

Mr. Mulligan

It's name has become a legend. Sheer power carried it on to victory. Makes a superb Stand-Off Scale R/C Scale for .60 mills. A nice design to fly/**Tony Lombardo** and **Dom Palumbo**

Benny Howard went over the final checklist with his copilot Gordon Israel. The two were seated in the cabin of Ben's DGA-6, appropriately named Mr. Mulligan in keeping with the leprechaun tradition of Ben's DGA-4 (Mike) and DGA-5 (Ike) trophy winning racers. This race would be different from those Ben had been in before, however. The gruelling trip from Los Angeles to Cleveland would tax the capabilities of man and machine to their yield points.

As they sat in anticipation on the runway at Burbank Airport awaiting the start of the 1935 Bendix Race, Ben and "Gordy" considered their competition. Amelia Earhart was participating, but she knew her Lockheed Vega didn't stand much chance and had only entered out of sportsmanship and feminist pride. Roy Hunt in the Lockheed Orion was

preparing for take-off — the DGA-6 would be next, and then Cecil Allen, flying his composite R-1/R-2 Gee Bee Racer. Ben was thinking that his toughest competition would be the Wendell-Williams Special, piloted by Roscoe Turner, just as Gordy opened the throttle of the special Pratt & Whitney Wasp SE, cranking the Smith variable pitch prop to max power. The 300 gallons of fuel made the take-off run extra long, and the butterflies in Ben's stomach didn't settle until the Mulligan was airborne, climbing to its 17,000 foot cruise altitude. The aircraft clawed through the dark early morning August skies, and soon Gordy throttled back to 75% power and a cruise speed of 290 mph.

In the droll monotony of level flight now, Ben came to realize that he was on the threshold of the last rung of the ladder to

