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February 14, 2024

CONDITION REPORT:
USS WARD #3 GUN

PROJECT DESCRIPTION:

The purpose of this project is to document the current condition of the USS Ward #3 gun that is currently installed as a memorial on the Minnesota State Capitol Mall prior to the move of the gun to a permanent indoor location. This report will also compile and summarize the history of preservation and conservation efforts to date in order to inform the proposed restoration of the gun.

The goal of this project is to produce useful baseline data that can be used to prepare an RFP for the actual conservation/restoration project.

This report will include the object description, current condition, conservation summary, photographic documentation, recommendations for restoration, and references.

OBJECT DESCRIPTION[1]:

The object is Gun #3 and is a 4"/50mm naval gun manned by St. Paul reservists on the U.S.S. Ward, which fired the second shots by Americans at Pearl Harbor on December 7, 1941, at a Japanese mini-submarine. Based on a submarine wreck found off Hawaii in 2002, the Ward struck the conning tower of the submarine, creating two large holes on either side of the tower, which caused the submarine to

flood as it was submerging, sinking to 1,200 feet at the bottom of the ocean. Several depth charges also dropped at the time apparently had little effect in sinking the submarine, as did the first shots fired by the #1 gun on the Ward.

The gun is a steel structure, painted mostly "battleship gray", and
with at least eleven brass fittings, also painted gray, as follows (original parts):

- foot pedals; two on each side of the gun, in front of the seats.

- brass handles on an altitude-adjusting wheel in front of the proper right seat.

- A round dial on the proper left side of the gun about 10 inches in diameter and marked with vernier range numbers and the following: "4in SIGHT MK. XXI & MODS. IV 2500 E.S. ORD PAMPHLET No. 172 DATED
JUNE 1932 DR 46744 K I GRAD SK 56345A".

- On the gun's proper left side, midsection, is a small copper alloy plate about the size of a deck of cards, stamped with the following: "LINDERMAN / STEEL & MACHINE / [illegible] / [illegible] /
[illegible] / NO.1483 / [illegible] / WT 1665 LBS / [illegible]".

- On the gun's proper right side of the barrel, just behind the pivot-point, is a nearly identical copper alloy plate stamped with the following: "LINDERMAN / STEEL & MACHINE / [illegible] / SLIDE / MARK XI MODEL / NO.1484 / [illegible] / [illegible] / [illegible] / WT 1355 LBS / 1918".

- A recently attached aluminum plaque, about 8 wide and 10 inches tall, attached to the proper left side of the gun, and reading as follows:
"HONOR GUN – U.S.S. WARD / 4TIN 50 CAL. GUN No 3 / BY SINKING JAPANESE SUBMARINE ON THE / MORNING OF 7 DECEMBER, 1941, OFF PEARL / HARBOR, THIS GUN HAS THE
DISTINCTION / OF BEING THE FIRST NAVAL GUN TO SPEAK / AMERICA'S REPLY IN WORLD WAR II. AS / SUCH, THE PEARL HARBOR ORDNANCE MEN / CONSIDER IT DESERVING OF SPECIAL RESPECT / AND CARE THROUGHOUT ITS LIFE / GUN CREW / [the plaque then lists nine crew members by their last names, initials, rate (rank) and gun crew position]."

- A cast bronze plaque, measuring about 18 wide and 15 inches tall, attached to the proper right side of the gun in 1958, which reads as follows:
"THIS GUN BECAME AN HISTORIC CHAPTER / IN MILITARY HISTORY ON DECEMBER 7, 1941, / WHEN IT FIRED THE FIRST SHOT IN THE / DEFENSE OF THE UNITED STATES OF AMERICA / IN THE WAR WITH JAPAN, SINKING AN ENEMY / SUBMARINE OFF PEARL HARBOR, HAWAII. THE / GUN WAS MOUNTED ON THE DESTROYER U.S.S. / WARD AND WAS MANNED BY A CREW OF / MINNESOTA NAVAL RESERVISTS. / ON MAY 10 OF STATEHOOD WEEK IN THE / CENTENNIAL YEAR OF 1958, THIS GUN WAS / PRESENTED TO THE STATE BY THE U.S. NAVY / AND DEDICATED TO ALL MINNESOTANS WHO / HAVE SERVED IN THE DEFENSE OF OUR / COUNTRY. / THE MILITARY COMMITTEE / OF THE / MINNESOTA STATEHOOD CENTENNIAL COMISSION".

The gun is bolted securely to a concrete pad measuring about 15 feet in diameter, and with 16 hexagonal headed nuts and bolts set into the concrete.

According to the lender, this gun weighs approximately 11,000 pounds (5.5 tons). Since its placement here it has been maintained by the Minnesota Department of Veterans Affairs, via the state Plant Management Division, and under the advice and guidance of the Minnesota Historical Society (MNHS) Daniels Objects Conservation Laboratory from 2006-2009.

Unlike the other state capitol mall statuary, the gun is not a State commissioned and installed monument but rather an actual historical artifact. The U.S.S. Ward gun is on a long-term loan from the Naval History & Heritage Command to the Minnesota Department of Veterans' Affairs. The Capitol Area Architectural Planning Board (CAAPB) office has a record of the correspondence and loan agreements between the two agencies. The MNHS Registrar and Conservation departments have served as intermediaries to track the loan and monitor the condition and care of the gun.

