

THE LITTLE AVIATION MUSEUM

Workbench notes

AIRBUS A.330 AND A.340 IN 1/144 BY REVELL

(2003)

A.340-300

(June 2003)

The origins of the Airbus A.340 lie in the decision made in 1970 to form Airbus Industrie, a multinational European effort to design and construct a high capacity twin-jet transport in competition to United States manufacturers and to serve the route characteristics of many European airlines. The original A.300 laid the foundation that has seen Airbus Industrie become the world's second largest manufacturer of mainline airliners. In its first 25 years Airbus has sold over two thousand airliners. The consortium has its headquarters in south west France near Toulouse and is owned by Europe's four leading aerospace companies, Aerospatiale, Daimler-Benz, British Aerospace and CASA.

The first Airbus airliner was the A.300 that became popular around the world. Part of the reason for that success lay in its cabin size that had been carefully selected to be wider than standard Boeing 707 class airliners but narrower than the wide-body Lockheed Tristars, Douglas DC-10 and Boeing 747. It was roomy and comfortable without being too wide for its projected role as a medium capacity airliner. The same fuselage was used on the next Airbus airliner, the shorter A.310 and for the longer range A.300B9 and B10 that had a new wing optimised for longer ranges than the A.300s. In 1980, after the A.310 was launched, Airbus redesigned the B9 and B10 projects to carry around 200 passengers with a range of up to 10 000 kilometres, intended to replace the Boeing 707s and DC-8s that were beginning to be forced from service because of new noise regulations. These two new versions were soon redesignated as the A.330 and the A.340, the A.330 twin jet and the A.340 as a four engine version. Incorporated into these new designs was the advanced technology developed for the smaller Airbus A.320s including a glass cockpit and side stick controller. In October 1986 Airbus signed a six year contract with CFMI to use the CFM56-5 engine as standard for the A.340. It was not the most powerful civil jet engine available but generally suited the requirement for an efficient fuel burn, giving the airliner long range and also freeing it from the restrictions imposed on twin engined airliners making long range over-water flights. The A.340 was designed in two initial versions, the -200 with longer range and the -300 with a fuselage 4.27 metres longer to give it greater capacity but shorter range.

The first A.340 (a -200 version) made its first flight on 1 April 1992 and received its certification towards the end of December that year. A.340 deliveries commenced in early 1993 and by late 2001 309 A.340s of all classes had been ordered and 205 were in operation.

As with many airliner kits, this A.340 kit is as old as the airliner it represents and carries the date stamp of 1992. These days it seems that this kit is available in at least two versions, a generic A.340 with Air Canada markings and an A.340-300 kit in Lufthansa markings. Both use exactly the



same moulds but, when you delve into the history of these airliners, you find that Lufthansa decal sheet gives you markings for an A.340-200 which is not quite the same thing. In any event the range of decal sheets available for airliners these days means that it is possible to make the A.340 in almost any colour scheme you like.

I bought an Air Canada A.340 from one of the club members and then picked up two more A.340 kits and an A.330 kit at a swap-meet (of which more in coming months). The person I bought them for had already acquired additional decal sheets and so, for an A.340-300 I had the choice of making this kit in Air Canada, Cathay Pacific or Singapore Airlines markings. Of the lot Singapore Airlines are the most striking and so I went in that direction.

There is nothing serious to complain about in this kit. Overall it is very well designed so that, with a little care and patience, it goes together easily and well. The engine pods and pylons are delightful little sub structures that give a full sense of the real airliner. The undercarriage is delicate, nicely detailed but also fairly sturdy. About the only serious complaint I have is the cockpit windows in which the framing is too thick so that if you use them as they come with the kit the end result looks far too small. I only found this out after the event but there are two solutions. One would be to carefully sand and polish the transparency and then mask the windows to something approaching their proper shape, the easier solution would be to use the decal provided (which is commonplace for 1/144 airliners) and that is what I did. Remember not to glue the tail fins into place until all the painting and decaling is done as it makes those jobs a whole lot easier.

After the major components of the kit are assembled and everything is ready for painting the really hard work on this model begins - the masking. The wings, for example involved six or so

different colours, most of them versions of grey that have to be mixed to achieve something approximating the correct shades. The most difficult sections to mask are around the engines and pylons, all up I reckon I must have spend four or so evenings cutting up and sticking on tiny bits of masking tape at various stages of painting the wings. But once they are done the fuselage is easy, all white.

