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other modelling angles . . .

July edition of our companion magazine Model Cars will be the 5th issue of this increasingly popular specialist publication. Cover will show the Ford GT at Le Mans. a car which is also the Prototype Parade subject, Building a Club Circuit as a group project. Reflections on past Dinkie by Cecil Gibson, details of a winning model Dragster, Trade Notes, Readers' Letters, C'ub News and drawings of a vintage prototype Bugatti Atlantic Coupe will be just part of top notch contents.

luly Radio Control Models & Electronics features something all model'ers yearn for, instant radio with a feature on how to make quick R/C installation in a prefabricated glass fibre boat hulf. This is a down to earth instruction on utilisation of commercial parts, Gerry Ne'son's superb letfire, based on the Sabre let is detailed in a special plan with construction information and for those who like flying boats, more data on John Crampton's experiments in this direction, Full-size plan is "Hi-Lo", which can be flown Biplane, low wing or high wing monoplane, a three in one in fact for tiny engines and small field flying. Technical stuff, Commercial Developments and picture reports complete

Model Maker for July includes a new 3 ft, boat design for "Moonglow", Ideal for radio control sceering, regatta or straight running events, it is very simple, has only seven pieces of wood in the hull and suitable for electric power or up to 3.5 cc diese!. For the non-working model enthusiasts, for the first time, authentic drawings of H.M.S. Hood by the incom-parable Norman A. Ough wi'll be a collector's item and for yachtsmen, John Lewis's new 10 Rater yacht is a big feature. Lathe Practice, Steering gear, drawings for a tank landing craft, etc.

MAP> HOBBY MAGAZINE

July 1964 VOLUME XXIX No. 342

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"RAZOR BLADE WORLD NEWS

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GETTING STARTED IN RADIO CONTROL — Part 3, £.s.d.
CONTEST DESIGNS SQUADRON MARKINGS

LET'S GO FLYING - Part 3 Concluded AIRCRAFT DESCRIBED — AYRO LANCASTER B. MARK I AND III (SPECIAL)

ENGINE ANALYSIS - FOX 15 R/C "SUP"

READERS' LETTERS SOUTH AFRICAN NATIONALS MOTOR MART COUPE D'HIVER OVERSEAS

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next month . . .

Editorial and

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AGAIN HUNDREDS OF HOURS OPERATIONAL

EXAMINE the MAXAMITE (T) Here's a PRECISION SERVO IN miniature pack, with transistor amplifier so work off relayless receivers. It fulfills every requirement needed for an aircraft

servo . . . and more. and for relay receivers there is the MAXAMITE, built to exactly the same precision standard, whilst MAXAMITE, 'G' (Grundle) is fitted with 8-pin plug for solderless installation. SPECIALLY DESIGNED FOR R/C AIR-CRAFT, the MAXAMITES will enable you "full house" in a medium size model AT NO INCREASE IN WEIGHT

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Blackburn Skua—the plane that stooped to conquer, another exciting new kit from FROG. 3/-

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Kit contains six Gold Tokens for exciting free gift scheme. The technical knowledge used in the design of Frog kits is of the same high standard achieved by the designers of the originals. Consider the trouble Frog take over accuracy. Before starting, Frog consult from the first program of the scheme of the starting and from the first original machine.

Frog make so sheets of drawings before they start work on the moulds. Frog take fantastic care making the moulds—accuracy is to 1/10,000th of an inch. The unique method by which Frog mandacture and pack their kits ensures that no pieces get lost. This store the entermer the internor take funding to urrite in for mixing parts. Frog kit designers and drawghstmen regularly visit aircraft factories to study production and design techniques.

Although Frog kits are highly securate (right down to the last button on the pilot's jacket), they are very easy to make. Each set of instructions is specially tested on non-experts! They have an essy-to-follow plan

FROC

rts! They have an easy-to-follow plan with numbered parts and the painting guide on the box is in the true aircraft colours. See the whole marvellous range of models in the Frog catalogue at any toy shop, only 3d. The Skua made its first operational appearance over a Navy flattop in 1938. In 1939 a Skua made the Navy's first serial kill, in World War Two, by downing a Dornier Flying Boat off Norway, In 1940 the Skuas fulfilled their role of Dive Bombers-making a nasty mess of the German Cruiser Konigsberg in Bergen Fjord. Skuas fought at Dunkirk, and at Dokar when they hombed the Battleship Richelieu. In 1941 tional service but soldiered on for many years as trainers and target tugs. The Skun was a two man plane, powered by a Bristol Perseus XII. She carried four Brownings in the wings, and a Lewis in the rear cocknit A soo lb bomb in a recess under the fusilage and eight 30 lb practice bombs below the wings.

CONSTRUCTION KITS CREATED FROM THE ACTUAL MANUFACTURERS BLUEPRINTS. From 2'-



Heard at the Hangar Doors

+ Lord Brabazon

The S.M.A.E, has lost a most influential and valued friend in the death of its President, the Rt. Hon. Lord Brabazon of Tara, P.C., G.B.E., M.C., on May 17th, aged 80. Officially recognised as the first Eng-lishman to fly, he was the holder of the No. 1 F.A.I. issuinant to ity, ne was the induced of the certificate issued by the Royal Aero Club, dated March 8th, 1910, having learned the art of flying in December, 1908, on a Voisin biplane. The Aero Club of France honoured him with issue of French pilot's licence No. 40. He was the winner of the Daily Mail prize of £1,000 for the first all-British aeroplane flight around a mile circuit, flown by a Briton, using a special aircraft made for him by the Short Brothers. His versatility extended to motor racing, ballooning and winter sports, an activity in which he participated up to his 70th birthday with bobsleigh descents of the Cresta Run. A past President of the Royal Aeronautical Society, Minister of Aircraft Production, and currently Chairman of the Air Registration Board, Lord Brabazon always had a soft spot for the hobby of aeromodelling and maintained a close interest in the activities of the S.M.A.E. He was a great public figure, and his after-dinner speeches, particularly one at an S.M.A.E. prize-giving, will long be remembered.

As Others see Us

Aeromodelling features in the National Press at infrequent intervals but the month of May seems to have attracted special attention. On May 2nd, Daily Mirror carried a startling headline 'KILLER' MODELS BANNED

This ghastly choice of phrase was taken from a quote by a New Forest Commission official to the effect that models . . . "are so heavy that they could kill anyone who got in the way".

The New Forest Commission has decided to

restrict model flying to a particular disused airfield and according to the Daily Mirror, 15 Keepers in the Forest have been ordered to confiscate any model planes being flown anywhere but on the airfield. It was also stated in this report that the Keepers will confiscate planes if the owners have not taken out a £10,000 public liability insurance Not being blessed with such ifluminating information from the New Forest Commission ourselves we do not feel sufficiently briefed to be able to com-ment except to say that we have heard of protracted

negotiations with their Commission and nomination of an airfield, which is also an official caravan dwelling site. Strangely enough, the Daily Mirror only referred to radio controlled models. No official information

on the subject has been issued by the S.M.A.E. or received by them for that matter. We anxiously await the first test case.

On the 7th of May the Daily Mirror again bought

us into the limelight. This time in lighter vein with a report that police, ambulance men and firemen dashed to Bramshaw Golf Course, Hampshire, after a 999 call reporting a plane crash. They found that the crashed plane was a large radio controlled model. Those Hampshire Keepers putting on their influence?

Noise complaints were the subject of a Stretford Council meeting reported in the Manchester Evening News of May 6th, We learn from this National Daily that the Stretford Council had decided to ban model planes from Turn Moss. Parks Committee Chairman, Councillor Mrs. Kirkbright, was quoted, "We have had so many complaints about the noise from the planes, we decided we had to ban them. You could hear the whirr of the planes for miles and it was going on all day at weekends It was also stated in the same report that the Stretford Education Committee was being asked to

restrict model plane flying on all land under its control. Clearly a case for demonstration of silencers. On May 15th the Worcester Evening News pub-

lished a most erudite retort by A. P. Tuite of Kidderminster to recent controversy concerning noise nuis-ance at Malvern Hills. Mr. Tuite could not have stated the case for aeromodelling more plainly. The Malvern Hills conservators who had been anxious over the noise problem and made general

Undoubted star of the 1964 British National Championships was David Walker's 122 in, 16; lb, model of the Arre Shackliton white four K & 8 19s, and we could not restrict this opportunity to uning six of our section photographs to record the occasion for those uniaty not to be present. Shots below are of its protects are my be guiged by the south correction made at extremely less altitude in photo above right.





references to "toys", eventually agreed to allow free flight models to be flown for an experimental potential to be flown for an experimental potential to the letters in protest from local residents. As Mr. Tune indicated in his explicit note, which we were pleased to see in print, the Kiddermister M.A.C. have come to the rescue and welcome all of the Malvern fliers more entilathened district.

Good for Kidderminster! Dubious Circumstances

When the Wisbech Sports and Model Shop in Norfolk were offered a single channel receiver and exaginment for 101- by two suspect characters, its seems that they were taking in the property of some unforturate aeromodeller, who had lost a dark red model of about 36 in wingspan. Efforts to trace the proper owner of the equipment failed until by chance we heard of a model disappearing into a

travelling fairground in the East London area.

By linking the unfortunate modeller, who was unable to get to the swings and roundabouts quickly enough, and Mr. B. H. Booth at Wisboch, we have been fortunate in reuniting a happy modeller with his equipment after its travel about the countryside. Most of this story is not to let your model go to

the fair . . . very dodgy! Aviation Careers

Availables Aureced dories in that of acting as advisor to troubled parents, antionics to assess principles and the available parents, antionics to assess principles in the aviation industry for their school-leaving sous. The Central Youth Employment Executive Control of the Available of the Ava

Clanger!

One of our maxims is preparation of accurate scale plans is "supposition is dangerous"—and what a pity the editor allowed his now aged memory to Luthamas Junters to \$25 on page 285 list month. Correct colour scheme for the engine cowlings was act, blue-green, and the band around the futeling, was yellow to indicate that the aircraft was equipped with instruments for IPR flights. We stated that

Control Line Fireworks

A novel form of presenting the hobby to the pulse is a well as earning oath for the clot offers come to our notice from first Henrocks of the Constation of





A special issue of M. and 2/M. stamps to commonate the Soft anniversary of the airmain flight in Australia will be issued on July 1st, remaining on sale for about there weeks. The stamps, which are sage green and the 2/M., red, show a Blerich Monsphare of the type in which Maurice Guillaux curried in the same stamp with the same stamp of the stamp of the same stamp of the same stamp of Sats. Three colour official sourceur current saw GPDs. Addition. South Australia for 7/16. Strillage.

Racer Design Contest

Messrs. Rollason's were very pleased at the response to their midget racer design competition announcement which we made in March issue. A total of 159 entries were received, and we understand that a fair proportion of these were from Aeromodeller readers. Entries have been grouped in three sections-professionals, non-professionals and enthusiastic youngsters. Sixty-three professionals, mainly from the two major corporations, B.A.C. and Hawker Siddeley, should produce some very interesting designs, especially as 17 of these are groups involving highly qualified personnel. Sixty-five non-professional designers are drawn from maintenance engineers, aircrew and a wide variety of industries. One entry is a Pterodactyl type. The third section has 31 entries from students, apprentices and school age enthusiasts. In recognition of their efforts, Mr. Norman Jones is considering a special prize for the best design from an entrant of 18 years or under, and we quite expect to learn that aeromodellers will be among the prize-winners.

