

ARCHIVED REPORT

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Fuji T-5/T-7

Outlook

- T-5 production for the JMSDF appears to be at an end
- T-7 production for the JASDF has also been completed

Orientation

Description. Single-turboprop-powered, two-seat, basic/primary military training aircraft.

Sponsor. The T-5 is sponsored by the Japan Maritime Self-Defense Force. The T-7 was sponsored by the Japan Air Self-Defense Force.

Status. Production of the T-5 ended in 2015. Production of the T-7 ended in 2008.

Total Produced. Through 2015, Fuji produced 66 T-5 aircraft plus one prototype, a converted

piston-powered KM-2. Fuji also built one T-7 prototype, converted from a piston-powered T-3, and 49 new-build T-7s.

Application. Primary/basic and intermediate military flight and navigation training. Additional potential as a commercial airline advanced trainer.

Price Range. T-5 FY13 unit cost, \$1.9 million.

Contractors

Prime

Fuji Heavy Industries Ltd	http://www.fhi.co.jp/english , Ebisu Subaru Bldg 1-20-8, Shibuya-ku, Tokyo, Japan, Tel: + 81 3 6447 8000, Fax: + 81 3 6447 8184, Prime
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Subcontractor

Rolls-Royce Corp	http://www.rolls-royce.com/northamerica/na/ , 2001 S Tibbs Ave, Indianapolis, IN 46206 United States, Tel: + 1 (317) 230-2000, Fax: + 1 (317) 230-4020 (250-B17D Turboprop Engine)
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NOTE(S): Above contractors apply to T-5 model.

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Technical Data

(T-5)

Design Features. Cantilever low-wing monoplane with a cantilever tail section. Retractable tricycle type landing gear.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Wingspan	10.04 m	32.94 ft
Overall length	8.44 m	27.69 ft
Overall height	2.96 m	9.71 ft
Weight		
Maximum takeoff weight		
Aerobatic configuration	1,585 kg	3,494 lb
Utility configuration	1,805 kg	3,979 lb
Capacities		
Fuel	363 liters	96 U.S. gal
Performance(a)		
Maximum level speed at 8,000 ft	357 km/h	193 kt
T-O run to 50 ft	430 m	1,410 ft
Landing run over 50 ft	515 m	1,690 ft
Propulsion		
T-5	(1)	Rolls-Royce M250-B17D turboprop engine flat-rated to 261 kW (350 shp) driving a Hartzell three-blade propeller.

Seating

T-5: Side-by-side seating for student and instructor. Two additional student seats aft in utility configuration.

(a) At aerobatic maximum takeoff weight.

Variants/Upgrades

T-7. Turboprop-powered version of the T-3 piston. The two-seat T-7 was also known as the T-3 Kai and the KM-2F. Seating was in a tandem arrangement.

The T-7 was powered by a 336-kW (450-shp) Rolls-Royce M250-B17F turboprop engine driving a three-blade propeller. Compared to the T-3, the T-7

included changes to the engine cowling, the wings, and the tail unit.

L-3 Avionics Systems supplied a Tactical Airborne Navigation (TACAN) system and a 3-inch AIM Model 1200 attitude indicator for the T-7. Astronautics Corp supplied a horizontal situation indicator.

Program Review

Background. During the course of its history, Fuji Heavy Industries has produced a number of light general aviation/utility aircraft, including the Beech

Mentor, the Cessna L-19E Bird Dog (O-1), and several indigenous designs such as the LM-1 Nikko, the LM-2, and the KM.

Fuji T-5/T-7

Fuji's KM-2 basic trainer was a derivative of the Beech Mentor. The most recent piston-powered KM-2 variant was the KM-2B, which saw service with the Japan Air Self-Defense Force (JASDF) under the designation T-3. This aircraft was equipped with AlliedSignal (Bendix/King) avionics and a single Lycoming IGSO-480-A1A6 engine. Approximately 60 Lycoming-powered KM-2B trainers were produced, beginning in 1978.

