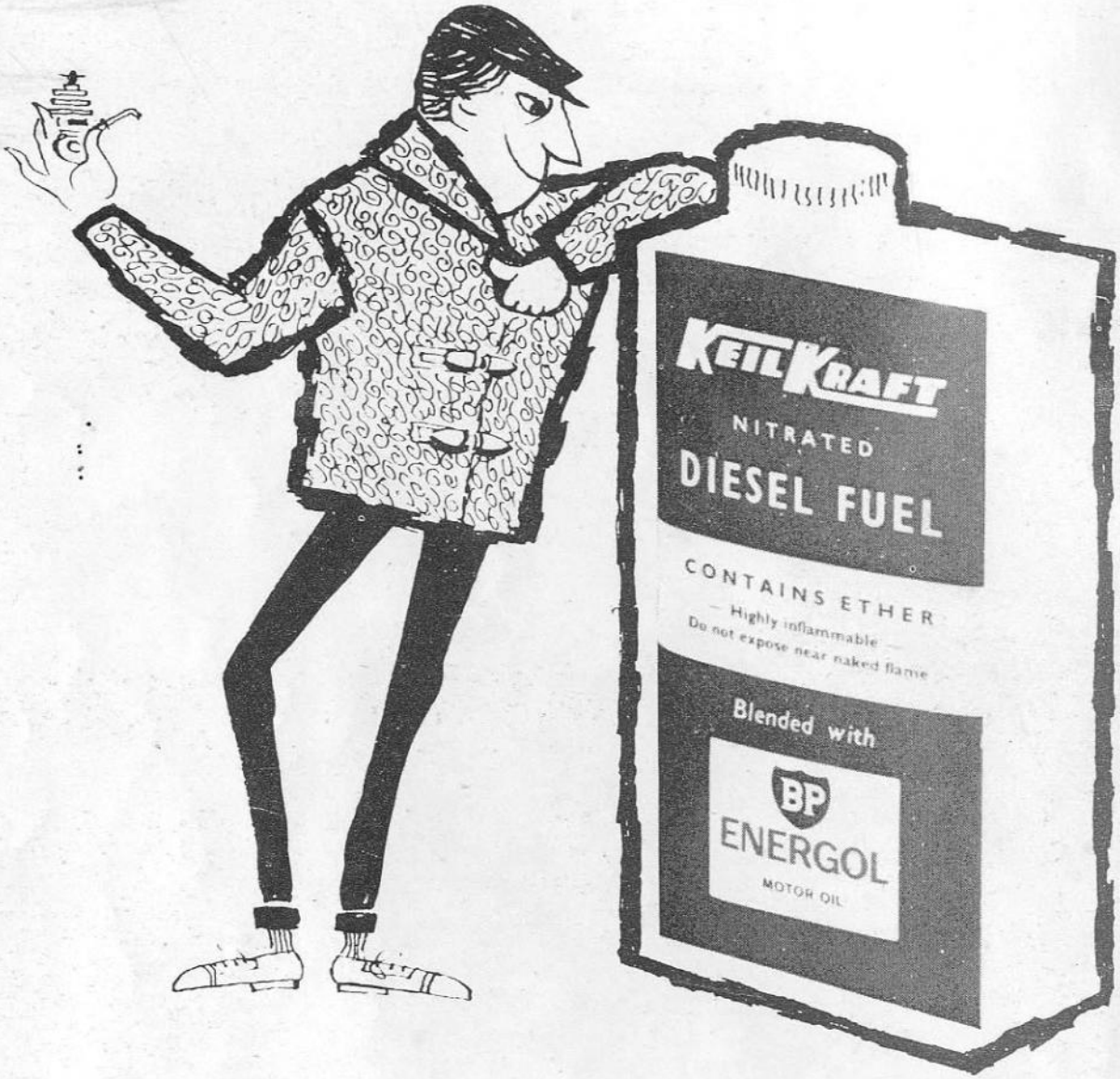
1963

KEILKRAFT Handbook

ARTICLES BY EXPERTS ON MODEL AIRCRAFT
AND MODEL BOATS • HOW-TO-DO-IT Features



if your motor is rather slow, get Keilkraft fuel and go man go !

CONTENTS

SPECIAL FEATURES

CATALOGUE SECTION

INTRODUCTION

Once again I find it my pleasant duty to introduce a new edition of our now famous Handbook. Modelling is a wonderful hobby, providing opportunities for relaxation and also craftsmanship, both qualities of the highest value. No other hobby can provide so much enjoyment for so little outlay. For a very few shillings you can purchase a kit that will fill several evenings with enjoyable building, followed by almost unlimited fun at the flying field or boating lake.

Many of today's top modellers started by building one of the simpler Keilkraft kits and what they have done, you too can accomplish with a little patience and perseverance. The newcomer, buying his first kit today may well be among the champions in a few years time.

As well as the ever expanding range of Keilkraft kits and accessories, there is also the very fine Mercury range to choose from. If you are looking for a ready-to-fly control liner, then you cannot do better than pick from the exciting new Wen-Mac models.

To help you improve your modelling skill we present the world famous X-acto modelling tools. For . . . but why not turn the pages of this Handbook and see for yourself the host of grand models and accessories?

Here's wishing you every success with your modelling.

Eddie Keil.

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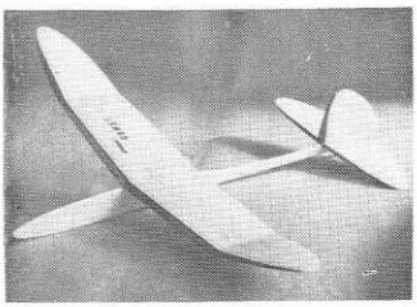
Choosing a Model Kit

When is a good kit not a good kit ? The answer may very well be 'When the purchaser is a beginner'. Many a would-be aeromodeller has given himself a lot of needless trouble simply by buying a kit which, though excellent in itself, is quite unsuitable for the inexperienced modeller.

Aeromodelling is not unduly difficult, but starting off on the right foot with a suitable model which is both easy to build and fly can give valuable practise in the basic techniques of building and flying. At the same time the beginner can find out what a lot of fun is to be had in this grand hobby. It is important to start off with a model which is simple to build. An inaccurate or poorly built model is much harder to fly than a straightforward model which can be constructed without difficulty by the novice.

Without question, the best kits to start with are those of the chuck gliders. They do not take very long, but will give the novice valuable training in the handling of the basic materials of aeromodelling—balsa wood and balsa cement. Because of their simplicity they do not take very long to complete and



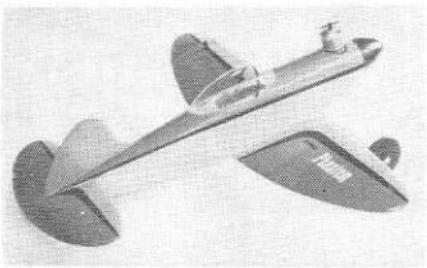
A chuck glider is the ideal introduction to modelling. This is the COMET.

the beginner's natural desire to see the result of his work actually in the air is soon realized. The POLARIS would be an excellent first choice of kit, it is inexpensive, simple (all parts are ready cut out) and it really does fly. The very great amount of pleasure that can be obtained by flying this simple type of model has been missed by many would-be modellers.

Naturally you will soon want a model that is a little more ambitious and here we would recommend the NOMAD. Once again all the parts are ready cut and the built up sheet fuselage is both simple and strong. The wings are built up from ribs and spars and will give the beginner a useful introduction to the art of covering with tissue. A similar type of model is the GEMINI. This time the modeller is introduced to the rubber powered model—a type of plane that can give a great deal of flying pleasure for a very modest outlay in cash and time.

The commonest mistake of most beginners is to start off with a flying scale model. This is not surprising—most of us like something that looks like a real aircraft. But if only the modeller would wait until he has had a little building and flying experience before trying this type of model much trouble would be saved. The little flying scale kits make up into delightful models which can be a source of great pleasure, both from the building and flying points of view, but they are unquestionably not the easiest of models to make.

Elsewhere in this handbook you will find articles which will help you to improve your modelling and flying skill. If you follow the advice given in these articles and the instructions in the kits your enjoyment of the hobby will be greatly increased. But you must start off on the right foot. Don't be afraid to tell your local model dealer that you are a newcomer to the hobby. You will find that he will be able to advise you on suitable kits to suit your skill, taste and pocket. The Keilkraft range contains a great many models for you to choose from and sometimes the choice is a little difficult. If you are in doubt—choose the simpler models. When choosing power models, select a plane which looks large for the size of engine employed. For example, the SNIPE forms an excellent introduction to power modelling, being simple to fly. High powered models are always amore difficult to trim and by working your way up the scale you can save yourself many expensive crashes.



The PHANTOM an excellent control line trainer. Rugged, robust and easy to fly.

If you are attracted to control line flying, do please start off with a trainer. The CHAMP and the PHANTOM MITE have taught many control line fliers. The SPECTRE is a fine kit and one of the finest stunt models that you can buy, but don't choose it for your first model. When you have more experience as a pilot you will be able to fly a SPECTRE and enjoy to the full its terrific stunting ability. If you are inexperienced you will find it rather like learning to fly a full size plane and starting off with an English Electric Lightning !

By learning to walk before you learn to run you will save yourself a lot of money and time. Not only this, but you will also get a great deal more pleasure from what must be one of the finest and most worth-while hobbies that there is.

FIND YOUR WAY AROUND

Newcomers to the hobby are sometimes confused when they read about such things as power duration models or combat planes and so we include this short guide to the different branches of the hobby.

Chuck Gliders.

Fairly small solid balsa gliders which are launched by throwing (" chucking "). With practise, considerable altitude can be reached in this way and flight times of about a minute obtained.

Tow-Line Gliders.

Models with built-up wings, fuselages, etc., which are launched by towing up on a line in a similar manner to a kite. When sufficient altitude is reached, the line disengages from the model which then flies free. With larger models of this type, it is necessary to fit a dethermalizer (i.e. a device for bringing the model down swiftly and safely after a pre-determined time).

Rubber-powered Duration Models.

Models with a built-up fuselage and wings, etc., driven by a propeller power with a rubber motor. These models are designed to achieve the maximum possible flight times. Here again, dethermalizers are often necessary.

Flying Scale Models.

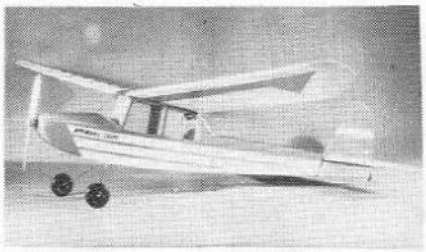
Scale, or near scale models of actual full-sized aircraft. May be either free flight or control line. Free flight scale models, which may be either powered with rubber motors or diesel or glowplug powerplants, have a fairly limited flight performance but have the virtue of realistic appearance. Control line scale models may be either single or multi-engined according to prototype. A multi-engined free flight model is a rarity.

Though inexpensive, the flying scale kits make fine replicas of famous planes. Above is the S.E.5.

Free Flight Power Models.

Sport Models.

Models of reasonably realistic appearance which are stable in flight, but of restricted duration. Engine timing may be employed or power flight may be controlled by limiting the amount of fuel in the tank. Dethermalizers are not usually necessary.



The SNIPE—a fine sport model.

Power Duration.

High powered models designed to give the maximum flight time on a limited motor run. (Motor run is restricted to fifteen seconds in contests). With models of this type engine timers and dethermalizers are essential. An astounding rate of climb and an extremely flat glide are characteristic of these planes.

Radio Controlled (R/C) Models.

Generally similar in appearance to sport models, but the flight path is controlled from the ground by means of a small transmitter, operating a receiver mounted in the aircraft. This in turn is coupled to the control surfaces of the model. May either be very simple, just controlling the rudder or can be very complicated, giving full control over the model in the hands of the experienced. An expert radio control flyer can make his plane perform almost any manoeuvre that a full-size aircraft can do.

Keilkraft's famous SUPER SIXTY for R/C

Control Line Models.

This type of model is invariably powered with a diesel or glowplug engine and has a pair of lines attached to it running down to a handle, which is held by the pilot, who stands in the centre with the model flying round him at the full extent of the lines. These lines work a simple mechanism in the plane which enables the elevator to be controlled; thus the plane can be made to climb and dive at will. Control line models are divided into several types.

Trainers.

Simple, rugged models of limited manoeuvrability, generally with solid wings.

Stunt Models.

Planes with large built up wings and a high degree of manoeuvrability, sometimes arranged so that wing flaps, as well as the elevators are controlled. Usually fitted with undercarriages (essential for contests). Loops, eights inverted flying and other more complication flight patterns can be flown with stunt models.

Combat Models.

Tough, highly aerobatic models often of the flying wing type) which are flown two or more in the circle at once, each plane towing a streamer. The object of combat flying is to endeavour to cut your opponents' streamers with your propeller whilst preventing them from doing the same thing to yours

Strong, stylish and fast, the Keilkraft RANGER.

Team Racers.

Models built to a specific formula governing such things as wing area, fuselage cross section, tank size, etc., which are raced one against the other over a predetermined distance, usually five or ten miles. Up to four planes in the circle at once is the usual number.

Speed Models.

Highly powered small models designed solely for speed flying. They generally take off from a ' dolly ' or have a detachable undercarriage which falls off when the plane leaves the ground. Speeds of about 150 m.p.h. are possible with engines of 2.5 c.c. capacity. Only flown by the more expert.

Scale Models.

Already dealt with.

There you have it. Somewhere amongst the types listed above something is sure to have caught your fancy. Whatever it is, you will find a kit for it advertised in the pages of this handbook. Your local Keilkraft dealer will be pleased to show you the kit and give you the benefit of his expert advice.

Build it Right

by ERNIE WEBSTER

Aeromodelling is one of those rare hobbies which does not require an expensive tool kit. Indeed, many a modeller has built his first models with nothing more than a couple of razor blades and a pair of pliers. However, to enjoy your modelling to the full, one or two more tools are required although most of them are already to be found in the average household.

One item which will be of the greatest assistance to your skill is a modelling knife. There are many different types to choose from and all those shown in the catalogue section of this Handbook can be recommended. Your personal preference and the amount you wish to spend will help to determine just which is the right knife for you.

An essential item is a building board which has a flat, true surface and which is soft enough to accept pins without difficulty. The board does not have to be particularly large—the Super 60, largest of all the Keilcraft models, can be built on a board which is three feet six inches long and one foot wide.

Never cut out parts on your building board. This is a rule that should be strictly adhered to or you will soon ruin the surface of the board, making it useless. Use scrap pieces of cardboard, hardboard or old magazines. Plywood can be used as a cutting surface, but take care that the grain of the plywood surface does not ' steer ' the knife in an undesirable direction.

Pliers are an important part of the aeromodeller's tool kit. A stout pair for general work and a fine-nosed pair for the smaller bends will be found very useful. A strong pair of side cutters will cut piano wire up to 16 gauge; above this size it is better to cut through the wire with a fine cut triangular file. When buying pliers it is important that they should be of good quality otherwise you will find the jaws twisting when you are making a sharp bend and this does not make for accurate modelling.

Other items in the modeller's tool kit are a small saw (for cutting engine bearers, etc.), a metal straight edge to use as a guide when cutting straight lines and possibly a fretsaw and a soldering iron. One final item is a small set square. This is invaluable for seeing that such items as wing ribs are upright and also that a fuselage assembly is true.

You will notice that a metal straight edge is recommended for use as a cutting guide. NEVER USE A WOODEN OR CELLULOID RULER AS SOONER OR LATER THE KNIFE IS BOUND TO SLIP AND RUIN BOTH THE PART YOU ARE CUTTING OUT AND THE RULER.

Before you actually start work on building a kit, do please read RIGHT THROUGH the instructions. By doing this you will obtain a complete picture of the way the model is to be built and this can save a lot of trouble in the later stages. The instructions have been carefully compiled to provide you with the best and easiest way of assembling your kit.

Remove parts from diecut panels with care, running round the outline with a modelling knife is necessary. Where the parts are supplied as printed panels, cut them out with care and be sure to keep the knife upright, otherwise you may find that your parts will have sloping edges.

Many of the parts are built directly over the plan to ensure accuracy, and where this is the case it is necessary to treat the plan with something to prevent the parts from sticking to it. You can rub the plan with soap or a candle, but in the Keilkraft building shop we have found that household wax polish is by far the best medium. Just rub it into the plan at the places where joints will occur and you will find that parts came away cleanly and easily.

Take care when building not to build stresses into the model, or warps will almost certainly occur later. For instance, when fitting a wing spar, check that it lays snugly in the notches in the wing ribs without forcing. This does not mean that it must be loose, but it does mean that the spar should not have to be forced into place. Also it is important to see that the spar lays in a straight line without waves caused by ribs being slightly out of position. It is items like this which can make or mar the finished model.

When joining parts, greater strength can be obtained by precementing the surfaces to be joined. This means that both surfaces are given a thin coat of cement which is allowed to set. They are then recemented and joined. Precementing is particularly valuable when cementing such things as fuselage spacers in position, as the end grain of the spacer can absorb quite a bit of cement. Make every joint as accurately as you can, fitting each part snugly but without the need to force it into place.

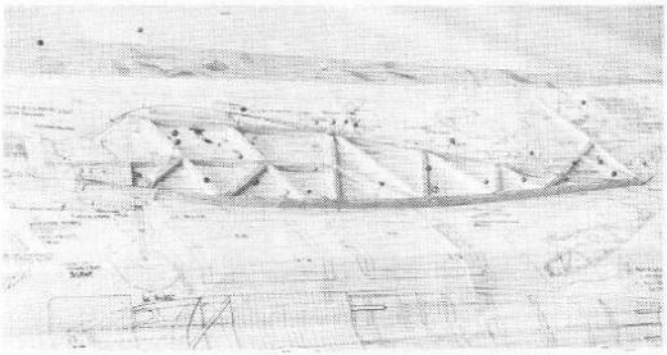
Allow adequate time for the cement to set before attempting to work on any part. It is very tempting to get on with the job, but it is not worth while. Joints

nearly always come apart if they have not been left for long enough and instead of saving time, more is wasted whilst the joint is remade.

When construction is completed, all parts should be lightly sandpapered and surplus blobs of cement cut away. Check that parts which are suposed to be flush really are, and be prepared to sand down or to build up with slivers of balsa wood to ensure that a smooth surface will be presented for covering. Places to watch are the junctions of ribs and leading and trailing edges, spar/rib junctions and where blocks are faired in to other parts of the structure.

After the model has been ' made good ' in this way, give the entire model a couple of coats of sanding sealer, sanding smooth between coats. This will toughen the structure and also make it easier to sand off any ' whiskers ' that may be present.

Remember, it is the little things that add up in the long run and make all the difference between a well constructed model and an indifferent one.

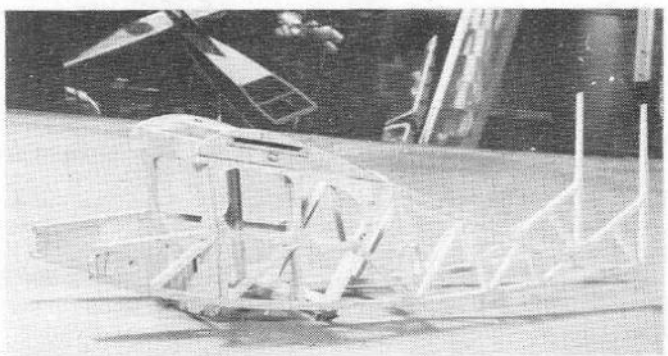


First stages in construction. Building a fuselage side over the drawing. Waxing the plan will prevent the wood from sticking to it.

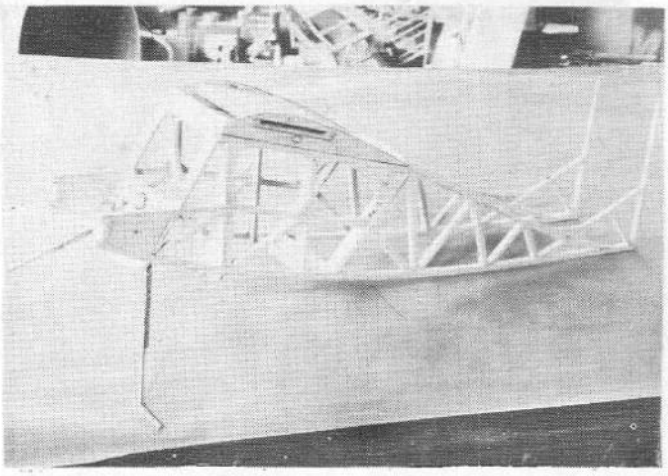
Useful Tips

● When cutting intricate parts from sheet which are liable to break across the grain, it is a good idea to dope a sheet of lightweight Modelspan to each side of the sheet before cutting. The tissue will be practically invisible when the dope is dry, so you will be able to see the lines all right and the added strength imparted to the panel will save many annoying breakages.

● Use a sandpaper block when possible. This ensures a more even surface. Make sure that the block is large enough to reach right across the component to be sanded. For final sanding up after filling with sanding sealer use a very fine grade of paper—No. 600 Wet or Dry carborundum paper is ideal.



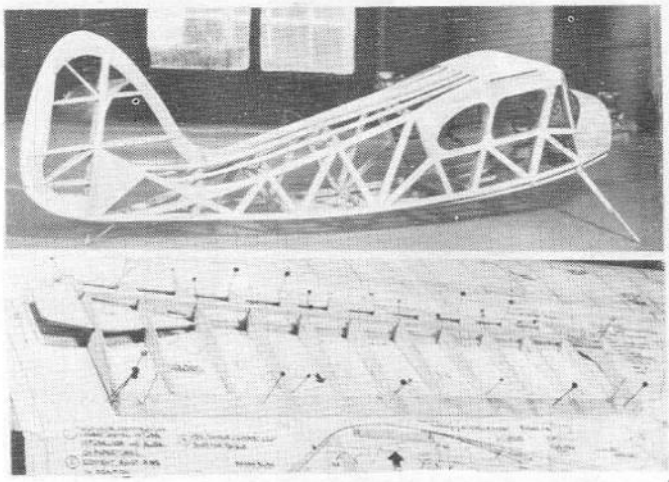
The two fuselage sides have been joined. Take care that formers are built accurately and that they are cemented squarely to the sides.



The front former, which carries the undercarriage has been added and it now begins to look like a fuselage. At this stage, the cement should be allowed adequate time to set.

● When using sanding sealer, remember that the idea is to fill the pores of the wood to present a smooth surface—not to build up a skin of sealer on the surface of the wood. ALWAYS rub down after applying sanding sealer.

● Steel modelling pins are much better than the ordinary household variety. One point to watch when using glass headed pins is never to try to push them into a hard surface with the fingers—use a pair of pliers to grip the pin just below the head. Pushing pins into a hard surface with the fingers can prove painful if the glass head shatters !



Upper picture shows the completed fuselage, ready for covering. Several coats of sanding sealer have been applied and rubbed down. The lower picture shows the first stages in construction of the wing. Careful building here will prevent warps.

● When building up cowlings around an engine, remember to fuel proof the inside surfaces of the cowl and engine bay while you can still reach them. Failure to fuel proof an engine bay means a shorter life for the model, as the fuel will soak into the plane and weaken it.

● Use a piece of sandpaper as an insulating washer when soldering on wheel retaining washers. When the soldering has been done, the sandpaper can be torn away, leaving sufficient clearance for the wheel to revolve freely.

Finer Finishing

Do you enjoy covering your models? Or do you regard covering as a necessary evil which, together with the doping, you try to get through as best you can? There is nothing really difficult in producing a model with taut, smooth covering and a really fine finish. If you have followed the instructions in the previous article and in the kit, you will have a model that is all ready to take a really professional finish. *An accurately built, smoothly finished framework is half the battle.*

Modelspan tissue as supplied in all Keilkraft kits is one of the very finest covering materials obtainable. It is available in heavy- or lightweight and in white or a variety of colours.

For rubber models, gliders and small power models, the lightweight grade is best and for large free flight power models and control line planes of about thirty inches span and upwards, the heavyweight grade is recommended. For models where strength is at a premium such as combat or radio controlled planes, silk covering may be used to advantage.

You will find that Modelspan tissue tears easiest in one particular direction. This direction denotes the 'grain' of the tissue which should lie along the greatest dimension of the part to be covered (e.g. the span of a wing or the length of a fuselage).

Keilkraft Tissue Paste is an ideal adhesive for tissue, but where silk is used something a little stronger, such as photo mounting paste should be used. Built up structures such as wings with ribs should be covered in as few pieces of tissue as possible. One piece of tissue should suffice for the entire upper surface of one wing panel. Paste should only be applied to the outline of the area to be covered. This makes for a more even surface and allows the tissue to shrink evenly all over. When covering the bottom of undercambered wings however, it is necessary to apply paste to the edges of ribs and spars as well as the outline so that the tissue can be stuck to the concave surface.

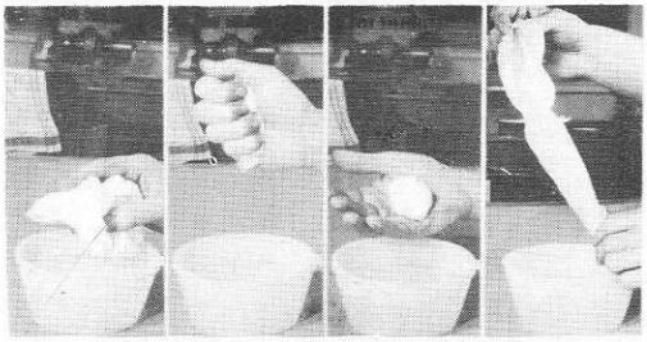


Fig. 1. Heavyweight Modelspan can be best applied when wet. Dip it into a bowl of water, squeeze it well and then open it out ready for applying.

One of the big advantages of Modelspan is that it is a 'wet-strengthened' tissue. This means that it can be put on wet, which has several advantages. The procedure is as follows.

Cut a piece of tissue a little larger than the area to be covered, crumple it into a ball and dip it into clean, cold water. Squeeze out surplus water and then apply the paste to the framework. Give the tissue another good squeeze, open it out carefully and give it a good shake. Now attach the tissue to one end of the component, stretch it along to the other end and then ease the sides into position. Work along the edges gently easing out any wrinkles and then trim off the surplus tissue. This can be done either with a sharp modelling knife or sandpaper can be brushed gently across the edge.

Covering with wet tissue means that quite complicated curves can be covered with ease as the dampened tissue will lay over double curves without wrinkling. *There is no need to try to pull the tissue very tight, just see that it lays evenly, as when it dries it will shrink considerably.*

Lightweight tissue should be handled with reasonable care when wet, but it is well worth trying as a typical elliptical flying scale fuselage can be covered with only two pieces of tissue by this technique. Wet covering is not recommended for very lightly built frameworks as the shrinkage when the Modelspan dries may pull a lightweight structure out of shape. In such cases it is better to steam the tissue immediately prior to applying it, or to apply it dry and steam it afterwards if it looks very slack.

Large areas of sheet or block on a fuselage, or all sheet tails and wings should be covered with dry tissue using clear dope or sanding sealer as adhesive. The latter is to be preferred. *Note. This does not apply to sheeted leading edges, which should be covered with the rest of the wing or tail as already detailed.*

To cover an all sheet component with dry tissue, proceed as under. The component should have been treated with sanding sealer as detailed in the article

on building in this Handbook. Make sure that there are no saw marks or flaws in the surface, as they cannot be removed after the tissue has been applied. Brush on a coat of sanding sealer and lay the tissue in place. Brush a further coat of sanding sealer on to the tissue and using a wad of rag or scrap tissue, rub it well into the surface. This will smooth out the tissue and remove any wrinkles.

When the model has been covered, allow wet tissue to dry out thoroughly before clear doping. Doping should be done in a warm dry room as cold and damp may cause the dope to 'blush' (dry with a patchy, white appearance). However, remember that dope is highly inflammable, so beware of open fires and see that there is some ventilation in the room to clear away the fumes.

Clear dope as supplied is generally too thick for most purposes. Thin it down with cellulose thinners and it will brush on much easier. An exception to this is where silk covering is employed. In this case thick dope (known as glider dope) is best for the first couple of coats as it helps to fill the pores of the silk.

The number of coats of clear dope needed depends upon the type of model. Light rubber models and small gliders need just enough dope to fill the pores of the tissue and two or three coats should be sufficient. More coats will increase the risk of warps. However, power models are generally stronger structures and can take a further couple of coats with advantage. This will produce a better surface for colour doping.

Sheet components are best treated with sanding sealer and sufficient coats should be applied to produce a smooth finish, rubbing down well between coats with very fine sandpaper.

When the entire model has been clear doped or sanding sealered to your satisfaction, give the whole plane a very light rubbing down with 600 Wet or Dry carborundum paper (try your local garage for this). *Be very careful how you rub over unsupported tissue or you may find that you have cut right through it at rib positions and the like.*

Now you are ready for colouring. Lightweight models call for the sparing use of colour dope or too much weight will be added. In such cases it is better to use coloured tissue and to confine the coloured dope to the odd stripe or two. Aerolac is a lightweight finish that is good for rubber models and small gliders. It is a transparent lacquer and can be brushed on easily in a thin coat—one brush full will cover a surprising area. If you use Aerolac, clean your brushes in methylated spirits, not cellulose thinners.

Nothing is nicer than to have a well built and covered control line model or large free flight model. Here you can afford to let yourself go and produce a really eye-catching model. It is worth while taking your time to settle on an effective colour scheme. Draw out some rough side and top views then sit down to plan out just what colours you want and where they are to go. A set of coloured pencils can be very helpful here.

When you have finally decided on your colour scheme it can be marked out on the model, using a very soft (6B) pencil. Apply the lightest colour first, just overlapping the marked lines. Once again, the dope should be thinned out a little so that it can be brushed on easily. Apply the dope quickly, working with a smooth, flowing motion. Do not brush it out too much or the dope will drag. Cover the surface and then leave it alone to dry. It is surprising how the brush marks will dry out, leaving you with a

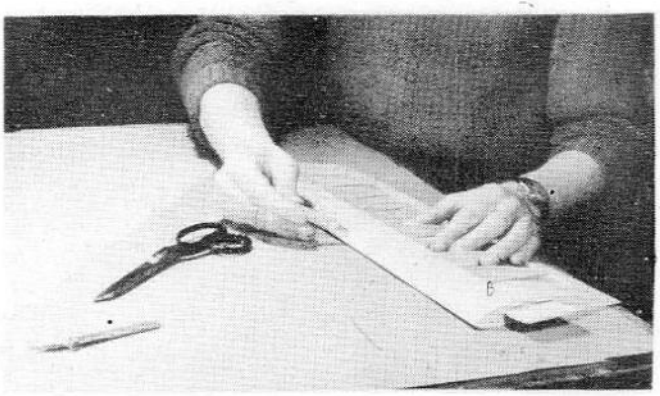


Fig. 2. Applying tissue paste to the outline of a wing framework. After it has been squeezed from the tube, the paste is smoothed out with a finger to ensure even adhesion.

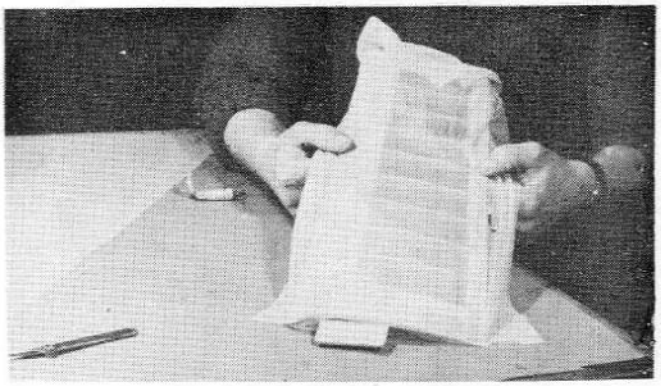


Fig. 3. Lay the tissue in place and then work from one end of the component to the other, gently pulling the tissue outwards to remove all wrinkles and to make sure that it lays evenly.

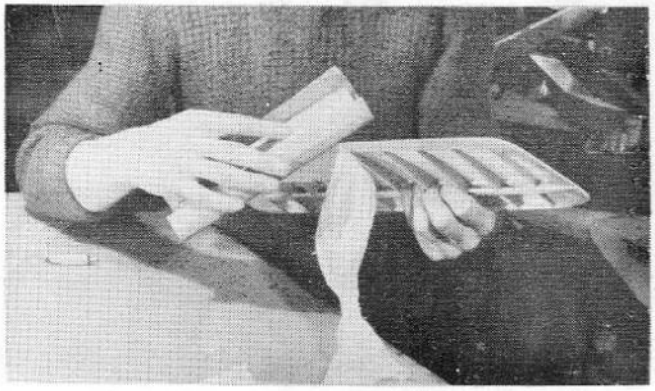


Fig. 4. When in place, the tissue can be trimmed to size by lightly brushing the edge with sandpaper as shown. Alternatively, the surplus may be cut off with a sharp knife or razor blade.

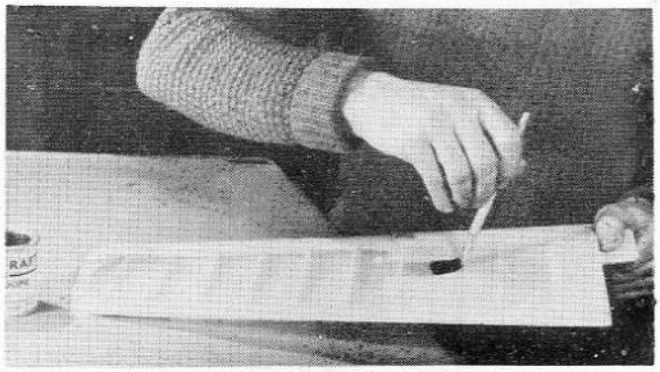


Fig. 5. Clear doping. Brush the dope on in a smooth, flowing coat. Dope both sides of the component together, or warps may arise. When the dope is touch dry, the component may be pinned to a flat surface to ensure that it dries true.

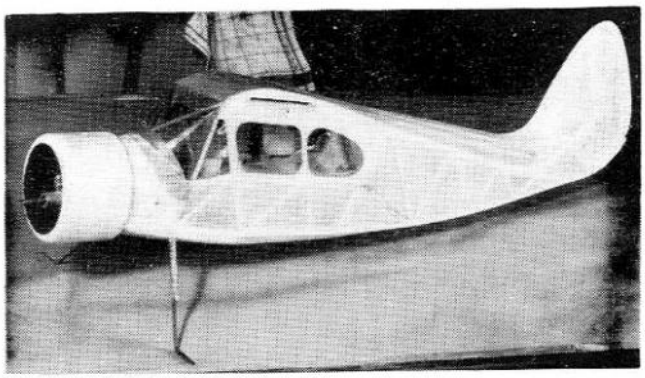


Fig. 6. The fuselage, tissue covered and clear doped, all ready for its first coat of colour dope. Sufficient clear dope has been applied to fill the pores of the tissue to present a really smooth surface.

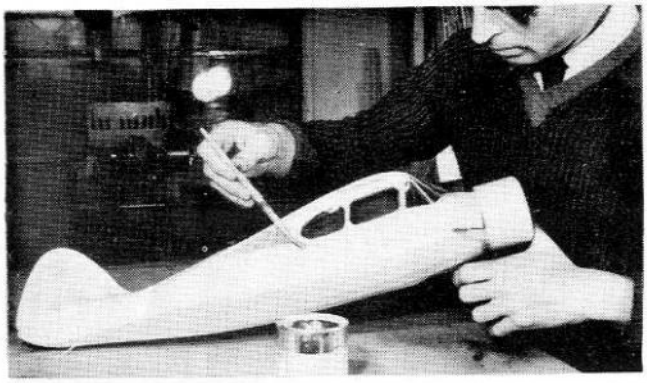


Fig. 7. Applying the first coat of coloured dope. Note that there is no need to mask off the edges of the first colour, providing that the second colour is a strong one that will cover well.

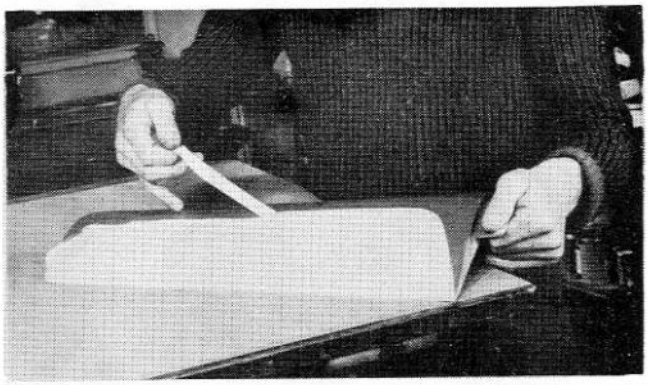


Fig. 8. Removing the masking tape when the second colour has been applied. This is the professional way of obtaining a clean line between two colours.

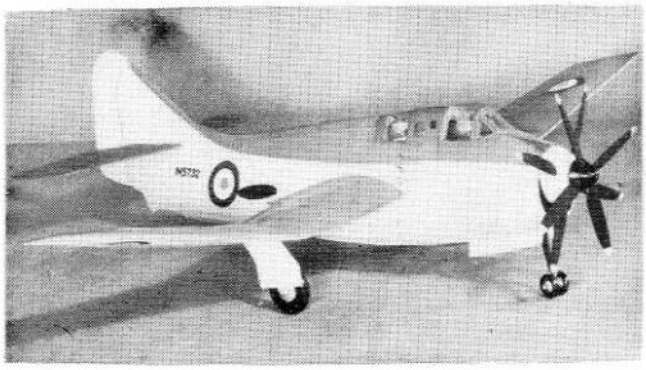


Fig. 9. For scale models of military aircraft, Humbrol matt enamels will give a very accurate representation of the finish on the full size plane. They are easy to apply and have excellent coverage.

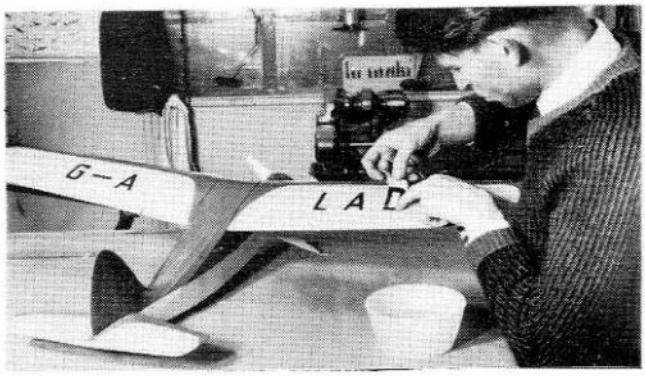


Fig. 10. The final touches. Adding transfers when colour doping and rubbing down has been completed. Make sure that all air bubbles are pressed out and allow 12 hours before fuel proofing.

smooth, unbroken surface. When the first coat has dried, apply a second coat and, with very light colours a third or even fourth may be needed. The last coats should be very thin indeed.

Allow the first colour to dry out thoroughly after which it can be rubbed down. But do make sure that the dope really has had sufficient time to dry, otherwise it will drag, with most unpleasant results. 600 Wet or Dry carborundum paper can be used here, but one of the proprietary rubbing down compounds is better. Try your local garage again and ask for Belco or Farecla rubbing compound. Failing these, try one of the household scouring powders. Apply the compound or powder on a wet rag and rub carefully to produce a really even surface. If you have gone through the colour in any place, touch it up and then rub down that area.

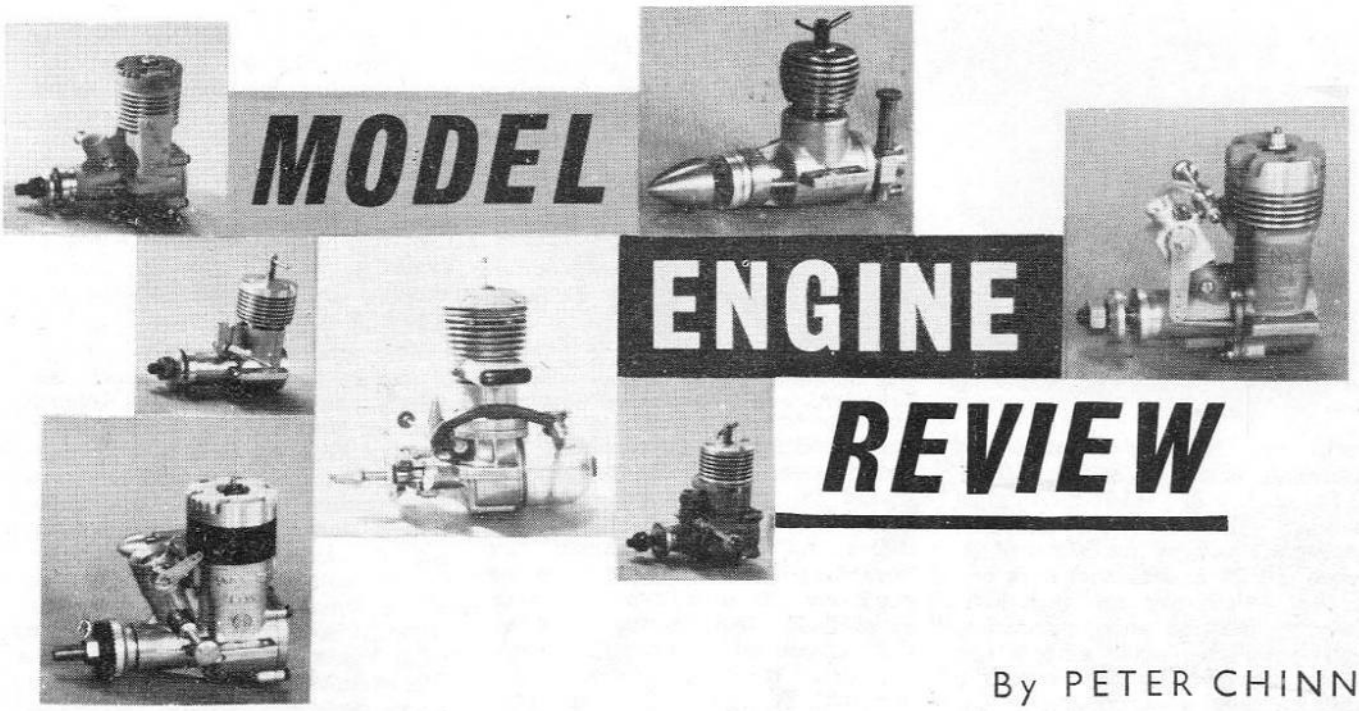
Apply subsequent colours in a similar way, using Sellotape to mask the edges. Before the tape is put on the model, draw it through the thumb and finger to remove some of the adhesive. This stops any tendency for the tape to pull up the first colour when it is removed.

Lay the tape along the lines and where sharp curves are called for, lay the tape over the lines and then go very carefully along the line with a modelling knife. You will have to watch that you just score the tape or you may damage the surface beneath. Peel away the unwanted tape and then rub down the tape along the edge to be masked—there is no need to rub down the full width of the tape. There is a plastic ' Scotch ' tape (used for binding cycle handlebars, etc.) which can be stretched to follow quite intricate curves. This is handy for some jobs.

Flow on the second colour, allowing it to overlap on to the masking tape and then peel the tape off as soon as the dope has been applied. If you are obviously going to want a second coat, the tape can be left on until the second coat has been applied. Do not wait for the dope to dry before removing the tape or you will get a ragged edge to your line.

When the doping is complete, a final gentle rubbing down can take place and then the model can be polished with a soft cloth. Any transfers should be applied now and if the model is to be fuel proofed, the transfers should be allowed to dry for at least twelve hours before proofing.

As you will have gathered, producing a first quality finish on a model is not a job to be hurried. Patience and care at every stage, plus intelligent thinking and planning are all important factors. Make up your mind that the next model that you build is going to have a really good finish. You will find it both enjoyable and satisfying.



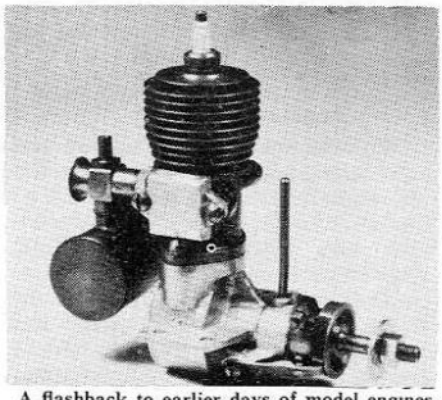
MODEL ENGINE REVIEW

By PETER CHINN

A few years ago, many a not-so-enlightened onlooker gazed blankly upon an engine driven model aircraft and just didn't believe it! We well recall one occasion, when, after we had explained the essentials of one of our petrol engined models to a solitary spectator, he concluded that it 'went by clockwork' or 'maybe an electric motor?'. The idea that a model aeroplane, albeit quite a large one, worked more or less like the real thing, was just too improbable to be taken seriously!

Today, model aircraft engines are no longer the rare and somewhat surprising sight that they used to be, even to the layman. Few, however, are aware just how popular the model aircraft engine has become.

Model engines are now manufactured in practically every industrial country of the world including Britain, the United States, Japan, Germany, Italy, France, Norway, Australia, Russia, Czechoslovakia, Poland and Hungary. In America, one manufacturer is reported to produce more than 4,000 engines per day, using the most modern automatic machinery and working to tolerances measured in hundred-thousandths of an inch for such components as cylinders. The U.S.A. produce more model motors than the combined total of the rest of the world, but large numbers of engines are also made elsewhere, particularly in Great Britain and Japan.



A flashback to earlier days of model engines. An O.S. 'Type 4' petrol engine of 4.5 c.c. made in 1939 and still in good working order.

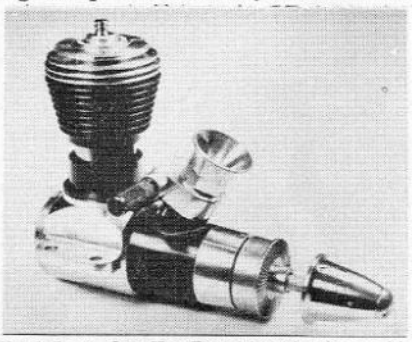
Commercial production of model engines dates back to the mid-nineteen-thirties with the introduction of the 10 c.c. American Brown Junior engine in 1934, subsequently followed by the 6 c.c. Baby Cyclone and many others during the next two or three years. Not very many engines were commercially manufactured, outside the U.S.A., before the war, but a few makes, since discontinued, appeared in Britain, while, in Japan, the now internationally known O.S. engines, were beginning to reach the market in modest numbers.

In those early days, most manufacturers were content to build engines that would start and run with a reasonable degree of reliability. This was no more than the average modeller demanded. Today, it is a very different story. Contest model flying created a need for high performance model engines and manufacturers have worked wonders in providing us with motors that, in some cases, far outstrip full-size internal-combustion engine performance. The most powerful model racing engines are now producing horsepower outputs nearing a specific power of 200 b.h.p. per litre of capacity. This is three to four times as high as for a good modern car engine and quite a bit higher than for the most advanced racing car and racing motor-cycle engines.

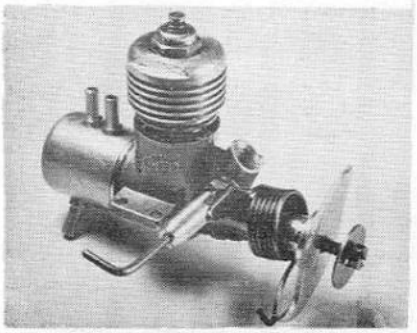
Model aircraft engines in current production range in size from 10 c.c. capacity down to as small as 0.16 c.c. and, in weight, from approximately 16 ounces, down to half-an-ounce. They are all of the two-stroke cycle type and all but a few are single-cylinder units. There are, however, two basic types, 'diesel' and 'glow-plug'. (The operational characteristics of these two types are explained in another article which will be found elsewhere in this Handbook).

Engines of under 1 c.c.

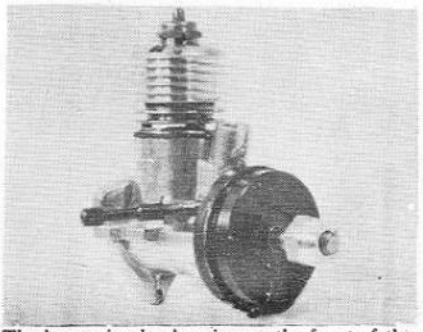
The smallest engine at present in regular production anywhere in the



The 2.5 c.c. Cox Tee-Dee 15 engine is capable of an output exceeding 0.40 b.h.p. and features a unique shaft valve intake system.



The D-C Bantam .76 c.c. engine is one of the cheapest engines currently manufactured and costs only 37/9.



The large circular housing on the front of this Wen-Mac 049 contains an ingenious clutch and spring starter unit. The engine is also available without this fitment.

world, is the newly-introduced American Cox 'Tee-Dee .010' (0.10 cu.in. or 0.16 c.c.) glow motor. This remarkable little powerplant weighs but 3/5th of an ounce, complete with fuel tank and is only a little over one inch high. Only the most advanced production techniques have made such a tiny motor commercially feasible. It is supplied with a spring-starter and a 3-inch diameter propeller which it turns at the phenomenal rate of 27,000 r.p.m. on KK Record Super-Nitrex fuel. The Cox company are also making a larger version of this motor, the 0.33 c.c. Tee-Dee .020, a contest motor which will supplement their existing 'Pee-Wee' of the same size.

Among the smaller British engines are the E.D. 'Baby', D-C 'Dart' and A-S '55,' all diesels of around 0.5 c.c. The E.D. Baby is the smallest of the three. This and the Dart are well established, having been in production for many years. The Dart is now made with a spring starter. The A-S 55 is a more recent introduction and has become noted for its 'beginner class' starting—a characteristic, incidentally, that is not always found in every small diesel.

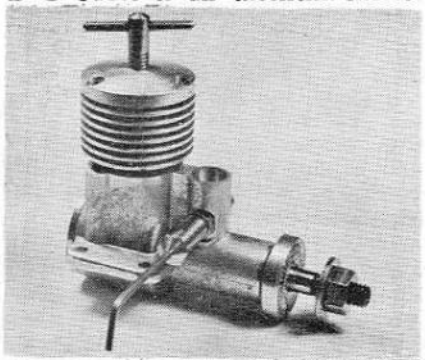
The next step brings us up to the popular 'Half-A' (.049 cu.in. or 0.8 c.c.) class pioneered by the Americans, in which there is a wide range of motors, mostly glow-plug, of both the 'beginner' or 'sport' type and the contest type.