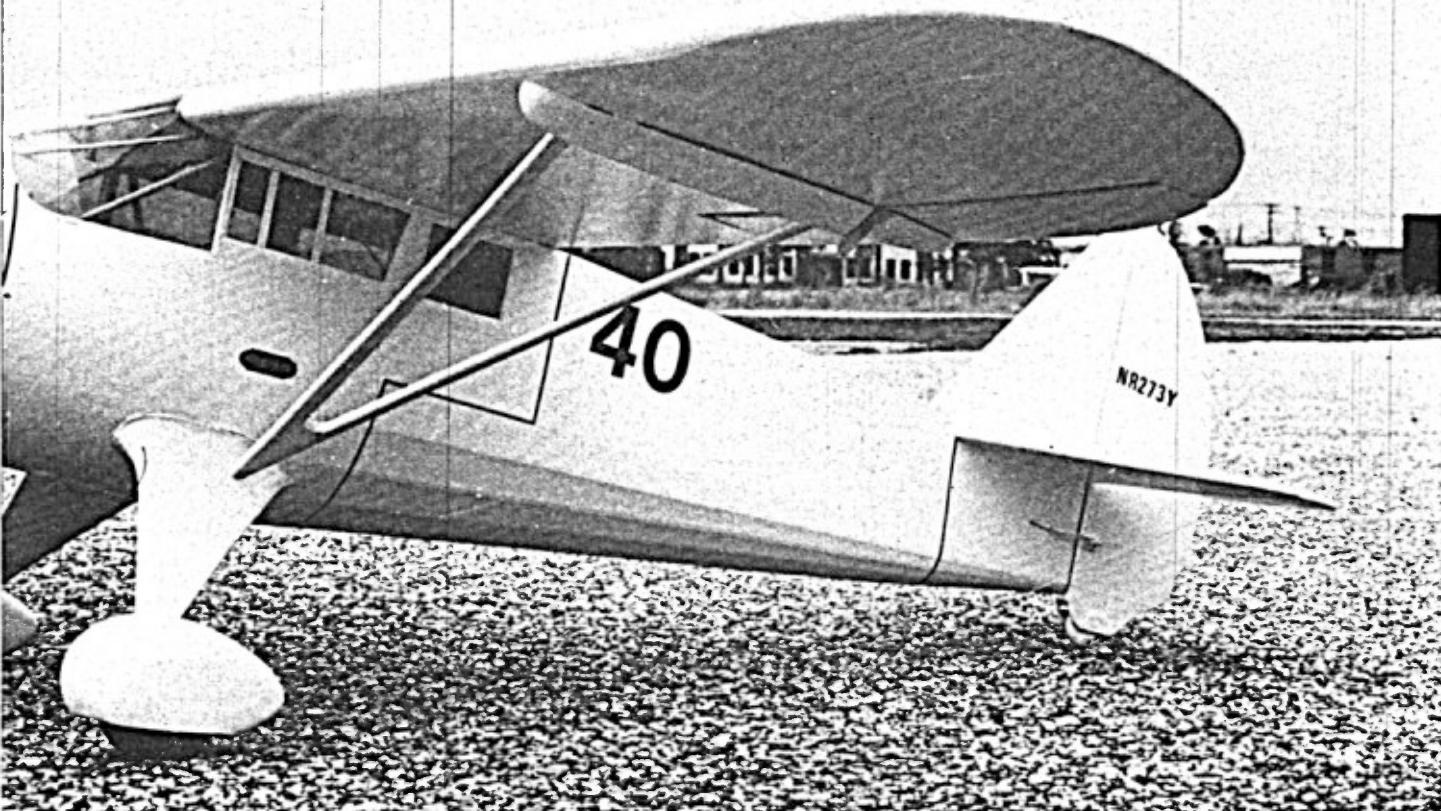


fulfillment of a dream he'd had since 1933. It was late in that year when he first began to consider investing in a high wing monoplane for commercial applications. He knew that this would be an expensive endeavor, and that he'd have to make one last attempt to secure additional capital on the air race circuit. So, he designed the DGA-6.

A self-admitted "Blacksmith engineer", Ben Howard possessed a unique and practical approach to the science of aeronautics, never pretending to be at all conversant with aeronautical theorems. He enlisted Gordy's aid to do the final drawings and called on Bob Donovan for design and supervision of the construction. By February of 1934 the Mulligan began to take form at the abandoned American Eagle plant on the Fairfax Airport facility in Kansas City. Initial flights were made early in July using a 450 hp. Wasp and Hamilton-Standard prop, loaned to Ben by the Goodrich Tire & Rubber Co, while awaiting delivery of the 550 hp. SE. Ben recalled the disappointment when a forced landing on poor terrain just days before the 1934 races were scheduled to start resulted in enough damage to preclude his Mulligan's entry that year. The aircraft was stowed for the winter while costly repairs were made. It was sheer perseverance in the face of severe financial hardship that brought Mr. Mulligan to the starting line for the Bendix in 1935.

A short refueling stop at Fairfax Airport, the Mulligan's birthplace, gave Ben and Gordy a chance to warm up and stretch their legs — then it was on to Cleveland. The weather was dreary; wet and cold when they arrived, but the mood was exuberant when they learned that they were the first to land. Long streaks of exhaust carbon streaked Mulligan's gloss white finish, bearing tes-

Author Tony Lombardo (above) with Mr. Mulligan gives us an idea of the size of this ship, not quarter scale but big enough to be impressive. A classic look both on the ground (top right) and on its liftoff



PHOTOGRAPHY: DON MCGOVERN

timony to the torturous journey. The men kept an anxious vigil for Roscoe Turner and, shortly after taxiing up to the finish line Turner powered over the field and landed. It took eight hours for the judges to tabulate the final standings, but it must have seemed like eight years to the participants. Finally, the results were known . . . Ben Howard and Gordon Israel had won. Their average speed of 238.704 mph edged Roscoe Turners 238.522 mph . . . a mere 18 seconds of equivalent flight time.

Toward the last days of the races that year Ben made the decision to enter Mr. Mulligan in the prestigious Thomson Trophy Race. Thirty laps around a 10 mile course. The big airplane was not designed for such racing . . . poor pilot visibility and maneuverability could be a detriment, although there was no doubt that Mulligan's structure could take the abuse . . . but could the Wasp SE? Ben selected Harold Neuman to pilot Mulligan in the Thomson. Hal was a natural pilot, dedicated to the profession, flying was his way of life, and he'd logged more hours in the Mulligan during initial flights than anyone else.

