

# T700 & CT7 families

## Turboshaft engine



## Engine overview

The T700/T6E1 growth engine version retains the rugged, reliable and maintainable design features of its T700 predecessors, while delivering 2,500 s.h.p. (or more). The T700/T6E1, designed to power the NH90 twin-engine helicopter, was developed and will be produced jointly by Avio and GE Aircraft Engines (GEAE). Avio is responsible for 50% of the design and testing for engine certification. Production engines for Italy's NH90 helicopters will be assembled and tested by Avio who will produce 60% of the engine components. In September 2004, the NH90 helicopter successfully performed its first test flight. The flight qualification activities were started in the middle of 2005, and are still in progress.

### Avio contribution

- front frame assembly
- accessory gearbox module with accessories
- power turbine module
- output drive assembly
- case diffuser
- anti-icing start bleed valve
- engine assembly

The NH90, with its two versions (tactical transport - TTH, and marine version - NFH), performs:

- tactical transport of personnel and equipment
- heliborn operations and SAR
- anti-submarine warfare missions
- anti-surface unit warfare missions
- troop transport
- search & rescue missions





*Propulsion in the sky, space and sea*



## CT7-8 turboshaft engine family

The 2,500 s.h.p. CT7-8 (and some applications up to 2,800 s.h.p.), was selected as the exclusive power plant for Sikorsky's S92 multi-role helicopter, and is the newest and most advanced turboshaft in its class. The engine was developed and is produced jointly by Avio and GE Aircraft Engines (GEAE).

Avio is partly responsible for the design and testing of the engine, and has a 40% share of the global market.

The CT7-8 engine, certified by the U.S. Federal Aviation Administration (FAA) in April 2004, is a derivative of GEAE's successful T700/CT7 family of turboprop and turboshaft engines, which powers 25 helicopter models and fixed-wing aircraft in service with more than 130 customers in over 50 countries.

This engine family was developed in the last few years to increase engine power.

An increase of 5% in power was obtained in the first development phase.

Belonging to this growth engine family are the CT7-8A and CT7-8E, which maintain the same share for these growth programmes. Growth production was started up in 2005.

A more challenging and technologically advanced 3,125 s.h.p growth version, the new CT7-8C engine, is under development between Avio and GE.

Avio is fully responsible for the design and produc-

tion of the new three-stage power turbine module. The CT7-8C power turbine maintains common interfaces with the CT7-8A core, and has the capability to upgrade a CT7-8/CT7-8A/CT7-8E to a CT7-8C at an overhaul facility (thanks to the full LPT module inter-changeability).

New technologically advanced materials and processes are used for this powerful Engine.

In September 2008, Avio carried out testing of the FETT engine (First Engine To Test) for the 150 hours endurance test in its Sangone facility test cell. Moreover, Avio is responsible for part of the FAA engine certification test plan and will perform the loss of load test in 2010 in conformity with the FAR 33 requirements.

FAA civil certification is expected in 2011.

### Avio contribution

- front frame assembly
- accessory gearbox module with accessories
- output drive assembly
- case diffuser
- anti-icing start bleed valve
- power turbine module parts

### The S92 helicopter is mainly oriented towards:

- offshore market
- airline transport services
- government and VIP transport services
- search & rescue missions



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