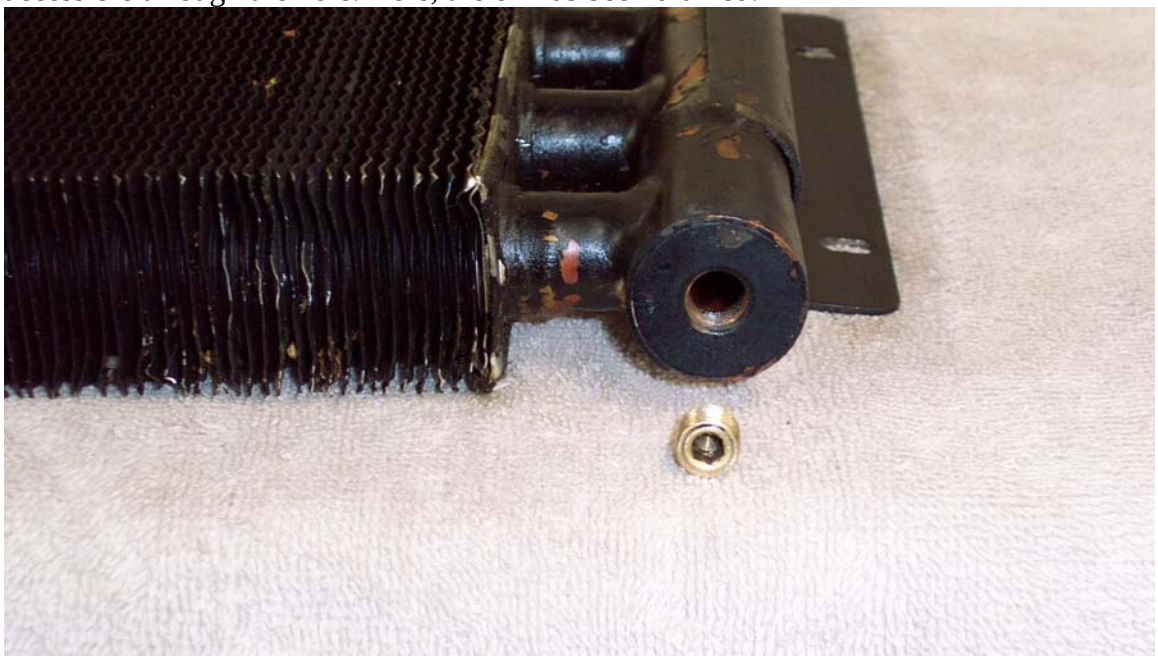
# Draining Oil From the Oil Cooler

Marc Haibeck

A quart of oil can be drained from the oil cooler on ’90 - ’93 cars. There is a drain plug but it is a little difficult to access.

The picture shows the hollow right side oil cooler cushion mount. The drain plug is accessible through the hole. Here, the oil has been drained.



This is a detailed view of the oil cooler drain plug. The copper oil cooler is used for ’90 – ’93 cars. The oil cooler was changed to aluminum material for the ’94 – ’95 cars. The aluminum oil cooler does not have a drain.

Accessing the plug is not straightforward. The skid bar blocks straight engagement with the socket drive 3/16” plug. Care must be exercised in loosening the plug. It is made from brass and it is easy to damage it. Remove debris from the hex hole with a small screwdriver. Then an “L” style hex tool is needed to fully engage the plug from under the edge of the skid bar. Remove the plug.

Installation of the plug is tricky. Clean the plug and coat the threads with Loctite 565 pipe thread sealer. It’s not possible to install the plug with the “L” hex tool since the skid bar limits the rotation to 180 degrees and that is not usually enough to engage the first thread. A ball drive hex tool helps but the plug still needs to be tilted with a little screwdriver to seat it squarely on the first thread.

The picture shows the plug going into position with the ball end hex tool. However, the plug will not thread in because the skid bar interferes with straight seating on the threads. A little screwdriver (not shown) is needed on the front edge of the plug to get the threads to seat 360 degrees.

**Beware**; use of the ball hex tool to remove the plug could damage the plug because the ball has a small flank drive area. Use an ”L” hex key to break it loose.

The plug is small and made from soft brass material. Tighten it carefully to no more than 25 pound/inches of torque. Over tightening could run the plug past the end of the tapered hole in the cooler. If that should happen the oil cooler will need to be removed from the car for repair.

When the engine is started cold, the thermostat blocks oil flow to the oil cooler. Therefore, the empty oil cooler is not in the oil flow circuit when the engine is started. There is a small bypass flow to the cooler when the thermostat is closed. After the engine starts the oil cooler is filled slowly via the bypass as the engine warms up. It is full by the time the engine reaches 180 degrees F and the oil cooler thermostat opens.

A ball drive 3/16" hex drive tool can be obtained from a good tool supplier or McMaster-Carr. www.mcmaster.com. McMaster-Carr part number 5497A31. About $4.00.

**Oil drain amounts including a filter change**

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| - After the engine has been off for one hour. | 8.75 quarts. |
| - After the engine has been off for eight hours. | 9.25 quarts. |
| - After the engine has been off for 24 hours. | 9.50 quarts. |
| - After the engine has been off for 24 hours and the oil cooler is drained. | 10.50 quarts. |

The entire system capacity is 11.6 quarts.