

Alliance

Years ago at the old AMC Jeep/ Renault dealership, we were pretty excited about have a “Car of the Year” to sell. The Renault Alliance was voted Motor Trend Car of the Year in 1983. Large decals glued to the rear windows identified the little car as the “One to Watch.”

The Alliance was indeed an alliance between the French car maker Renault and the now defunct AMC. Unless you knew the car was assembled in

Wisconsin, you’d have sworn it came right from a French factory.

Things didn’t work out very well for the Alliance and its hatchback sibling the Encore. They’ve disappeared from new car showrooms. But there are still quite a few running around our streets, and they present many repair opportunities. This month, we’ll try to show some common problems and repair items on both vehicles.

The Alliance was originally equipped with a 1.4 liter push rod engine, fueled by a Bendix throttle body injection system. Acceleration was modest, but fuel economy was exceptional, especially in cars equipped with manual transmissions. (A 1.7 liter overhead cam engine was introduced later in the run, but the 1.4 should keep us busy enough for now.)

The engine was a wet sleeve design, long a favorite of French car makers. Four individual cylinder sleeves were dropped into a rectangular engine block. Each jug was sealed at the bottom with a single rubber o-ring. The cylinder head and head gasket kept the jugs pressed down on their o-rings, and also did their best to keep compression, exhaust, oil, and

coolant in their correct places at the top end.

This sounded good on paper. But overheating, blown head gaskets, and scored cylinder walls left us very busy. The dealership kept a good supply of water pumps and head gasket sets on hand at all times.

There's a lot more to this car than we can cover in one article. In fact, one of this month's Tech Tip winners has added a timely tip on CV joint boot replacement. In a future edition of Electrical Service, we'll concentrate on several electrical gremlins with a decidedly French accent, applying to both Alliance and Encore models.

—By Ralph Birnbaum



1

Leaking water pumps are a prime cause of head gasket failure. The engine cooling system design doesn't tolerate any fluid loss before it starts pumping air instead of coolant. No cabin heat, and a temp gauge that bobs up and down like a yo-yo are good signs that trouble is brewing—so to speak.



2

Early style cooling systems placed the coolant jug down low in the right inner fender. To fill this system from scratch, remove the radiator cap and fill the radiator. Be careful when removing the radiator caps. The plastic tanks get brittle from heat and the fill necks sometimes twist off with the cap.



3

There's a lot of air trapped in the hoses above the radiator at this point, even though the radiator is full. Replace the radiator cap and remove the pressure cap at the remote fill neck. The remote fill neck is located on the right inner strut tower, right across from the water pump.



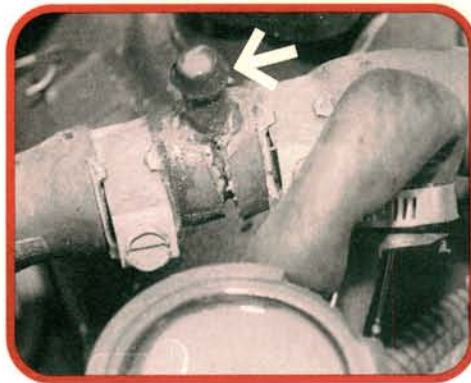
4

Add coolant until the remote fill neck is full. Then remove the short coolant hose to the bleed valve. What we're doing in this bleeding process is forcing any remaining trapped air in the cooling system to the highest point in the cooling system. Trapped air and this system just don't get along.



5

Set the cabin heat to HOT. Start squeezing and releasing the upper radiator hose. The thermostat is in the hose, and this process will fill the upper hose, purging most of the air from the upper hose through the thermostat's jiggle valve. Make sure the thermostat's jiggle valve is at 12 o'clock!



6

As the hose fills with coolant, top off the remote fill neck. Watch for coolant to start flowing from the bleed valve. Start the engine and let it idle. If coolant continues to flow from the bleeding tee, you can reinstall the hose. Keep squeezing and releasing the upper radiator hose to catch any stray bubbles.



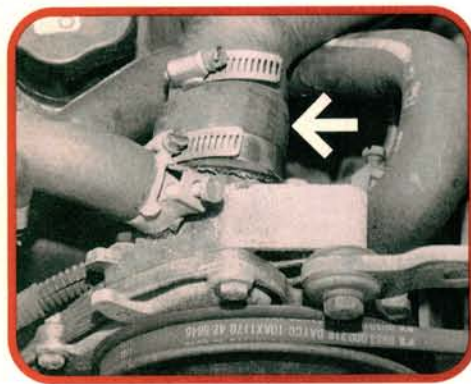
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If the thermostat is opening as the engine warms, the top radiator hose will get hot. Keep an eye on the temp gauge. If a cooling system in one of these cars is working properly, and you've gotten all the air out, you'll be able to run the engine until the cooling fan cycles before installing the remote cap.



