PROFILE PUBLICATIONS

The Fiat G.91

NUMBER 119

TWO SHILLINGS

FIAT G.91 P.A.N., Serial 6524, of the Pattuglia Aerobatica Nazionale (Italian Air Force National Aerobatic Team.) Rivolto-Udine, Italy, 1966.

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FRECCE TRICOLORI

Two G.91R-1's of the Italian Air Force's 5° Aerobrigata *in flight.* (Photo: Fiat)

The Fiat G.91

by Giorgio Apostolo

Following the experience gained during the Korean war and the studies made in the light of modern concepts of air co-operation in warfare, SHAPE Headquarters (Supreme Headquarters Allied Powers Europe) envisaged in 1953 the requirement for the adoption by NATO air forces of a light-weight tactical fighter incorporating considerable strike capability, being able to operate at Mach 0.9 at low altitude, and capable of operating from short grass strips and semi-prepared airfields.

This requirement was not a simple one to fulfil, a fact which soon became apparent to the selected European manufacturers who were issued the operational specification in the form of a restricted tender. The eight designs submitted to the NATO competition were exhaustively examined by an AGARD (Advisory Group for Aeronautical Research and Development) commission; and finally, on 3rd June 1955 the Fiat G.91 design was chosen as the most promising project, an immediate order for three prototypes and 27 pre-production aircraft being placed. The design was the work of a team headed by Ing. Giuseppe Gabrielli, and in overall appearance somewhat resembled a scaled-down edition of the North American F-86D "Sabre Dog".

Within little more than a year of receiving the contract, Fiat translated the basic proposal into a simple and agile aircraft; although in that period the take-off weight had steadily risen over the original figure, owing to the progressive addition of supplementary equipment and the consequential structural strengthening. The empty weight finally stood at a figure 20 per cent in excess of that originally specified. The first of the three prototypes flew at Torino Caselle airfield on 9th August 1956, flown by test pilot Riccardo Bignamini (who, incidentally, had received the McKenna Trophy in the United States in 1955). The aircraft was powered by a 4,050 lb. s.t. Bristol Orpheus B.Or.1 turbojet. After a considerable amount of testing, the horizontal control system developed trouble during a high speed level run at 4,000 feet to determine the limit of the aircraft's speed-load envelope, and following a structural failure Bignamini was forced to eject. The tail assembly was immediately submitted to rigorous testing, including evaluation in N.A.C.A.'s Langley wind tunnel.

The identification of the cause of the failure resulted in a certain delay in the test programme and the second prototype flew only in July 1957. It differed in some respects from the first aircraft, the most important of which was the installation of the 4,850 lb. s.t. Bristol Orpheus B.Or.3 turbojet. Modifications were also made on the larger tailplane, a higher cockpit (raised by 2·50 in.), and a ventral keel; full armament was fitted. The third aircraft was similar. Basic armament comprised either four 0·5 in. machine guns or two 20 mm. or 30 mm. cannon in bays in each side of the cockpit plus a wide and varied range of underwing stores.

The G.91 prototype being made ready for the first flight, at Torino Caselle on August 9th, 1956.

THE G.91 DESCRIBED

One of the most important attributes of the G.91 is its short-field capability: the airframe possesses the robustness necessary for high-intensity operation from semi-prepared strips and features ample access panels for simplified field maintenance.

The fuselage is essentially conventional and of relatively simple construction: an all-metal semi-monocoque built in three sections. The forward section, (which is built separately and riveted to the centre fuselage, structural integrity being provided by the gun bay inner walls) houses the radio transmitting and receiving sets, the gound radar responder, radio compass, UHF, IFF, etc.; while in the extreme

One of the three prototypes in flight over the Alps. (Photo: Fiat)

nose (in the G.91R) there is a trio of cameras (one being a forward-facing oblique unit with an angle of 15° to the aircraft's longitudinal axis, the others facing to port and starboard respectively). The cockpit, placed above the engine duct, is comfortable despite the reduced dimension of the aircraft; it has an armoured glass windscreen and is enclosed on three sides by steel armour plating. The canopy hinges upward and a Martin Baker Mk.4 ejector seat is fitted. The cockpit is pressurised and air-conditioned and there are electronic and manually-operated temperature controls.

The centre fuselage houses the seven split fuel tanks which are protected from ground fire along the belly by armour plate. The armament bay, which is formed by the cockpit sides, bulkheads fore and aft, and a horizontal bulkhead top and bottom, is so designed that it can accommodate four 0·5 in. Colt-Browning machine guns with 300 rounds of ammunition per gun, two 20 mm. cannon with 200 rounds per gun or two 30 mm. cannon with 120 rounds per gun. Alternatively the guns may be replaced by two rocket packs each containing 25 × 2 in. missiles or 15 × 2·75 in. missiles. The guns, ammunition containers and associated equipment are mounted on the outer panel doors of the armament bay and after an operation the armament can be removed for re-arming by two men who pull down levers freeing a series of pins which hold the gunbays to the aircraft, swing the panels down and lift them out of the bay. The total weight of each panel, complete with two 0·5 in. guns and 600 rounds of ammunition, is approximately 400 lb.

A G.91R-3 of the Luftwaffe's Waffenschule 50; *note protruding barrel of 30 mm. cannon, and underwing stores.* (Photo: Stephen Peltz)

Line-up of Luftwaffe *G.91R-3's at Erding, Germany, where* Aufklärungsgeschwader 53 *were temporarily activated in October of 1961, while their permanent base at Leipheim was being completed. The unit commander was Lt. Col. Wolfgang von Bergh.*

The wing, which is swept 37° at quarter-chord, is of laminar-flow aerofoil section with a thickness/chord ratio of 10 per cent. An all-metal two-spar structure is employed, covered by upper and lower skin panels with riveted spanwise stiffeners. The outer panels are easily removable for transportation or replacement. Centre section is integral with the fuselage. Single slotted flaps are fitted and the ailerons are actuated by Jacottet hydraulic servo-control units with emergency manual reversion.

The tailplane is of electrically-actuated variable-incidence type; the elevators are fitted with irreversible hydraulic servo-control with artificial feel and two hydraulically actuated door-type air brakes are fitted side-by-side under the centre fuselage, just aft of the wing leading edge.

The undercarriage is built by Messier and is intended specifically for operation from unprepared fields, being fitted with low pressure tyres. The nosewheel retracts rearwards under the cockpit while the main wheels retract inwards into a bay in the centre fuselage. A braking parachute is stowed at the base of the rudder.

The basic mission of the G.91 is the attack of targets 170 miles away or less from its base. After take-off the G.91 climbs to 3,300 feet at which altitude it will approach its target at normal cruising speed for 85 per cent of the distance, the remaining 15 per cent being flown at maximum speed. The G.91 then has ten minutes loiter time over the target, climbs to 1,650 feet and flies the first 15 per cent of the distance between the target and its base at maximum speed, cruising the remainder of the way.

