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Vought A-7 Corsair II Series - Archived 9/96

Orientation

Description. A single-seat, single-engine subsonic tactical fighter. Also produced in two-seat trainer versions.

Sponsor. US Navy.

Contractors. Vought Aircraft Co, Dallas, TX, USA.

Status. Series production ended in 1983.

Total Produced. A total of 1,545 A-7s were produced.

Application. Carrier based light/land based medium ground or maritime attack day fighter.

Price Range. A-7 Plus modifications: \$14.6 million per unit.

Technical Data

(A-7E)

Design Features. Cantilever high-wing monoplane with 35 degree swept-back at quarter-chord. Outer third of wings fold upward for confined stowage. Semi-monocoque fuselage with large, door type ventral speed-brake under center of fuselage. Large vertical fin and

rudder, swept back 44 degrees at quarter-chord. Ailerons, tailplane, and rudder are all actuated by fully triplicated hydraulic systems. Tricycle type landing gear with single wheel on each main unit, twin wheel on nose unit. Arrestor hook under rear of fuselage.

Dimensions	Metric	US
Length overall	14.06 m	46.13 ft
Height overall	4.90 m	16.06 ft
Wingspan	11.81 m	38.73 ft
Wing area, gross	34.83 sq m	375.0 sq ft
Weight		
Empty	8,640 kg	19,048 lb
Max T-O weight	19,051 kg	41,912 lb
Performance		
Max level speed at S/L	1,112 km/hr	600 knots
Ferry range ^(a)	4,604 km	2,485 nm

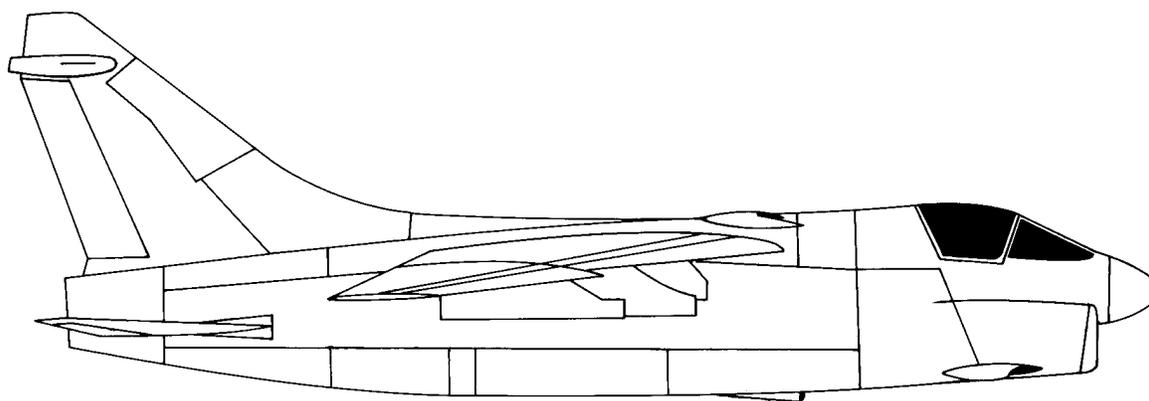
Propulsion

A-7A	(1)	UTC/Pratt & Whitney TF30-P-6 turbofan rated 11,350 lbst.
A/TA-7B/C	(1)	Pratt & Whitney TF30-P-8 turbofan rated 12,200 lbst.
A-7D	(1)	Allison TF41-A-1 turbofan rated 14,500 lbst.
A-7E	(1)	Allison TF41-A-2 turbofan rated 15,000 lbst.
A-7H	(1)	Allison TF41-A-400 turbofan rated 15,000 lbst.
A-7P	(1)	Pratt & Whitney TF30-P-408 augmented turbofan rated 13,400 lbst.
YA-7F	(1)	Pratt & Whitney F100-PW-220 turbofan rated 23,800 lbst.

Armament. One M61A1 Vulcan 20 mm cannon mounted in port side of fuselage. Two fuselage stations and six underwing pylons can carry wide range of stores, including air-to-air and air-to-ground missiles, electro-optical and laser-guided bombs, general purpose bombs, rockets, gun pods, bomblet dispensers, and external fuel tanks. Fuselage stations can carry Sidewinder air-to-air missiles. Strike camera for damage assessment in lower rear fuselage.