Turboprop Power

The KM-2D model is a turboprop-powered derivative of the KM-2 piston. Fuji built a KM-2D prototype in 1984. The company refit a piston-powered KM-2 with an Allison (now Rolls-Royce) M250-B17D turboprop engine. The aircraft was certified to Japan Civil Aviation Bureau (JCAB) aerobatic and utility requirements in 1985.

Fuji hoped to interest the Japanese military in the KM-2D. In 1987, the company was issued a contract to replace the Japan Maritime Self-Defense Force (JMSDF) fleet of 32 piston-powered KM-2s with a version of the KM-2D called the KM-2Kai. This version incorporated additional changes in the aircraft's cabin structure and equipment. The Japanese military designation for the KM-2Kai is T-5.

The JMSDF acquired an initial batch of 36 T-5s by 1998. Production of the T-5 then ended temporarily, and Fuji focused on production of the T-7 variant for the JASDF.

JMSDF procurement of the T-5 resumed in FY06. That year, funding was approved for one T-5 trainer for the service. Four more JMSDF T-5s were funded in FY07, followed by an additional four in FY08, five in FY09, four in FY10, five in FY11, four in FY12, and three in FY13.

KM-2F Selected as T-X Trainer

T-7 Program. In August 1998, Fuji was chosen to provide a T-X primary trainer to replace the JASDF fleet of T-3 pistons. The company had proposed a turboprop version of the T-3 called the KM-2F. A KM-2F prototype, converted from an existing T-3, made its first flight in 1998. It was subsequently awarded a JCAB type certificate.

The KM-2F, which was also known as the T-7, was selected for the T-X program over the Pilatus PC-7 Mk II, the other finalist in the competition. The Embraer Tucano and the Raytheon T-6 had been eliminated from the contest earlier.

In its FY99 budget request, the Japan Defense Agency (JDA) requested funding for an initial two T-7s. However, after accusations were made against Fuji in late 1998 regarding alleged bribery over other defense work, the JDA killed the item in the budget. The agency later decided to relaunch the competition, and Fuji was allowed to again compete.

Pilatus also competed again, this time proposing the baseline PC-7 rather than the more expensive PC-7 Mk II. Funding for procurement of the first two T-X aircraft was included in the JDA's FY00 budget.

In September 2000, the JDA announced that the T-7 had again been selected as the new primary trainer for the JASDF. The JDA awarded a contract worth JPY514 million (\$4.7 million) to Fuji for the first two aircraft.

The first new-production T-7 made its initial flight in July 2002. This aircraft and a second new-build T-7 were delivered to the JASDF in September 2002. T-7 operational testing was completed in January 2003.

The 49th and final JASDF T-7 trainer was delivered in 2008, completing the service's planned acquisition of the type. The JASDF has no plans to acquire any additional T-7s in the future. The T-7 fully replaced its T-3 predecessor in the JASDF fleet; the service retired its last T-3s in April 2007.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1975	KM-2B selected by JASDF as basic trainer
Jun	1984	First flight of KM-2D prototype
Feb	1985	KM-2D certified to JCAB aerobatic and utility standards
Mar	1987	Fuji awarded contract for production of KM-2Kai for JMSDF
Aug	1988	T-5 deliveries begin
Sep	2000	Fuji awarded contract for first two T-7s for JASDF
Sep	2002	T-7 deliveries begin
	2008	T-7 production ends
	2015	T-5 production ends

Fuji T-5/T-7

Worldwide Distribution/Inventories

(as of June 2016)

	Quantity	Model
JASDF	49	T-7
JMSDF	36	T-5

Forecast Rationale

In 2015, Fuji completed and delivered the final three aircraft from the Japan Maritime Self-Defense Force's second batch of 30 T-5 trainers. Thus, T-5 production appears to have come to an end. The last of the 30 T-5s were funded in Japan's FY13 defense budget, and no funding for additional T-5s has been requested or appropriated since. Pending a clarification of future JMSDF plans, we are not forecasting any additional T-5 production.

The JMSDF has used the second-batch T-5s to augment and largely replace older aircraft from the service's initial T-5 batch that had been acquired in the late 1980s and 1990s. That initial batch numbered 36 aircraft, most of which have now been withdrawn from service.

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