AIRPLANE MODEL

7th Year of Publication

DECEMBER

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"Mister" Mulligan **Bendix Trophy Winner**

7th YEAR OF PUBLICATION

VOL. XIII

NO. 5

Edited by Charles Hampson Grant

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In Our Next Issue

We are going to please model builders who like 3 view drawings by giving six most unusual sets of 3 view-plans; two detail drawings, one of the world's land record holder, one of Art Chester's Racer and two wartime ships. Don't miss these.

In Sopwith Airplanes of "The War," Mr. Puglisi gives more intensely interesting information about these famous British simulancement. ish airplanes.

Jesse Davidson gives you an exceptionally fine monocoque flying scale model to build in Build and Fly the "Ryan Low Wing."

On the Frontiers of Avia-tion, by Robert Morri-son, gives you interest-ing data on the latest airplanes.

How to Design Your Model Planes, by Charles Hampson Grant, is the first article which tells you how to use the information given in all previous articles of this series to design successful models.

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A Siemans Steffin R-1 giant bomber. Note the queer fuselage that allows firing to the rear

The German Air Force in the World War

FROM time to time during the World War, the Imperial German Air Force held control of the air, in spite of the concentration of Allied air squadrons to which it was opposed. On the Western Front alone, at the time of the Armistice, there were three hundred and nineteen identified units. A few of these were flights, operating as special units, while the remainder were Staffels, which is the German name for squadrons.

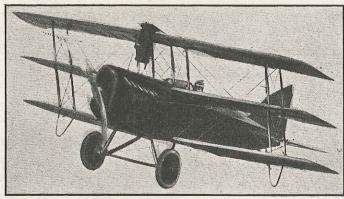
Opposed to this array of warplanes in the zone of operations, England had eighty-six squadrons; France had one hundred and three escadrilles, or squadrons; Belgium had five squadrons; and the United States, forty-five squadrons. The Allied air strength therefore totaled two hundred and thirty-nine squadrons in the zone of advance. Consequently, it may be wondered why and how, this numerical superiority on the part of the Germans.

Right up to the end of the war, with all things considered, the German Air Force was on a par with those of the Allies. Control of the air had switched back and forth time and again, and even late in 1918, in various sectors, the German air units were out in force, as will be testified to by many an Allied pilot. This in spite of the fact that they were by necessity forced to have air units on the Eastern front, and to furnish their own allies, Austria, Turkey, and Bulgaria, with pilots and airplanes.

Germany went into the war

A Vivid Account of All Phases of German War Aviation Which Discloses Much Information Heretofore Unknown—Part No. 1

By ALFRED CELLIER



A Rex triplane of late 1918. It never reached the front. Note parachute pack in center section



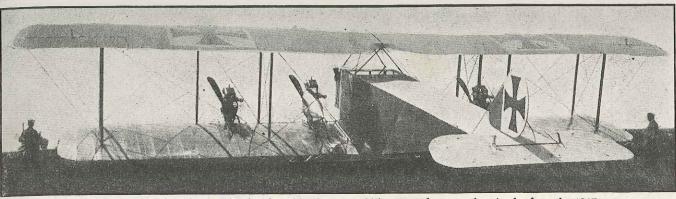
A Hanover CL-3A ground strafer that was strafed Oct. 4, 1918, Montfaucon, Montfaucon-Meuse, France

with about five hundred aircraft. These were all practically of odd manufacture and consisted of Fokkers, Deperdussins, Bleriots and Taubes, both single and two-seater models. Others were hastily commandeered. From the beginning, it is evident that the Germans had plans for the utilization of their air service. The aircraft which they had were completely equipped, which was not the case in those first Allied ships.

In the beginning, the only use put to the airplane by both sides, was reconnaissance and scouting. As air fighting developed, improved ships came along, and it was mostly a matter of individual combat until the middle of 1916, when aerial combats increased in intensity and number. From then on air fights continued in earnest, and from March until November, 1916, Germany lost six hundred planes.

In March, 1916, General von Hoeppner was assigned as Chief of the Imperial Air Force. Then new ships began to be turned out in quantities, and the service was very much improved. Immediately after the battle of the Somme in 1916, the British Royal Flying Corps had swept the Germans from the sky, but with the reorganization of their air service, they assumed control of the air again, and made things hot for the R.F.C., until the end of "Bloody April," in 1917, when five British pilots died for each German airman who went West.

