

REPLACING THE HEATER COOLANT RETURN STEEL PIPE

The heater coolant return pipe (photo 1) runs from the heater connection in the engine compartment bulkhead, along the left hand inner wing to connections beneath the air filter housing. It consists of a solid steel pipe with flexible pipes attached at both ends. The pipe has two mounting brackets and a bracket that holds a plastic pipe clip to support an adjacent flexible heater pipe. Part of the solid pipe is exposed to the splash from the road wheel and can rust aggressively requiring its replacement (photo 2).

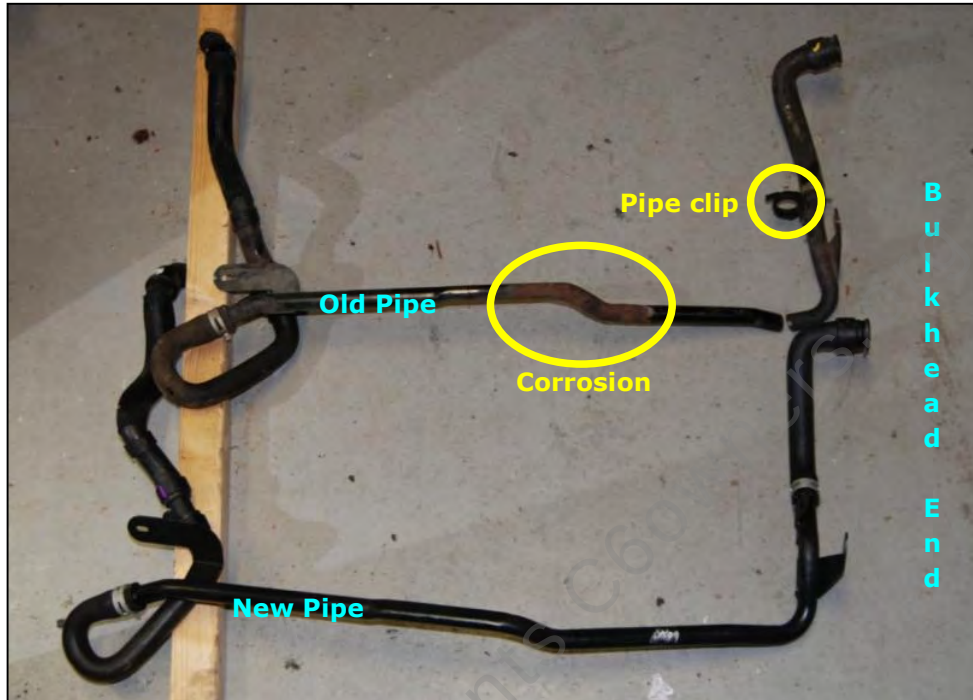


Photo 1



Photo 2

The replacement part comes complete with flexible hoses attached (photo 1, labelled 'new pipe'). The only part that has to be transferred from the old part is the plastic pipe clip (photo 3).

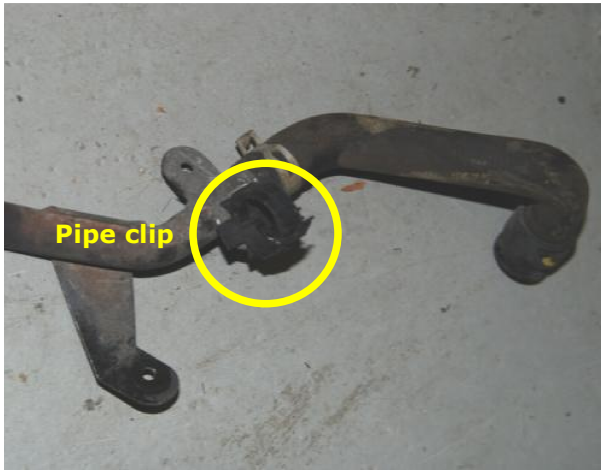


Photo 3

Having first drained the cooling system, the following is a description of how I went about removing and replacing this pipe.

