

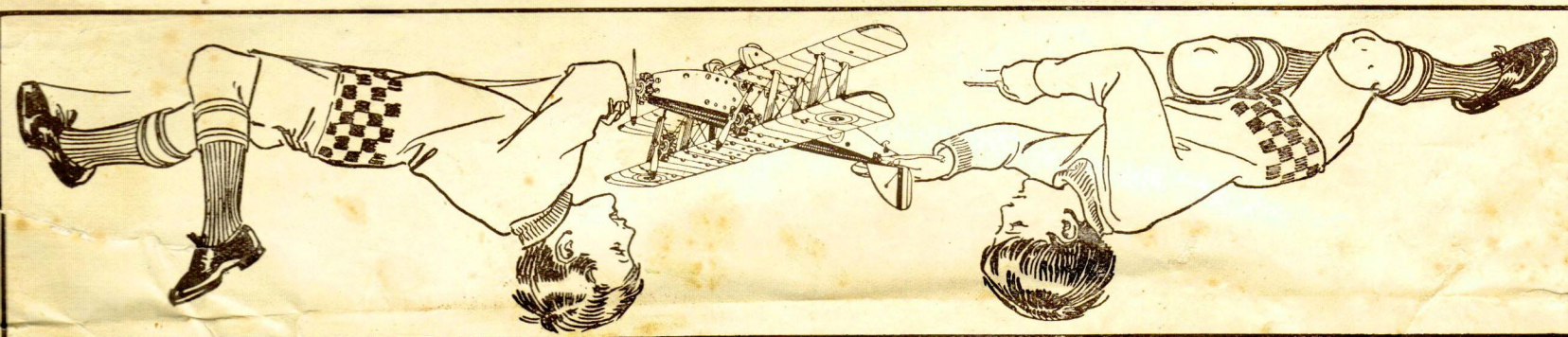
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3d.  
Price

NO. 1  
FOR OUTFIT

# MECCANO AEROPLANE CONSTRUCTOR INSTRUCTIONS

TRADE MARKS 296321, 501113, 76, 12633, 10274, 53/13476, 569/13, 84/25, 2913, 80, 124, 336, 4174, 91637, 83171, 157149, 32822, 200639, 209733, 214061, 214062, 12892, 29094, 33316, 1818, 16737, 583/13, 5848, 50204, 10/12258, 22826, 18982, 20063/925, 9048 5349 2189 16900 72286 2389 5403, 7315 18066, 139420 494933-4-5-6 29041, 26877 6395 404718 410379 53096, 12240, 41234, 8223, 1855



## MECCANO AEROPLANE CONSTRUCTOR OUTFITS

The aeroplane is rapidly taking its place as a regular means of high speed transport, and the time is not far distant when we shall use it as readily as to-day we employ the train, the steamship, and the motor car. Now is the time for every boy to learn how aeroplanes are designed and constructed, and to recognise at a glance the different types. The best way of doing this is to build aeroplanes for himself, and the Meccano Aeroplane Constructor Outfits have been designed specially for this purpose. This folder shows how to construct six different types of aeroplanes, but other fine models may be built by varying the positions of the parts.

### How an Aeroplane Flies

The fun of building with Meccano Aeroplane Constructor Outfits is greatly increased if you know something of the way in which a real aeroplane is controlled in flight. What strikes anyone examining an aeroplane for the first time is the simplicity of the manœuvring mechanism, everything being done by two levers. The first of these, the control column or "joy-stick," is not unlike the gear lever of a motor car, and is connected to two controls, the ailerons and the elevators. The ailerons are small movable flaps arranged along the trailing or rear edge of the wings, and the elevators form one of the two main parts of the tail unit. The other lever, the rudder bar, is near the floor of the cockpit and is operated by the feet. This bar controls the rudder, which is the second main portion of the tail unit.

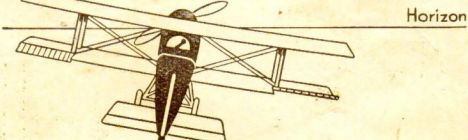
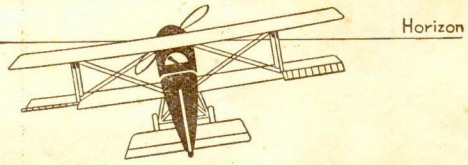
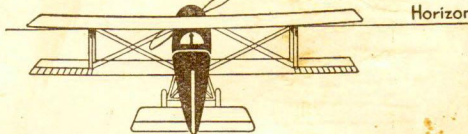
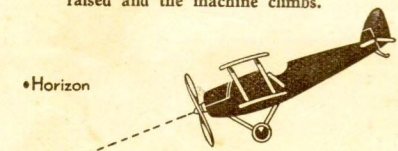
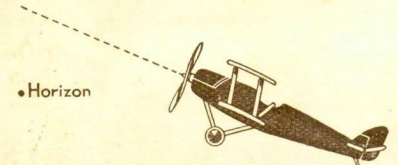
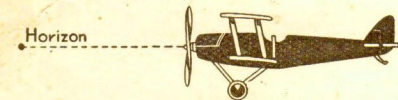
### Joy-Stick and Rudder

