If your motor is rather slow, get Keilkraft fuel and go man go!
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 aeronmodeller 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.

Aeronmodelling 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 practice 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 aeronmodelling—balsa wood and balsa cement. Because of their simplicity they do not take very long to complete and 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 ORION. 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 Keil Kraft 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 SNIPER 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 line 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!

A chuck glider is the ideal introduction to modelling. This is the COMET.
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 practice, 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 single or multi-engined according to prototype. A multi-engined free flight model is a rarity.

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 SNIPER—a fine sport model.

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.

Strong, stylish and fast, the Kielkraft 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 Kielkraft dealer will be pleased to show you the kit and give you the benefit of his expert advice.

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

A second 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 die-cut 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 parts from something to prevent the parts from sticking to it. You can rub the plan with soap or a candle, but in the Keilcraft 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 pre cementing 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. Pre cementing is particularly valuable when cementing such things as fuselage spacers in position, as the end grain of the spacers 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.
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 supposed 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.

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!

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.

Lower 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.
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 spar as well as the outline so that the tissue can be stuck to the concave surface.

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.

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.
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 sealed 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. Aerocel 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—once brush full will cover a surprising area. If you use Aerocel, 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
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, other-
wise 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 Fairecla rubbing compound. Failing these, try one
of the household scouring powders. Apply the com-
pound 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 colouring 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 felt 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.
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 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.

Commercial production of model engines dates back to the mid-nineteen-thirties with the introduction of the 10 cc American Brown Junior engine in 1934, subsequently followed by the 6 cc 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

By PETER CHINN

The 2.5 c.c. Cox Two-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 the Wen-Mac 049 contains an ingenious clutch and spring starter unit. The engine is also available without this fitting.

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 lines, 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.

The next capacity group, 1.5 c.c., is one in which British diesel designers are present and excelling. 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-Mercy '15' and distinctive Frog Viper with rear drum valves.

The ultimate power is not a prime consideration, the low priced D-C 'Sabre' is an excellent choice.

The unprentuous exterior of the P.A.W. 1.49 conceals a highly developed design capable of producing over 37 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...
minimum desirable for contest work. These are the Oliver-Tiger Mk. 3, Enya 15D Mk. 2, Eta 15, Super-Tiger 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-Tige 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 r.p.m.

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-Mercu '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.

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, providing 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/L stunt models, etc.

The 3.5 c.c. Rivers Silver Arrow has a roller bearing crankshaft and is the most powerful 3.5 diesel on the market.
## KEILKRAFT KITS - ENGINE TABLE

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<tr>
<th>KIT</th>
<th>E.D.</th>
<th>D. C.</th>
<th>A.M.</th>
<th>M.E.</th>
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### 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 carriers to suit the engine being used.
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 incorrect 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 carburettor 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 NK 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 $5) 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.

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 ¾ 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 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 choke the intake 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.

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.

Lay out cleaned parts on paper, oil and reassemble carefully.
## ENGINE SIZES and RECOMMENDED PROPellers

### DIESEL

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<tr>
<th>MAKE</th>
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<th>C/L INCLUDING STUNT</th>
<th>C/L TEAM RACING</th>
<th>RADIO CONTROL</th>
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### 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.

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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

<table>
<thead>
<tr>
<th>MAKE</th>
<th>DISPLACEMENT AND RUNNING IN</th>
<th>GENERAL PURPOSE</th>
<th>CONTEST FREE-FIAGE</th>
<th>C/L INCLUDING STUNT</th>
<th>C/L TEAM RACING</th>
<th>C/L SPEED</th>
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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 dubbed "bricks on string" by the dyed in the wool free fighters, 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 pilot 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 Kellkraft 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.

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<th>Motor Size</th>
<th>Line Length</th>
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<td>0.5 - 0.9 cc motors</td>
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<tr>
<td>1.1 - 1.5 cc</td>
<td>25-40 ft.</td>
</tr>
<tr>
<td>1.5 - 2.5 cc</td>
<td>40-50 ft.</td>
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<tr>
<td>Over 2.5 cc</td>
<td>50-70 ft.</td>
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</table>

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 Harrocks, 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. 

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 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.

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, 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).

A more elaborate reel, made from five layers of 1/4" 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 swirl round then you will be giddy within a few mo-
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 a 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 to be careful, but the principle is the same as the 'straight arm' method.

After a bit more practice 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.

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 practice, practice and more practice.

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.
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.
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 1/2" flat file, for adjusting slots in formers where necessary and a 4" 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 proofing. 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 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 allow 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.

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 gluing 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 modelers, 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 motor 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.
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 tabs 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 workboard 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 strengtheners 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.
Glossary of Model Terms

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

AEROFOIL SECTION, also AIRFOIL (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 wingspan 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 center of gravity.

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

BANANA OIL. A dope used for airproofing 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 longerons and stringers and to which engine bearers, undercarriage, etc., are usually attached.

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

CAPACITY, also DISPLACEMENT (U.S.) or SWEEP 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 BELLCRANK. 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 PARES. The horizontal members, running from side to side of a fuselage.

DETERMALISER. 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 candle 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 strengthenner (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 Aéronautique 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 and a platinum wire coil. A methanol base fuel is used and an electric current to heat the coil 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 or vertical propeller. 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 streamlined 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 anhydride or anhydride nitrate 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 aircrew 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 the 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.

SAFETY FRAME (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.

THINNER. 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 (de-thermaliser or engine cut-out) after a predetermined time.

TORQUE. The turning force exerted by the motor and which tends to rotate 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.

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

UNDERCARRIAGE. Also LANING 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.
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 Tinfo) 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 's 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 daughty, 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.

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**MEET THE CONTRIBUTORS**

**ERNIE WEBSTER**
A professional modeller of over twenty years standing. Joined Keikraft 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 in 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.
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 air Hydraulic 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.

**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.

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

KIRBY PREFECT
Accurate flying scale model of the well-known full size glider. Wingspan 24”.

SOARER BABY
A very popular glider design with unusual lines. A steady seller with young modellers. Wingspan 30”.

NOMAD
Beginners model with fuselage parts, tailplane and fins 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/17 tailplane and automatic rudder. Wingspan 64”.

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

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”.

VEGA
POLARIS
COMET
SPOOK

KETTLKRAFT

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.
**READY-TO-FLY MODELS**

**SEDAN 18” span**

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

**RAPIER 18” span**

**ZETA PLASTIC GLIDERS**

<table>
<thead>
<tr>
<th></th>
<th>Each</th>
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<tbody>
<tr>
<td>ZEE 2</td>
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<tr>
<td>ZEPHYR</td>
<td>-/9</td>
</tr>
<tr>
<td>ZOARER</td>
<td>1/-</td>
</tr>
</tbody>
</table>

**SPORTSTER 18” span**

**READY-TO-FLY MODELS**

**CADET**
Perfect beginners glider. Easy to build and a really good flyer.
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 30”

**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”

**GREMLIN**
Wingspan 171”

**CUTIE**
Wingspan 11”
RUBBER POWERED MODELS

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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Rubber Strip</th>
<th>Length (ft)</th>
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<tbody>
<tr>
<td>Elf</td>
<td>1/20” x 1/8”</td>
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<td>Playboy</td>
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<td>2</td>
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<tr>
<td>Pixie</td>
<td>1/20” x 3/16”</td>
<td>4</td>
</tr>
<tr>
<td>Achilles</td>
<td>1/20” x 3/16”</td>
<td>6</td>
</tr>
<tr>
<td>Eaglet</td>
<td>1/20” x 3/16”</td>
<td>6</td>
</tr>
<tr>
<td>Ace</td>
<td>1/20” x 1/4”</td>
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<td>Ajax</td>
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</tr>
<tr>
<td>Senator</td>
<td>1/20” x 1/4”</td>
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</tr>
<tr>
<td>Competitor</td>
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<td>17</td>
</tr>
<tr>
<td>Gipsy</td>
<td>1/20” x 1/4”</td>
<td>44</td>
</tr>
</tbody>
</table>
RUBBER POWERED MODELS

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

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

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"

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"

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

<table>
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<tr>
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<tr>
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<td>GEMINI</td>
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<tr>
<td>AJAX</td>
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<td>COMPETITOR</td>
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<tr>
<td>GIPSY</td>
<td>14/10</td>
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</table>
FLYING SCALE SERIES

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”

FOCKE-WULF 190
Wingspan 18”

STUKA
Wingspan 20”

SOPWITH CAMEL
Wingspan 16”

N.A. MUSTANG
Wingspan 18½”

M.E. 109 MESSERSCHMITT
Wingspan 17”

<table>
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<th>KIT</th>
<th>PRICE (Inc. P.Tax)</th>
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<tbody>
<tr>
<td><strong>ALL MODELS ON THIS PAGE (Except Stuka)</strong></td>
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<tr>
<td><strong>STUKA</strong></td>
<td>4/10</td>
</tr>
</tbody>
</table>
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.
FLYING SCALE SERIES

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

JET MODELS FOR JETEX 35 or 50 MOTORS

SKYRAY
Wingspan 13½"

AVRO 707A
Wingspan 14"

GLOSTER JAVELIN
Wingspan 13"

GRUMMAN PANTHER
Wingspan 17"

SUPERMARINE SWIFT
Wingspan 14"

SUPERMARINE ATTACKER
Wingspan 16"

ITALIAN FIAT G.80
Wingspan 14"

N. A. SABRE
Wingspan 15"

HAWKER HUNTER
Wingspan 13½"

D. H. VENOM
Wingspan 16½"

MIG 15
Wingspan 15"

DE HAVILLAND 110
Wingspan 18½"

KIT

| ALL MODELS ON THIS PAGE (Except D.H. 110) | 4/6 |
| DE HAVILLAND 110 | 4/10 |

SKYJET 50
Duration model for Jetex 50 motor.
18" wingspan

PRICE (Inc. P.Tax) 4/10
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 cowlings, shaped windshields, all metal parts, ample sheet and strip, tissue, cement, etc.
- Crushproof 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 Silvair.

