

Detailing Model Trucks

PART II

Detailing the fuel and cooling system on your model truck

by KEN SMITH

In this text, the model truck builder will learn how to detail the Caterpillar 3408 diesel engine, as used in Monogram's 1/16 scale truck kits. The items or areas of detailing shown are the fuel system from the fuel tanks to the engine, and the cooling system.

For the fuel system, the routing of diesel fuel to the engine is as follows: from the fuel tank to the primary fuel filters (usually two mounted on the truck frame), then to the fuel transfer pump. From the transfer pump, the fuel goes to the fuel priming pump, which has a filter installed on the lower portion of the unit. The fuel then goes to the fuel injection pump and then is distributed to the eight fuel injectors (four on each cylinder head). Also, there is a fuel return line from the fuel injector pump to the fuel tanks. Refer to Figure 1 for the above description of the fuel system routing.

Figure 2 shows the routing of the fuel lines from the fuel injection pump to the fuel injectors in the correct firing order. The firing order (or injection sequence) is 1, 8, 4, 3, 6, 5, 7, 2. When detailing this engine, the fuel

supply line should be installed first. I cut a piece of 18 gauge aluminum wire about six inches long. This one length of wire is used to make the complete fuel

supply line circuit. In order to do this, I drilled holes completely through the fuel transfer pump, the fuel priming pump, and the fuel injection pump housing.

FIGURE 1 ROUTING OF THE DIESEL FUEL SYSTEM

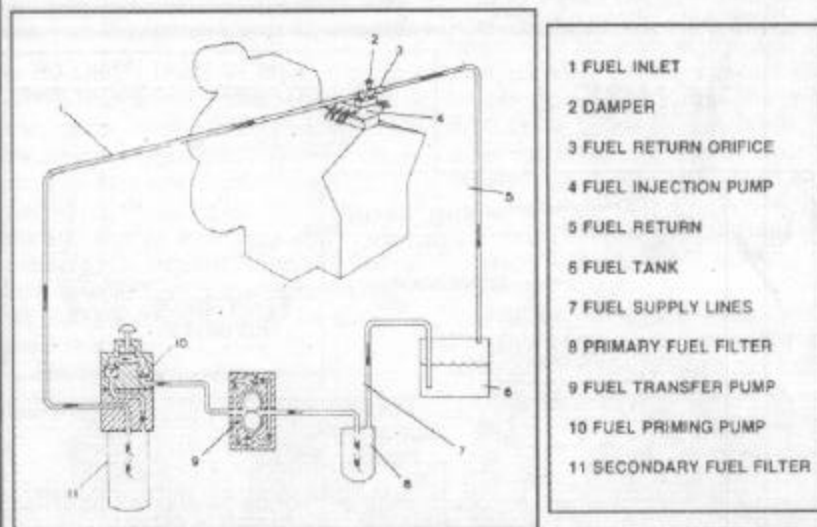


FIGURE 2 FUEL INJECTION LINES GROUPS

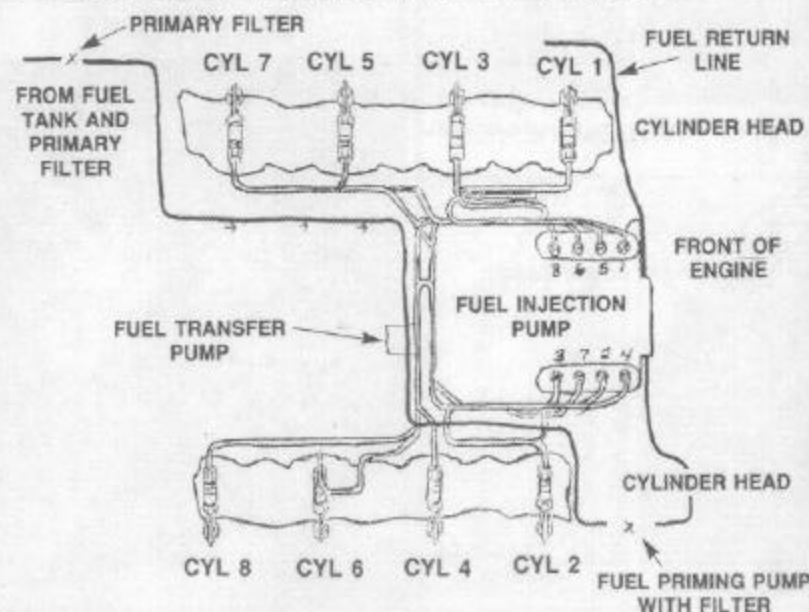
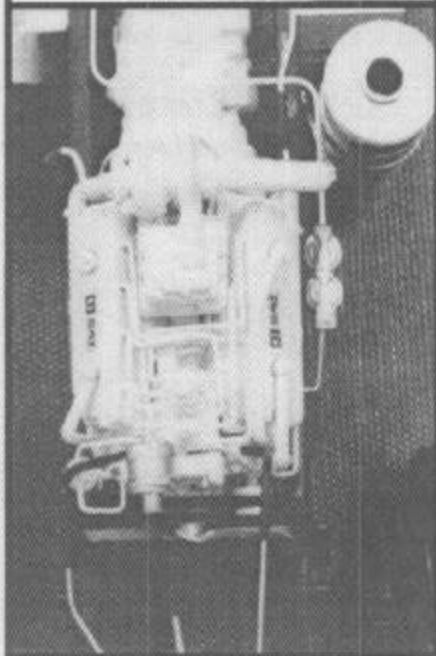