The Liveries Unlimited decal sheet is excellent but, as with other Airbus airliners in this class, the windows at the rear of the fuselage are not in line with the rest of the windows but slant up a little (apparently to give more room in the under-floor cargo hold). The decal sheet fails to recognise this so the usual nipping and tucking is necessary. I also used some of the decals from the Air Canada sheet for some of the larger stencilling but close inspection of photos of Singapore Airlines A.340s shows many less stencils and stuff than are on the sheet. Apart from the hours of tedious masking this is one of the best kits I've made in a long time and it looks very nice in Singapore Airlines colours.



A.330-200
(September 2003)

Airbus Industrie was formed in 1970 as a European multinational project to create a high-capacity twin jet transport, the A.300. By 2003 Airbus had become the world's second largest

manufacturer of civil airliners of over 100 passengers capacity. In its first 25 years Airbus sold over 2100 airliners worldwide. The Airbus consortium is led by German, French, Spanish and British manufacturers and uses components manufactured by sub-contractors almost globally. Its headquarters are in southwest France near the city of Toulouse.

The A.330 was designed as part of an overall project to create a range of airliners to challenge Boeing's domination of the large airliner market. It is almost identical to the four engined A.340 that competes in the long-range market but, with two engines, it was designed to serve the shorter range market where the efficiency of two powerful engines was more important than the need for four engines on longer haul routes. The fuselages are identical, as are the flight systems, the wings are almost identical but the tail is a little larger to compensate for the loss of directional stability offered by four engines rather than two.

The A.330 was launched in June 1987 at the same time as the A.340. The first A.330, a -300 version with a fuselage identical to the A.340-300, flew for the first time in November 1992 and entered service a couple of months later. The A.330-200 version made its first flight in August 1997 and entered service in April 1998. It is 4.59 metres shorter than the -300 version but has additional fuel capacity so its range is over 3000 kilometres greater than the longer version. It competes directly with Boeing's 767-300ER, offering greater range, more under floor freight capacity, wider cabin and slightly higher speed. Airbus offers the A.330 series with options of three different engine types to suit the requirements of different airlines; the CFM CF-6, the Pratt & Whitney PW4168 and the Rolls-Royce Trent. It has begun to make inroads into what was once Boeing's prime market and 79 had entered operation by 2001. Qantas switched its allegiance from Boeing in its large fleet re-equipment plans announced in 2001 and has ordered both -200 and -300 versions of the A.330. It was able to order the two version because there is so much commonality between them that flight, cabin, ground and engineering crews can treat them as virtually the same type, even though they can serve quite distinct markets.

One of the first airlines to take delivery of the A.330-200 was Transportes Aéreos Meridionais (TAM), a major Brazilian airline that was founded in 1961 and became a scheduled carrier in 1976, flying initially with Fokker F-27s and Embraer Bandeirantes. Around 1990 the airline began using Fokker 50s and Fokker 100s. It currently serves 50 Brazilian centres and six other South American destinations. The A.330-200s allowed TAM to expand services to tourist destinations, largely in South America but also to Europe and the United States.

