

# Coolant Crossover Pipe Hose Replacement

*Edward F. Sowell*

*1976 Jaguar XJ-S*

## **Background**

The coolant crossover pipe is a black, steel pipe running across the front of the engine, right below the air-conditioning pulley. It connects to the engine at ports beside the thermostat housing on each bank, and connects to the water pump a little to the left of center. Its function, according to the Repair Operations Manual (ROM), is to carry coolant from each bank back to the water pump inlet when the thermostats are closed during warm-up.

All three connections points for the pipe are close coupled with short hoses. This, together with the cramped space at the front of the engine, makes replacement of the hoses difficult. I tried to do the job myself several years ago and wound up having the car flat-bedded to the Jag shop to have it reinstalled. More recently, having the front of the engine exposed to replace the front crankshaft seal, I decided to try it again. I thought it would be easy with all the fans, radiator hoses etc. out of the way. Well, it was a little easier, but still difficult. Getting it off is not bad if you first cut the hoses with a utility knife. Getting it back in place with the new hoses is the challenge. But this time I succeeded, so I thought I'd jot down the secrets.

## **Preliminaries**

It will help greatly if you realize up-front that you are going to have to remove some things for access. Here is my list:

- Left top radiator hose.
- Valve cover breather at the valve cover, left side of the engine.
- Smog pump belt adjuster, where it is bolted to the engine.
- Electric fan.

I had a bunch of other stuff off too, such as the mechanical fan, radiator top rail, and all the belts, but I don't think those have to be removed.

## **Removal of Crossover Pipe**

Since you are going to replace the hoses anyway, take the easy route here and cut all the hoses through the middle of the joints. Then remove the clamps and use a small screwdriver to remove the hose pieces.

## **Cleanup and Paint**

The pipe is steel, and you will probably find it is rusted up at the hose connection points. Brush it vigorously to get to bright steel, then sand the whole thing. Prime it with a Rustolium primer, then flat black paint. This may slow down the rusting as well as making it look a little better.

By the way, the crossover pipe is no longer available for early cars like mine. However, an aftermarket replacement made of stainless steel is available from Cathouse Spares, Sydney. Tel: (02) 9747-2144. If I had been aware of this when I did this work I probably would have bought one. Later, I got one of their stainless remote header tanks and am quite happy with it.

### ***Reinstallation***

The problem with reinstallation is trying to get all three of the hose joints together simultaneously. If the air-conditioning compressor were not there, it would not be too bad. But since it probably is, you will find that when you get the two end connections made you can't get the middle hose over the water pump inlet because the pipe is hitting the compressor clutch. It's impossible to get a good picture of the situation, but Figure 1 will give you some idea. Shown there is the water pump connection and the connection to the right thermostate housing.



**Figure 1. Crossover connections at left side and water pump.**

Here are the reinstallation steps worked for me:

1. Smear a tiny bit of rubber lubricant on the inside of all three hoses. I got a small packet of this stuff when I replaced the check valve on my power breaks servo. It's just about

gone, and I don't know where to get anymore. (What is it?) Note: I've since discovered that coolant works OK as a hose lube in most situations. Maybe it would here too.

2. Put the hoses on the ports near the thermostat housings on both sides of the engine. Put two clamps on each hose, but don't tighten either one. Be sure to align the screws so you can get at them for tightening later.
3. Put the center hose on the crossover pipe, pressed on as far as you can get it. Slip one clamp over it, but don't tighten. Put the other clamp over the water pump inlet.
4. With the pipe rotated backwards a bit, so the water pump hose is pointing forward, slip the ends of the pipe into the waiting hoses at each side of the engine. At this point the water pump hose will be in front of the water pump inlet, looking like it is never going to get on.
5. The goal now is to get that center hose onto the water pump inlet, but the compressor clutch is in the way. However, if you can somehow get the pipe *behind* the clutch, where the pulley is a little smaller, the hose will clear the top of the water pump inlet. Rotate the pipe backwards while guiding it under the compressor clutch. The hose will sort of collapse against the water pump inlet. But once it gets past the clutch it will slip over the top. Then it's a matter of some careful work with a small screwdriver or something around the hose till you get it fully started on the inlet pipe.
6. Once the hose is over the end of the water pump inlet all the way around, you are going to have to press hard on the crossover pipe over the hose to drive it home. After its down a bit, lift the second clamp, which you earlier left hanging on the water pump inlet, up onto the hose. You will probably find that you have to work the hose down off of the crossover pipe to get enough of it over the water pump inlet. This is not easy, but it will move if you keep pushing.
7. Tighten all clamps.
8. Replace all the things you took off to gain access.

### **Parts**

Hoses: I got mine from Jaguar, C41373 (2), C41374. However, these are straight hoses in standard sizes so you can probably get them cut to length at any auto parts store. If you go that route have the store cut them to the exact length of the original because if they are too long your job will be much more difficult.

Crossover pipe: C44186 (no longer available from Jaguar). Buy stainless steel replacement from Cathouse Spares, Sydney. Tel: (02) 9747-2144.