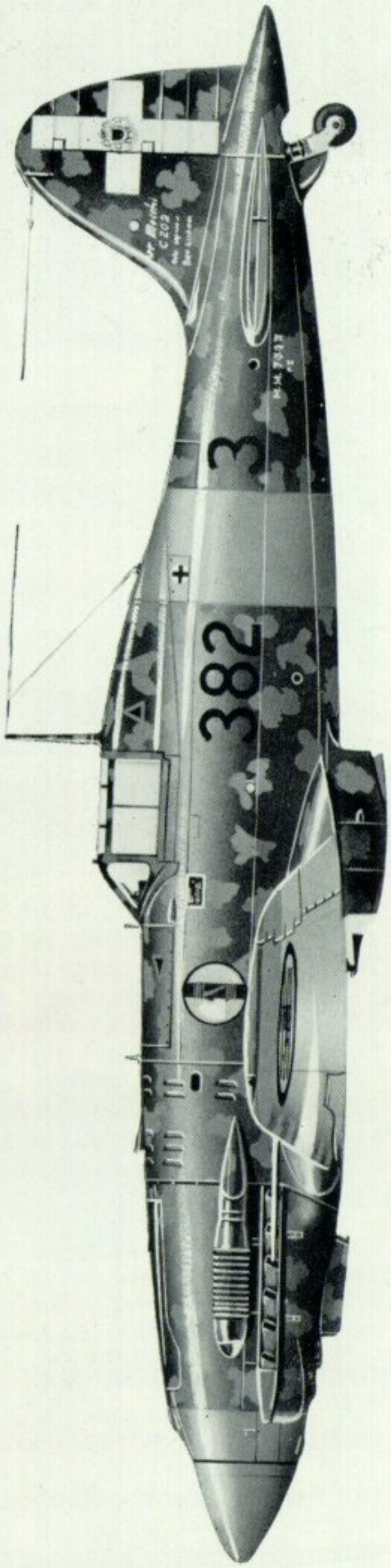
# PROFILE PUBLICATIONS

# The Macchi C.202



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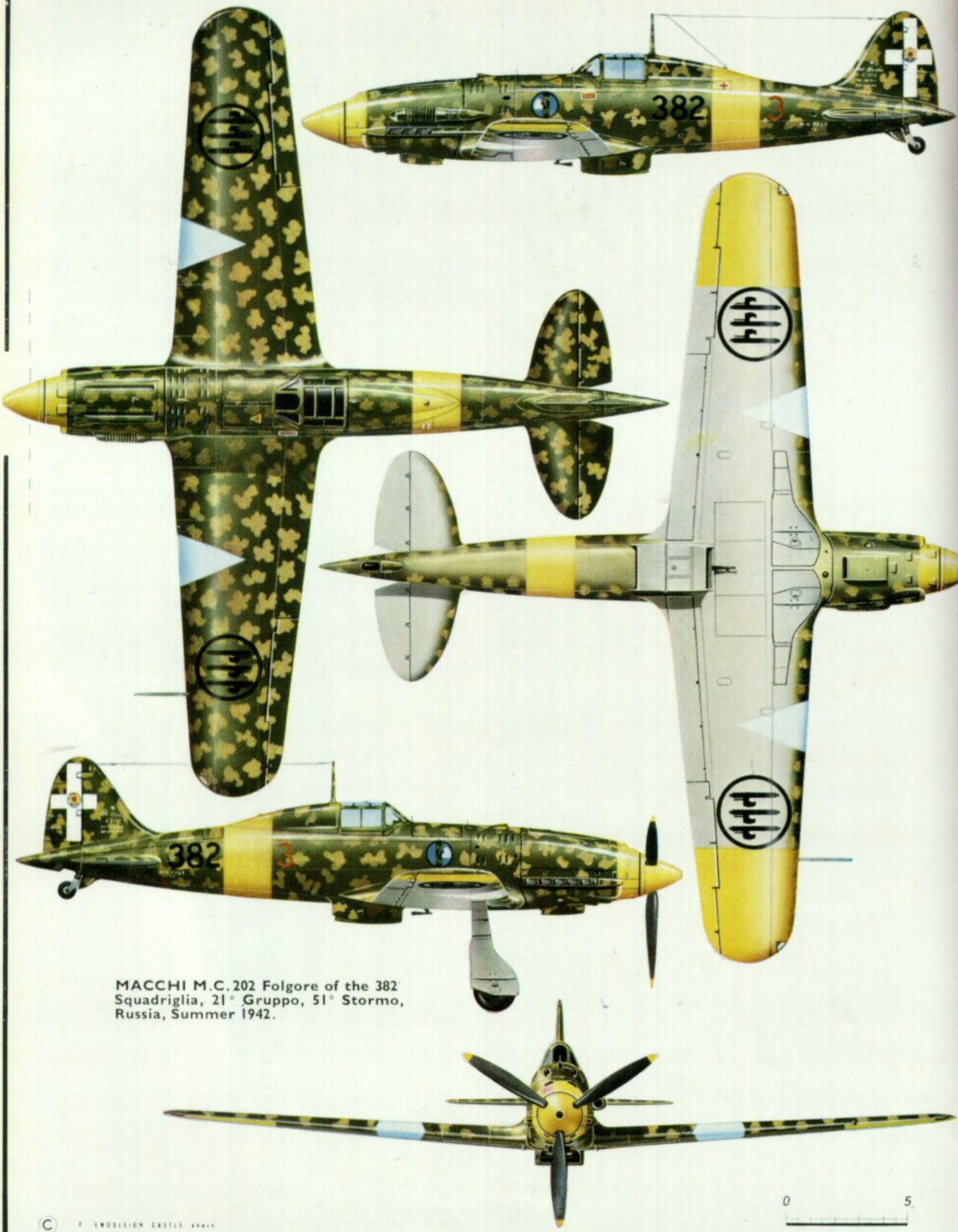


MACCHI M.C.202 Folgore of the 382ª Squadriglia, 21° Gruppo, 51° Stormo, Russia, Summer 1942.

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# The Macchi C.202

by Gianni Cattaneo

*Macchi C.202 Folgore of 1° Stormo, 6° Gruppo, 79° Squadriglia, Libya, January 1942.* (Photo: G. Cattaneo)

One of the major obstacles facing Italian aircraft designers in the years immediately before W.W.II, was the lack of a suitable liquid-cooled, in-line engine of sufficient power to satisfy the growing aerodynamic needs of fighter aircraft. A strange situation when one considers the brilliant successes gained by the Italian Schneider Trophy racers powered with FIAT and Isotta-Fraschini in-line engines.

Abroad, the lessons of combining an in-line engine with a streamlined airframe were absorbed by aircraft designers, in particular Willy Messerschmitt and Reginald Mitchell. In England Mitchell refined the design theme initiated with the Supermarine Schneider Trophy machines, and perfected it until it culminated with the superlative Spitfire. Messerschmitt produced the angular, but functional, Bf 109 powered by the Daimler-Benz engine.

But the Italian aircraft industry ignored the in-line engine's potential and the more bulky radial gained pre-eminence. It was not until the opening months of 1940 that the Macchi Company imported a specimen of the Daimler-Benz DB 601 in-line engine from Germany, and around it the Macchi design team built the M.C.202 fighter.

The new fighter was a private venture by Macchi, and their Chief Designer, Mario Castoldi, took full advantage of previous experience of the in-line engine installation gained by the company with their series of racers—the M.39, M.52, M.67 and the M.C.72. The last named gained the World Air Speed Record in 1934 when clocking 441 m.p.h.

Based on the well-tried and proved M.C.200 airframe of 1938 vintage, the new fighter proved to be a thoroughbred, the prototype making its first flight on 10th August 1940, with Macchi's brilliant test pilot Com. Carestiato at the controls.

The first fights confirmed the calculated performance figures, and the new machine retained the control harmonisation and finger-tip manœuvrability of its predecessor. The 202 also enjoyed an exceptional climb rate, behaved well at altitude and was more than 60 m.p.h. faster than the 200. Thanks to a certain degree of inter-changeability of structural parts and tooling with the 200 (already well established in production) the 202 could be built in quantity in a short time.

The private venture of Macchi aroused the interest of the Italian *Ministero dell' Aeronautica*, and not only was the M.C.202 ordered into series production, but an important programme of licence production was organised with assembly lines at the Breda Company's plant near Milan in addition to the mother company's Varese factory and a wide network of sub-contractual work.

Supplies of the German Daimler-Benz engine in quantity were promised, at least on paper, direct from Germany to meet initial needs, and arrangements made for the licence production in Italy by the Alfa Romeo Company under the designation of R.A.100 R.C.41. Eight months after the contract was signed for the 202 the first production aircraft began to appear. In the intervening period the prototype was undergoing intensive testing at the Guidonia Experimental Centre to evaluate the potentialities of the new design.

