
MISPILLION (AO-105)
105

MISPILLION
(AO-105)
Suisun Bay Reserve Fleet
Benicia vicinity
Solano County
California

HAER CA-338
HAER CA-338

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240-0001

HISTORIC AMERICAN ENGINEERING RECORD

MISPILLION
(AO-105)

HAER No. CA-338

Location:	Suisun Bay Reserve Fleet, Benicia vicinity, Solano County, California	
Rig/Type of Craft:	T3-S2-A3 (jumboized 1965)/ Auxiliary	
Trade:	Fleet oiler	
Principal Dimensions (As Built):	Length:	553'
	Beam:	75'
	Draft:	32'
	Cargo capacity:	123,700 barrels (oil)
	Displacement:	25,525 long tons
(Jumboized):	Length:	664'
	Beam:	75'
	Draft:	34'-9"
	Cargo capacity:	150,000 barrels (oil)
	Displacement:	33,987 long tons
Dates of Construction:	14 February 1945—29 December 1945	
Designer:	U.S. Maritime Commission	
Builder:	Sun Shipbuilding and Dry Dock Company, Chester, Pennsylvania	
Present Owner:	U.S. Maritime Administration (MARAD)	
Disposition:	Inactive—National Defense Reserve Fleet	
Significance:	*Mispillion* is a surviving example of the T3-S2-A3 fleet oilers that were jumboized in the mid-1960s to extend their service lives.	
Historian:	Brian Clayton, spring 2006	

Project Information: This project is part of the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering and industrial works in the United States. The Heritage Documentation Programs of the National Park Service, U.S. Department of the Interior, administers the HAER program.

The project was prepared under the direction of Todd Croteau (HAER Maritime Program Coordinator). Jet Lowe (HAER Photographer) produced the large-format photographs. Special thanks go to Erhard Koehler (U.S. Maritime Administration) whose help and assistance greatly benefited this project.

Historical Context

When the United States entered World War II, one of the first priorities was the construction of ships. The global experience and ferocity of World War I taught the United States that World War II would be on a grander scale and in more places, involve more people, and require more equipment, in other words, it would be total war. During World War II, the U.S. Maritime Commission became a pivotal force in the development and construction of ships, much like the U.S. Shipping Board had been in World War I. Established in 1936, the Maritime Commission succeeded the Shipping Board but generally followed the same directive: the promotion of U.S. shipping interests. After the United States entered World War II, the Maritime Commission created the "Emergency Program," a massive ship construction plan that utilized new and existing shipyards across the United States.[1]

The need for the Emergency Program stemmed from the decline in the maritime industry in the inter-war years. After 1918, many ships in the Merchant Marine were from the mobilization endeavor to support American troops in World War I, authorized by the U.S. Shipping Board. The board approved the construction of 470 ships to support the war effort. Between 1918 and 1922, the board added another 1,300 ships to the Merchant Marine, giving the United States a more robust presence in international shipping than it had had in seventy years. The U.S. stock market crash in 1929 was a major setback to the maritime industry. During the Great Depression, many steamship companies were unable to replace or update their aging ships—over 90 percent of the fleet was over twenty years old and had an average speed between 10 and 11 knots.[2]

In the mid-1930s, the U.S. government intervened with new legislation to aid the beleaguered maritime industry. President Franklin D. Roosevelt's New Deal economic policies eventually helped revive the Merchant Marine when Congress passed the Merchant Marine Act of 1936. The act created the U.S. Maritime Commission, superseding the U.S. Shipping Board, and it infused new capital and ideas for rebuilding the fleet. In 1937, the Maritime Commission developed a long-range program for building 500 ships that were both contemporary and economical over a ten-year period. In 1939, the Maritime Commission determined that the production quota of fifty ships per year was too low and doubled the original number to 100 ships per year. There were mounting concerns about the war in Europe and the success of the German U-boat campaign against English shipping, particularly since U.S. steamship companies traded with England and France. The U.S. also feared that Germany might next turn its attention

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[1] Russell F. Weigley, *The American Way of War: A History of United States Military Strategy and Policy* (New York, NY: MacMillan Publishing Co., Inc., 1973), pp. xxi-xxiii; René De La Pedraja, *A Historical Dictionary of the U.S. Merchant Marine and Shipping Industry since the Introduction of Steam* (Westport, CT: Greenwood Press, 1994), 563-66, 629-31. During World War II, the Maritime Commission received 5,777 ships. The commission issued contracts for 5,601 vessels; private firms built 111 ships while foreign firms built sixty-five.

