



HO Scale Helium Car

Beginning in the 1920s, the U.S. Army Air Corps and Navy experimented with various lighter-than-air ships using helium as the lifting medium. Fortunately for the United States, over 90% of the world's known deposits of helium are concentrated in the Cliffside Gas Field around the Panhandle of Texas, Oklahoma and Southern Kansas.

World War II caused a dramatic increase in demand for the gas. At the onset of hostilities, President Roosevelt approved the construction of 200 lighter-than-air craft for naval reconnaissance. Congress appropriated nearly \$17 million to expand federal helium operations. Virtually all helium shipments by rail originated on the Santa Fe, regardless of destination (see table).

During 1942 and 1943 65 cars were built by GATC to the 30-tube design which was established as the standard, only minor external details of the car's design could be seen over the various orders. Another 162 cars were built in several batches between 1955 and 1962. In all, a total of 241 cars were built by several different car builders, with the majority by ACF. These cars were very heavy for the era. When the average freight car might have a 50 to 70 ton capacity, helium cars weighed as much as 111 tons empty! To handle this weight, special heavy-duty trucks were used that featured outside hung clasp brakes. The cars also were equipped with dual air brake components.

Cars built before 1959 featured solid brass bearing trucks with the square journal boxes and wooden roof walks. Post 1959 the cars would be equipped with roller bearing trucks and metal grate roof walks. The last order in 1962, 30 cars by Magor, was the only series that were equipped with a heavy-duty roller bearing truck without the outside hung

clasp brakes.

All of the Navy cars were transferred to the Bureau of Mines and re-lettered MAHX with a few going to the AEC lettered ATMX. In 1964 the ATMX cars were folded into the Bureau of Mines car fleet and were so lettered. The Atomic Energy Commission and aerospace industries found it was ideal for flushing out lines and tanks, testing of pressure vessels, welding and other uses. In fact the industrial use of Helium would far exceed the lighter-than-air-ship needs.

In the mid-1990s the government made the decision to turn over the helium business to private sector and by 1998 nearly all of the cars were retired. Less than two dozen remain on the rails and are used for inter-facility needs at the Kennedy Space Flight Center in Florida and at the Vandenberg and Edward's rocket bases in California. Three of the cars were preserved and are on display: One at the Amarillo Railroad Museum, one at the Gulf Coast Railroad Museum in Houston, and another at Gold Coast Museum in Miami. For detailed information on the helium industry and Santa Fe's part in it see the detailed article by Jay Miller in the fourth quarter 2014 issue of *The Warbonnet*.

Up until now those wanting to model this car in HO scale had three options: Ambroid, and later Northeastern, did a kit a number of years ago which consisted of crude soft metal castings for the

<i>Selected Helium Shipment Destinations</i>	<i>Routing</i>
NAS Tillamook, Oregon (1940-)	ATSF-SP
NAS Richmond, FL (1940-)	ATSF-FEC
NAS Hitchcock, TX (1940-)	ATSF
NAS Moffett Field, CA (1943-1959)	ATSF-SP
NAS Santa Ana, CA (1940-1991)	ATSF
NAS Houma, LA (1940-)	ATSF-SP
NAS Glynco, GA (1940-)	ATSF-SOU
NAS Weeksville, NC (1943-1957)	ATSF-SOU
NAS Lakehurst, NJ (1926-1962)	ATSF-PRR
NAS South Weymouth, MA (1940-)	ATSF-B&O
NASA Cape Canaveral, FL (<1963)	ATSF-FEC
NASA Cape Kennedy, FL (>1963-1973)	ATSF-FEC
NASA/USAF Vandenberg AFB, CA	ATSF-SP
NASA Langley, VA	ATSF-C&O
NASA Bay St. Louis (Stennis)	ATSF-L&N
USAEC Oak Ridge, TN	ATSF-SOU
USAEC Batavia, IL (Fermi Lab)	ATSF-CAE
USAF Rich, CA (Missile Test Center)	ATSF
USAF Muroc, CA (Edwards AFB) (<1953)	ATSF
NASA Santa Susana, CA (Rocketdyne) 1947-1996	ATSF-SP

One of 65 World War II-era 30-tube cars built by GATC in 1942-1943. With only minor modifications, this was to become the pattern for all future helium tank cars. — *GATC photo, U.S. Bureau of Mines, National Archives and Records Administration, Ft. Worth*



Color view of MHAX 1150 in November 1961, at Exell exactly one year old. Note the cars were placarded “Dangerous” when empty. —*U.S. Bureau of Mines, National Archives and Records Administration, Ft. Worth*

car’s ends and wooden shapes to create the remainder of the car. Pecos River also produced an HO brass model some years ago. Rare and expensive, the car featured end doors that could be opened showing the tube ends. However, the tubes on these cars appear to have been stamped out of a single sheet of brass giving the impression that the tubes were connected when in fact each tube was independent of each other. Finally AHM produced a helium car sometime in the 1960s, however this model was cast as a single unit leaving the cars looking toy-like.

With the advent of 3-D printing, Greg Brubaker at Beaver Models has recently released an amazing kit based

on the World War II era helium car first developed for the US Navy. Recently I received a couple of samples of Greg’s kit for review. Inside the box were a handful of 3D printed components including ends, under frame, several braces, wood running board and the tanks. If there is anything that makes this kit unique and puts all previous commercial efforts to shame it is the tanks. All 30 tanks are cast as a single unit, but they all appear to be independent of each other as in the prototype. In addition there are several small polly bags with grab irons and other small parts, four InterMountain metal wheel sets and Kadee couplers, plus two pairs of

trucks—one set friction bearing, and the other roller bearing. These are also 3D printed and include easily attached outside brake hangers for each. Custom decals designed by Jay Miller are also included.

