

Mitsubishi Rolls Out MRJ

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Mitsubishi employees and executives gather with government dignitaries to witness the rollout of the MRJ90 on October 18. (Photo: Mitsubishi Aircraft)

A rollout ceremony held Saturday in Nagoya, Japan, for the Mitsubishi MRJ regional jet marked a symbolic end of a 50-year wait for a new Japanese airliner to take shape. Not since the NAMC YS-11 turboprop flew for the first time in 1962 has a Japanese effort to break into the commercial airplane market reached such a state of progress. Under development for some seven years, the MRJ finally looks like an airplane capable of flying—and ultimately delivering the 20-percent fuel efficiency improvement over current designs Mitsubishi Aircraft advertises.

Scheduled first flight early next year will mark the start of a planned two-year test program consisting of five flying prototypes and two ground-test aircraft. Function tests of various systems on the airplane on display in Nagoya began last month, while preparations have started for the wing-to-body join of the second airplane. Mitsubishi has finished joining the nose and cabin of the third flight-test airplane to the forward fuselage, and the company expects to complete construction of that example's wings "soon." Meanwhile, final assembly of the fourth flight-test vehicle has begun, as has subassembly on the fifth and final flying prototype. Testing on the static strength test aircraft started on October 10, while parts production for the fatigue test example recently got under way.

The company expects simultaneous Japanese and FAA certification to require some 2,500 flight-test hours. Plans call for the first flying prototype to perform envelope expansion and systems tests, the second to carry out performance and function tests, the third to evaluate detailed flight characteristics and avionics tests, the fourth to perform interior, community noise and icing tests

and the fifth to assess autopilot function. Although the company plans to do most of its flight-testing from Nagoya, it has also arranged for some of the trials to take place at Moses Lake, Washington, in the U.S.

Having committed some 180 billion yen (\$1.7 billion) to the project, Mitsubishi declines to specify how many MRJs it estimates it needs to deliver to break even on the program or make a profit on it. Much of the investment has gone to preparing for final assembly at Mitsubishi Heavy Industries' Nagoya Aerospace Systems Works "Komaki South" plant in Aichi Prefecture, where plans call for operations to start in June 2016

All told, MHI plans to carry out production at five bases primarily in the Nagoya area: the existing Oye Plant and Iwatsuka Plant, both in Nagoya itself; the Tobishima Plant just southwest of Nagoya; the Matsusaka Plant in Mie Prefecture; and a planned new final assembly site adjacent to Nagoya Airport. Additional production would take place at MHI's Kobe Shipyard & Machinery Works in Hyogo Prefecture. MHI plans to use its Oye and Tobishima plants for fuselage and wing assembly and its Matsusaka Plant for tail assembly. The Oye plant produces medium- to large-scale parts, while smaller parts are made at the Iwatsuka plant and, under an industrial "cluster" arrangement, by partners using the Matsusaka plant. Further plans call for wings to enter production on a new integrated line to be installed at Kobe Shipyard & Machinery Works, in an area formerly used for shipbuilding.

Asked to specify planned production rates for each of the first five years of production, Mitsubishi Aircraft president Teruaki Kawai would say only that the company has set a target of 10 airplanes a month "in the future."

Having collected firm orders for 191 airplanes, Mitsubishi Aircraft has struggled to gain credibility in a market segment now led by the new Embraer E2s, all three models of which will also use Pratt & Whitney "geared turbofans" similar in design to the PW1200G used in the MRJ. The Japanese program has so far suffered three major delays since its launch in March 2008. The most recent setback resulted from the company's failure to forecast the effects of new U.S. Federal Aviation Administration procedures introduced in 2009 to validate regulatory compliance of production processes. The new rules shifted Mitsubishi's testing schedule by as much as two years, meaning, if all goes as now planned, the time between program launch and certification would span more than nine years.

As first flight approaches, however, interest in the program appears to have intensified, as sales activity gathers some pace. Most recently, the MRJ program gained a coveted endorsement from Japan Airlines, which committed to taking 32 of the Japanese airplanes alongside at least 15 E-Jets.

Speaking in Tokyo at a joint press conference with Mitsubishi on August 28, Japan Airlines president Yoshiharu Ueki revealed plans to deploy the first of the MRJs in 2021 on domestic routes flown by JAL Group subsidiary J-Air. Mitsubishi hopes to fly the larger of the planned 78- and 92-seat designs, the MRJ90, during next year's second quarter. Schedules now call for certification and first delivery to Japan's All Nippon Airways two years later.

In the meantime, plans call for the first example of the new order for Embraer E-Jets to arrive in Japan next year, at which time the Brazilian jets would start to supplement a fleet of 15 E170s now flown by J-Air out of Osaka and Tokyo International Airports and Fukuoka Airport. However, JAL plans to begin removing the Embraer jets in favor of the MRJs in 2021 and deploy a uniform fleet of Mitsubishi jets with J-Air by the middle of the next decade.

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