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<tr>
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<td>CESSNA 170</td>
<td>25/10</td>
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<tr>
<td>PIPER SUPER CRUISER</td>
<td>25/10</td>
</tr>
<tr>
<td>LUSCOMBE SILVAIRE</td>
<td>25/10</td>
</tr>
</tbody>
</table>

KEILKRAFT “SHADOW” SERIES

‘PROFILE’ TYPE SCALE MODELS

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.
FREE FLIGHT POWER MODELS

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

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

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".

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.

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".

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

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 .3 to 1.5 c.c. engines.

SNIPE

This nice looking model is especially suitable for beginners as it is so straightforward 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 .3 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".

<table>
<thead>
<tr>
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<td>HALO</td>
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<td>LADYBIRD</td>
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<td>BANDIT</td>
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<tr>
<td>OUTLAW</td>
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<td>64/5</td>
</tr>
<tr>
<td>SUPER 60</td>
<td>107/-</td>
</tr>
</tbody>
</table>

SLICKER SERIES

The winner of many F/J 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.
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".

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".

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".

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".
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"

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"

FIREFIRD
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"

<table>
<thead>
<tr>
<th>KIT</th>
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<tr>
<td>SKYSTREAK 26</td>
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<td>CHAMP</td>
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<td>17/5</td>
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<td>RANGER</td>
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<tr>
<td>FIREBIRD</td>
<td>27/-</td>
</tr>
<tr>
<td>MARQUIS</td>
<td>35/-</td>
</tr>
</tbody>
</table>
CONTROL LINE MODELS

TALON
Combat design of considerable strength. Easy and quick to build. A fully aero-
batic 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"

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"

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

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.

<table>
<thead>
<tr>
<th>KIT</th>
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<tr>
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</tr>
<tr>
<td>SPECTRE</td>
<td>39/9</td>
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</table>
KEILKRAFT PLASTIC KITS

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

HAWKER HURRICANE MkIIC
and the
SOPWITH CAMEL

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

2/11 EACH
(Incl. P.Tax)

Did you know..?

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 Keikraft 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. 30" 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.

<table>
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<td>CALYPSO MAJOR</td>
<td>37/5</td>
</tr>
</tbody>
</table>
GLIDERS

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.

DAB
24" span sailplane to A.1 specifications. Just the model for good performance at a reasonable price.

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.

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.

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

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.

<table>
<thead>
<tr>
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<td>CAPTAIN</td>
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<td>EMPRESS</td>
<td>31/4</td>
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</tbody>
</table>
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.
(Incl. 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
(Incl. P.Tax)

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.
(Incl. P.Tax)
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)

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 A.D.4 1.5 volt battery — 4/3

FROM YOUR LOCAL MODEL OR TOY STORE
KEILKRAFT EeZeBILT BOATS

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

NEPTUNE
16-inch DAY CRUISER

MERMAID
14-inch OCEAN-GOING CRUISER

CRESTA
16-inch OUTBOARD MOTOR BOAT

SUITABLE ELECTRIC MOTORS
FOR THE 13/1 KITS
Kako 1 5/3 Mabuchi 25 4/1
Kako 2 6/8 Mabuchi 35 4/8

SUITABLE ELECTRIC MOTORS
FOR THE 8/5 KITS
Kako 01 3/9 Mabuchi 15 3/9
Kako 0 4/4 Mabuchi 25 4/1

ELMIC “THRUST-PAK”
Suitable for the Mermaid, Triton and Neptune, Complete unit 16/3

OTTER
TUG BOAT

CURLEW
FISHING LAUNCH

OTTER
TERRIER
CURLEW

SUITABLE ELECTRIC MOTORS

KEILKRAFT SPRITE
The perfect power unit for the Cresta outboard motor boat

MABUCHI KAKO

ELMIC "THRUST-PAK" 21/-
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 crowns, wheels, decks, sails, flags printed in colour on suitable material, ample supplies for rigging, etc. Plan and full detailed instructions.

<table>
<thead>
<tr>
<th>KIT</th>
<th>PRICE (Inc. P.Tax)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUNIOR SERIES</td>
<td>5/-</td>
</tr>
<tr>
<td>SENIOR SERIES</td>
<td>15/-</td>
</tr>
</tbody>
</table>

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.
**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 1/2, 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 1/2 to 1 c.c. diesels or electric motors.

**SEA HORNET**

A fast speed boat model. Very strong construction. Length 25". Beam 8". For 1/2 to 1 1/2 c.c. diesels or electric motors.

**SEA URCHIN**

Very attractive looking boat that performs really well. Length 20". For 1/2 to 1 c.c. diesels or electric motors.

**SEA NYMPH**

Day Cruiser with open rear cockpit and removable cabin roof. Length 18". Beam 64". For 1/2 to 1 c.c. diesels or electric motors.

**SEA ROVER**

Large cabin cruiser for either radio control or tree running. Length 26/". Suitable for engines from 1 to 2 c.c. 

**SEA SCOUT**

Cabin cruiser with removable cabin roof and open cockpit. Length 24". Beam 84". For 1/2 to 1 c.c. diesels or electric motors.
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

1" to the foot scale model that is ideal for radio control. Length 34½", Beam 10". Suitable engines—½ to 3¼ c.c.

PATROL TORPEDO BOAT

A luxurious model that is perfect for radio control. All guns and deck fittings ready made. Length 40", Beam 11½". Suitable for 2½ to 3 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 3½-10 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
MARINE ACCESSORIES

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.

---

**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 1/8" x 4 B.A. 7/-

---

**BOAT PROPELLERS**

Scientifically designed and made in polished brass

- TMX23 1 1/2 dia. 5/3
- TMX24 1 1/4 dia. 5/3
- TMX25 1 1/2 dia. 5/3
- TMX26 2 dia. 6/6

---

**STERN TUBE BRACKETS**

- TMX20 -/9
- TMX20A -/9 (For Sea Queen)

Yeoman Fittings for Crash Tender
Grey finish metal fittings as under:

- Complete Set 42/-

---

1. Searchlight
2. Small fastenheads
3. Medium fastenheads
4. Bell type cleats
5. 2 Small vents
6. 1 Anchor
7. 4 R type cleats
8. 2 Nav. lights
9. 1 Must head light
10. 2 Foam monitors
11. 6 Large vents
12. Handrail knobs
13. Mushroom vents
MARINE ACCESSORIES

RUDDER ASSEMBLIES

EXTRA LARGE
TMX54 De Luxe Assembly Extra Large ... 15/2
TMX15 De Luxe Assembly Large ... 7/-
TMX16 De Luxe Assembly Small ... 9/-

DE LUXE
TMX17 Standard Assembly Large ... 4/8
TMX18 Standard Assembly Small ... 4/8
TMX14 Junior Rudder Assembly ... -10/-

STANDARD
JUNIOR

BOAT TANKS

TMX33 Rectangular Pattern ... 7/-

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

FLAGSTAFFS
Chrome or White 4" high
TPX03S Straight Chrome 1/-
TPX03A Angled Chrome 1/-
TPX03B Angled and Straight White (Pair) 1/3

SYRENS
Chrome Finish Both 11/2" long
TPX04 Twin Syren 1/3
TPX05 Single Syren 1/3

MASTHEAD LIGHTS
Chrome finish
TPX33 5/16" high -9
TPX34 1/4" high -76

BOWSIES
1/4" and 3/4" long
TUX42 (One dozen) -10

HANDRAILS
2" long
TMX47
White Finish (per pair) 1/-
Chrome Finish " " 1/6

STANCHIONS
1 1/16" high.
TPX41 Per doz.
White Finish 1/6
Chrome Finish 2/6
Easily altered to one or two rail

