



NAVY TANKER T2-SE-A2 MISSION SANTA YNEZ (AO-134)

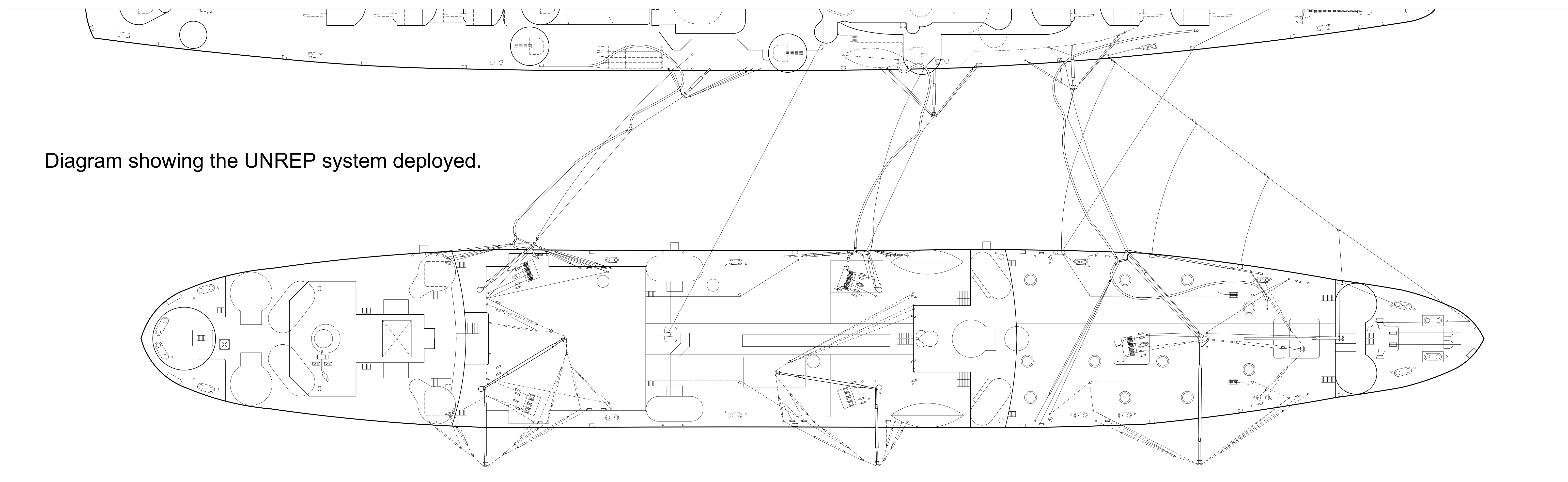
LAUNCH DATE: DECEMBER 19, 1943

The Marinship Corporation constructed thirty-one "Mission" class tankers for the U.S. Navy. The design was an adaptation from the T2-SE-A1, with the exception of a larger power plant - 10,000 hp versus 6,000 hp. Members of this class served in the U.S. Navy, Naval Transportation Service, and Military Sea Transportation Service - later Military Sealift Command. The *Mission Santa Ynez* transported fuel products from 1943 to 1975 and significantly contributed to her country in times of war and peace. She is the last *Mission* tanker afloat.

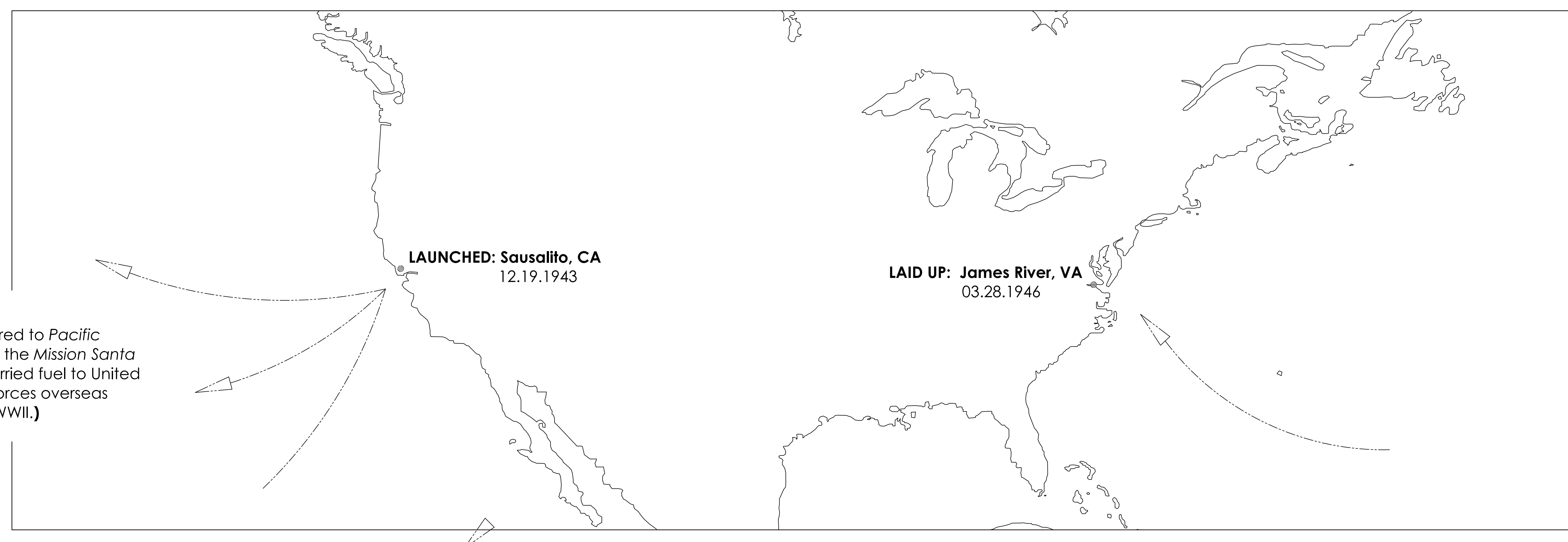
Principle Dimensions:
Length (oa): 523'6"
Beam: 68'
Draft: 30'
Cargo Capacity: 120,400 barrels (oil)
Displacement: 21,880 (fl) tons



Diagram showing the UNREP system deployed.



(Chartered to Pacific Tankers, the *Mission Santa Ynez* carried fuel to United States forces overseas during WWII.)



This project was cosponsored by the Historic American Engineering Record (HAER) and the U.S. Maritime Administration (MARAD). The project was directed by Todd A. Croteau, HAER Maritime Program Coordinator and Erhard Koehler, MARAD Ships Disposal Coordinator. Team members included; Brian Clayton - Historian, Crystal Olin - Architect, and Jet Lowe - HAER Staff Photographer.

NOTE:

Please refer to the U.S. NAVY OILERS AND TANKERS (HAER DC-62): UNDERWAY REPLENISHMENT AND FUELING TECHNOLOGIES documentation set for a detailed account of how the *Mission Santa Ynez* and related ships functioned at sea.

HISTORIC AMERICAN ENGINEERING RECORD

Mission Santa Ynez (AO-134)

HAER No. CA-337

Location: Suisun Bay Reserve Fleet, Benicia vicinity, Solano County, California

Type of Craft: T2-SE-A2/Auxiliary

Trade: Tanker

Class: *Mission*

Hull No.: AO-134

**Principal
Dimensions:**

Length (oa): 523'-6"

Beam: 68'

Draft: 30'

Cargo capacity: 120,400 barrels (oil)

Displacement: 21,880 (fl) tons

(The listed dimensions are as built, but it should be noted that draft, displacement, and tonnages were subject to alteration over time as well as variations in measurement.)

Propulsion: Turbo-electric

Dates of

Construction: Keel laying: 9 September 1943
Launching: 19 December 1943
Delivery: 13 March 1944

Designer: U.S. Maritime Commission

Builder: Marinship Corporation, Sausalito, California

Present Owner: U.S. Maritime Administration

Significance: The *Mission Santa Ynez* is significant as the last surviving example of the thirty-one *Mission* tankers built by The Marinship Corporation. The design was an adaptation of the T2-SE-A1 and boasted a larger power plant—10,000 horsepower (hp) versus 6,000 hp. Ships in this class served in the U.S. Navy, the Naval Transportation Service, and

the Military Sealift Transportation Service (now Military Sealift Command).

Historian: Brian Clayton, summer 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). Crystal Olin (HAER Intern Architect) generated the vessel drawings. Jet Lowe (HAER Photographer) produced the large-format photographs. Special thanks go to Erhard Koehler (U.S. Maritime Administration) whose assistance greatly benefited this project.

BACKGROUND

One of the first priorities of the United States upon entering World War II 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, in more places, involve more people, and require more equipment—total war.¹ 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. Created 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 established the “Emergency Program,” a massive ship construction plan that utilized new and existing shipyards across the United States.²

The need for the Emergency Program stemmed from the decline of the maritime industry in the inter-war years. A majority of the ships in the Merchant Marine originated from the mobilization endeavor authorized by the U.S. Shipping Board to support American troops in World War I. The board approved the construction of 470 ships to support the war effort. Between 1918 and 1922, the board added 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 and the Great Depression were major setbacks to the maritime industry. Many steamship companies were unable to replace or update aging ships—over 90 percent of the fleet was over twenty years old and had an average speed of between 10 and 11 knots.³

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. By 1937, the U.S. Maritime Commission had 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 it.⁴

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.

² 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), pp. 563-566, 629-631. During World War II, the Maritime Commission issued contracts for 5,601 vessels. Private firms built another 111 ships while foreign firms built sixty-five for a total of 5,777 ships.

³ Brian J. Cudahy, *Box Boats: How Container Ships Changed the World* (New York: Fordham University Press, 2006), pp. 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), p. 15.

⁴ Cudahy, *Box Boats*, p. 3; Sawyer and Mitchell, *Victory Ships and Tankers*, p. 15.

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 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.⁵

Tankers played a crucial role in successfully defeating the Japanese in the Pacific during World War II. The necessity of tankers became apparent to the U.S. Navy after the fall of the Philippines and Guam, two important forward bases, which forced the navy to supply its forces at sea. Navy tankers like the *Mission Santa Ynez* generally supplied vessels at anchor or in safe locations, such as an atoll or lagoon. Later, the U.S. Armed Forces constructed forward bases that the tankers utilized as staging areas. In the last stages of the war in the Pacific, the U.S. Navy employed tankers using underway replenishment (UNREP) since the warships were at sea for longer periods of time and thus using more fuel, supplies, and ammunition. The UNREP method of fueling consisted of two or more vessels reaching similar speed and course. With the ships on a parallel course and at a close distance, the tankers, like the *Mission Santa Ynez*, passed a line to the receiving ship. High-strength lines strung between ships allowed cargo and fuel lines to be pulled across to the receiving ship. The tanker's boom held the fuel hose through a saddle, and the hose was attached to the receiving vessel's bunker for refueling.⁶

T2 TANKER

The most common type of tanker was the T2-SE-A1 (see HAER No. VA-128, *Saugatuck*, for example). The design can be traced to a commercial plan developed by the Sun Shipbuilding and Dry Dock Company for Standard Oil of New Jersey and later furnished to the Maritime Commission in 1942. The standard measurements of the T2 tanker were an overall length of 523'-6", 68' amidships, and a 30' draft. The American Bureau of Shipping rated the vessel at 10,448 gross tons and 16,613 deadweight tons. It displaced 21,650 tons of water. The ship had a "raked bow, cruiser stern, and three islands." The T2-SE-A2, of which the *Mission Santa Ynez* is an example, was similar to the T2-SE-A1 design except that its single-screw, turbo-electric propulsion unit provided 10,000 shaft horsepower to allow the vessel to reach a top speed of 16-½ knots with an average cruising distance of around 12,600 miles. In comparison, the T2-SE-A1 had 6,000 shaft horsepower and a maximum speed of 15-½ knots.⁷ The plant of the *Mission* ships was problematic for engineers. Capt. Ted Anderson remembered

⁵ Sawyer and Mitchell, *Victory Ships and Tankers*, p. 16

⁶ James L. George, *History of Warships: From Ancient Times to the Twenty-First Century* (Annapolis, MD: Naval Institute Press, 1998), pp. 218-219; A.S. Bussey, "Skillful Technique Developed in Replenishment at Sea," *Bureau of Ships Journal* 7 (July 1952): pp. 30-31.

⁷ This description is based on Sawyer and Mitchell, *Victory Ships and Tankers*, pp. 97-98, 171-172, and U.S. Navy, *Ships' Data, U.S. Naval Vessels: Auxiliary, District Craft, and Unclassified Vessels* (Washington, DC: Government Printing Office, 1946), pp. 176-181.

...from the standpoint of breakdown and the necessity for repairs, I'll tell you they were just absolute workhorses for engineers. They were terrible, just terrible. The big problem with those Mission ships though, more than the standard T-2 with the 6000 horsepower plant, was you had a higher pressure and higher temperature on those boilers. Those darn handheld plugs on the economizer element had what they called a flexitallic gasket that was part metal and part asbestos. They'd wind up leaking and steam would come out and cut a groove in the steel or the seat of the gasket...Another thing that we played with all the time was condenser leaks...you were constantly dumping sawdust into the condensers to plug up all these holes. And then every once in a while you just had to stop and then you replaced the tubes in those condensers.⁸

Like the T2-SE-A1, one of the defining features of the T2-SE-A2 tanker design was the nine cargo tanks. The total cargo-handling capacity was 5,930,000 gallons or 120,400 barrels of oil. Tanks 2 through 9 measured 36'-6" wide and were made up of center tanks carrying 391,500 gallons with side tanks (sometimes referred to as wing tanks) on the port and starboard sides that each carried 165,000 gallons. Tank 1 differed in that it was made up solely of the side tanks and thus measured 13'-6" wide. Twenty-six cargo hatches in the upper deck with stairwells provided access to the tank interiors. In addition to the cargo tanks, 15,300 cubic feet of dry cargo could be carried just forward of Tank 1. A 15' x 12' hatch covered the cargo space and two 5-ton booms on the foremast serviced the area. Ballast was incorporated into the forepeak, and a collision bulkhead was located at the end of the tank. Another tank aft of the bulkhead could carry ballast or additional fuel. Most the drinking water came from two 35-ton tanks located amidships and an auxiliary tank in the stern.

On the upper deck were two kingposts in the after well and 3-ton 30' booms to handle the fuel and steam lines used during the underway replenishment operations. Raised catwalks on the upper deck between the islands provided a place for the crew to walk and avoid the extensive network of pipes.

In order to pump out the liquid contained within the cargo tanks, the *Mission* tankers had two pump rooms, one forward and one aft. A small pump house on the upper deck gave the crew access to the pump rooms.

Because of their role in World War II, the T2-SE-A2 tankers carried an assortment of weapons. A single 5"/38 dual-purpose gun was located on the stern and a single 3"/50 dual-purpose gun was mounted on the bow. Four twin 40-mm guns and twelve twin 20-mm guns were mounted at various points around the ship. There were two ammunition lockers to supply the armament. The forward ammunition storeroom was below the chain locker and under the waterline for protection. The rear ammunition lock was aft of the after peak and

⁸ Quoted in Walter W. Jaffee, *The Last Mission Tanker* (Sausalito, CA: Scope Publishing Company, 1990), unpaginated. Copy included in field records accompanying the documentation.

supplied the 5" gun on the poop deck. Both had flash-proof shafts and elevators to transport the ammunition.

Crew accommodations included two berthing areas and a galley. The middle island contained the officers quarters, while the aft island contained the majority of berths for the enlisted crew of forty-four men. The crew's mess was on the starboard side and was separated from the wardroom on the port side by the galley.

The life-saving equipment consisted of small boats on either side of the tanker. There was enough space for the entire crew on each side because a sinking ship tends to list, and the elevated side prevented the crew from deploying the craft. The lifeboats (twenty-five-person capacity) contained quick-release tackle on special skids. There were two additional life rafts suspended from inclined troughs. Additionally, there were emergency kick-out panels on divisional bulkheads in the living quarters, and chain ladders in the ventilation ducts coming up from the machinery spaces.

