

ATR reveals new -600 series for ATR42 & ATR72.

ATR has launched the new -600 series for its 42 & 72 turboprop models. These feature a new PW127M engine, stronger operating performance, several avionics and flightdeck improvements, and a new cabin interior for improved comfort and in-flight entertainment.

ATR has launched the new series of its ATR42 and 72 models: the -600 series. The -600 is an upgrade from the -500 series, and includes several new features.

The first of these features is a new engine model: the Pratt & Whitney Canada PW127M. This will power both the ATR42-600 and ATR72-600. The engine replaces the PW127E on the ATR42-500, and the PW127F on the ATR72-500.

The PW127M has a take-off power rating of 2,475 shaft horse power (SHP) on the ATR72-600. The standard model has a flat rating of 30 degrees centigrade. There is also a 'boost' variant, which is flat rated to 35 degrees centigrade, and is available for aircraft being utilised in hot and high operations.

The ATR72-600 has higher maximum take-off weight (MTOW) and maximum zero fuel weight (MZFW) specifications than the ATR72-500. These two higher weights translate into enhanced payload-range performance. There are two MZFW options on the ATR72-600, which are 660lbs and 1,102lbs higher than the specification on the -500 (see

table, this page). With the same operating empty weight (OEW) as the -500, the ATR72-600 will therefore have higher structural payload capacities of the same order. This will allow higher-density seating, if required, and more additional freight to be carried.

The PW127M is also re-derated at 2,160SHP for the smaller ATR42-600 model. Cruise speeds and specification weights of the new -600 variants vary little compared to the -500 models. The two -600 aircraft, however, have higher structural payloads than their predecessors, although they have the same fuselage dimensions as the -500 models.

The PW127M can be rated 5% higher than the PW127F, which means that it gives the ATR72-600 better operating performance in hot and high conditions. The engine can switch between standard take-off power and hot and high power settings through an electronic engine control (EEC) unit.

The specification weights on the ATR42-600 are no different to those on the ATR42-500.

The PW127M has the same fuel burn

performance, and CO₂, NO_x and noise emissions characteristics as the engines powering the -500 series.

A second new feature of the -600 series is several technology upgrades. One of these is the EEC that gives the engine several power ratings. Others include several avionics improvements and upgrades, such as: a multi-purpose computer (MPC); the installation of an aircraft crew and alerting system (ACARS) for communications with the ground; an electronic flight bag (EFB); an integrated aircraft centralised maintenance system (ACMS); and a new glass cockpit.

The MPC has three key features, including: an aircraft performance monitoring (APM) facility; enhanced surveillance; and ADS-B transponder capability.

The ACMS has the features and functionality to collect flight data recorder data and information. It also has a built-in test equipment (BITE) facility for monitoring aircraft systems and displaying them on the flightdeck; the capability to troubleshoot aircraft systems; and a facility for monitoring and downloading engine parameters and transmitting in-flight engine performance data via ACARS.

The ACMS brings the ATR -600 series up to date with the self-monitoring technology on other aircraft. Its capabilities include on-line troubleshooting, identifying suspect and faulty line replaceable unit (LRU) rotatable components, and managing the aircraft's minimum equipment list (MEL).

The EFB allows the -600 series to operate with a paperless flightdeck. The EFB's features include: checklists, aircraft manuals, electronic navigation charts, weather forecasts, and aircraft performance data and calculations. The aircraft's ACARS system allows pilots to access automatic terminal information service (ATIS) and other information to eliminate all paper and manuals from the cockpit.

The -600 series' glass cockpit will also bring the aircraft into line with the technology levels of other aircraft. The main feature is five liquid crystal display (LCD) screens. The -600 series will also have Cat IIIa landing capability as standard, as well as global positioning system (GPS) capability for non-precision approaches.

The -600's third main feature is an improved aircraft cabin. This has new seats, which are lighter in weight and have been designed to give greater knee clearance at the same pitch as in the -500 series.

