

Expert Answers to your Tech Questions

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Which Boxster

I am new to the Porsche world. I am not, however, new to VW/Audi, having owned two Jettas and an A4. My A4 has over 265k on the 1.8t! My question: Now I am in a position in life to finally afford a Boxster. I am looking at the second generation models and would prefer an S. Do you have any tips on what I can look out for? I need to try and keep it around \$30-40k, so new is not in my budget, but I'm confident I can find a great used one in Southern California in that price range.

Based on your budget range, we would suggest you consider a 2009 Boxster S. This car is powered by a newer engine design, the MA1.21, 3.4-

liter with direct injection. Additionally, many of the problem areas that plagued the M96 and M97 engines between 1997 and 2008, like the intermediate shaft bearing, were engineered out of the motor. The car itself is a strong performer and seems to have no specific shortcomings.

Of course, how an individual car has been treated is something entirely different. We would suggest, as we do to all prospective buyers, you get a thorough Pre Purchase Inspection (PPI) performed on any car that you seriously consider. It is also important that the car be checked for accident and chassis damage. Ask the owner if you can review all the service and maintenance records going back to when the car was new. This will tell you how well the car was cared for, and it's best to get a car that has been maintained more frequently than even Porsche's recommendations. If you plan to keep the car a long time (which it sounds like you did with the Audi) this will be important.

Focus on finding a car in great condition and, as mentioned, well maintained. Be patient, as your search for the right car may take some time and effort. Do not get tempted by an inexpensive price or the right color if it is associated with a lesser quality car. It may also be possible to get a car with a Certified Pre-Owned (CPO) warranty; this should shield you from most major repair expenses for six years or 100K miles from the original in-service date of the car. Good hunting.

Wet Distributor

The distributor in my 1986 Carrera gets wet inside the cap if the car is parked in the rain or if I don't cover the engine when washing the car. When driving in the rain the problem is not as bad, but if I shut it down for a few minutes, I'm not able to restart it because of water inside the cap. As a result of the moisture problem, I have to replace the cap and rotor at least once a year. I do have an aftermarket RS America

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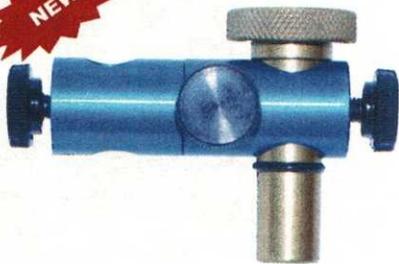


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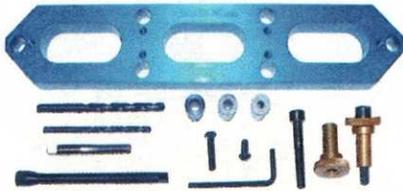
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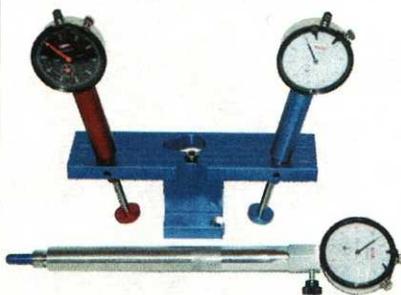
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wing mounted on the car, but I remember having the problem before installing it. Last year I had the engine rebuilt, but, as I've said, this is not a new problem. When everything is dry, the engine runs very smoothly at all rpm. Have you heard of this before, and do you have any ideas of how to keep the inside of the cap dry?

This problem is seen from time to time; there are typically a few issues that can cause or exacerbate the moisture. Your car should be equipped with a Bosch distributor, and it should not be physically damaged in any way. Some after-market distributor caps do not fit properly. Be sure you use a genuine Porsche or Bosch part. Keep in mind that many of the poor quality knock-off parts are made to look exactly like the original. Use a retailer that sells only the genuine Porsche or Bosch components.