[2] Brian J. Cudahy, *Box Boats: How Container Ships Changed the World* (New York: Fordham University Press, 2006), 2-3; L.A. Sawyer and W.H. Mitchell, *Victory Ships and Tankers: The History of the 'Victory' Type Cargo Ships and of the Tankers Built in the United States of America during World War II* (Cambridge, MD: Cornell Maritime Press, Inc., 1974), 15; Frederic C. Lane, *Ships for Victory: A History of Shipbuilding under the U.S. Maritime Commission in World War II* (Baltimore: The Johns Hopkins Press, 1951), 21.

to U.S. ships or U.S. trade routes. In response, the Maritime Commission raised its shipping quota once again in August 1940 to 200 ships per year.[3]

T3-S2-A3 Type Design

Shortly after the signing of the Merchant Marine Act in 1936, U.S. oil companies began expressing interest in constructing high-speed tankers. The U.S. Navy was also interested in this vessel type, viewing high-speed tankers as an integral part of its fleet. Adm. Emory S. Land, chairman of the U.S. Maritime Commission, proposed that the commission assist with the construction of these tankers by paying for upgraded engines that would make the vessels suitable for national defense use. On 3 January 1938, the Maritime Commission signed a contract with Standard Oil to pay for national defense features on twelve oilers, designated T3-S2-A1. The USS *Cimarron*, the first in the T3 class, was launched on 7 January 1939 and entered naval service as a fleet oiler. This was the navy's first fleet oiler since the *Kanawha* of 1915. As the tempo of naval operations accelerated in the Pacific in 1943, the navy needed more oilers for its operations. Eighteen additional T3-S2-A1s were built from 1943-46.[4]

The early tankers had turbo-electric drives, but other types with steam propulsion were developed, including the T3-S2-A3, which was twin-screw. Sun Shipbuilding and Dry Dock Company built the five T3-S2-A3 fleet oilers, including *Mispillion*. The company laid the keel of *Mispillion* (AO-105) under the Maritime Contract, hull number 562 on 14 February 1945. Established in 1917, Sun Shipbuilding and Dry Dock Company was located on the Delaware River, 15 miles south of Philadelphia. During the inter-war years, Sun Shipbuilding built tankers for the Standard Oil Company. The shipyard originally had only eight ways but added another twelve for a total of twenty ways at the beginning of the Emergency Program during World War II using a $28 million investment from the U.S. Maritime Commission. The shipyard added another eight ways for a total of twenty-eight, making it the largest in the country. At the peak of production, Sun Shipbuilding employed 40,000 people.[5]

Description

The T3-S2-A3 oilers were 553' in overall length with beams of 75' and drafts of 32'-4". The American Bureau of Shipping rated *Mispillion* at 11,335 gross tons and 18,300 deadweight tons with a displacement of 23,235 tons. The twin-screw propulsion plant generated 13,500 shaft horsepower for a top speed of 18.3 knots. The average cruising distance was around 15,300 miles. There were accommodations for twenty-two officers and 282 enlisted.[6]

Jumboization

As early as 1947, Capt. Edward E. Paré introduced the idea of a one-stop replenishment ship to supply vessels at sea, influenced by the German *Dithmarschen*. The navy developed various

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[3] Cudahy, *Box Boats*, 3; Sawyer and Mitchell, *Victory Ships and Tankers*, 15-16.
[4] Thomas Wildenberg, "The Origins and Development of the T2 Tanker," *American Neptune* (summer 1992), 158-60; Sawyer and Mitchell, *Victory Ships and Tankers*, 182; James L. George, *History of Warships: From Ancient Times to the Twenty-First Century* (Annapolis, MD: Naval Institute Press, 1998), 219.
[5] Sawyer and Mitchell, *Victory Ships and Tankers*, 89, 179, 183.
[6] U.S. Navy, *Ships' Data U.S. Naval Vessels: Auxiliary, District Craft, and Unclassified Vessels* (Washington, DC: Government Printing Office, 1946), 176-78.

ship designs and experimented with replenishment methods, including jumboizing the five fleet oilers of the T3-S2-A3 class in the mid-1960s. Jumboization was chosen because it cost $20 million while the construction of a new ship was $45 million. The jumboization process involved the following:

> the ships were moved by tugs into a floating dry dock. First, cutting torches neatly sliced the ships in two just aft of the bow and the after section floated away. A new midbody was then floated in, properly positioned, and welded to the old bow. Next, the 190-ton superstructure amidships was lifted from the old midbody to the new section. The original section was then cut from the old midbody and floated away. In the final step of the transformation, the new midbody with old bow and superstructure now attached was floated into the dry dock, raised, and welded to the old stern. Modifications, including a new counterbalanced rudder, new struts, and shorter propeller shafts, were made to the stern to compensate for the longer underwater body.[7]

American Shipbuilding Company of Toledo, Ohio, fabricated the new amidship section for *Mispillion*, and it was fitted on the ship in Boston, Massachusetts, in 1964. Two new counterbalanced rudders and shorter shafts were added to aid maneuverability. The conversion increased the ship's cargo capacity by 50 percent to 150,000 barrels. The ship's displacement characteristics consequently changed to 12,840 light displacement tons and 33,987 long tons. The length increased to 664', while the draft was 34'-9".[8]

During the conversion process, the yard enhanced the ship's fueling process as well. New kingposts with hose outriggers were added, along with ram-tensioners. Electric-hydraulic winches supplanted old steam winches. The fueling points on the starboard side were fitted with 7" hoses, and port side stations received dual probe fueling systems. The navy upgraded the equipment on board during the refit, including installing larger piping and electric cargo pumps to increase pumping capacity. Some spaces were converted to a library, bookshop, and laundry, and air conditioning was installed.[9]