PHOTO 1



Detailing Model Trucks

Figure 2 shows the routing of the fuel supply line. Figures 3 and 4 show the three places to be drilled through; they are marked A, B and C. Installing the fuel supply line this way makes the detailing look more realistic.

Once the fuel supply line has been installed, it's time to install the fuel injector lines as shown in Figure 2. Again, I used 18 gauge aluminum wire. The fuel injection pump and both cylinder heads will have to be drilled out for installation of the wires. The lengths of wire will vary during this segment. Photo 1 shows how I installed the fuel injector lines. I suggest using it as an

FIGURE 3
INSTALLING THE FUEL SUPPLY LINE

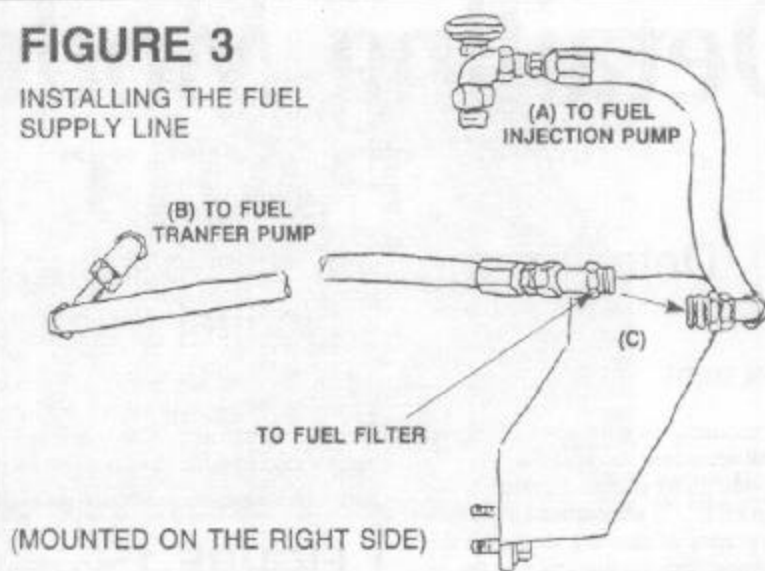
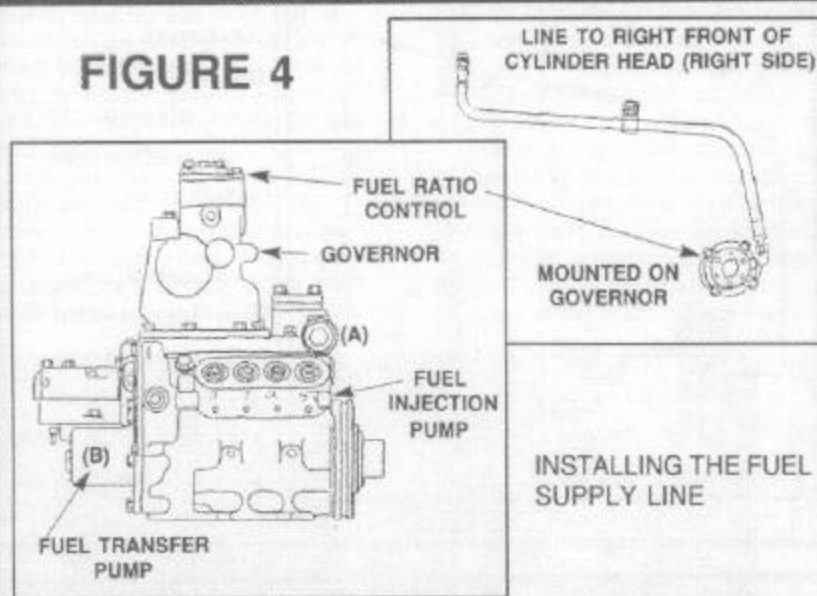


FIGURE 4



example.