"Walkie-Talkies"

After protested enquiries to authorities, our companion magazine. Radio Control Model & Electronica panion magazine. Radio Control Model & Electronica Office concerning the illegal use of radio communication in the United Kingdom. The notice is recipitated to the control of the control of the brief, it clearly assets that the P.M.G. will not lience transmission of speech on frequencies around 27:13. M/cs., which is the band designated for industrial. Dealers are advised to bear in mind that Walkies Talkie enoipment currently being distributed does contrary to the lace toncer, and operation would be contrary to the lace toncer, and operation would be

A number of hitherto unexplained model radio control mishaps have been pinned down to walkietalkie interference, and we do hope that this situation will be quickly brought sander control in this country. In the U.S.A., the A.M.A. has been obliged to engage at Alkonray-wi-kaw to defend the rights of engage at Alkonray-wi-kaw to defend the rights of which has permitted walkie-talkie operation to swamp the air and make model Bying most difficult.



RAZOR BLADE '64

KING OF THE 'WINGS'

FIRST INTRODUCED to ATROMODISTIR readers in May 1999, Razzo Blande has been one of the most pepular combat randels in the AEROMODISTER Plans Service. In the intervening five years Northwood club members have won many contests, with only basic modifications to the original deagen, now revised in a less squared, and even Laster Bying version of 1994.

The original conception was for a fast, extensibly tough model with reasonable manocoverability. To this end a flying weig was chosen as it dispersed with the witherable sera fuedage of concentional moles, the contract of the contract of

collisions or droken eights elected. beginning of the At the en the Debreight "Ell-rowing electtor" and Dorigus style models appeared, and modificiations had to be made to bring the Rosto Bladeup to their performance. This was achieved with the 1951 variant, which had the same it in x. 3 in ratiiing edge but of a much lighter wood. The sprace 2 in x. 1 in spars were tappered towards the tips, and to balas (graves. Wing labelers was increased to to balas (graves. Wing labelers was increased to 18 in, and the aspect ratio increased by reducing

chord and increasing the wingspan. The resulting model was lighter, and produced tighter manoeuvres Successes with this model were quite notable, the most important being 1st and 2nd places at the 1961 Caiterium of Aces in Belgium. This model was used successfully in 1962 as well, but after the combat trials for the 1963 Criterium of Aces a few modifications were made, most important of these being the insertion of a 3 in, x 1 in, obechi strip in the softer trailing edge sheeting. The leading edge was also enlarged to 2 in. x 4 in., and half ribs This model retained all the characteristics of strength and speed from the earlier 'Blades', and added the advantage of greater manoeuvrability. Contest results for 1963 confirmed this with first places at the team trials, Nationals, International Criterium of Aces and several club rallies

Heading shows Peter Tribe's model with an Oliver Tiger and illustrates the change of lines for attractive current sider the installation with tink arrangement and angled needle valve, Some Northwood clusters save needle damage by operating with losse fitted insides in Olivers. Note one task vent Dianicel

Contraction-wise the 1964 Recoo Blade is within the storped anjous who has built and flown a contraction of the storped anjourney who has built and flown a conment that in x, it is no becausing and in x, it in,
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Slide spars and leading edge through cut out slots in fuelage slides and cement well into position, making sure the spars are true by temporarily cemening the tip ribs and ehecking with a set-square. When set, remove tip ribs and slide in all ribs and ribbers cementing farmly and recement tip ribs on. Mark necessarily and recement tip ribs on. Mark necessarily the state of the set of the state of the stat

Fix the 8 in. x k in. spruce bellcrank support in place and mustard tin tank. Bolt bellcrank in position, complete with leadouts and pushout. Cement all ribs and riblets, and re-cement tip ribs on. Slide



July, 1964



Photograph above was taken at Northwood M.A.C.'s open night earlier in the year and is Mogge Morrin's vension with lighter structure. Ribiets are separated top and bottom booms unlike version on the plan. At right, another view of Peter Tribo's model thowing access to engine boils, rejon covered tips and-

in T.E. from rear. Cement tip sections together putting the curtain rod lead-out tube in one central lamination and 2 oz. of lead tip weight in the other. Cement assembly to end rib and add ½ in, strip gussets. Sand trailing edge section, add ½ in, centre





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FULL SIZE COPIES OF THIS 1/6th SCALE REPRODUCTION ARE AVAILABLE AS PLAN CL/729, PRICE 3/64, PLUS 64, POST FROM AEROMODELLER PLANS SERVICE

section sheeting, and ½ in. x ½ in. nylon support strips. Sand elevator to section from ½ in. sheet, coment plywood plate under elevator horn, thread steel or nylon elevator horn on to push rod and bolt down. Now drill engine bearer holes, solder Bowden cable leadouts into a loop, and sand all over to

finish. Cover with medium grade nylon and apply four coasts of clear dope. Reinforce the fuselage with grazes handing, smearing pleasy of cement into the grazes handing, smearing pleasy of cement into the chord in figure of eight hinge style. Limit elevator to 20' total movement to avoid shudder in loops and maintain the airspeed. Apply colours of your choice, and proof. Check the C. of G. position and you are

The proposed F.A.I. combat rules, should certainly encourage a new outlook both in combat flying and designs. On the Continent, the 1964 Rezor Blade has proved itself well suited to those rules, and promises to remain amongst the top models for many years to come.

AIRCRAFT QUIZ - Number Two

What is it? When was it built? Answers on page 365.





World News

ROLLAGI. Two cortoin trials for World Control Line (Whiteholdering and Lo extend vessel) was the Control Line (Whiteholdering and Lo extend vessel) and the King Hij/10th, produced excellent residus in tenn race and some Receiver mide 4:12 and 4:25 and 4:25 and 5:30 (Oliver Tager) and Maarinnay van Konigori, 4:156 and 5:30 (Oliver Tager) and Maarinnay van Konigori, 4:156 and 5:30 (Oliver Tager) and Maarinnay van Konigori, 4:156 and 5:30 (Oliver Tager) and Maarinnay van Konigori, 4:150 (Albert Oliver) and 1:150 a



FTALY. Oreat expectations for Badanoss, especially with new Super Tierre castenes. Hoof has been emissional severaging kill mp.h. with the new Super Figure 15.6 c., in severaging kill mp.h. with the new Super Figure 15.6 c., in both 2.5 and 5 c.c. classes at 132 and 107 mp.h. respectively. De Thomig packed 134 to 10 c. at 4 kill mp.h. and Journal was jet with 173 mp.h. Faifest in a term country of seen recover was the Pennick Cason teams from Milan with 512s.



At left, combat finalists Gerard Hakansson and Peter Evers at SWEDIBH control line meeting, dealling, with Bromma main the control line meeting, dealling, with Bromma pain also happened to be first as decreased. These combat Byers also happened to be first as a second of the control line was wonder how many other nations are able to use a main air terminal for C/L events!

There were several really new shapes in team racers, one of which we have to publish next month.

SWIDEN. Spring Control Lies rails on Brunnia National Nat

U.S.A. Very strong team for Budapest, selected during May, will provide serious competition for Boviet team race using both Super Tigre 0.20 and Rts 1.5 Remark/Soule severage 4 (40 (test time 4:25) with Rts 15 and Barket severage 4 (40 (test time 4:25) with Rts 15 and Barket Lean received a distance price for fravelling almost 1,200 miles from Seattle to compete in the trials. The content was firstly administed to speed competers when the content was strictly administed to speed competers.



At the Weis International AUSTRIA, power finalists share are Mailso of CZICHOSCOOYAKIA (left) and per Smid GREAT Martin of AUSTRIA whe did well to edifies many lig names in fough competition jud E. Mikakic, winner of A/2 for JUGOSLAVIA.

three furnor World Changes team mornings. Provisional information is that McParland, dishibit and Gleeke furn a powerful stunt team, while in speed it will be Windowski and the Windowski and the Windowski and the Windowski and the World Super Tige hoverling between 338 and 142 and Glen Lee from Wincomia with hovered between 338 and 317. Bits other competitors averaged over 132 m.p.h., Wighleisaghe had control unit faiture at 1491.

and ATT. He other compensions servinged ever 128 m.S. AUTTER. Execute the Controlled service at Vision 2017/16. Leaves the Controlled service at Vision 2017/16. Leaves the Controlled service from corne growth, depending officer, Performance and Part Full. For Execution, September 11, 1971 and 1971 a



SIGN PO

A MONTHLY ENQUIRY SERVICE Rach menth, Acromodeller and Atrinteresting questions sent in by readers Postcards, please, to "Sign Post" c/ Aeromodeller, 38 Clarendon Ed., Watford

Turkish Delight

Have you anything on Airspeed of suin which were delivered to Tut back in about 1946? Were camoutlaged or had they any o interesting colour schemes. Lattle comes out about Turkish mill aircraft. (T.C., Southampe As our photograph (at right) Turkey purchased examples a
Airspeed Oxford tool Consul
1946-7. Yhey were used for it As our photograph (at right) about 916-7. They were used for training oid conductore purposes. That illus-rated, serial No. 106, was all eller rith national markings of red with thite outline on the wings (upper and ner) and fuscinge plus national od with white creacent ruces and sinted white stor, on the fin. it il-silver Oxford recorded was ushile another, "121" was shifted areas and the straight on the versal dark colour others. Tarkey during this period also surchased 202 Spitfers and 192 Mosquitoes. "101

Beau Colours

I am anxious to be "different" when colour my Bristel Beaufighter astic kit. Have you any suggestions ease? (E.D., Rickmansworth). Yes, we have ! Seven alternatives sketched here stortched here with ean and tedent, positions to ing from top to bottom to 2002 (let Prototype—Ned ral fielsh pre-sear). Under sting Black, Starboard on and Dark Barth a 2 ft. 6 in, Roundel Type T.2. R 2004 (3rd Prototype Mk. 1.—Eurs)
1949). Some scheme on R 2003. 2 ft.
6 to. Konwolel Type 1. No Fix Plank.
XT873 MR. 1F (1942—25 Sydvh.).
Alveratt all Black RDM2 Fluish. Code
letters 3 ft. Majh. Light Grey. Raundle
2 ft. 6 in. Type 9. Fix Fixah Type 7-6.
R2009 Mk. 2F (March 1941—25
Sydvh.). Dark Greew and Dark Euria
Plantinger. Code letters 2 ft. Majh. 259.

MANCHESTER Ventral furret

> LINK & CASE LOWERED

2 ft. 6 te., Tape 3. Fin First Dork Green and is letter 2 ft. 6 in. Roundel 2 ft. 6 in. 7.3.

Aircraft, Underside Stack and Y. Target Towing diagonal stripes, Fusciage. Reundri 1 in Flash T.3, Code

Odd Insigne

Cash you explain for me why n Casch, Hyushin II-18 with civil mark-leng, but not identified as the national airtims "CSA", has a non-standard multitary insignate on the fin. One was seen at London Airport some time ago. It was Bushed with rest and white funcions of the contract of the contract of the conof fin and rudder, red civil marking on fin (OK-BYP) below the odd quasi rillitary marking. Spinners were also red. White top dccking and silver for

The origin of the aegmented these-clessions and blue antiques military marriang has across been add-controlly explained. They were seen or more and a voc-lessit Bf 1009 as long ago as 1047. It has even been say-posted that these markings were need period that these warkings were use prior to the Hiller-association to the 1800s. The welltary abrengt at ion belonged to State Exercity and odd casegh has citall registration letters as the contemporary II-18. Certain in the case of OK-BYP, the II-18.



Here's the Proof

Vaguely I recall a note somewhere that the Avro Manthester was ex-perimentally equipped with a ventral turret, a sort of "dasthin", but I've never seen any riose-up pisture. Can you bely? (G.E.S., Faitsworth).