There should be a black plastic dust cover or cap located on top of the distributor and accessible when the distributor cap and rotor are removed. There should be a small notch in the distributor housing to correctly locate the dust cover. The dust cover's job is to seal the distributor and the distributor cap from dirt and moisture. A damaged or missing dust cover often can be the source of the problem.

Take note of any fasteners that might be missing from the distributor housing. If these are not in place, the open hole can provide access for water/moisture. Also make sure that the distributor cap is correctly located on the distributor. When properly located you cannot rotate the cap; it will fit solidly in place on the distributor housing.

The ignition wires and connectors also need to be in good condition. If frayed or cracked, they can allow water/moisture to short the spark to the nearest ground. An incorrectly installed spark plug connector can also cause the problem.

Short Shifter

I recently purchased a 1986 911 Carrera with 88k miles and am

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thrilled with the car. The previous owner had the local Porsche dealer install a short-shift kit last February. Seven months later, in September 2012, and after driving car for about two thousand miles, the previous owner brings the car back to dealer complaining of difficulty in going from first gear to second. The Porsche dealer "installed" synthetic transmission fluid and advised that gear oil will "need time to get through gears & syncros." That was about 500 miles ago.

During a pre-purchase inspection in December 2012, engaging second gear was noted as a problem area. My mechanic (a Porsche specialist) indicated this might be remedied by replacing each gear's synchronizers in the gearbox as they were likely worn or damaged. He also suggested that removing the short-shift kit might also have a favorable impact on the difficulty of going from first to second gear. Then he stated that he'd remove the short shift kit anyway, as he believes these kits put unneeded stress on the transmission.

I've put about 500 miles on the car since purchasing it and to some degree have gotten used to the extra bit of muscle required to get the car into second gear. Sometimes it's not bad at all. Other times yes—a good bit of oomph is required to lock her into second. My mechanic assures that other than the small amount of unneeded stress added by the short-shift kit, I'm not doing any damage to the transmission by driving it in its current condition.

Currently I'm thinking that at the next oil change, still about 3,500 miles off, I'll ask the mechanic to take out the short-shift kit—then see how she shifts. However, I wanted to get a second expert opinion. What would you do? Does the short-shift kit indeed place unneeded stress on the tranny? Might first to second gear shift easier without the kit? Should I go ahead now and have the mechanic replace the syncros?

We hear this and similar stories

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fairly often, which means we are not fans of many aftermarket short shifter kits. However, before addressing your questions, there are a couple of things about the story as relayed to you by the previous owner that should have raised a red flag—not only to you, but especially for your mechanic performing the PPI. When the gearbox lubricant is changed for the purpose of improving a gearbox operational issue, the results from that lubricant change should be known fairly quickly. There is no waiting for the synthetic or any gearbox oil to work its way through the gears and synchronizers. It also depends on the type of lubricants you utilize. Some synthetics are just too slippery. We also question that the Porsche dealer would have installed an aftermarket short shifter due to the obvious potential liability issues. If the dealer did indeed install the short shifter, then we

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would expect it to be a factory unit; if you have the receipt for an after-market short-shift kit and the dealer receipt for installing it, then we stand corrected and surprised. The more likely scenario is that the dealer sold and installed a factory short shifter to the previous owner.

Being that your car is a 1986 Carrera, you have the last model year where Porsche installed the 915 gearbox. You should never force the shift lever into gear. These gearboxes are basically bulletproof when in gear but can be damaged easily during shifting. The 915 gearbox (like the 901 before it) can be damaged by moving the gearshift lever before the clutch is completely disengaged and with the throttle still being applied. This is a problem we have also seen with short shifters. If you move the shift lever too soon, you will hear a pop and feel the shift lever jump in the direction that you've applied the

