



# MOTOR TRANSPORT MUSEUM NEWS

Volume X No. 4 31949 Highway 94, Campo, CA, 91906 - Ph. (619) 478-2492 Winter 2008-2009

Web Site: [www.motortransportmuseum.org](http://www.motortransportmuseum.org) - E-mail: [motortransport@att.net](mailto:motortransport@att.net)

There was great excitement at the Motor Transport Museum main facility at the Mill at Campo, CA. At 3:30 AM on Tuesday October 14 our live-on, Bryan Butler was awakened by an intense flickering of orange light through his bedroom window. A brush fire had started just east of the Mill and the strong Santa Ana winds were driving it relentlessly toward the facility. Shortly after he unlocked and opened the gates Border Patrol entered and informed Bryan of a mandatory evacuation. Bryan called various Museum officials but there was nothing they could do so he loaded most of his prized possessions into his car and prepared to leave. However he decided to wait and see whether danger was imminent and watched as Campo's courageous and hard working firefighters contained the blaze. By 7:30 AM the danger had passed having burned about 200 acres, one house trailer and one outbuilding. Needless to say we were all relieved to hear the news and we all went back to our usual Tuesday morning activities resolving to have a better evacuation plan in place before the next fire scare.

## The "Screamin' Jimmies" in Submarines

The article by Don Driggs in the last newsletter about the General Motors two-cycle diesel engines brought a good response from our readers. Life member Tom Walker e-mailed us his recollections about the GM diesels as used in submarines. Here they are.

### **The Story of the GM 16-338 Submarine Engine**

The General Motors Company had built a new lightweight compact engine that ran at a high speed. It was quite a bit different than the 16-268 and 16-278 the submarine crews were used to. Instead of the crankshaft being horizontal and the cylinders being arranged in two rows of eight each, this engine had a vertical crankshaft and the cylinders were arranged like a radial aircraft engine. These were the GM 16-338 "pancake" engines. The engine was a mere 13.5 feet from the base of the generator to the top of the air intake filter and 4 feet wide. It was a two-cycle engine that developed 1090 brake horsepower at 1600 rpm. On the top was an air intake, then four layers of four cylinders each. Each cylinder had a six-inch bore and a six and one half inch stroke. On the bottom of the crankshaft was an Elliot generator that developed 817 kW at a maximum of 710 volts DC. The whole engine, all up and loaded with fuel and oil weighed just over eight tons. Being just over 4 feet wide, the designers could pack four engines in an engine room only 22 feet long. This dropped one entire engine room from the submarine design.

More space and weight was saved by the elimination of four 21-inch diameter by 22-foot long torpedo tubes and the requirement for additional torpedo stowage of the long Mk 14,

16, and 18 torpedo. The initial design called for no tubes aft. The submarine officers however lobbied hard for retention of the aft tube nest but settled for two tubes of 21-inch diameter and a length of 15 feet. These would take the Mk-27 and the planned Mk 37 torpedo and were to be used as countermeasures weapons. Countermeasures were fired at pursuing ASW ships or other pursuing submarines. These tubes were new, simpler, and were designed for swim out type torpedoes.

The tubes forward were all new. Instead of using a pulse of air behind the torpedo to push it out, the new tubes used a slug of water. There was a piston that had air on one side and water on the other. It worked kind of like a hypodermic needle. The piston was moved all the way aft with the forward end of the cylinder filling with water from the sea. The sea valve, called the barn door on some ships, was closed. To fire a torpedo, the tube was prepared as normal, then when the firing signal was given, high-pressure air was ported to the aft end of the piston. This pressurized the water in the piston. A slide valve with ports around the torpedo tube opened to allow the water from the piston to enter the aft end of the tube. This high-pressure water forced the torpedo out. No air bubble and no poppet valving arrangement was needed. The new system made somewhat less noise than the air system, and is still in use on modern nuclear (and foreign nuclear and non-nuclear) submarines.

