

## Airfix Boeing 727-100 Conversion

By Paul Hackmann

### Background

On December 5, 1960, Boeing announced that it was going to produce a three-engine medium range jet, which would be targeted for operations at smaller airports. Initial studies for this jet actually began in 1956 when Boeing recognized that there was a need for an airplane that could operate from the fields that their 707 and 720 could not. The design incorporated several innovative features including having all three engines located on the aft portion of the fuselage, a built-in stairway, an internal auxiliary power unit and a sophisticated slat/flap system (the first of its kind used on any airliner) that allowed shorter landings and takeoffs. Boeing commenced development of the newly-designated prototype 727 upon receiving orders for 40 of the jets from both United and Eastern Airlines.

The prototype 727 first flew on February 9 1963 and received its FAA Flight Certification in December that same year. The first 727 entered service with Eastern Airlines on February 9, 1964. Nicknamed the "Whisperjet" while in Eastern service, the tail-mounted engines eliminated much of the associated engine noise from the passenger compartments. Although anyone close to an airport can attest to the fact that the Pratt-Whitney JT8D's were anything but quiet on takeoff and climb out. Operations with United followed shortly that same month.

Development of the 727-100 led to a family of sub-variants, including versions that allowed changing from passenger to cargo with relatively little effort. The biggest change to the base 727 came in 1967 with the addition of 20' to the fuselage. This stretched version featured an additional 10' of fuselage both forward and aft of the wing, increasing the passenger load from 125 to 189.

The 727-100 continued to be produced until 1973. The 727 -200 continued in production for 11 more years with the last passenger-equipped 727 being delivered to USAir on April 6, 1983. The final 727, a 727-200F, was built for FEDEX and delivered on September 18, 1984. With that, Boeing ceased a 22 year run of 727's with a final total of 1,832 being manufactured. The first 727 delivered to United Airlines, N7001U, now resides at the Seattle Museum of Flight. *I had always thought that it was the first production 727 was located here in Chicago. So I dropped a line to the Museum of Science and Industry asking about the history of it. I received a very nice email back the next day saying that the registration number for that one is N7017U, that it was the 17<sup>th</sup> 727 built and was purchased by United in 1964. Then I was wished good luck on my modeling project.*

### Markings

The markings I selected I spotted on eBay one evening while looking for items related to Eastern Airlines. Since I had already built the Airfix 727-200, I really hadn't intended to build another. After hemming and hawing for a day or so, I finally decided that the opportunity was too good to pass up and made my proxy bid. I probably over-paid by a couple of dollars, but by this time had convinced myself that I really needed to have a 727 in the "Golden Falcon" scheme. The Tango Papa decals arrived a couple days later in a sealed plastic bag sandwiched between two pieces of cardboard. *I did a little research and found out that these are special custom order decals, so maybe I didn't overpay.*

This particular livery lasted from 1964 to 1966, where it was changed to the more familiar blue hockey stick scheme. The upper portion of the fuselage is gloss white, the lower portion and wings being natural metal. The upper surfaces of the horizontal stabs and vertical stabilizer are both painted dark blue. The "Fly Eastern" logo and fuselage cheat lines are the same dark blue outlined by red. The large falcon on the tail is gold with a red outline. A picture of this livery is shown below:



The particular airplane I chose to depict was N8101N. This airplane was acquired by Eastern in February 1964 and flew in various schemes until 1982. A quick search of the NTSB database showed that it made a gear up landing in Jamaica, NY on October 2, 1964. The cause was listed as "Emergency Circumstances – Precautionary landing". This aircraft was leased to Air Niagara in August 1982 and operated with this carrier until they ceased operations in 1983. The aircraft reverted back to Eastern, where it was leased

to Mid Continent Bellanca. It was acquired by Aeroexo of Mexico in 1987. Finally, N8101N was written off for parts in October 1995.

### Building the Kit

The Airfix model of the Boeing 727 represents the -200, or longer version of the aircraft. The markings that I had obtained were for the 727-100 Eastern Golden Falcon scheme of the 1960's. Before starting this kit I needed to find out what the differences were between the -100 and -200 versions and how that could be represented in 1/144 scale. I made a couple of searches of the Web looking for 727 scale drawings to no avail. Finally I decided to do a search of the Boeing Web Site and I found available there downloadable PDF files of airplane characteristic manuals for all of the aircraft Boeing manufactures. From these manuals I was able to get scale drawings of both versions, along with measurements showing where the fuselage was lengthened. The link to all of these files is; [http://www.boeing.com/assocproducts/aircompat/plan\\_manuals.html](http://www.boeing.com/assocproducts/aircompat/plan_manuals.html). Another valuable link is here; <http://www.boeing.com/assocproducts/aircompat/flash.html>. Click on the button labeled Airport Technology Data and a list of available reference manuals is displayed.