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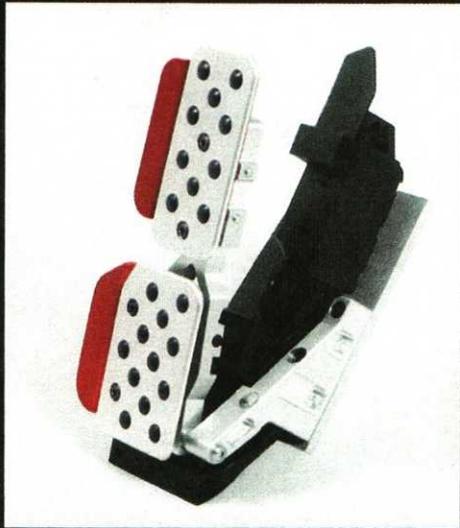
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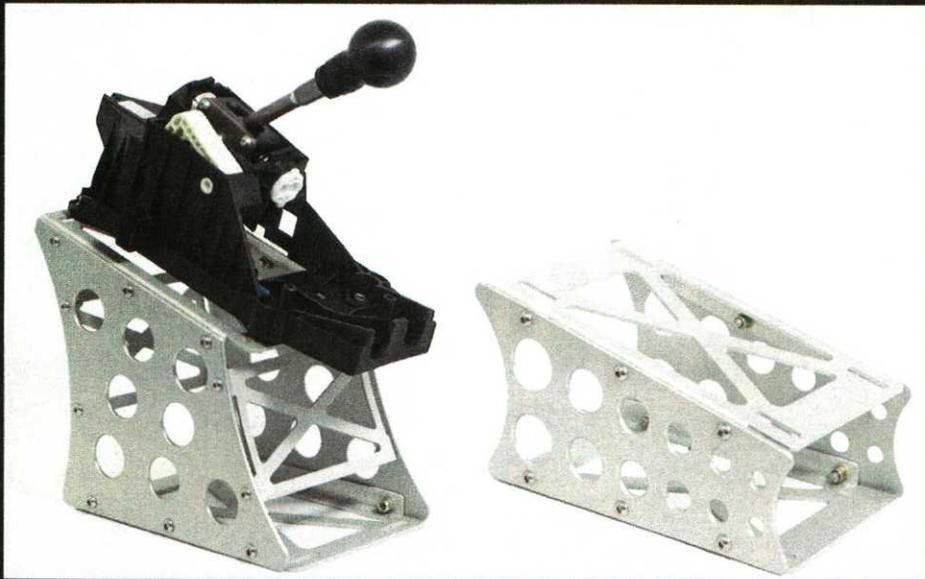


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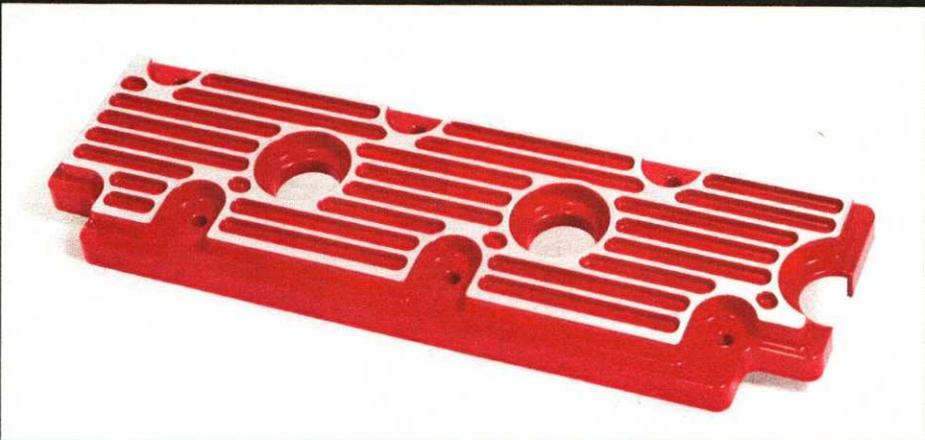
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pressure. This can damage the dog teeth of the gear you were just in. This is because until the clutch is disengaged there is torque being applied to the selected gear; if the shift lever is moved too soon (before clutch disengagement), the engine torque will be applied to only the tips of the small dog teeth. The result is that the dog teeth break off. Unfortunately, when enough of the dog teeth have broken off, the gearbox will pop out of gear even under the slightest acceleration or deceleration.