As a contest class, the 049's are new to Britain and the two leading makes on performance, the Cox ('Tee-Dee 049' and 'Hopper 049') and Holland 'Hornet' are both American and among the more expensive of their type. British glow 049's include the 'Cobra' 049 (reed-valve induction and similar to the Cox 'Hopper') and the D-C 'Bantam'. These are easy handling motors that can be recommended to the beginner, especially in view of their low price. In the same capacity group as these glow motors are one or two diesels, including the Mills '75' (an old favourite with beginners) and the D-C Merlin. The Merlin is now equipped with a starter spring to simplify starting (it is, in fact, an easy starter even without this) and is available in a 'super' version with transparent fuel tank and red anodised spinner nut.

Engines of 1 c.c. to 2 c.c.

The 1 c.c. diesel has long been a favourite type with beginners in Britain. Generally, these engines are easy to handle, robust and are suitable to a wide range of control-line, as well as free-flight, model kits on the market. A well-established favourite is the E.D. Bee, first made in 1948. In its latest version, this engine has been brought up to a performance comparable with the latest 1 c.c. engines, of which the Allen Mercury '10' may be regarded as a leading example. The M. E. Heron and D-C Spitfire are other very sound 1 c.c. motors that can be recommended to newcomers to the hobby. All three engines are provided with fuel tanks as standard equipment. Among imported engines, there is the Enya .06, a reed-valve model available in both glow and diesel versions and equipped with a strong spring starter.

The next capacity group, 1.5 c.c., is one in which British diesel designers at present excel. Notable here for their high performance are the P.A.W. 1.49 and E.D. Super-Fury, the former with an interesting and efficient shaft-valve induction system and plain bushed bearing and the latter with rear-disc induction and ball bearing shaft. Also of excellent performance is the Allen-Mercury '15' and distinctive Frog Viper with rear drum valves. Where ultimate power is not a prime consideration, the low priced D-C Sabre is an excellent choice.



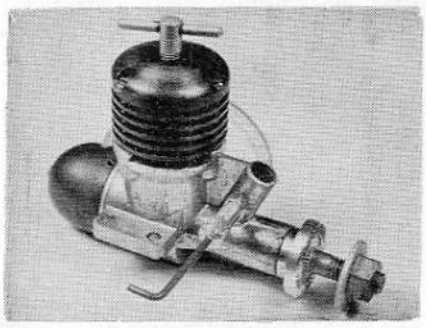
The unpretentious exterior of the P.A.W. 1.49 conceals a highly developed design capable of producing over .17 b.h.p.

Just outside the 1.5 c.c. group are the American and Japanese glow '09's' (1.6 c.c.) among which the Enya 09-II deserves a special mention for its easy starting, high power on fuels like Super-Nitrex and excellent construction. Extremely competitively priced is the O.S. Pet .099 which is also available with a simple barrel throttle for small radio-control model installations.

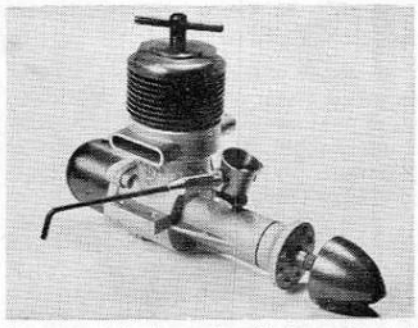
2.5 c.c. Engines

We now come to the biggest and most competitive group. The 2.5 c.c. class is the size recognised by the F.A.I. for World Championship and international free-flight and control speed events. It includes engines from all over the world, both diesel and glow, and we can only hope to deal with a few of them here.

Taking the diesels first, there are, at present, six 2.5's capable of exceeding the 0.30 brake-horsepower

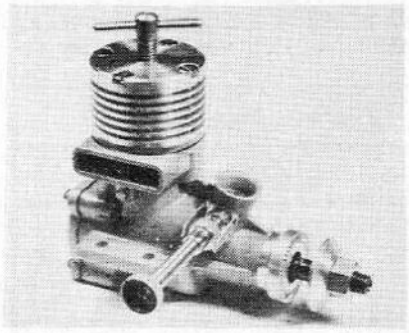


The Allen-Mercury '10' engine is the most powerful 1 c.c. diesel at present manufactured.



A newcomer to the ranks of 1.5 c.c. diesels is the M.E. Snipe. An extremely well made engine which promises to prove very popular.

minimum desirable for contest work. These are the Oliver-Tiger Mk. 3, Enya 15D Mk. 2, Eta 15, Super-Tigre Jubilee G.20, P.A.W. 2.49 Mk. 3 and the modified Rivers Silver-Streak. Five of these engines are equipped with either one or two ball-bearings (the Silver-Streak has roller bearings) and all are shaft induction motors, excepting the Eta, which has a disc valve. All have radially ported cylinders except the Enya and Super-Tigre which are loop-scavenged motors. The Oliver is basically the engine that was first marketed in 1955, improved in detail and now, in its latest tuned version, capable of exceeding 0.35 b.h.p. During the past year, the Oliver has been seriously challenged in team-racing circles by the Eta and, in this same type of event, a factory-tune Silver-Streak has set up the fastest time in Great Britain. The Enya Mk. 2 is an entirely revised version of the highly original 15D that first appeared in 1956 and is capable of a full 0.35 b.h.p. at 16,000



The Enya 15D Mk. II is one of the most powerful 2.5 c.c. diesels currently available and is of notably robust construction.

r.p.m. when fully run-in, plus much above average power at lower speeds. The Super-Tigre is the diesel version of the highly successful Jubilee G.20 glow, which, in its modified form, has proved so successful in speed events. The P.A.W. has a highly developed shaft valve system and efficient transfer port layout and will better 12,000 r.p.m. on a KK nylon 9 x 4 prop or 15,000 on a Trucut 8 x 4 wood prop.

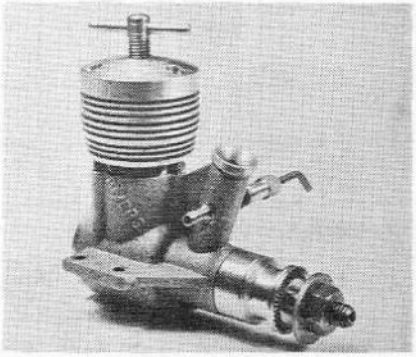
In the glowplug class, big developments are now going on. One of the most successful engines in this class has been the Japanese O.S. Max 15, which won the World Free-Flight Championship in 1956 in the hands of Britain's Ron Draper and won the Joint Championship title for America's Larry Conover in 1960.

Recently, a new Max-III model has been introduced which, though weighing only 4 oz., is capable of outputs exceeding 0.40 b.h.p. Even higher horsepower figures have been recorded with some of the more complex racing type 2.5 c.c. glow engines. These include the O.S. Max 15R, the K&B Torpedo 15R, the Super-Tigre Jubilee G.20/15 and the Cox 15 Special. The first three have twin ball-bearing crankshafts and all give their maximum performance in the region of 18,000 - 20,000 r.p.m. Each has provision for tapping crankcase compression to pressurize the fuel tank so that a force-feed fuel delivery is obtained. This permits a larger bore carburettor to be used since the carburettor does not have to create sufficient suction to draw the fuel from the tank. These engines, excellent for control-line speed work, are now also being used by experts for free-flight contest models. On powerful fuels like Super-Nitrex and Supersonic-1000, they are capable of outputs approaching .50 b.h.p.

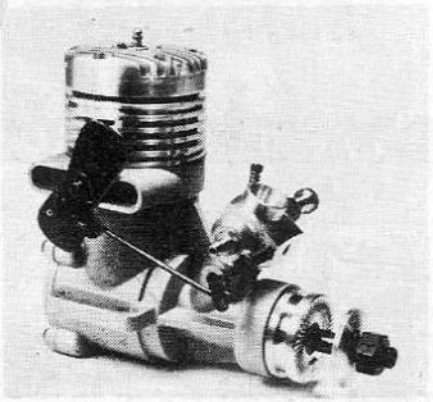
Among the 2.5's which, not aspiring to racing performance, do not demand such a deep pocket, are the well-established E.D. Racer (disc induction with twin ball-bearings) and Allen-Mercury '25' (shaft induction and plain bearing) diesels. Glow engines include the Enya 15-II which is also available with throttle control, as is the O.S. Max-III 15. The O.S. Multispeed 15 is, incidentally, one of the most successful small radio-control engines to date and has achieved many contest wins in the U.S.A.

Engines of 3.2 - 3.5 c.c.

Among 3.5 c.c. diesels, there is a choice between moderately priced, moderate power engines, such as the E.D. Hunter and lightweight A.M. '35' and the more expensive but very powerful Rivers Silver Arrow. The Silver Arrow, on its introduction in 1959, set new standards in 3.5 diesel performance both in regard to power and smoothness. Also providing high performance and at a very reasonable price, is the new P.A.W.



The 3.5 c.c. Rivers Silver Arrow has a roller bearing crankshaft and is the most powerful 3.5 diesel on the market.



A very fine new British engine, the Merco 49. Shown is the radio control version with barrel throttle and exhaust muffler.

19-D of 3.2 c.c. Glowplug engines in this group include the Enya 19-III, a well-made, easy starting, smooth running engine of good performance that is particularly well suited to the KK Spectre high-performance stunt model.

Engines of over 3.5 c.c.

Nearly all current engines of over 3.5 c.c. are glowplug motors. Single-cylinder 5 c.c. engines include the Merco 29 and O.S. Max-III 29 (both of which are smaller bore versions of the popular Merco 35 and Max-III 35 stunt engines) and the very powerful Enya 29-III. and O.S.29X.

The most popular type engine for contest class C/L stunt work is now the .35 (5.8 c.c.) glow motor, of which outstanding British and imported examples are, respectively, the Merco 35 and O.S. Max-III .35. Both these engines are also made in 'Multispeed' versions, equipped with special coupled intake and exhaust throttle units, permitting a wide range of engine speed variation for multi-channel radio-control work. A further addition to the .35 and .35 R/C class is the new Enya 35 Mk. 2 engine.

For the high-performance fully aerobatic multi-channel radio-controlled model, an engine of even greater power than the .35 size is now being favoured by leading experts and the latest additions are the 8 c.c. O.S. 49 R/C and Merco 49 R/C engines. These are superb, ball-bearing equipped motors, capable of driving large propellers (12-13 inch dia.) with ease, yet are easy to start. The Merco is particularly impressive in this respect, while the highly developed and quite complex throttle system of the O.S. is, perhaps, the most effective yet seen on a model engine. The Merco and O.S. 49's are also available in standard (non-throttle equipped) versions for large C/I stunt models, etc.

KEILKRAFT KITS - ENGINE TABLE

KIT	E.D.	D.C.	A.M	M.E.	P.A.W.	MISCELLANEOUS	
BANDIT	HORNET SUPER FURY	SABRE	10 15	HERON SNIPE	1.49	ENYA 09	O.S. PET
CHAMP	BEE HORNET SUPER FURY	SPITFIRE SABRE	10 15	HERON SNIPE	1.49	ENYA 09	O.S. PET
DEMON	RACER	—	25 35	—	2.49 19-D	ENYA 15 ENYA 15 D	O.S. 15
FIREBIRD	RACER	—	25 35	—	2.49 19-D	ENYA 15 ENYA 15 D	O.S. 15
FIREFLY	BABY PEP	DART MERLIN BANTAM	—	—	—	COBRA	A-S 55
GAUCHO	HORNET SUPER FURY	SABRE	10 15	SNIPE	1.49	ENYA 09	O.S. PET
GAZELLE	BEE HORNET SUPER FURY	SPITFIRE SABRE	10 15	HERON SNIPE	1.49	ENYA 09	O.S. PET
HALO	PEP BEE HORNET SUPER FURY	MERLIN BANTAM SPITFIRE SABRE	10 15		1.49	ENYA 09 O.S. PET	COBRA ENYA 06
JOKER	BABY PEP	DART MERLIN BANTAM	—	—	—	COBRA	A-S 55
JUNIOR 60	RACER HUNTER	—	25 35	—	2.49 19-D	ENYA 15 ENYA 15-D	ENYA 19 O.S. 15
LADYBIRD	PEP BEE	MERLIN BANTAM SPITFIRE	10	HERON	—	COBRA	ENYA 06
MARQUIS	HORNET SUPER FURY	SABRE	10 15	SNIPE	—	ENYA 09	O.S. PET
OUTLAW	HORNET SUPER FURY	SABRE	10 15	SNIPE	—	ENYA 09	O.S. PET
PACER	RACER	—	25	—	2.49 19-D	ENYA 15 ENYA 15-D	O.S. 15
PHANTOM	BEE HORNET SUPER FURY	SPITFIRE SABRE	10 15	HERON SNIPE	1.49	ENYA 09 O.S. PET	ENYA 06
PHANTOM MITE	BABY PEP	DART MERLIN BANTAM	—	—	—	COBRA	A-S 55
PIRATE	BABY PEP BEE	DART MERLIN BANTAM	—	—	—	COBRA A-S 55	ENYA 06
RANGER	BEE HORNET SUPER FURY	SPITFIRE SABRE	10 15	HERON SNIPE	1.49	ENYA 09	O.S. PET
SKYLON	BABY PEP BEE	DART MERLIN BANTAM	10	HERON	—	COBRA A-S 55	ENYA 06
SKYSTREAK 26	PEP BEE	MERLIN BANTAM SPITFIRE	10	HERON	—	COBRA	ENYA 06
SLICKER	BEE HORNET	SPITFIRE SABRE	10	HERON	—	COBRA	ENYA 06
SLICKER MITE	BABY PEP BEE	DART MERLIN BANTAM	—	—	—	COBRA A-S 55	ENYA 06
SNIPE	BABY PEP	DART MERLIN BANTAM	—	—	—	COBRA	A-S 55
SOUTHERNER MITE	BABY PEP	DART MERLIN BANTAM	—	—	—	COBRA	A-S 55
SPECTRE	RACER	—	25 35	—	2.49 19-D	ENYA 15 ENYA 15-D	ENYA 19 O.S. 15
SUPER SCALE KITS	BABY	DART BANTAM	—	—	—	COBRA	A-S 55
SUPER 60	**Any engine from 2·5-7c.c. (·15-·35cu. ins.)**						
TALON	RACER HUNTER	—	25 35	—	2.49 19-D	ENYA 15 ENYA 15 D	O.S. 15

NOTE The table above indicates engines which are of a suitable engine capacity for K.K. kits. It is important to note, however, that when constructing the model it may be necessary to alter the spacing of the engine bearers to suit the engine being used.

YOUR ENGINE

its operation and care

By PETER CHINN

Modern model aircraft engines are in two main types, 'diesel' and 'glowplug'. Early model motors were basically scaled-down two-stroke petrol engines and, like their bigger brothers, used spark ignition. The disadvantages of such an ignition system was the extra weight that had to be carried in the form of electrical equipment—most engines using a battery and induction coil system. Moreover, the ignition system invariably proved to be the most frequent cause of trouble, particularly to the beginner.

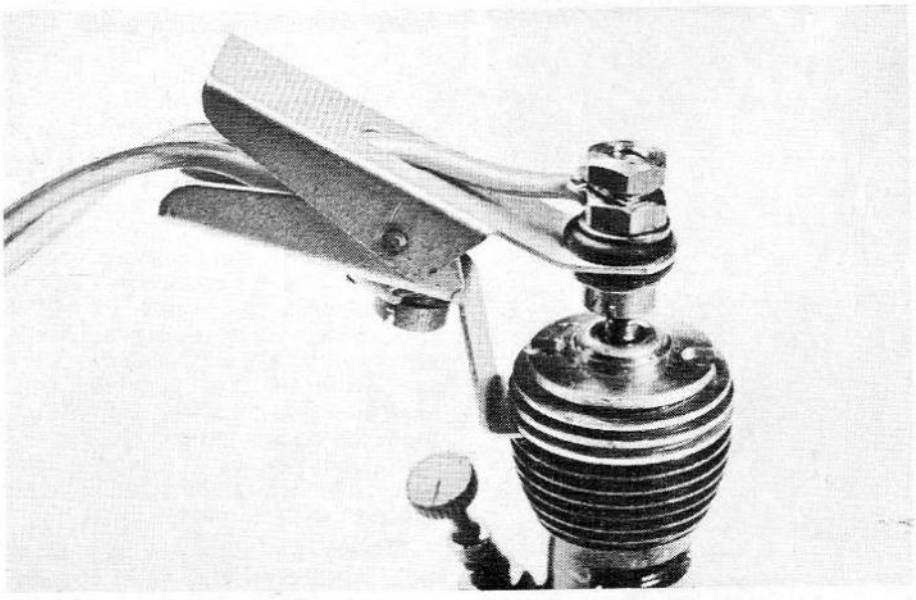
The glowplug, introduced in America in 1947, replaced the sparking plug and all its attendant equipment. The glowplug resembles a sparking plug but carries a small coil of platinum alloy (or sometimes nickel chromium) wire, which glows a bright red when heated by a suitable battery, and thereby provides ignition for the charge of fuel-air mixture in the cylinder, as does a sparking plug. Its main advantage is that, once the engine is running, the battery can be removed, sufficient heat being retained by the plug element to continue ignition of each successive charge. The glowplug is also much less susceptible to the effects of 'flooding' than a sparking plug and is, therefore, more tolerant of inexpert handling during starting. This is taken a stage further by the fact that petrol, as a fuel, is no longer used and has been replaced by alcohol based mixtures which are less critical of carburetter settings.

The 'diesel', or 'compression-ignition' model engine also works without a complicated ignition system. These model engines are not, incidentally, true 'diesels' in the full-size sense. A full size diesel inducts pure air and the fuel is injected into the cylinder by a complex pressure pump and injector system, after the air has been compressed. The model 'diesel', on the other hand, draws in a mixture of fuel and air, through a normal carburettor, and this is automatically ignited by the heat created through its compression in the cylinder. Ignition is achieved by using a very high compression-ratio, in conjunction with a fuel containing ether, which ignites at a low temperature.

All modern model diesels are provided with a variable compression cylinder head. The cylinder is extended to house a 'contra-piston'. The position of this contra-piston in the top of the cylinder can be adjusted to vary the volume of the compression space between it and the piston head, thereby varying the compression ratio. Adjustment is via a screw or lever on the cylinder head. The purpose of this is to adjust the timing of the ignition of the fuel mixture and its use will be explained in a moment.

Preparation

The beginner is well advised to start with a small engine. It can be



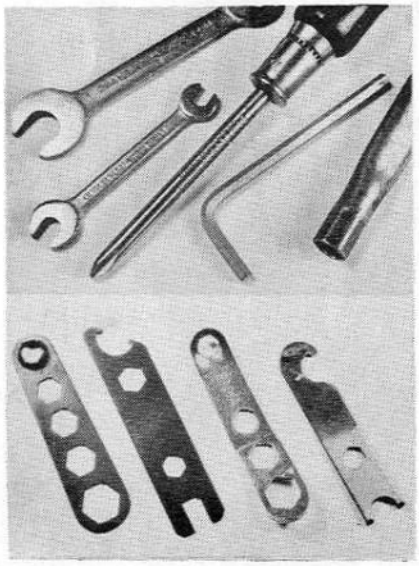
A quickly detachable but firm fitting connector is necessary for attaching battery leads to the glowplug. The KK Glowplug Clip is ideal for this.

Correct fuel is important. Shown is the KK range of five different fuels, two for diesels and three for glowplug engines.

glow or diesel. The glow engine has only one control, the needle-valve, and is, perhaps, simpler to operate on this account. Against this is the fact that a battery for starting must also be purchased although, since some small glow engines are cheaper than their diesel counterparts, the initial cost may not be any greater.

If a glow motor is chosen, the battery used must either be a 1.5 volt heavy-duty dry cell (such as a bell cell costing about 5s) or preferably, two such cells *connected in parallel*. Remove the plug from the engine and check the glow. It should be a bright red, roughly equivalent to that of an electric fire or slightly brighter.

In learning to start your first engine, it is best to first mount it on a bench, rather than to install it direct in a model. An adjustable cast aluminium mounting, such as the D-C test stand is ideal for this.



If you have to dismantle your engine, use the correct tools for the job. Shown here are various combination spanners issued by engine manufacturers, Phillips screwdriver, Allen key, box and double ended BA spanners.

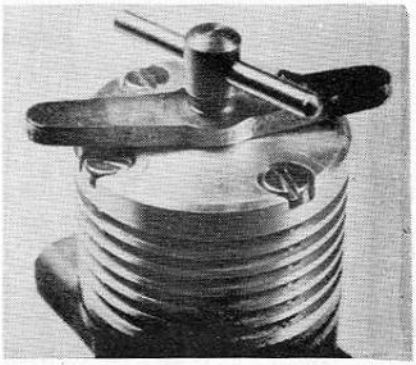
Alternatively, the motor can be bolted to a pair of hardwood bearers or, if a radial mount type motor, to a piece of plywood not less than ¼-in. thick. The wooden mounting is, of course, screwed or clamped securely to the bench.

Use a propeller of the size recommended by the engine manufacturer. Don't use too small a propeller on a diesel—it will only complicate starting. If you are in doubt, there is a list of typical prop sizes to be found elsewhere in this Handbook. Mount the prop on the shaft in such a position that when one blade is brought up against compression, the prop is in an approximately "ten-past-eight" position. For sure starting, the prop must be swung over compression rapidly and to do this, the forefinger (or forefinger and middle finger) should be placed fairly close to the hub. A vigorous flick will then bring the engine up and over compression abruptly for a quick start.

Many beginners' engines are now fitted with "starter" units. In most cases these are simply a large coil spring surrounding the crankshaft housing, the end of which is hooked over the prop blade which is then rotated about one turn backwards, then released. Another type, fitted to the American made Wen-Mac 049 engine is totally enclosed and includes a clutch device so that the spring is automatically engaged as the prop is turned backward (clockwise). A further type is the self rewinding pull-cord type fitted to certain of the American Cub engines and earlier Wen-Mac models. Another starting aid is the spinner pulley, as available on the Frog 049 which is used in conjunction with a suitable cord.

Where the engine is not fitted with an integral fuel tank, one can be positioned behind the crankcase and fixed to the bearers. Fix it so that its top is level with or slightly below, the needle-valve. If the engine is a diesel, a transparent fuel tank can be used, but buy a metal tank for a glow engine, unless the tank offered is of a type that is impervious to alcohol base glow fuels.

Obviously, the correct type of fuel must be used. Keilkraft Nitrated Diesel Fuel is suitable for all types of diesels, while Record Powerplus Diesel Fuel is especially blended for larger high speed contest engines such as the Oliver-Tiger, Rivers, P.A.W., Enya 15D, etc. For glow engines, Record Methanex Glowplug Fuel is suitable for all types and for running-in. Record Nitrex 15 is especially blended for small glow engines and for giving extra power with larger motors. The most powerful glow fuel is Record Super-Nitrex, but this should not be used in a new engine before it has had at least



Some engines are fitted with locking levers to prevent any risk of compression screw movement. Shown is the Enya 15D-II locking device.

2-3 hours running, unless the manufacturer approves the earlier use of a high nitromethane content fuel.

Starting

Having set up your new engine, first check that the control settings are in accordance with the maker's instructions. Fill the fuel tank and, with one finger over the air intake to choke the carburettor, turn the prop several times in order to draw fuel up to the needle-valve, then give a couple more choked flicks.

Follow the maker's recommendations as to starting procedure. Glow motors generally like to be a little more "wet" than diesels for an initial start and the instructions may call for "priming" the cylinder. This consists of injecting a few drops of fuel through the exhaust port, on to the top of the piston before connecting the battery lead to the glowplug. Disconnect the plug lead again as soon as the engine is running.

Flick the prop vigorously. If the engine does not start within a dozen or so flicks, choke or prime again. In the case of diesels, a slight increase in compression may start the engine if the above procedure fails. Don't be discouraged if your new engine fails to start immediately. Even though written instructions sound simple, it will take you a few days, probably, to become used to the exact technique.

"Cold" starting settings of the needle-valve (and compression lever in the case of diesels) are not usually the same as running settings. When the engine is running, you will probably find it necessary to close the needle-valve slightly (and, probably, reduce the compression setting with a diesel) to obtain smooth, fast running, as the motor warms up. To restart a *warm* engine, however, it may only be necessary to choke the intake for a couple of preliminary flicks, leaving the controls at their running settings.

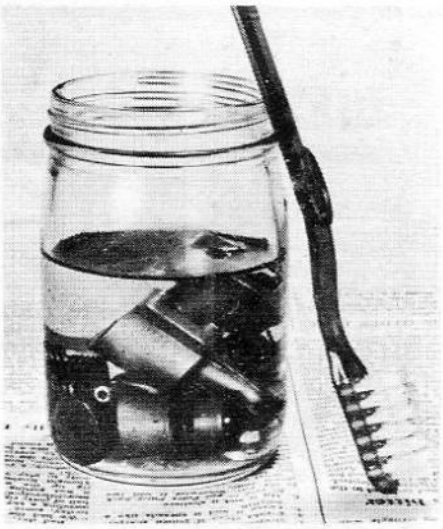
The speed at which an engine runs is dependent on the size of the propeller. On a diesel, the compression lever is used to adjust the *ignition timing*. On a large propeller, a lower compression setting will be required than that needed for a smaller prop. Slacken the compression until the engine begins to misfire, then increase compression until the misfire just disappears. A "misfire" setting can, incidentally, be used when making reduced power trimming flights with a new model.

With new engines, it is advisable (especially in the case of glowplug motors) to let the engine run on a "rich" needle setting (and with slightly reduced compression in the case of a diesel) for the running-in period recommended by the manufacturer. The running-in period required may vary from a few minutes for a small engine up to 2 or 3 hours for a large glow engine. In the case of a glow engine, the needle-valve should be opened up to produce a "4-stroke" engine note. This can easily be distinguished from the even high-pitched note of normal two-stroking and will produce oily and smoky "cool" running to avoid any risk of piston seizure. Running-in is best carried out in a long series of runs of brief duration, rather than continuous running.

Engine Care and Maintenance

The most important factor contributing to engine life is cleanliness. Try to prevent dirt getting into the intake and exhaust port. If you do have the misfortune to crash your model and get dirt inside the engine, carefully dismantle it as far as possible and thoroughly wash the parts in petrol. Use the proper tools for this. Some manufacturers supply suitable combination spanners for their engines. If the motor has "Phillips" screws, use the proper Phillips type screwdriver. *Carefully mark the position of each part, so that it can be reassembled exactly as originally made.*

Lay out cleaned parts on paper, oil and reassemble carefully.



To clean parts of a 'crashed' engine, immerse in petrol and scrub with a toothbrush.

The only parts which may be difficult to dismantle are the prop driver and crankshaft assembly. In some engines, such as the O.S. Max-III models, the prop driver and shaft assembly are easily taken apart. In other engines (e.g. Cobra, Allen - Mercury and Merco) the prop driver is pressed on to a knurled or splined section on the shaft and the best thing is to thoroughly wash the complete bearing assembly in petrol without dismantling. In other types (Enya and most D-C models) the driver is fitted on a taper or a separate split tapered collet and can be drawn or gently tapped off (using a block of wood) if the alloy driver is first warmed.

Lay out the washed parts on clean white paper and carefully reassemble, oiling all working parts. Use new gaskets if necessary. Always tighten screws and nuts (such as on a cylinder head) progressively —working diagonally back and forth across the head. Check each part for free operation before final tightening. If the engine is not being re-installed immediately in a model, it is a good idea to store it in a polythene bag until next required.

Generally, dismantling should be avoided as far as possible (dismantling voids the guarantee on some makes) but, if done with care and forethought, is preferable to the risk of damaging the motor by attempting to run it with grit in the cylinder or bearings. This can ruin any motor in minutes or even seconds. However, never use force to dismantle any part. If you cannot remove any part with the tools at your disposal, return the motor to the manufacturer or distributor for servicing.

ENGINE SIZES and RECOMMENDED PROPELLERS

DIESEL

MAKE	DISPLACEMENT C.C.	DISPLACEMENT CU. IN.	GENERAL PURPOSE AND RUNNING IN	CONTEST FREE-FLIGHT	C/L INCLUDING STUNT	C/L TEAM RACING	RADIO CONTROL
E.D. BABY	0.47	.029	7 x 4	6 x 3	6 x 4	—	—
D-C DART A-S 55	0.55 0.55	.034 .034	7 x 4	6 x 4 or 7 x 3	6 x 4	—	—
MILLS 75 D-C MERLIN FROG 80 E.D. PEP	0.73 0.76 0.81 0.81	.045 .046 .049 .049	8 x 4	7 x 4 or 7 x 3	6 x 4 or 7 x 4	—	—
D-C SPITFIRE E.D. BEE M.E. HERON	0.98 0.98 0.97	.060 .060 .059	9 x 3 or 8 x 4	8 x 4, 8 x 3 or 7 x 4	7 x 5	—	—
A-M 10 FROG 100 Mk.II	1.00 1.02	.061 .062	9 x 4	8 x 3 or 7 x 4	8 x 4 or 7 x 6	—	—
MILLS Mk.II E.D. HORNET	1.33 1.45	.081 .089	9 x 4	8 x 4	8 x 5 or 7 x 6	—	9 x 3 or 8 x 4
E.D. FURY D-C SABRE FROG 149	1.49 1.49	.091 .091 .090	9 x 5 or 9 x 4	8 x 4 or 8 x 3	8 x 5 or 8 x 4 or 7 x 6	7 x 5 or 7 x 6	9 x 4 or 8 x 4
FROG 150R A-M 15 P.A.W. 1.49 SPL. E.D. SUPER FURY	1.48 1.50 1.48 1.49	.090 .092 .090 .091	9 x 6, 9 x 5 or 9 x 4	8 x 4, 8 x 3 or 7 x 4	8 x 5 or 8 x 4	7 x 5 or 7 x 6	9 x 4 or 8 x 4
E.D. COMP. SPL.	2.01	.122	10 x 6	—	9 x 6	—	10 x 6
A-M 25 ALAG. X-3 D-C RAPIER E.D. RACER FROG. 249BB (STD) RIVERS SILVER STREAK ETA 15	2.35 2.47 2.49 2.47 2.49 2.49 2.48	.143 .151 .152 .151 .152 .152 .152	10 x 5 or 9 x 6	9 x 4, 9 x 3 or 8 x 4	9 x 5 or 8 x 6	8 x 8 or 7 x 9	10 x 5, 9 x 6 or 9 x 5
FROG 249BB (MOD) WEBRA MACH-1 P.A.W. 2.49 SPL. ENYA 15-D OLIVER TIGER Mk.3	2.49 2.45 2.47 2.47 2.43	.152 .150 151 .151 .148	10 x 6 or 10 x 5	9 x 4, 9 x 3 or 8 x 4	9 x 6 or 9 x 5	8 x 8 or 7 x 9	10 x 5 or 9 x 6
A-M 35 D-C MANXMAN E.D. HUNTER	3.42 3.42 3.46	.209 .209 .211	11 x 6 or 11 x 5	10 x 5 or 10 x 4	9 x 8 or 9 x 6	—	11 x 4 or 10 x 5
RIVERS SILVER ARROW	3.49	.213	11 x 5 11 x 4 or 10 x 6	10 x 5 10 x 4 or 9 x 5	10 x 5 9 x 6 or 9 x 5	7 x 8 or 7 x 9	11 x 4 10 x 6 or 10 x 5
TAPLIN TWIN	6.92	.422	14 x 6 or 13 x 6	—	—	—	13 x 6 or 12 x 8

NOTES ON PROPS.

For the Beginner . . .

1. In general, diesels require slightly larger props than equivalent size glow engines, due to their higher torque and lower peak revolutions.

2. The beginner, learning to start his first diesel, is advised to use a prop not smaller than those listed under the column " General Purpose and Running-in ". A relatively large diameter and fine pitch will give the best flywheel effect for easy starting. Many diesels are tricky to start on very small props.

3. For operation at high r.p.m., a wood or nylon prop is recommended. Very high speeds should be avoided with plastic props other than nylon as there is a danger of the propeller breaking under the high centrifugal loads generated.

For the Expert . . .

4. The tables are intended as a guide, using standard size props. For maximum contest performance, slight variations in diameter, pitch and blade area may yield small gains, according to the design of the model. Since most makes of propellers are not available in fractional variations in size, the modeller is usually obliged to modify a standard prop by removing 1/8" or 1/4" from each tip, narrowing blade width, etc.

5. Using different makes of propeller of the same nominal size may reveal appreciable differences in the r.p.m. at which the engine will turn them. This is usually due to variations from the quoted pitch and to blade shape, especially at the tip. Blunt-tipped, unvarnished props will benefit from proper finishing and balancing.

6. The sizes given in the tables are largely based on practical experience of the engines concerned. They are based on the actual power delivered by each type of engine at various speeds and on its particular performance characteristics. Thus, to give an example, Engine A may have the same size of prop (for certain applications) as Engine B which is known to be more powerful. The reason for this is that B delivers higher torque at higher r.p.m. and can, therefore, utilise its extra power by driving the same prop faster for added speed or climb. Engine C, on the other hand, which is still more powerful at very high r.p.m., may use a smaller prop, because of inferior low-speed torque and the need to reach high revolutions to deliver its best performance.

GLOWPLUG

MAKE	DISPLACEMENT		GENERAL PURPOSE AND RUNNING IN	CONTEST FREE-FLIGHT	C/L INCLUDING STUNT	C/L TEAM RACING	C/L SPEED	RADIO CONTROL
	CU. IN.	C.C.						
COX PEE-WEE	.020	0.33	4½ x 3 or 5 x 3	4½ x 2½	4½ x 2½ or 4 x 2½	—	—	—
COBRA	.049	0.81						
D.C. BANTAM	.046	0.75	6 x 3 or 6 x 4	6 x 3	6 x 4 or 5½ x 4	—	4½ x 7 or 5 x 7	—
A-M .049	.050	0.82						
FROG .049	.049	0.81						
COX THIMBLEDROME .049	.050	0.82						
ENYA 09	.098	1.61		7 x 4 or 7 x 3	7 x 6 or 7 x 4	—	—	8 x 4
O.S. PET	.099	1.63	8 x 4					
FOX 15	.145	2.37		8½ x 3 or 8 x 4 or 8 x 3½	8 x 6 or 9 x 4 or 8 x 5	7 x 8	6 x 10 or 6 x 9 or 6 x 8	9 x 5 or 9 x 4
ENYA 15-1B	.151	2.47	9 x 4					
O.S. MAX-II 15	.151	2.47						
COX THIMBLEDROME 15	.149	2.45						
ENYA 19-3	.197	3.22		10 x 4, 9 x 5 or 9 x 4	9 x 4 or 9 x 5 or 8 x 6	—	—	10 x 5 or 10 x 4
FOX 19	.199	3.26	10 x 6 or 10 x 5					
VECO 19	.199	3.27						
McCOY 19 STUNT	.199	3.27						
ETA 19	.199	3.27	9 x 5 or 9 x 4	9 x 4	9 x 5 or 8 x 6	—	—	10 x 4 or 9 x 5
O.S. MAX-II 29	.295	4.84						
VECO 29	.299	4.90		11 x 5, 11 x 4 or 10 x 5 or 10 x 4	10 x 6	8 x 8, 8 x 9 or 9 x 8	7 x 9 or 7 x 10	12 x 4 or 11 x 5 or 11 x 4 or 10 x 6
MERCO 29	.299	4.90	12 x 4, 11 x 5 or 11 x 4					
FOX 29	.299	4.91						
ENYA 29-3	.299	4.91						
McCOY 29 STUNT	.299	4.91						
ETA 29	.297	4.87	11 x 4 or 10 x 5	10 x 5 or 10 x 4	10 x 5 or 9 x 6	8 x 8 or 8 x 9	7 x 9 or 6½ x 10	—
DOOLING 29	.299	4.89						
D.C. TORNADO TWIN	.297	4.87	11 x 5 or 11 x 4	—	10 x 5	—	—	11 x 4 or 11 x 5 or 10 x 6
FROG 500	.300	4.92	11 x 6 or 10 x 8	11 x 5 or 10 x 6	10 x 6 or 10 x 5	9 x 8 or 8 x 8	—	11 x 6 or 11 x 4
VECO 35	.349	5.72						
FOX 35	.352	5.77						12 x 5 or 11 x 5 or 11 x 6 or 11 x 4
MERCO 35	.352	5.77	12 x 4 or 11 x 6	11 x 5 or 11 x 4 or 10 x 5	10 x 6 or 10 x 7	—	—	
O.S. MAX-II 35	.354	5.80						
ENYA 35	.354	5.80						
McCOY 35 STUNT	.349	5.72						
ENYA 60	.607	9.95	14 x 6 or 13 x 8	13 x 6 or 12 x 8	12 x 8 or 11 x 8	—	—	13 x 8 or 13 x 6

Pilot your own Model

by NORMAN BUTCHER

When I started model flying, which was not all that many years ago, power models were very few and far between and even when the first diesels, which were to revolutionise power flying, appeared just after the war, free flight models still ruled the roost. Then, in 1946, the first really successful control line models were seen in England. In spite of being dubed 'bricks on string' by the dyed in the wool free flighters, this new branch of the hobby—which was invented by American Jim Walker in 1940—swept the country. Today roughly half the models built are control-liners which shows that the thrill of piloting your own model has not diminished with the years.

As with any form of flying the obvious way to start is with a well proven kit design and what better than the famous Keilkraft PHANTOM or PHANTOM MITE. The PHANTOM arrived almost with control-line flying and has been the machine with which many of today's experts did their first few erratic laps. With later developments the design has been 'cleaned up', but it still remains the same easy to build and fly machine that has endeared itself to so many fliers. As smaller motors become practical for control-line work the PHANTOM MITE —virtually a scaled down PHANTOM —was introduced.

Let us assume that you've built your model and are now anxious to fly it, but don't be in too much of a hurry or you will have to build another !

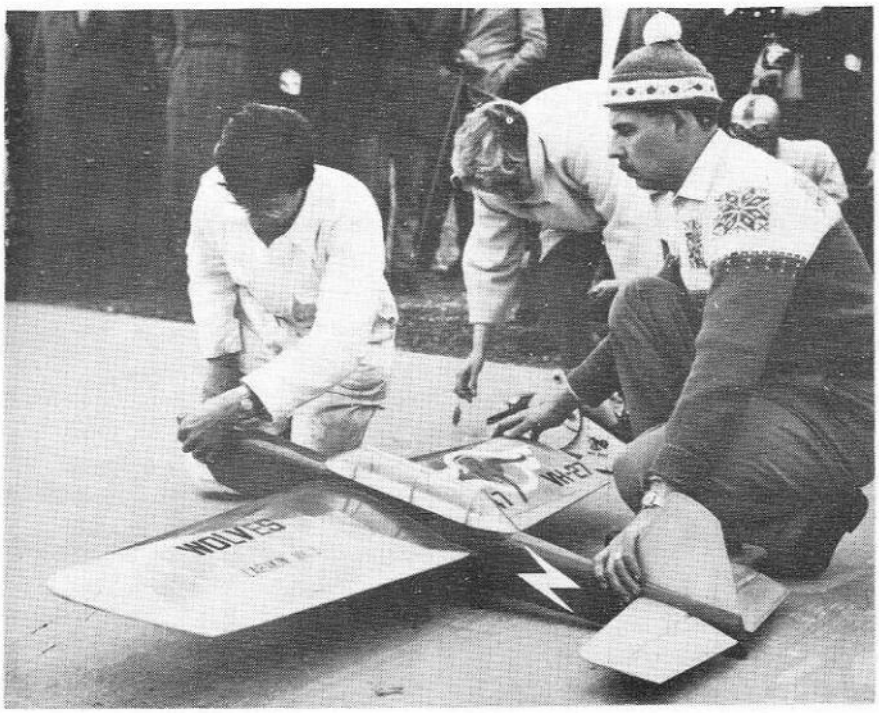
The first thing is to check the engine settings. If a separate tank is used, make sure the neoprene tube is firmly connected to the engine and tank, with no air leaks. Now start the motor, adjust it to maximum revs, then open the needle valve until the motor is running slightly rich. This will be *approximately* the correct flight setting so note it carefully, however, although the motor will keep running it will not be at its best as final settings can only be determined after a few flights.

The next step is to make up the lines. The length of these will depend on the type of model, size of motor, weather conditions, flying site, etc., but the following is a rough guide.

0.5 - 0.9 cc motors	15-25 ft.
1 - 1.5 cc „	25-40 ft.
1.5 - 2.5 cc „	40-50 ft.
Over 2.5 cc „	50-70 ft.

The shorter line length is recommended for 'Trainers', or windy weather flying.

Now to make up the lines and this is best done in the back garden, before proceeding to the flying field. The best material for



Australian Brian Horrocks, twice winner of the coveted Gold trophy, Britain's national stunt control line championship, prepares to start his Glo-Chief 49 powered plane.

lines is without doubt wire, but as this tends to kink easily and has to be stored on a special drum, some people prefer nylon or thread. This is satisfactory for small sports models but should *never* be used with a motor above 1 cc in size, neither should it be used for 'aerobatic' flying as the lines will 'stick' together.

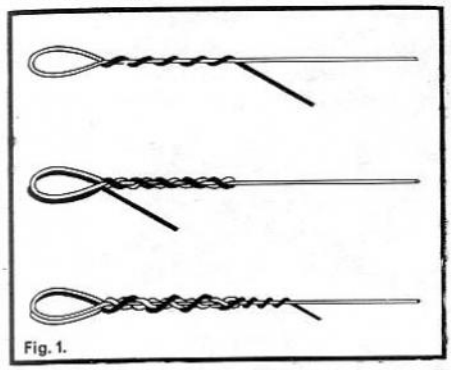


Fig. 1.

This illustration shows the correct way of making loops in control line wire.

It is not necessary to solder the loops on the end of the wire provided they are neatly twisted as shown in Fig. 1, but do make sure the twists are *tight*. Both lines must be of identical length and stored on a suitable 'drum', this can either be a tin (Fig. 2) or a specially constructed reel (Fig. 3), but, in any case, should not be of less than 5 in. diameter. As line making can be a 'fiddly' job it is always advisable to make two sets and these, if properly looked after, will last a long time. I am still using sets that were made up two years ago !

Now to the flying field—which must be either closely mown grass or tarmac, etc., a rough field just will not do—and here a helper is essential. (It is possible with various gadgets to fly control-liners 'solo', but this is not advisable for beginners.) The first thing is to check the model over, make sure that the engine nuts are tight and that the controls work smoothly. Now attach the lines to the leadouts, reel them out and attach the handle,

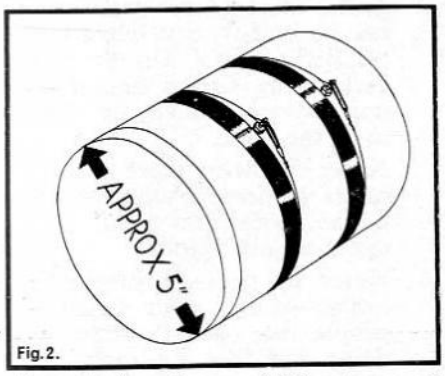


Fig. 2.

An empty tin makes a useful line storage reel. Nuts and bolts are used for anchorages.

checking that the 'up' line is attached to 'up' on the handle (If you are using a commercial adjustable handle (recommended) there is no doubt which is 'up'. But if it is a 'symmetrical" handle paint the top, or 'up' position, a bright red or similar distinctive colour).

With your helper holding the model at waist height, turn the handle until the lines are untwisted, place the handle on the ground, and with a *clean* piece of rag carefully wipe the lines, from the model to the handle. It is surprising how dirty lines get, just by being handled and laying on the ground and unless they are wiped, before each flying session, they might tend to 'bind'. This is fatal and many a good model has been smashed by neglecting this simple precaution.

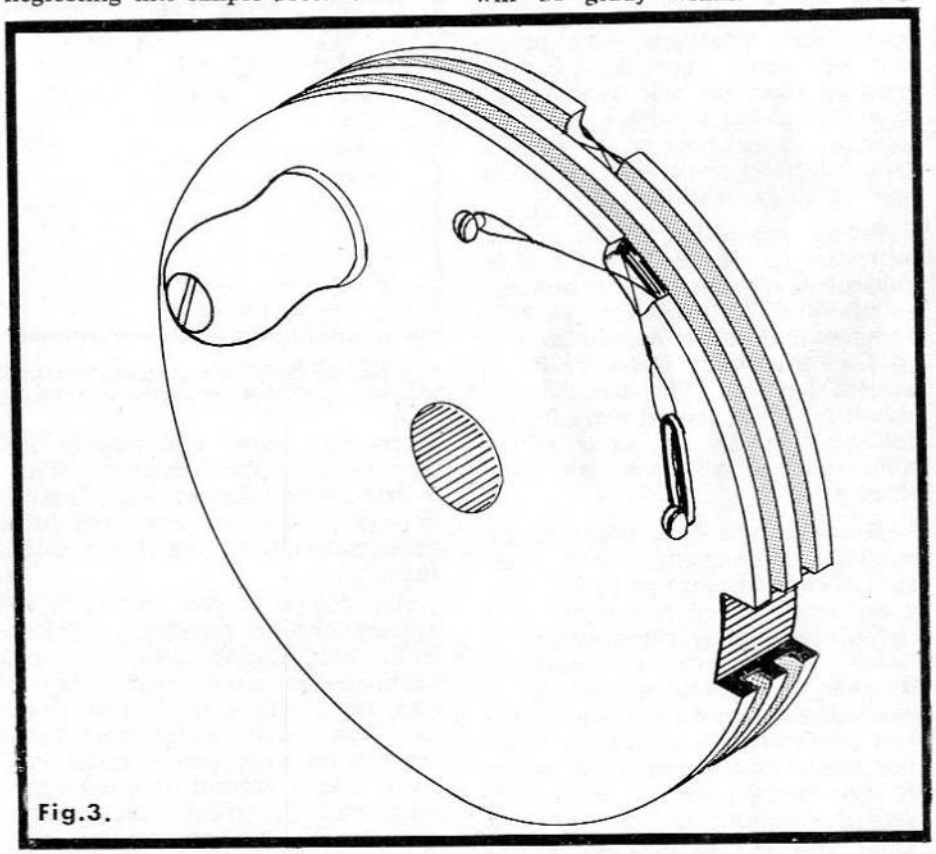


Fig.3.

A more elaborate reel, made from five layers of ¼" plywood is well worth making and will last many years. Construction is not difficult as the drawing shows. The diameter should be about five inches. Make sure that the various layers are well cemented together or the lines may slip down in between them.

With your helper still holding the model check that with the handle vertical the elevator is at neutral—this is where an adjustable handle is an advantage to make final fine adjustments.

Now grip the handle firmly, keep the lines tight and with your arm stretched out straight in front of you, point it directly at the model. The elevator will remain at neutral, but raise your arm, still keeping it stiff and the elevator will move to the 'up' position, lower your arm until it is again pointing at the model and the elevator will return to neutral, lower your arm still further and the elevator will move to 'down'. (Fig. 4.)

This then is the important thing to remember throughout your first critical flights—*the model will go where your arm points. Do not under any circumstances attempt to control the model by bending the wrist or elbow—move your entire arm from the shoulder.*

Before we go any further a few words about giddiness. The question usually asked by a spectator after seeing a long control-line flight is—"Don't you get giddy ?" Invariably the answer is 'No.' Now why should this be ? If you stand in a room and twirl round then you will be giddy within a few moments, but you can fly a control-liner, with no ill effects, *provided you watch the model and ignore the background.* The thing to remember then is to concentrate solely on the model at all times. Just one further point—it is easy, even for an experienced flyer, to 'wander' so place a handkerchief, or something similar—not a tin that you can trip over—in the centre of the circle, otherwise you will 'wander' and fly the model into your tool

bag, or even a fence or tree.

Now for the very first flight. Make sure that the model is pointing so that you take off down wind and remember that to retain control the lines must be *tight*. They may tend to slacken slightly on the upwind side of the circle and if they do, it will be necessary to step back to retain line tension.

Start the motor and when it is running smoothly, run to the centre of the circle, grasp the handle firmly, point your arm straight at the model, raise and lower it to check you are getting 'up' and down, then return to neutral and signal your helper to release. He must not push the model, nor point it into or out of the circle—just release it pointing straight ahead.

Keep your arm pointing straight at the model, then, as it gathers speed, raise your arm very gently until the model 'unsticks.' It may tend to zoom up, but don't panic, it will level out to where your arm points. Concentrate on getting the model level at about 6 ft. from the ground and keeping it there.

Before you realise it, the engine will start to splutter as the fuel is exhausted. Be ready for it cutting, as the nose will drop and you will have to apply slight 'up' elevator, so that the model glides in for a smooth landing. Not too difficult was it? Make several more flights *following exactly the same procedure* and you will soon gain confidence.

Now that you have begun to get the hang of things, it is time to get the motor running properly. As I explained earlier, it is only tuned roughly, so listen carefully to its 'note' in the air, to determine whether it is under or over compressed, too rich or too lean. Adjust accordingly and *always* leave the motor at the setting at which it runs best in the air, even if it sounds 'rough' on the ground. Once found, these settings should only vary slightly, so, if extreme adjustment is necessary, it is probable that a particle of dirt has found its way to the jet, or an air leak has developed in the fuel line. *Check these points before flying again.*

Still using the 'straight arm' technique, have a few flights with the motor at full bore, then, say halfway through a flight, try a gentle control from the elbow. This is far more sensitive so be careful, but the principle is the same as the 'straight arm' method.

After a bit more practise you will be able to make a complete flight 'from the elbow' and now is the time to use 'wrist' control. This is even more sensitive, but is really only a progression from the previous methods, so just take it carefully.

