MAXFORD USA

Hughes H-1 EP ARF Racer

by Aaron Ham

Fly this Golden Age speedster

The full-scale Hughes H-1 (on display at the National Air & Space Museum) was the vision of a brilliant, eccentric man—Howard Hughes. Not only was he a movie producer ("Scarface," "Hell's Angels" and "The Outlaw"), but he is also credited with being one of the most influential men in aviation history. He acquired and expanded Trans World Airlines (TWA) into one of the world's largest carriers. He set numerous airspeed, transcontinental and around-the-world flight records and was awarded the Congressional Gold Medal for his contributions to aviation. He helped to design and build such airplanes as the Boeing Stratoliner, the Lockheed Constellation, the H-4 Hercules (nicknamed the "Spruce Goose," although it was made of birch), and—of course—the Hughes H-1 Racer reviewed here. His innovative designs also led to the development of such famous WWII fighters as the Grumman F6F Hellcat and the Republic P-47 Jug.

The original H-1 had two sets of wings—one for speed and the other for distance. Remarkable about Hughes' H-1 design was his "development" of flush rivets and a "smooth skin." Many people understand that induced drag is a byproduct of lift. The other hindrance is "parasite drag." Caused in part by surface roughness, this drag increases dramatically as an airplane's speed increases. Flush rivets are used today on nearly all metal-skinned airplanes.

In 1935, fitted with 700hp Pratt & Whitney twin radial engines, Hughes set the world

PHOTOS BY WALTER SIDAS

SPECS

PLANE: 1/3 Hughes H-1 EP 40-inch ARF

MANUFACTURER: RC Models Mfg. Inc.

DISTRIBUTOR: Maxford USA

TYPE: Park flyer

FOR: Advanced beginner & above

WINGSPAN: 40 in.

WING AREA: 320 sq. in.

WEIGHT: 30 oz.

WING LOADING: 13.5 oz./sq. ft.

LENGTH: 33 in.

RADIO: 4 or 5 channels (4 w/out retracts), flown w/Futaba 18C 2.4 transmitter, Futaba R617FS FASST receiver, 2 Hitec HS-55 servos (ailerons & elevator), 1 HS65 (rudder), 1 HS81 (retracts)

POWER SYSTEM: Uranus 28309 brushless motor, APC 9x6 EP prop, Maxford USA 25A speed control, Thunder Power 3S 11.1V 2100mAh battery

FULL-THROTTLE POWER: 25.6 amps, 297 watts; 9.9 W/oz., 158.4 W/lb.

TOP RPM: 9,870

DURATION: 9-12 min. at 75% throttle

MINIMAL FLYING AREA: Ballfield/RC club field

PRICE: $159.99

COMPONENTS NEEDED TO COMPLETE: Motor, ESC, battery, servos, receiver, prop

SUMMARY

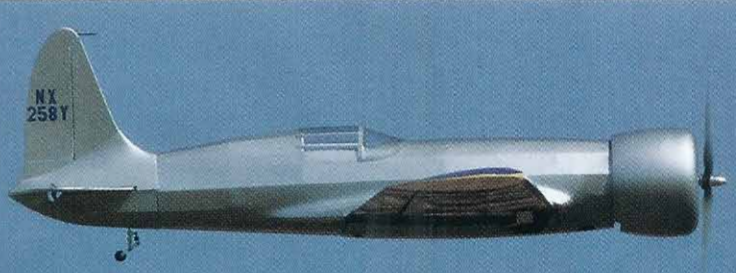
This new Hughes H-1 looks stunning and is a cross between an intermediate higher-performance airplane and a docile, forgiving trainer—the best of both worlds! If you choose the retractable-gear version, mid- and high-speed performance increases nicely. Since the retractable gear is small and light, be sure to check it after every landing to make sure it hasn't been "tweaked." A slight bend in the gear may prevent its proper retraction or extension.

speed record of 352mph. In 1937, with longer wings installed, he set the transcontinental speed record from Los Angeles, CA, to Newark, NJ, flying 2,490 miles in 7 hours, 28 minutes and 25 seconds with an average speed of 332mph.

I am always excited when I get the chance to try a new airplane. The Hughes H-1 from Maxford USA is in their 2009 line and is a perfect combination of looks, stability and speed—three things that excite me.

Built using the latest CAD techniques for strength and minimal weight, the balsa-and-ply construction has all the features necessary to make it a rugged park flyer and the aerodynamic stability needed to suit a wide range of fliers. Throw in the smooth, flowing, wing fillets and optional retractable landing gear, and you have an airplane even Mr. Hughes would be proud of.

The airplane has a few impressive and rather unique features modeled after the original full-scale airplane. Each of the linkages to all of the control surfaces is concealed to eliminate parasitic drag and add to the model's beautiful scale look and design. In the tail, a pull-pull system is set up from the servo to a double arm. This double arm is secured to the tailwheel for exceptional turning capabilities on the ground. Also attached to the double control horn are two metal rods that are connected to a metal rod in the rudder. Again, all of this is concealed under a molded plastic tail cone that's held in



AIRBORNE

I wasn't sure what to expect for the first flight, but I knew Maxford USA's reputation for producing exceptional airplanes. The weather was perfect and the breeze was light as I taxied out on our club's grass field. I had no problem maneuvering the airplane, since the grass was nice and short. A nicely paved runway would be perfect, and conversely, longer grass could be a problem for turning.