All odds were with Roscoe Turner to win in his Wendell-Williams, but Ben figured he'd be content with a solid second or third place . . . the additional money could come in handy. Fate stepped in again, however, and on the day before the Thomson, Hal took Mr. Mulligan up for a 247 mph qualification run and blew two cylinders. The Howard group and P&W reps worked all night and managed to get the Wasp running again in time for the race. The start of the race was delayed that year over a technicality which left the aircraft idling on the starting line for hours. The big engines began to overheat, and the sound of short rev bursts could be heard all

day as pilots tried to keep their engines cool. Finally, the green flat fell and the race was on. By the ninth lap Roscoe Turner was a full lap ahead of the pack, with the Mulligan in second. Again, the fickle finger made its entrance, only this time it was in Ben's corner. Roscoe's engine blew . . . black fumes and oil engulfed the entire nose of his aircraft, and when Hal flew through the thick black fog he knew he had a chance to actually win. Steve Whittman's D-12 Bonzo Racer was chewing at his tail throughout the remaining laps, but somehow the Wasp managed to stay together and Mr. Mulligan won.

Mr. Mulligan was the only aircraft ever to win both the Bendix and Thomson Races. A crowning achievement, and one which makes the DGA-6 a truly remarkable aircraft. Come . . . relive that glorious moment in the history of aviation . . . let's recreate and fly a Mr. Mulligan.

Construction:

The fabrication techniques used to construct this model are fairly common and straightforward. We will not go into extensive detail, therefore it is assumed that the builder is a modeler with reasonable experience. As with all aircraft, try to keep the finished weight to a minimum.

The Fuselage

Cut out all formers from the specified materials. Slice the full length sides from $\frac{3}{32}$ " balsa, ensuring that the left and right are identical and that the wing saddle and stab platform are parallel to the full length straight edge corresponding to the thrust line. Mark off the location of all formers on the inside surface of the sides and use a square against the straight edge to draw perpendicular lines at these locations. Cement $\frac{3}{16}$ " x $\frac{1}{4}$ " stiffeners at the former loca-





Noted FLYING MODELS author Nick Zirola was on hand to demonstrate his skill for first flights with the Mr. Mulligan (below). The ship flew well with no bad habits. It's stable and suitable for flyers with some background experience. It has high drag with that wide body and struts but that presents no problem.



tions from F through J and $\frac{1}{4}$ " sq. stiffeners at the cabin locations as shown on the plan. Following this, cement $\frac{5}{16}$ " x $\frac{1}{2}$ " balsa wing saddle and $\frac{3}{32}$ " sheet stiffeners and gussets at the stab platform location. A length of $\frac{1}{4}$ " x $\frac{3}{8}$ " balsa should also be cemented to one of the sides at the aft end. Join the sides between C and F using these formers and $\frac{1}{4}$ " x $\frac{1}{2}$ " balsa cross bracing at the top, making sure that the formers are square to both sides. Lay this assembly over a straight line, centering F and C on the line and cement the aft end together in a way that it is accurately centered on the line. Install formers D, E, G, H and J retaining the symmetry of the sides at each location. Cement $\frac{3}{16}$ " sq. cross bracing at stations G, H and J. Now cement formers A and B between the sides. Be careful not to twist the sides when bending the $\frac{3}{32}$ " sheet over the curved region of these formers. Cement the $\frac{1}{4}$ " plywood landing gear plate and wing hold-down plate between the sides. Use plenty of epoxy! Following this, cement the $\frac{3}{32}$ " balsa outer skin doubler over the sides from A to just aft of F as shown.

Install the landing gear wire at this time using J-bolts fastened to the landing gear plate and former C. Sheet the under belly from section A to D. Trial fit the fuel tank, drill all holes for fuel lines, throttle and engine mount in former A and install the rudder and elevator pushrods. Sheet the top between A and B install $\frac{3}{32}$ " x $\frac{3}{16}$ " stringers over the aft end of the fuselage.

