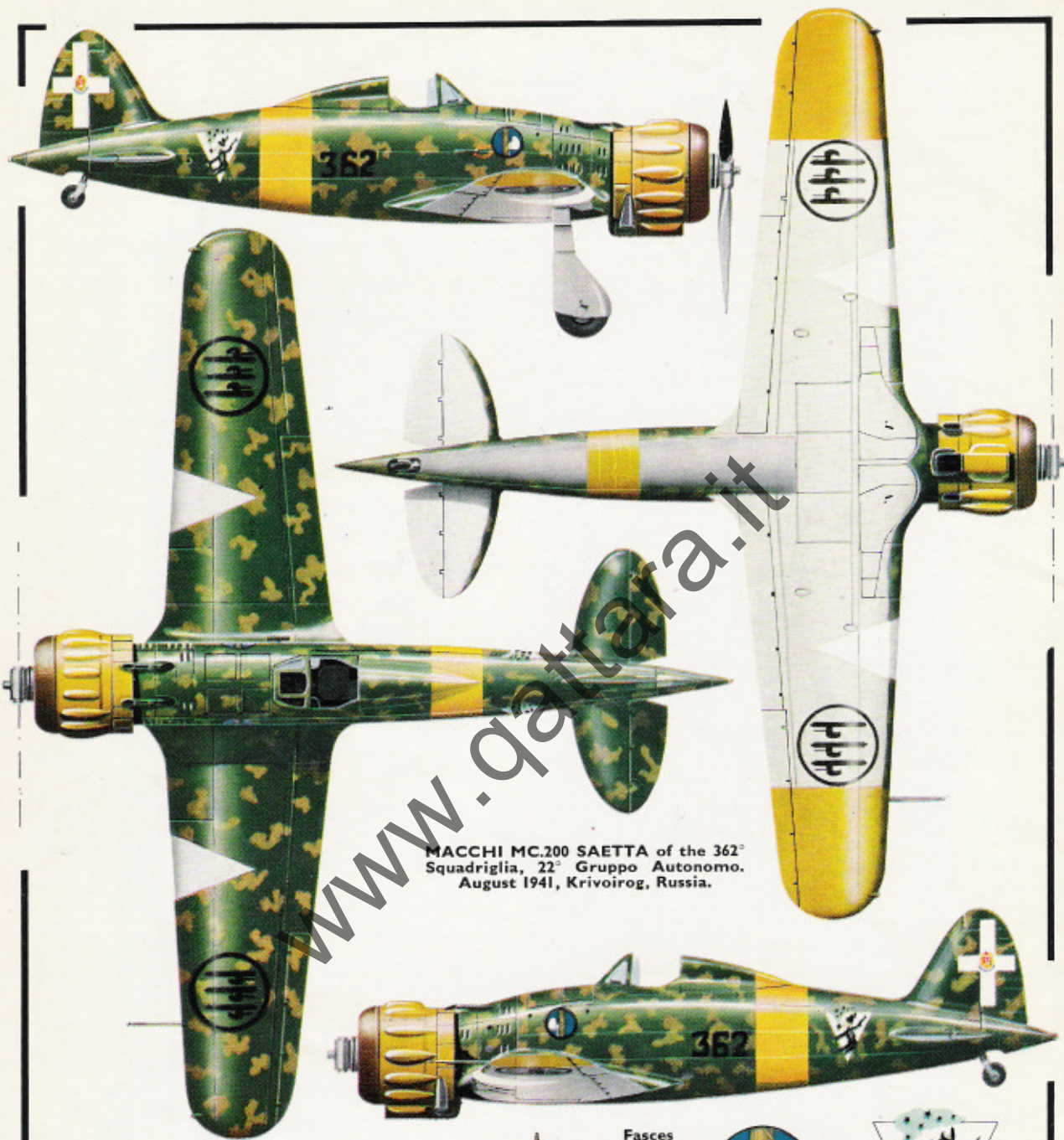


PROFILE PUBLICATIONS

The Macchi MC.200

NUMBER 64
TWO SHILLINGS





MACCHI MC.200 SAETTA of the 362^a
Squadriglia, 22^o Gruppo Autonomo.
August 1941, Krivoirog, Russia.

www.gattara.it



Fasces
Insignia.



22^o Gruppo Insignia
("Spauracchio")





The Macchi MC.200

by Gianni Cattaneo

A Macchi C.200 of the 374^o Squadriglia in flight over Grosiglio, Italy, in November 1940.

In the spring of 1935, the chief designer of the Macchi Company, Ing. Mario Castoldi, carried out a series of design studies for a modern monoplane fighter with retractable landing gear. This project was designated C.200; and it retained its name and general characteristics from this early stage in its life through final production.* The design was further developed after an official requirement from the *Ministero dell'Aeronautica* in 1936 for an interceptor intended for the "defence of the national territory in emergency"; the requirement called for a good climbing performance, armament of a single 0.5-inch machine gun and limited endurance. This specification was soon modified to include armament of two guns and an endurance of two hours.