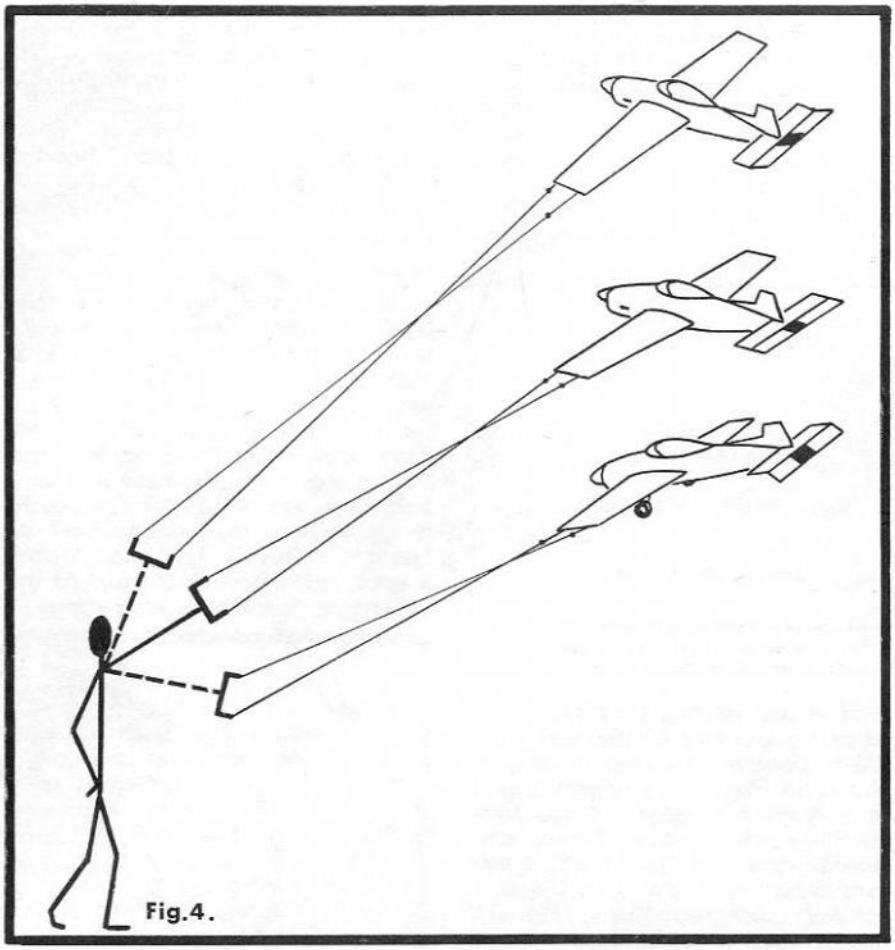


Fig.4.

This diagram shows how raising and lowering the arm gives UP and DOWN elevator, which will neutralize itself when the model is in a straight line with your arm and the lines.

All this time you should have concentrated on keeping the model level, with smooth take offs and landings—no clever stuff. However, now, with a few flights from the wrist safely under your belt, you can try some gentle climbs and dives. As a control-liner does not drift with the wind, line tension will always be greatest on the downwind side of the circle and least upwind. Therefore, you must always *climb* your model *downwind* and *dive upwind*, otherwise line tension might be lost and the model will crash.

Well there you are, you've successfully completed your first flights, now all that is necessary before you are up with the experts is practise, practise and more practise.

To conclude I have made a short list of essential points to remember—read them carefully and you will not run into too many snags. These are followed by a few safety rules—*stick to these at all times.*

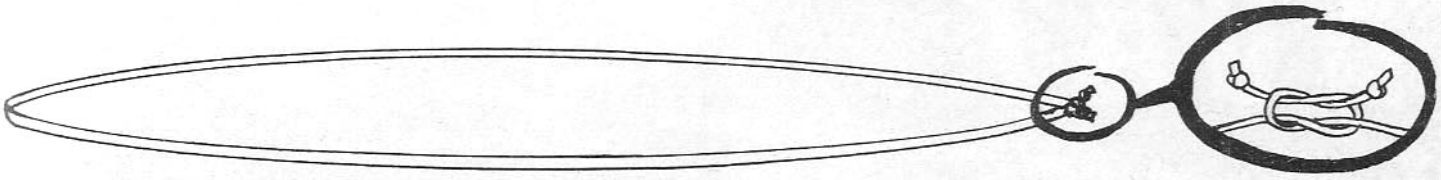
General points to remember for Control-line flying

1. The model is under control only if the lines are tight.
2. Always take off down wind.
3. Climb downwind and dive upwind.
4. Do not attempt manoeuvres of any sort, unless the motor is running well.

Safety Rules

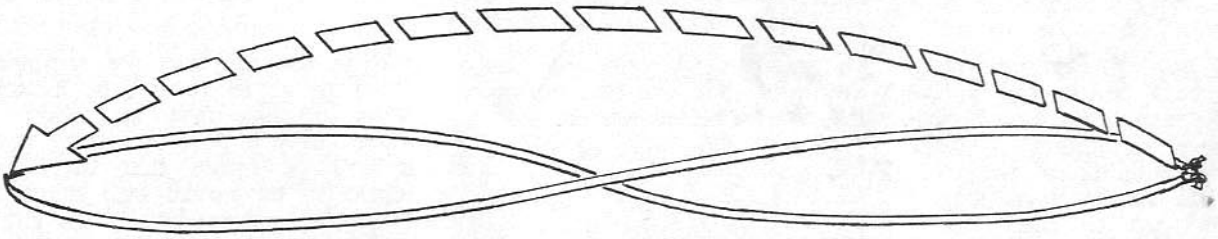
1. Never fly with frayed or kinked lines.
2. With your helper holding the model exert a 'test pull' on the handle roughly equivalent in the 'in flight' pull. Do this before each flying session and if anyone has stepped on, or tripped over, the lines.
3. Never fly when there are spectators gathered closely round—if the model hits them it can cause serious injury.
4. Never fly near overhead power cables—it may seem obvious but people are killed every year doing just this. A model does not have to touch a cable—30,000 volts will 'jump' up to 20 ft.

MAKING UP RUBBER MOTORS

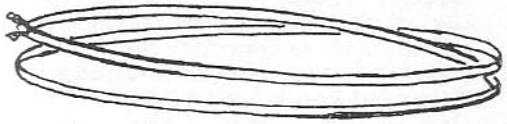


These instructions show how to make an eight strand motor which is suitable for most planes. A similar method can be used for other motors with an even number of strands.
Measure off a length of rubber eight times as long as the fuselage, tie a knot in each end and tie the ends in a reef knot.

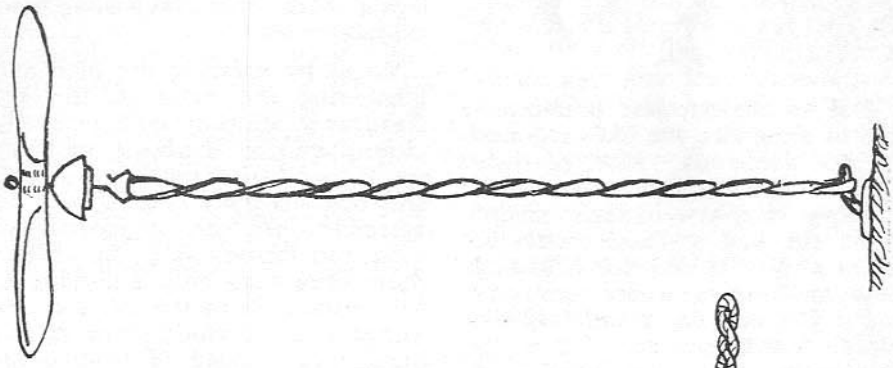
Squeeze a little **KEILKRAFT RUBBER LUBRICANT** into the palms of the hands, gather up the rubber and rub well between the hands. Make sure that all parts of the rubber are well lubricated. This is important as it increases both the life of the rubber and the number of turns the completed motor will take.

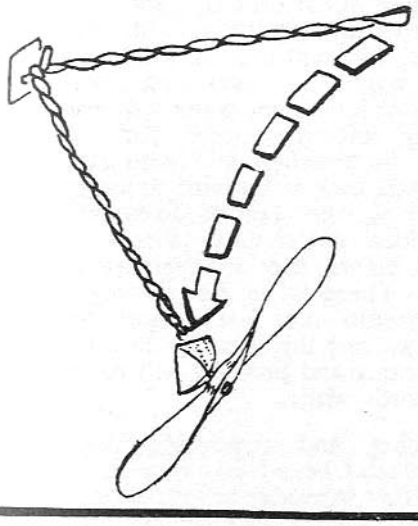


Twist the loop as above and then bring the two ends together to form a double loop as shown at left. Make sure that the knot occurs at the end of one of the loops and not somewhere in the middle. Also check that both loops are the same length.

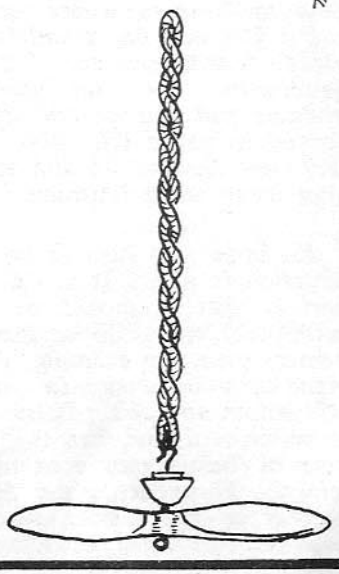


Place one end of the doubled loop on a convenient hook and the other end on the prop. hook. Wind on about twenty or thirty turns in a clockwise direction. The exact number of turns is found by experiment. When winding see that the motor is kept just taut. There is no need for much stretching and a slack motor will not wind evenly.





Remove the rubber from the hook, holding both ends to prevent it untwisting, then place the centre of the rubber on the hook and attach the free end to the prop. hook. Hold the noseblock and allow the propeller to rotate, when the rubber will twist up into a cord as shown on right. By adjusting the number of turns wound on to the rubber, the final motor can be made of a sufficient length to fit into the fuselage without slackness. Take care of your motor and keep it from strong sunlight and oil, both of which are harmful to rubber.



BOAT CONSTRUCTION

by LESLIE J. ROWELL

Interested in boats? Perhaps you have already built one or two and are looking for something a bit bigger and more ambitious. The Aerokits range contains all sizes of boats from the sixteen inch long 'Sea Urchin' up to the 'Sea Queen' a model nearly four feet long. There are ten models in the range and all are built of ply and hardwood. This means that the finished models are very tough indeed and when built properly will give many years of service. As most of the parts are ready cut to shape, making up one of these fine kits does not involve as much work as might be thought.

Due to the extensive prefabrication of these kits, the tools required are not numerous. Most of them are of the ordinary household variety—tenon saw, hammer, screwdriver etc. and to these should be added a $\frac{1}{8}$" flat file, for adjusting slots in formers where necessary and a $\frac{1}{2}$"chisel, for chamfering the edges of stringers etc. Other requirements are sandpaper of medium and fine grades and carborundum paper (No. 600 Wet or Dry) for cleaning up and for rubbing down when finishing.

An important item of boat construction is glue. It is vitally important that it should be of the waterproof variety as ordinary carpenters glue, for example, will not stand up to immersion in water and will soften and fail. Balsa cement is waterproof and has the advantage of being very convenient to apply. There are many fine adhesives on the market which are used in full sized boat construction and these, of course, are entirely suitable. Aerolite and Casco Waterproof glue are two examples which can be recommended.

Aerokits boats may be powered either with electric motors or with marine diesel engines. However, it must be remembered that electric power will not give the same speed as a diesel motor. *It is important to decide on the particular power plant to be installed before commencing to build the model, so that the proper arrangements can be made for mounting the power plant, and in the case of a diesel, providing a suitable water cooling and exhaust system.*

Begin by studying the plan and identifying the parts of the kit. Sandpaper all parts and generally clean them up. The boats are made up of two basic assemblies—a keel and bow assembly (Fig. 1) and an assembly of the superstructure sides and formers (Fig. 2). When these have been built according to the instructions in the kit, they are joined and the chine stringers and gunwales are added. Providing due care is taken in making the two basic assemblies, no difficulty should be found in making a strong accurate model.

If steel pins are used during the assembly of the model, make sure that they are removed later, or rust spots will form and mar the finish. Brass nails are provided in the kits which should be used where needed.

Before the side and bottom skins can be added, it is necessary to chamfer the edges of the hardwood stringers to fair in with the edges of the formers—the chisel will be useful here, though care must be exercised to prevent the chisel from cutting too far into the stringers. It is usual to fasten the bottom skins in place first, and where a sharp curve is required at the bow, it will be found that there are blocks to be carved into shape to form the upswept line of the chine —this is much easier than trying to pull the plywood into shape.

It is necessary to take care to achieve a good fit of the skins at the centre line, the outer edges can be allowed to overlap the chine stringers, to be trimmed to an exact fit after the glue has set.

At this stage provision should be made for the installation of the power plant, and when this has been done the side skins can be affixed. After this has been carried out and the glue given time to set, the side skins can be trimmed to fit. Before proceeding further, give the entire inside of the model a coat of dope, paint, varnish or fuel proofer. IT IS MOST IMPORTANT THAT ALL PARTS OF THE BOAT BE PAINTED, INTERNAL AND EXTERNAL, REGARDLESS OF WHETHER THEY WILL BE SEEN OR NOT. Sooner or later some water will find its way into the model, for one reason or another and untreated wood will soak it up with unhappy results to the boat. Even the undersides of the decks should be treated before they are fastened in place. There is no reason why a boat should not last almost indefinitely, and the attention to careful painting and proofing will prove well worth while.

Hatches and removable cabin roofs should be a fairly easy fit, to allow for painting or varnishing. The best way of making sure that

they do not come adrift when the boat is making a trip is to fit a hook to the underside of the hatch and to have a hook or hooks inside the boat so that a rubber band can be fitted which will hold the hatch firmly in place.

When the construction is completed, you are all ready to start the last stages of the work. Naturally, having got so far you will be eager to get the boat into the water to try it out. Now, above all, is the time for patience. *Time and trouble spent over the final painting and finishing stages will be repaid many times over in the beauty and durability of your model.*

Several coats of sanding sealer applied over the whole model and rubbed well down between coats with 600 Wet or Dry paper will fill the grain and produce a smooth surface. Cellulose colour dope will produce a fine finish, although the H.M.G. marine enamels will probably give a harder surface. The decks may be lined with a soft pencil to represent planking, and then varnished. You may use indian ink in a ruling pen for your planking lines, but if you do, give the deck a coat of varnish first, rub it well down when dry, then apply the planking lines after which it should be given another coat of varnish.

It is a good idea to varnish the deck before painting the sides and bottom of the hull. Should any of the paint run over on to the deck, it can be easily wiped off the varnished surface.

Apply successive coats of colour, rubbing down well between coats. It is important to alloy the dope or enamel to dry thoroughly before starting to rub it down, or you will find that the colour is being dragged up, in which case you will have to wait until the paint is quite dry and then cut right down to a level surface again. 600 Wet or Dry carborundum paper is used for rubbing down or you can use one of the rubbing compounds as detailed in the article in this handbook on covering and finishing model aircraft. In the same article, you will find information on the use of masking tape, to enable a clean break line between colours to be obtained.

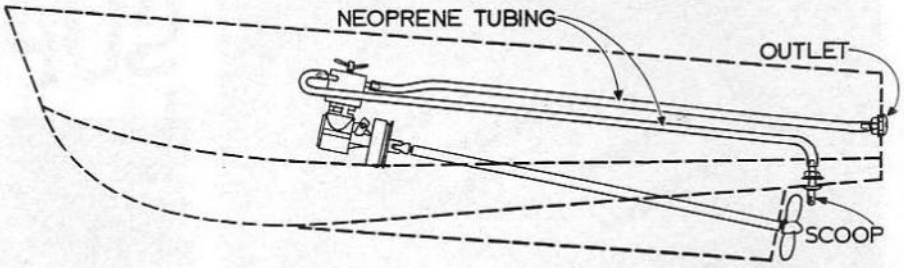


Diagram to show the water cooling system for marine diesel motors.

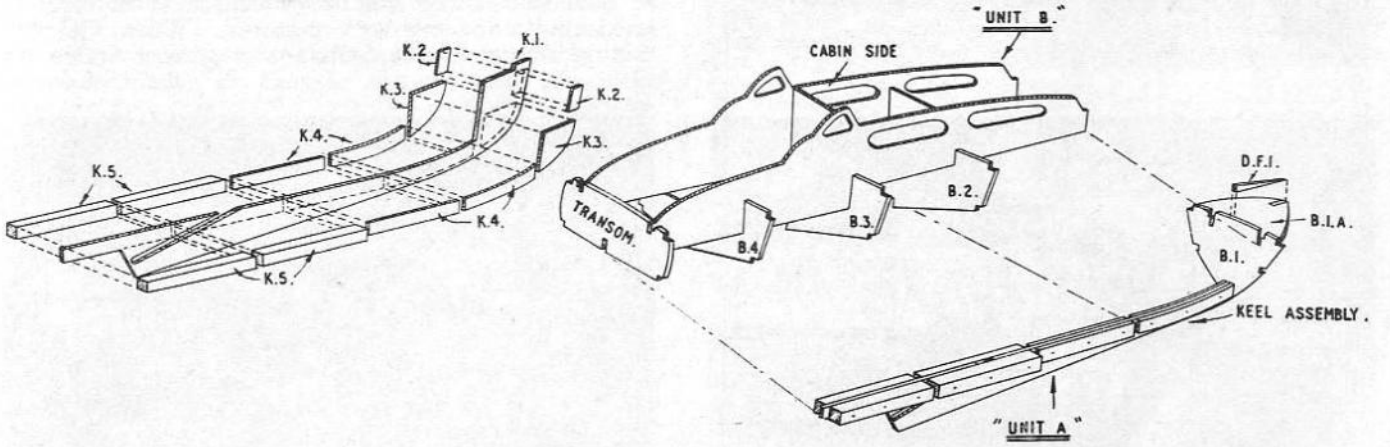
When all the colouring has been done and any transfers such as the name applied and allowed to dry out for twelve hours, the final varnishing can take place. When this has fully hardened, a final rubbing down and polishing with a soft rag will complete the model.

Points to watch out for in building a boat, whether from an Aerokits kit or any other type are accuracy in alignment, particularly of the power plant and propeller shaft. Slight deviations from a true line here can result in considerable loss of power. Another important thing is to make sure that the boat is really watertight. Careful fitting and glueing of the side and bottom skins will take care of most of this trouble, but watch out for the places where the stern tube and rudder tube enter the hull. Thick paint or glue can help to seal these joints, but if they are at all 'gappy' then paint or glue soaked tissue should be tucked into the gaps. Filling the stern tube with grease or Vaseline will prevent water from making its way up into the hull and the rudder tube should extend to above the water line.

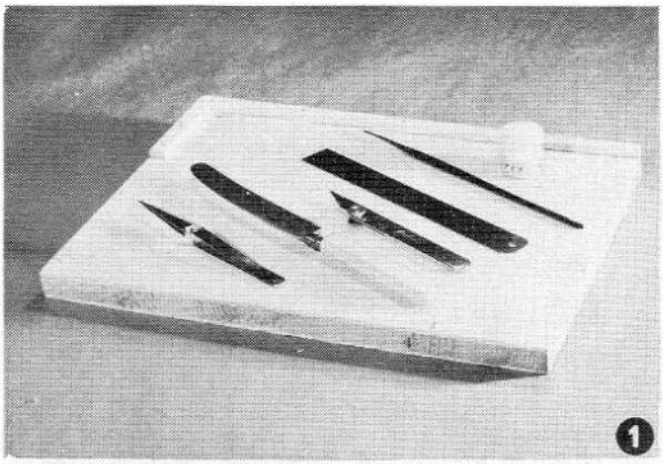
The Aerokits range of models will take radio control, but installation of such equipment is much easier if it is planned for from the start and any necessary modifications made at the earliest possible stage. Keep radio gear away from the engine compartment as fuel has a nasty habit of spreading itself around.

The Mersey Marine range of ships fittings, shown in the catalogue section of this book contains many items which will improve the appearance of your model and add the final touches of realism. Port and Starboard lights, sirens, ventilators and searchlights all help to add to the character of a boat and this inexpensive range contains a wide variety of fittings in all sizes.

Ever since men first began to put to sea there have been ship modellers, so when you start on your model, remember that you are inheriting the traditions of a long line of craftsmen. The pleasures of building and operating model boats are all yours for the taking.



The sketches above show the simple 'unit' method of construction used in the Aerokits range of model boats. The keel and bow former are made up into one unit and the bulkheads, transom and cabin sides are made into another. Once these two units have been joined to each other a really rigid framework has been made. A properly made Aerokits model will give many years of hard service.



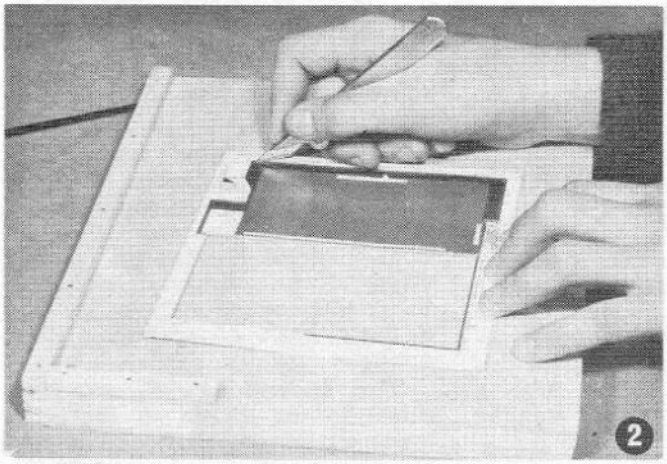
SUPERQUICK –

One of the beauties of building these delightful little models is the ease with which they can be constructed using only the minimum of equipment. Fig. 1 shows the tools required—the table knife is used for scoring along lines to be bent, a modelling knife being too sharp for this purpose. Note the workboard. This is a most useful item, providing a firm surface to work on as well as something to put all the pieces on when putting things away. The strip edging is a help when aligning parts and truing corners as explained later.

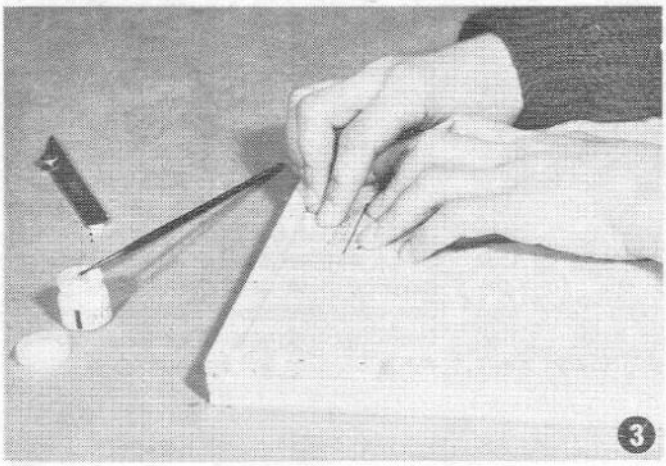
The Superquick range of models are all built on the same principles and this article is intended to supplement the instruction issued with each kit. Assembly is extremely straightforward and a couple of evenings should suffice to build the most complicated models.

A white PVA type of glue is recommended for assembling these models. Superfix has been specially formulated to provide the ideal adhesive. It is quick drying, clean and invisible when dry.

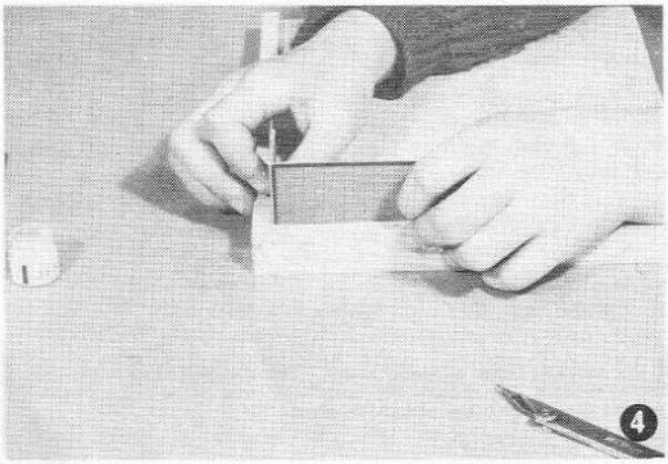
The first step after studying the kit and instructions is to free the pieces from the surrounding card. Almost all the parts are pre-cut and all that is necessary is to cut the small ties which are left at the corners and in the centres of long straight cuts. Cut these away with a modelling knife (Fig. 2). *Note: where a reference number for a piece is printed on the surrounding card, pencil it on to the back of the piece as soon as you have removed it from the card, or you may find yourself in difficulties later on.*

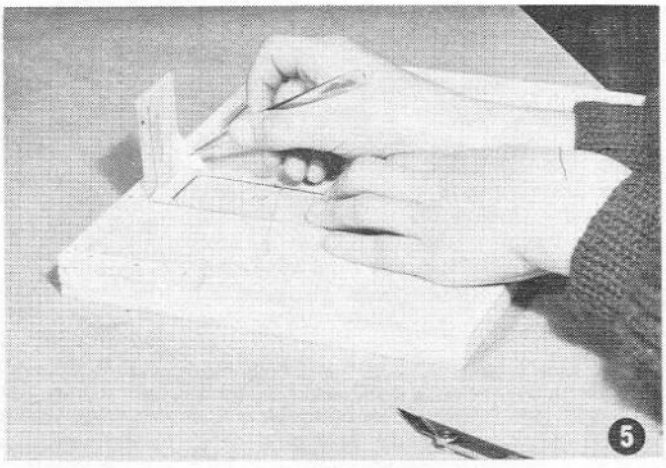


Where pieces are laminated for greater strength, it is important that they are lined up properly and holding them against the edging strip of the work board makes it easy to get them in proper register (Fig. 3).



When the walls are made up and before they are joined to each other the windows should be glazed with the ready printed acetate sheet. Sellotape is the ideal material for this job, a small strip being attached to each side of the windows which are then carefully lined up in the window apertures. When the positioning is correct, the Sellotape is pressed firmly into place and there you are. *Install the windows with the*





they really are!

printed surface outwards as the matt finish of the printing gives a more realistic effect.

Now for the assembly proper. Take two adjacent walls and with the brush, run a line of glue along the edges to be joined and hold them firmly together. Fig. 4 shows how the edging strips help in making an accurate corner joint. When the glue has set a little, the corner strengthener should be added (Fig. 5)

Proceed in the same way with the other corners, building up the model according to the instructions, adding upper stories etc. as you proceed (Fig. 6).

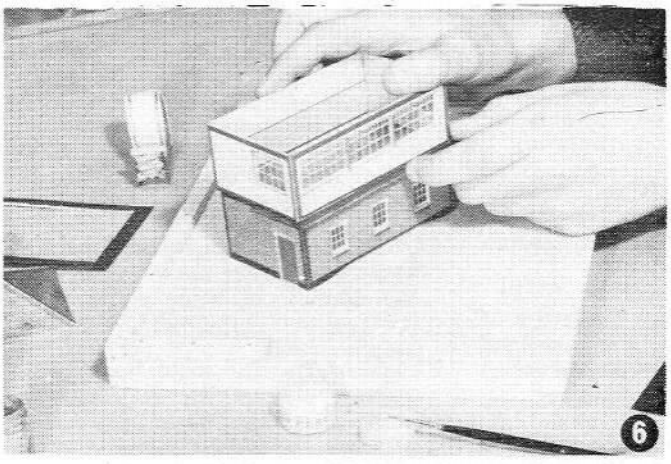
The appearance of the finished model will be greatly improved if the exposed edges of the card are painted to match the surrounding colours (Fig. 7).

When making small items such as chimney pots, the table knife is useful for making the scored lines at the fold position. Use the steel rule to ensure an accurate line as shown in Fig. 8.

The chimney stacks are not difficult to assemble, but remember that where the instructions say that the chimney pot should be rolled tightly, they really mean *tightly*. Roll it quite hard between the finger and thumb (only one way of course, or the roll will become loose) until it has become a solid cylinder. A spot of glue placed in the top recess before a blunt pencil is inserted and revolved will, when dry, harden the top edge and keep it well shaped.

The best assembly procedure for the complete chimney is to make up the pots first, fix them into the holes in the chimney tops with glue on the printed outer side. This prevents the pots from being accidentally pushed right through into the stack when the model is completed. Fix the pot and top to the stack (Fig. 9) and glue the completed stack in place on the model.

Work carefully and neatly and you will be surprised how soon the model will take shape. There is a large and constantly expanding range of these models, to both OO and TT Gauges. *Full details of the models available are shown in the catalogue section of this Handbook.*



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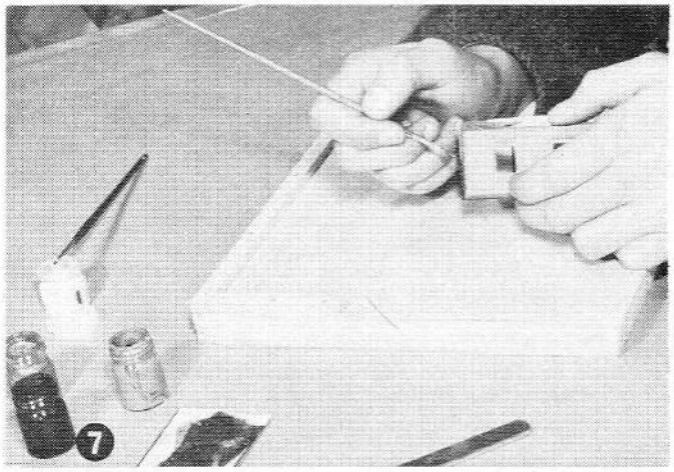

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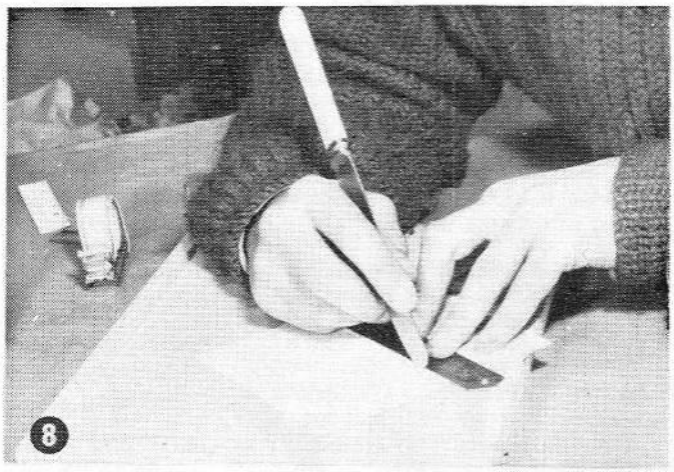

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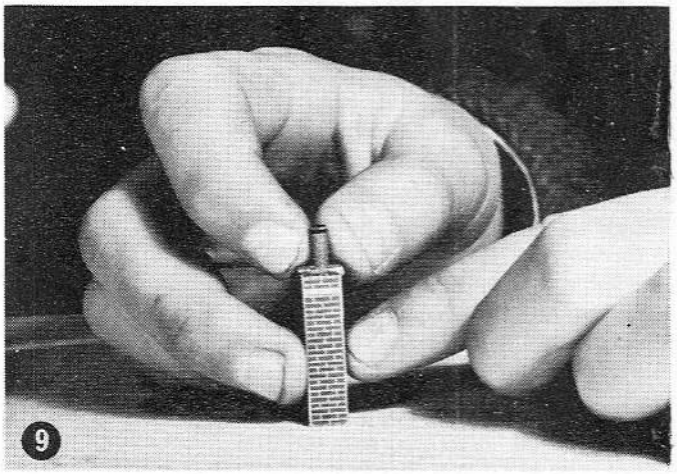

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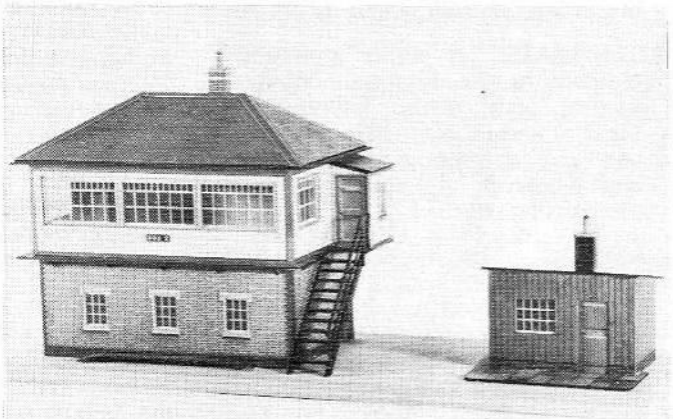


10 COMPLETED MODEL

Glossary of Model Terms

ACTUATOR. A device, electro-mechanical or pneumatic, used to move the controls of a radio-controlled model.

AEROFOIL SECTION, also **AIR-FOIL** (U.S.). The outline of a cross-section through a wing.

AIR INTAKE. The aperture through which air is drawn into an engine to provide the fuel/air mixture.

AIRSCREW, also **PROPELLER** or **PROP.** Rotated by the motor, is used to provide the thrust and thus forward motion.

ANGLE OF ATTACK. The angle at which a part of a model (e.g. wing) meets the flow of air during flight.

ASPECT RATIO. The ratio of wing-span to average chord.

AUTO RUDDER. A device, fitted to gliders, which keeps the model straight while towing, but applies turn when released.

BALANCE POINT. The point at which a model will balance level when suspended. A vertical line through the balance point will pass through the centre of gravity.

BALSA. Extremely light weight wood used for building model aircraft.

BANANA OIL. A dope used for air proofing and waterproofing covering material.

BEARERS. Hardwood beams used to support the engine in a power model.

BOBBIN. A small flanged (plastic) reel, used on rubber motors to prevent chafing by the hooks.

BOOM. A spar of wood or light metal tube used to support the tail unit in certain types of aircraft not having a full length fuselage.

BULKHEAD. A main structural member in the fuselage. A flat vertical plate placed laterally in the framework, supporting longer-ons and stringers and to which engine-bearers, undercarriage, etc., are usually attached.

CAMBER. The curved (convex) surface of a wing. **UNDER-CAMBERED** sections, in which the wing has a slightly concave under-surface, are widely favoured for free-flight models.

CAPACITY, also **DISPLACEMENT** (U.S.) or **SWEPT VOLUME.** The volume displaced by the piston(s) in an engine between the top and bottom of the stroke. Used to classify engine sizes and measured in cubic centimetres (Europe) or cubic inches (U.S.A.).

CAP-STRIP. A thin narrow strip of wood laid along the top and/or bottom edge of a rib.

CEMENT. A quick-drying cellulose base adhesive extensively used with balsa structures.

CENTRE OF GRAVITY or **C.G.** The point at which a model will balance in all directions.

CENTRE SECTION. That part of the wing which is attached to the fuselage and to which the main wing panels are joined.

CHINE. A boat which has flat side and bottom skins is said to possess a 'hard chine' hull, the chine being the line where these skins meet.

CHORD. The shortest measurement between the leading and trailing edges of a flying surface.

CONTRA PISTON. In a diesel engine, it is the movable top to the cylinder-liner which can be screwed up and down to vary the degree of compression.

CONTROL-PLATE, also **BELL-CRANK.** In a control-line model a pivoted plate to which are attached the control wires and the pushrod operating the elevators.

COWL. That part of a power model fuselage which encloses, or partially encloses the motor.

CROSS BRACES. The horizontal members, running from side to side of a fuselage.

DETHERMALISER. A device fitted to a high-performance free-flight model, usually operated by a fuse, to bring it quickly to earth at the end of a predetermined period. This is a safeguard against the model being carried beyond recovery by a rising thermal air current.

DIESEL ENGINE. A very popular type of model aero engine which operates on the compression-ignition principle.

DIHEDRAL ANGLE. The angle at which the wings are inclined upwards from the horizontal when the aircraft is viewed head on.

DOLLY. A wheeled cradle used for launching speed models. When flying speed is reached, the model lifts out of the dolly, which remains on the ground.

DOPE. A cellulose lacquer used to tighten covering materials and to airproof them.

DOUBLER. A strengthener (generally sheet balsa or plywood) stuck directly to the member it strengthens.

DOWNTHRUST. A means of correcting power stalling by inclining the propeller arc forward from the vertical.

DURATION MODEL. A high efficiency model built for contest flying and designed to stay aloft as long as possible after a limited motor run, either rubber or power.

ELEVATOR. A horizontal hinged control surface at the tail of an aircraft by which it is made to climb or dive. In models, generally found only on C/L and R/C types.

ELEVATOR HORN. The member by which the elevator is linked, in a control-line model, to the pushrod.

F.A.I. Federation Aeronautique Internationale. The international body governing aviation (including model) matters.

FIN. Vertical tail surface which assists in maintaining directional stability of an aircraft.

FIREWALL (U.S.). Front bulkhead or former dividing the engine from the rest of the fuselage.

FLAP. A hinged moveable surface attached to the trailing-edge of a wing and used to change its lift characteristics. Often found on aerobatic control-line models.

FLOAT, also **PONTOON** (U.S.). The component which, in a seaplane supports it on the water.

FORMER. Part of a fuselage structure that gives it its cross-sectional shape.

FREE FLIGHT. Embracing those classes of models not controlled by tethering lines or by radio.

FUEL PROOFER. A clear varnish applied to power models to protect the dope from being softened by the fuel.

FUSELAGE. The main body of an aircraft and which connects the main component assemblies.

GLIDER. A motorless aircraft.

GLOWPLUG ENGINE. A self-ignition motor, similar to a diesel, except that a plug is fitted in the top of the cylinder bearing a platinum wire coil. A methanol base fuel is used and an electric current to make the coil glow for starting, after which it continues to glow when the battery is disconnected.

HELICOPTER. An aircraft in which the lifting surfaces are in the form of a large diameter horizontal propeller or rotor, power driven and thus enabling the machine to rise or descend vertically.

INCIDENCE, ANGLE OF. Applied to wing and tailplane, the angle, relative to a common datum line, at which these surfaces are inclined.

JETEX MOTOR. A commercial jet or rocket propulsion unit using solid pellets of fuel.

LAMINAR FLOW. A smooth flow of air over a steamlined object.

LEADING EDGE. The front edge of a flying surface.

LEADOUTS. The two wires that run from the bellcrank to the control lines in a control line model.

LONGERON. A main member of the fuselage frame, running from nose to tail.

MAINPLANE. Main lifting surface. Wing.

MOMENT ARM. (Tail). The measurement between the C.G. and the centre of lift of the tailplane.

NITRATED FUEL. Fuel for model engines containing amyl nitrate or amyl nitrite to give increased performance.

NORDIC A2 SPECIFICATION. The standard glider specification for World Championship competition.

PARASOL MODEL. A high-wing aircraft in which the mainplane is mounted on struts above the fuselage.

PITCH. The theoretical distance travelled forward by an airscrew in one complete revolution, and dependent on the twist of the blades. Propellers are usually described by their diameter and pitch, thus 9 x 6 means 9 in. diameter and 6 in. pitch.

POLYHEDRAL. A type of dihedral in which an extra angle is given to the outer panels of the wing.

PULL TEST. A test of the safety of a control-line model, imposed by exerting a measured strain on the control-lines and bellcrank installation.

PUSH ROD. The rod which runs from the bellcrank to the elevator or flap horn in a control line model.

PYLON MODEL. In which the wing, usually on a power duration model, is raised above the fuselage on a mount or pylon.

RIB. Structural member of a flying surface, usually running fore and aft and cut to the aerofoil section shape from sheet balsa wood.

R.O.G. Rise-off-ground, as opposed to hand launch.

RUDDER. Hinged vertical tail surface used for directional trimming.

SAILPLANE, also **SOARER** (U.S.). A glider, usually of high performance type.

SCALE MODEL. A model constructed with a full-size machine as a basis of its aerodynamic design.

SIDEWINDER. Term applied to power models in which the engine is mounted on its side, instead of inverted or upright. Generally control line models, in which case the cylinder head of the motor lies on the outside of the flight circle.

S.M.A.E. The Society of Model Aeronautical Engineers. The body delegated by the Royal Aero Club for the control of national and international model aircraft competitions.

SPAN, wing. The distance from wing-tip to wing-tip.

SPAR. Spanwise members of a flying surface.

SPEED MODEL. A control-line model designed purely for speed trials and record breaking.

SPINNER. A streamlined cap or fairing covering the boss of a propeller.

STALL. If an aircraft loses speed, the airflow over the wing will eventually break down and lift will be lost. It is then said to be stalled.

STERN TUBE. The tube in a boat hull through which passes the propeller shaft.

STRINGERS. Light longitudinal fuselage members laid over the formers to maintain correct contours.

STUNT MODEL. A control-line model designed purely for aerobatic flying.

SUB-FIN. Additional fin area attached either to the bottom of the fuselage or to the under surface of the tailplane.

TAILPLANE, also **STABILIZER** (U.S.). Fixed horizontal tail which assists in maintaining longitudinal stability in flight.

TAIL UNIT. Complete tail assembly comprising fin, rudder, tailplane and elevators.

TEAM RACE. A contest for a specialised type of high speed control-line model in which two, three or four models are raced against each other over distances of five or ten miles or kilometres.

TEMPLATE. A pattern, usually of metal or plywood, used in scribing or cutting the outlines of ribs, formers, etc.

THERMAL CURRENT. A rising current of warm air.

THINNERS. A solvent used for diluting dope, lacquer, etc., to assist application.

THRUST. The force by which any type or powered aircraft is propelled.

TIMER. A device which will operate a control (dethermaliser or engine cut-out) after a predetermined time.

TORQUE. The turning force exerted by the motor and which tends to revolve an aircraft around its longitudinal axis.

TRANSOM. In a boat possessing a flat stern, the bulkhead which forms this stern is known as the transom.

TRAILING EDGE. The extreme rear edge of a flying surface.

UNDERCAMBER. The lower surface of an aerofoil which describes a concave arc.

UNDERCARRIAGE, also **LANDING GEAR** (U.S.). The wheel assembly which supports an aircraft on the ground.

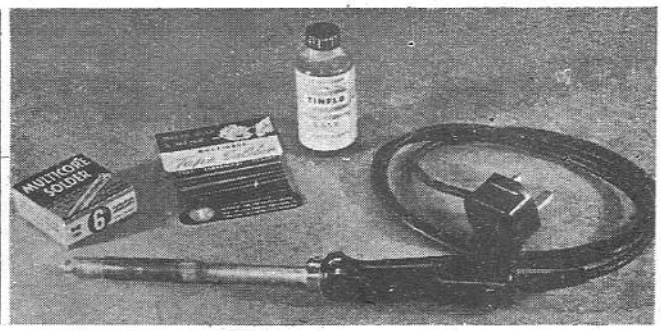
WAKEFIELD. A high performance rubber powered duration model, constructed to certain specifications laid down for the Wakefield Trophy competition.

WASH-IN. A longitudinal twist to a flying surface giving an increase in incidence at the tip.

WASH-OUT. A longitudinal twist to a flying surface giving a decrease in incidence at the tip.

YAW. A movement in which the aircraft turns from the normal line of flight, to left or right.

SOLDERING IS EASY!!



Do you shun soldering? When the instructions say 'solder in place' do you squirt on cement and hope for the best? There's no need to, you know, soldering is one of the simpler arts, provided you set about it the right way.

Without doubt the secret of soldering success is cleanliness. You can solder piano wire, nuts, washers, brass and copper but not grease, rust, dope and dirt! Always clean parts to be soldered with sandpaper or a file. Do see that things are clean and bright.

Mercifully, the equipment required is not extensive or expensive. An electric soldering iron is nice, but a cheap one heated in a gas ring will do very well. Naturally you will need some solder and the flux cored solders make the job as nearly foolproof as possible. Flux is the only other essential. A paste type of flux is useful, but the liquid fluxes (Baker's Fluid or Tinflo) seem just a little more certain in action, though they should never be used for soldering electrical connections.

When you have your iron, solder, flux and are all ready to start, with a new iron, the first thing is to 'tin' it. This means getting just a thin coat of solder on the copper tip of the iron.

Either switch on or place the iron over the gas and allow the iron to get hot enough. How do you know when that is? Simple: do you see that the copper has now turned a beautiful plum colour? You do? Then it's too hot. With an iron heated over the gas, you will see the flame turning green as the iron reaches the correct temperature. When the iron will melt solder to a drop of silver liquid—not a doughy, grey paste, then dip it quickly into the flux and then apply the solder to the bit. The solder will then flow over the bit, which is now 'tinned'.

The job has been cleaned, and the iron is hot enough. Place a spot of flux on the job and apply iron and solder simultaneously. Remove the solder and leave the iron in firm contact with the job until the solder flows into place. Then remove the iron and don't move the job until the solder has cooled—blowing on it helps, clean off with a damp rag to remove any traces of flux. This is necessary as flux is a weak acid and will cause corrosion if not washed off.

If the solder is reluctant to flow—the iron is not hot enough. If it flows but refuses to cover one spot, then you have a spot of grease or dirt on the job which should be removed.

When soldering a washer in place, to retain a wheel perhaps, or to attach a push rod to a control horn, make a small hole in a piece of sandpaper and place it on the wire before the washer. This will help to avoid the wheel or other parts being damaged by excess heat.

Remember—clean job, hot iron, flux, solder and iron firmly in contact until solder flows, remove iron and the job's done. It really is as easy as that.

MEET THE CONTRIBUTORS

ERNIE WEBSTER

A professional modeller of over twenty years standing. Joined Keilkraft when he was demobbed from the Fleet Air Arm in 1946 and is now designer, draughtsman and photographer. A married man with a son and a daughter, he is a keen member of the local Amateur Dramatic Group and runs a Scout Troop 'in his spare time'.

PETER CHINN

One of the world's acknowledged experts on model engines. Writes regularly for MODEL AIRCRAFT and the American magazine MODEL AIRPLANE NEWS. Has conducted well over 200 detailed tests on all types of model engines, the results of which have been published in Britain, America and many European countries. Has designed and built most types of model aircraft, many of his designs being published.

NORMAN BUTCHER

Has built all types of models since he started modelling in 1938. Formed an early interest for control line and has had contest successes with stunt, scale and especially team racers. He has worked in all branches of the model trade, retail, wholesale, manufacturing and is currently editor of MODEL AIRCRAFT. Now flies only speed C/L using only standard commercial equipment.

LESLIE J. ROWELL

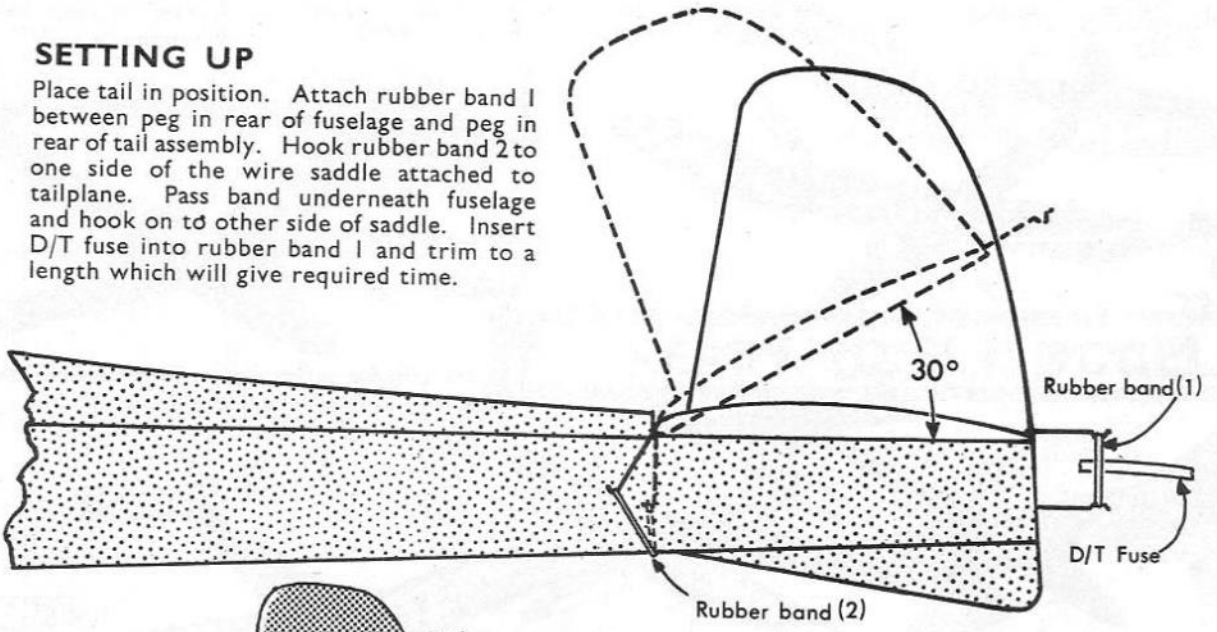
Started modelling (mainly model aircraft) as a lad of fourteen. Served with the R.A.F. from 1934 to 1945 and in 1950 became interested in model boats. In 1953 formed Aerokits, Ltd. together with Mr. G. Percival, manufacturers of the now famous Aerokits model boats of which he is the designer. Is very keen on radio controlled boats.

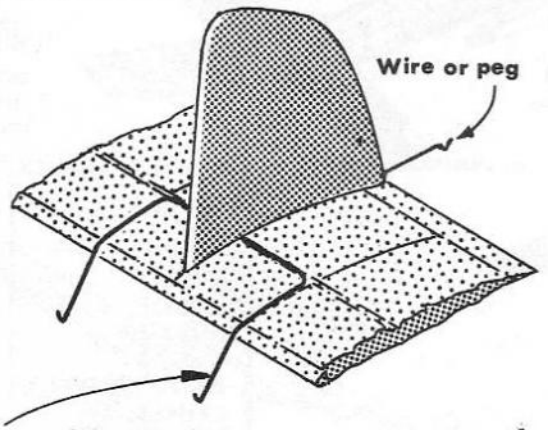
DETHERMALISER SKETCH PAGE

Some modellers find difficulty in understanding how a dethermaliser (D/T) works. As can be seen from the sketches below, it is essentially a simple device. The one we have shown is operated by means of a fuse (obtainable from your local model dealer). A timer operated D/T works in much the same way except that an airdraulic or clockwork timer is used to release the trailing edge of the tailplane so that it can tip up.

SETTING UP

Place tail in position. Attach rubber band 1 between peg in rear of fuselage and peg in rear of tail assembly. Hook rubber band 2 to one side of the wire saddle attached to tailplane. Pass band underneath fuselage and hook on to other side of saddle. Insert D/T fuse into rubber band 1 and trim to a length which will give required time.

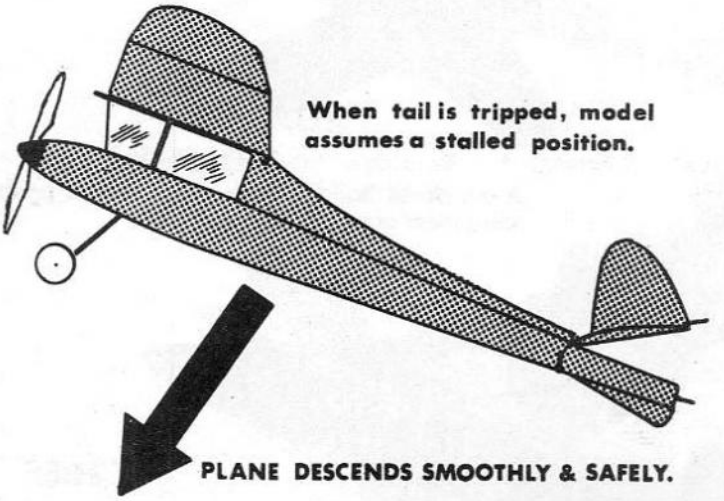




Wire saddle attached to tailplane.

