Q: What is blow-by, and what can be done about it?

A: Blow-by refers to both burned and unburned gasses excaping between the piston and cylinder bore from the combustion chamber (blowing-by the piston, hence the name) during normal engine operation.

All engines have a little blow-by, but excessive blow-by is an indication of worn rings, worn cylinder bore, or both.

There's a couple things you can do to reduce blow-by:

1) Check compression. Compression should be over 80 psi in all cylinders, or sufficient to blow past your thumb if you try to hold it over a spark plug hole while someone turns the engine over on the starter. Compression in the range of 60 to 70 psi, can frequently be improved with Marvel Mystery Oil (MMO) treatments. MMO treatments are simply a matter of squirting 5 or 6 squirts of MMO into the spark plug holes of effected cylinders, and then running the engine to burn off the MMO. For best results, the MMO should be squirted away from the manifold side of the engine, toward the bore. The MMO will free up partially stuck compression rings, for better sealing against the walls of the bore.

2) If your compression is good on all 4 cylinders, check the ignition timing under load. To do this, you
simply loosen the distributor hold-down bracket and slowly rotate the distributor a small amount in each direction to look for an increase in RPM. If the engine RPM increases, tighten the bracket in that location.

NOTE: If the engine has not been tuned up for several years, you might start by replacing the points and condenser (or at least cleaning the points) before doing the timing check.

3) If the exhaust from the engine has a bluish look, a potentially rich fuel mixture would be indicated. While a richer than normal mixture would not directly cause or contribute to the severity of blow-by, it can lead to sticky rings, which would in turn aggravate a blow-by condition. A rich mixture can usually be leaned by adjusting the main jet (on an early model carburetor), or by the installation of an adjustable main jet (in the case of late model carburetors).

4) If you're not already doing so, start using Marvel Mystery Oil (MMO) in your fuel at a rate of 8 to 10 ounces per 10 gallons. MMO has a good track record in freeing up rings and valves, and thereby improving the overall
health of your engine.

5) In the case of engines that are otherwise performing well, and still produce objectionable blow-by, the blow-by can be greatly reduced (and frequently eliminated) by installing the crankcase venting kit produced by
Indigo Electronics. You can call Indigo at: 1 (800) 428-8569.