Operational History

In 1944, the United States was in a full-scale offensive and race across the Pacific. Consequently, warships were out to sea for longer periods than in previous years and using more ammunition. The U.S. Navy formed the Logistic Support Group, and ammunition and store ships began underway replenishment evolutions. Navy oilers, like *Mispillion*, supplied vessels-at-sea so they would not have to return to base for supplies. Underway replenishment consists of two or more vessels reaching similar speed and course. With the ships on a parallel course and at a close distance, the oiler passes a line to the receiving ship. High-strength lines strung between ships allow cargo and fuel lines to be pulled across to the receiving ship. The oiler's boom held the fuel hose through a saddle, and the receiving vessel attached the hose to the

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[7] Thomas Wildenberg, *Gray Steel and Black Oil: Fast Tankers and Replenishment at Sea in the U.S. Navy, 1912-1995* (Annapolis, MD: Naval Institute Press, 1996), 238-39.
[8] Sawyer and Mitchell, *Victory Ships and Tankers*, 183.
[9] Sawyer and Mitchell, *Victory Ships and Tankers*, 183.

bunker for refueling. Underway replenishment became the standard procedure for replenishing the battle fleet in World War II.[10]

Mrs. Feddeman sponsored *Mispillion*, named for a river in the central eastern portion of Delaware, at its launching on 10 August 1945. The ship arrived in Norfolk on 29 December 1945 to begin naval service under the command of Cmdr. R.E. Wingler. *Mispillion* transported fuel to various ports in the Pacific and mostly served as a station tanker within Service Force, Pacific. The ship participated in an atomic bomb test called "Sandstone" in 1948 before heading to Alaska.[11]

When the Korean War began, the ship commenced operations with Task Force 90. It supported the Inchon invasion force in 1950 and helped ships in the Wonton area. After a brief overlay in the United States, *Mispillion* returned to Korea for a second tour of duty in 1951. From 1951-53, the ship provided logistical support during the blockade of North Korea and shore bombardment operations directed against Communist forces. The navy transferred the ship to Task Force 77, and it operated between the coasts of Japan and Korea, supporting the task force during combat operations until the end of hostilities.[12]

The ship rotated between the United States' West Coast and the Pacific from 1953 until 1964, assisting in a variety of naval exercises. This included "Redwing" in 1956, an atomic test in the Marshall Islands. The ship then returned to the United States for jumboization.[13]

After the conversion, *Mispillion* went to its homeport of Long Beach, California, and then returned to active duty in 1967. As a member of the Seventh Fleet in the Vietnam War, the ship serviced carriers and gunfire support ships participating in combat operations. At the conclusion of the Vietnam War, *Mispillion* entered service in the Military Sealift Command (MSC) until deactivation in 1994. The navy transferred title to the U.S. Maritime Administration for layup in the National Defense Reserve Fleet in Suisun Bay, California.[14]

Conclusion

The Maritime Commission's role in World War II proved exceptional and continues through the U.S. Maritime Administration, as does the fleet oiler in its role of supplying today's battle fleet. During forty-nine years of service, *Mispillion* went through many changes that were indicative of technological changes occurring in the U.S. Navy. Those changing technologies and jumboization allowed the ship to remain in service for an extended period of time.

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[10] George, *History of Warships*, 220; A.S. Bussey, "Skillful Technique Developed in Replenishment at Sea," *Bureau of Ships Journal* 7 (July 1952): 30-31.
[11] U.S. Navy, *Dictionary of American Naval Fighting Ships*, vol. IV (Washington, DC: Naval Historical Center, 1991), 377.
[12] Navy, *Dictionary*, 377-78.
[13] Navy, *Dictionary*, 377-78.
[14] Navy, *Dictionary*, 378.

Appendix A: Historic Photographs

Figure 1: Back reads: "….Starboard view, USS Mispillion (AO-105) operating off coast of Oahu, Hawaii."
Date: 18 January 1964
Photographer: PH2 D.R. Parks
Available at Naval Historical Center, Photographic Section, MSC Files, Washington, DC.

Figure 2: Back reads: "….USS Mispillion (AO-105) bow quarter view."
Date: 27 January 1966
Photographer: Kaplan
Available at Naval Historical Center, Photographic Section, MSC Files, Washington, DC.

Appendix B: List of Jumboized T3-S2-A3s

Yard	Hull #	MC #	Name	Delivered	Disposition
Sun SB & DD Co	526	2701	*Mispillion*	12/29/1945	To U.S. Navy as AO-105, jumboized 1964, National Defense Reserve Fleet (NDRF) 1999
Sun SB & DD Co	527	2702	*Navasota*	2/27/1946	To U.S. Navy as AO-106, jumboized 1964, scrapped 1995
Sun SB & DD Co	528	2703	*Passumpsic*	1/4/1946	To U.S. Navy as AO-107, jumboized 1964, NDRF 1991
Sun SB & DD Co	529	2704	*Pawcatuck*	10/5/1946	To U.S. Navy as AO-108, jumboized 1964, NDRF 1999
Sun SB & DD Co	530	2705	*Waccamaw*	6/25/1946	To U.S. Navy as AO-109, jumboized 1964, NDRF 1999

Bibliography

Bussey, A.S. "Skillful Technique Developed in Replenishment at Sea." *Bureau of Ships Journal* 7 (July 1952): 30-32.