OPERATION

Just before releasing the model, the fuse is lit. When it burns down it will burn through rubber band 1, releasing the trailing edge of the tailplane. Rubber band 2 will tip up the tail to about 30°. The exact angle will depend on the shape of the wire saddle.



When tail is tripped, model assumes a stalled position.

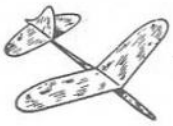
The tailplane must tip up to about 30° otherwise the plane may go into a series of stalls instead of assuming a fully stalled position. The former will certainly bring the plane down, but may well result in a crash landing, whereas the latter will ensure a smooth, safe descent.

PLANE DESCENDS SMOOTHLY & SAFELY.

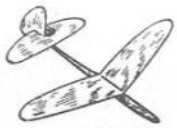
CHUCK and TOWLINE GLIDERS

KEIL KRAFT

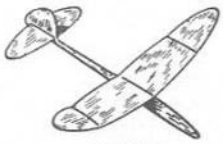
SPOOK



VEGA



POLARIS

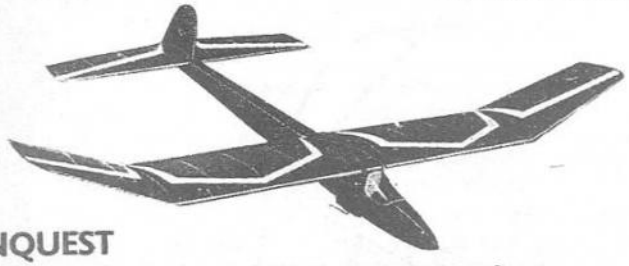


COMET

All you need to make these chuck gliders is a piece of sandpaper and a used razor blade. Parts are already shaped and each model can be built in less than an hour. Kits contain full size plans and detailed building and flying instructions.

KIRBY PREFECT

Accurate flying scale model of the well known full size glider. Wingspan 24".



CONQUEST

Towline glider for beginners, with a very good performance. Kit contains die-cut parts. Wingspan 30".

SOARER BABY

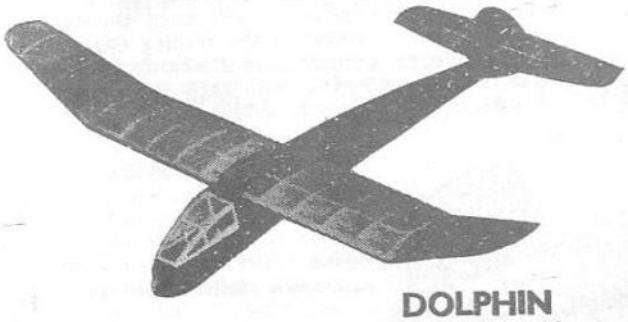
A very popular glider design with unusual lines. A steady seller with young modellers. Wingspan 36".

CAPRICE

High performance contest glider. Rugged and straightforward to build. Kit features all sheet parts die-cut. Although capable of long flights, it is also a good beginner's model. Wingspan 51".

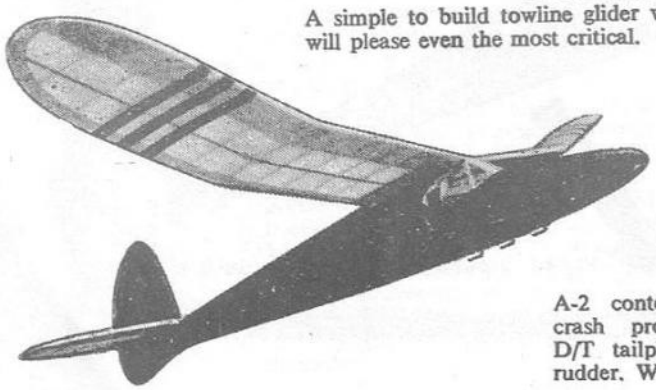
NOMAD

Beginners model with fuselage parts, tailplane and fins in pre-cut, decorated sheet balsa. 20" span.



DOLPHIN

A simple to build towline glider with a performance that will please even the most critical. Wingspan 30"



CHIEF

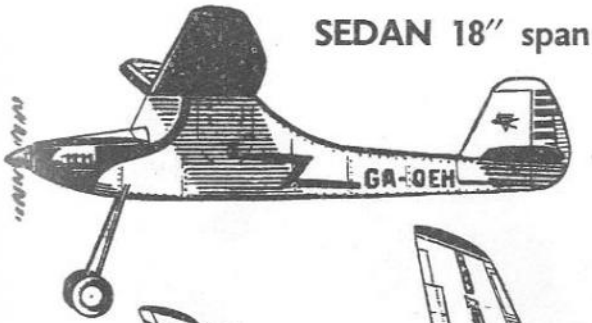
A-2 contest glider featuring crash proof plug-in wings. D/T tailplane and automatic rudder. Wingspan 64".

KIT	PRICE (Inc. P.Tax)
VEGA	1/11
SPOOK	2/4
POLARIS	3/6
CUB	4/3
KIRBY PREFECT	4/6
COMET	5/–
NOMAD	5/–
CADET	6/5
DOLPHIN	6/5
SOARER BABY	7/4
CONQUEST	8/9
INVADER	9/7
MINIMOA	10/6
TOPPER	12/6
CAPRICE	17/5
CHIEF	25/10
EeZeBILT and READY-TO-FLY	
CUTIE	9d. each
SEDAN	4/6
SPORTSTER	4/6
RAPIER	5/–
GREMLIN	5/8

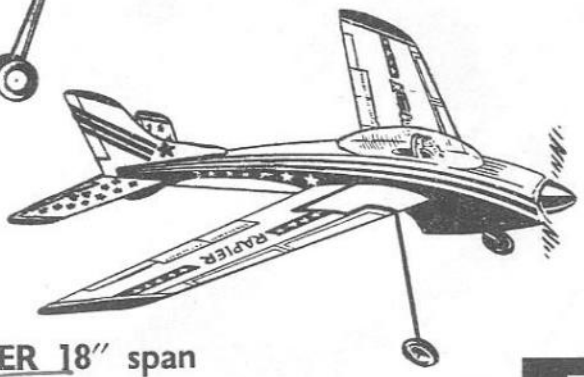
EE ZE BILT and READY-TO-FLY MODELS

KEILKRAFT

SEDAN 18″ span

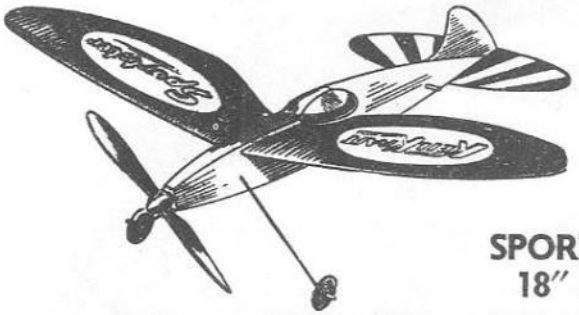


RAPIER 18″ span



SPECIAL FEATURES

- ★ All balsa models with all parts pre-cut and pre-decorated.
- ★ Undercarriages ready shaped and wheels fitted.
- ★ Propeller, shaft and noseblock assemblies complete and ready to fit.
- ★ Complete with rubber motors.
- ★ Rapier kit also includes pre-formed cockpit cover.

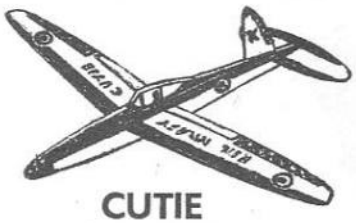


SPORTSTER 18″ span

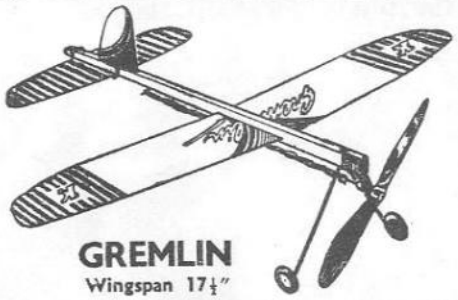
ZETA PLASTIC GLIDERS

		Each
ZEE 2	...	-/6
ZEPHYR	...	-/9
ZOARER	...	1/-

READY-TO-FLY MODELS



CUTIE
Wingspan 11″

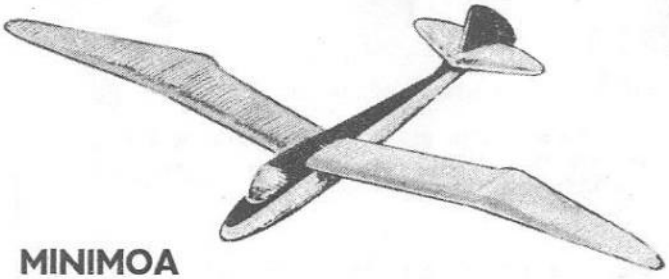


GREMLIN
Wingspan 17½″

CADET

Perfect beginners glider. Easy to build and a really good flyer. Wingspan 30″

Also the **CUB.** Same design but only 24″ span.

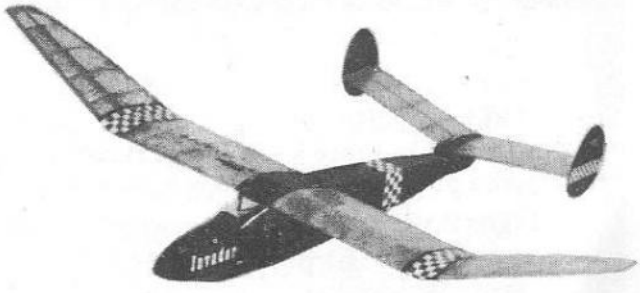


MINIMOA

A beautiful replica of the famous full size sailplane, and with a fine performance. Wingspan 50″

TOPPER

Towline glider of advanced design featuring butterfly tail. Fun to build and fun to fly. Wingspan 40″

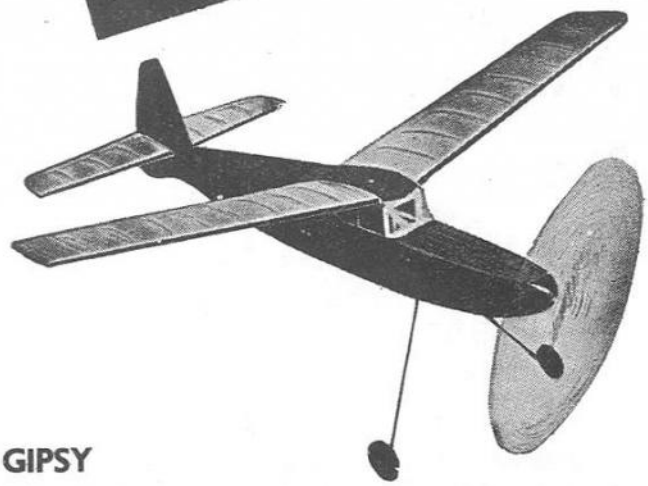


INVADER

A simple-to-build model that has long been a firm favourite. Holder of many club records. Wingspan 40″

RUBBER POWERED MODELS

KEILKRAFT

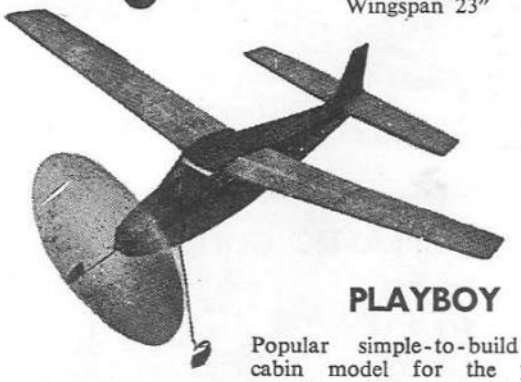


GIPSY

Ultra simple assembly methods go to make this design the easiest-to-build large duration model ever kitted. The kit represents remarkable value. Wingspan 40″

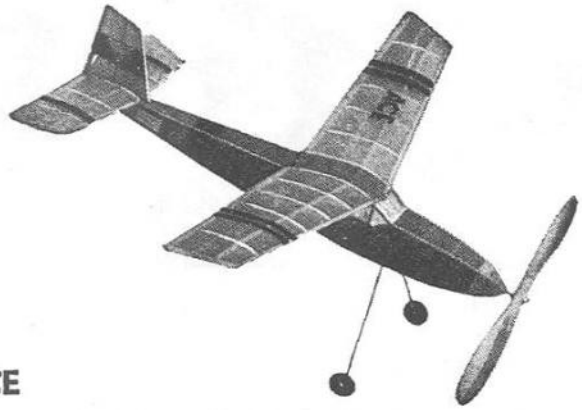
PIXIE

An attractive semi-scale design with realistic cabin, knock-off wings, and plastic propeller. Wingspan 23″



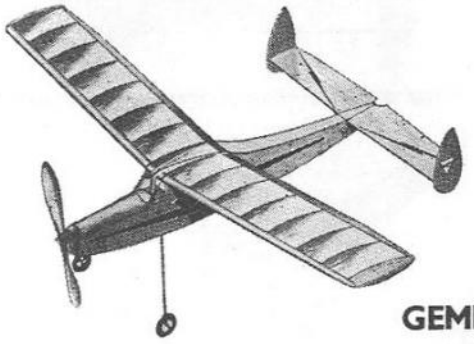
PLAYBOY

Popular simple-to-build small cabin model for the younger modeller. Wingspan 20″



ACE

A very sleek cabin model. Construction is very simple, and the number of cut-out sheet parts have been kept to a minimum. Wingspan 30″



GEMINI

A beginners duration model with all fuselage parts, tailplane, and fins in pre-cut, pre-decorated sheet balsa. Wingspan 22″

OBTAINABLE AT YOUR LOCAL MODEL SHOP

Rubber strip for the motor is not included in these kits and we recommend the purchase of this from fresh stocks.

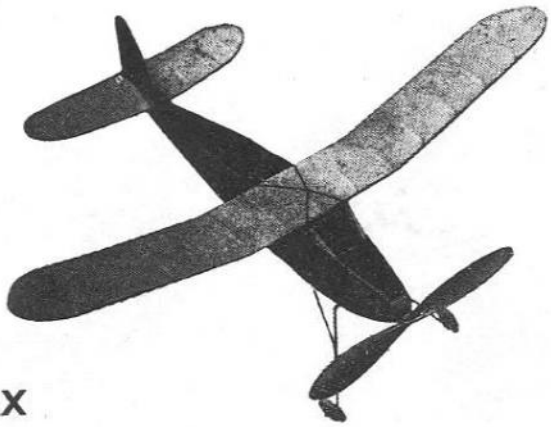
Details of the amount required for each model are given in this table.

RUBBER STRIP REQUIRED FOR KK DURATION MODELS

Elf	1/20″ x 1/8″ x 3 ft.
Playboy	1/20″ x 3/16″ x 2 ft.
Pixie	1/20″ x 3/16″ x 4 ft.
Achilles	1/20″ x 3/16″ x 6 ft.
Eaglet	1/20″ x 3/16″ x 6 ft.
Ace	1/20″ x 1/4″ x 16 ft.
Ajax	1/20″ x 1/4″ x 12 ft.
Senator	1/20″ x 1/4″ x 12 ft.
Competitor ...	1/20″ x 1/4″ x 17 ft.
Gipsy	1/20″ x 1/4″ x 44 ft.

RUBBER POWERED MODELS

KEILKRAFT

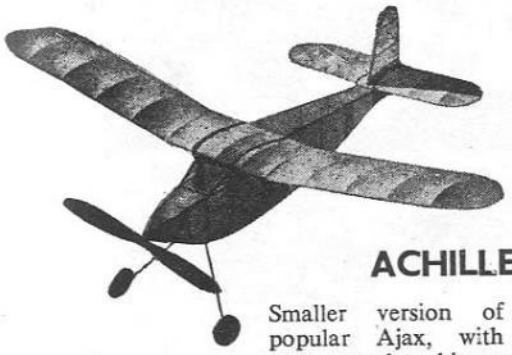


AJAX

A well established KK favourite and a sure seller. Features clearly printed sheet, propeller, plastic wheels, tissue, celluloid, wire, etc. Wingspan 30″

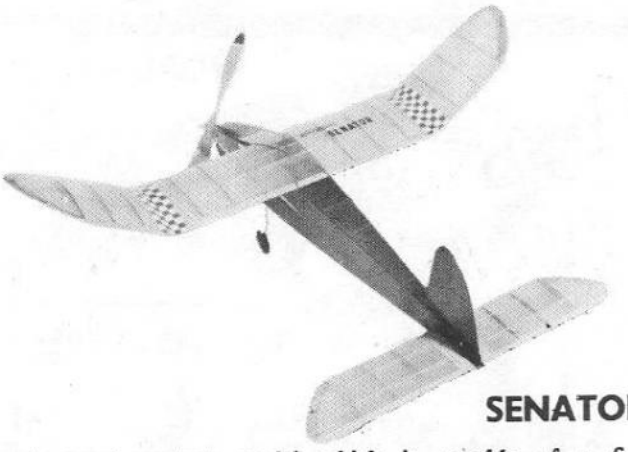
COMPETITOR

The pleasing lines of this model have made it one of the most popular in the KK range. Performance is outstanding, and the kit contains ample strip, 12″ prop, cement, tissue, celluloid, wire, bushes, etc. Wingspan 32″



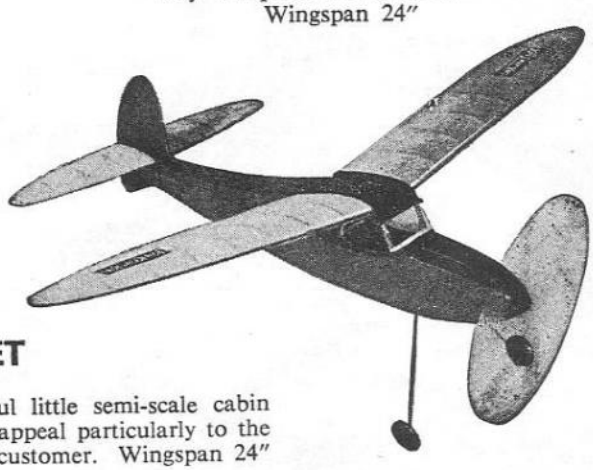
ACHILLES

Smaller version of the ever popular Ajax, with the same very complete kit contents. Wingspan 24″



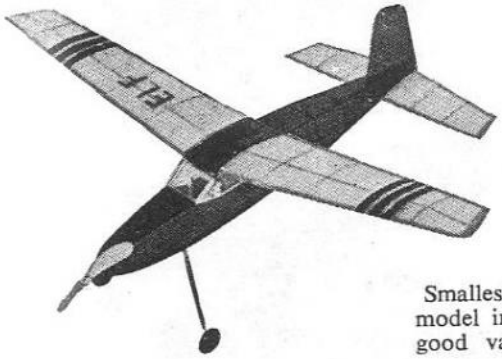
SENATOR

A novel contest model which is capable of a fine performance. Wingspan 32″



EAGLET

A graceful little semi-scale cabin that will appeal particularly to the younger customer. Wingspan 24″



ELF

Smallest and lowest priced rubber model in the KK range, but very good value. Wingspan 16″

KIT	PRICE (Inc. P.Tax)
ELF	4/6
PLAYBOY	5/–
ACHILLES	6/5
PIXIE	6/5
EAGLET	6/9
ACE	7/4
SENATOR	8/5
GEMINI	8/11
AJAX	8/11
COMPETITOR	10/6
GIPSY	14/10

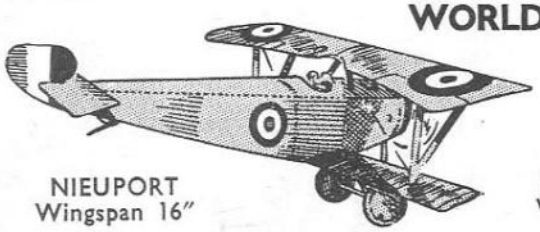
FLYING SCALE SERIES

KEIL KRAFT

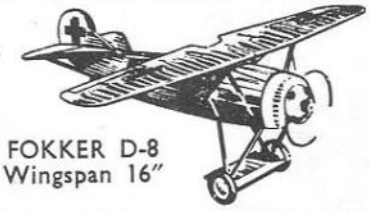
EACH KIT CONTAINS

- Full size plan
- Building and flying instructions
- Plastic propeller and noseplug
- Plastic wheels
- All wing ribs, formers, etc., clearly printed on high grade sheet balsa
- Ample best quality strip balsa
- Covering tissue
- Sheet celluloid
- Wire
- Rubber motor

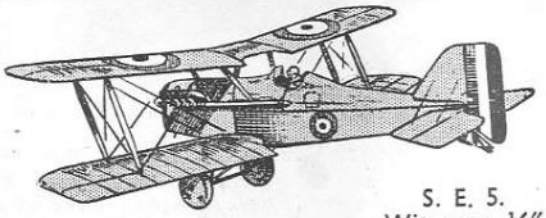
WORLD WAR ONE TYPES



NIEUPORT
Wingspan 16″

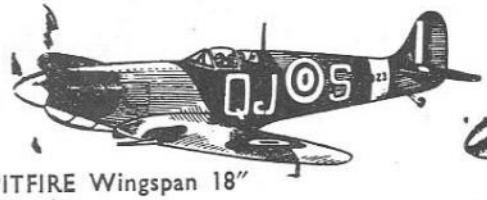


FOKKER D-8
Wingspan 16″

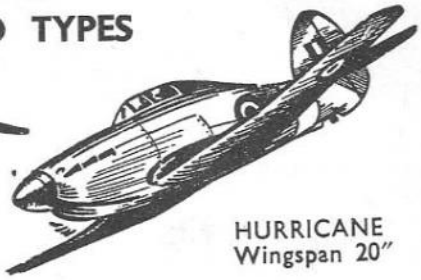


S. E. 5.
Wingspan 16″

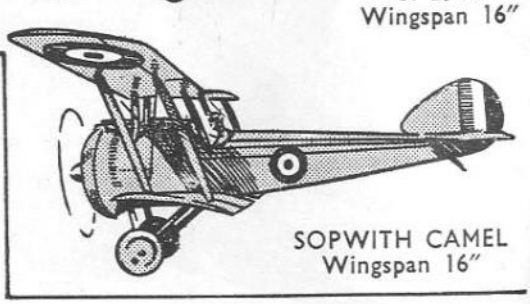
WORLD WAR TWO TYPES



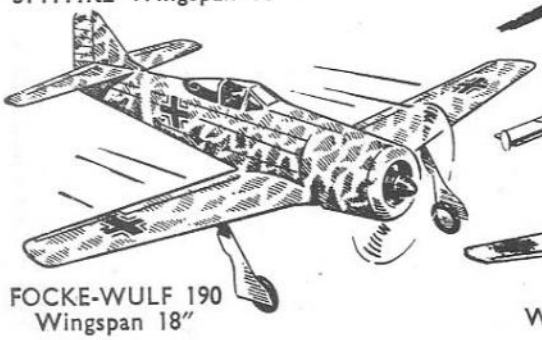
SPITFIRE Wingspan 18″



HURRICANE
Wingspan 20″

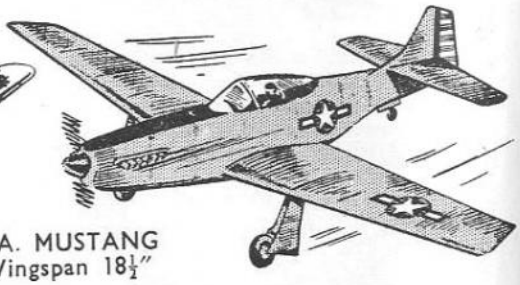


SOPWITH CAMEL
Wingspan 16″



FOCKE-WULF 190
Wingspan 18″

STUKA
Wingspan 20″



N.A. MUSTANG
Wingspan 18½″

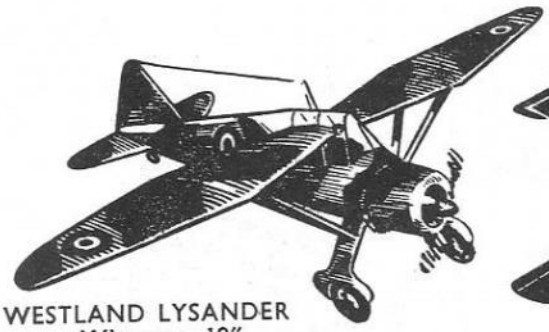
KIT	PRICE (Inc. P.Tax)
ALL MODELS ON THIS PAGE (Except Stuka)	4/6
STUKA	4/10

M.E. 109 MESSERSCHMITT
Wingspan 17″

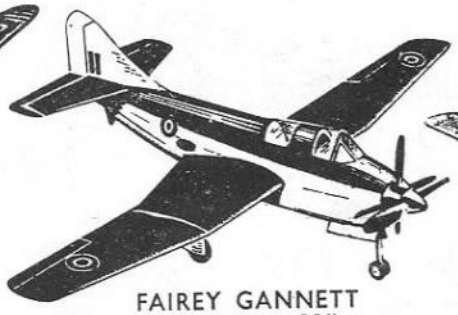
FLYING SCALE SERIES

KEILKRAFT

BRITISH PLANES

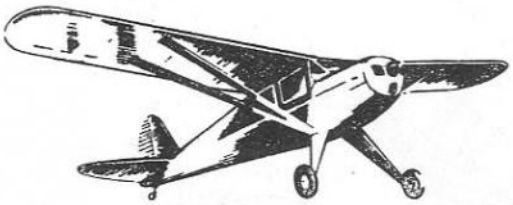


WESTLAND LYSANDER
Wingspan 18″

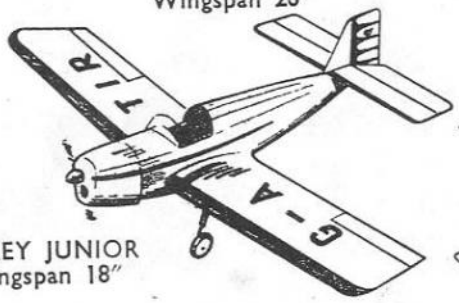


FAIREY GANNETT
Wingspan 20″

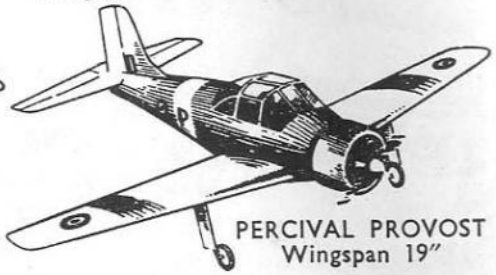
D.H. CHIPMUNK
Wingspan 20″



AUSTER ARROW
Wingspan 21″

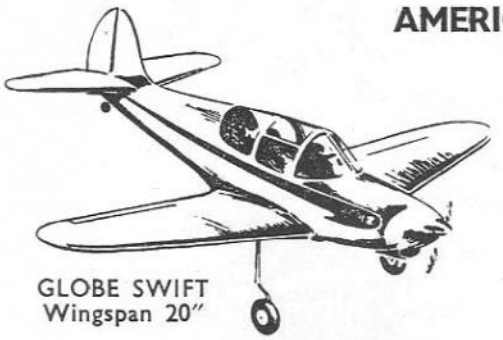


FAIREY JUNIOR
Wingspan 18″



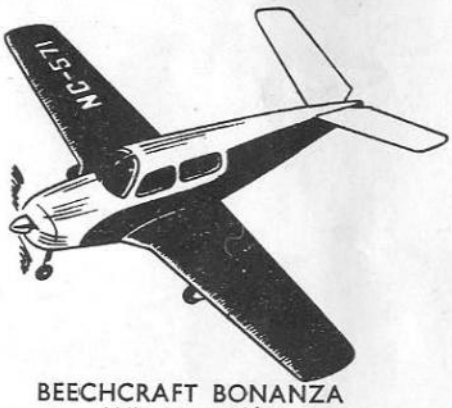
PERCIVAL PROVOST
Wingspan 19″

AMERICAN PLANES

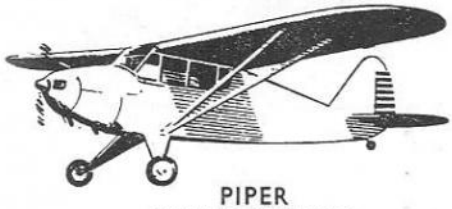


GLOBE SWIFT
Wingspan 20″

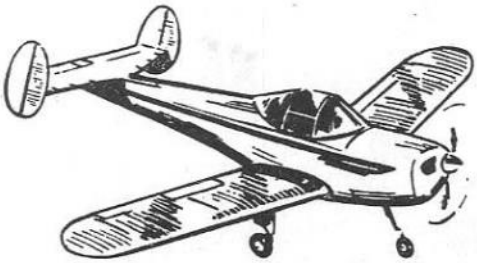
CESSNA 140
Wingspan 19½″



BEECHCRAFT BONANZA
Wingspan 20½″



PIPER
FAMILY CRUISER
Wingspan 21″



ERCO ERCOUPE
Wingspan 20″

STINSON FLYING STATION WAGON
Wingspan 19″

PIPER SUPER CRUISER
Wingspan 18″

LUSCOMBE SILVAIRE
Wingspan 21″

These famous kits are unrivalled for the quality and quantity of their contents. The full-size plans have been prepared with great accuracy, in most cases with the co-operation of the aircraft manufacturers concerned.

ALL MODELS ON THIS PAGE 4/6 inc. P.Tax

FLYING SCALE SERIES

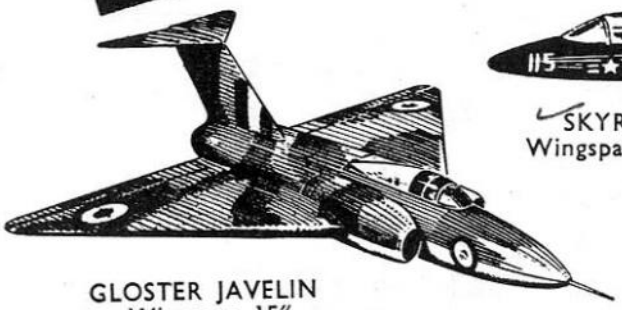
KEIL KRAFT

JET MODELS FOR JETEX 35 or 50 MOTORS

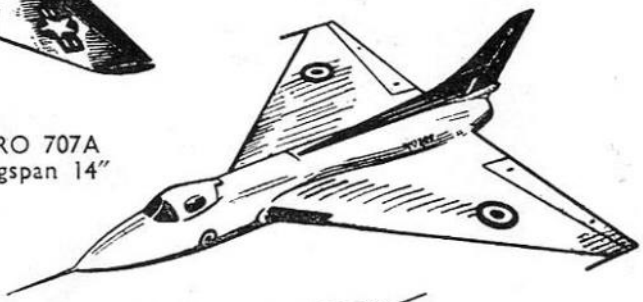
KITS CONTAIN

- Plastic Cockpit Cover.
- High quality printed sheet balsa.
- Ample strip balsa, tissue, etc.
- Full size plan and instructions.

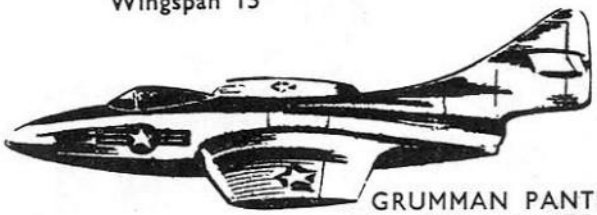
SKYRAY
Wingspan 13½"



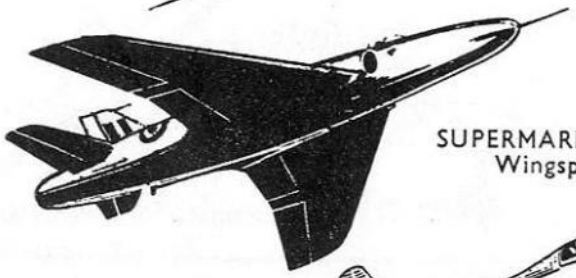
GLOSTER JAVELIN
Wingspan 15"



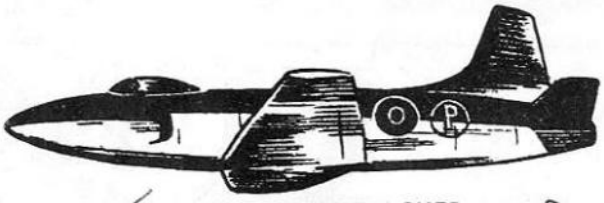
AVRO 707A
Wingspan 14"



GRUMMAN PANTHER
Wingspan 17"

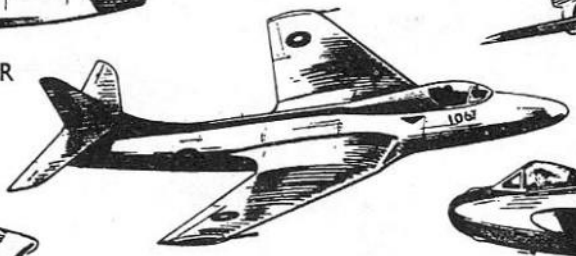


SUPERMARINE SWIFT
Wingspan 14"

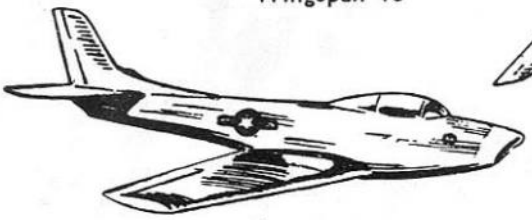


SUPERMARINE ATTACKER
Wingspan 16"

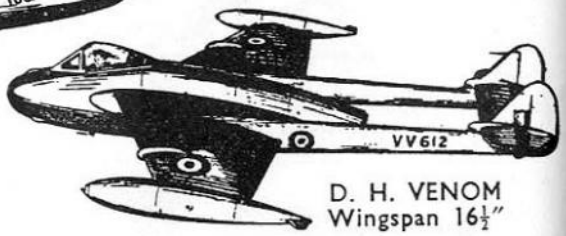
ITALIAN FIAT G.80
Wingspan 14"



HAWKER HUNTER
Wingspan 13½"



N. A. SABRE
Wingspan 15"



D. H. VENOM
Wingspan 16½"

MIG 15
Wingspan 15"

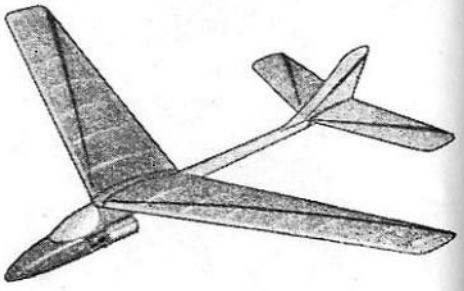
KIT	PRICE (Inc. P.Tax)
ALL MODELS ON THIS PAGE (Except D.H. 110)	**4/6**
DE HAVILLAND 110	**4/10**

DE HAVILLAND 110
Wingspan 18½"

SKYJET 50

Duration model for Jetex 50 motor.
18" wingspan

PRICE (Inc. P.Tax) **4/10**

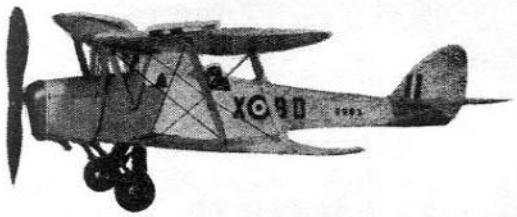


MISCELLANEOUS FLYING SCALE MODELS

KEILKRAFT

THE KEILKRAFT *Star* SERIES

These large, accurate scale models will appeal to all aircraft fans who like their planes to contain the authentic details of the full size prototype. They are rubber powered, and are capable of a fine flight performance.



TIGER MOTH

This kit contains spring steel preformed metal undercarriage, plastic cowl and die-cut parts. Wingspan 25″

SHORT SEAMEW

Very complete kit to build an authentic model. A special feature is the elaborate moulded cockpit cover. Wingspan 28″

KEILKRAFT SUPER-SCALE POWER MODELS

IDEAL FOR .5 c.c. DIESELS & .8 c.c. GLOW ENGINES

CESSNA 170
36″ span

PIPER SUPER CRUISER
40″ span

LUSCOMBE SILVAIRE
40″ span

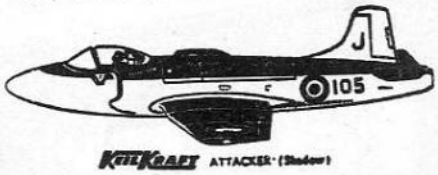
SUPER SCALE KITS FEATURE

- Authentic plans prepared from manufacturer's own works drawings. Lavishly illustrated leaflets.
- Plastic cowls, shaped windshields, all metal parts, ample sheet and strip, tissue, cement, etc.
- Crashproof one-piece wings—held by internal bands. Detachable tail surfaces and wing struts.
- Completely cowled side-mounted motor installations. Details for beam or radial attachment.
- Dural U/C in the case of Cessna 170 and Luscombe Silvaire.

KIT	PRICE (Inc. P.Tax)
ATTACKER	3/3
SHOOTING STAR	3/3
SHORT SEAMEW	9/8
TIGER MOTH	19/4
CESSNA 170	25/10
PIPER SUPER CRUISER	25/10
LUSCOMBE SILVAIRE	25/10

KEILKRAFT "SHADOW" SERIES

'PROFILE' TYPE SCALE MODELS



KeilKraft ATTACKER (Shadow)

IDEAL FOR BEGINNERS

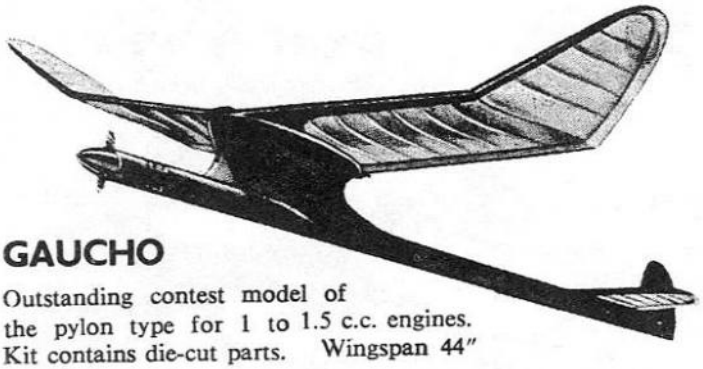
Very easy to assemble, with all parts in pre-cut, pre-decorated sheet balsa.

Can be flown as chuck gliders, or powered with Jetex 35 or 50 motors.

KeilKraft SHOOTING STAR (Shadow)

FREE FLIGHT POWER MODELS

KEILKRAFT

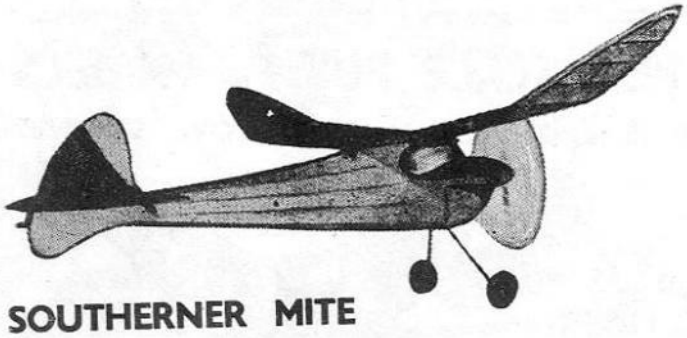


GAUCHO

Outstanding contest model of the pylon type for 1 to 1.5 c.c. engines. Kit contains die-cut parts. Wingspan 44″

SUPER 60

63″ span Radio Control or Free Flight model for motors of 2.5–5 c.c. capacity. All shaped parts are pre-cut. The kit features a prefabricated dural and wire undercarriage; a reinforced vulcanised fibre mount and an aerobatic fuel tank. Besides ample building and covering materials, the kit contains an informative instruction booklet and two full-size plans.

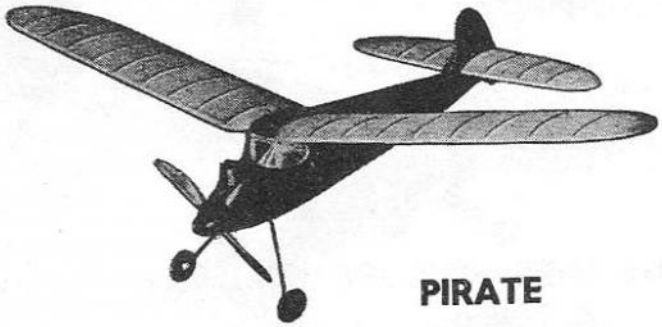


SOUTHERNER MITE

A graceful streamlined cabin model with a performance in the contest class.
For .5 to .75 c.c. engines. Wingspan 32″

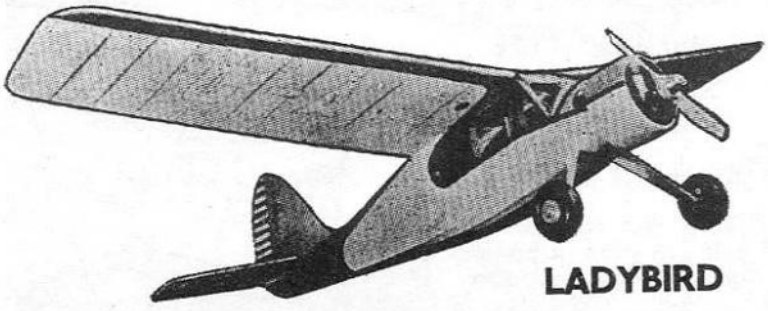
JUNIOR 60

A well established KK model that is straightforward to build. Rugged enough to take plenty of rough treatment. For 2.5 to 3.5 c.c. engines. Wingspan 60″.



PIRATE

A favourite with small diesel owners, the Pirate is a fine performer with .75 to 1 c.c. engine. Wingspan 34″



LADYBIRD

Attractive semi-scale cabin model for general sport flying. Rugged enough to take plenty of rough treatment. For .75 to 1 c.c. engines. Wingspan 42″.

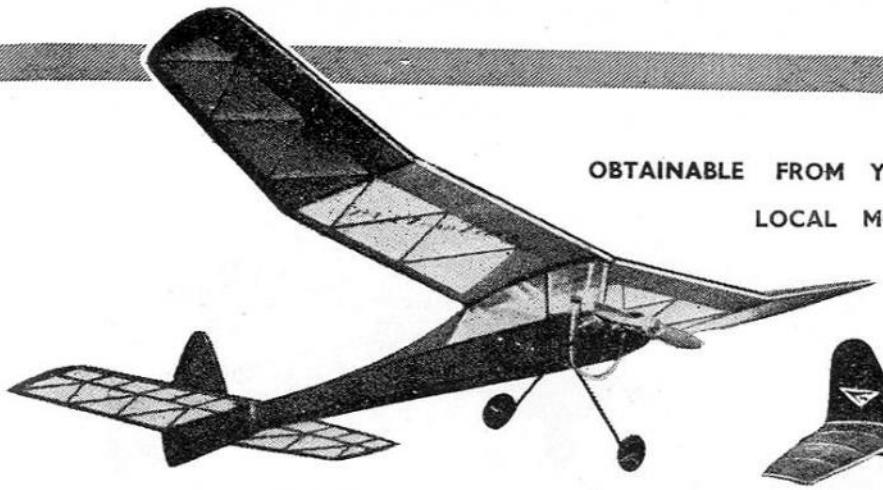
BANDIT

Very reliable model that is straightforward to build, looks good, and flies beautifully. For engines from 1.5 to 2 c.c. Wingspan 44″

FREE FLIGHT POWER MODELS

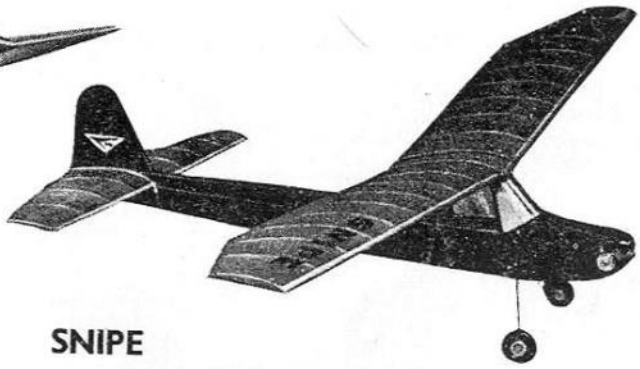
KEILKRAFT

OBTAINABLE FROM YOUR LOCAL MODEL SHOP



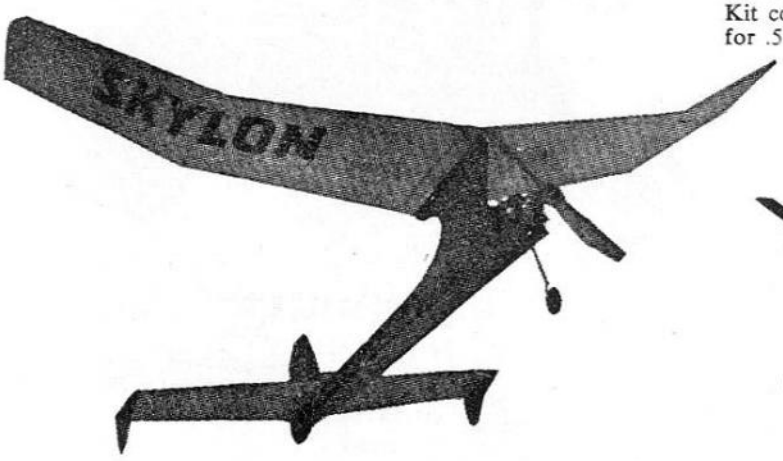
HALO

PAA-LOAD and general sports flyer with a very fine performance. The kit contains die-cut parts in balsa of the highest quality. An up-to-the-minute design that sells well.
Wingspan 42″. For .5 to 1.5 c.c. engines



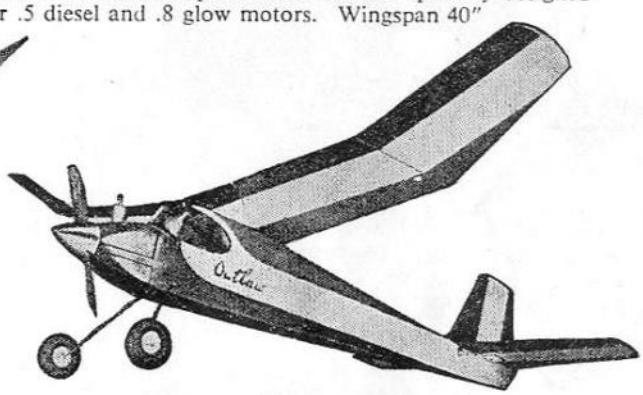
SNIPE

This nice looking model is especially suitable for beginners as it is so straight forward to build and easy to fly. Kit contains die-cut parts and has been specially designed for .5 diesel and .8 glow motors. Wingspan 40″



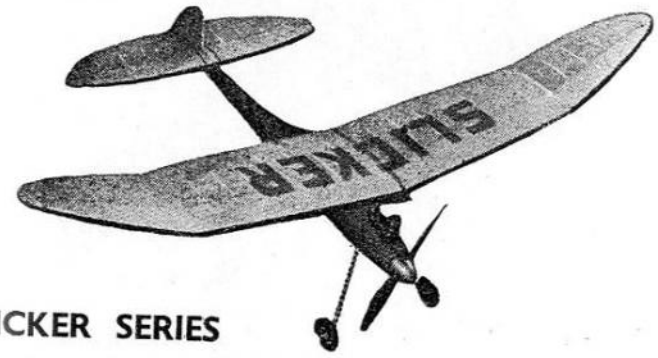
SKYLON

High performance pylon type contest model. Many novel construction and design features make this an outstanding and easily built model. For .5 to 1 c.c. engines.
Wingspan 38″



OUTLAW

Easy-to-build cabin model with a contest performance. For 1.5 to 2.5 c.c. engines. Wingspan 50″



SLICKER SERIES

The winner of many F/F contests, and the most popular contest model ever kitted !

SLICKER MITE. Wingspan 32″. For engines up to .8 c.c.
SLICKER. Wingspan 42″. For .8 to 1.5 c.c. engines.
SLICKER 50. Wingspan 50″. For 1.5 to 2.5 c.c. engines.

KIT	PRICE (Inc. P.Tax)
SLICKER MITE	13/8
SKYLON	14/10
SOUTHERNER MITE	14/10
PIRATE	17/3
HALO	21/6
SNIPE	21/6
SLICKER	23/10
GAUCHO	23/10
LADYBIRD	25/10
BANDIT	25/10
OUTLAW	31/4
SLICKER 50	33/6
JUNIOR 60	64/5
SUPER 60	107/–

CONTROL LINE MODELS

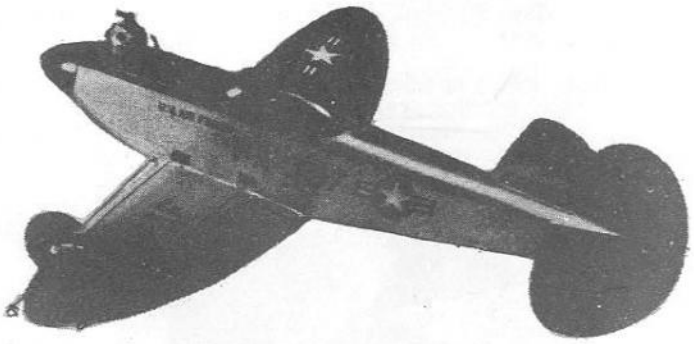
KEILKRAFT

MARQUIS

A very fine looking stunt model with attractive semi-scale lines, featuring tricycle undercarriage and extra large cockpit. For 1 to 1.5 c.c. engines. Wingspan 30"

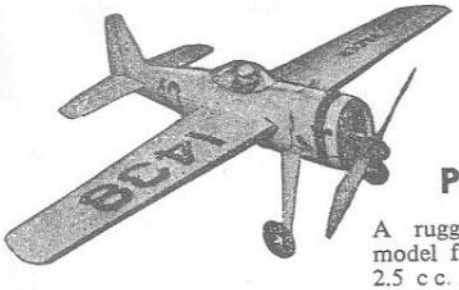
PHANTOM MITE

Just about the toughest model available to the newcomer to control line flying. Features all sheet construction with wings, tailplane, fin and fuselage sides ready cut to shape. Suitable for .5 to .8 c.c. motors. Wingspan 16"



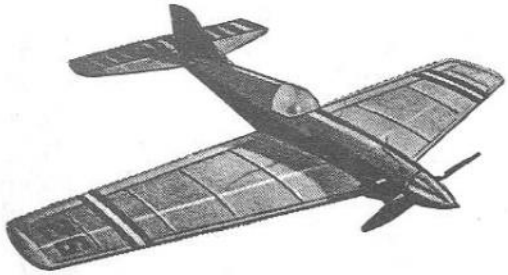
PHANTOM

Featuring all sheet construction for long life and easy repairs. A very steady performer for engines from 1 to 2 c.c. Contains ready shaped parts as in the Phantom Mite kit.
Wingspan 21"



PACER

A rugged, dependable model for engines over 2.5 c.c.
Wingspan 30"



SKYSTREAK 26

A neatly designed stunt model with 'swept back' wing and tail. Fully aerobatic and suitable for .75 to 1 c.c. engines. Wingspan 26"

RANGER

A fine kit of a very robust, graceful plane. All parts are cut to shape and the solid wings are ready channelled to take the lead-out wires. Pre-formed undercarriage and canopy. Steel bellcrank and control horn. For 1–1.5 c.c. motors. Span 26".