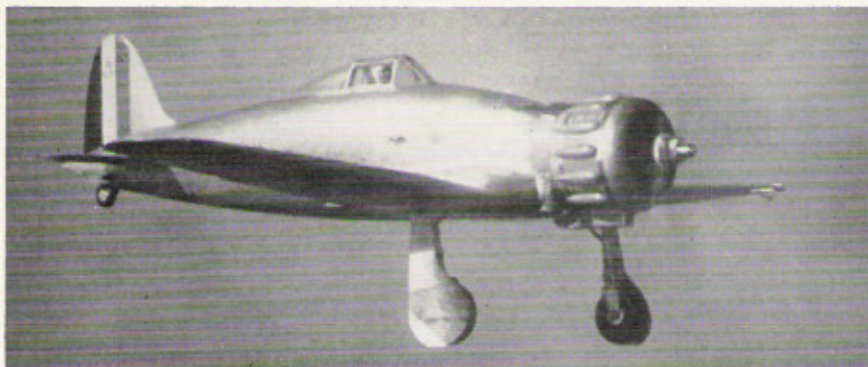
The prototype C.200 (*MM 336*) flew for the first time on Christmas eve of 1937, piloted by the then chief test pilot of Aer-Macchi, Cdr. Giuseppe Burei. The designer fought many bitter battles with the technical branches of the Ministry and finally succeeded in retaining the characteristic hump on the fuselage to ensure better visibility. The prototype was aerodynamically handicapped from the outset by the adoption of the bulky radial engine; it was nevertheless of generally clean lines, and the careful attention to detail streamlining denoted direct descent from a long line of racing aircraft. The best qualities of the C.200, however, did not lie in a particularly high speed, but in a good climb rate, exceptional manoeuvrability and robust construction which were to be much appreciated during dog-fights in later years with more modern and more heavily armed aircraft. Maximum dive speed was also impressive; during official tests at the Guidonia Experimental Test Centre, Burei reached the remarkable speed of 500

m.p.h. in a dive without encountering flutter or aeroelastic problems.

At this time the Ministry was preoccupied with the preparation of an expansion programme for the Air Force covering aircraft, personnel, bases and facilities; this programme was designated "Programme R". Accordingly the C.200 entered into competition in 1938 with prototypes prepared by other Italian firms (Caproni-Vizzola F 5, Reggiane Re 2000, A.U.T.18, I.M.A.M. R.o.51) for Ministry evaluation, and was chosen for series production. Its nearest rival, the Re 2000, whilst more manoeuvrable at altitude and with better low-speed performance, was rejected on account of the very vulnerable wing fuel tanks and because of doubts as to its structural strength. Following the construction of the second prototype (*MM 337*) Macchi received an order for an initial batch of 99 machines.

Partly because of attrition in the Spanish Civil War and partly because of doubts about decisions already taken, "Programme R" was behind schedule at the outbreak of W.W.II. At that critical time at least one fighter *Stormo* mustered only 29 aircraft, with serviceable strength reduced to 50% of the machines available. A quarter of a century later the lack of an official directive on standardisation seems incredible, especially when one takes into account the difficult situation regarding raw materials pertaining in Italy at that time, and the need to simplify logistics and training. This lack of official direction prevented the overcoming of jealousies between Italian aircraft manufacturers, traditionally of strong individuality; and permitted the parallel production of similar types, often obsolete, until 1943. If one sets aside the individual merits of each design it seems inexplicable that for some years production of the C.200, the G.50, the CR.42 and the Re 2000, continued in parallel; later the Re 2001 appeared alongside the C.202,

*It is interesting to record that at this date a two-seat version designated C.200bis was thought feasible; this was a product of the same concept which was to produce the Boulton Paul Defiant.



First prototype C.200, serial number MM 336, during the maiden flight on 24th December 1937. The pilot was Cdr. Giuseppe Burei.



Another view of MM 336; note the perspex fairing in the rear of the cockpit.

followed by three more similar types, the C.205, G.55 and Re 2005. At this time industries of larger capacity than the Italian were reducing output to a few standard types; in England the Spitfire and Hurricane, in Germany the Bf 109 and early Fw 190, with beneficial results in standardisation of logistics and training.

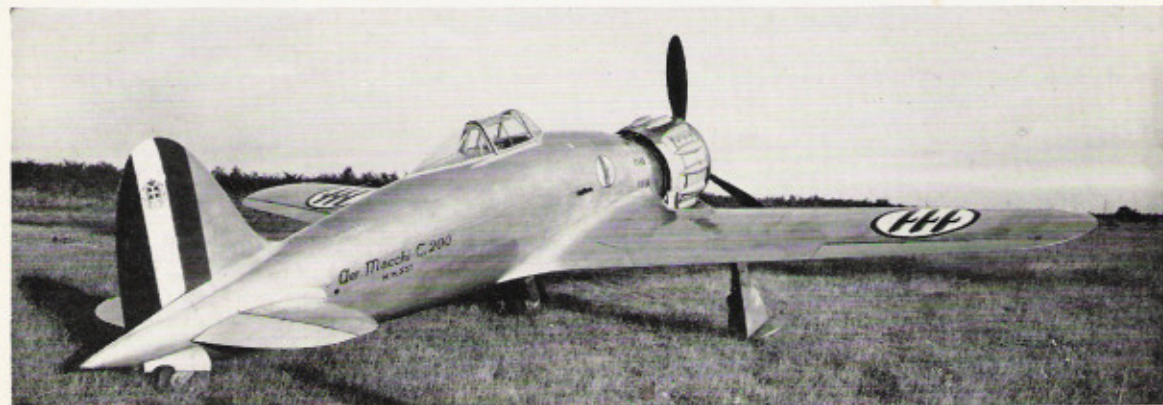
THE SAETTA DESCRIBED

The C.200, soon christened "Saetta" (Lightning) was powered by a Fiat A.74 R.C.38 double row 14-cylinder radial engine of 870 h.p. at 2,520 r.p.m. at take-off and 740 h.p. at sea level. The armament consisted of 2×0.5 -inch Safat machine guns with 310 r.p.g. for the first twelve aircraft and 370 r.p.g. for subsequent machines. The engine cowling was characterised by the annular oil radiator and bulged rocker arm fairings. The cockpit canopy was particularly noteworthy;

the prototype and the first 240 aircraft built by Macchi (i.e. the first five batches) adopted a closed type with full rear visibility and good aerodynamic shape, rather similar to the blown "bubble" hoods employed by many fighters in the latter half of the war. However, this canopy was disliked by the fighter pilots of the time, who were traditional supporters of the open cockpit of the biplane fighter. After two different experimental variations tested on a single airframe, a final arrangement of two transparent hinged side panels was adopted; and in service even these were sometimes discarded, two small transparent deflectors being fitted on the arch of the windscreen in these cases.

