

# ARCHIVED REPORT

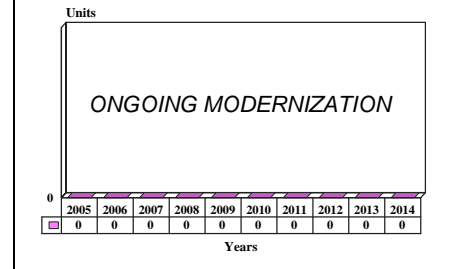
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## Aermacchi MB.339 - Archived 2/2006

### Outlook

- Italian Air Force received final aircraft in 2004
- No further production forecast

10 Year Unit Production Forecast  
2005 - 2014



### Orientation

**Description.** Two-seat, single-engine jet trainer; single-seat attack variant on offer.

**Sponsor.** The MB.339 was originally sponsored by the Italian Ministry of Defense. Aermacchi is the current sponsor of all MB.339 development.

**Status.** MB.339CD production continues for Italian Air Force order.

**Total Produced.** Through 2004, approximately 225 aircraft produced.

**Application.** Basic/advanced flying, armament trainer; close air support. Single-seat attack variant available.

**Price Range.** MB.339CD estimated at \$7 million in 2003 U.S. dollars.

### Contractors

Aermacchi SpA, <http://www.aermacchi.it>, Venegono Superiore, 21040 Italy, Tel: 39 0331 813111, Fax: 39 0331 813450, Prime

Rolls-Royce plc, <http://www.rolls-royce.com>, 65 Buckingham Gate, London, SW1E 6AT United Kingdom, Tel: 44 20 7222 9020, Fax: 44 20 7227 9178 (Viper Mk 632-43 Turbojet)

BAE Systems Avionics, Avionics Systems, <http://www.baesystems.com>, Airport Works, Rochester, Kent, ME1 2XX United Kingdom, Tel: 44 1634844400, Fax: 44 1634827332, Email: [media@baesystems.com](mailto:media@baesystems.com) (Head-Up Display (HUD) & Weapon-Aiming Computer)

Martin-Baker Aircraft Co Ltd, Higher Denham, Near Uxbridge, UB9 5AJ Middlesex, United Kingdom, Tel: 44 1895 832214, Fax: 44 1895 832587 (Mk 1T-10F Ejection Seat)

Raytheon - Radios and Terminals, <http://www.raytheon.com>, 1010 Production Rd, Fort Wayne, IN 46808 United States, Tel: 1 (260) 429-6780, Fax: 1 (260) 429-6736 (ARC-164 UHF Radio)

Secondo Mona SpA, Via Carlo Del Prete, 1, Somma Lombardo, I-21019 Italy (Emergency Fuel Dump Valve)

Rockwell Collins Inc, <http://www.rockwellcollins.com>, 400 Collins Rd NE, Cedar Rapids, IA 52498-0001 United States, Tel: 1 (319) 295-1000, Fax: 1 (319) 295-5429, Email: [collins@rockwellcollins.com](mailto:collins@rockwellcollins.com) (IA-102A Audio & Interphone Control)

### Technical Data

(MB.339FD)

**Design Features.** Much-enhanced derivative of MB.326, mating the wing of the MB.326K variant with a new forward fuselage section to afford improved forward visibility. Pressurized cockpit fitted with jettisonable canopy and Martin Baker ejection seats.

	<u>Metric</u>	<u>U.S.</u>
<b>Dimensions</b>		
Length overall	11.24 m	36.87 ft
Height	3.86 m	12.66 ft
Wingspan	11.22 m	36.8 ft
<b>Weight</b>		
Empty, equipped	3,414 kg	7,545 lb
Max gross weight, with external stores	6,350 kg	14,000 lb
<b>Performance</b>		
Max speed, sea level	920 kmph	495 kt
Max climb at sea level	2,100 mpm	6,890 fpm
Service ceiling	14,020 m	46,000 ft
<b>Propulsion</b>		
MB.339A/CD	(1)	Rolls-Royce Viper Mk 632-43 turbojet engine rated 17.8 kN (4,000 lbt).
MB.339C/FD	(1)	Rolls-Royce Viper Mk 680 turbojet engine, 19.57 kN (4,400 lbt); produced under license by Industrie Aeronautiche e Meccaniche Rinaldo Piaggio SpA; Genoa, Italy.
MB.339 T-Bird II	(1)	Viper Mk 582 turbojet rated 17.79 kN (4,000 lbt).

