

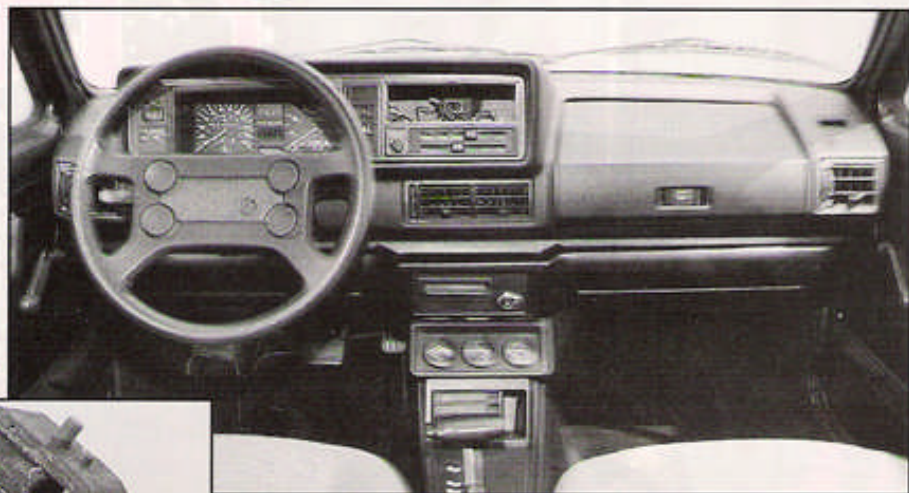
Project CABRIO

Solving the "shake and rattle," with just a little dough!

By JEFF HOLIFIELD

Volkswagen's A1 chassis can be found under every Rabbit Convertible and Cabriolet model imported into North America from 1979 to '93. It is also the same chassis found under every Scirocco, and all '84 and earlier Rabbit and Jetta models. For its time, the A1 chassis was heralded as the best small car platform by the motoring press, and it has served Volkswagen very well for many, many years. It was, after all, the basis for the original GTI — the infamous "wolf in sheep's clothing." But like the humans who created it, it is not without faults.

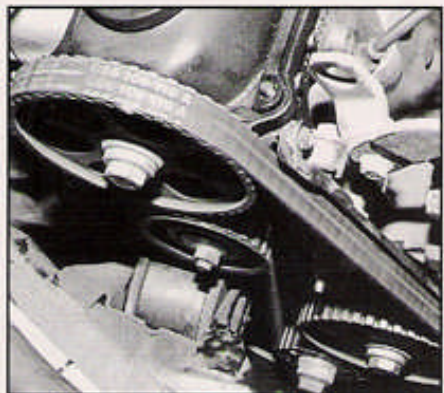
The most newsworthy of these faults is the dismal performance of the right motor mount. Prone to failure, this relatively inexpensive item can make a perfectly fine, in-



LEFT, four motor mounts are used on the Cabriolet. The large-diameter right motor mount is prone to failure. The mount shown here is an improved version of the original.



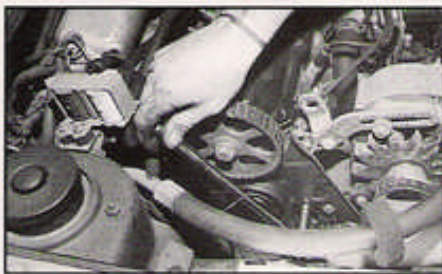
ABOVE, to replace the right motor mount, the timing belt must be removed, which also means all the lower pulleys and V-belts must be removed. **FAR LEFT**, there she blows! The motor mount is located directly under the timing belt tensioner. Space is tight to say the least. **LEFT**, if the drive belt is to be reused, Mesa West puts a dab of paint on the belt at all three sprockets.



tune automobile feel as if it were a ratty, third-rate beater, ready for the nearest scrap heap.

As the miles stack on, this poorly designed rubber mount begins to wear, causing it to sag. In as little as 50,000 miles, the original right motor mount could completely collapse, which transmits an incredible amount of engine vibration directly into the chassis (especially at idle). The result is a steering wheel that shakes uncontrollably, and a dash that rattles so bad that it begins to buzz.