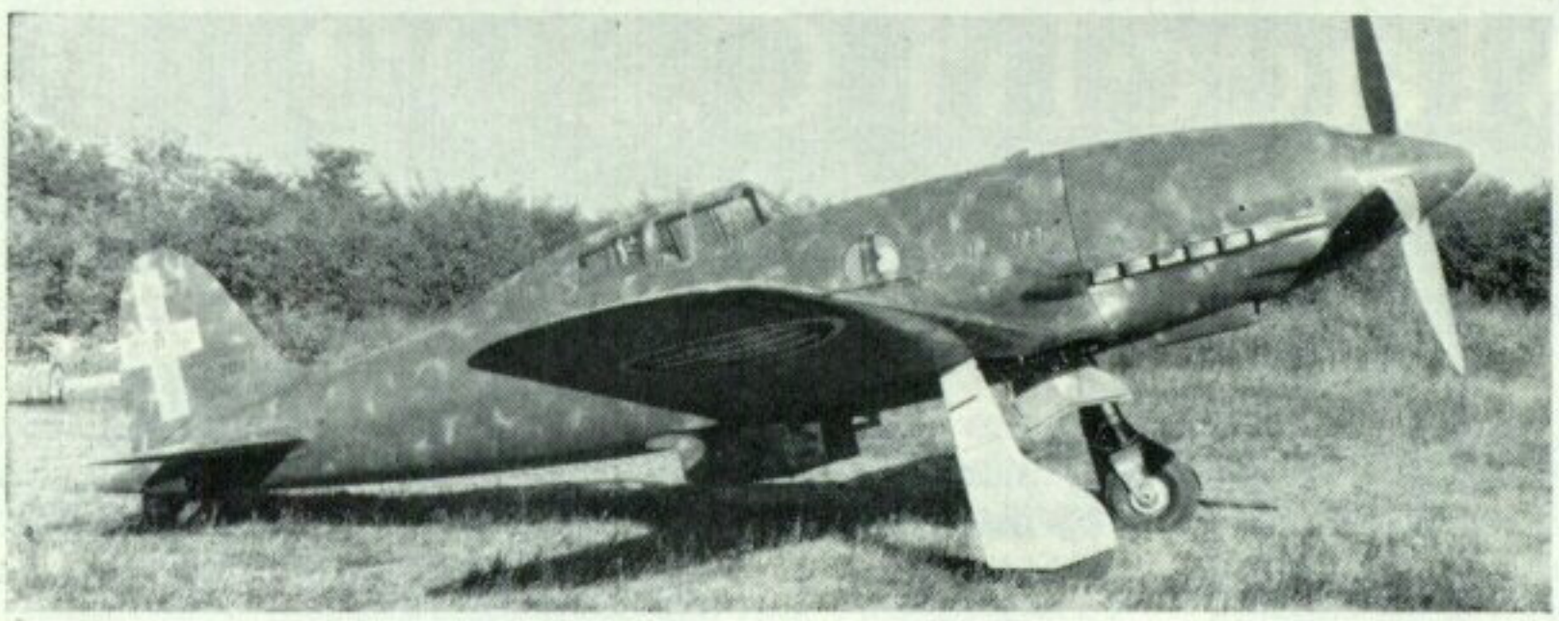
With the M.C.202 the Italian fighter units had at last got an aircraft of international standard, with capabilities similar, and often superior to, the most modern types employed by the opposing forces engaged by the *Regia Aeronautica*. Also, the M.C.202 was without doubt the most effective fighter used in quantity by the Italian Air Force in W.W.II, and it maintained its service record up to the Armistice in September 1943, despite the introduction of more advanced Allied fighters late in 1942 which possessed superior speed and armament. In an effort to get on par with the new Allied machines a progressive development of the Folgore was the C.205V Veltro, virtually a 202 with a more powerful Daimler-Benz engine. Only a few were built and they arrived too late to alter the outcome of the war for Italy.

## THE FOLGORE DESCRIBED

The M.C.202 was an interceptor fighter of all-metal construction and was initially armed with two 12·7 mm. (0·5-in.) calibre machine guns located in the engine cowling and synchronised to fire through the airscrew arc. This chronic armament deficiency, characteristic of Italian fighters, was improved on the Series VI* Folgore with the introduction of two 7·7 mm. machine guns (0·3-in.) in the wings.

Aerodynamically the Folgore (Lightning), as the new fighter was soon named, was of clean and well balanced proportions. Of robust construction it featured flush-riveting on all surfaces and careful attention had been paid to detail streamlining in an

**Series of the M.C.202 were identified with Roman numerals from I to XI.*



Top: *Macchi C.202 prototype (MM445) before application of camouflage scheme. Photo below shows same aircraft in camouflage scheme and national insignia.* (Photos: G. Cattaneo and Aer Macchi).

effort to reduce parasitic drag. The engine cowling had a well-balanced profile which ran in a smooth line from the propeller spinner to the cockpit canopy, the latter being faired into the rear fuselage.

Fuselage structure was a semi-monocoque shell consisting of four light alloy beams with ovoidal bulkheads and stringers forming a particularly robust unit. The engine bearers of steel tubing in the first series were soon replaced by two cleanly-designed forged elements of light alloy in later aircraft. The central section of the wing was built integral with the fuselage and carried the outer wing fittings and the main fuel tank. The pilot's seat was adjustable in height and length and was fitted with integral armour. The shape of the head-fairing permitted a limited degree of rear vision, but provided excellent protection in the event of the Folgore nosing over on the ground. Immediately behind the cockpit was located the radio, the various systems and the auxiliary fuel tank.

The wing was a bi-longeron structure attached to the fuselage centre section by steel forgings; the leading edge was replaceable as a complete unit from the landing gear station to the wing tip. Flaps, of metallic structure, were of the split type and the metal-framed fabric-covered ailerons were statically and dynamically balanced.

Fixed tail surfaces were all-metal, whilst the movable surfaces were fabric covered. The stabiliser incidence was adjustable in flight. To compensate for propeller torque the port wing, while of the same profile and root chord as the starboard wing, was of slightly wider span and smaller tip chord. The landing gear was inwards folding with hydraulic action and equipped with oleo-pneumatic shock absorbers in the main wheel struts. The tailwheel, retractable only on the prototype, was fixed on production aircraft and partially enclosed by suitable fairings. Some aircraft lacked the rear fairing.

Instrument array was adequate and the radio equipment included a direction finder. The gun sight was of the reflector type. Engine starting was electric or, alternatively, manual with an inertia system. The fuel system included the main fuselage tank of 60 Imp. gals. capacity, two tanks in the wing roots of 9 Imp. gals. each and a supplementary rear fuselage tank of 18 Imp. gals. capacity. All tanks were self-sealing.

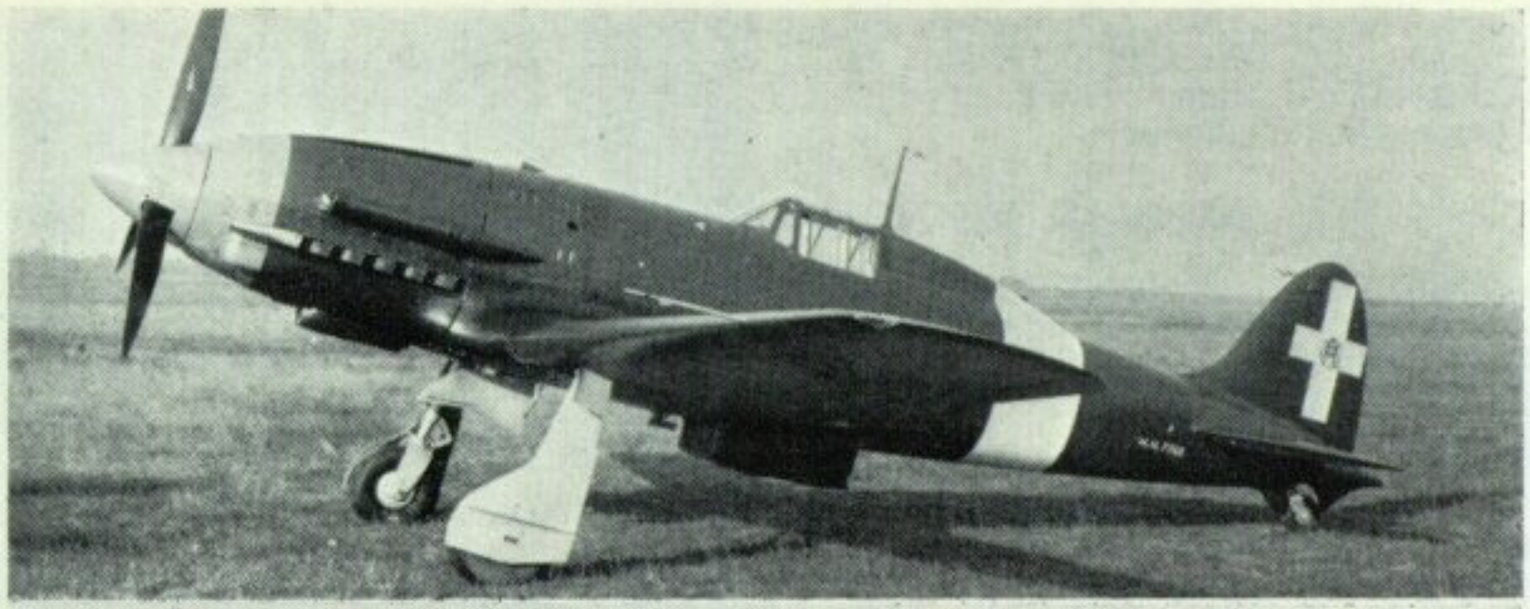
The oil radiator was placed under the nose and the cooling liquid radiator under the fuselage, the latter equipped with a variable position flap with hydraulic action. The M.C.202 was equipped with an oxygen system, cabin ventilation and heating systems; armament and Pitot tube being heated electrically.

