

DIY Guide to Changing the Rialta's ATF and Filter

NOTE: The procedure described below is for the 01P transmission on 1995-2003 Rialtas. Earlier Rialtas used the 098 transmission, which doesn't have an overflow tube or overflow/drain plug and which used a different filter/seal assembly (VW parts 095 325 429D & 095 325 443A), with two bolts holding it on. Changing the fluid in these earlier transmissions can be messy because all the fluid has to be dumped straight from the pan.

Introduction

The VW maintenance schedule for the EuroVan (which each Rialta started out as) calls for the ATF to be changed every 40,000 miles. However, the fact that the automatic transmission is servicing a 22-foot RV instead of the smaller and lighter van for which it was originally designed makes for a "severe use" scenario and, accordingly, the ATF in Rialtas should be changed at least twice as often – every 20,000 miles. This document is aimed at Rialta owners who wish to change the ATF themselves and thus be sure the job is done right. (And speaking of doing the job right, part of the procedure involves cleaning items and areas of the transmission casing. It cannot be emphasized enough how important it is to use only hemmed, lint free rags with absolutely no stray threads or other particles to ensure that not even the tiniest foreign element is introduced into the transmission.)

Do-it-yourselfers will find the procedure relatively straightforward. It does require the use of a diagnostics tool that can monitor ATF temperature, but if that means purchasing one, the investment is relatively modest and such a device is very useful on many levels. Other than that, it requires no special skills and costs less than \$100 per ATF change, a considerable savings on the \$700 or more some VW dealerships charge. (And incidentally, if you talk to any dealer or mechanic who advises you that the transmission is a "sealed" unit and can't be worked on, you need to find another dealer or mechanic.) All-in-all, considering the very high cost of a new transmission, changing the ATF frequently is a wise investment, and any do-it-yourself Rialta owner who hasn't installed an after-market transmission cooler is strongly encouraged to learn this simple maintenance procedure. (If, on the other hand, you do happen to have an aftermarket transmission cooler on your Rialta, then the cooler makes all the difference and the ATF needs to be changed only every 124,000 miles or so.)

If you've already taken a peek at the transmission under your vehicle, you may be tempted to think that because the Rialta comes equipped without a transmission dipstick and only a very short transmission fill tube on the transmission case, getting the replacement ATF into the transmission will pose a problem. Not so. All you need to do is make a temporary long filler tube using two feet of 3/4" heater hose or clear vinyl tubing, which can be purchased from most hardware or auto parts stores. One end of the tubing/hose goes tightly over the built-in short plastic fill tube on the transmission case and a funnel is inserted into the other end in an easy-to-reach location under the hood.

There was a time when it was possible to do a dipstick modification so as to have the permanent dipstick-and-long-tube assembly accessible from under the hood that is commonly found in other vehicles, but it is now almost impossible to buy the long tube used in the modification. However, if you can lay your hands on one of these tubes, full instructions for doing the modification can be found on the [Transmission Dip-Stick](http://www.rialtainfo.com) page at www.rialtainfo.com (a suitable dipstick is available).



Heater hose inserted over the short filler tube.



The other end of the hose under the hood with a funnel inserted into it.

What you will need to change the ATF and filter

In addition to the two feet of hose or tubing and a funnel, you will need:

- a large **waste-ATF container**
- **clean materials that include a scrub brush, an old toothbrush and lint- and particle-free, hemmed rags and, if possible, a parts cleaner.**
- a **5 mm Allen key**
- a **10 mm hexagonal socket and ratchet**
- a **torque wrench**
- a **small flat-bladed screwdriver**
- a **ScanGauge II, Roadi T55, VCDS, or other diagnostic tool capable of reading the ATF temperature.**

There are also four different replacement parts needed:

1. **Filter**, or strainer (VW part 01M 325 429)
2. **Filter gasket** (VW part 01M 325 443, already installed on the neck of the filter in the picture below)
3. **Transmission pan gasket** (VW part 098 321 370)
4. **AFT Fluid** (VW part G 052 162 A2). This special OEM mineral-based semi-synthetic ATF with the specification *LT71141* was developed in Germany for use in certain automatic transmissions used by VW and others. It is sometimes referred to by the VW specification

TL 52162, or G52. The price is about \$15 per liter. You can also opt for cheaper non-OEM after-market brands that meet the same specification. Four liters are needed, but it is better to buy five to be sure you have enough, eight if you want to achieve a 93-96 percent replacement of the old ATF (see step 5 below).

Some places sell the filter and gaskets online as a kit (VW part 098 398 009A) that fits all Rialtas equipped with the 01P transmission, as well as the OEM ATF. One such is Europarts:

<http://europarts-sd.com/filterservicekit-automatictransmission1995-2003.asp>

<http://europarts-sd.com/transmissionfluid-oem1995-2003.asp>

The average price for the complete filter kit is about \$30. At VW dealerships, the price can range anywhere from \$50 to \$125. You could also order the complete service kit:

<http://europarts-sd.com/1995-2003automatictransmissionservicekit.asp>



The Transmission pan gasket and the transmission filter with filter gasket installed. (Also note the metal spacer sleeves that go in the gasket bolt holes.)