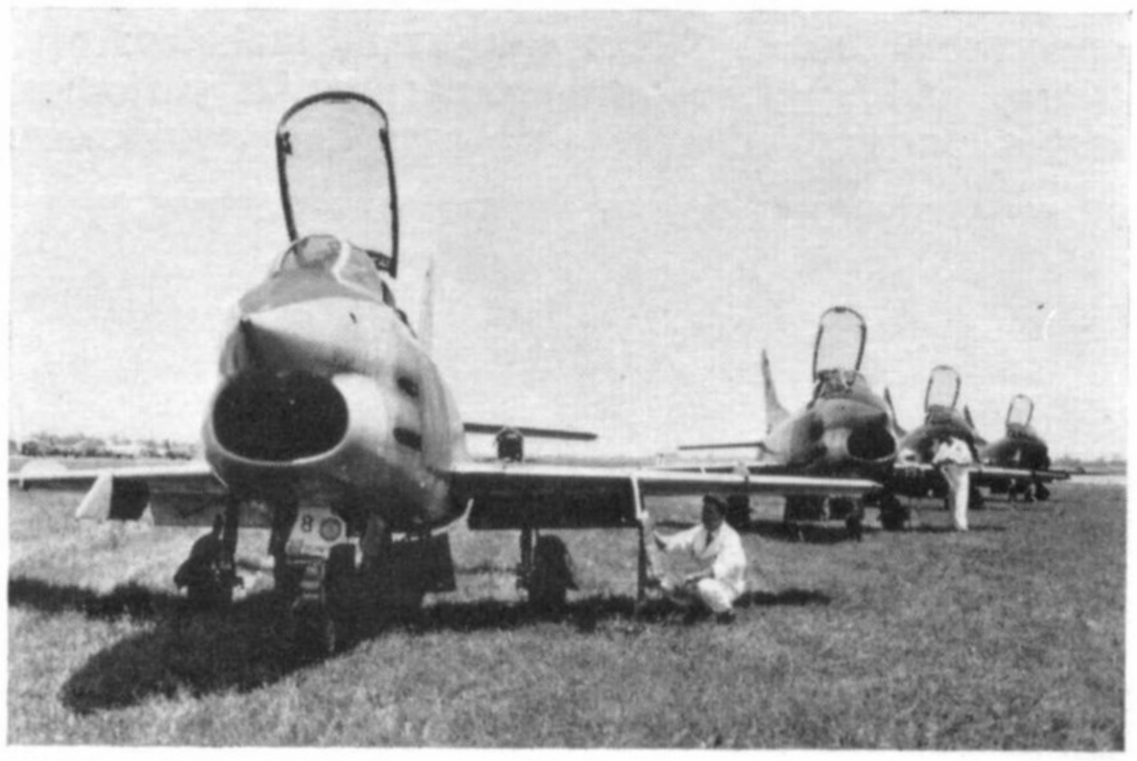
FIRST OPERATIONAL TRIALS

The first pre-production aircraft was flown on February 20th 1958 and in August of the same year, the *103° Gruppo Caccia Tattici Leggeri* (Light Tactical Fighter Group) was formed at Pratica di Mare for operational evaluation of the aircraft and the training of NATO pilots in the ground attack rôle. A very high training standard was reached in a short time by intensive work on NATO principles.

In 1959 this unit was transferred to Frosinone airport, whose infrastructure was really inadequate, without proper runways, and here the G.91's were given for the first time the opportunity to confirm their outstanding capability of operating from every sort of terrain. In the same year the G.91 unit was sent into the Venice area and during the summer a considerable number of exercises were carried out,

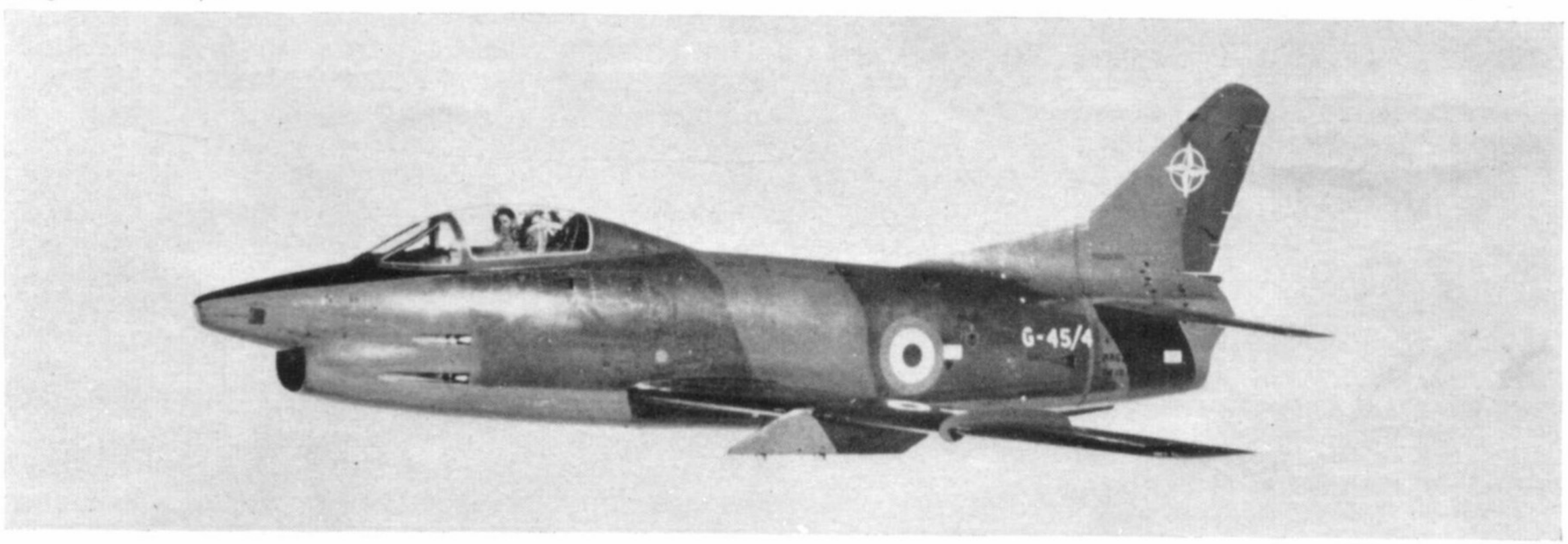
Above and Below: *R-3 and T-3 variants in service with the* Luftwaffe *training unit LeKG 44.* (Photos: Stephen Peltz)

The moment of take-off—with four JATO bottles and two underwing bombs.



G.91's of the 103° Gruppo, 5° Aerobrigata, Italian Air Force during tactical field exercises at Friuli, Udine, Italy in early July 1959.

G.91R-1 evaluated in England by Bristol Siddeley, manufacturers of the Orpheus powerplant. Note Italian markings and British designation G-45/4.



One of the 5° Aerobrigata G.91's landing on a grass strip during the NATO exercises at Friuli.

the most important of which was on Maniago and Campoformido bases in the presence of NATO officials. During this period the unit operated for a time from a simple road; and the adverse weather conditions did not prevent the unit from maintaining a high standard of efficiency. The German Air Force followed these exercises with much interest and on this occasion some German pilots flew the aircraft easily without any previous experience, taking off from a grass field with underwing stores.