The USS Ward #3 Forward Gun with crew, 1941

CURRENT CONDITION:

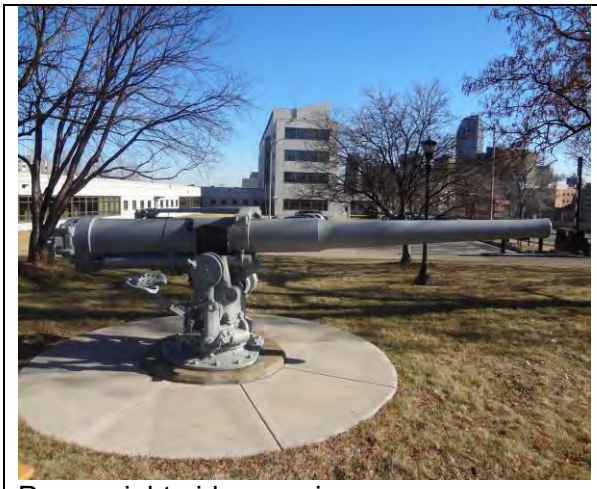
The object was assessed on Wednesday, January 31, 2024. The temperature was in the low 50 degrees F and the sun was out. A Sony Cyber-shot digital camera was used to record the condition. Measurements were taken where needed.

The gun has continued to be painted every several years by the MN Department of Administration painters. From the current condition and prior knowledge of how the gun weathers, it appears that it was last painted approximately three years ago and nothing has been done since in terms of preventive maintenance. See the Conservation/Preservation History section below for more details on maintenance.

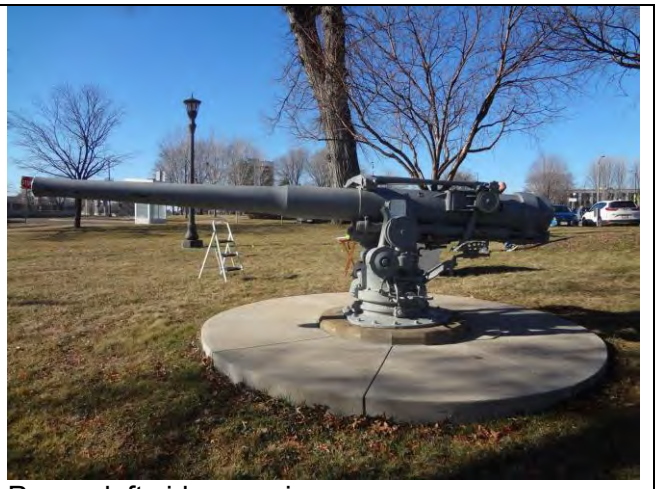
For organizational purposes, this condition section will be organized into three sections based on the construction of the gun: the barrel assembly (barrel, loading door, recoil tubes, sight support), the support/swivel/base, and the peripheral components (seats, pedals, and plaques).

Barrel Assembly:

The paint is approximately 95% intact on the PR (West facing) side of the barrel. There is some paint breakdown with peeling/flaking and rust staining beginning under the front of the top sight mount.

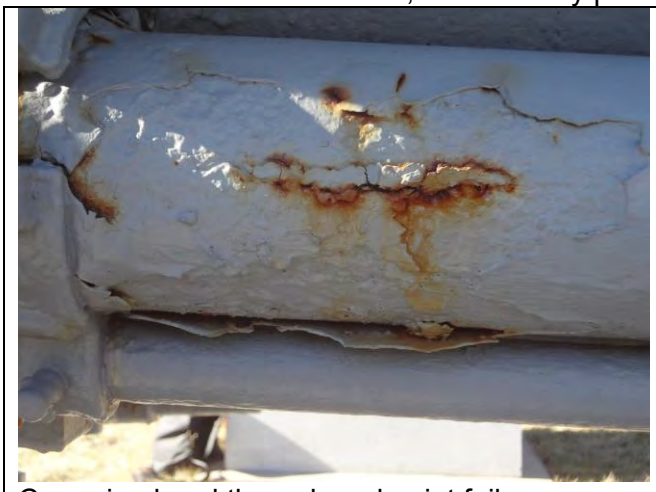


Proper right-side overview

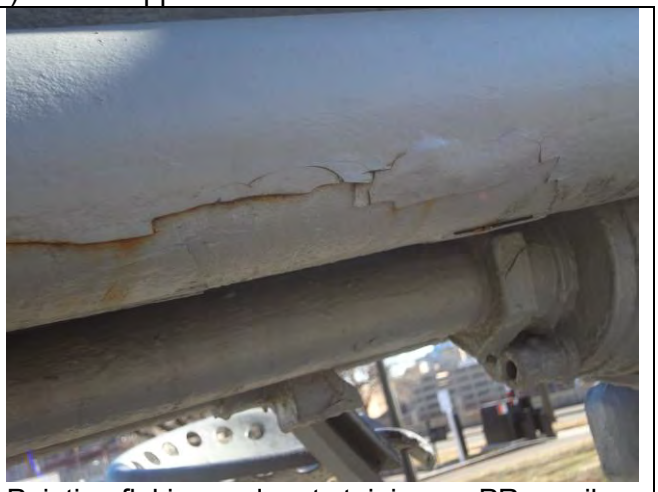


Proper left side overview

There is paint loss and rust staining breakthrough along the lower part of the PR and PL recoil tubes. The metal of the recoil tube is heavily corroded underneath the paint layers. That has been an on-going condition of the gun and indicates probable water infiltration into the recoil tubes, but the entry point(s) are not apparent.



