



# Boulton Paul Defiant target tug

Alan W. Hall describes some of the finer points of constructing a limited run injection moulded model

ALTHOUGH this month's article is indeed 'straight from the box', there is a subtle difference, a difference that many a new modeller might like to take and one which those of us who have been working for a while using all that the manufacturer supplies, ought to have made long ago.

I refer to the limited run injection moulded kit. These are produced in exactly the same way as mass market kits but on much smaller machines with less sophisticated moulds in that the sprues are much thicker to allow the heated plastic to flow. Otherwise, they are exactly the same with the same surface detail as their big brothers but the newcomer will find there's a little more work to do on a kit of this nature in the preparation stages.

There's another advantage to the modeller and that is that the limited run kit is designed for the specialist so the manufacturer does not have to look for a vast production run in order to make a profit. Although the kit costs a bit more,

the subjects are generally rather more varied and of a more interesting nature.

I have chosen to make the recently released Boulton Paul Defiant target tug. Produced by Pegasus, it updates the Airfix model of the fighter version by refining the shape of the engine cowling. Parts such as the wind-driven winch are added while the turret gives way to the winch operator's seat and transparency. To convert the Airfix Defiant into the target tug is not an impossible job but the work needed on the engine cowling in deepening and refining the shape is something that needs a lot of skill, time and patience.

Additionally, the black and yellow striping on the aircraft depicted in the Pegasus kit and for which decals are supplied, makes for a very attractive model and also involves a little skill in getting the lines straight, especially if one is not using an airbrush. I've endeavoured to use the simplest methods and, as usual, the air brush has been eliminated

from any instructions given in this description in order to keep in line with the type of equipment that is available to the average modeller.

One of the problems that often comes to light as far as the short run injection moulding manufacturer is concerned is the instruction sheet. I do not intend to criticise Pegasus for this as I am aware that for the serious and fairly advanced modeller complicated instruc-

tions are not required. It is, however, a different matter for one who has just started to branch out and become more adventurous in his modelling. I therefore hope that what I am producing here is something that will give a straightforward guide to those who may wish to make this model and explain in detail a few of the problems that might arise in its construction and finishing.

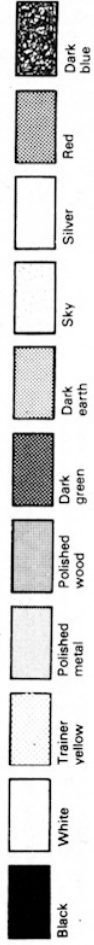
## Stage 1

All short run injection moulding kits require a rub-down before they are put together. There are, more often than not, none of the small locating pins that appear on mass produced kits so it is essential to rub-down both surfaces of the fuselage and wings before gluing these together. I chose to paint the basic green applied to the aircraft's interior before doing this so as to be able to eliminate any paint that may have got on to the edges before applying adhesive. Note the thickness of the mould, a common factor in this sort of kit and totally unlike the mass produced product which relies on saving money in production by having the thinnest of fuselage walls.