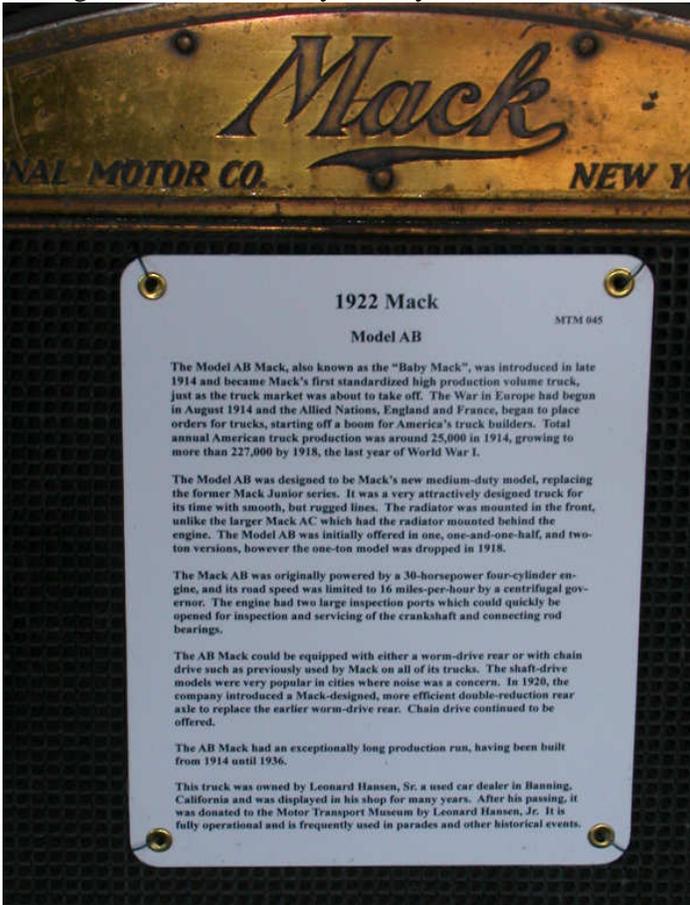
In October 1946, the design was finalized and two boats ordered. The first was to be USS Tang (SS-563) and was to be built at Portsmouth Naval Shipyard. The second was to be USS Trigger and was contracted to Groton in the Electric Boat yard. The boats were to become the Tang class. The class was to be built at a length of 268 feet and a beam of 25 feet. With 2850 shaft horsepower on each of two shafts, the boat could do 17.5 knots at 700 feet. (at the one hour rate) or snorkel 10,000 nautical miles at 10 knots.

The next fiscal year (FY47) two more boats were ordered. They were to become USS Wahoo and USS Trout, (SS-565 and 566). Wahoo went to Portsmouth and Trout went to Electric Boat. The next set were split the same way the next year and were the USS Gudgeon and USS Harder (SS-567 and 568). The construction went well and the boats were delivered on time. USS Trigger was delivered first. However, when the boats started to operate, there were problems. The engines didn't work well. Several reasons have been given for the failure of the pancake engine in submarine use. It was undoubtedly a

combination of effects. The engines were supposed to use special lubricating oil. The Navy supposedly insisted on standard diesel lubricating oil and that adversely affected the bearings. This may have been the case or it may have been the lightness of the internal structures of the engines. They did leak oil into the generators and from information gained from people who worked on them, they were a real maintenance problem in the confined space of the engine room. Whatever the reasons, the engines made advocates out of some and enemies of others. The Navy decided in 1956 to replace all the engines with the smaller, lightweight version of the 10-cylinder Fairbanks-Morse opposed piston engine. The boats had to be lengthened some 9 feet in the engine room to make enough space for the new engines, only three of which could be installed. Thus in 1957/58 each of the first four boats was stretched to 277 feet. Gudgeon and Harder were built to a length of 277 feet and with the FM engines as initial installation. In 1967, some of the boats got an additional 15-(some sources say 18) foot section added to receive the PUFFS installation and to give added room. These boats were the 563, 565, 567 (all the Portsmouth boats) and the 568.

### New Identification Plaques

The Museum has had made several attempts to identify its exhibits and tell some of their history. We have about 100 exhibit write-ups stored away on computer hard disks and in file drawers but since these are not available to visitors when they are looking at the trucks in the yard they are seldom referred to.



A new weatherproof plaque identifies 100 of the Museum's exhibits

We have printed out these descriptions on paper, laminated them in plastic and attached them to the exhibits, but the relentless Campo wind, sun and rain shreds these items within a few months. We think we have found a way. Carl Calvert and Ed Dilginis spent most of last summer researching the past history of 100 of our exhibits and making new exhibit write-ups. The Museum then had these write-ups etched into aluminum plates by a professional sign shop and coated with a plastic coating that is expected to last 10 years. Next time you are at the Mill walk around the yard and get familiar with the new plaques and the trucks they describe.