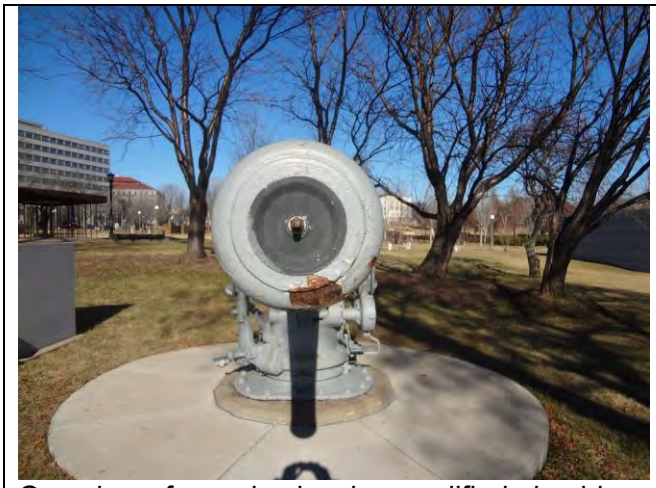
Corrosion breakthrough and paint failure, staining on PL recoil tube.



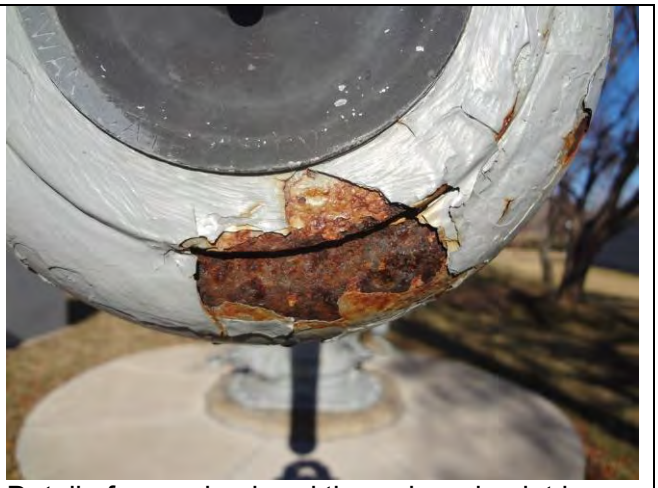
Painting flaking and rust staining on PR recoil tube.

CURRENT CONDITION, CONT'D.

A modified plumbing pipe plug was installed in the muzzle to prevent debris and water from getting inside the barrel in 2006 and is still intact. There is an approximately 4" long area of paint and metal loss on the lower margin of the muzzle rim. Some of the paint layers are revealed in the gap area.

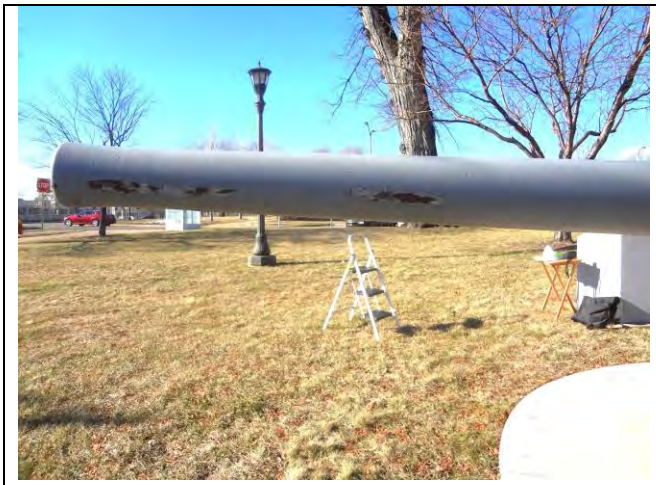


Overview of muzzle showing modified plumbing plug, installed in 2006.

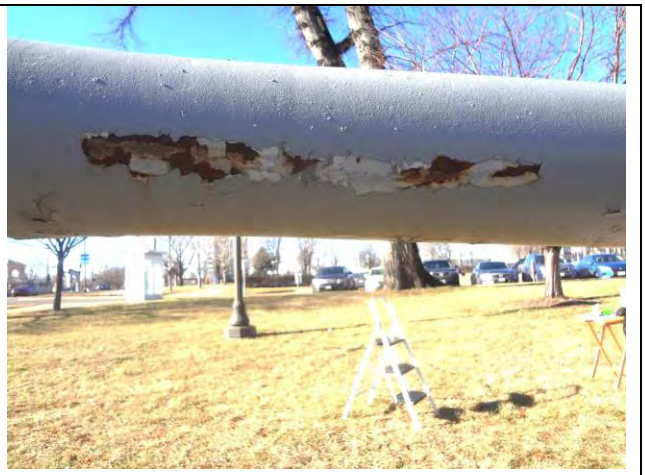


Detail of corrosion breakthrough and paint loss on lower margin of the muzzle rim.

While the PR (West facing) side of the barrel has intact paint layers, there is an approximately 16" long by 2" wide loss area that exposes the corroded metal towards the muzzle end, and a smaller approximately 11" long by 2" wide area behind that towards the breech end on the PL (East facing) side.



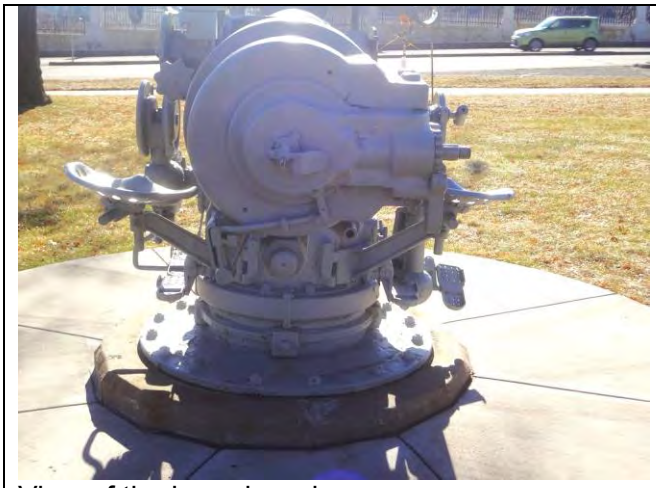
Overview of PL side of barrel showing the two areas of paint loss and underlying layers.