The joy-stick is the most fascinating factor in the control of an aeroplane. If you wish to fly level, you keep the stick in a central and vertical position. If you move it forward, the elevators are depressed and the machine promptly puts down its nose and tries to dive. If you pull the stick backward, the elevators are raised and the nose of the machine rises. Movement of the stick to left or right brings the ailerons into action. If you move it to the left, the left wings will go down; if you move it to the right, the right wings will drop. This raising and lowering of the wings is termed "banking."

If you find that the aeroplane is veering to the left, you put on right rudder by moving the right foot gently forward; and similarly veering to the right is corrected by applying left rudder. If you wish to turn the aeroplane round, however, you must not attempt to do it by rudder alone, because in that case the machine would skid in a similar manner to a motor car racing round a bend on an unbanked road. You cannot bank the air, so you bank the aeroplane. That is to say, you apply rudder and bank together in the direction in which you wish to turn.

When a pilot has entered the cockpit of his machine, and ascertained that his engine is running well, the chocks are removed from under the wheels, and the machine is taxied into the wind. It is kept pointing in the correct direction by means of the rudder, and the pilot prevents the tail from rising and the machine going on to its nose by keeping the joy-stick a little back from the neutral position. As the speed increases, the stick is slowly moved to the point at which all controls are neutral, and when the correct speed has been attained the machine almost imperceptibly becomes air borne. In alighting, these operations are reversed, the machine gliding to land with the engine cut out.

The aeroplanes used for training purposes have two cockpits, one in front of the other, the controls in each being exactly the same, and connected together. This arrangement enables the instructor, who sits in the front cockpit, to see exactly what manipulations are being made by the pupil behind, and to correct them accordingly. Communication between instructor and pupil is maintained by means of ear tubes attached to the helmets.



### MECCANO AEROPLANE CONSTRUCTOR PARTS

| No. | Main Plane                            | No.  | Collar ... ..                      |
|-----|---------------------------------------|------|------------------------------------|
| P1  | Large—R.H.                            | P2   | L.H.                               |
| P3  | Small—R.H.                            | P4   | L.H.                               |
| P7  | Centre Section Plane ... ..           | P54  | Rubber Driving Band ... ..         |
| P8  | Extension Plane ... ..                | P55  | Tail Skid... ..                    |
| P10 | Tail Plane—R.H.                       | P56  | Rear Bracket for Propeller Shaft   |
| P11 | " " L.H.                              | P57  | Tie Rod for Floats ... ..          |
|     | Fuselage Top                          | P58  | Undercarriage—Vee Strut and        |
| P13 | Front                                 | P14  | Middle                             |
| P15 | Rear                                  | P16  | Front                              |
| P17 | Middle                                | P18  | Rear                               |
| P19 | Fuselage Underside                    | P20  | Front                              |
|     | Interplane Strut                      | P21  | Small                              |
| P22 | Staggered—R.H.                        | P25  | L.H.                               |
| P24 | Angled—R.H.                           | P27  | L.H.                               |
| P28 | Interplane Strut—Straight             | P29  | Centre Section Strut—Straight      |
| P30 | Float and Centre Section Strut—Angled | P31  | Wing Stay                          |
| P32 | Rudder (Military)                     | P33  | Propeller—Large                    |
| P34 | Propeller—Small                       | P35  | " " Small                          |
| P40 | Base for Engine Casing                | P41  | Top for Engine Casing              |
| P42 | Float, Complete                       | P43  | Radial Engine—Small                |
| P44 | Rubber Tyre for Landing Wheels        | P46  | Radial Engine—Large                |
|     |                                       | P52  | Collar ... ..                      |
|     |                                       | P53  | Landing Wheel ... ..               |
|     |                                       | P54  | Rubber Driving Band ... ..         |
|     |                                       | P55  | Tail Skid... ..                    |
|     |                                       | P56  | Rear Bracket for Propeller Shaft   |
|     |                                       | P57  | Tie Rod for Floats ... ..          |
|     |                                       | P58  | Undercarriage—Vee Strut and        |
|     |                                       | P59  | Undercarriage Vee Strut and        |
|     |                                       | P60  | Pivot Bolt with Two Nuts           |
|     |                                       | P61  | Engine Bracket                     |
|     |                                       | P62  | Axle Rod, 3/4" long                |
|     |                                       | P63  | Screwdriver                        |
|     |                                       | P64  | Rudder (Plain)                     |
|     |                                       | P100 | Pilot                              |
|     |                                       | P101 | Identification Marking—Large       |
|     |                                       | P102 | " " Small                          |
|     |                                       | 12   | Angle Brackets, 1/2" x 1/2" ... .. |
|     |                                       | 14   | Axle Rods, 6 1/2" long             |
|     |                                       | 16a  | " " 2 1/2" long                    |
|     |                                       | 23a  | Fast Pulley, 1 1/2" diameter       |
|     |                                       | 34   | Spanner ... ..                     |
|     |                                       | 82   | Screwdriver                        |
|     |                                       | 537a | Nuts                               |
|     |                                       | 537b | Bolts, 7/32" long                  |
|     |                                       | 540  | Hank of Cord                       |
|     |                                       | 611c | Bolts, 1/2" long                   |