Only the arrival of the Bristol



A Siemans Schuckert four-engine bomber: Total power, 44 hp.; speed, 95 m.p.h. At the front in 1917

Fighter, the Camel and the S.E.5, saved the Allies from a serious situation at this time, for while the British were stronger in numbers, the Germans were superior in the performance and types of their aircraft. During this time, many a hitherto unknown German pilot became an ace practically overnight.

It is interesting to note the strength of the various air forces as the war continued. By the end of 1916, it was estimated that there were in excess of twelve thousand airplanes engaged in the war in the skies. Of these, Germany had three thousand, Austria had fifteen hundred, while Bulgaria and Turkey had five hundred between them. These latter were all supplied by the Ger-

mans, who also furnished most of the pilots for them, while the observers were in most cases, Bulgarians or Turks; a large number of German pilots also served in the Austrian squadrons. Against these, France and England had five thousand machines, while the Russian air service numbered approximately one thousand effective airplanes. The armament of Germany's aircraft were the Spandau and Parabellum machine-guns. Some of the earlier fighting ships were equipped with the Mondragon auto-rifle, which was an infantry weapon of seven m.m.

The employment of long distance bombing by the Germans, from almost the beginning, naturally led to the continual improvement of these huge ships. Allied air officers were surprised on inspecting some of those which had been shot down to find metal fuselages in many of them, in place of the prevailing

wooden ones.

During the first few years of the war, when the Allies were using converted artillery shells for aerial bombs, the Germans had developed special bombs for their aircraft. Their Zeppelin "Giant," five-engined bomber, which was constructed in 1918, had a bomb load capacity of four tons and carried a crew of seven men. Its weight empty was twenty thousand pounds. It would be hard to find any modern military bomber today, which carried that same bomb load.

In 1917, with America's entrance into the war, Germany had another air force to combat, the strength of which was not felt until the following year. Larger formations now began to rove the skies, and as a means of combatting this, in June 1918, the German High Command, organized the "Jagdschwaders," or groups of Staffels. These were each composed of four Jagdstaffels, and consisted of about forty-eight planes.

For the command of these "Jagdschwaders," some of the leading aces were called in. Among these aces, were, Captain Udet, credited with sixty-three victories; Captain Bruno Loerzer, with forty-two to his credit; and Captain Goehring, with ten victories, but admitted to be one of the

greatest air strategists of the war. These units became known to the Allied pilots as "circuses," due not only to the brilliantly painted colors of their ships, but also to the fact that they were moved from sector to sector as needed, to reinforce other German air units, just as a circus travels from town to town.

The Jagdstaffels, themselves, were commanded and made up of some of the most daring and outstanding pilots who ever took to the air in winged ships. The deeds of Voss, Schaeffer, Allmanroeder, Wolff, Menckhoff, Berthold, Muller, Bongartz, Boehm, and others, will always be remembered where fighting airmen gather. Perhaps the career of Wernher Voss was the

most spectacular of them all. Voss, alone and unaided, flying a Fokker triplane, met his death against odds. Sighting a formation of seven S.E.5s, Voss dove to the attack, well knowing that this unit, number Fifty-Six Squadron of the Royal Air Force, was made up of some of England's leading aces. Among those whom Voss was to meet in his fatal attack on this flight, were McCudden, Rhys-Davids, Maxwell, and Bowman. After twenty minutes of maneuvering, Voss was able to withdraw and probably could have saved his life by doing so. He again plunged into the fight and was shot down by Rhys-Davids, who managed to get on his tail. Skillful as he was, he was no match for the group of aces that he determined to combat. In all, Germany produced one hundred and sixty-seven aces, who had five or more victories to their

For historical reference, some of the air units of the Imperial Air Force, are worthy of mention. Jagdstaffel One, whose airplanes were distinguished by their red noses and wings, was the outfit in which the famous Baron von Richthofen first saw service. It was later under the command of Captain Reinhardt, an ace with twenty victories, on the American Front, from June, 1918, until the Armistice. Jagdstaffel Two was probably the most famous of all the German Staffels, and was familiarly (Continued on page 38)