Crew. One, in A-7; two, in TA-7/EA-7L.

^(a)Maximum internal and external fuel



LTV A-7 CORSAIR II

Source: Forecast International

Variants/Upgrades

A-7A. Initial production version for US Navy. Powered by Pratt & Whitney TF30-P-6 engine rated at 50.5 kN (11,350 lbst). Deliveries completed in 1968.

A-7B. Second US Navy version. Powered by P&W TF30-P-8 engine rated at 54.3 kN (12,200 lbst). First production A-7B flew for first time in February 1968.

A-7C. Designation later applied by US Navy to first 67 A-7Es to distinguish them from later Allison/Rolls-Royce-powered aircraft. The A-7C aircraft were powered by TF30-P-8 engine.

TA-7C. Two-seat trainer variant converted from A-7Bs and A-7Cs.

EA-7L. Electronic version for US Navy.

A-7D. US Air Force version. Featured continuous solution navigation and weapon delivery system. Initial two A-7Ds powered by TF30-P-8; all others equipped

with Allison/Rolls-Royce TF41-A-1 rated at 64.5 kN (14,500 lbst).

A-7E. Light attack/close air support/interdiction model for US Navy. Powered by Allison/Rolls-Royce TF41-A-2 rated at 66.7 kN (15,000 lbst). A-7E FLIR version features FLIR pod under starboard wing for improved night capability.

YA-7E. Prototype of Vought-proposed two-seat configuration.

A-7H. Land-based version of A-7E. Produced for Greek Air Force.

TA-7H. Two-seat trainer for Greek Air Force. Powered by Allison/Rolls-Royce TF41-A-400 engine.

A-7K. Two-seat trainer version of A-7D for USAF. Full combat capability.

A-7P. Converted A-7As for Portugal. Features P&W TF30-P-408 engine and advanced avionics.

TA-7P. Two-seat version for Portugal.

International Corsair II. LTV-proposed conversion of A-7B for export.

Corsair III. LTV-proposed conversion of A-7B. To be powered by a GE F110-GE-100.

A-7 Strikefighter. Formerly called A-7 Plus. Supersonic upgrade of A-7D for close air support/battlefield air interdiction (CAS/BAI) mission. Prototypes known as YA-7F.

Program Review

Background. Initially developed as a carrier-based attack aircraft for the US Navy, the LTV A-7 Corsair II was later adopted by the US Air Force to fill a need for a tactical attack plane. The A-7 entered Navy service in 1966 and with the Air Force in 1968, and both services accumulated considerable combat experience with the Corsair II in Vietnam. Over 1,500 A-7 aircraft of all versions were produced, of which over 850 are still in service.

Foreign A-7 sales were initiated with Greece, which purchased 60 A-7Hs in the 1970s and six TA-7H trainers in 1980. In late 1992 it was announced that an additional 36 aircraft were to be transferred to Greece. Portugal procured modernized A-7As that were redesignated A-7P. Delivery of the first batch of 20 was completed in 1982, and deliveries of a second batch of 30 began in October 1984.

LTV obtained authorization to market the A-7 to a number of countries, including Thailand, Indonesia, Malaysia, Singapore, the Philippines, New Zealand, Turkey and Venezuela. To date, no further sales have been announced.

According to LTV, among the major strong points of the A-7 for international customers are its high payload capability and its modern avionics systems that provide the ability to perform many missions. Capable of carrying a wide mix of weapons — 5,443 kg (12,000 lb) or more —

the aircraft numbers among its multi-purpose roles close air support, battlefield interdiction, counterattacks on enemy airfields and related facilities, plus a number of sea tasks such as surveillance, coastal defense, mining harbors, and dropping sonobuoys.

LTV's A-7 Plus update program was not selected for either the upgrading of Air National Guard A-7s or replacement of the Fairchild A-10 in the close air support (CAS) role. USAF now plans to retain A-10s and make modifications to F-16s to fulfill the current USAF CAS mission requirement.

