CLAUDE BOILEAU HUYNH-DINH KHUONG THOMAS A. YOUNG

ENCYCLOPAEDIA OF MILITARY MODELS

1/72

AIRCRAFT · MISSILES · SCIENCE-FICTION
VEHICLES · ARTILLERY · FIGURES · WARSHIPS

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INTRODUCTION

The definition of the word "model" in some dictionaries reads like this: "a miniature representation of some existing object, such as a machine or a theatre scenery, which is accurate in its proportion and aspect". More generally, it can be said that the expression is used to cover all three dimensional reduction of an object.

The idea of creating a reduced version of reality stems from manifold aspirations. Architecture makes use of models, and so does shipbuilding for hydrodynamic tests. Models are again used in the field of aeronautics for aerodynamic research but, apart from technical or industrial requirements, private reasons for building models do exist.

A good model is rather like a work of art that amateurs handle with care or indeed content themselves with inspecting it from all angles. It can be said to be real in its presence and unreal insofar as it conjures up different places or periods. Models can represent any subject, be it a historical event or the brainchild of fiction; technical or human feats, passions, wars or even fancy rank among those multiple subjects that can be conjured up by models.

Modellers will often devote a lot of time to making models of what they like and what they may never be able to afford. That accounts for the universal and growing appeal of modelling.

Broadly speaking there are three ways of building a model:

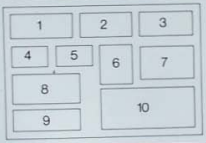
- Straight from the box. The assembly of such a model can be very quick and some of them will look quite satisfactory, even with simplified assembly and painting.

- Using a kit as a basis, with improved or modified parts, or even conversions, to achieve greater realism.

- Scratchbuilding, using the best available documents and "raw materials" ranging from plastic card to copper wire.

These procedures should enable a modeller to assemble all the aeroplanes of an aerobatic team in a day or, in the case of the opposite extreme, to spend months or even years to portray that prototype whose rakish lines took his fancy.

Experienced modellers will not content themselves with assembling their models properly, they will try to analyse kits and to understand the "whys" and "hows". They will not hesitate to leave aside a poor model and build up their own masterpiece from scratch, so as to evoke the history of the original as accurately as possible.



1*	AVRO *CF-100 Mk.IV Canuck*	(Aurora)
2	B.A.C. *Lightning F-6*	(Frog)
3*	ADER *Eole*	(Brifaut)
4*	AERMACCHI *M.B.326*	(Cunarmodel)
5	AICHI *M6Al Seiran*	(Aoshima)
6*	BELL *X-1*	(Airvac)
7	AGUSTA-BELL *AB-205*	(Esci)
8	B.A.C. *TSR-2*	(Contrail)
9	ANTONOV *An.2 Colt*	(VEB)
10	AVRO *Vulcan*	(Rareplane)

ADER *Eole* — **Brifaut**

The French name "Avion", meaning a heavier-than-air machine fitted with wings and designed for flight, was invented by Clément **Ader** in 1890 who made his childhood dream come true that year, when he built his "Avion I", better known as *Eole*. That flying machine was probably the first to actually leave the ground under its own power. Witness accounts are not unequivocal but Charles **Dollfus**, a historian and flyer who personally knew **Ader**, wrote the following lines in the spring 1974 issue of *Icare* magazine (No. 68) devoted entirely to **Ader**:

"On October 9th, 1890, Clément **Ader** clearly demonstrated the possibility of leaving a flat surface, and making a progress of 50 yards in a straight line, no more, for lack of power and stability."

That is one of the reasons why any mention of the *Eole* will raise the greatest interest among a group of modellers. Produced more than 20 years ago by **Brifaut**, the *Eole* plastic kit was one of the first to bear the "Made in France" label. In spite of its age it remains one of the best models of old aircraft in the 1/72 scale series.

Pierre **Brifaut** aimed at several objectives when he designed his kits:

— he wanted his boxes to look better than the others and had the box arts painted by Bernard **Brenet**, a famous pre-war artist;

— he wanted to improve the culture of those who purchased his models; that is the reason why he added a historical account of the *Eole* and a biography of **Ader**;

— he wanted his models as accurate as possible and the *Eole* must have been the first plastic model to be supplied with a template, fabric, nylon thread and liquid cement for covering and rigging; this new

method made assembly much more difficult. So as to encourage the average modeller to succeed in spite of the difficulties, **Brifaut** included two *Eole* models in each box. Pierre **Brifaut** planned to make no less than 100 models of French aeroplanes to 1/72 scale. That scheme was a way for him to convey his views by telling the history of aeroplanes, their manufacturers and their pilots. He hoped thus to urge modellers to go beyond their normal abilities. Unfortunately, he died before his schemes could materialise. He was buried at Presles, a pretty village in the Val d'Oise near Paris. A tribute in his memory is a must, should you happen to go there.

AVRO *CF-100* — **Aurora**

This kit was eagerly sought after by Canadian modellers, although the packaging contains a slightly oversized model whose moulding quality is not up to present-day standards, but was reasonable when it was released. Purists may prefer to work out a *CF-100* from the **Hosey Craft** model, which is a more accurate kit and still available.

AERMACCHI *M.B. 326* — **Cunarmodel**

The **Gualdoni** brothers mainly manufacture desk-models for **Aermacchi** at Cunardo, near Varese, **Italy**. On request of local modellers, they develop very unique aircraft kits to 1/72 and 1/100 scale for them. These planes, released in small batches under the **Cunarmodel** label, are eagerly sought after throughout the world . . .

BELL *XS-1* — **Air Vac**

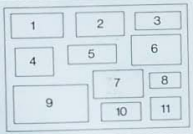
On October 14th, 1947, Captain Charles E. **Yeager** was the very first in the world to break, the sound barrier with his **Bell** *XS-1* named "Glamorous Glennis" to honour his wife. After an outstanding service, this aircraft performed his 59th and last flight on May 12th, 1950. On that day, Charles **Yeager** flew it again in spurious Soviet markings, for the shooting of a short sequence of the *Jet Pilot* film.
Retired Brigadier General Charles E. **Yeager** appeared recently in the film *The Right Stuff*, not as himself (Sam **Shepard** did), but as Fred, the bartender at Pancho's bar, the only meeting-place in the Mojave desert for all those famous test pilots who were pioneering supersonic flight.
The *XS-1* number one is now displayed in the **National Air and Space Museum** in Washington DC.

The **Air Vac** vacuformed kit is very crisply made and enables the building of an excellent model, even if decals are not included. However, a very fine **Microscale** decal sheet is provided with the *X-1E* made by the same manufacturer. The assembly instruction sheet provides a good plan and quotes the source references used for the design of the kit, particularly the remarkable book *Supersonic Flight* written by Richard P. **Hallion**. Congratulations to **Air Vac** for the choice of this plane and their good results.

▲
ADER *Eole* — Didier **Palix**

ADER *Eole* — Didier **Palix**

The *Eole* is difficult to cover with fabric, following the procedure recommended by Pierre **Brifaut**, because of its flexible structure. Indeed, after gluing, the fabric has a tendency to blistering. One of the tip developed for covering this kit consists of inserting thin sheets of plastic cards tailored to the proper dimensions between the ribs, and wrap and glue the whole with Renwal *Aero-Skin*. François **Portier**, a member of the friendly **MKSB** (Model Kit Static Boulonnais) used carbon paper protection sheets to replace the *Aero-Skin*.



1*	AICHI *E13A1 Jake*	(Hasegawa)
2	AVRO *Triplane Mkl*	(Renwal)
3*	AERO COMMANDER *Jet Commander*	(Aurora)
4*	BEDE *BD-5*	(299 Models)
5	BAC *Canberra PR7*	(Triang)
6	BELL *AH-1S Tow Cobra*	(Fujimi)
7*	AVRO *Canada CF-100*	(Alpha)
8	AERO *L29 Delfin*	(Kovozavody)
9	BERIEV *Be 6 Madge*	(VEB)
10	BRISTOL *138A*	(Frog)
11	BAC *Jet Provost Mk 3*	(Airfix)

AICHI *E13A1 Jake* — **Hasegawa**

Ross **Abare** owns one of the finest collections of models in the world. He moulded hundreds of Japanese catapults for the sheer pleasure of improving his dioramas of Japanese aircraft. Some of those catapults were sold for $3 each by **Unique Scale Accessories** from Springfield, Massachusetts, USA. **Hasegawa** eventually bought up the mould and now includes Ross **Abare's** catapult in the **Aichi** *Jake* and **Kawanishi** Alf kits, thereby increasing their price and making a handsome profit.

AERO COMMANDER *Jet Commander* — **Aurora**

No **Aurora** *Jet Commander* will ever be re-issued. As a matter of fact, Rick **Waldorf**, the Marketing and Sales Manager of **Monogram Inc.**, has confirmed that the mould (bought from **Aurora**) was broken up when the train that was carrying it, derailed.

BEDE *BD-5* — **299 Models**

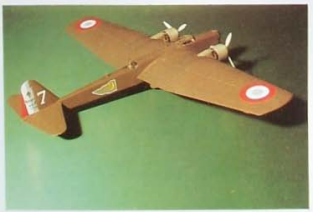
The *BD-5* is the smallest existing 1/72 scale aircraft kit. This one is made by Terry **Elmore**, a dynamic American who successfully used a press whose injection load limit does not exceed ¾ oz. The bagged kit shown here is of the first release and only offers the jet-powered version, but, with some modifications, may also be worked-out into a prop-driven version. The last release of the *BD-5J* includes a decal sheet.

AVRO CANADA *CF-100* — **Alpha**

André **Longchamps** is an orthopaedist-podologist in Liege, **Belgium**. Fortunately, he is also a modeller. When one of his models is particularly well-made, he moulds it and installs the mould on the machine he currently uses for vacuforming the prothesis of his patients.
The result lies before your eyes: one must confess that this pair of **Alpha** prothesis will not help you if you are suffering from sore feet, but surely you'll jump with pleasure if you love the *CF-100*.

▲
AIRSPEED *AS.51 Horsa* — Jacques **Niot**

The military transport glider *Horsa* was built during WWII. It was designed as a troop-carrier and a freighter. Two versions were made: the *Horsa I (AS.51)* which accommodated from 20 to 25 troops and the *Horsa II (AS.58)* with a hinged nose for the loading of vehicles and heavy equipment. Roughly 3700 *Horsa* were built.
This **Italaeri** kit depicts the *Horsa I* version. No criticism can be formulated about this model.



AMIOT 143 — Jacques **Niot**

AMIOT 143 — Jacques **Niot**

The all-metal **Amiot 143** was a Recon/Bomber. Its double-deck fuselage was its most characteristic feature.
The **Heller** kit is to be ranked in the NTB (not too bad . . .) category as the shortcomings can be corrected without any major difficulty.
As a matter of fact, Jacques **Niot** modified the vertical fin, engine cowlings and propellers of his **Amiot 143**. Markings are those of aircraft No. 112, 35th Bomber Wing, 4th Flight, of the French Air Force.
When he assembled his model Jacques had no vacuform machine to mould the transparencies. That is why he used to sand those provided in the box with finer and finer grain sandpaper and then polished them with some kind of car wax.

▲
ARMSTRONG-WHITWORTH *Siskin* — Paul **Goujon**

The **A.W.** *Siskin* was selected by the British Air Ministry as a day fighter in 1926. It was produced by **Gloster, Blackburn, Bristol** and the parent company — **Armstrong-Whitworth**. Over 350 aircraft of the type were delivered until 1931.
The **Matchbox** kit is well moulded, easy to assemble and offers scope for intricate rigging. The checkerboard markings of No. 43 Squadron come from a **Modeldecal** sheet. *Aircraft of the RAF* (**Putnam**) is a useful — indeed indispensable — reference for lovers of British military aircraft.

▲
BELL *XP-77* — Claude **Boileau**

Compared to its contemporaries, this prototype fighter was rather tiny (the *P-47* was three times heavier). Its simplified construction and wooden structure would have made it possible for the USA to mass-produce it with lower costs and a quicker rate of delivery than were required for conventional fighters.
Moreover, from an operational point of view, the reduced size and weight of the *XP-77* would have bestowed upon it a higher manoeuvrability and superiority over its opponents. These hopes were unfortunately dashed.
Two *XP-77s* were built *(SN 43-34915* and *916)*. The first flight *(915)* took place on April 1st, 1944. 916 crashed on October 2nd, 1944 following a spin but the pilot successfully baled out and escaped unscathed.
The performances of the *XP-77*, particularly its climbing speeding and its service ceiling turned out to be lower than the **Bell** Company estimated and the programme was shelved in December 1944.
The **Airframe** model is generally accurate but the fuselage section is about 3mm too narrow at the bottom. The 3 view drawing included in the kit is good though slightly over-scale. The canopy was vacuformed with a **Mattel** machine. The landing-gear was almost entirely made from copper wire, aluminium tubes and foil. Painting was carried out with **Liqu'a Plate**. **Microscale** decals were used. A very detailed account of the *XP-77* with about 20 photographs and a 3 view plan can be found in *AAHS Journal* (Winter 1981). *Air Pictorial* and *Le Fanatique de l'Aviation* have also published short articles on the same subject with three or four photographs along with a plan, respectively in April 1960 and March 1971. Finally, Bob **Archer** described the assembly of the **Airframe** model and added photographs of the prototype and of his model in *Scale Aircraft Modeler*, Summer 1975 and January 1979.

1	2	3
4	5	6
7	8	9

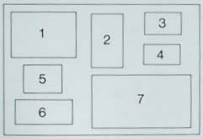
1. BELL *AH-16 Huey Cobra* (Monogram)
2. BACHEM *Ba 349A Natter* (Heller)
3. ANTOINETTE *Monoplan 1908* (Brifaut)
4. BRISTOL *170 Superfreighter Mk.31* (Airfix)
5* BELL *X-5* (Dragon)
6. ALBATROS *D.V* (Renwal)
7. AVRO *Lancaster « Dam Buster »* (Revell)
8. AUSTER *Antarctic* (Airfix)
9* CANADAIR *CL.215* (Heller)

NORTHROP *X-4* and BELL *X-5* — **Dragon Model Works**

US prototypes of the fifties and sixties are fascinating, yet no plastic injection kit manufacturer shows any real interest in these planes at present. **Dragon Model Works** had the good idea to provide us with a **Northrop** *X-4* and a **Bell** *X-5* on the same plastic sheet.

CANADAIR *CL.215* — **Heller**

This model was widely acclaimed by modellers and aircraft modelling magazines when it was released. **Heller** is to be congratulated for this handsome achievement.



1 ARMSTRONG-WHITWORTH *Whitley* (Frog)
2 BELL *XV-3* (Eagles Talon)
collection P. Legrand
3 BREWSTER *Buffalo F2A* (Aoshima)
4 BEDE *BD-5/BD5-J* (L.S.)
collection D. Palix
5* DASSAULT *Mystère IVA* (Rudel)
6 DASSAULT *Mirage F.1C* (Hasegawa)
7 AVRO *Vulcan B.2* (Airfix)

DASSAULT *Mystère IV* — Bernard **Rudel**

Already at the age of 12, Bernard **Rudel** had started making models carved from wood. Three years later, his collection included no less than 50 models built to 1/50 scale. But, probably like many other collectors, he got worried about the lack of space. Finally he decided to carry on making models to the less cumbersome 1/72 scale. Soon his new collection grew to 300 models but, in spite of that, Bernard **Rudel** could not find his favourite aeroplanes in hobby shops.
In 1968, he discovered **Rareplanes** vacuforms and a small machine for producing vacuum formed objects, sold as a toy by **Mattel**, all these at the **Camouflage Air Club**, a society no longer existing today but almost every member now belongs to **IPMS France**. He started on a few conversions with the **Mattel** machine but the latter showed its limitations. So Bernard **Rudel** decided to invest his savings, amounting to some $350, in a new machine he built himself from an old gas cooker, an electric resistor, three empty bottles of camping gas, a small vacuum pump, a pressure switch, an electric valve, some elbow grease and . . . sweat. His first efforts produced crude models but nowadays, thanks to the experience he gained by producing some twenty different kits, **Rudel's** vacuforms have become products that are appreciated by those modellers who wish to get off the beaten track.
Bernard **Rudel** is thus the father of French vacuform and, in 1984, he was still the only exponent of the technique in **France**.

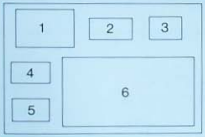
1	AVRO *Shackleton Mk.3 collection P. Legrand*	(Frog)
2	AERO *L.39 Albatros*	(Kovozavody)
3	AIRSPEED *Oxford*	(Frog)
4*	BEECHCRAFT *Bonanza*	(Eidai)
5	BLOCH *M.B.152*	(Heller)
6*	ARSENAL *VG.33*	(K.P.L.)
7	BRISTOL *F2B*	(Renwal)
8	BEAGLE *B.206 Basset*	(Airfix)
9	BOEING *P.26A Peashooter*	(Revell)
10	BOEING *B-17F Flying Fortress*	(Hasegawa)

BEECHCRAFT *Bonanza* — **Eidai**

The line of **Eidai** civil lightplanes is of such high standards that it is an absolute must for modellers who like Flying-Clubs. It is really a pity that manufacturers show so little interest for that category of aeroplanes.

ARSENAL *VG.33* — **K.P.L.**

Bernard **Rudel**, the French pioneer in vacuformed kits, and Ken **Lasala**, the founder of **K.P.L. Models**, have both focused their interests on the **Arsenal** *VG.33*.
The American model shown above is very crude and its accuracy is questionable, but at least it is easily available. The French model is better, but can only interest collectors as it has not been re-issued.