CONSTRUCTION

The Marinship Corporation laid the keel of the *Mission Santa Ynez* on 9 September 1943. The W.A. Bechtel Company established the Marinship Corporation in response to a request from Adm. Emory S. Land, chairman of the U.S. Maritime Commission, to build a shipyard. The Bechtel Company had been involved in shipbuilding through its association with the Seattle-Tacoma Shipbuilding Corporation. After scouting prospective sites, Kenneth Bechtel settled on an abandoned Northwestern Pacific Railroad terminal in Sausalito, California. On 12 March 1941, the Maritime Commission awarded the Bechtel Company a contract to build the shipyard and thirty-four *Liberty* ships. In summer 1942, however, the company learned its facility would be constructing tankers instead. The company produced eighteen *Liberty* ships from 1942 to December 1943, when it began building tankers. The first nine were fleet oilers while the next thirty-four were *Mission* tankers, including *Mission Santa Ynez*. From June 1942 until September 1945, Marinship built ninety ships under the U.S. Maritime Commission and employed 20,000 people.⁹

Mrs. Ralph K. Davies sponsored the *Mission Santa Ynez* at its launching on 19 December 1943, and it entered naval service on 13 March 1944. It took the Marinship Corporation 186 days to build the ship—101 days on the way and eighty-five days in dock. The *Mission* class tankers, of which there thirty-four (although only twenty-five maintained their original names), were all named after Catholic missions dating to the late eighteenth and early nineteenth centuries. (For a complete list of the *Mission* tankers, see Appendix B.) The *Mission Santa Ynez* was named for a Franciscan mission in colonial California dating to 1804.¹⁰

⁹ Richard Finnie, ed., *Marinship: The History of a Wartime Shipyard* (San Francisco: Marinship Corporation, 1947), pp. 1-5, 375-376; Jaffee, *The Last Mission Tanker*, unpaginated.

¹⁰ U.S. Navy, *Dictionary of American Naval Fighting Ships*, Vol. IV (Washington, DC: Naval Historical Center, 1991), p. 386.

DESCRIPTION

The *Mission Santa Ynez* was built following the general arrangement of the T2-SE-A2 tanker. At the fore end of the ship are winches on the forecastle deck with storage and utility spaces below. The bridge contains the upper bridge deck with the captain's office, stateroom, radio room, and two boats, the bridge deck with officer quarters, followed by fresh water storage. Aft is the poop deck, where the mess, galley, and crew quarters are located, and beneath it are the boilers and turbines. The nine cargo tanks are located in the midsection of the ship on the second deck, with the pump and engine rooms aft. Three centrifugal pumps manufactured by Ingersoll-Rand are located in the aft pump room and are rated at 2,000 gallons per minute (gpm). Electric motors in separate compartments drive the pumps. Other pumps include two Worthington 400-gpm vertical steam-reciprocating pumps, one Worthington 300-gpm vertical steam-reciprocating cargo pump, and one Worthington 700-gpm stripping pump. The engine room was altered from the original T2-SE-A1 design to accommodate the larger engine. The propulsion equipment includes a General Electric turbo-generator, as well as two General Electric auxiliary generators that produced a 450-volt alternating current. Two Babcock & Wilcox boilers are located behind the turbo-generator in the back room. The boilers provide the steam for the main turbine, auxiliaries, and pumps. The working steam pressure is 600 pounds per square inch at 825 degrees Fahrenheit. Todd oil burners and Hagen controls provide combustion. Inside the aft steering compartment is an electro-hydraulic gear built by Stetson-Ross Machine Company. The upper deck holds the chillroom, meat room and butter locker, along with the steward's stores at the aft end with storage compartments, the carpenter shop, and the chain room at the fore end.

OPERATIONAL HISTORY

Pacific Tankers, Inc. chartered the ship, and its first assignment was to carry fuel to U.S. forces overseas. The ship continued running fuel between various locations, including Balboa in the Canal Zone, Eniwetok in the Marshall Islands, and Ulithi in the Western Caroline Islands until the end of the war. The Maritime Commission reacquired the *Mission Santa Ynez* on 28 March 1946 and laid up the ship in the National Defense Reserve Fleet in James River, Virginia.¹¹

On 22 October 1947, the navy reacquired the ship and placed it in service with the Naval Transportation Service. On 1 October 1949, the navy transferred it to the Military Sea Transportation Service (MSTS) and chartered it to Mathiasen's Tanker Industries for operations. No records about the ship's movements could be found until 1955 when the *Mission Santa Ynez* delivered fuel to Greenland. In 1960, the ship supported the Sixth Fleet and conducted thirty-two underway replenishments while in the Mediterranean.¹²

¹¹ U.S. Navy, *Dictionary of American Naval Fighting Ships*, p. 386.

¹² U.S. Navy, *Dictionary of American Naval Fighting Ships*, p. 386.

The MSTs worked on the *Mission Santa Ynez* to extend its service life. Modifications were undertaken on 10 January 1964 to 18 March 1964 at the Savannah Machine and Foundry Company in Savannah, Georgia. The shipyard sandblasted and painted the ship, removed the wartime features, and upgraded machinery. These modifications improved the ship's appearance, efficiency, and ability to perform assigned tasks. The *Mission Santa Ynez* remained in service another ten years and provided ports to Vietnam with fuel and supplies as well as delivering aviation gas and petroleum products around the world until Military Sealift Command (MSC) decommissioned it in 1975. The *Mission Santa Ynez* is the sole remaining ship afloat in its class and currently is located in National Defense Reserve Fleet in Suisun Bay, California. The visible era of World War II ships is slowly disappearing as these remaining vessels await disposal.¹³

¹³ "Upgrading of Two 'Coated' T-2s Is Now Nearing Completion," *Sealift Magazine* 15 (November-December 1965): pp. 10-14.

Appendix A: Historic Photographs



Figure 1: USNS *Mission Santa Ynez* (AO-134) in service with MSC. From MSC Files, Naval Historical Center Photographic Section, Washington, DC.



Figure 2: USNS *Mission Santa Ynez* (AO-134) refueling-at-sea rig. From MSC Files, Naval Historical Center Photographic Section, Washington, DC.

Appendix B: List of T2-SE-A2 Mission Tankers and Their Dispositions

Yard	Hull #	MC #	Name	Date Constructed	Disposition
Marinship	25	1268	<i>Mission Purisima</i>	November 1943	AO-118, to National Defense Reserve Fleet (NDRF) 1955, scrapped
Marinship	26	1269	<i>Mission Santa Cruz</i>	December 1943	AO-133, to NDRF 1955, scrapped 1971
Marinship	27	1270	<i>Mission Soledad</i>	January 1944	AO-136, to NDRF 1957, sold private 1967 and converted to containership, scrapped
Marinship	28	1271	<i>Mission San Jose</i>	January 1944	AO-125, to NDRF 1957, sold private 1967 and converted to containership, scrapped
Marinship	29	1272	<i>Mission San Juan</i>	January 1944	AO-126, to USN 1964 as Flagstaff (AGM 21), renamed Mercury, scrapped 1971
Marinship	30	1273	<i>Mission San Miguel</i>	February 1944	AO-129, wrecked 1957 and abandoned
Marinship	31	1274	<i>Mission San Fernando</i>	February 1944	AO-114, to USN 1964 as Johnstown (AGM 20), renamed Redstone, scrapped 1995
Marinship	32	1275	<i>Mission Santa Ynez</i>	March 1944	AO-134, later AOT 111, to NDRF 1992
Marinship	33	1276	<i>Mission San Rafael</i>	March 1944	AO-130, to NDRF 1955, scrapped 1971
Marinship	34	1277	<i>Mission Solano</i>	March 1944	AO-135, to NDRF 1957, sold private 1967 and converted to containership, scrapped

Marinship	35	1278	<i>Mission San Luis Rey</i>	March 1944	AO-128, to NDRF 1955, scrapped 1972
Marinship	36	1279	<i>Mission San Carlos</i>	April 1944	AO-120, to NDRF 1958, sold private 1967 and converted to containership, scrapped
Marinship	38	1814	<i>Mission San Diego</i>	April 1944	AO-121, to NDRF 1954, sold private 1967 and converted to containership, scrapped
Marinship	39	1815	<i>Mission Carmel</i>	May 1944	AO-113, to NDRF 1957, sold private 1967 and converted to containership, scrapped
Marinship	40	1816	<i>Mission San Antonio</i>	May 1944	AO-119, to NDRF 1954, sold private 1967 and converted to containership, scrapped
Marinship	41	1817	<i>Mission San Gabriel</i>	May 1944	AO-124, to NDRF 1957, sold private 1967 and converted to containership, scrapped
Marinship	42	1818	<i>Mission Dolores</i>	May 1944	AO-115, to NDRF 1955, sold private 1967 and converted to containership, scrapped
Marinship	43	1819	<i>Mission Capistrano</i>	June 1944	AO-112, to NDRF 1955, to USN 1961 as AG 162, sold private 1972 and converted to drill ship
Marinship	44	1820	<i>Mission Santa Clara</i>	June 1944	AO-132, to NDRF 1959, to Pakistan 1963 as Dacca (A0- 141)
Marinship	45	1821	<i>Mission Buenaventura</i>	June 1944	AO-111, to NDRF 1960, to NDRF 1973

Marinship	46	1822	<i>Mission Santa Barbara</i>	July 1944	AO-131, to NDRF 1957, sold private 1967 and converted to containership, scrapped
Marinship	47	1823	<i>Mission San Luis Obispo</i>	July 1944	AO-127, to NDRF 1954, sold private 1967 and converted to containership, scrapped
Marinship	48	1824	<i>Mission Loreto</i>	July 1944	AO-116, to NDRF 1955, scrapped
Marinship	49	1825	<i>Mission Santa Maria</i>	August 1944	Sold private 1948, scrapped 1972
Marinship	51	1827	<i>Mission San Lorenzo</i>	August 1944	AO-92, renamed <i>Abatan</i> , converted to distilling ship (AW 4) 1944, to NDRF 1960, to Guantanamo Bay 1963, sunk as target 1980
Marinship	52	1828	<i>Mission Santa Ana</i>	December 1944	AO-93, renamed <i>Soubarissen</i> , converted to water tanker 1944, to NDRF 1955
Marinship	53	1829	<i>Mission Alamo</i>	January 1945	AO-94, renamed <i>Anacostia</i> , to NDRF 1959, sold private 1967 and converted to containership, scrapped
Marinship	54	1830	<i>Mission Los Angeles</i>	March 1945	AO-95, renamed Caney, to NDRF 1959, to USA 1966 as power plant 1966
Marinship	55	1831	<i>Mission San Francisco</i>	April 1945	AO-96, renamed <i>Tamalpais</i> , to NDRF 1957, to USA 1966 as power plant 1966

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HISTORIC AMERICAN ENGINEERING RECORD

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(AO-134)
Suisun Bay Reserve Fleet
Benicia vicinity
Solano County
California

HAER CA-337

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Jet Lowe, photographer, February 2006

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- CA-337-34 Worthington steam pump detail for cargo distribution system.
- CA-337-35 Detail of electric cargo pump with oil strainer box in foreground and discharge valve at top. The drive shaft through the bulkhead leads to electric pump. The motor is located behind the bulkhead to protect it from sparking due to oil fumes.
- CA-337-36 Centrifugal pump impellers spare, mounted on wall.
- CA-337-37 Distribution pipes. Can be spliced with HAER Nos. CA-337-3 8 and 39.
- CA-337-38 Distribution pipes. Can be spliced with HAER Nos. CA-337-3 7 and 39.
- CA-337-39 Distribution pipes. Can be spliced with HAER Nos. CA-337-3 7 and 38.
- CA-337-40 3/4 view of stern.

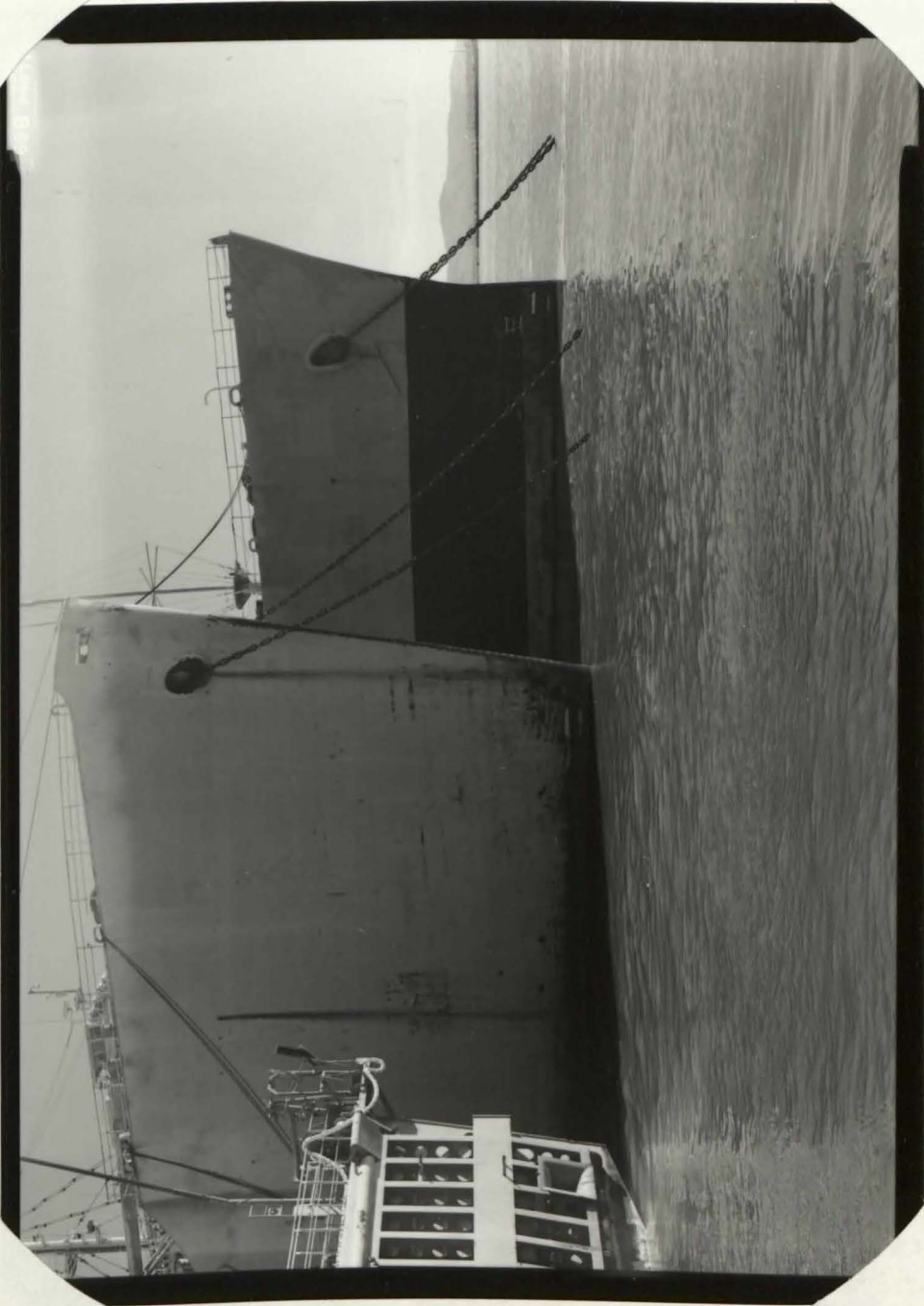
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SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-1



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-2



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-3



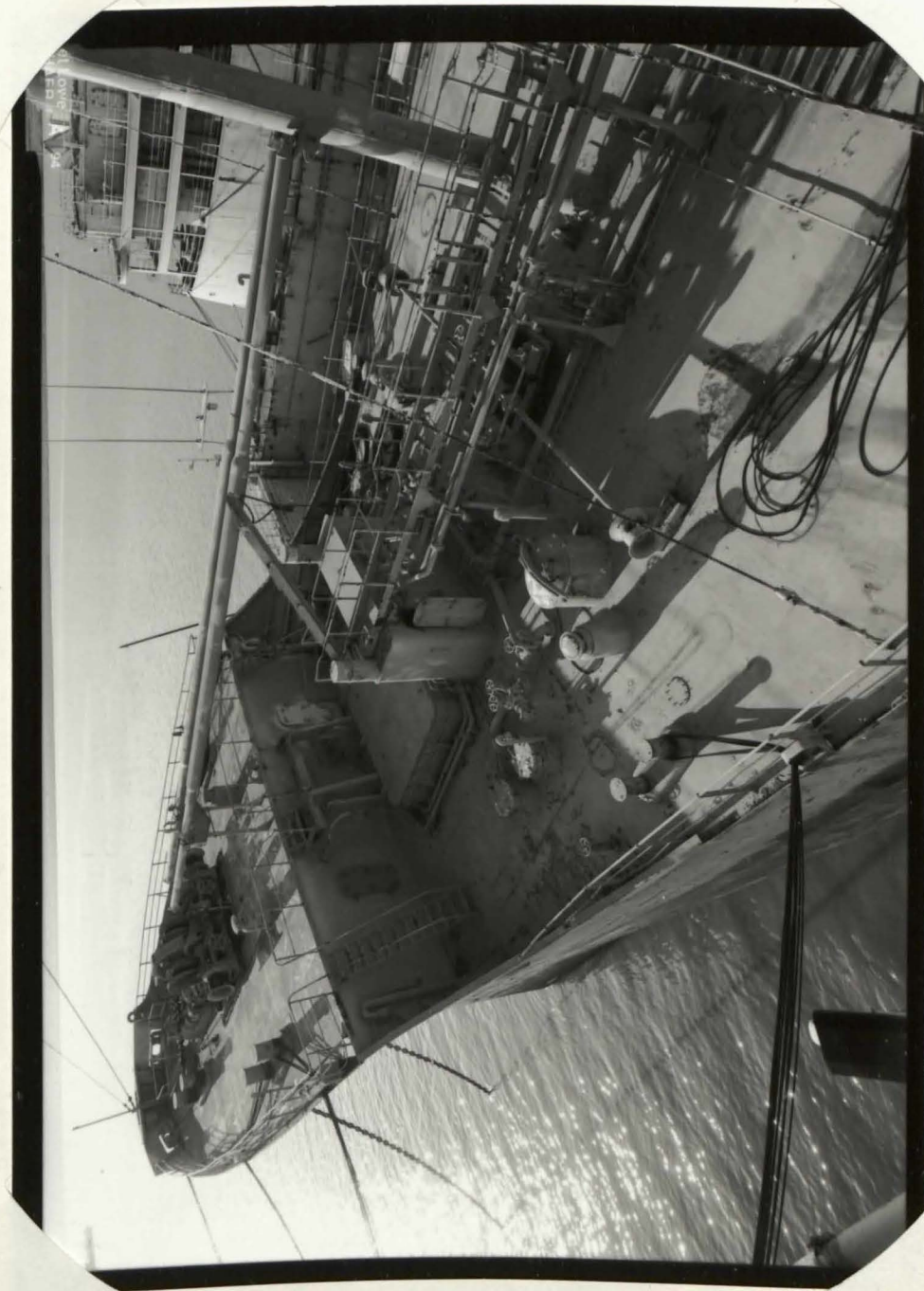
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HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