Using the several pages of detailed instruction included, this kit a joy to build. Amazingly, the parts fit together with no cleaning, trimming or sanding. This is all the way down to the pre-drilled holes from the various grab irons. One thing I might mention is that when handling the more delicate components be careful and don’t force as they are really brittle.

I used ACC which worked very well



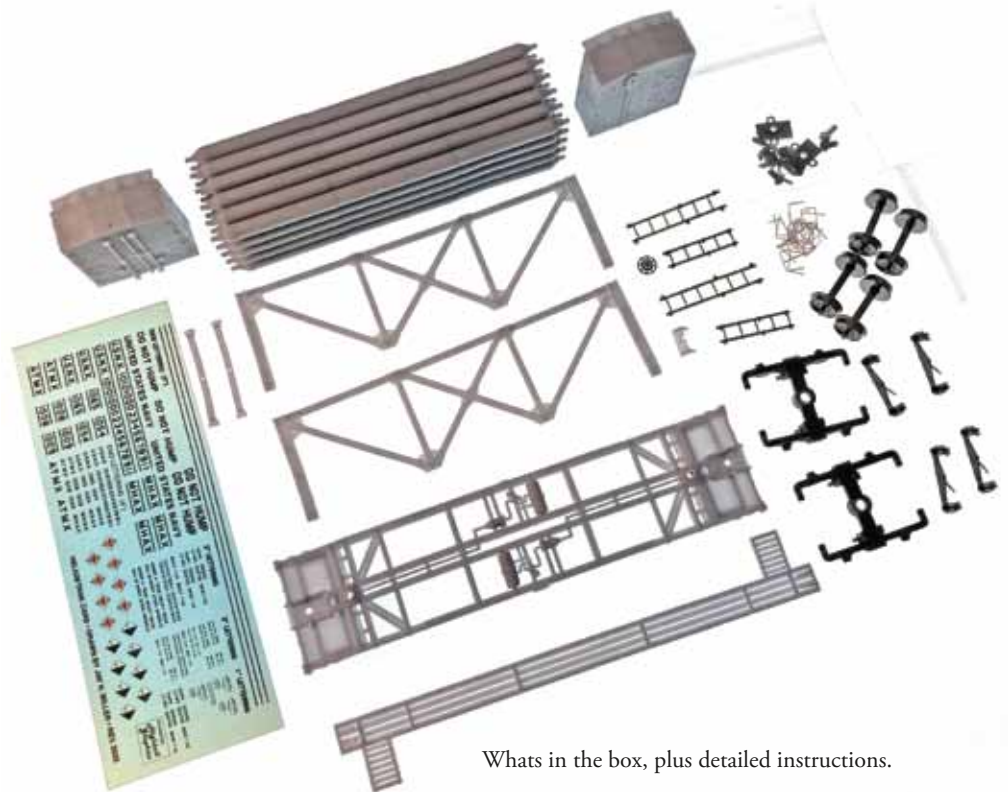
on the material Greg uses in the kits. Apply ACC very sparingly. I put a little drop or two on a piece of scrap plastic then I used a straight pin to pick up a small amount to apply where I wanted it. The material used for the Trucks did not take ACC, but the end beams press fit so nicely it isn't necessary to glue anything on the trucks.

Test fit the parts first before ACC'ing them. It is not necessary to glue the tubes to the end housings at all. Leaving them to "float" will make mounting the ends to the frame easy. I set the ends on the frame and then temporarily set the roof walk in the appropriate pins as this assured that the vertical alignment of the end boxes was correct and makes the side X bracing line up.

It is suggested to paint the car's major components ahead of assembly, Because of this it might be necessary to open up the grab iron holes a bit. The kit is so well engineered however that I found it only necessary once or twice. The holes provided for the stirrup steps at each corner seemed fragile until realized that they are drilled into the frame at an angle. I cut the irons for the stirrups shorter as they are a bit long as provided,

The Navy cars were painted "Navy Gray" with underbody, end sills and safety appliances painted black. For cars later assigned to the Atomic Energy Commission, ATMX, or Bureau of Mines, MAHX, Navy Gray was replaced by silver, with black details as on the Navy cars.

As far as the price goes, it is \$129.95, with free shipping in the US and International shipping paid by the customer. There is a \$10 credit for each additional



Whats in the box, plus detailed instructions.

kit purchased because Greg can combine kits into a single box for shipping.

Resin kits run between \$50 and \$65. I think \$129 is a good value considering the excellence of the model and scarcity of helium cars on the market even though there are few parts. Designing a 3D helium car model to print was quite a feat. Printing takes 12 hours of printing time to create the kit and lots of cleaning off excess resin and removing the support structure. All the printed parts are then washed in 99% alcohol. Greg actually does not make a lot off each kit after considering expenses. This started off as doing a few for his layout

and thanks to Jay Miller has turned into a small business.

As one modeler who has built one of Greg's kits remarked, "What's the alternative—those old AHM models that require so much work to make a nice looking model that is still inferior to this model, or the PRB cars which sell for \$300+ now and don't look as good."

Currently, the best way to obtain a kit is to email Greg at beavermodels@aeromage.com and he will send an invoice via PayPal, or he can accept checks sent directly to: Greg Brubaker, 2527 E 2550 N Layton, UT 84040 -John Sinor