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CENTRAL INTELLIGENCE AGENCY

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INFORMATION REPORT

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COUNTRY USSR (Kuybyshev Oblast)

DATE DISTR. 26 August 1952

SUBJECT TS Turbojet Starter Engine Development at Zavod No. 2 in Upravlencheskiy

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SUPPLEMENT TO REPORT NO. 25X1

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1. The TS starter unit was to be installed in the Jumo-012 with its exhaust unit pointing upstream to the air intake flow.[1] The Soviets at Experimental Plant No. 2 in Upravlencheskiy (53-12N, 50-09E) objected to this type of mounting because of the undesirable preheating of the intake-air for the first compression stage, which would be effected by the exhaust gases of the starter unit. According to source, the Soviet objections were justified to a certain degree by the ratio of hot exhaust gases of the starter engine to intake-air of the main power plant, ie., 1.3 kg/sec gases with a temperature of 650° C to 15 kg/sec intake-air. Experiments, however, revealed the preheating of intake-air to be of no harm during the summer and even advantageous during the winter. As a precautionary measure it was planned to install shutters, similar to Venetian blinds, in the casing of the intake cone. These shutters were to close the intake and the exhaust apertures of the starter engine as soon as the main engine had started.[2]

2. The contents of six letters source received from Engineer Guetter (fnu) indicated that in late 1950 the starter expert team was engaged in the development of a 100 hp turbo starter engine. Source stated that the use of high quality materials and not structural alterations would be required to achieve the increased power. The original TS starter engine had 77 hp and was designed with a compressor running at 41,350 rpm. Because of difficulties with the ball bearings, the speed was reduced to 37,500 rpm., still sufficient even for the Jumo engines 012 and 022, which required a maximum of 65 hps for starting.[3]

25X1 1. [ ] Comment: For details of the installation of the TS starter engine in turbojet power plants, see Attachment, Sketch 1.

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25X1 2. [redacted] Comment: For installation of shutters similar to Venetian blinds in the engine, see Attachment, Sketch 2.

25X1 3. [redacted] Comment: It is doubted that 65 hp is sufficient to start these engines. The shutters cause a loss of power, and in winter great resistances have to be overcome during the starting operation. For these reasons surplus power of the starter engine is required, which explains the Soviet request for construction of a more powerful starter. Jumo 012 engines were reportedly not in mass production, as Soviet requirements of this class of engine allegedly were met by Soviet-built Nene engines. However, information received indicates that the Soviets want to terminate the construction of the Jumo 012.

Attachment: Sketch of the installation of a TS starter engine in a turbojet power plant.

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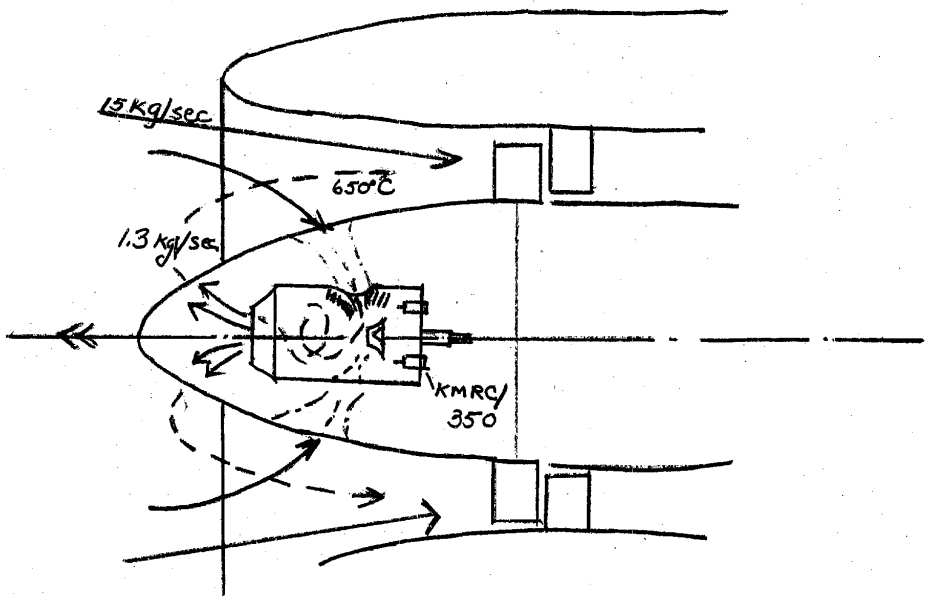
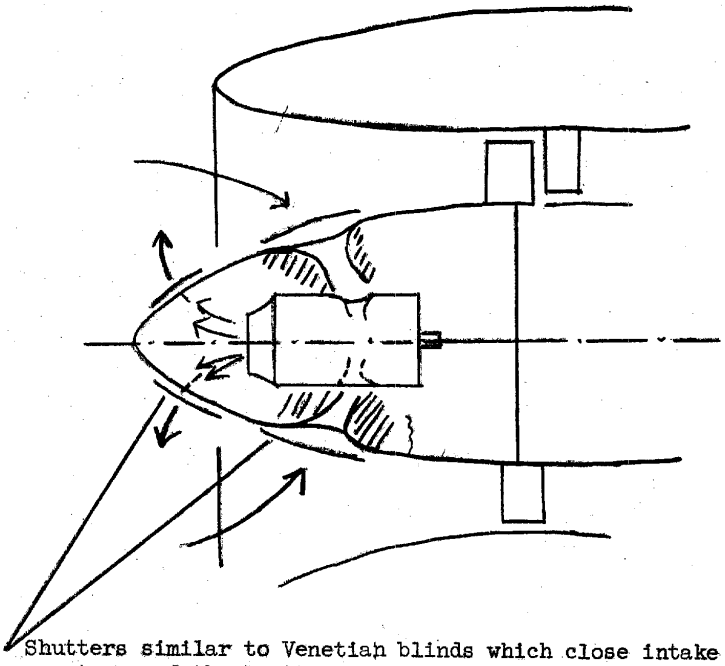
Installation of TS Turbo Starter Unit in a Turbojet Engine

Sketch No. 1



Sketch No. 2



Shutters similar to Venetian blinds which close intake and exhaust apertures of the TS turbo starter.

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