Strangely enough, despite the wetter of books and articles on World War 2 military aircraft much still ressains to be illustrated and the ventral turnet on Munchaster is no exception. The il illustrated shows the strange rapides. When retracted, the two 2 in Brannings were depressed certically and the link/case editectory retracted. Even as, the bollow quarter of the turnet resistance expand. Conplicated, chamey and with marrow of tiston, only one such furret marrow field fitted and, eventually, acrapped

'AIR BRITAIN'

The International Association of Fatherhales, send 6d. in strange Postal Order/Esternational Money I sample of 24 page secondly required), to: The H







Radio Control

·······

Part Three of a New Series for the R/C Novice By E. F. BRYANT



Popular ready assembled, compact British receiver is the MacGregor Minimac with vertically mounted components.



is the Mark II version of the economically priced Guidance System, solid direct from manufacturers, Radio Control Specialists. Cased in tough plastic, it is compact, has dual



design for 9 volt supply (which is no weight handicap since 9 volt hatteries are no more than two small Pencells) is encased in a crackle faished conster. Host robust and of good prover reliability.



The R.E.F. Gemini Twins, available in reiny (above) and reinyless versions are paired so that clubsters can operate two radio outlins simultaneously — a groat bose. Compact circuitry offers small Rx dimensions for relaxiest version.



One of the mopopular kit constrution receivers, als available complete assembled by the manufacturers, is the MacGragar Terrytee 2 relayioss, targe than most but covicestly flat and rebust with horizon tally mounted contally mounted con-

ONE OF THE FIRST questions the novice is going to have to ask himself when considering the possibility of taking the step into radio control is, "How much, or rather, how little, is it going to cust me?"

To the vast majority of modellers, operating as they are on a very tight budget, this question of cost is of paramount importance, and it is intended here to clarify the position as far as possible, and show how the British modeller, at any rate, can get started in radio for quite a modest outlay.

To begin with, what are the minimum requirements for the novice's first adio model, Well. I must first the novice's first adio model, Well. I must first the notice of the novice of the notice of the

It has often been said that if one wants the best, one must be prepared to pay for it, and this is unsufficient to the proper of the pay of the property of the pay of the property of the pay of the

to use the equipment his money has bought.

range of merchandise to choose from.

The risk attached to buying second hand gear has already been discussed, but, again, for the man with too little money to buy new, and who dose not want to commit himself to hire-purchase, the opportunity

One of the earliest 3 volt receivers, the Kraft, widely capied and built by home assemblers throughout the voeld, now available in this country in kit forms or ready assembled. Is cheapest of the separate tone Raft.



is always there. The only advice to this chap is that he should, if at all possible, enlist the services of an experienced radio flyer, before he parts with his money. In this way, he can, at least, make a start, and the new set he wants may be forthcoming at a later date. There is yet another way in which the initial cost

of radio gear can be reduced, and this is, of course, the 'Do it yourself' way. There are several kits on the market from which receivers and transmitters can be built, and they are very popular among certain members of the community. Their price is low, and, generally, their quality is high, the final result depending more on the destertity of the builder than

SINGLE CHANNEL TONE RECEIVERS

Receiver	Type	Discoulous (Inches)	Weight (oz.)	Oper- ating college	Batterina Regulred	Receiver Price	Becommended Tz and Price	Remarks
R.C.S. Guidance System Mk, 11	Retayless Dual Ousput	12 × 12 × 1	14	4.5	4.5v day or 3 x U7 Pencella or 4.8v DEAC	67.6.9	RCS Tree Tx (8.0.0	Mk, II with quick blip con- trol or majnetic actuator drive, Available as matched pair at £14.00. Accessory pack (actuator, harness and battery box £2.10.0)
Gemini (R.E.P.)	Relayless	12 x 15 x 12	31	4.5	4.5v dry or 3 x U7 Pencella or 4.8v DEAC	Sec remarks	REP	Rx and Tx together £18.14.1. Rx supplied with burness, plus and socket
Gemini (R.E.P.)	Relay	21 x 13 x 11	2	4.5	Same as relay- less separate ac- tiasor supply	See remacka	REP	Rx and Tx together £19.7.1. Rx supplied with harness, plug and socket
Min-X R.R.I. Sponsmasser	Relayless Dual Ourput	10 x 10 x 0		3	2 x U7 cells or 3.2v DEAC	£10.16.0	Min-X Powermite £15.3.0	Supplies quick blip control. No harness supplied
Min-X Compact (Capri)	Relay	(x10x10	2	3	2 x U7 cells or DEAC	£13.0.0	Min-X Powermaster £14.6.0	All transistorised. No har- ness supplied
Kraft K3VK	Relayless	15x14x1	3	1.5-3.6	2 x U7 cells or DEAC	£5.19.6	Modulated Tx key- ing carrier and tone simultaneously	Available in kis form price £4.19.6, No harness supplied
F & M Vanguard	Relay Superber	28 x 15 x 1	25	3	2 x U7 onlis or DEAC	€18.10.0	F & M Echo or similar	Supplied with harness, plus and socket
F& M Pioneer	Relayless	10 x 16 x 0	10	3	2 x U7 cells or DEAC	68,10.0	F & M Echo or similar	No burness supplied
F & M Saturn	Relay	22 x 15 x 1	25	3	2 x U7 cells or DEAC	£13.19.9	F & M Echo or similar	No harness, cased
C & S 511 Honey Bee	Relayless	1x1)x1	0	2.4-3.6	2 x U7 oxEs or DEAC	67,58.0	C & S Falcon or similar single chan- nel sone Tx	No lumes supplied, no case
C & S 505 A Finch	Relayless Dust Output	1 × 12 × 12	2	2,4-3,6	2 x U7 cells or DEAC	C9.18.0	C & S Falcon or visular shorte chan- nel tone Tx	Supplies quick blip control or drives proposional mag- netic actunor; no harness supplied; no case
Otarion 6-21	Relayloss	1 x 14 x 13	5	3	2 x U7 cells or DEAC	USA \$24.95 £11.13.9	Outrion 0-31 or similar single chan- nel tone Tx	Tx carrier wave and modu- lation must be keyed simul- taneously
Otarion 0-22	Relayless Dual Ostput	(xl)x)	û	3	2 x U7 cells or DEAC	To order only USA \$27.50	Otarina 0-31 or similar sintle chan- nel tone Tx	Supplies quick blip control. Tx carrier wave and modu- tation must be keyed simul- taneously
MacGresor Terrysone II	Relayless	3 x 2 x 1	15	3-4.5	2 or 3 x U7 cells or 4.8v DEAC	£7.9.6	MacGreater S/C £8,19,6	Available in kit form
MiscGreate Minimac	Refayless	2×11×1	1	1-4.5	1 or 1 s UT colls or DEAC	66-19-6	Transacrised £10.19.6	May also be wired for screenic 4.5v actuator prov- er apply
Cirioquship 1.1'-J	Retayless	25 x 35 x 5	2	3	2 x U7 colls or DEAC	£12.7,X	Any some Tx Reymo carrier wave and some simultaneously	Supplied with excapement (PSN2) will necessitistic two positions, or SE2 compound excapement as an illuminate.
Ciniweship MDE.	Retistos	H×6×6	.55	3	2 s U7 ochi or 1.60 DEAC	£80.15.6	Any time Tx keylere carries wave and time simultaneously	Twin deck "modelar" con- struction of (we printed circus beards, with com- positions on broadle factors travarde; smallers 84.
Modelectrie	Relastess	5 x f x 25	15	9	PP3 % and 1 x 127 for acrossor	08.7.6	MacKepar S.C. tonc	Cosed to staminium ciri,
EMCG Acc	Relisfess	1 x 35 x 2 g	13.	4.5	3, UT or DEAC	See contactes	EMICO Age Tx	Sold Rx and Tx toperate

on the fidelity of the components. Each hit is a component by detailed plan and publishing instructions, and, as claimed by the manufacturers, is relating to the control of the control of the control of the many well be the answer; although it must be emphasized that success in these cases can be claimed for the sized that success in these cases can be claimed for the relative transfer of the control of the control of the work when he has completed it, having followed work when he has completed it, having followed interesting the control of the control of the many feel that this poor charp is in the threes of trouble-booking before he has even put has at worksion in this direction, must next with the reassion in this direction, must next with the reas-

concerned, and ne can take heart from the vas number of kits which are made and sold each season. Prices for all radio gear available, may be seen in model magazines published at regular intervals, but, for the quick guidance of those interested, a table has been compiled, which will show at a glance, what can be bought for how much at the

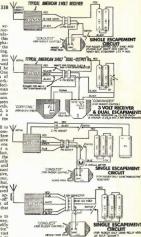
gather, what can be begulf for how much all the gath can be a well to A. All his point, on feels that it would be a well to A. this point, on feels that it would be a well to A. the point, on the gath of the ga

Perhaps the changest way to build a model in to brow a false, and then the sock, etc. In the way, two a false, and then the sock etc. In the way, wailable, those from "Aeromodeller Flass Service or the sock of the sock of the sock of the sock and the sock of the sock of the sock of the remember when using a plan of this description, and it is that the dadager down he plan after only the followed to the letter, modifications being only made where it is abbeing necessary and where it can be socked to the sock of the so

rather than the other way round.

Finally, let us see just what a simple radio model can cost, if all components are bought. The model itself, we shall buy in kit form, and the radio as a working unit.

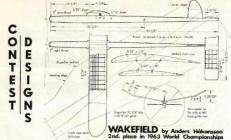
As an example, a typical radio control kit is priced at \$2.5x, a transmitter, receiver, actuator, wiring harness complete with switch, plug and socket, will cost from £11.5x. to £25, the engine sets us back about, say, £3 to £4 according to our choice, and so a little mental arithmetic shows that our mirtial outlay is



SIC WIRING DIAGRAMS (3)

BASIC WIRING DIAGRAMS (3) For mere circuit in Tree excitors to a to have published for more circuit in Care accession to a consultation of the con

still only in the region of £17 to £32. Naturally this figure is a little misleading, because all components, apart from the airframe can reasonably be expected to last for many models, but it does serve as a guide to the sort of price the beginner must be prupared to pay for this new sort of pleasure. Next month: Construction a kit.



breed on 8 32555 HCLRX-220 Il Pises wire 18 Ten Die NK 3 ey S. ZURAD Acus 10 2 0 m² Wager 100g

Well known throughout Scandi-navia as the "Old Fox", Anders Håkansson is one of the most experienced of the Swedish Wakefield class enthusiasts and his performance in the World Championships at Wiener Neustadt Austria, last year, only narrowly missed winning the Blue Ribband aeromodelling for him. The 1/10th scale drawing above gives pertinent details of his remarkably simple, yet efficient design. It utilises a double pylon arrange-ment for parasol wing mounting and a wound, tapered tube fuse lage, fabricated over a wooder former. The initial rate of climb is very impressive, but whether this is due to the airscrew design or Anders' particular gift of packing in absolute maximum turns is a moot point. In the was definitely suffering from re-pairs made during the event, but even so it went through to the eighth round.

The unitsual tailless pusher floatplane may not fit any particular British contest class but at least evokes interest as a challenge for those who savour the unorthodox. Zurad of Polsand is a gifted designer, who has employed return gearing in his Wakefields. It seems a poly that there is no to give modellers an opportunity of the property of the property of the property of experimenting in this way.