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HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-339-6



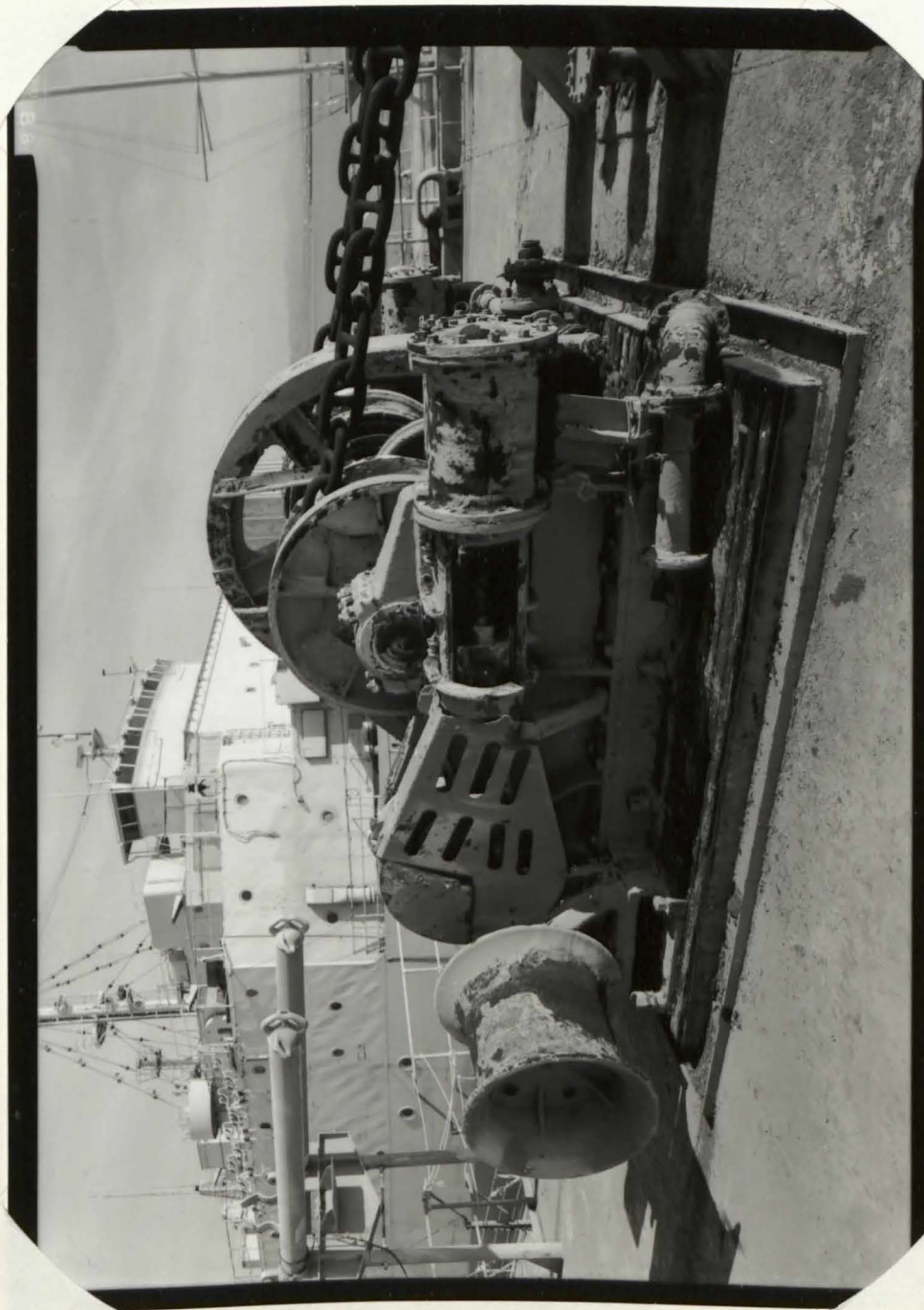
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SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-7



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-8



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-9



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-10



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-11



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-12



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-13



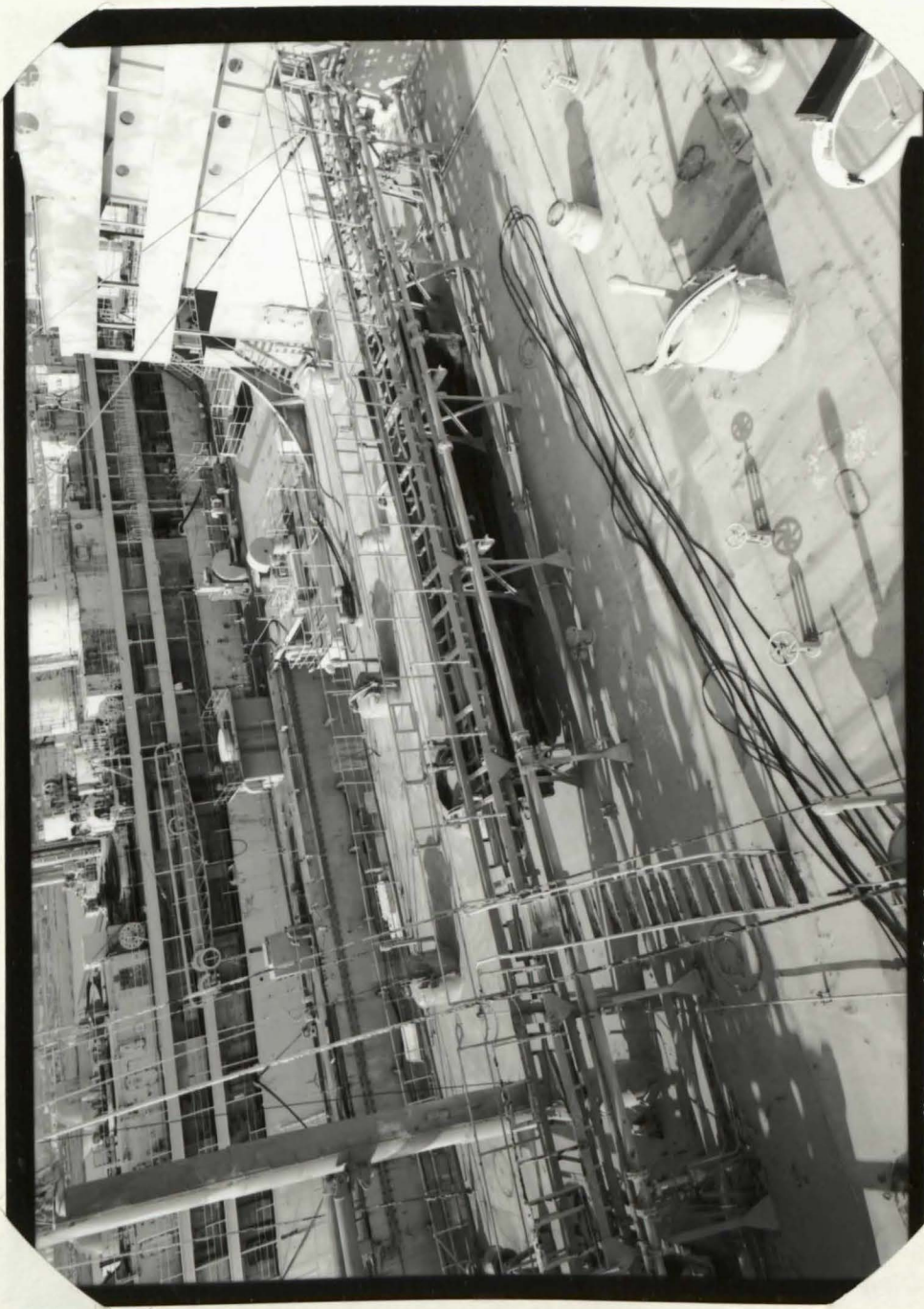
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SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-377-14



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SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA - 337-15



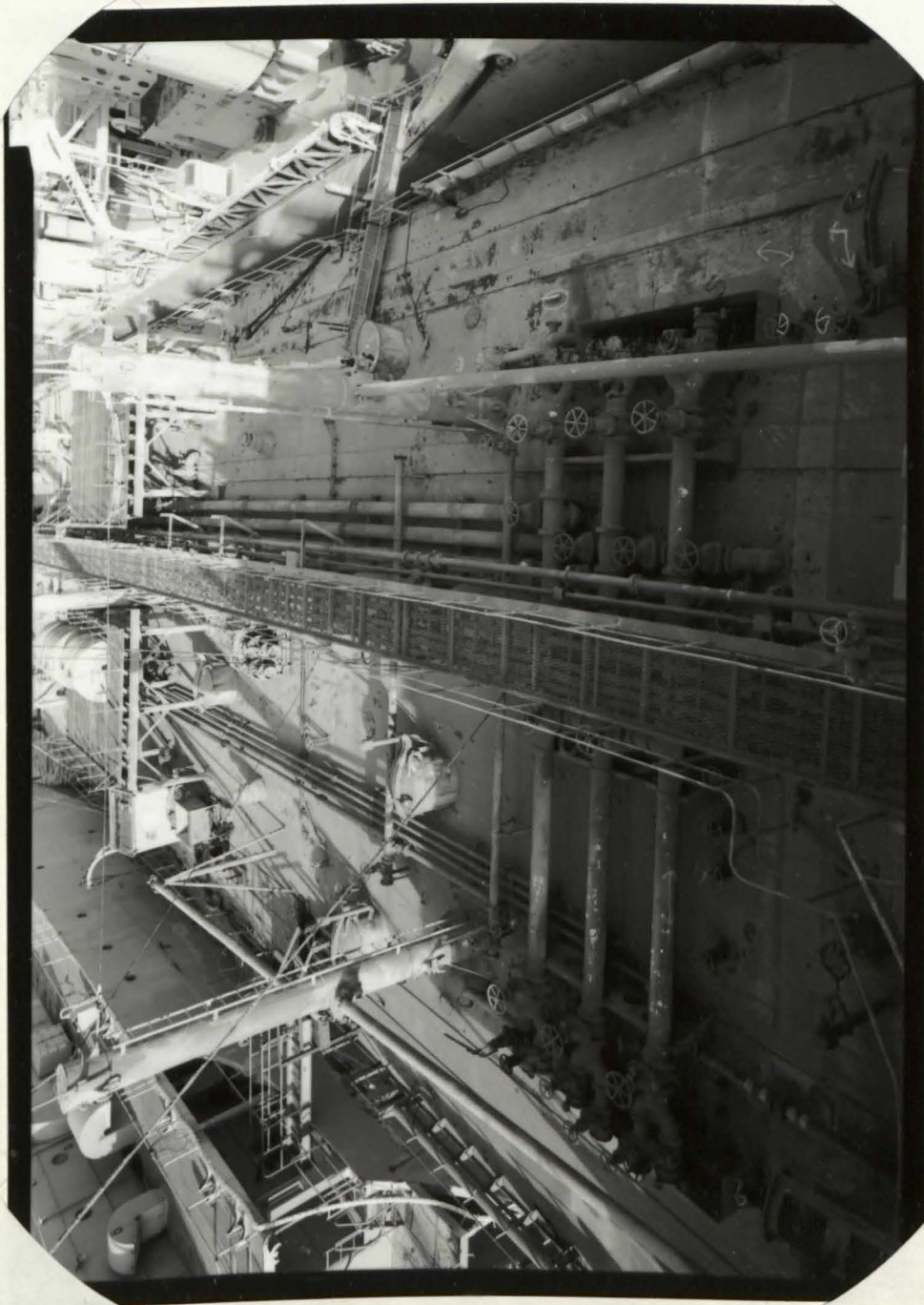
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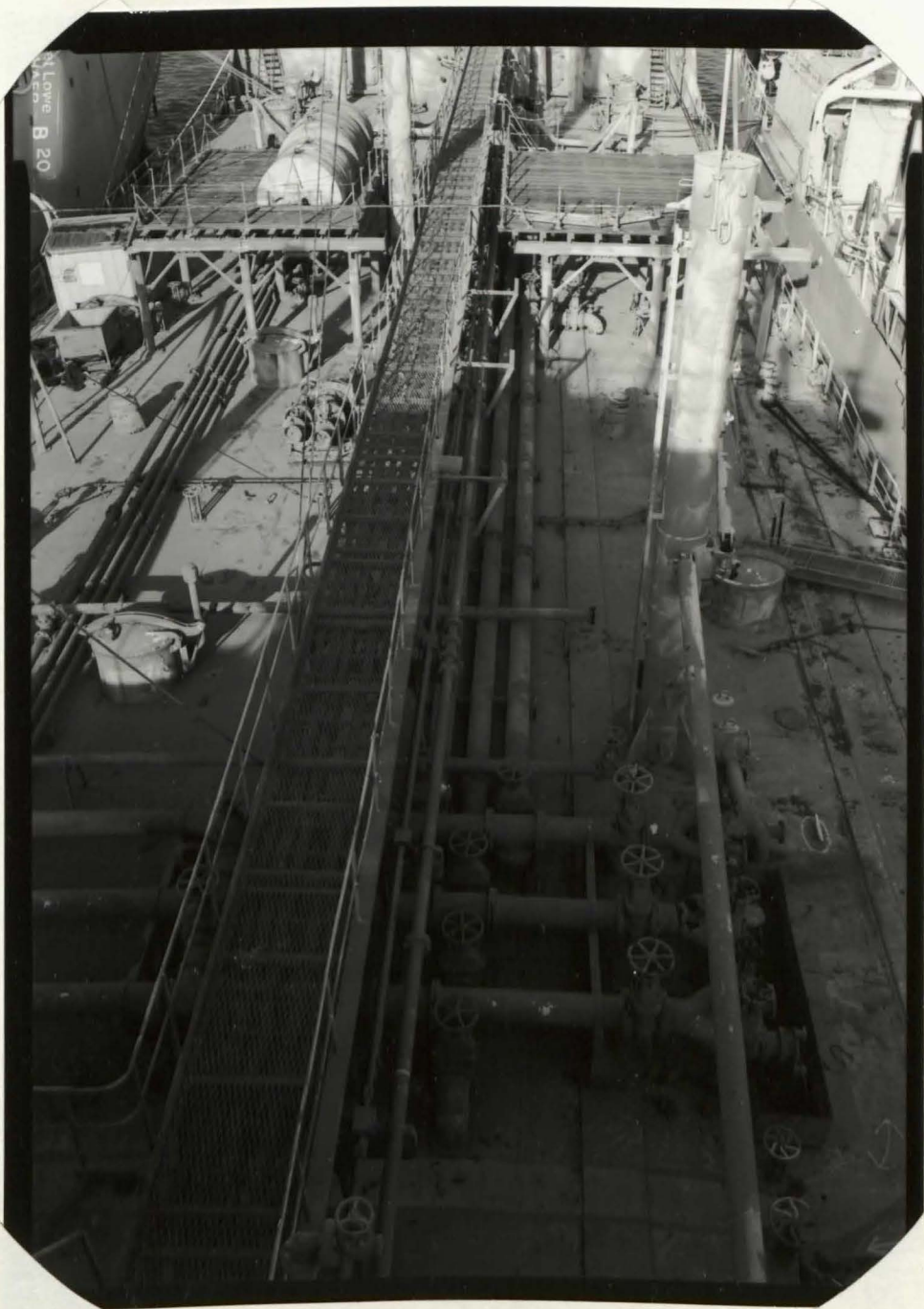
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HAER No. CA-337-17