Fokker D.7s on patrol above the clouds



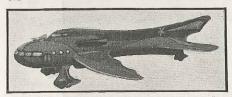
Plane shot down by Frank Luke near Rattantont Sept. 19, 1918. Pilot is under burlap in center

MODEL AIRPLANE NEWS

SOMETHING NEW!!! SOLID SCALE MODELS THAT

DECEMBER

38



Rocket Ship-Year 2000. Length 10" The most streamlined model on market, yet one of the easiest to build. What a novelty! Imagine a flying rocket ship. And how she rides! As fast as her lines look. Makes a swell exhibition, stunt, or speed ship.

55c Post Paid Complete kit ...



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Why They Fly

These models perform so capably because of their lightness, balance, and design. Wings, tail, and fuselage are cut out to outline, and kit includes, where necessary, cast props and cast radial motors, good cement and high gloss dopes, plastic composition for fillets, genuine blueprints, full directions for assembling, stunting, and flying, and completed catapult.

Other Models-All 10" Wingspan

Curtiss Hawk Pursuit P-6-E 55c Post Paid Macchi Castoldi Seaplane (World Speed Record) Fokker D-8 Pursuit (World War) 55c Post Paid Money Order or cash only. If N. J., add State Tax

STEVENS MODEL ENGINEERING CO. BURLINGTON, N. J.

the same type as Young's and constructed by the author, made a world's record with a flight of 12:23 minutes.

Model airplane history has already been made this year of 1935 for both indoor tractor and indoor commercial records were broken. John Stokes of Huntingdon Valley, Pa., distinguished himself in both events when he placed first and second respectively with flights of 20:53 and 15:05 minutes. Torrey Capo of Boston won the indoor fuselage trophy with a flight of 15:35 minutes. Both Stokes and Capo used paper-braced microfilm-covered commercial fuselages. This national meet was important for the reason that new designs in the way of microfilm propellers were introduced. A model constructed by the author and propelled by a 16-inch microfilm prop made a new world's record of 22:11 minutes in the senior class. This ship had two good flights and each flight surpassed the record mark. A third flight was a bit unfortunate in that it was terminated when the model hit the roof of the 135-foothigh arena and slipped backwards out of control, and then into a dive. The propeller was broken when it hit the hand outstretched to prevent it from hitting the floor. The model would have easily done twenty-four minutes on that flight as it had about 2400 winds and seemed to be flying toward a new all-time world's record. But such is the luck of indoor builders. Carl Goldberg, as usual, came out on top in the open class with an excellent flight of 23:29 minutes.

With the rumor going around that next year's nationals will be held in Akron again, one can only guess at what the

new records will be.

The German Air Force in the World War

(Continued from page 13)

known as the "Jagdstaffel Boelcke," in memory of one of their first aces, who organized it in August of 1916.

It was later at various times commanded by Captain Wahl, Lieutenant Bohme, Lieutenant Max Muller, and Lieutenant Carl Bolle. It served on every sector of the Western Front, and ran up a total

of three hundred and thirty-six Allied aircraft to its credit as a unit. Its machines were distinguished by their bright yellow bellies. Jagdstaffel Three, which was known as the Loezer Circus, had for its markings, the black and white checkerboard. In March, 1917, Lieutenant Bruno Loerzer assumed command of it, and it operated as a unit, first against the British, the French and then under Captain Bettenge against the American Forces from June, 1918, until the Armistice. Another famous unit was Jagdstaffel Eleven. This was under the command of Baron von Richthofen, until he was promoted to the command of one of the new Jagdschwaders. It was officially known as the Bavarian Blue Tails, but was dubbed by the British, the Tango Circus, for the variety of colors of its airplanes. When the war ended, it had three hundred Allied machines to its credit.

Jagdstaffel Fifteen was probably little known to the Americans, as it fought mainly against the French. It was at one time commanded by Lieutenant Gontermann and in December, 1917, Udet was transferred to it, where it was serving on the Aisne front, opposed to the famous Escadrille N.3, or Storks.

Jagdstaffel Twenty-Six was on the British front, operating mostly in the Arras sector. In January, 1917, Bruno Loerzer was transferred to the command of it, from Staffel Three, and remained with it until he was wounded in action on June 15, 1918.