1* CAPRONI *Campini* (Delta)
2* CONVAIR *XF-92A* (Hawk)
3 CESSNA *O-1 Bird Dog* (Airfix)
4* CESSNA *Skymaster* (Aurora)
5 CESSNA *172 (With Floats)* (Grip)
6 BOEING *B-52 Stratofortress* (Monogram)

CAPRONI-*Campini N.1* — **Delta**

Delta kits mean tidings of joy : they conjure up historical achievements and on top of the usual instruction and decal sheets, each box includes a well-produced colour booklet about the aircraft. Curiously enough, some mouldings of the **Caproni**-*Campini N.1* are pistachio green.

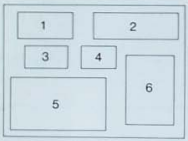
CESSNA *337 Skymaster* — **Aurora**

Thanks to a *KCI* (Kit Collectors International) interview published in their *Vintage Plastic* bulletin, we all know that the mould of this **Cessna** *Skymaster* by **Aurora** was destroyed at the same time as that of the *Jet Commander*.

Although it was not broken when the train derailed, it sunk into the marshes of Upstate NY, where the accident occurred.

CONVAIR *XF-92A* — **Hawk**

The box is not upside down — the aircraft is in inverted flight! This model of 1966 vintage includes no landing gear, but oddly enough offers four US Navy Sparrow I missiles, although the *XF-92A* was an experimental US Air Force aircraft that carried no armament.



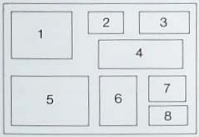
1	BLERIOT *XI*	(Brifaut)
2	BOEING *B-737*	(Monogram)
3*	BLOHM UND VOSS *BV.141*	(Airfix)
4	BOEING *P-12E*	(Matchbox)
5	BOEING *B-47E Stratojet*	(Hasegawa)
6	BELL *XP-83*	(K.R.)

BLOHM UND VOSS *BV.141A* — **Airfix**

This observation aircraft featured an extraordinary asymmetrical layout that was meant to provide the crew with excellent visibility. It first flew in 1938 but never achieved mass production status.
Jacques **Niot**, who specialises in WWII German aircraft, claims that the **Airfix** offering is quite accurate but unfortunately marred by the poor quality of the transparencies.
Good references about the various versions of the *BV.141* are to be found in the July and August 1964 issues of *Flying Review International*.

BLOHM UND VOSS *BV.138MS* — Jacques **Niot**

This **Supermodel** moulding is rather crude and the fit of the parts is inferior to today's standards. However, the general outline is quite accurate.
This *MS* version (Minensuche, ie, mine-searcher), fitted with a large magnetic field generator hoop, was nicknamed, literally, "mouse-catcher" (Mausi Flugzeuge).



1 CONSOLIDATED *PB4Y Privateer* **(Matchbox)**
2 BELL *P-63 Kingcobra* **(Aoshima)**
3 BLACKBURN *Buccaneer S2B* **(Frog)**
4* CONVAIR *B-58 Hustler* **(Aurora)**
collection B. Macaire
5 BLOHM UND VOSS *BV.138* **(Supermodel)**
6 BELL *P-59 B Airacomet* **(Rarejets)**
7 BEECHCRAFT *17* **(Rareplane)**
8 BOEING *Vertol 107* **(Airfix)**

BLOHM UND VOSS BV. 138 MS

CONVAIR *B-58 Hustler* — Aurora

Until the release of the **Italaeri Convair** *B-58*, this **Aurora** *Hustler* was much sought after. Being the only plastic injection moulded kit close to 1/72, it allowed the non-specialists of vacuforms to build-up a satisfactory model of this well-known bomber.

1 BOEING *B-29 Superfortress* **(Airfix)**
2 BELL *P-39Q Airacobra* **(Airfix)**
3* GENERAL DYNAMICS *F-16XL* **(Monogram)**
4 BLOHM UND VOSS *BV40* **(VP Canada)**
5* BUGATTI *100 Racer* **(Projekts)**
6* DASSAULT *Mirage IIIC* **(Central)**
7 BLACKBURN *Shark* **(Frog)**
8 BOEING *KC-97G Stratocruiser* **(Rareplane)**

GENERAL DYNAMICS *F-16XL* — **Monogram**

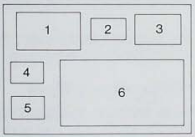
In spite of some minor imperfections, this **Monogram** *F-16XL* is an interesting kit, since it portrays the brightly coloured first prototype built by **General Dynamics** from the fifth *F-16A*. This model is one of the few (among others such as **Hasegawa's Lockheed** *S-3A Viking*, **PZW Siedlce's** *SZD Jantar Standard*, **Monogram's** *B-1B* and *F-16 Thunderbirds Team)* to include a tinted canopy. This is not a novelty, since 20 years ago, **Aurora** for instance, already supplied a green-tinted canopy for its quarter-inch scale **Lockheed** *XFV-1*.

BUGATTI *100 Racer* — **Projekts Model Company**

Who on earth was original enough to produce a **Bugatti** *Model 100* (a French racer that did not even fly, and was the brainchild of Louis **De Monge** under an Air Ministry contract to try to win the 1938 Deutsch de la Meurthe Cup)? You guessed! That was the American Matt **Hargreaves**. This **Projekts Model Company** kit was introduced for the first time at the **IPMS** National Convention in Salt Lake City, Autumn 1979. 600 kits — all of them numbered — were issued. Collectors still have a chance, if . . .

DASSAULT *Mirage IIIC* — **Central**

Trying to show off a model to its best advantage with top-quality box-art is a praiseworthy practice, but depicting it with accessories that are not included in the box can be misleading. Thus **Heller** saw it fit to represent their *Javelin* (box reference No. 346) or their *Lansen* (box reference No. 343) with an external fuel tank without including those parts in the kits.
Conversely, why did **Central** fail to picture the **Matra** *R.530* missile on their box-art, since it is supplied with their model?



1* CONSOLIDATED *PBY-6A Catalina* **(Revell)**
2 CESSNA *172* **(Eidai)**
3 CURTISS *BF2C-1 Goshawk* **(Gunze Sangyo)**
4 CURTISS *P-36 A* **(Monogram)**
5 CESSNA *O-2A* **(Airfix)**
6 CONVAIR *B-36 Peacemaker* **(Monogram)**

CONSOLIDATED *Catalina Cousteau* — **Revell**

We have chosen to show the *Catalina* in its **Calypso** packaging to honour the memory of Philippe **Cousteau** who was killed while flying this aeroplane over **Portugal** for the shooting of a film dealing with marine life. No one will ever forget those wonderful moments spent watching him and his *PBY-6A* on TV. Thanks to the **Cousteau** team, the deltas of **Costa Rica**, the jungles of **Nicaragua,** and the rivers of **Senegal** seem so much closer to us.
The **Cousteau** kit includes two frogmen, a fine **"Zodiac"** dinghy and beautiful decals picturing the nymph **Calypso**.
Revell moulded their *Catalina* in three versions: the *PBY-5* flying boat with detachable undercarriage, the *PBY-5A* amphibian with retractable landing gear and *PBY-6A* amphibian with retractable landing gear, taller fin and rudder and modified nose.
At least two documents will facilitate the task for those modellers who wish to assemble a *Catalina:*

— *PBY Catalina in Action* published by Squadron/Signal,

— *Scale Aircraft Modeler* Volume 2, No. 6, Spring 1974 that includes good drawings and some black and white photographs.

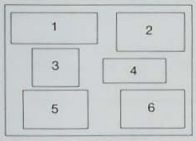
▲

BOEING *B-737* — Jean-Frédéric **Boullier**

1/72 scale airliners are such a rarity that **Aurora's** *B-737* is eagerly sought after by civil airplanes patrons.
Jean-Frédéric **Boullier** told us about his method of applying **ABT's** Argental powder on the metal panels, when we took this picture:
— He cleaned all surfaces thoroughly with washing up liquid and told us it was essential to avoid touching the model with one's bare hands. If it was absolutely necessary to handle the model, cotton gloves (similar to those that are used by photographers to hold negatives or prints) had to be worn.
— Then he applied the powder with a cotton or paper pad and buffed it up with a compact drill fitted with a felt pad revolving at high speed to force the metallic powder into the plastic.
— Then he applied more powder with a cloth and polished it with another cloth until a satisfactory finish was obtained.
Jean-Frédéric resorts to this technique for all his models now and considers it as second to none.
The tail assembly of this **Royal Air Maroc** *B-737* shows off the result to perfection. The metallic glint which is so typical of new airliners can also be found on the same modeller's **Air France** *Constellation*.

BREGUET *XIV* — Francis **Nicole**

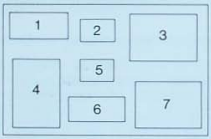
Francis **Nicole** built this **Breguet** *XIV* from Bernard **Rudel's** vacuformed kit and was awarded a silver medal, an **IPMS** first prize and the President's prize at a contest held during the 4th modelling exhibition which took place in the "Palais du CNIT" at **Paris-La Defense** from April 2nd to 10th, 1983.
The **Breguet** *XIV* was used mainly as a postal aircraft. An interpreter often flew with the pilot. This was quite useful in case of a forced landing in the desert among the Moors.
Francis **Nicole** carried out extensive research to build his model and consulted



1 CONSOLIDATED *PBY-5A Catalina* **(Aurora)**
2 CONSOLIDATED *PBY-5A Catalina* **(Toho)**
3* CAUDRON *R.11* **(Cramer)**
4 CONSOLIDATED *PBY-5A Catalina* **(Airfix)**
5 CONSOLIDATED *PBY-5A Catalina* **(Revell)**
6 CONSOLIDATED *PBY-5 Catalina* **(Revell)**

the pioneers who made the first commercial flights.
He thus benefited from the knowledge and advice of Marcel **More**, the author of *J' ai vécu l'épopeè de l'Aéropostale* (My life with Airmail).
Among the solutions put forward for the reproduction of the wheel spokes of these "old crates" one can use the following techniques:
— stretched sprue,
— nylon or metal wires,
— transparent disks on which the spokes are engraved and painted,
— printed circuits (photograph etching).
Francis had his own technique, which was to use his hair for exquisite detailing of rigging and spoke wheels.

CAUDRON *R.11* — **Cramer**
Ken **Cramer** is one of those manufacturers who specialise in vacuformed kits. It is only thanks to people like him that the *R.11* in particular can be part of the *Encyclopedia of Models*.
A three-seater biplane, the *R.11* deserves to be better known, as it proved to be an excellent fighting machine. Its two engines gave it very good performances for the period, but unfortunately, it came into service late, towards the end of 1917. The model portrayed here bears the following mention: "Kit No. 2013".



1 CONVAIR *F-106 Delta Dart* (Hasegawa)
2 CURTISS *SBC-4 Helldiver* (Matchbox)
3 CANT *Z 1007 Alcione Bideriva* (Supermodel)
4* CONVAIR *XP-81* (K.R.)
5 CURTISS *P-6E* (Monogram)
6 CHANCE VOUGHT *F4U-1D* (Hasegawa)
7 CANT *Z.501* (Italaeri)

CONVAIR *XP-81* — K.R.

Kenneth Rymal has sworn to make up a 1/72 scale collection of all USAF fighters . . . From the **Curtiss** *P-1B* to the very latest, not forgetting prototypes, even those that didn't even fly. Some would have balked at the fact that many aircraft do not exist in kit form, but Ken took the challenge and produced the missing links himself.
This **Convair** *XP-81* is one of his astonishing products. Ken's vacuforms are characterised by an extreme accuracy in shape and dimensions and bear only light engravings on their surface, exactly as the connoisseurs of vacuforms like them to be.

CANT *Z.501* Gabbiano — Jacques **Niot**

This Italian *Seagull* belongs to the 148th Squadriglia Recognizione Maritima. About 200 of the type were operational when **Italy** started the hostilities in 1940. The **Italaeri** model is excellent and hardly needs any modifications at all.

▲

CANADAIR *CL-215* — Jean-Frédéric **Boullier**

As the photograph shows, these two flying boats sport different finishes. That is because the colour schemes of Protection Civile **Canadair** are not quite the same when the aircraft is new as when it has been overhauled.

CONSOLIDATED *Privateer* — Didier **Palix**

Matchbox seldom come up with very fine kits but they offer very interesting models from time to time, as is the case with this *Privateer*.

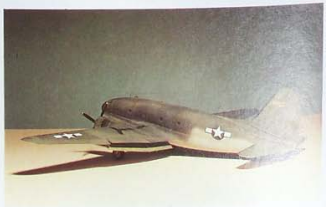
▲
CONVAIR *F-102* — Claude **Boileau**

This snow-covered scene shows a **Convair** *F-102 Delta Dagger* sporting the colours of the 573rd FIS "Black Knights" based at Keflavik, **Iceland.**
The **Hasegawa** model is excellent in spite of its age and only a few improvements were made:
— the windscreen and canopy were vacuformed with a **Mattel** machine and the cockpit was completed with the help of drawings published in *Replica in Scale* Volume 1, No. 2, November 1972,
— the doors and missile wells (containing 6 *Falcon AIM-4G)* were reworked according to the pictures published in *Koku Fan* No. 51 and *Interavia* (March 1961),
— the main landing gear was modified and landing lights made from fake diamonds were added,
— the Pitot boom was made from an aluminium tube and copper wire and a thin stripe of black decal was wrapped around to save a troublesome paint job.
Paint was then sprayed on the model with a **Badger** 200 or 100 XF airbrush and the decals came from **Microscale** sheet No. 72-108 and **Modeldecal** sheet No. 11.
The diorama was built on a 300 x 270 x 22mm plywood base. The snow is made of plaster whitened with gouache. The Jeep is from **Hasegawa** with its steering wheel replaced by a finer one and its headlights vacuformed on a pin-head. The ground power unit was scratch-built, using the wheels of an **Airfix** *Sea King.* The ground team came from modified **Preiser** figures.
This diorama has already been described in more detail in Volume 1, No. 5, 1977 *of La Vitrine du Maquettiste* (*VDM* is the magazine of **IMPS France).**

CURTISS *C-46 Commando* — Didier **Palix**

This **Curtiss** *C-46 Commando* — the least successful offering of the small **Williams Brothers** Company — is shown here in the version that was used for "flying the hump", ie, the Himalayas, hence its well worn and weathered aspect. The technique used for this effect is the following:
— dull the paint with the application of mud that can be brushed off when it is dry,
— overspray the structure lines with a thin dark film of paint,
— pick out the same panel lines with dark pastel drawing pencil,
— spray exhaust stains behind the engines,
— sparingly apply paint chips along the leading edges and the panel joint lines,
— paint mud stains behind the wheels.
Weathering paints available from model shops can also be used. Whatever technique will be used, one should strive for a realistic aspect and not overdo the weathering effects — an operational aircraft hardly looks like a wreck ready for the scrapyard.

CURTISS *C-46 Commando*



CURTISS *P-40E Kittyhawk* — Bernard **Macaire's** collection

DORNIER Do. 24 **(Italaeri)**
Jacques Niot.

This **Cruver Curtiss** *Kittyhawk* was a recognition model made of hard rubber and delivered already assembled. The date of origin of the first models was shown by figures, while later models bore letters to indicate the month when they were produced. The *Kittyhawk* on this photograph was produced in September 1942.

DASSAULT *Mirage F.1* — Philippe **Legrand**

This *Mirage F.1* was made by Philippe **Legrand** from the **Heller** model, which is more accurate than the **Airfix** *F.1*. However, the nose gear and the main wheels were cannibalised from the **Airfix** model. The airbrakes and spoilers were drilled out and the exhaust nozzle improved. All the navigation and anti-collision lights were made from tinted transparent plastic. Philippe also improved the section of the air intakes which are rounded on the fuselage side and do not have the sharp angles as on the **Heller** model. Those who want to add armament are advised by Philippe to use the *Matra 530* missile from the **Heller** *F.8 Crusader* and to borrow the *Magic 550* missiles as well as the pylons from the **Airfix** kit.
However, **Hasegawa's** *F.1* is finer and easier to assemble than **Heller's**; moreover, it captures the outline of the real *F.1* far better.

1*	DASSAULT *Super mystère B2*	(M.A.F.)
2	DE HAVILLAND *DH 1 1910*	(Entex)
3	CURTISS *C-46 Commando*	(Williams Brothers)
4	DE HAVILLAND *Comet Racer*	(Triang)
5	CURTISS *SB2C Helldiver*	(Lindberg)
6*	COUZINET *Arc-en-ciel*	(Heller)
7	CURTISS *XP-55 Ascender*	(Airmodel)
8*	DASSAULT *Falcon 20H*	(M.E.E)

DASSAULT *Super Mystère B2* — **M.A.F.**

This extremely rare **M.A.F.**-made *SM-B2* kit consists of two main parts to be assembled along a fuselage frame, thus leaving no horizontal gap (**M.A.F.** stands for **Maquettes Aériennes Françaises**, yet another company founded by Pierre **Brifaut**). The construction technique described above saves some puttying and sanding operations and makes for extra-quick assembly. Unfortunately, the technique requires the use of very expensive multiple-drawer moulds, so very few mass-produced models are designed along these lines. Indeed, before being distributed on a commercial basis, this *Super Mystère* was made to order for Marcel **Dassault**. These models were delivered all-assembled and chromium-plated, with the plane fixed on a sheet of green felt and presented in a clear box.