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337-18



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

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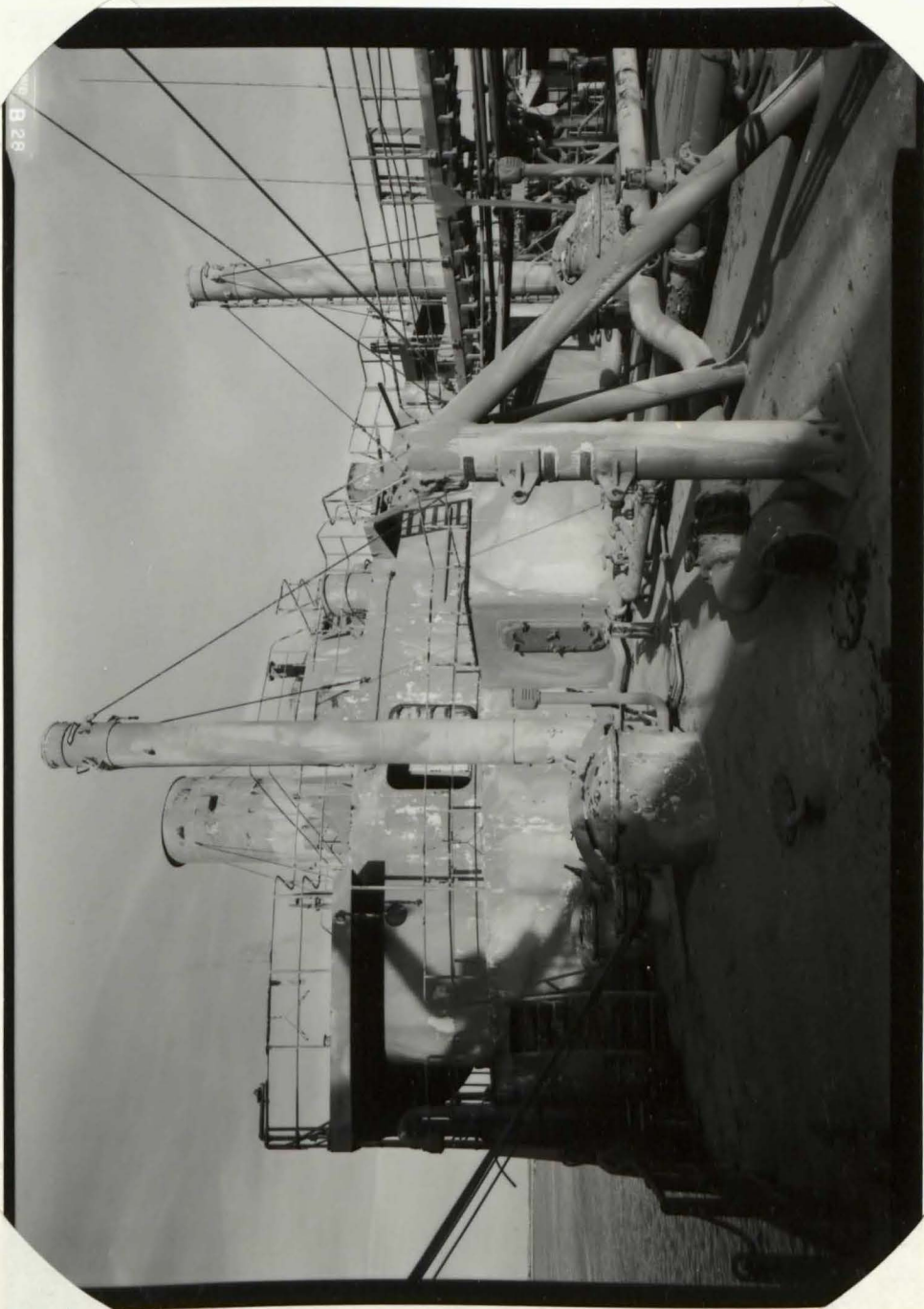
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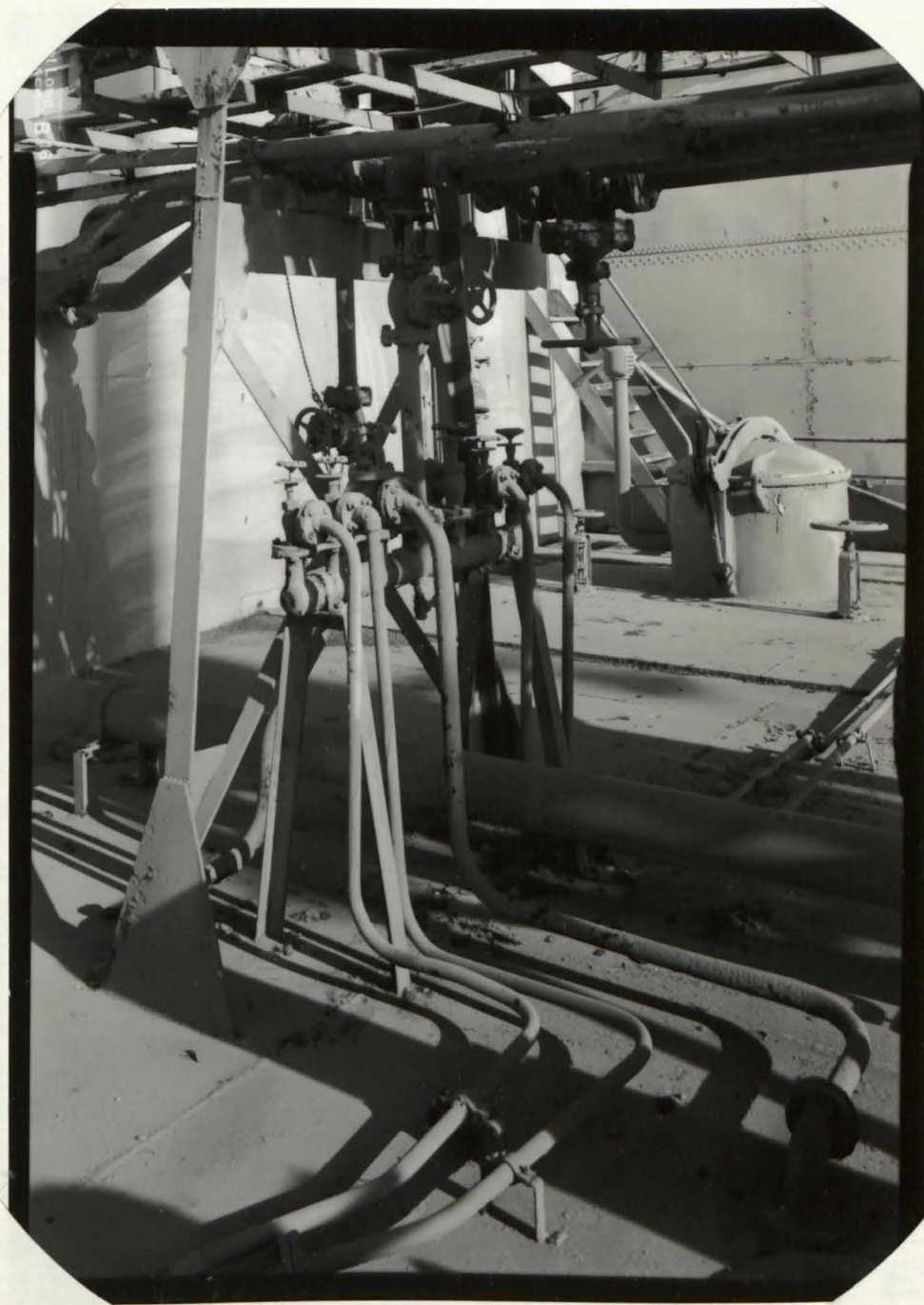
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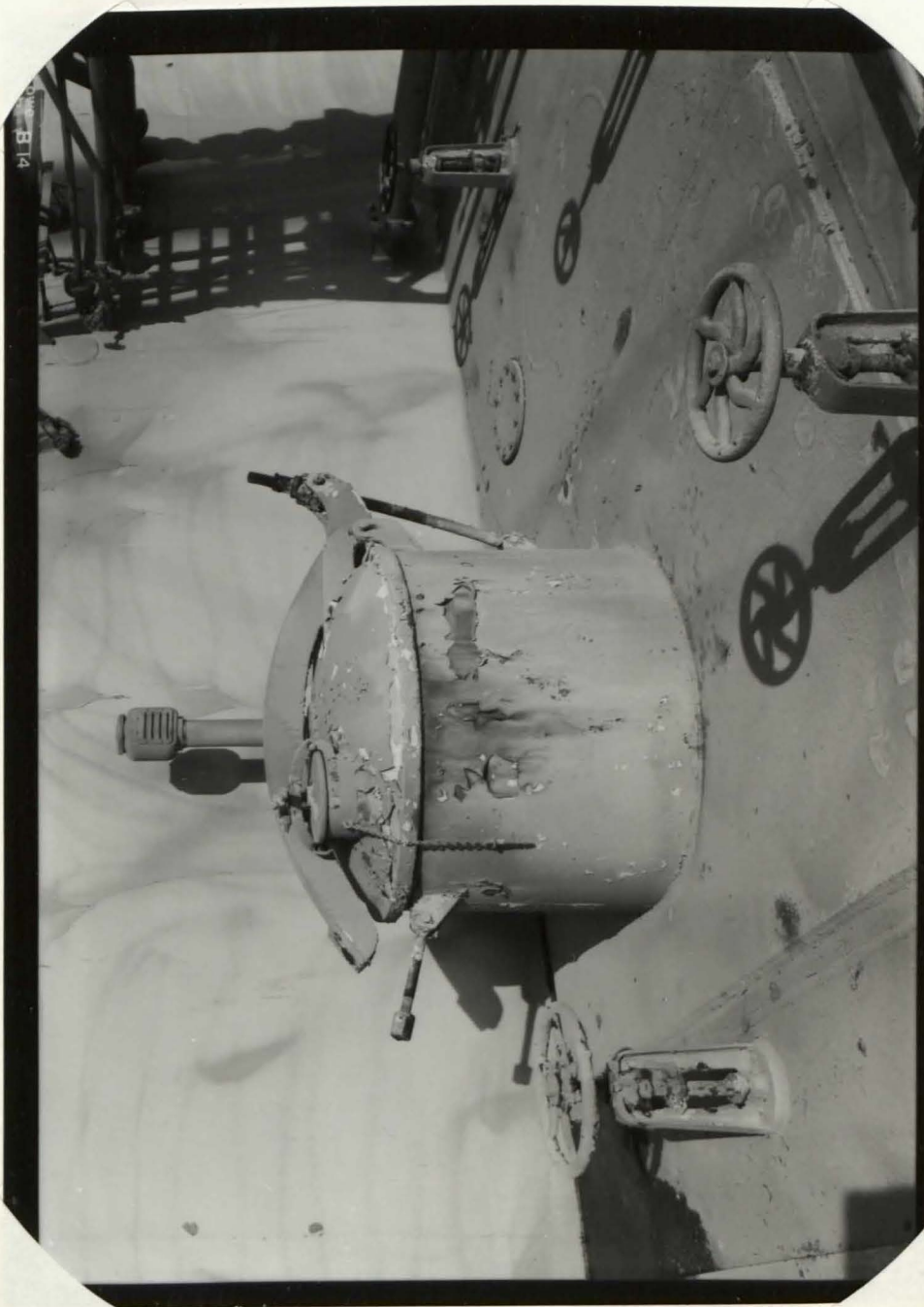
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SEE INDEX TO PHOTOGRAPHS FOR CAPTION

HAER No. CA-337.22



HISTORIC AMERICAN ENGINEERING RECORD
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HAER No. CA-337-23



HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION

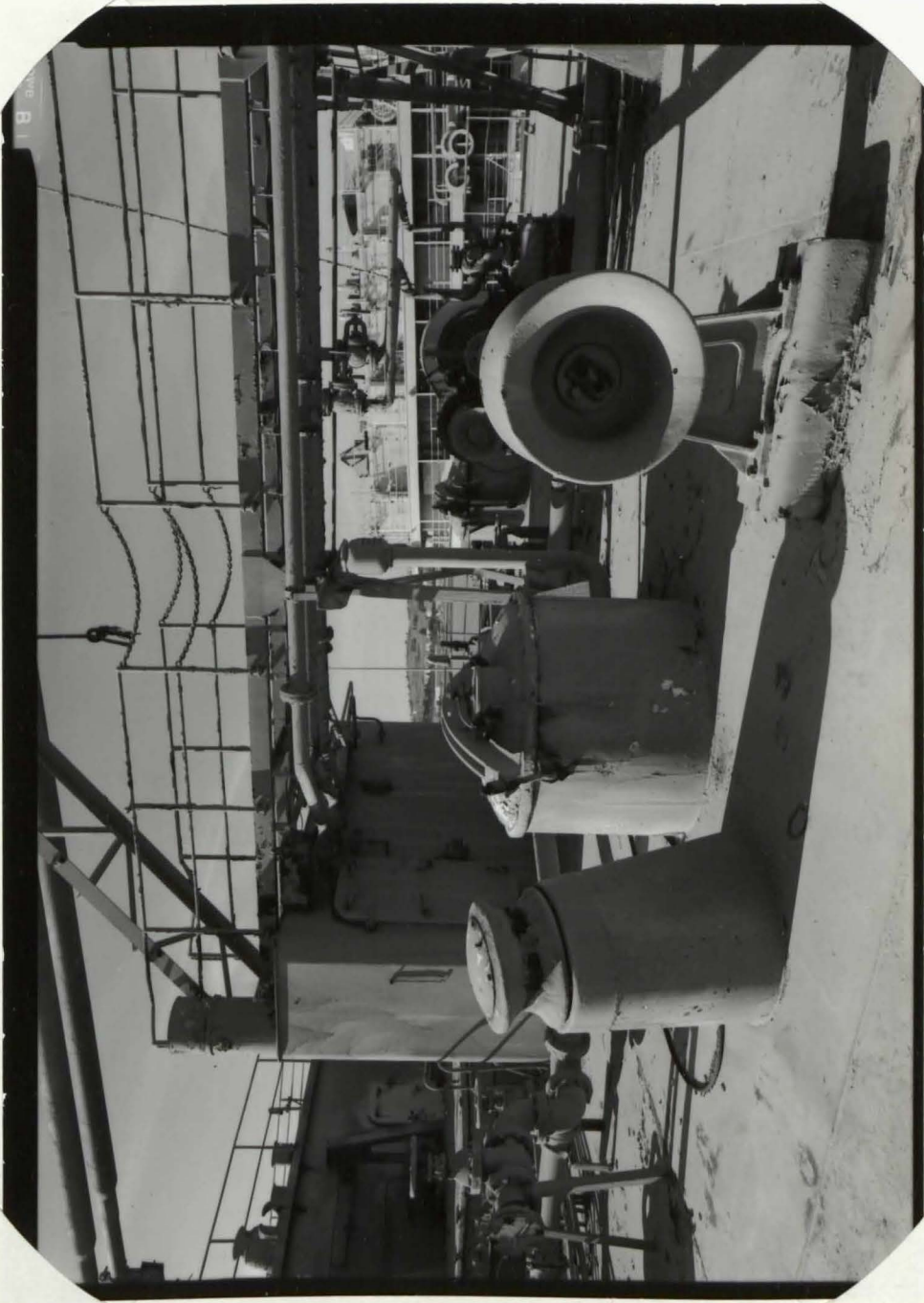
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11.0m B 3

