

ORTHO TURBO JET ENGINE, A CHALLENGE OF ACTUAL ENGINES

Virgil Stanciu¹, Cristina Pavel²

FACULTY OF AEROSPACE ENGINEERING,
"POLITEHNICA" UNIVERSITY OF BUCHAREST,
BUCHAREST, ROMANIA

Abstract

In his paper put into question and gives a solution to one of the tender problems of jet engines. It is known that the traction force of a gas turbine engine, in general, and especially of a jet engine, is the resultant to the axial direction of traction forces, propulsion traction and propulsion generated by system components (device inlet, compressor, combustion chamber, turbine exhaust device, nozzle reaction).

The main source of power for traction propulsion system engine is aerodynamic axial compressor and its main consumer of power is gas dynamics axial turbine.

Generally resultant force, which is the force performed by the engine, and the cause of aircraft displacement, is essentially the difference between compressor thrust achieved oriented in the direction of flight of the aircraft and active power consumed by the turbine, with the same direction, but contrariwise, identical, direction of displacement of the working fluid.

The new engine concept, called in this paper the natural turbo jet, proposes reorienting the active force of the turbine in a normal direction of general flow direction through the engine and using it as a bearing force of the aircraft. It makes the transition from **normal** (real or linear) turbo jet engine variant, where the compressor and turbine have the same direction, to the proposed version of the new concept, the **ortho** (natural or perpendicular) turbo jet engine. Are obtained, thus, a doubling of the thrust of the jet engine layout ortho and also an additional sustentation force, by using active force of the turbine which will take the direction and meaning of the lifting force. This is used to maximum thrust force produced by the compressor which, generally, is from 1.8 to 2.3 times the integrate thrust force of a jet engine in the linear version.

¹ Professor, Ph. D.

² Ph. D. student, Eng.