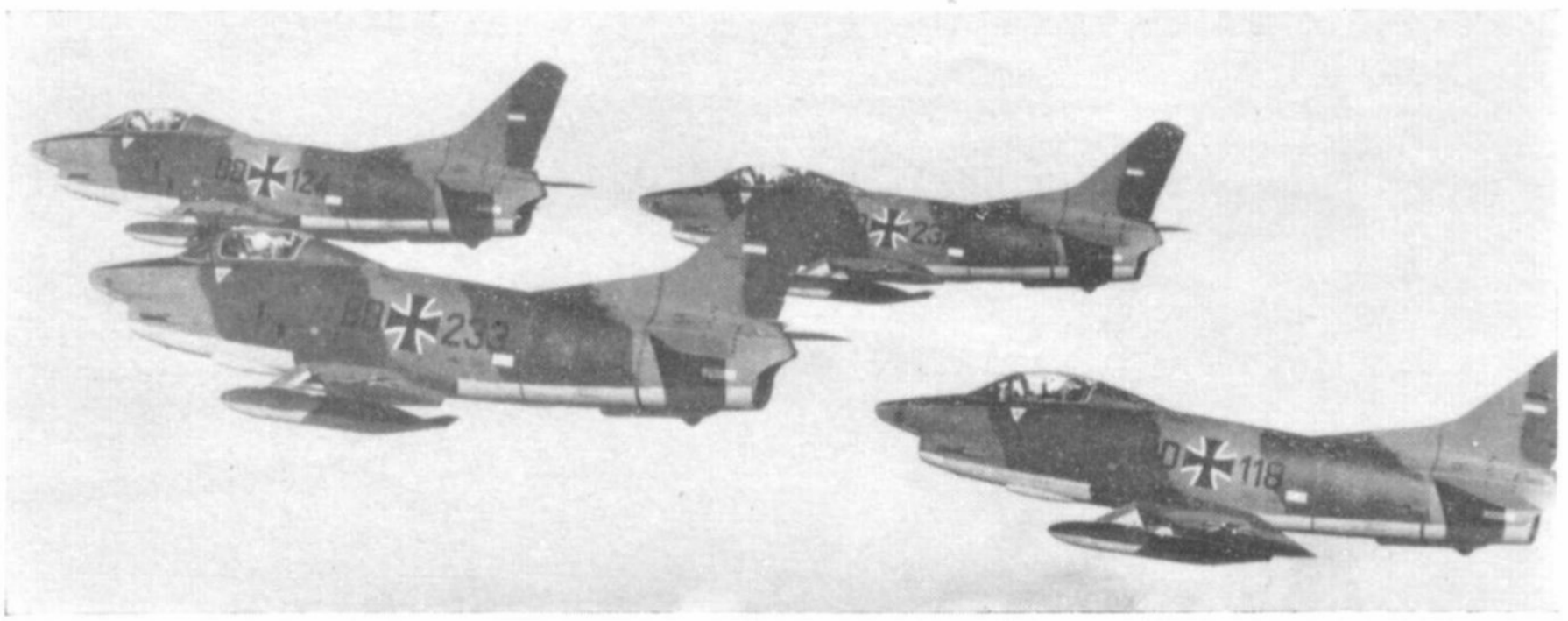
At the same time Fiat developed ground support equipment designed for quick and easy servicing, maintenance and repair of the aircraft on field bases. In accordance with the specific operational task of the light-weight fighter the equipment was designed to minimum size and weight criteria, in order to facilitate its transportation from one semi-prepared ground strip to another, during the movement of the operational bases. This equipment includes: protective and servicing equipment; special periodical inspection and maintenance operation equipment: special tool boxes, tool kits and oxygen system servicing trolleys, bomb and auxiliary tank dollies and the gun panel trolleys.

The G.91 with the solid nose, wings with two pylons, four 12·7 mm. guns and B.S. Orpheus 801 turbojet was the model produced into an experimental series. In all, with the prototypes, the aircraft for the *Aeronautica Militare* and the series for NATO, Fiat produced 30 machines of this type, all of them in service with the *Reparto Sperimentale di Volo* and the *103° Gruppo C.T.L.*

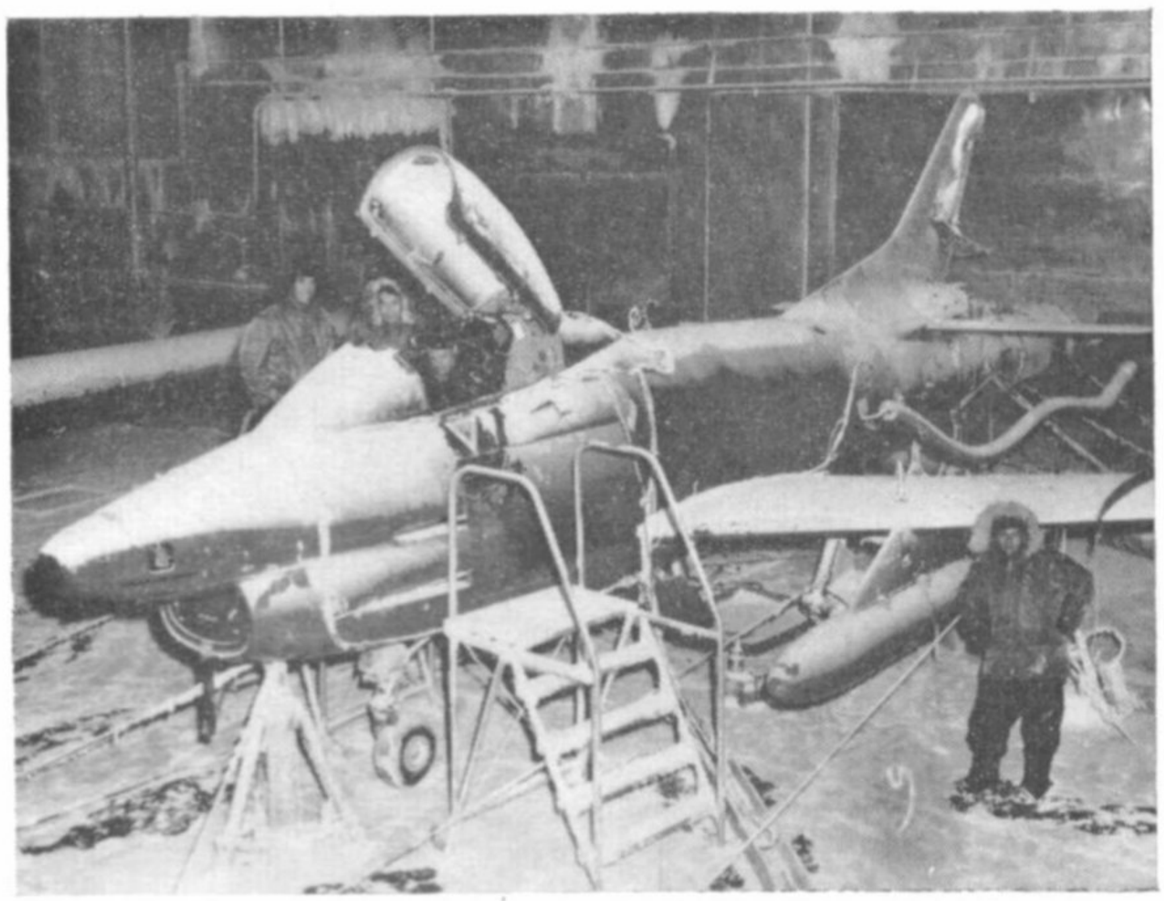
Following this model, which can be regarded as the tactical aircraft, the R photographic version was produced with a modifield nose housing three Vinten type cameras for forward and lateral oblique photography. With no modification to the armament the G.91R-1 entered series production, twenty five examples being ordered by the Italian Air Force; it has an armament of four 0·5 in. Colt Browning machine guns and two underwing stores pylons for two 250 lb. bombs, two napalm tanks or various combinations of 2·75, 3 in., or 5 in. HVAR rockets.

A further twenty-five aircraft essentially similar

One of the two G.91R-1's tested at Fort Rucker, Alabama, by the U.S. Army. Comm. Riccardo 'Bignamini, the test pilot who made the maiden flight in the G.91 prototype, was killed in a crash during this test programme. (Photo: R. Ward Collection)



A formation of Luftwaffe *G.91R-3's in flight. Nearly 350 examples of the Fiat fighter have been placed in* Luftwaffe *service, making Germany the only serious supporter of the NATO G.91 programme.*



A G.91 in "cold soak" in the climatic laboratory at Eglin Air Force Base, Florida.

to the previous model but designated G.91R-1A and having modified navigational equipment were supplied to the Italian Air Force and are still operative with two *Gruppi*, the *13°* and *14°* on Istrana (Treviso) air base (belonging to the *2° Stormo*), previously designated as *14°* and *103° Gruppi*.

THE LUFTWAFFE G.91

Germany proved to be the only serious supporter of the G.91 programme and *Luftwaffe* appreciation of the qualities of the aircraft is proved by the number of G.91's ordered at various times. The *Luftwaffe* was originally to have received fifty G.91R and twenty G.91T two-seaters from the Fiat production lines and a further 232 G.91R manufactured under licence in Germany by the Dornier, Messerschmitt and Heinkel companies (*Arbeitsgemeinschaft G.91.*) The licence production was subsequently increased to 294 aircraft, bringing the total to 344. The variant adopted by the German Air Force was the G.91R-3. This version is similar to the G.91R-1 apart from certain items of equipment (including a Bendix Doppler and a Computing Devices of Canada Position and Homing Indicator), the provision of four underwing pylons for weapons and additional drop tanks instead of the two pylons on the Italian model, and the installation of two 30 mm. DEFA cannon, which replaced the standard four 12·7 mm. Colt-Browning guns.