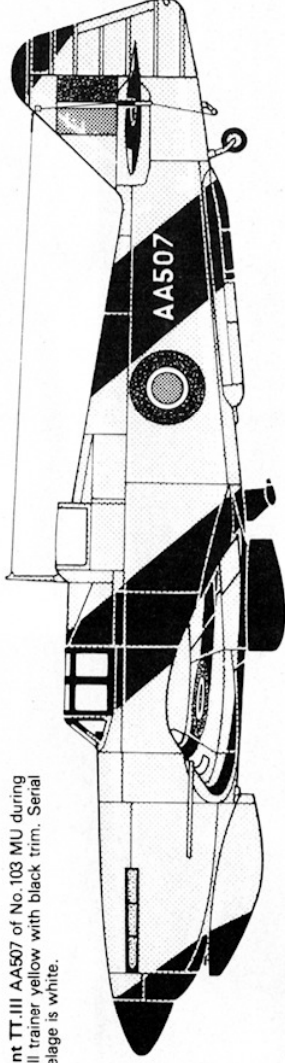


## DRAWINGS BY MIKE KEEP

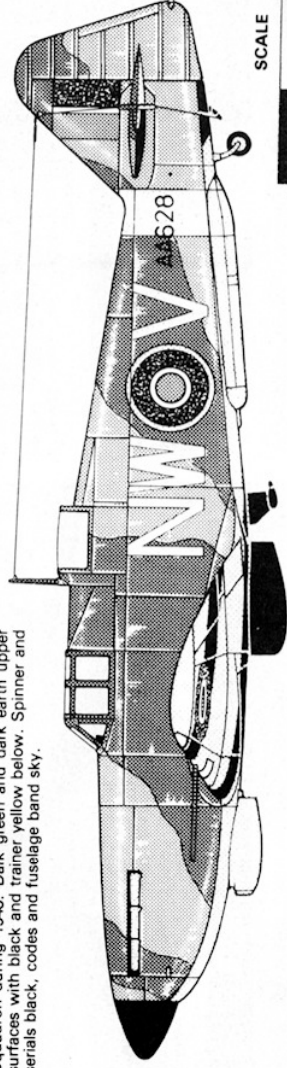
### COLOUR KEY



**Boulton Paul Defiant TT.III AA507** of No.103 MU during 1945. Finish is overall trainer yellow with black trim. Serial on both sides of fuselage is white.



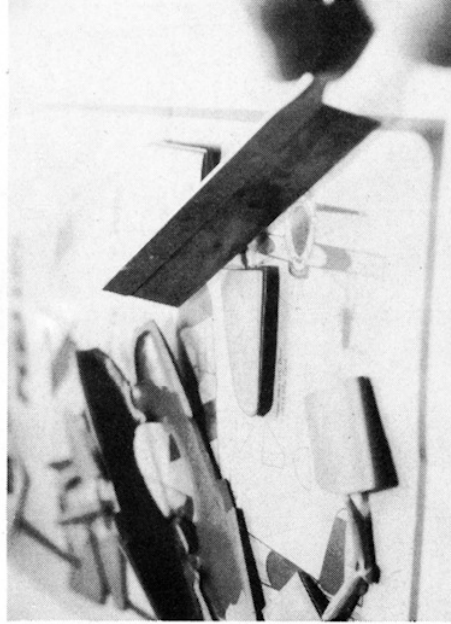
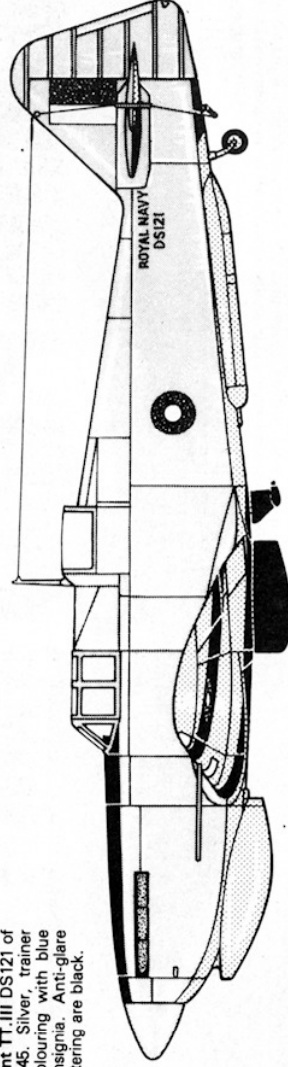
**Boulton Paul Defiant TT.III AA628/NW-V** of No.286 Squadron during 1943. Dark green and dark earth upper surfaces with black and trainer yellow below. Spinner and serials black, codes and fuselage band sky.



SCALE



**Boulton Paul Defiant TT.III DS121** of 733 NAS during 1945. Silver, trainer yellow and black colouring with blue and white SEAC insignia. Anti-glare panel, serials and lettering are black.

