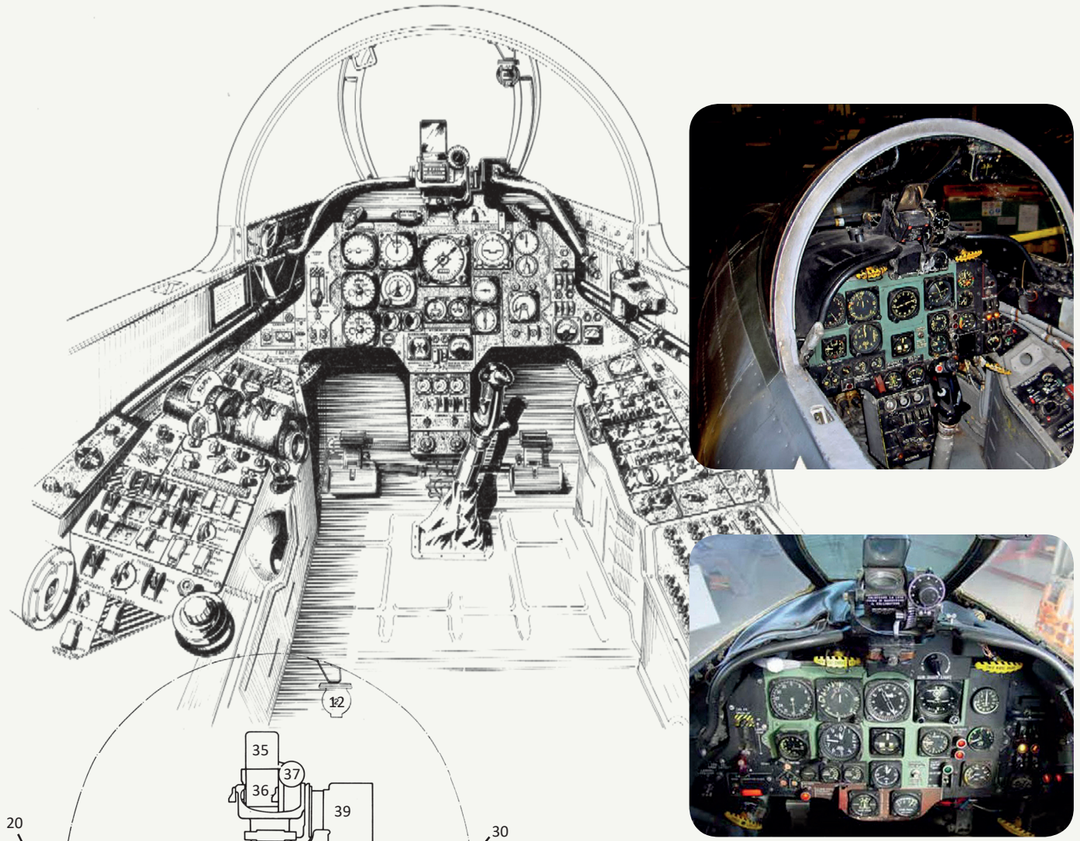
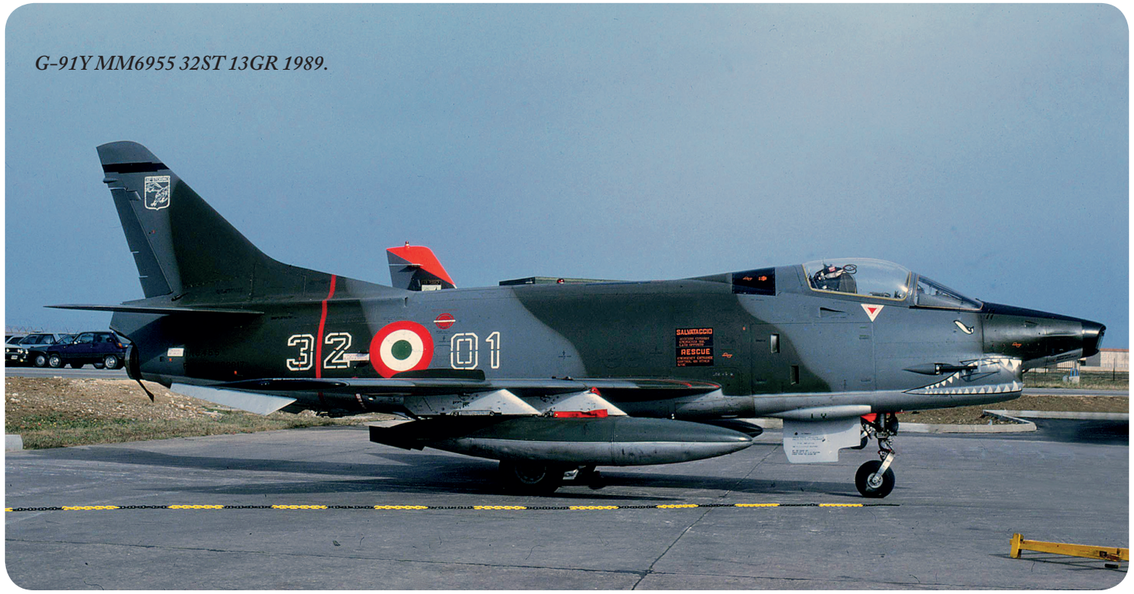
Before entering service, the G.91Y's carried RS registries, indicating they were test flown by Reparto Sperimentale di Volo, the unit responsible for testing all material.