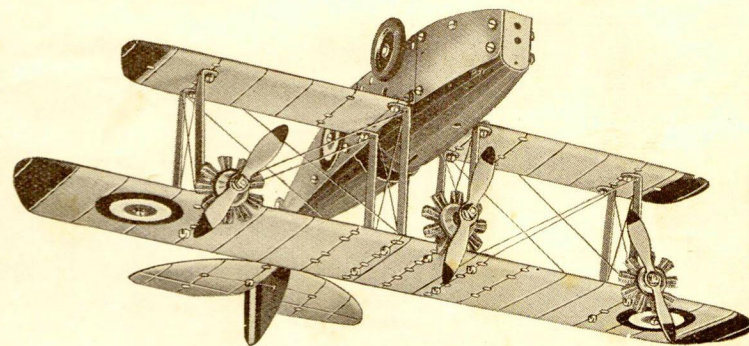
The series includes identification markings in the correct colours of 16 different countries.  
† May be obtained in three different colour combinations.

### CONTENTS OF MECCANO AEROPLANE CONSTRUCTOR OUTFIT NO. 1

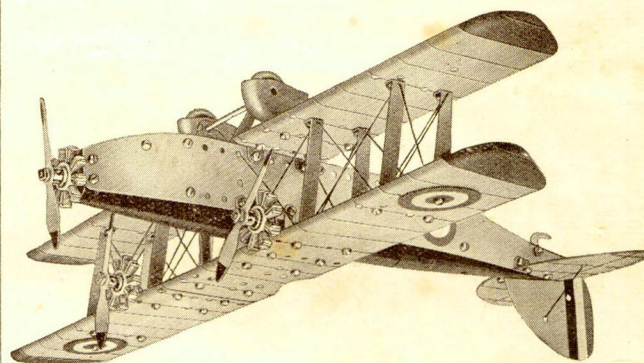
| No. | Quantity | No.  | Quantity |
|-----|----------|------|----------|
| P1  | 1        | P54  | 1        |
| P2  | 1        | P55  | 1        |
| P8  | 1        | P56  | 2        |
| P10 | 1        | P58  | 1        |
| P11 | 1        | P59  | 1        |
| P13 | 1        | P62  | 1        |
| P16 | 2        | P63  | 1        |
| P19 | 1        | P100 | 1        |
| P20 | 1        | P101 | 2        |
| P24 | 1        | P102 | 2        |
| P25 | 1        | 12   | 8        |
| P28 | 1        | 14   | 1        |
| P29 | 1        | 16a  | 1        |
| P31 | 1        | 23a  | 2        |
| P32 | 1        | 34   | 1        |
| P34 | 1        | 537a | 60       |
| P40 | 1        | 537b | 58       |
| P44 | 2        | 540  | 1        |
| P52 | 1        | 611c | 2        |
| P53 | 2        |      |          |

Ask your dealer for a Complete Price List of Meccano Aeroplane Parts.

Many amphibians and flying boats may be built with Meccano Aeroplane Constructor Outfit No. 2. This is an example of the many true-to-type biplanes that may be built with the No. 2 Outfit (or No. 1 and No. 1a Outfits).



