

TBM-3Q Avenger crash site revisited

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Sept 2017



TBM-3E Avenger from VMTB-234 circa 1945, note APS-4 radar on wing

A rare TBM-3Q Avenger crash site on Oahu Hawaii continues to be of interest to authorities and the public. The TBM Avenger crash site has changed dramatically over the years, but significant artifacts remain at the site and much can still be learned from it. The TBM-3Q played a brief, but important part in the history of Electronic Warfare and the history of Naval Aviation. This story details the history of Fleet All Weather Training Unit Pacific; the TBM-3Q aircraft; explores a TBM-3Q accident and its crash site.

Fleet All Weather Training Unit Pacific:



TBM-3N Avengers from FAWTU Pacific off Hawaii circa 1950



Fleet All Weather Training Unit Pacific (FAWTUPac) F6F-5s on the tarmac at NAS Barbers Point circa 1952; note the large number of aircraft on the tarmac

Naval Air Station (NAS) Barbers Point Hawaii was the home base of the Fleet All Weather Training Unit Pacific (FAWTUPac). In 1948, FAWTUPac was a large composite training unit which averaged 325 personnel assigned and consisted of six different types of aircraft. Assigned aircraft included: ten SNB Navigators; twelve F6F Hellcats; twelve F4U Corsairs; twelve AD Skyraiders; twelve TBM Avengers, and four F7F Tigercats. The unit trained pilots on how to fly different aircraft using radar for navigation and bombing. They also trained the crews on all types of aircraft maintenance with a special emphasis on electronic systems. The electronics maintenance shop had about 60 technicians (nearly 1/5 of the total number of personnel assigned) to maintain all the various types of electronic equipment that included communication, navigation, and radar systems. Although the electronics were somewhat common from one plane to another, there were differences between the plane types and they had to know how to operate and repair them all.



Training on APS-4 radar system at FAWTUPac in 1948



Metalsmith work holds the attention of FAWTUPac personnel in 1948

TBM-3Q Avenger Aircraft:

Of all the aircraft on the FAWTUPac flight line there was one that was unique and crammed with special electronic equipment. It was the TBM-3Q Avenger electronic countermeasures aircraft. The TBM-3Q was the Navy's first carrier-based Electronic Warfare aircraft, whose requirement was based on lessons learned through World War II in the Pacific Theater. During 1944-45 a small number of TBM-3s had been field-modified to carry low-power jammers, simple receivers and chaff dispensers to deal with Japanese radars. At the end of the war, electronic countermeasures (ECM) were in their infancy, but the Navy recognized the need for them and began to modify the last version of the TBM-3E Avenger aircraft to provide an ECM capability.

The TBM Avenger was equipped with an electrically powered gun turret and an internal bomb bay, it carried a crew of three and it had ample internal space which was easily modified. A total of 9,842 TBF/M Avenger production versions rolled off assembly lines, including 7,546 examples built by the Eastern Aircraft Division of General Motors. Of the total number of Avengers produced, only about 70 TBM-3Es were modified into -3Qs, all confirmed by Bureau Number (BuNo) on individual aircraft history cards. The modifications were performed by Navy aircraft rework facilities. The new "Q" for electronic countermeasures designation was authorized by the Navy Bureau of Aeronautics in 1946, with the TBM-3Q Avenger being the first to use the new subtitle.

The TBM-3Q aircraft retained some ordnance delivery capability while also providing basic airborne electronic countermeasures for the carrier air group. At least 10 aircraft carriers were deployed with a five plane detachment of TBM-3Qs between 1946 and 1948, when they were quickly replaced by the more capable and newer AD-1Q Skyraiders.

The TBM-3Q electronic countermeasure aircraft was used to "home-in" on enemy ships and shore-based defenses that utilized radar. Training on the TBM-3Q focused on identification of a radar signals, determining their operating frequencies and pulse widths. The TBM-3Q also had the capability to disrupt of the operation of enemy radar equipment by electronically jamming the signals and using chaff to confuse the signals.

The relative obscurity of the "Queen" Avenger has led to a great deal of misinformation on the internet on the type over the years. For many years, aviation books and websites have stated that the TBM-3Q modified the TBM-3E fuselage by removing the gun turret and replacing it by a larger greenhouse canopy. They also said the TBM-3Q used the belly radome of the TBM-3W "Guppy" Avenger. In reality, the TBM-3Q kept most traits of the TBM-3E it was modified from, including retention of the APS-4 radar pod that was prominent beneath the starboard wing and the gun turret. They also retained weapons carriage capability so that they could be mixed with their brethren on strikes.

