentially costing thousands more in repairs.

Common points of needed information

So, what can we do to prevent wrong parts when ordering? It starts with the Vehicle Identification Number (VIN).
Something experience has taught us is never trust one source, always check a few locations to be sure, because you never know if the dashboard or one of the doors were replaced at some point. If the correct VIN information wasn't swapped to the new part, you could be providing the wrong VIN to whoever you're ordering parts from and receiving the wrong part for that vehicle. Check the vehicle registration as well, if you find any information that doesn't match it is best to get your detective hat on and start questioning the customer about vehicle history.
This can be time consuming, and you may wonder if it is worth the effort when you have a bunch of vehicles to get to. One question to ask yourself is, if you don't have the time to look for and verify a few numbers, where are you going to find the time to do the job a second time?
For those who are not familiar, the VIN is 17 characters on modern vehicles. It contains information like manufacturer, chassis type, model, engine, year, what market the vehicle was built for (US, Canada, EU, Japan, etc.), it's also the number sequence that the vehicle was produced in the manufacturing run.
Vin numbers are in several locations, most common can be seen through the windshield on the dashboard.

Newer vehicles put a sticker on the B pilar or on one of the doors.

However, keep in mind that the VIN is not the do all, end all, in the ordering process. You may need the following in addition:

- **Tag ID**

  Think of it like the VIN for the vehicle but with a narrower more detailed focus of transmission information. The tag will decode when the transmission was produced, what model it is, and what it was built with internally. This is all very helpful when matching your core to a replacement transmission.
  It may be found in a variety of locations and could be:

A steel tag riveted to the transmission case

A number etched or cast into the transmission case.

A sticker stuck to the transmission case.

- **VB/Solenoid calibration information**

  Later model transmissions are using more and more QR code technology to provide lots of information in a smaller location. Use the camera of your smart phone to scan the QR code to reveal the data required. The information that is on there could contain the TUN (Transmission Unique Number), PUN (Part Unique Number) in transmissions like the 8 and 10 speed GM, or the Shift Solenoid

Strategy like the Ford 6 & 10 speeds. Because we don't want this to be a 2000-page service manual we will keep this high level and let you know it exists, but you will have to check your specific application to see where it is located or if it is applicable to the model transmission you are working with. All this information may be needed to order the transmission as well as for programming after installing the replacement part.

- **RPO** (Regular Production Option) codes for (GM vehicles).

  As we talked about in article #1 December 2022, the RPO code may be needed to reprogram the vehicles modules during the installation process of some transmissions. RPO codes are the recipe of the vehicle's make up. This is useful when there are several transmissions available for the same make/model vehicle. The RPO codes can be found in a variety of locations like:

  1. Inside the glovebox
  2. Inside the trunk lid
  3. Under the hood
  4. In the back seat bottom cushion

***Keep in mind, just like the VIN plate, an RPO tag could be inadvertently swapped to the incorrect one.**

- **Module replacement**

  We mention modules here because something needs to control the transmission and if it is wrong you could end up being one of the next case studies.

  On older vehicles they were easier to replace and didn't always require programming. In most cases, you could swap modules by matching the P/N and Cal ID that were displayed on the main connector of the module or swapping an EPROM in a GM vehicle, possibly editing pin factor on a Chrysler vehicle.

  With newer vehicles, identifying part numbers and calibration of the PCM, ECM, TCM, and other module's is easier today because you can look it up by connecting a scan tool and reading it on the data display, however, in just about every case newer module replacement will require some type of programming with solenoid strategy or calibration file in order for things to work correctly.

Casting numbers/part numbers

When parts like the transmission case or tail housing are cast there is usually a part number that identifies it as a transmission part and a lot number from when it was cast (see photo below circled in red).

In identifying a specific build sheet of the entire transmission, this information is not useful to a transmission supplier because those parts could be used in many different versions of that type of transmission. The same could be said about other cast assemblies in the vehicle like engines, differentials, even alternators and steering racks.

Summary

Ordering parts is not rocket science, it is a match game. Matching components correctly will ultimately save time and headaches. We hope that this information has cleared up some questions you may have had regarding the information available to you and how it can be beneficial.