COUZINET *Arc-en-ciel* — **Heller**

Heller's *Arc-en-ciel* is no match for **Brifaut**'s on the score of quality.
Unfortunately only a few test shots of the **Brifaut** model exist and only a dozen or so were distributed. What if **Heller** recovers the **Brifaut** moulds and put out again a good *Arc-en-ciel?*

DASSAULT *Falcon 20* — **M.E.E.**

M.E.E. or "La Maquette d'Etude et d'Exposition" formerly known as **Etex** chiefly makes desk-models. Yet, ever since Jean-Claude **Hasquenoph** convinced Jean **Kerjouan** to sell his models to a wider public, the company has made a substantial effort and now offers 5 models to 1/72 scale, most of them original subjects. The models are made of polystyrene, rigid polyurethane foam, metacrylate (for the transparencies) and are sold "straight from the mould" without any landing gear or stand-base.

in a polyethylene bag. The prices of **M.E.E.** 1/72 models are so attractive that the decal sheets, printed in small series, are actually more expensive than the unfinished models.

DE HAVILLAND *Vampire FB.5.* — Claude **Boileau**

This model was assembled from the **Frog** kit long before the far superior **Heller** model was available. The **Heller** far outstripped its predecessor for its ease of assembly and fine detail. The model photographed here depicts the *Vampire FB.5* flown by the Commanding Officer of No. 112 Squadron based at Fassburg, **Germany**, in 1951. According to Richard L. **Ward** — the manufacturer of those excellent **Modeldecal** transfers — that colour-scheme, which is offered on sheet No. 14 (initially released in 1971) was used on the aircraft for about a month (in October 1951).
Later, when No. 112 Squadron was sent back to **Britain**, the red shark's-mouth emblem was replaced by a smaller black one, with the teeth remaining white, but with a red outline. The newer No. 14 **Modeldecal** sheet now offers the black shark's-mouth, probably so as not to duplicate the red one adopted by **Heller**.
This *Vampire* model had been made for a meeting of the 'late' **Camouflage Air Club** whose proposed subject for that day was aircraft sporting shark's-mouths!

DORNIER *217 N-1* (**Italaeri**)
Jacques Niot

DEWOITINE *510* — Didier **Palix**

Heller's Dewoitine *510* is a highly satisfactory model for various reasons. The subject is interesting in itself, the surface detailing is fine and the proportions are correct. All this makes the kit particularly attractive, even for the most demanding modeller.

DEWOITINE *510*

1*	DOUGLAS *DC-9*	(Aurora)
2	CURTISS *P-40E*	(Polistil)
3	DE HAVILLAND *DH-110*	(Frog)
4	DORNIER *Do 24*	(Italaeri)
5	DE HAVILLAND *Sea Venom* ,	(Frog)
6	DE HAVILLAND *CANADA Beaver*	(Airfix)
7*	DASSAULT *Mystère IV*	(New-Maquettes)
8	DE HAVILLAND *Heron*	(Airfix)
9	DORNIER *DO 335*	(Lindberg)
10	DASSAULT *Mirage IVA*	(Heller)

DOUGLAS *DC-9* — Aurora

Aurora's *DC-9* must surely rank among one of the much sought-after kits of that company, in spite of the crude moulding. Many modellers who have become used to the excellent Italian and Japanese models, wrongly blame kits that include few parts and details. In fact, a good kit is above all one whose dimensions are proportional in every point to the real plane. This basic requirement fulfilled, the model can be made of any rigid material and will serve as a working-base for the modeller who may be able to correct the possible errors, improve the trailing edges, mould new transparencies, scratchbuild landing gears, scribe in panels and, more generally, add surface details . . .

Connoisseurs do appreciate the quality of modern kits obtained from electrically-milled moulds, but they also show interest in such models as the *DC-9* they hope to find again one day. Airliner buffs have always been highly enthusiastic and attached to the *DC-9*, and often buy several models for possible conversion, as so many different versions and liveries of that aircraft exist.

DASSAULT *Mystère IV* — New-Maquettes

The first modelling materials were wood and metal. Then came cardboard, hard rubber, bakelite and finally polystyrene. The latter material was originally cheap and was easy to manufacture. It was therefore widely adopted and has made it possible for models to appear in every home. Nowadays however, the rising costs of tooling, the oil crisis and the lack of originality shown by manufacturers throughout the world, have raised questions about the future of polystyrene.

Those are the main reasons why Aficionados "blow" their own kits from ABS plastic card or use polyester resins, rigid polyurethane foam or epoxy-coated glass fibres. New methods for cutting costs and speeding up production are now being tested.
Tomorrow's models will probably look the same as present ones but they will not be made from the same materials and will certainly cause no end of surprise to modellers.
French forerunners such as **New-Maquettes** offered the very first decals with their metal and wooden parts, some of which had been made with a lathe. Oddly enough, the canopy was represented by a mere metal wire, when older French models already offered rhodoïd canopies. All this sounds terribly obsolete but, in those days, when everything was so crude, these kits were quite popular.

DOUGLAS *F3D Skyknight* — Bernard **Macaire's** collection

The recognition models (or identification models) are officially provided by governments to military schools in charge of courses on aircraft identification. As an example, the first recognition models of the **US Navy** were produced by the workshops of the Bureau of Aeronautics, Special Devices Division. These models are well-suited to their function as they are correct in shape but lack details. These details are usually unknown on enemy aircraft, and anyway are useless for their training purpose. The designers of recognition models often work from pictures of aircraft in flight, and sometimes refer to the head of pilots for scaling the dimensions of the enemy planes. When manufactured, recognition models are identified by a serial number and sometimes an index containing updated information obtained on the type of aircraft. Any army of importance has its recognition models, but the largest range is deemed to be manufactured by the specialised concerns of the K.G.B. The model shown on the right was made by **Setco**.

ETRICH *Taube* — François **Portier**

Famous Professor **Etrich's** dove-like *Taube* is one of the first aircraft used for military purposes.
An Italian *Taube* dropped a few light bombs on a Turkish camp in 1911, causing little or

▲
ETRICH *Taube* **(Airframe)**
François Portier

no damage but raising very strong protests from the Turkish government.
It has to be said that the *Taube* was the most common German and Austrian aircraft before WWI.
In August 1914, a *Taube* dropped a few bombs on Paris and another aircraft of the same type helped the Germans to win a resounding victory against the Russians at Tannenberg.
When it became obsolete as a fighting machine, the *Taube* was used as a trainer until about 1916.
Indeed several manufacturers produced different types of that plane (e.g. **Rumpler, Jeannin, Gotha** and others), but **Airframe** chose to represent the original **Etrich** *Taube*. François **Portier** built this vacuformed kit and added a scratch-built engine and undercarriage assembly, as well as all the kingposts and numerous rigging wires. Pins and other metal parts were used to strengthen the structure, and **Krazy Glue** proved necessary to join those different materials together. The model was finished to represent a *Taube* of the Imperial German Military Aviation in 1914.

DOUGLAS F3D Skyknight ▶

1*	DOUGLAS *A2D-1 Skyshark*	(Rareplane)
2	FIAT AERITALIA *G.91Y*	(Matchbox)
3	FAIRCHILD *C-119G Flying Boxcar*	(Aurora)
4*	FAIREY *FD.2 Delta*	(Novo)
5	DE HAVILLAND *DH.89*	(Heller)
6*	DOUGLAS *A-1H Skyraider*	(Fujimi)
7	FIAT *C.R.32*	(Supermodel)
8*	FIAT *G.91R1*	(Airmec)
9	DOUGLAS *C-47 Skytrain*	(Italaeri)

DOUGLAS *XA2D-1 Skyshark* — **Rareplanes**

Most frequent criticisms against vacuforms concern the delicate and tedious cutting of components from the moulded sheets and often their difficult assembly as well as the lack of accuracy of small parts such as landing gears. This latter drawback has been overcome by a few manufacturers by adding a tree of injection-moulded parts, as it can be seen from **Rareplane's** *Skyshark*.

FAIREY *FD.2 Delta* — **Frog**

The **Fairey** *Delta 2* was the first jet with a drooping nose. It is best known for the part it played in the development of *Concorde* and for the fact that it broke the world absolute speed record in March 1956 at 1132 mph thus exceeding the former record by 38%. No other aircraft since has been able to improve the record of its predecessor by such an extent.

This **Fairey** *Delta*, made in **USSR** by **Novo** from a former **Frog** mould, is quite a bargain and can introduce a modeller to the techniques of metallic finishes such as:

— the application of silver paint in aerosol spray-can similar to **Testor** (silver paint brushing should be avoided, except in the case of very small parts),

— the spraying of an extra fine metal finish (e.g. **Liqu'a Plate**),

— the use of metal foil panels stuck on with **Microscale's** "Micro Metal Foil Adhesive" (as a rule, self-adhesive foils may unstick themselves and so, are not recommended),

— the application of a metallised paste (e.g. **Rub'n Buff**),

— the polishing of light painted bases with an **ABT** metal powder called "Argental",

— or finally, the application of silver

1 DE HAVILLAND *DH.110* (Frog)
2 DOUGLAS *F4D-1 Skyray* (Hawk)
3* DOUGLAS *A-4E Skyhawk* (Esci)
4 DOUGLAS *XB-42 Mixmaster* (Boleslav)
5 DEWOITINE *D.520* (Heller)
6 DOUGLAS *A-26 Invader* (Airfix)
7 DORNIER *Do.217.K1* (Italeri)
8 DORNIER *Do.335 A* (Revell)

coloured or metallised panels.
Each one of these techniques has its advantages and disadvantages but the final choice rests on the way a modeller sees the various shades of metal on the actual aircraft, which are very difficult to guess from the study of mere photographs.

DOUGLAS *A-1H Skyraider* — **Fujimi**

This is a very attractive box art but the kit inside is not to 1/72 scale although it is mentioned by the manufacturer.

FIAT *G.91R* — **Coma-Aermec**

In spite of its old moulding, this **Coma-Aermec Fiat** *G.91* is the only model which makes the reproduction of the *G.91R* as flown by the "Frecce Tricolori" aerobatic team possible.

DOUGLAS *A-4E Skyhawk* — **Esci**

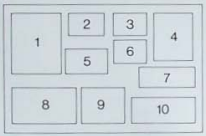
This *A-4* from **Esci** is surely among the best 1/72 scale model available of this aircraft.

1*	FOKKER *Dr.1*	(Gunze Sangyo)
2	ENGLISH ELECTRIC *P.1A*	(Triang)
3	DOUGLAS *A-1E Skyraider*	(Monogram)
4	FAIREY *Fox VII*	(Rudel)
5	DORNIER *217E-2*	(Airfix)
6	FAIREY *Barracuda II*	(Frog)
7	FAIREY *Gannet AS-4*	(UPC)
8	FOKKER *D.VII*	(Renwal)
9	FOCKE WULF *190D9*	(Italaeri)
10	FAIREY *Rotodyne*	(Airfix)

FOKKER *D.VIII* — Didier **Palix**

Vagn **Espensen**, a London-based photographer, got jaded with his job. He left the capital and settled at Wiveliscombe, a pleasant village near Taunton, Somerset, along with his wife Pam and his daughter Samantha. He then started producing **Veeday Models**, short-run injection-moulded aircraft kits. Production was limited to 500 or 1000 of each type.
This **Fokker** *D.VIII* produced in 1979 was Vagn's third kit, and remains a worthwhile collector's item.

FOKKER *Dr.1* — **Gunze Sangyo**
Japan, the country from which the best plastic models originate, was the unlikely birthplace of metal kits in 1981. The return to an obsolete technique hardly seems justified and the stamped duraluminium parts of **Gunze Sangyo** models cannot match plastic for the faithful reproduction of the third dimension. The only possible advantage of metal is its brightness, so **Gunze's** birds, once assembled, can be left unpainted, rather like kitsch trinkets parodying flying machines, and may be used for decorative purposes.



1*	FISHER *P-75A Eagle*	(Rareplanes)
2	FUJI *FA-200 Aero Subaru*	(Eidai)
3	FOCKE WULF *Ta.152H*	(Revell)
4	FOKKER *CV-E*	(Trucker's Mate)
5	FOCKE WULF *190A8 / F3*	(Heller)
6	FIAT *G-91R1*	(Airfix)
7	FUJI *T-1A*	(Hasegawa)
8	FOCKE-WULF *FW.200*	(Revell)
9	FAIREY *Firefly Mk.1*	(Frog)
10	FOKKER *F.27 Friendship*	(Airfix)

FISHER *P-75 Eagle* — Rareplanes

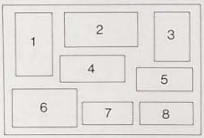
Once upon a time there was a young English boy called Gordon **Stevens**. He liked to cut out small aeroplanes from cardboard sheets when he was at school and he used to sell them for sixpence during the breaks. When he was 15 — during the war — he cut out aeroplanes, but this time from sheets of balsa. He traded them for preserves, chocolate bars and cigarettes with American Officers from the Bomber Command based at Wycombe.

As he tells us in an interview published in *Scale Aircraft Modelling* — December 1978 issue — he found out in 1969, as he was looking at a chocolate box and its divider tray, that he could produce kits from vacuformed sheets of plastic. He gave up his job in advertising and devoted himself to his new business.

Now Gordon **Stevens** has been at the head of **Rareplanes** for 15 years and also of **Rarejets, Rarebits, Raretanks** and **Warbirds**. He does everything on his own, aided only by his immediate family for administrative tasks. He works about 15 hours a day.

Like almost every model of the **Rareplanes** line, this **Fisher** *P-75A Eagle* sets new standards of quality that many manufacturers would be at pain to emulate.

Thanks to his proficiency, his dynamism and his professional consciousness, Gordon **Stevens** will surely be remembered as the greatest vacu-artist of all time.



1	GRANVILLE *Gee Bee*	(Airframe)
2	GRUMMAN *E-2A Hawkeye*	(Fujimi)
3*	GOTHA *Go.229V3 Horten*	(Boleslav)
4	GRUMMAN *HU-16B*	(Monogram)
5	GRUMMAN *F9F-8 Cougar*	(Hasegawa)
6*	GENERAL DYNAMICS *F-111*	(Revell)
7	GRUMMAN *OV-1B Mohawk*	(Frog)
8	GLOSTER *FAW.9 Javelin*	(Frog)

GOTHA *Go.229V3 Horten* — **Boleslav**

A. Matejka from Mlada Boleslav produces exotic vacuforms in exciting colours such as red, blue or green. This flying wing is perhaps the best model of the **Gotha** *229* money can buy — though the expression "the best" is an exaggeration in a way, for there are no very precise references concerning this aircraft, so far as we know.

GENERAL DYNAMICS *F-111* — **Revell**

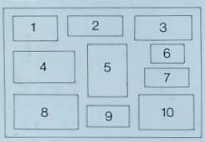
Revell is currently the only manufacturer to offer the short-nosed, long-span *F-111B* version of the Aardvark. It is possible to build the A version by combining parts from the **Revell** and **Airfix** kits, following the advice given by Jim **Rotramel** in Bert **Kinsey's** *F-111* in *detail* and *scale*.
Revell is unquestionably the biggest model manufacturer in the world, with five-hundred million kits sold over the years, a collection of 1000 moulds valued at over $50 million and an annual turnover estimated to be double that of **Monogram** or **Airfix**.
The founder of the company, Lewis G. **Glaser** had started off in 1951 with a series of car models, the first of which were the 1913 **Maxwell** and the **Ford T**. The success of the series encouraged **Revell** to develop new lines — aeroplanes, ships, missiles and spacecraft, military vehicles and guns, model soldiers, animals, cars and aero engines. They even tried tapestry craft (a technique that could dispense with needles) for ladies . . .

Lewis **Glaser** died in 1971 and his wife Royle G. **Lasky** took over the management of the group. She completely re-organised the firm. **Revell** offered an extensive range of models, but unfortunately, most of them were in

differing scales adapted, of all things, to the standard size of the boxes.
Royle G. **Lasky** then evinced the ideal of re-issuing old moulds with attractive new features, for example, electric motors or even electronic devices to produce light or sound effects. Some aeroplane models were thus modified to represent machines that starred in some TV serials such as *Baa Baa Black Sheep*. These would-be "new kits" proved quite successful, unlike such "gadgets" as the *Whip and Fly* series. The latter kits were supplied with putty ballast, a piece of string and a handle, for the owner of the models to fly them aerobatically around his head.
If it had not been for that basic error of adapting the scale of the models to the size of the boxes, **Revell** would have probably been unassailable. The firm really had valuable assets, among which were an excellent and appropriate choice of subjects, good quality and good value for money. Moreover, the distribution network was outstanding.
Nowadays, **Revell** boasts no less than six factories and five branches abroad, namely in **West Germany, Great Britain, Canada, Australia, Hong-Kong,** the **United States, Japan, Mexico, Brasil, New Zealand** and **Spain. Revell** moulds have been produced in Venice and California since 1971 and they are conveyed to the various factories in accordance with their industrial capacity and the commercial strategy of the group.
An interesting anecdote will round off this account. Although **Revell** does remain one of the "Big Box" specialists with its 1/32 scale series and its 1/48 *B-1 Bomber*, the firm has also printed its tradename on the smallest aircraft models in the world. The boxes are about an inch long and contain two plastic parts to be assembled by the **Ken** and **Barbie** dolls!

GENERAL DYNAMICS *F-16* — Gérard **Cabot**

General Dynamics had been unfortunate in its early attempts at combining various state-of-the-art features on a single aircraft, for the outcome was often a complex, costly and unreliable aeroplane that was already obsolescent even before it was tuned up. **G.D.** learned from past experience and introduced advanced technology in their *F-16*, but avoided excessive sophistication. Their choice turned out to be a winner. The *YF-16* which had been designed as a flying testbed has become an outstanding combat aircraft whose performance outstrips all those of its competitors or potential adversaries. The *F-16* was dubbed "Fighting Falcon" following its impact on the European market and has been continuously updated ever since. Various versions have already appeared of this highly successful fighter whose career is unlikely to end until the early 21st century.
This *F-16* model is marketed by **Hasegawa.** It is among the best on the market along with the **Italaeri, Esci** and **Fujimi** offerings.