The aileron, elevator, flaps and rudder controls were actuated through push-pull rods and only the control of the adjustable stabiliser was via cables. The flaps control was connected to the hydraulic system of the landing gear.

The two fuselage guns carried 360 rounds each and

*Macchi C.202 of 75° Squadriglia, Libya, March 1942.*

Top: *Macchi C.202, Series 1 (MM-7762)*. Below: *Macchi C.202, Series IIIA.S. (MM7806)*. (Photos: G. Cattaneo)



the wing guns 500 rounds each. The armament installation was completed by a pneumatic re-arming system and round counter indicators in the cockpit.

From 1941 to 1943 about 1,500 M.C.202s were built, 392 by the parent company and the rest under licence by Breda, spread over eleven very similar series. The Folgore was changed little during production and only minor differences distinguished the sub-series. Among the most noticeable modifications the following can be recorded:

Two different types of tailwheel structures and relating fairings.
Two different models of gyro instruments with Venturi under or on the right side of the fuselage.
The wing guns installation.
Two types of radio set with different antenna mast.
Installation of dust-filters for use in the desert.

The last modification was soon introduced on the production line and the most conspicuous detail was the characteristic faired ram-air entry of the supercharger. As usual the aircraft modified for the desert war received the suffix A.S. (*Africa Settentrionale*) in the designation.

Only the last series were sometimes equipped with underwing strong points for jettisonable fuel tanks (22 Imp. gals. each and later 33 Imp. gals.) or for bombs (110 lb., 220 lb. and 330 lb.). As stated before the structure was quite strong, as were all fighters designed by Castoldi, and it was able to take heavy punishment and perform violent aerobatic manœuvres. Moreover, the exceptionally clean airframe permitted a high diving speed to be achieved quickly, and the M.C.202 encountered the effects of the then unknown compressibility factor.

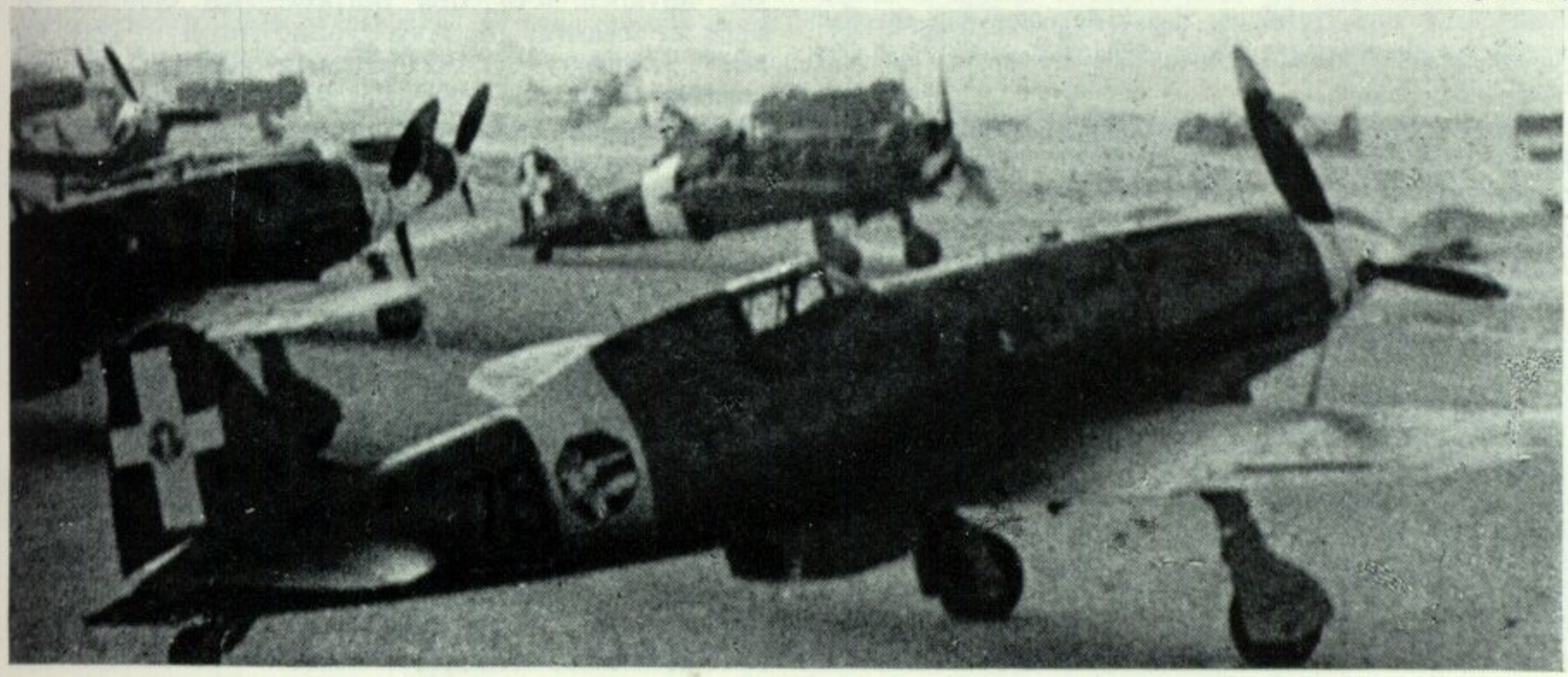
But the 202 was a pilot's aeroplane and in the hands of an experienced airman was a dangerous adversary, even for a more heavily armed opponent.

## SERVICE BEGINS

The first unit to receive the new fighter was the *1° Stormo C.T.*, its *6° Gruppo* and *17° Gruppo* transferring to Udine in the summer of 1941 for conversion training. By November of that year the complete *Stormo* was in Libya, participating in the last stages of the British campaign that led to the raising of the blockade around Tobruk, and to the retreat of German and Italian troops in Cyrenaica in late December.

It has sometimes been said that the late arrival of the *1° Stormo's* 202s in Cyrenaica was a contributing factor to the success of the British offensive. Loss of Axis air superiority enabled the R.A.F. to harass the German/Italian ground forces, and there is little doubt that the 202 might have helped stem the tide had it been available in quantity and in time. But it would have been hazardous to commit a semi-trained unit, equipped with a new aeroplane, into a major battle.

*Folgores of 79° Squadriglia in company with Macchi C.200 Saettas.* (Photo: G. Apostolo)



Top: *Macchi C.202, 52° Stormo, 22° Gruppo, 369° Squadriglia.* (Photo: G. Apostolo). Bottom: *C.202 of 151° Squadriglia, 51° Stormo.*

The North African terrain was not conducive to easy serviceability, and the Folgore may have proved more of a liability than an asset.

Home-based Folgores, however, performed magnificently, and the inevitable period of ironing the bugs out of the new fighter was accomplished in comfort due to the availability of facilities. Every new aircraft type always presents its users with some problems during the early months of service and the 202 was no exception. But faults were rare, and after a short period of "running-in" the new machine was able to takes its place as the premier front-line fighter.

When the British offensive ground to a standstill in the first few days of January 1942, the Folgores of *1° Stormo* were deployed at Tamet (*17° Gruppo*) and Ara Fileni (*6° Gruppo*), and the most successful period for the Folgore was about to begin.

Other units were busily re-equipping with the new fighter—in November 1941 the *9° Gruppo* of the *4° Stormo C.T.*, in December the *10° Gruppo* of the same *Stormo*. Originally destined for Libya, the *4° Stormo* was transferred in April 1942 to Sicily to take part in the spring offensive against Malta. However, heavy demands on the Folgore for the North African Front resulted in the *4° Stormo* being transferred from Sicily to Libya in May 1942. During the same period a detached section of the photo-reconnaissance M.C.202 was formed in Sicily and based at Castelettrano.

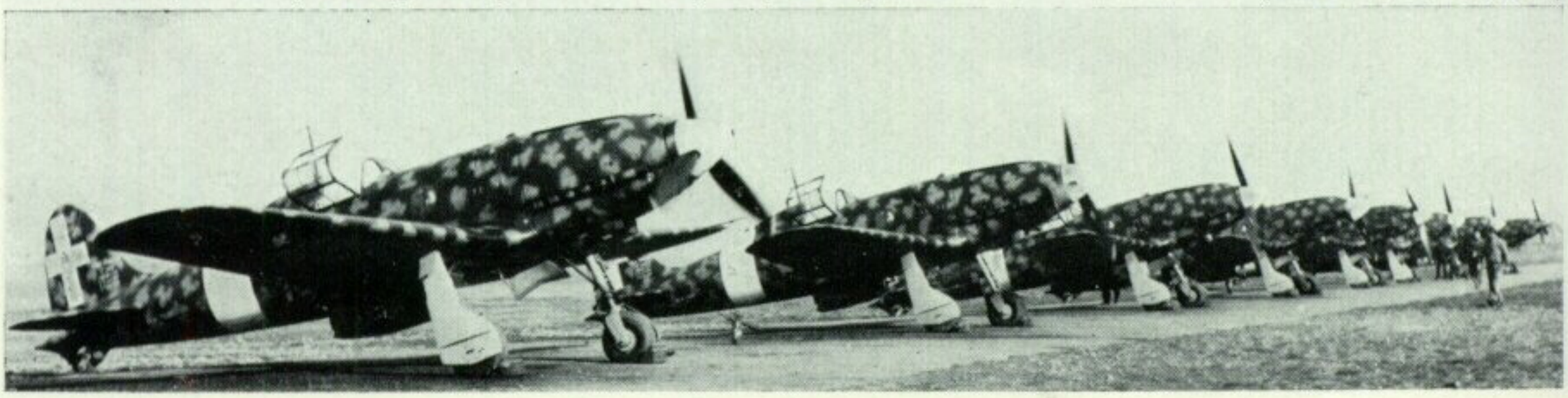
The second offensive against Malta lasted from March until April 1942 and did not succeed in its objective—to neutralise the island and to force the Royal Navy to use Gibraltar as the main Mediterranean base. The Luftwaffe was responsible for the major portion of the offensive, but the Italian units using the 202 performed well against the defending Hurricanes and Spitfires, the latter arriving on the island via the carriers *Eagle* in March and *Wasp* the following month.

