SECRET

AO.103/2/Z

FUEL SUPPLIES FOR THE MESSERSCHMITT 262 AND THE ARADO 234

There have been reports of operational shortages of the "J.2" fuel used by the Jumo 004 jet unit.

Current requirements for this fuel are not easily estimated but it appears probable that consumption during January and February has been at the rate of between 5,000 and 10,000 tons per month. This estimate is based on the broad assumptions that the Me.262's have been operating at the rate of 3,000 sorties per month consuming 1½ tons per sortie, and that the corresponding figures for the Ar.234 have been 750 sorties at 2 tons per sortie.

Two samples of J.2 fuel have recently been examined, one having been obtained from an Me.262 and the other from an Ar.234. Both fuels were a light diesel oil and, as their characteristics were similar, they were probably manufactured by the same process. They appeared to be a hydrogenated coal oil although there is doubt as to whether they were the product of a Bergius plant processing a paraffinous brown coal tar or of a Bergius plant processing a bituminous coal or tar.

As high calorific value is the principal factor in a jet fuel it would normally be expected that a paraffinous-base fuel would be selected. In these circumstances such a fuel could normally be obtained from any of the following sources.

(a) The brown coal tar Bergius hydrogenation plants of Central Germany.

(b) Any of the Fischer Tropsch plants.

(c) Any mineral oil refinery processing paraffinous crudes (e.g. certain of the Austrian and Hungarian crudes).

If these samples were of paraffinous origin they were probably produced from a Bergius plant in the brown coal area of Central Germany.

It is, however, possible that a fuel of modified calorific value may be specified. A bench test of a captured Jumo 004 unit showed that, when run on the paraffinous fuel used by the Allies, the operating life of the engine was likely to be short on account of its inability to stand up to the high temperature conditions engendered by this fuel. It is not known whether the Germans impose any limitations on the calorific value of J.2 but if this should be the case, then the fuel may have a carefully controlled specification to limit excessive operating temperatures. In these circumstances the production of J.2 might be confined to one or more selected plants the knocking out of which would cause an interruption in the flow of supplies. Such plants might be operating on non-paraffinous feedstocks (i.e bituminous coal hydrogenation plants, and those refineries operating on German and other non-paraffinous crudes) or they might equally well be any of the plants mentioned in the preceding paragraphs. As, however, almost any low grade fuel can be used in a jet unit, although possibly at some expense to engine life, any of the active oil plants could be drawn upon to ensure a continuity of supply.

The production of diesel oil and kerosine during the past two months has been at the total rate of 100/125,000 tons per month.

/The

The requirements of the Army, Navy and industry are much in excess of this output and the quantities produced have not been sufficient to meet all priority needs. It is therefore likely that any shortage that may exist of J.2 would be due both to distributional difficulties and to the overall shortage of all grades of liquid fuel.

The current output of the enemy's oil plants is now at the lowest rate yet recorded. If, however, jet aircraft receive the priority which we would expect it is probable that their fuel allocation will continue to be sufficient to meet future operational requirements. This would not be inconsistent with rigid economy measures to cut out all non-essential consumption which are sufficiently explained by the severe overall shortage of all oil products.

Economic Advisory Branch,
F.O. & M.E.W.
16.3.45