

The Martin Mars and My Experiences with this Giant Flying Boat



By Richard C. Hill

Sister ship to the Philippine Mars, Martin JRM-3 Caroline Mars (BuNo 76824) floats at rest in San Francisco Bay off the Alameda NAS. (USN photo from the Al Hansen collection)

It all began for me one November day in 1948 while I was sitting at the desk of one of my Link trainers in Tsing Tao, China. I didn't know at the time, but I was about to fly on the MARTIN MARS, the largest operational flying boat in the world.

I said "my Link trainers" because I had been instructing the pilots of the Marine Corps Air Base in Tsing Tao, China, for the better part of two years. These were three of the latest model Links, the Model 45. Link is the absolute first name in flight simulators.

I had been working them alone for most of those two years. At first a Tech Sergeant was there with me. He was almost at the end of his overseas assignment and about two weeks after I arrived, he was sent back to the states.

When he departed, I became the private in charge of the department. Normally, a non-commissioned officer, such as Tech. Sgt., is in charge of a department, the NCO-IC. After his departure, I was the PVT-IC.

The Links came under the command of base operations and the Major told me that I was to answer directly to him, not even to the squadron Sergeant Major.

The Link shack was erected inside one of the old wooden hangars that were built by the Japanese during WWII. The shack was about 60-feet long, 20-feet wide and air conditioned to keep the trainers at a constant temperature. It was built by the Seabees when the Marines occupied the base.

The hangar doors for that bay were never opened and it was always darkened inside. When outside the Link shack, looking upward at the hangar roof, one could see light

streaming through the bullet holes that were left by the Flying Tigers in their Curtiss P-40s during their strafing raids.

Being the only operator, I found it necessary to connect all of the trainers together so that I could observe and communicate with each trainer from any desk.

I was bent over one of the desks watching intently while the Marine pilot was working on the problem that I had assigned. All was going well until the moment that a messenger walked into the building with a telegram from the Red Cross.

I read the telegram with surprise, fear and dread. It said that my Dad was very ill and it was supposed that he might pass away at any time. I was to pack up and be on the Douglas R5D (DC-4 to the civilians) that was loading and ready to leave in about an hour.

I asked the messenger if my commanding officer had been notified and was told that the CO, in fact, had dispatched him. I had to advise the three pilots who were working the trainers that they had to close up shop immediately.

Given just an hour to be on the plane, there were no lengthy good-byes. I had lived in the Link shack for most of my tour, so I mashed all of my duds into my sea-bag and carried it about a mile to the boarding gate. I arrived just as the crew chief was preparing to close the door.

I lugged all my earthly possessions up the open boarding ladder and flopped down into one of the many empty bucket seats.

With the four big radials roaring, we bade farewell to
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The prototype to the Mars series, Martin XPB2M (BuNo. 1520) during a flight over the Golden Gate Bridge, San Francisco, Calif. (USN photo from the Al Hansen collection)

Tsing Tao and began island hopping across the Pacific Ocean toward the states. First stop was Shanghai, where they serviced the plane and picked up more cargo and passengers.

All of the remaining bucket seats were filled with families and dependents of military personnel. All military personnel and all civilian dependents with passports were being recalled from China, due to unfavorable politics that didn't include Chiang Kai-shek.

Next stop was Okinawa, where we had a Thanksgiving dinner with all of the trimmings. We then flew on to Guam and I had a second Thanksgiving dinner, apparently to make up for losing my birthday on the way over to China two years earlier.

Johnston Island was next and then it was on to Hawaii. After landfall we circled for the landing at Marine Corps Air Station, Ewa.

The ladder had quickly been put in place against the plane and I was descending the steps when a U.S. sailor stepped up to me. He asked if I was Private Richard C. Hill. I said that indeed I was and he said, "Come with me!"

I grabbed my sea-bag from the pile of luggage and we walked hurriedly toward the buildings, where we jumped

into a Jeep. He popped it into gear and with a screech of tires, sped out to a street. I had no idea what was going on, but since he had lots of paperwork, I figured he knew what he was doing.

It turned out we were on the way to Pearl Harbor. We drove right out on the dock and almost under the wing of a big flying boat. He shut the Jeep down and walked over to that huge seaplane. I grabbed my sea-bag and followed along like a lost puppy, right down the boarding ramp, to the loading door. My love affair with the Mars had begun.