The first German-built G.91 flew for the first time at Dornier's Oberpfaffenhofen airfield on 20th July, 1961 (with Dornier test pilot Tuytjens at the controls). The *Dornier-Werke* was responsible for the manufacture of the centre fuselage, the final assembly and flight testing of the aircraft; Messerschmitt contributed the forward fuselage and tail assembly, while the *Ernst Heinkel Flugzeugbau* was responsible for the complete wing.

Each new G.91R-3 was flown for some five to ten hours to check the Doppler, the PHI and other systems before the aircraft was handed over to the *Luftwaffe*.

The *Luftwaffe* itself received its first two Italian-built G.91R-3's in September 1960. Training courses for the G.91 instructors were initiated by *Waffenschule 50* at Erding early in 1961. The first unit to be formed with the G.91R-3 was *Aufklärungsgeschwader 53* (53rd Reconnaissance Group), activated temporarily in October 1961 at Erding (near Munich) until completion of its permanent base at Leipheim, where it was officially commissioned in May 1962. Equipped with 36 G.91R-3's the group was originally commanded by Lt. Col. Wolfgang von Bergh. The second *Luftwaffe* unit to equip with the light fighter was *Aufklärungsgeschwader* (54th Reconnaissance Group).

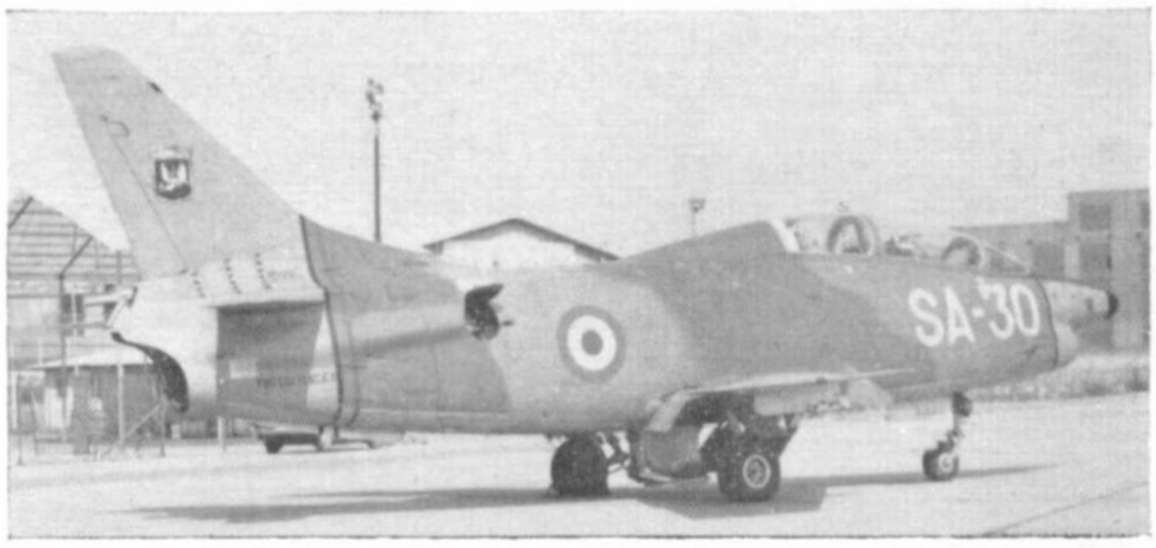
About the end of May 1962 the 53rd Group began the first operational training flights at Bad Toelz air base, the theme of the excercise being the employment of the new aircraft from semi-prepared terrain with day and night firing and photographic reconnaissance missions. It is worthy of note that from 7th to 11th September 1963 six Fiat G.91R-3's of the 53rd Group took part in a series of air exercises conducted at Rivolto (Udine) air base with the same object, to train German pilots to operate from grass fields. A total of fifty hours were flown by the six German aircraft during this stage. Italian pilots from the *103°* and *14° Gruppi* also participated as instructors.

Two G.91R-3's of the *Luftwaffe* also performed a two-month period under extremely hard climatic conditions, at Colomb-Bechar in the Sahara desert, launching Nord AS-20 air-to-ground missiles. In spite of the high temperature (115°-125°F. in the shade), the sand surface, the extremely low humidity factor (up to 10%) and the base altitude (2,600 ft.s.l.) the performance of the aircraft was excellent and their operational efficiency was always near to 100%.

The extensive utilization of the G.91 by the units of the Italian Air Force and *Luftwaffe* has evidenced

The G.91T prototype. The first flight took place on 31st May 1960; and the Italian Air Force have ordered sixty-six examples of the production T-1 variant. The Luftwaffe *has taken delivery of 44 T-3's.*

G.91 T-1's of (*above*) *the* Reparto Sperimentale di Volo *and* (*below*) *the Amendola flying school.* (Photos: Stephen Peltz)



Effective study of a Luftwaffe *R-3 variant on its forest dispersal point.* (Photo: Stephen Peltz)

An R-3 in flight; note that this machine is uncamouflaged. (Photo: Gerhard Joos)

at the same time the peculiar versatility of this aircraft which perfectly fulfills the operational requirements of tactical support and of armed and photographic reconnaissance.

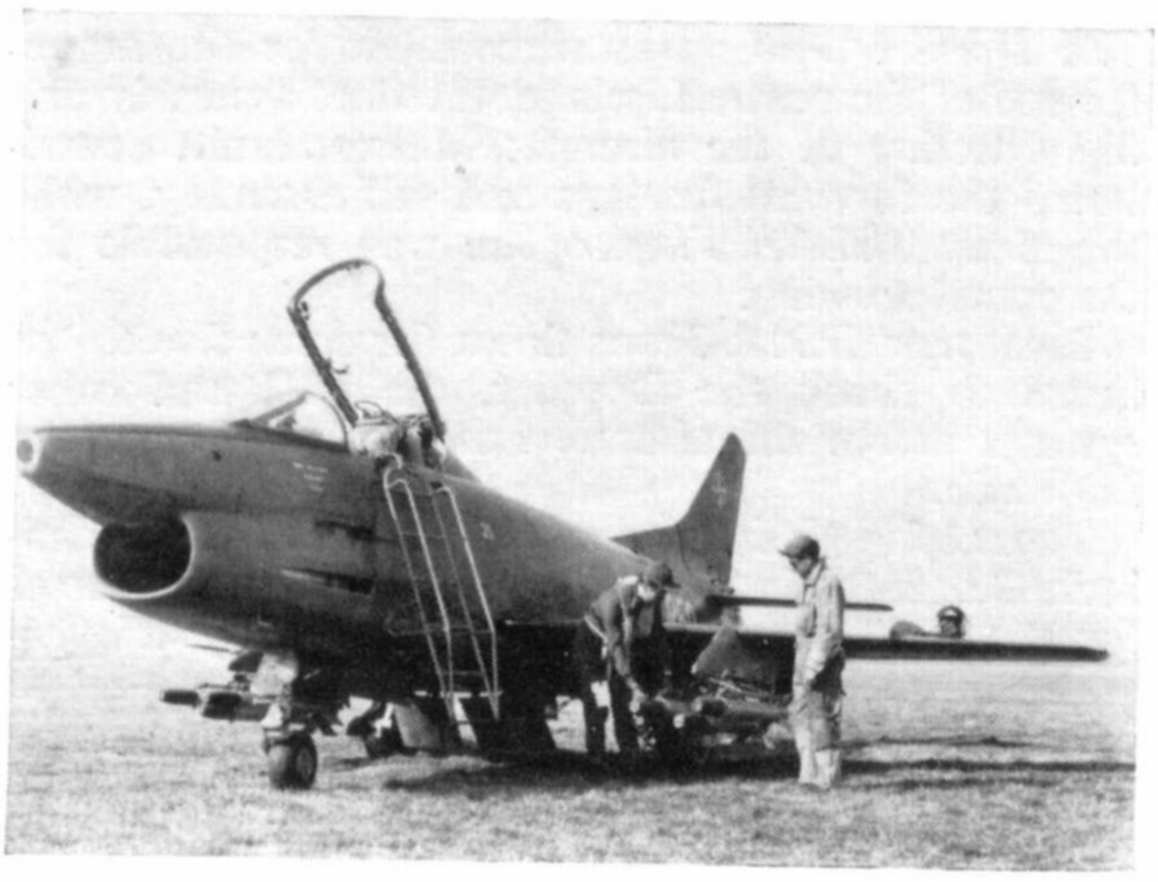
The ever-growing and indispensable co-operation between ground forces and air forces has for a long time posed the problem of close tactical support by air. Two essential features were found to guarantee an efficient tactical support: a way to arrest planes safely once they touched down and also a way to get them back into the air. The U.S. Marine Corps, after study and research to solve this important problem, developed a new technique called SATS (Short Airfield for Tactical Support), with an airstrip made of aluminium matting, very light and easy to handle. An arresting barrier laid across the runway is engaged by the aircraft on touch down. A special hook installed under the rear section of the fuselage is released by the pilot when the aircraft touches down; the arrestor barrier is then used as a catapult by simply reversing the arresting system.