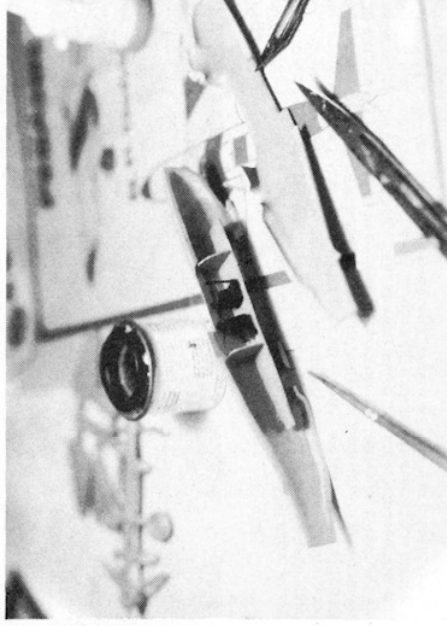


### Stage 2

Each part of the kit has to be removed from the sprue. In the case of the Pegasus Defiant I found that it was best to use an Exacto saw which prevented any damage to the parts themselves. There is often a fair amount of flash to rub-down and this was certainly the case with this model. It takes a few minutes extra in the production time but is well worth the effort. Use wet and dry paper of a fine grade and you'll not take off too much of the actual model. Care should be taken when rubbing-down to take only surplus plastic away and not the real thing.

### Stage 3

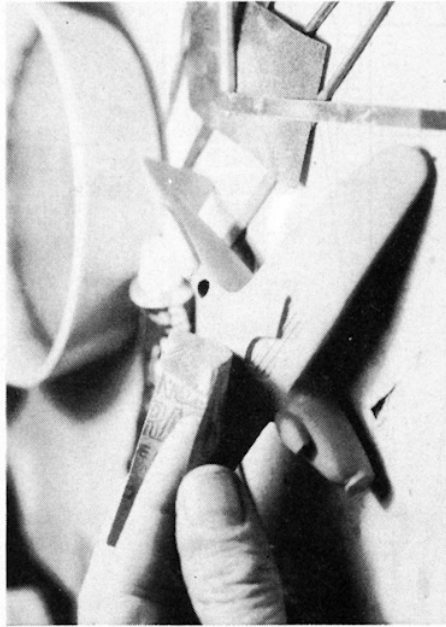
I next built up the cockpit interior. For the purposes of this model, I did not over elaborate as I am sure that those who will need this article to help them on their way are not into super detailing at this stage in their modelling development. I therefore confined the work to building up a cockpit floor from plasticard, adding an instrument panel and rear bulkhead before installing the seat that is provided in the kit. The whole of the interior was painted before the two fuselage halves were joined.





#### Stage 4

With the fuselage stuck together using liquid polystyrene cement from the Revell Contacta dispenser and allowed to dry, I started work on the assembly of the other parts. The undersurface of the wing came first. This was made to fit as well as possible under the fuselage and then each inner section of the wing upper surface was added. Here I found some discrepancies in the fit and had to use a knife to level up these parts followed by gentle rubbing-down on wet and dry paper. The outer wing panels came next as shown in the photograph. Small pieces of plasticine were put under each inner wing to keep the model level and slightly larger pieces inserted under the outer panels as these were attached in order to get the correct degree of dihedral. Both wings were then left to dry overnight.



#### Stage 5

Short run kits are often inaccurate as far as the fit of the parts is concerned. This is no fault of the manufacturer though there are times when one wishes it was not the case. In the case of the Pegasus Defiant, I found that it was necessary to fill gaps on both wing joints, under the fuselage and on the rear fuselage spine. Small amounts of Revell Plasto filler were used as this dries within two hours and rubbing-down can then start. All sections of the model need to be thoroughly cleaned up at this stage and the illustration shows work being done on the underfuselage-to-wing joint with wet and dry paper. I also used a Flexifile which gets into the difficult corners.