Take-off! MM6454/8-04 retracts its undercarriage
(collection Johan Visschedijk).



1 Radio compass indicator
2 Mach and airspeed indicator
3 Directional indicator
4 Artificial Horizon
5 Wind unit
6 Altimeter
7 Vector adder
8 Turn and bank indicator
9 Clock
10 Rate and climb indicator
11 Accelerometer
12 Magnetic compass
13 Percentage R.P.M. indicator
14 Exhaust gas temperature inducator
15 Fuel low pressure warning light
16 Oil low pressure warning light
17 Fuel quantity indicator
18 Collect tank fuel quantity warning light
19 Fuel quantity selector switch
20 Landing gear position indicator
21 Stabilizer position indicator
22 Wing flap indicator
23 Speed brakes position indicator
24 Aileron servo pressure dual gage
25 Utility system pressure gage
26 Aileron servo emergancy system control switch
27 Aileron servo normal system low pressure warning light
28 Elevator servo control switch
29 Elevator servo control disengaged warning light
30 Fire warning light
31 Voltmeter
32 Loadmeter
33 Camera control panel
34 SIF control panel
35 Gun sight
36 Gun sight unlock control for elevation adjustment
37 Gun sight elevation adjustment knob
38 Gun sight recticle illumination control rheostat
39 Gun camera
40 Canopy lock handle



G-91Y MM6955 32ST 13GR 1989.

In April 1970 the first G.91Ys became operational within the AM when the 101° Gruppo Caccia-Bombardieri at Cervia (Rimini) received their first examples.

In April 1974 a second operational unit was transferred to the G.91Y when the 13° Gruppo at Brindisi replaced their G.91Rs with her high-powered successor. This unit was responsible for maritime anti-shipping operations. The time gap of four years between both units receiving the G.91Y was caused by difficulties were experienced with the air feed to the engines, which was through a Y-shaped duct. Only production with very tight tolerances could prevent the occurrence of compressor stall.

During 1974, the Portuguese government had concrete plans to acquire 18 G91Ys for use in the colonies, delivery would be until the end of 1975. However, the sale did not materialize due to the government change after the Carnation Revolution and the subsequent Portuguese withdrawn from the African colonies.