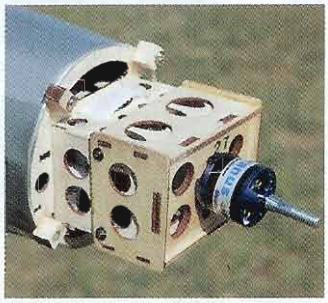
With a wing loading of less than 11 ounces per square foot, the airplane accelerated as I slowly but deliberately increased power. I knew it wouldn't be long before it was flying. Before I reached 3/4 throttle, and in less than 10 feet, the Hughes H-1 was airborne. I ran my left thumb to max power and retracted the gear. The airplane was very nicely balanced and needed only a few clicks of down-elevator, three clicks of left aileron and just one click of right rudder. I could fly the airplane hands-off at 65-percent throttle with those trim adjustments. I really enjoy fast airplanes, but *Fly RC* photographer Walter has a hard time taking pictures of an airplane trying to exceed the speed of sound. I was able to fly relatively slow passes for the camera with one wing down and opposite rudder. It was very stable and did what it was told in either direction. I was pleased with the Hughes H-1's slow-speed handling characteristics.

Basic aerobatics were easy to do. Rolls were nice and axial, but the rate wasn't blisteringly fast. Loops, Immelmanns and Cuban-8s weren't a problem, and stalls were very gentle. With power off and the prop stopped, the airplane broke fairly gently straight forwards. Once airflow was regained, it began to fly again. I elected to glide the airplane to the field knowing I had power if I needed it. Again, no issues. The Hughes H-1 has very good stall and glide characteristics.

Finally, the part I had been waiting for: time to let this dog hunt!—time to let this airplane do what it should do: *go fast*. From high above the west end of the field, a split-S brought it screaming towards the runway. Gear in the wells and thumb jammed to the stops, the H-1 made a pass 6 feet off the deck that was impressive for a park flyer. All that was missing was the snarl of the 700hp Pratt & Whitney.

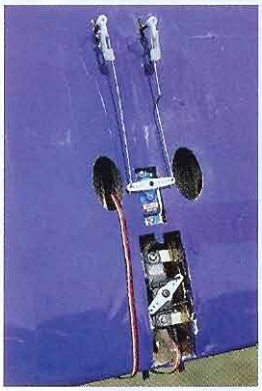
Landings were comparable to those of any other lightweight park flyer I have flown. Speed, descent rate and maneuverability were easily managed. As with any airplane, keep a conservative descent profile to avoid running out of elevator in the flare and then damaging the gear. Rollout will likely be less than 10 feet on grass.

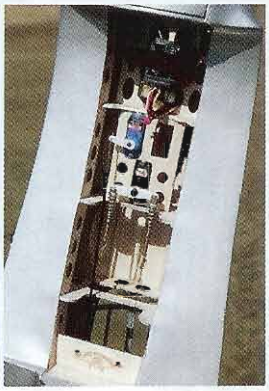
place with small installed magnets—a very nice design. The scale cowl is one of the best features. It is held on by four points of security, all of which are hidden. Three screws on the firewall have a turn-and-lock design with the cowl ring. The fourth is a small installed magnet that prevents it from rotating. I was able to get each of the screws just snug enough to snap-lock the cowl into place.



I took advantage of the retractable landing gear and ordered it with the kit from Maxford USA for an additional $36. As with all servo-operated retracts, some time and patience are required to get them just right. A binding servo depletes the battery power and can damage your servo—and you don't want that! The retracts fit in the wheel wells perfectly, and with the gear doors attached, they looked gorgeous and operated flawlessly.

Assembling the airplane took two nights and about five hours. As recommended, I set each of the controls to maximum deflection and added 40 percent expo to my Futaba 10C radio. I also set the center of gravity in the middle of the recommended range at 3 1/8 inches from the wing leading edge at the fuselage.





TIPS FOR SUCCESS

I can recommend very few changes or modifications. I did need 3mmx8 socket-head capscrews as replacements for those provided by the motor manufacturer. These screws hold the motor on the adjustable motor box. I also opened the center of the dummy radial to allow better motor cooling. Other than that, I was completely satisfied with the included hardware package, and I couldn't be happier with the airplane.

CONCLUSION

Flying the Maxford USA Hughes H-1 truly is fun. Be sure to add expo to the elevator if you set its limits to full deflection; it will feel very pitch-sensitive without it. I am being honest when I say that I expected this airplane to be on the unstable side. I'm thankful—and surprised—that it was not. If you've mastered the basics and are looking for an enjoyable, fairly inexpensive next airplane, I recommend the Hughes H-1. You'll capture a lot of attention from your fellow flying buddies, and you'll enjoy doing it.

Links

Hitec RCD USA, Inc., www.hitecrcd.com, (858) 748-6948.

Maxford USA, www.maxfordUSA.com, (866) 706-8288

Thunder Power Batteries, www.thunderpower-batteries.com, (702) 228-8883.

For more information, please see our source guide on page 121.