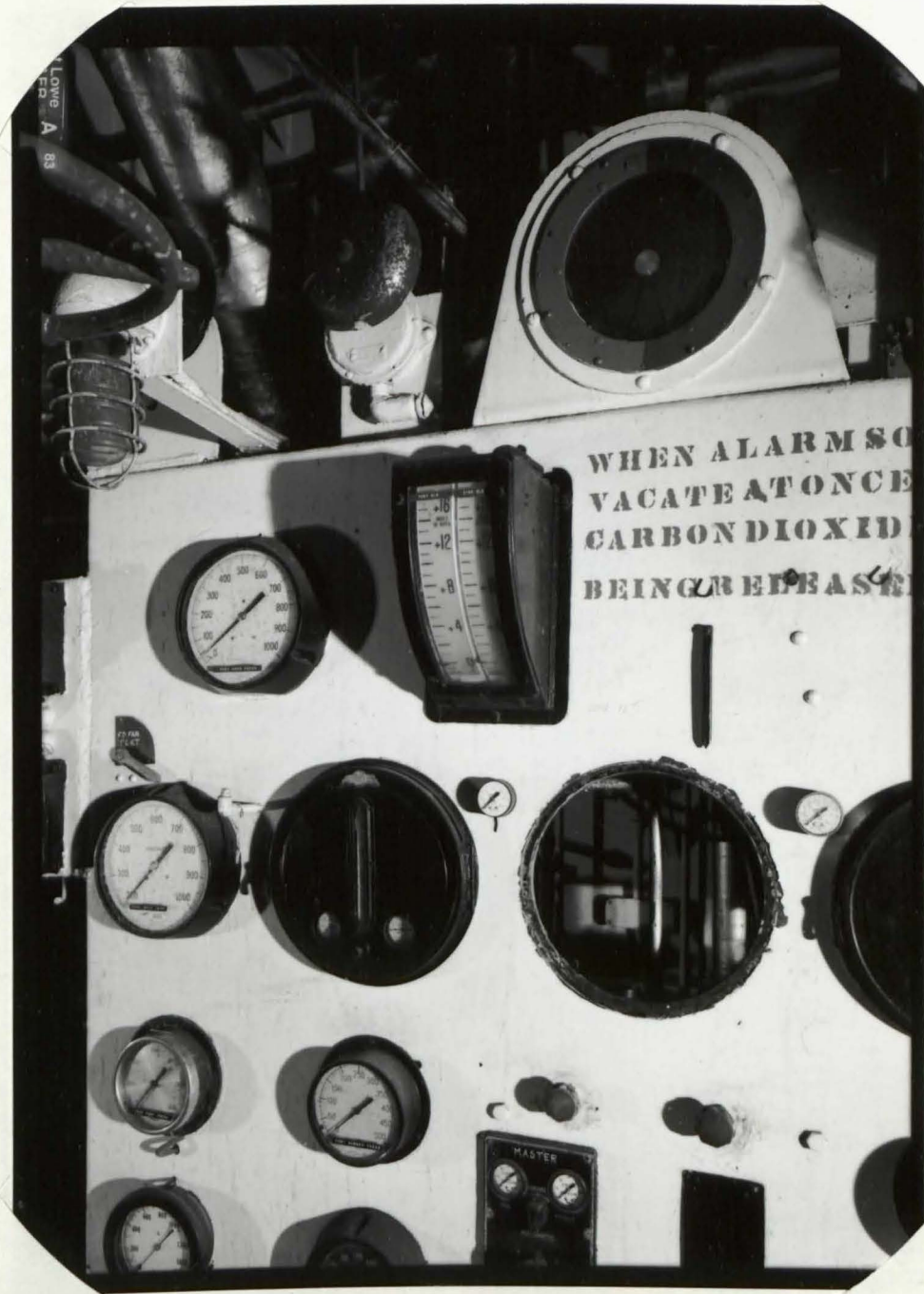
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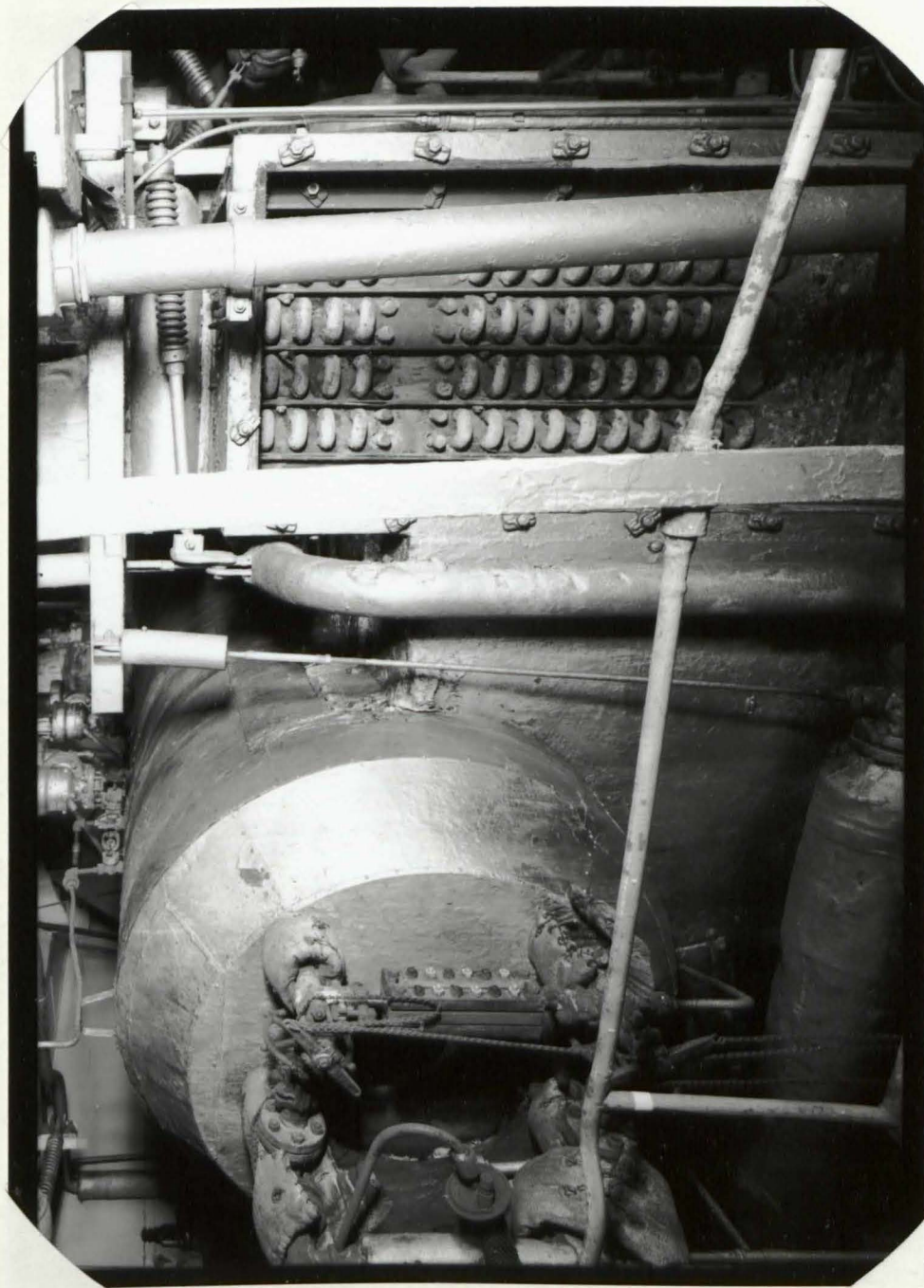
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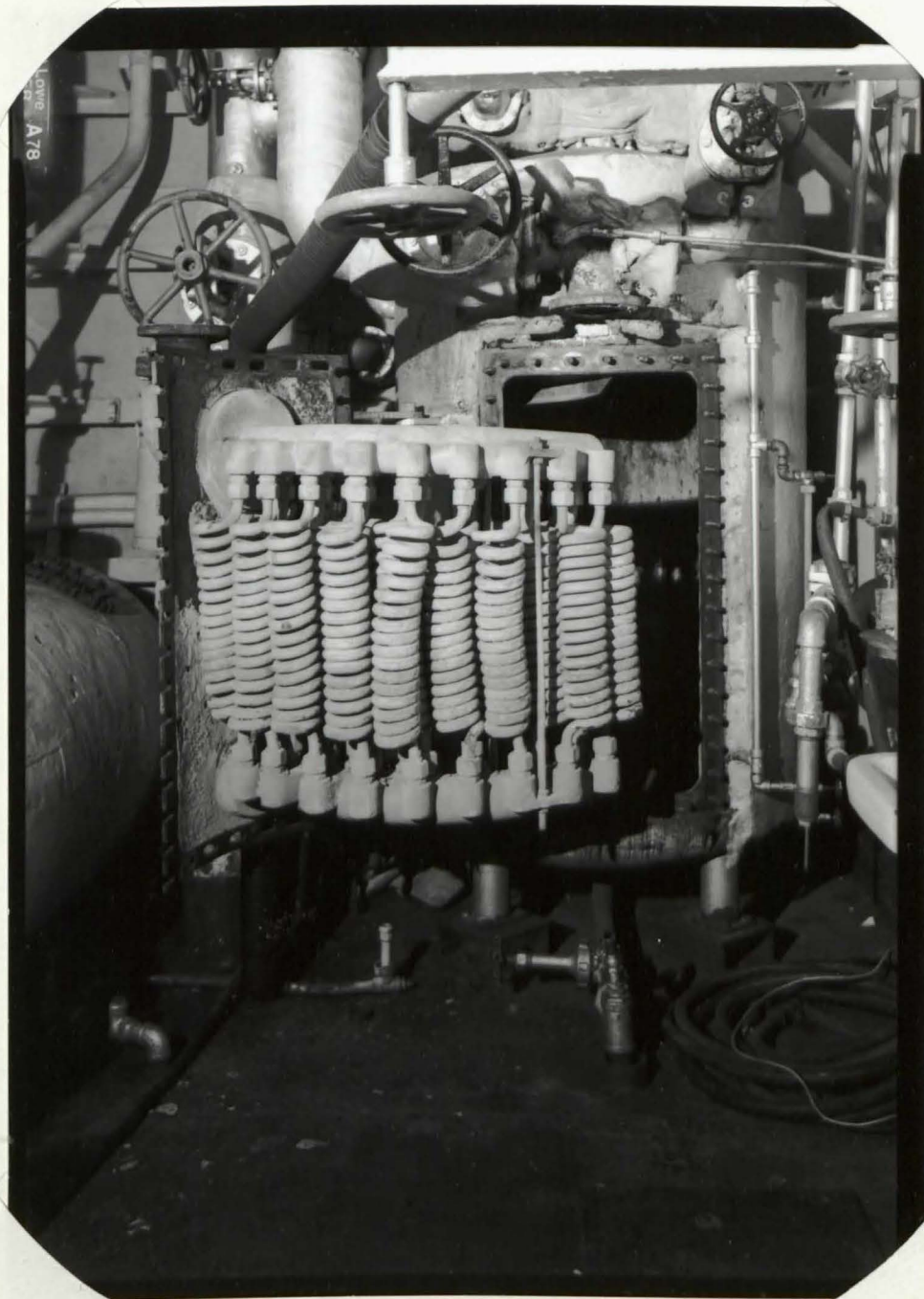
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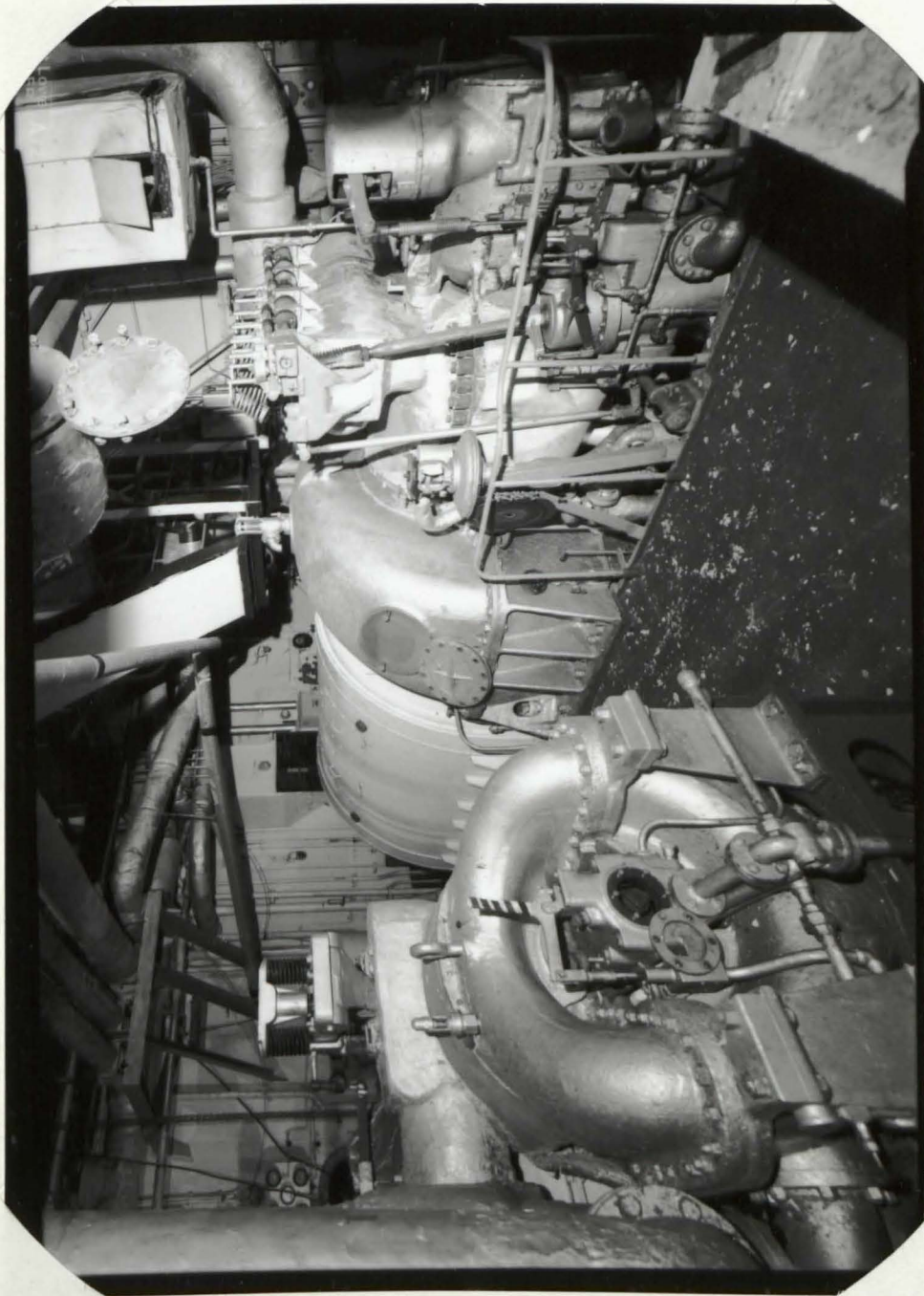
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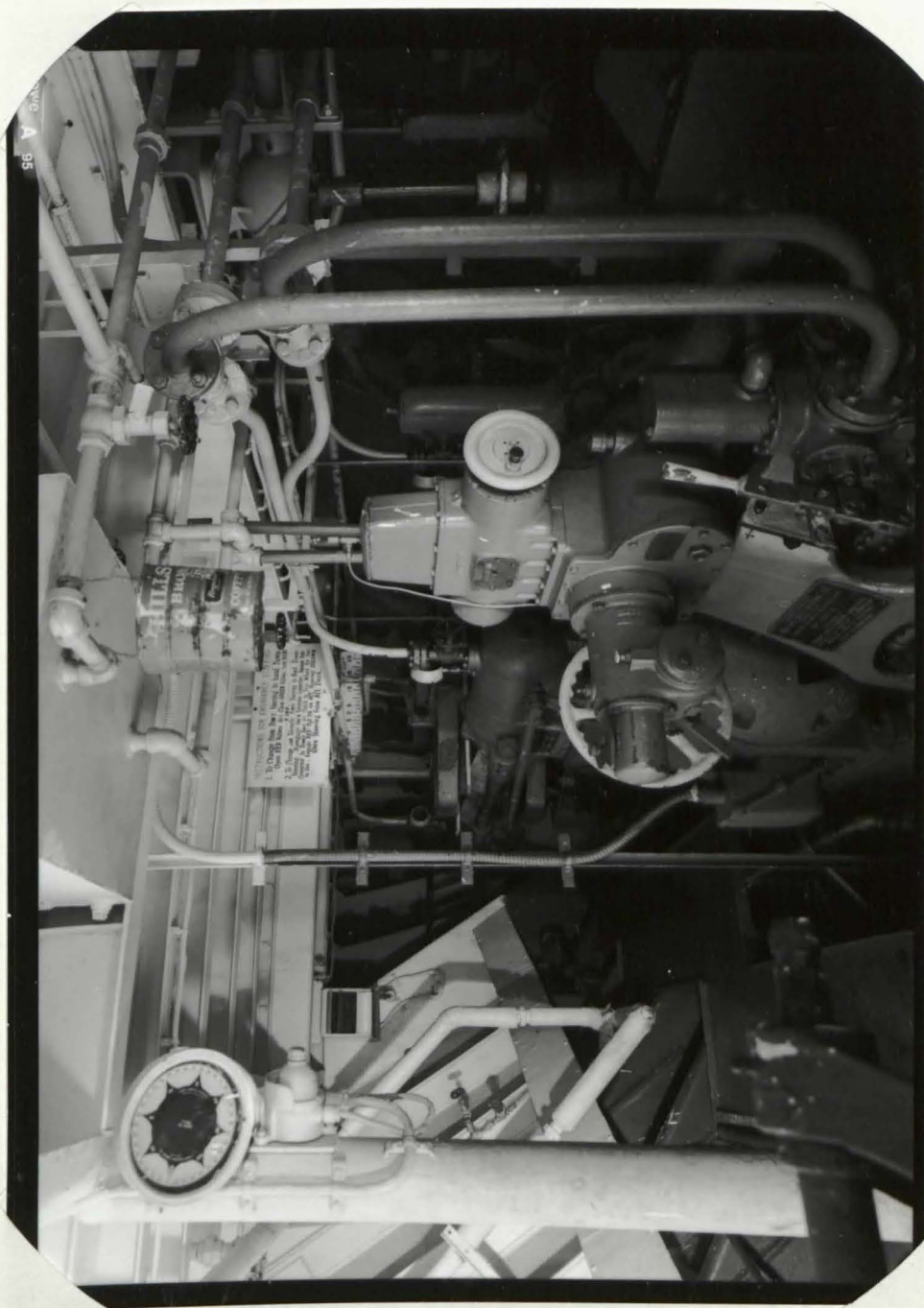
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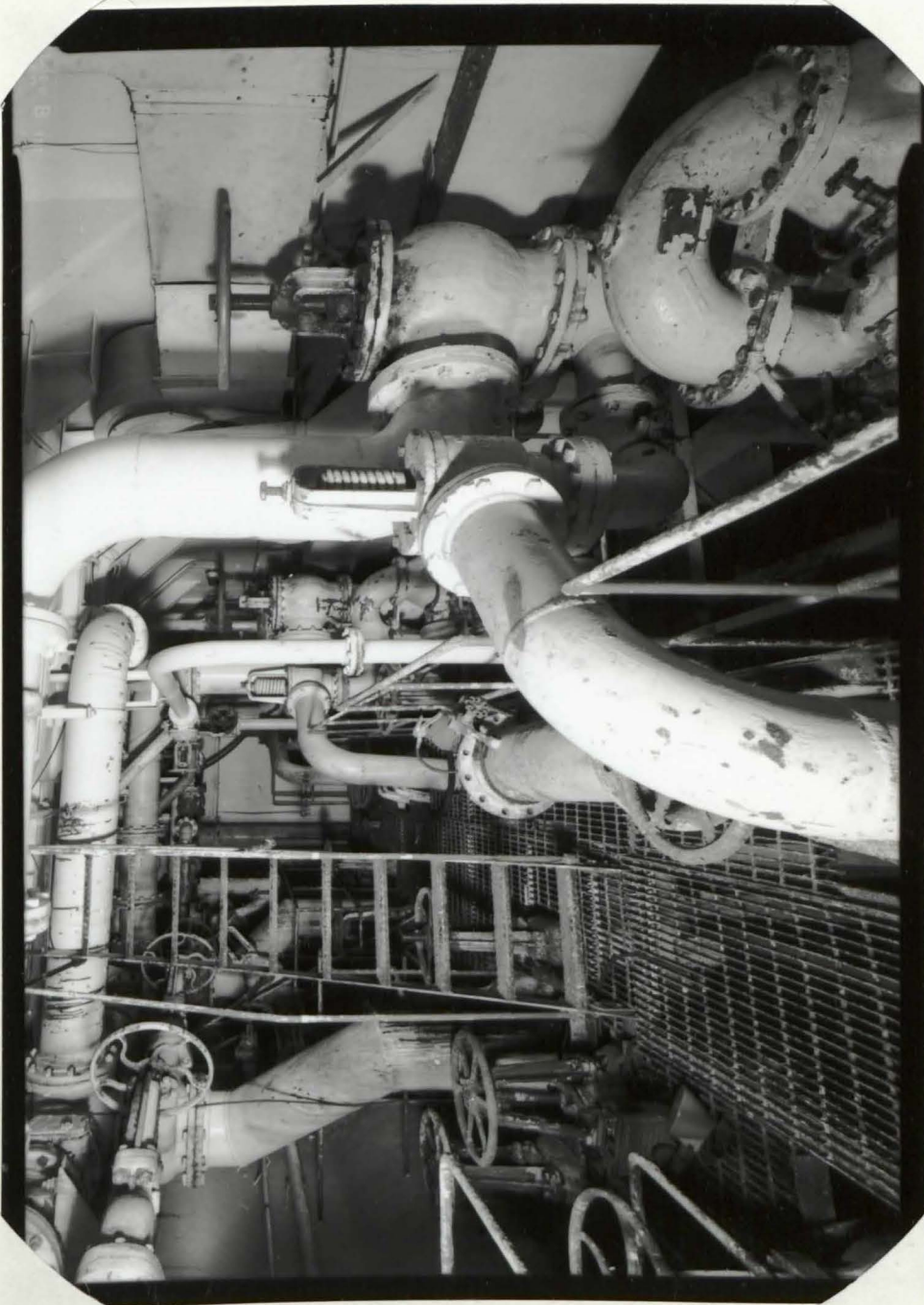
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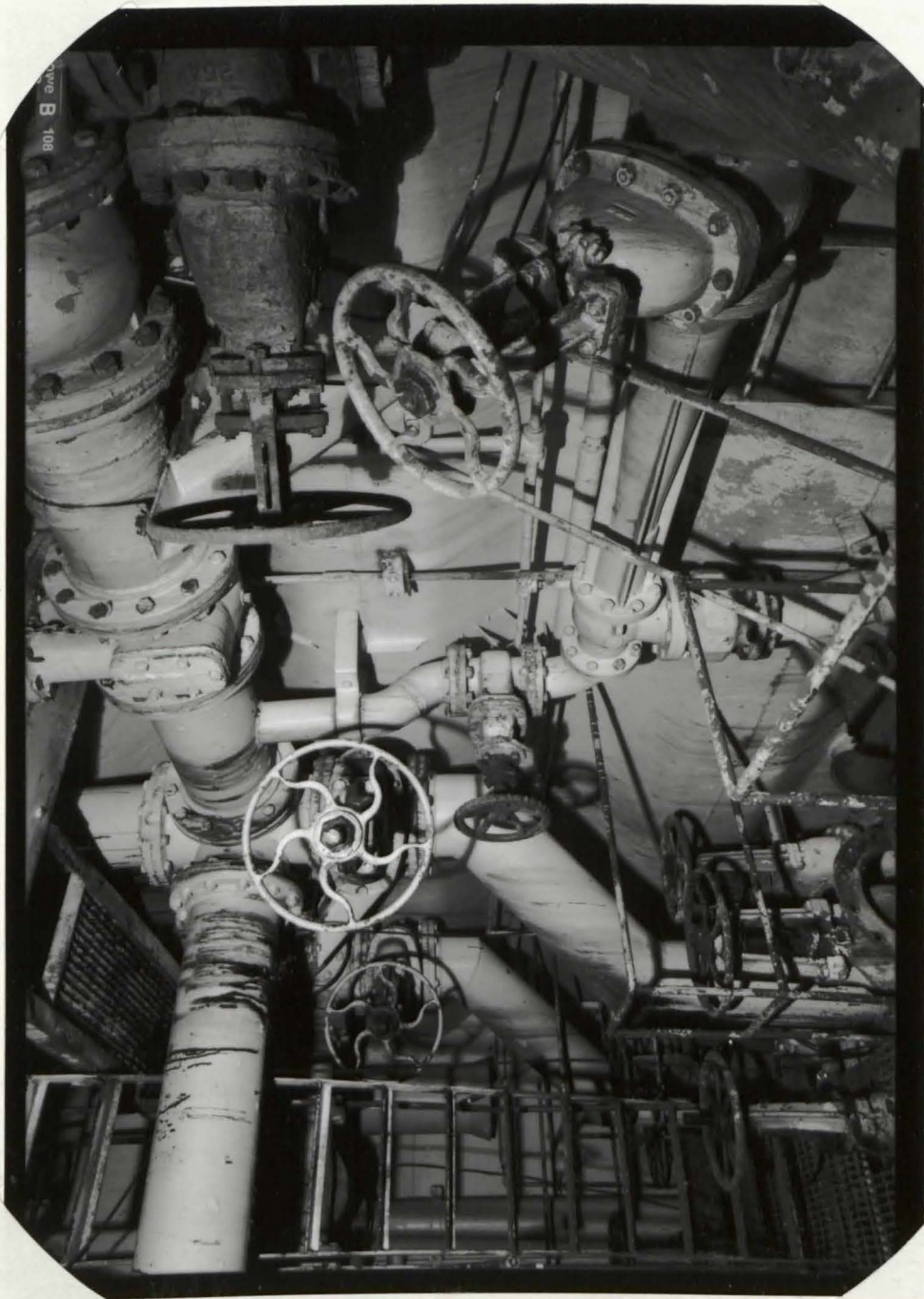
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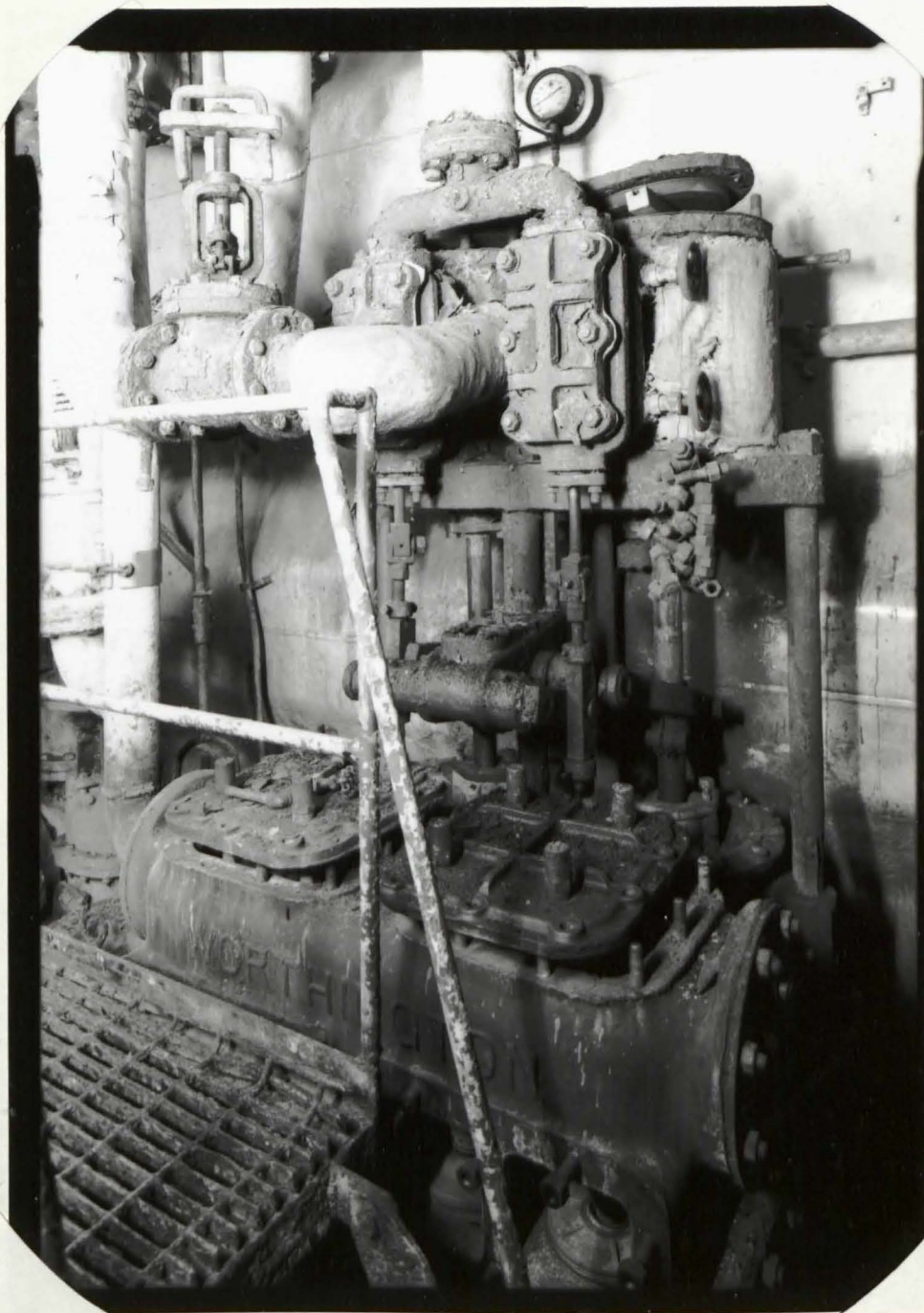
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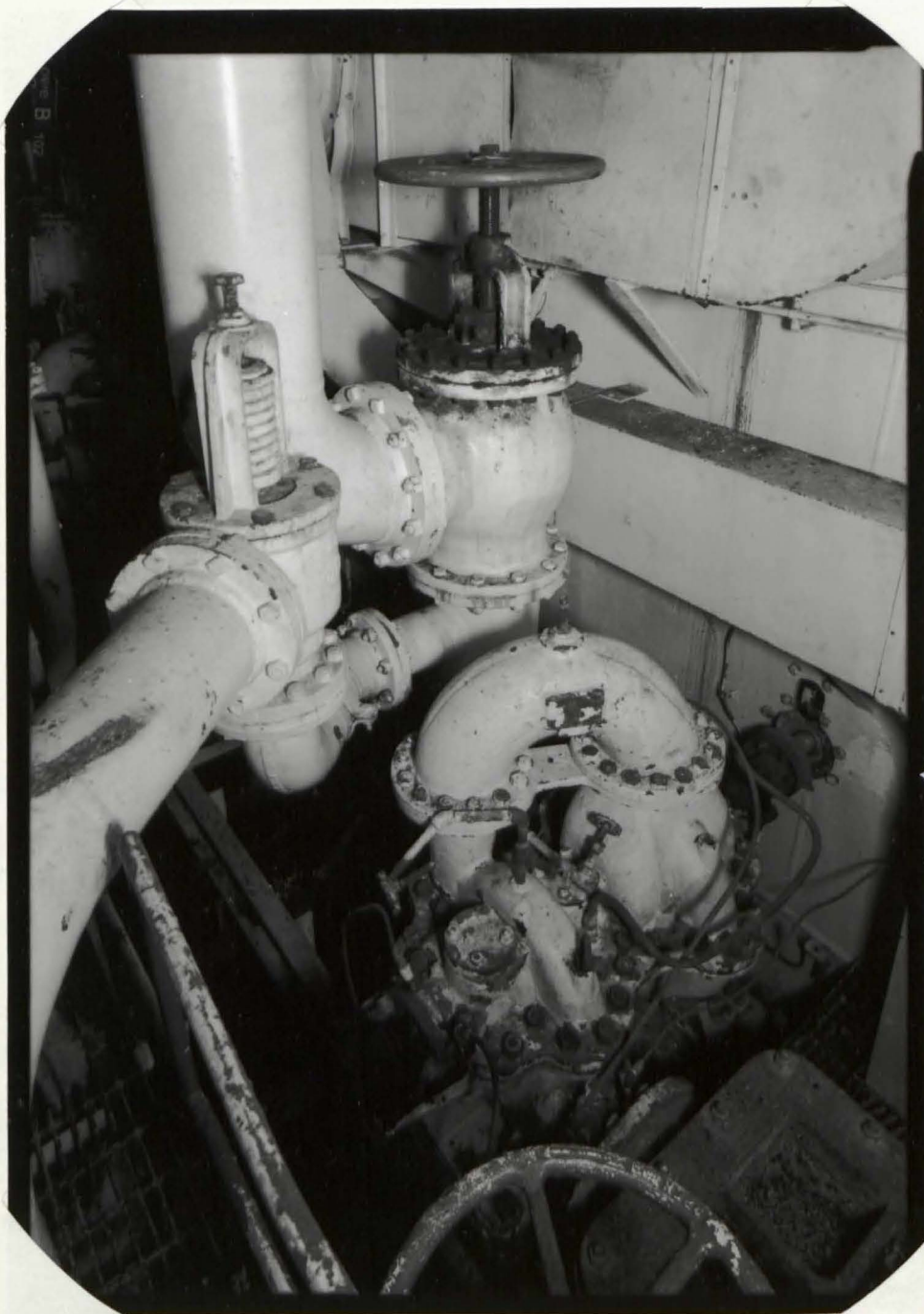
