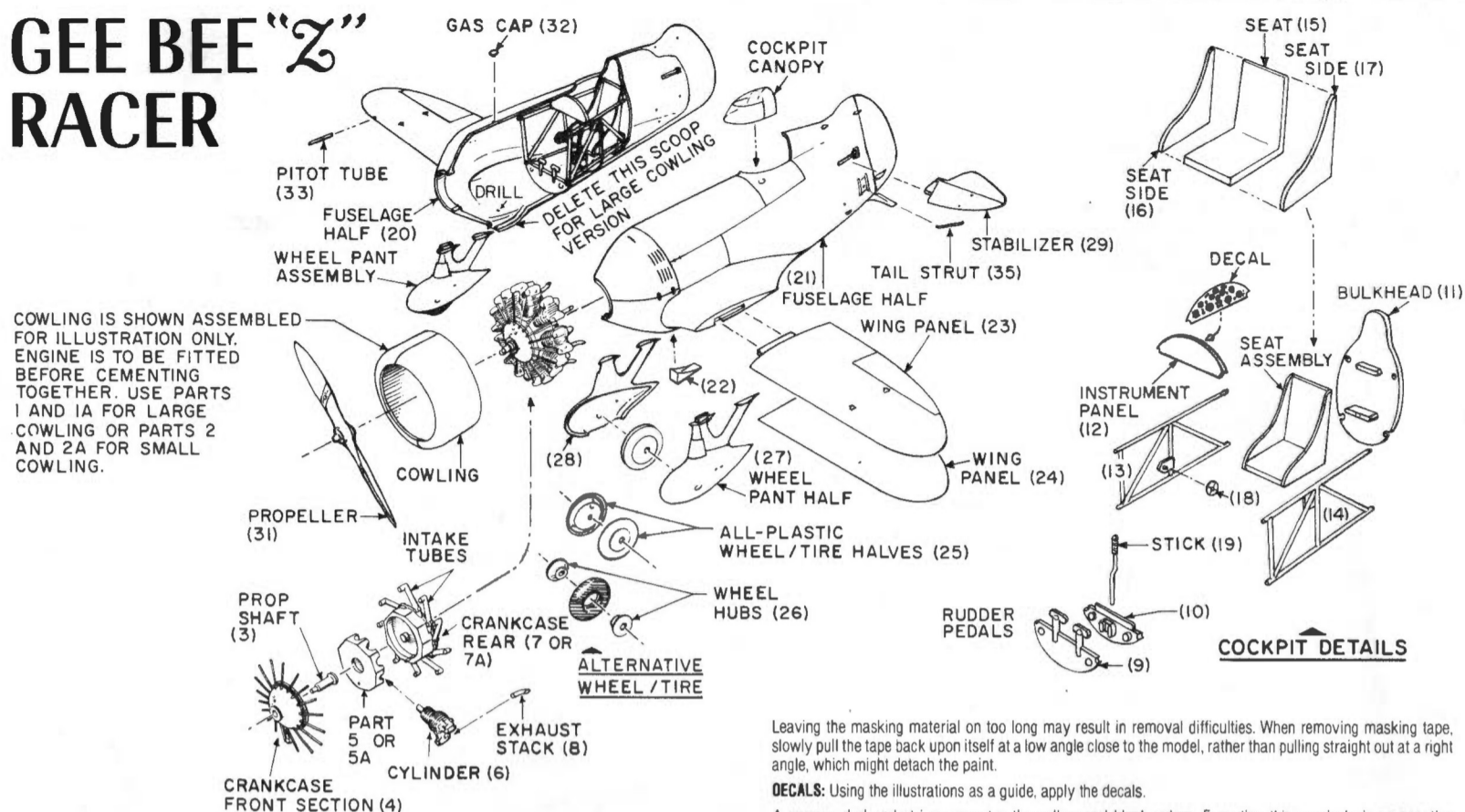


GEE BEE "Z" RACER



COWLING IS SHOWN ASSEMBLED FOR ILLUSTRATION ONLY. ENGINE IS TO BE FITTED BEFORE CEMENTING TOGETHER. USE PARTS 1 AND 1A FOR LARGE COWLING OR PARTS 2 AND 2A FOR SMALL COWLING.

BACKGROUND: The Gee Bee "Z" was constructed during 1931 by Bob Hall and the Granville brothers as the first in a series of aircraft specifically intended for racing. It was powered by a 535 horsepower Wasp Junior radial engine loaned by Pratt & Whitney. Because of its corpulent configuration and unique color scheme, the craft resembled a giant bumblebee and was the subject of considerable controversy among aviation enthusiasts.