Squadron Markings

Described by Leslie A. Rogers Drawn to 1/72nd scale by K. McDonough

46 Squadron R.F.C.

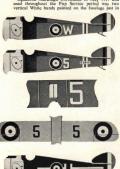
One of the few Squadrons to use the Nicuport two-seater, 46 exchanged these for Sopwith Pups in April 1917. In November 1917 the Squadron reequipped with Camels, retaining them up to the

Armistice. Using Sopwith Pups. In the first few weeks of ser-vice, no Squadron marking was used.

Flight Individual Markings. Were by letters or Flight Individual Markings. Were by letters or numbers painted in White on the fuselage sides behind the cockade. Letters or numbers repeated in R. B. C. D. E. F. used by (probably) "A Flight. I. 2. 3. 4. 5. 6. used by (probably) "B Flight. U. V. W. X. Y. Z. used by (probably) "G Flight. There seems a possibility that "C. Flight did not use "Z. and used instead T. U. V. W. X. Y.

Many of the early Pups had the wheel covers painted in three equal segments (120° each) colours are uncertain but could be Red, White and Blue. Personal Markings. Were often used at this period some were simply the pilots' initials, others were more

elaborate. One that has been recorded is a Skull and Crossbones on the wheel discs. Squadron Markings, Introduced in May 1917 and







front of the tailplane. Flight and Individual mark-

ings were as before, Using Sopeith Camels. The same Squadron mark-



Let's go FLYING

-with John Barker (Part 3-continued)

Covering a Fuselage

THE SUBJECT OF COVERING brings us to one of the biggest splits of opinion in aeromodelling; whether to use dope or paste to fix the tissue to the framework Checking with three members of nost British national teams vielded the following: George Fuller uses paste. Mike Burrows uses done, and Norman Elliott, just to confuse things, uses balsa cement! The position seems to be that dope can give a better job of it is applied correctly but paste is average and if it is applied correctly but paste is easier and cleaner to use. For this reason we will deal mainly with paste covering and will briefly mention the use of done later

Extra effort put into covering will always pay dividends. Much indifferent building can be disguised at the covering stage but, more important, much good building can be spoilt by bad covering. This is not just a matter of appearance, careless

covering can introduce unwanted warps. Before actually starting to cover, inspect the airframe carefully and make good any loose joints. Remove any blobs of cement and give a touch of sandpaper wherever it may be needed. The order in which the narts are covered is not usually of importance so by tradition we will start with the fuselage.

Figure 3.8 refers For a normal box fuselage you strips





Squadron Markings

About the middle of 1918 the Squadron marking was changed to a thin white horizontal band running from just behind the cockpit to the tail. This line was on the centre line of the fuselage

Flight Communiters were identified by Streamers
Position unknown for Flight using letters A to F. Streamer on Rudder for Flight numbers 1 to 6. Streamer on Rudder and Rear Interplane Strut for

Flight using letters at end of alphabet. Some also carried designs on wheel discs. These markings remained until the Armistice Thanks to F!O B. J. Starling of No. 46 Saugdron R.A.F. for his help from Squadron Records.



fuselage is almost square in cross section the folds can be made all at once concerting fashion and then cut This method saves time and is even more applicable when cutting tissue for the wings. Start on the bottom of the fuselage and paste the panel nearest the then lower the front part on to the pasted panel Press down well with the fingers. Now fold back the unstuck tissue as shown and paste the longerons as far along as convenient. The only spacer that requires pasting is the one where you finish pasting the longerons. The tissue is pulled just tant lengthways and stuck to this spacer. Finally, pull out successes and press on to the longerons with the thumbs. Continue in this way until the whole side is covered. How far to go with each pasting is a mat-ter of practice; many fuselages can be completed in one go. Now the tissue is in place the surplus is trimmed with a blade held close to the longerons. This blade must be sharp and it helps to wipe it occasionally with a moist rag to remove the film of paste which it picks up. The other three sides are completed in a similar manner. If the longeron corners have been sanded round, as is usual, the method of trimming by holding the blade vertically against the longerons should give just enough tissue to wrap round and cover any raw edges. If you have trouble with this try trimming, either with the blade or scissors, up to & in. outside the longerons

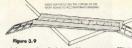
or scissors, up to 4 in, outside the longerons.

When items such as tow hooks protrude from the
main structure, it is often easier to start that particular piece of covering at the protrusion. Make a
hole in the tissue first and then paste the area around
the feature concerned. Slick the tissue in position and then work either way from this starting point.

Covering a Wing

The first thing to learn when covering a wing is to use a separate piece of tissue for each panel. word panel by the way when referring to a wing means the part between one dihedral break and the next, or between dihedral break and the tip. The top and bottom surfaces are covered separately, almost invariably starting with the bottom. The pieces of issue are first cut, leaving an overlap, as described for the fuselage. The way of attaching the tissue to the undersurface is dependent on the aerofoil section used. If it has a flat or convex lower surface the procedure is straightforward. The framework outline is pasted and the tissue placed in position. It is first stretched lightly spanwise and then any wrinkles removed by pulling evenly, chordwise. Press down well with the thumbs.

If, however, the airfoil has concave undercamber the method is a little different. The tissue must now be stuck firmly to the bottom of all the ribs. is usually carried out with balsa cement. Concentrate on getting the tissue stuck to the ribs first. The tissue edges can be turned back to allow the leading and trailing edges to be pasted. This is the stage shown in figure 3.9. If the work is done rapidly



and there are few ribs it is possible to cement a whole panel at one. The tissue is then stretched in position spanwise at the midpoint of the undercamber and finally pressed down chorwise with a finger along each rib. With larger wings you will have commiting a few ribs at a time. With this method the tissue is folded back out of the way whilst the risks are commented and then brought forward again to be pressed on to the ribs. When the bottom and trailing edges with a share blade, to the leading and trailing edges with a share blade, to the leading



Top surface covering is held in place by pasting the leading and trailing edges and end riss only. You will find that the second piece of tissue that mosts to a slight curve before it will fin properly. Figure 3.10. When the top surface covering has been attached it is trimmed with neisson to leave about 2 in and wrapped around the edges. If the overlap is nicked, especially at the tigs it will be much castie to fold over. If the wing to is of such a hospe that legion with a separate small proc of fissee. Figure 1 is not the property of the property of

Covering the tail surfaces uses just the same procedure as covering a wing and needs no further comment.

Using Dope for Covering

When using this method a coat of thick dope is applied to all the framework where the tissue is to be stack and allowed to dry. If this coat of dope raises, the grain, remove the roughness by sandpaper-raises, the grain, remove the roughness by sandpaper-raises that the result of t



the tissue in place. The rest of the job is carried out as for covering with paste.

Water Shrinking

When the covering is in place it is usual to spray all over with water on make the issue just damp. As all over with water on make the issue just damp. As all over with water on make the insulation of the worlds for the first stage it is almost certainly because you have made to be a superior of the property of the p

Wet Covering

Most of the listens used in aeromodelling can be applied in the west taken. Once the insuck has been applied in the west taken. Once the insuck has been applied in the west taken to be a single and the proposed in the control of the proposed in the control of t

the shrinking is much more powerful than with dry covering.

Fabric covering is almost always applied wet but bere the technique is different as the material is much stronger than tissue but tilghtens less. The fabric is soaked in water and wrung out and left to dry stightly. It is pulled taut on the structure and held with plenty of piris.

Doping

Dope is applied to the covering to make it airtight and waterlight. The number of coats to be used depends on the thickness of the dope and how you apply it. Several thin coats are better than one thick coat. Average models use about two coats on the tail surfaces and three on the wings and fuselage. With lightweights it is usual to thin the dope with anything up to 50 per cent thinners to give lightness and prevent warps. It is preferable, although not essential, to pin the wing and tailplane down while the dope is drying. Use small scraps of wood under the leading and trailing edges to prevent the dope sticking to the board. If you do get a warp after doping, the following method is used to remove it. Hold the offending panel about a couple of foct from a source of heat such as an electric fire. At the same time, apply a twist in the opposite direction to the warp. After a short while the covering will be felt to slacken. When this happens, move away from the heat but still hold the twist for about half a minute until everything cools down.



the Japanese Control Technique

KUMNOPOR BTOVWXYZ 1234567100

procedure can be repeated several times until you get the results you want. Perhaps we should mention that here we are talking of unwanted warps, Many models use intentional warps to improve their

flight performance Beginners would be well advised to avoid the use of colour dope although it is perhaps permissible on sheet fuselage. Colour dope badly applied looks far worse than a tissue and clear dope finish; properly applied it looks magnificent. The trouble is that properly done it is fairly heavy and usually takes far longer than building the whole of the rest of the model. The reason for this is that proper application means several coats of sanding sealer followed by tissue covering then several more coats of sealer and finally a number of coats of the colour. And between each coat is careful sanding with 'wet and dry' paper. Of course, an 'acceptable' finish can be achieved with two or three coats of colour done but do remember that coloured dope will not cover up bad workmanship and will usually make it more obvious

Lettering

The broad subject of decoration of the model will not be dealt with here except to say that the main colour scheme should be chosen to give good visibility both in the air and on the ground. Other aspects of decoration are best left to the ingenuity and taste of the individual builder.

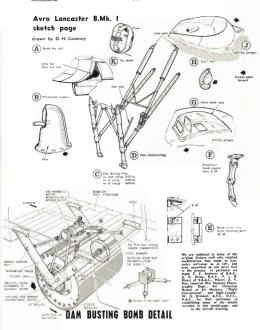
One subject we must mension is lettering. The SMAE regulations state that for insurance purposes all models must carry the owner's membership number on the top surface of the wing in figures at least 2 in. high. The easiest way to apply these numbers is by means of transfers; but a suitable alternative is to cut the numbers from tissue and fix them in place with dope.

For your early attempts at least, choose an angular form of numeral similar to that shown in the diagrams for United States styles. The numbers may be drawn for United States styles. The numbers may be drawn drawn them on first on graph puper. Lay a piece of paper on the cutting board followed by as many pilote the graph paper on top and fit the whole I/O clown with crawing pias. With a very whart philod cown with crawing pias. With a very whart philod cown with crawing pias. With a very whart philod cown with crawing pias. With a very whart philod cown with crawing pias. With a very whart philod cown with crawing pias. With a very whart philod cown with crawing pias. With a very whart philod cown the country of the piase o











AIRCRAFT DESCRIBED No. 133 Drawn by D. H. COOKSEY

AVRO LANCASTER

Tim notissor to completely revise the Avro Matchester as a four engined bomber in mid-1900, must be accepted as one of the most important Air Force developments during the second World War. The Manchester was initially produced to Air Ministry specification. 813/3 for two Rolfs Noyce 24-cylinder Valunce regions. Unformately, those were not fully and although 200 Manchesters were produced, their service was constantly dogged by unserviceability. Eventually they were withdrawn foot training use.

The alternative of producing a four engined version meant considerable drain upon the resources of Messrs. Rolls-Royce in their Merlin engine production for the critically urgent supply for Fighter Command Hurricane and Saitfices.

Command Hurricane and Spitfires. The first Lancaster prototype was a conversion utilising 75 per cent of Manchester components, the major change being a new centre section. With Serial No. BT308, it retained the three fins of the Manchester and first flew on January 9th, 1941, as Avro type number 683. First production model 1.7527 was not to fly until October of that year, but production was soon consolidated and 44 (Rhodesian) Sodn, received the first of the machines as a Christmas present on December 24th. It was this squadron that first used the Lancaster to bomb Germany and in the early spring, daring daylight raids, especially that on Augsburg and on armament factories in France were soon to make the name Lancaster one to be respected on both sides. Powered by 1,280 h.p. Merlin XX engines, the Lancaster carried a crew of seven, and was able to defend itself with eight Browning .303 machine guns in hydraulically operated turnets. A ventral turnet was fitted to only the very earliest versions. The bomb bay, 33 ft. long and able to accept a load of up to 8 tons in various combinations of bombs, made the Lancaster the most powerful strike force in service anywhere and thus it became the spearhead of the night raids on strategic points in Germany.

