

# MAX HOLSTE AND AVIONS MAX HOLSTE - A BRIEF HISTORY

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The current QAM collection contains two aircraft with connections to Avions Max Holste, the MH.1521/M Broussard VH-HFA built by Max Holste and the Nord 262A/Mohawk 298 VH-HIX, the ultimate version of the MH.260, the final development of which was taken over by Nord with further improvements in the USA. These were Avions Max Holste's only highly successful products. This company, and Max Holtse himself, have an interesting, if not a very successful, history.

## MAX HOLSTE

It has proved difficult to clearly and with certainty set out Max Holste's early history and achievements. There is confusion in the literature about his early activities and the formation of Avions Max Holste. According to Anon (2016) Avions Max Holtse was founded in Reims, France in 1933. Holste, listed as an aeronautical engineer, had been born in Nice in 1913 so he would have only been 20 when he founded the company. What type of activities it undertook have not been located but there is a five year gap between his first two MH series aircraft, MH.10 and MH.20.

Anon (2018a) gives a different outline of his early years saying he built his first aircraft, the SHB1, in 1931 (*age 18?*) indicating the MH,10 was not his first. The SHB1 was a light two-seater. It also says he didn't start his own aircraft company in Reims until 1946.

Anon (2019a), citing a book *Les avions Max Holste* by Delarue and articles by Claveau in *Trait d'Union No 215 and more in No 218*, says that there were in fact two aircraft before the MH.20. Neither flew, both were wooden, one a two seat trainer, the other a single seat racer, the latter with only a 95hp engine.

Anon (2019e), again quoting Delarue, says Holste had four attempts (*in France*) to build aircraft. The first c1934, unflown, built at Bessiere in Paris. This ignores the SHB1. The second the MH.20 and others built in Clichy. The third started in 1945 after the Clichy factory had burnt down. The final attempt was in 1961 after he had separated from his own company in Reims (See MH.500 later)

In January 1939 Holste began work in Paris at l'Ecole de Reeducation Professionnelle, a training school for unemployed to work in aviation. The MH-20 was definitely designed during this period but it is unclear in Anon (2018b) whether Holste was a student or an instructor at l'Ecole. (See MH.20 later, more likely a student).

After minor success with MH.52 he had major results with its derivative, the Broussard, an army co-operation type in high demand during the then current war with Algerian separatists. Avions Max Holste was never a large firm as construction of the Broussard was contracted out with SIPA building the fuselages and SECA the nose section. The wings and tail units and final assembly were completed by the parent company.(See also MH-100 later).

Delays in developing the Broussard's successor, the MH.260, which eventually gave rise to the Nord 262, led to financial difficulties. In 1960, these difficulties saw his associate Pierre Clostermann, the French WWII fighter ace, take over Avions Max Holste with a financial

input (49%) from the American company Cessna. It was initially renamed Societe Nouvelle Max Holste. When it ceased to have any further input into the MH.260, it became Reims Aviation. (Anon no date b). Reims then proceeded to licence build Cessnas for the European market.

In 1964 Holste went to Brazil where he became the senior designer for the Embraer Bandeirante. Four years later, after the Bandeirante had flown, he was unhappy and moved to one of the neighbouring countries (not identified) and again formed his own company. This also failed and in 1995 he returned to France, with a South American nurse. He died at Toulon in 1998 in anonymity, aged 85, divorced, and not on speaking terms with his children. According to the no doubt biased opinion of his ex-wife he had "a difficult character". (Anon no date b)

### **PRE-1950 DESIGNS**

In Anon (2019a) there is considerable confusion about his first aircraft, said here to be the MH.10 built in 1934. It also says it could have been either a two seat, low wing wooden, monoplane trainer or a single seater intended for racing. Anon (2019a, 2019b, 2019e & 2019f) are open discussion web sites and need to be treated with some suspicion. 2019a, 2019e & 2019f do for some entries quote a French book (Delarue) which, if a translation had been available may have cleared some of the confusion.

However, as stated earlier there are two distinct early histories for Holste's entry into aircraft construction. It is highly likely the SHB1 and MH.10 are not the same aircraft, The SHB1 was a low wing, wooden, two seater. Thus it is likely the low powered racer was the MH.10. Neither of these flew. Because of other confusions within Anon (2019a) it is highly likely it pre dates formation of Avions Max Holtse by some 15years. It is also probable Holste was enrolled as a student in l'Ecole de Reeducation which would suggest that for at least some of the time between 1934 and 1939 he was without a job.

There is no doubt about the MH.20, the first machine to fly. Designed and built while he was at l'Ecole. It was a single seat, all metal aircraft for a 1939 racing event. (Coupe Deutsch de la Meurthe). Due to delays in getting an engine it did not fly until July 1941. The engine, not the originally intended Bearn, was a Regnier inverted V12 of 310kW (420hp) . The MH-20 had a low wing, an enclosed cockpit behind the wing and a retractable main undercarriage. Its maximum speed was reported to be 408km/h (308mph). Only one was built. (Anon 2018b).