The Gee Bee Z was entered in the 1931 Cleveland National Air Races with the following results:

PILOT	EVENT	PLACE	SPEED
Lowell Bayles	Shell Speed Dash	1st	267.342
Lowell Bayles	Goodyear 50-Mile Trophy	1st	206.001
Bob Hall	Mixed Free-for-All	1st	222.623
Bob Hall	General Tire and Rubber Trophy	1st	189.545
Lowell Bayles	Thompson Trophy	1st	236.239

The box-cover painting by John Amendola depicts an incident during the Thompson Trophy race, when Jimmy Doolittle's Laird Super-Solution biplane dropped out of competition with a failing engine, while Bayles in the Gee Bee Z continued on to a resounding win.

Later the machine was re-engined with a Wasp Senior engine of 750 horsepower enclosed in a larger diameter cowling, in preparation for an assault on the world's landplane speed record. During a series of attempts, one run resulted in a speed of 314 mph, but various technical difficulties prevented completion of the four runs required by the regulations.

On December 5, 1931, another try was arranged, and while Bayles was making a high-speed pass, tragedy struck when catastrophic wing failure rolled the tiny craft into the ground.

The actual cause of this mishap has long been open to dispute, but the most frequently published speculation suggests that a dislodged gas tank filler cap penetrated the cockpit canopy and struck Bayles, causing him to overcontrol, thereby imposing excessive stresses upon the airframe. A second theory concerns possible aileron flutter which could have initiated wing failure. Another conjecture was that the machine had been overstressed previously, and that the installation of a heavier and more powerful engine may have aggravated the condition.

SPECIFICATIONS:

Wing Span: 23'6" Fuel Capacity: 103 gallons
Range: 1000 miles Weight Fully-Loaded: 2280 pounds

NOTE: The Gee Bee Z underwent many modifications during its short career, as confirmed by photographic evidence. For example, the craft originally appeared with different fuselage lower arrangements and an external gasoline gauge atop the fuselage. More subtle changes concerned the cowling attachments, pitot tube, tailskid-fairing, fillet strips fitted to the stabilizer/fuselage intersections and other minor items.

During the Cleveland Air Races, the openings between the landing gear legs were fabric covered for one race, but the slight drag reduction benefits may have been offset by destabilization effects, and the fabric was removed.

The change to a larger engine and cowling also included a change in air scoop configuration, as noted on the drawings. The "WASP" cowling marking appears to have been applied quite hastily and rather crudely, according to a photograph showing the starboard side. There is doubt regarding any markings on the port side, but an extra "WASP" decal is furnished "just in case."

CONVERSIONS: The kit model is intended to represent the Gee Bee as it appeared during the 1931 National Air Races, or fitted with the larger engine and cowling, as it appeared during later speed record attempts. An earlier configuration would be possible via modifications, and these references are suggested to those who may care to undertake research for that purpose: AERO DIGEST, October 1931; AVIATION, November 1931; THE GEE BEE STORY, 1956.

A modern reproduction of the Gee Bee Z was completed during 1979 by Bill Turner and Ed Marquart in California. Experienced modelers might care to convert the kit model to represent the Turner machine, which has been featured in several magazines, including: MODEL BUILDER, March 1979; SPORT AVIATION, July 1979; PRIVATE PILOT, July 1979.

Differences from the prototype include cowling, wheel pants and air scoop shapes, a large external exhaust stack, and the addition of a tailwheel. Other minor differences may be gleaned from published photographs.

GENERAL INFORMATION: This kit should be approached with patience and care. It is not intended for the rank beginner or "instant gratification" model assembler. **IMPORTANT:** Before starting, study the drawings carefully to become familiar with the relationship of the various parts.

Remove any "flash" which may be present on the plastic parts, and using a sanding block, dress all mating surfaces until they match perfectly. A suitable sanding block may be made by gluing No. 400 sandpaper onto a flat scrap of wood. Before assembly, clean all parts in lukewarm water and liquid detergent so that paints may adhere properly. Use only cement suitable for styrene plastic, and avoid excess amounts which might damage the plastic's surface. For safety and efficiency, follow cement manufacturer's instructions and cautions exactly. Check the fit of each part BEFORE applying cement.