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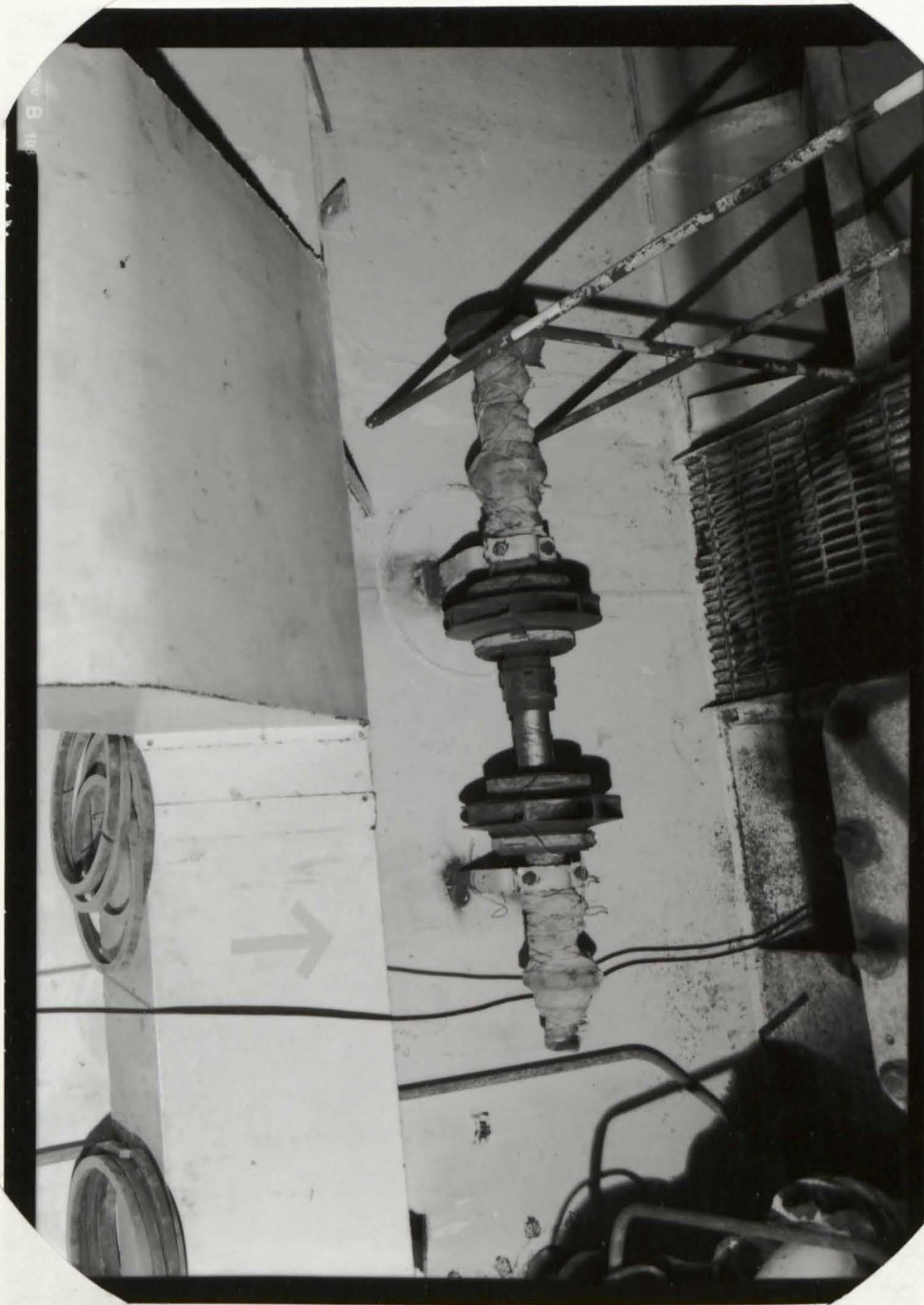
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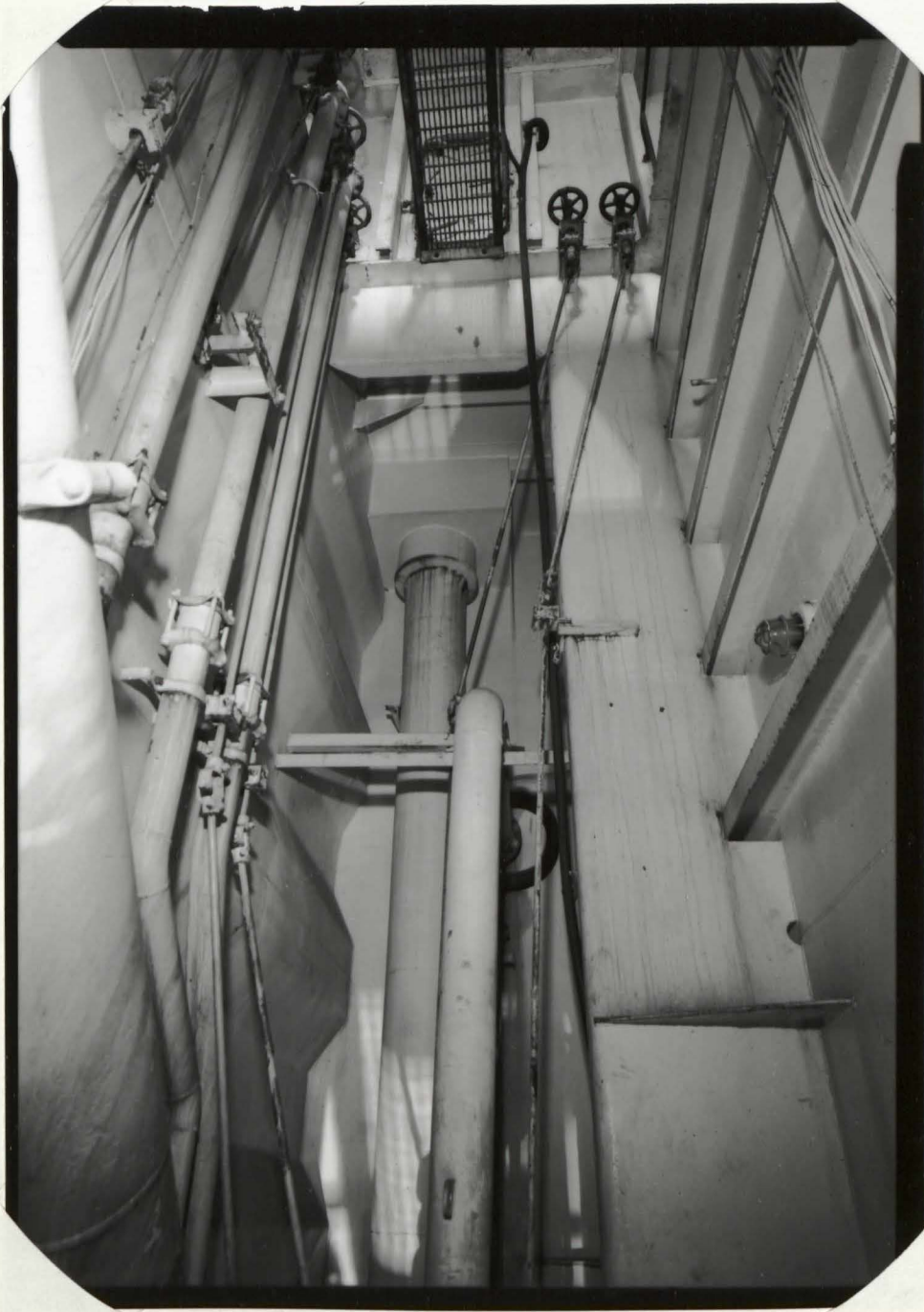
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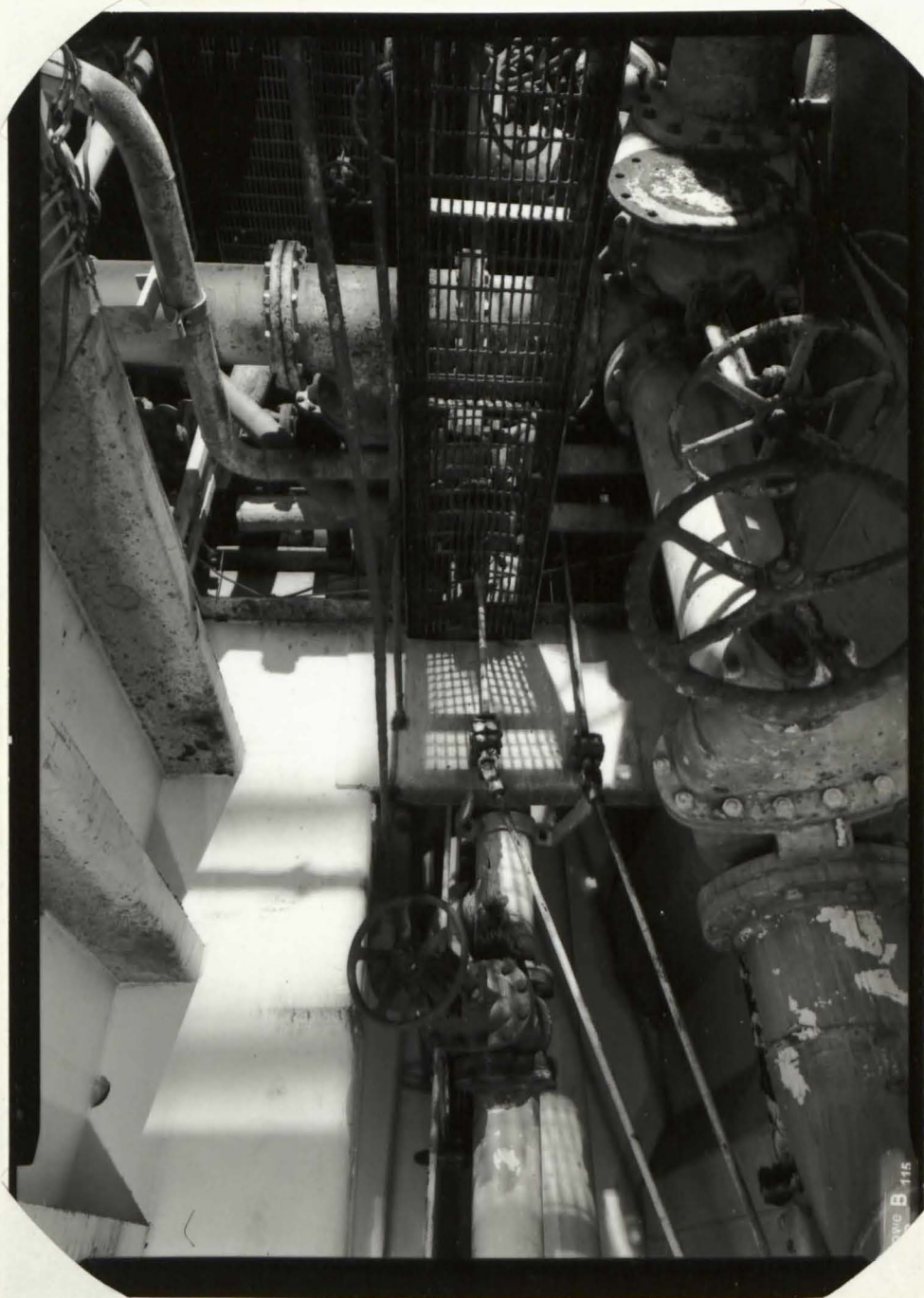
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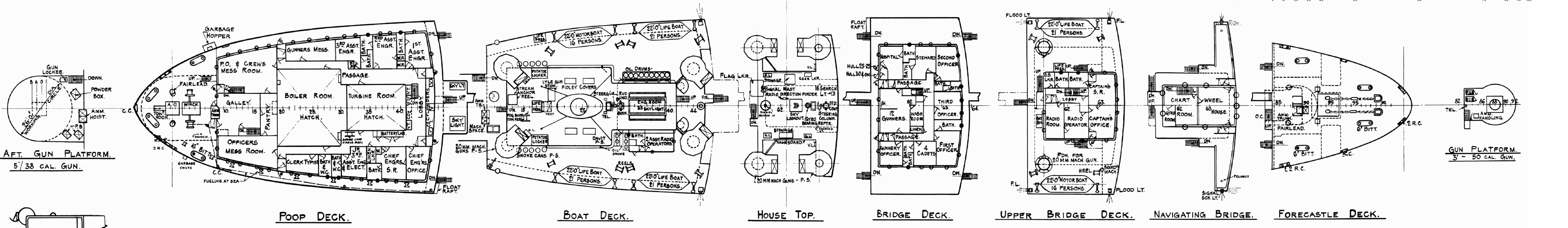
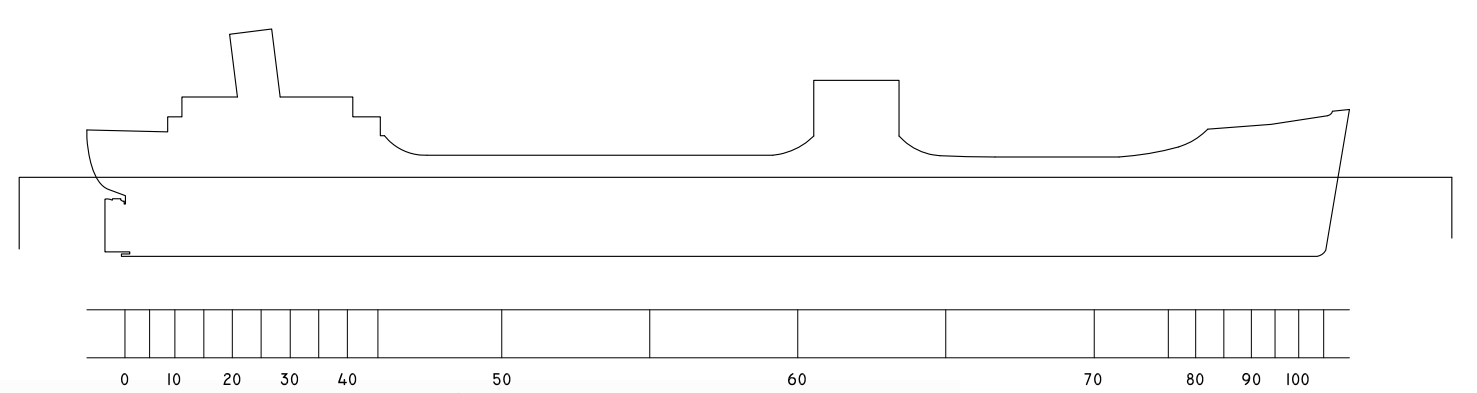
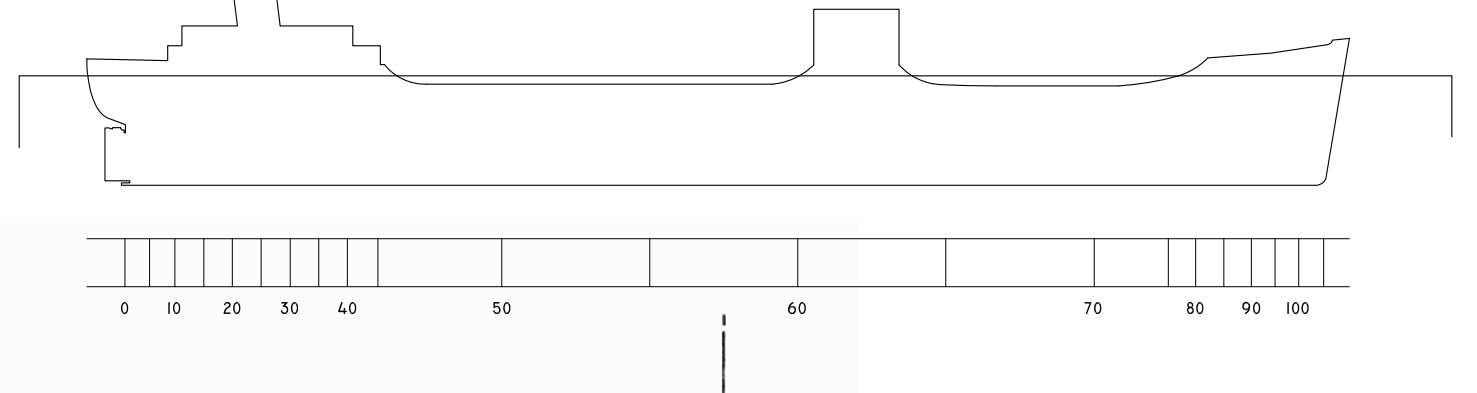
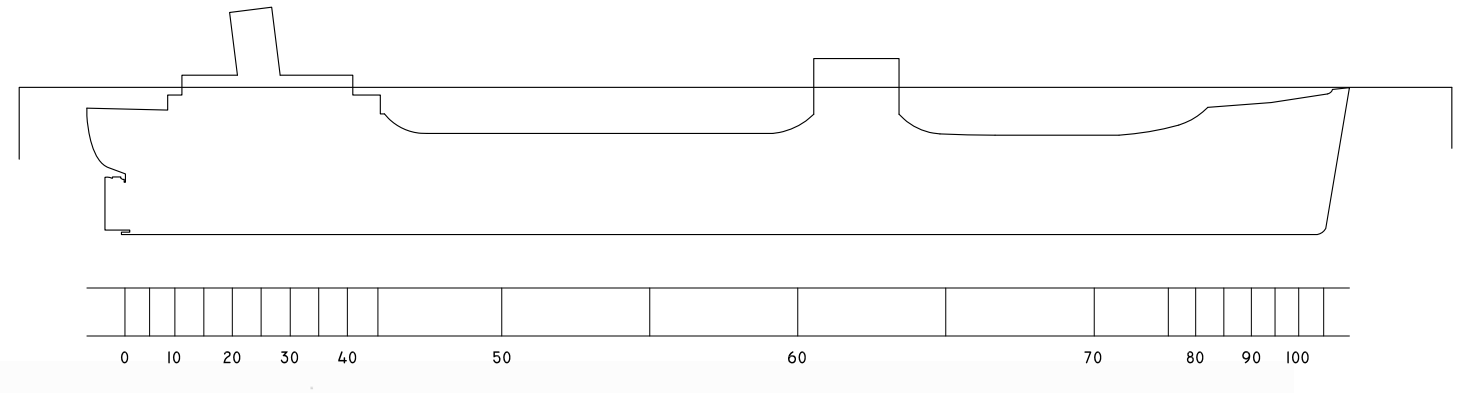
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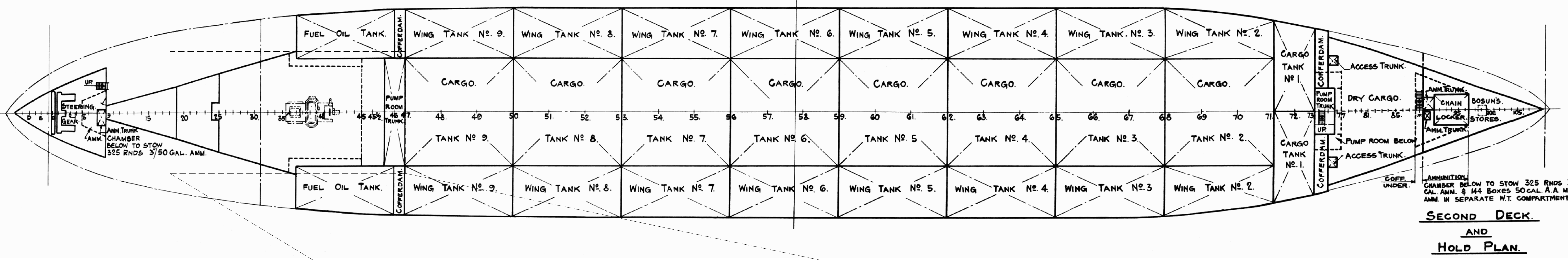
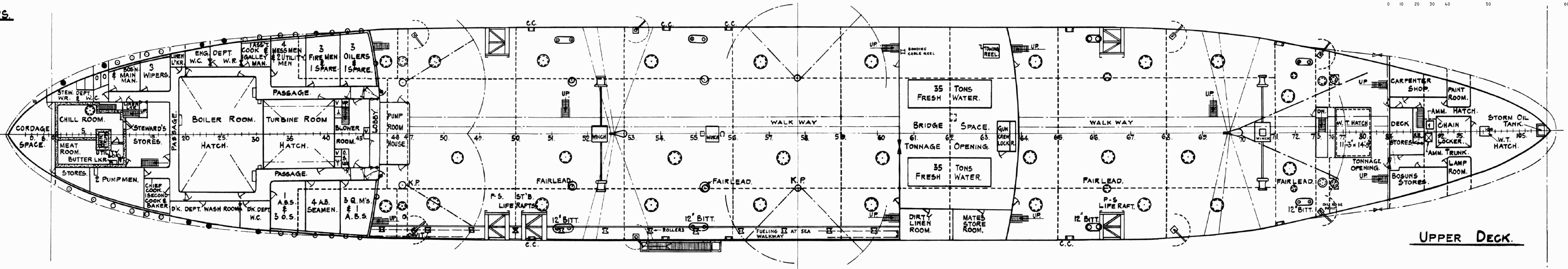
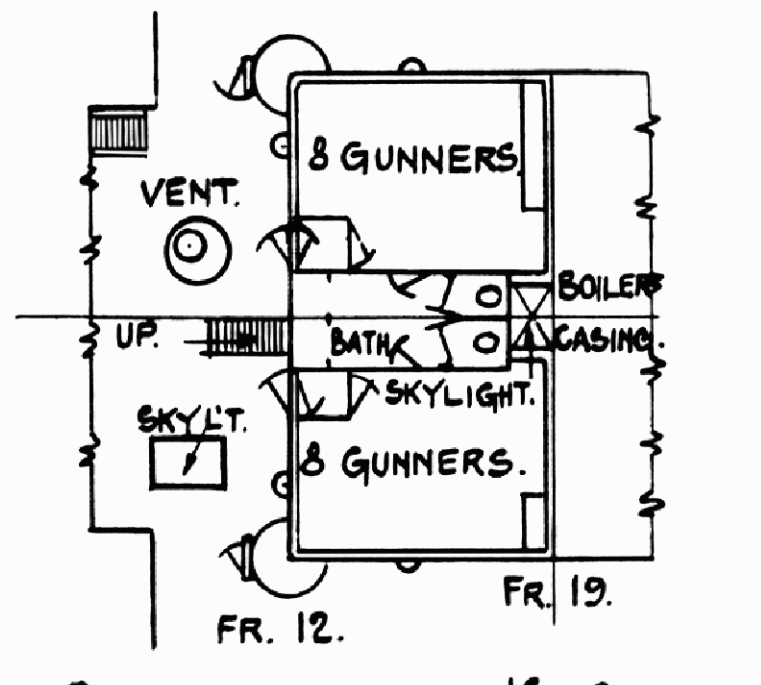
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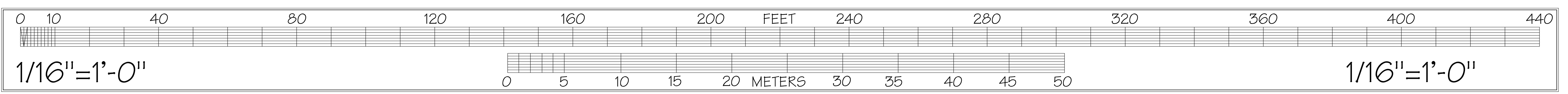