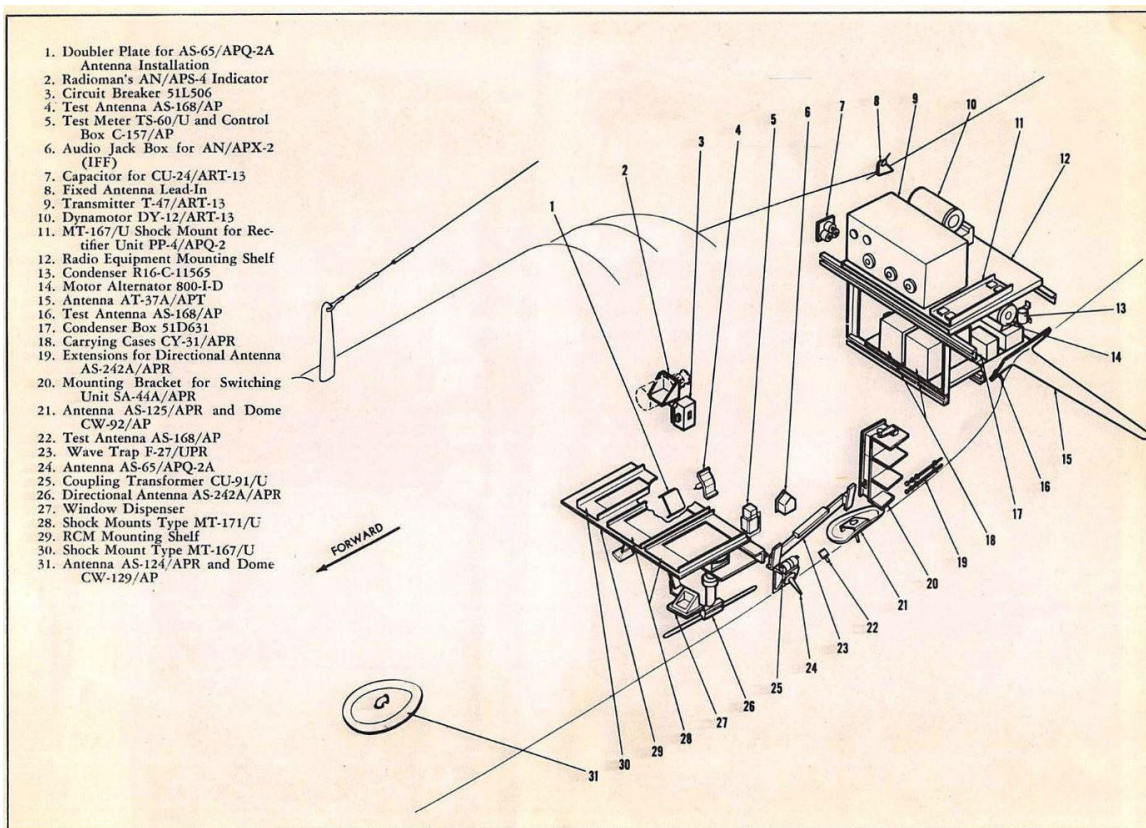
The TBM-3Q was a rare and hard to identify aircraft. The differences between the TBM-3Q and other TBM Avengers were mainly internal and involved modifications of the radio operator's position to accommodate additional electronic gear. TBM-3Q's ECM equipment included the Receiver APR-1, -4 or -5A and the Pulse Analyzer panoramic scope APA-11 or -38 used to intercept and classify radar signals. The aircraft also carried an early radar jamming transmitter, the AN/APQ-2. The aircraft was configured with a manually rotated dipole antenna that was extended from the fuselage belly and used by the ECM operator wearing earphones to detect an audible null determining a line of position to the radar. Additionally, there was a chute used to drop chaff or Window as it was then called. Externally the TBM-3Q could be identified by its small, twin-dipole DF antenna under its belly aft of the bomb bay doors, a small white radome on the lower fuselage and a long, thin blade antenna on the port side near the tail wheel. As electronic systems were rapidly evolving in the post war period, so did the electronic equipment configurations in the TBM-3Q aircraft. Many if not all of the external antennas may or may not be present making identification even more difficult. The Handbook of Instructions with Parts Catalog for Navy Model TBM-3Q airplanes, NAVAER 01-190EQ-501, dated 15 May 1948, shows the modifying equipment required for the TBM-3Q.