Full disengagement of the clutch (pedal on the floor) is a must or you run the risk of damaging or breaking dog teeth. Also, it should be noted that the G50 and G96 transmissions are designed differently and are less prone to this type of damage. The issue of damaged dog teeth and bad gear synchronizers is often seen on cars equipped with short shifters installed, because most drivers will inevitably miss a shift between gears when attempting fast and forceful gearchanges.

You didn't mention any noise associated with your gearchanges, even though you stated that at times more force is needed to make the shift. Normally, a gearbox with faulty synchronizers or damaged dog teeth will be accompanied by a grind or crunch whenever the gear change is forced. Worn-flattened dog teeth can cause blocking or difficulty finding the gear.

Another common cause of shifting issues is faulty or worn shifter bushings, including the shifter coupling. To check the coupling/shifter assembly adjustment, put the gearbox in neutral, and make sure the shifter shaft (base) is vertical. The shifter's throw between neutral to first and then neutral to second should be of an equal distance. Then, put the shifter into first gear and then move the shifter handle side to side, making note of the amount of play present, then put the shifter in third gear and again feel the play. The side-to-side play in the shifter when in first and third gears should be the same. If these

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results are not obtained, then check the condition of the shifter bushings, coupling and or adjustment.

The clutch cable brand and clutch adjustment are critical in these cars. There is a special process to properly adjust the clutches between the years of 1977 and 1986. Ask your technician to consult the factory manual to ensure that the clutch is set/adjusted properly. We have found that the factory genuine Porsche clutch cables work best and last the longest. Many after-market clutch cables usually begin to deteriorate internally, which starts to cause sticking after 6-12 months of operation.

Also check to see if the clutch cable Bowden tube clamp was removed per the factory bulletin. The Bowden tube must not touch the gearbox housing, as this can cause clutch chatter when taking off from a stop.

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Remove the shifter selector cover on the bottom of the gearbox, after the fluid is drained, and check to see if the three 6mm stud/10mm flats nuts are tight.

We agree with your mechanic in that the short shifter should be changed out unless you find that the shifter is a genuine Porsche short shifter. We have no problem with that unit unless it is damaged. If the clutch adjustment, clutch cable, Bowden tube, shifter bushings and coupling all check out normal, we would suggest draining the gearbox oil and inspect it for any metal debris in the oil. Change the gearbox lubricant to a high-quality hypoid gear oil; we use Motul Gear or Swepco 201. Work with your mechanic on what he suggests, but we recommend a gear lubricant that favors synchronizer operation.

If after checking all the above and changing the gearbox lubri-

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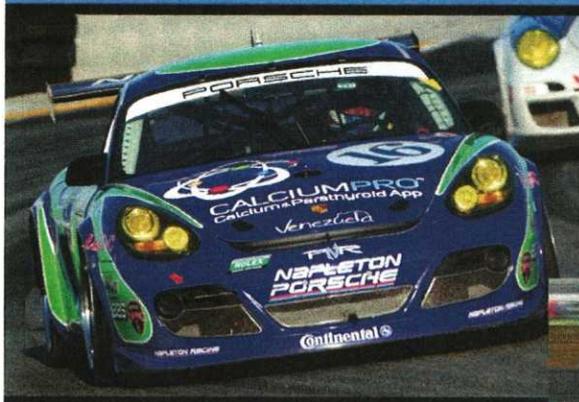
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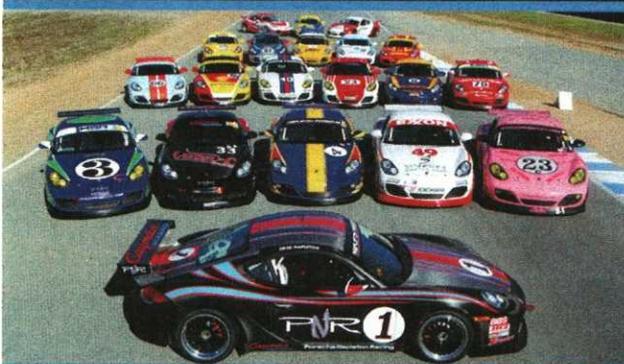