British bomb stores were initially limited to old designs, the largest of which was the 500-pounder. Not until 1939 had the air staff considered the use of a 1,000 lb, bomb and in fact orders were not placed for anything near this capacity until six months after the war had started.

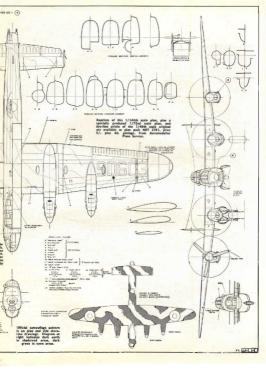
This was very much the concern of that brilliant engineer Dr. B. N. Wallis of Vickers Armstrongs (Aircraft) Ltd. During 1940 he undertook a one-man campaign to introduce an "earthquake" bomb of 10 tons. He drafted the design for a 50 ton, 320 m.p.h. "Victory" bomber, and after interviews with Lord Beaverbrook, the Minister of Aircraft Production, he produced a long thesis on "A method of attacking the Axis Powers "This had the effect of forming an "Air attack on Dams Committee" to study one aspect of his proposals. But the idea of a huge bombcalculations indicated the need for a 14-tonner to have any effect on the Mochne dam-was frustrated from the start. Barnes Wallis now concentrated on a new method of delivering the explosive where it would be most effective, and after toying with ideas on his own model dam, he devised a "skip" bomb which need only contain 6,000 lb. of RDX explosive and could be carried by the new four engined Lancaster.

Brackling of the Nant-Y-gro dam in the Welsh halls confirmed the theory of dam clearation, all that was now needed was a technique for delivering the apherical weapon at low allitade so that it would need to be a superior of the superior proved that the Wallin theory to proceed was given with a groving that the operation should take the pick of the superior of the

Avro were immediately concerned with airframe modification. Twenty-three B.Mk. III (Special) were to be prepared for a 20 aircraft force and Vickers

inciding plate in a famic tiere of a formus Lessinier B Merk. I timefren marking on the locatige indicate results from 237 Mark with cut interest. In Monthage I family to the graphing designed of the same of the marking of each selected (Or fr 2) Section, included interest to the property of the same of t





were to arrange installation and drive of the bomb. By necessity, and owing to the time involved from start to finish, there were very few drawings involved, most instructions being verbal. In some cases minor details were left to the operators concerned. Installa-tion consisted of two "V" trusses hinged parallel to the aircraft centre line, and mounted on the fuselage centre section. The bomb was held between these trusses by a 20 in, spinning disc, and driven backwards at 500 r.p.m. by a vec belt driven by a V.S.G. motor mounted on a wooden block above the floor. slightly forward of the vertical. Release was effected by a cockpit lever which caused the trusses to be sprung outwards by four springs, connected to a standard 12,000 lb, bomb slip mounted centrally in the bomb bay roof. Spring tension was obtained by

tightening the four nuts on the outside of the trusses.

The bomb itself weighed 9,250 lb. (total) with a charge of 6,600 lb. of RDX. It was a heavy steel cylinder of bolted and welded construction, and fitted with a friction disc on either end. Fusing was by three hydrostatic fuses and one time fuse, which operated on a 90 second delay. The hydrostatic fuses operated at a depth of 30 ft. The bomb had to be carefully balanced on two axes with the aid

two ries

Time simply did not permit production of a cast steel casing, so first test drops during late April, 1943. were with the cylinder encased in 12 tons of timber to offer a 7 ft, diameter spherical shape. The casing disintegrated, and W/Cdr. Guy Gibson who had been given the duty of working up a new squadron especially for the proposed raid, expressed satisfaction with the plain cylinder.

Thus at R.A.F. Scampton, the peculiar shapes of the Lancaster B.Mk. III began to assemble, and

crews who were picked for their experience, trained at low level attack Only a month after the first drops with prototypes of the bomb, the 617 attack on the Moehne, Eder and Sorpe dams was made on May 16th. Nineteen aircraft left, 11 returned. Two did not attack the targets; but the raid was a success, though Chiefs of Bomber Command would have no more.

For over 20 years details of the bomb have been shrouded in secrecy, Operation "Upkeep" had proved that the extremely simple spinning bomb was an ideal stand-off weapon for attack on large naval vessels. Germany no longer had such targets to offer. and so the bomb was considered to be of greater value to the enemy than ourselves. In the Far East it was a different story, and a squadron of spinning bomb Mosquitos were despatched to operate against

the Japanese fleet, only to be held back by political

Wallis's plea for a heavy penetration bomb to be dropped from high level was eventually met with sanction for a scale version of his original 10 ton proposal and this became the 12,030 lb. "Tallboy" 21 ft. long with fins offset to spin in the trajectory. In tests, this new bomb penetrated 90 ft, into the ground from a 20,000 ft. drop. 617 moved a few miles north from Coningsby to Woodhall Spa, and under Group Captain Cheshire's guidance in a borrowed U.S.A.A.F. Mustang, or a Mosquito, developed a system of making drops by the "gaggle"—five a system of making drops by the "gaggle"—five abreast at 200 yards spacing, in waves 300 yards apart. Success in attacks on U-bont pens vindicated Wallia's initial claim for the 10 tonner, and at long last assent was given to produce the 22,000 lb. bomb. Meanwhile, the Tripitz was located in Alten Fiord.



617 Spdn. B Mark I and III (Special) aircraft. At top a Lancaste 617 Spine, B. Mark, I and III (Spirill) silverift. At the a Limitette from the stage of the stag to KC with Lancaster Lincoln B.2 aircraft.

Norway, No. 9 and 617 Sudn. made a "Tallboy" attack from 600 miles range, based at Yagodnik, Russia. Holed, the Tirpitz was moved to Tromso, now within range of Lossiemouth, and after two

more "Tallboy" attacks, rolled over and sank With the arrival of the first 10 ton "Grand Slam" bombs, 617 then began an incredible series of devastating attacks using this highly accurate weapon. The very first drop saw the collapse of the Bielefold viaduct, which had been surrounded by ineffective craters from previous attacks. There followed the collapse of the Arnsberg, Arbergen and Nienburg bridges. Another chapter in the great story of the Lancaster bomber was completed.

Lancaster bomber was completed.

Noc. 20 years bate, Anacaster still remain in service in
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the 'dam-busters' fly in!

Flying in to the Revell Kit parade is a wonderful new kit. An absolutely lifelike replica of '6 for George', the Lancaster flown by Wng. Cmdr. Guy Gibson on the famous dam-busting raids. Every detail of this historic plane is authentically reproduced in 1/72nd scale—right down to Dr. Barnes Wallis's secret 'skipbomb', the bomb that made these raids possible. Four crew figures, clear plastic gun turrets and canopy and rotating propellors, wheels and gun turrets, add to the real-life look of this exciting model. 12/66 each,

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ENGINE ANALYSIS

NUMBER 124

By R. Warring

FOX 15 R/C

DUKE Fox is one of those energetic engine manufacturers who has gone out to produce just about every type and size of engine modellers could want-all glow, of course-and at the same time appears never satisfied with a production design, for there are always new models, detail differences and re-designs coming out. The Fox 15 is one of the standard models which have survived unchanged since 1962 and in its straight or 'X' form offers high-revving performance at a very low price (\$6.95 in America).

Actually it is a little on the flimsy side for high speed work, and for such duties is made available with alternative (and much more expensive) crank-

case, cylinder and piston and con. rod assemblies.

The Fox 15 R/C features the normal 'X' construction plus an original design of throttle unit and otherwise appears unchanged. A substantial alumi-nium spacer, approximately $\frac{1}{2\pi}$ in thick, is fitted under the head to increase the head volume and thus reduce the compression ratio, making it suitable for operating on low-nitro fuels (with, naturally, a loss of high speed performance). We found the 15 R/C ran smoothly and well on a straight fuel

The throttle unit is interesting, not only because it is different from the usual barrel type but also because of its efficiency in providing positive progressive response and rapid pick-up from slow running to full throttle. We found it virtually impossible to 'beat' the throttle by even the most rapid movement. and pick-up was just as rapid after running at slow speed for an extended period. In fact, it is about the best functional throttle we have come across to date on an engine of this size-and ideal for radio control.

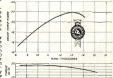
We originally thought that it would prove troublesome through air leakage, since the moving throttle assembly is a very loose fit in the intake tube, with plenty of slack movement from side to side. does not appear to have any effect on running, so can only be said to be advantageous in providing a very free throttle movement.

The throttle starts off life as a typical 'barrel' or cylinder which can rotate in the intake but the centre section is reduced by flats on either side to give what is, in effect, a rectangular spray bar with spray holes in each of the flats. In the normal (open) position, it does present a normal thick spraybar appearance, in fact. Rotation of the throttle then turns the flats until they become angled to the air-flow entering the intake, presenting progressively more and more restriction. The bulk of the intake area is closed in the 'slow' position, but with a com-pensating air passage provided by a groove at the top of one of the flats. This throttle movement more of a 'butterfly' than a barrel action-is connected to a conventional exhaust flap by a wire link, producing a marked degree of silencing in the slow running position

A simple adjustable stop is provided by a screw in the top of a wire arm for the slow running setting, this screw bearing against the front of the stub exhaust easting. There is no forward or high speed stop, which is a bit disconcerting for bench running since the throttle can be advanced past the full speed position and start again to act as a throttle by richening the mixture once more. If pushed too far forward the top of the arm carrying the 'stop' screw can foul the propeller. In a model installation, of course, it would be a simple matter—and necessary—to arrange for a high speed 'stop' on the actuating linkage to position the throttle correctly for fast run-ning. This position is not critical, nor is the slow speed running adjustment. Whilst it is possible to adjust the latter to give bare tick-over revs of the order of 3,000 r.p.m. or less, we found that this did to some extent modify the instant response of the throttle, especially when using a small propeller. It was found best to sacrifice some speed at the slow end and adjusting to drop the normal flat-out speed by about one half. This should still result in sufficient loss of thrust for most R/C applications.

Constructionally the Fox 15 R/C is fairly ortho-

dox American practice as far as a Fox engine is



ever orthodox-with a very light, thin-walled crankcase casting incorporating cylinder and intake tube. A stub exhaust is cast integral with the cylinder with a pillar in the centre which is tapped for the screw holding the pivoted exhaust flap (also a pressure die

Component materials

The cylinder liner is of soft steel, with thin walls with a narrow flange at the top to locate the liner for depth when inserted in the crankcase unit. Transfor and exhaust ports are rectangular in shape and out directly in the liner walls. The corresponding transfer passage is of generous proportions and formed in the casting.

The piston is of cast iron, again unhardened, and is of plain form, thin-walled, with a relatively tall and thin deflector on the crown, arc-shaped at the top to match the contours of the head. Connecting rod is a light alloy pressure die casting or forging, and the gudgeon pin is press fitted. The finned head is a pressure die casting and is relatively deep with a considerate mass of metal. Head shape is contoured with the plug offset to one side and angled. The head attached via four Phillips head screws extending down into the crankcase unit with the aforementioned spacer fitting a machined groove in the bottom face of the head and resting on the flanged ton of the liner. If this spacer is removed there is virtually no clearance between the piston deflector

and head at top dead centre. Crankshafkis of hardened steel 2 in, diameter, step ping down abruptly to a .189 in, diameter threaded length immediately in front of the journal. Intake port is 1/2 in. x 1/2 in. cut square, opening into a 1/4 in. circular in form with a machined crescent shape counterbalance weight. Crankpin diameter is .155 The shaft runs in a well fitted bronze bush, journal length being only I in. If anything the shaft appears to be slightly 'waisted' giving a slightly tight, but by no means excessively tight fit.