Cudahy, Brian J. *Box Boats: How Container Ships Changed the World*. New York: Fordham University Press, 2006.

De La Pedraja, René. *A Historical Dictionary of the U.S. Merchant Marine and Shipping Industry since the Introduction of Steam*. Westport, CT: Greenwood Press, 1994.

George, James L. *History of Warships: From Ancient Times to the Twenty-First Century*. Annapolis, MD: Naval Institute Press, 1998.

Lane, Frederick C. *Ships for Victory: A History of Shipbuilding under the U.S. Maritime Commission in World War II*. Baltimore, MD: The Johns Hopkins Press, 1951.

Sawyer, L.A. and W.H. Mitchell. *Victory Ships and Tankers: The History of the 'Victory' Type Cargo Ships and of the Tankers Built in the United States of America during World War II*. Cambridge, MD: Cornell Maritime Press, Inc., 1974.

U.S. Navy. *Dictionary of American Naval Fighting Ships*. Vol. IV. Washington, DC: Naval Historical Center, 1991.

_____. *Ship's Data, U.S. Naval Vessels: Vol. III Auxiliary, District Craft, and Unclassified Vessels*. Washington, DC: Government Printing Office, 1946.

Weigley, Russell F. *The American Way of War: A History of United States Military Strategy and Policy*. New York, NY: Macmillan Publishing Co., Inc., 1973.

Wildenberg, Thomas. "The Origins and Development of the T2 Tanker." *American Neptune* (summer 1992), 156-66.

_____. *Gray Steel and Black Oil: Fast Tankers and Replenishment at Sea in the U.S. Navy, 1912-1995*. Annapolis, MD: Naval Institute Press, 1996.

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Jet Lowe, photographer, January 2006

CA-338-1	View of bow.
CA-338-2	Starboard side of bow.
CA-338-3	3/4 perspective from port bow quarter.
CA-338-4	Midsection, port side.
CA-338-5	Profile, port side. Note elongated look from "jumboization."
CA-338-6	Perspective view from port stern quarter.
CA-338-7	Direct view of stern.
CA-338-8	Starboard stern quarter view.
CA-338-9	Controls, engine room.
CA-338-10	Steam turbines in background with Westinghouse reduction gears visible in foreground.
CA-338-11	Control room, boiler on right.
CA-338-12	Boilers, looking forward to control space. Note ranks of two boilers on the right and left.
CA-338-13	Engine room from above.
CA-338-14	Hydraulic steering gear. Note manual cranks and spiral hose for dehumidification control.

CA-338-15 Dual angled steering motors (Western Gear Corp. Model SHRES 9.25).

CA-338-16 Underway replenishment system, looking forward.

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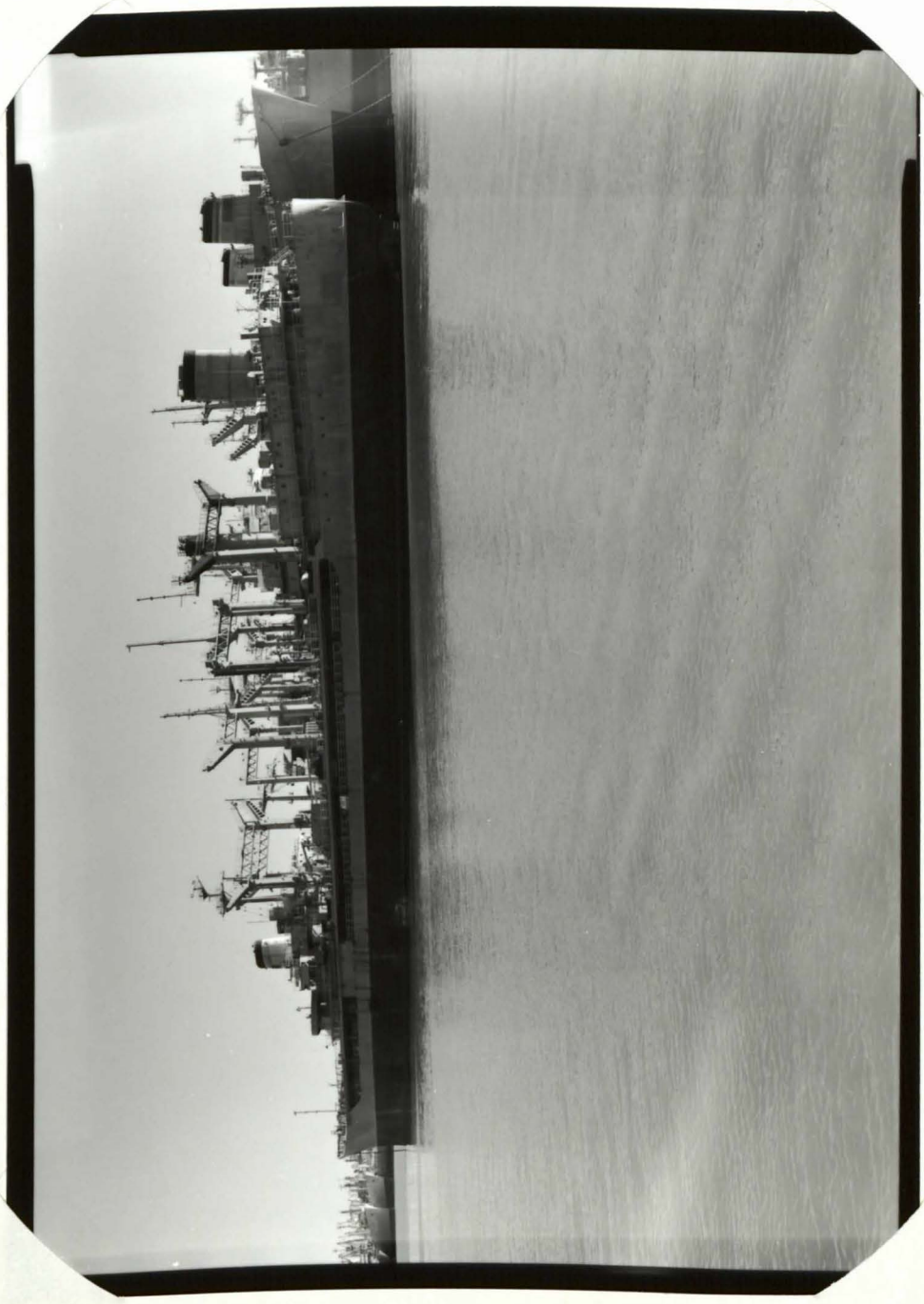