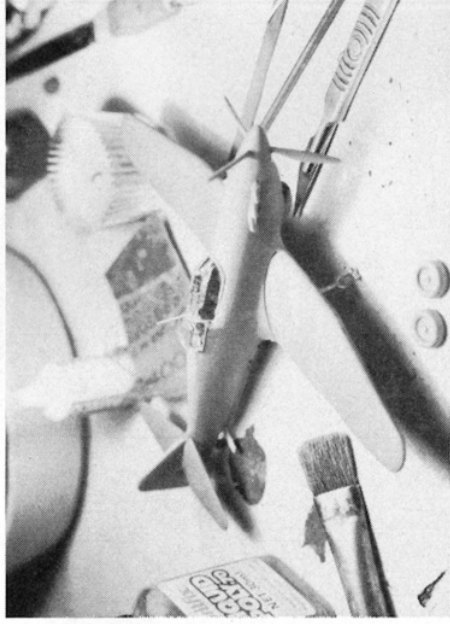
#### Stage 6

The next item on the agenda was to complete assembly of the cockpit parts. Again, the fit could have been better so I gently held the parts in place and then ran liquid polystyrene cement round the edges. Due to capillary action this went right round the canopy and rear transparency with ease thus securing the parts in place. The fin and rudder was also fixed in place at this stage after careful adjustment with both files and wet and dry paper so as to achieve a reasonably satisfactory fit. When dry, the tailplanes and the underfuselage radiator were added and the whole assembly was then left overnight to secure the joints. Although it cannot be seen in this picture, I had to add a blanking plate from plasticard inside the radiator to prevent 'show-through' from one side to the other.

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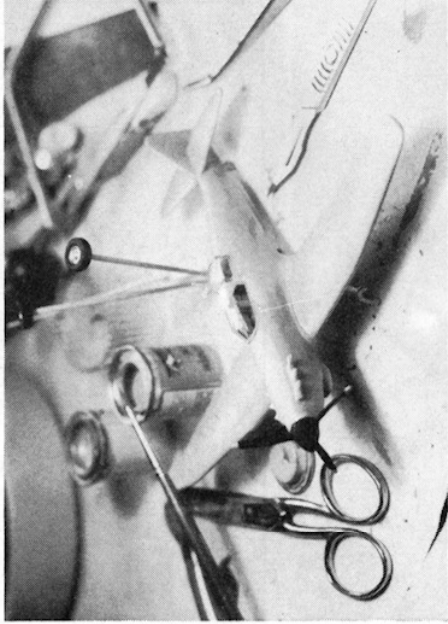
#### Stage 7

The stage was now set for the addition of smaller parts. The Pegasus kit provides most of these though there are others like the radio aerial that have to be made from plasticard. Items incorporated at this stage included the tailwheel which was added after a small locating hole was cut using the tip of a scalpel followed by widening up with a round file. The propeller was cleaned up and flash removed before being stuck in position. This could have had a locating pin placed on the nose before attachment but I thought otherwise as it was a good fit and it was not really necessary for it to rotate. The main legs of the undercarriage had locating points cut into the wheel wells and these were then placed in position using Superglue. Finally, I placed the exhaust stubs in position. Cleaning up the model at this stage required the addition of a little Maskol at a few points round the canopy which had dried out by then from the previous evening's operations. Maskol is a very useful medium for filling holes in otherwise difficult positions especially round canopies and is to be recommended for any tool kit.



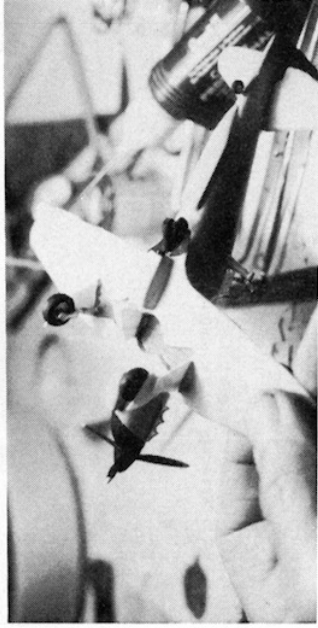
#### Stage 8

This picture shows the first of the painting stages and the completion of fiddly small details. Note that I have mounted the wheels on two cocktail sticks for ease of painting and left them wedged in plasticine while they dry. Yellow is sometimes a difficult colour to apply when hand-painting. It therefore needs two coats so before preparing the remains of the undercarriage assembly I applied the first one and painted the propeller to allow all the parts a 24 hour drying period. Be careful about getting the right shade of yellow for the majority of the airframe. The best that I have found and certainly the one that most accurately conforms to RAF Trainer Yellow comes from the Xtracolor range.