Immediately in front of the journal the shaft is keyed to take the prop driver, which is a simple and very light alloy casting with a good serrated gripping We feel that the protruding length of shaft is on the vulnerable side, and another minos criticism here is that the prop retaining nut could have been a full nut to advantage, rather than a half (thin) nut.

A sportsman's engine

The test was made on the basis that here is an R/C engine designed to run on the cheapest possible fuel. No attempt has been made to extract absolute power in the accompanying figures. We have used the engine just as would an average sports flier. Reducing the thickness of the spacer under the head to increase the compression ratio would undoubtedly improve performance, although possibly at the expense of needing nitrated fuel to promote smooth running at high speeds. On straight fuel we took test running up to 15,000 r.p.m. and beyond with propellers and running remained quite smooth.

Summurising, we would rate the Fox 15 R/C high as a radio model engine, especially for smaller models where power requirements are not so critical and light weight is useful. It scores particularly on having a very good throttle and a low level of vibration when running. It is also an extremely light engine for its displacement and therefore suits many 1.5 c.c.

diameter central hole in the shaft. The crank web is designs. TANKARAHAMAN FOX ACTUAL SIZE

Specification

Displacement:	2	42 (i.e.	C.147
Bore: .390 tp. Stroke: .390 in				
Weight: 31 on.				
Man, paster: -	22	B.H.F	. at	13,00
Man, terque:	19	ozin	at.	10.00

Peter rating: .001 B.H.P. per c.c. Pencer/secipta ratio: .000 B.H.P. sterial specification Transcence unit: pressure die cast light allow. cast light alloy, attached by two

strews. Pareness, steader head; light alloy pressure

die casting. samecling rod: light alloy. nanishaff; alloy steel, hardened and ground to finish. ain bearing: bronze. unit retained by spring

Propeller - R.P.M.

Figures

Top	Filte	(mylon)	8	×	6	10,200
			9	*	4	10.300
			8	×	4	13,310
			Ť	×	4	14,200
		Trucut		×		13,600
	K-K	(rsion)	9	×	4	10,800
			8	×	4	12,800

Fast used: Mercury 45.



DEVELOPED OVER MANY YEARS by Radiolas Cizck, Sup is a direct descendent of his Wakefield Cup winning XL-56b, as flown by team male, Frantisek Dvorak, in the 1959 World Championships, Basically a simple model, Sup has almost A/2 performance from an A/1 size airframe, owing a lot to its Wakefield wing.

Both wing and tailplane are modified versions of the XL-56b, as published in April 1958 issue, the tailplane having some area removed from the centre section to meet requirements.

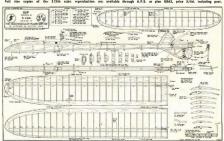
A Czechoslovakian A/1 glider with a pedigree

designed Radoslav Cizek bv

In the last contest entered, Sup won with a score of six maxes plus 103 seconds, totalling \$23 seconds. It should be remembered that the A/I max, is two minutes. Sup's average flight time has been 130-140 seconds, this being much the same as many a British A/2 in still air. Commence construction by cutting the fuselage top

from 4 in, sheet and marking former positions in soft pencil (2B grade). Cut out formers and cement to pencil (20 grace). Construct the Anto rudder as shown by bending the 18 swg. tow hook and securing to former F4. Then bend the auto-rudder trigger and solder and bind to the 16 s.w.g. brass tube. Insert the bearing red in the two I mm. plywood bearing plates and cement whole assembly into fuselage Cement both & in. fusclage sides on at the same inserting the auto midder line, and then the fuselage bottom. Note that cut-outs for upper and lower fins should be made before the fixelage is assembled. Cement the three strips for the nose skid together and when set cement to underside of fuselage. The soft aluminium rudder limit bracket should now be fixed into the extreme rear end of fusclage as shown and

Full size copies of the 3/5th scale reproduction are available through A.P.S. as plan G863, price 3/6d. including post,



353 July, 1964



the section fitted with black balsa. Drill holes for dowel rolds but do not enement them in untill the fusslage has been sanded down. Make nose weight box from three sheets of spruce as shown cutting the \(\theta\). The form the sheets of spruce as shown cutting the \(\theta\). The certent to nose former F.I. The top fairing should be cemented on \(\theta\) in The top fairing should be cemented on \(\theta\) in the similarions. Great care must be taken to ensure the wing cut out is exactly to the section shown, and flat. When all heading

The upper and lower fins are made from 2 in, sheet and then slotted in fuselage. Cut an angled slot into fuselage top behind top fin. Cement 1 mm. plywood tailplane platform in and hardened stop. Add & in, sheet tailplane seat, tape rudder on cement

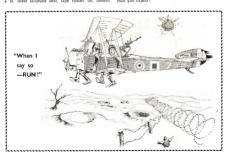
bamboo rudder horn in, and bamboo peg in fuselage bottom sheeting. Sand whole assembly smooth link up slots rudder, and check for free movement, trimming turn angle lug bending the soft aluminium

where controvies is a little different, in that all mis bays marked when "X" have \$\frac{1}{2}\$ in webs between the spars. Start by cutting all this from \$\frac{1}{2}\$ to web the tween the spars. Start by cutting all this from \$\frac{1}{2}\$ to we have \$\frac{1}\$ to we ha

I in and 48 in dibedral measurements are correct.

The tailplane is constructed by the same packing method, the only difference being the insertion of a hambon dethermaliser arm.

Check for warrs, 18th model down, and finish by applying one cost of sanding saler all over. Rub down and then cover with lightweight tissue. Three coats of thinned clear dope should then be applied all over, and the fuselage colour doped if required. Bring the centre of gravity to the postion shown by adding lead shot in the none box. Test lifty on a short too line and rum by altering the allaphon incidence. Never forget to light the dethermalizer list that the contract of the contract of



World Cruiser resting place

DEAR STR. ...
The Famous Biplanes No. 33, shown in the April 1994 Issue of the Assu-cockLax, hought to mind an incident of interest which is related to those ugias DWC aircraft. In the spring of 1945 our squadron -47's) had lost a plane north of FL Randall, Alaska. While successful rescue efforts were being made for our rescue efforts were being made for ear reew we circled the area and I saw the Douglas D.W.C. you refer to as No. 1 "Seattle". After landing at needs Base I found that travelling Indians and Trappers had ome across the plane and found it to be in fair

the plane and round it to be in fair condition.

There is no doubt that it still sits in the eternal snow of that area. The area that the plane went down in is very spoolty and it partially expinions why both the DWC and the C-47 were

Nhen travelling south-west (known as down the Chain) from Port Moller Bay, the land slowly and steadily raises from sea level until 1 reaches a Bobb the hand showing made sendant control of the c New York State, U.S.A.

Contest admin

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Dax Sin.
Dax Sin It should be done properly or not at the full time volunteers to cope with this lost carriery that is better than one or the control of the control of the control items. The principle of competitors, time in a value of the control of the count. The principle of competitors which accurately is not being quot-tioned but "mintaken" do notur and it which accurately is not being quot-toomed to the control of the control on a competitor's own proceeding or to the job thercognity, themselves, on the day.

An example of present day process-ing is glider lines being checked for length with one official with a spring

balance at one end and the competitor in the distance holding his winch next to marker. Couldn't he have several yards of "spare" line left on his reel?— and who is to say he uses that winch and line for his flight. At none of the three mentioned meetings use three mentioned meetings use keeper have to be present whilst keeper have to be carried out. Wakefeld checking was carried out. Wakefeld motors were excupoiously weighted and then given back to the competitor to do what he wished. Now if you can't do what he wished. Now if you can't have do you trust him to pat the weighted motor into his model when there is so aspervision. All weighting age of cusy removal of bollsart after weighting was there for all to use. Even winning models were not chrotode to the top three models at the first trials were. but these three need not he top of the combined trials: f the combined trials: Come now organisers let's have all r nothing. Don't waste your time and ours by these half hearted atours by t and ours by these half hearted at-tempts to check us cot.

I might add that the three meetings mentioned were all excellent events at which a lot of hard work was done by many efficient. These were not the only F.A.I. events I few in; but were where the "processing" strock me as being rather unsatisfactory to all

D G WHITE

READERS' LETTERS

Single Channel where art thou?

DRAW SER, First of all. Pires of all, many thunks to an ter-contestants who turned up from far and wide and helped to make the Radio Controlled Pylon races on April ith first, a success. Excellent cooperation and understanding from both contestants and spectators made the effort well worthwhile. Snags did show up and lessons were learned as

a result.

Korirkas for the multi events were fully substribed; but the single channel class was only moderately supported. Way to fair? It single substribed. Way to fair? It single substribed with the substribed of the full substribed on a Fyton ceruit, or is it that incentive is incking owe to the streemer of National clarge channel competitions is general?

Would be interested to bear other would be interested to bear other Would be interested to hear other points of view on this matter. F. N. Dowson.

Alvastes, Derby.

Enforcing Sileneers

Duan See, The R.M.A.E. Council and the Silen-The 8.56.A.K. Council and the Siliescener Stall-Council and the Siliescener Stall-Council and the Siliescener Stall-Council and the second section of the second section of the second section of the second section of the section of the section of the Society.

This rule is surveyed; to the training section of the Society. The section of the Society o

Local rules, property enforced, are the answer here.

In any case our offence is not noise— —It is that we exist at all! We make Joe Blob feel guilty he never does any— ing but watch the telly, and we are a

ing but watch the telly, and we are a safe target that isn't likely to hit back at him, so he'll gripe about models every time his wife rags. Suppose sitencers did help. second rilles the warpresent rise will produce a crep of
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Fit. L. Fulcemen them goes on to totally defeat his own case by patting the very reasons why siteneers shank the very reasons why siteneers shank he computatory. Of course it is im-practical to rule just what constitutes The only reasonable way to preserv our image and retain flying fields (G.B our image and retain sying noise (G.B. is not the only place where people complain) is to have an F.A.I. ruling that all model engines he fitted with combinat allowers of F.A.I. approved

offsicant allessers of F.A.I. approved designs.
This way G.B. will be under no greater tascellesp itsan anyone else. The only real handlesp is the one to the whole aeroenodesling frateristry personilled by noth prope as Pit. Ls. Pationer who. in his own words reresonated by soon proper as Pit. Lo. Talconer who, in his own words untarie, comments and the control of the

Change of address?

Ontarie. Canada.

DEAR SIR, A4 P.R.O. of the S.M.A.E. I offer a As r. st. o. or the s.M.A.R. I over a service to modelizes not attached to chils by endeavouring to give them all details of their nearest clubs and in some cases their area's flying grounds. Unattached modeliers only grounds. Unstached modellers only have to send me a written request, no stamped and addressed is needed. To help me do this job property it is necessary that all R.M.A.E. Choice and neconary that all fs.M.A.S. Ciubs and Arna's keep me up to date on club changes of Secretary, meeting gizes, etc., and I do emphasize that it can not be other than headerst to any formation in the direction of 33 Guid-formation in the direction of 33 Guid-ford Accesse, Sarrhites, Surrey, Need-less to say, unattached modeliers representing risk information will also be sent full "good" about the Society's be sent full "gene other activities. REVIN LIMISEY.