8

If there's air trapped somewhere, or if there's a head gasket problem, the coolant will geyser, so be careful! The thermostat in our test car was installed upside down, and the thermo switch on the radiator had been disconnected. Talk about having a death wish! We'll show you the results in a bit.



9

Some folks removed the thermostat completely. It should be located in the top hose (arrow). But this also causes problems. The fuel system never gets a HOT signal from the coolant and assumes the car is COLD. It continues to richen the mixture and also keeps the car at high idle thinking the engine is cold.



10

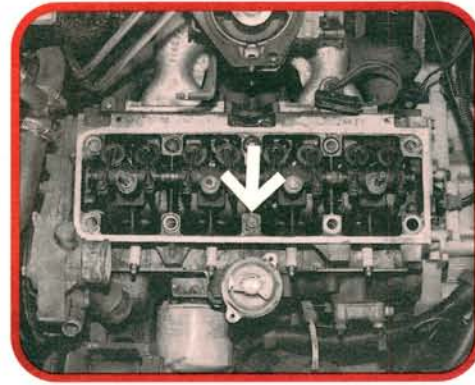
Later style cars placed the coolant jug in the water tray higher than the water pump, and the system was supposed to be self bleeding. A large lower hose from the jug fed coolant to the engine, and a smaller hose from the bleeding tee entered the top of the jug. This car has a blown head gasket anyhow.

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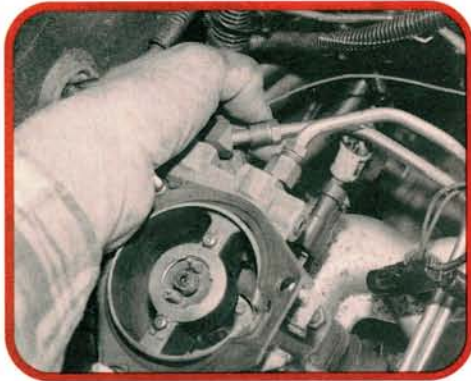
11

Renault used a single o-ring at the cylinder base to seal the cooling jacket from the crankcase. This made cylinder head removal a little tricky. If the head was unbolted and pulled straight up, the cylinders would stick to the head gasket and come along for the ride—breaking the seals.



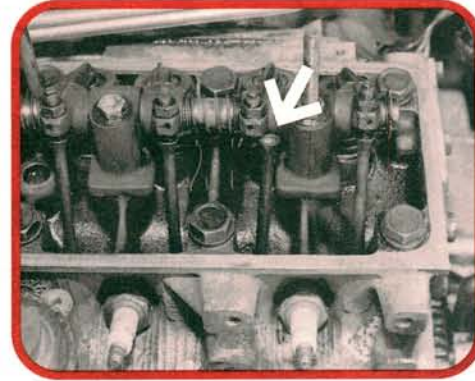
12

As a result, there's a special procedure for removing the head. All but one of the head bolts are removed (cold!). The final bolt at the front/center is loosened but left in place. Then the whole head is rotated about 15 degrees to shear the gasket, before the final head bolt and the head are removed.



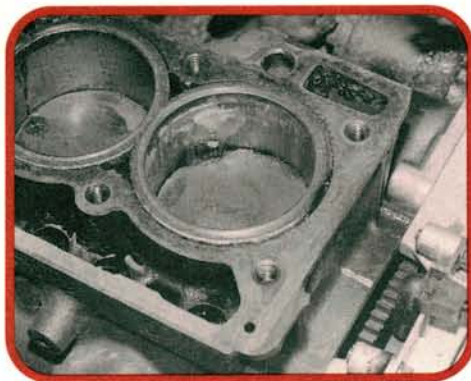
13

You don't need to unbolt the manifolds or remove the distributor to take off the head. Disconnect the fuel lines at the throttle body, all vacuum hoses, cables and electrical connectors. Unbolt the down pipe from the exhaust manifold. I used to remove the rocker shaft to check for plugged oil passages.