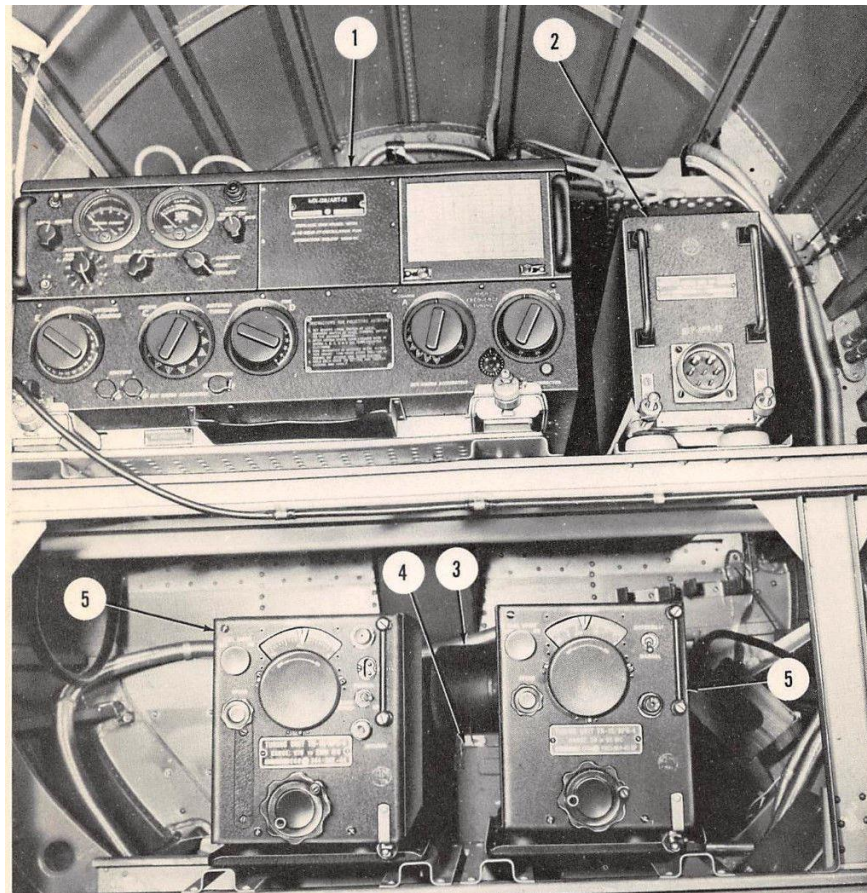
Navy model TBM-3Q ¾ front view from NAVAER 01-190EQ-501 manual

Nomenclature	Function	Publication No.
*AN/APR-1	Radio Receiving Equipment	AN 16-30APR1-3
*AN/APR-4	Receiving Equipment	AN 08-30APR4-3
*AN/APR-5A	Receiving Equipment	AN 16-30APR5-3
AN/APA-11	Pulse Analyzer	AN 16-30APA11-3
**AN/APA-38	Panoramic Adaptor	AN 16-30APA38-3
F-27/UPR	Wave Trap	NAVSHIPS 900-715
AS-242A/APR	Directional Antenna	NAVAER 16-35AS242-501
CU-91/U	Coupling Transformer	AN 16-30APR1-3
AS-124/APR	Antenna	
CW-129/AP	Dome	
AS-125/APR	Antenna	AN 16-30APR5-3
CW-92/AP	Dome	AN 16-30APR5-3
AS-168/AP	Test Antenna	
AT-37A/APT	Stub Antenna	AN 16-30APR1-3
C-157/AP	Control Box	ATO 08-10-111
TS-60/U	Test Meter	ATO 08-10-111
SA-44A/APR	Switching Unit	AN 16-30APR1-3
**AN/APQ-2	Transmitting Equipment	AN 16-30APQ2-3
AS-65/APQ-2A	Antenna Assembly	AN 16-30APQ2-3
††51D522	Audio Jack Box for AN/APX-2 IFF	AN 08-30APR4-3
CY-31/APR	Carrying Case	
†M51576	Window Dispenser	
††51L660	RCM Junction Box	
800-1-D	Motor Alternator	* ATO 03-1-6
R16-C-11565	Condenser	
††51L506	R.C.M. Power Circuit Breaker Box	
††51D631	Condenser Box	