The next aircraft for which details were found, were the metal built MH.52 and 53, variants of the basic MH.50 design study. There were three variants of the 52, the M (2 built, initially a Renault 4P engine, later a Potez 4D) first flew in August 1945. The G (6 built with DH Gipsy Major engine) and the R (4 with a Renault 4P engine). They were two seat touring or training machines with a fixed tricycle undercarriage. (Anon. no date a).

The MH.53 Cadet was simply a MH.52G with a tail wheel undercarriage (1 built in 1947) bringing the total built to 13 for the 4 types of the basic MH.50. They were used by aero clubs and private pilots. There were still two MH.52s in existence in the 2000s, one under restoration and one in storage, (Anon no date a).

## THE BROUSSARD

The MH.1521 was developed to meet French Army requirements for an army co-operation aircraft. The first attempt, the MH.152, was essentially a high wing version of the MH.52 with a 220hp (160kW) Salmson engine. Carrying a pilot and four passengers, it flew June 1951. It proved too small and underpowered for the army's requirement so was redesigned. The result was the slightly larger (five passengers) MH.1521 with a Pratt and Whitney R-985 450hp (340kW) radial Wasp Junior engine. This flew in November 1952.

Given the name Broussard (literally man of the bush or bushranger) the first production version flew in June 1954.. Production ended in 1961 with a total of 396 having been built in the following categories.

<b>MH.152</b>	1 prototype. Small & under powered. 1 built.
<b>MH.1521</b>	5 prototypes. Plus 2 preproduction and 19 military variants.
<b>MH.1521A</b>	Modified for agricultural use.
<b>MH.1521C</b>	Commercial 52 built.
<b>MH.1521M</b>	Military variant 318 built.
<b>MH.1522</b>	Improved leading edge slats & trailing edge flaps. 1 p/t flew 2/58.
<b>MH.153</b>	Prototype MH.152 with turboprop engine. Flew June 1957.

Developed for use away from major servicing facilities it was widely used in Algeria by the French Army. They retired it in 1983 but many were passed to the armed services of former French colonies such as Madagascar. A number also went to Portugal while the Argentine obtained 10 new machines for, amongst other uses, aerial spraying. A few also went to Brazil (Cameron 2014a). The QAM exhibit VH-HFA (c/n 295) is the only Broussard to have been registered (1997) in Australia although the second prototype did visit on a sales tour in March 1956.

The MH.153 was simply the prototype 152 purchased by SFERMA for use as a flying test bed in the development of their tiny Turbomeca Astazou turbojet. It could cruise at 170mph (270km)

### MH.250 SUPER BROUSSARD TO NORD 262 MOHAWK

In 1959, following the success of Broussard, Holste set out to design a 17 seat, twin engine replacement, the Super Broussard. The initial effort was the twin 600hp Pratt & Whitney R-1340 Wasp piston-engine MH.250 flying in May 1959. However this was considered smaller than required and with a lengthened fuselage as a 23 seat (+crew), turboprop (2 x 805 ehp Turbomeca Bastan) it flew in July 1960 as the MH.260, still named the Super Broussard. The prototype had been built under contract for Max Holste at the Nord Aviation factory. Ten of the developed version were ordered by the French Government and were to be built as the Nord MH.260. Only eight of these were completed. (Anon 2019c).

There is some confusion here as news items in 1961 in both the RAF Flying Review (6/61) and Air Pictorial (12/61) refer to the MH.261 as the military version of the 260, the Air Pictorial item stating it was to have a transparent nose with observer and gunner positions and a tail loading ramp. Nord had commenced work on a preproduction batch of 10 aircraft,

Nord developed the MH.260 with a further fuselage lengthening into the commercially successful Nord 262 which flew in December 1962. A number of both civil and military options were promoted with both the French Army and Navy taking a number, mostly, as instrument trainers. The most successful of the 262 line was the 262A with 69 produced. Interestingly it was the second model to be released being preceded by 262B (4 produced). Following the merger of Nord and Sud Aviation to form Aerospatiale, an improved 262C Fregate (10 produced) appeared with Bastan VII engines and new wing tips, which increased the span by 2ft 3.5in (0.7m). The 262D Fregate D (24 produced) was a military version. Production of all versions of the 262 totalled 110 aircraft.

A number of Nord 262A were purchased for use in the USA but suffered under seat limitations for commuter aircraft (10-18 seats). A change to allow up to 30 passengers under new regulations resulted in Frakes Aviation converting a number of 262s into the Mohawk 298, the prototype of which flew in January 1975. Conversion had involved fitting P&W PT6A-45 engines and a range of other modifications, including the fitting of the new wing tips developed by Aerospatiale for later 262s. These improved low speed handling. Four Mohawk 298s were imported to Australia in 1987/88. QAM's exhibit is one of these. (Cameron 2014b)

### UNBUILT DESIGNS

There also appear to have been a number of designs that did not see completion. Nothing has been sighted relating to MH.30 and MH.40 but the MH.60 was a five seat MH.52 with 2 x 165hp engines according to Anon (2019f) which goes on to state the MH.100 was a three seat trainer for the French military, designed in 1947-48. It was not proceeded with because the company was too small for it to undertake series production. These statements again quote Delanue as their basic authority.

