

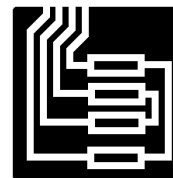
ARCHIVED REPORT

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Cessna A/T-37 Series

Outlook

- USAF T-37s have been retired
- A number of retired aircraft could be resold and modified
- **Note:** Icons indicate area(s) of current and potential retrofit/modernization activity



Orientation

Description. The T-37 is a two-seat, twin-engine primary jet trainer. The A-37 is a two-seat, twin-engine light strike aircraft based on the T-37.

Current Status. Production of both the T-37 and the A-37 ended in 1977.

Total Produced. T-37 – 1,268; A-37 (new production only) – 577.

Application. T-37 – primary trainer; A-37 – ground attack; OA-37B – forward air control.

Price Range. \$218,000 flyaway (T-37C; 1970 cost).

Contractors

Prime

Cessna Aircraft Co	http://www.cessna.com , One Cessna Blvd, PO Box 7706, Wichita, KS 67277 United States, Tel: + 1 (316) 517-6000, Prime
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Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

(T-37B)

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Length overall	8.92 m	29.25 ft
Height overall	2.80 m	9.19 ft

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	Metric	U.S.
Wingspan	10.29 m	33.77 ft
Wing area, gross	17.09 sq m	183.9 sq ft
Weight		
Gross weight	2,982 kg	6,575 lb
Performance		
Max speed(a)	685 km/h	370 kt
Service ceiling	10,698 m	35,100 ft
Max range(b)	1,400 km	755 nm
Propulsion		
Two Continental J69-T-25 turbojets		
Thrust (each)	4.56 kN	1,025 lbst
Armament		
None		

(a) At 7,620 meters (25,000 ft).

(b) At 579 km/h (312 kt) with standard tankage.

Program Review

Background. Many U.S. Air Force pilots learned to fly on the Cessna T-37 light aircraft. It has been a stepping-stone for thousands of USAF student pilots in their transition to supersonic trainers. More than 1,800 aircraft were produced in trainer and attack versions for the air forces of over a dozen countries.

The T-37 was the result of a design competition among eight companies, including Cessna, for a U.S. Air Force trainer. The eight firms submitted 15 designs in response to an Air Force request in 1952.

The Air Force set the following requirements for the design: The aircraft must have an empty weight of 1,814 kilograms (4,000 lb) or less; it must have good stability as slow as 113 knots; it must be able to take off and land over a 50-foot obstacle in less than 4,000 feet; it must carry enough fuel, with adequate reserves, for 20

takeoffs and landings in a two-hour period; and it must have a service ceiling of more than 9,144 meters (30,000 ft) with good high-altitude maneuverability. A wide range of performance, including good low-speed performance and easy-to-fly characteristics, was another important consideration. The service also wanted an aircraft capable of gradually increasing performance until it approached the characteristics of first-line aircraft.

The basic T-37 design changed little since its original conception, but the attack version of the aircraft, designated the A-37, has more powerful General Electric engines. In addition, the A-37 carries a nose-mounted mini-gun, long-range fuel tanks, and eight pylons to carry armament loads tailored to various missions.

Variants

T-37A. Initial production version. Powered by Continental J69-T-9 engines rated at 4.09 kN (920 lbst). All existing aircraft were eventually converted to the T-37B configuration.

T-37B. Improved version with J69-T-25 engines. Also featured new Omni navigational equipment, UHF radio, and instrument panel.

T-37C. Developed specifically for nations friendly to the U.S. to use in their training programs. Includes provisions for two armament pylons and wing-tip fuel tanks.

YAT-37D. Prototype for the A-37. Two were produced by modifying existing T-37 airframes.

A-37A. Ground attack aircraft derived from the T-37. Powered by GE J85-GE-5 engines rated at 10.68 kN (2,400 lbst). Converted from T-37B trainers. Total of 39 built. Withdrawn from service in 1974.

A-37B. New-production version. Powered by GE J85-GE-17A engines rated at 12.68 kN (2,850 lbst). Some were used as OA-37B forward air-control aircraft.

Cessna A/T-37 Series

Milestones

Month	Year	Major Development
Oct	1954	First of two T-37 prototypes flown
Sep	1955	First flight of T-37A
Nov	1959	T-37B accepted into USAF service
Aug	1966	USAF awarded contract for A-37A conversions
Sep	1967	A-37B prototype flown for first time
	1977	Production of A-37s and T-37s ends

Worldwide Distribution/Inventories

Operator	Designation	Quantity	Average Age
Bangladesh Air Force	T-37B	12	37.00
Chile Air Force	A-37B	6	32.50
Chile Air Force	OA-37	7	38.00
Colombia Air Force	A-37B	11	36.00
Colombia Air Force	T-37B	3	44.00
Colombia Air Force	T-37C	4	44.00
Ecuador Air Force	A-37B	20	34.00
El Salvador Air Force	A-37B	9	37.50
Germany Air Force	T-37B	35	46.00
Guatemala Air Force	A-37B	3	37.00
Honduras Air Force	A-37B	5	42.00
Honduras Air Force	OA-37	4	43.00
Korea Republic of (South) Air Force	A-37B	23	41.50
Morocco Air Force	T-37B	6	37.00
Pakistan Air Force	T-37B	7	42.00
Pakistan Air Force	T-37C	6	33.00
Peru Air Force	A-37B	10	36.50
Turkey Air Force	T-37B	20	48.50
Turkey Air Force	T-37C	35	41.00
Uruguay Air Force	A-37B	11	38.50