Another sailor was standing in the open door. Sailor number one held out his stack of papers to sailor number two, who glanced at them and reached for my hand to pull me on board. It was as if they were waiting for me and as it worked out, they were. I really was the last person to board.

The second sailor was the steward and the engines were being started as he closed the door. Almost immediately the boat began moving out into the harbor. I discovered afterward that they were late for their proposed evening departure of 16:00 hours and were trying to make schedule.

The steward turned to me and said welcome aboard, then led me to a stretcher up front. As I pushed my sea-bag onto another bunk, he asked if I would mind giving him a

hand during the meal service. Wow! I told him that helping would be a great pleasure. At least by helping, in some small way, I'd actually be part of the crew. He then continued into the cockpit with all of the accumulated paper work that he had collected. Actually, I was the only one in that compartment, all of the other stretchers were empty.

The head of my stretcher was at a large Plexiglas porthole that looked out under the expanse of the right wing. The two big, 2,500-hp Curtiss-Wright R-3350 radials on the right wing were swinging their matching Curtiss electric propellers. Each prop had a diameter of 15 feet and they were stirring up quite a wake as we sailed across the harbor.

In 1941, at the beginning of WWII, a fleet of seaplane patrol bombers was needed. The Glenn L. Martin Co. began construction of these huge seaplanes. Before production began, the Navy decided to turn the aircraft into large transports and ordered 42 of the Mars to use in transporting wartime supplies and personnel across the oceans. Designing and building the production line took quite awhile, so it was late in the war when production actually began. As a result of the delay, the order was substantially reduced to include only six production planes, one of which (the first *Hawaii Mars*) was destroyed very early in its life.

The first prototype Mars, designated XPB2M and intended to be a bomber, was built with double vertical stabilizers and rudders like the Consolidated B-24 Liberator, with the exception that the horizontal tail surfaces on the Mars had several degrees of dihedral. This gave the vertical tails a cant toward the center of the plane at their tops, much like the twin engine patrol bomber, the Martin PBM Mariner. In the course of converting the design to a transport the dihedral was removed and the familiar, single vertical tail and rudder configuration became the standard. The five surviving JRMs were named: the *Caroline Mars*, (the second) *Hawaii Mars*, *Mariana Mars*, *Marshall Mars* and the *Philippine Mars*, which was the one that I flew on from Pearl Harbor to NAS Alameda. They were named for the Pacific Island groups for which their service was intended.

The primary Mars flying boat instructor, Monty Chumbly, recalled that he flew the prototype about 250 to 300 hours while instructing in the Mars flying boats and said that they cruised at about 145 to 150 mph. The prototype was stationed at NAS Pautuxent River, Md., throughout the time that the production copies of the plane were being built. He flew the training missions in it from the Patapisco River.

According to Chumbly, the prototype of the Mars was easy and a "Good Baby" to fly. He compared it to some of the other large boats, the PB4Y-2 Catalina, the PBM Mariner, the PB2Y-3 and the Consolidated Commodore, saying that he thought the Mars was the best of the bunch.

I would tend to agree with him. I was elated from the time I got on the Mars at Pearl Harbor to the landing at NAS Alameda, Calif. Upon departure, as I looked farther out past

those giant engines and whirling props, I could see the docking areas where our ships had been when they were attacked. I didn't know where to look for the *USS Arizona* at the time, but we have since visited the Memorial.

As I gazed out beyond the big engines, toward the tip of the wing, I could see the wing float that was mounted on a large, V-shaped pylon. The float was larger than any motor boat that I had ever seen. That big float was slicing the water and leaving a rooster-tail as it cut through the waves.

In my eagerness for it to fly and since there is no way to park and do a run-up check on the engines, it seemed an eternity before the engines were warmed up enough to check out. Finally the engines roared to full power. The splashes of sea water were lofted from the hull and the spray blotted the Plexiglas of the porthole.

As the speed increased, the rivulets of spray all lined up in parallels on the porthole. Then, as the hull thumped in and out of the waves we were quickly airborne. The plane climbed into the evening twilight and very soon all of the spray had vanished from my porthole. I was treated to a beautiful view of the island and watched Diamond Head as it disappeared behind the plane during our turn in the departure climb.

