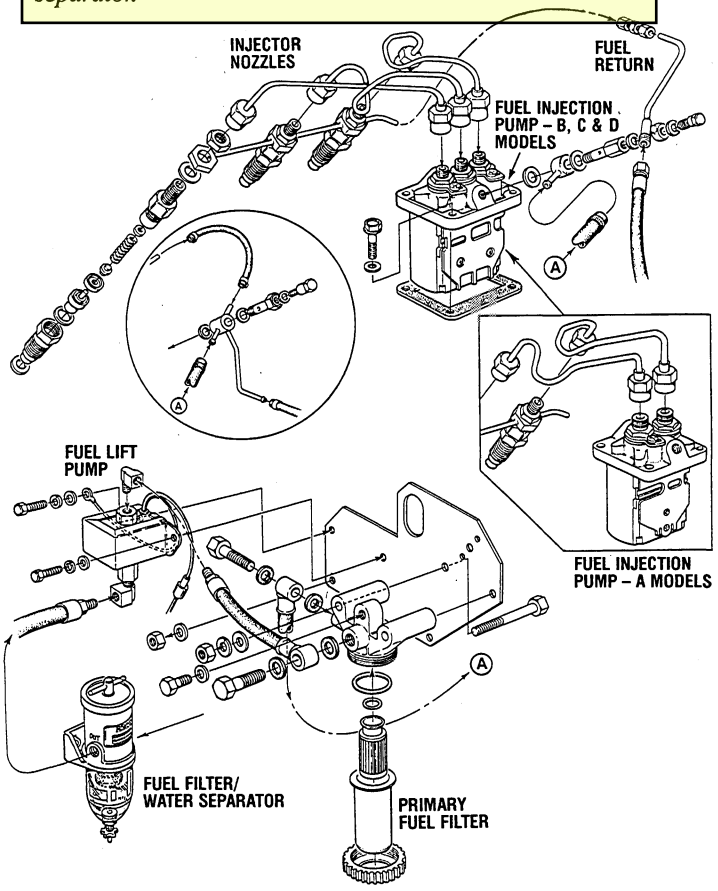
FUEL SYSTEM

DESCRIPTION

An electromagnetic fuel lift pump draws fuel from the diesel supply through an (owner-supplied) fuel filter/water separator to the engine's primary fuel filter and on to the fuel injection pump. The pressurized fuel is then injected into the combustion chamber through the injection pipes and nozzles. Excess fuel is returned to the fuel supply through the fuel return pipes that connect to the top of each nozzle holder.

NOTE: *Fuel supplied to the fuel lift pump must be filtered to 10–25 microns by the (owner-supplied) fuel filter/water separator.*



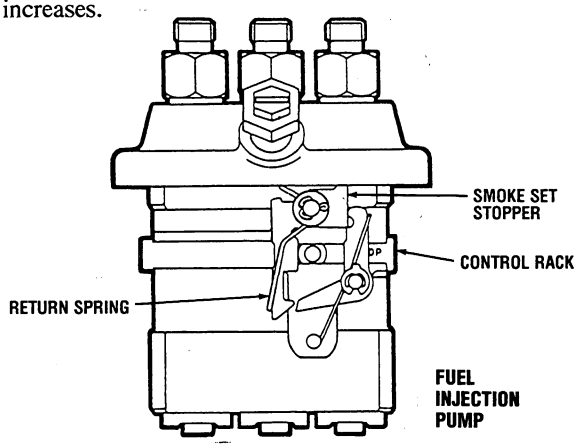
FUEL SYSTEM

Fuel Pump. Two types of fuel lift pumps are shown in the illustration; both operate on the same electromagnetic principal. Earlier model engines use a lift pump with a replaceable fuel element. This element should be changed at regular maintenance intervals (at every 250 hours). Later model engines use a smaller lift pump that does not require maintenance. Electrical connections should be kept clean and tight with either pump.

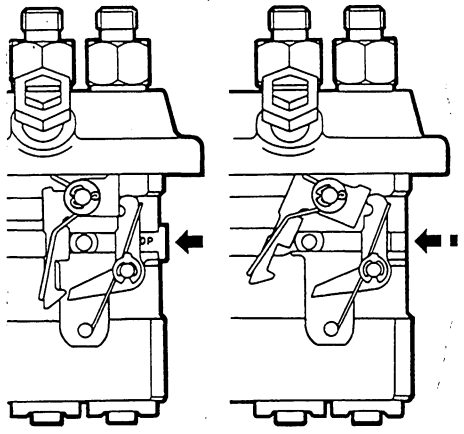
The primary fuel filter encloses a highly effective paper element. This filter assembly is located on the engine between the fuel pump and the injection pump. The paper element should be changed at regular maintenance intervals.

The built-in fuel injection pump is mounted on the right side of the cylinder block. It consists of the pump elements (plunger assemblies), delivery valves, tappets and smoke set unit. As the pump camshaft rotates, the plungers are moved up and down through a fixed stroke, thus delivering pressurized fuel to engine cylinders.

Fuel injection control. Fuel injection rate is dependent on the relative positions of the plunger lead and barrel. The plunger is rotated by the control pinion which is mounted on the plunger barrel. This pinion meshes with the plunger's lower collar which transmits the rotation of the pinion directly to the plunger. As the engine runs, the injection pump camshaft rotates to move the control rack through the centrifugal type governor weight, governor sleeve and lever. The control rack slides to turn this pinion. Rightward movement (STOP→ mark side) of the control rack decreases the fuel injection rate; as the rack moves to the left, the fuel increases.



Smoke set unit. The smoke set unit restricts the maximum fuel injection rate of the injection pump. The stopper is held by a spring in the position shown in the illustration. This position is the smoke set position. When starting the engine (propulsion models), pull the throttle control lever fully toward the maximum speed position, and the tie-rod (with stopper spring) will move the control rack in the arrowed direction against the spring force, thus causing over-injection for easy engine start. For the injection pump with the Angleich mechanism, over-injection requires rêleasing that mechanism.



SMOKE SET POSITION **OVER-INJECTION**