TBM-3Q Modifying Equipment list from NAVAER 01-190EQ-501 manual

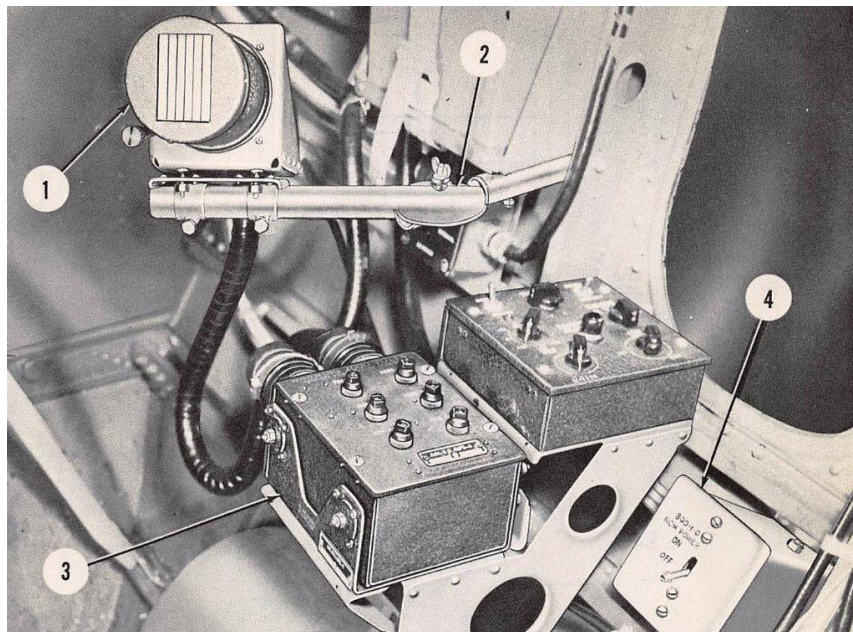


Location of modifying equipment from NAVAER 01-190EQ-501 manual



TBM-3Q Radioman's compartment aft view from NAVAER 01-190EQ-501 manual

1-Transmitter T-47/ART-13; 2-Rectifier Power Unit PP-4/APQ-2; 3-Motor Alternator 800-I-D; 4-Condenser Box 51D631; 5-Carrying Cases CY-31/APR with APR-4 Timing Units



Radioman's APS-4 indicator installation from NAVAER 01-190EQ-501 manual



Pictures of TBM-3Qs are very rare, largely because they look almost identical to the fleet's TBM-3Es of the same period. This photo, taken by Bill Larkins, shows BuNo 91371 taxiing at NAS Oakland CA in 1951 while operating with the Reserves. The primary visual differences are easy to miss; the small twin-dipole DF antenna under the mid-fuselage and white radome on the starboard bomb-bay door. It appears to be missing blade antenna usually found by the tail wheel. The pod under the starboard wing is the normal APS-4 radar carried over from the TBM-3E.



TBM-3Q Avengers from VA-2A USS Tarawa circa 1946; note the top two have the small twin-dipole DF antenna under the fuselage behind the bomb bay

TBM-3Q Accident at NAS Barbers Pt Hawaii:

TBM-3Q Avenger, BuNo 91350, manufacture number 4255, was assigned to FAWTUPac in 1948. According to the official Navy accident report, a flight of four TBM Avengers was cleared for takeoff on the right side of runway 4 at NAS Barber's Point September 17th, 1948. Aircraft number 91350 was the fourth aircraft to take off for a routine training mission. The aircraft left the ground directly behind another aircraft in its formation. The aircraft was making a right turn out of the traffic pattern as directed when the trouble started. The aircraft started to make a gentle right climbing turn when apparently the ill-fated TBM-3Q aircraft was disturbed by the previous plane's slipstream. When the aircraft was opposite the upwind end of runway 4, at an altitude of approx. 200 feet, the aircraft entered a violent, right wing down climb. The aircraft continued to climb to a maximum altitude of 480 feet until it rolled over to the right and became inverted. Then the nose of the inverted aircraft dropped and the TBM-3Q aircraft crashed into the ground at 9:15am. Upon impact the aircraft exploded and burst into flames. All three occupants were killed instantly by impact or fire.