BINNACLE
TPX31A 3/8" dia. 1/3
TPX31 3/4" dia. 1/9
Modern Cabin Cruiser Type with compass card

ANCHORS
Matt silver finish
Moveable stock and chain
C.Q.R.
BYERS
DANFORTH
TPX22 1/10
TPX23 1/10
TPX30 1/10

LIFEBELTS
1" diameter 1/2" diameter 2" diameter
TPX08 1" diameter -9
TPX09 1 1/2" diameter 1/3
TPX10 2" diameter 1/6

NAVIGATION LIGHTS

SEARCHLIGHTS
TPX11 Small Searchlight 1/9
TPX12 Large Searchlight 3/6
TPX13 Large Searchlight (Working with bulb) 5/6
Spare bulb ... ... 1/3
TPX12 and TPX13 available in Chrome or Grey

ANCHOR WINCH
Matt Silver Grey Finish

DAVITS
White Finish
TPX40 (per pair) 1/6
With boat socket

CLEATS
TPX37 Cleats Chrome Finish (per pair) 1/-
" " Grey " " " " -9
TPX38 Fairleads Chrome Finish (per pair) 1/-
" " Grey " " " " -9

BOLLARDS
TMX66 Chrome ... 1/-
Grey ... -9
Size F " long.
**MARINE FITTINGS**

**STEERING WHEELS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Diameter</th>
<th>Finish</th>
</tr>
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<tbody>
<tr>
<td>TPX01</td>
<td>11&quot;</td>
<td>Chrome</td>
</tr>
<tr>
<td>TPX02</td>
<td>14&quot;</td>
<td>Chrome</td>
</tr>
</tbody>
</table>

**PORThOLES**

- **Glazed**
- **(In sets of 4)**
- **TPX15**: 3" dia Chrome 1/8
- **TPX16**: 3" .. Grey 1/3
- **TPX17**: 3" .. Chrome 1/6
- **TPX18**: 3" .. Grey 1/3
- **TPX19**: 3" .. Chrome 1/6
- **TPX20**: 3" .. Grey 1/3

**CABLE CHAIN**

- **TPX41**: 23 links per inch (Per Yard) 2/9
- **TPX42**: 14 links per inch 2/9
- **TPX43**: 9 links per inch 2/3

**LADDERS**

- White Finish
- 2" long 3" wide

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>TPX39</td>
<td>(per pair) 1/8</td>
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</tbody>
</table>

**DINGHY**

- White Finish

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
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<tbody>
<tr>
<td>TMX70</td>
<td>3&quot; long 2/6</td>
<td></td>
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</tbody>
</table>

**WATER SCOOP and OUTLET**

- Suitable for all diesel powered boats
- Chrome Finish

<table>
<thead>
<tr>
<th>Model</th>
<th>Details</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>TMX61</td>
<td>(per pair) 3/8</td>
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</table>

**GRATINGS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
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<tbody>
<tr>
<td>TPX25</td>
<td>White Finish</td>
<td>1/8</td>
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</tbody>
</table>

**VENTILATORS**

- Bowls red enamelled
- (per pair)

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>TPX06</td>
<td>11&quot; Chrome</td>
<td>2/6</td>
</tr>
<tr>
<td>TPX07</td>
<td>11&quot; White</td>
<td>1/3</td>
</tr>
</tbody>
</table>

**MUSHROOM VENTS**

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMX37</td>
<td>Red Ensign</td>
<td>1/8</td>
</tr>
<tr>
<td>TMX38</td>
<td>White Ensign</td>
<td>1/8</td>
</tr>
<tr>
<td>TMX62</td>
<td>R.A.F. Ensign</td>
<td>1/8</td>
</tr>
<tr>
<td>TMX39</td>
<td>Red Ensign</td>
<td>1/8</td>
</tr>
<tr>
<td>TMX63</td>
<td>White Ensign</td>
<td>1/8</td>
</tr>
<tr>
<td>TMX64</td>
<td>Union Jack</td>
<td>1/8</td>
</tr>
<tr>
<td>TMX40</td>
<td>Pennant</td>
<td>1/8</td>
</tr>
</tbody>
</table>

**MUSHROOM VENTS**

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

<table>
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<th>Price</th>
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<tr>
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<td>Union Jack</td>
<td>1/8</td>
</tr>
<tr>
<td>TMX40</td>
<td>Pennant</td>
<td>1/8</td>
</tr>
</tbody>
</table>

**MERSEY MARINE TELESCOPIC STERN TUBES**

- Extend from 8½" to 14½"—O/D 5/16"...
- Ground Steel Shafts threaded 4 B.A. each end
- All 1½ each.

<table>
<thead>
<tr>
<th>Size</th>
<th>1½</th>
<th>1½</th>
<th>1¾</th>
<th>1¾</th>
<th>2½</th>
<th>2½</th>
<th>3½</th>
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</thead>
<tbody>
<tr>
<td>Shaft</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

**PROPELLERS**

- With 3-bladed prop...
- Propeller only...

<table>
<thead>
<tr>
<th>Size</th>
<th>Tapered B.A.</th>
<th>Shaft size</th>
<th>Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16</td>
<td>5/32° dia.</td>
<td>1/16°</td>
<td>6/9</td>
</tr>
</tbody>
</table>

**UNIVERSAL SHAFT COUPLING**

<table>
<thead>
<tr>
<th>Size</th>
<th>Male end</th>
<th>Female end</th>
<th>B.S.F.</th>
</tr>
</thead>
</table>

**MERSEY MARINE TELESCOPIC SHAFT & TUBE**

- Extend from 5" to 9" with 1½° 3-bladed prop...
- Propeller only...

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

- Breaches Connection, 2 Foam Monitors, 1 Towing Hook
- Searchlight, 1 Danforth Anchor, 2 Navigation Lights, 2 Riding Lights, 6 Large Cord Vents, 2 Small Cord Vents, 4 Mushroom Vents, 4 Oars, 4 Pivots, 2 1½" Links, 5 Handsails, 5 Syrens, 4 Port Holes, 1 Winch, 1 Flagstaff (Angled), 1 Flagstaff (Straight)
- R.A.F. Ensign, 1 Pennant, 2 Pire Transfers, 2 Roundels

Total of 51 items 38/6 complete set

**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", 1/8" B.S.F.
- TMX60 2½/2½ each 5½/ per pair
# Electric Motors

**MABUCHI**
- Mabuchi 15: 3/9
- Mabuchi 25: 4/1
- Mabuchi 35: 4/8
- Mabuchi 45: 5/10
- Mabuchi 55: 7/1
- Mabuchi 65: 25/8

**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.

**ELMIC THRUST-PAK**
- Complete electric power unit for boats from 18" to 24" long

- Complete Unit: 16/3

- Alcomax III Ring Magnet
- 2-4 volts, 5,000 r.p.m.
- Replaceable Brushes
- Nylon Mouldings
- Reservoir Bearings
- Battery or Accumulators

**V.I.P.**
- V.I.P. Motor (Type CCD): 17/6
- Size 1" x 11/16", Weight 4 oz. 2/11
KEILKRAFT-ELMIC

**SPRITE**

A precision made British product

The perfect power unit for the Cresta outboard motor boat

Keikraft Elmo Sprite
Outboard Motor 21/-

EVER READY

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

Base mounted or End mounted 10/-

TAYCOL

6 to 12 Volt Electric Motors

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>Taycol Target</td>
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<tr>
<td>Taycol Asteroid</td>
<td>32/9</td>
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<tr>
<td>Taycol Torpedo</td>
<td>34/10</td>
</tr>
<tr>
<td>Taycol Meteor</td>
<td>38/7</td>
</tr>
<tr>
<td>Taycol Supermarine</td>
<td>76/7</td>
</tr>
<tr>
<td>Taycol Supermarine Special</td>
<td>80/11</td>
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<tr>
<td>Taycol Standard</td>
<td>59/2</td>
</tr>
<tr>
<td>Taycol Double Special</td>
<td>95/-</td>
</tr>
</tbody>
</table>

**SUPER SPECIAL**

**TORPEDO**

**DOUBLE SPECIAL**

**METEOR**

**ASTEROID**

**STANDARD**

**SUPERMARINE**

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 ½ amp. to 5 amps., according to propeller size and battery capacity, at higher efficiency than hitherto attainable and at low cost.
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. A2 Country Station Building 3/3
- No. A3 Island Platform 2/11
- No. A4 Island Platform Building 3/3
- No. A5 Two Road Locomotive Shed 5/10
- No. A6 Signal Box and Plazetters’ Hut 3/9
- No. A7 Goods Depot Building 3/6
- No. A8 Water Tower and Weigh House 3/6
- No. A9 Four Cottages 3/6

**TT GAUGE SERIES**

- TT1 & 2

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.