1 FOUGA *CM 170 Magister* (Heller)
2 GRUMMAN *F6F-5 Hellcat* (Lindberg)
3 GRUMMAN *F11F-1 Tiger* (Hasegawa)
4 GRUMMAN *E-2C Hawkeye* (Fujimi)
5 GRUMMAN *G.21 Goose* (Arne Andersson)
6* GLOSTER *G.40 Whittle* (Frog)
7* GRUMMAN *F8F-1B Bearcat* (Frog)
8 GRUMMAN *F-14A Tomcat* (Hasegawa)
9 GRUMMAN *TBF Avenger* (Airfix)
10 GENERAL DYNAMICS *F-16A/B* (Italaeri)

GLOSTER *G.40 (E.28/39)* — **Frog**

HEINKEL *He 178* August 24th, 1939 **Germany**
GLOSTER *G.40 Whittle E.28/39*
May 15th, 1941 **UK**
BELL *XP-59 Airacomet*
October 1st, 1942 **USA**
NAKAJIMA *J8N1 Kikka*
August 7th, 1945 **Japan**
SUD-OUEST *S.O.6000 Triton*
November 11th, 1946 **France**
SAAB-*21R* March 10th, 1947 **Sweden**
I.Ae. *27 Pulqui* August 9th, 1947 **Argentina**

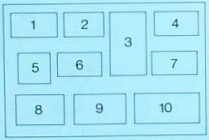
This is, to our knowledge, the chronological registration of the first flights of jet-propelled aircraft.
Designed by George **Carter's** team and fitted with a **Whittle** *W.1* engine, the **Gloster** *E.28/39* "Pioneer" was the first British jet to take off. This was done almost two years after the *He 178* flight.
Two aircraft were built of which only one survived: the first one, serial number *W4041/G* (the "G" suffix to the serial denoting that the prototype had to be guarded). This aircraft is still in perfect condition today and you can admire it, hanging from the roof of the **London Science Museum**, located in the heart of the City.
The second one, serial number *W4046/G*, crashed on July 30th, 1943 when its ailerons jammed.
Let us remark that the **Caproni-Campini** *N.1* which flew for the first time on August 27th, 1940 is not mentioned here. In fact, its engine cannot be considered as a turbojet.

GOTHA *Go 244 BI* (**Italaeri**) ▲
Jacques Niot

▼ GRUMMAN *F9F-2 Panther* (**Hasegawa**)
Gérard Cabot

GRUMMAN *F8F-1B Bearcat* — **Frog**

Frog's *Bearcat* is less crisp than **Monogram's**, but it is much sought-after in **France** for the decals of the *GC1/21* "Artois" a unit that fought in Indo-China in 1952.



1 GRUMMAN *F7F-3 Tigercat* (Monogram)
2 KYUSHU *J7W1 Shinden* (Tamiya)
3* HEINKEL *He-178* (Wings 72)
4 JUNKERS *Ju 87B/R Stuka* (Airfix)
5* IKARUS *Ik-2* (Guano)
6 KAWANISHI *N1K2-J George* (Hasegawa)
7 HEINKEL *He.112B-0/1* (Heller)
8 HENSCHEL *Hs 126A-1/B-1* (Italaeri)
9 HANDLEY PAGE *Hampden* (Airfix)
10 HEINKEL *He.177A-5 Greif* (Airfix)

HEINKEL *He 178* — Wings 72

Wings 72 produces vacuforms with very good surface detailing. The models which have been released by this company are always off the beaten track, as Donald H. **Bratt**, the founder of **Wings**, is one of the most prominent model collectors and experts round the world. Don is also the Vice-President of **Stevens Inc.** (a film production and advertising agency), and all this enables him to reach markets commonly considered as unapproachable. The idea is to sell top-quality vacuforms depicting models specially designed to capture high-demanding markets. For instance, in order to consolidate quickly his position in **Japan, Wings** has had the masters of Japanese planes produced by Czechoslovakians. The Czech modellers' teams are already used to resin hand-moulding techniques and can produce models in a short time at attractive prices. Instead of using the regular commercial outlets of wholesalers or retailers, **Wings** markets its vacuforms mainly through non-profit making organisations. Of course, club members do appreciate the possibility of ordering models which are otherwise difficult to obtain through other channels, but only on the condition that these models can be bought at reasonable prices. On the other hand, people who are not affiliated to any such societies may be sorry not to find **Wings** products from their usual dealer. And last, let us remember that the **Heinkel** *178* was the world's first aircraft which took off powered solely by a turbojet.

IKARUS *IK-2* — Guano

When **Yugoslavia** entered the war in 1941, it could only muster a few warplanes among

which there were eight locally built *IK-2s*. In spite of this, the **Ikarus** fighters put up a brave fight. Wesley F. **Moore** was so impressed by this episode of the war that he decided to make the *IK-2* better known by producing a replica in 1/72 scale. He gathered Greg **Reynolds**, Terry **Elmore**, Matt **Hargreaves**, Bill **Hawkins**, et al, all from **IPMS**-Seattle (Washington, USA) around the scheme and together they built the first *IK-2* in 1972. These models were made from resin and could only be produced at the rate of one a day, because the stuff took such a long time to harden.

Wesley decided to resort to injection techniques in 1976 and to this end, bought a **Quick Shooter** sold by *The Haygeman Machine Company* for $250. The **Quick Shooter** consisted of a 9 inch-long cylinder surrounded by a resistor whose temperature could be set by a rheostat. The end of the cylinder had a drilled 4 mm injection hole. The capacity of the machine was limited to 20 g of polystyrene. Wesley had his **Quick Shooter** fitted to the bench of his drilling-machine and used the lever of the mounting to drive the piston by hand. The mould was held into place by a vice and the injection runner was simply aligned with the end of the cylinder. Contrary to ordinary moulds which are bored out from special steel alloys, Wesley's moulds were cast in Furane 8067 around a copper alloy master (Furane 8067 is an epoxy resin compounded with aluminium powder and is able to withstand heavy pressures and high temperatures). The first trials resulted in small, ill-smelling molten dungs, hence the name given by Wesley to his budding company — **Guano Aeroplane and Zeppelin Works**. Production was then increased to a rate of one model an hour, but snags still had to be ironed out, e.g. the cooling of the mould, which had to be improved if production was to be stepped up, and the mechanical resistance of the mounting-bench and the vice. Wesley also found it extremely difficult to obtain polystyrene pellets in small quantities and sometimes had to break up small plastic spoons of different colours in order to be able to feed his machine. One should not therefore be surprised to find strangely iridescent parts as one opens the **Ikarus** kit. The first **Projekts Model** and **299 Models** kits were also built thanks to Wesley's machine. Since that time, and thanks to Ron **Downey's** help, Wesley has extensively modified his tools and his new machine can take up to 85 g of plastic. He will have several other machines and, so as to follow up his new productions, he has also obtained a decal printing press for an investment of $3000. Having started from his first idea — the **Ikarus** project — Wesley has been able to establish one of the first home-built injection workshops producing 1/72 scale models. His disciples and himself have brilliantly succeeded in transforming what was originally a hobby into a small business, whose efforts are widely appreciated.

JUNKERS *Ju. 86D-1* (**Italaeri**)
Jacques Niot.

HAWKER *Tempest II* — Bernard **Macaire** collection

HAWKER *Tempest II*

The *Tempest Mk II* was powered by an air-cooled 18-cylinder radial engine — a Centaurus V or VI — while the only version of the *Tempest* to be flown before the end of the hostilities, the *Mk V*, was equipped with a liquid-cooled Napier Sabre II which was a 24 cylinder H-type engine. The *Mk II* version had been designed for use against the Japanese but it was phased-in in November 1945, just too late.

This recognition model was produced by **Cruver**.

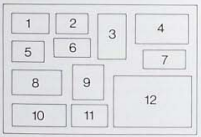
1* Mc DONNELL *AV-8B Harrier II* (Italaeri)
2 FOCKE-WULF *FW.189 A Uhu* (Aoshima)
collection D. Palix
3 HAWKER-SIDDELEY *Harrier T.4* (Heller Bobcat)
4 GRUMMAN *F6F-5 Hellcat* (Airflash)
5 HAWKER-SIDDELEY *AV.8A* (Fujimi)
6 FAIRCHILD *A-10A* (Hasegawa)
7 *GLOSTER Gauntlet* (Pegasus)
8* HANDLEY PAGE *Victor K.2* (Matchbox)

HANDLEY-PAGE *Victor K.2* — Matchbox

The *Victor* was originally designed as a part of Britain's deterrent force and was to become a flying tanker in its *K.2* version. The crescent wing of the aircraft has a most unusual aspect which the box art fails to show as the *Victor* is not portrayed at its best angle. The moulded parts enables one to produce the *B.2* version although it has to be deplored that no thought was given to the *Blue Steel* missile and its cradle. In spite of these reservations, it has to be said that **Matchbox** gave a lot of satisfaction to modellers by offering this long-overdue model at the right time.

McDONNELL *AV-8B Harrier* — Italaeri

Most aircraft designers evinced interest in STOL (Short Take Off and Landing) and VTOL (Vertical Take Off and Landing) technology, particularly in the 50s and 60s (**Convair** engineer and test-pilot C. E. **Myers**' article in the No. 1, 1958, issue of *Interavia*, summarises all the research work of the period). Yet in spite of all the research effort, only the design developed in the **Hawker** *P.1127 Kestrel* project has survived. Thus its *Harrier* derivative is the only operational VTOL aircraft at present. It is used in **Great Britain** as well as in the **United States**, where the US Marine Corps has adopted the *AV-8B* version licensed-built by **McDonnell Douglas**

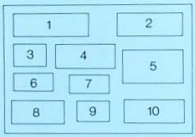


1	HAWKER *Sea Fury*	(Air Lines)
2	HEINKEL *He-100 D*	(Lindberg)
3	JUNKERS *D.1*	(Warbirds)
4	KAMAN *YSH-2E Lamps*	(Fujimi)
5*	HAWKER-SIDDELEY *Gnat T-1*	(Matchbox)
6	KAWANISHI *E15K2 Norm (Siun)*	(Aoshima)
7	HAWKER *Typhoon 1B*	(Frog)
8	ILYUSHIN *IL-28 Beagle*	(Airfix)
9	HAWKER-SIDDELEY *P.1127*	(Airfix)
10*	JUNKERS *Ju.88A-4*	*(voir p. 47)*
11	HAWKER *Hurricane IID*	(Aoshima)
12	KAWANISHI *H8K2 Emily*	(Frog)

HAWKER-SIDDELEY *Gnat T-1* — **Matchbox**

What happens when two kits of the same type of an aeroplane are on sale? How does the buyer make his choice? In fact, there is not a single category of purchaser but, at least two: those who are more attracted by the price and the box-art, and those who are more interested in the quality of the mouldings and what the box actually contains. Thanks to their policy of selling at lowest prices well-decorated boxes containing brightly-coloured kits, **Matchbox** captures the favour of the young modeller who is for instance more sensitive to the shades of his **Hawker-Siddeley** *Gnat T-1* than its crude moulding.
Conversely, by offering a better quality **Messerschmitt** *163B Komet* than their rival **Airfix** and adding a tractor and a cradle into the box, **Heller** has won the approval of all confirmed modellers, in spite of the higher price.
Congratulations for **Matchbox** and **Heller's** product managers who were both right. On the other hand, **Airfix** have proved unable to foresee the reactions of the market in the face of competition for these two particular planes. At last the design of a hobby kit depends on the targeted market: as the motivations of each category of purchaser are quite different, any compromise will inevitably lead to poor sales.

JUNKERS *Ju.88A-4*
Who produced this model whose box top bears no trademark or other indication?



1 HANSA *320 Hansajet* (Airmodel)
2 HANDLEY PAGE *Dart Herald* (Triang)
3 HEINKEL *He 162A Salamander* (Revell)
4* HILLER *X-18* (Comet)
5 GRUMMAN *S2F-1 Tracker* (Hasegawa)
6 HAWKER-SIDDELEY *H.S 125* (Airfix)
7 HANDLEY-PAGE *Jetstream* (Airfix)
8 HAWKER *Hunter F6* (Central)
9 GRUMMAN *F8F-3 Hellcat* (Matchbox)
10 HEINKEL *He.219A Uhu* (Lindberg)

HILLER *X-18* — Comet

Helicopters are unrivalled when it comes to vertical take-off and landing but their performances are strictly limited: reduced speed, high fuel consumption along with a low ceiling and payload. Conventional aircraft are of a simpler construction and offer much better performances but they lack manoeuvrability at low speed. In the fifties it was thought that a combination of the aeroplane and the helicopter basic concepts would allow better in-flight characteristics and performances. To achieve this, two types of research and experimental aircraft were built : compoundplanes and convertiplanes. Compoundplanes use rotary wings for take off and landing and one or several engines for propulsion in horizontal flight. A typical example is that of the **Fairey** Rotodyne, the **Airfix** model previously shown in this book.

Comet's Hiller *X-18*, displayed above, is a convertiplane: the engines supply the power both for lift and propulsion as the wings can be tilted. In theory, convertiplanes are far more efficient and promising than compoundplanes, but advanced technology and higher piloting skills are required, particularly for the transitional phases of flight.

The *X-18* was built as a test-bed. According to Jay **Miller,** the author of the very comprehensive book about the *X*-series of American aircraft prototypes, *The X-Planes*, it was made up of parts cannibalised from other aircraft in order to avoid undue expenses. The engines and propellers were those of the **Lockheed** *XFV-1* and the **Convair** *XFY-1*, the tail assembly and the nose came from a **Fairchild** *C-123*, the fuselage was that of the **Chase** *YC-122* and

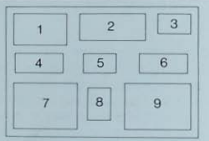
JUNKERS *Ju. 52/3m* (**Italaeri**)
Jacques Niot

many other parts came from existing types, among which was the **Convair** *R3Y-2 Tradewind* flying boat. The **Hiller** "patchwork aircraft" took off for the first time on November 24th, 1959 as a conventional aircraft and transitions between horizontal and vertical flight were tested until 1961. The programme was terminated before the entire series of VTOL flights could be tested.
It is more than 20 years since **Comet** was bold enough to offer this little-known aircraft. The unique kit is finely moulded and is eagerly sought-after nowadays. When **Comet** was written off, their moulds were bought up by **Aurora** who also went bankrupt in 1977. Former **Comet** productions then re-appeared under the **Monogram** and **Addar** tradenames, but the *X-18* moulds disappeared unaccountably.

GRUMMAN *F11F-1 Tiger* — Ousmane **Diagne**

This **Hasegawa** model was eagerly awaited by US Navy jet enthusiasts. The *Tiger* suffered from teething troubles, its armament proving particularly troublesome. During a flight test, the engine ingested a shell case fired by one of the four cannons which made up the armament of the aircraft. The pilot, Tom **Attridge**, crash-landed the aircraft and managed to make his getaway before it caught fire. A splendid *F11F-1 Tiger* bearing the colours of the Blue Angels aerobatic team is exhibited in the **Pima Air Museum**, Arizona. The model shown here was awarded the **IPMS** 1st prize in the first French national championships, in 1982. The decals originate from **Microscale** sheet No. 255.

GRUMMAN *F11F-1 Tiger*



1* HAWKER *Hart* (Skybirds)
2 JUNKERS *Ju 52* (Airfix)
3 GENERAL AIRCRAFT *Hotspur II* (Frog)
4 HAWKER *Hunter* (Triang)
5 HAWKER *Hurricane Mk.IIC* (Keil Kraft)
6* JUNKERS *Ju 88* (Air Lines)
7 HEINKEL *He 111H-6* (Italaeri)
8* HUGHES *OH-6A Cayuse* (UDC)
9 JUNKERS *Ju 86-D1* (Italaeri)

HAWKER *Hart* — **Skybirds**

Among the men who played an important part in the history of modelling, James Hay **Stevens** deserves our particular attention as the creator of **Skybirds** models. **Skybirds** are universally acknowledged as the first genuine models in the world. That is so because no one knows any older models sold in kit form and designed to a constant scale. At least 120 different 1/72 scale kits were available and the **Hawker** *Hart* shown here is the 20th of the line. It dates back to August 23rd, 1935. Inside the box wings and a fuselage made of finely carved wood can be found, along with vulcanised rubber tail and fin assembly, small parts made of moulded or stamped metal, a piece of sandpaper and a small bag containing brass wires and wheels moulded in lead. **Skybirds** were sold in paper envelopes during the war. The first model of theirs was a **Cierva** *C-24 Autogyro* and the last a *Mig 3* produced at the end of the war.
James Hay **Stevens** was not only the forerunner of all other kit manufacturers, he also founded the **"Skybirds League"** to associate enthusiasts. Four were enough to get assistance from the London-based **Skybirds League Headquarters** to create a **Skybirds** club. Club members would then receive badges, pamphlets giving advice and tips for better modelling and magazines with articles dealing with aviation subjects. Obviously **Skybirds** products were advertised as well as hangars and dioramas accessories, **Durofix** cement, paint or filler. All these activities have contributed to the creation of numerous clubs and enabled modellers to establish the **International**

JUNKERS *Ju 188E-1*
Jacques Niot

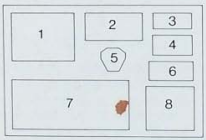
Plastic Modellers Society in 1963. But contrary to the **Skybirds League**, the **IPMS** is ruled by its members, for its members, and owes nothing whatsoever to any manufacturer. This independence has no doubt encouraged its expansion and its perenniality.