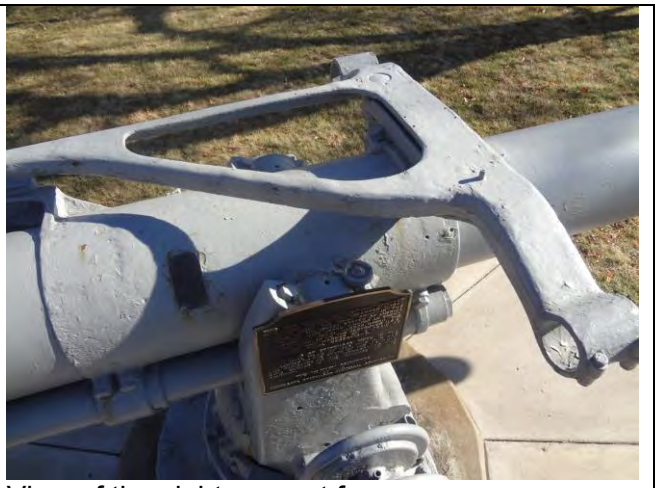


Detail of recent paint loss on PL side of barrel towards muzzle end.

CURRENT CONDITION, CONT'D.

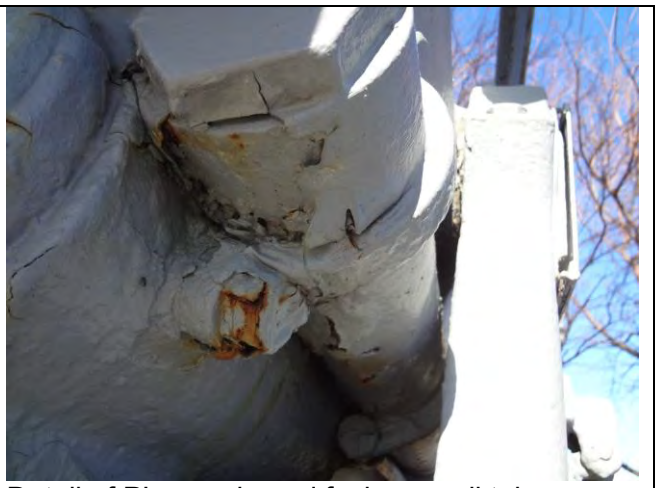
The North facing breech area and loading door assembly appears to be intact and the paint layers area in good condition.
The sight support frame on top of the barrel also has intact paint layers over most of the metal with some paint loss and rust staining at the breech end.


View of the breech end

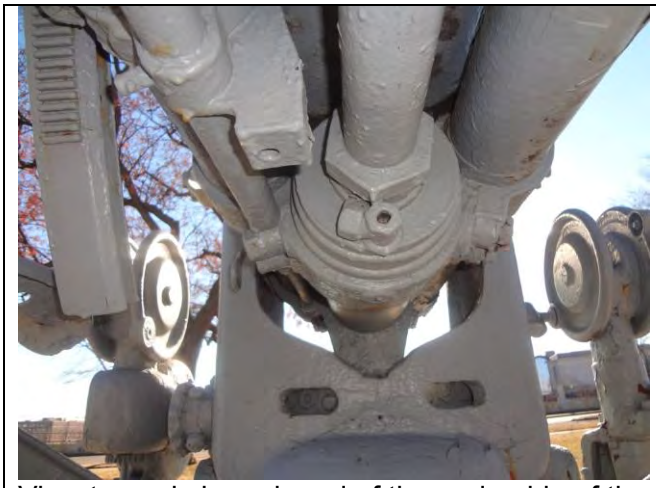

View of the sight support frame

The recoil tube assemblies on both sides appear to have the most corrosion breakthrough, underlying corrosion expansion, and paint flaking/losses of all components on the gun. This may be due to a combination of factors- incomplete paint preparation, lack of consistent conservation treatment since 2009, possible hydraulic fluid corrosion from the interior, and water infiltration. The placement of the tubes above spaces in the swivel support that can hold water and debris can also be a contributing factor as this might create a 'microenvironment' with a higher level of humidity.

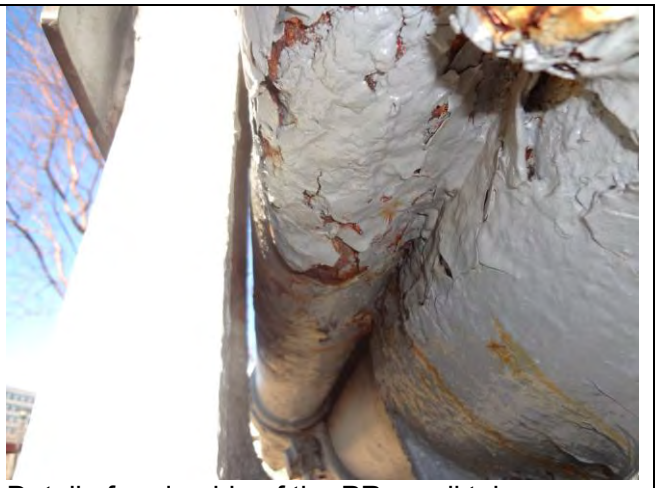

Detail of PR muzzle end facing recoil tubes


Detail of PL muzzle end facing recoil tubes

CURRENT CONDITION, CONT'D.