Newspaper photo shows aftermath of Navy TBM-3Q plane crash

An exhaustive investigation of the wreckage was made in an effort to establish the cause of the accident. No evidence of material failure or improper weight and balance conditions was found to have contributed to the accident. All other TBM's in the unit were inspected for faulty control operations and none were found. Because of the nature of the accident and the resulting condition of the aircraft, it was impossible to assign specific error to the pilot or other persons. This tragedy might be considered one of the earliest wake turbulence accidents which were little understood at the time. The Navy reported forty-eight major accidents of TBM Avenger type aircraft in the past thirty months prior to this one.

The TBM-3Q Avenger crew:

The three air crewmen who perished in the accident were Pilot, Ensign Warren Webster, AMC Bert Taylor and Airman Alvin Seeley JR.



Pilot, Warren M. Webster

Pilot, Ensign Warren M. Webster, 24 years old, was from Medford Oregon. He was married to Jean Louise of Honolulu, and was survived by a younger brother Robert.



AMC Bert Taylor

Chief Aviation Structural Mechanic (AMC) Bert Taylor, 35 years old, was from Seattle Washington. He was a veteran of more than 16 years in the Navy. He resided at Barbers Point housing. He was married to Kathryn with two children, a girl 2 years old and a boy 3 years old.

Airman Alvin Seeley JR. was single and lived in the barracks. No photograph has been found of him. Follow below link for his grave listed in find a grave.

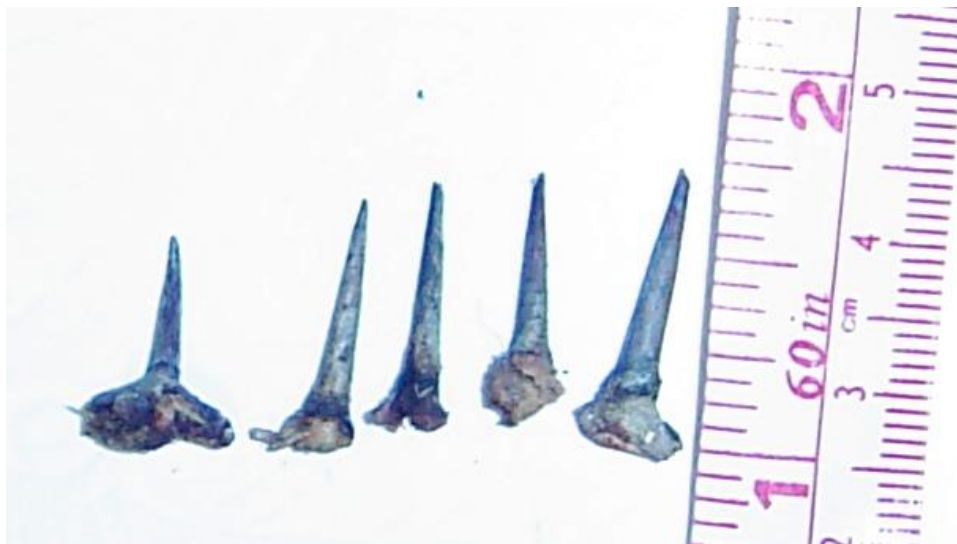
<https://www.findagrave.com/cgi-bin/fg.cgi?page=qr&GSln=Seeley+&GSfn=Alvin&GSbyrel=all&GSdy=1948&GSdyrel=in&GSob=n&GRid=3430194&df=all&>

A newspaper article dated September 22nd, 1948 in the Honolulu Star Bulletin talked about the memorial and funeral services which were held for the three men who were killed together. *Memorial Rites Set For Airmen Killed in Crash:*

“Memorial and funeral services will be held at 10 a.m. Thursday at Barber's Point for three navy airmen killed when their torpedo bomber crashed last Friday. The services will be held for Ensign Warren Webster, Chief Bert Taylor and Airman Alvin Seeley. At the completion of the services, the ashes of Ensign Webster and Chief Taylor will be placed aboard a torpedo bomber, the same kind of aircraft in which they were killed and strewn over the Pacific. An eight plane formation will accompany the funeral plane. The remains of Mr. Seeley will be sent to Ft Rosencrans National Cemetery, San Diego, CA”

TBM-3Q crash site:

The TBM-3Q Avenger crash site was long forgotten until it was rediscovered during a land survey of base property prior to the closure of NAS Barbers Point in 1999. Getting to the crash site back then required bushwhacking and dealing with up to 4 inch long Kiawe thorns, of which I pulled many from my shoes. The crash site was comprehensively investigated between 2004- 2007. A large amount of wreckage remained at the crash site which was mostly burned remains, but was still identifiable. Examination of the wreckage at the TBM-3Q crash site confirmed the configuration of the TBM-3Q aircraft during that time period and added to the historical record for its type. Documenting the crash site also added to the history of NAS Barbers Point. The following are pictures from my expeditions to the crash site.