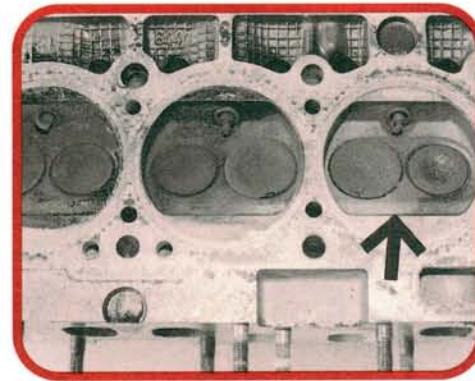
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A quick note about rocker shafts and push rods while we're here. It was not uncommon to have a bad miss (usually accompanied by a popping in the throttle body) caused when a push rod "launched" (arrow). If the rod isn't damaged, reinstalling it and adjusting the valves usually fixes things.



15

With the head removed we find other problems. One cylinder has run very hot. The piston has a hole in it, and part of the aluminum piston is now bonded to the wall of the cylinder. In less severe cases, piston scoring may lead to a "knock" when an engine is started after a head gasket replacement.



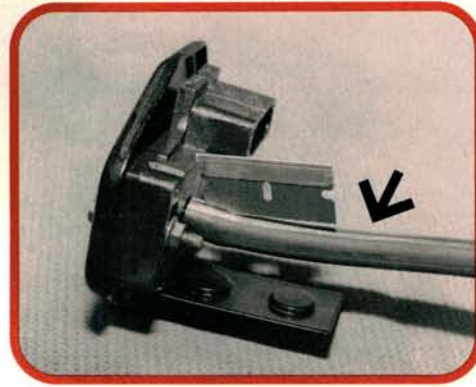
16

The combustion chambers tell another story. The chamber at the right (same one with the trashed piston), has run very lean. A cracked vacuum hose at the intake manifold has leaned the damaged cylinder. The other chambers show how the fuel system richened the mixture to keep the engine running.



17

With the head removed, we get a better look at the vacuum hoses. On this car, one hose goes to the vacuum can, the other to the map sensor. These hoses cause all sorts of problems when they harden and crack from heat. Always check them and don't hesitate to replace them if they're suspect.



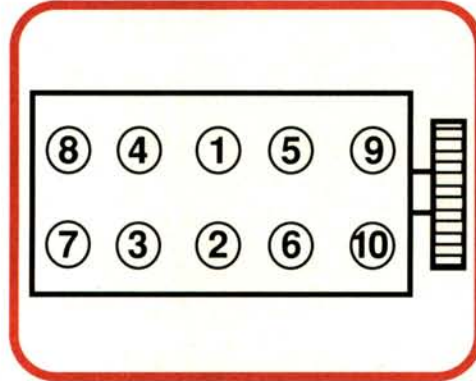
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Be careful when removing the hose from the MAP sensor (arrow). The hoses might have gotten loose at the manifold, but they stay tight at the sensor end. If you yank on the hose, the sensor may come apart. Take a few extra seconds to slit the hose with a razor blade before removing it.



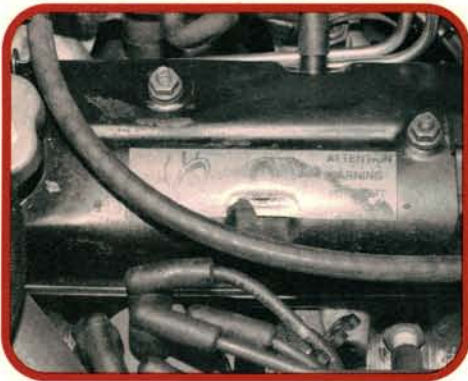
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The heads have to be straight and true to seal properly. In cases of extreme overheating, cylinder heads will distort. Be careful about minimum head thickness. If this is the second (or even third) head gasket replacement, the head may already be too thin from repeated resurfacing.



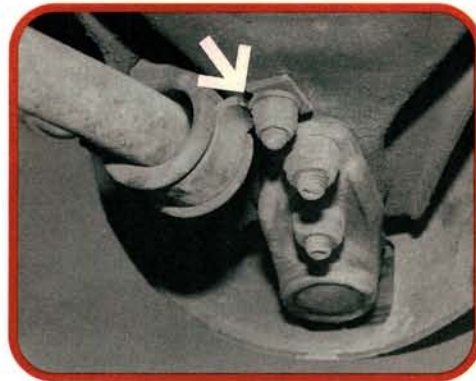
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This diagram shows the head bolt tightening sequence. Head bolts torque to 55 Nm (40 ft-lb) cold. We always had the customer return in 500 to a 1000 miles to double check the cooling system and retorque the head bolts. Valve lash should be adjusted cold. Adjust intakes to 0.15 mm, exhausts to 0.20 mm.