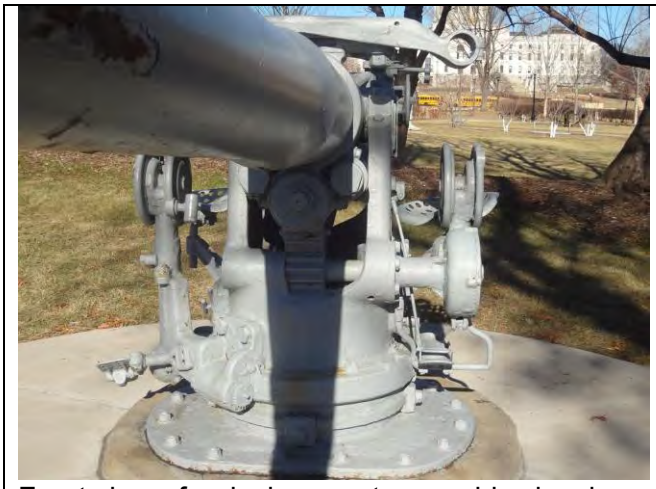
View towards breech end of the underside of the barrel assembly.



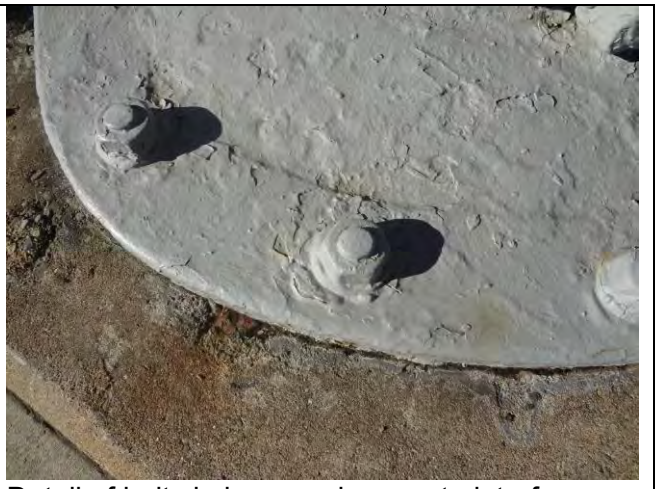
Detail of underside of the PR recoil tube showing condition of metal and paint layers.

Support/Swivel Base:

The overall condition of the swivel support base is stable in terms of the overall paint layers and state of visible metal corrosion. The least stable areas are in the recessed spaces directly under the barrel and recoil tube assemblies where rust and paint flakes have accumulated. Those spaces are the most difficult to prepare for repainting and the extent of the last completed painting included removing the previous accumulations and properly prepping the surfaces. As mentioned in the previous section, the debris layer can absorb and hold moisture that in turn can be released and affect the overhanging surfaces.
The bolts appear to have been welded to the base rim upon installation in 1958.

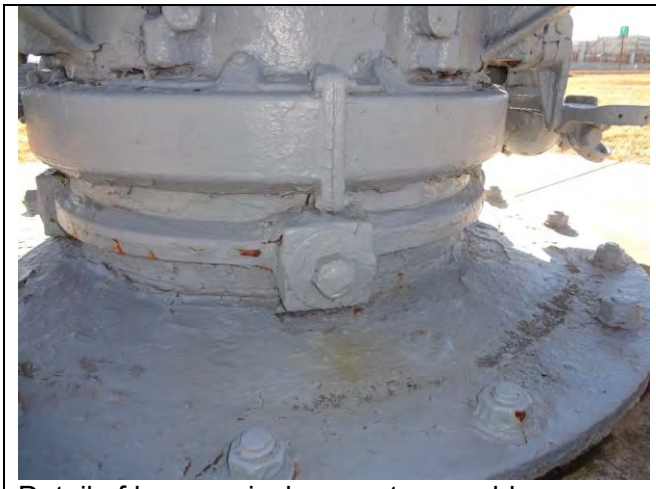


Front view of swivel support assembly showing overall condition.

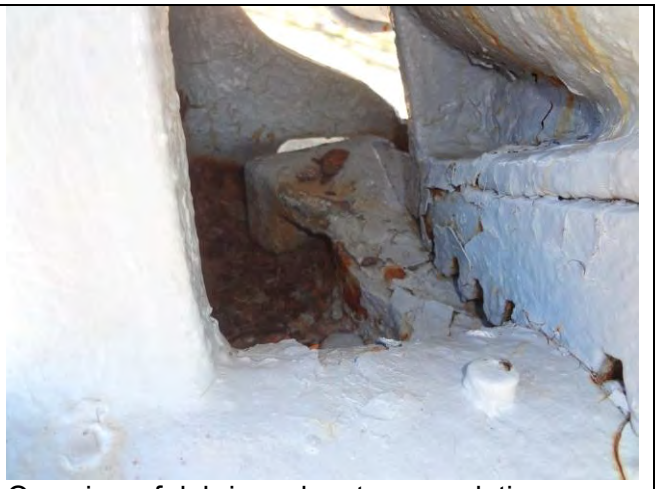


Detail of bolts in base and concrete interface

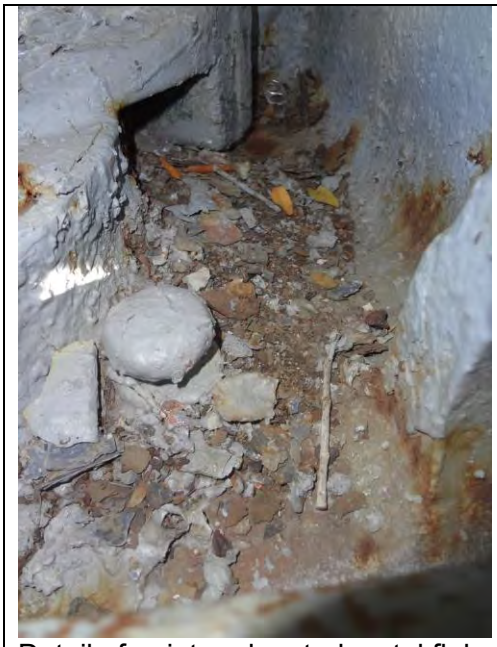
CURRENT CONDITION, CONT'D.