If your early water-cooled VW has the shakes and rattles, take this simple test —



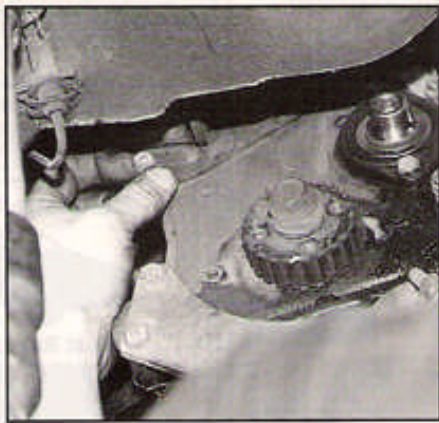
LEFT, once the belt is removed, the two bolts holding the mount carrier to the face of the engine are removed, as is the rear drive belt cover. **RIGHT**, the intermediate shaft sprocket must also be removed. To loosen the mounting bolt, use an extra 3/8-inch drive ratchet fitted with a long 13mm socket through the sprocket to keep it from spinning.



all you need is a floor jack, a friend, and about two minutes of time. Position the floor jack under the oil pan, near the right-hand (passenger) side. Get in, and fire-up the car, noting how much vibration is coming through the car. Give your buddy the okay to jack the engine up 1/2- to 1-inch and, with your hands loosely on the wheel,

note any changes. If the vibration decreases significantly, it's a sure bet the right motor mount has failed.

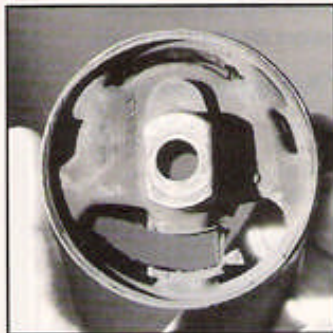
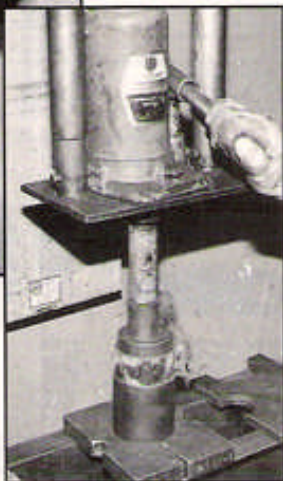
The good news here is that a heavy-duty, Genuine VW Parts right motor mount (replacement p/n 171.199.214F) is available from VW dealers for \$28.70 (MSRP). This stout mount now supersedes the later



ABOVE LEFT, with the first two mount carrier bolts removed, it is a good time to take pressure off the motor mount via a floor jack. **ABOVE CENTER**, there are three more bolts securing the carrier to the engine. One more on the face, directly under the mount. **ABOVE RIGHT**, and two on the backside of the engine. These last two can be tricky to spin out by hand, and pliers may be required to get a grip, once broken loose.



ABOVE, with the carrier completely detached from the engine, remove the single large bolt that secures the mount to the chassis. Slowly work the mount out until it is free.



LEFT, the old mount must be cut, or pressed out from the carrier. Mesa West has a special tool that makes this chore a snap. **ABOVE CENTER**, our original right motor mount was totally collapsed, even though the rubber looks great. **ABOVE RIGHT**, before pressing in the new motor mount, a chamfer is ground all the way around it to help center it.



FAR LEFT, the new Genuine VW Parts mount is much stouter than the weak original unit Volkswagen used on the assembly line. Note mount orientation when properly installed. **LEFT**, these rubber mount covers are often decayed, and should be replaced before reinstalling the new mount. **RIGHT**, getting the mount back in place is a real fun job ... not!



ABOVE, installation of the motor mount carrier is in reverse of its removal. The engine support jack may have to be raised, or lowered some to get all the screws in. Also, install all of the carrier's bolts before tightening any of them. **ABOVE RIGHT**, the timing belt is reinstalled by matching the paint markings that were put on before removal. **RIGHT**, the procedure is finished like a normal timing belt change from here.



mounts that are prone to failure. So, for a small investment, an older A1 chassis VW can regain the idle smoothness found when the car was new. Of course, buying the new motor mount is the easy part — it's the installation that's the real work!