On the request of the German Air Force the Fiat company completed a study for the application of the hooks to the G.91, for its employment with the catapult. A few G.91R-3's were fitted with this new equipment.

SPECIAL TESTS ON THE G.91

At the beginning of 1961 four G.91's were shipped to the United States for a programme of evaluation. Two G.91R-1's were placed at the disposal of tech-

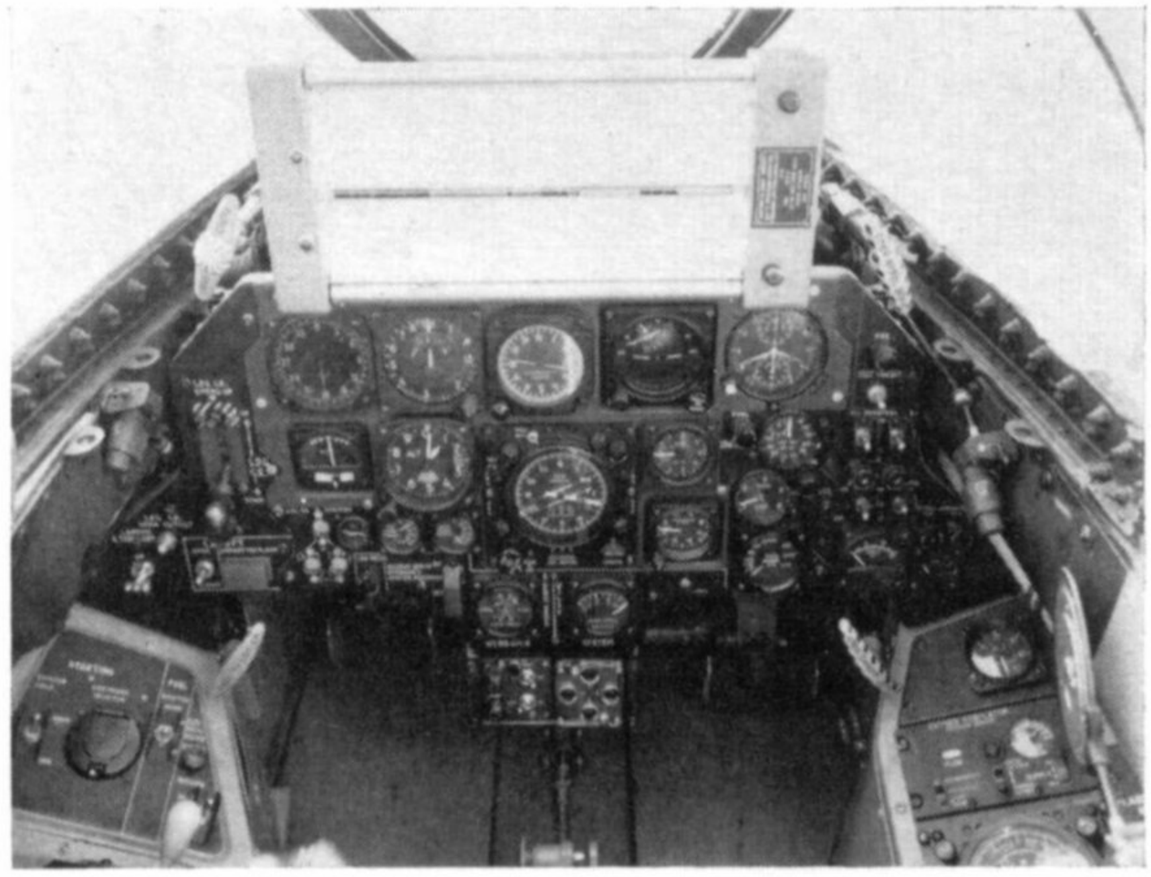
Left: *One of the most advantageous features of the G.91 as a tactical fighter is the ease with which it can be serviced in the field. The four ·5 calibre Colt-Browning machine guns of this 5th Air Brigade machine have been removed from the aircraft complete with their ammunition containers and feed mechanism; the whole armament bay system is fixed to the inside of the fuselage panel and can be lifted out in one piece in a matter of minutes.* Right: *One of the combinations of underwing stores; six HVAR five-inch rockets.*



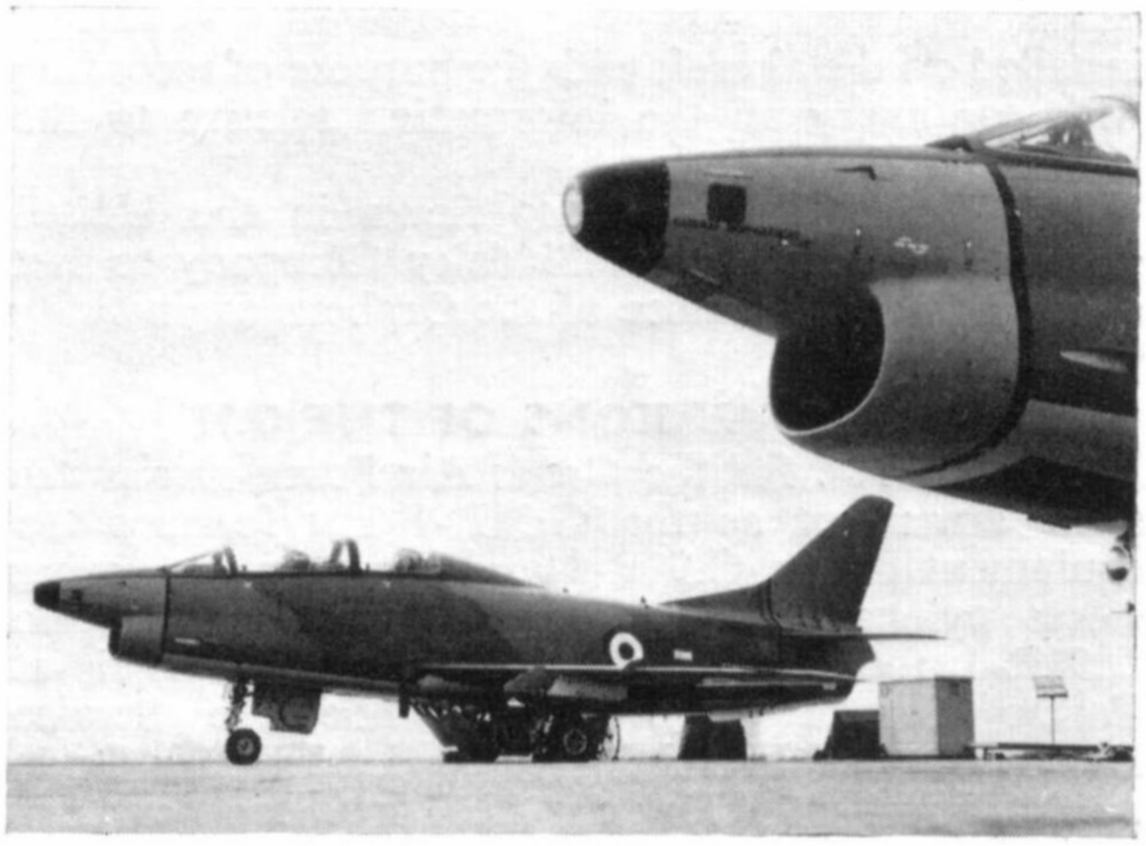
The Fiat plant's G.91 final assembly line. (Photo: Fiat).

nicians of the U.S. Army at Fort Rucker (Alabama) and two G.91R-3's were delivered to the U.S. Air Force at Kirtland base (New Mexico). The aircraft made the transfer flight to the U.S.A. in C-124 Globemasters—though this was not the first air transfer of the G.91, since previous cargoes were tested in Germany with the twin-engined Noratlas.