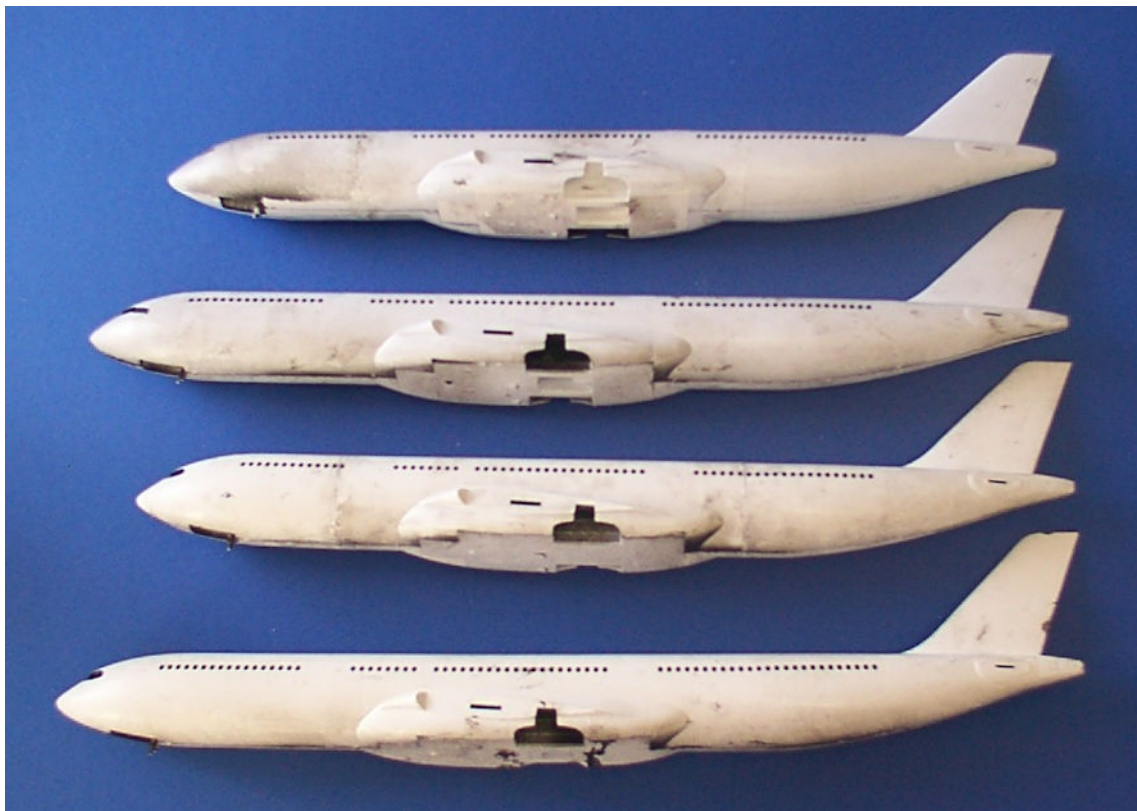
The Revell A.330 kit is, like the airliner it represents, almost identical to the Revell A.340 kit. The main difference is in the sprue that has the part for four engines for the A.340 and two engines for the A.330 kit. Due to no fault of my own I had ended up with three A.340 kits and one A.330 kit but, since A.330s and A.340s are so similar the engines were only the real difference - you have to poke holes through the plastic in the lower wing halves to convert them from A.330 to A.340 wings. The A.330 kit came with two sets of engines, Pratt & Whitney and CFM International so that allowed me to use the spare set to convert an A.340 into an A.330. To make matters even more interesting, the only significant difference between A.330-200s and A.340-200s and A.330-300s and A.340-300s is their length so a little bit radical surgery promised to make it possible to make all four separate versions from the kits I had.

The first stage was to assemble all four fuselages and then, when they were solid, cut plugs out of the fuselages before and after the wings of two of them. This was not a very difficult task, the most difficult part being to make sure that everything was square when the fuselages sections of the



two shortened versions were glued back together again. There was also the possibility that I would forget myself and accidentally glue both sets of A.340 wings to both the -200 fuselages, somewhat cramping later options. Another challenge was to match the fuselages and engines of the two A.330s so that they made combinations that were actually in airline service. I didn't get it right and then spent a lot of time scouring the internet, looking at all the options for what I had made and then having to search out appropriate decal sheets to match. The end result of this was that although I had two sheets of decals for the Air Canada version I was not able to use either of them and the A.330-200 ended up in TAM colours because that was all that was available. They came from a sheet printed in Brasil and sold from Britain. But the end result looks good so I'm not complaining.

There's nothing terribly complicated about this kit. As with most airliner models in 1/144 scale the main thing is the finish, although the crispness and detail of these kits makes them a pleasure to construct which is probably one of the reasons why I planned to make all four possible



versions after I had started work on one. As usual the most difficult and tedious part of the whole process was the masking, but the end result was very pleasing, to me at least.



A.330-300 (December 2003)

Airbus Industrie launched the combined A330 and A340 program in June 1987 to compete with Boeing's 767 and 777 designs. The new Airbus airliners were optimised for service on long distance routes with high passenger volumes. They were the first airliners to be completely designed using CAD (computer aided design) technology. While the A340 was designed with four engines for very long range routes the twin engine A330 was designed for medium to long range routes but both versions use basically the same wings, fuselages and avionic systems. They benefited from Airbus's development of modern flight control technology for its A320 series and are equipped with fly-by-wire control systems with sidestick controllers and two-man 'glass' cockpits. The cross section of the circular fuselage is the same as the A300 and A310 series, allowing the use of the same cabin equipment and reducing design and development costs. As with earlier Airbus airliners,

components are manufactured in various places - Aerospatiale manufacture the flight deck, engine pylons and parts of the central fuselage, British Aerospace manufacture the wings, Daimler-Benz Aerospace fabricate most of the fuselage, fin and interior and CASA builds the tailplane. The components are assembled at Toulouse.