- No. TT1 Station Platform and Shelter 2/11
- No. TT2 Station Building 3/6
MODEL RAILWAY 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 ½ 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. 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.

SEAGULL

1 c.c. MARINE DIESEL

SPECIFICATION
Loop scavenged side port Compression Ignition two-stroke.
Capacity: 0.084 c.c. (0-601 cu. in.).
Detachable brass water-jacket.

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.

1 c.c. MARINE E.D. SEAGULL 84/-

SEA OTTER

3.46 c.c. MARINE DIESEL

EXHAUST MANIFOLD and improved performance SILENCER are a standard 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.

170/-

RACER

E.D. MARINE ACCESSORIES

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby Flywheel</td>
<td>7/7</td>
</tr>
<tr>
<td>Pep Flywheel</td>
<td>11/5</td>
</tr>
<tr>
<td>Bee and Hornet Flywheel</td>
<td>12/2</td>
</tr>
<tr>
<td>Universal Joint</td>
<td>12/2</td>
</tr>
<tr>
<td>Super Fury Flywheel</td>
<td>11/5</td>
</tr>
<tr>
<td>Racer Flywheel</td>
<td>12/2</td>
</tr>
<tr>
<td>Hunter Flywheel</td>
<td>12/2</td>
</tr>
<tr>
<td>Ball Joint Coupling (4 B.A.)</td>
<td>1/6</td>
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<tr>
<td>Ball Joint Coupling (2 B.A. and 4 B.A.)</td>
<td>4/11</td>
</tr>
<tr>
<td>Driving Dog, Comp. Special and Hunter</td>
<td>3/6</td>
</tr>
<tr>
<td>Hunter Silencer</td>
<td>22/5</td>
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<tr>
<td>Bee Exhaust Manifold</td>
<td>3/2</td>
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<tr>
<td>Super Fury Exhaust Manifold</td>
<td>15/11</td>
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<tr>
<td>Racer Exhaust Manifold</td>
<td>15/11</td>
</tr>
<tr>
<td>Hunter Exhaust Manifold</td>
<td>4/9</td>
</tr>
</tbody>
</table>

2.46 c.c. E.D. RACER 82/7

2.46 c.c. MARINE E.D. RACER 108/−
**Davies-Charlton Engines**

**Darts**
- .5 c.c. Dart: 64/11
- .5 c.c. Marine Dart: 88/7

**Bantams**
- .75 c.c. Bantam: 39/10
- .75 c.c. Bantam De Luxe: 51/2

**Merlins**
- .76 c.c. Merlin: 51/2
- .76 c.c. Marine Merlin: 74/10

**Super Merlins**
- .76 c.c. Super Merlin: 56/8

**Spitfires**
- 1 c.c. Spitfire: 59/-
- 1 c.c. Marine Spitfire: 78/10

**Sabres**
- 1.49 c.c. Sabre: 63/-
- 1.49 c.c. Marine Sabre: 84/3

**Rapiers**
- 2.5 c.c. Rapiers: 94/5

---

**D.C. Accessories**
- Quickstart spring (quote engine): 2/6
- Quickstart cam (quote engine): 1/10
- Quickstart cam (Bantam): 1/7
- Quickclip connector (with lead & plug): 5/5
- Quickclip connector (clip only): 3/2
- Snapstop cut-out: 7/7
- Extended compression screw: 2/11
- Extended jet nozzle: 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 5/4 x 34, 6 x 4: 1/6
  - 7 x 4: 2/4
  - 8 x 4: 2/6
- Couplings (for all engines): 5/11

**Marine Accessories**
- Flywheel: 9/5
- Water-cooled cylinder jacket: 23/7
- Glowplug: 39/10
- Glowplug Motor: 51/2
- Marine Merlin: 74/10
- Marine Spitfire: 78/10
- Marine Sabre: 84/3
- Water-cooled cylinder jacket: 22/2

---
WEN-MAC
GLOWPLUG MOTORS

WEN-MAC .049
HUSTLER ENGINE
29/-

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

Complete with nylon propeller.

COBRA 849 Glowplug Motor 39/6

A.S. 55

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

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

P.A.W.

P.A.W. 1.49 Diesel 84/-

P.A.W. 2.49 Diesel 98/-

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

M.E.

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

O. & R.

IDEAL MOTOR
FOR LARGE
MODEL BOATS

P.A.W.

Obinson & 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

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

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

ENGINE TIPS

Look after your engine carefully and it will repay you with many years service. Never see bow 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.

NOTE: ENYA engines are not supplied with glowplugs.
ENGINE CAPACITY

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.
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

BLENDDED WITH BP ENERGOL MOTOR OIL

KEILKRAFT NITRATED DIESEL FUEL 1 pt. 3/7
KEILKRAFT NITRATED DIESEL FUEL 1 pt. 5/9
KEILKRAFT RECORD POWERPLUS DIESEL FUEL 1 pt. 3/7
KEILKRAFT RECORD METHANEX GLOW FUEL 1 pt. 3/3
KEILKRAFT RECORD METHANEX GLOW FUEL 1 pt. 6/6
KEILKRAFT RECORD NITREX 15 GLOW FUEL 1 pt. 4/3

OBTAINABLE FROM YOUR LOCAL MODEL SHOP

K & B SUPersonic 100 GLOWPLUG FUEL
For Free-Flight, Control Line and Radio Control
1/2 pint 5/6

K & B SUPersonic 1000 GLOWPLUG FUEL
For Control Line Speed, Team Racing and small engines.
1/2 pint 6/-

E.D. ECONOMIC NITRATED DIESEL FUEL 1/2 pint 3/3
E.D. SUPER ZIP DIESEL FUEL 1/2 pint 3/9
E.D. UNIVERSAL NITRATED GLOW FUEL 1/2 pint 3/9

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

QUICKSTART DIESEL FUEL
1/2 pint 3/6 1 pint 6/-

QUICKSTART GLOW FUEL
1/2 pint 3/6 1 pint 6/-
**Propellers**

**3 Bladed Nylon Propeller**

5 x 3 Complete with spinner. Specially designed to give top performance with 0.49 glow motors and .5 diesels. 2/11

**Plastic Duration Propellers**

Keikraft Plastic Duration 3", 7.5" dia. ... -/10
" " " " 12" dia. ... 2/-.

**D.C. Nylon Propellers**

5½ x 3½ ... 1/6 7½ x 4" ... 2/4
6" x 4" ... 1/6 8" x 4" ... 2/6

**Stant Power Props**

6" dia. x 4", 5", 8", 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
6" x 3", 4", 5", 6", 8", 9", 10", 12"
7" x 3", 4", 5", 6", 8", 9", 10", 12"
8" x 3", 4", 5", 6", 8", 9", 10", 12"
9" x 4", 5", 6", 8", 9", 10", 12"
10" x 4", 5", 6", 8", 10", 12"
11" x 4", 5", 6", 8", 10", 12"
12" x 4", 5", 6", 8", 10", 12"
13" x 5", 6", 8", 10", 12"
14" x 5", 6", 8", 10", 12"
7" x 3" Pitch Pusher ...

**Wooden Duration Props**

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

**E.D. Plastic Props**

6" dia. x 4" ... 1/11 81" x 9" ... 2/9
6½" x 7" ... 2/4 9½" x 7" ... 2/11
8" x 5" ... 2/4
TIMERS, FUEL TANKS, ENGINE ACCESSORIES

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 5/2

WEN-MAC GLOWPLUGS 1.5v Short Reach 4/1

QUICKSTART GLOWPLUGS
EG98 Short Reach ... 4/2
EG99 Long Reach ... 4/2
EG150 Short Reach ... 4/2
K.L.G. 'J' Spark Plugs ... 6/8
K.L.G. J Spark Plugs ... 6/8
Ignition coil ... 2/6
Condenser to match coil ... 2/6

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

ELMIC MINI-DIESEL
K.S.B.