The fuselage structure was a semi-monocoque shell with numerous stringers and formers giving particular strength. The fuel tankage was concentrated in the fuselage; the principal cell, in the wing centre section, had a capacity of 53 Imp. gallons. The second tank, of 33 Imp. gallon capacity was placed under the cockpit floor. Provision for a fixed auxiliary tank for 17 Imp. gallons was made under the fuselage but this tank was rarely used in action. All tanks were self-sealing with protection from projectiles of up to 0.5 inch calibre. Behind the cockpit was the oxygen system, the fire extinguisher, and the radio set, initially a receiver only, type A.R.C.1. Undercarriage traction, flap action and cowling gills were hydraulic (this last was manual on aircraft built by the parent company). The wings were a bilongeron structure joined to the fuselage with forged fittings; the split flaps had a maximum deflection of 45° . The leading edge was a single unit screwed to the main spar from the landing gear station to the tip. All movable surfaces (ailerons, elevators and rudder) were fabric-covered. The stabiliser had variable incidence between $+1^\circ 45'$ and $-5^\circ 30'$ with trimming cable control. The main gear, retractable inwards, had hydraulic shock absorbers incorporated in the legs; whilst the tail wheel, retractable on prototypes and the first two batches, was

The second Saetta prototype, MM 337.

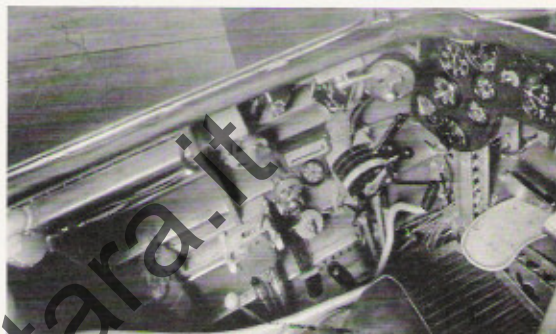


A Macchi C.200 of the first batch; note the white-on-black fasces insignia under the wing.



subsequently fixed and faired or simply fixed. The instrumentation was quite complete for the period and included the well-known "S. Giorgio" reflector sight and round-counter. The brakes were of pneumatic action and the same compressed-air bottle was used for the engine starting. The propeller, of constant pitch type, was the Hamilton-Fiat model on the first 24 machines and subsequently the Piaggio P.1001. Provision was made for a gun-camera in the right wing-root for training purposes.

Besides Macchi production, the C.200 was built in quantity under licence by the Breda Company (at Sesto S. Giovanni, near Milan) and by S.A.I. Ambrosini (at Passignano, near Perugia) in accordance with a large sub-contracting programme for a total of about 1,200 aircraft between 1939 and early 1943. The Saetta was virtually unchanged during its production life; apart from the above-mentioned variations in cockpit installation, the only major variation involved the installation of dust-filter equipment which added the suffix A.S. (*Africa Settentrionale*) to the designation of the aircraft involved. As a field modification, under-wing strongpoints were added capable of taking eight 33-lb. or two 110-lb., 220-lb., or 325-lb. bombs. These strongpoints could also carry two jettisonable fuel tanks of 20 or 33 Imp. gallons capacity. Minor changes to the basic design included the installation of an armoured seat and the substitution of a transmitter/receiver of the Allocchio Bacchini B.30 R/T model. The propeller spinner was discarded subsequent to the first production series. The empty weight rose from the original figure of 4,116 lb. on the Series I to 4,200 lb. on subsequent series up to 4,450 lb. on the final series; the useful load was correspondingly raised from the original 945 lb. to a final 1,150 lb.



The left-hand side of the cockpit interior of MM 337.

THE SAETTA ENTERS SERVICE

"Programme R" was based on the re-equipment of three fighter *Stormi* with the C.200 during the period 1939-40. The equipment of the remaining units was the CR.32 (two *Stormi* and one *Squadriglia*), the CR.42 (four *Stormi* and three *Gruppi*) and the G.50 (one *Stormo* and one *Squadriglia*). The first unit to receive the C.200 was the 4^o *Stormo*, previously equipped with the CR.42. The famous "Prancing Horse" emblem did not appear for long on the Saetta, however; the pilots had been trained on biplanes and preferred the familiar CR.42 with its great manoeuvrability and suitability for the aerobatic rôle. They exchanged their aircraft for the CR.42s of the 1^o *Stormo*, which unit received the new monoplanes with great enthusiasm. Other units soon followed suit; the

The second production aircraft of the first batch, MM 4496.





Above: A line-up of Series I Saettas outside the plant. Below: Saettas of the 88^o Squadriglia, 6^o Gruppo on Catania airfield in Sicily, June 1940. The fuselage emblem is the "Sagittario" (Arrow) of the 1^o Stormo.



152^o Gruppo "Asso di Bastoni", and in 1940, when that group was disbanded, the 153^o Gruppo which was formed from its squadrons; and the 369^o Squadriglia, who had inherited the "Curacha" insignia of Spanish Civil War fame. The re-equipment programme was not as fast as it might have been, due to training problems and teething troubles at both the manufacturing and service ends of the line. On 10th June 1940, when Italy entered the war, the Saetta was the equipment of the 54^o Stormo (comprising the 152^o Gruppo at Airasca and the 153^o Gruppo at Vergiate) and the 6^o Gruppo of the 1^o Stormo at Palermo. Several other units were in the course of converting on to the C.200.