PAINTING: Some modelers prefer to assemble the aircraft in advance of painting, but in view of the complex color scheme, it may be preferable to paint individual sub-assemblies and to assemble them afterward. All seams should be smoothed prior to painting. Flat paint may be used as a primer and, when thoroughly dry, sanded smooth with No. 600 wet sandpaper. Use only paints suitable for styrene plastics, as other types may damage the surface. Spray painting is suggested, but good results can be achieved using high-quality brushes. Regardless of tools and materials, patience and care are the keys to obtaining a good finish.

Small parts may be painted while still attached to their "trees" and separated as needed to reduce risk of loss. When cementing parts to already painted surfaces, first scrape away paint in joining area to permit proper adhesion.

For the two-tone parts, the yellow should be applied first. Use of flat or semi-gloss paint will permit guidelines for the masking to be drawn on with a soft pencil. Templates cut from index card stock may be used to assist accuracy. Narrow strips of tape may be applied along the color division lines. Alternatively, masking tape may be applied, color division lines drawn upon the tape and the areas to be painted cut away. Burnish edges of tape down securely to reduce risk of paint "bleeding" underneath. Some builders apply a thin coat of clear enamel along the edges to seal the junctures before applying colored paint.

If preferred, any of the various brands of liquid masking substances may be applied, using a pointed brush for best control. When the model has been suitably masked, apply the black paint. Some modelers strip off the masking agent immediately, before the paint has hardened, which allows the edges to settle slightly. Others prefer to wait until paint has dried, reducing risk of fingerprints, etc., but sometimes resulting in uneven edges.

Leaving the masking material on too long may result in removal difficulties. When removing masking tape, slowly pull the tape back upon itself at a low angle close to the model, rather than pulling straight out at a right angle, which might detach the paint.

DECALS: Using the illustrations as a guide, apply the decals.

A narrow, dark-red stripe separates the yellow and black colors. Executing this concisely is an exacting proposition, calling for skill and patience. You may prefer omitting this detail. However, if you elect to tackle the problem, consider these approaches: thin striping tape, approximately 1/64" wide, is available from larger art supply stores as well as some hobby shops. This material may be applied to the model and carefully burnished down. The main disadvantage is its slight thickness which can be seen and felt.

Applying the lines with a brush by hand is to be discouraged, as satisfactory results are difficult to achieve. But those with artistic ability and steady hands may care to delineate the red trim with india ink and a draftsman's technical fountain pen. Be advised that inking around compound curves may be quite exasperating but can be accomplished.

First, dull the areas to be inked, using a mild abrasive such as pencil eraser. Next, obtain a non-crawl ink formulated for use on acetate or plastic film, from an art store or engineering supply firm.

If a mistake is made during application, the ink can be removed with water at no risk to the surrounding paint.

When ink has been applied to your satisfaction, it may be sealed and waterproofed with an application of clear enamel. This will also serve to seal the decals in place and provide a uniform gloss to the entire model.

COLOR INFORMATION: (see also box-cover painting)

OVERALL: Yellow and black with thin, dark-red separation lines.

INTERIOR: Instrument panel: Aluminum Fuselage frame members: Dark brown
Bulkheads: Varnished natural plywood Seat: Aluminum
Rudder pedals: Aluminum Stick: Aluminum Cockpit walls: Aluminum

ENGINE CRANKCASE: Grey **ENGINE CYLINDERS:** Black
EXHAUST STACKS: Natural metal **INTAKE TUBES:** Black **ENGINE PUSHRODS:** Black
PROPELLER: Natural polished metal with flat black on rear of blades.
SPINNER: Thought to have been red.
TIRES: Dark grey
AIR SCOOP: (as used with small cowling) Black (as used with large cowling) Aluminum
RIGGING WIRES: Natural metal. Note that monofilament may be treated with any of the metallic wax finishes such as "Rub'n Buff" for a realistic effect.

CONSTRUCTION:

COWLING AND ENGINE: Select cowling parts for your chosen version, the large cowling (No. 1 and No. 1A) or the small cowling (No. 2 and No. 2A).

Paint engine parts and assemble as follows: Install propeller shaft (No. 3) into crankcase front section (No. 4). Note that crankcase middle and rear sections differ in size. No. 5 and No. 7 are for use with the large engine and cowling, while No. 5A and No. 7A are for use with the small engine and cowling. Add appropriate middle section, being careful that the shaft is free to turn. Trim pushrods (parts of No. 4) as required and add engine cylinders (No. 6, nine required), being careful that they are correctly aligned. Add rear crankcase part (No. 7 or No. 7A, as appropriate). Cement an exhaust stack (No. 8) to the back of each cylinder, and align them uniformly before the cement sets. File outside diameter of engine if required to ensure a snug fit inside cowling halves but moveable to permit alignment during assembly. Assemble halves with engine enclosed. Smooth joint seams, prime and paint.