Jagdstaffel Twenty-Seven was commanded by Goehring, until he also took over one of the Jagdschwaders. Jagdstaffel Thirty-Six, in the latter part of the war, was in command of Lieutenant Bongartz, an ace with thirty-six victories, who was wounded in action on March 3, 1918. Staffel Thirty-Seven, another famous unit, served the bulk of its time in Flanders. Udet was also its commander at one time.

The early months of 1918 provided poor flying weather for all of the belligerents, vet despite this, the Allies brought down close to three hundred German planes. During February, the Allies again downed a similar number. The peak of Germany's aerial strength was at its highest in March of 1918. This month, the British Royal Air Force alone, accounted for three hundred and seventy-two planes destroyed, and another two hundred and five driven down out of control, while for April, the R.A.F., claimed one hundred and seventy-two more destroyed, with seventy-five driven down out of control. The worst blow to the Imperial Air Force occurred on May 1st, when on that one day alone, two hundred and forty-eight German airplanes were destroyed. This marked the turning point in air warfare, but in spite of this, the heroism of its personnel continued at a high pitch until the last days.

The greatest problem faced by their air service, was the replacement of personnel and airplanes during active conditions. Each bad weather period came as a welcomed respite, and was utilized in putting their air units back in fighting trim. Materials for aircraft construction were becoming hard to obtain and many substitutions were reverted to. Younger pilots were more in evidence than previously, most of them being noncommissioned officers. This was

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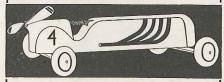
Complete flying scale model of the \$2.00 post-30" Douglas 0-38-S...... \$2.00 24" Cabin Model. Has V-shaped sheet balsa 5 Oc post-monocoupe fuselage and a finished propeller 5 Oc paid Beautiful Racing Stick Model. Requires only 2 hours to build. Comes with plenty 5 Oc postof material to build, plus finished propeller. Astounding Stick Model. Capable of 500 ft. 25 c post-flights. Comes ready to assemble. Only..... 25 c paid 16 EXTRAORDINARY VALUES in Flyng scale model plans. All V. Sturialepostdesigned. Only...

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4"	INE CUT	PROPS	PAL	JL O WINA PROPS	JAP
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something new, as heretofore only commissioned officers flew the ships. But, led by the old Staffel leaders, who had between thirty to fifty planes each to their credit, they did their jobs well.

In reviewing the situation towards the last, it may be wondered at the superiority oi numbers of German air units over those of the Allies. Although the Royal Air Force had only eighty-six squadrons on the Western Front, these were maintained always at full strength and at top efficiency. This was not exactly so in the case of the French. Their air service, numbering one hundred and three squadrons, were made up mostly of noncommissioned officers, with a few commissioned officers here and there, as flight and squadron commanders. It has been estimated that eighty percent of their pilots were noncoms. The morale of the French was not as high as that in the British and American services in 1918, nor was there the discipline. Besides the fortyfive American squadrons in the zone of advance, there were two hundred and eleven equipping in England, besides many other squadrons which were fitting out in the rear of the armies. This allowed the American squadrons to always remain at full strength.

Had the war continued, the Allies would have put large numbers of bombers in France for the proposed spring drive of 1919. The plans of our own forces contemplated the formation of one hundred and one bombing squadrons, made up of sixteen hundred bombardment planes; while those of the British contemplated increasing their air force from eighty-six squadrons, to one hundred and seventy-nine squadrons, of which sixty-six were to be for long distance bombardment. The value of bombardment aviation became more apparent during this time and both sides engaged in long-distance raids. With the new types of heavy bombers produced by the Germans, it is apparent that had the war continued, they would have been utilized in attacks on American landing places at ports of debarkation and concentration camps in the rear areas.

At the time of the Armistice, the Royal

Air Force had twenty-eight thousand pilots in service and more than forty thousand airplanes had been constructed. France had built fifty-one thousand airplanes, of which nine thousand five hundred were supplied to the Allies. The United States had constructed thirteen thousand eight hundred and ninety-four airplanes, of which three thousand two hundred and twenty-seven were De Havilland 4s. The balance were mostly training planes, but of the De Havillands produced, one thousand four hundred and forty-three were received in France up to November, 1918, or enough to equip sixty squadrons. In addition, four thousand eight hundred and eighty-six airplanes were purchased from the French for the American Army. With such a preponderance of aircraft and a large reserve of men as pilot material for the Allies, it was evident that no nation could hope to compete against such an aggression.