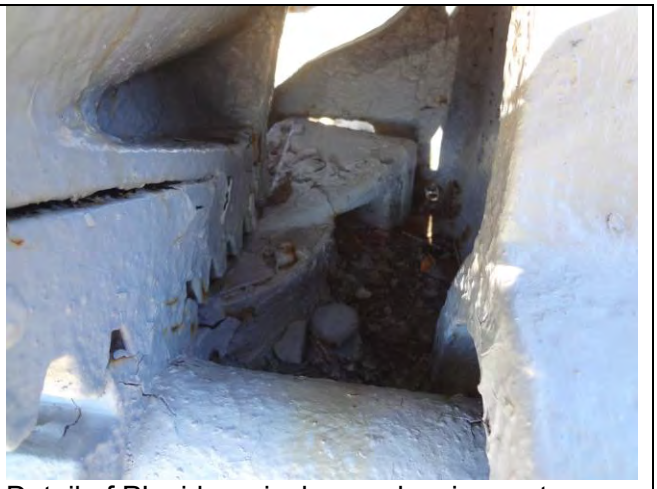
Detail of lower swivel support assembly condition.



Overview of debris and rust accumulation 'inside' swivel support mount assembly below the recoil tubes and barrel



Detail of paint and rusted metal flakes on bottom of 'interior' of the swivel mount, PR side.



Detail of PL side swivel area showing rust staining.

CURRENT CONDITION, CONT'D.

Peripheral Components:

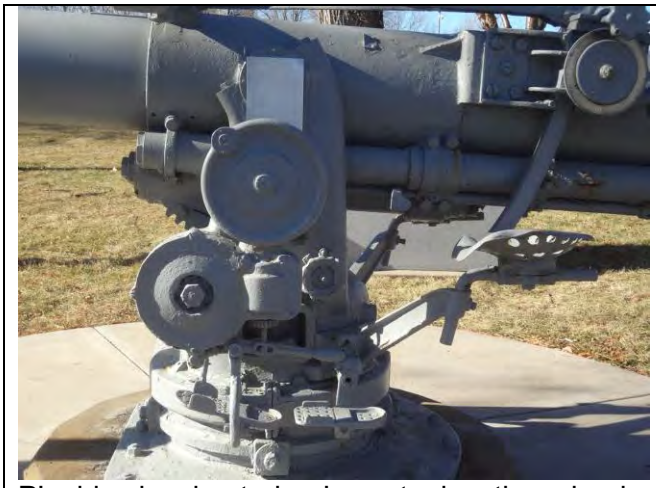
Overall, the painted peripheral components have retained their paint coatings from the last painting campaign with minimal losses and rust staining. There is some dripping of rust on the sides and curved surfaces, and some on the flat upper surfaces of both seats.

The painted brass components have retained their paint coatings with minor chipped areas exposing shiny brass below.

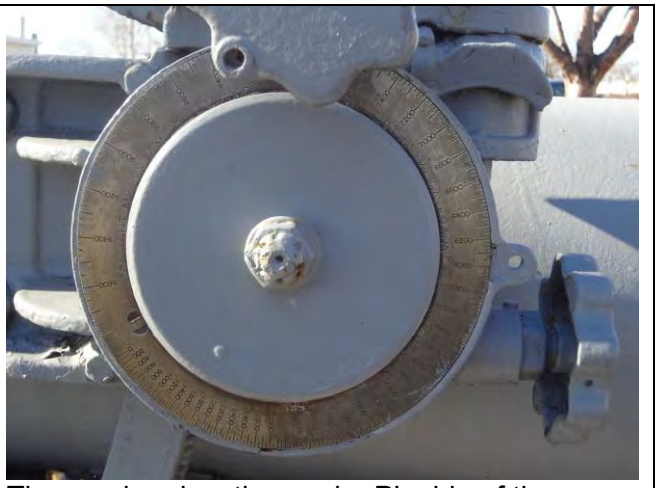
Both bronze maker's plates have oxidized to a dark brown with some corrosion staining from weathering.

The vernier scale was last treated in 2009 to remove corrosion and coated with an acrylic resin. The same treatment was done to the cast brass 1958 dedication plaque on the PR side of the gun. That plaque is still in overall good condition with some mild corrosion breakthrough and tarnishing on the lower part of the face of the plaque.

The "Honor Gun" plaque installed in 1958 was recently replaced with what appears to be an aluminum plaque in excellent condition. The fasteners were burnished so the plaque cannot be unscrewed from the gun.

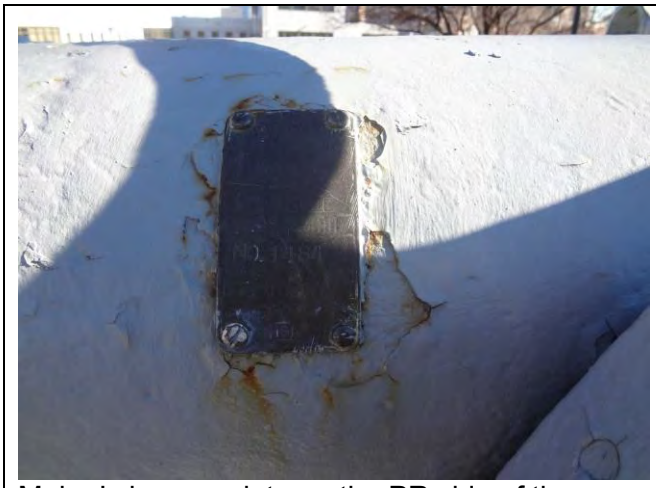


PL side showing trainer's seat, elevation wheels and other components.