ELMIC UNIVERSAL

K.S.B. 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 D.T. Timer ... 28/-
K.S.B. Mechanical D.T. Timer ... 35/-

FUEL TANKS
K.K. 1½ Stunt Tank ... 2/11
K.K. Small Stunt Tank ... 3/11
K.K. Large Stunt Tank ... 6/5
74 c.c. Team Race Tank ... 3/24
10 c.c. Team Race Tank ... 3/24
15 c.c. Team Race Tank ... 3/6
30 c.c. Team Race Tank ... 3/3
74 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 ... 2/7
M.S. 37 c.c. Tank with cut-out ... 6/9
K.K. Radio Control Clunk Tank ... 8/7

M.S. ROUND F/F TANK

STUNT TANK

KEILKRAFT FUEL CUT-OUT 6/2
KEILKRAFT FUEL FILTER 2/6
KEILKRAFT GLOWPLUG CLIP 3/2

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

KEILKRAFT R/C CLUNK TANK

KEILKRAFT LIMI-TANK

KEILKRAFT PRESSURE T.R. TANK

M.S. GRADUATED TANK

KEILKRAFT GLOWPLUG CLIP (with lead & plug) 5/6
WHEELS and SPINNERS

KEILKRAFT AIR WHEELS

- 2" diameter per pair 15/5
- 2½" diameter 22/11
- 3" diameter 27/11
- 3½" diameter 30/6
- 4" diameter 32/6

Fully Pneumatic

KEILKRAFT HARD RUBBER WHEELS

- 3" dia. balloon (per pair) -7
- 3½" dia. balloon -10½
- 4" dia. balloon 1/4
- 4½" dia. streamlined 1

KEILKRAFT PLASTIC WHEELS

- 3" dia. balloon (per pair) -7
- 3½" dia. balloon -10½
- 4" dia. streamlined 2/2½

KEILKRAFT SPONGE RUBBER WHEELS

- 3" dia. balloon (per pair) 9/4
- 3½" dia. balloon 11/1
- 4" dia. streamline 14½
- 4½" dia. streamline 17/6

DROME AIRTRAP WHEELS

- 2" Airtrap (per pair) 9/4
- 2½" Airtrap 11/1
- 3" De Luxe 1/2
- 3½" De Luxe 1/2

LIGHTWEIGHT PLASTIC WHEELS
(Hollow)

- 1½" dia. balloon type (per pair) -7/10½
- 2" dia. balloon type 1/2
- 2½" dia. streamlined 1/2

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

- 4/ each

SPINNERS

- 1½" Standard 2/7½
- 1½" Standard 2/7½
- 2" Standard 3/4½
- 2½" Supersonic 2/11
- 3" Supersonic 3/4½
- 3½" Supersonic 3/4½
- 4" Supersonic 3/11
No. 1 KNIFE — For light to medium work. Aluminum handle (3” long, 5/16” diameter) complete with No. 11 blade.

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

No. 5 KNIFE — For heavy work. Plastic handle with metal blade lock (4 1/2” long) complete with No. 19 blade.

No. 1001 UTILITY KNIFE Steel handle (9 1/2” long) reversible blade, patented lock.

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

No. 25 SAFETY-GUARD KNIFE* — Overall length 9 1/2”, Diameter 1/4”. Complete with No. 22 blade.

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. 70 blade. Length closed — 5 1/2”

Also accommodates No. 11 and 16 blades.

No. 51 KNIFE SET — No. 1 knife with 5 extra assorted refill blades.

No. 32 KNIFE SET — No. 2 knife with 5 extra assorted refill blades.

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 gauges ... 6/-
No. 5, 4 Assorted cutters ... 4/10
No. 6, Punches 1 each Nos. 31 and 32
Gauges Packet of 5 A, B, C, D, E, F ... 5/6
Router Packet of 4 W, X, Y, 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 gauge blades, 4 regular
blades, 2 3-inch blades.
No. 5 Knife handle
27/6

No. 86 X-ACTO HOBBY CHEST—Contains Nos. 1, 2, 5 Knives
and complete asst. of blades, gauges, routers, punches. Has
X-acto Planer, Sander, Spokeshave, Balsa Stripper, Steel Rule.
27/6

Burlington Chest 103/-

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

No. 82 DOUBLE KNIFE SET—Nos. 1
and 2 Knives with 10 extra assorted
refill blades in clear plastic case
which serves as permanent container.
16/3

No. 40 BLOCK PLANE 7/9

No. 41 SANDER 6/-
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 SAW
No. 34 41”
deep 2/6, No. 35
4½” long x 1” deep 2/9

No. 53 Razor Saw sec
with one each of Nos. 34
and 35 with the correct
No. 3 handle
13/9
### KEILKRAFT BALSA

**OBTAINABLE FROM YOUR LOCAL MODEL SHOP**

**STRIPWOOD (3ft. lengths)**

<table>
<thead>
<tr>
<th>Each</th>
<th>1/16&quot; x 1/16&quot;</th>
<th>-1/4</th>
<th>1/8&quot; x 1/4&quot;</th>
<th>-2/3</th>
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<td>1/16&quot; x 3/16&quot;</td>
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</tr>
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<td></td>
</tr>
<tr>
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<td>-1/4</td>
<td>3/8&quot; x 3/4&quot;</td>
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**SHEET (3ft. lengths)**

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</thead>
<tbody>
<tr>
<td>x 3/32&quot;</td>
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<td>-1/8</td>
</tr>
<tr>
<td>x 1/16&quot;</td>
<td>1/16&quot; x 2&quot;</td>
<td>-1/8</td>
</tr>
<tr>
<td>x 1/8&quot;</td>
<td>1/4&quot; x 2&quot;</td>
<td>-1/8</td>
</tr>
<tr>
<td>x 1/16&quot;</td>
<td>1/4&quot; x 1/4&quot;</td>
<td>-1/32</td>
</tr>
<tr>
<td>x 1/8&quot;</td>
<td>1/2&quot; x 1/2&quot;</td>
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<tr>
<td>1/16&quot; x 1/16&quot;</td>
<td>1/16&quot; x 1/16&quot;</td>
<td>-1/16</td>
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</tbody>
</table>

**TRIANGULAR SHAPED MOULDING (3ft. lengths)**

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<th>1/8&quot; x 3/8&quot;</th>
<th>-1/4</th>
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<tr>
<td>x 1/16&quot;</td>
<td>1/4&quot; x 3/4&quot;</td>
<td>-2/8</td>
</tr>
<tr>
<td>x 1/8&quot;</td>
<td>-1/4</td>
<td></td>
</tr>
<tr>
<td>3/16&quot; x 3/16&quot;</td>
<td>-1/32</td>
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</table>

**ROUNDDED MOULDING (3ft. lengths)**

<table>
<thead>
<tr>
<th>Each</th>
<th>1/4&quot; x 1/4&quot;</th>
<th>-1/8</th>
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<tbody>
<tr>
<td>3/8&quot; x 3/8&quot;</td>
<td>-1/8</td>
<td></td>
</tr>
<tr>
<td>1/2&quot; x 1/2&quot;</td>
<td>-1/8</td>
<td></td>
</tr>
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</table>

**Balsa Hobby Packs**

<table>
<thead>
<tr>
<th>Each</th>
<th>Sheet Balsa Packs</th>
<th>-1/6</th>
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<tbody>
<tr>
<td>Assorted Packs</td>
<td>-1/6</td>
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### SPRUCE and OBECHE

**STRIP (3ft. lengths)**

<table>
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<th>-1/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>x 3/32&quot;</td>
<td>3/16&quot; x 3/16&quot;</td>
<td>-1/4</td>
</tr>
<tr>
<td>x 1/16&quot;</td>
<td>1/4&quot; x 1/4&quot;</td>
<td>-1/4</td>
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<tr>
<td>x 1/8&quot;</td>
<td>-1/4</td>
<td></td>
</tr>
<tr>
<td>x 3/8&quot;</td>
<td>-1/4</td>
<td></td>
</tr>
<tr>
<td>x 1/2&quot;</td>
<td>-1/4</td>
<td></td>
</tr>
<tr>
<td>1/2&quot; x 1/2&quot;</td>
<td>-1/10</td>
<td></td>
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</tbody>
</table>

**PLYWOOD PANELS**

<table>
<thead>
<tr>
<th>Size 3 ft. x 1 ft.</th>
<th>1/16&quot; dia.</th>
<th>-1/3</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/32&quot; thick</td>
<td>1/16&quot; thick</td>
<td>-1/5</td>
</tr>
<tr>
<td>1/8&quot; thick</td>
<td>1/4&quot; dia.</td>
<td>-1/7</td>
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</tbody>
</table>

**HARDWOOD 3ft. DOWELS**

<table>
<thead>
<tr>
<th>Each</th>
<th>1/16&quot; dia.</th>
<th>-1/3</th>
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</thead>
<tbody>
<tr>
<td>1/8&quot; dia.</td>
<td>-1/3</td>
<td></td>
</tr>
<tr>
<td>3/32&quot; dia.</td>
<td>-1/4</td>
<td></td>
</tr>
<tr>
<td>1/16&quot; dia.</td>
<td>-1/5</td>
<td></td>
</tr>
<tr>
<td>1/8&quot; dia.</td>
<td>-1/7</td>
<td></td>
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</tbody>
</table>

**HARDWOOD STRIP (18" Lengths)**

<table>
<thead>
<tr>
<th>Each</th>
<th>A. 1/4&quot; x 5/16&quot;</th>
<th>-1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. 7/16&quot; x 5/16&quot;</td>
<td>-1/2</td>
<td></td>
</tr>
<tr>
<td>C. 9/16&quot; x 3/16&quot;</td>
<td>-1/2</td>
<td></td>
</tr>
<tr>
<td>D. 5/8&quot; x 7/16&quot;</td>
<td>-1/2</td>
<td></td>
</tr>
<tr>
<td>E. 1/2&quot; x 3/4&quot;</td>
<td>-1/2</td>
<td></td>
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</table>
DOSES, FUEL PROOFERS, ETC.

