

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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COUNTRY USSR

REPORT

[Redacted]

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SUBJECT Development of Aircraft Engines at Kuybyshev and Kimry-Savelovo

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Next 3 Page(s) In Document Denied

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-2-

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PART II - REPORTActivities at Experimental Works II - KUZBYSHV

1. [redacted] Experimental Works II, KUZBYSHV, [redacted] development of the O04 engine. At least one complete engine had been brought from DESSAU as well as a sufficient quantity of components to enable other engines to be built at KUZBYSHV, so that the designers had little to do at this period beyond working on certain minor improvements. [redacted] the O04 Engines he saw at KUZBYSHV had eight compressor stages and one turbine stage as had the original DESSAU engines, and developed a thrust of 1,000 kg. on the test bed.

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The O12 B Engine

2. Like the O04, the O12 engine was a JUNKERS development but the Russians were determined to increase its performance to give a static thrust of 3,600 kg. Successful works runs were made during 1948 and the official acceptance tests were carried out successfully at the end of the year. So far as Informant was aware, efforts made to reduce the weight of this power unit were not over-successful and in its final form it weighed, with accessories, just over 1,400 kg.

3. Development on the O12 'B' continued after the appearance of the O22A which was designed later, or rather after modifications had been made to an original German design (JUMO 109). The later development work on the O12 engine was apparently carried out entirely on the initiative of KUZNETSOV and against the orders of TSIAM in MOSCOW. Much later, in SAVELOVO, [redacted] KUZNETSOV had championed the O12 engine against the recommendations of V. KLIMOV, who at that time was working on an improved version of the Nene. In the end, KLIMOV's recommendations that the development of the Nene should continue at the expense of the O12 were accepted by TSIAM. Nevertheless, KUZNETSOV was reluctant to accept defeat and persevered with the O12 until definitely ordered from a high level to drop all work on the engine.

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The O22A Engine

4. [redacted] it appears that KLIMOV was at first against the switchover from pure jet engines to the development of turbo-prop designs. However, once work was started on the O22A, considerable interest was shown by TSIAM in the engine [redacted] KUZNETSOV submitted regular reports on the progress made besides paying frequent visits to TSIAM in MOSCOW. The O22A engine was an axial-flow turbo-prop engine with twelve compressor and three turbine stages mounted on a single shaft. In its final form, as tested in the Spring of 1951, the engine developed over 4,500 B.H.P. plus a thrust of approximately 500 kg.

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5. When the original drawings were made for the O22A engine and submitted to the Russians for approval, they were rejected because the reduction gearing was too heavy. In spite of German protests, The Russians insisted that a new design be submitted since they considered the weight penalties involved in the original gearing were too great. Considerable trouble was experienced with the gear-box eventually produced at KUZBYSHV and fitted to the O22A.

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[redacted] modifications were made in the reduction gear (7.5 : 1) which enabled the engine to pass its works test and final acceptance tests in 1951.

/The 'K' Engine

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The 'K' Engine

6. The 'K' engine was regarded from the first as a Russian project though the German specialists had completed the original designs which had been approved by the Russians with only slight modifications. In its standard form the 'K' had fourteen compressor and five turbine stages mounted on a common shaft.

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[REDACTED] the engine produced 10,000 B.H.P. at 7,600 r.p.m.

[REDACTED] the main disadvantages of the 'K' engine were its length of just over 4½ metres and its weight of 1,800 kg with auxiliary equipment. Probably because of these two factors an alternative project employing a supersonic compressor was developed. The testing of this variation on the 'K' was entirely in Russian hands though German specialists had worked on the development of the compressor. the engine had run in what was referred to as its "supersonic" form on the test bed [REDACTED]

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7. Yet another variant on the standard 'K' engine was a design with all the compressor stages equipped with steel blades compared with the standard 'K', which had light alloy blades, [REDACTED] on the three initial compressor stages at least.

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[REDACTED] the final design of the 'K' had not been fixed [REDACTED] the 'K' would go into series production as first tested at KUYBYSHEV, namely with fourteen compressor and five turbine stages mounted on a single shaft [REDACTED]

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[REDACTED] the Russian factories would be unable in their present form to produce in quantity a more complicated engine than the 'K' as first tested.

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