To access the pipe:

1. Remove the left hand wheel and forward wheel arch liner.
2. Release the left outer steering tie rod end from the hub to improve access above the steering rack.
3. In the engine compartment, remove the air filter housing. Removing the engine cover also improves access to the heater connection at the bulkhead.

To remove the pipe:

1. Cut the pipe beside the bend visible above the steering rack indicated in photo 4. You can see the pipe cut in photo 1.

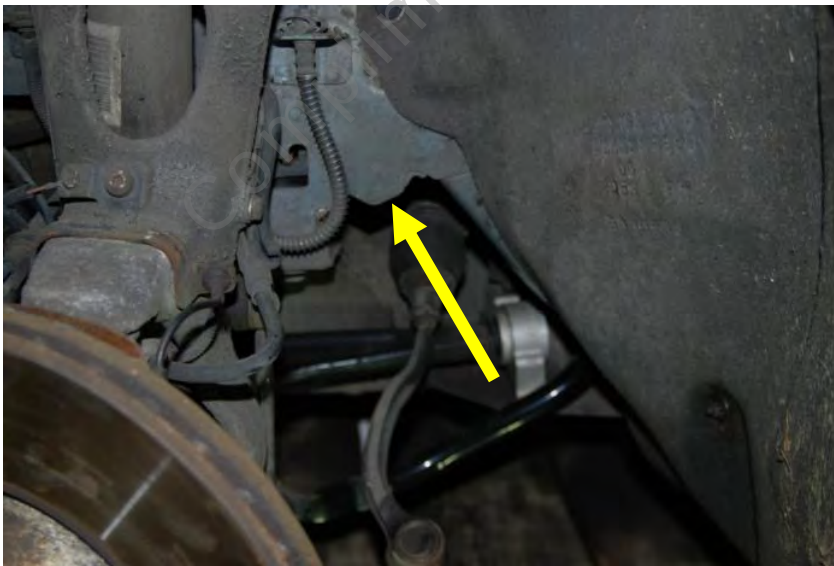


Photo 4

2. Release the flexible pipe connections at each end of the pipe.

The bulkhead connection is difficult to get at as it hides behind the brake servo, but is accessible from the top of the engine. It's the right hand of the two heater connections as you look at the bulkhead. To release the connections, pull out the spring clip (photo 5). I used a seal removal tool with a hooked end so that I could retain the clip.



Photo 5

3. Open the plastic pipe clip (photo 6), visible on the rising section of pipe above the pipe bend and free the flexible pipe from the clip.

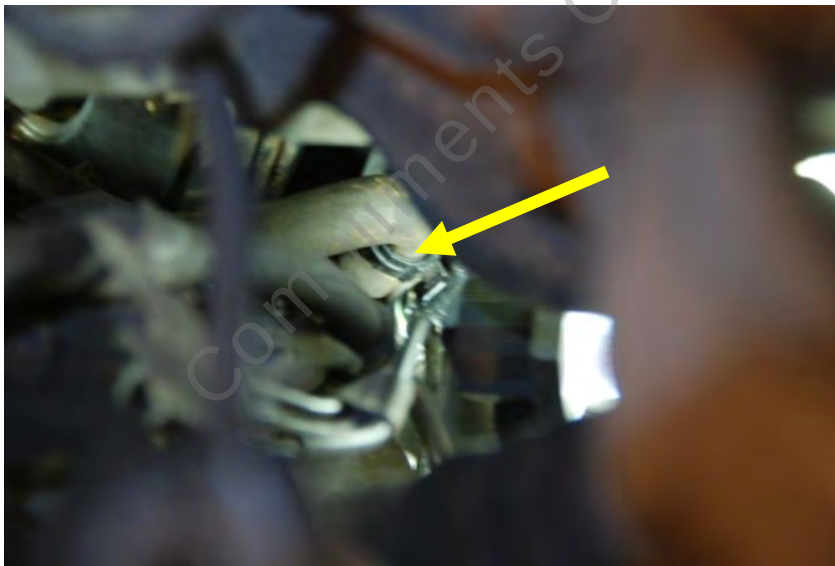


Photo 6

4. Release the two mounting bolts, one on the bulkhead above the pipe bend and one towards the front of the inner wing. The one on the bulkhead is difficult to see so it is best located by feel.
5. Withdraw the two sections of pipe and don't dump the pipe yet!

