

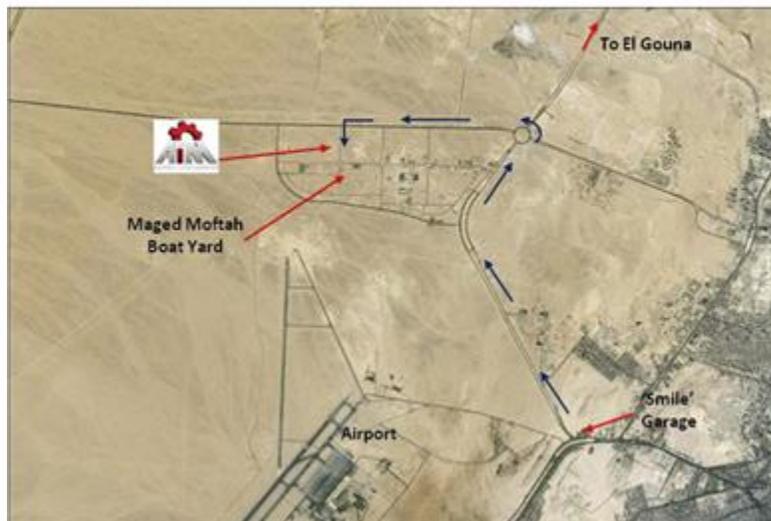


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## AIM to get the job done - the right way!

AIM is the only company in the Hurghada and Red Sea area who can provide all of your engineering needs for marine, automotive or engine driven plant. Our 800+m<sup>2</sup> purpose built workshop provides everything required for the completion of full maintenance, repair and overhaul services on your engines, gearboxes, generators and compressors, with all of the work being carried out by fully our trained and experienced workshop technicians. We are conveniently situated on the El Herafyin Industrial Area directly behind Hurghada Airport, easily accessible from the El Gouna Road and the Hurghada Outer Ring Road.

### Where are we located? Plot 462, 464 & 466, El Herafyin Area (Behind Hurghada Airport)



Some of the services we offer are listed below. This list is just a sample of the work we can undertake.

- grinding of the bearing seats on camshafts and crankshafts ready for the installation of new shell bearings
- regrinding of valves and valve seats to ensure gas tight fit and effective operation

- vertical and horizontal milling of components to ensure flat, true surfaces
- re-boring of engine block piston sleeves ready for the installation of new liners
- horizontal boring for camshaft and crankshaft bearing alignment
- turning and grinding on propeller shafts to ensure correct balance and straightness
- knowledge and experience in the repair or maintenance of suspension systems for boat engine/gearbox/driveshaft configurations
- general cutting, welding and fabrication
- readily available stock of up to 95% of all spares for Perkins engines (typically used for marine generators)

Call us on **(002) 017 591 9 591** or check [www.aim-generalengineering.com](http://www.aim-generalengineering.com) for more information

## **DIESEL BLACK SMOKE**

In the last newsletter we briefly mentioned what the different coloured smoke from your engine may mean. This time we look specifically at black smoke, and some of the causes.

In simple terms, smoke from a diesel engine indicates that something is not right. Smoke should be taken as an indication that there is an ongoing problem (or a developing one) that will potentially shorten the engine life, or result in unnecessary costs. At the very least, smoke may be due to a simple problem that is causing poor combustion efficiency and costing you in excessive fuel bills. At the other end of the scale, smoke may be your last chance to act before a catastrophic engine failure occurs (e.g. piston seizure, valve failure)!!

Black smoke can occur across the entire operating range, but is usually worst under full power, or during the lag before the turbocharger boosts air supply to match the fuel usage such as in the early stages of acceleration. Moderate turbo lag smoke may be acceptable otherwise black smoke should be hardly visible in a correctly running engine.

Black smoke is the most common to see emitted from diesel engines and usually indicates incomplete combustion of the fuel. The causes of black smoke can vary widely and may include:

- Engine overloaded – reduce load, clean anti-foul, or change propeller pitch
- Incorrect fuel injection timing resulting in excessive fuel to air ratio, dirty or worn injectors, pump wear or pump settings
- Under-performing turbocharger
- Dirty or restricted air cleaner systems, air intake filter partially blocked

In heavily used or hard working engines, the problem can also be as a result of:

- Engine wear in general, often misdiagnosed when carbon deposits are the real problem.
- Excessive carbon build-up around exhaust valves and exhaust spaces resulting in incorrect valve clearances. (Fig.1 and Fig.2)
- Sticking piston rings, often due to carbon deposits. (Fig.3)

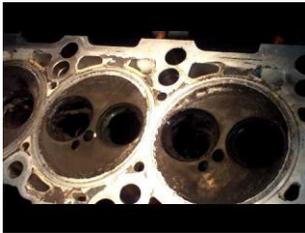


Fig.1



Fig.2



Fig.3

AIM for General Engineering can help you if carbon buildup is the problem. Our workshop has the facilities to clean the carbon buildup from the inlet and outlet ports of each valve on your cylinder head and regrind the seat faces ready for the installation of new valves. This will ensure each valve closes against an accurately profiled seal allowing for proper combustion to take place in each of the cylinders. If the valve stems are also affected by the buildup of carbon and have started to drag in the guides, our technicians can also replace these if required.

The sticking piston rings will most probably have scored or marked the cylinder liners. If the scoring is light, the liners can be re-bored or re-honed to restore the required finish and oversize gas rings fitted to the pistons to account for the removed liner material. Should the liners be heavily scored or marked, then the technician can remove the liner and replace it with a new one. If new liners are not readily available off the shelf of a supplier, then one of the skilled machine operators at AIM will manufacture the replacements from stock material.

Your engine is now a long way towards less black smoke. Don't forget to check your injectors, air filters, etc to eliminate any other potential causes.

**NEXT TIME** - Blue smoke, the oil burners