The scale plans from Boeing helped me determine that the -200 was created with the addition of 10' to both the forward and aft fuselage. Knowing that, I could figure out how much to remove from the Airfix kit to make into its smaller cousin. To make the calculations easier I used 120" instead of 10'. By using that I knew that it had to be a little under an inch on each side of the wing. To get the exact measurement I set up the proportion;  $1"/144" = x"/120"$ . The left side of the formula says that 1" on the model is equal to 144" on the real airplane. The right side wants to know how many inches on the model represent 120" on the real thing. So, solving for x in the equation give the resultant  $x=120/144"$  or  $x=5/6"$ . So if I remove 5/6 of an inch (or .83") of fuselage on the model that would be the equivalent of removing 120" (or 10') on the real airplane. *After I had done all of this, I found the*

*web page <http://kithobbyist.com/amdiget> that has an excellent article on how to convert the Airfix 727-200 to a 727-100. Fortunately, the author and I came up with the same measurements*

Having called around to Venture and Al's I found that only Venture had the kit in stock. Bribing my family with lunch at Fudrucker's in Palatine, I managed to scam a trip to Venture to get it. Later that evening I marked out the area to be removed on the right fuselage half. Most of the cuts were made using a miter box, but the cut nearest the tail had to be done freehand. Fortunately the tape acts as a good reference and I was able to keep the cut pretty square. The same process was followed to remove two .8" (*OK guys I know I said .83", but the darn saw kerfs are wider than .03"*) plugs from the left side of the fuselage. One of the concerns I had while doing this was that the reassembled fuselage would be weak where the plugs were removed. In order to minimize this, I staggered the joints on each side of the fuselage so that where the plug was removed from one side of the fuselage doesn't line up with the plug removed from the other side. Once the plugs were removed, the remaining pieces of fuselage were given a swipe with a flat file to remove any roughness left by the saw. Each piece was also trued up by rubbing it down on a piece of sandpaper taped to a sheet of glass.

The resultant was that now I was left with a 6-piece fuselage that I needed reassemble. At this point I was concerned about two things, the fuselage being weak at the attachment points and the cockpit and tail getting out of alignment. To reinforce the fuselage I glued a plastic I-Beam to the central portion of each fuselage half so as to run the entire length of the fuselage nose to tail along the passenger window line.

I then glued shorter lengths of I-Beam around the perimeter of the fuselage, parallel to the fuselage and perpendicular to the cuts I made. When these supports were solid, I secured each mid-fuselage piece to a large sheet of glass. I attached both forward and aft portions of the fuselage to their respective mid-fuselage pieces. To prevent the fuselage from wracking, I ran a piece of masking tape the width of the fuselage from nose to tail securing the whole to the glass. This was all put aside to dry for 24 hours.

The next evening I released each fuselage half from the glass and for about 10 minutes admired what I'd accomplished. When I'd stopped patting myself on the back, I went ahead and attached the two fuselage halves together and attached the exhaust cone. The passenger windows were to be decals, so the kit holes meant for the windows were filled in with gap-filling CA. A little of the same was needed around each area where the plug was removed and on the exhaust. The fuselage was sanded smooth using 320 grit wet & dry. While I was at it I took the opportunity to make four other modifications to the fuselage. The first correction involves the nose profile, as the kit is too blunt when compared to the real thing. Fortunately, Airfix plastic is pretty thick and soft and it took little time with the heavy sandpaper to get a more acceptable profile. The other three corrections revolve around the central engine intake profile. The intake on the -100 version is slightly shorter and more

oval than on the -200. I used the flat file again to remove approximately 1/8 of an inch from the intake. Then I held the aft portion of the fuselage under very hot tap water until the thin plastic making up the front the intake was soft. I squeezed it from a round profile to a more oval one. The final correction to be made is where the intake blends into the tail. On the kit there is a sharp demarcation line, whereas on the real thing the intake blends in smoothly with the tail. Again, 320 and elbow grease made it look more acceptable.