The C.200 was not used in the brief campaign against France; at this time all Saettas were grounded and training suspended following two crashes, the cause of which could not immediately be discovered. During this period of uncertainty it was even suggested in some circles that production be halted completely. The trouble was eventually traced to g-stall conditions, and some modification of the wing airfoil solved the problem.

Despite the delays in the supply of C.200s to the Regia Aeronautica, an export order for twelve machines was negotiated with the Danish Government in the spring of 1940; this deal was still-born owing to the German invasion of Denmark a short time

later. The first operational missions were carried out by the Saettas of the 6^o Gruppo in September 1940 during the initial offensive against Malta; they flew many escort missions on raids by the Ju 87 dive-bombers of the 96^o and 97^o Gruppi against the British airfields at Hal Far and Micabba. As the fighter defence of the island was strengthened the Saetta became engaged with increasing frequency in dog-fights with the R.A.F. Their most dangerous adversary at that time was the Hawker Hurricane; and it was the appearance of that fighter in Greece that forced the re-deployment of Italian fighter forces in the Balkan theatre in March 1941. This was carried out by withdrawing the CR.42s of the 150^o Gruppo from Albania and dispatching the 22^o Gruppo with 36 Saettas from Ciampino to Tirana; and transferring the 371^o Squadriglia with 10 Saettas from Ciampino to Valona. In March and April 1941 fierce air fighting occurred as the Allies put up a bitter resistance in the face of impending defeat. Although slightly inferior to the Hurricane in maximum speed, the C.200 made full use of its advantages in manoeuvrability, turning radius and climb-rate; and in the hands of an experienced pilot it was a formidable adversary. During the four-day campaign against Yugoslavia in April 1941, C.200-equipped units involved, apart from the squadrons already based in Greece, comprised the 7^o Gruppo (22 aircraft at Treviso); 9^o Gruppo (23



Above: A line-up of 4^o Stormo C.200s in 1939. Note the famous "Cavallino Rampante" emblem on the fins of these machines. Below: Desert take-off by 372^o Squadriglia aircraft, photographed in Cyrenaica in the autumn of 1941. The rear cockpit fairings are "solid", indicating machines of sixth or subsequent production batches.



aircraft at Gorizia); 10^o Gruppo (23 aircraft at Altura di Pola); 16^o Gruppo (22 aircraft at Ravenna); 158^o Gruppo (38 aircraft at Puglia); and 356^o Squadriglia (6 aircraft at Bari). Because of the limited resistance in the air, the Saettas were mainly occupied with escort missions and strafing attacks on troop concentrations, roads, and seaplane bases.

The attrition caused by the first few months' fighting in Greece and North Africa made it necessary for the X German Air Corps to be deployed in the Mediterranean area, based on Sicily. Italian fighter units formed a large proportion of the island's defence and carried out many escort sorties with German bombers attacking Malta. Eventually the 1^o Stormo's Saettas were replaced by those of the 10^o Gruppo and 54^o Stormo.

AFRICAN OPERATIONS

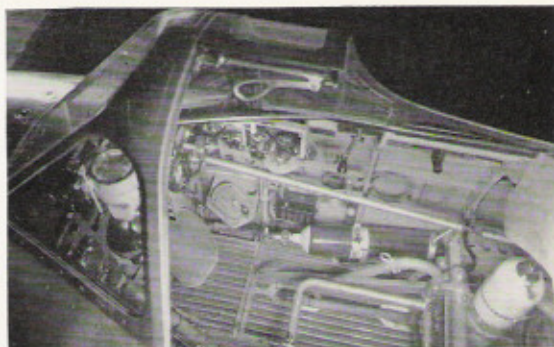
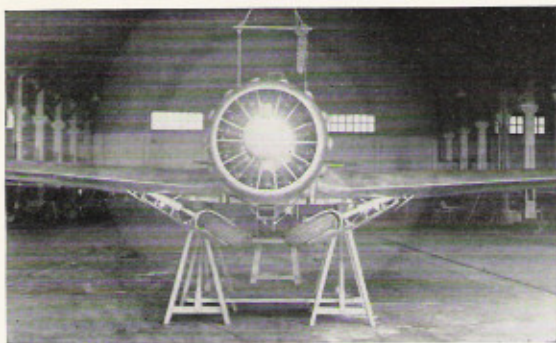
The most active theatre of operations for the C.200 during 1941 was the North African mainland; and the first unit to arrive, the 374^o Squadriglia, moved in during April. At this time the re-conquest of Cyrenaica was almost complete, except for the strongly-defended British fortress of Tobruk. The next units to arrive were the 153^o Gruppo and the 157^o Gruppo in July. Allied aerial opposition was progressively increasing both in quality and quantity, especially as regards fighters based on fields along the Nile and on the advanced strips between El Daba and Sidi Barrani. Apart from the familiar Hurricanes, the C.200s now met the newly-arrived P-40s which equipped some squadrons of the Desert Air Force. A typical record

of operational life on a Saetta unit during this period is provided by the following data referring to the activities of the 153^o Gruppo between July and December:

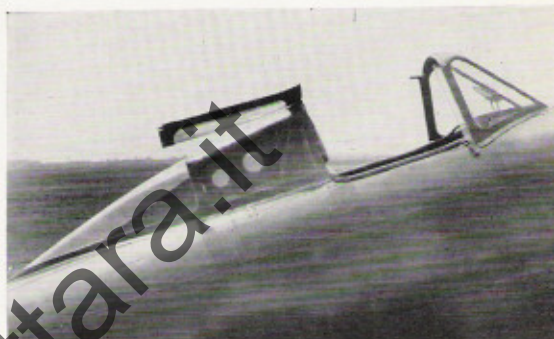
Flight hours—4,686. Sorties—3,591. Combats—21. Enemy a/c destroyed—19 confirmed, 12 probables, plus 35 destroyed on the ground. (Of this total, 19 were Hurricanes shot down or destroyed on the ground in the Sidi Barrani, El Cuasc, Bir-el-Gobi area; and three P-40s in the Bir Habata area.)