**KEIL KRAFT DOPE**

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

<table>
<thead>
<tr>
<th>1/2 oz. clear or coloured</th>
<th>1/2 oz. clear or coloured</th>
<th>1 oz. clear or coloured</th>
<th>pint clear or coloured</th>
<th>pint clear or coloured</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 pint clear or coloured</td>
<td>1/2 pint clear or coloured</td>
<td>1 pint clear or coloured</td>
<td>4/6 pint clear or coloured</td>
<td>4/6 pint clear or coloured</td>
</tr>
<tr>
<td>pint Gold</td>
<td>pint Gold</td>
<td>pint Gold</td>
<td>6/6 pint Gold</td>
<td>6/6 pint Gold</td>
</tr>
<tr>
<td>pint Silver</td>
<td>pint Silver</td>
<td>pint Silver</td>
<td>3/3 pint Silver</td>
<td>3/3 pint Silver</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>1 oz.</th>
<th>2 oz.</th>
<th>1/2 pint</th>
<th>1/2 pint</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 pint</td>
<td>1/2 pint</td>
<td>2/8 pint</td>
<td>4/9 pint</td>
</tr>
</tbody>
</table>

**THINNERS**

<table>
<thead>
<tr>
<th>1 oz. Keilcraft or Humbrol</th>
<th>2 oz.</th>
<th>3 oz.</th>
<th>8 oz.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/10</td>
<td>1/6</td>
<td>1/6</td>
<td>2/9</td>
</tr>
</tbody>
</table>

**FUEL PROOFER**

<table>
<thead>
<tr>
<th>K.K. Marjonsos</th>
<th>Briths</th>
<th>H.M.G.</th>
<th>1 oz. Aerolas</th>
<th>2 oz. Aerolas</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/10</td>
<td>2/6</td>
<td>2/6</td>
<td>1/6</td>
<td>2/6</td>
</tr>
</tbody>
</table>

**SUNDRIES**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1/6</td>
<td>1/6</td>
<td>1/3</td>
<td>4/6</td>
<td>1/3</td>
</tr>
</tbody>
</table>

**CRAFT BUTYRATE DOPE**

Large Jar ... 2/6
Small Jar ... 1/6
Thinner ... 1/3

Butyrate Dope is proof against diesel and glowplug fuels.

**CRAFT ENAMELS**

**CRAFT JET ENAMELS (Gold Copper or Silver)** 1/6
**CRAFT JET ENAMELS (Colours)** 7/6

**COLOURS AVAILABLE**

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

**CRAFT ENAMEL OUTFIT**

**JOY ENAMELS**

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

**JOY LUMINOUS PAINT**

<table>
<thead>
<tr>
<th>1 oz. Base Coat</th>
<th>1 oz. Luminous Top Coat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>1/10</td>
</tr>
</tbody>
</table>

**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, Caribbean Turquoise, Boot Topping Red, Ivory, Pale Cream, Eau de Nil, Iris Blue, Dawn Mist, Black, White.

**H.M.G. MARINE VARNISH**

<table>
<thead>
<tr>
<th>2 oz.</th>
<th>1/2 pint</th>
<th>1/2 pint</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/6</td>
<td>5/6</td>
<td>5/3</td>
</tr>
</tbody>
</table>
BRITFIX & HUMBROL

BRITFIX CLEAR DOPE
- 1 oz. clear ... 1/10
- 2 oz. clear ... 1/6
- 1 pint clear ... 2/10
- 1/2 pint clear ... 4/9

BRITFIX COLOUR DOPE
- 1 oz. coloured ... 1/6
- 2 oz. coloured ... 1/4
- 1 pint coloured ... 3/6
- 1/2 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)
  - 1/2 oz. ... -9
  - 2 oz. ... 1/6
- HUMBROL FLAT FINISH (Matt Varnish)
  - 1/2 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
- Concrete
- Earth
- Wood
- Tarmac
- Slate
- 1/2 oz. ... 1/9

HUMBROL ONE-HOUR ENAMEL
- 1/2 oz. ... ... -9
- 2 oz. ... ... 1/6
- 1/2 pint ... ... 3/6
- 1 pint ... ... 5/6

COLOURS AVAILABLE
- Eau De Nil
- Yellow
- Midnight Blue
- Emerald Green
- Tan
- Dark-Brunswick Green
- 10 Service Brown
- 17 Flash (Semi Matt)
- 9 Light Admiralty Grey
- 11 Silver
- 32 Copper
- 13 Sky Blue
- 20 Crimson
- 14 French Blue
- 21 Black
- 22 White
- 23 Matt Duck Egg Blue
- 24 Matt Trainer Yellow
- 25 Matt Blue
- 26 Matt Khaki
- 27 Matt Sea Grey
- 28 Matt Sky
- 29 Matt Red
- 30 Matt Dak Green
- 31 Matt Slate Grey
- 32 Matt Red
- 33 Matt Black

HUMBROL ENAMEL THINNERS
- 1 oz. bottle ... -9
- 3 oz. tin ... 1/3

HUMBROL CHROMATE PRIMER
- 2 oz. tin ... 2/5

HUMBROL TRANSFER VARNISH
- Bottle with brush 1/6

HUMBROL FLATTING AGENT
- Tube ... 1/7

HUMBROL HI-GLO FLUORESCENT PAINT
- 1/2 oz. tin ... 1/6

COLOURS AVAILABLE
- Saturn Yellow, Blaze, Fire Orange, Stalag Green, Aurora Pink.

HUMBROL HI-GLO BASE WHITE
- 1/2 oz. tin ... 1/7

HUMBROL Universal CLEANER
- 3 oz. bottle ... ... 1/9
ENAMELS, BRUSHES and TRANSFERS

HUMBROL

AUTHENTIC RAILWAY COLOURS

$\frac{1}{2}$ 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/-

HUMBROL GIFT PACK

comprising six $\frac{1}{2}$-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

R.A.F. Roundels

1" dia. (12 on sheet) .... -/4
1\frac{1}{4}" dia. (6 on sheet) .... -/3
1\frac{1}{2}" dia. U.K., U.S.A. or U.S.S.R. .... -/3
1\frac{1}{2}" dia. U.K., U.S.A. or U.S.S.R. .... -/3
4\frac{1}{2}" Flying Scale size, U.K., U.S.A. or U.S.S.R. .... -/4
4\frac{1}{2}" Flying Scale size, U.K., U.S.A. or U.S.S.R. .... -/4
1\frac{1}{2}" Alphabets (Available in Black, White or Red) .... -/3
3\frac{1}{2}" Alphabets (Available in Black, White or Red) .... -/3
1\frac{1}{2}" Alphabets (Available in Black, White or Red) .... -/3
2" single letters (Available in Black, White or Red) .... -/2
12" x 1\frac{1}{2}" strips of chequers (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.

<table>
<thead>
<tr>
<th>Size</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIDGET</td>
<td>1/4</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>1/7</td>
</tr>
<tr>
<td>LARGE</td>
<td>1/-</td>
</tr>
<tr>
<td>MONSTER</td>
<td>1/8</td>
</tr>
</tbody>
</table>

PLASTIC (Polystyrene) CEMENT
Particularly for polystyrene plastics, construction kits, etc.

<table>
<thead>
<tr>
<th>Type</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 77</td>
<td>1/7</td>
</tr>
<tr>
<td>BRITFIX</td>
<td>1/7</td>
</tr>
<tr>
<td>BRITFIX</td>
<td>1/-</td>
</tr>
<tr>
<td>O-MY STANDARD</td>
<td>1/7</td>
</tr>
<tr>
<td>O-MY QUICK-DRY</td>
<td>1/7</td>
</tr>
</tbody>
</table>

BRITFIX CEMENT
No. 66

<table>
<thead>
<tr>
<th>Size</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDIUM</td>
<td>1/7</td>
</tr>
<tr>
<td>LARGE</td>
<td>1/-</td>
</tr>
<tr>
<td>MONSTER</td>
<td>1/8</td>
</tr>
</tbody>
</table>

TISSUE PASTE

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEILKRAFT TISSUE PASTE</td>
<td>MEDIUM</td>
<td>1/6</td>
</tr>
<tr>
<td>O-MY TISSUE PASTE</td>
<td>LARGE</td>
<td>1/10</td>
</tr>
<tr>
<td>BRITFIX No 44 TISSUE PASTE</td>
<td></td>
<td>1/5</td>
</tr>
</tbody>
</table>

O-MY CEMENT

<table>
<thead>
<tr>
<th>Size</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDIUM</td>
<td>1/7</td>
</tr>
<tr>
<td>LARGE</td>
<td>1/-</td>
</tr>
<tr>
<td>MONSTER</td>
<td>1/8</td>
</tr>
</tbody>
</table>

JOIN A CLUB
By joining your local club you can enjoy the company and experience of fellow modelers.
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., 19A Electric Avenue, London, S.W.7.