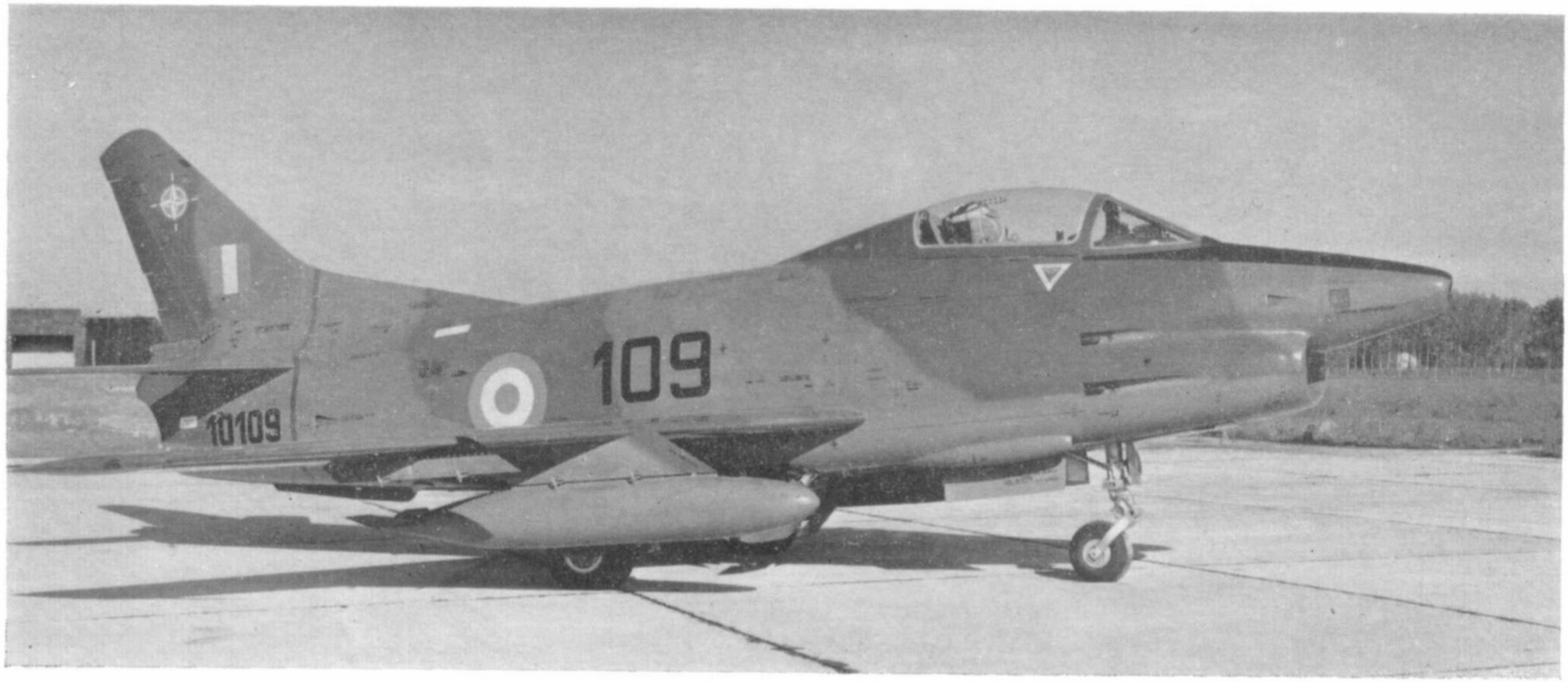
In the United States these aircraft were submitted to severe evaluation tests with a view to studying a special tactical support unit for the U.S. Army. During one of these tests a G.91R-1 crashed at Fort Rucker killing the test pilot, Commander R. Bignamini. Among the various experimental researches performed on the G.91 were the climatic tests of the aircraft equipment and of the engine, in the climatic cell of the Eglin A.F.B. laboratory in Florida. The objectives of the tests can be summarized as follows; to evaluate the functional starting, acceleration and operating performance of the engine up to —65°F.; to evaluate the conditioning and pressurization system at low temperatures (up to —65°F); to determine the effects of the extreme temperatures on the airframe; to evaluate the characteristics of the hydraulic, fuel, and electrical systems after soaks up to —65°F. A complex instrumentation was



The instrumentation of the G.91N, a pre-production machine modified to take various navigation systems. The Decca installation is shown here.



G.91T-1's of the Italian Air Force, and (below) a Luftwaffe *T-3 on a night test. Note dive-brake detail.* (Photos: Fiat)



The G-91 R-4 was to have been delivered to the Royal Hellenic Air Force in quantity; this machine was in fact the only one to be collected, in September 1961, the remaining batch being passed on to the Luftwaffe *instead. Note the gun armament of the R.1 combined with the underwing stores capacity of the R-3. NATO emblem on fin.* (Photo: Fiat)

installed on the aircraft with the purpose of recording with continuity all the information relative to the airframe and the engine.

Two G.91R-1's were also flown in the United Kingdom by the Bristol Siddeley Company to test directly the performance of the Orpheus engine.

OTHER VERSIONS OF THE G.91

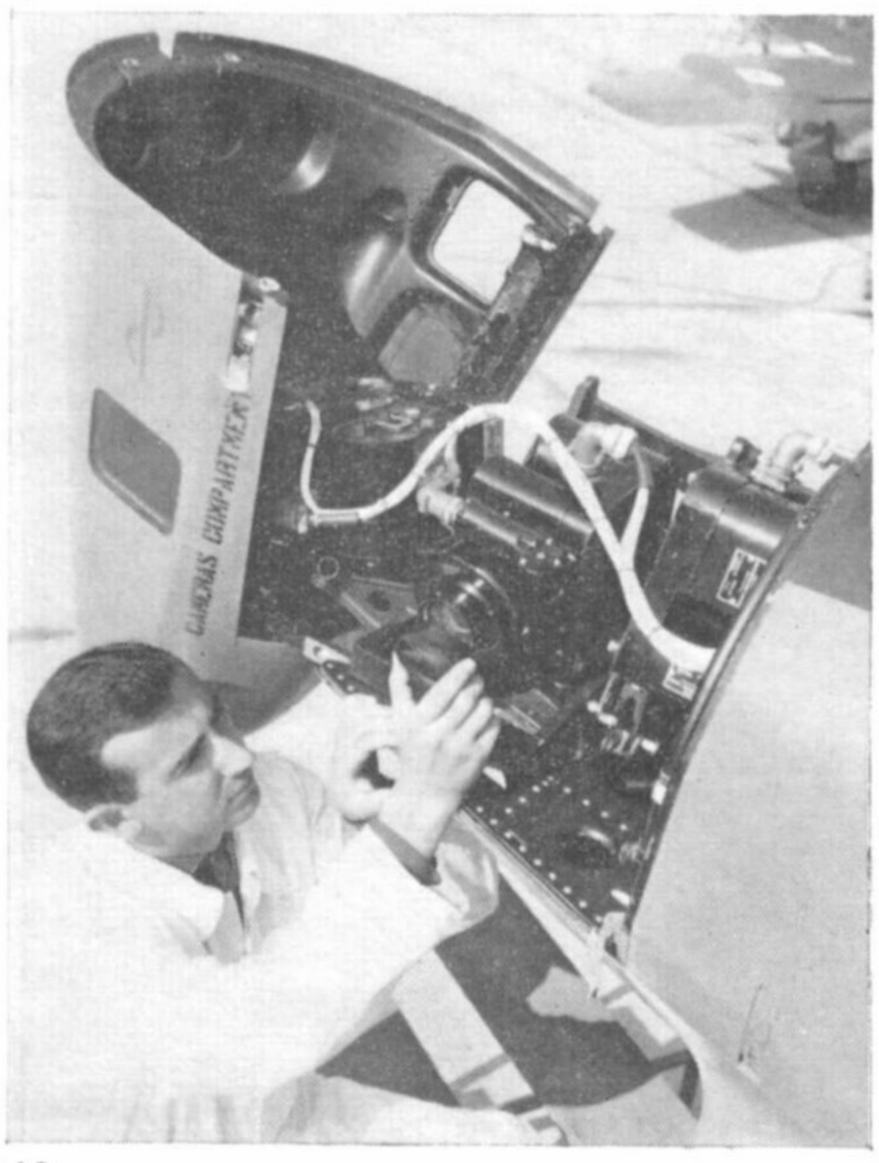
The G.91R-4 for the Greek Air Force carries the same armament as the G.91R-1 but features the equipment of the G.91R-3 and has four underwing stores pylons. The delivery of the first Hellenic G.91R-4 took place on 6th September, 1961 at Torino Caselle airport; meanwhile the Service Department of Fiat initiated at Larissa Air Base, upon the request of Hellenic Air Force Headquarters, an instruction course for pilots and specialists on the new aircraft. The programme was never completed.