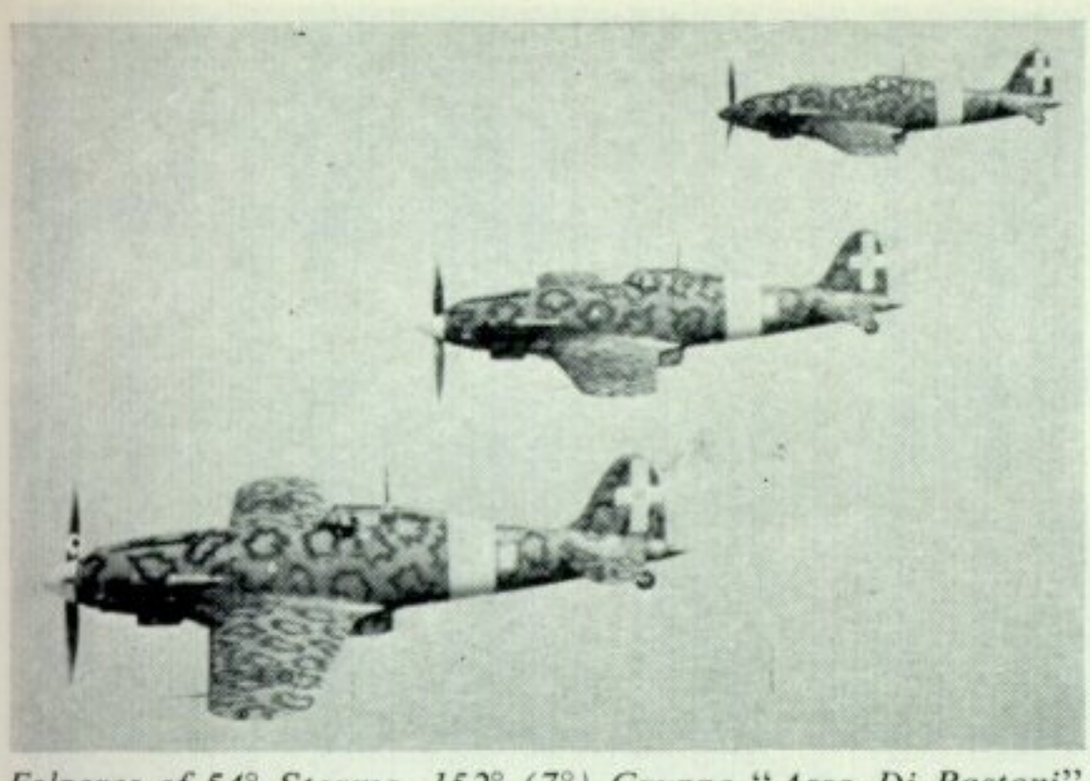
The opening of the great offensive that led the Italian and German forces under General Rommel's command to within sight of Alexandria began in January 1942. Benghazi was occupied on 29th January, thus removing the immediate Allied threat to Tripolitania.

Following a lull in February the offensive gained new momentum in March, and the Folgores of *1° Stormo* were in the forefront of the advance. The *3°*, *8°* and *150° Gruppos* had the advantage of the Hurricanes and Tomahawks of the Desert Air Force for their 202s could turn inside both fighters, and only the Spitfire had a marginal advantage in climbing speed over 15,000 ft. In May the *1° Stormo* was joined by the *4° Stormo* from Sicily and both were deployed at Martuba. The third phase of the offensive started on 26th May, opening with the successful strafing of Gambut airfield by 59 Folgores. Results were very good. Accompanied by the Bf 109s of the *Afrika Korps* the Folgores were particularly active, escorting bombers against the fortress of Tobruk and on free interdiction missions along a rapidly fluctuating front line.

The Axis advance finally petered out at El Alamein on 30th June, one of the main reasons being problems of supply over long and exposed routes. The Axis advance had been rapid, and although the flying units were able to bring with them certain essential supplies, bulk deliveries had to come by road behind the advance. For this purpose two columns of vehicles followed the Axis ground forces to keep up with the progressive occupation of airfields, carrying supplies for five days fighting. At the eve of the battle of El Alamein Folgores were with the *4° Stormo* at Fuka, with *23° Gruppo* (*3° Stormo*) at Abug Aggag and with the *150° Gruppo* at Benghazi. The *1° Stormo* had been transferred back to Italy in June. The *4°*

*Macchi C.202s, Series II, awaiting delivery at the Macchi factory in early 1942.* (Photo: via G. Cattaneo)





*Folgores of 54° Stormo, 152° (7°) Gruppo "Asso Di Bastoni", 374° Squadriglia.* (Photo: G. Apostolo)

*Stormo*, one of the most famous of Italian fighter units, distinguished itself particularly during the Axis advance and notched up its 500th victory from the time it began operations in 1940.

## THE RETREAT IN AFRICA

The events of El Alamein in October 1942 and the progressive retreat of the Axis from Libya until final defeat are too well known to be retold here, but suffice it to say that the Folgore was always in the midst of the bitter fighting, trying unsuccessfully to stem the enormous flow of Allied armour, aircraft and men. The 202s suffered from lack of fuel, spares and replacements and by January 1943 only a handful remained, serving with the *3° Stormo* (this unit took over the surviving 202s of the *4° Stormo*) and a squadron of the *13° Gruppo C.T.*

From January to December 1942 the Italian fighter units performed a total of 23,555 sorties, about 30% of which must be attributed to the M.C.202. The average monthly efficiency of the Folgore on the Front varied from a minimum of 30 aircraft in January to a maximum of 74 aircraft in September.

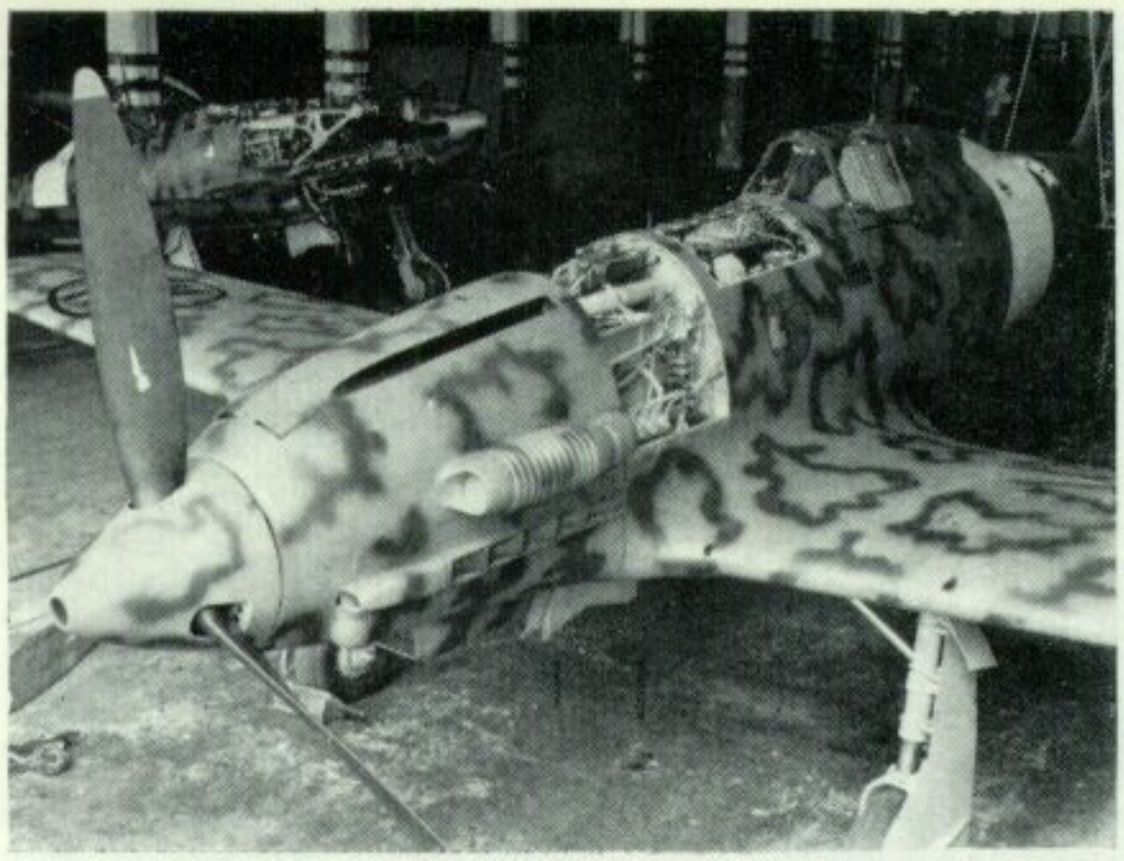
The necessity of supplying the vital base of Malta and reinforcing the British Forces in Egypt resulted in a series of furious aero-naval battles in the summer of 1942 between the bombers of both the Italian and German Air Forces, the guns of the Allied convoys and the few Allied fighters based on Malta. M.C.202s and Re.2001s based in Sicily escorted the Ju 87s and the S.M.79s attacking the Allied ships. During one furious battle 202s of the *155° Gruppo* encountered the Sea Hurricanes and Fulmars of the escort carriers and came away successful, and during other battles in August Folgores fought Spitfires and Beaufighters based on Malta.