FUSELAGE: Drill out rigging holes indicated inside fuselage halves. Paint the cockpit interior walls, bulkheads and interior parts. After instrument panel paint has dried, apply instruments decal. Assemble structural frame members and bulkheads as illustrated. Install stick, rudder pedals and handwheel. Assemble and install seat.

Check interior assembly for good fit into fuselage half (No. 20), and when satisfied, cement into position. Pre-assemble other fuselage half (No. 21) to assure proper fit and adjust if necessary. Apply cement to mating edges and place halves together. Rubber bands and/or masking tape strips may be useful for holding parts in firm contact and correct alignment while the cement dries. **NOTE:** For large cowling version, the fuselage air scoop must be cut away and replaced with air scoop No. 22.

WINGS: Apply cement to wing panel halves (Nos. 23 and 24, two each required) and clamp while drying. Smooth joints and prime for paint.

LANDING GEAR: Choose between the all-plastic wheels/tires (No. 25, four required) and the flexible tire type. Hubs for these are No. 26, four required. Steel wool or fine sandpaper can be used to remove the gloss from the tires for greater realism. The hub halves may be cemented and clamped while drying, and then painted. The tires may be carefully stretched over the hubs into position afterward. For regular wheels/tires, simply cement the halves together, smooth seams and paint. Place the finished wheels onto axles inside wheel pant halves (No. 27, two required) and cement opposite halves (No. 28, two required) in position. Secure while drying.

STABILIZERS: Smooth edges of parts No. 29 and No. 30. Check for proper fit of tabs into fuselage slots and adjust if necessary.

ASSEMBLY: Check the fits of wings, stabilizer halves and other components. When satisfactory, cement them into position, checking for correct alignment. Note that the landing gear legs should cant outward very slightly, as viewed from the front.

PROPELLER: After painting and applying decals, the propeller (No. 31) may be cemented onto the propeller shaft (No. 3). Apply cement sparingly so that prop may revolve freely. The engine, prop and cowling assembly may now be cemented into front of fuselage.

FINAL DETAILING: Paint cockpit canopy framing or apply thin colored tape strips. Install canopy using a minimum of cement to avoid smears.

The rigging may be installed as follows: Measure the distance between any pair of holes to be spanned, noting that the rigging may be "sewn" through some parts (the wings, for example). Insert one end of monofilament into a hole and carefully apply cement with a straight pin. Be certain rigging does not have any twists in it, which would spoil the appearance. Note that not all types of cement will adhere to monofilament, so a type suitable for nylon should be employed. For safety and efficiency, follow adhesive manufacturers' instructions and cautions exactly. When first end of rigging is secure, insert opposite end of monofilament into the appropriate opening. Apply cement and hold rigging in position with tweezers until cement will retain it. Repeat procedure until rigging is complete. If "wires" are slightly slack, they may be tightened with judicious applications of heat from a tiny soldering iron held near. **CAUTION:** Excessive heat may damage the monofilament, paint and plastic.

Add remaining small details such as the gas cap (No. 32), pitot tube (No. 33), stabilizer struts (Nos. 34 and 35) and the rudder control wires (not supplied). Add the rigging wire fairings (No. 36) to fuselage wire intersections, as shown in the top view drawing. The cowling braces may be made from wire and scrap plastic or paper.