South African National Champs

Gunther Kittel has his r triaver ready and waiti hefore launching in oppower. Far right is feflight champion John Swi low launching his oppower winner — nice see someone enjoying h





Atways held over Easter weekend, this year in the Rand, the S.A. Nats is an occasion for gathering together the widely spaced clubs from the Cape, the Transvaal, Orange Free State, Natal and the Southern coast. Distances travelled melt with enthusiasm and the general spirit of the event does much to encourage model flying throughout the ensuing year. Blessed by good weather, the contest opened with Wakefield with the local R.M.A.C. taking first three places, John Swallow in the lead. A/I was popular but downdraughts made their toll and locals John Swallow and Brian Partridge were 1st and 2nd. For Chuck Glider lift was hard to find, Wally Osner making 4:12 to win. As the wind began to rise in strength during the afternoon of the first day, it was a long trek for recovery of open power models, but nevertheless this saw another win for Swallow and he went on to place 2nd in A/2 as well. This event was won by the consistency of J. Comins of Maritzburg flying a Ritz "Continental". A.P.S. designs were popular, "Top Score" and "Sceptre" in parti-cular. The second day opened with similar perfect conditions for the first half. Ivor Savage's "De-pendable" up from the Cape, headed the field with a handsome lead, that busy man Swallow placing 3rd. Wind was quite strong for F.A.I. power, Archie Kirby of the Rand had a clear lead using a Goldberg "Viking" followed by Brian Partridge's "Pulteri" and Sean McCullagh's copy of John West's "Zell-Zee" winner from Aeromodeller 3-view draw-the Care Of 10 models flows in sense. ing, up from the Cape. Of 10 models flown in open glider, four were "Pelicans' from Western Province and a couple came in 1st and 2nd for Calefato and Carswell. Their clubmate Jensen was unlucky when all set for 1st place, only to have a mighty downall set for 1st place, only to have a mighty down-draught during his last flight. 1A power was yet another victory for John Swallow using his "Ulti-mator" with 180 sq. in. wing and pressurised Cox. 051. After that it was only natural that John Swallow should be awarded the senior free flight championship. In Cri. H, Matthews won 4A TJR. using a re-worked Oliver Cub in a "Starshooter" (a combination we seem to have heard of elsewhere?). F.A.I. speed was won by Basil Menges using a modified Super Tigre in a copy of Pech's winning 1960 model and Len Marnewicke led stunt with his usual "Thunderbird" powered by Fox 35. F.A.I. team

"Thinderbird" powered by Fox 35. F.A.I. teas Upper right, Ball Meages, Super Tipe, sourced seed who is F.A.I. class, hered on Creek, Foxix 1980 internations win in F.A.I. class, hered on Creek, Foxix 1980 internations in in... Centre is Fred Turner's F.A.I. team excer using Sup Tipe diesel. Fred is thought by some to be a localing light South African T/R work. Sections in George Sourt, "Area" wi racing is beginning to get a grip of enthusiasm on South African control-liners. G. Groeeneberg repeated his last years win in a disappointing final after several exciting heats. He uses a "Tigress" with Oliver Tiger.

Class B racing was much closer, the winner Richard Wood used a Fritz Bore design and Eta 29, thying at 102 m.p.h. for 46 laps. Double distance the state of the property of th









"Squish Heads"

A CLAIM THAT the "Quetsch Kopf" or "Squish Head" was first introduced to model engines by Beno Schlosser in his 2.5R and now IR, followed (now by Super Tigre G.20 and Webra Mach II), sent us off on a spot or research. The head has produced excellent results in the racing motorcycle field with Japanese Suzuki and East German Kriedler as out-standing exponents, but it was in the Soviet book, "Speed control line models" by Natalenko published

in 1962 that we found the following There is a difference between the laminar and vortical combustion chambers of internal combustion engines. In the case of high-speed engines, vor-tical combustion chambers are employed to increase

the speed of combustion and improve the fuel

"When combustion of the fuel-to-air mixture takes a more rapid and thorough combustion of the fuel takes place. The fuel-to-air mixture flows along two paths to form the vortex. In simple combustion chambers, this is achieved by the positioning of the valves and the exhaust ports, and by the layout of the transfer ports

Motor Mart

new ideas and unusual engines

"In twin combustion chambers the vortex is formed by passing the mixture from the primary compression chamber to the main chamber when the pressures decrease at the moment of combustion in one of them, or at the moment of mechanical influence of the piston, which forces the mixture from one chamber to the other

"Plans of the combustion chambers are shown on diagram 38. (reproduced here.) The intensity at which the vortex is formed in these chambers, depends entirely upon the revs of the engine. Therefore, an increase of the ongine revs means an increase in the speed of combustion; this in turn considerably

increases the speed of the engine

"Chamber A, the vortical chamber, is used on glow-plug model acro engines and creates an excellent vortex; it also smooths the increase in pressure when the mixture combusts at the "angle of return" of the crankshaft; this is brought about by the gradual displacement of the mixture in the main combustion chamber. Wear on the connecting-rod/ crank mechanism is greatly reduced, the engine is more economical on fuel and less reliant upon the composition of the mixture. This type of engine performs equally well at all speeds.

"Chamber B is used on compression-ignition model tero engines. Its vortex forming qualities are good. but it is rarely used due to the complexity of produc-

ing it."
No doubt the system has an early origin, though its practical application to the model aero engine is recent. Improved power in the German and Italian engines in which it has been incorporated proves the point that there is still plenty of room for design development in the small internal combustion engine

Cox exhaust restrictor for freeflight trimming.

This idea originated from Mike Gaster after several trimming prangs among Surbiton M.F.C. members, due to inability of Cox engines to run rich for initial flights. To date, the restrictors have been used on .049 and .15 Special motors

and sizes quoted for others are based on these results. Care should be taken to get restrictor seating correctly to avoid lenkage, therefore length A is critical if distortion of lugs is to be avoided. Hole diameters give good reduction in power, but a further reduction can be obtained by turning restrictor so that holes are partially blanked off by cylinder walls.

Results ? P. Newell (who submitted the details) wrecked three A models during trimming before using a restrictor, With restrictor, five flights on reduced power, then two on full power brought the model safely to good trim leaving Dinemion quoted are for 33 s.w.g. timplate. Mark out on imice. All dimensions are in inches

only very fine adjustments to be made.

Vic Jays badly damaged a new "Open" model without a restrictor but after repairs, trimmed in one evening after using the restrictor for initial flights. He also found it extremely useful when trimming Ian Henry's (N.Z.) F.A.I. models.

	A - 0 E	2-4	A	314
0	11 4		- G ₁ -	Ti-

Motor	A		_ C	D	£ dia.	Clarepling Screw
TD 549	1.61	.2	.375	Clamping	. 0825	10 8, A.
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TD 15		.25		clegistics	.125	8 8. A.
TD 15 spec-	2.09	,25	,563	hale	.125	9 8.A.

M.V.V.S. Goes Front Rotary

It must be almost six years since we heard of a new design from the famed Czechoslovakian Institute and now for 1964 there is a new 2.5 RL speed engine and 5.6 AL stant engine after strong rumour (dend by Czechs who know) of a new team race design of the strong rumour control of the strong rumour control

Most notable features of the 2.5 RL are the transverse exhaust cross the erac of the cyclinder with reverse exhaust cross the erac of the cyclinder with the cyclinde

Fifteen examples have so far been manufactured and distributed to leading Czechoslovakian flyers fir appraisal. Dependent on success, it may be preaduced in series at the end of the year. It is not yet certain whether it will be used by the Czech speed team at the World Championships in Budasees.

The larger 5.6 AL is a plain bearing, lapped piston design, 20 nm. bow. 18 mm, stroke, with a claimed design, 20 nm. bow. 18 mm, stroke, with a claimed Significantly, the chabasts port has centre suppling suitable for silveneer or exhaust throttle for radio control application.

Twins from Japan

Most lively nation as far as R/C and engine developments are concerned in Japan. This month's revelation is the series of engines with the functional name of "Stormy." The series reliables 0.9 and 1.9 and 1





The Oliver throttle carburettor as fitted to the Tiger Major 3.5 c.c. marine version reviewed in June 'Model Maker'. Extremely neat, it can of course be obtained to order for zero engines and is a simple rotary barrel choice with adjustable stop for slow speed.

more fount estimates and more fring. 5 colliners, known the Super-Soled, water specially called people of the Super-Soled and the Super-Soled and



disposed disc valve, this one for petrol and coil ignition. Many's the time we have heard old stagers plea for the return of a spark ignition engine, so here's their chance to try it out with an alternate fring twin. A collector manifold is apparently supplied for carrying away the exhaust, and a streamline tank fitted to the crankeas.





Coupe d'Hiver overseas

An INTRACTUR postal event for A/1 glider and Coupe d'Hiver rubber driven model classes reported in brief last month, was keenly contested between clubs in Lincoln, Nebraska; Illinois M.A.C. and Crawley M.A.C. in England. The idea was initiated by a Czechoslovakian club but unfortunately bad weather prevented them from competing. Some destalls of the models used make in-

Lyle Elyan, who scored 229 secan used his conventional design with square fusclage section changing to triangular from the rear motor peg. Charles Sotich had sheet covered single surface wings, rolled substitution of the state of the state

description comparisons. In Illinois who writes to us from Kanna the State of State 200 and State of S

who travelled from Omaha to the contest (big place, the States!) gives details as drawn below of his entry which made a total of 201 secs. On its third flight "Auntie Freez" went off without a fuse, hit strong lift and was lost OOS at over 1,000 ft. altitude. Maybe it went down south to Oktahoma!

Winners of the postal event, where three members flew from each club in each of the two classes were the Illinois group in both cases. Leading Coupe d'Hiver individual was Crawley's Pete Cameron and his model details

Chuck Bedwell, Charles Sotich and Lyle Elyea with their Coupe d'Hilver models as flown for Illinois Model Aero Club in the postal event. Below is Anton Schwartz of the Kollbri club from Oberhausen, West Germany.



have already been published in March 1964 issue. It is hoped that in later months this year it will be possible to arrange international postal club contests for the Coupe d'Hiver and A/I glider classes with greater scope, covering more nations. Clubs which have an interest are invited to send for details c/o the editorial offices. The class is receiving en-couragement in Germany and the Kolibri club at Oberhausen seem to have adopted our A.P.S. "Garter Knight" as a standard design. They find that the Coupe d'Hiver class gives them a great deal of fun since it does not need a large field for the two minute max.; exercises a demand for skills in the use of the 10 grammes of rubber and is within the scone of the moderately experienced aeromodeller.

Plastic kit review





359







Peter Russell in Gilding School instructor's uniform, with his scale Focks-Wolf Fur.190, the result of many years of recentch and labour. It has no electro mechanical, neighnot delign retraction, and the selegal retraction of the control of the selectropy of the control of th

great show. Two weeks before the Nats, Pete had to swerve the model off the runway to avoid a learner driver and deposited a large lump of one wing on a

It is not often that this sort of thing happens to Pete. He is one of those perpetual regulars who uses every opportunity to get out to the flying field, also he is firmly of the opinion that fly for fun 10 channel models are an unnecessary luxury and favours use of four or six channels in a sporty model

Over the (R/C) waves

WELL, the Nats have come and gone and once more the glamour of radio control over-emphasised its attraction to the great general public. The spectacle of David Walker's Avro Shackleton MR.3 during its two special demonstration flights will remain a cherished memory for many a year.