Twenty-five examples each of this version were originally to have been supplied to the Greek and Turkish air forces but neither batch was in fact delivered and the aircraft passed into the *Luftwaffe* inventory.

Several other experimental versions of the basic aircraft have been tested, including the G.91A, a pre-production plane modified to have automatic leading-edge slats and integral wing tanks, an increase in wing span and gross area to 29 ft. 6 in. and 194 sq. ft. respectively, and an increased fuel capacity. The G.91N is another pre-production aircraft modified to take several navigation systems, including Rho-Theta and Decca.

The G.91R-5 was a proposed variant with increased range for Norway and the G.91R-6 an improved model for the Italian Air Force, twenty-five of which were ordered in 1964.

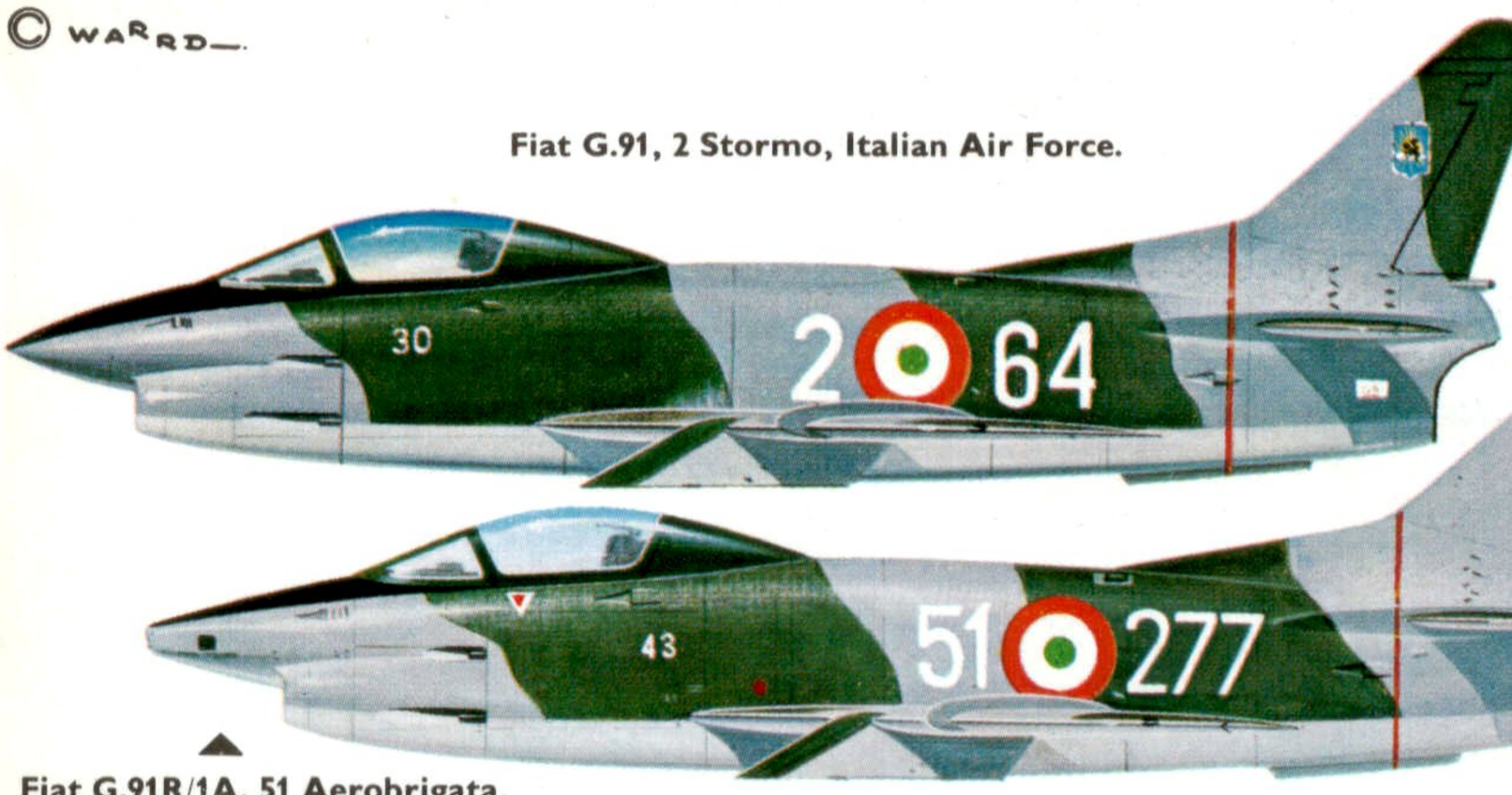
The G.91R-6 features a reinforced undercarriage with modified wheels, tubeless tyres, and enlarged air brakes, and was to be equipped with Doppler and Position and Homing Indicator not previously installed in Italian Air Force G.91's. Internal capacity is increased from 352 to 372 Imp. Gal., a pitch damper is introduced, the electrical and conditioning systems are improved, provision is made for JATO rockets and the underwing pylons are capable of lifting heavier loads and are supplemented by additional wing strong points.



The camera cell in the extreme nose of a G.91 R; the housing has been swung forward and down, showing the forward-facing camera at a 15° downward angle, the port-facing and the starboard-facing cameras mounted behind it.

Dramatic study of a G.91R-3 of the Luftwaffe's *53rd Reconnaissance Group immediately prior to take-off from the air base at Erding in Germany.*

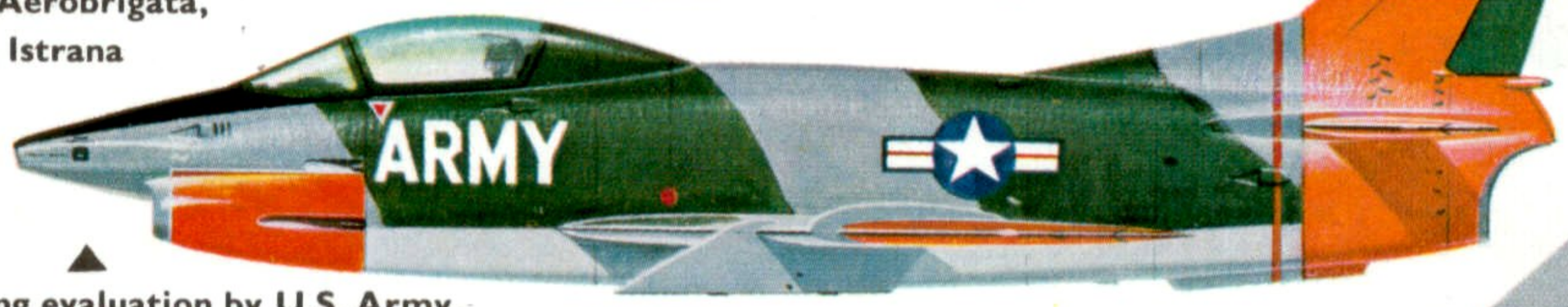
Fiat G.91, 2 Stormo, Italian Air Force.