A triple-engine biplane constructed with Meccano Aeroplane Constructor Outfit No. 2. This is an example of the many true-to-type biplanes that may be built with the No. 2 Outfit (or No. 1 and No. 1a Outfits).

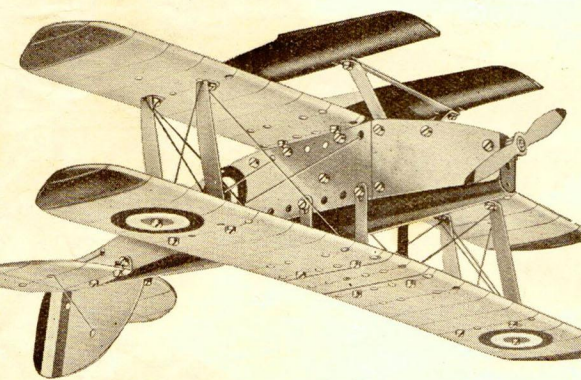


Now that you have experienced the pleasure of building model aeroplanes you will be keen on proceeding further with this wonderful hobby. You may do this by purchasing a No. 1a Aeroplane Constructor Accessory Outfit, with which many additional models may be built, or you may increase the scope of your No. 1 Outfit by adding to it separate parts from time to time. The four illustrations on this page show the types of machines you can build when you have a No. 1a Accessory Outfit. These include models of military aircraft, seaplanes and flying boats, and air liners of both mono-

Illustrated Price List.

Ask your dealer for a complete

Another interesting model that can be built with Meccano Aeroplane Constructor Outfit No. 2 (or No. 1 and No. 1a Outfits). Instructions for building three seaplanes are given, one of these being of similar design to the famous "Southern Cross" flown by Sir Charles Kingsford Smith.



### MECCANO AEROPLANE CONSTRUCTOR ACCESSORY OUTFIT NO. 1A

will enable you to build many additional models



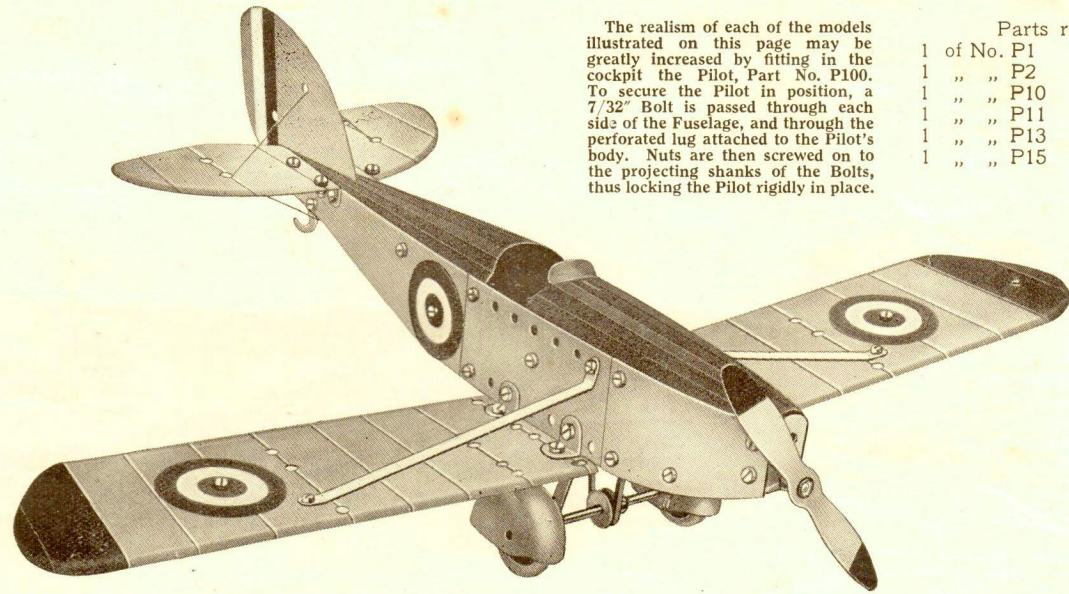
## All these Fine Models can be built with Meccano Aeroplane Constructor Outfit No. 1

## Model No. 1 Low Wing Monoplane

Aeroplanes are of two main types, monoplanes, having only one wing, and biplanes having two wings. Monoplanes may be sub-divided into three classes, known respectively as the low wing, the high wing, and the parasol types. They are usually faster than biplanes of similar weight with engines of equal power, and a better view is to be obtained from them. The landing speed of monoplanes is generally higher, however, and biplanes are more stable in the air.