JUNKERS *Ju.88A-4* — Air Lines

As was the case with the "unknown" kit — in fact from **AMT** — which has already been mentioned, this **Junkers** *Ju.88A-4* from **Air Lines** originates from a modified **Frog** mould. Manufacturers often market the same product — with or without modifications — under various tradenames and can confuse even experts.
The *Ju.88* model had been designed as a toy with moving parts and a retractable undercarriage. That aircraft was quite common during World War II when it was used as a light bomber, day and night fighter and reconnaissance aircraft. It was even used as a flying bomb at the end of the war. This version was known as *Mistel* and consisted of a combination of a *Ju.88A-4* and a **Messerschmitt** *Bf.109F*. The pilot of the *Bf.109F*, whose aircraft was fixed to the back of the *Ju.88*, controlled the compound machine which was thus propelled by three engines and could carry up to four tons of explosives.

HUGHES *500 Cayuse* — UDC

The **Hughes** *H-500D Cayuse* is a well-known type of helicopter that was built in many different versions and is to be found practically everywhere. However, anyone wishing to model this rotorcraft to 1/72 scale will have to resort to several kits of different origins as none of the kits on offer is quite accurate.
UDC, a **Hong-Kong** based company that specialises in metal toys certainly captured the broad outlines of the airframe successfully but paid no proper attention at all to the rotor. On the contrary, **Games** from **Italy** faithfully reproduced the rotor blades and the tail but their fuselage is inaccurate. Their *H-500D* is a snap-together kit wrongly advertised as a 1/144 scale model.
So long as no serious manufacturer offers a proper *Cayuse*, modellers will have to content themselves with combining vacuformed parts from **Italy** and **China**. Those who are really in a hurry to include that model in their collection and do not care too much for absolute faithfulness to 1/72 scale will be able to buy **Pilen's** *Cayuse* in **Spain**. The model is sold already assembled. It is rather crude but costs very little.



1 HANDLEY PAGE *Halifax* (Matchbox)
2 KAWASAKI *KI.48 Lily* (Hasegawa)
3* LOCKHEED *F-104 Starfighter* (Compass Models)
4 LETOV *S.328* (Kovozavody)
5* HANSA-BRANDENBURG *D.I* (Edison)
6 MARTIN *A-30 Baltimore* (Frog)
7* HAWKER-SIDDELEY *Nimrod* (Formaplane)
8 LOCKHEED *U-2A /B/C* (Rareplanes)

LOCKHEED *F-104 Starfighter* — **Compass Models**

Most desk models are sold ready assembled and painted. The opposite extreme can be found in the case of the **Compass Models Lockheed** *F-104 Starfighter* where all the parts have to be carved, for the box contains a piece of wood, a few sheets of balsa, a vacuformed canopy and a plan. The British manufacturer obviously did not burden himself with many difficulties.

HANSA-BRANDENBURG *D.I* **Edison**

Manufacturers sometimes try to boost their sales with small gifts and sales incentives. For example, the Spanish-based **Commando Jemsa** Company offers a chewing-gum with its *F-7U1 Cutlass* (a model derived from the original **Aurora** mould). **ATO** offers an ashtray as a stand for the model. Meanwhile **Edison** tries to win customers with two fine stamps, one in colour and the other in black and white. The idea is for modellers to keep the coloured stamp and return the other one to **Edison** to become members of the **Edison** Air Club. Club members not only receive a colour brochure on the models they bought, but are also allowed to take part in raffles every four months and win many prizes. **Edison's** plastic and die-cast models are sold assembled, painted and displayed in a transparent box. Decals are replaced by stickers. The **Hansa-Brandenburg** *D.I*, designed by **Heinkel**, was also produced by **Phönix** in **Austria**. This aircraft suffered from very weak lateral stability but in spite of this drawback, Austro-Hungarian Air Ace Julius **Arigi** scored 5 victories when he flew it over the northern Italian front, all during April and May, 1917.

LEDUC *022*

HAWKER-SIDDELEY *Nimrod* — **Formaplane**

The *Nimrod* vacuforms were not among the best-sellers, but since the Falklands conflict, they have sold like hot cakes.

LEDUC *022* — Didier **Palix**

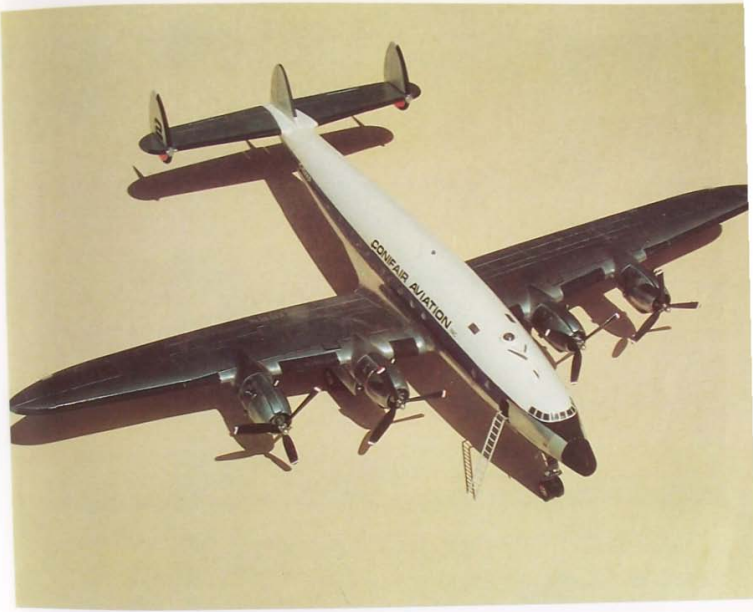
The **Fabulon Leduc** (release-1) is a resin model of high quality; nevertheless it requires significant work specially for the cockpit and for the internal part of the ramjet nozzle. The plane is very heavy, and a cavity should be carved in the nose area in order to locate some ballast. The resin can be filed easily, and sealing of joints is obtained with epoxy filling.

1 LTV *A-7A Corsair II* (Hasegawa)
2* LEDUC *022* (Fabulon)
3 I.A.I. *Kfir-C2* (Hasegawa)
4 HENSCHEL *Hs 129B-3/R2* (Lindberg)
5 LOCKHEED *L-749 Constellation* (Heller)
6 KAWASAKI *Ki 61 Tony (Hien)* (Revell)
7 HAWKER-SIDDELEY *Sea Harrier* (Matchbox)
8 MARTIN *404 Mainliner* (Airtec)

LEDUC *022* — **Fabulon**

Resin models mainly evoke individual ventures, but they also challenge the lack of imagination of traditional manufacturers. This **Fabulon Leduc** *022* is the first model released as a file, which contains 29 accurately carved resin parts. Also included in the file (release-2) are a monography of 1/72 plans, a cutaway view of the aircraft, a stereophoto in colour of the cockpit and detail B & W and about 20 detail colour pictures as well as the copies of the original drawings of the **Leduc** at 1/5 scale. The design of this model required hundreds of working hours. A few "pirated" copies of **Fabulon Leduc** have been spotted in **Czechoslovakia**, in the **USA** and in **France**. The copies can be recognised from the genuine ones by their significantly poorer quality and accuracy and they have no documentation nor packaging.

The **Leduc** *022* appeared too early in a world which was not prepared to welcome it. It was designed at a time when prop-driven fighters were still in activity, but this interstellar-shaped prototype of an interceptor embodied a lot of advanced technical solutions: its wings were milled in a block of metal (first in the world); the air intake was encircled by boundary layer bleed holes; it was the first time titanium was used on an aircraft in **France**. The pilot was lying as on a lounge-chair in an all transparent escapable cockpit module; he could see ahead through a periscopic prism. The *022* took off with an **Atar** *101D-3* turbojet, then accelerated while climbing and cruising powered by the ramjet, designed — like the frame — by René **Leduc**.
Contrary to the turbojet, the ramjet does not include any moving parts. The air sucked in by the air-intake of the ramjet is compressed



▲
LOCKHEED *Constellation* —
Jean-Frédéric **Boullier**

This *Constellation* was flown by **Conifair Aviation Inc**. of **Canada**, specialists in crop-spraying. Two of the type were still being used in 1984 along with three **Douglas** *DC-6* and four **Douglas** *DC-4*.
This model has been built from the **Heller** kit. All lovers of civilian propliners should buy Stephen **Piercy's** book, *Sky Truck*, which contains magnificent colour photographs, five of which depict "**Conifair** Connies".

only under the effect of the aircraft's speed; then it is brought to high temperature as the fuel burns in the combustion chamber; then it expands producing the necessary thrust. The faster the aircraft, the higher the pressure rate is and the stronger the ramjet thrust. The only limit for this type of aircraft seemed to be its fuel cells capacity and the heat barrier. But the fate of the **Leduc** *022* was to be different: it died from bureaucratic incompetence and shortsightedness.The **Fabulon Leduc** *022* resin models are produced in two short series. The second **Fabulon** releases include a cockpit moulded out of clear polyester resin — the aircraft has more parts and is made-up of a hollowed vacuum-moulded body in resin.

▲

LOCKHEED *Constellation* —
Jean-Frédéric **Boullier**

The *Constellation* shows that not all **Heller** products are of equal standards. To be fair, this model had been expected for such a long time that airliner buffs rushed to scrutinise every little bit. Their criticism can be summed up as follows:
— the model is a blend of the *L.049* and *L.749* versions, as is Francis **Bergese's** box art which represents *L.049 F-BAZB* and not *L.749 F-BAZT*;
— the number of portholes is not suitable for the *L.749* and their diameter is about 25% too large,*
— the engine nacelles should be shaped again with plastic card,
— finally, the decals for the fuselage stripes are not correct.
The shade of light blue is too pale and the stripe in the middle that runs across the portholes should be white instead of blue.
All that goes to show that photographs of the original aircraft are indispensable. That is true of every model but even more so in the case of **Heller's** *Constellation*. Among the reference material that should be obtained by all "Connie" lovers are:
— *The Lockheed Constellation* by Terry **Morgan**
— *Air Enthusiast* Volume 14
— *Lockheed C-121 Constellation* by Steve **Ginter**
— *L'Encyclopédie Illustrée de l'Aviation* No. 113

*For the purists, we checked the porthole's diameter on the *L.749* displayed in the Musée de l'Air at Le Bourget (this *L.749* flew as the **Air France** *F-BAZR*, then as the *F-ZVMV* of the French Flight Test Center). As a matter of fact, we found 365 mm corresponding to 5.1 mm, whereas 6.3 mm were measured on the **Heller** model.

LOCKHEED *C-60 Lodestar* — Bernard **Macaire's** collection

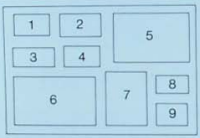
Recognition models were sometimes decorated with decals, but they never bore any inscriptions.
The "Grandpappy" lettering on the nose of this **CRUVER LOCKHEED** *Lodestar* is therefore apocryphal.

▲
LTV *Corsair II* — Gérard **Cabot**

This aggressive sting belongs to the bee of US Navy VA-113 Squadron. The *A-7E* version of this *Corsair II*, based on the aircraft carrier *USS Ranger* has been assembled from the **Hasegawa** model, with **Microscale** decals from sheet No. 82.

LOCKHEED *A-29 Hudson* — Bernard **Macaire's** collection

This **Lockheed** *Hudson* was made in **England** by **E.B.B.** as a recognition model for spotters. Wood and bakelite were used for its construction. The figure 52 written on the wing is the number of the military order for the model and 306 is its stocklist reference number.



1 KAWASAKI *Ki.100-II Goshikisen* **(Aoshima)**
2 MACCHI *C.202 Folgore* **(Supermodel)**
3 LOCKHEED *P-38 I/L Lightning* **(Frog)**
4 MITSUBISHI *A5M4 Claude* **(Nichimo)**
5 LOCKHEED *P-2V7 Neptune* **(Hasegawa)**
6 LOCKHEED *P-3A/B/C* **(Hasegawa)**
7 LOCKHEED *T2V-1 Seastar* **(Griffin)**
8 MILES *Magister* **(Frog)**
9* MESSERSCHMITT *Bf.109G* **(Airfix)**

MESSERSCHMITT *Bf.109G* — **Airfix Snap**

Packi-packi, clica-clac, snap-tite, snap-together, snap-fit, snap'n glue, . . . all those names from all over the world refer to the same thing, i.e., rather crude models designed for snap-together assembly. This **Airfix** *Bf.109G* is an example of this mercantile trend to persuade young beginners to botch up sub-standard or shoddy articles, when it would be better to accustom them to fine workmanship gradually, thanks to helpful advice, clear assembly instructions and a good model, even though such learning process will induce difficulties at the beginning. It is obviously in the manufacturer's interest to make assembly easier so as not to put off beginners, but this should not be done at the expense of quality, the true "raison d'être" of a model. What is true of models is true of any hobby: one cannot improve one's standards by working with poor products. The only way is to learn with the best tools and techniques, by trial and error if necessary. The art of fine modelling lies in choosing the best available kit and using good methods of assembly and finishing, that have nothing in common with "snapping together".

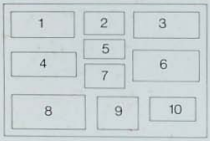
LTV *Crusader* **(Hasegawa)** ▶
Gérard Cabot

1 LOCKHEED *SR-71A Blackbird* **(Hasegawa)**
2 LOCKHEED *C-130E Hercules* **(Airfix)**
3* LOCKHEED *C-141A Starlifter* **(Nova)**

LOCKHEED *C-141 Starlifter* — **Nova**

Nova specialises in large-size vacuforms, but this *Starlifter* is not the largest of this make.

The main parts of the landing gear are made of metal, while the beautiful decal sheet is from **Microscale**.



1	LOCKHEED *AH-56A Cheyenne collection P. Legrand*	(Aurora)
2	LAVOCHKIN *LA-5*	(Italaeri)
3	LIORE ET OLIVIER *Léo 451*	(Heller)
4*	MAX HOLSTE *Super-Broussard*	(Heller)
5	LOCKHEED *F-80 Shooting Star*	(Airfix)
6	Mc Donnell *F2H Banshee*	(Airfix)
7	MITSUBISHI *MU-2*	(Otaki)
8	LOCKHEED *YF-12 A*	(AHM)
9	LATECOERE *298*	(Rudel)
10	MITSUBISHI *A7M2 Sam (Reppu)*	(Aoshima)

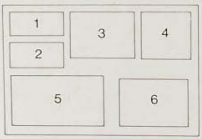
HOLSTE *Super-Broussard* — **Heller**

This box top reads: "1/50 scale".
Did we make a mistake in presenting this Max **Holste** *Super-Broussard* on that picture? Not so, in fact this is an error of the manufacturer since this model is to 1/75 scale.
The 1/48 (or 1/50) buffs who rely on the scale mentioned on the box will be fairly disappointed when discovering the parts' size which is inconsistent with this assertion, at first sight . . .
However let us notice that the 1977 **Heller's** catalogue mentions the right scale.

McDONNELL *F3H-2 Demon* — Jean-Pierre **Balas**

The nose and the air intakes of this aircraft are particularly tormented in shape and have necessitated a complete modification of **Airmodel's** crude basis. Few reliable documents on the *Demon* are available, but an excellent article by Stephane **Nicolaou** with many colour and black and white photographs plus a three-view plan deserves notice. It was published in the January and February 1983 issues of *Air Fan* No. 51 and 52.

▲ LOCKHEED S-3A Viking Hasegawa



1 MITSUBISHI *MU-2S* (Hasegawa)
2 LOCKHEED *P-38F/J/L Lightning* (Hasegawa)
3* NAMC *YS-11* (Bandai)
4 NORD *262 Frégate* (Réducta)
5 MARTIN *SP-5B* (Hasegawa)
6 NORD *2501 Noratlas* (Heller)

NAMC *YS-11* — **Imai**

This **Bandai** box of the *YS-11* also contains an aircraft tractor and splendid decals of top quality.

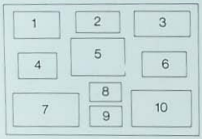
NORD *262 Frégate* — **Reducta**

Behind the railings of an old suburban house called "La Broussaille" (The Brushwood) at Vaucresson, west of Paris, a narrow alley leads to the former **Etablissements Lenoël**, now a dusty workshop. The rain that seeps in from the roof in some places makes large stains on the big crates piled up haphazardly on top of rusty machinery. A mouldy smell prevails but the place is fraught with magic as the very first French models were born there soon after the war. **Reducta** models produced by Henri **Lenoël** came out in numerous varieties. The models in kit form were sold in navy blue boxes. The aircraft (to 1/60 scale) was made up with about 15 wooden parts, all of which were carved and painted. The smaller parts were made of copper, aluminium, clear plastic and celluloïd. The roundels were made of coloured paper with glue on the back. A small bag full of putty and a three-view drawing were also supplied.
Other models, used for wind tunnel tests by **Breguet, Nord-Aviation, Bloch**, . . . were made of hard wood, often hornbeam. Like models dating back from the period that immediately preceded — or followed — the war, these models bear crossed stripes on their surface. This is due to the use of layers of different species of wood assembled cross-wise so as to prevent possible distortion and to facilitate repairs. Finally, exhibition models should be

▲
NORD *262 Frégate* (**Reducta**)
Jean-Frédéric Boullier

mentioned. They are sold fully assembled on their stand in brown wrapping cardboard. The scales vary between 1/10 and 1/250. Contrary to most exhibition models, **Reducta** models are quite accurate because they are built from original manufacturers' plans. Polystyrene, wood, ebonite, brass, aluminium and steel are used (aluminium is moulded in sand moulds). More than 200 different models have been produced by **Reducta** but only one is made of plastic and to 1/75 scale. This, the **Nord** *262 Frégate*, is particularly interesting as it is the only model of the aircraft available and is quite accurate and compatible with **Heller's** Max **Holste** *Super-Broussard*. Moreover, it is easy to convert the **Reducta** model into the *Mohawk 298*, an improved version of the **Nord** *262* used by several American airlines on domestic flights.