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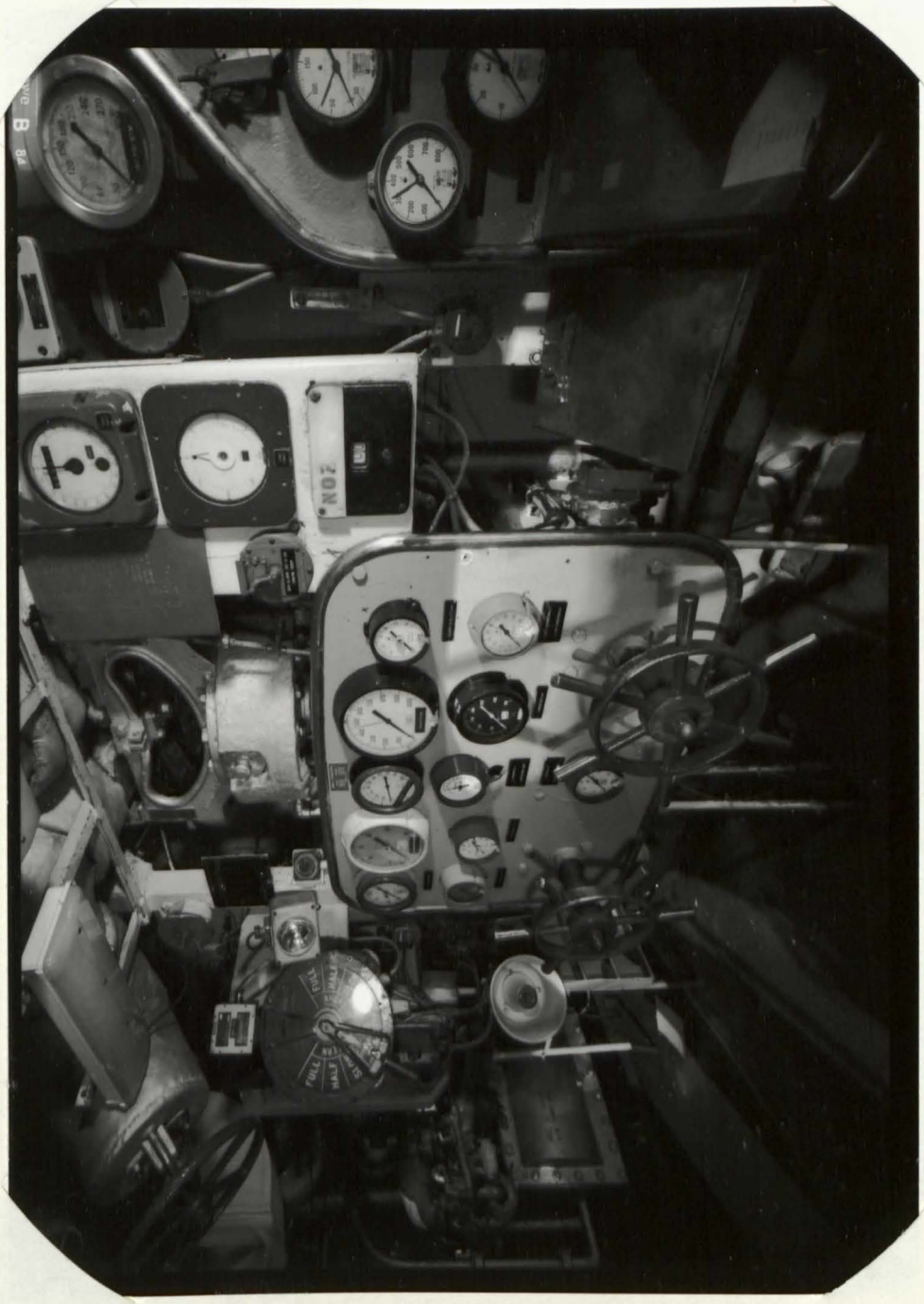