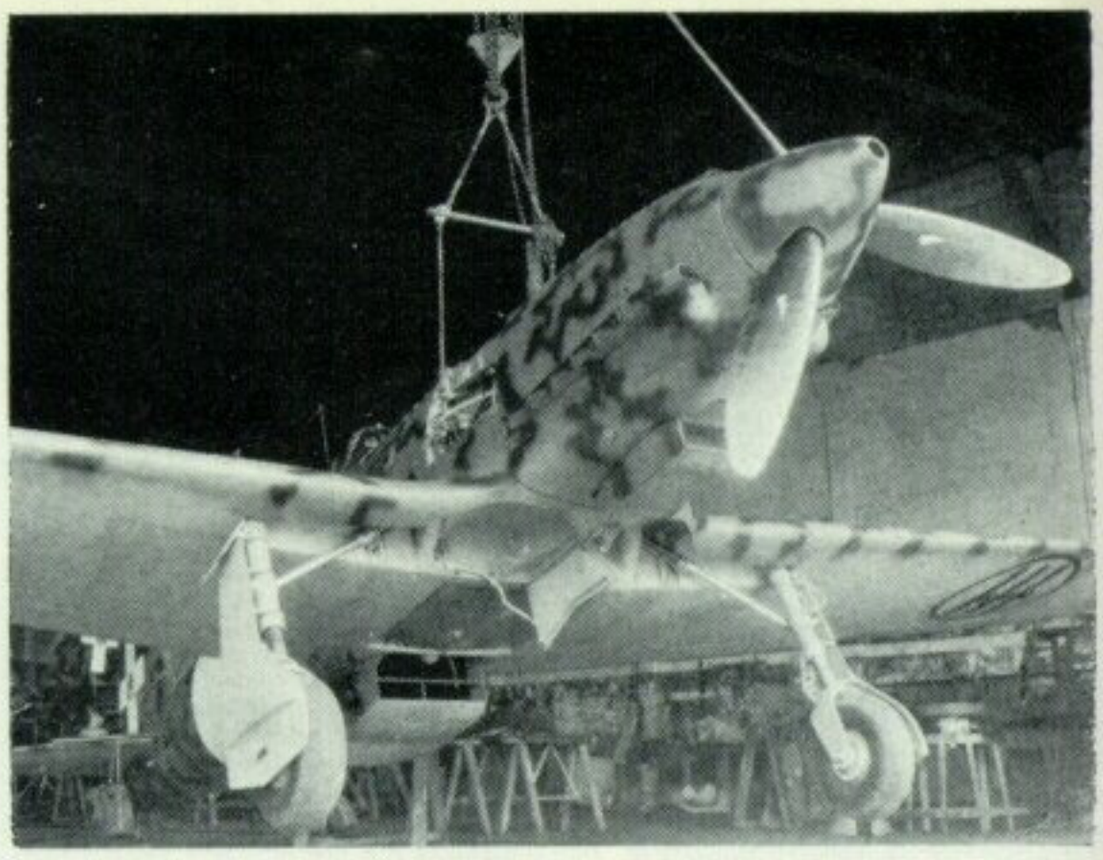
## SERVICE IN RUSSIA

In September 1942, to supplement the small Italian Air Force that operated in the Russian theatre from late summer 1941, a number of B.R.20s and M.C.202s were sent to the U.S.S.R. The heavy demands of the Mediterranean war permitted the despatch of only twelve M.C.202s, which were attached to the *21° Gruppo C.T.* (*256°*, *382°* and *386° Sq.*), equipped mainly with M.C.200s transferred from Italy in Spring 1942. The precious Folgores were equally distributed among the squadrons of the groups. These units participated in the offensive of the *VIII Armata* towards the Don river and occupied successively the airfields at Voroscilovgrad, Millerovo and Kantemirovka. The Italian fighters encountered the Soviet Yaks and LaGGs and supported the troops with strafing actions. With the coming of winter '42–'43 the Russian counter-offensive developed with tremendous effectiveness and the M.C.200s and 202s were used in relieving actions against the spreading Russian columns. The Italian pilots, not numerous and with equipment unfit for the difficult conditions of the place, received on many occasions the acknowledgements of the German High Command; the last strafing sortie was performed on 17th January 1943 by 25 aircraft in the Millerovo area, helping some surrounded German troops. From August 1941 to January 1943 the fighters of the *22° Gruppo C.T.* (M.C.200) and later the *21° Gruppo C.T.* (M.C.200 and 202) accomplished a total of 6,361 escort, offensive sweep, ground support and strafing sorties. The Russian aircraft shot down were 88 and the Italian fighters lost in the battle and for various causes were 15.

With the development of the first great amphibious operation in the European theatre, Operation Torch, into the occupation of French North Africa and the expulsion of the Axis forces from Tunisia, some deployments were effected in order to bring as far westwards as possible the bases from which the German and Italian fighters contested the Allied advance. The *153° Gruppo* and the *17° Gruppo*, with 24 and 33 Folgores respectively, were transferred from Sicily to Sardinian airstrips. Offensive sorties by Re.2001 fighter-bombers over the harbours of Bone and Bougie were escorted by M.C.202s, and part of the *155° Gruppo* was transferred to El Alouina to help

*Macchi C.202s, 4° Stormo, 10° Gruppo, 90° Squadriglia, Libya, Summer 1942.* (Photo: G. Cattaneo)





cover the landing of last-minute reinforcements from Italy. By February 1943 the Folgore-equipped units in Tunisia comprised the *6° Gruppo* at Sfax, the *3° Stormo* at El Hamma, and the *16° Gruppo* on K34 and K41; total strength was 55 M.C.202s, far below the theoretical strength of a force of this size.

In this period occurred the first combats with American pilots of the USAAF 12th Air Force, the Folgores encountering on many occasions the P-38 Lightnings of the 1st and 14th Fighter Groups, the P-39 Airacobras of the 81st and 350th Fighter Groups, and Spitfires of the 31st and 52nd Fighter Groups. The M.C.202 enjoyed a certain superiority against the P-38 especially in turning radius and climb rate, while the Airacobras were no match for the Folgores at all and were soon relegated to ground attack duties. In all cases, however, the interior armament of the M.C.202 was apparent.