The C.200 behaved well in the difficult desert conditions, due to its structural strength and short take-off run, the latter most welcome on the advanced desert air-strips. In the air, control response was fingertip-light in all régimes; visibility was excellent, and the only real drawback was the light armament.

In December the desert-weary units were rotated to Italy and replaced by new squadrons of C.200s; the 8^o and 150^o Gruppi moved into El Nofilia together with the first units equipped with the new Macchi C.202. Average monthly availability of the Saetta in North Africa rose from six machines in April to twenty-five machines in December; it can thus be appreciated that there was a great difference between theoretical strength and actual strength. During the resumption of the Axis offensive in the early months of 1942 that led German and Italian troops to within sight of Alexandria in the summer, the C.200s of the 8^o, 13^o and 150^o Gruppi were heavily committed to bomber escort and low-altitude assault missions in company with the CR.42s, while the C.202s kept the skies clear above them. It was during this campaign that the Saetta was first used as a fighter-bomber, with



Left: A Saetta being run-up "on the bench" during systems tests; note the propeller spinner and the structure of the semi-retracted undercarriage. Right: The cockpit of a Macchi C.200 of the sixth production batch, seen here without the pilot's seat. Oxygen system and fire extinguisher are clearly visible.



Left: Engine installation of the C.200. The characteristic "blister" on the cowling panel were necessary to accommodate the rocker-boxes of the fourteen-cylinder Fiat A.74 R.C.38 radial powerplant. Right: Experimental semi-open cockpit canopy installed on one C.200, with rear-hinging top section. The reflector-sight can also be seen in this photograph.

two under-wing bombs. The 18° Gruppo of 3° Stormo, newly arrived in Africa, put about forty C.200s with bomb armament into the line at Abu Aggar in July; and in September fighter-bomber Saettas of the 13° Gruppo participated with success in the neutralisation of an Allied assault on Tobruk from the sea. During this action the destroyer H.M.S. *Zulu* was sunk and several troop-carrying motor vessels were damaged.

After the decisive British and Commonwealth victory at El Alamein, the C.200s were active in covering the Axis retreat, shooting-up advance columns of Allied troops and light armour; but the growing shortage of spares, fuel and ammunition and the superior numbers of the enemy drastically cut down the strength of the Saetta units. When, in January 1943, all units not of direct usefulness were repatriated to Italy, only one Saetta Squadriglia from

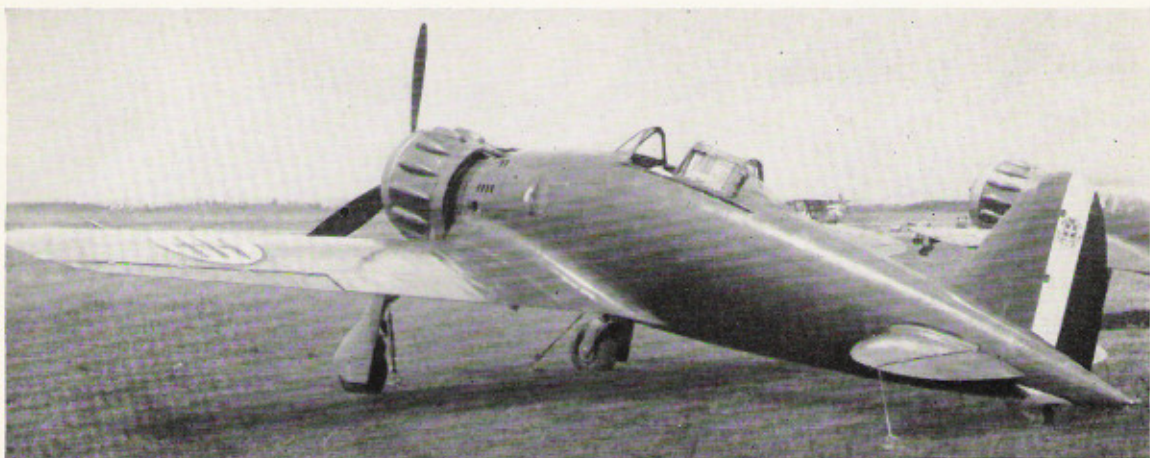
the 13° Gruppo was left in N. Africa. One month later, the twenty-five available machines were distributed between the 384° Squadriglia at Tunis, the 18° Gruppo at El Hamma, and the 13° Gruppo Assalto, also at El Hamma. Despite the difficult conditions some missions were performed, but the C.200 was now at the end of its career as an effective first-line fighter. Nevertheless, bomb-carrying Saettas took part in attempts to dispute the Allied occupation of Pantelleria, in company with Luftwaffe Fw 190s and Bf 109s.

LIGHTNING OVER RUSSIA

On 12th August 1941, the fifty-one Saettas of the 22° Gruppo arrived at Tudora in the Odessa Zone of the Russian Front. They were accompanied by two S.M.81 and three Ca.133 transports and followed by some observation and bomber formations. It was the first component of the Regia Aeronautica to take part in the operations of the C.S.I.R. (Italian Expeditionary Corps in Russia). The C.200s operated to some effect during the Italian September offensive on the Dnieper; but



The barrels of the .5-inch SAFAT machine guns can be clearly seen protruding from the forward fuselage of this Series I machine.