Model No. 1 is a monoplane of the low wing type. Machines of this type are often regarded as the best for speed, and they are largely used on German air lines.

A typical British low wing machine is the Avro "Avian Monoplane." Other notable British monoplanes of this type are the D.H. interceptor fighter, the Blackburn "Seagrave," the Hendy 302, the Monospar and the Spartan "Cruiser," the last four being of the cabin type.



The realism of each of the models illustrated on this page may be greatly increased by fitting in the cockpit the Pilot, Part No. P100. To secure the Pilot in position, a 7/32" Bolt is passed through each side of the Fuselage, and through the perforated lug attached to the Pilot's body. Nuts are then screwed on to the projecting shanks of the Bolts, thus locking the Pilot rigidly in place.

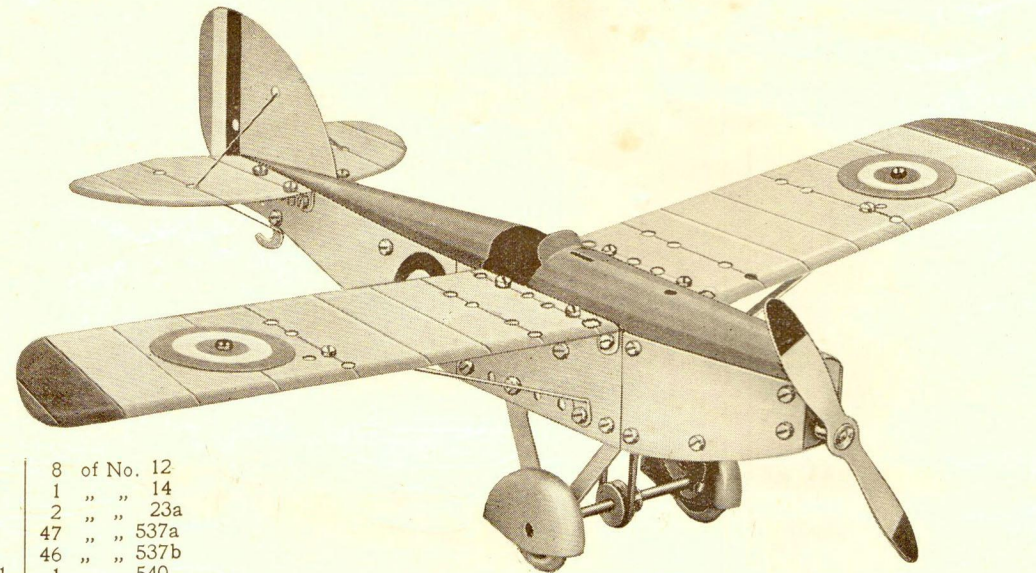
| Parts required : |              |
|------------------|--------------|
| 1 of No. P1      | 2 of No. P16 |
| 1 " " P2         | 2 " " P17    |
| 1 " " P10        | 2 " " P18    |
| 1 " " P11        | 1 " " P19    |
| 1 " " P13        | 1 " " P20    |
| 1 " " P15        | 2 " " P31    |
|                  | 1 " " P32    |
|                  | 1 " " P34    |
|                  | 2 " " P44    |
|                  | 2 " " P52    |
|                  | 2 " " P53    |
|                  | 1 " " P54    |
|                  | 1 " " P55    |
|                  | 2 " " P56    |
|                  | 1 " " P58    |
|                  | 1 " " P59    |
|                  | 1 " " P62    |
|                  | 2 " " P101   |
|                  | 2 " " P102   |
|                  | 8 " " 12     |
|                  | 2 " " 14     |
|                  | 2 " " 23a    |
|                  | 43 " " 537a  |
|                  | 42 " " 537b  |
|                  | 1 " " 540    |
|                  | 1 " " 611c   |

## Model No. 2 High Wing Monoplane

High wing monoplanes are probably the most popular monoplane aircraft. They are usually more stable than the low wing type, and the view downwards is much better, being practically unobstructed.

Machines of this type are used in all parts of the world, and they range from small single-seater machines to huge aircraft seating as many as 30 people. The "Spider" machine that was employed by the Duchess of Bedford on her numerous famous flights is of this type.