21

Make sure you have the correct oil filter for the engine. We won't give you year applications here since the car may have a bone yard engine already. But be aware that some 1.4 liter engines used a filter with an English thread, while others were metric. Not all engines had stickers on the valve cover.



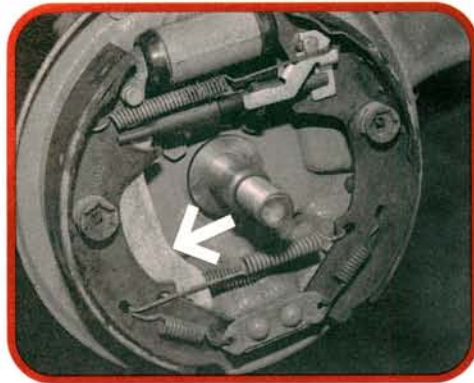
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Let's move on to some under car problems. The front stabilizer bars had two problems. First, the inboard bushings would get dry and squeak loudly. And the outboard bushing clips at the control arms would break. Our donkey car had one outboard clip missing, and the other was badly cracked (arrow).



23

Another common problem was abnormal rear brake wear. We saw many cars arrive with uneven wear on the rear shoes. In some cases, one side had no lining left, while the other wheel looked like new. We eventually traced the problem to improperly adjusted hand brake cables.



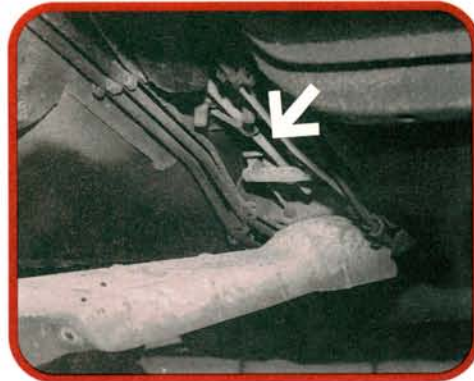
24

The cables were apparently overtightened at the factory. They kept one or both of the hand brake arms pulled forward (arrow). This kept the self adjuster on that wheel from working properly. In fact, some of the star wheels on the adjusters were rubbed toothless and stopped working altogether.



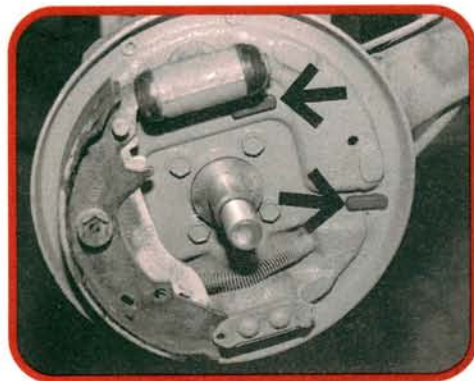
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Inspect the adjusters. Look for worn or even missing teeth on the star wheel(s). Replace any damaged parts. If the adjusters aren't damaged, clean them and lightly lube the threads. The adjusters are marked for left and right so don't mix them up. Screw the adjusters all the way closed before reinstalling them.



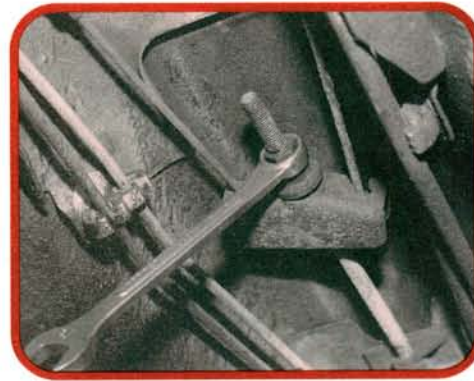
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With the brake shoes installed, check the hand brake lever arms—both of them. Make sure they're all the way OFF—fully released. If not, check for a sticking cable or cables. If neither is sticking, you'll need to drop the protective shield between the exhaust and the cable mechanism (arrow).



27

Back off the cable adjuster until there's no tension on the arms. Reinstall the drums and adjust the new shoes as you would normally. This photo shows the location of the two rubber plugs in the backing plate—one is for inspection of the lining thickness, the other for manual adjustment of the brake shoes.



28

With the new shoes adjusted, go back and adjust the hand brake cable until it applies both sets of rear shoes evenly, but fully releases them when the hand brake handle is lowered. This will normally give you about 6 to 8 clicks on the handle until the hand brake is fully applied.