Kiawe thorns pulled from my shoes



Parts pile at the crash site, circa 2004



The most prominent feature of the crash site was the Wright R-2600-20 Cyclone 14-cylinder radial engine which lies on its back. You could see where its propeller blades were broken off from the impact of the accident.



The APS-4 pod-mounted X-band search radar remains were easily identifiable at the crash site. The APS-4 equipment confirmed that the aircraft at that time carried the APS-4 radar and not the later radar as some records indicated. It still had electronic boxes, wires and connectors hanging from it.



Other electronic boxes were scattered around the site. It was amazing that glass vacuum tubes were still inside one of the boxes. I was also able to identify ARC-5 radio equipment artifacts from data plates. Photo circa 2007



A wing fragment was identified by its access ports. It still had traces of the Navy blue paint with fuel lines and control cables hanging from it. Photo circa 2007



The metal frame from the gun turret canopy was at the site. This artifact confirmed the type still carried a gun turret and that it was not deleted as some records indicated. Photo circa 2004



Three oxygen bottles and the pilots' armored seat back plate in the debris field bore witness to the three crewmembers that were aboard the ill-fated plane.

Also discovered during examination of the wreckage were some human remains that were hidden for nearly 60 years. The remains were found along with a partial flying cap and headphones. The remains consisted of bone fragments and some teeth. The standards at the time in 1948 for clearing up aircraft crash sites are not the same as they are today. Due to the nature of the crash and post-crash fire, I was not surprised that something was missed.

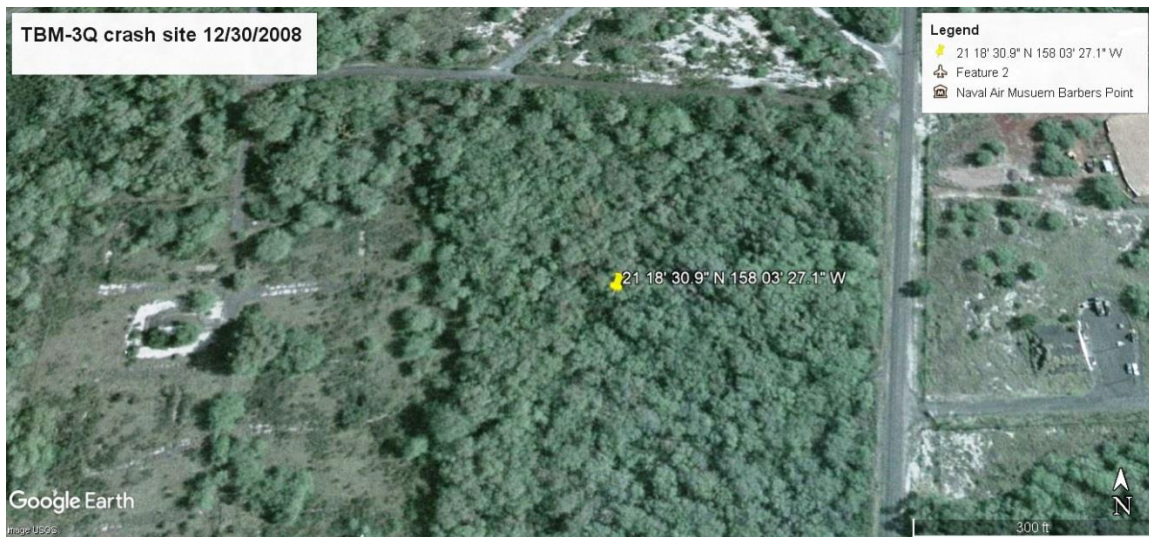
I later learned that in Hawaii the bones of the dead are considered the most cherished possession and were often hidden after someone died. The Hawaiians call bones "iwi". Traditional Native Hawaiians believed iwi (the bones) to be the primary physical embodiment of a person. Following death, only iwi were considered sacred, for within the bones resided the person's mana (spiritual essence). Mana was greatly valued, and Native Hawaiians spent their lives maintaining and enhancing their mana. Thus, supreme care was accorded to iwi following death. Ancestral bones were guarded, respected, venerated, and even deified. It was believed that the 'uhane (spirit) of a person hovered near iwi. Desecration of iwi resulted in an insult to the 'uhane and trauma and harm to living descendants.