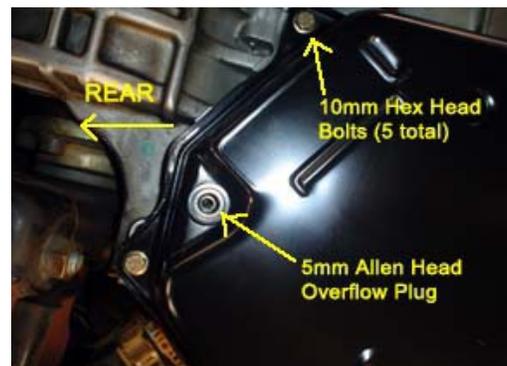


OEM VW Automatic Transmission Fluid by Pentosin.

Order four extra liters if you plan on doing the 93-96 percent change described in step 5.

Step-by-step guide ...

1. Remove the belly pan, start the engine, let it run until it's warm (being careful not to let it get so warm that surfaces and/or fluids are too hot to work with) and then switch it off. (You may prefer to initially put the front wheels up on ramps for better ground clearance, but if you are not doing the 93-96 percent change, the vehicle will have to be level later when you replace the ATF.)



The transmission pan showing hex-head bolts and overflow plug

2. Position the waste container under the transmission and use the 5 mm Allen key to remove the overflow plug on the bottom of the transmission pan and allow fluid to drain out. When fluid stops draining out, use the Allen key to carefully remove the green or black overflow tube inside the overflow plug hole.
3. Remove the three 10-mm hex-head bolts at the back of the transmission oil pan and loosen the two at the front, being prepared for the transmission pan to break the seal at any time and leak heated ATF.
4. When you're ready, tap the pan or gently break the seal at one of the free corners, then slowly loosen the two front bolts to get the pan to tip at an angle and drain more fluid into the waste container. Be careful to keep hands and arms away from the hot fluid. When the fluid stops draining again, remove the pan and empty any remaining fluid in it into the waste container.
5. Remove the filter by simple pulling down on it. If the gasket doesn't come off with the filter, you may need to coax it off. When you remove the filter, additional fluid will drain into the waste container. Allow sufficient time for all the fluid from internal parts of the transmission and valve body to drain or drip out.



Underside of the transmission with the pan and the filter removed.

TIP: Some people leave the transmission to drip overnight so as to drain as much as a half-liter more ATF. Regardless, fluid is retained in the torque converter, and at best only about 67 percent of the old ATF will be removed.

However, there is a way to end up with as much as 93-96 percent new fluid by doing what amount to several partial fluid changes, but it takes eight liters of ATF to achieve this, rather than four. The procedure is explained in steps 13(b) and 16(b) below.

6. The next step after removing the filter and gasket is to get ready to add new ATF. (NOTE: If you have previously modified your vehicle by adding a dipstick and long filler tube, then you will be adding the fluid through the top of the dipstick tube and you can skip this step.)

First you need to remove the red plastic seal atop the short black plastic fill tube at the front of the transmission. After you've removed the seal, you then have to remove the cap under the seal. You can either leave the tube in place while you do this (and quite possibly damage the seal and/or cap as a result of working in a very confined space), or you can temporarily remove the entire fill tube, which will make it much easier to

remove both the seal and cap without damaging them.

Because you've already removed the pan, it is in fact very easy to remove the tube assembly. Carefully depress the exposed ends of the prongs of the fill tube from the underside, where it fits through the hole, while pushing up at the same time. The fill tube assembly will pop free.

Once you have the tube assembly out, remove the red plastic seal by sliding a small flat screwdriver blade into the slot on its side to release a tab, which in turn will allow the seal to open and be removed. Now you will see the plastic cap held in place with small catches that need to be depressed in order for the cap to come off. If you're careful, both the seal and the cap can easily be removed intact in this way and then re-installed later, so that you don't need to purchase replacements.



The fill tube in place on the transmission.

The seal opens when the catch is released.

The three components of the fill tube assembly.

CAUTION: Debris tends to accumulate in this area, so both before and after removing the fill tube assembly, be sure to clean the around the top of the hole in the transmission case where the tube is inserted with an old toothbrush and a lint-free rag with no loose threads or other particles, such as a hemmed square of micro-fibre. To prevent dirt or debris from falling through the hole and contaminating the exposed parts of the valve body, have a similar small rag ready to put into the hole from underneath as soon as the tube has popped out. This rag should then be pulled all the way through from above when it's time to remove it. (For obvious reasons it cannot be emphasized enough how important it is that the rag leave no particles behind.)