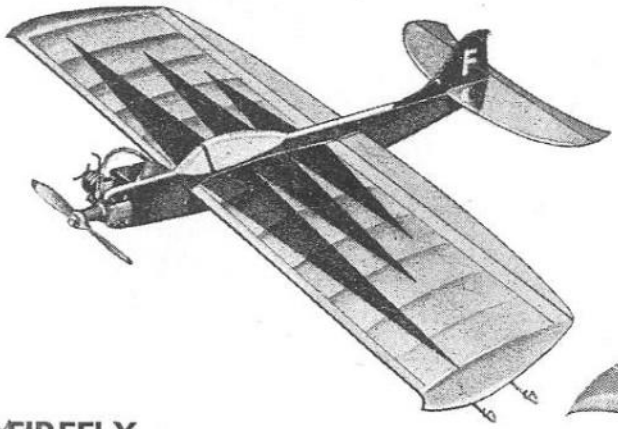
CONTROL LINE MODELS

KEILKRAFT

OBTAINABLE AT YOUR LOCAL MODEL SHOP

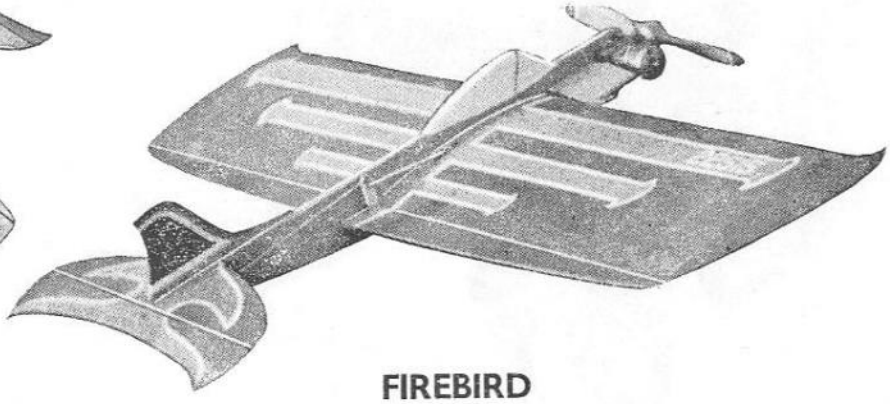
GAZELLE

Stunt and Combat Trainer with easily built "profile" type fuselage. Very complete kit to build a rugged and fully aerobatic model. Suitable for 1 to 1.5 c.c. engines.
Wingspan 28"



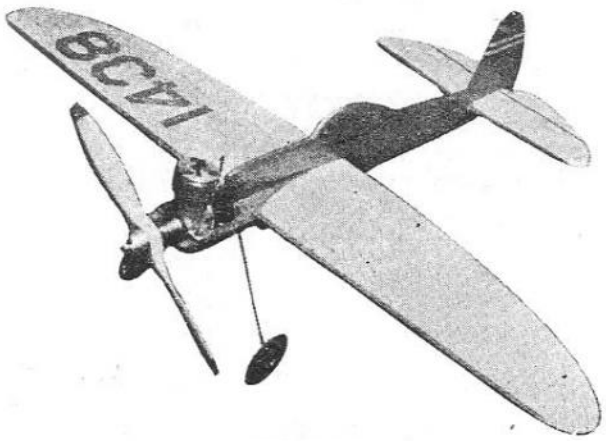
FIREFLY

Stunt model with "profile" type fuselage, specially designed for engines under 1 c c. Kit contains die-cut parts. Wingspan 20"



FIREBIRD

Profile fuselage model for motors of 2.5 c.c. Tough, light construction featuring coupled flaps and elevators for maximum manoeuvrability. The Firebird is a fine combat plane and excellent stunt trainer. An ideal model for all-round flying fun. All parts are pre-shaped, reducing building time to a minimum. Wingspan 32"



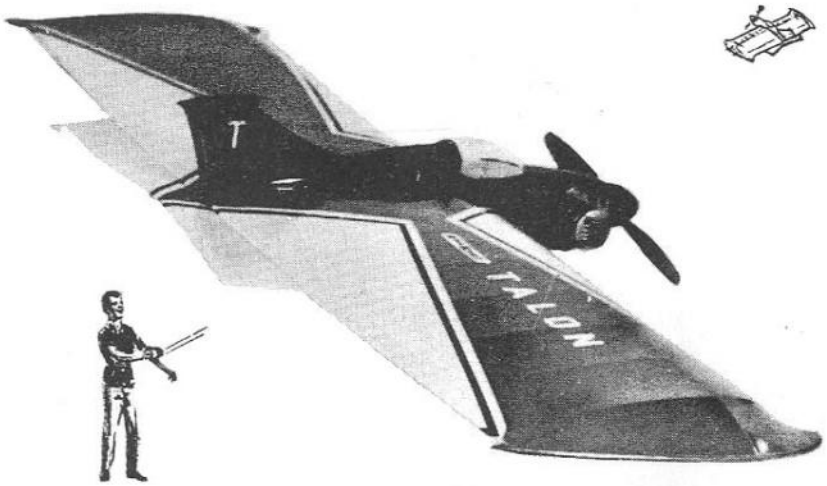
CHAMP

This attractive control line trainer—for motors up to 1.5 c.c. takes only a few hours to build as all parts are cut to shape, and all wire parts are pre-formed.
Wingspan 20"

KIT	PRICE (Inc. P.Tax)
SKYSTREAK 26	13/8
CHAMP	14/10
PHANTOM MITE	15/6
FIREFLY	17/5
RANGER	18/2
PACER	21/6
GAZELLE	21/6
PHANTOM	25/10
FIREBIRD	27/-
MARQUIS	35/-

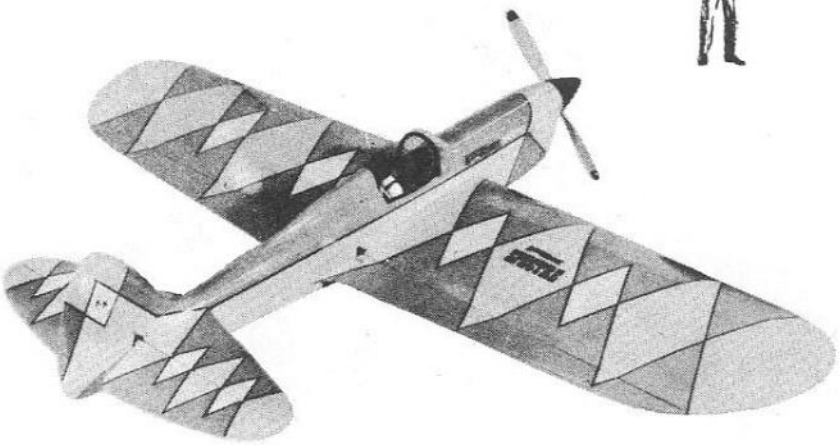
CONTROL LINE MODELS

KEILKRAFT



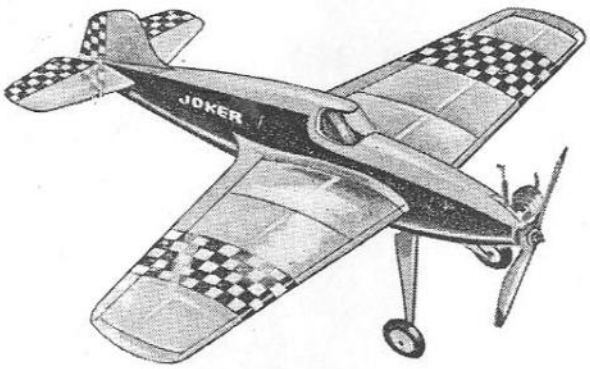
TALON

Combat design of considerable strength. Easy and quick to build. A fully aerobatic model that is great fun to fly. For 2.5 to 3.5 c.c. engines.
Wingspan 32″



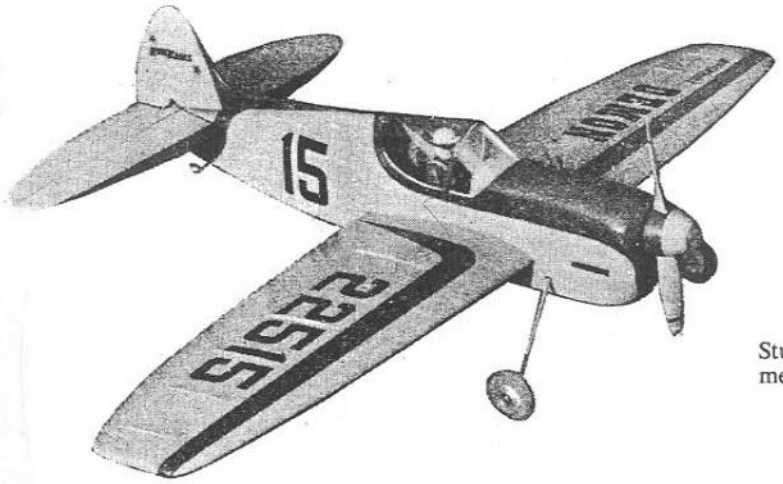
SPECTRE

Outstanding stunt model featuring combined wing flap and elevator control. Exceptionally complete kit, with wing ribs, formers, etc., die-cut in highest quality balsa. For 2.5 to 3.5 c c. engines. Wingspan 41″



JOKER

Stunt model for all .5 c.c. diesels. Kit contents include metal stunt tank, preformed undercarriage, and die-cut parts.
Wingspan 19½″



DEMON

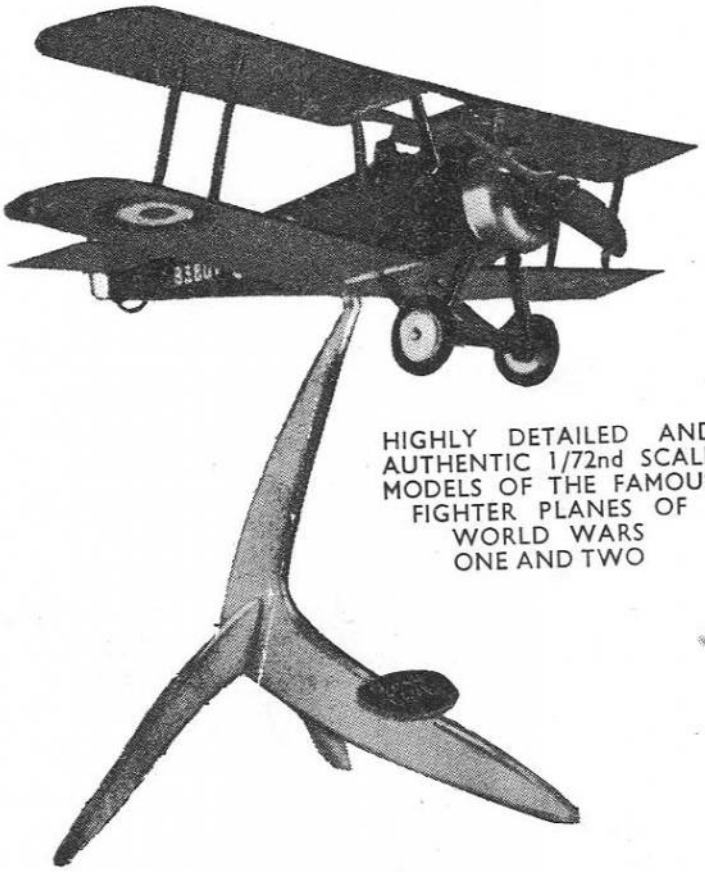
Class A team racer to the new S.M.A.E. specification. Very complete kit contents. For engines up to 2.5 c c.
Wingspan 30″

KIT	PRICE (Inc. P.Tax)
JOKER	13/8
TALON	27/–
DEMON	31/9
SPECTRE	39/9

Keilkraft controliners have consistently set the pace for performance. Designed for durability as well as easy handling, Keilkraft models continue to prove themselves all-round champions in their field.

KEILKRAFT PLASTIC KITS

KEILKRAFT



KITS INCLUDE

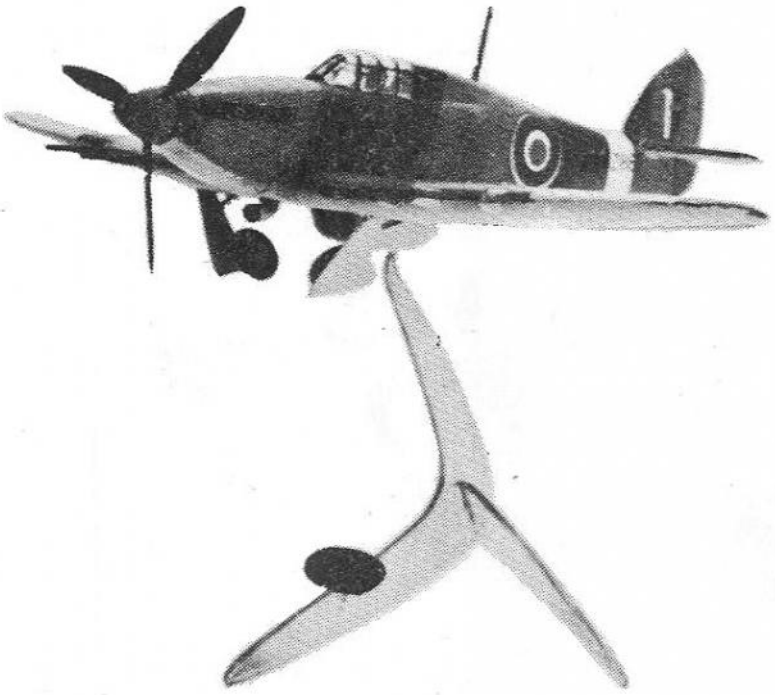
- All parts accurately moulded in polystyrene
- Complete set of transfers
- Plastic Mounting Stand
- Polystyrene Cement

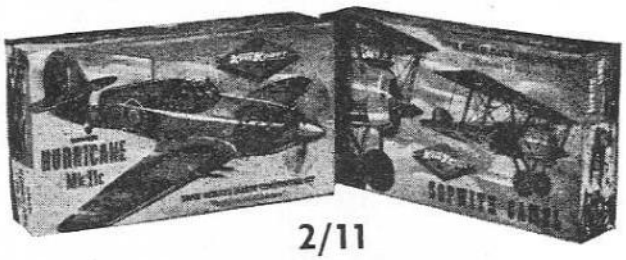
HIGHLY DETAILED AND AUTHENTIC 1/72nd SCALE MODELS OF THE FAMOUS FIGHTER PLANES OF WORLD WARS ONE AND TWO

HAWKER HURRICANE MkIIc

and the

SOPWITH CAMEL

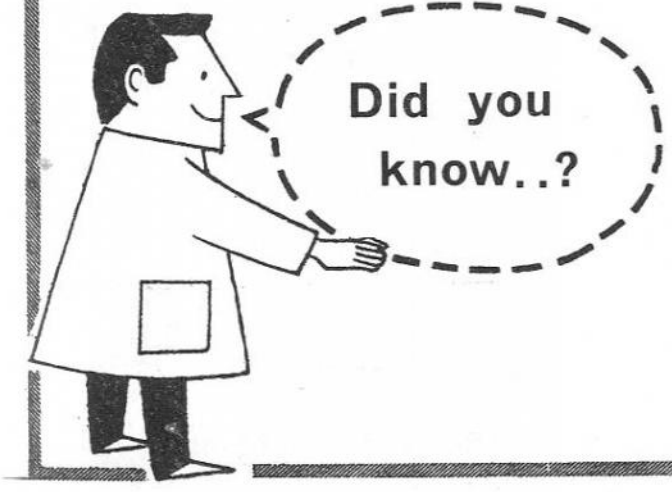




2/11

EACH

(Inc. P.Tax)



The products mentioned in this Handbook are obtainable from over 3,000 Keilkraft stockists everywhere. If you do not have a Keilkraft agent in your locality you could obtain your requirements from the Mail Order firms whose advertisements appear in the aeromodelling press.

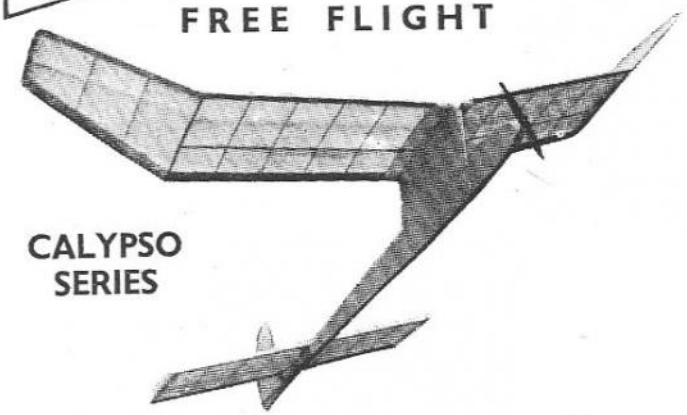
In case of difficulty write to us and we will put you in touch with a supplier.

FREE FLIGHT and CONTROL LINE

CONTEST KITS

AVAILABLE FROM
ALL KEILKRAFT AGENTS

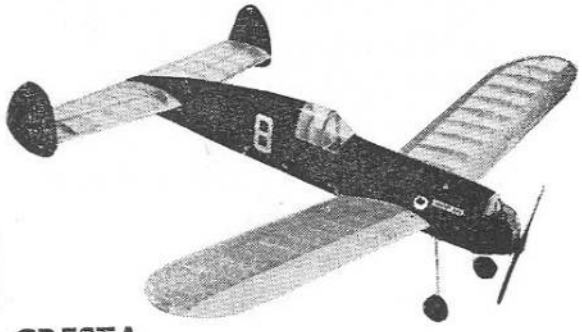
FREE FLIGHT



CALYPSO SERIES

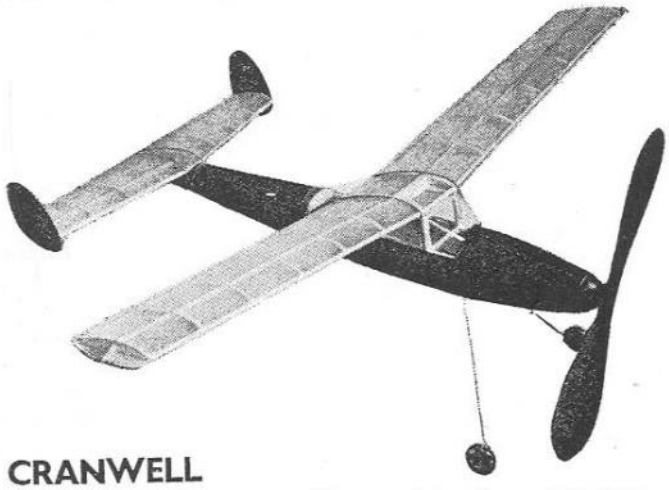
Three designs of similar appearance to suit different motors. All three combine ease of construction with outstanding performance — winner of many events in Britain, U.S.A., etc. One special feature is the simple method of engine mounting.

CALYPSO MAJOR	for engines 2.5 to 5 c.c. 64″ span.
CALYPSO 50	for engines 1.0 to 2 c.c. 51″ span.
CALYPSO CUB	for engines .5 to 87 c.c. 34″ span.



CRESTA

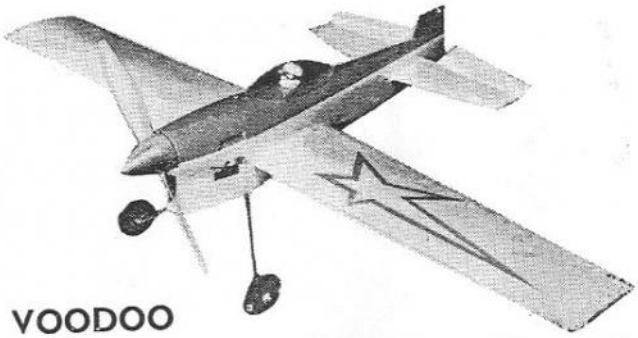
A fine, strong sport model for .5 c.c. to 1 c.c. engines. Very fast flyer. 38″ span.



CRANWELL

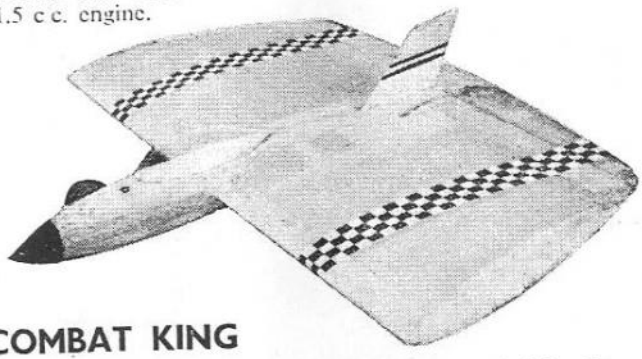
A very attractive 26″ rubber model with special easy-to-assemble propeller. A fine flier at a popular price.

CONTROL LINE



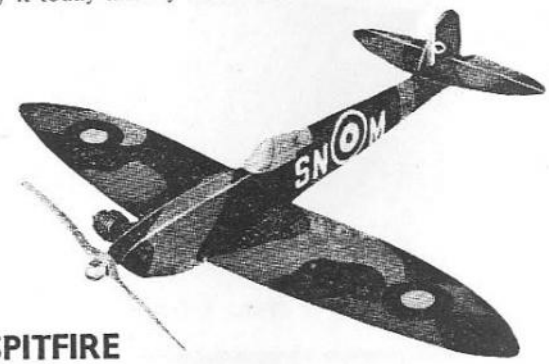
VOODOO

Robust design for 2.5 c.c. with an astonishing contest record the Voodoo also makes a fine trainer with a 1.5 c.c. engine.



COMBAT KING

Rugged, fast, yet amazingly simple to build, the Combat King is the answer to the person who wants to buy it today and fly it tomorrow. For 2.0 to 5 c.c. engines.



SPITFIRE

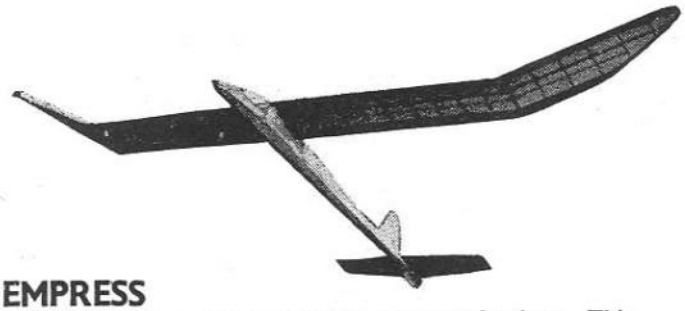
Of all sheet construction, the Spitfire fits all requirements—beginner's model, junior combat, racer—and yet still looks like an aeroplane! All parts ready-cut. .5 to 1.5 c.c. engines.

KIT	PRICE (Inc. P.Tax)
CRANWELL	8/1
CALYPSO CUB	15/2
SPITFIRE	15/2
CRESTA	18/10
CALYPSO 50	23/3
VOODOO	23/3
COMBAT KING	26/9
CALYPSO MAJOR	37/5

GLIDERS

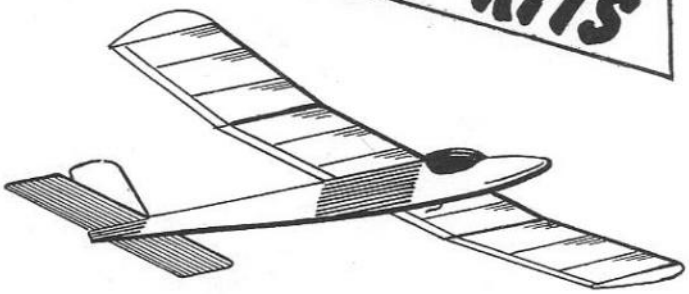
CONTEST KITS

CONTEST KITS ARE OBTAINABLE FROM ALL KEILKRAFT AGENTS



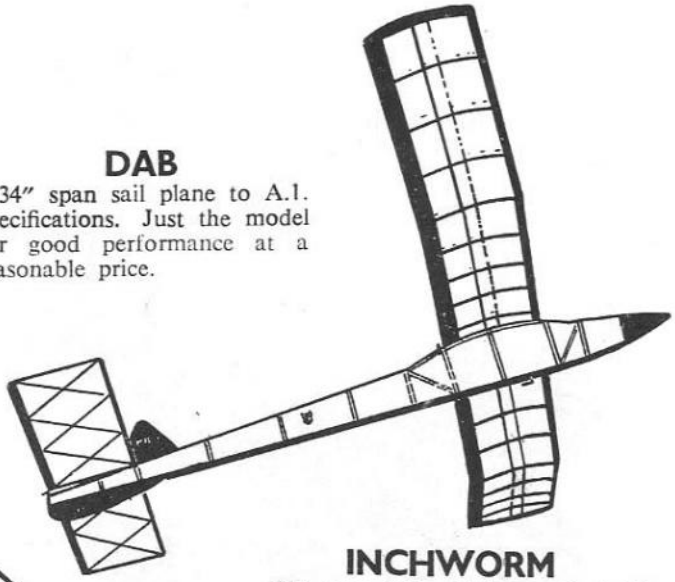
EMPRESS

79″ Wing Span sailplane to the A.2 specifications. This model appeals to the constructor who requires more than just performance. Easy construction—all ribs pre-cut.



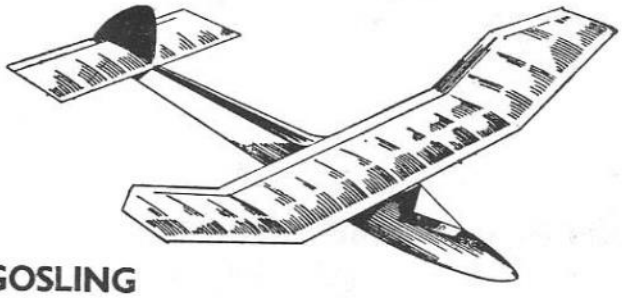
CAPTAIN

24″ glider. The ideal first model, it has sheet tail surfaces and a built-up wing. Quite astonishing performance. Kit contains material for Jetex 50 version.



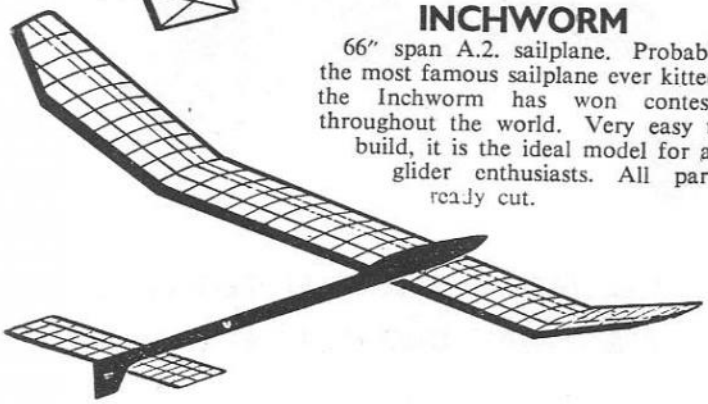
DAB

34″ span sail plane to A.1. specifications. Just the model for good performance at a reasonable price.



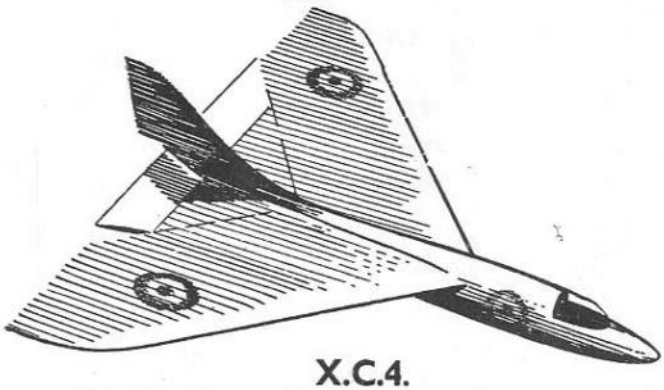
GOSLING

24″ glider. Very attractive, the Gosling has one great advantage to the beginner—it is very strong.



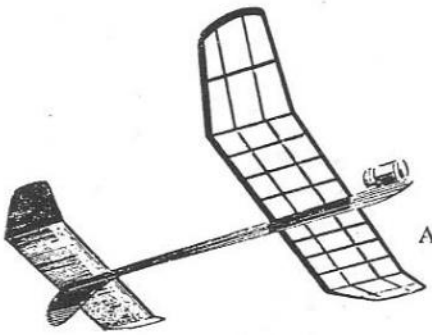
INCHWORM

66″ span A.2. sailplane. Probably the most famous sailplane ever kitted, the Inchworm has won contests throughout the world. Very easy to build, it is the ideal model for all glider enthusiasts. All parts ready cut.



X.C.4.

Catapult delta model with unique elevon control that gives a fast climb, loop and glide. All balsa construction. For the customer who wants excitement !



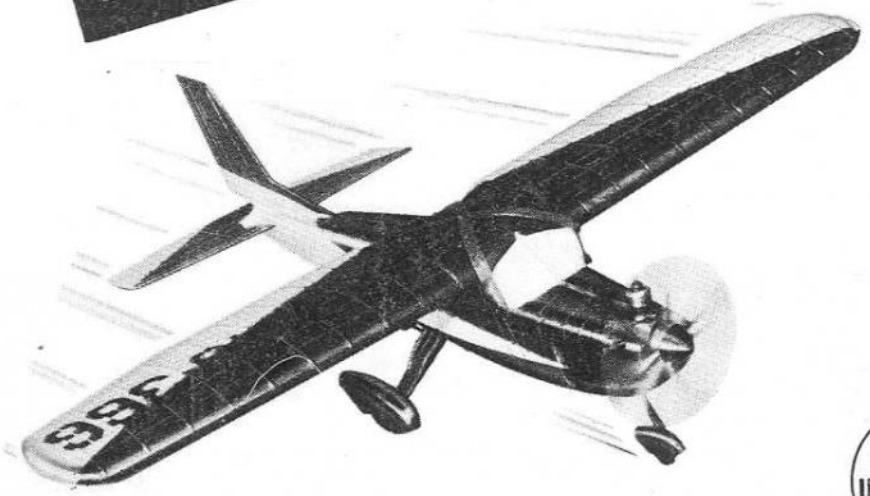
SQUIB

An outstanding performer with Jetex 35 or 50.

KIT	PRICE (Inc. P.Tax)
CAPTAIN	4/1
SQUIB	4/1
GOSLING	5/3
X.C.4.	7/–
DAB	10/6
INCHWORM	23/3
EMPRESS	31/4

WEN • MAC *Ready-to-Fly* MODELS

KEIL KRAFT

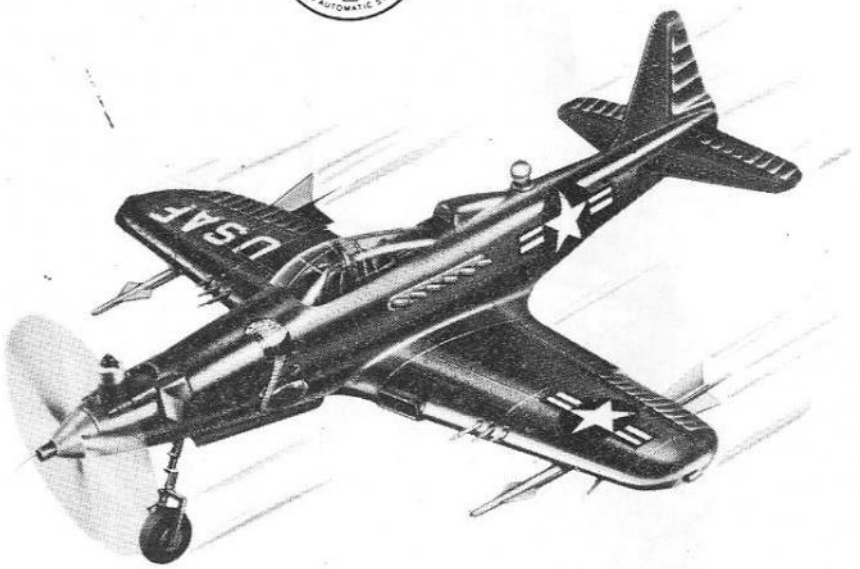


CESSNA 175
BASIC TRAINER

Ideal plane for the beginner. Features tricycle landing gear with balloon tyres; big elevon for positive control and Duracrash plastic airframe. Handle and lines included. Wingspan 30".

£5.5.0.
(Inc. P.Tax)

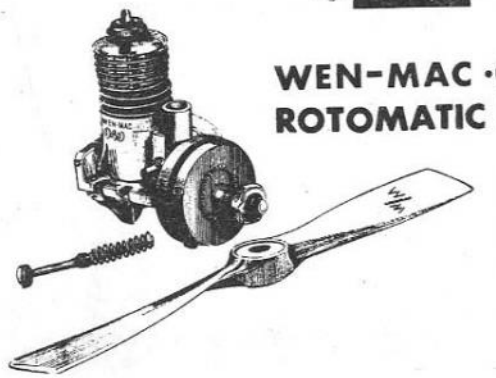
ROCKET FIRING AIRACOBRA



First model which fires two rockets whilst flying. Removable engine cowl; hinged cockpit canopy, handle and lines, day-glo navigation light. Very realistic cockpit detail. Wingspan 24".

£5.19.8.
(Inc. P.Tax)

ALL MODELS ARE FITTED WITH THE WEN-MAC ·049 ROTOMATIC ENGINE



WEN-MAC ·049 ROTOMATIC ENGINE

Easiest starting engine in the World! Features original AUTOMATIC CLUTCH STARTER. Complete with nylon propeller.

39/4
(Inc. P.Tax)

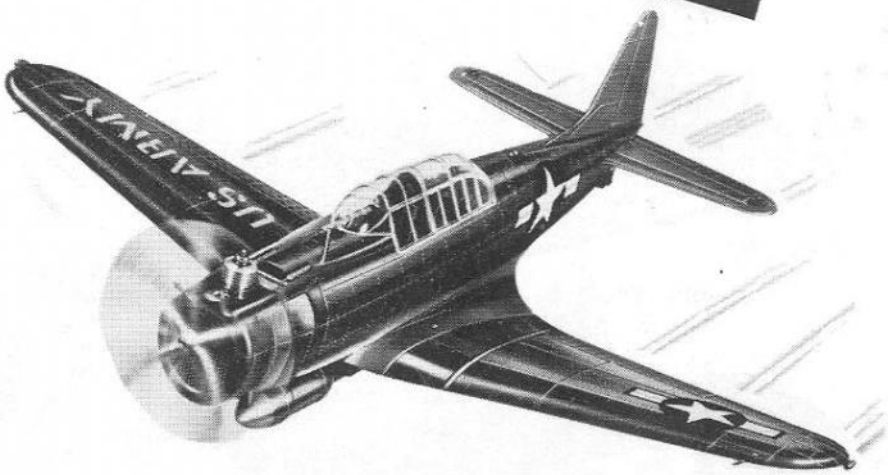
WEN • MAC *Ready-to-Fly* MODELS

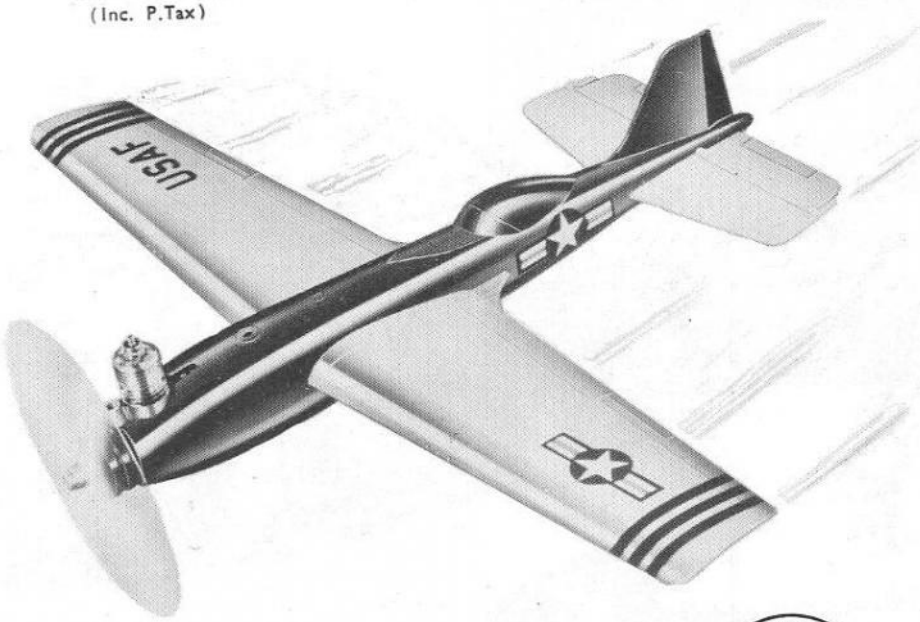
KEILKRAFT

ARMY A-24 ATTACK BOMBER

Scale replica of a famous 2nd. World War plane. Drops bomb. Detailed 2-seat cockpit. Ideal for beginner or expert. Comes complete with flying lines and handle. Wingspan 22".

£5.15.0.
(Inc. P.Tax)

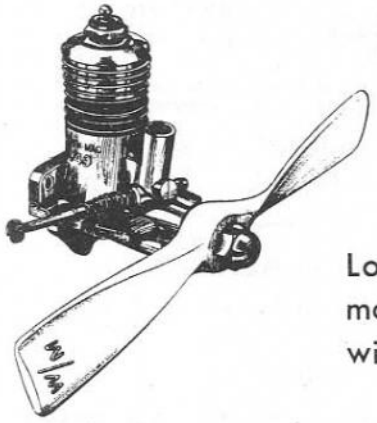




THE SUPER TRAINER

The exciting new WEN-MAC SUPER TRAINER with Vari-speed prop! Flies at 3 speeds. Complete with flying lines and handle. Wingspan 17".

£3.9.11.
(Inc. P.Tax)



ENGINE POWERED BY wen AMF mac FIRST IN AUTOMATIC STARTERS

WEN-MAC ·049 HUSTLER ENGINE

Lowest priced engine on the market. Easy starting. Complete with nylon propeller.

29/-
(Inc. P.Tax)

NOTE: For operating WEN-MAC motors, the following items will be required:-

KK Nitrex 15 Glow Fuel —— Half pint 4/3
KK Glowclip, lead and battery plug —— 5/6
Ever-Ready AD4 1.5 volt battery —— 4/3

FROM YOUR LOCAL MODEL OR TOY STORE

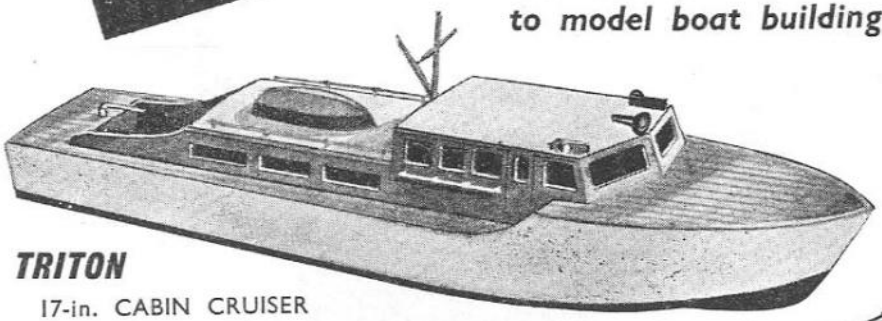
KEILKRAFT EeZeBILT BOATS

KEILKRAFT

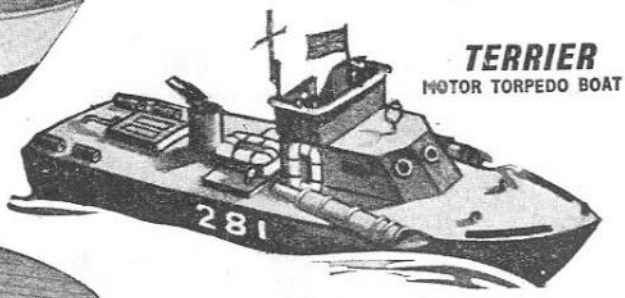
The perfect introduction to model boat building!

EACH KIT CONTAINS

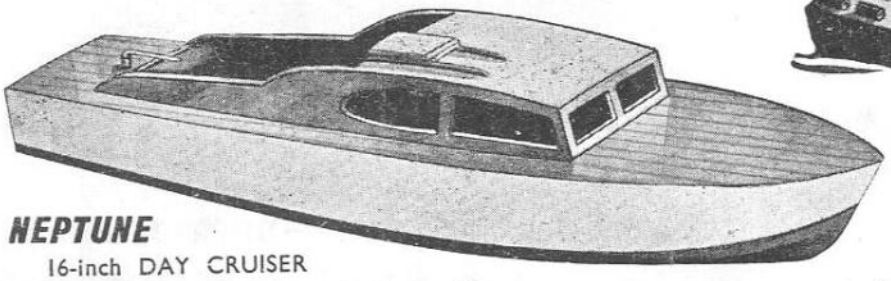
- All parts die-cut to shape in best quality Keilkraft sanded balsa
- Propeller, Shaft and Tube (except Cresta)
- Rudder Assembly (except Cresta)
- Ample building materials
- Illustrated step-by-step instructions



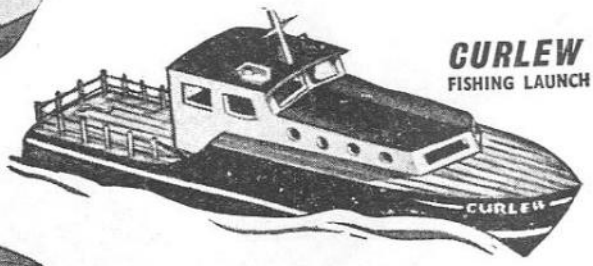
TRITON
17-in. CABIN CRUISER



TERRIER
MOTOR TORPEDO BOAT

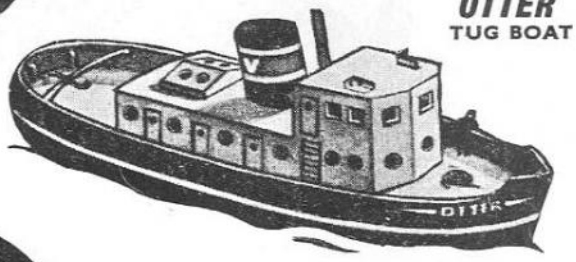


NEPTUNE
16-inch DAY CRUISER

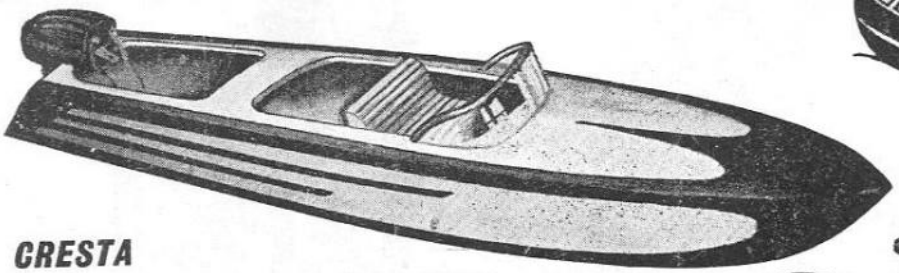


CURLEW
FISHING LAUNCH

MERMAID
14-inch OCEAN-GOING CRUISER



OTTER
TUG BOAT



CRESTA
16-inch OUTBOARD MOTOR BOAT

SUITABLE ELECTRIC MOTORS

FOR THE 8/5 KITS

KAKO

Kako 01	3/9	Mabuchi 15	3/9
Kako 0	4/4	Mabuchi 25	4/1

KEILKRAFT ELMIC
SPRITE

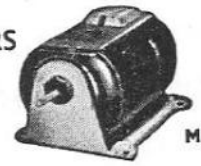
The perfect power unit for the Cresta outboard motor boat

21/-

SUITABLE ELECTRIC MOTORS

FOR THE 13/1 KITS

Kako 1	5/3	Mabuchi 25	4/1
Kako 2	6/8	Mabuchi 35	4/8



MABUCHI

ELMIC "THRUST-PAK"
Suitable for the Mermaid, Triton and Neptune. Complete unit **16/3**

OTTER, TERRIER, CURLEW	8/5
MERMAID, NEPTUNE, TRITON, CRESTA	13/1

KEILKRAFT GALLEONS

KEILKRAFT

GOLDEN HIND

JUNIOR SERIES (6 Models)
(Approximately 6" long)

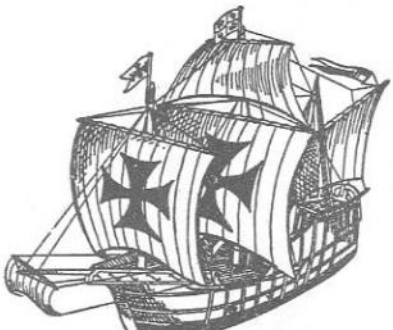
SENIOR SERIES (6 Models)
(Approximately 12" long)

Both Junior and Senior Series each contain the six models illustrated.

● **KITS FEATURE — Ready shaped hulls. Plastic anchors and crows nests. Hull sides, decks, sails, flags printed in colour on suitable material. Ample supplies for rigging, etc. Plan and full detailed instructions.**

REVENGE

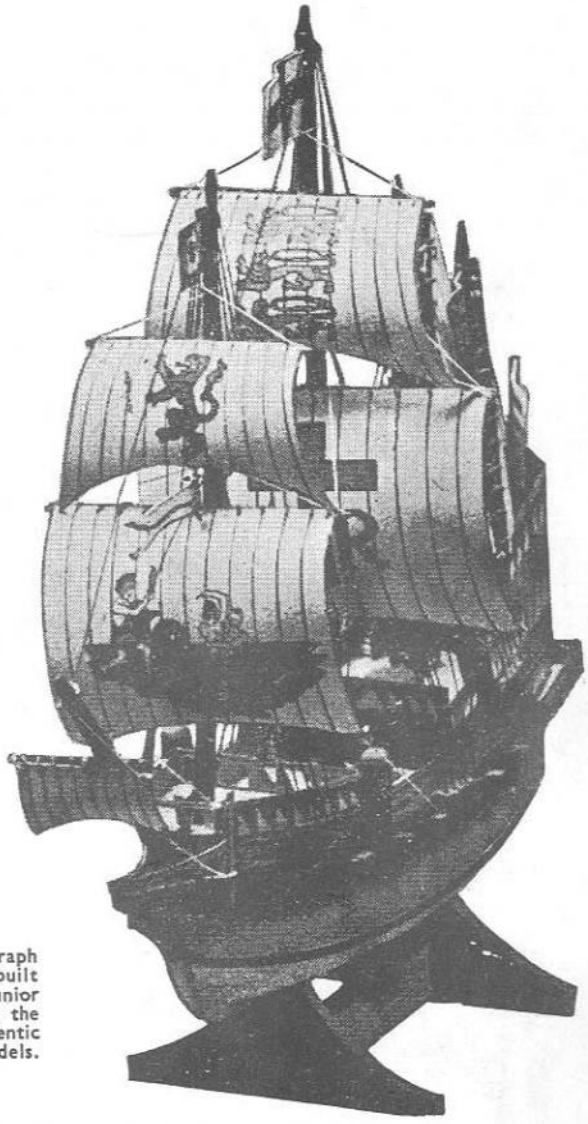
MAYFLOWER



SANTA MARIA

BOUNTY

KIT	PRICE (Inc. P.Tax)
JUNIOR SERIES	**5/-**
SENIOR SERIES	**15/-**



Unretouched photograph of the Ark Royal built from a Keilkraft Junior Series Kit showing the intricate and authentic detail in these models.

* **NOTE** To get the most out of your hobby we recommend you to read :-

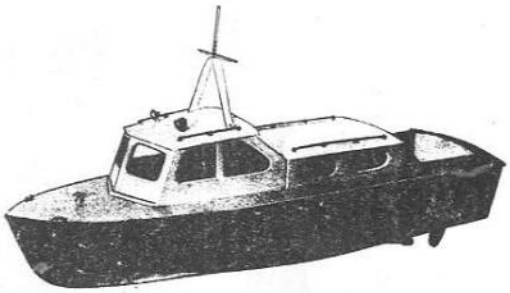
AEROMODELLER	**2/-**	**monthly**
MODEL AIRCRAFT	**2/-**	**„**
MODEL MAKER	**2/-**	**„**

Obtainable from your local Model Shop or Newsagent.

MOTOR BOATS

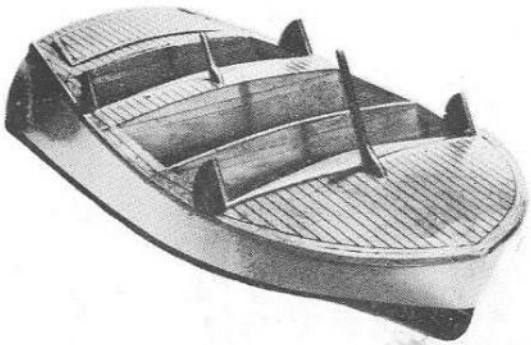
AEROKITS

THE AEROKITS extensive range of model boat kits have earned an enviable reputation for consistent practical design and trouble-free assembly. Material in all cases is selected resin-bonded ply in appropriate thicknesses of 1½, 4 and 6 mm. to suit precise needs, plus hardwood strip for rubbing strakes, chine and gunwhale stringers. Really detailed building instructions, accurate plans, and progress sketches makes assembly simple even for the novice. True line-up is assured with their unique interlocking building system. Keels are slotted to assist accurate alignment of prop tubes.