NORD *2501 Noratlas* (**Heller**)
Jean-Frédéric Boullier

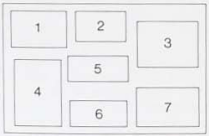


1 MACCHI *MC.205* (Supermodel)
2 MESSERSCHMITT *Me.163 Komet* (Heller)
3 MITSUBISHI *F-1* (Hasegawa)
4 MITSUBISHI *A6M3 Hamp* (Tamiya)
5 MC DONNELL *F3H-2 Demon* (Intermodell)
6 MESSERSCHMITT *Bf.109K-4* (Heller)
7* Mc DONNELL *F-15A/B Eagle* (Airfix)
8 MILES *Master III* (Frog)
9 MORANE-SAULNIER *N* (Revell)
10 PANAVIA *Tornado* (Esci)

McDONNELL *F-15 Eagle* — **Airfix**

Although **Airfix** has an unfortunate propensity to foist the "new" label on re-issued models, this **McDonnell Douglas** *F-15 Eagle* is really new. The great advantage of **Airfix** over their rivals is their efficient distribution and their ability to offer a wide range of reasonably good kits with a graded price range. This made it possible to distribute **Airfix** kits to all children of the world and many top modellers now acknowledge that they owe their proficiency to their first attempts with one of the *Series 1* models from that famous tradename.

NORTH AMERICAIN *FJ-2 Fury* **(Rareplane)**
Michel Martray. ▶



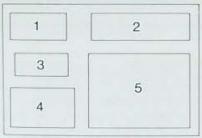
1	Mc DONNELL *F-4G/E/F*	(Italaeri)
2	MACCHI *MC.72 Castoldi*	(Delta)
3*	Mc DONNELL *XP-67 Bat*	(Private venture)
4	MARTIN *XB-51 Panther*	(Execuform)
5	MITSUBISHI *Ki 46-III Dinah*	(L.S.)
6	NORTH AMERICAN *B-25C Mitchell*	(Frog)
7	Mc DONNELL *F-18 Hornet*	(Esci)

McDONNELL *XP-67 Bat* — **Private Venture**

Silicon moulds make it possible for one person only to produce models in limited series (a few dozen kits) using basic tooling. Now small groups of enthusiasts can at last give vent to their talent and creativity. This model of the **McDonnell** *XP-67 Bat* has been produced by the Klub Plastikovych Modelaru of Prague in **Czechoslovakia**. About twenty people the world over have issued more than 150 different resin-moulded kits to 1/72 scale. They are mostly to be found in Eastern bloc countries, but the organisation of this production, from plan drawing to final product marketing, is rather relevant to the West — or even the Far-West. The pioneering make which appeared in **France** is **Fabulon**.

McDONNELL DOUGLAS *F-15 Eagle* — Gérard **Cabot**

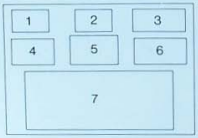
The **McDonnell Douglas** *F-15 Eagle* is currently one of the world's best interceptors. It has been chosen for the air defence of the North American continent. On top of its many qualities, the *Eagle* is powered by engines able to provide it with a formidable acceleration. That would have enabled it to outclimb the famous *Saturn V* booster up to the altitude of 15,000 m if it had been available then (the *Saturn V* made it possible for Neil **Armstrong** and Buzz **Aldrin** to land on the moon in July 1969). However, the *F-15* is not merely an air superiority fighter. It also happens to be the first satellite-killing aircraft. In order to fulfil that mission, the *Eagle* receives during its flight, data provided by **United States Space Defense Operation Command** computers, that enable it to follow a flight path vector in synchronisation with the satellite trajectory. The on-board computer then gives the best interception profile to the pilot and when the *F-15* has reached an altitude of 70,000 feet, the computer warns the pilot to fire the **Vought** *Asat*, a two-stage compact missile carried under the belly of the aircraft. The *Asat* missile, which is guided by a gyro-laser system, then homes in on the satellite, tracks it down with opto-electronic sensors and manoeuvres with its 56 small rocket-engines to collide with its target. The speed at the moment of the impact is 12 m/s, which releases enough energy to blast the satellite. That method of interception, i.e., the *F-15* plus the *Asat* missile, even makes it possible to shoot down satellites during their climbing phase and is much more efficient and flexible a method than the former technique which consisted of launching a heavy booster from the ground. This former technique sometimes made it necessary to wait for 24 hours until the earth's rotation could place the intercepting missile on the course of the satellite. The booster was then fired which placed an intercepting craft on an orbit crossing that of the target. Several revolutions were necessary before it could home in on the hostile satellite. When it was within range, the intercepting craft exploded and riddled the satellite with shrapnel. The *F-15* in the photograph comes from a **Hasegawa** kit. No *Eagle* is sold with the *Asat* missile yet.



1 Mc DONNELL *RF-101 C Voodoo* (Frog)
2 MITSUBISHI *G4M2 Betty* (Lindberg)
3 MESSERSCHMITT *Me 262 A/B1A* (Jo-Han)
4 MITSUBISHI *Ki.109B* (L.S.)
5* MARTIN *P6M2 Seamaster* (Airmodel)

MARTIN P6M2 Seamaster — **Airmodel**

Franz **Schädler**, the founder of **Airmodel**, unfortunately died in 1980. He left an abundant and original production, part of which is still sold by Richard **Frank (Frank-Modellbau)**. The questionable accuracy of **Airmodel** vacuformed kits has often come in for criticism and it has to be said that for **Airmodel**, quantity mattered more than quality. However, it should also be pointed out that the quality of these models was unequal because they were not the brainchild of a single progenitor. About 40 Czech models were used as "masters" for the production of **Airmodel** kits. This **Martin** *P6M2 Seamaster* is nevertheless an original creation and represents one of the best achievements of the make. That aeroplane was the only jet-powered flying boat bomber to have flown in the West.



1 NAKAJIMA *C6N1 Myrt* (Aoshima)
2 NAKAJIMA *Ki 43-II Oscar* (Fujimi)
3 MITSUBISHI *A6M5 Zero* (Jo-Han)
4* MITSUBISHI *Ki 15 Kamikaze* (Mania)
5 KAWASAKI *Type 93* (Gunze Sangyo)
6 MARTIN *B-26B Marauder* (Airfix)
7 MYASISHCHEV *Mya 4 Bison* (Contrail)

MITSUBISHI *Ki-15 Kamikaze* — **Mania**

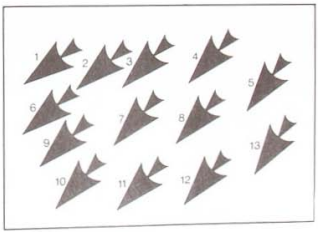
Mania models are unbelievably fine and all the minutest details are faithfully reproduced. This Japanese manufacturer pays particular attention to cockpit interiors and actually reproduces, for instance, oxygen bottles. It should be noted that **Mania** moulds are now at **Hasegawa's** plant.

MARTIN *404* — Jean-Frédéric **Boullier**

This short and medium haul airliner was almost exclusively produced for **Eastern** and **TWA** airlines which operated a total of about a hundred in all. A few **Martin** *404s* were still flying in 1984 although they were first introduced in the fifties. This photograph shows that it is not always necessary to resort to complicated techniques to represent the transparencies of civilian aircraft. The cockpit and cabin windows on this solid-resin **Airtec** model have just been painted on and the result seems quite satisfactory.

MIKOYAN-GUREVICH *MIG 21* — Serge P. **Lunazzi**

Serge P. **Lunazzi** who, as a French Army Reserve Captain, is in charge of recognition courses for Officers of the Reserve in the 3rd Military Region, has tried to portray all the known versions of the *MIG 21*, showing the different schemes actually adopted by the various countries that fly that aircraft as much as possible.
Will modellers-spotters be able to identify at a glance the version, the nationality and the make of the models shown here?



1. MIG 21 PF *Fishbed D*
Nord Vietnam
(*Fuselage* Matchbox + *Tail* Airfix)
2. MIG 21 F *Fishbed C*
Egypt
(Airfix)
3. MIG 21 PF *Fishbed E*
Syria
(Matchbox)
4. MIG 21 PFS *Fishbed E*
Egypt
(Matchbox)
5. MIG 21 F *Fishbed C*
Indonesia
(Airfix)
6. MIG 21 PFM *Fishbed F*
Egypt
(Matchbox)
7. MIG 21 PFM *Fishbed F*
USSR Aerobatic Team
(Matchbox)
8. MIG 21 FL *Fishbed E*
India
(Matchbox)
9. SHEN YANG F 7 *Fishbed G*
China
(Airfix)
10. MIG 21 UM *Mongol B*
Egypt
(*Fuselage* Airfix + *Tail* Matchbox + *conversion Airmodel*)
11. S-102 *Fishbed C*
Czechoslovakia
(Airfix)
12. MIG 21 PF *Fishbed D*
Egypt
(Matchbox) *modified*
13. MIG 21 PF (SPS) *Fishbed D*
(Matchbox) *modified*

1	MIKOYAN *MIG3*	(Cap Croix du Sud)
2	MIKOYAN *MIG15 BIS Fagot*	(Aermec)
3	MIKOYAN *MIG15 BIS Fagot*	(Novo Export)
4	MIKOYAN *MIG15 BIS Fagot*	(Kovozavody)
5	MIKOYAN *MIG15 UTI Midget*	(Kovozavody)
6	MIKOYAN *MIG17 PF Fresco D*	(Kovozavody)
7	MIKOYAN *MIG19 SF Farmer C*	(Kovozavody)
8	MIKOYAN *MIG19 PM Farmer E*	(LFI)
9	MIKOYAN *MIG19 PM Farmer E*	(Central)
10	MIKOYAN *MIG21 PF Fishbed D*	(IMC)
11	MIKOYAN *MIG21 PF Fishbed D*	(Matchbox)
12	MIKOYAN *MIG23 Flogger B*	(Airfix)
13*	MIKOYAN *MIG25 Foxbat A*	(Hasegawa)
14	MIKOYAN *MIG27*	(Hasegawa)

MIKOYAN-GUREVICH *MiG 25* — **Hasegawa**

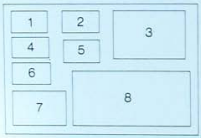
For the layman, Soviet aeroplanes mean *MIGs*. This is due to the fact that the aeroplanes designed by **Mikoyan** and **Gurevich** have often hit the headlines and proved their worth when pitted against the best fighters of the West, whenever there was a war on. Model manufacturers have naturally evinced interest in *MIGs* since 1953. Unfortunately little precise information about Eastern bloc aeroplanes was available, so the first *MIG* models were entirely inaccurate as they had been designed according to so-called "disclosures", in fact, fakes and photo-montages, released by the *Associated Press Agency* in 1951.

The *MIG-19* produced by **Aurora** (1/48), **Bachman** (1/200) and **Lindberg** (1/48) are patently absurd because they portray *the MIG 19* that only existed in the minds of journalists. Surely the most stunning of all is a great Soviet modelling company called **MCCNE**, the Moscow-based National Consortium for the production and distribution of metal and plastic toys. They faithfully copied the **Lindberg** mould of the faked *MIG 19* (however leaving out the American HVAR rocket armament) thus producing a faked *MIG 19* in the **USSR** itself. And the story does not end here, for that *MIG 19* is kitted in a box whose top

represents a *MIG 15* . . . and not a *MIG 17* as some so-called specialists have claimed it to be.
Fortunately, 1/72 scale models of *MIGs* are somewhat more realistic and, in this field, the case of **Hasegawa** is indeed admirable. This company was still somewhat obscure as long as its main activity consisted of sub-contracting **Frog** moulds. But since 1970, the company has become distinguished in three fields, i.e., modern US aircraft (many of which had never been produced in kit form before), original Japanese aircraft and appealing types like the *MIG 25 Foxbat*.
The *MIG 25* was one of the best kept secret aeroplanes in the Soviet Union. It had chiefly been used for "reconnaissance" flights and had on various occasions shown a clean pair of heels to the best interceptors of the period (*Phantom* and *Mirage*) sent to intercept over **Israel** and **Europe**. On September 6th, 1976, Lieutenant Viktor **Belenko** defected to the West and landed his *Foxbat* at Hakodate, **Japan**, thus giving **Hasegawa** the opportunity for a resounding scoop. Before the officials of the base had had enough time to cover up the aircraft, **Hasegawa** had it already inspected by its 'informers' that took video films of all the details of the *MIG*. Five months later — quite a feat since it normally takes 18 months to produce a new model — millions of 1/72 scale models of this top secret aircraft were selling like hot cakes.
Hasegawa is nowadays one of the most credible and promising manufacturers in the world. They boast high-grade moulding technicians, an admirable design department and a management with a flair for commercial opportunities and a policy of making long-lasting products. The only flaw is that **Hasegawa** models, however affordable they may be in **Japan**, are so expensive in **the West**.

MITSUBISHI *Ki 109* — Didier **Palix**

This photograph shows an example of spray painted camouflage colours. It is worth noting that the surface detailing is etched in spite of the age of this **L.S.** kit. Transparent parts such as one of the fuselage halves and the cowling panels are offered in the box so as to enable the modeller to show off the interior which is unfortunately too sparsely furnished.



1 NAKAJIMA *Ki.44-II Tojo* (Fujimi)
2 NAKAJIMA *Ki.43-II Oscar* (L.S.)
3 NAKAJIMA *G8N1 Rita* (Hasegawa)
4 PIPER *Cherokee 180 C* (Aurora)
5* NIEUPORT *N.17* (Plastiques Dermatt)
6 MITSUBISHI *Ki.15-II Babs* (L.S.)
7 NORTHROP *F-5E Tiger II* (Italaeri)
8 NORTH AMERICAN *XB-70* (Contrail)

NIEUPORT *N.17* — **Plastiques Dermatt**

Sometimes models are sold as gifts or sales incentives with other products. The Italian publisher **Fratelli Fabri** thus offered **Revell** and **Airfix** remoulded kits along with their magazines — *Storia Dell Aviazione*. Another example could be found in the **USA** where **RCA** once gave **Park Plastics** models of the **Boeing** *707* to whoever bought a "His Master's Voice" TV set (oddly enough, the same model was sold in **France** in the sixties under the **Pegapan** label).
Many other models were given away to boost the sales of powdered chocolate, toothpaste, mopeds, Camembert cheese, petrol and detergent, etc . . . Perhaps the most comical example was that of "Father **Grap**".
On this **Nieuport** *17* kit Father **Grap's** partly toothless arch smile invites you to taste his wine. The caption overleaf reads:
"Start a collection of Father **Grap's** old crates — twelve models for you to assemble. Cut out the tab on each bottle of wine and paste it on the card. When your card has been completed your vintner will give you a kit of a trail-blazing old crate".
144 litres of wine had to be drunk if one wanted to have the entire collection of twelve models! Some amateurs took to swigging plonk, but the stuff was so diabolical that they soon had to give it up, so that few people have actually seen any of Father **Grap's** models. Yet there were some foolhardy *aficionados* who plucked up the courage to buy 144 litres — and sometimes even more — in their effort to obtain those twelve old crates. But however much they drank, the same six models always turned up.
In fact, **Grap** had ordered four moulds for

POTEZ *540* **(Heller)**
Jacques Niot

four aeroplanes each, only four of which were to 1/72 scale. Only one of the four was apparently distributed by **Grap.** The three others (along with the one that was distributed by Grap) were finally sold under the **Joy** label.

Collectors generally say that a model is rare when it has been produced in a small series. That is often true but not always. Millions of models produced and offered as sales incentives can become unobtainable in a short time because their life expectancy is so short. Children play with them and a few hours later they end up in the dustbin. One can say that the rarity of a model depends on many factors such as its age, the number of kits produced, the type of distribution, the customers aimed at, the pricing, etc . . . Individual talents are necessary for the acquisition of a rare model, e.g., the knowledge of the channels of transactions or the ability to make light of linguistic or geographic barriers. When a model accumulates those difficulties (or when the collector's abilities are limited), the hope of finding it wanes proportionately. That is the reason why the image of an armchair collector is completely mistaken. In fact, a collector's life has a smell of adventure the homebirds will never know.

1	NORTH AMERICAN *F-108 A*	(K.R.)
2*	NORTH AMERICAN *X-15*	(Miyauchi)
3	NORTH AMERICAN *T-28*	(Heller)
4	NORTH AMERICAN *F-86 E*	(PMS)
5	NORTH AMERICAN *F-86 D*	(Airfix)
6	NORTH AMERICAN *P-51 B*	(Lindberg)
7	NORTH AMERICAN *F-82*	(Monogram)
8	NORTH AMERICAN *P-51 B*	(Monogram)
9	NORTH AMERICAN *P-51 D*	(Hasegawa)
10	NORTH AMERICAN *RA-5C*	(Airfix)

NORTH AMERICAN *X-15* — Miyauchi

This kit is so rare and little known that most journalists who write for modelling magazines are unaware of its existence. The **North American** *X-15* has been offered by several makers to different scales, but the **Miyauchi** kit is unquestionably the finest and most accurate portrayal of the aircraft. It is finer than the **Revell** *X-15* and better insofar as it is very close to 1/72 scale. Its compatibility with the **Monogram** *B-52* and the vacuformed cradle supplied by **Frank-Modellbau**, make it all the more interesting. Predictably though, the **Miyauchi** model is eagerly-sought after by the keenest collectors in the world.

The *X-15* was the outcome of a joint programme funded by **NASA**, the **US Air Force** and the **US Navy**. It was designed to explore the range of speeds in excess of Mach 5.