The Volkswagen A1 chassis right motor mount is one of those automotive parts that has you scratching your head, wondering what the heck the engineers were thinking when they designed it. Not only is the right mount's carrier buried behind the timing belt, it is installed into the carrier via a press-fit. Two major headaches waiting for any home mechanic gutsy enough to tackle removal and replacement (R & R) of a collapsed right mount.

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To facilitate removal of the right motor mount carrier, the timing belt must be removed, as well as the intermediate shaft sprocket. Last month, we covered in detail the removal and installation of the timing belt, so we will concentrate more on the mount removal specifics in the photos. Nothing too complicated, just a lot of work to remove the mount carrier from the engine.

The next hoop to jump through is removing the actual motor mount from the carrier, and then pressing the new one in. Genuine Volkswagen Service centers have a special tool (used in conjunction with a hydraulic press) to remove and install this mount from its carrier, but very few independent shops do. Fortunately for us, nearby Mesa West German Auto Center, in Costa Mesa, California (714/645-2374), is one of those lucky few.

After seeing the ease at which the motor mount is pressed out, and in, with this special factory tool, we feel it is well worth the few extra dollars to a home mechanic to remove the mount carrier from the car themselves, and then take it to a nearby VW dealer (or shop like Mesa West).

For those without such a place near home, the metal ring of the mount (not the carrier) can be cut in a pie-shape fashion to get the mount out. Then a hydraulic press can be used to slowly press the new mount in, with the help of strategically placed bars to provide required clearance for the protruding center portion of the mount. We have heard that a very large vise will also get the job done, but this is potentially dangerous with the pressures involved, and we do not recommend this route. Once again, for our dollar, it's well worth having a professional, with the right tools, do the job correctly.

Other than the right engine mount, the center motor mount is the next likely mount to need replacement. Actually, the term "front motor mount" is a misnomer, as it is really a front snubber. Its main job is not support, but control of engine rock during acceleration, and deceleration. This mount is not prone to out-right failure like the right motor mount; but as miles stack on, normal wear and tear takes its toll. Fortunately, Genuine VW Parts mount (p/n 171.199.339) is a simple bolt-on for the home mechanic.

The rear transaxle mount is the only one of the four that looks like a traditional motor mount. And, like a regular motor mount, it should be checked for normal signs of wear, such as cracks in the rubber, or separation from its securing pads. More often than not, the rear mount will last until the engine/transaxle needs removal for repair.

Nevertheless, the rear mount's position makes it susceptible to decay from being soaked in oils leaking from the powertrain, and/or from engine cleaning chemicals. Like the front mount, the rear mount (Genuine VW Parts replacement p/n

175.399.151B) is a bolt-on proposition that a home mechanic can tackle with little difficulty (just make sure to support the engine/trans with a jack).

The mount least likely to cause problems is the left transaxle mount (Genuine VW Parts replacement p/n 171.199.214D). Under normal conditions, this small diameter mount is replaced when the engine or trans is rebuilt. If all the other mounts (particularly the rear) have gone away, though, it's a safe bet the left mount has also begun to deteriorate to some extent.

Like the right mount, the left motor mount is pressed into its carrier. Unlike the right motor mount, the left trans mount/carrier assembly is readily removable. Again, we recommend the carrier be taken to a VW dealer, or other pro, with the correct tooling to R & R the actual motor mount.

All said, the four engine/transaxle mounts will set you back about \$73.00 (MSRP) from a Genuine Volkswagen Parts dealer, but as we said earlier, the right and front motor mounts are the normal culprits that require replacement.

Another note — it is common to do a precautionary waterpump change while the front of the engine is disassembled.

Follow along with us as we tackle the villainous right motor mount, and solve our "shake and rattle" with just a little dough. Another Project Cabrio episode brought to you by Genuine Volkswagen Parts. ●