The first A330 made its maiden flight on 2 November 1992 with CF6-80E engines and later flew with the alternative engines. Certification was achieved in October 1993 and the launch airline, Air Inter, began commercial operations in January 1993. The shorter A330-200 flew in August 1997 and entered service in April 1998. Both versions have been very popular with airlines, partly because of their good performance and profitability and partly because of their commonality with so many other Airbus airliners.

Sabena (Société Anonyme Belge d'Exploitation de la Navigation Aérienne) was the Belgian national airline and the second oldest European airline after KLM. It was formed in May 1923 and commenced scheduled services in 1924, eventually flying to many European cities. In 1925 the airline made its first flight to the Belgian colonies in Africa and established a scheduled service to Leopoldville in 1938. In 1947 it commenced its first transatlantic service to New York. Although the airline operated relatively well for many years it was hobbled by its role as the Belgian flag carrier that meant the airline had to provide services that made political but not economic sense and so it was in financial trouble from the 1970s. By the beginning of the 1990s the airline was in serious trouble and the government began looking for salvation in a partnership with other airlines, beginning with a short lived arrangement with Air France between 1992 and 1994. In 1995 Swissair took a 49.5 per cent equity holding in Sabena and virtually took over its operations as well. In 1997 Sabena ordered 34 Airbus airliners that were worth more than five times the capital value of the company and, in the short term, the partnership with Swissair and the new Airbus airliners improved its performance so it made a profit and set new passenger carrying records. In April 2001 its fleet included 12 long haul and 66 medium range airliners and it employed 12,500 people around the world. However, the collapse of Swissair and the effects of the terrorist attacks in the United States brought the airliner to a sudden collapse and it suspended operations in November 2001 in what was the worst business failure in Belgian history.

Revell, being the canny company that they are, make as much use of their moulds as they can. For the A330/340 range of airliners Revell have made use of the fact that the real airliners are virtually inter-changeable to use one set of moulds as the basis for a whole range of A330s and A340s. The fuselage is for an A340-300 and the wings are for an A330 with indentations in the plastic showing you where to make holes to convert it into an A340 wing. In addition, it is not too difficult to cut plugs out of the A340-300 fuselage to make an A340-200 fuselage which is virtually the same as an A330-200 fuselage. (The difference is that A330s have a slightly larger fin than the A340s to make up for the reduced keel area of only two engines.) By supplying different engines in different versions of their A330 kits it is possible to construct most of the different A330 versions. The UTA kit comes with parts for the Pratt & Whitney engines moulded on the main sprues and the CF8 engines on an additional sprue. All this is only encouragement for anyone mad enough to want to make more airliner kits than is good for them.

The Revell A330/340 kits are lovely to work with and really the only serious fault I have with them is that the cockpit window is too small. Consequently I ended up using a decal to at least make the window look the right size even though I would have preferred a better transparency. The kit decal sheets are fair but after market ones are generally better and seem to suit the petite nature of airliner kits better. In my case I was forced to use an after-market sheet because I confused myself

about which engines went on which versions of the A330 and ended up with CF8 engines on a -300 fuselage, which was not the most common of combinations ordered by airlines. After some time cruising the internet I managed to find decals for the Sabena A330-300 that had used CF8 engines and the sheet, when it arrived from overseas, proved to be of very high quality with excellent instructions which include details on how to convert a -300 fuselage to a -200 one and how to enlarge the size of the A.330 tail fin to make the model entirely accurate. By the time the decals had arrived it was too late to make that change but I'd recommend the Skyline decal set for the instructions and the quality of the decals.

As usual for airliners these days, the finish was overall white (I've got to the state with metallic and white finishes these days that I probably prefer them to camouflage colours, which shows you how much my finishing techniques have improved over the past few years.) As usual, the most tedious part of the entire construction process was the hours of masking that went into preparing for the three or four different shades of metallic finish around the leading edges and engines. After all that was over, on went the decals with almost no fuss although I substituted some kit decals for the after market ones to maintain some similarity between the various A330/340 models I've been making because almost every different decal sheet portrays some lines and decals slightly differently. The end result is a lovely looking little airliner.