But there were many scale models listed among the entiries that would have been almost as spectacular. One was Dennis Thumpston's multi channel DAM. If it is anything nearly as authentic as his Uniformized that the state of th

like the "Claibhad". Novices seen learn how to do loop, rolls and inverted with this comparatively small and far less expensive model and equipment. To due Perke has logged 250 flights since last September of the loop of t

Service

When a reader writes to tell us that a manufacturer provided a free replacement receiver following the loss of a model due to a minor transmitter fault, we know that there is much more to the story than just a case of the manufacturer relieving his conscience.

conscience.

Service has always been a keynote of all British
manufacturers and especially so for those whose
advertisements we accept in AEROMODELLER. This
particular radio control supplier is now renowned

Left, above, R.A.F. Vulcas pilot, V. Nightingale holds R. E. Moore's butterfly call slope source, described in text with control detail for single channel sketched below, works well and is very single. At bottom is Dan Sateman of Lotton D.M.F.C. with 7 ft. 6 in, 7 lb. slope source with jig constructed elliptical





for the way he will, for a very modest fee, sort out appalling soldering and mininterpretation of kit instructions. We are sure we do not have to name the Company and nor would they like to be singled out among the trade but it was, just the same, very nice to receive an expression of satisfaction from a very pleased modeller whose equipment was replaced. Thank you's are all to or are these days.

Vee Tail Control

Using a J-Que receiver and Elmic Conquest escape-ment, R. E. Moore of Enfield, Middlesex, has made good use of Vee Tail control on his 88 in. radio controlled sailplane. The model weighs 30 oz. and, as the diagram indicates, has differential elevators. Apart from a spectacular first flight, due to an insecure tailplane mounting, the system has worked very well as has been seen in competitions at lyinghoe Beacon. Another regular at Ivinghoe is Dan Bateman's 7 ft. 6 in., 7 lb. fast flying, specially de-signed soarer, with elliptical dihedral. This was produced in a jig and gives a pleasing as well as a efficient effect. Even with 950 sq. in. of wing area and a 28 per cent tail, the loading is fairly high to combat the stiff breeze on the Beacon. R.E.P. Unitone Tx and Rx are used with an Elmic Communder for selective rudder giving up to 406 operations per flight. Unique feature of the model, home of experience, is the application of 1/32nd ply over the option fusciage. Dan tells us it took yards of Sellotape to hold the ply in shape while drying but the result is worth it.

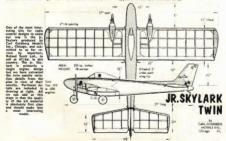
French Invitational

The Aero Club of Normandy insugurated their new take-off area at Madrillet aerodroums, Rousen on May 10th, as first announced in our May issue. A strong parry of British natio filters attended and by all zecounts thoroughly enjoyed themselves. In Multi, Chris Olsen, Nyug his new R.C.S. equipped "Upilit" green low wing model with Merco 49, proved a constent winner through the two official rounds, following the control of th



Tay, British models on foreign ground at Madillet, Rouse, France, on May 19th. At tay, Chril Oline won in multi, the green 'Ogliff' using R.C.S. 18 channel radie with R.C.S., serves, Mecon 40. Total weight is 40 h., the wing is based on the control of the control weight in 40 h., the wing is based on the control of the control weight in 40 h., the wing is based on the control of the control of the control of the control of the 18 have no trouble at all taking the Tunvus linkners, despit the fact that their combined capacity is less than often used for

lowed closely by G. Bradley, shead of top Frenchism, Pierre Mayort. Ed. Johnson, Dave Walker and Pete Gardner also featured in the results and the occasion also served as a first ever public demonstration for both Orbit and F&M proportional outifis in the hands of Ed. Johnson and Harry Brooks, French models in single channel were mistly manually manually property in the property of the property





Increased Flying Casts

In the South Sentern Area the conserva-tion of the South Sentern Area the conserva-a synthese in the area works by a deemed a synthese in the area works by a deemed for the C.2.00 a day and the C.5.0. A second price interase is far the SAA.A. who have been selected on pay SAA.A. who have been selected on pay shed as Cardington, rock undoor fixing shed as Cardington, rock undoor fixing she in the country. These furthers bases see in the country. These furthers bases at the past, so it index as though we will at the past, so it index as though we will have to pay for our fur in a turny.

"FLY-BY" PATTERN FOR OPEN MULTI EVENT

"FLY-SY" PATTERN FOR OPEN MULTI EVENT
Then shall come and MA-5, but planes to shade to the rate of the state of the state

Precision Slope Soaring

New York Control of the Control of the Control of the Control of Artif 20th. A maximum was a few and the Control of Artif 20th. A maximum was a few and the Control of Artif 20th. A maximum was the Control of the Cont

Open Night

Open Night

Came AC, but they arred to the control of the control Payadeon' Print Nick Wadley.

Three Models Found

(1) A 36 in, cpan all black single channel radio commit model was found on Mar Rob. at Cholsan. Covers should contact H. F. Jarret, 18 Prosystem Road, MacCobard, Perk C. A were based from a dark on a Lound at Bankson Road the J. A. Fistor, 123 Trining Road, Checkborre, Links, D. Marill "Most "powered "Friebtid Feed" model found for Cholsans Park, J. Coper, 46 Christok Way, Burpham,

New Flying Sites Beauties is now being used as a fiying efforted by Southampton M.A.C. mirmless for a trial point, as the Foreney Commission time examed fiying rights. This is strictly for club recently; and, and

hotistoving modellors in that area should make a graint of victing them at their other flying stee, Hontreferab Affleid.

Present and D.M.A.C. in the North West power laws of Bestonwood Acondrosses to the seam race and rece fless tops are to act down to practice.

BRITISH C/L TEAM TRIALS

THE TIME OF THE PROPERTY OF TH



ft and



343



age witners. Above, R. Foote, 1st in Glider with Sun-nanvind' from Bris-tol Buildags. Only stunt entry, 'Kan-Right rubber entries Pink and

July 12th

July 12th Febr 1716

July 19th





GALES MAR VINTAGE EVENT

MARK VINI AGE EVEN A MARKET, THE MARKET, T Held on Jed May, in Blakehill Farm

Furniture Wanted

JURILANT NOVOCASTRIAN M.A.S.

Ros Pepper has offered Leleuter M.A.C. the use of a room above his The Numeraterian M.A.S. from Newcasite-on-Time are very hoppy with their successes of the National's this year. Alan Laufe, their new nessures flew a recommendad 22 in Section 1987, and the section of the National Action of the N M.A.C. the use of a norm above his model shoes. As present time the room is desoid of familiars, and they mad do with offers of unwassed chairs, sables, (cs. Asythies unliable will be grandfully

August 23rd

August 30th

Sept. 6th

Sept. 13th

Contest Calendar

June 21st	East Anglian Area F/F Galo, R.A.P. Moles- worth, Hunts. Open R/G/P. Combined F.A.L event. Entry fee 2/ No re-entry.
June 28th	Saher R/G Coulest. Chossiny Parm. Odiham. Hants. Intermediate R/C (Rudder, Stevator. Kngino). S.M.A.E. Multi-Control programmes of manogures. Pre-entry 2/S. Enjry forms from A. W. Ambrose, 37 Grove Ed., Antend. Surrey.
June 28th	R.A.F.M.A.A. Area Reily, R.A.F. Wroughton,

June 28th 1.000 lap postal contest. F.A.I team race. Information from: D. Place, ST Westwood Lane, Headingley, Leeds 16, York.

17th O'L. Nationals. Baldonnell. T/R classes, July 4th & 5th 1A. A and B. Combat and Stunt. July 5th

1A. A and B. Cumbat and Start.

Decon Bully Woodney Common, m. Exmouth R/G/P, in Power, F.A.I. Bubber

8.A.A. Gels, Abouteful Ariches R/G/P, i.A.

A and B. T/R and Cumbat. Pre-centy 2/4d.

A sould be the thing of the thing o July 5th

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July 26th Bely 2615

Assess 9th Leinster C/L Championships, Baldonnell, T/R Classes, \$A, A and B, Combat and Stunt, Casses, 2A. A and B. Combat and Stuff. 2nd Wanslead & Northmood, All F.A.I. Relly, Hayes C.L. Circuit, Charville Lane, Hayes, F.A.I. T.R and F.A.I. Combat. Pre-coty 2:6d. by 2.8:64 to J. Franklin, 82 Grove Hill, South Woodford, London, E.18. Acres 9th

Hitt. South Woodford, London, E.18. North East (Scottish) Sain. Buddon nr. Moni-deth in Angus. IV.G/P and pre-100 vintage event. Details from C. M. Christele, Bank-based Farm, Buckshurn, Aberdeen, Hapez Gale, Chobham Common, R/G/P, 1A Power and A/1 Gilder. Annual 9th August 9th Autor Dat

institut Open Reilly, at Abbotsinch, Open R.G./P P.A.L. "B", tA. Pre-entry 2/6d, to K. Johnston, 113 Kinsrvie Rond, Glangow, R.W.S.

Waiting D.M.A.C. F/F Gold. Chobbam Com-mon 10 a.m. R/G/F, \$A Power, Coup-d'Hiver, and Chuck Glider. Flets entry. South Coast Gold, Chebbar Common if no Airfield available East Orinstead F/P Raity, Ashdown Porest Open R/G/P, 1A Power and Churk Gilder

Skarts 9.38. Warshoulde B/C Palice Bosc. Wan-stead Flats, London, E.17. 2.5 s.c. engine limit. Superhets only. Two models reced per hosts, Kutry du the Scht. Richters Beighte Odle, R.A.F. Hilten, Bocks, R/G/P. 1A. R/C Spot Leading, Comput. Helicopter, Qures Elizabeth Cup for A/2 Green.

White F/F Nationals. The Current. Open R/G/P and F.A.L. R/G/P.

R/G/P the F.A.L. R/G/F.
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mautics, Cranfleid. All citarens F/F, C/L.
R/C, except Speed and Scale. Enquiries to
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S.M.A.E. Contest

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k" Twin R/C 125/boy" Sport R/C 34/6
" 48" Contest F/F 35/Falcon" 37" R/C 38/56" Mylis 8/ Vew "Junior Skylark"
"Skylark" Twin R/C
"Schoolboy" Sport R/ "Falcon 56" Multi R/C 95/-New Vaco "Little Thunder-bird" for 19 engines 69/6 Veron "Mini Robot" R/C 46/-"Styrofix" 48" R/C 59/2 49/11 59/2 Frog "Actacker" C/L S. 47/6 Mercury "Crusader" S. 73/-Hundreds more in stock.

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Black Print MacGregor £10 Orbit Single Tx Octone 8 ch Tx Transmitter T or 415 67 Orbit 10 Relayless Rx errytone Hk. I Rx ransmites T or S/N Inimatic S/C Servo se Dee .010 Glow ox Babe Bee .049 see Dee .15 Glow Frog 349 BB Dicsel Hiles S c.c., Diesel ETA 29 VI S c.c., Glow FULL LIST FORWARDED UPON RECEIPT OF S.A.E.

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Dubro "Kwiklips" 3)
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* ACCESSORIES

ALL DEAC PACKS IN STOCK We stock Tornado Props. ROLAND SCOTT

MODELS BY MAIL 147 DERBY STREET, BOLTON, LANCS Could you identify the 'plane on page 333 ?

AIRCRAFT QUIZ - Answer This land-based aircraft was intended to operate over Marin Long-Siche in 1928, and fifted soith a Hispana-Suco

storic Levis-Schot in 1948, and ricce outs a regiment of 300 kg, ex-signment 300 kg, except and the state of the state of the state in settler-light comparisonate to maintain Buspungs in he seased of a ferrod facebag on mater. For a small finals score fitted at the tige of the baser usings to stabilise the mirenti-should this occur.

should file occur.

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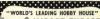
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