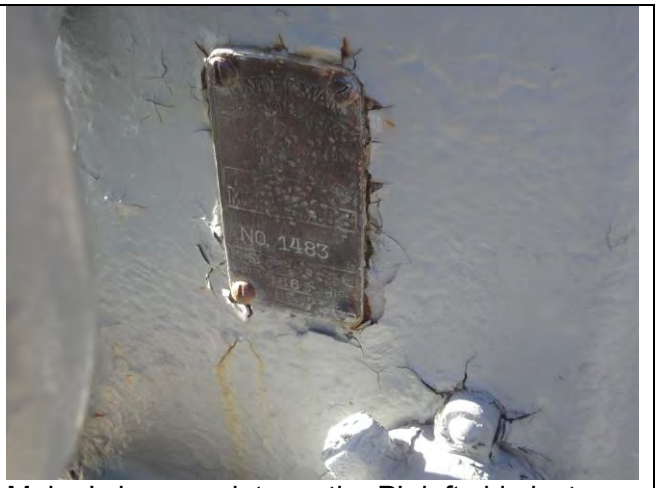


The vernier elevation scale, PL side of the gun. The brass was cleaned and coated in 2006 and remains legible.

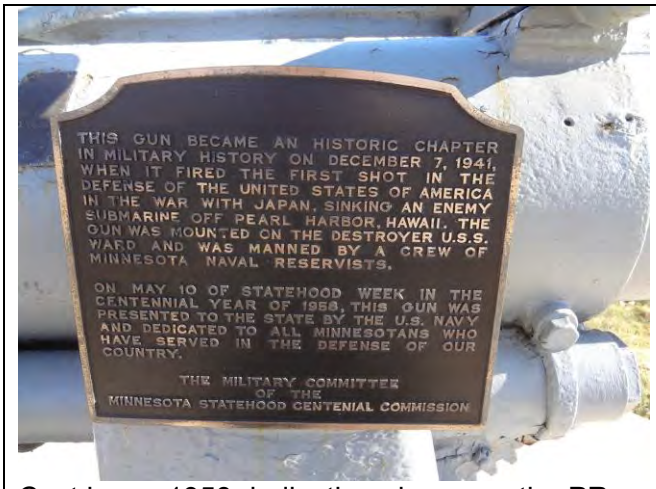
CURRENT CONDITION, CONT'D.



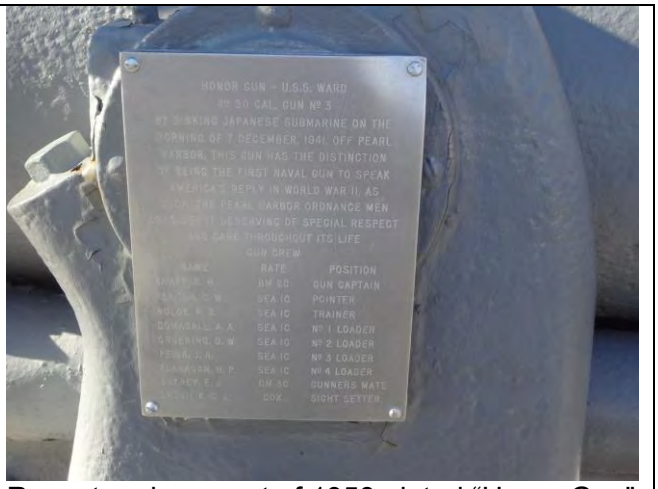
Maker's bronze plate on the PR side of the barrel towards the breech end.



Maker's bronze plate on the PL left side just forward of the trainer's seat.

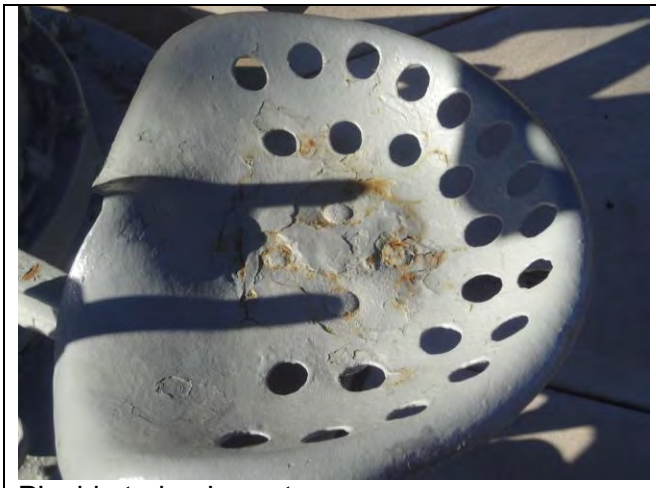


Cast brass 1958 dedication plaque on the PR side of the barrel. Cleaned and coated between 2006-2009.