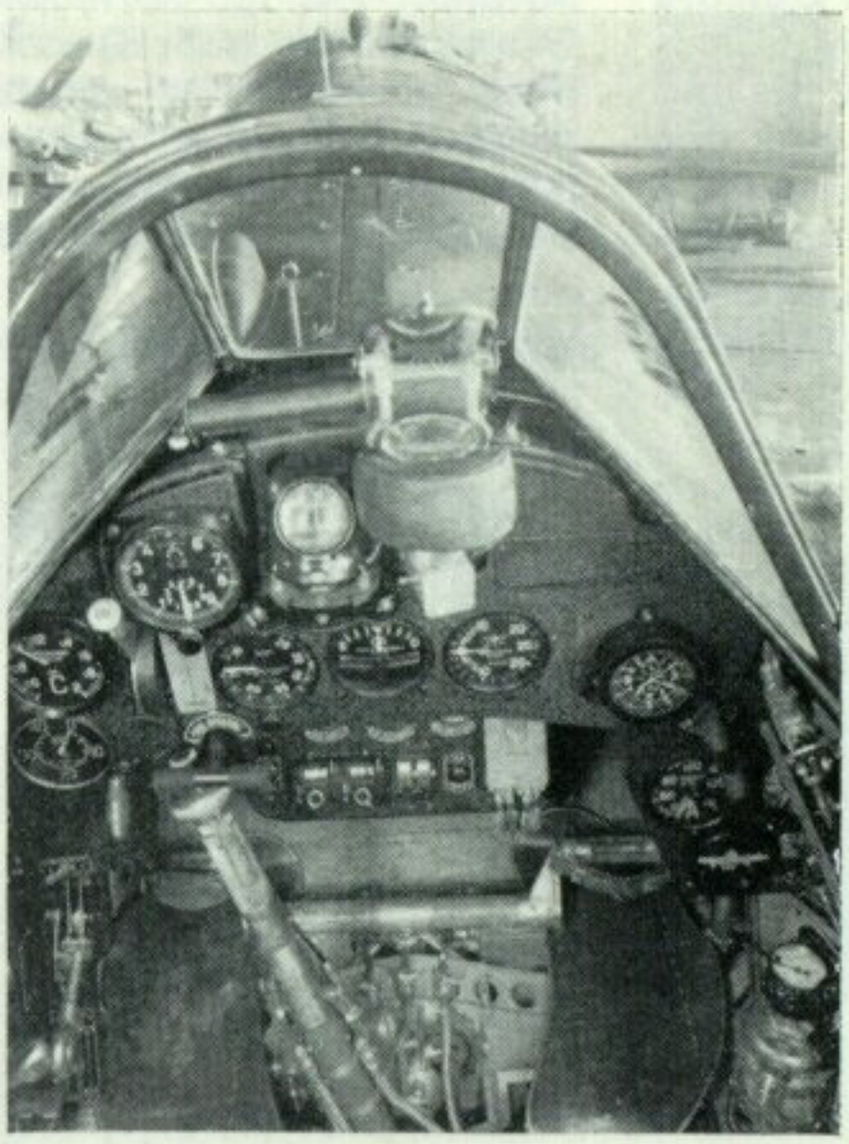
In March the *7° Gruppo C.T.* arrived in Tunisia, joining the *16° Gruppo* in the new *54° Stormo*. In May came the defeat of the Axis forces in Tunisia, which was itself only a prelude to the invasion of Sicily and the Italian mainland and the Armistice of September 1943. During these months the M.C.202 units, supplemented by the few available M.C.205s and Re.2005s, were heavily committed to interceptor duties against the mass formations of B-17s and B-24s which systematically bombed important centres such as Palermo, Naples, Reggio Calabria and many other Italian cities, as well as Sicily and Sardinia. The M.C.202s scored numerous victories in these actions despite the heavy fighter escort forces; and their record is all the more creditable considering the great disparity between the opposing forces and the inevitability of defeat.

## THE LAST MONTHS

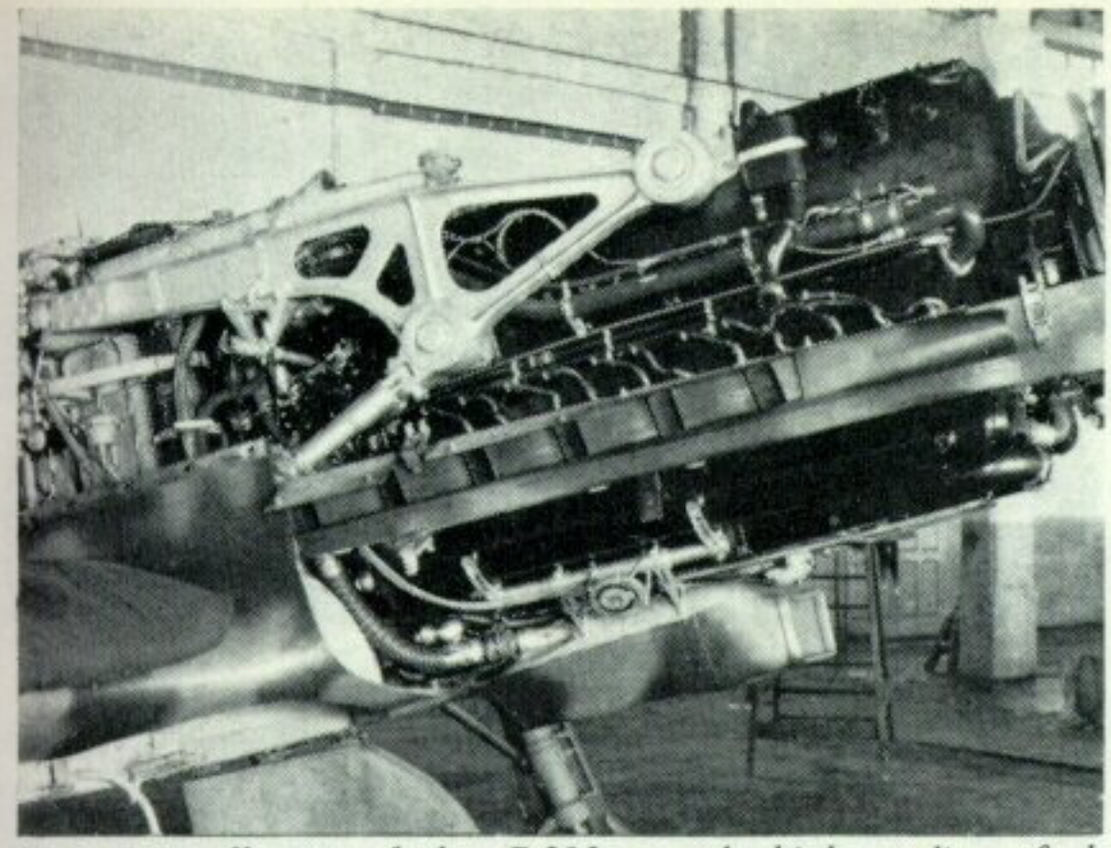
In July 1943, prior to the invasion of Sicily, the M.C.202 equipped the following units: the first figure refers to assigned aircraft and the second to serviceable machines:

| | | | |
|---|---|---|---|
| *2° Stormo C.T.* | Lonate Pozzolo | 15 | 11 |
| *3° Stormo C.T.* | Cerveteri | 18 | 4 |
| *21° Gruppo C.T.* | Firenze | 11 | 7 |
| *22° Gruppo C.T.* | Capodichino | 16 | 9 |
| *51° Gruppo C.T.* | Monserrato | 23 | 21 |
| *24° Gruppo C.T.* | Venafiorita | 19 | 10 |
| *4° Stormo C.T.* | Catania | 38 | 12 |
| *161° Gruppo C.T.* | Reggio Calabria | 18 | 11 |
| *21° Gruppo C.T.* | Chinisia | 12 | 6 |
| *153° Gruppo C.T.* | Palermo | 7 | 3 |
| *154° Gruppo C.T.* | Rhodes | 9 | 6 |

Top of page: *Production Folgores Series IX, undergoing final checks before issue to squadrons. Note how the upper surface scheme comes to an end under the leading edge of wing.* (Photo: via G. Cattaneo)



Immediate right: *Instrument panel of Macchi C.202.* Far right: *Close-up of Folgore engine cowling reveals blister air intakes and gun troughs.* (Photos: via G. Cattaneo)



*Engine installation of the C.202 reveals high quality of the bearer castings, typical of the workmanship in Macchi aircraft.*
(Photo: G. Cattaneo)

*Close-up MM7768 showing the experimental chin radiator.*

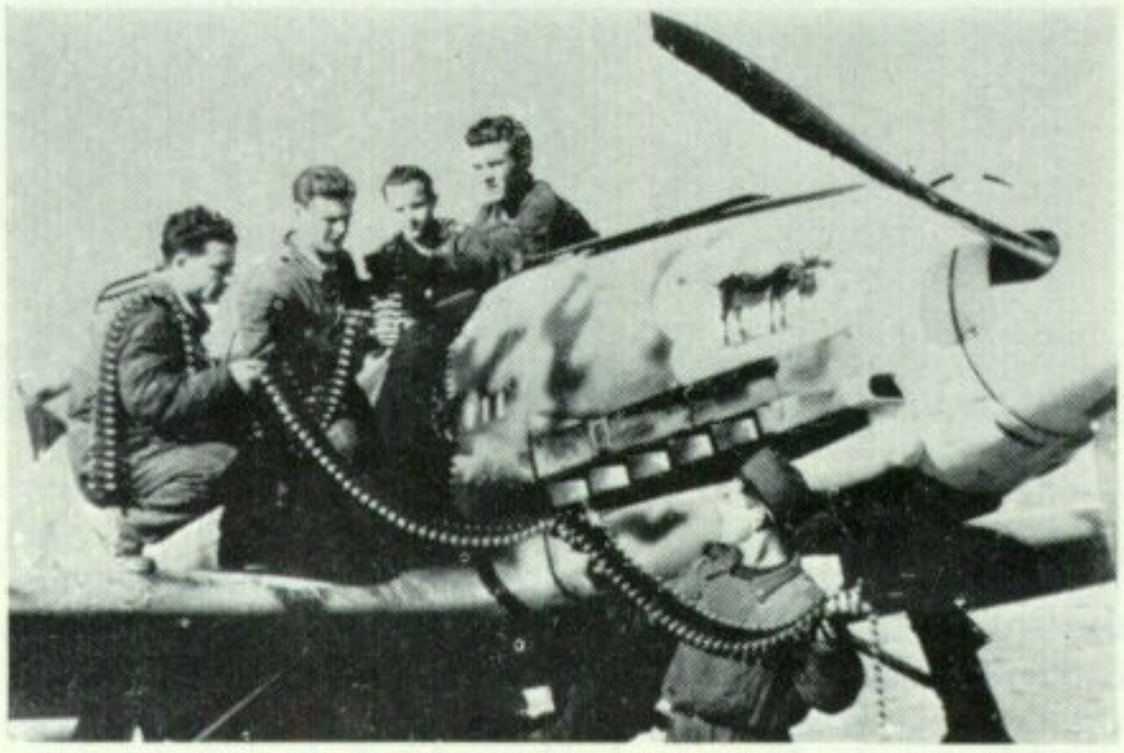
Hence a total of only 100 serviceable Folgores were dispersed over the whole of Italy. Most of the units in the South were annihilated during Operation Husky or later destroyed on the ground by Allied air attack. However, the Italian and German fighter forces flew 690 and 500 sorties respectively during the first ten days of July 1943 over the airfields of Sicily, and Allied losses were quite considerable. The Allies lost approximately 375 aircraft and the Axis approximately 270; but it was the operational swan song of the M.C.202.