AFT GUN PLATFORM
5"/38 CAL. GUN.

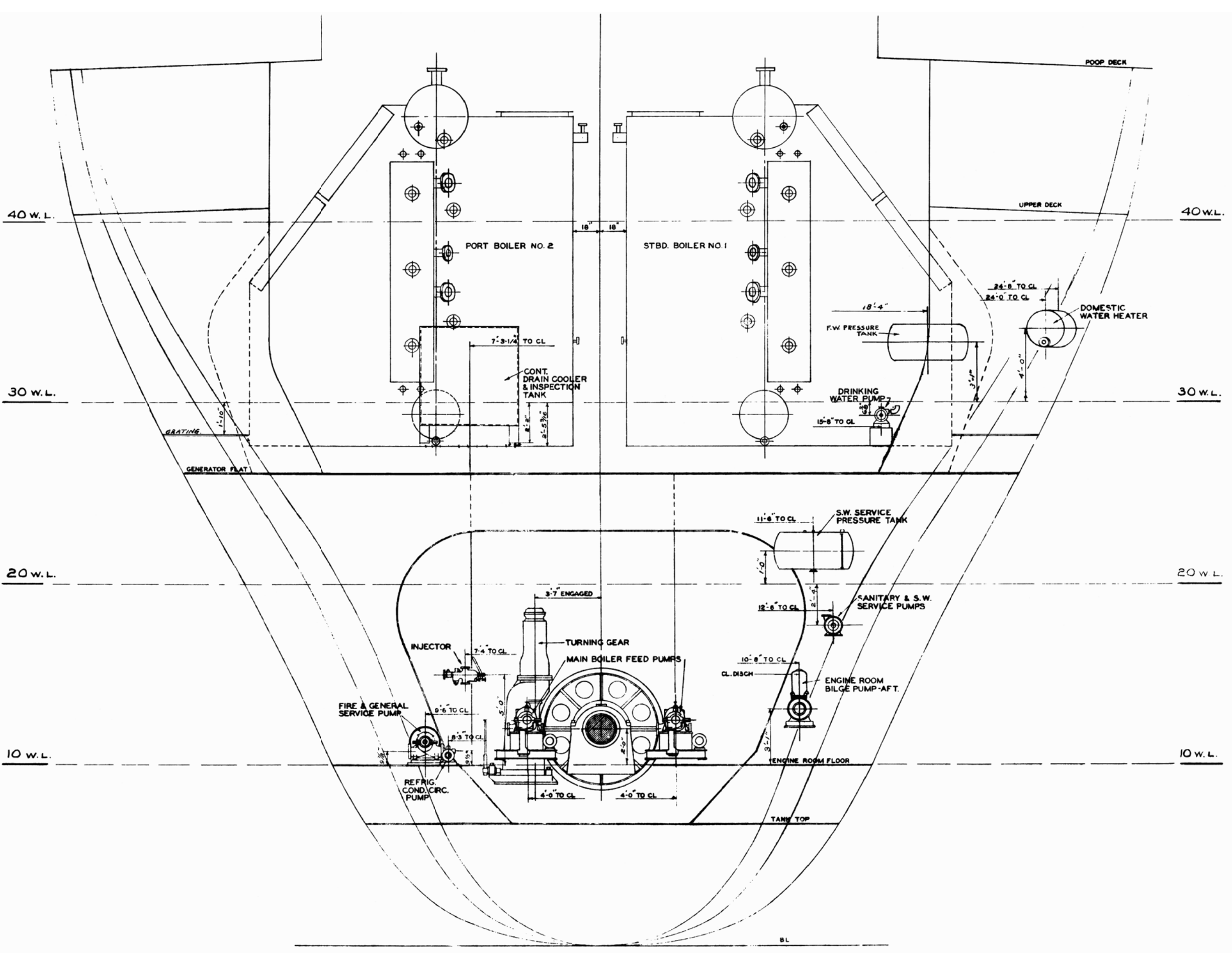
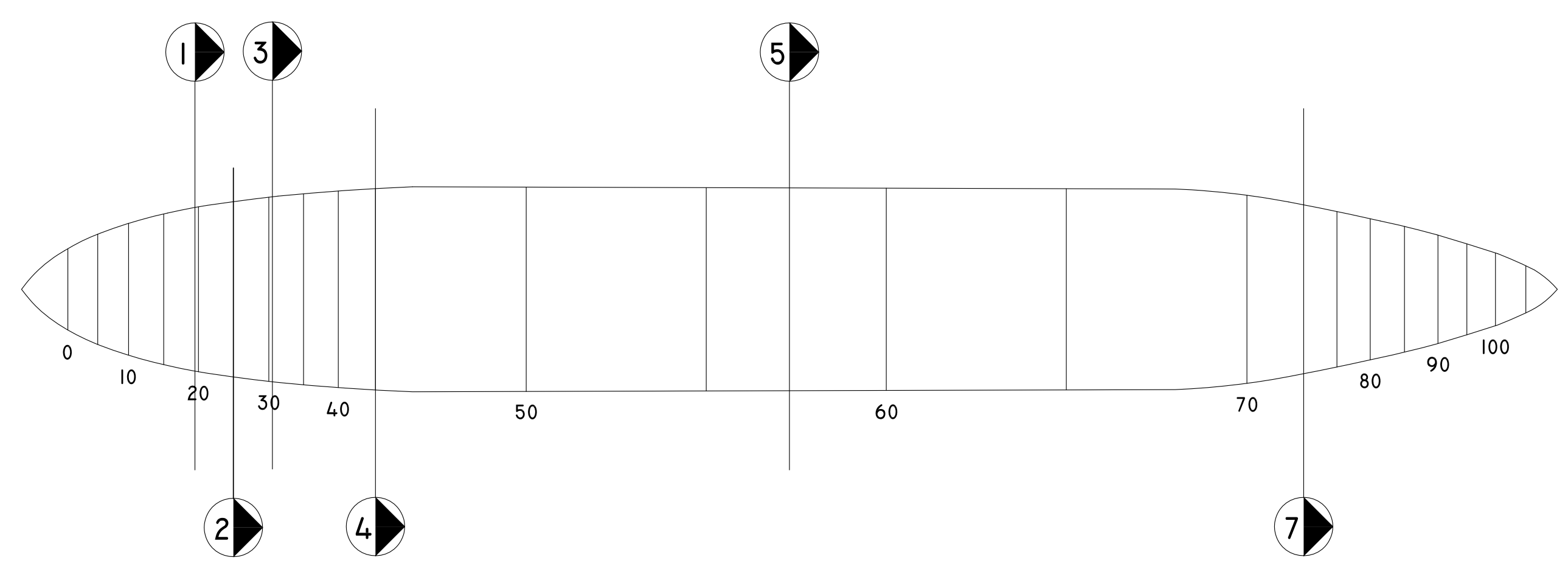
GUN PLATFORM
5" - 50 CAL. GUN.