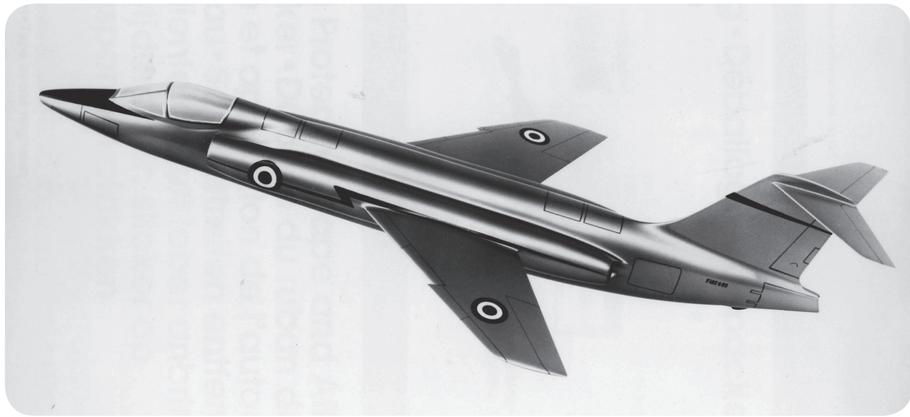
Altogether the G.91Y proved to be a far more complex aircraft than the G.91R/T, and with its 1950s aerodynamic design and performance, no export orders followed.

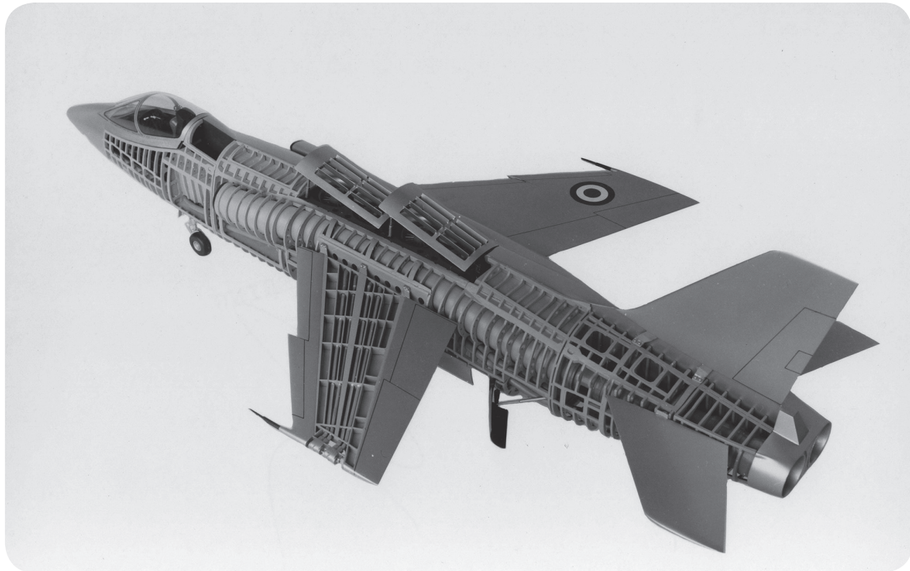
G.91Y production break-down	
Contractor	**Aircraft part**
Aerfer *	centre section, tail parts and wing pylons
SACA	fuselage rear part and rudder
Fiat **	fuselage front, wings and horizontal tail plane, final assembly and testing
SIAI-Marchetti	smaller parts
Alfa Romeo	main-contractor for the licence production of the General Electric turbojets
* also active as sub-contractor for the G.91R and G.91T production	
** November 1969 merged with Aerfer forming Aeritalia	