The *X-15* made use of many advanced techniques:

— The airframe was designed to withstand the high temperatures generated by the friction of air and embodied elements that were made from a new, highly resistant alloy called *Inconel X*, chiefly nickel and chromium.

— The main undercarriage consisted of two skids that retracted into the rear of the fuselage. They were lowered by gravity and aerodynamic effect.

— The flight controls comprised three sticks:

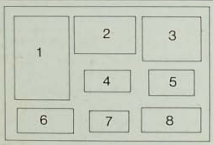
- a conventional one for low speed flight (for approach and landing). This later proved unnecessary and was removed;
- a mini-stick on the right console for high-acceleration phases of flight;
- a second mini-stick, placed on the left console, was designed to ensure

controllability when the aircraft was performing a ballistic flight in a rarefied atmosphere. This was achieved thanks to several jet controls.
— The nose boom equipped with angle of attack and side slip sensors was ultimately replaced by the so-called "hot nose", shaped like the tip of a ball-point pen. The sphere was pierced with holes for pressure measurement and was servoed to the airflow direction. It played the same role as traditional aerodynamic sensors, the latter being unusable during hypersonic flight.
— In spite of the reluctance of the **Air Force** that favoured an escape module concept, **North American** developed a rocket propelled ejection seat which could operate at speeds stretching from 90 kts to Mach 4.
— The engine of the *X-15*, the *XLR-99*, was the first to allow for a thrust adjustment from 40% to 100% of the maximum thrust. Re-starting of this engine was also possible in flight.
— The *X-15* generated many new technological developments that cannot be listed here but the reader will find further information on this aircraft in the following books and magazines:

- *L'Enthousiaste* No. 27 and 28 : a very thorough article by Jay **Miller** (translated in French by J. **Cuny**)
- *Air Enthusiast* No. 6 and *Flight* (23rd December 1978) : the history of the *X-15*.
- *X-15* : an account of Scott **Crossfield's** involvement with the *X-15* programme. Scott is a former **North American** test pilot.
- *The X-Planes* : Jay **Miller's** description of the *X-15* and its developed version, the *X-15A-2*, in chapters 20 and 21. A complete and chronological list of all the flights is also included. The same author's article in *Aerophile* Volume 1 No. 2 is also noteworthy.

North American built three *X-15s*.
No. 1 was the first to fly. On June 8th 1959, Scott **Crossfield** performed a gliding flight at Mach .79. Nine years later, on October 24th, 1968, No. 1 flew for the last time and was then exhibited in the National Air and Space Museum in Washington.
No. 2 was rebuilt after an accident and stretched by .74 m. It was then called *X-15A-2*. It was on this aircraft that the first, partially successful tests of a new ablative coating designed to protect the airframe from the heat, were performed. On October 3rd, 1967, the *A-2* broke all the speed records of the period, reaching the 6.72 Mach number (7270 km/h). It had been fitted with impressive jettisonable propellant tanks (supplied with the **Frank-Modellbau** kit). That proved to be the last flight of the *X-15A-2*. Once it was stripped of its half-burnt ablative coating, it was sent to the **US Air Force Museum** at Dayton, Ohio.
A few weeks after the last flight of the *A-2*, *X-15* No. 3 crashed when its airframe broke up as the aircraft was re-entering the atmosphere. Control had been lost. Major **Adams** was killed on that occasion, on November 15th, 1967. The report of the accident has been published in *Aviation Week* (August 12th and 26th, 1968).
The *X-15* programme, one of the most outstanding in the history of aeronautics, had lasted for over ten years.

NORTH AMERICAN *F-82* **(Monogram)**
Didier Palix



1 NORTH AMERICAN *B-45 C* (Aeroform)
2* NORTH AMERICAN *F-100 D* (Esci)
3 NORTH AMERICAN *T-39* (Airtec)
4 NORTH AMERICAN *T-6G* (Heller)
5 NORTH AMERICAN *F-86F* (Heller)
6 NORTH AMERICAN *OV-10A* (Revell)
7 NORTH AMERICAN *P-51B* (Airfix)
8 NORTH AMERICAN *F-100C* (IMC)

NORTH AMERICAN *F-100D Super Sabre* — **Esci**

Esci, a newcomer on the market place, are highly appreciated for their beautiful mouldings sold at very attractive prices. Their fine decals come from **Cartograf**. Collectors who are interested in the box shown on the picture are urged to get it, as the mention "with the French Air Force roundels" is no longer affixed.

NORTH AMERICAN *F-100 Super Sabre* — Didier **Palix**

Assembling the **Esci** *F-100* is a treat but the same can hardly be said for painting it. The main source of trouble is the weathering of the panels covering the afterburner section. The following painting technique was used on the *Super Sabre*:

— a first coat of aluminium finish was applied,
— then a second coat of gold paint,
— a third coat of thinned down ochre followed,
— seven dark brown streaks were painted,
— a shade of metallised blue was added to the last three streaks,
— a final coat of thinned yellow ochre was sprayed on at the end.

All these operations were performed with an airbrush.

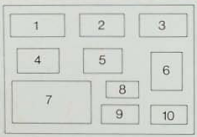
Alfred E. **Harke** suggests, in *Scale Aircraft Modelling* Volume 4, No. 8, to use the "egg shell" technique:

— boil water in a pan and add three egg shells,
— let the water simmer and add the number of aluminium panels you need, then leave the whole to bubble away.

The greater the number of egg shells, the shorter the boiling time but, as a rule, three shells will give the aluminium shades similar to those on the rear of an *F-100*, after about 20 minutes. Then the foil should be applied down on the aircraft model's surface with Micro Metal Foil Adhesive from **Microscale**.

REPUBLIC *F-84* (Airfix)
Jean-Pierre Balas

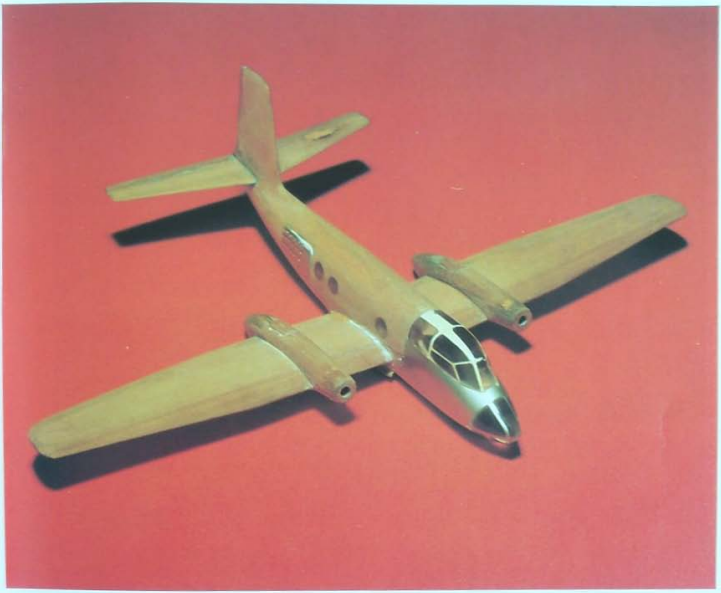
NORTH AMERICAN *F-100 Super Sabre*



1	NORTHROP *P-61 Black Widow*	(Frog)
2	NORTHROP *T-38 Talon*	(Hasegawa)
3	NORTHROP *Gamma*	(Williams Brothers)
4	NOORDUYN *UC-64A Norseman*	(Matchbox)
5	NAKAJIMA *Ki-44 Tojo Shoki*	(Tamiya)
6	NORTHROP *N-9M*	(Private Venture)
7*	NORTHROP *YB-49*	(Airmodel)
8	PIPER *Aztec*	(Aurora)
9	PZL *P-23 A Karas*	(Ruch)
10	PFALZ *D.XII*	(Veeday)

NORTHROP *YB-49* — Airmodel

Flying wings have always fascinated people. Already in 1914 the **Dunne,** a flying wing with a swept back biplane planform, caused wonder and astonishment wherever it appeared. Between 1930 and 1950 J. K. **Northrop** introduced new developments. The sleek, streamlined shape of his flying wings was so impressive and futuristic-looking that a film producer included shots of the *YB-49* in flight in his Science Fiction film *War of the Worlds.* The *YB-49* was the largest jet powered flying wing ever to have flown. Flying wings probably represent the most rational and advanced technique in the field of aeronautics as they offer the best compromise as far as structure and performances are concerned. Compared to its contemporaries of the same dimensions, the *YB-49* was the aircraft with the smallest turning radius, the highest speed, the longest range and the heaviest payload. Unfortunately, flying wings proved to be highly unstable under certain conditions and this probably caused the accident that occurred to the second aircraft, killing Captain Glen **Edwards** and his crew on June 5th, 1948. The flying wing has been abandoned since, but the name of **Edwards** was given to the famous **Muroc** experimental base in California, USA.
The introduction of the "Control Configured Vehicle" concept (CCV) has given rise to new hopes for the flying wings. The small main cross section and aerodynamic cleanness of flying wings will prove to be valuable assets for designing new supersonic intruders that will be almost invisible to radars.



Will flying wings find their true place in the world of aeronautics 70 years after its inception?
If, in any case, you are interested in the *YB-49* there is no point in going around the museums for a chance to admire it, as all the aircraft of the type were scrapped in 1958 to the grief of museum curators.
The documentation describing those remarkable machines is very sparse but, however, let us mention the following:

— *The Flying Wings of Northrop* by Leo J. **Kohn**,
— *Northrop Flying Wings* by Edward T. **Maloney**,
— *Winged Wonders* by E. T. **Wooldridge**,
— *Air Classics* Volume 3, No. 5, May 1967,
— *Aeroplane Monthly* Volume 2, No. 2, February 1974,
— *Le Fanatique de l'Aviation* No. 29, 30 31 (January, February, March 1972).

SUD AVIATION *SE 117 Voltigeur* — Bernard **Macaire** collection

The *Voltigeur* came out on top in a competition that pitted it against the **Dassault** *D-450 Spirale* — the military version of the *D-415 Communauté* — towards the end of 1958. The second prototype broke up in flight during a high speed test in January 1959. The accident proved fatal to the crew and sounded the death-knell for the project shortly afterwards.
This **Reducta** model is built from very fine wooden parts. The transparencies are solid resin but look quite realistic.

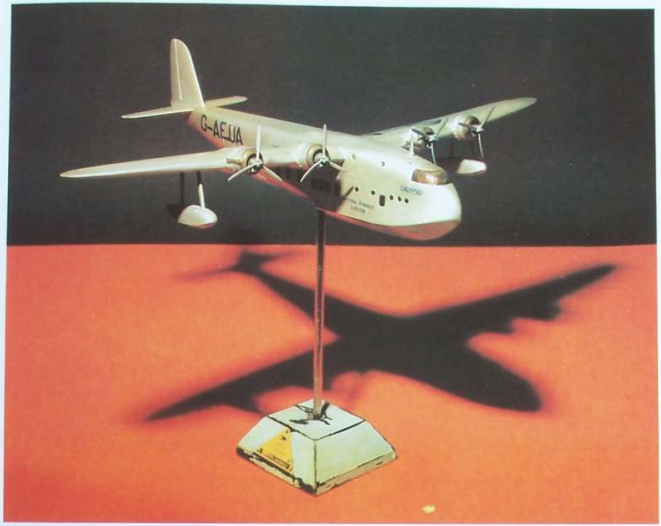
1 REPUBLIC *F-105A Thunderchief* (Heller / Revell)
2 LOCKHEED *F-104G/S Starfighter* (Esci)
3 PZL *P.37 Los* (Mikro)
collection F. Portier
4 MESSERSCHMITT *M35B* (Huma)
5 SZD *IS-1 SEP BIS* (PZD Siedlce)
collection D. Palix
6 Mc DONNELL *F-4E/F Phantom II* (Esci)
7* ROCKWELL *B-1B* (Monogram)

ROCKWELL *B-1B* — **Monogram**

A building without any windows, lost in a northern suburb of Chicago sports the name of **Monogram** on its blank façade, followed by . . . three dots. Three silos full of polystyrene grains stand nearby. The place is 8601, Waukegan Road, Morton Grove, Illinois, USA, and once you are inside, it becomes obvious that this is the home of one of the best manufacturers in the world. About 40 models are proudly displayed in the showroom, each one having been produced to more than one million copies, — e.g., the *Mustang (P-51 B* and *D)*, the *F4U Corsair*, the *P-40 Warhawk*, the *F-86 Sabre*, the *MIG 15*, . . .

Monogram came into being in 1945 with Bob **Reder**, producing the balsa flying models, then wooden kits to which plastic parts were gradually added for better details. Plastic definitely took over from March 1954 onwards for static models. The first plastic kit was the *PC-1 Midget Racer*, produced to be offered as a gift to purchasers of **Kellog's** breakfast cereals. Flying models also included more and more plastic parts until expanded polystyrene entirely took over from balsa in 1977.

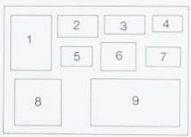
Monogram owes it longevity to a choice of kits appearing on the market at the right time and also to higher standards of engineering and moulding than its American competitors. Moreover, the firm does not lack humour as some of their products show, — e.g., the **US Air "Farce"** *Flap Jack*, those mad *Funny Cars* and the *Shogun Warriors* rather *Goldorak*-like, half-way between monstrous robots and spacecraft. Other examples include the *Head Lite*, a phosphorescent skull with flashing eyes and snapping jaws, and the *Missile Mobile*



(clouds and missiles to be fixed to the ceiling) . . . Since 1983 **Monogram** has become more serious, and they now concentrate on large 1/72 (and sometimes 1/48) scale, a field in which it has gained a good reputation.

SHORT *Empire* — Bernard **Macaire's** collection

This model of the **Short** *Empire* is extremely rare. It is one of a set of 1000 delivered ready assembled to **Imperial Airways Ltd.** by **Frog Penguin** in 1939. That airline used 33 flying boats of the type. The model was also available with a complete interior arrangement and a small battery powered lighting. One of the fuselage halves could be removed to display the passenger seats, the galleys and the carpeting as well as other equipment. **Frog Penguin** models were extremely accurate, thanks to careful design and the use of **Reed-Prentice** machine tools for the injection of ebonite, bakelite and acetate, and celluloid for transparencies. Those materials were not exempt from faults — the parts cracked too easily and the transparencies yellowed with time — however, they were a substantial improvement on wood. **Frog Penguin** models were pricy and cost the equivalent of ten of today's models. The **Short** *Empire* with the inside fitted out, cost the equivalent of three weeks' average pay, when it was ready assembled. That accounts for the fact that collectors who had to stint themselves to buy those models treasure them as they treasure their **Rolls**.
Frog Penguin also produced hangars, searchlights for AA defences, cannons, sound detectors, ambulances, wheeled or tracked vehicles, all to 1/72 scale. Flying models made from aluminium foil were available in a larger scale from 1930 onwards. They were the origin of the **Frog** tradename which stands for "**F**ly **R**ight **O**ff the **G**round".



1 S.N.C.A.S.O. *6000/6001 Triton* (Rudel)
2 REGGIANE *RE-2001 Falco I* (Supermodel)
3* SUPERMARINE *Swift F.4* (Hawk)
4 SEVERSKY *P-35* (Veeday)
5 SZD *41 Jantar Standard* (PZW)
collection J.C. Hasquenoph
6* RYAN *M-1 Mailplane* (Greenbank Castle)
7 RYAN *Spirit of St-Louis* (Novo)
8 SIKORSKY *CH-54A Skycrane* (Aurora)
9 SHINMEIWA *PS-1/SS-2* (Hasegawa)

SUPERMARINE *Swift F.4* — **Hawk**

Hawk is one of the earliest kit manufacturers, since its origin goes back to 1928. At that time, the company produced recognition models for the US Government and these models were carved in plain wood. In 1959 **Hawk** released this *Swift* which has been the only injection moulding of this aircraft so far.

RYAN *M.1 Mailplane* — **Greenbank Castle**

This model of the well-known **Ryan** *M-1 Mailplane* can be built in two versions, either with a radial or with an in-line engine. Less than 3000 copies of it were produced in 1972 by a group of modellers from Coupeville, Washington, **USA**. Unfortunately odds were against the designers, since shortly after the model was marked by **Scalecraft Model Imports**, the **Greenbank Castle** vanished. Today, this kit has become extremely rare and difficult to find.

1 REPUBLIC *F-105D Thunderchief* (Hasegawa)
2 REPUBLIC *P-47 D Thunderbolt* (Jo-Han)
3 REPUBLIC *F-84G Thunderjet* (Heller)
4 REPUBLIC *XF-91 Thunderceptor* (Private Venture)
5* REPUBLIC *XF-103* (K.R.)
6 REPUBLIC *F 84F Thunderstreak* (Airfix)
7* REPUBLIC *F-84F Thunderstreak* (Hawk)
8 REPUBLIC *RF-84F Thunderflash* (Italaeri)
9 REPUBLIC *P-47D Thunderbolt* (Hasegawa)
10 REPUBLIC *F-105D Thunderchief* (IMC)

REPUBLIC *YF-96 Thunderstreak* — **Hawk**

Hawk's *F-84F* has been superseded by newer and better offerings, but has aroused new interest since the release of **Monogram's** *B-36*. This is due to the fact that the **Hawk** model does not really portray the *F-84F*, but its *YF-96* prototype. It is thus possible to represent the **Ficon** (Fighter-Conveyor) parasite fighter by cannibalising **Hawk's** *F-84F* with **K.R.'s** vacuformed *YF-96* and mate it with the **Monogram's** *B-36*.

