

## Oil Pick-up

The plastic oil pick-up is immersed in the oil reservoir to provide a supply to the oil pump at all normal vehicle attitudes. A mesh screen in the inlet prevents debris from entering the oil system.

## Oil Pump

The oil pump is located on the [LH](#) front underside of the skirt stiffener and is secured by 4 bolts. The unit is a spur gear pump driven by the crankshaft sprocket via the secondary drive chain. An integral pressure relief valve diverts oil back to the inlet side of the pump to limit the pump outlet pressure.

## Oil Filter and Cooler Assembly

The oil filter and cooler assembly is attached to the [LH](#) side of the skirt stiffener and consists of a full-flow, disposable canister-type filter and an oil cooler attached to a casting. The casting aligns with the oil galleries in the skirt stiffener and is sealed by a gasket.

The engine cooling system cools the oil in the oil cooler and is regulated by means of a separate thermostat, which prevents the flow of coolant through the oil cooler when the engine is cold, ensuring the engine oil warms up quickly. The thermostat opens at  $75\pm 2$  °C ( $167\pm 35$  °F).

Oil to and from the oil cooler passes through galleries in the skirt stiffener. Hoses from the engine cooling system are connected to 2 pipes on the oil cooler for the supply and return of coolant.

An oil pressure switch is located in the casting to sense the pressure of the oil as it leaves the oil filter and cooler assembly. A warning lamp in the instrument cluster illuminates if low oil pressure is detected.

For additional information, refer to: [Instrument Cluster](#) (413-01 Instrument Cluster, Description and Operation).

## Lubrication System Operation

Oil is drawn through the oil pick-up into the oil pump, then supplied to the oil filter and cooler assembly through the oil galleries in the skirt stiffener. After passing through the filter, a proportion of the oil (controlled by a restrictor in the oil filter housing) passes through the oil cooler. The return flow from the oil cooler combines with the remainder of the oil from the filter, then passes through the skirt stiffener into the cylinder block main oil gallery.

The main oil gallery has drillings that direct the oil to the cylinder head and the main bearings. Cross drillings in the crankshaft main bearings carry the oil to the connecting rod big-end bearings. Oil galleries in the cylinder head carry the oil to the camshafts and the hydraulic lash adjusters.

Oil at reduced pressure is directed towards the cylinder head via a restrictor in the cylinder block/cylinder head locating dowel. Oil then passes through a drilling in the cylinder head to the camshaft carrier, where it is directed via separate galleries to the camshaft bearings and hydraulic tappet housings. Return oil from the cylinder head drains into the sump via the cylinder head bolt passages.