I tried not to disturb the crash site as I explored the wreckage. As I was documenting the site, I remembered the three men who were killed there and also felt their presence. A few important and personal artifacts were recovered from the site and donated to the Naval Air Museum at Barbers Point. The human remains were treated with the upmost respect and were reburied in a hole in the coral limestone ground at the site. An American flag was left to mark the location and honor the men.



Some of the artifacts recovered from the crash site and donated to the Naval Air Museum at Barbers Point

The remains of the aircraft and men rested peacefully in the landscape surrounded by bushes and trees until about 2010. Beginning at that time, the Kalealoha Heritage Park was constructed over the crash site. The Kalealoha Heritage Park location was most likely chosen because it encompasses part of a surviving segment of the 1825 Malden Trail which once ran from Honouliuli, passing near the later site of the Ewa plantation, and then on down to the Ewa coastline. The trail included important Hawaiian habitation sites, sinkholes and iwi burial areas. Unfortunately the TBM Avenger crash site was also located near the Malden Trail. When they were building the Kalealoha Heritage Park the impact point was completely cleaned up and most of the wreckage artifacts were removed. The only remaining significant reminder of the crash was the engine and a few small pieces of corroded aluminum remaining besides the motor. The new park includes walking trails that extend into the original debris field and cleared around the engine. Probably the only reason the engine was left behind was because it was too heavy to move.



Google Earth comparison photos between 2008 and 2013. You can clearly see that the area of the crash site has been cleared

Photos from the Kalaeloa Heritage and Legacy Foundation that show the construction of the Heritage Park can be found at this link: <http://www.khlfoundation.org/photos/>

A visitor to the site in 2012 was told not to take any photos of the tails or area, but was able to obtain a few photos as the area cleanup was in progress. From his pictures you can see how the site has changed. At that time, Shad Kane from the Kalealoa Heritage Park said “The engine was an historic crash artifact and would be left alone as is”. However, everything else related to the plane crash was removed. When the Kalealoa Heritage Park took over the land, they had little regard for Navy history and they cleared it for their own purposes destroying the historic integrity of the crash site.



Kalealoa Heritage Park circa 2012



Trail to the engine

I last visited the TBM-3Q crash site in 2013. At that time the trail system around the park was nearly completed. You could now easily follow a path right to the engine. There still was aircraft wreckage around, but it was in the process of being collected into piles. There was a lot less wreckage when compare to what I remembered from when I first visited the site. The future looked bleak for any remaining artifacts or protection of the historic site.



Trail goes right up to the engine, photo circa 2013



Parts pile with park trails in the background, photo circa 2013

The future of the crash site:

The current goal is to have some kind of site marker near the Wright R-2600-20 Cyclone 14-cylinder radial engine to let people know what happened there. At least have a sign indicating what the engine is and what it is from. Hopefully an information kiosk could be incorporated into the park that tells the whole story of the aircraft and the accident. It should not be forgotten that some bone remains are still buried there and that the spirits of the crew still remain at the site.

Traditional Hawaiian belief maintains that it is the kuleana (responsibility) of the living to care for and to protect 'ohana (family) burial sites and to pass on this knowledge and responsibility to the next generation. These practices assure that living Native Hawaiians will always provide perpetual care and protection to their ancestors, thereby maintaining the integrity of the family. Central to the physical and spiritual well-being of Native Hawaiians is the inheritance of mana from their ancestral past. In turn, the ancestors care for and protect the living, affirming the interdependent relationship between them and living descendants, where each cares for and protects the other.

I feel that by passing on the knowledge contained in this story that I'm passing the responsibility to the next generation to care for the history. This story was also written in an effort to better inform the authorities and the public about the importance of this site. Only time will tell what happens to this site. Hawaiians have an expression: "Na wai e ho'ōla i nā iwi?" Which translates to, "Who will save the bones?" In this case, who will save the TBM-3Q Avenger crash site?