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cant the problem continues to persist or gets worse, we would suggest a gearbox teardown. Replace all the synchronizers, bearings and any component showing wear or damage of any kind. Be prepared to spend \$2,000-4,500 or more depending on what is damaged.

Eliminate My Confusion

I live in Europe, and last year I bought a European-spec 2010 Boxster S (987). The owner's manual states that the engine is an MA1.21. I read the "Tech Notes" of the April '13 issue concerning The Cayman and IMS with more than a passing interest. Additionally I read some of the advertising from LN Engineering about its IMS retrofit bearing kit. According to LN Engineering, the M97 engine was retired in MY 09 and replaced with the 9A1 engine, which, according to their article, is without an intermediate shaft or bearing. My question: Is the MA121 engine a replacement for the 9A1 engine or merely the European designation for the same? Secondly, does the MA121 engine have an IMS, and if so what has Porsche done to minimize or eliminate the failures. A subscriber for over 15 years, I enjoy all of the articles in Excellence, especially the "Tech Notes." Thanks for taking the time to eliminate my confusion.

We are not sure how the engine designations for the newer Porsche models became confused, but they did. The MA1.21 is the correct engine designation for your 2010 Boxster S. The designation 9A1 is an internal Porsche number and is utilized as the part number prefix for some of the engine parts belonging to the MA1 series engines. The 997-2 Carreras utilize the MA1.01 and MA1.02 engines, the 987-2 Boxsters and the 987-2C Caymans utilize the MA1.20 and MA1.21 engines.

Your MA1.21, as well as all MA1.XX series engines, do not have an intermediate shaft and therefore no intermediate shaft bearing (IMS).

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Oil for an Air-cooled Engine

The February 2013 issue of Excellence "Tech Notes" section makes reference to Motul 8100x-max 5w40 synthetic. After checking with suppliers and internet search, all I can locate is Motul 8100x-cess 5w40 syn. Is this the same product? My car is a 1982 911 SC with 105,000 miles.

Burns no oil. Have used Brad Penn 15w40 and Mobil 1 15w50 in the past with apparently good results. Because I live in Minnesota and like to drive the car until the snow flies, an oil in the 5w range for start-up sounds good. Is the Motul x-cess a suitable oil? And if not, how about Shell Rotella T-6 synthetic 5w40? The real question is do the x-cess and/or Rotella have adequate levels of ZDDP and other necessary formulation to be a good choice for my car?

Motul combined the 8100 X-Max

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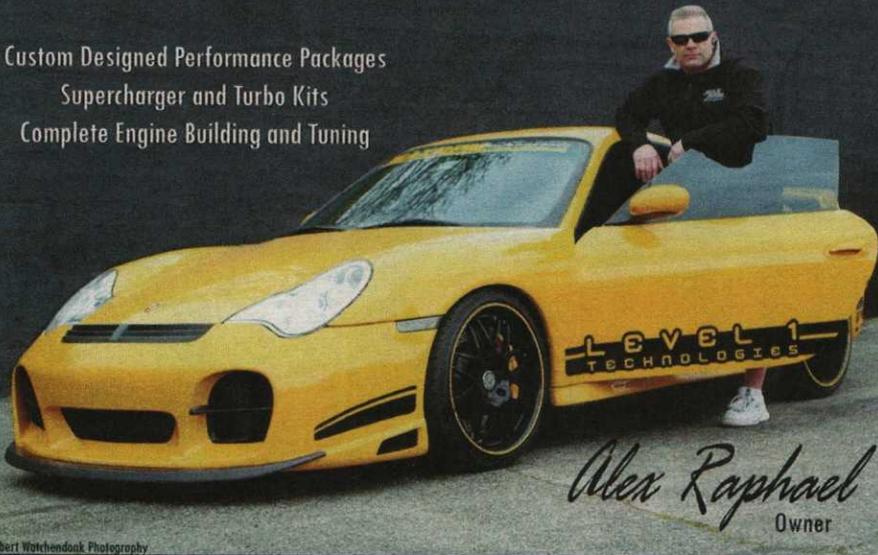
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and 8100 X-Cess 5W40 oils into one product. Motul retained the product name of the 8100 X-Cess 5W40. We recommend this oil for all Porsche models with water-cooled engines from 1997 to present, but not for your car.