#### Stage 9

The remainder of the undercarriage members have now to be cut out of 15 thou plasticard and assembled. The instruction sheet provides templates for this and I succeeded in reproducing this on the plasticard itself by placing a piece of carbon paper under the sheet. A sharp scalpel was all that was needed to cut these parts out and I used a combination of Superglue where the parts joined with metal and liquid polystyrene cement to fix them in place.



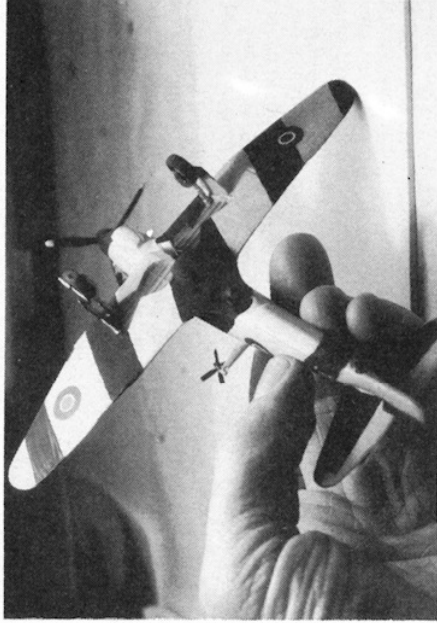
### Stage 10

Many experienced modellers will tell you that the next stage of painting the diagonal black stripes over the yellow should be done by careful masking before painting can begin. This is fine if you have the facilities to get hold of a small amount of masking tape, but for the beginner it is not advisable since getting the masking in place can be as difficult as the painting. I chose to hand-paint my stripes mainly because time was short, but also because I could get a better alignment of each shape in juxtaposition to the others. Hand-painting a straight line is not always recommended but in the case of the Defiant TT.2 there was a need and this was met by careful alignment following small pencil marks made before beginning.



### Stage 11

Paint work always needs a little retouching here and there, showing the care and attention that the real expert takes with his work. Whether you chose to mask your black stripes or not, there will always be a few places where the paint has not done exactly as required. I also chose at this point to add one of the final touches by cutting a small groove with a file in the port wing leading edge and heat stretching a small piece of sprue to make the pitot head. When dry, this was given a basic yellow coat and blended in with the rest of the construction whilst I touched up the yellow paint at the same time.



### Stage 12

The final stage as far as I was concerned was adding the decals. I used those supplied with the kit as these were perfectly adequate and, since this article describes itself as being 'straight from the box', there was no need for fancy extravagance. However, for those inclined to be a little bit more adventurous, there are a few of Mike Keep's drawings reproduced with the article in order to show some differences. Note that several of the examples have the long Vokes filter under the nose which will need additional conversion work if one feels so inclined.

There is a further stage that I will describe but there is no absolute need for this as the work done so far is enough for the beginner. If I were judging this model in a competition, it would get minus marks for omitting the important wires that go over the tail unit and from there to the cockpit area. These are to ensure that the target does not get caught up in the tail unit when being reeled in our out. To make the extra pairs will need some very fine heat stretching of sprue and then very accurate cutting of suitable lengths to go in the places required. The Pegasus drawings that come with the kit show where these are situated. This work is, to put it mildly, something for the expert, as one cannot expect a novice to accomplish advanced work at the stage of expertise that is presupposed in this article.

I found building this kit a fairly straightforward but exciting experience. The colour scheme enhances the otherwise drab all-black appearance of the Defiant night fighter and therefore adds something out of the usual to one's collection. It certainly catches the eye as I found out when completing it in my own household where the model was described as being more akin to Tiger Lillie than as it may, the production of a cottage industry kit does enhance one's collection and I hope I have been able to show that there is nothing out of the ordinary in making a model of this nature. True, the minor manufacturers do not achieve the same degree of sophistication that we may expect from some of the more complicated Airfix kits but it is very important for the novice to learn from experience and take his modelling craft one stage further each time he puts glue to plastic.

