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MATRA R422 & SURFACE-TO-AIR MISSILES OF THE FIFTIES

Abstract

Created in 1937 from the ashes of the Bernard aircraft company, CAPRA became in March 1941 SGMAT-MATRA (Société Générale Mécanique Aviation Traction). Having started working in 1945 on fighter rocket launching pods under Service Technique Aéronautique contracts, the company made several proposals when the latter's Section Engins Spéciaux issued in July 1946 a program covering all missile types. Under the guidance of its technical director, Roger Robert, ex-Bernard, it was to become only in a dozen years famous in the missile field. MATRA won its first STAé/ES contract in 1948, for an experimental missile M04, "M0" meaning maquette (mock-up), and "4" surface-to-air missile. Air launches culminated in the Spring of 1951 into the first controlled supersonic flight by a French vehicle, Mach 1.4, also the first horizontal supersonic flight in Europe. Ground launches began in 1952 with two liquid-propelled R04 (Robert experimental), followed by the experimental ramjet R041 R043, and liquid rocket R042 versions. The creation of a modern solid propellant industry in France allowed its SAM programs to switch to this more practical propulsion system. MATRA thus devised the final R422 with two tandem solid stages. Developed in close cooperation with SEPR, this family saw the first use in France of boosters with grains of 400 mm (SEPR 50x series, with Mathurin grain) and 560 mm diameter (SEPR 73x Vésuve). 164 examples of this Mach 2.5 version were launched between 1954 and 1958, in order to prepare the operational weapon system. Alas, the disastrous decision to stop French SAM programs in August 1958 in favor of the American Hawk, followed in November by the decision to create a nuclear deterrent force, led to the demise of the R422 and its competitors, with the exception of Marine's Masurca. At the same time, MATRA was successfully taking over the air-to-air field from Nord Aviation, in which it progressively became a world leader. Being a co-founder of SEREB in September 1959, it definitely entered in 1961 the space field being organised in France with the decision taken to establish CNES. The SEPR boosters also were used by the other French missiles from DEFA, Latécoère, ONERA, Ruelle and SNCASE, while versions of the SEPR 70x series and its Jéricho grain, used for the R422 sustainer, later were used for the propulsion of the experimental Ardaltex and the Daniel, Bélair, Centaure and Dragon sounding rockets.