The Italian industry made a great effort to make good the losses caused by the last actions in Italy; but by the Armistice only 122 Folgores were dispersed around the country from the South to the Alps, and of these machines only 53 were serviceable. Some reached the Allied-held sectors and were incorporated into the Co-Belligerent Air Force; in particular these were used by the *X° Gruppo* of the *4° Stormo* and by the new *5° Stormo*, soon re-equipped with Airacobras. Those aircraft which reached the Northern airfields

*MM91974 was tested with underwing mounted 20-mm. Mauser M.G. 151 cannons.*

*The Macchi C.202 (MM7768) was fitted with a chin radiator, but increased drag lead to the rejection of the project.*
(Photo: Aer Macchi, via G. Cattaneo)

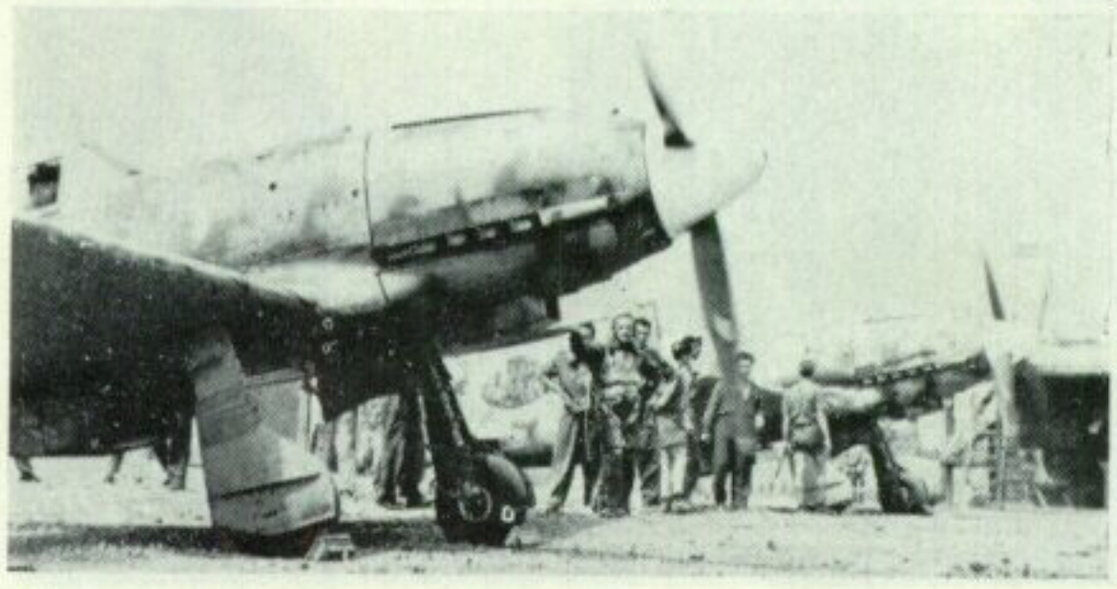
were taken on the strength of the R.S.I. Air Force, but due to a certain availability of M.C.205s and Fiat G.55s they were only used for training purposes. Two examples of the Folgore survived the war and were used at Lecce training school up to 1947, kept in condition by enthusiastic ground crew who "scrounged" spares from aircraft graveyards all over Southern Italy.

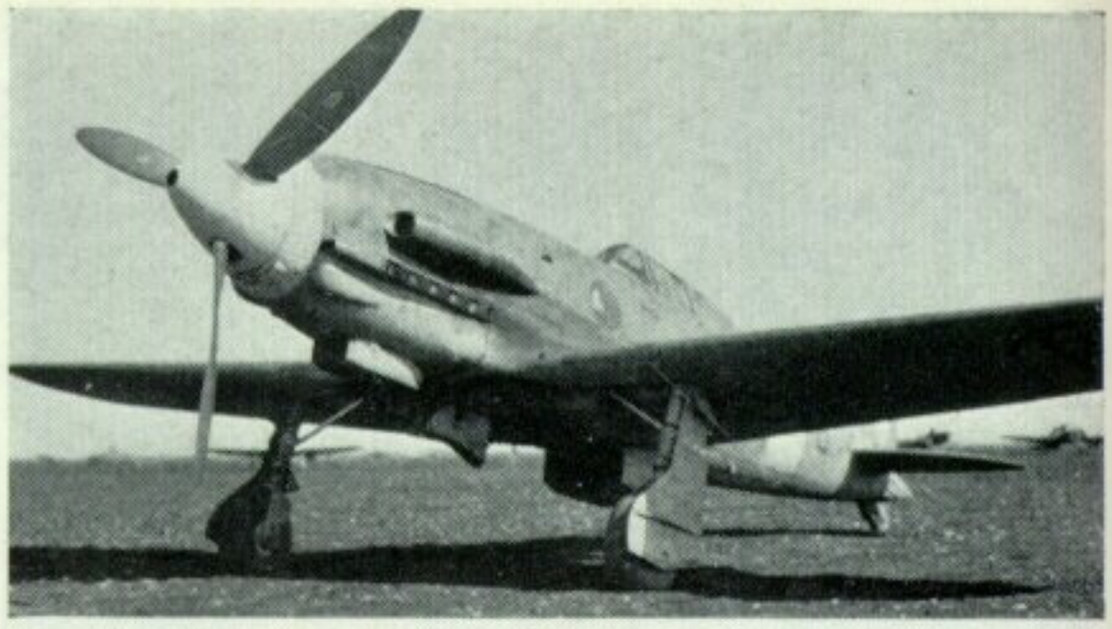


*Ground crew re-loading the nose magazine of a Macchi C.202 —note personal insignia on cowling.* (Photo: G. Cattaneo)

*Unusual camouflage scheme displayed by a C.202, believed to be of 3° Stormo, Libya, Summer 1942.* (Photo: G. Cattaneo)

*Rare photographs of C.202s and a C.200 taken in the field in Sicily. Summer 1942.* (Photos: via G. Cattaneo)





Above: *Folgore, believed 3° Stormo, Libya, Summer 1942.* (Photo: G. Cattaneo) Below: *Insignia of 51° Stormo.*
(Photo: via Richard Ward)


**1. AER. MACCHI C.202—PROTOTYPE M.M.545**
**Flight Test Data at Maximum Weight of 6,206 lbs.**
a) Maximum speed at height of:
Sea level 305 m.p.h.; 3,280 ft. 319 m.p.h.; 6,560 ft. 334 m.p.h.; 9,840 ft. 349 m.p.h.; 13,120 ft. 362 m.p.h.; 16,405 ft. 372 m.p.h.; 19,685 ft. 362 m.p.h.
b) Absolute max. speed: 372·2 m.p.h. at 19,360 ft.
c) Minimum speed: 88·8 m.p.h. at sea level.
d) Climbing time to:
3,280 ft. 34 sec.; 6,560 ft. 1 min. 19 sec.; 9,840 ft. 2 min. 26 sec.; 13,120 ft. 3 min. 27 sec.; 16,405 ft. 4 min. 40 sec.; 19,685 ft. 6 min. 13 sec.
e) Take off run: 827 ft.
f) Landing run: 771 ft.

**2. AER. MACCHI C.202**
**Typical Result of an Official Acceptance Test Series a/c M.M.9486.**
Maximum weight: 6,475 lbs. Useful load: 1,279 lbs. Empty weight: 5,196 lbs.
a) Maximum speed and time to climb to:
Sea level 308 m.p.h.; 3,280 ft. 320 m.p.h. 52 sec.; 6,560 ft. 332 m.p.h. 1 min. 48 sec.; 9,840 ft. 343 m.p.h. 2 min. 47 sec.; 13,120 ft. 354 m.p.h. 3 min. 49 sec.; 16,405 ft. 363 m.p.h. 4 min. 57 sec.; 19,685 ft. 367 m.p.h. 6 min. 26 sec.
b) Service ceiling: 34,600 ft.
c) Range with 551 lbs. of fuel: 475 miles at 20,130 ft. at 267 m.p.h.
d) Max. dive speed (starting from 20,130 ft.): 475 m.p.h. at 8,330 ft.