Before the plane reached its cruising altitude and the power was reduced, the steward came to my cot and said that he was ready to begin the evening meal service. I followed him to the kitchen area, dressed in my Marine Greens. Then, with a towel over my right arm, I proceeded to carry the meals to the officers and ladies who filled the seats in the main cabins.

The chairs were covered with black leatherette. They were set in rows that could be disconnected to be relocated or removed for cargo when necessary. The seats were the kind that reclined just enough to be uncomfortable.

The stretchers, like the one to which I was assigned, were installed throughout the forward compartment. They were placed there for the wounded men who were transported from the battle areas during the war. I thought it odd that I had a nice bed and the officers and their ladies had to sleep all night in those sticky old, uncomfortable chairs.

The air was smooth and we seemed to be only a few thousand feet above the water. I didn't get to take the meals into the crew, but watched with envy as the steward carried them away from the kitchen and walked toward the flight deck.

It was becoming dark by then and some reading lights appeared as the people settled in for the night. When the kitchen had been squared away, I excused myself and went to my stretcher. I don't recall that anyone else was in any of the other stretchers, so I had the compartment all to myself. I must have been the only "peon" on board.

With nothing much to see out the porthole, I fell sound asleep to the droning of the engines. Almost immediately, it seemed the steward was wakening me to begin serving



The Philippine Mars (BuNo. 76820) leads a rare flight of sister ships, Mariana Mars (BuNo. 76821), Hawaii Mars 2 (BuNo. 76823) and Caroline Mars (BuNo. 76824). (USN photo from the Pete Bowers collection)

breakfast. I had slept like a baby and the plane was beginning to lighten up in the gloomy gray as dawn was rapidly approaching. I proceeded to the kitchen area for the breakfast service and began helping. Our 14-hour flight was soon to be over.

When we finished with the meal service and were cleaning up, I could feel the power being reduced as we began the descent into San Francisco Bay.

I went to my cot and settled in to watch the show from the vantage point of my special porthole as we slipped in to make the touch down on the surface of the bay.

As the plane slowed down during the approach, the nose began rising. The clap, clap, clap and accompanying lurches began as the hull thudded onto the waves, then we skimmed down and settled into the water.

As the hull entered the water, the spray wafted up and once again began sliding along the surface of my porthole. My wing float began spraying its rooster tail as it too, dipped into the water. The plane then seemed to almost lurch to a stop as it settled deeply into the waves. That was my first "splash down," my first flight in a seaplane.

With engines idling we sailed slowly into the harbor at Naval Air Station Alameda, Calif. After being tied to the pier, the door was opened and everyone stepped down onto

the planking to head for shore. Being alone in the forward compartment, I was the last passenger to deplane.

I walked to the hatch to thank the steward for including me in the meal services and told him that I really felt like an honest-to-goodness part of the crew.

As I tossed my sea-bag over my shoulder and walked down the pier toward the shore, I looked back at the plane. There, on the side of the nose below the copilot's window, a sign had been painted. It read, "The Philippine Mars."

Those big boats were all painted Navy blue with white trimming. The other marking was a Navy emblem with the letters NATS superimposed on it. NATS was for the Naval Air Transport Service. That monogram was carried until the service markings were united and it then became MATS, Military Air Transport Services.

I have been referring to these planes as boats. Writers often refer to these large seaplanes as "boats," but technically they are "ships." A boat is a vessel that is small enough to be carried on a ship. The Martin Mars is much too large to be carried on a ship. So, the launch that hauls the crew to the Mars ship, is a boat.

Leaving the big ship, I found my way ashore to a place where several taxis were waiting and I asked for a ride to San Francisco Airport. Arriving there, I wanted to be on the

first plane to leave, so I was directed to a non-scheduled airline for the flight to Chicago.

Fast Forward to 2001

Ever since that flight from Hawaii to San Francisco, I have thought about that wonderful *Philippine Mars*. Occasionally I've read about the Mars in some magazine articles. Several have had stories about the Mars boats being converted into fire bombers. I vowed to go and see them sometime.