Air/oil-cooled Porsche engines are designed with very different internal tolerance ranges than those engineered into water-cooled engines. Water-cooled engines typically operate within a very narrow temperature range by design, whereas your air-cooled engine can see operating oil temperatures vary widely, normally from 180°F to 230°F. Oil temperatures in the 240°F range should be considered hot, and 250°F is way too hot. We recommend using a 15W50 weight semi- or full synthetic oil in all climates. For those owners using conventional engine oil in their air/oil-cooled Porsche, we recommend 20W50 oil. Your previous choice of

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987.1 Cayman & Boxsters	20 WHP / 18 Torque

Application	Power Gain
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Brad Penn 15W40 was good; however, we prefer the 15W50 because it offers additional protection at those higher engine temperatures mentioned, which can be caused by many factors. These can include, but are not limited to, elevated ambient weather conditions, driving greater distances or very aggressively, the mechanical condition of the engine or a lean air/fuel situation, stop and go/heavy traffic, desert climates, large hills or mountains and, of course, driving your car on a race track.

In cold weather the 15W50 synthetic oil should provide proper cold-start flow characteristics for Fahrenheit temperatures down into the teens and even single digits, but it's not recommended below 0°F. Your air/oil-cooled engine should utilize a heavier oil film strength at cold startup than that of a water-cooled engine. Your desire to drive your car until the snow flies should be possible with a quality 15W50 synthetic oil.

We recommend Motul 6100 15W50, Redline 15W50 oil and the Brad Penn 20W50. In your situation we would also recommend Brad Penn 15W40, because it will have a lower temperature tolerance than the 20W50—with the caveat that you are not driving in ambient temperatures that exceed 90°F or seeing engine oil temperatures in the 220° range or above. As far as the ZDDP levels, they should be in the 1,250 to 1,500 PPM, and with low detergent additives.

The value of using a high-quality oil and filter and changing it regularly is simple: It will greatly influence the service life of the engine. Today we see too many damaged or worn-out mechanical engine components that should have lasted much longer than they did because of inadequate lubrication.

Rolling Safe in a Boxster

I own a 2009 Boxster, which I'd like to run at a local track event. The organizer requires documentation that the factory roll bar will provide adequate roll-over protection. Can you point me toward some sort of

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certification or documentation that confirms that it will?

Unless you're short, you may be in trouble. While there are a number of track-day organizers that allow Boxsters to run with their standard roll hoops (usually with the top up), many don't. There was a problem with the Porsche Club of America, for example. Despite the fact that Porsche itself engineered the car's roll-over protection, taller drivers wearing helmets usually run afoul of the "two inches above the helmet" rule, which can be checked by laying a broomstick across your car's windshield header and the roll hoop behind your head.

A good source for further information is Dodge Whipple, owner of Brey-Krause, a firm that makes an extension that will make a Boxster roll bar legal, at least for the PCA.

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 - remove rev and speed limiters

- switching devices and app for switching between programs
- stock
 - 91-93 octane performance
 - 100 octane performance
 - anti-theft
 - valet

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