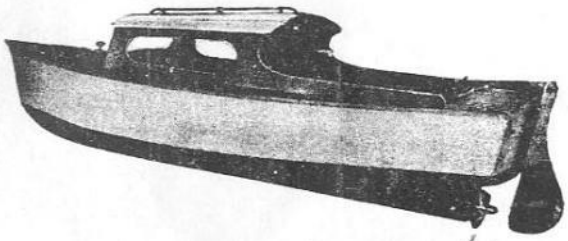
PATROL LAUNCH

Very popular model that is easy and quick to build. Length 16". Suitable for ½ to 1 c.c. diesels or electric motors.



SEA HORNET 6.95

A racy speed boat model. Very strong construction. Length 25", Beam 8". For ½ to 1.5 c.c. diesels or electric motors.

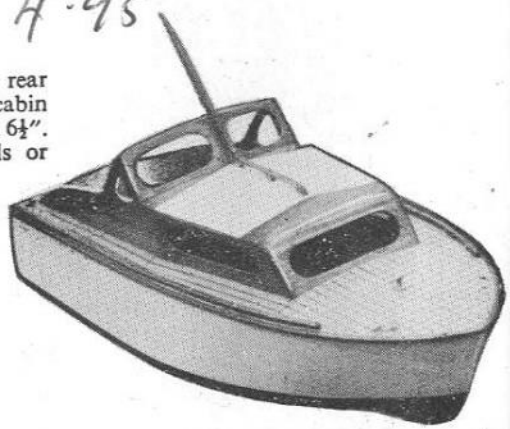


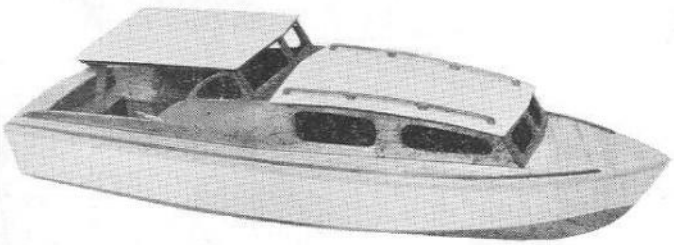
SEA URCHIN 4.75

Very attractive looking boat that performs really well. Length 20". For ½ to 1 c.c. diesels or electric motors.

SEA NYMPH 4.95

Day Cruiser with open rear cockpit and removable cabin roof. Length 18", Beam 6½". For ½ to 1 c.c. diesels or electric motors.



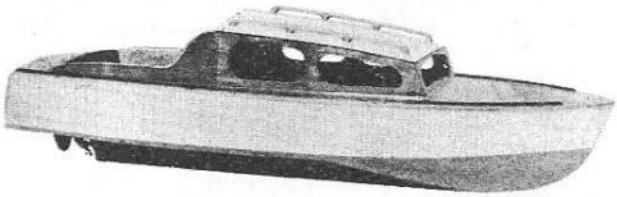


SEA SCOUT

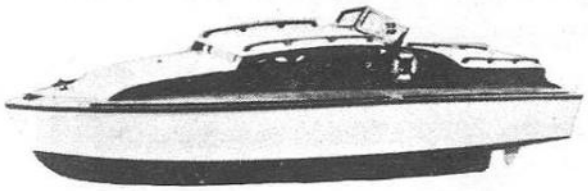
Cabin cruiser with removable cabin roof and open cockpit. Length 24", Beam 8¼". For ½ to 1 c.c. diesels or electric motors.

SEA ROVER 10.95

Large cabin cruiser for either radio control or free running. Length 29½". Suitable for engines from 1 to 2 c.c.



AEROKITS

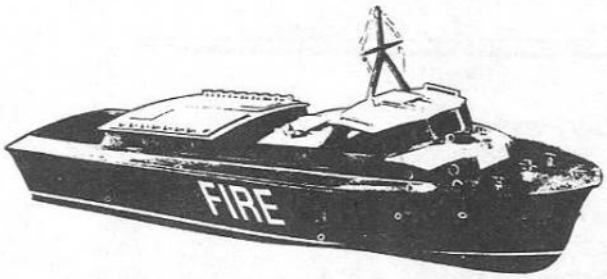


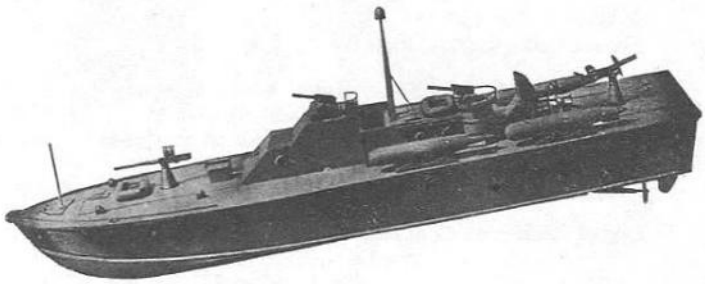
SEA COMMANDER

Ocean going cabin cruiser for radio control or free running. Length 34″, Beam 11″. For engines up to 3½ c.c.

R.A.F. CRASH TENDER

¼″ to the foot scale model that is ideal for radio control. Length 34½″, Beam 10″. Suitable engines—1½ to 3½ c.c.



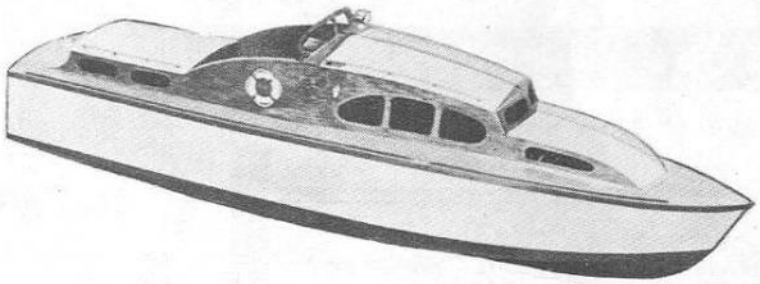


PATROL TORPEDO BOAT

A luxurious model that is perfect for radio control. All guns and deck fittings ready made. Length 40″, Beam 11″. Suitable for 2.5 to 5 c.c. engines or 12 v. electric.

SEA QUEEN

This large "sister ship" of the popular Sea Commander has been introduced to meet the demands of modellers who want a large cabin cruiser with more than ample space for radio control equipment.
It is ideal for multi-control operation and very easy to construct.
Length 46½″. Beam 14½″. Suitable for 3.5–10 c.c. motors.



KEILKRAFT MARINE ACCESSORIES AND MERSEY MARINE FITTINGS ARE RECOMMENDED FOR AEROKITS BOATS

THERE ARE OVER 3,000 KEILKRAFT AGENTS FROM WHOM THESE KITS CAN BE OBTAINED

KIT	PRICE (Inc. P.Tax)
SEA URCHIN	20/10
SEA NYMPH	24/5
SEA HORNET	32/7
PATROL LAUNCH	32/7
SEA SCOUT	37/2
SEA ROVER	53/5
SEA COMMANDER	70/–
R.A.F. CRASH TENDER	70/–
PATROL TORPEDO BOAT	116/8
SEA QUEEN	116/8

MARINE ACCESSORIES

KEILKRAFT

KEILKRAFT marine fittings are carefully and accurately engineered from highest quality materials.

They are strongly made, long lasting—and they do their job very efficiently.

STERN TUBES and SHAFTS

HEAVY WEIGHT

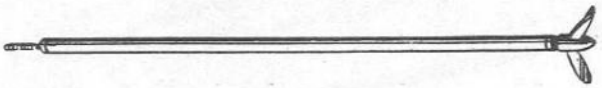
TMX01	8" (For S/Scout, S/Hornet)	6/6
TMX02	9" (For S/Rover, Crash Tender)	6/6
TMX03	10" (For Sea Commander)	7/–
TMX50	11"	7/–
TMX51	12"	7/6
TMX53	17" (For Sea Queen) 4 B.A.	10/6
TMX69	17" (For Sea Queen) 2 B.A.	19/3

LIGHTWEIGHT

TMX04	8" (For S/Scout, S/Hornet)	5/3
TMX05	9" (For S/Rover, Crash Tender)	5/3
TMX06	10" (For Sea Commander)	5/3
TMX52	11"	5/3

LIGHTWEIGHT WITH PROPELLER
(For electric motors)

TMX13	6" Junior with ¾" 3-bladed prop ...	1/2



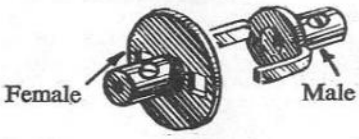
TMX08	9" ... ,, 1¼" 2-bladed prop ...	4/5
TMX09	10" ... ,, 1½" ,, ,, ...	4/8
	(For Sea Nymph and small diesels)	
TMX07	7½" ,, ,, 1¼" ,, ,, ...	3/9

TMX10	6" ... ,, 1" 3-bladed prop ...	3/6
TMX11	7" ... ,, 1" ,, ,, ...	3/9
TMX12	8" ... ,, 1⅛" ,, ,, ...	4/–

STERN TUBE CLEATS

TMX19 ... –/9 Per pair

SHAFT COUPLINGS



SMALL TMX29

Female end (Shaft)	Plain, 6 B.A. or 4 B.A. ...	1/6
Male end (Motor)	To fit Kako 01 , 0, 1, 2 and 3	1/6

LARGE TMX30

Female end (Shaft)	Plain or 4 B A.	1/9
Male end (Motor)	To fit Kako 4 and 5 Mabuchi 55 and 65 Also 2 B.A. (For small diesels)	1/9

Special Note:
When ordering please state which sizes are required.

Taycol Universal Coupling 1/4" x 4 B.A. 7/–

BOAT PROPELLERS

Scientifically designed and made in polished brass

TMX23	1¼" dia. ...	5/3
TMX24	1½" dia. ...	5/3
TMX25	1¾" dia. ...	5/3
TMX26	2" dia. ...	6/6

STERN TUBE BRACKETS

TMX20 ... –/9

TMX20A
(For Sea Queen)
–/9

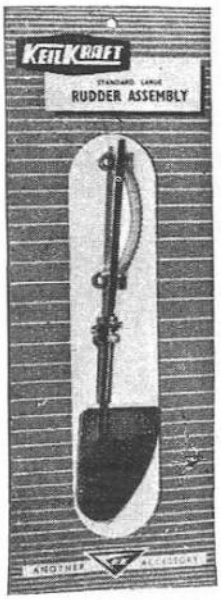
Yeoman Fittings for Crash Tender
Grey finish metal fittings as under: Complete Set 42/–

1 Searchlight
2 Small fairleads
2 Medium fairleads
4 Ball type cleats
2 Small vents.
1 Anchor
4 B type cleats
2 Nav. lights
1 Mast head light
2 Foam monitors
1 Breeches connection
6 Large vents.
12 Handrail knobs
2 Mushroom vents.

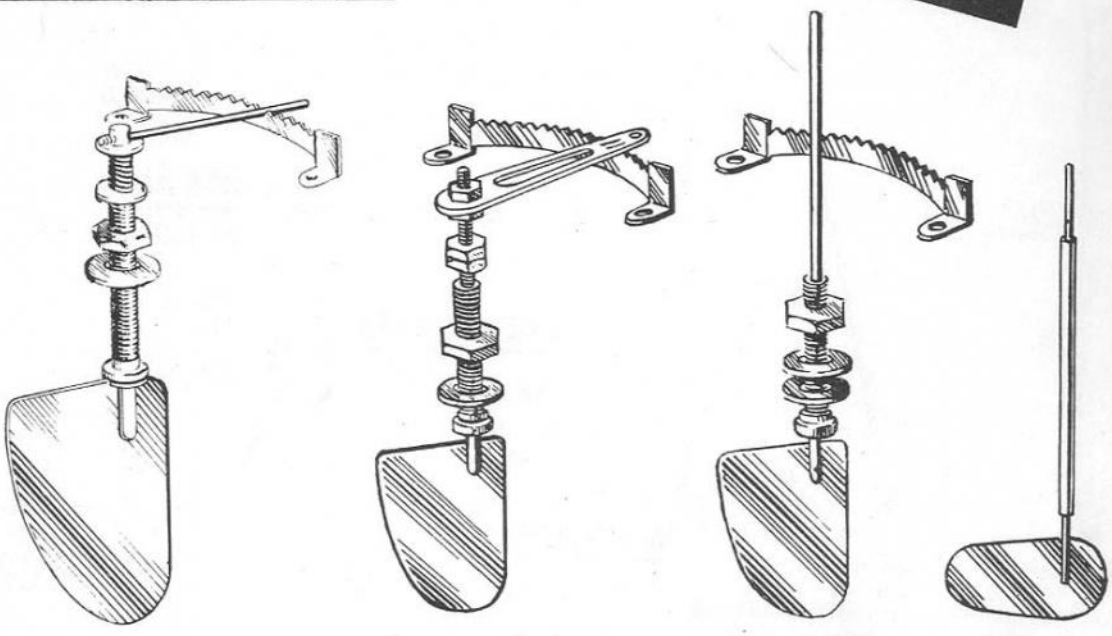
MARINE ACCESSORIES

KEILKRAFT

RUDDER ASSEMBLIES



Many KK accessories are now packed in an attractive "skin pack" as shown here.

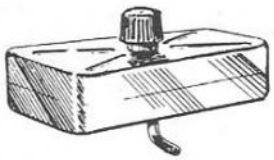


EXTRA LARGE | DE LUXE | STANDARD | JUNIOR

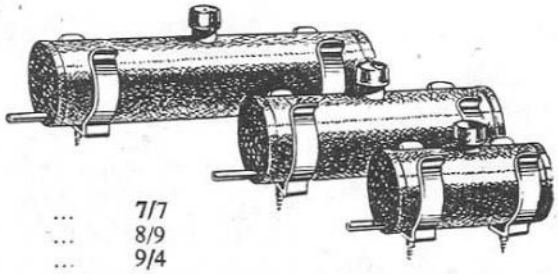
TMX54	De Luxe Assembly Extra Large ...	15/2
TMX15	De Luxe Assembly Large	7/–
TMX16	De Luxe Assembly Small	7/–
TMX17	Standard Assembly Large	4/8
TMX18	Standard Assembly Small	4/8
TMX14	Junior Rudder Assembly	–/10½

BOAT TANKS

TMX33 Rectangular Pattern 7/–

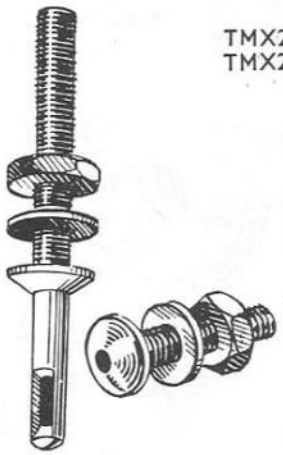


CYLINDRICAL BOAT TANKS



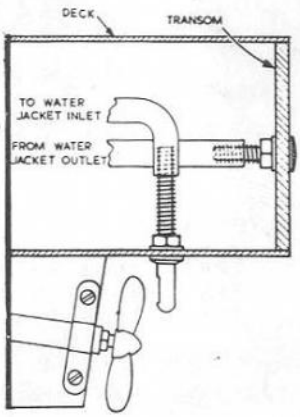
TMX34	40 c.c.	...	7/7
TMX35	60 c.c.	...	8/9
TMX36	80 c.c.	...	9/4

WATER SCOOP AND OUTLET



TMX21	Large	...	5/3
TMX22	Small	...	5/3

Method of Installation

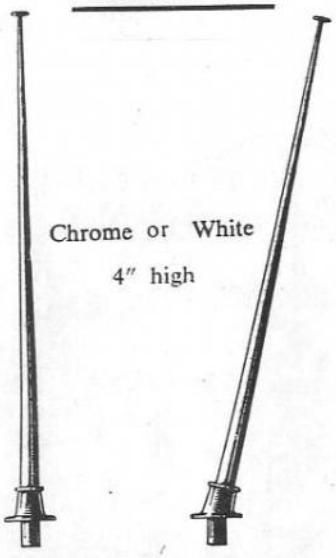


SEE THE COMPLETE RANGE AT YOUR MODEL SHOP

MARINE FITTINGS

MERSEY

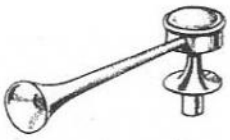
FLAGSTAFFS

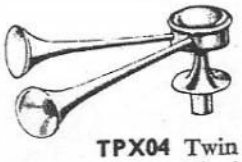


Chrome or White
4" high

TPX035 Straight Chrome 1/–
TPX03A Angled Chrome 1/–
TPX03B Angled and Straight White (Pair) 1/3

SYRENS





Chrome Finish
Both 1⅛" long

TPX04 Twin Syren 1/9
TPX05 Single Syren 1/3

MASTHEAD LIGHTS

Chrome finish

TPX33 5/16" high –/9
TPX34 1/4" high –/6

BOWSIES

¼" and ¾" long

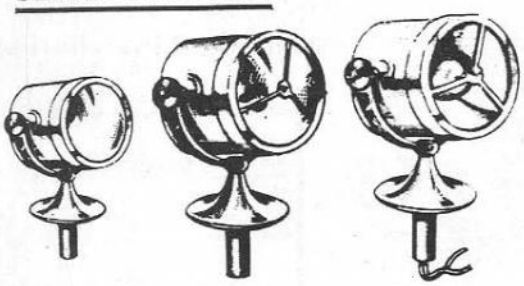
TUX42 (One dozen) –/10

LIFEBELTS

1" diameter 1½" diameter 2" diameter

TPX08 1" diameter –/9
TPX09 1½" diameter 1/3
TPX10 2" diameter 1/6

SEARCHLIGHTS



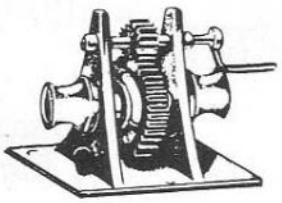
TPX11 TPX12 TPX13

TPX11 Small Searchlight 1/9
TPX12 Large Searchlight 3/6
TPX13 Large Searchlight 5/6
(Working with bulb)
Spare bulb 1/3

TPX12 and TPX13 available in Chrome or Grey

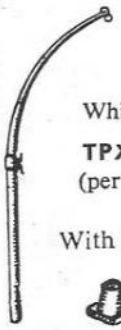
ANCHOR WINCH

Matt Silver Grey Finish



¾" base ¾" high
TPX24 1/9

DAVITS



White Finish
TPX40
(per pair) 1/6

With boat socket

BOLLARDS

⅝" long.

TMX66

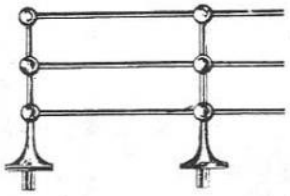
Chrome ... 1/–
Grey ... –/9
(per pair)

Size ⅞" long.

STANCHIONS

1 1/16" high.

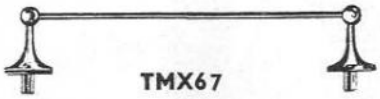
TPX41 Per doz.
White Finish 1/6
Chrome Finish 2/6



Easily altered to one or two rail

HANDRAILS

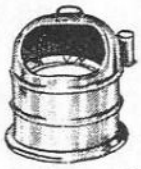
2" long



TMX67

White Finish (per pair) 1/–
Chrome Finish ,, ,, 1/6

BINNACLE

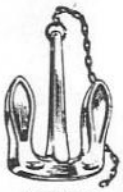


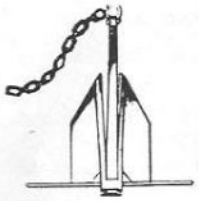
TPX31A 3/8" dia. 1/3
TPX31 ½" dia. 1/9

Modern Cabin Cruiser Type with compass card

ANCHORS

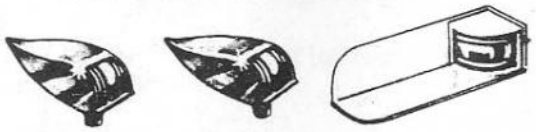
Matt silver finish
Moveable stock and chain





C.Q.R. **TPX22** 1/10
BYERS **TPX23** 1/10
DANFORTH **TPX30** 1/10

NAVIGATION LIGHTS



Cabin Cruiser Type Chrome Finish
Standard Type 1" long

TPX21 Cabin Cruiser Type (per pair) 2/6
TPX32 Standard Type ,, ,, 1/10

CLEATS

⅜" high

TPX37
Cleats Chrome Finish (per pair) 1/–
,, Grey ,, ,, ,, –/9

FAIRLEADS

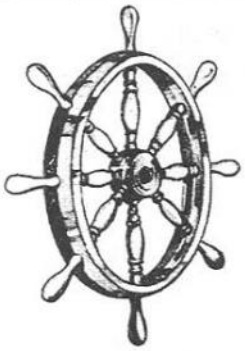
¾" long

TPX38 (per pair)
Fairleads Chrome Finish ,, ,, 1/–
,, Grey ,, ,, ,, –/9

MARINE FITTINGS

MERSEY

STEERING WHEELS



Chrome Finish

TPX02 1¼" diameter 1/3
TPX01 1⅛" ,, 1/10

PORTHOLES

Glazed

(In sets of 4)

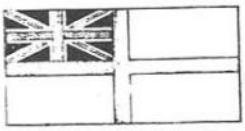
TPX15	⅜" dia	Chrome	1/8
TPX16	⅝" ,,	Grey	1/3
TPX17	½" ,,	Chrome	1/6
TPX18	½" ,,	Grey	1/3
TPX19	⅝" ,,	Chrome	1/6
TPX20	⅝" ,,	Grey	1/3

FLAGS

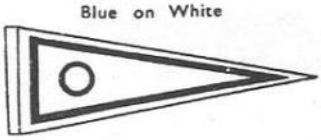
In non-fray nylon

Red Ensign

White Ensign



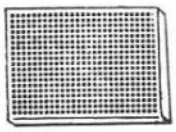
PENNANT
Blue on White



R.A.F. Ensign

TMX37	Red Ensign 2"	1/-
TMX38	White Ensign 2"	1/-
TMX62	R.A.F. Ensign 2"	1/-
TMX39	Red Ensign 1"	-/10
TMX63	White Ensign 1"	-/10
TMX64	Union Jack 2"	1/-
TMX40	Pennant 2"	1/-

GRATINGS



TPX25 White Finish
1⅝" x 1⅜" 1/-

CABLE CHAIN

Each link separately soldered

TMX41	23 links per inch	(Per Yard)	2/9
TMX42	14 links per inch	,, ,,	2/9
TMX43	9 links per inch	,, ,,	2/9

LADDERS

White Finish
2" long ⅜" wide

TPX39
(per pair) 1/-

VENTILATORS

Bowls red enamelled

(per pair)

TPX06	1⅛"	Chrome	2/6
		White	1/9
TPX07	1⅛"	Chrome	2/-
		White	1/3

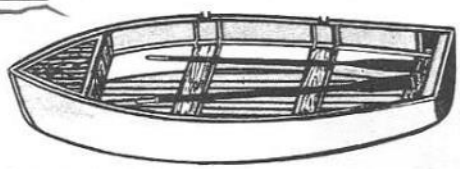
MUSHROOM VENTS

TPX35 1/2" x 7/16" high
TPX36 7/16" x 5/16" high

Chrome (per pair) 1/6
Grey ,, ,, 1/3

DINGHY

White Finish



TMX70 3" long 2/6

MERSEY MARINE PROPELLERS

SOLID BRASS 3-BLADED LEFT OR RIGHT-HANDED

Size	1"	1¼"	1½"	1¾"	2"	2½"	3"
Tapped B.A.	4	4	4	4	4	2	2
Shaft size	5/32" dia.					3/16" dia.	
Retail	5/6	5/9	6/6	8/6	12/6	18/6	30/-

WATER SCOOP and OUTLET

Suitable for all diesel powered boats

Chrome Finish

TMX61 (per pair) 3/6

INTAKE OUTLET

UNIVERSAL SHAFT COUPLING

SOLID STEEL HARD CHROMIUM PLATED
Male end (Shaft) 4 B.A., 3/16", 5/32", 3/32".
Female end (Engine) 2 B.A., 4 B.A., 5/32", 3/32", 1/4" B.S.F.

TMX60 2/6 each 5/- per pair

MERSEY MARINE TELESCOPIC STERN TUBES

Extend from 8½" to 14½"—O/D 5/16" ... 6/9
Ground Steel Shafts threaded 4 B.A. each end
9",10",11",12",13",14",15" long All 1/- each.

LIGHT DUTY TELESCOPIC SHAFT & TUBE

Extend from 5" to 9" With 1½" 3-bladed prop ... 5/6
Propeller only 2/-

MERSEY MARINE FITTINGS FOR R.A.F. CRASH RESCUE TENDER

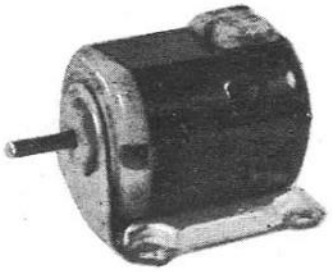
1 Breeches Connection, 2 Foam Monitors, 1 Towing Hook, 1 Searchlight, 1 Danforth Anchor, 2 Navigation Lights, 2 Riding Lights, 6 Large Cowl Vents, 2 Small Cowl Vents, 4 Mushroom Vents, 4 Cleats, 4 Fairleads, 2 1½" Lifebelts, 5 Handrails, 1 Syren, 4 Port Holes, 1 Winch, 1 Flagstaff (Angled), 1 Flagstaff (Straight), 1 R.A.F. Ensign, 1 Pennant, 2 FIRE Transfers, 2 Roundels Transfers.

Total of 51 items 38/6 complete set

ELECTRIC MOTORS

KEILKRAFT

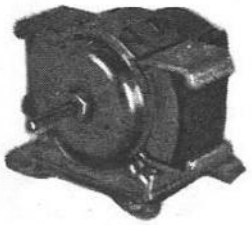
OBTAINABLE AT YOUR LOCAL MODEL SHOP



MABUCHI

Mabuchi 15	...	3/9
Mabuchi 25	...	4/1
Mabuchi 35	...	4/8
Mabuchi 45	...	5/10
Mabuchi 55	...	7/7
Mabuchi 65	...	25/6

KAKO

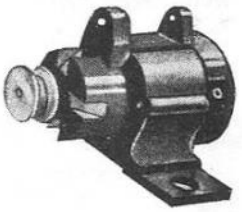


Kako 01	...	...	3/9
Kako 0	...	...	4/4
Kako 1	...	...	5/3
Kako 2	...	...	6/8
Kako 3	...	...	7/10
Kako 4	...	...	15/8
Kako 5	...	...	31/4

TAPLIN

Taplin Micromotor 29/6

MIGHTY MIDGET



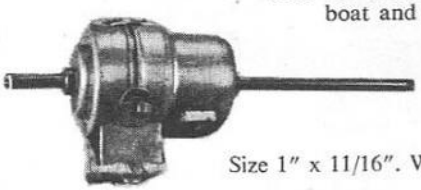
Mighty Midget (Plain) ... 8/10

Mighty Midget Nylon Geared ... 9/9

Mighty Midget Brass Geared ... 10/6

KEILKRAFT LONGSHAFT

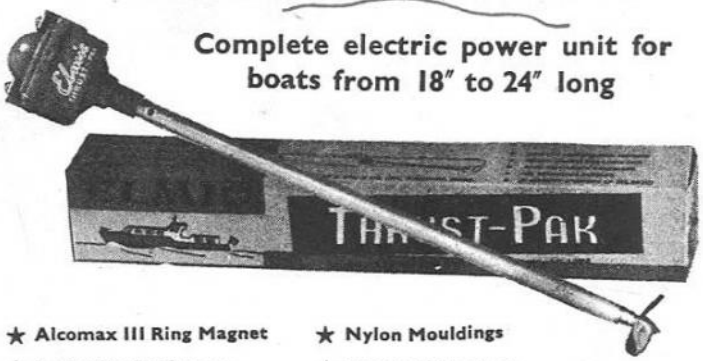
Ideal for motorising plastic aircraft, boat and car kit models.



Size 1" x 11/16". Weight ½ oz. 2/11

ELMIC THRUST-PAK

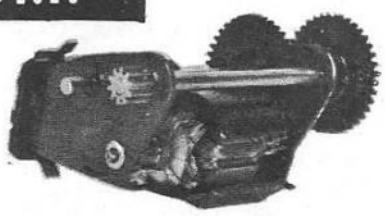
Complete electric power unit for boats from 18" to 24" long



★ Alcomax III Ring Magnet
★ 2—6 volts, 5,000 r.p.m.
★ Replaceable Brushes
★ Nylon Mouldings
★ Reservoil Bearings
★ Battery or Accumulators

Complete Unit ... 16/3

V.I.P.



V.I.P. Motor (Type CCD) 17/6

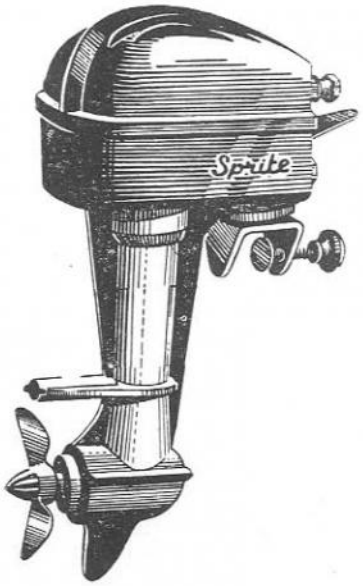
ELECTRIC MOTORS

KEILKRAFT

KEILKRAFT-ELMIC SPRITE

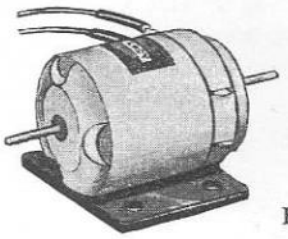
A precision made British product

The perfect power unit for the Cresta outboard motor boat



Keilkraft Elmic Sprite Outboard Motor 21/–

EVER READY



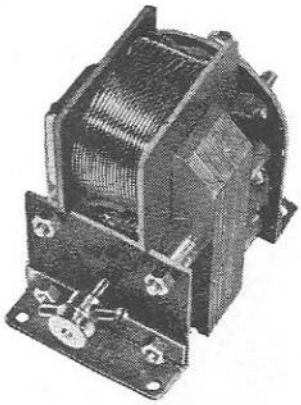
A compact miniature electric motor backed by the famous "Ever Ready" name—Ideal for servos.

Base mounted or End mounted 10/-

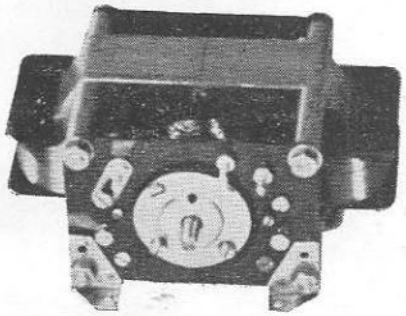
TAYCOL

6 to 12 Volt Electric Motors

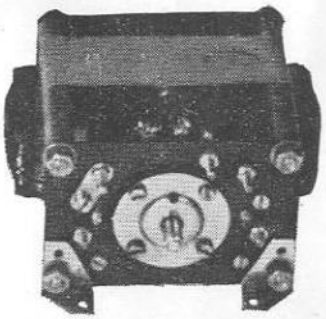
Taycol Target	28/6
Taycol Asteroid	32/9
Taycol Torpedo	34/10
Taycol Meteor	38/7
Taycol Supermarine	76/7
Taycol Supermarine Special ...	80/11
Taycol Standard	59/2
Taycol Double Special	95/–



TORPEDO

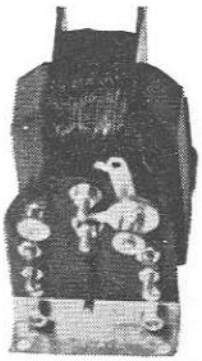


SUPER SPECIAL



DOUBLE SPECIAL

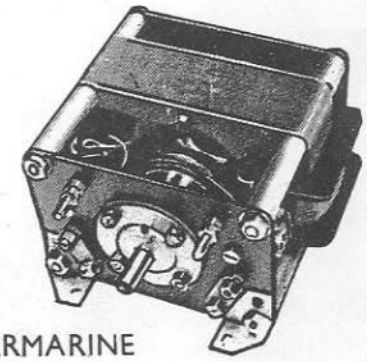
Taycol Motors have been designed to cover the whole range of Model Makers' requirements for cruising, racing, radio control, etc., with battery consumption ranging from ¾ amp. to 5 amps., according to propeller size and battery capacity, at higher efficiency than hitherto attainable and at low cost.



METEOR

ASTEROID

STANDARD



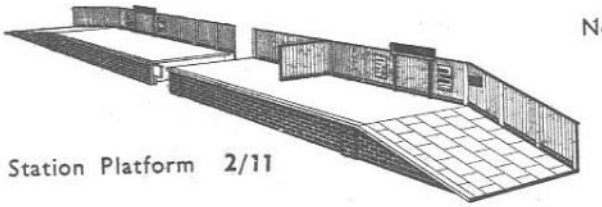
SUPERMARINE

SUPERQUICK MODEL KITS

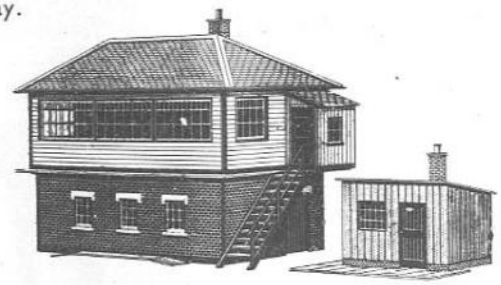
MODEL RAILWAY KITS

Lithographed in five or six colours to do away with the cost and inconvenience of painting, SUPERQUICK kits are die-cut from a laminated board 1/32 in. thick and are ready for immediate assembly. They can be put together in a surprisingly short time, without any previous experience. The resulting models, by the realism and correct scaling of their detail, cannot be compared with any others offered today.

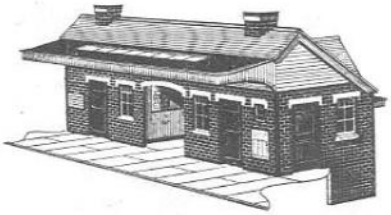
OO/HO GAUGE MODEL RAILWAY SERIES A



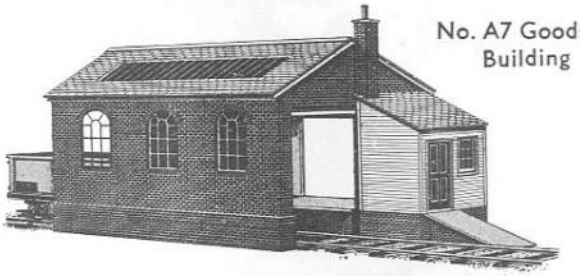
No. A1 Station Platform **2/11**



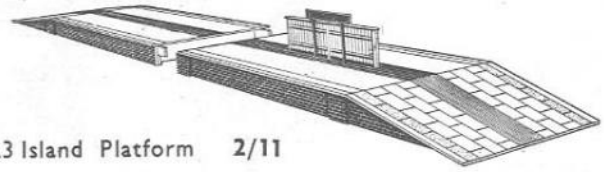
No. A6 Signal Box and Platelayers' Hut **3/9**



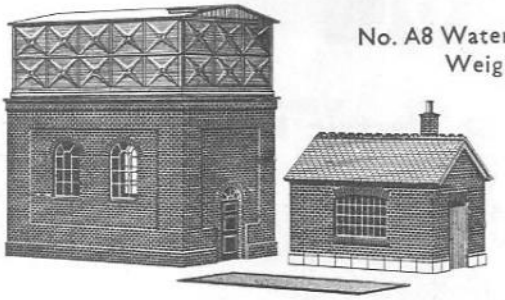
No. A2 Country Station Building **3/3**



No. A7 Goods Depot Building **3/6**



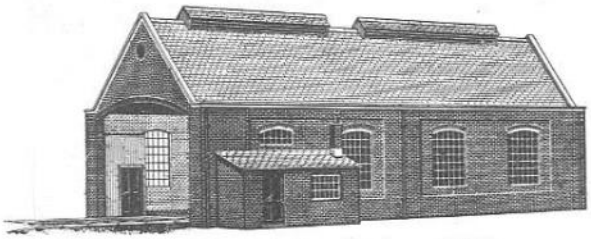
No. A3 Island Platform **2/11**



No. A8 Water Tower and Weigh House **3/6**

No. A4 Island Platform Building **3/3**

No. A9 Four Cottages **3/6**



No. A5 Two Road Locomotive Shed **5/10**

TT GAUGE SERIES

These two models for the TT enthusiast make up into a complete "through" station. The length of the platform can be increased at any time by the addition of a further TT1 kit. New designs to increase the range in this series will be available shortly.

TT1 & 2

No. TT1 Station Platform and Shelter **2/11**

No. TT2 Station Building **3/6**

MODEL RAILWAY KITS

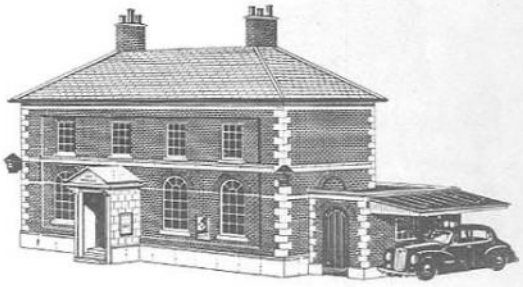
SUPERQUICK MODEL KITS

These Country Town models are fascinating to make up whether intended for a model railway or not. Although designed primarily for OO/HO gauge, the buildings nevertheless do not appear out of scale with TT gauge. Combined with the Low Relief models shown overleaf, complete realism can be given to any model village or railway layout.

OO/HO GAUGE COUNTRY TOWN SERIES B

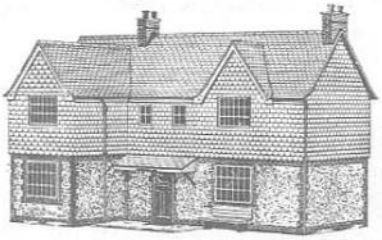
No. B21
"The Railway Arms" Inn **3/3**

No. B23 Country Town Bank **3/6**

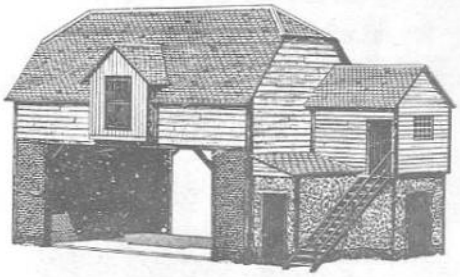


No. B25 Country Police Station **3/6**

No. B22
Two Country Town Shops **3/3**



No. B24 "Greystones" Farmhouse **3/6**



No. B26 "Greystones" Farm Hay Loft and Barn **3/6**

OO/HO GAUGE LOW RELIEF SERIES C

These new scale buildings have been designed to form a realistic background to the model railway layout and being modelled in low relief about 1¼ in. deep, they take up little ground space yet effectively fill in awkward gaps. The "multi-angle" feature enables the completed model to be set, without alteration, against any flat, curved or angled background. Illumination from behind can be simply arranged, the translucent windows, being designed with this in mind, giving the best effect for this purpose.

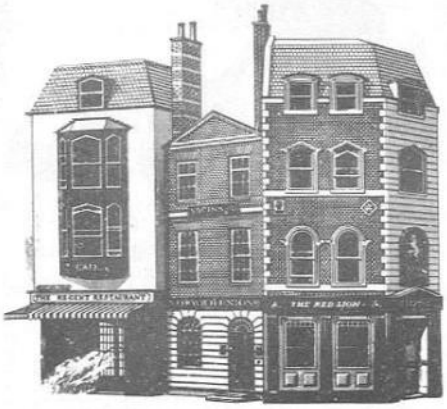
SUPERFIX

P.V.A. adhesive for assembling SUPERQUICK kits

Jar ... 6d

No. B27 Supermarket **3/9**

No. B28 Elizabethan Cottages **3/6**
Not illustrated.



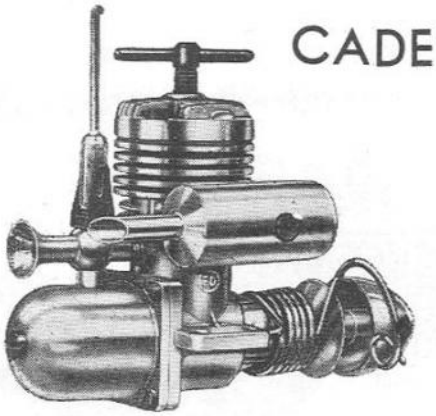
No. C1 Hotel, Offices and Restaurant **3/6**

No. C2 Cinema, Post Office and Shop **3/6**

No. C3 Modern Shops **3/6**
Not illustrated.

E. D. ENGINES

CADET



A completely new engine from E.D. and the first model diesel to be fitted with an efficient silencer. Designed for the easiest hand starting and also fitted with 'easi-start' recoil spring starter. Complete with metal fuel tank.
The ideal 'first' engine.

★ FOOLPROOF STARTING HOT OR COLD
★ SMOOTH, QUIET RUNNING
★ ROBUST CONSTRUCTION
★ SILENCER KEEPS DIRT OUT OF CYLINDER UNIT

1 c.c. E.D. CADET 63/–

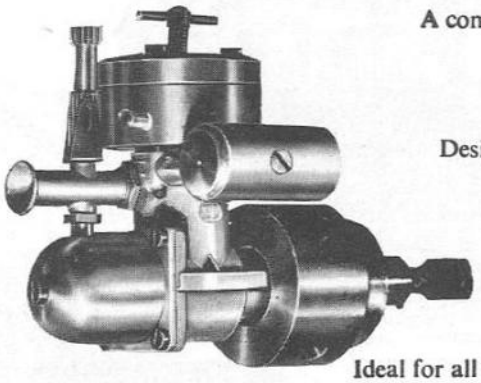
★ SILENCER a standard fitting.

E.D. MARINE ACCESSORIES

Baby Flywheel	7/7
Pep Flywheel	11/5
Bee and Hornet Flywheel and Universal Joint	12/2
Super Fury Flywheel ...	12/2
Racer Flywheel	11/5
Hunter Flywheel	12/2
Ball Joint Coupling (4 B.A.)	7/10
Ball Joint Coupling (2 B.A. and 4 B.A.)	4/11
Driving Dog, Comp. Special and Hunter	3/6
Hunter Silencer	22/5
Bee Exhaust Manifold ...	3/2
Super Fury Exhaust Manifold	15/11
Racer Exhaust Manifold ...	15/11
Hunter Exhaust Manifold ...	4/9

SEAGULL

1 c.c. MARINE DIESEL

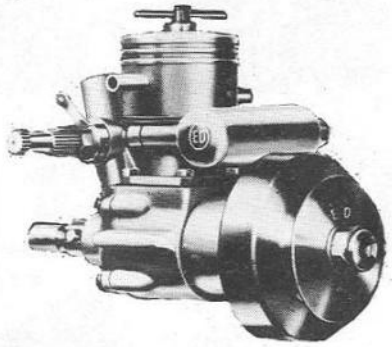


A completely new small marine engine and the first in its class to be supplied complete with an efficient silencer.
Designed for the easiest possible starting and timed for maximum low speed torque so essential for "stall-free" running.
Complete with metal fuel tank.
Ideal for all types of boat from 18" to 28" length.

1 c.c. MARINE E.D. SEAGULL 84/–

SPECIFICATION

Loop scavenged side port Compression Ignition two-stroke.
Capacity: 0·984 c.c. (0·601 cu. in.).
Detachable brass water-jacket.



SEA OTTER

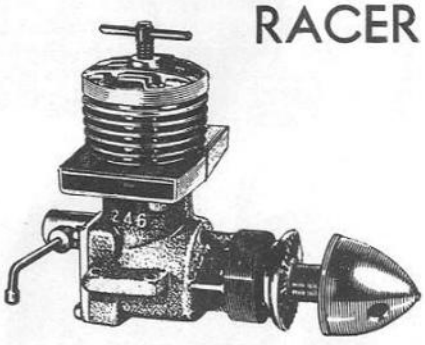
3.46 c.c. MARINE DIESEL
170/–

EXHAUST MANIFOLD and improved performance SILENCER are a stand-ard fitting on the SEA OTTER.

VARIABLE SPEED CARBURETTOR with rotary drum valve fitted with operating lever for either Hand or Radio Control. The CRANKSHAFT runs in twin heavy duty ball races, so reducing friction to a minimum.

Power take-off is by UNIVERSAL JOINT situated at the *rear* of the engine thus giving free access to the fly wheel for easy starting. The fly wheel is at the *front* of the SEA OTTER in accordance with the accepted basic design of full scale Marine Engines.

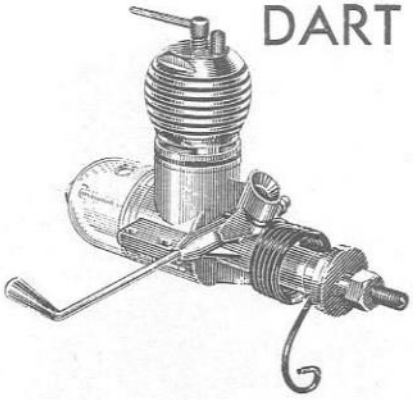
RACER



2.46 c.c. E.D. RACER 82/7
2.46 c.c. MARINE E.D. RACER 108/–

DAVIES-CHARLTON ENGINES

DART

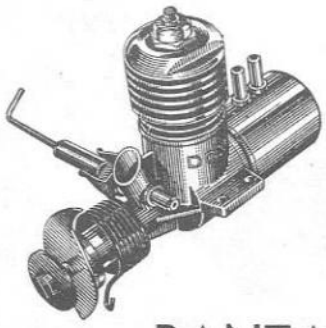


.5 c.c. DART 64/11
.5 c.c. MARINE DART 88/7

MARINE ACCESSORIES FOR DART

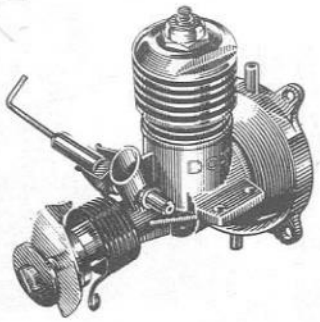
Flywheel	9/5
Water-cooled cylinder jacket	23/7
Exhaust Manifold	11/10
Silencer	11/10

BANTAM



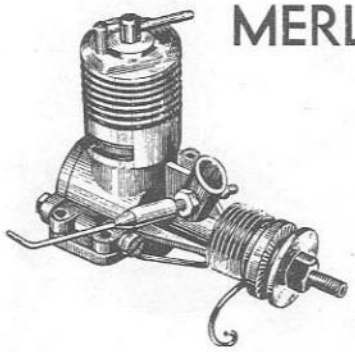
.75 c.c. BANTAM
Glowplug Motor 39/10

BANTAM DE LUXE



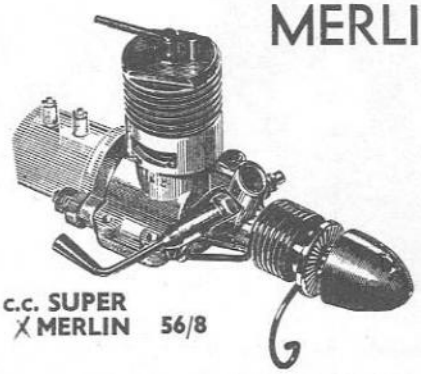
.75 c.c. BANTAM DE LUXE
Glowplug Motor 51/2

MERLIN



.76 c.c. MERLIN 51/2
.76 c.c. MARINE MERLIN 74/10

SUPER MERLIN

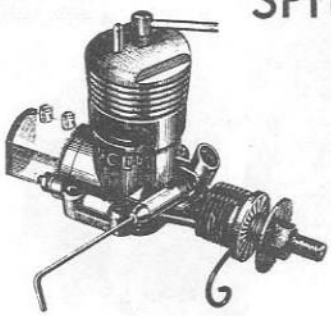


.76 c.c. SUPER MERLIN 56/8

MARINE ACCESSORIES FOR MERLIN and SUPER MERLIN

Flywheel	9/5
Water-cooled cylinder jacket	23/7

SPITFIRE



1 c.c. SPITFIRE 59/-
1 c.c. MARINE SPITFIRE 78/10

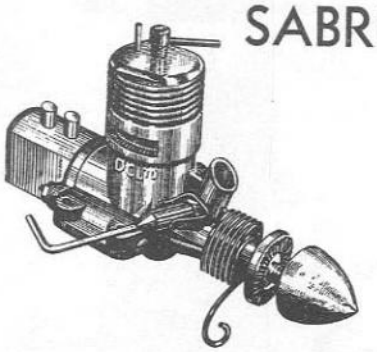
MARINE ACCESSORIES FOR SPITFIRE

Flywheel	11/10
Water-cooled cylinder jacket ...	22/2

D.C. ACCESSORIES

Quickstart spring (quote engine)	2/6
Quickstart cam (quote engine)	–/10
Quickstart cam (Bantam)	–/7
Quickclip connector (with lead & plug)	5/5
Glowclip connector (clip only)	3/2
Snapstop cut-out	7/7
Extended compression screw	2/11
Extended jet needle ...	2/11
Angled jet assembly ...	7/1
Adjustable control line handle	7/1
Engine test stand	12/3
Radial mount (Bantam or Dart)	4/10
Radial tank (Bantam or Dart)	9/4
Nylon Propellers $5\frac{1}{4}\times3\frac{1}{2}$, 6×4	1/6
,, ,, 7×4 ...	2/4
,, ,, 8×4 ...	2/6
Couplings (for all engines)	5/11

SABRE

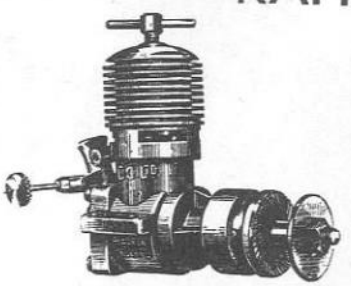


1.49 c.c. SABRE 63/–
1.49 c.c. MARINE SABRE 84/3

MARINE ACCESSORIES FOR SABRE

Flywheel	11/10
Water-cooled cylinder jacket	22/2

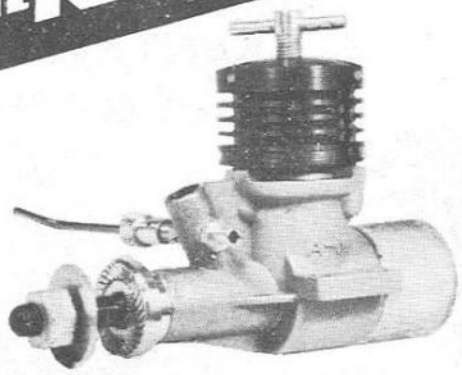
RAPIER



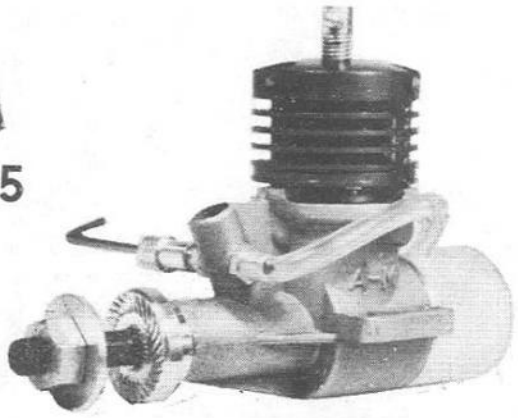
2.5 c.c. RAPIER 94/5

A.M. and MERCO ENGINES

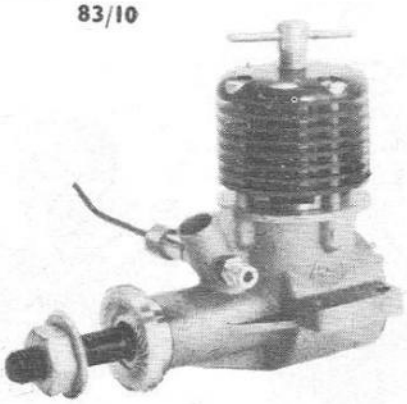
KEILKRAFT



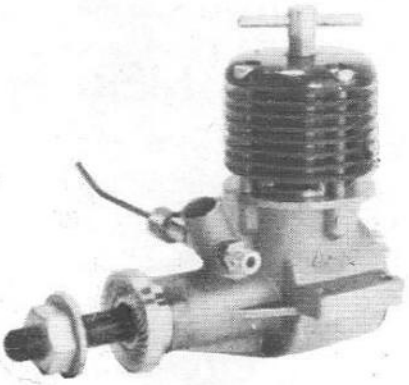
A.M.10 Mark II 61/–
A.M.10 MULTI-SPEED 74/–
A.M.10 MARINE 83/10



A.M.15 Standard 63/–
A.M.15 MULTI-SPEED 75/9
A.M.15 MARINE 85/8

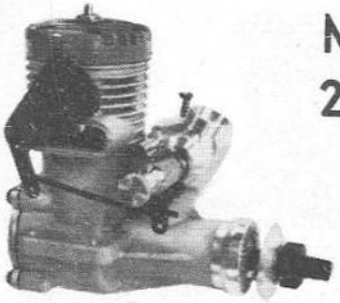


A.M.25 Mark II 70/10
A.M.25 MARINE 92/1



A.M. 35 Standard 72/10
A.M. 35 MARINE 93/10

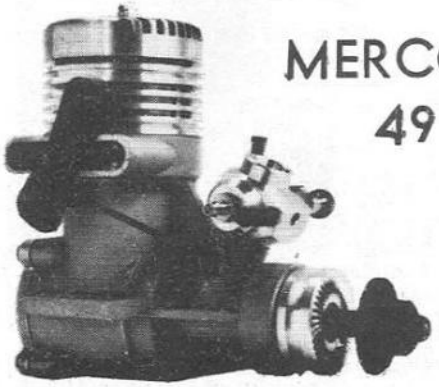
MERCO



MERCO 29 and 35

MERCO 29 and 35 STUNT 119/6

MERCO 49



MERCO 49 Standard 205/4
MERCO 49 MULTISPEED 239/8

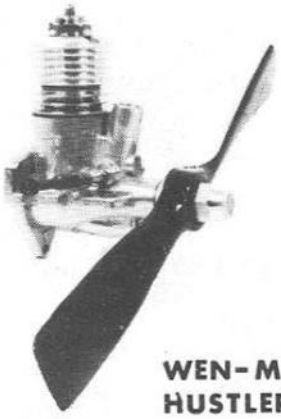
MERCO 29 and 35 MULTI-SPEED 152/6

DIESEL and GLOWPLUG ENGINES

KEILKRAFT

WEN • MAC

GLOWPLUG MOTORS



WEN-MAC ·049 HUSTLER ENGINE 29/-

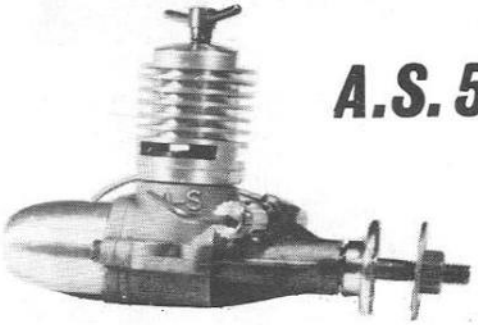
WEN-MAC ·049 ROTOMATIC ENGINE (with starter) 39/4

Complete with nylon propeller.