Then, in the fall of 2001, my wife, Jeannie, and I traveled to Victoria, Canada. Victoria is on Vancouver Island in British Columbia. From there, after arriving by ferry, we drove toward Sproat Lake, the home of the Mars flying boats. We began the hunt, driving around the lake where they were supposed to be anchored, but the planes were nowhere to be seen.

That meant the Mars were out on a fire call. We subsequently were informed that the planes were standing down on a lake a couple hundred miles to the east. We got in our car and headed for Lake Osoyoos that straddles the U.S. border about halfway between Seattle and Spokane.

Arriving in the evening twilight, we finally located the two planes at anchor. No longer in Navy blue, but in red with white trim. Somehow seeing those stately, gentle giants nestled in for the night, made the long, rain washed journey worth all the effort.

At breakfast the next morning we serendipitously met the crew. In conversation, I was asked about my interest in the Mars and I told of my flight from Hawaii to Alameda on the *Philippine Mars*, explaining my experience of feeling like a crew member as I helped serve the onboard meals.

The crew invited us to go with them to the planes when we finished breakfast. One of the crew rode along with us in the car so we wouldn't have to search for the place.

We drove right into the vacant lot along the shoreline that they had rented to access and supply the planes. They had a portable floating dock with a motor launch tied to it. The dock was strewn with the supplies and the hoses for loading the chemicals on the planes. The dock, motor launch, all of their loading equipment and supplies were carried in the plane when it traveled from one fire location to another.

As previously noted, five Mars flying boats were built for the Navy. The Navy had used all of the production models for hauling troops, cargo and for evacuating wounded during WWII. When fully loaded, the Navy claimed that the Mars normally carried 114 passengers.

A very experienced Mars captain, Richard Gless, once said that the Mars could carry 135, fully equipped troops. For those with an interest in more detail, AOPA published an interview with this pilot who had 3,200 hours in the Mars. In it, Gless gave great firsthand detail of flying and sailing



Hawaii Mars seen on Lake Elsinore, Calif., while helping fight wildfires in Southern California in October 2007. (Photo by Brian Lockett)

the big boat. He also reported that the twin-tailed prototype Mars had been damaged during an engine fire and being too expensive to repair, it was scrapped.

Gless was privileged to fly many Pacific crossings for the Navy and to fly the Mars as far as Japan. He also detailed the requirements for a naval aviator to assume the captain's position on the Mars. (Captain Richard Gless' accounts can be found in the *AOPA Flight Instructor's Safety Report* dated, April 1991. Vol. 17, No. 2, Special Edition.)

While we were standing there looking across the lake toward the big boats, I was really taken aback when the captain invited us to go on board with them. The captain and the first flight engineer ushered us down the embankment where the floating dock was moored to the shoreline. The flight engineer steadied the launch while we climbed in and motored us to the anchorage.

The plane was about a quarter mile out on the lake and as we approached, I was surprised to see the sign on the nose, *Philippine Mars*! Here was the very plane that I had flown in while crossing the Pacific. Wow! What a thrill that was!

The Navy declared the Mars boats surplus to their needs in about 1958. Ten years after my flight from Hawaii, the Mars were beached in California.

In 1959 a consortium from Canada bought the Mars, along with their accumulation of parts and engines. They intended to use them as aerial tankers, or as we know them, fire bombers. The planes were completely gone through, spruced up and flown to Canada where they were outfitted with huge wooden tanks for hauling water and fire fighting solutions.

The planes operate with a crew of four: captain, copilot and two flight engineers. The first engineer takes care of the aircraft systems, fuel, oil and monitors the engine parameters. The second engineer manages the fire retardant solution operation.

All of the necessary plumbing was added during the outfitting and two retractable water scoops were installed through the bottoms of the hulls for picking up the water while on the fly. The probes are stainless steel tubes about



Captain of the Mars and the author stand in the cockpit for a portrait shot taken by the flight engineer from the hatch to the anchor locker. (Photo from the author's collection)



Bow compartment and bow mooring hatch through which the photo of the author standing in the cockpit was taken. (Photo by John Hazlet)

a foot in diameter with the opening on an elbow that faces forward. During water pick-ups, the second engineer transfers the foam chemical into the large water tank. When it is time to take on the water, he hydraulically lowers those scoops into the water, below the hull.