ADHESIVES

<table>
<thead>
<tr>
<th>Type</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaflite</td>
<td>6/-</td>
</tr>
<tr>
<td>Aerolite 306 Red</td>
<td>3/6</td>
</tr>
<tr>
<td>Aerolite 306 Blue</td>
<td>3/6</td>
</tr>
<tr>
<td>H.M.G. Cement</td>
<td>1/3</td>
</tr>
<tr>
<td>Croid Glue</td>
<td>1/6</td>
</tr>
<tr>
<td>Britfix 55 P.V.A.</td>
<td>1/6</td>
</tr>
<tr>
<td>Britfix 99 Impact Adhesive</td>
<td>1/6</td>
</tr>
<tr>
<td>Britfix 99 Impact Adhesive</td>
<td>1/9</td>
</tr>
<tr>
<td>LePages Bondfast Small Squeeze Bottle</td>
<td>2/3</td>
</tr>
<tr>
<td>LePages Bondfast Large Squeeze Bottle</td>
<td>6/-</td>
</tr>
<tr>
<td>Refill Jar</td>
<td>2/6</td>
</tr>
<tr>
<td>Cascomite</td>
<td>1/-</td>
</tr>
<tr>
<td>Casco Contact Adhesive</td>
<td>1/9</td>
</tr>
<tr>
<td>Casco Contact Adhesive</td>
<td>1/6</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic Jar</td>
<td>1/6</td>
</tr>
</tbody>
</table>
MISCELLANEOUS SUPPLIES

KNIVES

Keil Kraft Knife Handles ... 1/6
Keil Kraft 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 ... 7
Large Bubble Pack (As Illustrated) 1
2 Gross box ... 5/6

MODELSPAN TISSUE

L/wt. White ... Per Sheet 3/4
L/wt. Coloured ... -/4
Smooth Tissue ... -/2
H/wt. White ... -/4
H/wt. Coloured ... -/5
Bamboo Tissue (sheet) ... -/1
Japanese Lightweight Silk ... Per Yard 6/6
Viscose 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 2 ... 1/3
Elmico Atom Ball Race 16 gauge ... 1/5 each

BOBBINS

Minor ... -/3
Major ... -/4
Standard ... -/4
Super Giant ... -/5

RUBBER

Dunlop 6010 (12 yards in box)
1/8" flat ... ... per box 2/6
3/16" flat ... ... 3/6
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
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/-
No. 2 CELSPRAY (for foot pump) 10/3
Spare CELSPRAY Bulbs .... 4/6
Spare CELSPRAY Bottles .... 9/-

FUEL CANS AND OILERS
Alton Valve Spider Can (No. 8) .... 4/3
Alton Valve Spider Plastic Squeeze Bottle 3/9
Dermic Oiler (Syringe Type) .... 5/6

DETHERALISER FUSE
D/T Fuse 2 yard bank .... 9/-

SOLDER
Ribbon Solder .... 1/-
Multicore Solder (Boxed) .... 5/6
Multicore Solder No. 1 reel .... 5/-
Tinno Soldering Fluid .... 2/9

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 at ordinary dry goods.

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

CLEAR PLASTIC SHEET
.005" x 10" x 24" .... 2/-
.010" x 10" x 24" .... 5/-
.015" x 10" x 24" .... 4/-
.020" x 10" x 24" .... 5/-
.025" x 38" x 24"* .... 6/-
.010" x 55" x 24"* .... 12/6
.015" x 55" x 24"* .... 20/-
.020" x 55" x 24"* .... 26/-
*Approximate Size

SANDPAPER
Fine grade .... P/Sheet 4-
Medium grade .... 4/-
Coarse grade .... 5/-

SPANNERS
Elnipa 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’.

V.P.T. 7/4 2 volt 4 amp. 20 hour .... 22/6
V.P.T. 7/2 2 volt 7 amp. 20 hour .... 26/-
V.P.T. 7/9 2 volt 9.5 amp. 20 hour 28/-
V.P.T. 7/10 2 volt 10 amp. 20 hour .... 30/6
V.P.T. 7/12 2 volt 12 amp. 20 hour .... 32/-
V.P.T. 7/14 2 volt 14 amp. 20 hour .... 35/-
V.P.T. 7/16 2 volt 16 amp. 20 hour .... 37/-
V.P.T. 7/18 2 volt 18 amp. 20 hour .... 40/-
V.P.T. 7/20 2 volt 20 amp. 20 hour .... 42/-
V.P.T. 7/22 2 volt 22 amp. 20 hour .... 45/-
V.P.T. 7/24 2 volt 24 amp. 20 hour .... 47/-
V.P.T. 7/26 2 volt 26 amp. 20 hour .... 49/-
V.P.T. 7/28 2 volt 28 amp. 20 hour .... 52/-

Magna Cell 2 volt miniature .... 3/-
Barnard 4 volt 2 amp. .... 22/-
Barnard 6 volt 2 amp. .... 30/-
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 Laystrane 70' per coil 3/4
Lightweight Laystrane 100' per coil 4/9
Heavyweight Laystrane 70' per coil 4/6
Heavyweight Laystrane 100' per coil 6/4
Lightweight Laystrane (2 x 62' Reels) 6/-
Heavyweight Laystrane (2 x 62' Reels) 7/11

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 1/–
Flying Scale 7/–
Skystreak 26 7/–
Skystreak 40 10/–
Pasco 10/–
Marquis 1/–

PIANO WIRE
36" length
24 gauge 7/–
22 gauge 7/½
20 gauge 7/½
18 gauge 7/½
16 gauge 7/½
14 gauge 7/½
12 gauge 7/½
10 gauge 7/½

TUBING
BRASS OR ALUMINIUM in 12" lengths
10, 12 or 14 Gauge 10/–
16, 18 or 20 Gauge 10/–
Annealed Copper Tubing for Fuel Tanks 1/–

PLASTIC FUEL TUBING
Small and medium 1/4
Large 1/6
Elmic Flexistube 1/6

K.K. TERYLENE CORD
Cards containing 100 ft. 104½
K.K. Modelling Thread
Cards containing 30 ft. 9

BELLCRANKS
Ranger Type (alu.) 3¼
Stun Queen (alu.) 3¼
Plastic Small 3¼
Plastic Medium 3¼
Plastic Large 3¼
Control Horn 5½
**RADIO CONTROL ACCESSORIES**

**KEILKRAFT**

**ESCAPEMENTS BY ELMIC**

**CORPORAL**
Motor Control Unit
for use with Commander. Adjustable Stroke. Oversize shock absorber, 1 oz. complete and 1½" wide. 3½ V. operation. 47/4

**CONQUEST**
For rudder only. Simple two-position, sequential escapement. Built in linkage and coupling supplied. For models 2¼" span and larger. 3-6 volts. 1½" wide. 3½ V. operation. 35/4

**THE ELMIC BATTERY CHARGER**
First as usual with a transistorised universal battery charger. Suitable for DEAC, silver zinc and pin-plug cells. All in-transistor controlled constant current output. Charges any type DEAC from 1 cm to seven cells, or lead acid one to three cells without adjustments. 100 per cent electrical safety, accidental short circuits of charging leads cannot blow fuses or harm circuit. Available now in two outputs:

- **Type 1**: 890/100 mA output
- **Type 2**: 670/100 mA output

Suits all operation from 230/240V. A.C. 50 cycle mains supply. Size—2½ x 3 x 3½.

**OTARION**
Model 0-21
**R/C RECEIVER**
- CB relayless tone receiver
- Size 1½" x 1½" x 1½"
- Weight 10 oz.
- 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 solid components
- Built-in Synchro Timing Indicator
- Works on any tone transmitter

Frequency Range—All 27 mc band channels
Provided with four 12 inch color or coded wire leads
Printed circuit protected with polyurethane seal

£11. 13. 9

**ELMIC '90' SIDEWINDER**
Solves R/C escapement winding problems. 4/11

**RADIO CONTROL SUNDRIES**

- 0-10 ma. Milliammeter...
- 0-100 ma. Milliammeter...
- Transmitter Aerial (4 sections)...
- Pulsameters—6V. 10G or 60G...
- Toggle Switch...
- On/Off Switch (single)...
- On/Off Switch (double)...
- Micro Switch...
- Clockwork escapement spring...
- Push Switch (double pole)...
- Two Pin Plug and socket...
- Four Pin Plug and socket...
- Six Pin Plug...
- Six Pin Socket...
- Seven Pin Plug...
- Seven Pin Socket...
- E.G. Plastic Bobbin...
- Mark 3 Relay Bobbin and coil...
- Plastic tool and Former...
- Keying Lead and Switch...
- Rotary Switch (everup)...
- Socket for X.F.G.I. Valve...
- Mivox X.F.G.I. Valve...
- Mivox X.F.G.I. Thyristor Valve...