One last problem area on the fuselage was the exhaust cone, which needed so much sanding that the thrust reverser housing ended up being removed. So this had to be manufactured from something and attached to the cone. I had intended to glue on a piece of plastic and sand it to shape, but I found a package of oval beads at Hobby Lobby whose edges matched exactly the profile I needed. By holding

one of the beads in a pair of vice-grips I was able to saw off one edge the length and shape of the housing. When attached to the cone, it looked much more realistic than that originally supplied. *I ended up doing a similar modification to the thrust-reversers on the two fuselage-mounted engine pods.*

After completing all the modifications, the kit's nose was filled in with lead shot (7 ½ if you must know) and white glue. The cockpit windshield was attached and the fuselage was set aside in a nose down attitude to dry. While that was drying, I tackled the wings next. Fortunately there was no modification made by Boeing to the wings and I used them as supplied in the kit. The right wing was slightly warped and needed a dipping in hot water to straighten it out. Each wing was sanded along

the join line and then attached to the fuselage. As with the Airfix 727 kit I built previously, there were no problems with the fit.

Now that the major sub-assemblies were all attached, the model was given a polishing with ever finer grits of sandpaper ending with 12000. Following this, a washing with warm water and dish soap removed the plastic dust and any finger oils. After the kit was dry, I sprayed the fuselage a flat light grey. This undercoat allowed me to fix any areas of the fuselage that still needed filling. When I was satisfied that it was as good as I could get it, I applied one last coat of light gray. When this had dried, the fuselage was painted a coverage coat of Model Master flat white. This was followed with three coats of a much diluted Model Master gloss white. After a couple of days drying time, the areas to remain white were masked off and the remaining areas were painted with three mist coats of SNJ Aluminum. A little work with SNJ Polishing Compound brought a shine to the lower fuselage and wing leading edges.

I began decaling with the wing walkways and coroguard. These came from a Flying Colors 727-100/200 detail sheet. Also on that sheet were the passenger windows, cockpit windscreen and all exits and baggage doors. Next the EAL specific markings were tackled. The Tango Papa decals went on with little difficulty. Although the long fuselage striping broke in two, but I think that was my fault for not letting it soak in water long enough.

After finishing off the decals, I sprayed the model with a coat of Floquil Crystal Coat. I added the rest of the details, including gear, gear doors and various antennas. As I wanted to see what a gloss finish looked like, I did not follow with a final coat of flat finish. Building this kit gave me a chance to expand my modeling skills a little bit and add another airliner to my collection. It was fun and easier to do than I thought. Since airliners are basically tubes with wings, they're pretty easy to stretch or shrink as necessary to make a different version. I enjoyed this little project.

For those of you keeping score, here's how my project's going as of February 9, 2004:

<b>Aircraft</b>	<b>Model</b>	<b>Scheme</b>	<b>Status</b>
DC-9-14	Airfix	White w/Hockey Stick	Complete
DC-9-30	Airfix	White w/Hockey Stick	Complete
B727-100	Airfix	Golden Falcon	Complete
B272-200	Airfix	White w/Hockey Stick	Complete
DC-3	Minicraft	Red Falcon w/Winged Logo fuselage	Complete
Electra	Minicraft	Red Falcon w/Winged Logo fuselage	Complete

DC-9-51	Airfix	Natural Metal w/Hockey Stick	Decals
B757-200	Minicraft	757 Logo w/Hockey Stick	Decals
L-1011	Airfix	White w/Hockey Stick	Decals
B757-200	Minicraft	NM w/ Hockey Stick (1991)	Construction
Constellation	Minicraft	Red Falcon w/Winged Logo fuselage	Construction
A300	Airfix	White w/Hockey Stick	Construction
B720	Sasquatch	White w/Hockey Stick	Not started
Convair 440	Sasquatch	White w/Hockey Stick	Not started

Kits I'm still searching for:

DC-8-61 through 63:

- Revell has one out that you have to pay a premium for
- Welsh Models vacuform is available
- Minicraft announced it is releasing one in EAL markings this summer

Martin 404:

- Starr Miniatures Resin

DC-7:

- Revell released one in 1/122 scale in the 50's available on eBay on occasion
- Hoping that Minicraft releases one some day

DC-10: Airfix's is available, but I've not purchased one yet

B747: Airfix's is available, but I've not purchased one yet