The pilots then barely touch down in the water, planing “on the step” with little more than the keel in the water, while the water is rammed into scoops by the airplane’s forward speed, filling the tanks. Both pilots are on the controls during the runs, for emergencies. The plane is very stable while the keel is in the water during the flying pick-ups. As the keel enters the water, the second flight engineer sits with a timer’s stop watch in one hand.

As they reach the loading spot, with a signal from the pilots, he punches the timer button and at the same time, he opens the loading valves with his other hand. It takes exactly 27 seconds for the tanks to take on 7,000 gallons of water for the *Philippine Mars* while the second engineer increases power to maintain airspeed and keep the airplane “on the step” as the airplane’s weight increases by more than 50,000 pounds in less than half a minute.

Most of the fire areas are in mountainous terrain where there are many lakes that are large enough for their loading operations. The water is mixed with the foam compound during the fill, so when the Mars pulls up from the surface, they can be at the fire zone in just a few minutes.

The *Hawaii Mars*, with Canadian markings C-FLYL, drops its load from doors in the bottom of the hull, while the *Philippine Mars*, bearing the Canadian markings C-FLYK, drops from side hatches. The *Philippine Mars* can drop all the retardant at once, or in four different salvos.

The mixture that makes the liquid adhere to the plant life turns to foam when agitated during the dumping sequence, which helps to put out the fire.

The Mars have a wingspan of 200 feet, a length of 120 feet and a tail that stands 48 feet above the keel. They

are 13.5 feet across the hull and as such, are some of the first “wide bodies.”

The Navy used them for 87,000 hours, with only one accident where the *Marshall Mars* was scuttled off Diamond Head in Hawaii by gunfire after an engine fire.

The hull has an average draft of five and one half feet. They gross at 162,000 pounds and carry 60,000 pounds of water and 600 gallons of retardant. All this, in addition to 6,450 gallons of fuel and a couple of spare barrels of oil secured in the cargo area.

The planes cruise at about 220 mph on the way to the fires. They fly at about 138 mph during the drops. Their approach speed is about 115 mph with about 92 mph for touch down in the water.

Fuel consumption in cruise is about 480 gph with nearly 780 gph during the fast cruise to the drop site. Their service ceiling is 14,600 ft. Their range in air tanker service is 750 miles. Each retardant drop will cover an area of three to four acres and the drops are usually made from 150 to 200 feet, depending on the terrain.

The airplanes’ firefighting performance is truly mind-boggling: According to Coulson Flying Tankers statistics, in a record single sortie, one Mars air tanker flew for just under six hours between a lake and a nearby fire without refueling, made 37 consecutive drops averaging one drop about every 10 minutes, and delivered more than 130 tons of water onto the fire in the process.

The Mars are the largest operational flying boats ever built and were the largest planes in the U.S. inventory until the advent of the B-36. The Mars are very near the size of a Boeing 747. As of our visit in 2001, they had dropped nearly 56 billion gallons of water.

The *Marshall Mars* was lost when it had an engine fire and had to be sunk with gunfire while in Navy service



Mars Flight Engineer's station. (Photo by John Hazlet)



View from the porthole that the author had on his original flight in the Philippine Mars. (Photo from the author's collection)

during WWII. The *Mariana Mars* struck tree tops during a fire drop and crashed in 1961, with a total loss. The *Caroline Mars* was damaged beyond economical repair by a severe windstorm while parked ashore near Vancouver in 1962 and was scrapped for parts. The *Hawaii Mars* and the *Philippine Mars* are the last of the big boats that are still flyable.

They stood by at Sproat Lake during the winters, when the threat of fire is at a minimum. Put on beaching gear, they were pulled up a seaplane ramp into the parking area for service and storage. The cradles raise the tail to 44 feet.

The Mars have gone as far as southern California for fire calls, but almost all of their work has been done north of the Canadian border.

For our tour of the big boat, the motor launch took us to the cargo loading door entrance and the Mars captain tied us up to the right (starboard for you sailors!) side of the plane. They helped us inside and then gave us a really complete tour.

We climbed into the cockpit that I was unable to see while crossing the Pacific and we sat down in the pilots' seats. I, of course, took the captain's chair and Jeannie settled into the copilot's seat.