7. After you've removed the seal and cap, work the hose or tubing that's going to serve as a temporary extension over the open end of the fill tube and re-install the fill tube into the transmission case. The tube assembly has a fin halfway along its length, one edge of which is rounded, while the other is flat. The rounded edge goes against the transmission case.
8. Clean out the inside of the transmission oil pan, making sure that all debris and sludge has been removed. There is a flat magnet about 1" x 3" attached to the inside of the pan which should be removed and thoroughly scrubbed to remove all metallic build-up and ridges. It's very strong and may need some coaxing to get it out. Make sure the edges of the pan where the gasket goes are clean. Because VW uses a rubber gasket, the edges should just wipe

clean. Do not under any circumstance scrape or grind the edges.

9. Install the new gasket onto the pan, along with the five metal spacer sleeves that go through the gasket at each bolt hole (if they are not already installed.) These sleeves provide the exact spacing required when the bolts are tightened down and don't allow one bolt to become over-tightened and distort the gasket, which could lead to a leak.
10. Using another clean cloth, wipe all debris from the mating surface on the transmission to ensure a good seal to the new rubber gasket when the transmission pan is reinstalled. Be careful not to scrape the aluminum surface.
11. Push the new filter, with it's own little gasket (round seal) installed, into the valve body. It's just a simple push fit and it will tend to hang down a little because of its own weight. However, once the transmission pan is reinstalled, it is impossible for it to fall off.
12. Reinstall the transmission pan with the gasket attached. (Gentle reminder: be sure the new filter is installed before attaching the transmission pan. It's surprising how many people replace the pan only to find the new filter still sitting on the workbench afterward.) Snug up each of the five 10 mm hex head bolts, alternating as you would when putting lug nuts on a wheel, and torque to 106 inch-pounds (12 Newton-meters).



13. (a) **67 percent replacement** – reinstall the overflow tube and use the 5-mm Allen key *The new filter in place* to carefully hand-tighten it, bearing in mind that it's only plastic, and then reinstall the overflow plug and tighten with the Allen key.

(b) **93-96 percent ATF replacement** – reinstall just the overflow plug without reinstalling the tube at this point.

14. Add four liters liters of ATF through your (clean!) filling device.
15. After adding the fluid, start the engine and run the gear selector through all the gears (depress the button for *R*, *N*, *D* and *1*, move the selector without the button depressed for *3* and *2*. In the process, **if the front of the vehicle was on ramps and you are not doing the 93-96 percent change, return the vehicle to level ground.**
16. **This next step is very important: The Rialta requires a precise amount of ATF warmed to between 95°F and 113°F.** Connect the diagnostic tool to the vehicle's OBD-2 connector under the steering wheel and set it to display the ATF's temperature.

(a) **67 percent replacement** – at 90°F, briefly remove the overflow plug to be sure you have excess fluid draining out the overflow tube. If not, quickly add more ATF until it starts to drain and then replace the plug. As soon as the temperature reaches 104° – 105°F (halfway between 95°F and 113°F), remove the plug again. When excess ATF draining out is down to a minimal flow, replace the plug and torque it to 133 inch-pounds (15 Newton-meters).

(b) **93-96 percent ATF replacement** – (i) let the engine idle for five minutes to let the ATF mix, then shut it off and remove the overflow plug and drain as much as possible from the pan. (ii) Reinstall the overflow plug and add another two liters and repeat (i) above. (iii) Reinstall both the overflow tube and the overflow plug (as in step 13a) and add the final two liters. As soon as the temperature reaches 104° – 105°F, remove the plug again, this time, as in 16a above, without turning off the engine. When excess ATF draining out is down to a minimal flow, replace the plug and torque it to 133 inch-pounds (15 Newton-meters).

CAUTION: While the engine is running, keep fingers and clothes away from the serpentine belt. In addition, the transmission pan and fluid can get very hot, along with many of the coolant hoses. Wearing a close-fitting long-sleeve shirt will help avoid burns and any entanglements. Also, be on the alert for radiator fans coming on automatically as the engine coolant temperature increases.

17. Once you are satisfied the level is correct, whether it be after the single-stage 67 percent replacement of the ATF, or the third stage of the three-stage 93-96 percent replacement procedure and have reinstalled and torqued the overflow plug, you can shut the engine off.
18. If you used an extension made of heating hose or vinyl tubing to add the new fluid, carefully pull or pry the end of the hose/tubing off the short fill tube, push the cap back down in place on the tube and re-attach the red seal.

CAUTION: The transmission case will be hot after setting the correct ATF level. You may prefer to allow it to cool somewhat before doing this.

19. Using a clean cloth, wipe any traces of ATF from the external surfaces of the pan and overflow plug, and all around the rubber gasket where it meets the transmission case. Start the engine, let it to run for several minutes and then recheck for any leaks.
20. Replace the belly pan and properly dispose of the used fluids, either through a local recycling program such Auto-Zone's, or a recycling service through your municipal trash collection service.
21. Pat yourself on the back, because you just saved \$\$\$\$ and you know the job was done right.