### **Armament**

MB.339C can carry air-to-air IR AIM-9L and Matra Magic, air-to-surface AGM-65 Maverick, or Marte Mk II sea-skimming anti-ship missiles. Marte 2 is now qualified on the modified MB.339AM.

MB.339K carries two DEFA 30mm cannon; six underwing hardpoints accommodate up to 1,815 kilograms (4,000 lb) external stores, including 50mm, 68mm, 81mm, 100mm, 2.75-inch, and 5-inch rockets; 500-pound bombs; 120mm close air support bombs. Aermacchi considering provisions for two additional, pod-mounted 30mm cannon and AIM-9 missile installation.

### **Crew**

MB.339CD/FD are two-seaters.

## Variants/Upgrades

MB.339X. Prototype first flown in August 1976. Two more prototypes to this standard were produced.

MB.339A. Initial production standard aircraft first flown in July 1978. Seventy-six were delivered to the Italian Air Force. This variant is also in service with the Argentinian Navy, Peruvian Air Force, Royal Malaysian Air Force, Dubai Air Force, Nigerian Air Force, and the Air Force of Ghana. Subvariants include the MB.339RM calibration aircraft, 15 of which are in service with the Italian Air Force Electronic Service Group, and the MB.339PAN, an aerobatic aircraft. Ten of the latter were delivered to the Frecce Tricolori. Two A models were converted to PAN standard to replace those lost in 1989. A total of 101 MB.339As were delivered to the Italian Air Force between 1978 and 1987.

MB.339AM. Modified A equipped with weapon control systems from the MB.339C. It is qualified to launch the Oto Melara Marte 2 anti-ship missile. Modification includes a new inertial platform, Doppler velocity sensor, and nav/attack computer.

MB.339B. Further improved version of the A, for which no orders have been received.

MB.339C. This is a dual-purpose, trainer/light strike model powered by the updated Viper 680 turbojet. It incorporates a digital nav/attack system, an inertial navigation platform, nav/attack computer, laser range-finder and ESM system. The C variant first flew in December 1985. The Royal New Zealand Air Force ordered 18, the last of which was delivered in late 1993.

**MB.339D.** Proposed twin-JT15D-powered version for the USAF/USN JPATS (Joint Primary Aircraft Training System) competition.

**MB.339 T-Bird II.** For JPATS, Lockheed replaced the MB.339D with an improved version of the C that included an improved, more reliable derated Viper turbojet.

**MB.339K.** The Veltro 2 is a single-seat attack variant, fitted with two DEFA 30mm cannon and the avionics suite from the MB.339C. No orders have been placed for this model.

**MB.339CD.** Developed as the lead-in fighter trainer for Italian Air Force Tornado and Eurofighter pilots, it features a ring laser gyro inertial navigation system (INS) with embedded GPS, advanced cockpit with

three-color multifunction displays, MIL-STD-1553B databus, mission processor operating as main bus controller, and hands-on throttle-and-stick (HOTAS) controls. It is powered by the Viper 632 for commonality with Italy's MB.339As. The Italian Air Force ordered 15 with first deliveries in 1996, and ordered 15 more in 2001. The aircraft is fitted with an aerial refueling system, and it can be fitted with a radar warning receiver, jamming pods, and countermeasures dispensers.

**MB.339FD.** Export variant of CD model described above but powered by the Viper 680. It was proposed for Australia's lead-in fighter (LIF) trainer requirement, but it was not successful. It was selected by Venezuela in 1998, but the order was subsequently overturned.

## Program Review

**Background.** The Italian Air Force solicited Aermacchi proposals in 1973 for a follow-on to the latter's MB.326 trainer aircraft, the standard advanced jet trainer of the 1960s. This resulted in the MB.339 design being selected in 1975. The first prototype flew in August 1976. The uprated MB.339B was introduced in 1985, incorporating enhanced light attack capability. The dual-purpose MB.339C, with an updated nav/attack system, first flew in December 1985. The MB.339 Veltro 2 single-seat, dedicated attack variant flew in 1980, featuring increased maximum gross weight and two DEFA 30mm cannon.

