ANALYSIS: MRJ puts dreams into action

When the MRJ regional jet prototype lifted off from Nagoya airfield just after 09:35 on 11 November, it achieved a long-awaited milestone, and set the stage for an intensive 18-month flight test campaign.

During this time, Mitsubishi Aircraft has to demonstrate the performance claims it has promised of the MRJ. It needs to work especially fast considering that in April, when it pushed the first flight back to the final quarter of 2015, it stuck with plans to deliver the first aircraft to launch customer All Nippon Airways in the second quarter of 2017.

"We have no concerns about delivering the aircraft in 2Q 2017," vice-president of sales and marketing Yugo Fukuhara tells Flightglobal. "The period between first flight and delivery is 1.5 years. This is a range typical of other commercial programmes."

President Hiromichi Morimoto, in a statement after the jet's maiden flight, also reiterated that Mitsubishi will use its "utmost efforts" and commit all resources to ensure the success of the programme.

LONG TO-DO LIST

Mitsubishi is using five flight test aircraft in its 2,500 flight hour campaign. The second aircraft has completed final assembly, with its Pratt & Whitney PW1200G engines attached, while aircraft three to five are in the final stages of assembly. Fukuhara says these aircraft will join the campaign in intervals of "a few months".

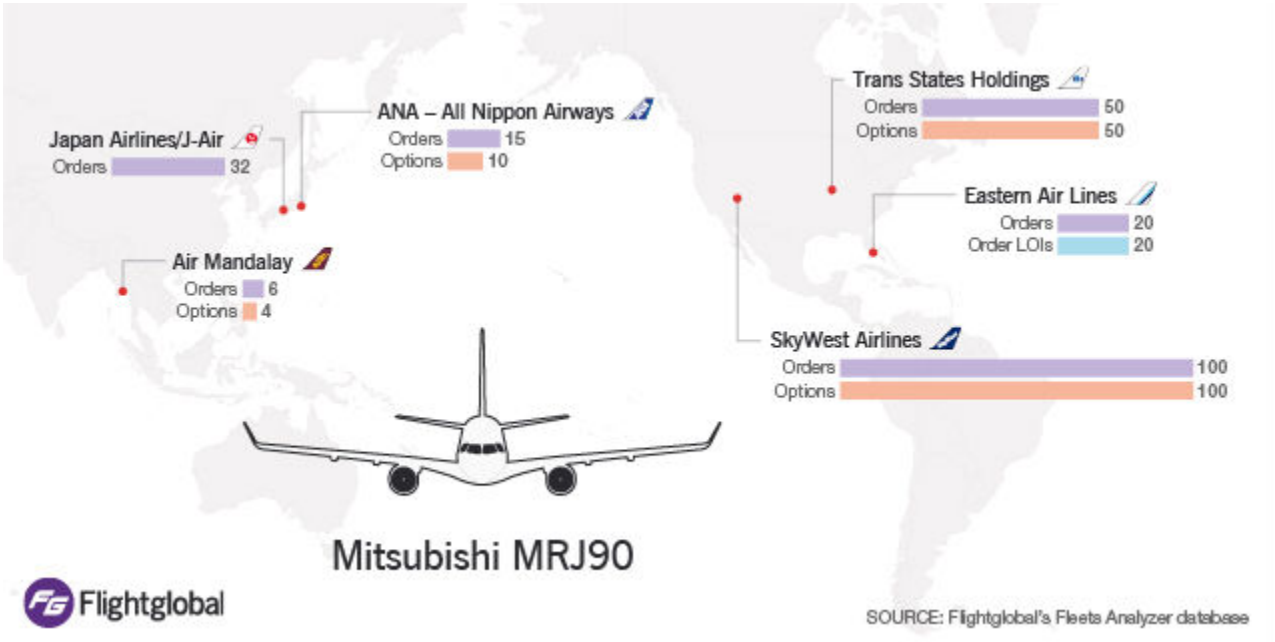
The Japanese airframer has completed 100% load tests on its static strength test jet, and the airframe will also be required to demonstrate resistance at ultimate

loads of 150% by mid-2016. Fatigue strength tests will last five years and commence in 2016.