The de Havilland "Puss Moth" is a good British example of a high wing monoplane, while other notable machines include the Comper "Swift," the Desoutter Coupé, the D.H. "Hawk Moth," the Civilian Coupé, the Avro V and VI, the Vickers "Viasra," and the Westland "Wessex."



| Parts required : |              |
|------------------|--------------|
| 1 of No. P1      | 2 of No. P16 |
| 1 " " P2         | 2 " " P17    |
| 1 " " P10        | 2 " " P18    |
| 1 " " P11        | 1 " " P19    |
| 1 " " P13        | 1 " " P20    |
| 1 " " P15        | 2 " " P31    |
| 1 " " P17        | 1 " " P32    |
| 2 " " P18        | 1 " " P34    |
| 2 " " P19        | 2 " " P44    |
| 2 " " P20        | 2 " " P52    |
| 2 " " P31        | 2 " " P53    |
| 1 " " P32        | 1 " " P54    |
| 2 " " P34        | 1 " " P55    |
| 1 " " P52        | 2 " " P56    |
| 2 " " P53        | 2 " " P58    |
| 1 " " P54        | 1 " " P59    |
| 1 " " P55        | 1 " " P62    |
| 2 " " P56        | 2 " " P101   |
| 1 " " P58        | 2 " " P102   |
| 1 " " P59        |              |
| 1 " " P62        |              |
| 2 " " P101       |              |
| 2 " " P102       |              |

| 8 of No. 12 |  |
|-------------|--|
| 1 " " 14    |  |
| 2 " " 23a   |  |
| 47 " " 537a |  |
| 46 " " 537b |  |
| 1 " " 540   |  |
| 1 " " 611c  |  |

## Model No. 3 Parasol Monoplane

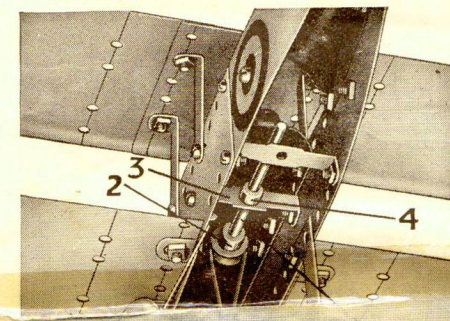
| Parts required : |              |
|------------------|--------------|
| 1 of No. P1      | 2 of No. P18 |
| 1 " " P2         | 1 " " P19    |
| 1 " " P8         | 1 " " P20    |
| 1 " " P10        | 2 " " P29    |
| 1 " " P11        | 2 " " P31    |
| 1 " " P13        | 1 " " P32    |
| 1 " " P15        | 1 " " P34    |
| 2 " " P16        | 2 " " P44    |
| 2 " " P17        | 1 " " P52    |
|                  | 2 of No. P53 |
|                  | 1 " " P54    |
|                  | 1 " " P55    |
|                  | 2 " " P56    |
|                  | 1 " " P58    |
|                  | 1 " " P59    |
|                  | 1 " " P62    |
|                  | 2 " " P101   |
|                  | 2 " " P102   |
|                  | 4 of No. 12  |
|                  | 1 " " 14     |
|                  | 2 " " 23a    |
|                  | 41 " " 537a  |
|                  | 40 " " 537b  |
|                  | 1 " " 540    |
|                  | 1 " " 611c   |

## INSTRUCTIONS

## How to Build Model Aeroplanes with Meccano Aeroplane Constructor Outfit No. 1

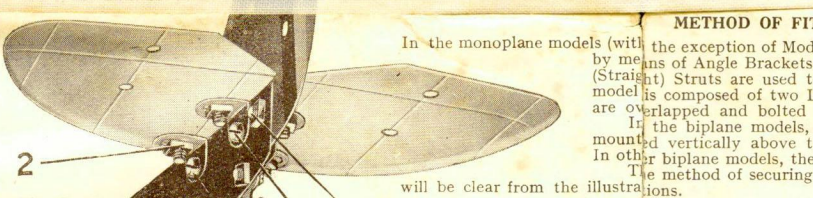
Commence by building up the Fuselage, the details of which are clearly shown in the illustrations. The manner in which the propeller drive is arranged is shown in Fig. A. The in in the illustrations. one end of the 6 1/2" Axle Rod 1, and the Rod is then pushed through the lower pulley is secured to Front. A 3" Pulley 2 is placed on the Rod together with the Rubber Driving Band 3. The end of the Axle Rod 1 is then pushed through the hole in the Propeller Shaft Bracket 3, d 5. The end of the is kept in place by means of the Collar 4. The 3 1/2" Axle Rod (part No. P62) is the 6 1/2" Axle Rod 1 Undercarriage Vee Strut and Wheel Shield and a 1/4" Fast Pulley 6 is placed on, pushed through one Tyre is now fitted to one Landing Wheel and the complete wheel is then placed in the Axle. A Rubber the second Undercarriage Vee Strut. The end of the 3 1/2" Axle is then passed through the Wheel Shield of Undercarriage Vee Strut and through the centre hole in the Landing Wheel through the hole in the next fitted to the second Landing Wheel and the complete wheel is placed in it. A Rubber Tyre is do this the 3 1/2" Axle is drawn slightly to one side and is then pushed back so that the Wheel Shield. To passes into the centre hole of the Landing Wheel. Each Landing Wheel is locked one end of the Axle Axle by rolling the Rubber Tyre to one side with the fingers so that the grub-screw in position on the may then be rotated by the Screwdriver.

