

FAULT FINDING DRILL GENERAL PROCEDURE

If an engine, that has been running well, suddenly misbehaves itself, the owner can be fairly sure that the trouble is either dirt in the carburettor, or, more likely, an ignition fault. The only mechanical faults that could cause these symptoms are broken piston rings, defective oil/gas seals in the crankcase, or something really obvious, such as a loose carburettor or cylinder head. These faults are rarely encountered in normal service and the Owner should proceed STRICTLY in the following order to try to locate the source of the problem.

1. Check the quality of the spark at the HT leads. Remove the spark plug cover and allow the spark to jump (use an old spark plug or 1/4" dia bolt for this) to the spark plug terminal from which it was detached. If the spark will jump 1/4" or more and the timing is reasonable correct, there is nothing much wrong with the ignition system. CHECK BOTH CYLINDERS!! (Ensure engine is running in same direction during both tests).
2. Check the sparking plugs are working properly, either by substituting them with known good ones, or by having the originals checked on a pressure test rig.
3. If the engine passes the first two tests then dirt in the carburettor or fuel feed could be the cause of the trouble. The carburettor should be dismantled and carefully cleaned. Pay particular attention to the very small passages that make up the idler circuit as these are most likely to become blocked. The air filter element should be fitted with the hole towards the carburettor.
4. In the most unlikely case of the engine running badly, but passing checks 1, 2 and 3, have the cylinder pressure checked by a competent mechanic. (It makes no difference if the throttle slide is open or closed). If the cylinders show a pressure of over 60lbs/sq." approx., then there is little wrong with the bores or piston rings.
5. Trouble can be caused by an air leak. Check for this by brushing a little petrol over the various joints while the engine is running slowly. If an air leak is present, the petrol will be drawn in and alter the speed of the engine. It should quickly become clear if there are any leaks. The greatest possible care must be exercised when carrying out this test to obviate the risk of fire. Air can also be drawn into the crankcase through defective oil seals. Normally the seals outlast the main bearings, therefore, the engine will have to be in a very advanced state of wear before they give any trouble.
6. DO NOT be persuaded that the engine needs decarbonization. There are no valves to burn or seatings to deteriorate, therefore there is little point in dismantling the engine. All Dolphin engines are particularly clean running in operation and what little carbon does form is regularly burnt off in the normal course of operation. The engine should go at least ten seasons before needing any major internal work.
7. Periodically check the exhaust system for any restriction. An obstructed exhaust will prevent the engine from developing full power at high r.p.m., and will produce symptoms of rich carburation with heavy blow-back from the carburettor intake. Low speed running will not automatically be impaired.
8. An engine that starts up easily and runs well for a few minutes only to stop and then repeat the cycle, is almost certainly suffering from a form of fuel starvation caused by vapour locks. Any inverted bends or long flat runs of fuel line can cause this problem. Common cause is restricted fuel tank fittings which must be 6mm min internal bore.