To complete the fuel system, there is one more line that has to be installed. Refer to Figure 4 and Photo 1. A line is installed from the fuel ratio control to the right upper corner of the right side cylinder head. The fuel system is now complete.

However, the engine detailing is not finished; the air compressor needs some detailing. Refer to Figure 5 for this detailing. Again, using 18 gauge aluminum wire, I installed the lines shown in the following order: first is the line between the air compressor and the rear of the left cylinder head, second is the line between the air compressor and the rear of the after cooler housing, and third is the line from the compressor to the right side exhaust manifold. I used 30 gauge Kynar wire made by Radio Shack for this third line. Refer to Figure 5, Item 4 for placement of this line. The

FIGURE 5
DETAILING THE AIR COMPRESSOR

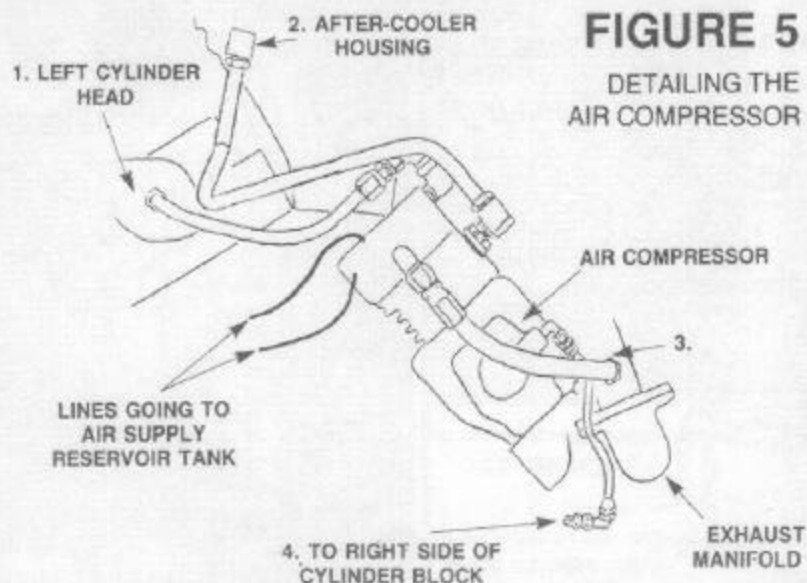


PHOTO 2

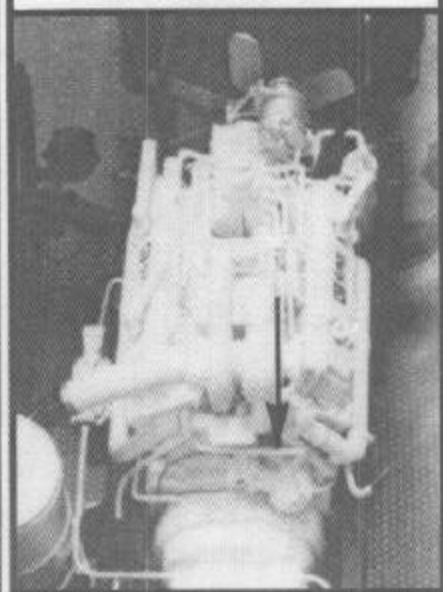
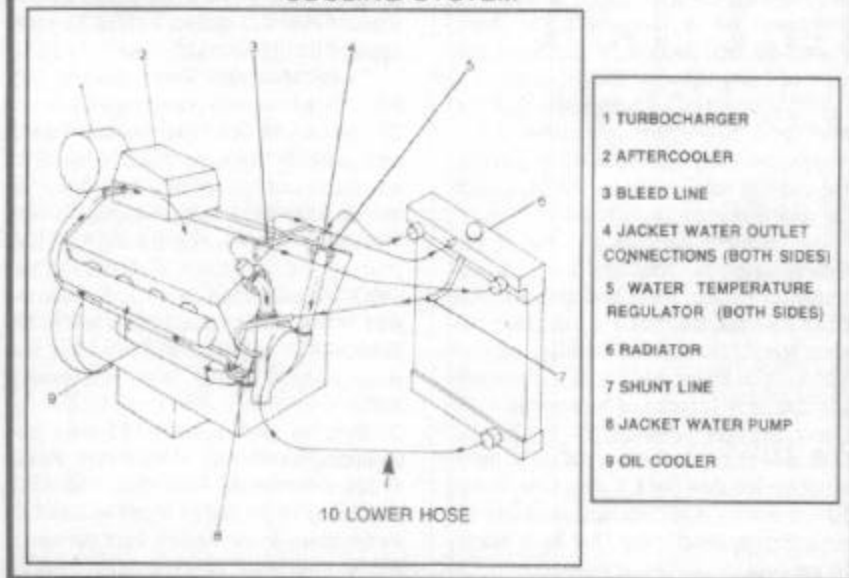


FIGURE 6 ROUTING OF THE WATER LINES FOR THE COOLING SYSTEM



line goes from the compressor to just below the right exhaust manifold and into the rear section of the engine cylinder block. For this segment refer to Photo 2.