COBRA

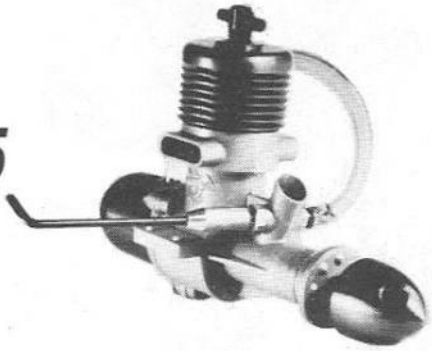
COBRA 049 Glowplug Motor 39/6

A.S. 55

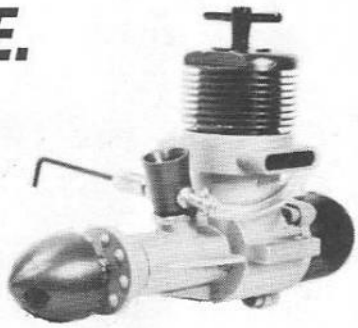


.5 c.c. A.S.55 Diesel 65/-

M.E.

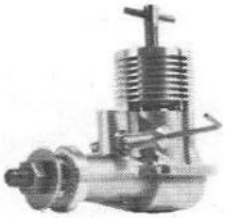


1 c.c. M.E. HERON Diesel 52/4
1 c.c. M.E. MARINE HERON 71/-

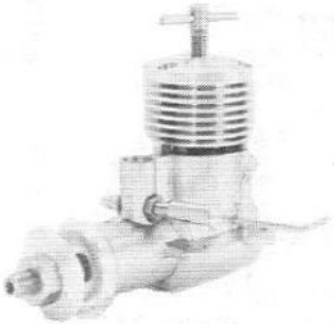


1.49 c.c. M.E. SNIPE Diesel 61/-
1.49 c.c. M.E. MARINE SNIPE 82/9

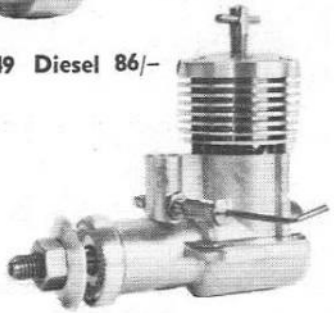
P.A.W.



P.A.W. 1.49 Diesel 86/-



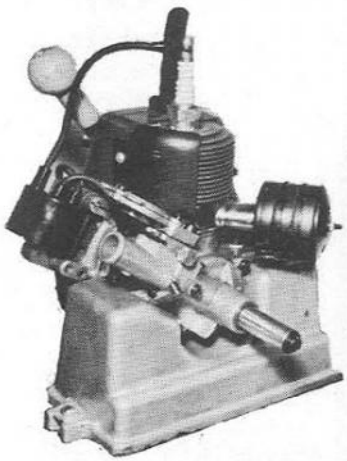
P.A.W. 2.49 Diesel 98/-



P.A.W. 19-D (3.2) Diesel COMBAT SPECIAL 104/6

O. & R.

IDEAL MOTOR FOR LARGE MODEL BOATS

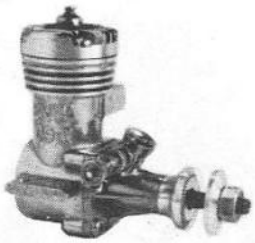


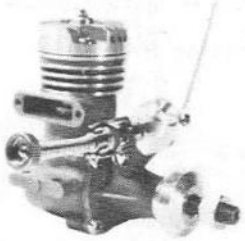
Ohlsson & Rice 21c.c. Spark Ignition Engine. Weight 3 1/4 lb. Height 5 3/4". Width 6". Length 5 1/4".

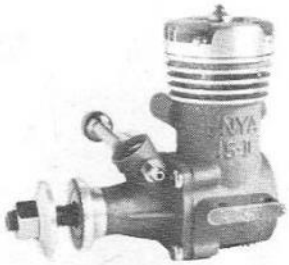
£23.0.5

ENYA ENGINES

KEIL KRAFT



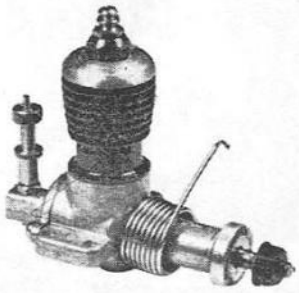




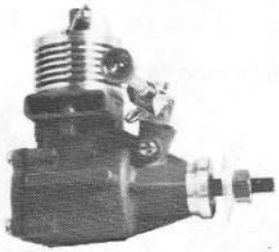
ENYA 09 Standard 56/6
ENYA 09 T/V 70/10
(not illustrated)

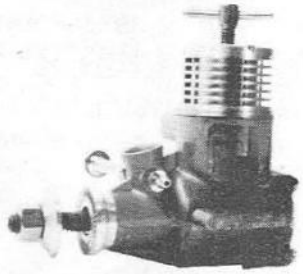
ENYA 15G T/V
95/6

ENYA 15G Standard
78/9



ENYA 06 Standard 52/6
ENYA 06 T/V 56/6 (not illustrated).





ENYA 15D T/V
165/4

ENYA 15D Standard
147/4

ENGINE TIPS

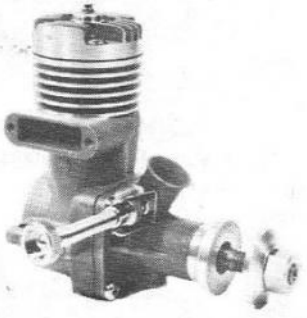
Look after your engine carefully and it will repay you with many years service. Never see how fast you can run a new engine. Always run it in carefully. Run it rich (needle well open) at first, using a rather larger propeller than you will use for flying. Towards the end of the recommended running-in time (see manufacturers instruction leaflet) the needle can be gradually closed to its optimum setting and the correct size propeller can be fitted. Remember, it is no good running a new engine fast and then trying to run it in—the damage will have already been done.

When you have finished running your motor at any time, a couple of spots of light oil in the exhaust port and air intake will help to keep it in tip-top condition.

If you *have* to dismantle your engine use the correct tools and NEVER insert anything into the exhaust ports to lock the piston when unscrewing a tight prop. nut.

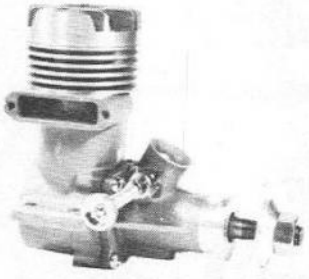
Always use a reliable brand of fuel and if you have to drill out the hole in the centre of your propeller, take care that you keep the hole central.

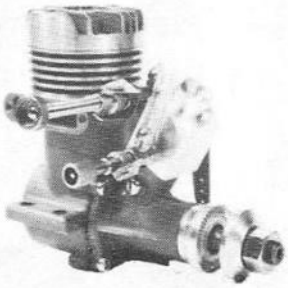
Unless you are fully competent, or prepared to 'write-off' your motor, do not attempt to 'hot-it-up' by reworking it. A great deal of thought and experience has gone into its design and it is unlikely that you can improve it.



ENYA 19G Standard
95/6

ENYA 19G T/V
118/4





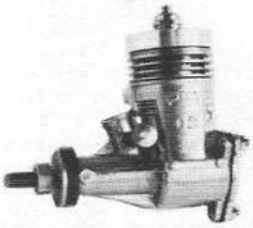
ENYA 35G Standard
135/6

ENYA 35G T/V
165/4

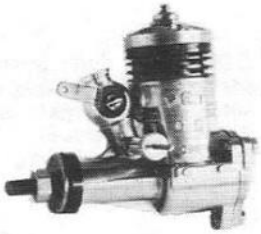
NOTE: ENYA engines are not supplied with glowplugs

O.S. ENGINES

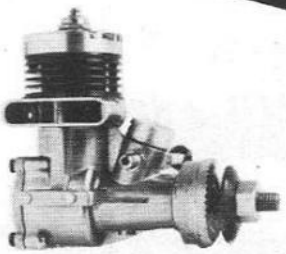
KEILKRAFT



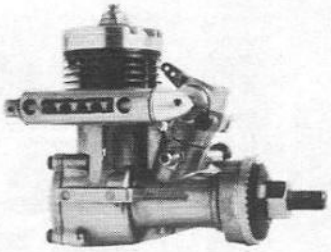
O. S. PET Standard
53/2



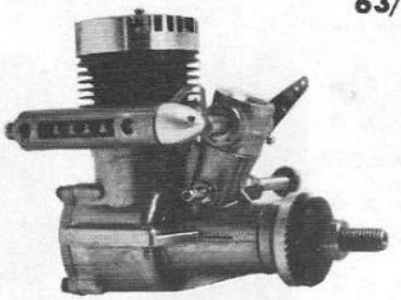
O.S. PET R/C
63/9



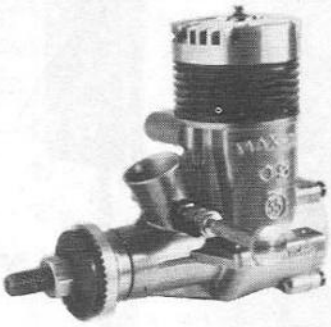
O.S. MAX 15 Standard
118/-



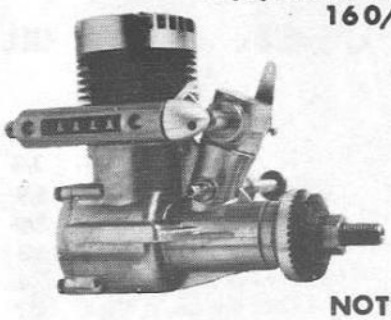
O.S. MAX 15 R/C
151/2



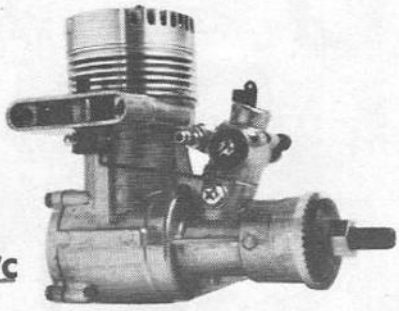
O.S. MAX 29 R/C
160/-



O.S. MAX 35 Standard
130/-



O.S. MAX 35 R/C
162/11



O.S. MAX 49 R/C
229/-

NOTE: O. S. engines(except Standard PET) are not supplied with glowplugs

ENGINE CAPACITY — Cubic Centimetres and Cubic Inches

Often somewhat confusing to the newcomer is the relationship between the two scales used for classifying model engine sizes.

In Britain and on the Continent, it is usual to classify engines, both model and full-size, by their cylinder capacity (more correctly known as the " swept volume " or " displacement ", since it is the actual volume displaced by the piston during its movement from the bottom to the top of its stroke) in cubic centimetres.

American engineers, in contrast, use cubic inches as a measure of displacement volume and, as a result, the various American model engine groups (.049, .099, .29, etc.) differ from those used in Europe (1 c.c., 1.49 c.c., 2.49 c.c., etc.). A few British glow engine manufacturers (e.g. Eta and Merco) use the cu. in. system, however, as do most Japanese makers. Generally speaking, diesels, being of European origin, are quoted in c.c. displacements, while glow engines, being of U.S. origin, are grouped in cu. in. sizes.

One cubic centimetre, (1 c.c.) equals .061 cu. in. Thus, the American ' 049 ' is approximately 0.8 c.c., a ' 15 ' is just under 2.5 c.c., a ' 29 ' is approximately 4.9 c.c. and a ' 60" is 10 c.c.

The actual c.c.-cu. in. equivalents for various British and imported engines are quoted in the Tables on pages 18 and 19.

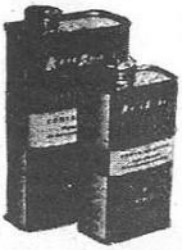
ENGINE FUELS

KEILKRAFT

KEILKRAFT fuels have been developed over a 10-year period, during which they have been tested in more than 200 different engines of all types and sizes. Research continues. Whatever the future holds in model motor design, KEILKRAFT will provide fuels to match.

GLOWPLUG and DIESEL FUELS

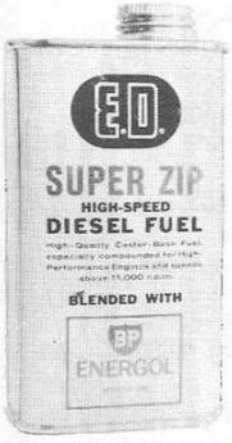
IDEAL FOR ALL MAKES OF ENGINES



BLENDED WITH BP ENERGOL MOTOR OIL

KEILKRAFT NITRATED DIESEL FUEL	½-pt.	3/3
KEILKRAFT NITRATED DIESEL FUEL	1-pt.	5/9
KEILKRAFT RECORD POWERPLUS DIESEL FUEL	½-pt.	3/9
KEILKRAFT RECORD METHANEX GLOW FUEL	½-pt.	3/3
KEILKRAFT RECORD METHANEX GLOW FUEL	1-pt.	6/6
KEILKRAFT RECORD NITREX 15 GLOW FUEL	½-pt.	4/3

OBTAINABLE FROM YOUR LOCAL MODEL SHOP



K & B SUPERSONIC 100 GLOWPLUG FUEL
For Free-Flight, Control Line and Radio Control
½ pint 5/6

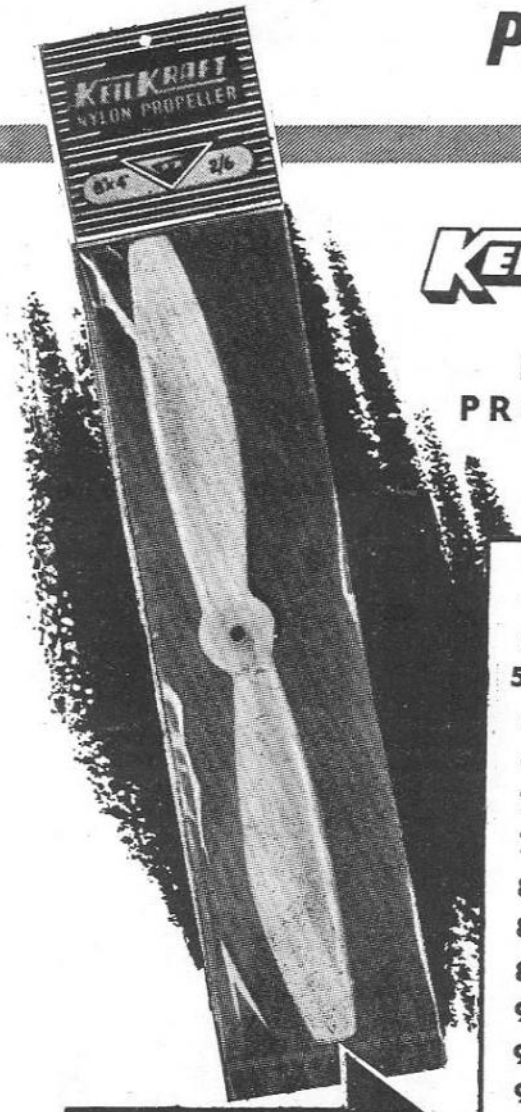
K & B SUPERSONIC 1000 GLOWPLUG FUEL
For Control Line Speed, Team Racing and small engines.
½ pint 6/–

E.D. ECONOMIC NITRATED DIESEL FUEL ½ pint 3/3
E.D. SUPER ZIP DIESEL FUEL ½ pint 3/9
E.D. UNIVERSAL NITRATED GLOW FUEL ½ pint 3/9

WEN-MAC GLOWPLUG FUEL
in 8 ounce tins
(Price to be announced)

QUICKSTART DIESEL FUEL
½ pint 3/6 1 pint 6/–
QUICKSTART GLOW FUEL
½ pint 3/6 1 pint 6/–

PROPELLERS



KEILKRAFT

NYLON PROPELLERS

5 x 3	1/3
5 x 4	1/3
5½ x 4	1/6
6 x 3	1/6
6 x 4	1/6
7 x 4	2/-
7 x 6	2/6
8 x 4	2/6
8 x 6	2/11
8 x 8	3/3
9 x 4	3/5
9 x 6	3/5
9 x 7	3/5
10 x 4	5/3
10 x 6	5/3
11 x 4	6/1
11 x 6	6/1
12 x 4	7/6

NOTE THE PRICES

3 BLADED NYLON PROPELLER

5×3 Complete with spinner. Specially designed to give top performance with 049 glow motors and .5 diesels. 2/11

PLASTIC DURATION PROPELLERS

Keilkraft Plastic Duration 5", 7¼" dia.	-/10½
" " " 12" dia.	2/-

D.C. NYLON PROPELLERS

5½" x 3½"	1/6	7" x 4"	2/4
6" x 4"	1/6	8" x 4"	2/6

KEILKRAFT

STANT Power Props

6" dia. x 4", 5", 9", 10"
7" dia. x 3", 4", 5", 6", 7", 8", 9", 10"
8" dia. x 3", 4", 5", 6", 7", 8", 9", 10"
9" dia. x 3", 4", 5", 6", 9", 10"
10" dia. x 3", 4", 5", 6"
Pusher 7" x 4" and 8" x 4" All 1/11 each.

P.A.W. TRUCUT

5" dia. x 3" only		1/9
6" " x 3", 4", 5", 6", — 8", 9", 10", 12" ...		1/9
7" " x 3", 4", 5", 6", 7", 8", 9", 10", 12" ...		1/10
8" " x 3", 4", 5", 6", — 8", 9", 10", 12" ...		1/10
9" " x — 4", 5", 6", — 8", 9", 10", 12" ...		2/0½
10" " x — 4", 5", 6", — 8", — 10", 12" ...		2/0½
11" " x — 4", 5", 6", — 8", — 10", 12" ...		2/3
12" " x — 4", 5", 6", — 8", — — — ...		2/7½
13" " x — — — 6", — 8", — — — ...		2/11
14" " x — — — 6", only		3/5
7" " x 5" Pitch Pusher		3/3

WOODEN DURATION PROPS

6" dia.	2/1	13" "	5/3		
7" "	2/6	14" "	6/7		
8" "	2/11	15" "	6/11		
9" "	3/1	16" "	8/-		
10" "	3/2½	17" "	8/9		
11" "	3/8	18" "	9/4		
12" "	4/1				

E.D. PLASTIC PROPS

6" dia. x 4" ...	1/11	8½" " x 9" ...	2/9
6½" " x 7" ...	2/4	9½" " x 7" ...	2/11
8" " x 5" ...	2/4		

TIMERS, FUEL TANKS, ENGINE ACCESSORIES

KEILKRAFT

A.M. GLOWPLUGS

A	1.5v	Short Reach ...	4/1
B	2v	Short Reach ...	4/1
C	2v	Long Reach ...	4/1
	2v	Long Reach R/C	5/3

WEN-MAC GLOWPLUGS 1.5v Short Reach 4/1

QUICKSTART GLOWPLUGS

EG98 Short Reach	4/2
EG99 Long Reach	4/2
EG150 Short Reach	4/11
K.L.G. ¼" Spark Plugs	6/5
K.L.G. ⅜" Spark Plugs	6/5
Ignition coil	21/6
Condenser to match coil	2/6

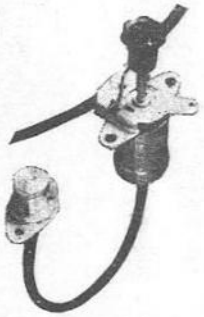
NEEDLE VALVES

K.K. Universal type (illustrated)	4/6
K.K. Universal angled type ...	4/8

TIMERS

K.S.B.

ELMIC MINI-DIESEL

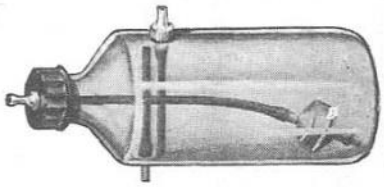


ELMIC UNIVERSAL

Elmic Universal Timer	16/-
Elmic Mini Diesel Timer	9/11
Elmic Baby Dethermalizer Timer ...	7/5
Elmic Petrol Timer (Electrical) ...	12/3
Snip Petrol Timer	9/11
Snip Diesel or D.T. Timer	8/9
K.S.B. Mechanical Timer	28/-
K.S.B. Mechanical D.T. Timer ...	35/-

FUEL TANKS

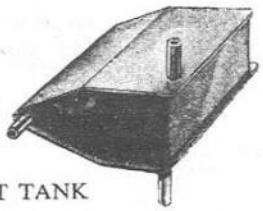
K.K. ½A Stunt Tank	2/11
K.K. Small Stunt Tank	3/11
K.K. Large Stunt Tank	6/5
7½ c.c. Team Race Tank	3/2½
10 c.c. Team Race Tank	3/2½
15 c.c. Team Race Tank	3/6
30 c.c. Team Race Tank	3/11
7½ c.c. Pressure T.R. Tank ...	3/11
10 c.c. Pressure T.R. Tank ...	3/11
15 c.c. Pressure T.R. Tank ...	4/2
30 c.c. Pressure T.R. Tank ...	4/2
Elmic Limitank	8/6
M.S. Small Round Free-Flight Tank	2/11
M.S. Large Round Free-Flight Tank	4/1
M.S. Small Graduated Tank ...	2/3
M.S. Large Graduated Tank ...	2/7½
M.S. 37 c.c. Tank with cut-out ...	6/9
K.K. Radio Control Clunk Tank	8/7



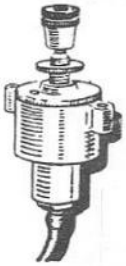
KEILKRAFT R/C CLUNK TANK

All Keilkraft tanks are now attractively skin-packed on cards giving details of the type of tank and method of installation.

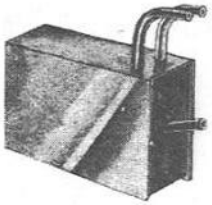
M.S. ROUND F/F TANK



STUNT TANK

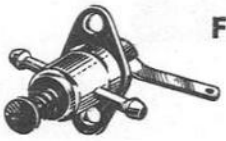


ELMIC LIMI-TANK



PRESSURE T.R. TANK

M.S. GRADUATED TANK



KEILKRAFT FUEL CUT-OUT

6/2

KEILKRAFT FUEL FILTER

2/6

KEILKRAFT GLOWPLUG CLIP

3/2

KK Glowclip connector (with lead & plug) **5/6**

WHEELS and SPINNERS

KEILKRAFT AIR WHEELS

		per pair
2″	diameter	15/5
2½″	,, ...	22/11
3″	,, ...	27/11
3½″	,, ...	30/6
4″	,, ...	32/–

Fully Pneumatic

KEILKRAFT HARD RUBBER WHEELS

1½″ dia. streamlined	(per pair)	2/1
2″ dia. streamlined	,, ,,	3/6
2½″ dia. streamlined	,, ,,	4/6

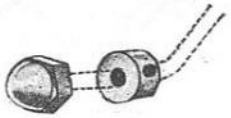
LIGHTWEIGHT PLASTIC WHEELS (Hollow)

1½″ dia. balloon type	(per pair)	–/10½
2″ dia. balloon type	,, ,,	1/2
2″ dia. streamlined	,, ,,	1/2

Wheel Collets

Domed or Plain (Available 10-12-14 g.)

–/4 each



KEILKRAFT PLASTIC WHEELS

⅜″ dia. balloon	(per pair)	–/7
½″ dia. balloon	,, ,,	–/10½
¾″ dia. balloon	,, ,,	–/10½
1″ dia. balloon	,, ,,	1/4
1″ dia. streamlined	,, ,,	1/4
1½″ dia. streamlined	,, ,,	2/2½

DROME AIRTRAP WHEELS

2″ Airtrap	(per pair)	9/4
2½″ Airtrap	,, ,,	11/1
3½″ Airtrap	,, ,,	12/10
2″ De Luxe	,, ,,	12/3
2½″ De Luxe	,, ,,	14/–
3½″ De Luxe	,, ,,	17/6

SPINNERS

1¼″ Standard	... ...	2/7½
1½″ Standard	... ...	2/11
1¾″ Standard	... ...	2/11
2″ Standard	... ...	3/4½
1¼″ Supersonic	... ...	2/11
1½″ Supersonic	...	3/4½
1¾″ Supersonic	...	3/4½
2″ Supersonic	... ...	3/11

KEILKRAFT SPONGE RUBBER WHEELS

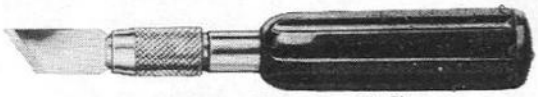
1½″ dia. streamlined	(per pair)	3/6
2″ dia. streamlined	,, ,,	4/6
1½″ dia. balloon	,, ,,	3/6
2″ dia. balloon	,, ,,	4/6

KEIL KRAFT x-acto®

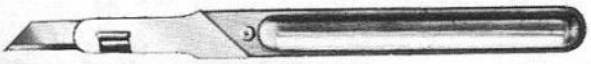
KNIVES & BLADES

No. 1 KNIFE — For light to medium work. Aluminum handle (5" long, 5/16" diameter) complete with No. 11 blade. **4/6**

No. 2 KNIFE — For medium to heavy work. Aluminum handle (5" long, 7/16" diameter) complete with No. 22 blade. **4/9**

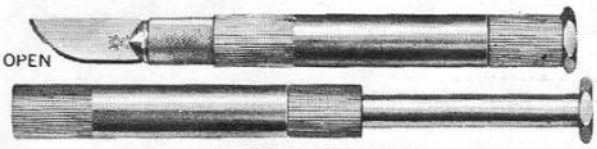


No. 5 KNIFE — For heavy work. Plastic handle with metal blade lock (4¾" long) complete with No. 19 blade. **8/10**

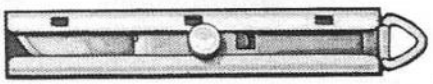


2/- **No. 1001 UTILITY KNIFE** Steel handle (5⅜" long) reversible blade, patented lock.

(Refill blades: No. 8 — pkg. of **3 — 1/4**



No. 2G SAFETY-GUARD KNIFE* — Overall length 5¼", Diameter ½" Complete with No. 22 blade. **9/6**



3/11 **No. 66 POCKET KNIFE** — Stainless steel shell, surgical blade, push-button operation.

(Refill blades: No. 122 — **1/3 each**

No. 3 PEN-KNIFE — Clips to pocket. "See Thru" Cap reveals blade. Gold finish metal barrel. Complete with No. 10 blade. Length closed — 5¼". **7/6**

Also accommodates No. 11 and 16 blades.

No. 51 KNIFE SET—No. 1 Knife with, 5 extra assorted refill blades. **8/-**

No. 52 KNIFE SET—No. 2 Knife with 5 extra assorted refill blades. **8/3**

BLADES (Packets of 5)

Nos. 11, 16, 17, 18, 19, 24 ...	3/-
Nos. 10, 22, 23, 25, 28	4/-

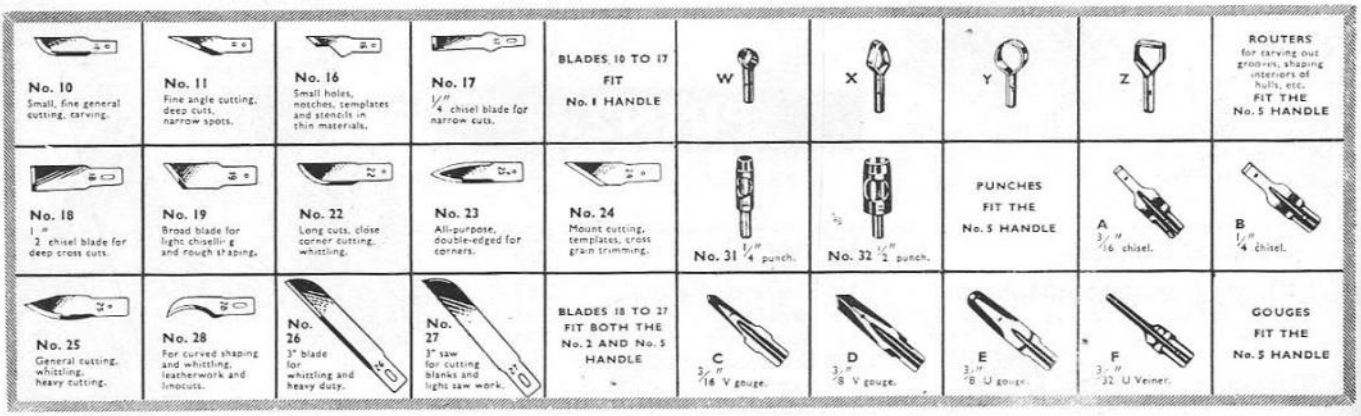
BLADES (Packets of 2)

Nos. 26 and 27	2/-

BLADE ASSORTMENTS

No. 1. 2 blades each Nos. 10, 11 1 blade No. 16	3/6
No. 2. 1 blade each Nos. 19, 22, 23, 24, 25	3/6
No. 4. 5 Assorted gouges	6/-
No. 5. 4 Assorted routers	4/10
No. 6. Punches 1 each Nos. 31 and 32	6/4
Gouges Packet of 5 A B C D E or F	5/6
Routers Packet of 4 W X Y or Z...	4/8

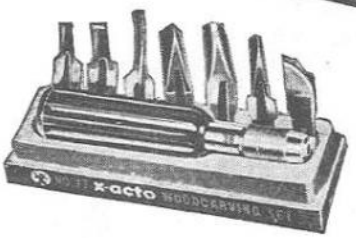
X-acto Manual
"More Skill at your Fingertips" ... 4/6



No. 82 X-ACTO KNIFE CHEST

Nos. 1, 2 and 5 Knives plus 9 asstd. extra blades. Handy, natural-finish wood chest.

37/-



No. 77
X-ACTO CARVING SET

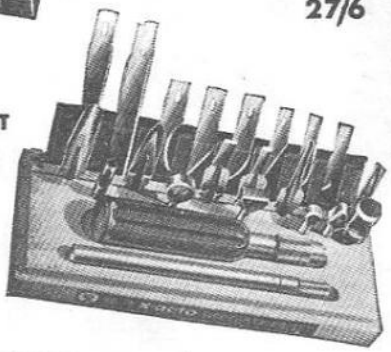
6 gouge blades, 4 regular blades, 2 3-inch blades, No. 5 Knife handle

27/6

Burlington Chest 103/-

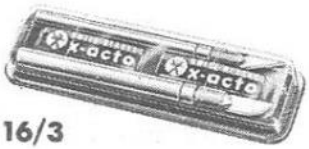
No. 86 X-ACTO HOBBY CHEST—Contains Nos. 1, 2, 5 Knives and complete asst. of blades, gouges, routers, punches. Has X-acto Planer, Sander, Spokeshave, Balsa Stripper, Steel Rule.

27/6

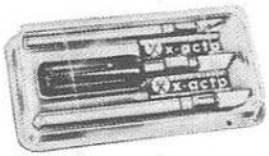


No. 78 X-ACTO DELUXE CARVING SET

Nos. 1 & 5 Knife handles, 2 punches, 6 regular blades, 2 3-inch blades, 6 gouges, 4 routers, —all different. Mounted on wood block. **46/3**



16/3

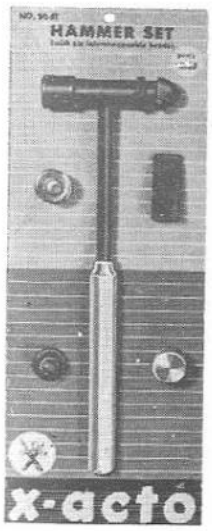


No. 62 DOUBLE KNIFE SET—Nos. 1 and 2 Knives with 10 extra assorted refill blades in clear plastic case which serves as permanent container.

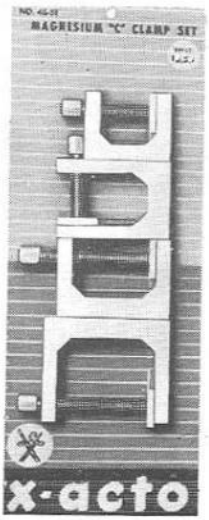
No. 81 KRYSTAL-PAK KNIFE SET—Nos. 1, 2 and 5 Knives with 10 extra assorted refill blades in clear plastic case

No. 40 BLOCK PLANE 7/9

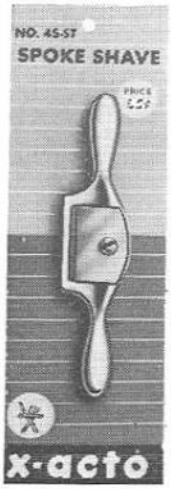
No. 41 SANDER 6/-



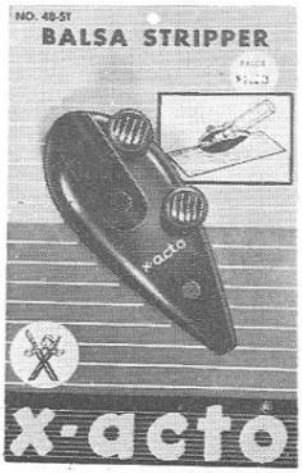
HAMMER SET
NO. 50 16/-



CLAMP SET
NO. 46 15/6



SPOKESHAVE
NO. 45 6/8



BALSA STRIPPER
NO. 48 5/9

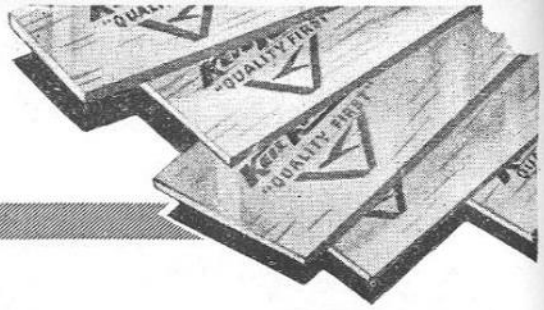
Every popular-priced X-acto hobbycraft tool is individually mounted on a multi-colored card, held in place with an over-all lamination of clear plastic.

RAZOR SAWS

No. 34 $4\frac{1}{2}$" long × $\frac{3}{4}$" deep 2/6. No. 35 $4\frac{1}{2}$" long × 1" deep 2/9

No. 53 Razor Saw set with one each of Nos. 34 and 35 with the correct No. 5 handle 13/9

KEILKRAFT BALSA



OBTAINABLE FROM YOUR LOCAL MODEL SHOP

STRIPWOOD (3ft. lengths)

	Each		Each
1/16" x 1/16"	-/1½	1/8" x 1/4"	-/2½
x 3/32"	-/1½	x 3/8"	-/3
x 1/8"	-/1½	x 1/2"	-/3½
x 3/16"	-/1½	3/16" x 3/16"	-/2½
x 1/4"	-/2	x 1/4"	-/3
x 3/8"	-/2½	x 3/8"	-/3
x 1/2"	-/3	x 1/2"	-/3½
3/32" x 3/32"	-/1½	1/4" x 1/4"	-/3½
x 1/8"	-/1½	x 3/8"	-/3½
x 3/16"	-/2	x 1/2"	-/4
x 1/4"	-/2½	3/8" x 3/8"	-/5
x 3/8"	-/2½	x 1/2"	-/6
x 1/2"	-/3	1/2" x 1/2"	-/7½
1/8" x 1/8"	-/2	x 1"	1/-
x 3/16"	-/2½	3/4" x 3/4"	1/3

SHEET (3ft. lengths)

	Each		Each
1/32" x 2"	-/8½	3/16" x 2"	1/-
x 3"	1/-	x 3"	1/6
x 4"	1/4	x 4"	2/3
1/16" x 2"	-/8½	1/4" x 2"	1/1
x 3"	1/-	x 3"	1/8
x 4"	1/4	x 4"	2/6
3/32" x 2"	-/9	3/8" x 2"	1/4
x 3"	1/2	x 3"	2/-
x 4"	1/8	x 4"	3/-
1/8" x 2"	-/10	1/2" x 2"	1/8
x 3"	1/3	x 3"	2/6
x 4"	1/11	x 4"	3/4

TRIANGULAR SHAPED MOULDING (3ft. lengths)

	Each		Each
1/8" x 3/8"	-/4	1/4" x 3/4"	-/7½
x 1/2"	-/4½	x 1"	-/9
3/16" x 1/2"	-/5		
x 3/4"	-/6		

BLOCK (3ft. lengths)

	Each		Each
1" x 1"	2/-	1½" x 2½"	5/6
x 1½"	3/3	x 3"	7/3
x 2"	3/9	2" x 2"	5/9
x 2½"	4/6	x 2½"	7/3
x 3"	5/9	x 3"	8/9
1½" x 1½"	4/-	3" x 3"	12/6
x 2"	4/9	x 4"	16/-

ROUNDED MOULDING (3ft. lengths)

	Each
1/4" x 1/4"	-/4½
3/8" x 3/8"	-/7½
1/2" x 1/2"	-/8

BALSA HOBBY PACKS

	Each
Sheet Balsa Packs	-/6
Assorted Packs	1/-

SPRUCE and OBECHE

STRIP (3ft. lengths)

	Each		Each
1/8" x 1/8"	-/2½	3/16" x 3/16"	-/4
x 1/4"	-/3½	1/4" x 1/4"	-/4
x 3/8"	-/4	x 3/8"	-/5
x 1/2"	-/5	3/8" x 3/8"	-/7
		1/2" x 1/2"	-/10

SHEET (3ft. lengths)

	Each		Each
1/32" x 3"	1/1	3/16" x 3"	1/7
1/16" x 3"	1/2	1/4" x 3"	1/9
3/32" x 3"	1/4	3/8" x 3"	2/4
1/8" x 3"	1/5	1/2" x 3"	2/10

PLYWOOD PANELS

Size 3 ft. x 1 ft.

	Each
1/32" thick	5/8
1/16" thick	5/8
1/8" thick	6/-

HARDWOOD 3ft. DOWELS

	Each
1/16" dia.	-/3
1/8" dia.	-/3
3/16" dia.	-/4
1/4" dia.	-/5
3/8" dia.	-/7
1/2" dia.	-/9

HARDWOOD STRIP (18" Lengths)

	Each		Each
A. 1/4" x 5/16"	-/3	C. 9/16" x 3/8"	-/4
B. 7/16" x 5/16"	-/3½	D. 5/8" x 7/16"	-/4½
		E. 1/2" x 3/4"	-/5

DOPES, FUEL PROOFERS, ETC.

KEILKRAFT DOPE

Flows on smoothly, dries quickly. One coat coverage gives a smooth opaque finish.

½ oz. clear or coloured	–/8
1 oz. clear or coloured	1/–
2 oz. clear or coloured	1/6
½ pint clear or coloured	4/6
½ oz. Gold	–/9
1 oz. Gold	1/3
½ pint Gold	6/–
½ pint Silver	5/–

COLOURS AVAILABLE

Post Office Red, Pink, Navy Blue, Royal Blue, Princess Blue, Dark Grey, Light Grey, Orange, Apple Green, Spring Green, Light Green, Eau de Nil, Brown, Yellow, Cream, Black, White, Gold, Silver.

BANANA OIL (as Clear Dope)

"217" CLEAR DOPE

1 oz.	1/–
2 oz.	1/6
¼ pint	2/8
½ pint	4/9

THINNERS

1 oz. Keilkraft or Humbrol ...	–/10
2 oz. ,, ,, ,, ...	1/–
3 oz. ,, ,, ,, ...	1/6
8 oz. ,, ,, ,, ...	2/9

FUEL PROOFER

K.K. Marjonos	2/–
Britfix	2/6
H.M.G.	2/–
1 oz. Aeroglas	1/6
2 oz. Aeroglas	2/6

SUNDRIES

2 oz. Keilkraft Grainfiller	1/6
1 oz. Keilkraft Sanding Sealer ...	–/10½
2 oz. ,, ,, ,, ...	1/3
¼ pint ,, ,, ,, ...	4/6
Plastic Wood	1/–

CRAFT BUTYRATE DOPE

Large Jar	2/6
Small Jar	1/–
Thinners	1/3

Butyrate Dope is proof against diesel and glowplug fuels.

COLOURS AVAILABLE

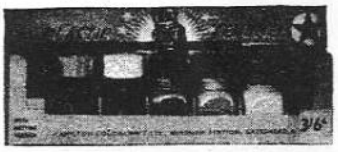
Insignia Red, Chrome Yellow, Velvet Black, Medium Green, Royal Blue, Atlantic Grey, White and Clear.

CRAFT ENAMELS

CRAFT JET ENAMELS (Gold Copper or Silver)	–/8
CRAFT JET ENAMELS (Colours) ...	–/7½

COLOURS AVAILABLE

Sky Blue, Royal Blue, Brilliant Green, Mud, Brunswick Green, Cream, Golden Yellow, Service Brown, Red, Crimson, Dark Admiralty Grey, Light Admiralty Grey, Orange, Midnight Blue, Flesh, Black, White.



CRAFT ENAMEL OUTFIT

CRAFT ENAMEL OUTFIT	3/6
CRAFT POSTER PAINT SET	5/6
CRAFT ENAMEL PACK	1/–

JOY ENAMELS

JOY GLOSS ENAMEL PACK	3/6
JOY SCENIC ENAMEL PACK	3/6

JOY LUMINOUS PAINT

½ oz. Base Coat	–/8
½ oz. Luminous Top Coat	–/10½

H.M.G. MARINE ENAMELS

2 oz. tin 2/3

COLOURS AVAILABLE

Teak, Light Orange, Mallorca Yellow, Sun Beige, Signal Green, Flame Red, Ensign Blue, Morocco Crimson, Carribean Turquoise, Boot Topping Red, Ivory, Pale Cream, Eau de Nil, Iris Blue, Dawn Mist, Black, White.

H.M.G. MARINE VARNISH

2 oz.	2/–
½ pint	5/3

DOPES and ENAMELS

BRITFIX & HUMBROL

BRITFIX CLEAR DOPE

1 oz. clear ...	1/–
2 oz. clear ...	1/6
¼ pint clear ...	2/10
½ pint clear ...	4/9

BRITFIX COLOUR DOPE

1 oz. coloured ...	1/–
2 oz. coloured ...	1/6
¼ pint coloured ...	3/-
½ pint coloured ...	5/3

COLOURS AVAILABLE

Red, White, Black, Yellow, Emerald Green, French Blue, Dark Admiralty Grey, Silver.

BRITFIX SANDING SEALER (as Clear Dope)
BRITFIX GLIDER DOPE (as Clear Dope)
BRITFIX BANANA OIL (as Clear Dope)

HUMBROL CLEAR VARNISH (Marine)

½ oz. ... –/9 2 oz. ... 1/6

HUMBROL FLAT FINISH (Matt Varnish)

½ oz. tin ... ... –/9

HUMBROL BUTYRATE CLEAR SHRINKING DOPE

2 oz. ... 1/9

HUMBROL BUTYRATE SANDING SEALER

2 oz. ... 1/9

HUMBROL HOT FUEL PROOF COLOUR DOPE

2 oz. ... 2/3

COLOURS AVAILABLE

Red, White, Black, Yellow, Emerald Green, French Blue, Dark Admiralty Grey, Clear.

HUMBROL SCENIC ENAMELS

(Semi Matt)

Black	Foliage Green
Concrete	Grass Green
Earth	Red Brick
Wood	Yellow Brick
Tarmac	Stone
Slate	Tile

½ oz. ... 1/–

HUMBROL ONE-HOUR ENAMEL

½ oz.	–/9
2 oz.	1/6
¼ pint	3/–
½ pint	5/6

Gold and Copper

½ oz.	1/–
2 oz.	2/6

COLOURS AVAILABLE

1 Eau De Nil	8 Yellow	15 Midnight Blue
2 Emerald Green	9 Tan	16 Gold
3 Mid-Brunswick Green	10 Service Brown	17 Flesh (Semi Matt)
4 Light Admiralty Grey	11 Silver	18 Orange
5 Dark Admiralty Grey	12 Copper	19 P.O. Red
6 Pale Cream	13 Sky Blue	20 Crimson
7 Light Buff	14 French Blue	21 Black
		22 White

23 Matt Duck Egg Blue	27 Matt Sea Grey	31 Matt Slate Grey
24 Matt Trainer Yellow	28 Matt Sky	32 Matt Red
25 Matt Blue	28 Matt Dk Earth	33 Matt Black
26 Matt Khaki	30 Matt Dk Green	34 Matt White

HUMBROL ENAMEL THINNERS

1 oz. bottle ... –/9
3 oz. tin ... 1/3

HUMBROL CHROMATE PRIMER

2 oz. tin ... 2/–

HUMBROL TRANSFER VARNISH

Bottle with brush 1/6

HUMBROL FLATTING AGENT

Tube ... 1/–

HUMBROL HI-GLO FLUORESCENT PAINT

½ oz. tin 1/6

COLOURS AVAILABLE

Saturn Yellow, Blaze, Fire Orange, Signal Green, Aurora Pink.