A Series I machine in pre-war markings; in the background, a C.R.32.

conditions became increasingly difficult with the coming of winter, both from the point of view of weather and because the unit had no proper facilities for operating at very low temperatures. During November and most of December, flying was impossible; but in the three-day "Christmas Battle" Saettas shot down twelve Soviet fighters in three combats, for the loss of one machine. When full-scale operations resumed in February and March the C.200s were active on escort and strafing sorties, and encountered Russian fighters with considerable success. The 21° Gruppo replaced the 22° during the spring and was integrated with twelve precious M.C.202s. Despite the small quantity of Italian aircraft committed to the Russian campaign, extremely favourable results were achieved; during eighteen months of operations the Macchis, with an average monthly availability of thirty machines, performed 1,983 escort missions, 2,557 offensive sweeps, 311 ground support sorties and 1,310 strafing sorties. Russian aircraft destroyed totalled eighty-eight, for the loss of fifteen of the Italian fighters.

THE END OF THE ROAD

In July 1943, on the eve of the invasion of Sicily, the Saetta equipped the following units, mixed with other aircraft types:

2° Stormo at Caselle, Italy (41 aircraft, 26 serviceable); 22° Gruppo at Capodichino-Littoria, Italy (3 aircraft, 2 serviceable); 157° Gruppo at Grottaglie, Italy (13 aircraft, 5 serviceable); 161° Gruppo at Reggio C., Italy (4 aircraft, none serviceable); 392° Squadriglia at Tirana, Albania (2 aircraft serviceable); 385° Squadriglia at Araxos, Greece (18 aircraft, 7 serviceable).

At the Armistice, only 33 C.200s were serviceable; 23 reached the Allied lines, principally the machines of the 8° Gruppo which escorted the Italian Fleet from La Spezia to Malta, thus opening the operations of the Co-belligerent Air Force. The C.200s which remained

A Saetta of the 374° Squadriglia, 153° Gruppo in flight. The fuselage insignia is that of the Gruppo—the "Ace of Clubs".



Wrecked Saetta of the 372° Squadriglia. Note bullet holes in the fuselage.

in the Northern Zone were used briefly as trainers, but never on operations. In the summer of 1944 the Saettas in the South were given to the Leverano Fighter School, where maintenance proved extremely difficult due to the lack of spare parts. Some survived at the Lecce School until 1947, where the syllabus provided for basic training on two-seater CR.42s and G.50s, advanced training on C.200s and qualification on C.202s and C.205s.

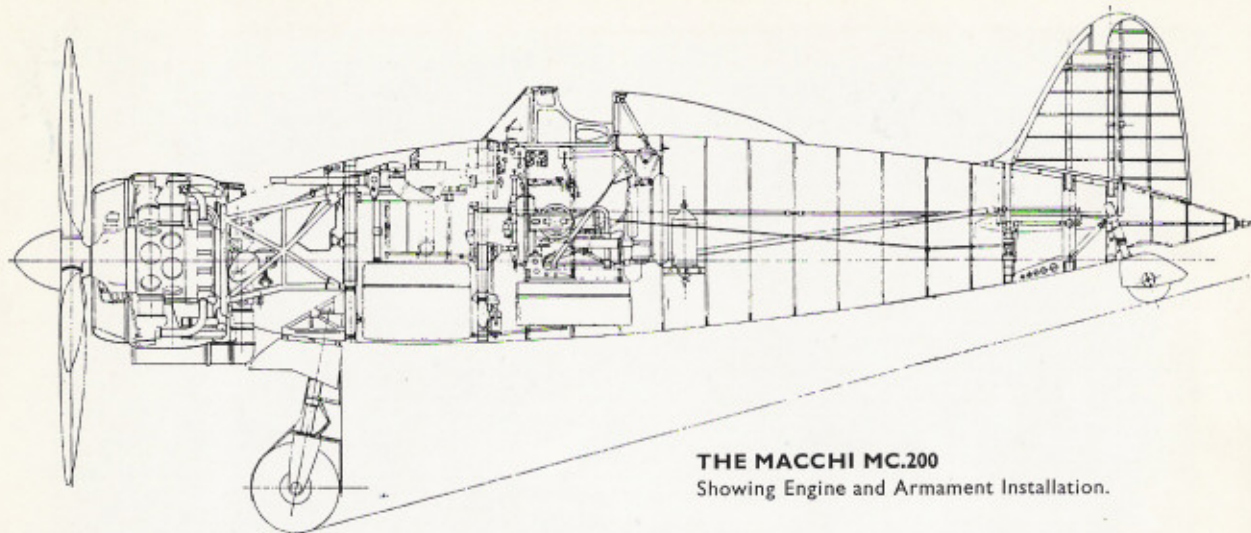
As stated above, the Macchi C.200 went through its production life with only minor changes in equipment. The only major modification was a "one-off" machine, MM 8191, fitted with a Piaggio P.XIX engine in 1941.

AER. MACCHI C.200 PRODUCTION

Manufacturer	Series	Serials	Quantity
Macchi	Prototypes	MM 336—MM 337	2
	1°	MM 4495—MM 4593	99
	2°	MM 5770—MM 5814	45
	3°	MM 6795—MM 6804	10
	4°	MM 6805—MM 6828	24

(Continued overleaf)





THE MACCHI MC.200
Showing Engine and Armament Installation.