Aermacchi laid down the initial batch of 10 MB.339Cs in 1987, in anticipation of future orders. The Italian government approved the purchase of this batch, and another 10 were approved as well. All 20 are in service with the Italian Air Force. A third batch of 18 was begun in 1990 to fill the latest order from the Royal New Zealand Air Force.

**JPATS Contender.** The MB.339 was one of a number of serious competitors for the U.S. Air Force/U.S. Navy

Joint Primary Aircraft Training System (JPATS). Aermacchi, Lockheed, and GM-Hughes joined forces in late 1989 to offer an improved MB.339 powered by the derated (to 4,000 lbst) RB.582-01 variant of the Rolls-Royce Viper turbojet. Under the terms of the MoU, Lockheed would act as the prime contractor and system integrator, and assemble the aircraft at its Marietta (Georgia) facility. Hughes would contribute its computerized training system experience. In early 1995, the Beech/Pilatus PC-9 Mk II was selected as the JPATS finalist.

**Italian Air Force CD Requirement.** In mid-1995 the Italian Air Ministry agreed to purchase 15 MB.339CD variants to serve as lead-in fighter trainers with the country's Air Force. Another 15 were ordered in 2001. An export version, designated MB.339FD (full digital), was offered but found no buyers.

**Production Resumed.** In 1996, upon receipt of a six-unit MB.339C order from Eritrea, Aermacchi once again put the aircraft back into production. This order was completed at the end of 1997.

## Funding

Not available.

## Recent Contracts

None noted.

## Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1973	IAF solicits design proposals from Aermacchi
	1974	Full-scale engineering mock-up completed

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Feb	1975	MB.339 selected as MB.326 replacement
Aug	1976	Prototype first flight
Jul	1978	First production standard aircraft flew
Aug	1979	Initial production deliveries
May	1980	Veltro 2 prototype first flight
Dec	1986	MB.339C first flight
Jun	1987	MB.339C production begins
Oct	1989	New Zealand Air Force selected MB.339 to replace Strikemaster
	1989	Lockheed and Aermacchi signed MoU to bid MB.339 for USAF/USN; JPATS-Hughes joins a month later
May	1990	Aermacchi and New Zealand sign contract for 18 MB.339 trainers
Late	1993	Final RNZAF deliveries
Late	1994	Final deliveries to Ghana Air Force
	1995	Development of MB.339CD announced
	1996	MB.339CD production begins; Eritrea orders MB.339Cs
	1998	Venezuela selects MB.339FD as new trainer
	2001	Italy orders 15 more MB.339CDs
	2004	Production ended

## Worldwide Distribution

(As of November 1, 2004)

<b>Dubai</b>	6
<b>Eritrea</b>	5
<b>Ghana</b>	2
<b>Italy</b>	116
<b>Malaysia</b>	10
<b>Nigeria</b>	12

## Forecast Rationale

The last of the 15 CD variants ordered by Italy in 2001 have been delivered. In late 2004, Aermacchi received a \$40 million contract for a mid-life upgrade of 49 in-service MB.339s. Additional upgrades may also be forthcoming but, in any case, no further production will be undertaken.

## Ten-Year Outlook

### ESTIMATED CALENDAR YEAR PRODUCTION

Aircraft	(Engine)	<u>High Confidence Level</u>					<u>Good Confidence Level</u>			<u>Speculative</u>			Total 05-14	
		thru 04	05	06	07	08	09	10	11	12	13	14		
AERMACCHI														
MB.339A	VIPER MK 632-43	167	0	0	0	0	0	0	0	0	0	0	0	0
MB.339B	VIPER MK 680	1	0	0	0	0	0	0	0	0	0	0	0	0
MB.339C	VIPER MK 680-43	24	0	0	0	0	0	0	0	0	0	0	0	0
MB.339CD	VIPER MK 632-43/46	30	0	0	0	0	0	0	0	0	0	0	0	0
MB.339FD	VIPER MK 680	0	0	0	0	0	0	0	0	0	0	0	0	0
MB.339K	VIPER MK 680	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Production		223	0	0	0	0	0	0	0	0	0	0	0	0