**3. AER. MACCHI C.202—OFFICIAL SPECIFICATION**
(*Data from Technical Manual C.A. 670/1— Series IV-VIII of "Ministero dell'Aeronautica".*)
*Powerplant:* One Alfa Romeo R.A. 1000 R.C.411, twelve cylinder, inverted vee, rated at 1075 H.P. at 2,500 r.p.m. for take-off and 1040 H.P. at 2,400 r.p.m.—Piaggio P.1001 constant speed propeller, three blades, diameter 9·87 ft.
*Dimension:* Wing span 34·710 ft.; Wing area 180·834 sq. ft.; Root chord 21·097 ft.; Tip chord (left) 4·037 ft.; Tip chord (right) 4·268 ft.; Length 29·035 ft.; Height 11·450 ft.
*Weight:* Empty: 5,491 lbs. Useful load: 968 lbs. of which, Pilot 176 lbs.; Rounds 167 lbs.; Fuel 552 lbs.; Oil 73 lbs.
Total loaded 6,459 lbs.
*Performance:* (at maximum weight 6,459 lbs.)
Max. speed and time to climb to:
Sea level 309 m.p.h.; 3,280 ft. 324 m.p.h. 39 sec.; 6,560 ft. 338 m.p.h. 1 min. 28 sec.; 9,840 ft. 352 m.p.h. 2 min. 28 sec.; 13,120 ft. 364 m.p.h. 3 min. 32 sec.; 16,400 ft. 370 m.p.h. 4 min. 40 sec.; 19,685 ft. 365 m.p.h. 5 min. 55 sec.; 22,965 ft. 363 m.p.h.
Absolute max. speed: 373 m.p.h. at 18,370 ft. Service ceiling: 37,740 ft. Ultimate loading coefficient: 15·8.
*Armament:* Two 12·7 mm. cal. Safat machine guns with 360 rounds each. Provision for two 7·7 mm. cal. machine guns with 500 rounds each in wings.

M.C.202 Folgore, 363 Sq. C.T., 150 Gruppo C.T.,
53 Stormo C.T., Benghazi, Libya, July 1942.



Fuselage Fasces Insignia.

22 Gruppo, "Spauracchio".

150 Gruppo, 53 Stormo.
"Gigi Tre Osei"

4 Stormo cowl marking
"4 F. Baracca".


4 Stormo,
"Cavallino
Rampante"
84, 90, 91 Sq.


M.C.202 Folgore, 369 Sq. C.T., 22 Gruppo C.T., 53 Stormo C.T.,
Capodichino (Naples),
July 1943.




I Stormo, "Inocca
Tende Scaglia".


M.C.202 Folgore, 81 Sq. C.T., 6 Gruppo
C.T., 1 Stormo C.T., Tamet, Libya,
December 1941.

97 Squadriglia.


M.C.202 Folgore, 91 Sq. C.T., 10 Gruppo C.T..
4 Stormo C.T., Libya, May 1942.

Coat of Arms of the
House of Savoia,
rudder marking.


4 Stormo, "Cavallino
Rampante" 73, 96, 97 Sq.

M.C.202 Folgore, 97 Sq. C.T.,
9 Gruppo C.T., 4 Stormo
C.T. Libya.


M.C.202 Folgore, 368 Sq. C.T.,
152 Gruppo C.T., Sardinia,
November 1942

153 Gruppo,
372, 373, 374 Sq.

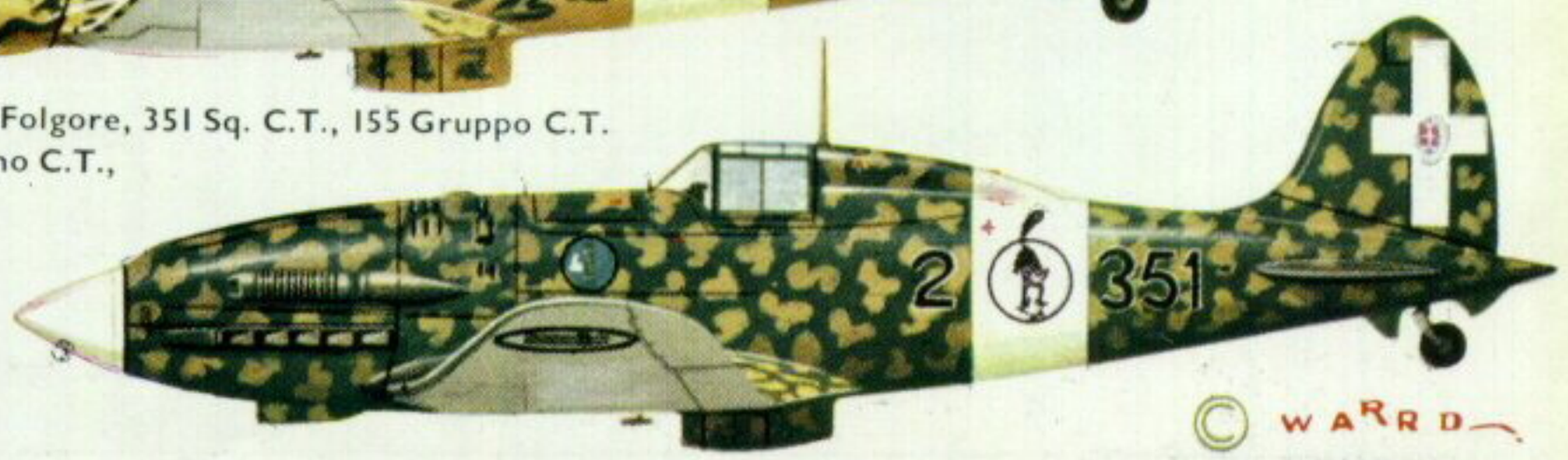


152 Gruppo,
368, 370 Sq.

M.C.202 Folgore, 374 Sq. C.T.,
153 Gruppo C.T.,
Tunisia,
Spring 1943.


51 Stormo.

M.C.202 Folgore, 351 Sq. C.T., 155 Gruppo C.T.
51 Stormo C.T.,



*Four guns were installed in MM7731, finished dark green upper surfaces with a yellow nose band.* (Photo: G. Cattaneo)

As stated above, few modifications were introduced during the operational life of the M.C.202. Only two special prototypes are known; the first was the M.C.-202D (serial MM 7768) in which a new position for the radiator was tested under the engine. The increased drag cancelled the advantages of the simpler cooling pipe system and the installation was not repeated. The other experimental type was the airframe numbered MM 91974, with a trial installation of two 20 mm. Mauser cannon in pods under the wings.

The production of the M.C.202 was hampered throughout its life by the extreme scarcity of engines; the Italian industry was unable to provide more than 40 or 50 powerplants per month at best in the R.A. 1000 series and part of this output was reserved for the Re.2001. The German contribution can only be described as miserly. Despite this handicap, the sleek Folgore was one of the most interesting machines produced in quantity by the Italian aircraft industry; despite the inevitable distortion of facts by wartime propaganda, it was beloved by its pilots and highly respected by all its adversaries.

**UNITS OF "REGIA AERONAUTICA" EQUIPPED WITH M.C.202 FIGHTER AIRCRAFT**

*Note: The Units very seldom reached the nominal strength in number of aircraft.*

| Gruppo | Stormo | Squadriglie | Date | Location |
|---|---|---|---|---|
| 6° | 1° | 79°–81°–88° | Dec. 1941 | Tamet (Libya) |
| | | | Jan. 1942 | Ara Fileni (Libya) |
| | | | Feb. 1943 | Sfax (Tunisia) |
| 7° (152°) | 54° | 368°–370°–371° | March 1943 | (Tunisia) |
| 8° | 2° | 77°–78°–82° | July 1943 | Sarzana (Italy) |
| 9° | 4° | 73°–96°–97° | April 1942 | (Sicily) |
| | | | May 1942 | Martuba (Libya) |
| | | | July 1943 | Catania (Italy) |
| 10° | 4° | 84°–90°–91° | April 1942 | (Sicily) |
| | | | May 1942 | Martuba (Libya) |
| | | | July 1943 | Catania (Italy) |
| 13° | 2° | 92°–93°–94° | Sept. 1943 | Venafiorita (Italy) |
| 16° | 54° | | Feb. 1943 | K34–K41 (Tunisia) |
| 17° | 1° | 71° | Nov. 1941 | Tamet (Libya) |
| | | | Nov. 1942 | (Sardinia) |
| 18° | 3° | 83°–85°–95° | Nov. 1942 | Taourga (Libya) |
| | | | July 1943 | Cerveteri (Italy) |
| 20° | 51° | 351°–352°–353° | July 1943 | Monserrato (Italy) |
| 21° | 51° | 256°–382°–386° | Summer 1942 | Voroscilovgrad(Russia) |
| | | | July 1943 | Chinisia (Italy) |
| | | | Sept. 1943 | Gioia del Colle (Italy) |
| 22° | 52° | 359°–362°–369° | July 1943 | Capodichino (Italy) |
| 23° | 3° | 74° | June 1942 | (Sicily) |
| | | | Aug. 1942 | Abu-Aggag (Libya) |
| | | | July 1943 | Ciampino (Italy) |
| 24° | 52° | 354°–355°–370° | Sept. 1943 | Metato (Italy) |
| 150° | 53° | 363°–364°–365° | July 1942 | Benghazi (Libya) |
| 153° | | 372°–373°–374° | Sept. 1942 | (Sicily) |
| | | | Nov. 1942 | (Sardinia) |
| 154° | | | July 1943 | Rhodes (Aegean) |
| 155° | 51° | 351°–360°–378° | May 1942 | (Sicily) |
| | | | Nov. 1942 | El Alouina (Tunisia) |
| 161° | | 162°–163°–164° | July 1943 | Reggio C. (Italy) |

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