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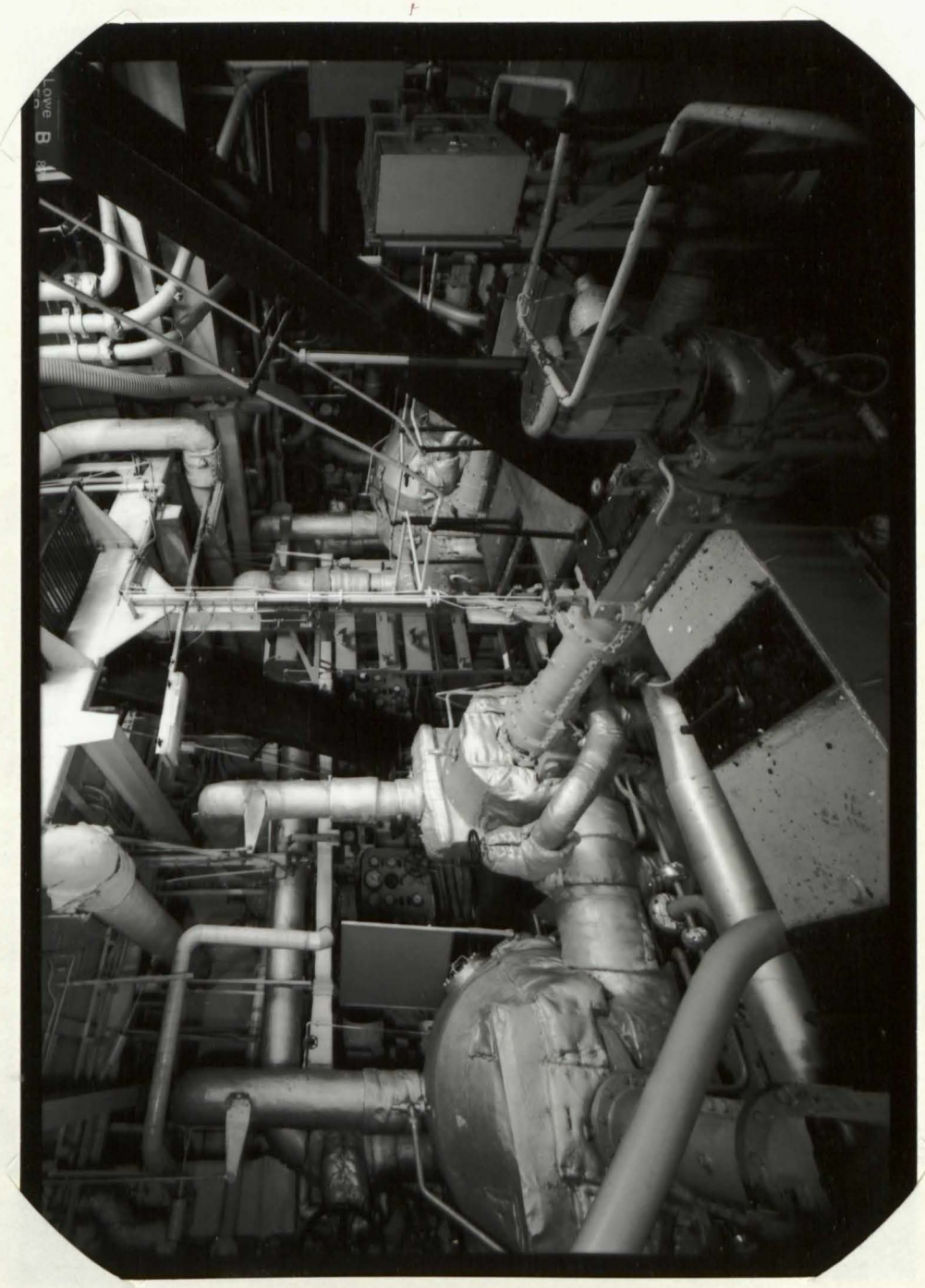

