

K.L.G. platinum plugs used in the Alvis Leonides Major engine was experienced in Royal Navy Mark 7 helicopters. This trouble was directly attributable to the particularly arduous conditions imposed by "dunking" operations, wherein the engine is run for long periods at maximum power in the hover. Plug life was seldom better than 80 hours.

With the encouragement and active support of the Ministry of Aviation and the Admiralty a trial set of K.L.G. iridium plugs was installed in one of these helicopters and subjected to the same stringent operating conditions. At 300 hours, electrode erosion was negligible on all plugs, and without servicing of any kind they were re-installed for further running. The trials were extended and continued under operational conditions in the Middle and Far East with results just as satisfactory.

As a result of this, K.L.G. iridium plug Type KA.3 is now officially approved by Alvis Limited for the 14-cylinder Leonides Major engine.

In close collaboration with Bristol Siddeley Engines Limited and Aviation Traders (Engineering) Limited of Southend Airport, K.L.G. are currently running flight trials with a set of iridium plugs in each of five Bristol Freighters operating the Channel Air Bridge. These aircraft were chosen because of their especially strenuous service conditions, involving frequent engine starting, idling, taxiing, maximum power take-offs and climb-outs from congested areas. The plati-

num plugs for these engines had an average servicing life of 250 hours, but cases of unscheduled removal were quite common.

Despite the operating conditions no troubles whatsoever have been experienced with the new plugs and there is a marked increase in serviceability, ranging from over 600 to over 1,000 hours.

The plug has therefore been submitted to the Air Registration Board for standardisation at an initial figure of 600 hours, before servicing, and has been approved for trial extensions to 1,000 hours.

Similar trials of K.L.G. iridium plugs are under way in a number of RAF aircraft types including Avro Shackleton Mark 3 (Rolls-Royce Griffon), Blackburn Beverley (Bristol Centaurus), and Hastings, Varsity and Valetta (all Bristol Hercules). One other civil operator BKS Air Transport Limited, are carrying out trials in Ambassador Aircraft (Bristol Centaurus). All exhibit the same remarkably successful results.

It is true to say that the ultimate life of an iridium electrode plug is not yet known under service conditions (as distinct from rig conditions) and substantial further running time will have to be achieved in service before this is known.

The successful results so far obtained with iridium electrodes in aero engine spark plugs indicate that plugs of this type may well find applications in the automobile field before very long.

Ruthenium Catalyst for Paraffin Wax Synthesis

LIQUID PHASE HYDROGENATION OF CARBON MONOXIDE

The production of high melting point hydrocarbons by reacting carbon monoxide with hydrogen over a suitable catalyst has long been known to be a possible route to paraffin wax and was first of course proposed by Fischer and Tropsch.

In the past few years some work has been carried out on this reaction by H. Kölbl and K. K. Bhattacharyya (*Plat. Metals Rev.*, 1959, 3, 59) and a further paper by these workers, together with W. H. E. Müller, has recently

been published (*Angew. Chem.*, 1962, 74, (2), 88).

It is shown in this paper that straight chain paraffins with melting points up to 130°C may be prepared by leading carbon monoxide through a suspension of finely divided ruthenium in water, at pressures of over fifty atmospheres and at temperatures between 150 and 260°C. The mean molecular weight of the product increases with the pressure and falls with increasing temperature.