To fit the new pipe:

1. Cut the new steel pipe at the straight section of the pipe close to the almost 90 degree bend but leaving sufficient lead at the bend for flexible pipe and a clip (see photo 9 further).
2. Cut a further 10mm off the cut end of the straight section to allow for adjustment to line up the forward pipe mounting.
3. Make sure to debur the cut pipe ends.
4. Fit the plastic pipe clip from the old pipe to the new pipe section.
5. Fit the 'bulkhead' section of pipe. (I found it impossible to enter the bolt in the bulkhead working at the rear of the inner wing above the steering rack. Working from towards the front of the inner wing and using several extension bars on a socket drive, I could both see the mounting bracket and enter the bolt using the socket (photo 7)).



Photo 7

6. Connect the flexible pipe section to the heater connection at the bulkhead. Press firmly and listen for the "click" indicating the clip locking the connection.
7. Refit the plastic pipe clip to the other hose (photo 8).



Photo 8

8. You're assembled pipe section should look like this (photo 9).



Photo 9

9. From the old section of pipe salvage two spring clips and a straight section of flexible pipe (the "old" flexible pipe should be in good condition).
10. Cut the section of flexible pipe to give full overlap on the straight section of pipe shown in photo 9 and sufficient overlap to securely fit a clip to the forward section of pipe.
11. Fit the flexible section over the pipe end shown in photo 9 and push on tight to the bend.
12. Fit a spring clip to secure the connection.
13. Fit the second spring clip over the forward section of pipe and push the pipe into the flexible connection.
14. Adjust the position of the forward pipe to align the mounting bracket and fit the mounting bolt.
15. Fit the second spring clip to secure the connection to the forward section of pipe.
16. You're connection should look like this (photo 10).

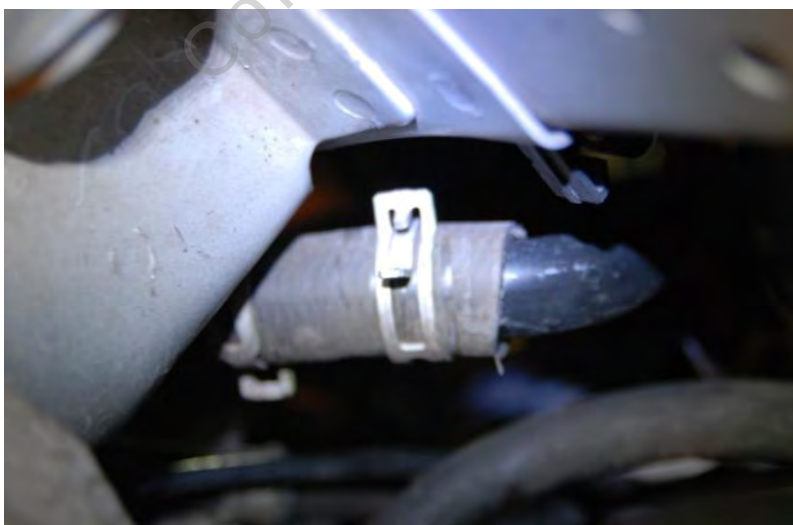


Photo 10

17. Connect the flexible pipe section at the other end of the pipe. Press firmly and listen for the "click" indicating the clip locking the connection.
18. Here's a view of the front section of pipe installed (photo 11).



Photo 11

19. Refill the cooling system and check for leaks.
20. If leak free, refit the air filter housing.
21. Start the engine and bring to operating temperature checking for leaks.
22. If leak free, refit track rod end.
23. Finally, refit wheel arch liner and wheel and engine cover.
24. Test drive and check once more for leaks.