Another detail is to add the oil dip stick. I make the dip stick from 1/16-inch plastic-coated rod made by Plastruct. By stripping about 3/8-inch of the plastic coating off one end and then bending it over, I have my simulated dip stick. Again, refer to the photographs

for this item.

The next step is to install breather tubes on the valve covers. The left valve cover has two; the right valve cover has one. For these tubes I use 1/8-inch Plastruct plastic tubing no. 604. The breather tubes go to the front of the cylinder heads and then downward. Cut them off when they're even with the oil pan. Refer to the photographs for this installation.

For the cooling system on the Cater-

pillar 3408 diesel engine, refer to Figure 6. On Monogram's 1/16 scale engines, the modeler will only have to install three water lines which are not supplied in the kit. Referring to Figure 6, they are items numbers 3, 7, and 10. For items 3 and 7, I used 20 gauge wire. The most important thing here is to make sure the water lines have clearance around the fan blade. For item 10, I suggest using 1/8-inch Plastruct plastic tubing. For easy installation, the lower radiator hose can go from the water pump to directly below the radiator mounting bracket, and then up through the center of the bracket and into the bottom of the radiator.

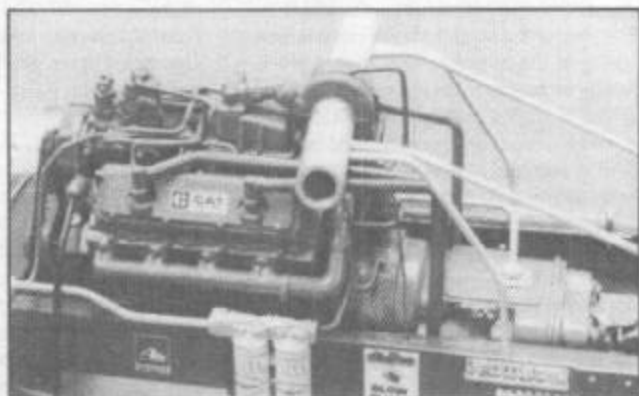
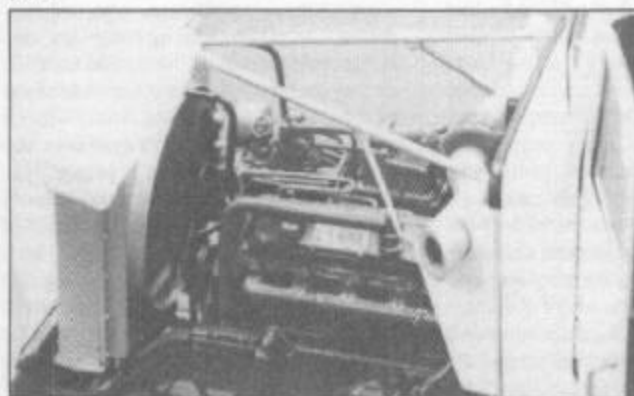
Yellow, red, or white are the three colors that Caterpillar uses on most of its diesel engines. I prefer to use only flat red and flat white followed by two coats of Glosscoat. Painting the engine this way takes less time and the flat color paints cover the black plastic much better. Paint the entire engine. After the paint has dried, you can then paint the fan belts and radiator hoses black. With the truck air system finished and the diesel engine detailing finished, your Monogram 1/16 scale truck model looks more realistic.

Special thanks to the Caterpillar Tractor Co. for the use of their literature.

PART 3 will cover detailing the Cummins diesel engine that is used in most 1/25 scale truck model kits. **CAI**



A left and right view of the finished Caterpillar 3408 engine. Notice how complete the engine looks with the proper fuel and cooling systems in place.



These two engine views are of a Monogram 1/16 Kenworth that the author built into a dual-engine racer. The Caterpillar on the left is the engine under the hood, while the Caterpillar on the right sits behind the cab. This truck appeared in Issue 27 of Scale Auto Enthusiast in the Readers Gallery section.