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GEE BEE RACER

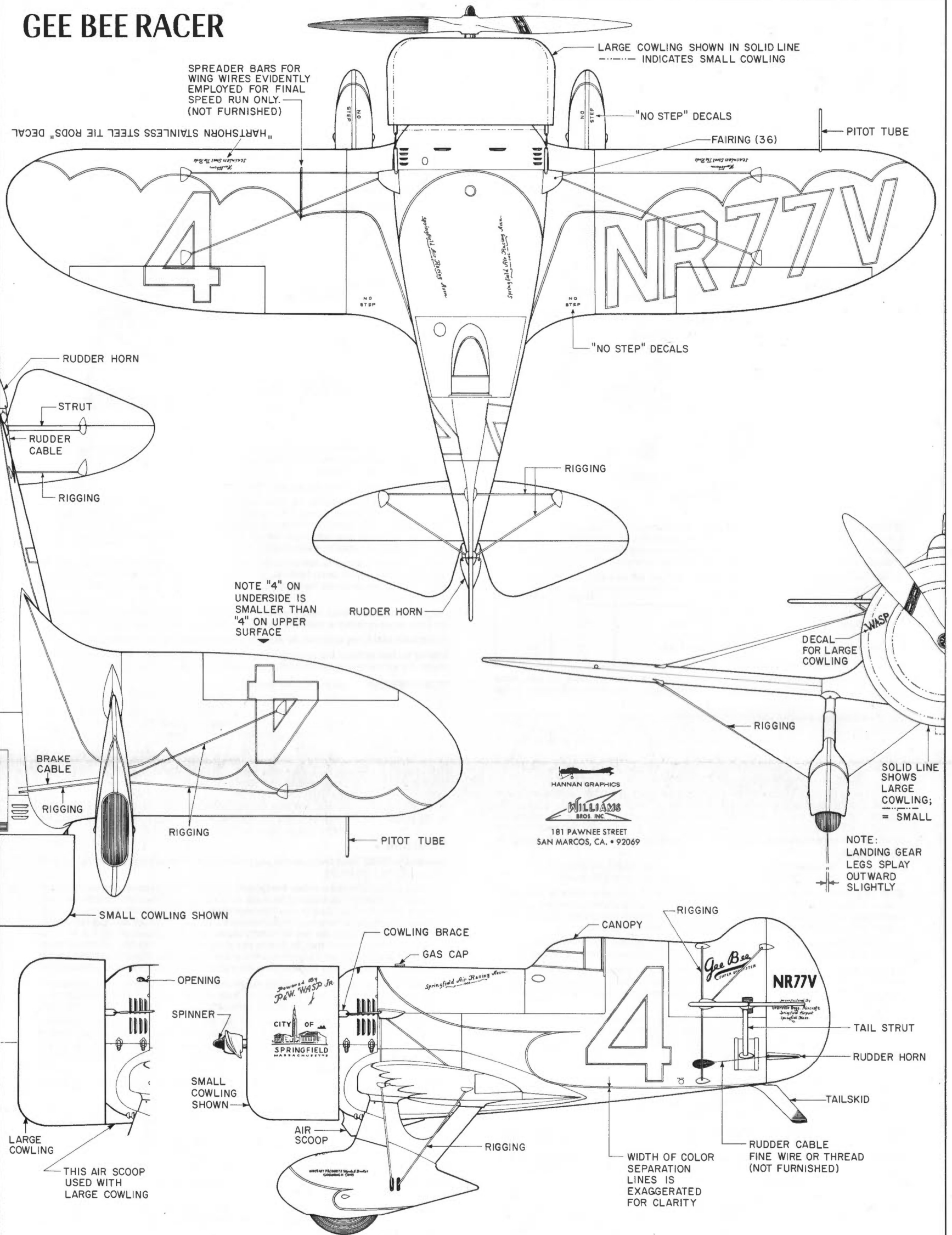
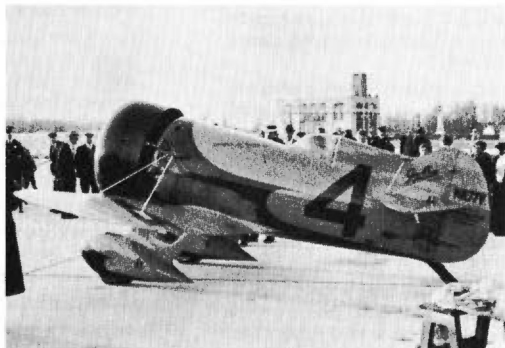


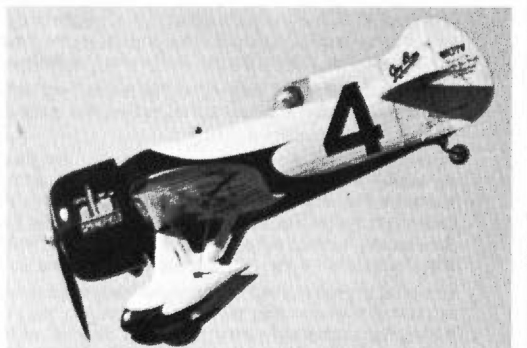
PHOTO GALLERY



The Gee Bee Z with original engine and cowling.
Photo from the Joe Albanese collection.



The Gee Bee Z equipped with larger engine and cowling.
Photo from the Joe Albanese collection.



Bill Turner's Gee Bee Z reproduction.
Photo by Bill Hannan.