In a separate effort, a total of 72 Air National Guard A-7D aircraft and eight two-seat A-7Ks were upgraded with Low Altitude Night Attack (LANA) capability. Developed by LTV Corp, LANA is an automatic navigation system that is used to perform low altitude navigation and target detection in both day and night conditions. The system includes a Texas Instruments AAR-49 Forward-Looking InfraRed (FLIR) system contained in a wing-mounted pod, a Plessey CP-1775/A Tactical Mission Computer (TMC), the GEC Avionics AVQ-31 Head-Up Display (HUD), cockpit modifications, and an Automatic Terrain Following (ATF) coupler. Deliveries of LANA-capable aircraft began in the summer of 1987 and have been completed.

Funding

No A-7 funding has been requested since FY91.

The outlook for further A-7 upgrades continues to dim; current projects on offer are described as follows:

ALR-606(VE). The ALR-606(VE) is a fully digital radar warning receiver developed by General Instrument Corp specifically for the export market. It is based on the proven technology of the ALR-66 technology and can fill such needs as item-for-item exact replacement of older analog and digital warning systems in previous generation combat aircraft such as the A-7.

Greek A-7s were fitted with the ALR-66(V) during the 1980s, but the ALR-606(VE) system may be specified by Portugal or other international customers seeking to modernize or acquire ex-USAF/USN A-7 aircraft.

Pathfinder. Martin Marietta's Pathfinder system has been flight demonstrated on an A-7, integrated into a weapon pylon beneath the aircraft's wing. Pathfinder is a derivative of the Low Altitude Navigation and Targeting InfraRed System for Night (LANTIRN). Unlike the LANTIRN system, Pathfinder includes only navigation equipment. It uses an infrared sensor that provides pilots flying at night with a daytime-like picture of the terrain in front of the aircraft. The system detects IR energy and shows the difference between objects and their backgrounds on a television-like steerable infrared sensor. This sensor has a wide field-of-view for navigation and a narrow field-of-view for increased target detection and identification.

As previously noted, Greece has ordered LANTIRN systems for its existing F-16s, thus the likelihood of that nation also equipping its ex-USN A-7s with Pathfinder would appear to be low. Portugal has made no public announcement regarding a Pathfinder retrofit for its Corsair IIs.

Anti-Radiation Missiles. Several years ago Portugal expressed interest in equipping its A-7s with anti-radiation missiles, and some discussions were held with a US Navy delegation regarding a possible buy of Texas Instruments

High speed Anti-Radiation Missiles (HARMs). Little has been heard of this development since, but HARM may be made available to overseas operators of the A-7 at some future date.

Analysis. There has been no word on whether the 36 ex-USN Corsair IIs destined for Greece will undergo any modernization/upgrades either prior to or after delivery. Overall, however, it appears that the potential for further major A-7 upgrades has run its course.

Recent Contracts

None reported.

Timetable

Mar	1964	Initial development contract
Sep	1965	First flight of A-7A
Sep		Initial deliveries of A-7A
Feb	1968	First flight of initial production A-7B
Dec	1968	Initial delivery of A-7D to USAF
Jul	1969	Deliveries of A-7E began
Aug	1972	Initial flight of YA-7E two-seat prototype
	1983	A-7 production line closed
May	1987	A-7F (Strikefighter) development contract awarded to LTV

Worldwide Distribution

Variants of the A-7 are in service with air arms of the following nations (as of March 15, 1995):

<u>Country</u>	<u>Total</u>	<u>Variant</u>	<u>Ave. Age (Yrs)</u>
Greece	44	A-7H	19
	5	TA-7H	15
	36 ^(a)	A-7E/TA-7	17
Portugal	32	A-7P	28; rebuilt 1981-85
	6	TA-7P	26; rebuilt 1985
US (USN)	60	TA-7C	24

^(a)deliveries under way; ex-USN aircraft.

Forecast Rationale

The potential for additional A-7 upgrades has declined steadily over the past several years and, except for any refurbishment of those aircraft to be transferred to Greece, the A-7 after market appears to be drawing to an end.

Ten-Year Outlook

Neither new production nor further major upgrades of A-7s are expected.

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