After the Landing Wheels have been secured in place the Driving Band 3 may be placed round then locked in position on their respective Rods by means of the grub-screws in Pulleys 2 and 6 are securing the Driving Band in position take care to see that it is twisted round so that it is twisted round in the manner that the Propeller rotates in a clockwise direction.

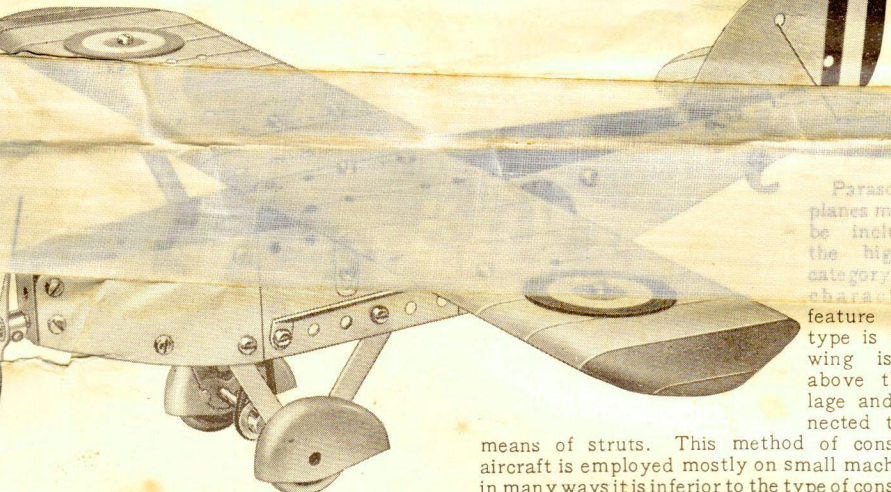


## ASSEMBLING THE MAIN PLANE AND RUDDER

Angle Brackets 1 are secured to the fuselage by a of one Tail Plane, through of the second Tail Plane, so that the Tail Plane machine is held in place. The 3 1/2" Axle Rod 1 is then pushed into the hole in the Tail Plane, the end of the Rod is held in place by the 3 1/2" Axle Rod 1.



Fit a Meccano Aero Clockwork Motor into your Model Aeroplanes. Ask your dealer for prices and full particulars.



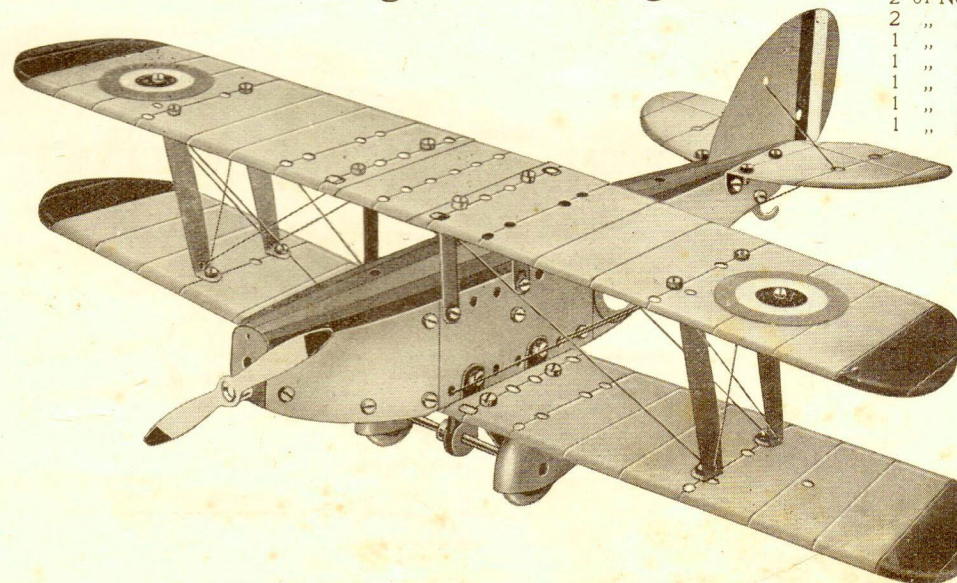
Parasol monoplanes may really be included in the high wing category, the characteristic feature of this type is that the wing is raised above the fuselage and is connected to it by means of struts. This method of constructing aircraft is employed mostly on small machines, for in many ways it is inferior to the type of construction in which the wing is bolted firmly to the fuselage. One great disadvantage is that the struts required to keep the plane in position offer great resistance to the wind, and thus detract considerably from the all-round performance of the machine.