Emblem of 2 Stormo.

Emblem of 51 Aerobrigata.

Fiat G.91R/1A, 51 Aerobrigata, Italian Air Force, Istrana (Treviso), Italy.



Fiat G.91R/1, during evaluation by U.S. Army, Eglin A.F.B., Florida.

Fiat G.91R/4, Royal Hellenic Air Force, (Greece).

NATO insignia, as carried by 10109.

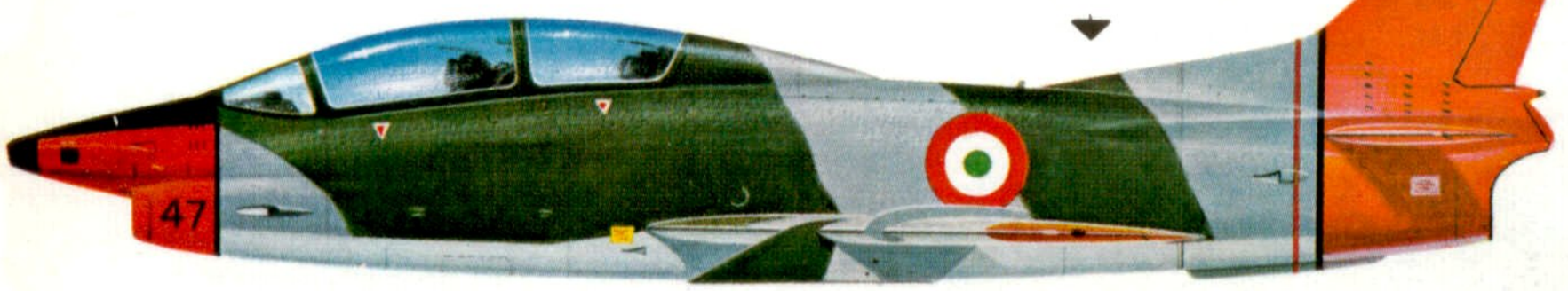
Fiat G.91R/3 of the Luftwaffe

Emblem of LeKG 44.

Emblem of Reparto Sperimentale di Volo.

Fiat G.91R/3 of LeKG 44, Luftwaffe operational training unit.

Fiat G.91T/1 of Reparto Sperimentale di Volo (Experimental Test Unit), Italian Air Force, Pratica di Mare, Italy.



Emblem of Amendola Advanced Flying School.

Fiat G.91T/1 of Scoula di Volo Avanzata (Advanced Flying School), Italian Air Force, Amendola, Italy.

Fiat G.91T/3 of Waffenschule 50, Luftwaffe operational training school, Erding, Germany.

Emblem of Waffenschule 50.

Formation of G.91R-1's of the Italian Air Force's 51° Stormo—*later designated* 51° Aerobrigata. *Note the famous "cat and mice" emblem on the fin of each machine; this device was carried by the unit's Macchi C.202* Folgore *fighters in the Second World War.* (Photo: Fiat)

THE TWO-SEAT G.91T

The Fiat company also developed a tandem two-seat trainer from the G.91R, the G.91T, which may also be used as a tactical fighter. The first of two prototypes flew on 31st May, 1960. The development programme of the G.91T has been conducted by Fiat test pilot, Comm. Sansevecino. Two versions have been studied and built, the G.91T-1 for the Italian Air Force (sixty-six examples of which have been ordered) and the G.91T-3 for the *Luftwaffe* (44 aircraft delivered to that service).

The G.91T-1 and T-3 differ in equipment, the latter being some 200 lb. heavier, but both carry a pair of 0·5 in. Colt-Browning machine guns and can lift two 500 lb. bombs, sixty-two 2 in. rockets, thirty-eight 2·75 in. rockets or two Nord AS-20 or AS-30 missiles on their two underwing pylons. According to equipment empty weight ranges from 7,240 to 6,405 lb. and loaded weight from 11,800 to 11,995 lb.

Dimensions of the G.91T are the same as the G.91R except for the fuselage which has been lengthened to accommodate the second seat, which is in a higher position than the forward one so that the instructor may easily follow the procedure of the pupil in the front seat. The ejection of the two seats is independent and the aft seat is provided with a separation glass, which operates as a conventional windscreen in the case of the ejection of the front seat.

The first batch of G.91T-1's were delivered at the end of 1964 to the Amendola flying school for advanced jet training (*Scuola Volo Basico Avanzato Aviogetti*): the establishment is now operational for the training of pilots who have completed the course on the Macchi MB.326 jet trainer.

An advanced training version with NASARR in the nose, the gun bays occupied by electronic equipment, and similarly positioned instruments to the F-104G was designated G.91T-4 but was never built. Further projected derivatives employing the lengthened fuselage of the G.91T included the G.91/BS.1 single-seat and the BS.2 two-seat battlefield surveillance aircraft and the twin jet G.91Y single-seat long-range strike and reconnaissance aircraft, two prototypes of which are already in production for the Italian Air Force. The Y model will be fitted with two side-by-side General Electric J85 turbojets in place of the single Orpheus.

THE G.91 P.A.N.

Sixteen of the twenty-seven pre-production G.91 strike fighters which served with the *103° Gruppo* until replaced by the G.91R have been converted to the G.91 P.A.N. configuration during 1964.

The G.91 P.A.N. is a special version for the *Pattuglia Aerobatica Nazionale* (National Aerobatic Team), which for a number of years used to fly foreign aircraft employed by the Italian Air Force units (such as the F-84 or F-86). In the new G.91 the armament has been removed and replaced by ballast, pitch dampers (the G.91 having only yaw dampers) and special smoke tanks are mounted beneath the wings. The Italian aerobatic team, based at Rivolto (Udine), is a special unit, not dependant on any particular *Aerobrigata* of the Italian Air Force, being one independent group with its own personnel, pilots and technicians. The team is flying about 1,500 hours per year participating in any air exhibition in Italy or abroad. More than 60% of the exhibitions are performed in the nine jet formation programme. The average efficiency of the aircraft during a 12 months period has been above 90 per cent.

G.91R SPECIFICATION

Engine: One Bristol Siddeley Orpheus 803/02 turbojet rated at 5,000 lb. s.t.
Dimensions: Wing span 28·08 ft.; length 33·76 ft.; height 13·10 ft.; gross wing area 176·7 sq. ft.; aspect ratio 4·46.
Weights: Empty 7,204-7,405 lb.; normal loaded 11,800 lb.; maximum overloaded 12,500 lb.; wing loading at take-off 66.8 lb./sq. ft.; thrust loading at take-off 2.35 lb./lb.
Performance: Max. speed 668 m.p.h. at sea level (Mach 0·88); 675 m.p.h. at 5,000 ft. (Mach 0·9) 637 m.p.h. at 20,000 ft. (Mach 0·91); initial climb rate 6,000 ft/min.; time to 13,120 ft., 4 min. 30 sec., to 24,420 ft., 6 min. 40 sec.; service ceiling 43,000 ft.; combat radius (including ten minutes loiter) 196 miles; range (ferry), 1,150 miles (353 Imp. gal. fuel and two 114 Imp. gal. drop tanks) at 253 m.p.h. at 35,000 ft.

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