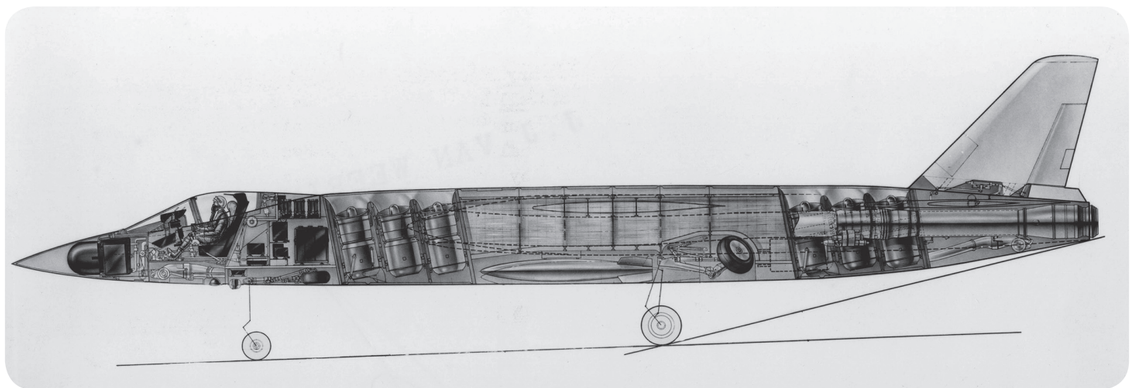
The last AM G.91Y flight was made on November 26, 1994, the type being replaced by the AMX.

FIAT G.95

As announced by NATO in April 1958, it was the intention that the Fiat G.91 would be finally succeeded by a S/VTOL (Short/Vertical Take-Off and Landing) aircraft, for which NATO specification NBRM-3 was released in 1961. Fiat submitted the G.95 design, for which in 1960 a patent was obtained for a STOL propulsion system based on two auxiliary turbojets with high thrust/weight ratio, designed to provide take-off thrust and reverse thrust for landing. Several engine configurations were proposed; finally the G.95/4 was chosen for further development. In 1964 it was announced that the project would be a joint Italian/West-German development, in which design experience from the G.95/4 and the German VAK-191 would be incorporated. The project was however very costly, and dominated by the German contributions. In 1967 Fiat decided to concentrate on the G.91Y and G.222 transporter aircraft designs, and left the project. Although from 1970 the VAK-191 would make some successful testflights, it became clear that concepts with separate engines for vertical thrust and forward thrust were ineffective, and the project was cancelled.







Only models and artist impressions remain of the stillborn G.95 project. Interestingly, the Soviet Yak 38 Forger, followed the same design layout.

The aircraft of the 32o Stormo at Brindisi carried an angry shark mouth on their nose.
(Cor van Gent)

8 Stormo was reconstituted on 14 September 1967. The unit received their first G.91Y's during March 1971. During July 1988 the unit had notched up 50.000 hours on the type. 8-55 (MM6492) received a modest paint job commemorating the achievement.

In 1991 8-62, of 8 Stormo, temporarily wore a special paint scheme commemorating capitano Gino Alberto Priolo, who died in combat in 1943. Priolo was 8 Stormo's namesake.

Three 32o Stormo machines have ventured to the north of Italy. *(collection Johan Visschedijk).*

Middle: *A group of 8 Stormo machines on the flight line.*

Below: *A "Yankee" at the end of its service. All individual markings have already been painted over and a special nose art has been applied.*

G.91 VERSIONS AND PRODUCTION

While in Portuguese service, a large number of aircraft retained the Luftwaffe color scheme.

Prototypes
In total 4 built, including the replacing aircraft after loss of the first prototype.

G.91
Pre-series (NC.04/040). Used for trails by NATO and Italian air force; 21 aircraft built.

G.91A
Version with improved STOL characteristics and range. Differed from the G.91 by a modified wing, was equipped with automatic leading-edge slats and integral fuel tanks in the wings (which had therefore increased thickness). Range increased 10%, mass increase 400 kg. One constructed and tested.

G.91N
Pre-series aircraft with Decca and Rho-Theta navigation equipment installed; one built.

G.91PAN
(PAN: Pattuglia Acrobatica Nazionale) Since 1964 about 20 examples of the pre-series (and later R/1 version) were modified for the Italian air force aerobatic team Frecce Tricolori. Modifications concerned instalment of smoke systems, fuel tanks for aerobatics (which could be replaced by standard ones for transfer flights) and counterweights.