A.340-200

(February 2004)

The decision made in 1970 to create Airbus Industrie came from the desire of Europeans to design and construct airliners that could compete with the United States products of companies such as Boeing and McDonnell Douglas. Airbus Industrie would construct airliners designed specifically for European conditions that would also be capable of beating United States manufacturers on the world market. The first Airbus product, the medium capacity A.300 widebody, was very successful and so Airbus branched out into other classes of airliners, each taking something from previous Airbus design but also incorporating new features to expand the Airbus range of products. Consequently the A.310 series was a shorter version of the basic A.300 and the A.320 series was a narrow-body airliner incorporating some old and many new Airbus features. When Airbus Industrie decided to take on Boeing on the lucrative intercontinental airliner market it retained the basic fuselage of the A.300, gave it the avionics of the A.320 and designed a new high performance wing that also allowed the new range of airliners to fly with two or four engines. This gave it a two engine airliner to compete with the Boeing 767 range of airliners and a four engine airliner to compete on some of the routes operated by Boeing 747s. Although the A.330-series of twin-engine airliners could be fitted with any of three different engines the A.340 series were all fitted with CFM56-5 engines that were not as powerful as the engines fitted to the A.330 series but were very fuel efficient and overcame restrictions placed on twin-engine airliners on some over-water routes.

The A.340 series was offered to airlines in two versions, the shorter -200 series which carried less passengers but over a longer distance and the -300 series with a fuselage that was 4.27 metres long to give greater capacity but at the cost of reduced range. The first A.340, a -200 made its first flight on 1 April 1992 and received its certification towards the end of December that year. A.340 deliveries commenced in early 1993 and by late 2002 a total of 233 A.340s were in service, 207 of them were -300s and only 26 were -200s.

Lufthansa became a major operator of both versions of A.340, the first six being -200s and the remainder -300s. This airline can trace its roots back to 1926 and during the interwar period it became a major international airline as well as training pilots for the Luftwaffe. It was revived in 1953 and adopted its present name in 1954, again growing to be one of the world's most important airlines.

Although this model is the last of my set of four A.330/340s to be completed it was the beginning of the whole sorry saga. I mean, I have been known to cast aspersions on modellers who make endless versions of Bf109s and here I've spent a good part of 2003 making variations on the same airliner. No wonder I leave the year in a slight state of mental befuddlement.. It all began with a tiny bit of research on the internet and the discovery of a site that listed the registrations of all the world's airliners. To my consternation I discovered that although Revell offered a kit for the A340-300 the registration was for Lufthansa's first A340 which was a -200. Well, a sensible person would have decided to print up a new registration number for the model to match a later -300 but instead I had a brain storm and ... there went the best part of the modelling year. The only real difference between the two versions is two plugs in the fuselage on either side of the wing that are indicated on the kit by engraved lines. True, the forward plug is back with the wing fairing which made life a little complex, but it promised to be really little more work than a new registration and a lot more interesting. But having decided to make that changes other variations occurred to me, and I was doomed.

Most of the other versions of the A.330 and A.340 did not present too many problems, except for the interminable masking because, even though most airliners in the past decade or so have been painted white, there are wing and tail leading edges, engine intakes and exhausts, undercarriage bays and a bewildering range of bare metal panels on the engine pylons that have to be done. (To preserve my sanity I made a smaller, simpler kit at one stage in less time than it would have taken to mask one of these airliners). On close examination there are perhaps a couple of little points on the kit that could be improved but it is hardly worth the effort. The only serious problem is the cockpit windows that are just too small, there's nothing to be done about it except use a decal for them.

For me the major problem with this model came in the painting. Having discovered that the secret to getting a high quality white finish on airliners is - censored (otherwise it wouldn't be a secret) -, I went ahead and did that but, when it came time to take off all the masking I'd used to paint the underside the appropriate shade of gray (and that wasn't a bed of roses either) great sheets of top side white paint came away as well. I tried a few quick-fixes that really didn't work and put the whole lot away for a few months to get over it all.

Decaling is also a bit of a trial, mainly because there are so many tiny little decals according to the instruction sheet and because, since I wanted all four versions to look similar, things like the



walk-lines on the wings had to be made up on the computer (all four decal sheets used in making the four models were different widths). A lot of effort can be saved by looking at as many photos as possible where it quickly becomes clear that many tiny decals don't seem to appear on the real thing. Again, the end result is a delightful looking not-so-little airliner.

Now, I've been noticing that more -500 and -600 series airliners are appearing in our skies these days. I wonder if Revell are thinking about releasing a kit from which they could all be made or whether it would be possible to do it with the existing kits. Argh!! No!!, Quick nurse, hand me a Spitfire.

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