It is critical that Mitsubishi keeps to schedule to maintain its slim lead over its strongest competitor, the Embraer E-Jet E2, due to enter into service less than a year after the MRJ90.

Mitsubishi says its clean sheet design will help it take full advantage of the aircraft's geared turbofan engines. This will reduce fuel burn, emissions, engine noise, as well as maintenance costs. Its value proposition is that the MRJ will have a lower operating cost, but deliver better passenger comfort.

"On paper, the MRJ looks like an efficient competitor in the future regional jet market, delivering performance and economics far better than those of today's incumbents and benchmarking well against future competitors like the E-Jet E2," says head of Flightglobal's Ascend consultancy service, Rob Morris. "So achieving performance targets must be a key focus."



TEAMING WITH THE PROS

To avoid the struggles of inexperienced peers, Mitsubishi has chosen to cooperate in flight test work with Seattle-based Aerospace Testing Engineering & Certification. The firm specialises in flight testing, data analysis and US Federal Aviation Administration certification services for aircraft manufacturers.

As such, Mitsubishi will also be sending four flight test aircraft to the US for various tests including envelope expansion, functional performance, flight characteristics and anti-icing.

Mitsubishi says that while the US Federal Aviation Administration is conducting a shadow certification of Japan's Civil Aviation Bureau, all necessary information and paperwork for the type certification of the MRJ will also be shared with the US authority concurrently.

The majority of the work on both certifications will thus be conducted "almost simultaneously", says Fukuhara. He adds that while Japanese certification will likely be attained a few months before first delivery, FAA certification should follow within a three-month period.

Forecast International's senior aerospace analyst Ray Jaworowski says that while achieving FAA and EASA certification is a lengthy and costly process, it is "a necessary prerequisite" for penetrating the large and lucrative markets in North America and Europe.

Mitsubishi has thus far secured firm orders for 223 MRJs, with the largest orders coming from US's Trans States Holdings and SkyWest Inc. These two firms however face scope clause limitations, which could force them to take the smaller MRJ70 if conditions are not relaxed.

The MRJ70 is targeted to enter into service a year after the MRJ90. Parts production of the 76-seat variant is already underway, and the plan is to build two flight test jets.

SENDING A STRONG MESSAGE

Fukuhara contends that the MRJ90's first flight will boost the manufacturer's sales campaign: "A successful first flight will deliver a very strong message that the MRJ programme development is moving forward."

More than that, Jaworowski says fulfilling the fuel burn and operating cost promises "will be key to attracting significant new sales". He adds that it is also important to establish a global sales and customer support network, which Mitsubishi is already "making great strides in", with the help of Boeing and Saab.

The last time Mitsubishi's order book grew was in January, when Japan Airlines firmed an order for 32 MRJs. The MRJ is a major project for Japan, because it is the country's first passenger aircraft since the NAMC YS-11 turboprop entered into service in the 1960s.

The manufacturer says that having yet to secure an order from Europe, this will be a focus area, adding that the regional jet's efficiencies in noise and emissions fits the continent, which places high value on environmental friendliness.

Fukuhara says Mitsubishi is also in talks with narrowbody and turboprop operators in Asia, believing that the regional jet has good potential in countries like Indonesia, India, Vietnam and Australia. He is also seeing "very strong interests" from lessors, now that the first flight milestone has been achieved.

"I hope in some time after first flight, we can announce some new orders," he adds.

Mitsubishi also needs to decide whether to proceed with the development of a 100-seat variant – something the airframer has been unwilling to commit to – but a size the market is moving towards. The company's former president has said that he sees the need for a full range of aircraft to compete, but that whether to launch the larger variant remains a business decision.

The Ascend Fleet Forecast predicts deliveries of close to 1,200 MRJs through to 2034.

Source: https://www.flightglobal.com/news/articles/analysis-mrj-puts-dreams-into-action-418951/