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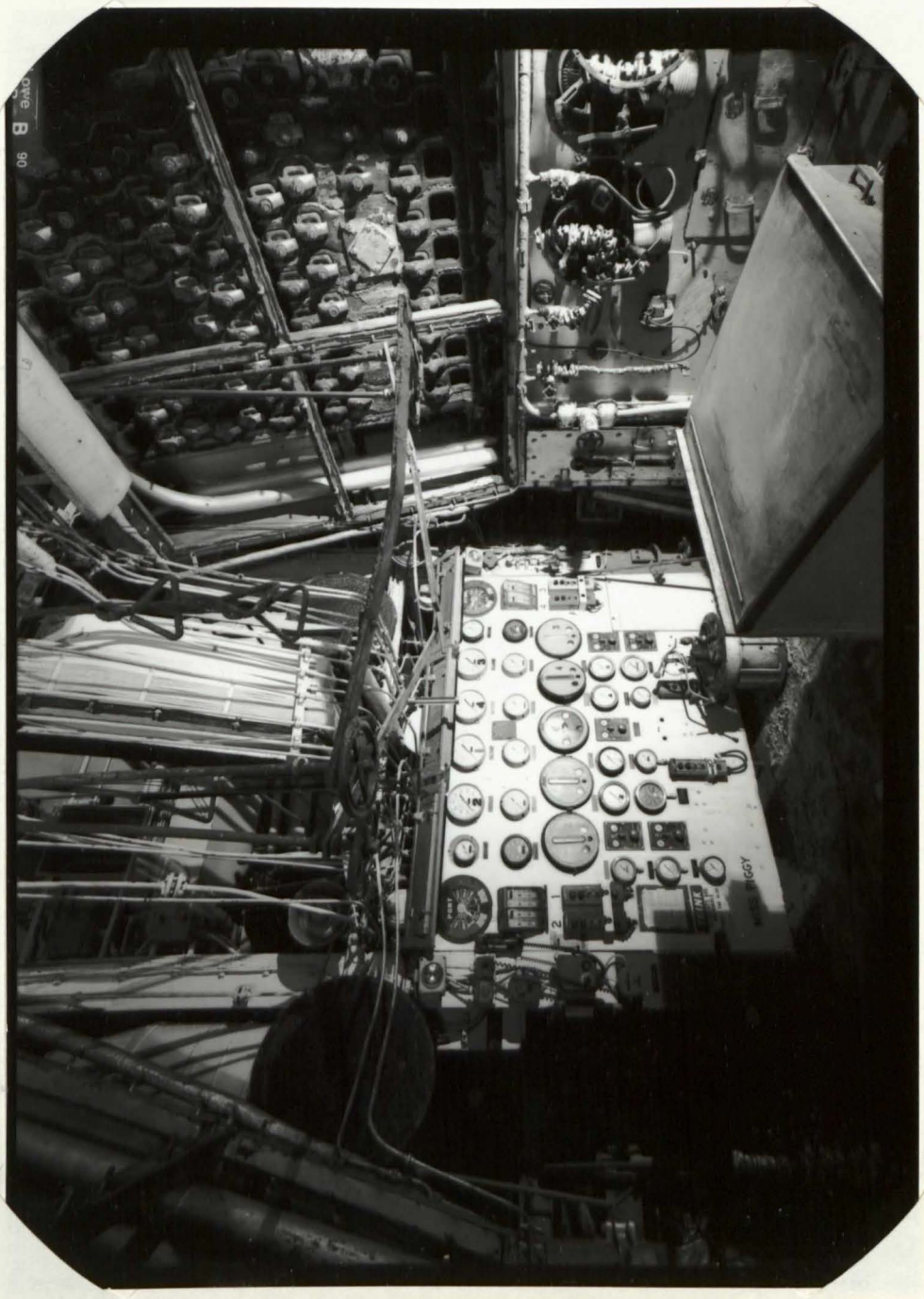

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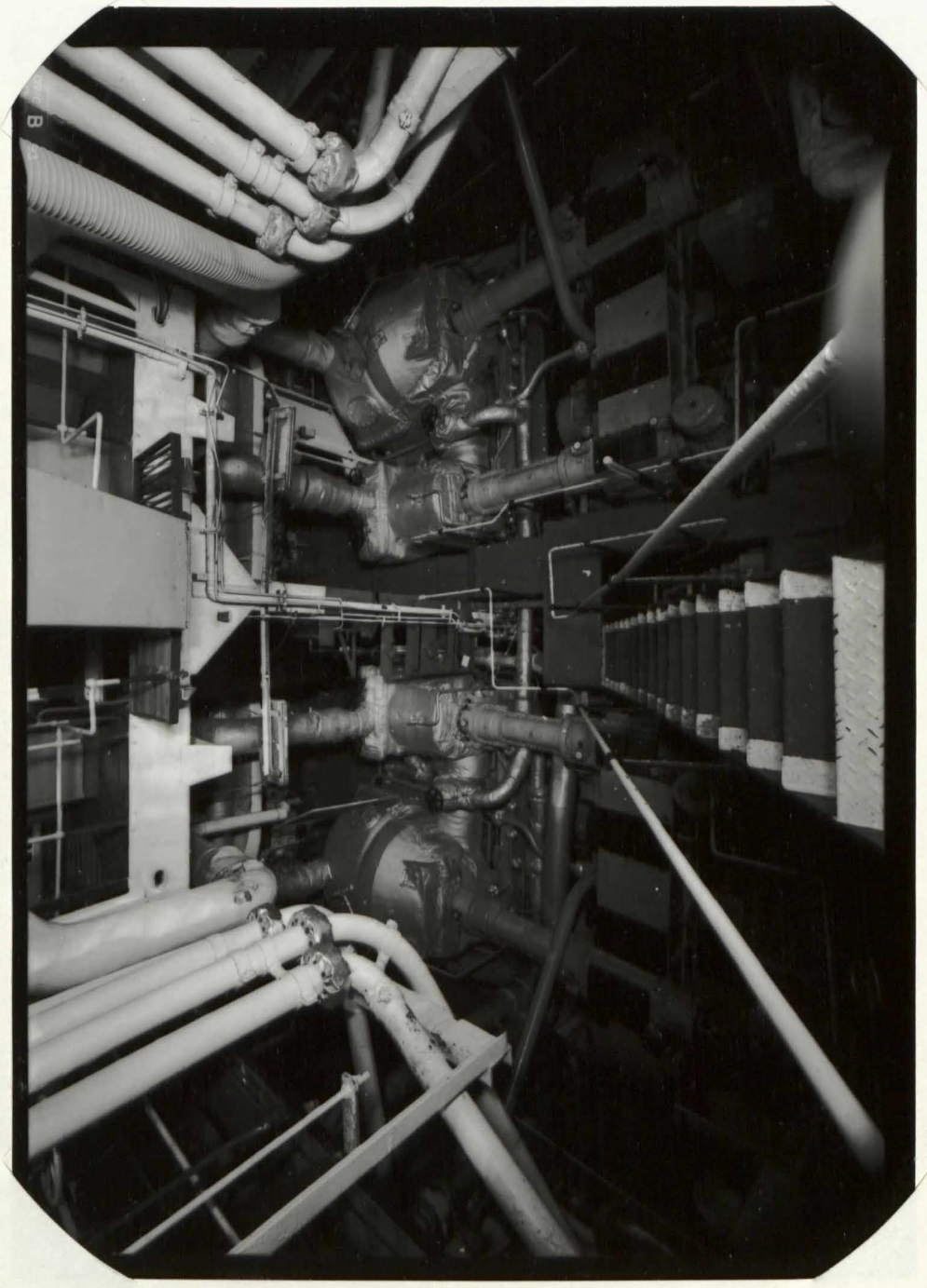