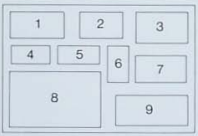
REPUBLIC *XF-103* — **K.R.**

The *XF-103*, which the *Dayton Daily News* dubbed "the 100 Million Dollar Mystery Jet", is one of those extraordinary projects which never came to fruition owing to a shortage of funds. Yet this interceptor was optimised for speeds exceeding Mach 3 and featured new techniques such as a titanium structure and a mixed propulsion system combining a turbojet and a ramjet.
Maybe some day a 1/72 replica will be available of the French **Nord** *1500 Griffon II* which was powered by a similar powerplant system and which flew, thanks to André **Turcat**, at a speed close to Mach 2.2 in October 1959.

1* SAAB *J.35* (Heller)
2 SAUNDERS-ROE *S.R. 53* (Airfix)
3 SAAB *J.21A* (Heller)
4 SAAB *J.37 Viggen* (Heller)
5 SAAB *J.29 Tunnan* (Heller)
6 SAAB *91 Safir* (Heller)
7 SAAB *J.32 Lansen* (Heller)
8 SAAB *105* (Arne Andersson)
9 SAVOIA MARCHETTI *S.M.81* (Supermodel)

SAAB *J.35 Draken* — **Heller**

The **Republic** Corporation alone has inspired at least 25 kit manufacturers in many countries (a few makes of **Republic** aircraft are shown on the preceding page). Conversely, **Heller** moulded no less than six models from the same Swedish aircraft manufacturer **SAAB** in a short period. Was it mandatory for **Heller** to do so?



1 SIEBEL *Si.204D* (Kovozavody)
2 SUPERMARINE *Spitfire* (Heller)
3* SIKORSKY *S.58 Wessex Mk 3* (Scalecraft)
4 SIKORSKY *S.55 Whirlwind* (Airfix)
5 WESTLAND *S.58 Wessex* (Frog)
6* SUPERMARINE *Spitfire II* (Frog)
7 SHORT *Skyvan* (Airfix)
8 SAVOIA MARCHETTI *S.55X* (Delta)
9 SHORT *Sunderland III* (Airfix)

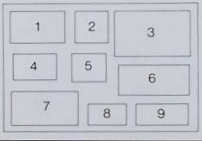
SIKORSKY *S.58 Wessex Mk 3* — **Scalecraft**

Some specialised writers seem to think that this **Scalecraft** model was built to 1/48 scale which shows that they never bothered to open the box. It is in fact a 1/72 scale model.

SUPERMARINE *Spitfire II* — **Frog**

Some manufacturers contend that they have discovered a new policy for the sale of model kits, offering in the same box an easy to assemble model along with paints and a brush. In fact, **Frog** already made the same experiment 18 years back, with its **Inside Story** kits. This **Frog Inside Story** model of the *Spitfire II* was sold as a book and contained a rather crude model in twenty parts along with a fine colour brochure on the *Spit*, a historical account, a plan and a cutaway drawing. To this, **Frog** had added cement, paints, a paint brush, assembly instructions with a painting guide and a set of decals. Moreover, **Inside Story** kits offered a sales incentive in the guise of 10 "Gold Tokens" that could be exchanged for other kits, flying models or **Frog** books. These efforts to find new customers for their production have unfortunately not saved **Frog** from its fate, and the tradename disappeared.

Now **Bobcat's** venture seems questionable, as their only innovations consist of water-soluble paints and cement. One may wonder whether the real motivation of young modellers from 10 to 14 really consists of assembling models and taking them to pieces again several times. Will these young modellers still opt for **Bobcat** when the same model is available in other makes elsewhere, but better engineered, better boxed and sold at half price?



1 SIKORSKY *HH-3 Jolly Green Giant* **(Lindberg)**
2 R.E. *8* **(Airfix)**
3* SOPWITH *Camel F-1* **(Joy)**
4 SUD-AVIATION *Alouette III* **(Heller)**
5 SUKHOI *SU 5* **(Boleslav)**
6 SUKHOI *SU 7B Fitter A* **(V.E.B.)**
7 SIKORSKY *HH-53C Super J G G* **(Airfix)**
8 SUPERMARINE *Spitfire VB* **(Airfix)**
9* SUPERMARINE *Scimitar* **(Frog)**

SOPWITH *Camel F-1* — **Joy**

Manufacturers of yogurt often sell their products in packs of three or six. This technique has been adopted by model manufacturers in the guise of "gift sets". Their idea is to try and find a plausible reason for offering as many models as possible in the same box.

For instance, **Hasegawa** strives to sell old kits in a series devoted to the *Thunderbirds* aerobatic team. **Airfix** bundles together a tank, two aircraft and a ship model in the same box to initiate youngsters to the art of modelling, a praiseworthy intention. **Joy** for their own part make use of an historical argument to sell off their "Old Crates" in sets of 12. Children are always happy to be presented with so many aircraft in the same box. That is the way a collection of models sometimes gets started. Modellers will always remember the day when they took their first steps, but they never can tell when they will take the last. This **Joy** set is extremely rare and little-known, even among the specialists and will surely keep gift sets lovers or collectors of "Old Crates" very busy.

SUPERMARINE *Scimitar* — **Frog**

The *Scimitar* was the last fighter produced by **Supermarine** and came into service in 1958 as the first supersonic shipboard fighter of the British Royal Navy. The **Frog** model is still acceptable by today's standards. Only the cockpit area betrays the age of the model. The *Scimitar* is one of the most sought-after **Frog** kits and will remain an inaccessible dream to most English modellers for a long time to come. It is to be noted that the kits moulded in vivid red plastic by **Triang** are the most highly prized.

1*	YOKOSUKA *D4Y2 Judy*	(L.S.)
2	VOUGHT *F7U-1 Cutlass*	(Aurora)
3	VOUGHT *OS2U-3 Kingfisher*	(Lindberg)
4	YAKOVLEV *Yak-1 / 1M*	(Mikro)
5*	YOKOSUKA *D4Y2 Judy*	(L.S.)
6	WESTLAND *Wyvern*	(Frog)
7	WESTLAND *Lynx AH 1*	(Airfix)
8	YOKOSUKA *K5Y Willow*	(L.S.)
9	WESTLAND *Lynx*	(Airfix)
10	WRIGHT *Flyer 1903*	(Renwal)
11*	VICKERS *Viscount 700*	(Airtec)

YOKOSUKA *D4Y2 Judy* — **L.S.**

Some models die and are born again, only uglier. Others are improved for their second lease of life. This **L.S.** model of the *Judy* started as a 1/75 model, but was later lengthened and re-issued in 1/72 scale. **L.S.** is to be congratulated for this rejuvenation.

VICKERS *Viscount 700* — **Airtec**

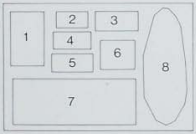
New materials can offer new answers to old problems. Fibre-glass coated with epoxy resin is cheap and rigid enough to make the production of 1/72 scale airliners possible without expensive tooling. Models of the **Viscount** *700* have thus been produced in Miami, Florida, **USA** for **Airtec**.

YAKOVLEV *Yak-3* **(Cruver)**
Collection Bernard Macaire

1	SPAD *XIII*	(Renwal)
2	WESTLAND *Lysander*	(Frog)
3	WSK MIELEC *TS-11 Iskra*	(Ruch)
4	VICKERS *Wellesley*	(Matchbox)
5	VICKERS *Vimy*	(Triang)
6*	VOISIN-FARMAN *1908*	(Renwal)
7	STINSON *Trimotor T*	(J & L)
8	TUPOLEV *Tu.2 Bat*	(Frog)
9	R.A.F. *B.E.2C*	(Veeday)
10	SUPERMARINE *Attacker FB.2*	(Triang)
11	TUPOLEV *Tu.2 Bat*	(V.E.B.)
12	VICKERS *Wellington*	(Airfix)
13	SCOTTISH AVIATION *Bulldog*	(Airfix)

VOISIN-FARMAN *1908* — **Renwal**

Following up on the trail blazed by **Brifaut** models, **Renwal** released a line of "Old Crates", now with a paper representation of the aircraft's fabric skin. Their process, known as Aero-Skin, later inspired many decal manufacturers, including France's famed and late Max **Abt**. The moulding of **Renwal** models is just as crisp as the earlier **Brifaut** ones but the pros and cons of paper or fabric skins have yet to be reconciled. Some other material and method will have to be found anyway, since a perfect reproduction of fabric skins is not to be discovered but still to be invented.



1	VOUGHT *F6U-1 Pirate*	(Airmodel)
2	YAKOVLEV *Yak-23 Flora*	(Kovozavody)
3	YAKOVLEV *Yak-3*	(Heller)
4	WESTLAND *Whirlwind 1*	(Airfix)
5	VULTEE *Vengeance Mk.2*	(Frog)
6*	VULTEE *XP-54 Swoose Goose*	(Private Venture)
7	TUPOLEV *Tu.22 Blinder*	(Nova)
8	*ZMC-2*	(Airmodel)

VULTEE *XP-54 Swoose Goose* —
Private Venture

Kits made of polymethane resin can have unexpected colours such as yellow, pink, black or pearl. This is due to the mineral and colouring additives they contain. Resin is heavier, harder and more brittle than polystyrene and more difficult to work with. However it can easily be softened by heating. If a fault is detected it can be rectified with the help of a hair drier. Cementing is carried out with epoxy glue (e.g., Araldite) or cyanoacrylates (e.g., Cyanolit). Unorthodox and rare models like this *XP-54 Swoose Goose* make resin kits attractive and should encourage everybody to learn the construction techniques.

▲
WACO *CG-4A Hadrian* (**Italaeri**)
Jacques Niot

1* VOUGHT *Regulus II* (Revell)
2 SOVIET *Guideline SA-2* (Airfix)
3 RYAN *Firebee II BQM-34E* (Private Venture)
4 ROCKWELL *Space Shuttle* (Revell)
5 DOUGLAS *Thor-Able* (Aurora)

VOUGHT *Regulus II* — **Revell**

The **Vought** *SSM-N-9 Regulus II* was a submarine-launched cruise missile but it could only be launched on the surface of the sea with **Aerojet** or **Rocketdyne** J.A.T.O. rockets of respectively 115,000 and 135,000 pounds thrust. On account of this, the **Lockheed** *UGM-27A Polaris A-1* was chosen instead as it was a much faster ballistic missile and could be launched from a submerged submarine.

The *Regulus II* was designed to replace the subsonic *Regulus I* cruise missile and could reach more than twice the speed of its predecessor, thanks to its advanced aerodynamic design and the use of the best jet engine available then. The missile came out in two versions.

The **Revell** model displayed here in its original packaging, represented the prototype version of the *KD2U* drone propelled by a **Wright** *J-65* engine and remotely controlled by radio. The ordnance was replaced by a landing gear and a drag chute so that the missile could take off and land like a conventional unmanned aircraft.

The **Revell** box art shows a *Regulus II* taking off from **Edwards AFB** in May 1956.

The **Monogram** model portrays the *RGM-15A* version on its **Fruehauf** trailer that allowed for the launching of the craft from a naval base, an aircraft carrier or a cruiser. The *RGM-15A* missile was controlled by an inertial guidance system and carried a nuclear warhead. It was powered by a **General Electric** *J-79-3A* engine of 15,000

pounds thrust that enabled it to exceed Mach 2. A total of 54 operational *Regulus IIs* were produced over a period of three months. They carried out 132 flights, suffering only two losses that were not due to missile malfunction.

It was probably wrong to replace *Regulus II* with *Polaris* missiles in 1959, for even though *Polaris*-type weapons have kept or improved their qualities nowadays, they will become more and more vulnerable because the trajectory of a ballistic missile can be predicted after launch. The enemy will thus try to intercept them with anti-missile missiles, laser-armed satellites, particle-beam cannons or hyper velocity projectiles thrown by electromagnetic pulses.

On the other hand cruise missiles offer significant advantages as long as technology progresses. They are as flexible and agile as manned aircraft and are protected by the atmosphere from space-based beam weapons. Airframes and engines have become so compact that it is now possible to fire missiles from submerged submarines. The so-called "mosaic" terminal guidance system, which merges optical and electronic sensors, has given cruise missiles a homing accuracy improved in a magnitude of 100 compared to ballistic missiles. These already considerable breakthroughs will be furthered with the introduction of "stealth" technology, damage-resistant airframes, hypersonic integrated scramjet engines as well as guidance activated by "expert systems" able to automatically reprogramme the missile in order to take new situations or threats into account. Fault-tolerant flight controls will enable the missile to complete its mission even if half a wing is torn off, while fail-safe and auto-adaptative electronic counter-measures and defences will generate surgical responses to attacks . . . .

In spite of all this, the 1985 version of the cruise missile is still slower than the *Regulus II* and if one feels the urge to build a model of that missile, one should know that **Revell** offers it again in its **History Makers II** series.

BOEING *AGM-86B Cruise Missile* — Claude Boileau

This model was built from the **Projekts Model Company** bagged kit. It does represent the first production missile as displayed in November, 1981, at the rollout ceremony which took place at the new manufacturing plant of the **Boeing Aerospace Company** installed in Kent (south of Seattle), Washington.

AGM-86B is typically a *B-52* and *B-1* weapon. The **Monogram Rockwell** *B-1* is provided with 17 cruise missiles but they are moulded in a stored configuration, i.e., with their wings, fins and vertical stabiliser folded along the fuselage.

The **Airfix** *B-1* is also provided with cruise missiles in a stored configuration.

1 FRITZ *X* (Guano)
2 BRISTOL *Bloodhound* (Airfix)
3 FIESELER *Fi-103 (V1)* (Frog)
4* PHILCO-FORD *Sidewinder* (SMDC)
5 VOUGHT *Regulus II* (Monogram)
6 GERMAN *V2* (Revell)
7 GERMAN *V2* (Grip)
8 DOUGLAS *Thor SM-75* (Aurora)

PHILCO/FORD *Sidewinder* — **SMDC**

Ron **Downey,** an engineer working for **McDonnell Douglas,** had noticed that missiles sold with *1/72* scale model aircraft were often inaccurate. Then it occurred to him that it might be a good idea to offer a set of air-to-air missiles under the **SMDC** (Scale Model Development Company) tradename.
Unfortunately, Ron only had a home-built injection press and the final product looked somewhat disappointing, all the more so as the parts were so small. However, it has to be said that the original idea, when it was taken up by **Hasegawa** with industrial means, gave off far better results.
Yet **SMDC** deserves to be better known and appreciated. Apart from his air-to-air and air-to-ground missiles, Ron has produced an excellent *JB-2 Loon* (a forerunner of cruise missiles and one of the first to be fired from a submarine) and a **Fieseler** *Fi.103A-1.* The latter was the unmanned version, without any ailerons whereas **Heller's** *Fi.103* is the *Reichenberg IV* version, a manned aircraft with a cockpit, ailerons and a different nose assembly. **SMDC** *V1* is sold with its trailer and, contrary to what has formerly been written about it in **France,** its price is quite competitive when matched against comparable products. **Frog's** *V1* (in fact **Frog** produced two slightly different moulds) is so hard to come by these days that **SMDC's** choice has to be congratulated.
It can only be hoped that Ron will have the success he deserves. Those who are interested in small series injected models will be interested to know that Ron is the first basement producer to number the parts of his models and to use so-called "pins" to extract his mouldings.

1 *GERMAN LEOPOLD Railway gun* (Hasegawa)
2 GERMAN *Air/Ground Crew (35-45)* (Preiser)
3 US AIRCRAFT *Seat Belt & Harness Buckles* (Waldron)
4 PZ. Kw. VI *Tiger tank* (Polistil)
5 TOYOTA GB *Starter Truck* (Hasegawa)
6 WILLYS *Light Truck with 37 m/m gun* (Hasegawa)
7 GERMAN *Oil Drums and Accessories* (Preiser)
8 T 34 *Tank* (Polistil)
9 RED GUARDS *Figures* (Esci)
10 MATILDA *Mk II Tank* (Polistil)
11 FIAT-ANSALDO *M 13/40 Tank* (Polistil)
12 RESCUE AT DUNKIRK *Diorama* (MPC)

RESCUE AT DUNKIRK Diorama — **MPC**

Arrangement of various models, figures and equipment in a scene of action, make up a diorama. Creating dioramas is an art which combines freedom with conventions. Modellers are free to use their own sensitivity to invent scenes or situations but must be careful to avoid any error that might dispel the illusion. They try to involve the spectator in the action presented by the diorama. The spectator should accept a "suspension of disbelief". He should try to understand what the modeller wanted to show and why he chose to capture the most pathetic, the most moving or simply, the most outstanding moment, just like a painter.

FIAT ANSALDO *75 MM* **(Polistil/Esci)**
Montage Didier Palix

JEEP **(Hasegawa)** Figures **(Preiser)** ▲
Claude Boileau

PANHARD *AMD 178* — Jean-Louis **Couston**

This light armoured-car was built from a polyurethane resin kit produced by Alain **Laffargue**.
The process — used for the first time in **France** — implements a technique of vacuum-moulding in silicon rubber moulds. However, in spite of its limited basement-production capabilities, the quality is very close to the result obtained by better manufacturers of injection moulded kits.
Alain **Laffargue** offers now some 50 vehicles (or conversions) and plans to issue his first aircraft, an improved version of the **Fokker** *D.XXI* **Frog** model.
In 1980, kits other than injection moulded were virtually unknown. Nowadays, they set up a new category sometimes dealing with odd subjects.
Among them we find the biggest 1/72 scale kit ever produced (an almost 5 m long model of the nuclear powered aircraft-carrier USS *Nimitz*) and the smallest flying object ever reproduced, that is the **Canadair** *CL-227* "Flying Peanut", a battlefield surveillance RPV (Remotely Piloted Vehicle).

PANHARD *AMD 178*