### New Donations

The following items were acquired by the Museum during the three months since the last newsletter.

- o A 1918 Fageol Low Bed truck donated by Paul and Bertha Hadden of Desert Hotsprings, CA (see photo)



1919 Fageol low-bed truck. Note the power-take-off driven capstan to the left of the cab

- o A 1952 Chevrolet Cab-over truck donated by the Hensley Family of La Canada, CA.
- o A 1969 Chevy C-60 moving van donated by the Antique Gas and Steam Engine Museum of Vista, CA. (see photo)



1969 Chevrolet moving van donated by the Antique Gas and Steam Engine Museum

- A 1964 International Cab-over truck with a sleeper cab donated by the Hensley Family of La Canada, CA
- \$100 was donated to the Museum by Bob Deyo of San Diego.

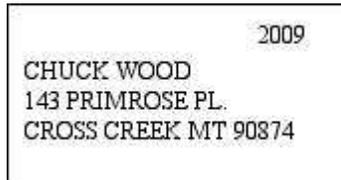
We thank these donors for their generosity in helping the Museum attain its goals.

### New Members

**Bob Deyo** of San Diego, **Aaron Hill** of El Cajon, CA **Steve McLaren** of Alpine, CA **John Lewis** of Pine Valley, CA and **Aaron Chambers** of Valley Center, CA have enrolled as new general members of the Museum, since publication of the last newsletter. We welcome these new members to our museum.

### Dues Reminder

January is the time to renew your membership. You can determine your membership status by the year printed on your address label just above and to the right of your last name. The label should read "2009" or "LIFE" or "COMP". The only time you have to worry is if the label reads any year before 2009.



Please use the membership renewal application printed on the back of this newsletter to update your membership or give it to a prospective new member.

### Attention All Members

**You can donate money towards MTM's cause without spending a dime by simply receiving these quarterly issues of the Motor Transport Museum News by e-mail. This way MTM can save mailing costs and use the savings towards operating expenses. Not only will you get instantaneous delivery of your copy, you will get the photographs in glorious living color, a feat that we have not yet accomplished with the printed copy.** Please Email us at [motortransport@att.net](mailto:motortransport@att.net) and subscribe.

**Also – MTM needs people like you to greet and educate our visitors. Being a docent is fun and rewarding.**

Anyone interested in helping on any of the Saturdays during 2009 please call John Thomas at (619) 479-4318 or MTM at (619) 478-2492 to volunteer.

### For Sale

The MTM has numerous items for sale at its main facility at the Mill in Campo, CA. To view the items that MTM is currently selling, visit our web site at [www.motortransportmuseum.org](http://www.motortransportmuseum.org).

### Election of Officers & Directors

This years MTM elections for president and directors will be held by mail-in ballot. The ballots will be due at the Museum by the close of business on April 24, 2009. The ballots will be counted at the Friends and Family meeting on April 25, 2009. Hand delivered ballots will be accepted at the meeting.

The nominating committee is composed of Greg Long (619 460-3119), Jim Jensen and Ed Dilginis. They will choose 9 candidates for directors, the three highest vote getters to serve for three years, the next three to serve for two years and the last three for one year. Nominations for directors can also be made by petition of ten (10) voting members. Candidates for director

must be residents of the state of California and shall be members in good standing for their terms of office and for one year preceding their election. Send petitions to the Museum (attn: Greg Long) to arrive on or before March 25, 2009. Voting members are those who are general, life, endowing life, corporate or student members in good standing on March 25, 2006.

### Upcoming events

The **Wellton-Mohawk Tractor Rodeo** will be held on January 17<sup>th</sup> at the Wellton Mohawk Irrigation and Drainage District grounds, 30570 Wellton-Mohawk Drive in Wellton, AZ. There will be an Antique Tractor Pull, a Tractor Display, Tractor Rodeo games, food and crafts. Wellton is a small town about 29 miles east of Yuma on the I-8 freeway. Visit [www.town.wellton.az.us](http://www.town.wellton.az.us) for driving directions.

**Bill Leuer's Open House** will be held at 316 East Blaine St. Riverside, CA 10 AM to 4 PM on February 14. Bill is a Museum member who collects World War I trucks and also has an extensive collection of cars, a backyard railroad, military vehicles and a replica of an early 20<sup>th</sup> century village. Come and bring a vehicle to display or something to sell. Take the I-215 freeway to Riverside, and west on Route 60 freeway. Exit at Blaine St. go south one mile to the end of the pavement.