Identified Retrofit & Modernization Contractors

Propulsion

Snow Aviation International Inc	http://www.snowaviation.com , 7201 Paul Tibbets St, Rickenbacker Int'l Airport, Columbus, OH 43217 United States, Tel: + 1 (614) 492-7669, Fax: + 1 (614) 492-7679 (Avionics Upgrade)
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Cessna A/T-37 Series

Electronics

Enaer	Avenida Jose Miguel Carrera 11087, El Bosque, Santiago, Chile (Upgrade)
Snow Aviation International Inc	http://www.snowaviation.com , 7201 Paul Tibbets St, Rickenbacker Int'l Airport, Columbus, OH 43217 United States, Tel: + 1 (614) 492-7669, Fax: + 1 (614) 492-7679 (Avionics Upgrade)

Related News

U.S. Air Force Retires T-37 Trainer – The U.S. Air Force retired the last T-37 Tweet from Specialized Undergraduate Pilot Training on April 3, 2008, wrapping up the type's 39 years of service as trainer for more than 10,000 Air Force aviators. (USAF, 4/08)

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Opportunities

With the USAF T-37Bs withdrawn from service, a number could be acquired by non-U.S. customers. Should this occur, at least some of the new operators might elect to modify or upgrade the aircraft.

AIRFRAME

T-37 SLEP Upgrade. Following the cancellation of the T-46 trainer project, the U.S. Air Force initiated the T-37 Structural Life Extension Program (SLEP). Under this effort, USAF procured SLEP kits to replace vital structures along the T-37's fuselage/wing carry-through area, lower front wing spars, tail mounting structure, and horizontal stabilizer.

In August 1989, Sabreliner Corp, St. Louis, Missouri, was awarded a contract by the Air Force to develop and produce the SLEP kits. Sabreliner had successfully competed against Cessna for the award. The contract, when it was awarded, had an anticipated total value of approximately \$30 million. First flight of a T-37B with a SLEP kit occurred in April 1991.

The SLEP kits were intended to extend the useful life of the T-37B beyond the year 2005. In early 1993, Sabreliner delivered the last of 571 SLEP kits to the Air Force, completing the contract ahead of schedule and under contract cost. Kit installation was performed by the Air Force itself.

The SLEP effort involved modifications to the aft fuselage dorsal support fittings (known as banjo fittings), horizontal stabilizers, wing carry-through fuselage structural assembly, forward wing carry-through fuselage attach fittings (or 302 fittings), and

lower forward wing spar. The last two kits were installed on all USAF T-37Bs, while the other kits were installed as needed.

Sabreliner also produced T-37 SLEP kits for the Pakistani Air Force. The company pursued opportunities to manufacture SLEP kits for other T-37 operators, but no longer appears to be actively marketing the program.

PROPULSION

Re-engining Upgrade. The U.S. Air Force once considered replacing the Continental J69 engines of its T-37s with more modern powerplants. However, this idea was later dropped because the T-37 was not expected to be in service long enough to make the re-engining economically viable.

Although the USAF will clearly not be re-engining any T-37s at this point, one or more non-U.S. operators of the trainer could elect to replace the engines on their T-37s. Snow Aviation International, Columbus, Ohio, is developing a T-37 re-engining and life extension program, called the T-37BR Brute program. Under this program, the company intends to replace the T-37's existing engines with Williams International FJ33 turboprop engines. The FJ33 would be rated at 5.34 kN (1,200 lbst) on the T-37. In addition, Snow would replace many of the aircraft's aging systems and correct known structural concerns.

Snow has worked with Enaer, Santiago, Chile, on this T-37 modification program.

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ELECTRONICS

Avionics Upgrade. Enaer has proposed an avionics upgrade for the A-37. The upgrade is primarily targeted at Latin American A-37 operators.

Several Honeywell avionics systems are included in the upgrade package. These include twin 40 electronic flight instrument systems (EFIS); the KDF 806 automatic direction finder; KDM 706 distance measuring equipment; the KLN 90 Global Positioning System; the KNR 634 navigation system; the KRA 405 radio altimeter; the KTR 908/909 digital communications suite; and the KXP 756 transponder.

Among other equipment included in the package are a Flight Visions head-up display (HUD), the Northrop

Grumman LCR-93 attitude heading reference system, and a DTS radar warning receiver.

Some elements of the upgrade could also be retrofitted to the T-37.

New Displays Upgrade. Snow Aviation International has proposed an avionics upgrade for the T-37. The upgrade borrows from the company's C-130M modification program for the Lockheed Martin C-130 aircraft.

The T-37 modifications include a new flight deck, including three 200mm x 150mm (8-in x 6-in) active matrix liquid crystal displays (LCDs). A HUD is optional.

FI's Opportunity Outlook

PROPULSION													
Status		Thru 2009	High Confidence				Good Confidence			Less Confidence			Total
Estimated Potential Candidates			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
237		Re-Engining Upgrade <=> T-37											
	Planned/In Progress	0	0	0	0	0	0	0	0	0	0	0	0
	Speculative		5	2	0	0	0	0	0	0	0	0	7
ELECTRONICS													
Status		Thru 2009	High Confidence				Good Confidence			Less Confidence			Total
Estimated Potential Candidates			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
237		Avionics Upgrade <=> T-37											
	Planned/In Progress	0	0	0	0	0	0	0	0	0	0	0	0
	Speculative		10	10	0	0	0	0	0	0	0	0	20
237		New Displays Upgrade <=> T-37											
	Planned/In Progress	0	0	0	0	0	0	0	0	0	0	0	0
	Speculative		10	5	0	0	0	0	0	0	0	0	15