Technical data

	G.91R/1	G.91R/3	G.91R/4	G.91T/1-T/3	G.91Y
Powerplant	Orpheus 803/02			Orpheus 804	2 x General Electric J85-GE-13A
static thrust [kN] [1]	22			19.3	2 x 12.5 (2 x 18.5 with afterburner
max velocity sea level [km/h]	1068			1010	1130
Max velocity at 2000 m [km/h]	1090			1080	1140
Maximum altitude [m]	13200			12400	12500
Range [km]	1800	2000		2100	3500
Empty mass [kg]	3100	3200		3300	3900
Maximum take-off mass [kg]	5500	5600		6050	8700
Fixed armament (guns)	4 x 12.7 mm	2 x 30 mm	4 x 12.7 mm	2 x 12.7 mm	2 x 30 mm
Maximum external load [kg]	907				1814
Wingspan [m]	8.56			8.60	9.01
Wingarea [m²]	16.42				18.13
Length [m]	10.29			11.7	11.67

1. 1 kN = 101,97 kgf

G.91R
Fighter bomber reconnaissance version, modified nose with respect to G.91 with three Vinten reconnaissance cameras (two lateral, one forward sight) for daytime, low altitude and high speed photography. Four prototypes built.

G.91R/1
Version of R for Italian air force; 22 built (NC.032/053).

G.91R/1A
Similar to R1 but with instrumentation similar to R/3, 25 built (NC.154/178).

G.91R/1B
Similar to R/1A but with structural reinforcements, more powerful wheel brakes and some adaptions to the instrumentation; 50 built (NC.179/228).

G.91R/3
Similar to R/1 but with more sophisticated instrumentation (for example Bendix Doppler radar), two 30 mm DEFA guns and four wing pylons (500 kg inside, 225 kg outside); 344 built (50 by Fiat, NC.054/89, 91/97 and 102/108, 295 by Arbeitsgemeinschaft Süd (WN.301/595)).

G.91R/4
Similar to R/3, but armament of R/1 (four 12.7 mm guns); 50 built (NC.090-098/101, 109/153), originally destined for Greece and Turkey.

G.91T
Two seat version. Two prototypes built.

G.91T/1
Two seat version, based on R/1, but with armament reduced to two Colt-Browning 12.7 mm guns. The second series shows a slightly modified rear canopy (bulb); 99 built (prototype NC.01, first series NC.045 to NC.119, second series NC.120 to NC143).

G.91T/3
G.91T/1 with instrumentation as in R/3. As for T/1, the second series of 22 aircraft had a modified rear canopy with bulb. In total 66 built (22 by Fiat, WN.0001/004 and 44 by Arbeitsgemeinschaft Süd, WN.0601/0622).

G.91Y
Further developed aircraft, two General Electric J85-GE-13A engines, fuselage based on G.91T, increased take-off weight, weapon load and range, first flight December 1966. Total production 67 aircraft, including 2 prototypes.

G.91YS
G.91Y for Swiss air force, with increased weapon load (including two Sidewinder air-to-air missiles) and a take-off mass of 9000 kg (resulting in a 20% increase of the take-off run, but had no effect on the manoeuvrability) for possible replacement of the de Havilland Venom. One G.91Y was modified as YS prototype. Only in 1976, Switzerland selected the Northrop F-5 in favour of the G.91YS and the A-7 Corsair.

STUDIES (NOT BUILT)

G.91BS/1
(BS: Battle Surveillance). Based on G.91T.

G.91BS/2
Two-seater version of G.91BS/1.

G.91R/2
Version for France.

G.91R/5
Version for Norway, G.91R/1 with range increased to 1500 km.

G.91R/6
G.91R/1 with improved landing gear, four wing pylons and Doppler navigation equipment. Can partly be regarded as predecessor of the G.91R/1B.

G.91S
Derived from G.91A but with wing sweep of 38 degrees and maximum wing thickness 8% of chord (instead of respectively 37 degrees and 10% for G.91A); equipped with Orpheus 12 engine. S for supersonic.

A G.91Y carrying low-viz roundel and registration. The towned down markings were introduced in the early 90's.