HUMBROL HI-GLO BASE WHITE

½ oz. tin 1/–

HUMBROL UNIVERSAL CLEANER

3 oz. bottle 1/9

ENAMELS, BRUSHES and TRANSFERS

BRITFIX & HUMBROL

HUMBROL AUTHENTIC RAILWAY COLOURS

½ oz. tin ... 1/-

COLOURS AVAILABLE

101	L.N.E.R. Green	117	G.E. Blue
102	G.W.R. Coach Chocolate	118	L.N.E.R. Garter Blue
103	G.W.R. Coach Cream	119	Track Colour (matt)
104	G.W.R. Loco Green	120	Signal Yellow
105	G.W.R. Freight Grey	121	Signal Red
106	S.R. Malachite Green	122	C.P.R. Yellow
107	L.M.S. Wagon Grey	123	C.P.R. Tuscan Red
108	L.M.S. Maroon	124	C.P.R. Grey
109	B.R. Roof Lead	125	C.N.R. Yellow
110	B.R. Red Bauxite	126	C.N.R. Green
111	B.R. Freight Grey	127	Black
112	B.R. Interior Stone	128	White
113	B.R. Multi-Unit Green	129	Silver
114	B.R. Coach Cream	130	Gold
115	B.R. Yellow Lining	131	Copper
116	B.R. Coach Crimson	132	B.R. Orange Lining
		133	B.R. Deltic Blue

HUMBROL PAINTING OUTFITS

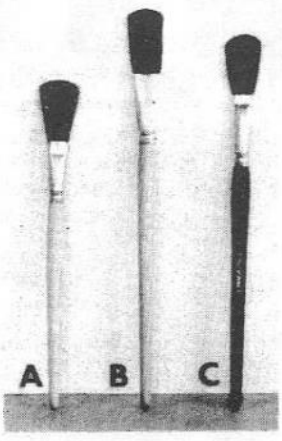
MINI KIT	2/-
RAILWAY LIVERY KIT ...	2/6
ECONOMY PACK	3/6
GIFT PACK	4/6

HUMBROL GIFT PACK
comprising
six ½-oz. tinlets

With free brush
and tube of Polystyrene Cement.

BRUSHES

A	Flat Goat	-/6
B	Flat Squirrel	1/-
C	Flat Squirrel	1/3
	Pointed Squirrel	-/9



ARTIST'S BRUSHES

Size 00	...	8d.
,, 0	...	7d.
,, 1	...	7d.
,, 2	...	8d.
,, 3	...	8d.
,, 4	...	9d.
,, 5	...	10d.
,, 6	...	11d.

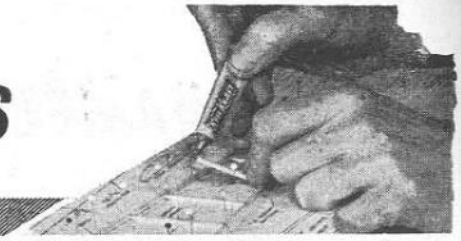
TRANSFERS

R.A.F. Roundels

1" dia. (12 on sheet) ...	-/4½	1¾" dia. (6 on sheet)	-/9
1½" dia. (12 on sheet) ...	-/9	2" dia. (6 on sheet)	1/-
1/72nd U.K., U.S.A. or U.S.S.R.			-/3½
4/6 Flying Scale size. U.S.S.R. or German			-/9½
4/6 Flying Scale size. U.K. or U.S.A.			-/10½
1/8" Alphabets (Available in Black, White or Red) ...			-/3
5/16" Alphabets (Available in Black, White or Red) ...			-/6
1" Alphabets (Available in Black, White or Red) ...			-/6
2" single letters (Available in Black, White or Red) ...			-/2
12" x 1½" strips of chequers			-/9

(Available in Red and White, Black and White, Blue and White and Black and Yellow).

CEMENTS & ADHESIVES



KEILKRAFT CEMENT

An all-purpose Balsa cement that will not weaken. Colourless, fast drying.

MIDGET	–/4
MEDIUM	–/7
LARGE	1/–
MONSTER	1/8

BRITFIX CEMENT

No. 66

MEDIUM	–/7
LARGE	1/–
MONSTER	1/8

O-MY CEMENT

MEDIUM	–/7
LARGE	1/–
MONSTER	1/8

JOIN A CLUB

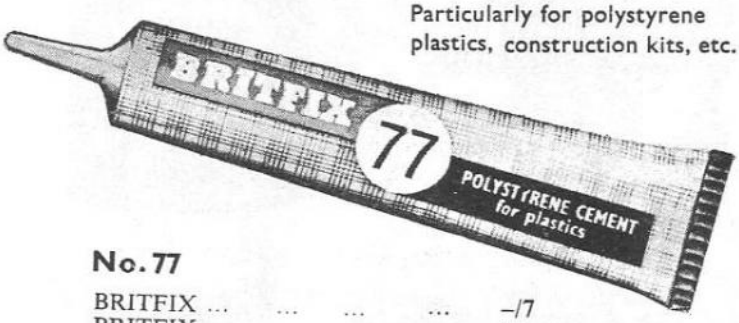
By joining your local club you can enjoy the company and experience of fellow modellers.

The Society of Model Aeronautical Engineers is the controlling body for all clubs in the British Isles and membership automatically provides insurance for all types of models as well as many other benefits.

An application form for associate membership or the address of your nearest club can be obtained by sending a stamped and addressed envelope to the S.M.A.E. Ltd., 10A Electric Avenue, London, S.W.9.

PLASTIC (Polystrene) CEMENT

Particularly for polystyrene plastics, construction kits, etc.



No. 77

BRITFIX	–/7
BRITFIX	1/–
O-MY STANDARD	–/7
O-MY QUICK-DRY	–/7

TISSUE PASTE

KEILKRAFT TISSUE PASTE ...	MEDIUM	–/6
O-MY TISSUE PASTE	LARGE	–/10
BRITFIX No44 TISSUE PASTE		–/5

ADHESIVES

Araldite	6/–
Aerolite 306 Red	3/6
Aerolite 306 Blue	3/6
H.M.G. Cement	1/3
Croid Glue	1/2
Britfix 55 P.V.A.	1/9
Britfix 99 Impact Adhesive	1/9
Britfix 99 Impact Adhesive	–/6
LePages Bondfast Small Squeeze Bottle	2/3
LePages Bondfast Large Squeeze Bottle	6/–
Refill Jar	9/–
Cascamite	2/6
Casco Contact Adhesive ...		1/–
Casco Contact Adhesive ...		1/9

SUPERFIX

P.V.A. adhesive suitable for assembling SUPERQUICK kits and for many other uses.

Plastic jar ... –/6

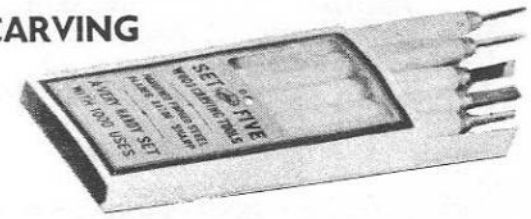
MISCELLANEOUS SUPPLIES

KNIVES

Keilkraft Knife Handles	1/6
Keilkraft Knife Blades (Shapes 1-2 and 3) each	-/5
Swann Morton Craft Tool (with two blades) ...	2/6
Swann Morton Handy Tool (with four blades) ...	5/-

WOOD CARVING TOOLS

(Set of five)
2/6



PINS

(GLASS HEADS)

Small Packets ...	-/7½
Large Bubble Pack (As illustrated)	1/-
2 Gross box ...	5/6

MODELSPAN TISSUE

L/wt. White	Per Sheet	-/3½
L/wt. Coloured	,, ,,	-/4
Smooth Tissue	,, ,,	-/2
H/wt. White	,, ,,	-/4½
H/wt. Coloured	,, ,,	-/5
Bamboo Tissue (sheet)	,, ,,	1/-
Japanese Lightweight Silk ...	Per yard	6/6
Viscotex Super Tissue ...	Per Sheet	1/-

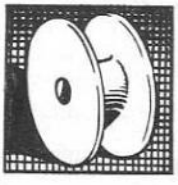
PROPELLER BUSHES, CUP WASHERS, ETC.

For rubber powered models

16 or 18 gauge Bushes (brass) ...	...	-/3 each
16 or 18 gauge Cup Washers per 72	...	1/3
Elmic Atom Ball Race 16 gauge ...	...	1/3 each

BOBBINS

Minor	-/3½
Major	-/4
Standard	-/4½
Super Giant	-/5

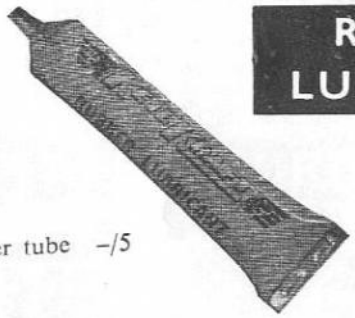


KEILKRAFT

RUBBER

Boxed Dunlop 6010 (12 yards in box)		
1/8" flat	per box	2/6
3/16" flat	,, ,,	3/-
1/4" flat	,, ,,	3/6
Mermaid Rubber Bands ...	6d. packets	

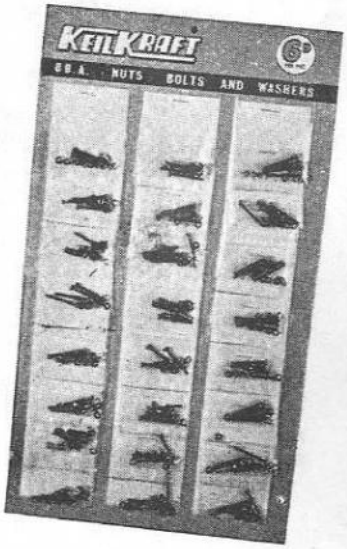
RUBBER LUBRICANT



Per tube -/5

Specially made to prolong the life of rubber motors and increase their performance.

NUTS BOLTS and WASHERS

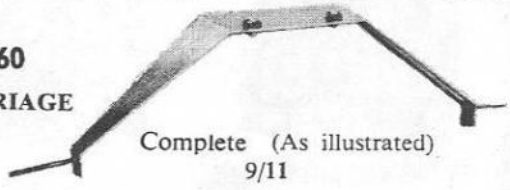


6-8 or 10 B.A.

4 nuts, bolts and washers

per packet -/6

SUPER 60 UNDERCARRIAGE



Complete (As illustrated)
9/11

MISCELLANEOUS SUPPLIES

KEILKRAFT

CELSPRAY SPRAYERS

CELSPRAY Spray Guns will spray cellulose, lacquer, paint, etc., giving a first-class finish.

Precision made and guaranteed 5 YEARS

No. 3 CELSPRAY HAND SPRAYER ...	11/6
No. 2 CELSPRAY (for foot pump)	10/3
Spare CELSPRAY Bulbs ...	4/6
Spare CELSPRAY Bottles ...	–/9

FUEL CANS AND OILERS

Alton Valvespout Can (No. 8) ...	4/3
Alton Valvespout Plastic Squeeze Bottle	3/9
Dermic Oiler (Syringe Type)	5/6

DETHERMALISER FUSE

D/T Fuse 2 yard hank ...	–/9

SOLDER

Ribbon Solder	1/–
Multicore Solder (Boxed) ...	–/6
Multicore Solder No. 1 reel ...	5/–
Tinflo Soldering Fluid	2/9

PLASTIC COWLS

Spectre Cowling	1/2
Powered Scale Cowling ... (Illustrated)	1/2

CLEAR PLASTIC SHEET

.005" x 10" x 24" ...	2/–
.010" x 10" x 24" ...	3/–
.015" x 10" x 24" ...	4/–
.020" x 10" x 24" ...	5/–
.005" x 38" x 24"* ...	6/–
.010" x 55" x 24"* ...	12/6
.015" x 56" x 26"* ...	20/–
.020" x 55" x 24"* ...	26/–

*Approximate Size

SANDPAPER

Fine grade	Per Sheet –/4
Medium grade ...	,, ,, –/4½
Coarse grade ...	,, ,, –/5

SPANNERS

Elmic Spanner (6-8 B.A.) ...	–/9

Keep up to date with the latest developments in KEILKRAFT kits and accessories by reading our advertisements which appear each month in 'MODEL AIRCRAFT', the 'AEROMODELLER' and the 'MODEL MAKER'.

VARLEY DRY ACCUMULATORS

Ideal for glowplug operation

The 'Varley' method of lead-acid battery construction, in which the plates and separators are assembled together under compression to form a solid porous block, has proved in practice and over many years to be electrically and mechanically far superior to any other method known.

A summary of the 'Varley' advantages, which apply to all users, is given below.

- ★ Increased efficiency at high rates of discharge.
- ★ Efficiency maintained under all temperature conditions.
- ★ Vibration and shock proof.
- ★ No free electrolyte, the cause of corrosion is therefore eliminated.
- ★ Less maintenance required.
- ★ Damage resultant of neglect minimised.
- ★ Longer effective life.
- ★ Filled and charged 'Varley' Batteries can be transported by any means to any part of the world as ordinary dry goods.

VPT. 7/4 2 volt 4 amp. 20 hour ...	22/6
VPT. 7/7 2 volt 7 amp. 20 hour ...	26/–
VPT. 7/9 2 volt 9.5 amp. 20 hour	28/–

(the above prices include filling)

V.20 2 volt 10 hour	21/–
V.40 2 volt 20 hour	25/6

(the above prices include filling and first charge)

Magna Cell 2 volt miniature	3/–
Barnard 4 volt 2 amp.	22/–
Barnard 6 volt 2 amp.	30/–

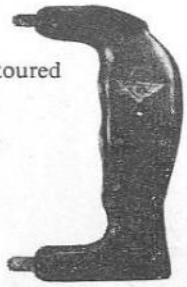
MISCELLANEOUS SUPPLIES

CONTROL LINE HANDLES

KEILKRAFT

Moulded in plastic and contoured to fit the hand. (Right)
3/6

Junior Handle (Left)
1/9



DAVIES - CHARLTON

Cast metal Adjustable. (Right)
7/1

Plastic Handle (Left)
1/11

STEEL WIRE

K.K. Single Strand 30 or 33 S.W.G.
150′ on card 2/6

K.K. Stranded Lightweight
70′ on card 3/3
100′ on card 4/6

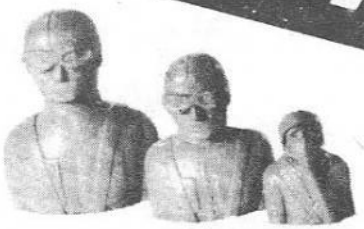
K.K. Stranded Heavyweight
70′ on card 4/3
100′ on card 6/–

Lightweight Laystrate 70′ per coil	3/4
Lightweight Laystrate 100′ per coil	4/9
Heavyweight Laystrate 70′ per coil	4/6
Heavyweight Laystrate 100′ per coil	6/4
Lightweight Laystrate (2 x 62′ Reels)	6/–
Heavyweight Laystrate (2 x 62′ Reels)	7/11

BELLCRANKS

Ranger Type (alu.)	–/3½
Stunt Queen (alu.)	–/3½
Plastic Small	–/3½
Plastic Medium	–/3½
Plastic Large	–/3½
Control Horn	–/5½

KEILKRAFT

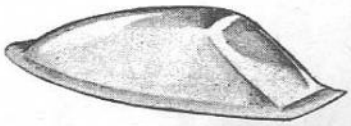


PILOTS

(Plastic Unpainted)

Class A T Race	2/4
Class B T Race	2/11
Flying Scale Junior	1/5½

COCKPIT COVERS



1/72nd Solid Scale	–/3½
Flying Scale	–/7
Skystreak 26	–/7
Skystreak 40	–/10½
Pacer	–/10½
Marquis	1/–

PIANO WIRE

36″ length

	Each
24 gauge	–/1½
22 gauge	–/1½
20 gauge	–/1½
18 gauge	–/2½
16 gauge	–/3½
14 gauge	–/6
12 gauge	–/9
10 gauge	1/–

TUBING

BRASS OR ALUMINIUM in 12″ lengths

10, 12 or 14 Gauge	–/10½
16, 18 or 20 Gauge	–/9
Annealed Copper Tubing for Fuel Tanks	1/–

PLASTIC FUEL TUBING

	per foot
Small and medium	–/4½
Large	–/6
Elmic Flexitube	–/6

K.K. TERYLENE CORD

Cards containing 100 ft. –/10½

K.K. Modelling Thread

Cards containing 30 ft. –/9

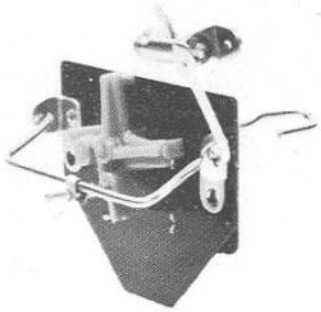
RADIO CONTROL ACCESSORIES

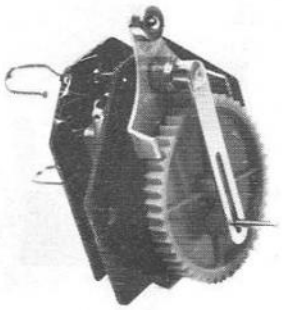
KEILKRAFT

ESCAPEMENTS BY ELMIC

CORPORAL
Motor Control Unit for use with Commander. Adjustable Stroke. Overide-shock absorber, ¾ oz. complete and 1⅞" wide. 3-6 v. operation.

47/4





COMMANDER
Selective left and right with built-in switch for Motor Control. Nylon governed movement. Built-in Rudder Linkage. Only ⅞ oz. and 1⅞" wide. 3-6 v. operation. Couplings. Self-neutralising.

59/2

CONQUEST
For rudder only. Simple two-position sequential escapement. Built-in linkage and coupling supplied. For models 24" span and larger. 3-6 volts. 1⅜" wide ⅝ th. oz.

35/-

THE ELMIC BATTERY CHARGER

First as usual with a transistorised universal battery charger. Suitable for DEAC, silver zinc and glo-plug cells. etc. Transistor controlled constant current output, charges any type DEAC from one to seven cells, or lead acid one to three cells without adjustment. 100 per cent. electrical safety, accidental short circuit of charging leads cannot blow fuses or harm circuit. Available now in two outputs:

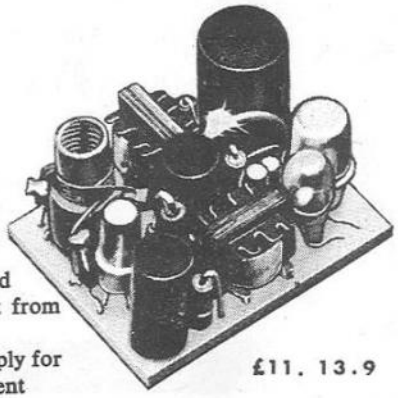
Type 1	E910/ 50 mA output	£4	5 0
Type 2	E920/500 mA output	£5	10 0

Suitable for operation from 230/240v. A.C. 50 cycle mains supply. Size:— 6" x 3" x 3".

OTARION

Model 0-21

R/C RECEIVER



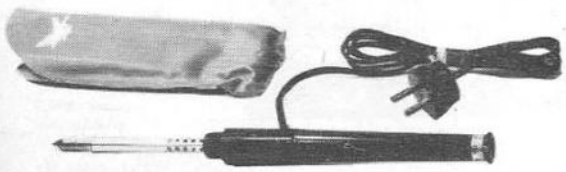
- CB relayless tone receiver
- Size 1" x 1¼" x ⅝"
- Weight ½ ounce
- Mounts in any position
- Fully temperature stabilized
- Works on any escapement from 7 ohms up
- Only three volts power supply for both receiver and escapement
- Time-proved printed circuit construction
- High quality stable components
- Built-in Synchro Tuning Indicator
- Works on any tone transmitter

£11. 13.9

Frequency Range—
All 27 mc band channels

Provided with four 12 inch color coded wire leads

Printed circuit protected with polyurethane seal



EAGLE SOLDERING IRON

● 30 watts ● 230 volts ● A.C. mains

Designed on an entirely new principle for lightweight applications. Highly stable heat characteristics assures long life and safety in use. Features removable handle that may be used to cover the tip and barrel to permit the iron to be carried safely even when hot. Supplied complete with Vinyl bag, Mains lead and plug. Total overall length 10½" (6½" when not in use).

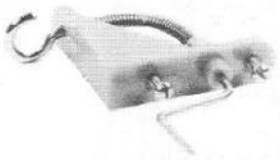
18/9

Spare Element 4/6. Spare bit 1/6

ELMIC '90' SIDEWINDER

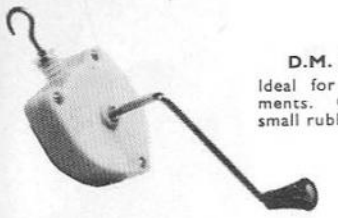
Solves R/C escapement winding problems.

4/11



★ WEIGHT 1/6 o.z
★ SIZE 1¼" x 1" x ⅜"
★ COMPLETE READY TO FIT.
★ FITS THE SMALLEST MODEL.
★ ROBUSTLY MADE NYLON BODY

4/11



D.M. SPADE WINDER

Ideal for winding R/C escapements. Can also be used for small rubber-driven models.

4/11

KEILKRAFT

RADIO CONTROL SUNDRIES

0–10 ma. Milliampmeter	25/-
0–50 ma. Milliampmeter ...	25/-
Transmitter Aerial (4 sections) .	13/-
Potentiometers—5K. 10K or 100K	5/6
Toggle Switch	3/-
On/Off Switch (single)	2/6
On/Off Switch (double)	3/-
Micro Switch	8/-
Clockwork escapement spring ...	3/4
Push Switch (double pole) ...	3/4
Two Pin Plug and socket	1/9
Four Pin Plug and socket	1/9
Six Pin Plug	2/6
Six Pin Socket	2/-
Seven Pin Plug	3/-
Seven Pin Socket	1/6
E.D. Plastic Bobbin	1/8
Mark 3 Relay Bobbin and coil ...	7/4
Plastic Coil and Former	1/8
Keying Lead and Switch	6/-
Rotary Switch (lever type) ...	8/8
Socket for X.F.G.1 Valve	1/3
Hivac X.F.Y.34	15/-
Hivac X.F.G.1 Thyraton Valve ...	17/6

MERCURY

KITS and ACCESSORIES

MERCURY model aircraft kits and their associated range of accessories have for fifteen years enjoyed an enviable reputation. Their quality of material, design, and performance has made their name world-renowned amongst modellers as being without question the best in their class.

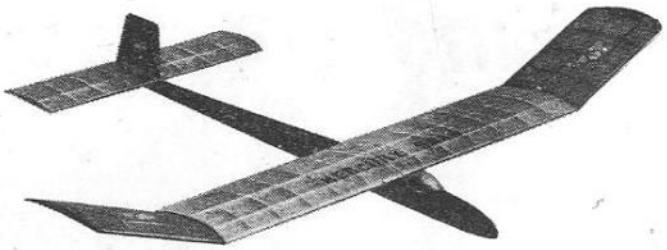
In adding the whole Mercury range of products to the KeilKraft catalogue we feel that we have enhanced an already comprehensive range to the point where it is without equal. Our future policy will be to introduce a series of new designs under the Mercury Trade Mark that will keep the range right up-to-date in every respect. There will be kits for beginners as well as for the experienced sport flier and the out-and-out competition modeller. New accessories will also be introduced to keep pace with the ever-increasing demand for the latest and best.

MERCURY KITS and ACCESSORIES

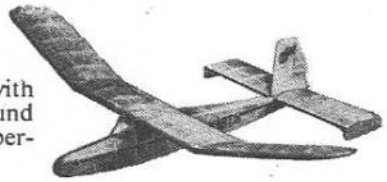
GLIDERS

MAGPIE
24″ span beginner's glider. With a simple, clear plan, straightforward construction and excellent flying capabilities, this is a firm favourite for the junior modeller.

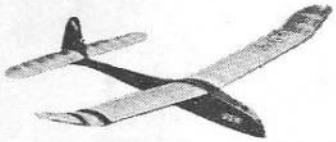
GNOME
32″ span pod and boom glider. One step up from the Magpie. A fine flier and a tough model.

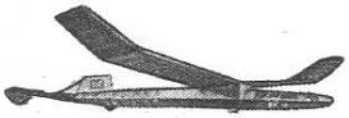


MARTIN
40″ span intermediate glider with cabin type built-up fuselage. A sound tow-line trainer with a good performance.



SWAN
42″ span lightweight sailplane suitable for unrestricted contests. Simple construction and sound design make it easy to get a real contest performance from this model.





GREBE
49″ span sailplane of very robust construction which can easily be adapted to lightweight single-channel radio-control. Very stable on the tow-line.

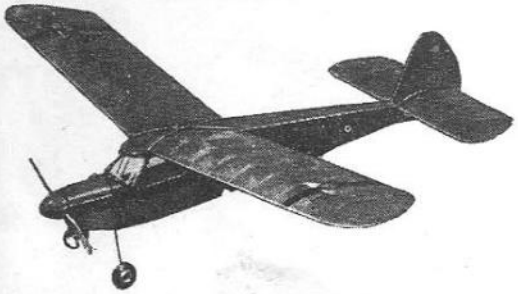
MARAUDER
65″ sailplane to A2 specification; this is a contest model for the advanced flier. Capable of consistent "maximum" flights.

KIT	PRICE (Inc. P.Tax)
MAGPIE	4/10
GNOME	8/2
MARTIN	9/7
SWAN	12/3
GREBE	15/9
MARAUDER	17/2

FREE FLIGHT POWER

MATADOR
Cabin model of conventional construction for diesels 1cc–2.5ccs for either free-flight or radio-control. Rudder-only Nationals winner in 1957 and still a firm favourite. Span 47″. O/A length 43″.

GALAHAD
Low wing cabin model specially designed for radio-control with 1.5ccs to 2.5ccs motors. Designed by Frank Knowles and a popular contest winner. Span 54″.



MAGNA
38″ span cabin model of pleasing lines for diesels of 0.5–0.87ccs capacity or .049 cu. in glowmotors. A very sound first beginner's power model. O/A length 28¼″.

KIT	PRICE (Inc. P.Tax)
MAGNA	13/1
MATADOR	25/3
GALAHAD	36/–

FREE FLIGHT POWER SCALE

AERONCA SEDAN

This beautiful scale cabin model has a wingspan of 65″ and is the perfect scale model for rudder-only radio control. It looks just like the real thing when flying and is the ultimate in scale models. For diesels 1.5–2.5ccs.

MONOCOUPE 40

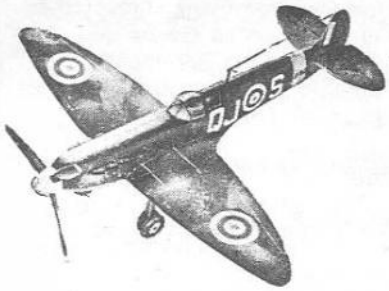
A true scale model of a popular light aircraft that has a pleasing appearance and fine performance. Span 40″ for diesels 0.5–0.87ccs.

TIGER MOTH

This accurately scaled down model of one of the world's most popular and famous aircraft continues to be one of the most popular in the Mercury range. For diesels 0.5–0.87ccs or .048 cu.in. glow-motors. 33″ wingspan.

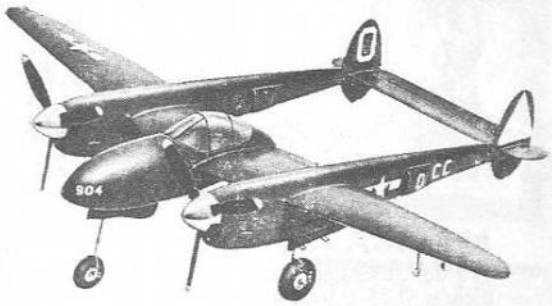
KIT	PRICE (Inc. P.Tax)
MONOCOUPE 40	33/1
TIGER MOTH	33/1
AERONCA SEDAN	70/6

CONTROL LINE SCALE



SPITFIRE

Without doubt the most famous and the most beautiful of all the fighters in World War II. This is a fully prefabricated kit with formed wing panels and with a 2.5–3.5ccs diesel has a good performance. Span 23″. O/A length 20½″.

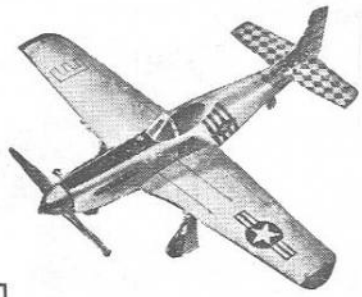


LIGHTNING

This twin engined fighter is a real delight to fly and once airborne can be flown in on either engine. Has a really fine flying performance. Fully prefabbed kit with all wire parts preformed. For two 1 or 1.5ccs engines.

MUSTANG

This completely prefabricated kit makes up into a true scale model of one of World War II's most famous fighters. Solid balsa throughout with preshaped wing panels. For diesels 2.5–3.5ccs. Span 23½″. O/A length 20″.



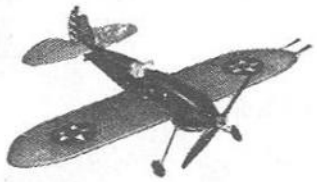
Me109

Designed for 1–1.5ccs diesels this is a smaller scale model of similar design and construction to the Mustang and Spitfire. All wire parts fully shaped. Span 18½″. Area 64″ sq. ins.

KIT	PRICE (Inc. P.Tax)
MUSTANG	32/3
SPITFIRE	36/7
Me109	28/6
LIGHTNING	45/–

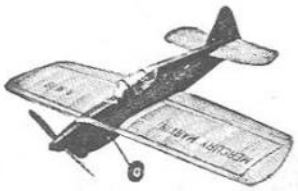
MERCURY KITS and ACCESSORIES

CONTROL LINE STUNT and COMBAT



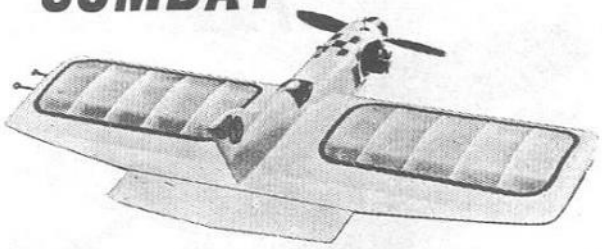
WASP

Lightweight 18¾" span stunt model for diesels 0.5–0.87ccs or 0.49 cu. in. glowmotors. Goes through the book when suitably powered. Area 76 sq. ins.



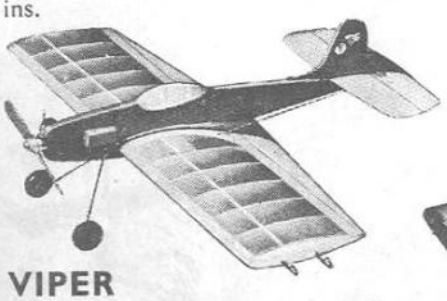
MARVIN

A handsome cabin model for stunt flying with any good 1cc to 1.5ccs diesel. Coupled flaps and elevators. Wing area 175 sq. ins. Will fly the full pattern.



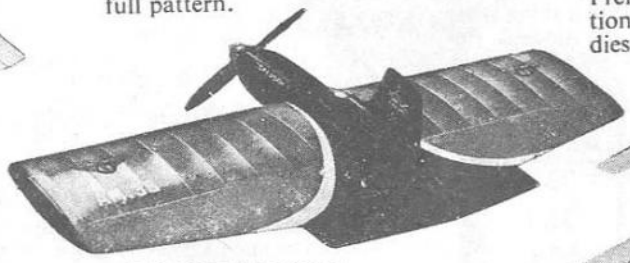
PICADOR

A smaller version of the popular Toreador flying wing design for stunt and combat flying.
Prefabricated kit for easy construction. Flies well with any good 1–1.5ccs diesel. Span 24". Area 154 sq. ins.



VIPER

Profile fuselage stunt trainer for diesels 1cc to 1.5ccs. Deep section wing gives this model a fine flying performance and when suitably powered it will really stunt. Prefabricated kit, easy to build and fly. Span 27½". Area 190 sq. ins.

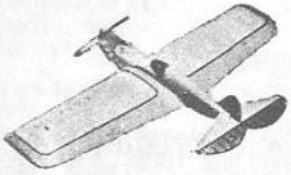


TOREADOR

A true flying wing with semi-scale cabin and fuselage, this is a very attractive model of individual design and appearance. For stunt or combat flying. Makes a sound rugged trainer. For Diesels 2.5–3.5ccs or 19 glowmotors. Span 36". Area 324 sq. ins.

COBRA

Profile fuselage stunt model for 29 and 35 glowmotors. For combat or stunt flying. Makes a really good big trainer. Prefabricated kit with very short building time. Deep section airfoil for good flying characteristic. Span 40½". Area 355 sq. ins.



MONARCH

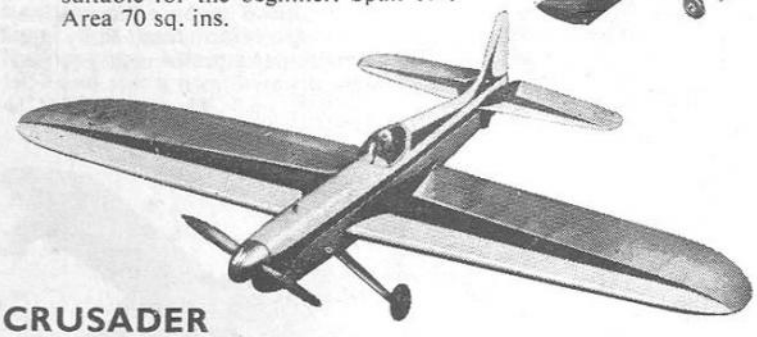
Semi-scale appearance cabin stunt model for 2.5–3.5ccs diesels. Coupled flaps and elevators. Wing area 382 sq. ins. Span 42".

NEW JUNIOR MONITOR

A sleek streamlined stunt model for fast stunting with 2.5ccs engines. An old favourite in the Mercury range. Pre-fabricated kit. Span 30". Wing area 167 sq. ins.

MAMBA

Profile fuselage stunt trainer for diesels 0.75–0.97ccs and .049 glowmotors. A rugged model of simple construction and a completely prefabricated kit making it especially suitable for the beginner. Span 19". Area 70 sq. ins.

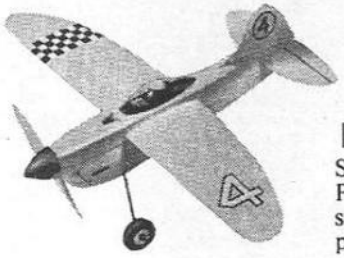


CRUSADER

The most advanced stunt model available in kit form. For 29 and 35 glowmotors. Completely prefabricated kit of advanced aerodynamic and structural design. Coupled flaps and elevators. Wing Area 630 sq. ins. Span 56". A really beautiful model.

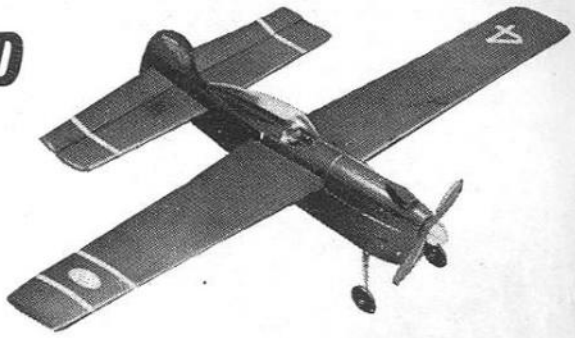
KIT	PRICE (Inc. P.Tax)
WASP	12/3
MARVIN	19/3
MAMBA	15/9
VIPER	17/6
COBRA	28/6
MONARCH	34/10
NEW JUN. MONITOR	22/8
PICADOR	19/3
TOREADOR	26/2
CRUSADER	69/8

CONTROL LINE TEAM RACERS and SPEED



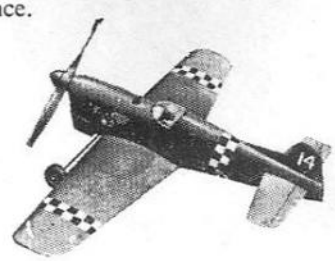
1/2 A TEAM RACER

Solid balsa construction throughout. Prefab. kit. for diesels 1–1.5ccs. A sturdy little model with a good performance.



TEXAN

An old favourite team racer design for 2.5vccs engines with built up wing. Makes a very good trainer. Span 22″ . Area 74 sq. ins.

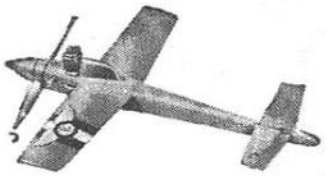


F.A.I. TEAM RACER

The latest Mercury Team Racer. Designed by Sid McGoun, one of the most experienced team race pilots, to the current F.A.I. formulae with 186 sq. ins. total area. This is a very rugged model which will withstand the hardest knocks. Fully pre-fabricated kit with pre-formed undercart and all hardware.

MAC

A solid balsa team racer to the old specification that still appeals to the junior modeller because it is so easy to build and fly. Span 22″ . Area 77 sq. ins. For 2.5ccs diesels. Can be flown as ½A model with 1.5cc motor.

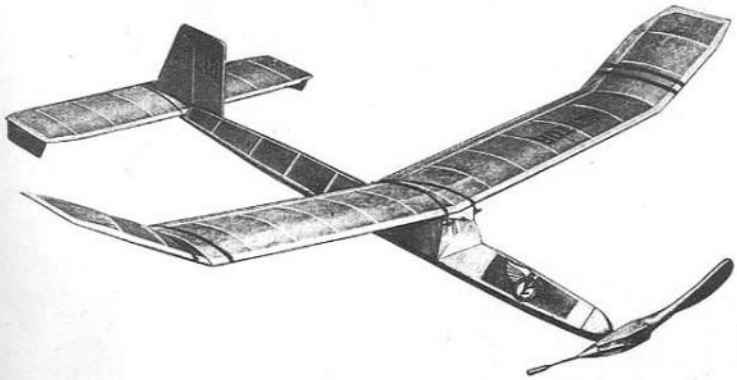


MIDGE

Speed model for 1.5ccs diesels. One-time British record holder. A very economical high-performance model.

KIT	PRICE (Inc. P.Tax)
1/2 A TEAM RACER	15/3
TEXAN	15/9
MAC	17/6
F.A.I TEAM RACER	32/6
MIDGE	7/–

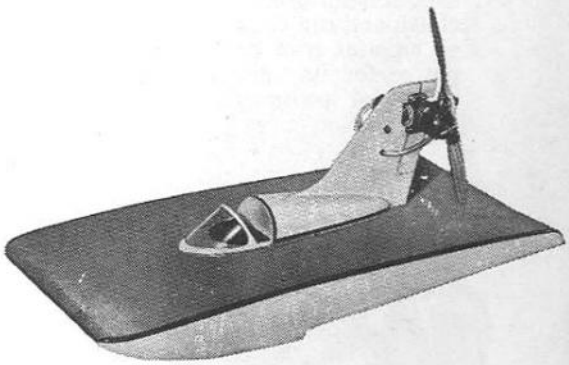
RUBBER POWERED



MENTOR

An efficient lightweight model with a good competition performance. Especially recommended for modellers of moderate ability wishing to get their first experience of competitive rubber flying. Construction is very simple and the model has pleasing functional lines. Wingspan 32″.

10/6

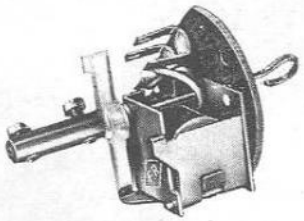


MERCURY HYDROPLANE

A simple construction model of a high performance hydroplane that can be fitted with any engine from 0.75ccs to 1.5ccs. Very stable on the water and a real goer. A strong model that will take plenty of knocks. Fully prefabricated kit for ease of construction.

21/6

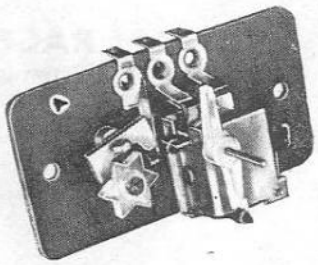
RADIO CONTROL COMPONENTS



A very compact and light self - neutralising escapement for rudder only. Ideal for the smaller models. Has the same solenoid assembly as the clockwork models.

25/3

LIGHTWEIGHT RUBBER-DRIVEN ESCAPEMENT



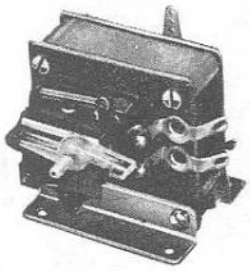
This excellent compound escapement has been engineered by Fred Rising to give selective rudder control (not sequential) and engine control when used with a 2-pawl clockwork escapement. For any but the smallest models this has every advantage over the simpler escapements.

49/11

RUBBER-DRIVEN COMPOUND ESCAPEMENT

For rudder control only with self-neutralising action. Can be used as the motor control in conjunction with the Compound Escapement. Non - skipping action. Eliminates the rubber motor.

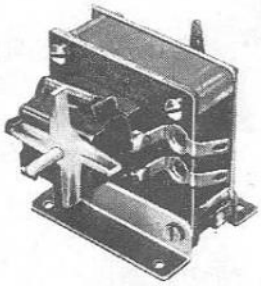
41/4



2 PAWL CLOCKWORK ESCAPEMENT

For rudder only control where self-neutralising is not required. Suitable for lightweight marine models.

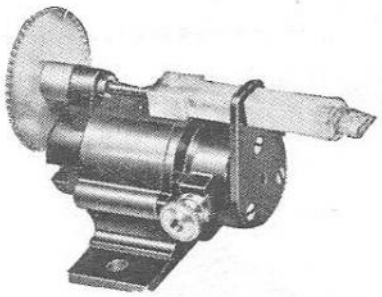
44/3



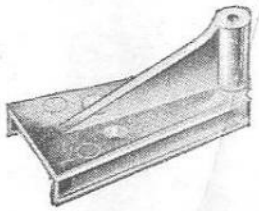
4 PAWL CLOCKWORK ESCAPEMENT

This non-self-neutralising servo also has a slipping clutch and can be used to give progressive engine or elevator trim control. Has ample reserve of power for its applications. Fully detailed and illustrated instructions supplied with each servo.

59/5

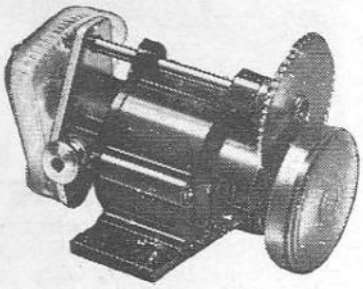


MOTOR-DRIVEN ENGINE AND TRIM SERVO



NYLON TAIL-WHEEL BRACKET

3/9



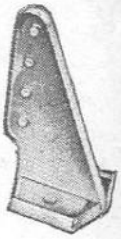
This completely fail-safe servo uses the slipping clutch principle at the limits of its working movement and can be used with one battery instead of two—thus saving weight. Plenty of power for working the heaviest controls. For use with all types of multi-channel equipment. Complete with illustrated instructions.

68/1

MOTOR-DRIVEN MULTI-SERVO

NYLON ELEVATOR HORN

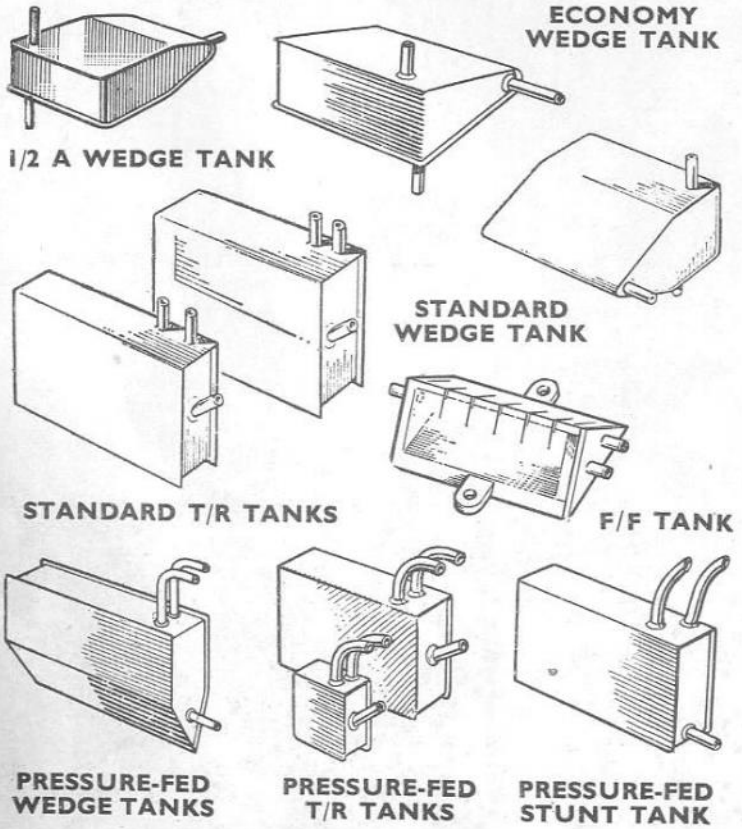
1/9



MERCURY FUELS

MERCURY fuels have now been in production for fourteen years and during that time they have gained an enhanced reputation for consistent quality and good performance. Mercury Fuels give you everything that a commercial fuel can be expected to give. Long engine life due to the use of the highest quality CASTROL lubricating oils, ease of starting and good power output due to correct formulation, and economy of performance due to the low fuel consumption and reasonable price. The exclusive use of CASTROL oils in all Mercury Fuels is your guarantee that they will help you to get the best from your engine.

SUPER 6	Mineral oil based fuel for general-purpose flying	½ pt.	3/3
		1 pt.	6/–
NO. '8'	The most popular diesel fuel. Castrol "M" base. A high grade competition fuel ...	½ pt.	3/9
		1 pt.	7/–
R.D.	Castrol "M" based racing diesel fuel. For all ball bearing motors	½ pt.	3/9
		1 pt.	7/–
"45" GLOW	A good general-purpose glow-fuel nitrated for good performance	½ pt.	3/3
		1 pt.	6/–
MARINE DIESEL	Specially blended for all water-cooled marine engines. Castrol "M" based. ...	½ pt.	3/9
		1 pt.	7/–



FUEL TANKS

MERCURY tanks have all been developed from practical designs by a practical modeller and they were all fully test flown before being put into production.

½A Wedge (Wasp)	3/3
Economy Wedge 7½, 10, 15 c.c. ...	3/3
,, ,, 30 c.c.	3/6
Standard Wedge 1⅝"	4/4
,, ,, 2"	5/3
,, ,, 2½"	6/5
Pressure-Fed, Stunt Square 2" ...	5/3
,, ,, ,, ,, 2½" ...	5/3
,, ,, ,, ,, 3" ...	5/3
,, ,, ,, Wedge 2" ...	5/6
,, ,, ,, ,, 2½" ...	5/6
,, ,, ,, ,, 3" ...	5/6
Team Racing Standard 10, 15 c.c. ...	3/3
,, ,, ,, 30 c.c. ...	3/6
,, ,, Pressure-Fed, 7½, 10, 15 c.c.	3/6
P.V.C. Graduated Free-Flight Tanks for diesel or glow fuel).	
Small	2/–
Large	2/3

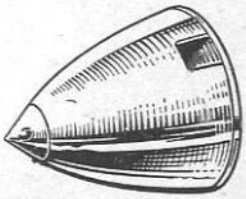
ADJUSTALYNE HANDLE

Stove-enamelled die-cast aluminium with original line adjustment feature. 6/6

FUEL FILTER

Eliminates blocked jets. Lengthens engine life.

2/6



SPINNER

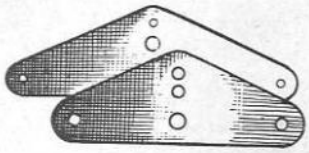
Spun aluminium with turned nose-piece and universal adaptor for most engine shafts with 2BA and ¼ BSF threads.

1¼″	...	6/6	1¾″	...	7/6
1½″	...	7/3	2″	...	8/4

SCALE TYPE WHEELS

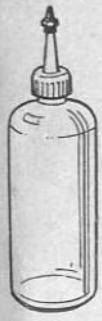
Spoked hubs and lightweight sponge rubber tyres.

1¼″	...	per pair	3/–
1½″	...	,, ,,	3/6
1¾″	...	,, ,,	4/6



PAXOLIN BELLCRANKS

T/R, Stunt, Speed	...	–/3½
Large Stunt, with bush, bolt, etc.	...	1/2



POLYTHENE SQUEEZE BOTTLE

Strong flexible bottle. Ideal for Team Racers.

1/6

AEROLAC

Transparent weather-proof finish in Red, Yellow, Black and Clear. 2/–

UNIVERSAL NEEDLE-VALVE

Will fit almost any engine.

4/6

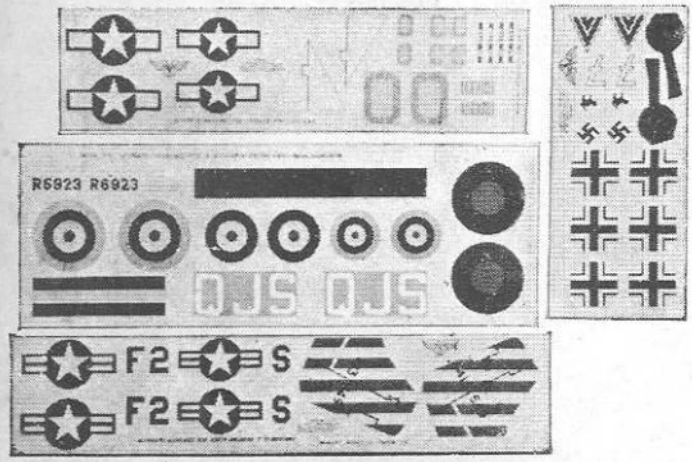
BUILDING PINS

Glass-headed. In dispenser pack of approx. 100 pins. 2/4

NATO PILOTS

Type "A" Scale 1″ to 1′. "½A" scale ⅝″ to 1′.
Hand painted in authentic NATO uniform and equipment.
Bubble pack can be used as cockpit canopy.

"½A" ... 2/6 "A" ... 3/3

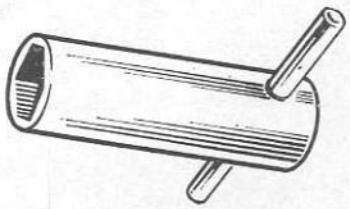


SCALE MODEL TRANSFERS

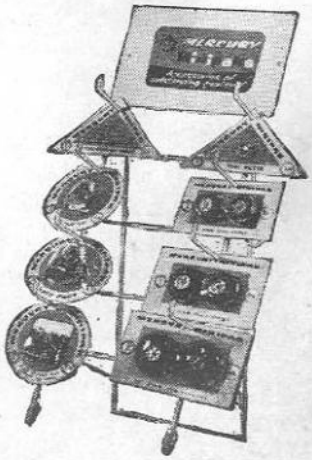
Highest quality waterslide transfers of authentic Squadron markings in correct colours.

ME 109	...	...	1/–
Spitfire	...	...	1/–
Mustang	...	...	1/6
Lightning	...	...	1/6

MERCURY HANDY SPANNER



Fits any hexagon nut $\frac{5}{16}$″ across the flats, including most glowplugs 2/6



Look for the Mercury Accessories Display stand in your model shop.

For
SUCCESS
in
MODEL
AIRCRAFT
– fly
KEILKRAFT

Obtainable from your Local Stockist