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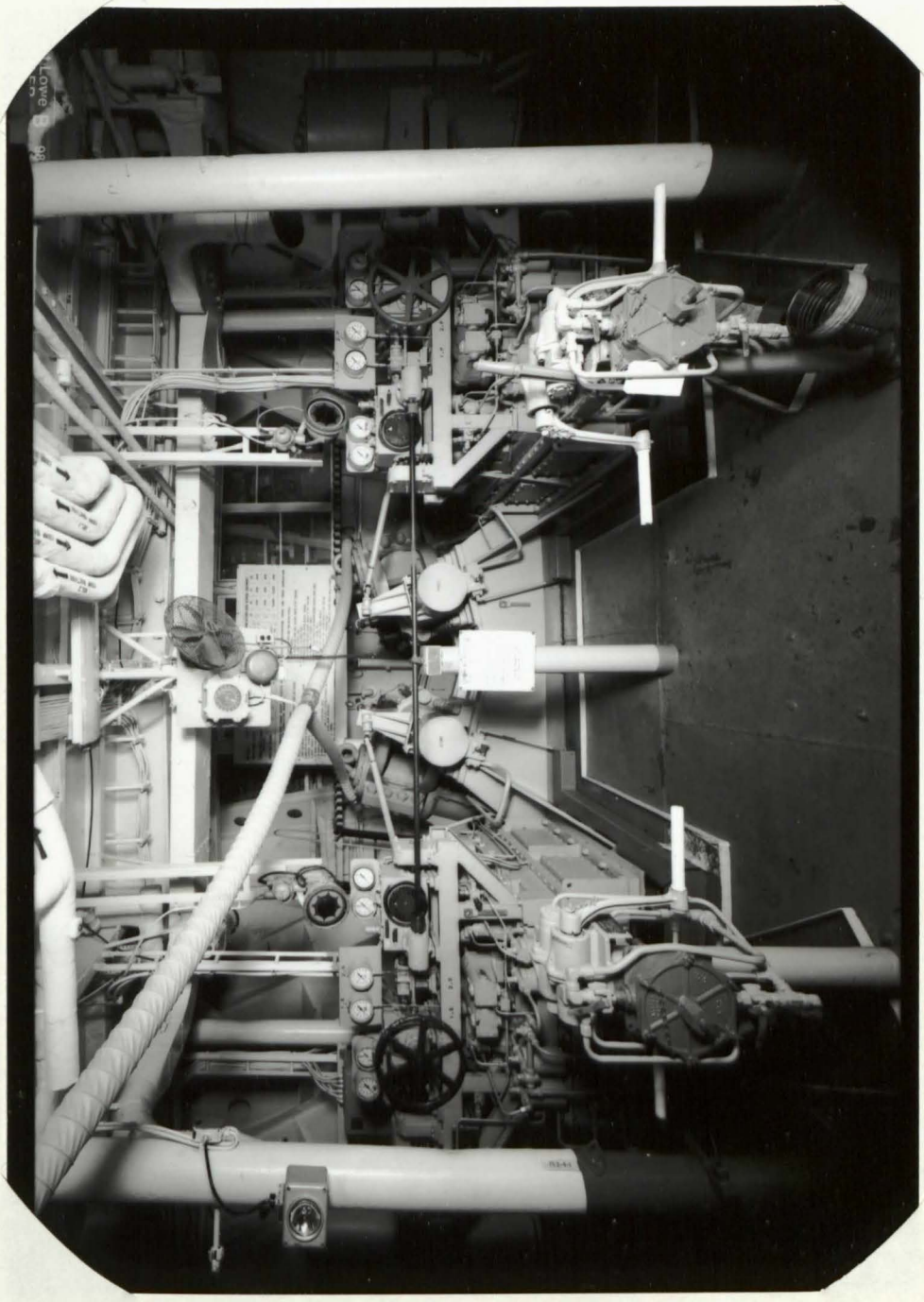

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