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Mission possible

The Bombardier Learjet 45XR is a heavy weight in the super light class, writes Benn Marks

The Bombardier Learjet 45XR is a formidable aircraft that has left an indelible mark on the super-light business jet category since entering service in 2004.

Sizeable numbers of the jet can be found in the fleet inventories of many operators around the world.

One such operator of the Learjet 45XR in the Australasian region is JetCity, located at Essendon Airport in Melbourne's outer west. Chief pilot and managing director Lorne Cole has operated the type since 2013, and says the aircraft's performance and operational capabilities make it a keeper.

"It's an incredible aeroplane. I can't think of a

better aeroplane for our mission profile," he says.

"It's ideal for the work we do and I would say that the Learjet 45XR is the perfect evolution of the Learjet 30 series of aircraft. It provides an ideal balance between cost and size, so the efficiency of this aircraft is well suited to entry level charter customers and medical missions," he adds.

And Cole would know. His company, JetCity, has the aircraft stock to fly regionally, nationally and internationally in a heartbeat, and consists of a Gulfstream IV, a Bombardier Challenger 604, two Learjet 35s, one Learjet 36, and two Learjet 45XRs. The company specialises in aircraft charter and luxury

travel, business jet management and maintenance, plus aeromedical patient transfer and organ retrieval. Not surprisingly, the LJ45XRs are often utilised for the company's operations, and fly both near and far, as Cole explains.

"We do a lot of medevac work. We've got our planes set up with stretchers in them, so we do quite a lot of medical patient transfer, and also organ retrieval, in addition to the corporate general charter work we do."

He adds: "We fly all around Australia in them; in fact, we fly them all around the South Pacific and South East Asia. We go out to Micronesia, Samoa, New Zealand, all the Pacific Islands and we've had these aeroplanes up into China, Singapore and Indonesia, too."

In addition to its operational versatility, the LJ45XR is also a visually striking little number, by virtue of its extremely sleek appearance. Its length is 57.6ft, while its wingspan and height are 47.78ft



and 14.13ft, respectively.

Yet, the LJ45XR still manages to retain many of the classic design features of the iconic Learjet brand; such as, the distinctive clam-shell main cabin door, T-tail, single-tyre nose steering wheel and two rear-mounted turbofan engines. In many respects the modern jet represents the perfect fusion of old and new.

The new stemming from the fact the LJ45XR can attribute its genesis to its immediate, virtually identical twin predecessor, the Learjet 45. This aircraft was the first computer-designed, wind-tunnel-tested clean sheet Learjet design to appear since the Learjet 23 in the early '60s, as all subsequent Learjet variants were basically larger, modernised developments of this seminal aircraft. The LJ45 incorporated a cleaner, more efficient wing design that included single piece flaps and winglets, and two rear-mounted ventral fins to improve inflight stability. It also possessed a Honeywell Primus 1000 glass cockpit, more advanced Honeywell TFE731-20 turbofan engines (in the 3,500lb class), an auxiliary power unit and a revamped cabin that offered passengers more space.

The new clean sheet jet burst onto the business aviation scene during the late 1990s (it was granted FAA certification in 1997, with customer deliveries commencing in early 1998). Being a popular design it made substantial inroads in the super light corporate jet segment, and essentially laid the groundwork for the LJ45XR that followed.

When the LJ45XR was unveiled in July 2004, it was essentially an upgraded LJ45; upgraded in the sense that it had tweaked engines (Honeywell TFE731-20-BR units as opposed to the TFE731-20-ARs installed on the LJ45) which provided better climb and "hot & high" performance over the earlier LJ45; had an increased MTOW; and incorporated a number of systems/avionics updates to compliment the upgraded powerplants. However, there was a subtle twist to the plot!

Because the airframes of both the LJ45/LJ45XR were/are identical, existing LJ45 customers could upgrade their aircraft to XR status and enjoy all the improved performance benefits that came with it, courtesy of Bombardier service bulletins, and many did. Cole says he acquired his first LJ45 in 2013, which was the standard 45 series before taking advantage of the service bulletin upgrades and converting the aircraft to a LJ45XR. The second machine he acquired earlier this year was already a fully-fledged LJ45XR. He adds that the LJ45XR's relatively long, ergonomically well-designed cabin can accommodate up to eight passengers in a double-club seating arrangement, and is a marked improvement on the typically cramped main passenger cabins that characterise the smaller, preceding LJ variants such as the Learjet 35 and 36.

"We normally take two to six passengers on corporate charters, but the capacity is eight

passengers; however, it is most comfortable with two to six passengers. The external baggage compartment down the back is very generous. It's easily enough for eight passengers with moderate baggage and we have a lavatory with a proper sliding door, so it's a proper private lavatory."

He adds: "And we have a galley with an oven to heat up meals, hot and cold running water, plus ample storage for crockery, cutlery and refreshments ... It's a remarkably quiet cabin, it's very smooth and very comfortable to ride in."

In their role as aeromedical patient transfer transports, the chief pilot says the LJ45XRs carry a flightcrew of two, one patient and two medical specialists, plus a patient stretcher and associated medical equipment. Two passenger seats are removed (leaving six or a 'club and a half') to accommodate the medical configuration, and there is still sufficient room for the medicos to move freely about the cabin and tend to the patient's needs. An

MTOW is a very respectable and handy 21,500lb, which is 1,000lb more than the LJ45's MTOW. So it can get off the ground quickly and climb even faster with a respectable load of passengers and baggage in tow, as Cole explains.

"The Learjet 45XR will always cruise at Mach 0.79 or Mach 0.80. It has got a surplus of power, so we can quickly climb to altitude ... We can climb to 41,000 feet in 16 minutes and cruise at Mach .80, so it's a good performer," he says.

"You could easily say that the aircraft operates at maximum weight in and out of airstrips around 1500 metres long. We like to operate onto airfields of 1500 metres or more, and it does that comfortably, so it's a good performer off the runways," he adds. Interestingly enough, the LJ45XR can come to a smooth, non-screaming halt and "stop on a dime" in as little as 800 metres too, thanks to its large thrust reversers, highly effective carbon brakes and large wheels. Cole explains that the aircraft will typically



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external baggage compartment of 50ft³ is augmented by an additional 15ft³ of storage space in the cabin.

The highly experienced aviator says passengers sometimes regard the LJ45XR as a midsize jet because of its relatively spacious cabin, which is 19.75ft in length, 5.12ft wide and 4.92ft high. And in the all-important area of performance the LJ45XR doesn't disappoint either. It can soar as high as 51,000ft – an altitude typically reserved for corporate jets at the larger end of the spectrum – while its

cruise at an altitude ranging from 41,000-45,000ft (which varies according to the sector flown, payload and weather conditions), and fly 1,750nm sectors comfortably. Speed-wise, the super light jet can fly city-pairs such as Essendon–Sydney in an hour, Essendon–Brisbane in two, Essendon–Perth in 3h 40min and Essendon–Auckland (NZ) in 3h 15min. Another one of the swift jet's pluses is the very low hours it actually spends in maintenance.

According to Cole, this is due to a combination of the reliability of its modern components and construction, and the aircraft's sophisticated in-built diagnostic systems, such as EICAS (engine-indicating and crew-alerting system); the system enables the aircraft to record any faults and defects it experiences in flight, so that engineers can "interrogate" and resolve them upon landing.

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