Manufacturer	Series	Serials	Quantity
Macchi (Contd.)	5°	MM 6829-MM 6890	62
	6°	MM 6490-MM 6544	55
	7°	MM 7659-MM 7708	50
Breda	1°	MM 5081-MM 5162	82
	2°	MM 5163-MM 5200	38
	3°	MM 5201-MM 5260	60
	4°	MM 5261-MM 5360	100
	5°	MM 5815-MM 5920	106
	6°	MM 8289-MM 8338	50
S.A.I. Ambrosini	1°	MM 4857-MM 4880	24
	2°	MM 4881-MM 4896	16
	3°	MM 4897-MM 4906	10
	4°	MM 6715-MM 6724	10
	5°	MM 6725-MM 6744	20
	6°	MM 6660-MM 6703	44

**FIGHTER UNITS OF THE "REGIA AERONAUTICA"
EQUIPPED WITH MC.200, 1940-43**

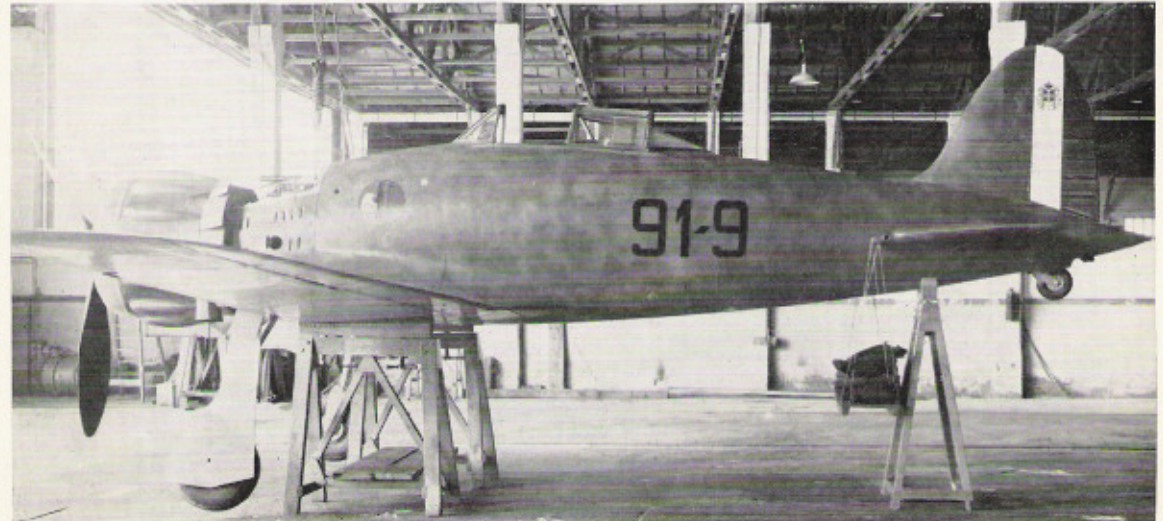
Gruppo	Stormo	Squadriglia	Representative date and location
3°	Autonomous	193°-154°-155°	December 1941 Ara Fileni (Libya)
6°	1°	79°- 81°- 88°	June 1940 Catania (Sicily)
7°	54°	76°- 86°- 98°	July 1942 Greece
8°	Aut./2°	92°- 93°- 94°	December 1941 Benghazi (Libya)
9°	4°	73°- 96°- 97°	November 1941 Tamet (Libya)
10°	4°	84°- 90°- 91°	June 1941 Sicily
12°	Autonomous	159°-160°-165°	February 1943 Northern Italy
13°	Aut./2°	77°- 78°- 82°	March 1942 Libya
16°	54°	167°-168°-169°	February 1942 Sicily
17°	1°	71°- 72°- 80°	December 1940 Palermo (Italy)
18°	3°	83°- 85°- 95°	August 1942 Abu Aggag (Libya)
21°	Autonomous	356°-361°-382° -386°	March 1942 Millerovo (Russia)
22°	Autonomous	359°-362°-369° -371°	August 1941 Krivoirog (Russia)

After this total of 19 series (7 of Macchi, 6 of Breda, 6 of S.A.I.) the subsequent series were identified with Roman numerals and assigned to each manufacturer as follows:

XX	S.A.I. Ambrosini	...	Quantity: N.A.
XXI	Breda...	...	Quantity: N.A.
XXII	Macchi	...	Quantity: 50
XXIII	S.A.I. Ambrosini	...	Quantity: N.A.
XXIV	S.A.I. Ambrosini	...	Quantity: N.A.
XXV	Breda...	...	Quantity: N.A.

Total quantity produced in 25 series: approx. 1,200 aircraft.

A Macchi of the 91° Squadriglia, 4° Stormo. This Stormo was equipped with the Saetta for a brief period in 1939 before exchanging their machines for the C.R.42s of the 1° Stormo. The sand-bag load suspended from the rear fuselage is simply ballast to weight the tail during engine tests.

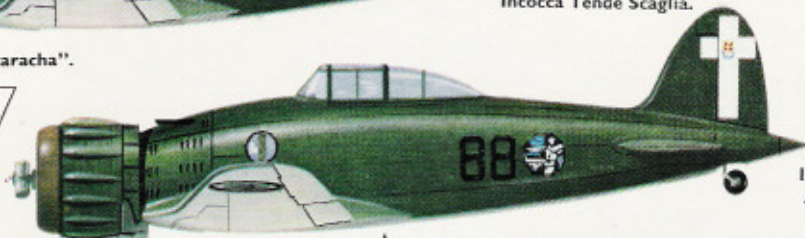


MC.200 Sietta, 369° Sq. C.T., 22° Gruppo C.T., 52° Stormo C.T., Ciampino, Italy, 1940. Note white background to wing fascias.



Fuselage Fasces Insignia.

22° Gruppo, "Cucaracha".



MC.200 Sietta, 88° Sq. C.T., 6° Gruppo C.T., 1° Stormo C.T., Catania, Sicily, 1940.

157° Gruppo Autonomo.



MC.200 Sietta, 384° Sq. C.T., 157° Gruppo Autonomo, Caselle, Italy, 1940-41.



MC.200 Sietta, 153° Gruppo Autonomo, Puglia, Italy, 1941. The Group Commander's aircraft. (Sq. at time 370°, 372°, 373° and 374°.)

Group Commander's Pennant.



153° Gruppo Autonomo, "Asso di Bastoni".



153° Gruppo

MC.200 Sietta, 85° Sq. C.T., 18° Gruppo C.T., 3° Stormo C.T., Greece, 1942.