£15...

**D.M. SPADE WINDER**
Ideal for winding R/C escapements. Can also be used for small rubber-driven models. 4/11
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.
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 flyer 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 flyer. Capable of consistent "maximum" flights.

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".

<table>
<thead>
<tr>
<th>Kit</th>
<th>Price (Inc. P.Tax)</th>
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</thead>
<tbody>
<tr>
<td>Magpie</td>
<td>4/10</td>
</tr>
<tr>
<td>Gnome</td>
<td>8/2</td>
</tr>
<tr>
<td>Martin</td>
<td>9/7</td>
</tr>
<tr>
<td>Swan</td>
<td>12/3</td>
</tr>
<tr>
<td>Grebe</td>
<td>15/9</td>
</tr>
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<td>Marauder</td>
<td>17/2</td>
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<tr>
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<tbody>
<tr>
<td>Magna</td>
<td>13/1</td>
</tr>
<tr>
<td>Matador</td>
<td>25/3</td>
</tr>
<tr>
<td>Galahad</td>
<td>36/-</td>
</tr>
</tbody>
</table>
**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.

<table>
<thead>
<tr>
<th>KIT</th>
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<tbody>
<tr>
<td>MONOCOupe 40</td>
<td>33/1</td>
</tr>
<tr>
<td>TIGER MOTH</td>
<td>33/1</td>
</tr>
<tr>
<td>AERONCA SEDAN</td>
<td>70/6</td>
</tr>
</tbody>
</table>

**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**
A 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.

**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".

**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 29½", O.A length 20½".

<table>
<thead>
<tr>
<th>KIT</th>
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<tr>
<td>MUSTANG</td>
<td>32/3</td>
</tr>
<tr>
<td>SPITFIRE</td>
<td>36/7</td>
</tr>
<tr>
<td>Mel09</td>
<td>28/6</td>
</tr>
<tr>
<td>LIGHTNING</td>
<td>45/-</td>
</tr>
</tbody>
</table>

**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 prefabed kit with all wire parts preformed. For two 1 or 1.5ccs engines.

**Mel09**
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.
WASP
Lightweight 18½" span stunt model for diesels 0.5-0.87ccs or 0.49 cu. in. glow motors. Goes through the box 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 100 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 glow motors. Span 36". Area 324 sq. ins.

COBRA

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

MAMBA
Profile fuselage stunt trainer for diesels 0.75-0.97ccs and .049 glow motors. A rugged model of simple construction and a completely prefabricated kit making it especially suitable for the beginner. Span 19½". Area 70 sq. ins.

NEW JUNIOR MONITOR
A sleek streamlined stunt model for fast stuntng with 2.5ccs engines. An old favourite in the Mercury range. Prefabricated kit. Span 30". Wing area 167 sq. ins.

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<thead>
<tr>
<th>KIT</th>
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<tbody>
<tr>
<td>WASP</td>
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<td>MARVIN</td>
<td>19/3</td>
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<td>MAMBA</td>
<td>15/9</td>
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<tr>
<td>VIPER</td>
<td>17/6</td>
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<tr>
<td>COBRA</td>
<td>28/6</td>
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<tr>
<td>MONARCH</td>
<td>34/10</td>
</tr>
<tr>
<td>NEW JUNIOR MONITOR</td>
<td>22/8</td>
</tr>
<tr>
<td>PICADOR</td>
<td>19/3</td>
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<tr>
<td>TOREADOR</td>
<td>26/2</td>
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<tr>
<td>CRUSADER</td>
<td>69/8</td>
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</tbody>
</table>

CRUSADER
The most advanced stunt model available in kit form. For 29 and 35 glow motors. Completely prefabricated kit of advanced aerodynamic and structural design. Coupled flaps and elevators. Wing Area 630 sq. ins. Span 56". A really beautiful model.
**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 2.5ccs engines with built up wing. Makes a very good trainer. Span 22”. Area 74 sq. ins.

**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 ¾A model with 1.5cc motor.

**MIDGE**
Speed model for 1.3ccs diesels. Once-time British record holder. A very economical high-performance model.

**F.A.I. TEAM RACER**
The latest Mercury Team Racer. Designed by Sid McKeown, 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 prefabricated kit with pro-formed undercar and all hardware.

<table>
<thead>
<tr>
<th>KIT</th>
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<tr>
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<tr>
<td>TEXAN</td>
<td>15/9</td>
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<tr>
<td>MAC</td>
<td>17/6</td>
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<tr>
<td>F.A.I TEAM RACER</td>
<td>32/6</td>
</tr>
<tr>
<td>MIDGE</td>
<td>7/–</td>
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</tbody>
</table>

**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

**MERGENCY 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**

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.

44/3

**2 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**

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

**RUBBER-DRIVEN COMPOUND ESCAPEMENT**

For rudder only control where self-neutralising is not required. Suitable for lightweight marine models.

44/3

**4 PAWL CLOCKWORK 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
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 high 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

NO. "8"
The most popular diesel fuel. Castrol "M" based. A high grade competition fuel

R.D.
Castrol "M" based racing diesel fuel. For all ball bearing motors

"45" GLOW
A good general-purpose glow-fuel nitrated for good performance

MARINE DIESEL
Specially blended for all water-cooled marine engines. Castrol "M" based.

FUEL TANKS

MERCURY tanks have all been developed from practical designs by a practical modeller and they were all fully tested flown before being put into production.

- 1/4 A Wedge (Wasp)...
- Economy Wedge 75, 10, 15 c.c....
- Standard Wedge 13”...
- Pressure-Fed, Stunt Square...
- Pressure-Fed, Stunt Square 23”...
- Pressure-Fed, Stunt Square 33”...
- Team Racing Standard 10, 15 c.c....
- Pressure-Fed, 75, 10, 15 c.c....
- P.V.C. Graduated Free-Flight Tanks for diesel or glow fuel...

<table>
<thead>
<tr>
<th>Item</th>
<th>Capacity</th>
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<tr>
<td>1/4 A Wedge</td>
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<tr>
<td>Economy Wedge</td>
<td>10, 15 c.c.</td>
<td>3/3</td>
</tr>
<tr>
<td>Standard Wedge</td>
<td>13”</td>
<td>4/3</td>
</tr>
<tr>
<td>Pressure-Fed Stunt Square</td>
<td>23”</td>
<td>5/3</td>
</tr>
<tr>
<td>Team Racing Standard</td>
<td>10, 15 c.c.</td>
<td>3/3</td>
</tr>
</tbody>
</table>
MERCURY KITS and ACCESSORIES

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 1 BSF threads.
1\(\frac{1}{2}\)" ... 6/6 1\(\frac{1}{4}\)" ... 7/6
1\(\frac{1}{4}\)" ... 7/3 2\(\frac{1}{2}\)" ... 8/4

SCALE TYPE WHEELS
Spoked hubs and lightweight sponge rubber tyres.
1\(\frac{1}{2}\)" ... per pair 3/-
1\(\frac{1}{2}\)" ... 3/6
1\(\frac{1}{2}\)" ... 4/6

PAXOLIN BELLCRANKS
T/R, Stunt, Speed ... -/3
Large Stunt, with bush, bolt, etc. ... 1/2

UNIVERSAL NEEDLE-VALVE
Will fit almost any engine.
4/6

ADJUSTALYNE HANDLE
Stove-enamelled die-cast aluminium with original line adjustment feature.
6/6

POLYTHENE SQUEEZE BOTTLE
Strong flexible bottle. Ideal for Team Racers.
1/6

AEROLAC
Transparent weather-proof finish in Red, Yellow, Black and Clear.
2/-

BUILDING PINS
Glass-headed. In dispenser pack of approx. 100 pins.
2/4

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

NATO PILOTS
Type “A” Scale 1” to 1', “1\(\frac{1}{2}\)” Scale \(\frac{1}{2}\)” to 1’.
Hand painted in authentic NATO uniform and equipment.
Bubble pack can be used as cockpit canopy.
“1\(\frac{1}{2}\)” ... 2/6 “A” ... 3/3

MERCURY HANDY SPANNER
Fits any hexagon nut \(\frac{1}{4}\)” across the flats, including most glowplugs 2/6

Look for the Mercury Accessories Display stand in your model shop.
The heart of a good model is Good Balsa...

KENT KRAFT BALSA of course!

ASK FOR IT AT YOUR MODEL SHOP
For SUCCESS in MODEL AIRCRAFT — fly KETT KRAFT

Obtainable from your Local Stockist