When the fighting was over, the German air units found themselves in a strange predicament. The other forces were retiring to the rear, and they were left isolated on their airdromes without fuel, food, supplies or orders, and it was with difficulty that any semblance of order or morale was to be had at all. Then came the Armistice terms. These provided for the immediate surrender of approximately one hundred and twenty squadrons, while the remainder of their airplanes were to be destroyed.

All in all, Germany built forty-eight thousand three hundred and six airplanes during the war period. Of these, fourteen thousand and one were destroyed or surrendered, in addition to the three thousand which were left behind in the airdromes when hostilities ceased, and the two thousand six hundred which were turned over to the Allies immediately following the Armistice terms. Germany's loss in airmen amounted to eleven thousand four hundred, which number includes pilots, observers and bombers.

The aircraft production of this period is worthy of mention. In 1914, only one thousand three hundred and forty-eight airplanes were built. These, of course, do not include those on hand at the outbreak of the war. In 1915, four thousand five hundred and thirty-two were constructed. These orders also brought out the first singleseaters for combat fighting, as the contracts included one biplane pursuit of 180 horsepower, and three hundred and forty-seven monoplane single-seaters of 100 to 160 horsepower. Nineteen sixteen saw eight thousand one hundred and seventy-nine new airplanes, with nineteen thousand seven hundren and forty-six in 1917. Fourteen thousand two hundred more were built up to the Armistice.

At the beginning, a system of designation was provided for their airplanes. These letters preceded the type numeral. For instance, the Fokker D-7 was a single-seater, the seventh of that type constructed by Fokker. A glance at the following designations will readily supply the class of any type of airplane. A, was a Taube, prewar model; B, a two-seater training plane; C, observation two-seater; CL, ground attack two-seater; D, biplane single-seater pursuit; Dr, triplane single-seater pursuit; E, monoplane single-seater pursuit; G, day

(Continued on page 48)

CONSTRUCTION









N-156 Douglas Observation

N-157 Curtiss Hawk

N-159 Stinson Reliant

20-inch FLYING MODELS

2 Sets for 60c Postpaid









NC-152 Fairchild 24 20" wing spread

NC-154 SE 5A 15" wing spread 2 Sets for 60c Postpaid

20-inch FLYING MODELS

PAUL K. GUILLOW, Wakefield, Mass.

graceful flights of this beautifully built model. It is believed that a new national record was set by this model, which placed second in the free-for-all towline launched glider contest.

"The following are the results of the competition. No age restrictions were imposed:

Outdoor Stick Event

Bruce St	mith, Daytor	11	min.,	59	sec.
James N	eff, Dayton	1	min.,	38	sec.
Robert R	Rice, Findlay.	1	min.,	10	sec.
Troper e					

Hand-Launched All-Balsa Glider Event Dale Koozer, Mansfield.......38 min., 5 sec. Harold Crepps, Mansfield....25 min., 5 sec. Dick Bishop, Findlay......25 min.,

Outdoor Fuselage Event Jack Smith, Dayton.........21 min., 10 sec. James Neff, Dayton...... 9 min., Robert Rice, Findlay...... 2 min., 34 sec.

Towline Launched Glider Event James Neff, Dayton..........1 min., 31.8 sec. Jack Smith, Dayton......1 min., 23.4 sec. Dale Koozer, Mansfield....1 min., 5

Highspire, Pennsylvania

During this past summer, the United States Defensive Corps held a contest on May 1, 2, 3, and 4, 1935. We regret this event escaped our attention until the present time. The winners are as follows:

Class A-Flying Scale Models-David Barry with 90 points and Fred Knight, Jr. with 75.

Class B-Solid Scale Models-David Barry with 80 points and James Walmer with 79. Bliss Barry and Fred Knight, Jr., both tied for third place with 71 points

We are indebted for this information to Fred Knight, Jr., Secretary of the Corps.