The overhead bins have also been restyled to provide 10% more volume. New materials are also used in ceiling and sidewall panels. The cabin is also

ATR -500 & -600 SERIES SPECIFICATIONS

Aircraft variant	ATR 42-500	ATR 42-600	ATR 72-500	ATR 72-600
MTOW lbs	41,005	41,005	49,604	50,265/50,706
MLW lbs	40,344	40,344	49,272	49,272
MZFW lbs	36,817/37,478	36,817/37,478	45,195	45,855/46,297
OEW lbs	25,353	25,353	29,762	29,762
Structural payload lbs	12,125	12,125	15,432	16,534
Fuel capacity lbs	9,921	9,921	11,023	11,023
Seats	48	48	68	70
Range nm	801	801	824	830
Engines	PW127E	PW127M	PW127F	PW127M
Engine take-off power - SHP	2,160	2,160	2,475	2,475
Max cruise speed - knots	300	300	275	275
Take-off field length - feet	3,822	3,822	4,016	4,373/4,485



The new -600 series for the ATR42 & 72 turboprops includes several enhancements. The most important of these is the upgraded flightdeck. This will now have a centralised maintenance computer and electronic flightbag, bringing the ATRs up to the standards of other airlines.

enhanced with light-emitting diode (LED) lighting, and 5-inch in-flight entertainment (IFE) screens, that fold out using motorised power from the passenger service units in order to provide passengers with audio and visual entertainment.

MRJ configuration finalised

Mitsubishi Aircraft Corporation has finalised the configuration and specification of the Mitsubishi Regional Jet (MRJ).

The weight, fuel capacity, engine characteristics, seat capacity, cruise speed, range, flightdeck configuration, and operating performance characteristics are as previously revealed for the MRJ70 and MRJ90 (*see Large regional jets: the C Series, MRJ, SuperJet 100 & E-Jet families, Aircraft Commerce, April/May 2009, page 24*).

In terms of basic specifications, the MRJ70 is nominally a 70-80 seat aircraft, and standard configuration is 78 seats in a single class at a 29-inch pitch. The MRJ has an 86-96 seat capacity, and nominally seats 92 in a single class.

The MRJ family is one of two aircraft types to be powered by the new Pratt & Whitney geared turbofan: the PW1000G. These are rated at 15,000lbs and 17,000lbs thrust for the MRJ70 and MRJ90, and have bypass ratios of 8.4:1, which are unprecedented in engines for regional jets.

This new engine is expected to give the aircraft a 50% margin with CAEP/6

NOx emissions standards, and 90% margin with respect to smoke emissions laid out in CAEP/6. The aircraft will also have generous Stage IV noise emissions margins.

Each model has three MTOW specification weights, and a cruise speed of Mach 0.78. Mitsubishi has not yet revealed fuel capacity, but range for the three MRJ70 models is 860-1,840nm. The MRJ90 models have ranges of 910-1,780nm. The aircraft also have Cat III landing capability, an on-board maintenance computer, and electronic flight bag fitted as standard.

The MTOW specifications of the MRJ70 variants are 81,200lbs, 84,700lbs and 88,600lbs.

The MTOW weights for the three MRJ90 models are 87,300lbs, 91,400lbs and 94,400lbs.

While these basic specifications remain mostly unchanged, Mitsubishi has, however, made some design changes to the aircraft cabin, which are intended to provide the aircraft with higher comfort standards. One main feature is an increased centre cabin height of 80.5 inches from 79.0 inches. This is thanks to a wider aircraft fuselage, which also increases headroom height between the seat tops and overhead bins by 1.5 inches. Another small change is the elimination of the small cargo compartment forward of the wing, and the enlargement of the rear cargo compartment. Although the overall effect is to leave volume unchanged, it does provide the cargo compartment as a

single unit.

These cabin enhancements are made in conjunction with the use of a new slim seat, which, with a 31-inch seat pitch, provides greater leg and knee room, thereby enhancing the MRJ's passenger comfort. The cabin has a standard four-abreast configuration. Seat width is comparable with the Embraer E-Jets, although the MRJ has a wider cabin width.

Mitsubishi is now considering the possibility of developing a stretch version of the MRJ that will have a 100-seat capacity. In the meantime, the aircraft has won a second order from US regional carrier Trans States Holdings (TSH). The order is for 50 firm and 50 options. The first order for the MRJ is 15 firm from All Nippon Airways.

TSH operates Trans States Airlines, which operates RJ feeder operations for United Express and USAirways Express using a fleet of 30 50-seat Embraer ERJ-145 regional jets (RJs).

These aircraft are operated from hubs at Chicago O'Hare, Washington Dulles and Denver for United Express; and from Pittsburgh for USAirways Express.

The MRJs are therefore an aircraft gauge increase for Trans States. The president of TSH has said that he believes the MRJ to be a game-changing aircraft, particularly in the area of direct operating costs. **AC**

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