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China's Commercial Aircraft Industry: Not So Fast

By Richard A. Bitzinger

Synopsis

China is currently pursuing a very ambitious commercial aircraft development programme, including the production of two medium-size airliners. However, it faces considerable – perhaps even insurmountable – barriers to breaking into this tough and demanding business.

Commentary

NO ONE can ever accuse China of thinking small. When it decided to enter into commercial aircraft manufacturing, it knew that it was going up against one of the world's greatest duopolies: the Boeing-Airbus stranglehold on the medium-to-large jetliner business. These two companies produce nearly every 100-seat-and-above passenger plane flown by nearly every airline in the world. Given China's recent successes in consumer electronics, semiconductors, space, and the automotive industry, it is little wonder that it believes it can break into this potentially lucrative market.

At the same time, perhaps no other industrial sector has such high barriers to entry. Only in recent years have Boeing and Airbus had any meaningful competition, and only at the very low end of the business: Canada's Bombardier and Embraer of Brazil both produce small jetliners that can seat up to 125 passengers. Other companies that have tried to play in the "big boys club" of commercial aircraft production – Mitsubishi, Sukhoi, Indonesia's IPTN – have all failed miserably. So why should China succeed?

Current Aircraft Programmes: Think Medium

In the first place: size. China is the world's second largest national air travel market – and it's growing. China buys around 200 new passenger jets every year, about one-eighth the world's total demand. Consequently, there is a huge domestic market to tap into and build upon.

In the second place: pride. The decision to enter the large commercial aircraft market was made at the very top, by the State Council of China and by the Central Committee of the Chinese Communist Party. The Commercial Aircraft Corporation of China Ltd. (COMAC) – the state-owned company created in 2008 to take charge of passenger jet development – is wrapped in self-described "aeronautical patriotism," and it views its mission as equivalent to the nation's development of nuclear weapons and the launch of the country's first satellite.

COMAC currently has two passenger jets in the works. The first is the ARJ-21 regional jet. The ARJ-21 seats

between 90 and 105 passengers and is designed for short-haul flights of less than three hours. Launched in 2002, the ARJ-21 is intended first and foremost to meet China's burgeoning demand for internal air transport. Its maiden flight took place in late 2008, and the plane has already secured over 300 firm orders. The second Chinese airliner is the C919 narrow-body jet, initiated in 2008. The C919 seats 150 to 200 passengers, which puts it in the same category as the Boeing 737 and the Airbus A320. Nearly 400 of these airliners have been ordered, according to COMAC. The company plans to conduct the first flight of the C919 in 2014 and start deliveries in 2016. Other passenger jets are also envisioned; COMAC has already begun to plan for the production of two wide-body airliners, the 300-seat C929 and the 400-seat C939.

Paper Airplanes?

The ARJ-21 and the C919 look good on paper, but challenges abound for China breaking into the passenger jet business. Both airliners are already behind schedule, due to technical setbacks. The ARJ-21 was two and a half years late in achieving first flight. In late 2010, the plane's wing failed its predicted load rating during static tests; wing cracks and other problems have been rumoured. Altogether, the aircraft is already several years behind schedule, and initial deliveries are not expected before the end of 2013.

Neither airliner has broken the Boeing/Airbus/Bombardier/Embraer lock on the global commercial aircraft market. Nearly all orders for the ARJ-21 and C919 have come from Chinese airlines, making it likely that these companies were strong-armed by Beijing into buying these planes. Very few foreign airlines seem interested in either airplane; the largest non-Chinese customer for these planes is GECAS, an American company that buys and leases passenger jets to airlines.

Finally, despite its pronouncements of building aircraft with "Chinese characteristics," COMAC is heavily reliant on foreign firms to provide critical components and technologies for these aircraft. More than 20 overseas firms are partnering on the ARJ-21, including General Electric (engines), Rockwell Collins (avionics), Liebherr (landing gear), and Parker Aerospace (flight controls). In addition, the ARJ-21's nose cone is a direct copy of the defunct McDonnell-Douglas MD-82, which was built under licence in China in the 1990s. For its part, CFM International will supply its LEAP turbofan engine for the C919, and it will subsequently build an assembly line in China to produce this powerplant.

Long way to go (if ever)

In any event, it will be a long time, if ever, before China threatens the Western stranglehold on commercial aircraft production. Building large passenger planes is one of the most daunting undertakings in manufacturing. Safety and reliability, as well as comfort and economy, are at least as important as price, and China's reputation in all but the latter (recall melamine in Chinese milk) is still poor.

Even if China can assure quality control of its commercial airliners, however, it will be difficult to overcome airlines' ingrained preferences for proven products like the A320 or the 737. Consequently, Chinese-built passenger planes will probably always remain overwhelmingly a Chinese-bought item.

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