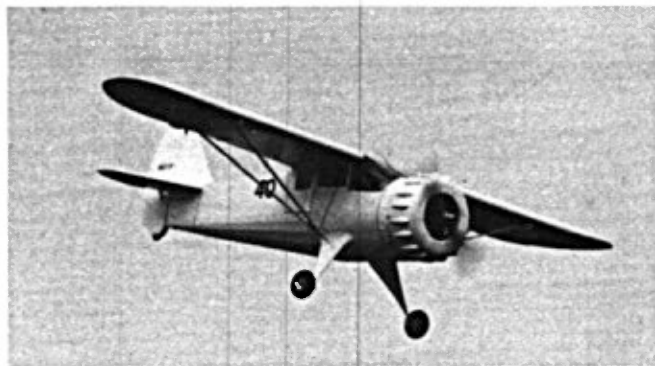
The cowling was formed using a 1" balsa block and $\frac{1}{8}$ " balsa ring cut in a circular pattern and separated every 45 degrees with lengths of $\frac{1}{8}$ " x $\frac{1}{2}$ " balsa. This assembly is then sheeted with $\frac{3}{32}$ " balsa, shaped and covered with fiberglass. The aft ring may then be cut out. Small hardwood blocks with wood screws hold the cowling on at four locations. The eighteen manifold blister fairings are formed of shaped balsa cemented to the cowling at 20 degree increments.

Wing Structure

The flat bottomed airfoil deviates from scale (an NACA 2412 was used on the actual aircraft) but makes the wing assembly on a flat surface close to foolproof. Since there is no dihedral, the entire wing can be built at one time. Wing tips are cut from $\frac{1}{2}$ " sheet. The ailerons can be cut out after the entire wing has been built, but be sure to install linkages before sheeting. The strut fittings are nothing more than nylon aileron torque rod retainers.

The Tail Surfaces

All tail surfaces for this ship are built up over the plan drawings, for the most part of



rectangular stock. After construction they are shaped to an airfoiled contour using a sanding block to achieve the desired smoothness.

Final Assembly

Install the $\frac{3}{32}$ " dia. music wire hold-down wire through the plywood hold-down blocks at the leading edge and epoxy the wire into the top deck ahead of the cockpit area. Pick up the location of the $\frac{3}{32}$ " dia. wire on the center wing support and drill holes to match. Set the wing in position and drill #7 holes at the locations of the $\frac{1}{4}$ " nylon bolts through the hold-down plate. Tap $\frac{1}{4}$ -20 thread into the hold-down plate and open the holes in the wing trailing edge to $\frac{1}{4}$ " for nylon bolt clearance. Cement the stabilizer to the fuselage ensuring alignment to the wing. Sight it carefully from every angle. Next, cement the balsa block fairing to the top of the stabilizer and contour to match the fuselage nicely. Cement the fin to this block, slotting the block to accept the leading edge and rudder post. Carefully check the vertical alignment to the stabilizer.

Wheelpants and strut fairings are shaped blocks covered with Celastic. A 4-40 screw stud is epoxied into the landing gear strut fairing for wing strut attachment. Wing struts are hardwood or ply.

Covering and Finish

Cover the entire aircraft with fabric to increase the strength. Several coats of clear dope with light sanding between coats will yield a good base for the color. A high gloss white finish should be applied first. License numbers and the Mr. Mulligan name are in gold, outlined in black. The racing number is solid black. A Gulf oil insignia is orange, outlined in dark blue with "Gulf" in dark blue.

Flying Notes

Proper balance is most important, it's where good performance starts. Add any ballast that might be necessary as a well balanced aircraft is easier to fly, responds better and stands a far greater chance of success than one that is on the tail-heavy or nose heavy side. Control surface deflection is another consideration, and the aircraft should not have any undesired warps. Use a large diameter, lower pitch sized prop on your .60 for this one, a 14-4 or a 12-6 is suggested for maximum performance.

Mr. Mulligan is extremely stable and a very enjoyable aircraft to fly. Nick Zirolis was kind enough to lend his expertise for the trial flight and found it all in order. The slow, low altitude passes (for the benefit of our camera) FLYING MODELS



proved incredibly realistic. There seems to be no undesirable low speed stall characteristics, placing this aircraft in the "advanced trainer" category. The aircraft will also perform most aerobatic maneuvers surprisingly well for a high winger. Landings can be accomplished at what seems like a walking speed, but take-offs will require

some practice to perfect the technique for those of you who normally fly tricycle geared machines. Remember to get that tail up before trying lift-off and make certain the aircraft has good speed. Actually the aircraft will leave the ground on its own when the speed is adequate. Fly with care and enjoy it, the Mulligan is part of our air history. ☺



The Mr. Mulligan is a pretty bird even from the rear (above). Radio access is under the wing in the cabin interior (second above). In flight, this ship is very impressive enough to win in SOS (top).