Coat of Arms of the House of Savoy rudder marking.



18° Gruppo.



MC.200 Sietta, 167° Sq. C.T., 16° Gruppo C.T., 54° Stormo C.T., Crotone, Sicily, 1942.



54° Stormo.

90° Squadriglia.



4° Stormo "Cavallino Rampante".

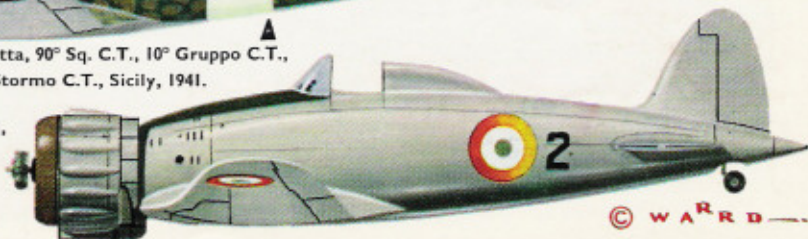


MC.200 Sietta, 90° Sq. C.T., 10° Gruppo C.T., 4° Stormo C.T., Sicily, 1941.

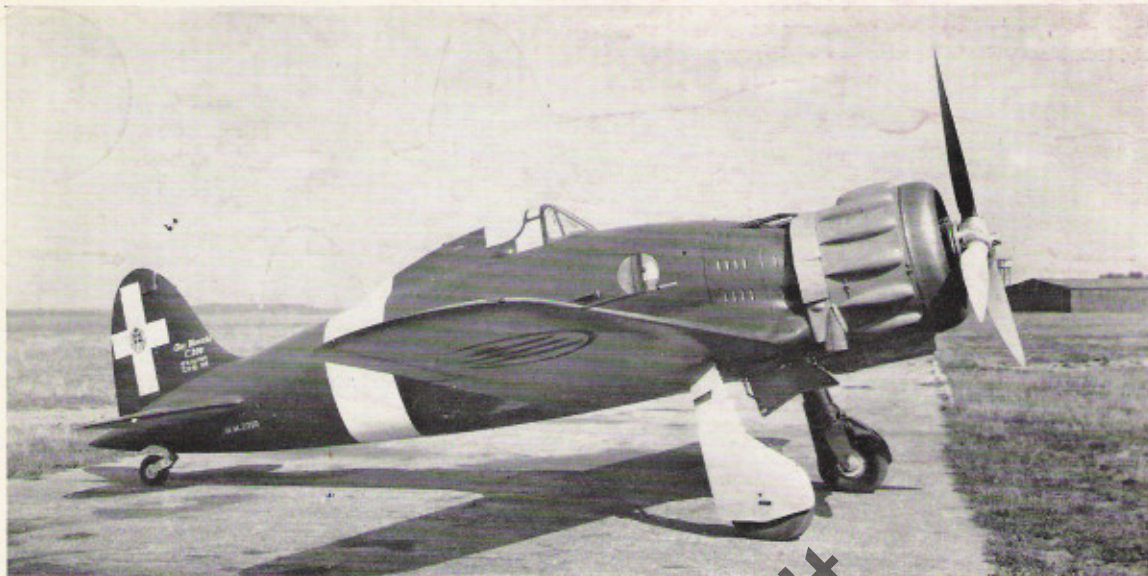


MC.200 Sietta, Fighter School, Lecce, Italy, 1946.

4° Stormo, on fin of 91° Sq.



© WARD



MM 7705, a machine of the seventh Macchi production batch. The cowling is painted yellow, also note late-style cockpit.

Gruppo	Stormo	Squadriglia	Representative date and location
24°	Autonomous	354°-355°-370°	July 1941 Monserrato (Italy)
150°	53°	363°-364°-365°	April 1941 Valona (Albania)
152°	54°	371°-372°-375°	June 1940 Airasca (Italy)
153°	Aut./53°	372°-373°-374°	December 1941 Sidi Magrum (Libya)
157°	Autonomous	384°-385°-386°	December 1940 Caselle (Italy)
161°	Autonomous	162°-163°-164°	July 1943 Reggio C. (Italy)
162°	Autonomous	109°-110°	March 1944 Tunisia

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The experimental installation of the Piaggio B XIX engine made by Breda on MM 1191.

ABR. MACCHI MC.200 OFFICIAL SPECIFICATION

(Data from Technical Manual C.A.444 of "Ministero dell'Aeronautica" Issue October 1940—Applicable to Series I to 6—BREDA).

Powerplant: One Fiat A.74 R.C.38, double row, fourteen cylinders, rated at 870 h.p. at 2,520 r.p.m. for take-off, 840 h.p. at 2,400 r.p.m. at 12,500 ft. and 740 h.p. at sea level—Piaggio propeller, three blade, constant speed.

Dimensions: Wing span 34-710 ft. Wing area 180-834 sq. ft. Length 27-066 ft. Height 10-010 ft.

Weights: Empty 4,330 lb. Useful load 945 lb. of which: pilot 176 lb.; guns, rounds, radio, etc. 280 lb.; fuel 434 lb.; oil 55 lb. Total loaded 5,275 lb.

Performances (at weight of 5,130 lb.): Maximum speed 313 m.p.h. at 14,770 ft. Minimum speed 79-5 m.p.h. Take-off run 805 ft. Landing run 985 ft. Range 355 miles at 19,685 ft. at 289 m.p.h. Endurance 1 hr. 20 min. Climb to: 3,280 ft. 1 min. 3 sec.; 6,560 ft. 2 min. 10 sec.; 9,840 ft. 3 min. 24 sec.; 13,120 ft. 4 min. 35 sec.; 16,400 ft. 5 min. 52 sec.; 19,685 ft. 7 min. 33 sec. Service ceiling 29,200 ft. Ultimate loading coefficient 15-1.