Others that get a mention in Anon (2019b) include the MH.60 and the MH.100, early low wing aircraft. The built 250- 262 group also included a mention of the MH.270 & 280. As well there are MH.300 and MH.350, smaller twin engine types and an autogyro, the MH.500. Anon (2019e) says the MH.500 was named the Phenix 4. It was an autogyro with a pusher propeller for a wide range of uses. It remained only a project. In fact nothing seems to have come of any of these design numbers.

With regard to the MH.350 there is an item in Flight (1/vi/1961) that refers to a recent "Salon" announcement of a projected MH.350 Broussard Major. Intended to be powered by two Continental G10-470A of 310hp with an empty weight of 4 380lb to carry seven passengers. It could have been equipped with either skis or floats and was intended to fly in March 1962. It does not appear to have been proceeded with although the report says a "mock-up" was displayed at the "Salon" and the prototype was under construction. It was described as like a scaled down 260.

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Cameron D.G. (2014a) :- *Max Holste MH.1521M Broussard* - Forty Years On - Canberra to F-111 - QAM : 260

Cameron D.G.(2014b ) :- *Nord 262A Mohawk 298* - Forty Years On- Canberra to F-111 - QAM : 148

Simpson 1991 (ex Anon (2016):- [https://en.wikipedia.org/wiki/Avions\\_Max\\_Holste](https://en.wikipedia.org/wiki/Avions_Max_Holste))

**TABLE 1**

**SPECIFICATIONS & PERFORM – MAX HOLSTE MH.20, MH.52 & MH.1521M**

	<b>MH.20</b>		<b>MH.52</b>		<b>MH.1521M</b>	
Engine	1 x 310 kW (420hp) Regnier 12H00 air cool, inverted V 12cyl		1 x 112kW (150hp) Potez 4D inline piston		1 x 336kW (450hp) Pratt & Whitney R-985 AN-1 9cyl radial	
Wing Span	6.68m	21ft 11in	9.80m	32ft 1.75in	13.75m	45ft 1.25in
Length	6.64m	21ft 9in	7.25m	23ft 9in	8.65m	28ft 4.5 in
Height	2.10m	6ft 11in	2.18m	7ft 1.75in.	3.65m	12ft 0in
Wing Area	6.9sq m	74sq ft	14sq m	150.7sq ft	25.2sq ft	271.3sq ft
Weight Gross	834kg	1 839lb	870kg	1 918lb	2 500kg	5 512 lb
Weight Empty	585kg	1 290lb	640kg	1 411lb	1 530kg	3 373 lb
Maximum Speed	496km/h	308mph	230km/h	143 mph	270km/h	168mph
Cruise Speed	477km/h	296mph				
Service Ceiling					5 500m	18 045ft
Range			600km	374mile	2 000km	745mile
Source	Anon (2018b)		Anon (no date a)		Cameron (2014a)	

**TABLE 2**  
**SPECIFICATIONS & PERFORMANCE – MAX HOLSTE MH.260, MH.262A & MH.350 (design figures)**

	<b>MH.260</b>		<b>MH.262A</b>		<b>MH-350</b>
Engine	2 x 735kW (985 hp) Turbomeca BastanIV turboprops		2 x 805kW (1805 hp) Turbomeca Bastan VIC turboprop		2 x 310hp Continental GIO 470A 6 cyl opposed
Wing Span	21.92m	71ft 11in	21.89m	71ft 10in	50ft
Length	17,60m	57ft 9in	19.28m	63ft 3in	35ft
Height	6.58m	21ft 7in	6.20m	20ft 4in.	
Wing Area	55.0sq m	592sq ft	55sq m	592sq ft	301sq ft
Weight Gross	9 400kg	20 723lb	10 300kg	22 761lb	6 950lb
Weight Empty	5 600kg	12 345lb	6 763kg	14 910lb	4 380lb
Cruise Speed	380km/h	236mph	396km/hr		169mph
Service Ceiling	8 100m	26 500ft	7 315m	24 000ft	
Range	1 497km 930mile		975km	606mile	
Source	Anon (2019b)		Anon (1966)		Flight 1/vi/1961

### POSTSCRIPT - EMBRAER EMB 110 BANDEIRANTE

As stated earlier, following the collapse of Avions Max Holste, Holste moved to Brazil where, in 1965, he was appointed Chief Designer of a newly forming company, Embraer, to develop a Brazilian Ministry of Aeronautics specification for a civil and military general purpose aircraft with a low operational cost and high reliability. The prototype, military YC-9, flew in October 1968. Two further prototypes were built as the EMB 100. A production order was then placed by the Brazilian Air Force for 80 aircraft as the EMB 110, the first being delivered in February 1972. A passenger model entered service in April 1973.

Over the next 21 years some 494 Bandeirante were built spanning about 30 models. In October 2018, 50 years after its first flight, about 150 were still operational around the world. Production only ceased in 1990 to make way for the EMB 120 Brasilia.(Anon 2019d).