New Orleans, Louisiana

Under the auspices of the local Y.M.C.A., several New Orleans boys have organized the New Orleans Model Airplane Club. At present there are sixteen members enrolled. Meetings are held twice a month, on the first and third Saturdays at 2 o'clock. Requirement for membership is the ability to secure a duration of sixty seconds. The officers are: Landry Murphy, President; Sidney Murphy, Vice-President; and Sidney Murphy, Vice-President; and David Markstein, Secretary. Mr. Bulger of the Y.M.C.A. is the director and treasurer. Informal contests are held on the second Sunday of each month. A big "freefor-all" contest was held September 8th. Model builders from all over the city, members and nonmembers, were invited to com-

Brooklyn, New York

There is a live little club in Brooklyn under the name of the Challenge-Airs Model Aero Club, the Commander of which is Joseph R. Carbonell of 87 Ross St., Brooklyn, New York. In one of the last contests they held, the high-point winner, Robert Keegan, made a 6 min., 2/5 se. flight in the glider event. Joseph Hofman, third place winner, made 10 min., 28 2/5 sec. in the cabin event and Ira Klein made 5 min., 40 sec. in the stick event. Second place winner was Ed Johnson with average time of 21/2 minutes.

Boston, Massachusetts

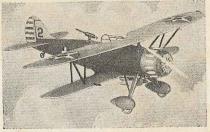
From editor Lewis of Wing Overs, the

With Each Subscription Take your choice



BOEING P26A (SOLID)

A ½" solid scale model that is authentically designed to the most minute detail,—louvres, inspection patches. Motor complete to spark plug leads (you make all). A joy to build and a contest winner. Colors, army, yellow and olive with full insignia. Full size plan with all details. 50c value.



FLYING WACO MODEL "D" MILITARY

Army's new streamlined fighter. Flies far and fast. Contains finished balsa cowl and other machined parts. An excellent model . . . one that any builder will be proud of. 50e value.

official organ of the Jordan-Marsh-Boston Traveler Junior Aviation League, comes news of J.A.L. members. One of the outstanding incidents is the entrance of George Zeitlen and Hewitt Phillips into the portals of Massachusetts Institute of Technology. They are old model builders and have laid plans to augment their technical inclinations by studying at this excellent aeronautic engineering school.

The first indoor meet was held October 5th. The usual type of events took place. As yet no information has been received concerning the results of the contest. An active winter program is expected.

The German Air Force In the World War

(Continued from page 40)

bomber; J, armored plane; N, night bomber; S, ground fighter-also similar to CLs, but with increased horsepower-only two of these were constructed late in 1918; R, giant bombers; and V, for seaplanes.

From the start it is apparent that the Germans had a clearer comprehension of the value of their air force. The first bombing incidentally was done by Immelman, who on August 30th, 1914, after releasing a shower of small bombs on Paris, dropped a note asking for the surrender of the city, as the German troops at that time were practically at the very gates. The first fixed synchronized machine-guns on the front were mounted in German planes, while the credit for the first ship of the war shot down in combat goes to the French air service.

Until the middle of 1917, they had dominated the Western Front, and always on the Eastern Front had maintained a superiority at all times over the Russians. When Russia broke down, the air units were at once dispatched to the Western Front, proving a strong reinforcement. The construction and utilization of special types evinced the wisdom of this plan. The havoc wrought by the CL-type of specially constructed ground attack airplanes during the 1917-1918 campaign is history, at which time the Allies were using pursuit and reconnaissance machines for such missions.

Probably no finer tribute has ever been paid any hostile army than that which has been paid the German Air Force by those Allied airmen who opposed it. Its spirit of aggressiveness and the sportsmanship of its pilots made it a worthy foe, and it was the only branch of the German Army that did not desert its colors when revolt and dissension swept the land, which resulted in .

the Armistice.

Build and Fly this Famous Racer

(Continued from page 31)

the spar has been slipped into place, the remaining opening can be filled with balsa or covered with paper. Cut 2 slots in the tail block to insert the front and rear spars of the elevator and cement it in place. Cement the rudder in place and allow to dry.

Now fasten the windscreen in place.

The power plant consists of 8 strands of 1/8" flat rubber for highspeed flights, or 6 strands for slow flights.

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