Typical British prototypes are the Boulton and Paul "Phoenix" and the Westland "Widgeon." These are both light aeroplanes, and each possesses accommodation for two people.

## Model No. 5 Single-Seater Fighter

Single-seater fighter machines are very fast aeroplanes, the function of which is to patrol certain sections of sky so that no enemy aircraft can pass. Recently a new type of machine known as the interceptor fighter has been produced. This is an extremely fast craft, capable of climbing high enough to intercept enemy bombers intent on raiding London, and whose approach is not discovered until they pass the coast. In these aeroplanes military load and fuel capacity are sacrificed to an exceedingly fast climb and a high maximum speed.

The world's best single-seater fighter probably is the Bristol "Bulldog," a machine that is used in the R.A.F. and in the Air Forces of many foreign countries. At present the Hawker "Fury" is the only type of single-seater interceptor fighter used in the R.A.F.



| Parts required : |              |
|------------------|--------------|
| 2 of No. P1      | 2 of No. P16 |
| 2 " " P2         | 2 " " P17    |
| 1 " " P8         | 2 " " P18    |
| 1 " " P10        | 1 " " P19    |
| 1 " " P11        | 1 " " P20    |
| 1 " " P13        | 2 " " P24    |
| 1 " " P15        | 2 " " P25    |
|                  | 4 " " P29    |
|                  | 1 " " P32    |
|                  | 1 " " P34    |
|                  | 2 " " P44    |
|                  | 1 " " P52    |
|                  | 2 " " P53    |
|                  | 1 " " P54    |
|                  | 1 " " P55    |
|                  | 2 " " P56    |
|                  | 1 " " P58    |
|                  | 1 " " P59    |
|                  | 1 " " P62    |
|                  | 2 " " P101   |
|                  | 2 " " P102   |
|                  | 8 " " 12     |
|                  | 2 " " 14     |
|                  | 2 " " 23a    |
|                  | 55 " " 537a  |
|                  | 54 " " 537b  |
|                  | 1 " " 540    |
|                  | 1 " " 611c   |

| Parts required : |             |
|------------------|-------------|
| 2 of No. P1      | 8 of No. 12 |
| 2 " " P2         | 1 " " 14    |
| 1 " " P8         | 2 " " 23a   |
| 1 " " P10        | 53 " " 537a |
| 1 " " P11        | 52 " " 537b |
| 1 " " P13        | 1 " " 540   |
| 1 " " P15        | 1 " " 611c  |
| 1 " " P16        |             |
| 2 " " P17        |             |
| 2 " " P18        |             |
| 2 " " P19        |             |
| 1 " " P20        |             |
| 2 " " P24        |             |
| 2 " " P25        |             |
| 4 " " P29        |             |
| 1 " " P32        |             |
| 1 " " P34        |             |
| 2 " " P44        |             |
| 1 " " P52        |             |
| 2 " " P53        |             |
| 1 " " P54        |             |
| 1 " " P55        |             |
| 2 " " P56        |             |
| 1 " " P58        |             |
| 1 " " P59        |             |
| 1 " " P62        |             |
| 2 " " P101       |             |
| 2 " " P102       |             |

## Model No. 6 Training Biplane

The requirements of a good training machine are many. It must be easy to fly and must be stable; its maximum speed must be fairly high, but its landing speed must be low. A biplane is best suited to comply with these conditions, and ordinary light aeroplanes are now frequently employed.

A training machine has been taken as a prototype for Model No. 6. The most famous machine of this type is the Avro 504, first designed and constructed in 1913. Since then it has been in constant service in all parts of the world, and it is still one of the best aircraft for its particular purpose. A more modern training machine is the Avro "Trainer," and another typical school aeroplane is the Hawker "Tomtit."