While we were sitting there, the flight engineer went forward and opened the hatch to the anchor locker. He stood up in it and took pictures of us through the windshield. He then told us to open the overhead escape hatches and stand in the seats for a photo shoot with our heads and shoulders sticking out above the aircraft cabin.

We climbed down from the cockpit and walked back into the area that had carried the rows of stretchers for the wounded. I showed everyone where my stretcher and porthole had been when I rode from Hawaii to California during my trip home from China. Everyone leaned down to look through the porthole for a view of the right wing float as it rested on the waves.

The huge 7,000 gallon wooden water tank, with walkways along each side, extended from the position of my porthole toward the tail of the plane. Two spare stainless steel scoops used for pulling the water into the plane were strapped to the bulkhead ready for emergency use.

While we were examining the water tank, Jeannie made a trip back (aft, to you sailors!) to look through the windows, (oops the portholes,) that are placed high in the tail, just in front of and below the rudder. Looking out the left porthole, she took several photos of the *Hawaii Mars* where it was lying at anchor behind us.

We went into every nook and cranny throughout the plane, like two mice in a block of cheese. We sat in the pilots' chairs, in engineers' stations and climbed through the hatch to the top of the fuselage where we could see the enormous 200 ft. wing span.

All too soon our tour had ended and we were back in the motor launch heading toward the shore. The big boats were floating in a gentle southward breeze. We looked back across the lake at them as we sailed away toward shore, leaving them to their more important duties.

The event was a real thrill and one that I had looked forward to, for ever so long. My two visits with the Mars boats, one in the air and one on the water, will never be forgotten.

For additional information on the Mars flying boats, see the January edition of *Aviation History* magazine for 2009. The story of the *Hawaii Mars*, by Mr. E. R. Johnson.

Mr. Johnson covers the Mars boats from the beginning. There is a full-color photo coverage of the *Hawaii Mars* and a photo of the *Caroline Mars* in this well done article. There is a lot of information on the planes, but there is no information concerning their future.

In 2007 Coulson Airplane, Ltd. purchased the *Hawaii*



*Ladder providing access to the upper deck of the Mars.
(Photo by John Hazlet)*

Mars and *Philippine Mars* to expand its firefighting capabilities.

Since purchasing the *Mars* water bombers, significant upgrades have been carried out on the *Hawaii Mars* to bring it to higher aviation and safety standards for modern-day firefighting. The “Next Generation” *Hawaii Mars* has an EFIS Glass Cockpit and the ability to stream live data from certain key on-board, indication systems. Other forms of data that are available from the aircraft in real time are flight tracking, load data measuring, aircraft performance statistics, atmospheric condition at drop readings, and accurate drop location reporting.

About the Author

Just for the record, after my four year stint in the Marines, I went to Embry Riddle University in Miami, Fla., to prepare for my pilot’s licenses. I finished the commercial and flight instructor’s ratings at my home airport in Streator, Ill., on the G.I. Bill.

The Marines were short of Link instructors during the Korean War and I got a bit over a year’s free rent and board as a Reserve at Cherry Point, North Carolina. Later on, I became Chief Flight Instructor for four years at Lewis



*View of the flight deck looking toward the cockpit.
(Photo by John Hazlet)*

College, now Lewis University, in Lockport, Ill.

In 1957 I was hired by North Central Airlines as a DC-3 copilot. I flew the DC-3 for about 5,000 hours, eventually checking out as a captain. In fact, most of my time at the airline was flown as a captain. I later transitioned into the Convair 340/440 and then to the turboprop Convair 580.

I flew the various models of the Convair for a total of 17 years. Later in my career I flew about 10 years in the DC-9 and my final transition in 1968, before reaching age 60, was in the Boeing 757/767.



*Author Richard C. Hill in the pilot’s seat
of the Philippine Mars.*

After retiring from North Central, I have continued to be involved in aviation, owning several general aviation aircraft. Jeannie and I are both active in the EAA and Vintage Aircraft Association.

Several of our aviation history articles have been published by *EAA Vintage magazine*, the AAA, *Antique Airplane Association News* and one was printed in the *Journal of the American Aviation Historical Society*: Spring 2003.

Editor’s Note; In working on publishing this article, the Society regrettably learned that Mr. Hill passed away in November 2009 after an extended illness.