The 43<sup>rd</sup> annual **Big 3 Auto Parts Exchange** will be held at Qualcomm Stadium in San Diego on February 27<sup>th</sup> & 28<sup>th</sup> and March 1<sup>st</sup>. It is the largest old car event in the San Diego area attracting collectors from all over the country. The MTM will have a booth selling back issues of the Transport Pioneer and surplus museum assets. Our space is FF 10 & 11. Visit [www.big3partsexchange.com](http://www.big3partsexchange.com) for more information and driving directions.

The **MTM Board of Directors'** meetings for the spring quarter of 2009 will be held at the Horseless Carriage Foundation library at 8186 Center St. La Mesa, CA at 6:30 PM on the following Thursdays: **Jan 15, Feb 19, and March 19**. All members are invited to attend.

A complete schedule of events for the coming year is contained in the enclosed flyer

### Hours of Operation

The Museum facility at 31949 Highway 94 in Campo, CA is open to the public every Saturday from 10 AM to 5 PM. Admission is free, donations are accepted.

### MTM Officers and Directors

The officers and directors of the Motor Transport Museum are as follows:

**Officers:** Greg Long, President

John W. Thomas, Secretary

Carl E. Calvert, Chief Financial Officer

**Directors:** Reid Carroll, Roger Challberg, Jim Jensen  
Steve Sackett, Bill Jellyman

EVENTS CALENDAR

2009

January

15 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30pm

February

14 BILL LEURS OPEN HOUSE-RIVERSIDE  
19 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM  
27-28-29BIG THREE SWAP MEET @ JACK MURPHY STADIUM

March

19 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM

April

16 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM  
25 MTM ANNUAL FRIENDS & FAMILY OPEN HOUSE-CAMPO

May

3 ATHS SOUTHERN CALIFORNIA TRUCK SHOW-PERRIS, CA  
21 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM  
28-30ATHS NATIONAL SHOW-HUNTSVILLE, AL

June

18 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM  
20-21ANTIQUE GAS ENGINE & TRACTOR SHOW-VISTA  
27-28ANTIQUE GAS ENGINE & TRACTOR SHOW-VISTA

July

16 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM

August

2 NATIONAL CITY CAR & TRUCK SHOW-NATIONAL CITY  
20 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM

September

17 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM

October

11 GAS ENGINE SHOW @ SANTEE LAKES, CA  
15 DIRECTORS MEETING @HORSELESS CARRIAGE LIBRARY @ 6:30PM  
24-25ANTIQUE GAS ENGINE & TRACTOR SHOW-VISTA  
31-1ANTIQUE GAS ENGINE & TRACTOR SHOW-VISTA

November

19 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM

December

6 GEORGE GUNTHERS SHOW-LONG BEACH, CA  
17 DIRECTORS MEETING @ HORSELESS CARRIAGE LIBRARY @ 6:30PM

Note: The museum is open every Saturday from 9 to 5pm  
@ 31949 Highway 94, Campo, CA 91906  
(619) 478-2492

Rev 12-11-08



# Motor Transport Museum

## APPLICATION FOR MEMBERSHIP

New  Renewal

Name \_\_\_\_\_ Spouse \_\_\_\_\_  
Street Address \_\_\_\_\_ City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone \_\_\_\_\_ E-Mail \_\_\_\_\_

General Membership	1Yr \$20 _____	2Yr \$40 _____	3Yr \$60 _____
General - International Membership (Non USA Mailing Address)			1Yr \$25 _____
Corporate Membership			1Yr \$75 _____
Life Membership			\$250 _____
Endowing Life Membership			\$1000 _____
Associate Membership - Non Profit organization			1Yr \$35 _____
Jounior Membership - Children under 18 (non-voting)			1Yr \$1 _____
Student Membership - Full time students, 18 - 25			1Yr \$6 _____

I agree to comply strictly with the By Laws of the Motor Transport Museum; to conduct myself at all times in a manner which will support and promote the best interest of the Motor Transport Museum

Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_

PLACE  
STAMP  
HERE

MOTOR TRANSPORT MUSEUM  
81949 HIGHWAY 94  
CAMPO, CA 91906