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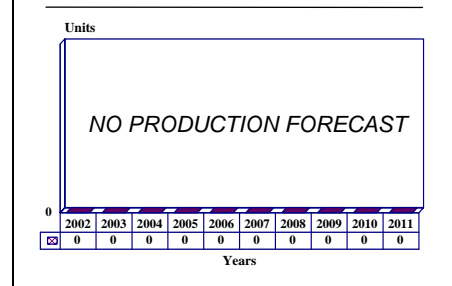
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AIDC Indigenous Defense Fighter (IDF) – Archived 2/2003

Outlook

- Production completed, no follow-on buy expected
- Plans for trainer variant for export market unclear, as is future direction of AIDC

10 Year Unit Production Forecast
 2002-2011



Orientation

Description. Single-seat, twin-augmented turbofan-powered, fighter/interceptor aircraft.

Sponsor. Republic of China.

Contractors. Aero Industry Development Center (AIDC), Taichung, Taiwan. Technological assistance provided by General Dynamics, AlliedSignal Aerospace, AlliedSignal Aerospace Company Garrett Engine Division, and GE Aerospace Aircraft Electronic & Defense Systems.

Status. Production completed in 1999.

Total Produced. Through 1999, AIDC produced four prototypes, 10 pre-series, and 120 production aircraft.

Application. Air superiority/counter-air with secondary anti-shipping strike capability.

Price Range. Manufacturer estimates \$23 million flyaway bare unit cost in 1998 US dollars.

Technical Data

Design Features. Cantilever mid-wing monoplane with single vertical stabilizer and all moving horizontal stabilizers. Wing planform is generally similar to those of the McDonnell Douglas F/A-18 and General Dynamics F-16. Nose is slightly drooped with engine intakes on the sides of the mid-fuselage.

	<u>Metric</u>	<u>US</u>
Dimensions		
Wing span, including missile rails	8.53 m	28 ft
Overall length, nose-cone to jet pipe	14.48 m	47.5 ft
Weight		
Maximum take-off	9,072 kg	20,000 lb
Internal fuel	1,950 kg	4,300 lb

Performance

Maximum level speed at altitude	Mach 1.7	Mach 1.7
Max rate of climb, s/l	15,240 m/min	50,000 ft/min
Service ceiling	16,760 m	55,000 ft

Propulsion

Ching-kuo (2) Garrett TFE 1042-70 (USAF designation F125-GA-100) two-spool, augmented geared turboprops rated approximately 26.8 kN (6,025 lbf), 42.1 kN (9,460 lbf) with reheat. Engine developed by International Turbine Engine Co, a joint venture of Garrett and the AIDC.

Armament

Six external stores attachment points can accommodate mix of Tien Chien I (Sky Sword) short-range, infrared-guided, air-to-air missiles; medium-range radar-homing SkySword II air-to-air missiles; or Hsiung Feng II (Male Bee II) sea-skimming anti-shiping missiles. One GE Ordnance M61A 20 mm cannon in portside fuselage.

Crew

One

Variants/Upgrades

IDF Ching-kuo. The first high-performance fighter aircraft developed by the Republic of China with significant technical assistance from US aircraft, engine, and avionics companies. Taiwan will deploy 130 through 2002.

Ching-kuo 2. A more powerful version, known as the Ching-kuo 2, was in early development until the summer of 1992, when it appeared increasingly likely that the United States would approve a \$5 billion, 150-unit F-16 sale to Taiwan. As soon as the deal was announced, plans for the updated variant were scrapped.

Program Review

Background. Design of an all-weather air defense fighter for Taiwan's air force was initiated in 1978 by the AIDC; the aircraft was slated to replace the island nation's 70+ F-104 Starfighters and up to 360 Northrop F-5 lightweight fighter aircraft.

It was not until 1983 that any information was available about the Taiwanese fighter project. Indeed, Taiwanese officials denied the existence of any project. However, in 1983, exclusive Forecast International sources confirmed that the project did exist and that engine manufacturer Garrett had received US Defense Department approval to coordinate development of a new afterburning turbofan engine for export to Taiwan. Garrett subsequently confirmed that it had received a major multiyear contract to begin development of the TFE 1042 powerplant.

AIDC has received considerable but quiet support from the US defense industry. It has contracted with Garrett (engine development), SLI (Lear Siegler) (avionics), General Electric (APG-67 multimode radar), General Dynamics (airframe definition), and AlliedSignal (Bendix) (fly-by-wire flight control system and cockpit instrumentation).

AIDC rolled out the first IDF prototype in late 1988, and the first flight was originally scheduled for early 1989. However, software problems that led to the crash of Saab's JAS 39 Gripen concerned AIDC officials, as the Ching-kuo used similar software. First flight was delayed until May 28, 1989. In late October 1989, one prototype experienced an accident in which a main gear tire apparently blew out, causing the aircraft to veer off the runway. Significant, but repairable, damage to the nose and left wing resulted. In July 1991 the second Ching-kuo prototype crashed, following structural damage believed to have been caused by transonic buffeting.

AIDC began a batch of 10 preproduction aircraft in 1991 and began delivering these in late 1992. The first production standard aircraft was delivered in January 1994.

Aircraft Grounded. In October 1995, Taiwan grounded its active fleet of some 40 Ching-kuos to correct deficiencies in the aircraft's fuel system, which was believed responsible for the loss of an aircraft earlier that same year. Corrections were made, and production was resumed in 1996 and completed at the end of 1999.

Funding

Total program costs are estimated at \$6 billion for a 130-unit program.

Recent Contracts

None noted.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1978	Design initiated
	1982	TFE 1042 engine development begun
Late	1988	Prototype rolled out
May	1989	First flight
	1990	Production begun
Jul	1991	Second prototype crashed
Sep	1992	US approved F-16 sale to Taiwan
Nov	1992	Dassault won Taiwanese Mirage 2000-5 order
Late	1992	Initial deliveries of pre-production aircraft
	1993	Ching-kuo 2 program scrapped
Jan	1994	Initial production deliveries
Oct	1995	Production suspended
Spring	1996	Production resumed
Dec	1999	Production completed

Worldwide Distribution

(As of November 1, 2001)

Republic of China Air Force 124

Forecast Rationale

AIDC delivered the final Ching-kuo to Taiwan's air force in early 2000, and although the manufacturer had been talking of developing a less-capable trainer variant from the baseline design, very little has been heard of such a plan in the past 12 months.

Taipei wants to attract new partners and investors for AIDC, and should AIDC find greater opportunities aboard commercial programs, the trainer project may remain on the back burner. In any event, such a design

would be coming up against some very formidable and well-established competition in the form of the BAE Hawk and the Aero L-139.

At this time we are not forecasting additional Ching-kuo production, nor are we projecting a go-ahead for the downgraded trainer variant. We see this program as a relatively low priority for the AIDC which is trying to redirect and restructure itself.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

Aircraft	(Engine)	thru 01	High Confidence Level			Good Confidence Level			Speculative			Total 02-11	
			02	03	04	05	06	07	08	09	10		11
AERO INDUSTRY DEV. CNTR. IDF CHING-KUO	TFE 1042-70	134	0	0	0	0	0	0	0	0	0	0	0
Total Production		134	0	0	0	0	0	0	0	0	0	0	0