

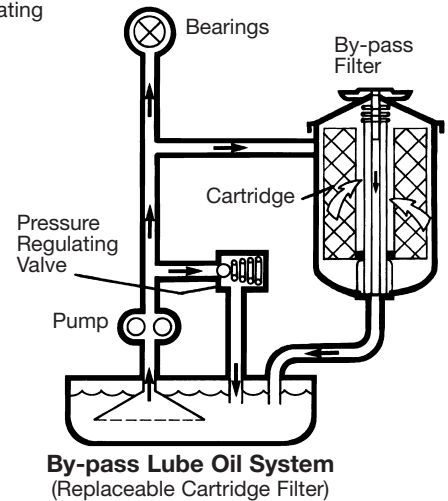
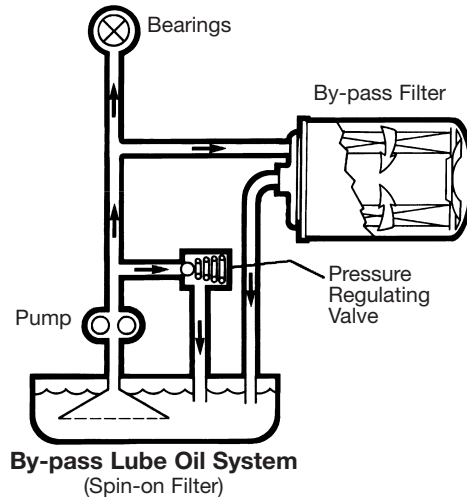
## Engine Oil Filtering Systems

### Introduction

Engines are called on to do a variety of jobs. Although there are many filter housings produced by manufacturers for various engines, there are only two basic types of oil filtration systems.

### By-pass or Part Flow Systems

By-pass or part flow oil filtration systems take only a small portion (about 10%) of the oil flow from the pump. Actually, this amount is borrowed from the excess oil that would ordinarily be returned to the engine oil pan or inlet side of the pump through a passage-way controlled by the engine pressure regulating valve. Oil flow through a by-pass filter is regulated by the use of a metering orifice within the filter. Oil which has been filtered is returned to the engine oil pan directly and not to the mating parts of the engine as with the full flow system described below.



### Full Flow Systems

Full flow oil filtration is a system in which all of the oil from the oil pump (that oil directed to the mating parts of the engine) must pass through the oil filter. Filters in such an application must provide low restriction to oil flow while having a high degree of "single-pass efficiency." This means that a filter must remove engine damaging dirt and grit from the oil on the first time around. To ensure a supply of oil to lubricate the engine under all conditions, a relief valve is built into the filtering system. This filter relief valve could be located in the engine or oil filter base (attached to engine) or in the filter itself. Under normal operating conditions this valve is closed. However, this valve will open and supply oil directly to the engine whenever the filter becomes plugged with contaminants and too restrictive to oil flow. Manufacturers believe that it is better to supply unfiltered oil to the bearings than to burn out bearings by oil starvation.