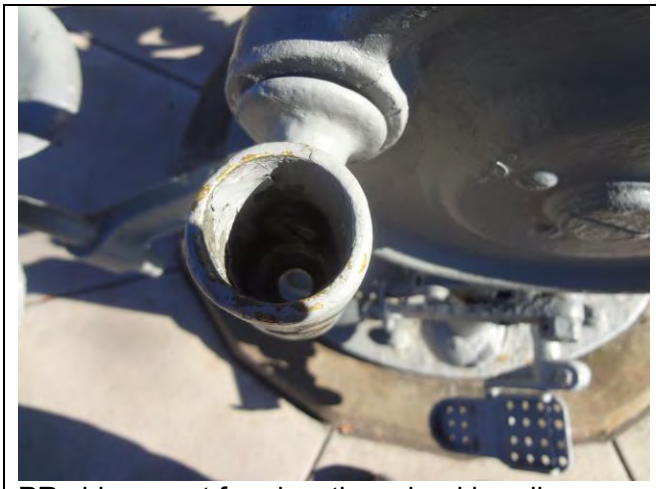
Recent replacement of 1958 plated "Honor Gun" dedication plaque, prob. Aluminum.

CURRENT CONDITION, CONT'D.

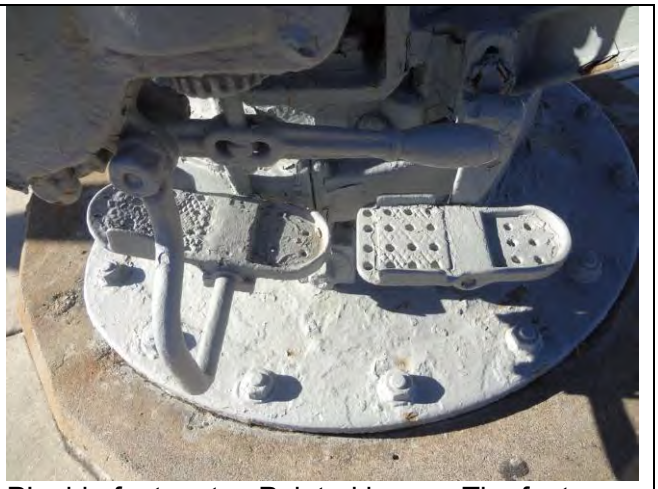


PL side trainer's seat

PR side fire control operator's seat



PR side mount for elevation wheel handle. Painted brass.



PL side foot rests. Painted brass. The foot rests on the PR side are also painted brass.

CONSERVATION/PRESERVATION HISTORY[2]:

It is presumed that the gun was first painted upon installation on the MN State Capitol Mall grounds in 1958. The first formal conservation records obtained by MNHS dates to 1989 when a conservation contracting firm, Conservation Technical Associates, undertook a State Capitol Mall wide condition assessment project of all the existing monuments and memorials on the grounds.

The MNHS has a partially complete object record (MN 127) in its Collections Management System (CMS) for the gun dated 2013, with the last condition entry in 2015. The record omits conservation information between 2005 and 2009.

The State Department of Administration painting department undertook sporadic maintenance of the gun over the years, however by 2004, the condition was deteriorating due to a lack of consistent care. In 2006, the DOA painter and the author collaborated on annual maintenance of the gun, which included cleaning and prepping the most corroded accessible surfaces with a rust inhibitor, removing debris, plugging the barrel, and filling metal losses where accessible [3].

The following maintenance plan was recommended by the author and was implemented between 2006-2009. The author moved to a different position within MNHS in mid-2009 and was no longer responsible for the direct care of monuments and memorials on the Mall. Any actual regular care and treatment of the gun past 2009 except for periodic painting up to at least 2021, is not clearly documented in the CMS record.

Responsible Party	Action	Frequency/Timing
Plant Management Grounds Crew	**Water-spray wash the gun to remove bird-droppings, plant matter, and other accretions.**	**Fall before November 11 ceremonies, Spring: clean additionally as needed.**
Plant Management Paint Shop	**Inspect at end of summer, before Nov. 11th. Touch up paint losses and incipient rust spots.**	**Late Summer and early Spring**
MNHS Objects Conservation Lab	**Inspect overall, report problems to Plant Management; inspect lacquered parts and epoxy fills; stabilize as needed; reclean brass as needed and re-coat. Update conservation records.**	**Late Summer and early Spring**

Conservation Recommendations

The best course of action to preserve the USS Ward #3 Forward Gun is to remove it from outdoor display and install it in a controlled indoor display environment.

That will allow for full surface restoration and continued monitoring and maintenance on a regular basis.

It is recommended that a less intrusive conservation approach be taken with this historically important object rather than full restoration action:

- Remove the gun from the base. That may involve intrusive methods to remove the welding around the bolts, if possible. All means of removal should be explored that avoid cutting the bolts off in order to lift the gun off the concrete pad.

- The gun should be properly prepared for moving to avoid further damage and loss of material or components.

- If possible, the gun should be moved to a location close to the permanent display location where stabilization/restoration can take place.

- The goal of the treatment should be to restore the appearance to an 'as used' condition by removing the paint layers in as minimally intrusive a manner as possible, e.g. chemical stripping, and avoid blasting methods which could damage non-corroded metal surfaces.

- It is recommended that only parts that are essential for the gun to 'read properly' to visitors be replaced. The records held by the Naval Heritage Command center should be researched to find any documentation of the appearance of the gun at the time that it was removed from the USS Ward until it was installed on the MN State Capitol Mall. That may aid in informing the final result of the treatment.

References:

1. MNHS CMS Record for MN 127 (**EMu Internal Record No:** 10614815) Physical Description section, 2013

2. MNHS CMS Record for MN 127 (**EMu Internal Record No:** 10614815): Treatment Information section, 2015

3. Online article on the MNHS website: Storch, Paul S., "Conservation Treatment of the USS Ward Forward Gun, Minnesota State Capitol Mall", July 2006.

   https://mnhs.gitlab.io/archive/conservation/www.mnhs.org/preserve/conservation/reports/ward_gun.pdf

Submitted by: Paul S. Storch, Objects Conservator

Date: 2/14/2024