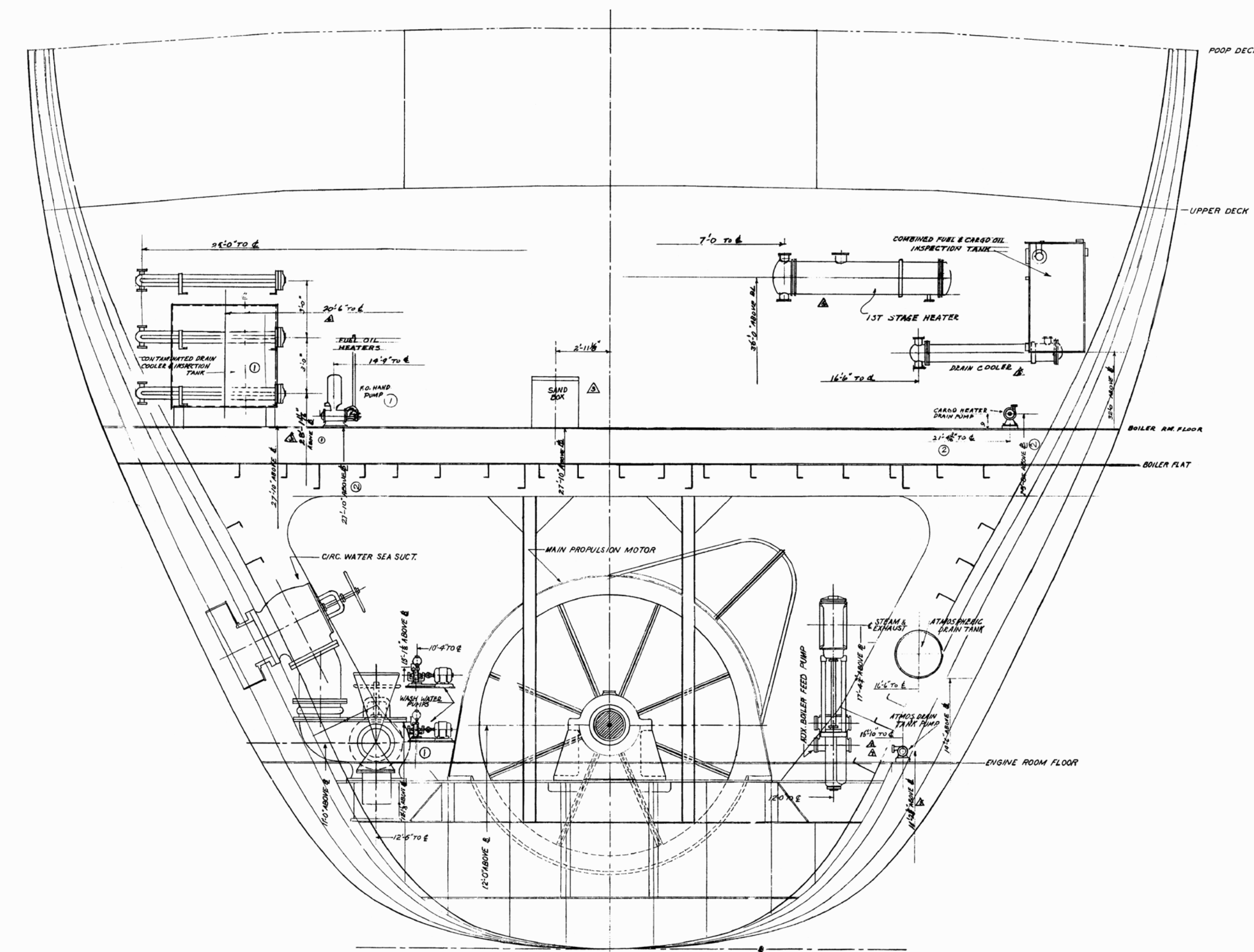
SEE SHEETS 6, 7, AND 8 FOR DETAILING OF THESE PUMP AND ENGINE ROOMS.



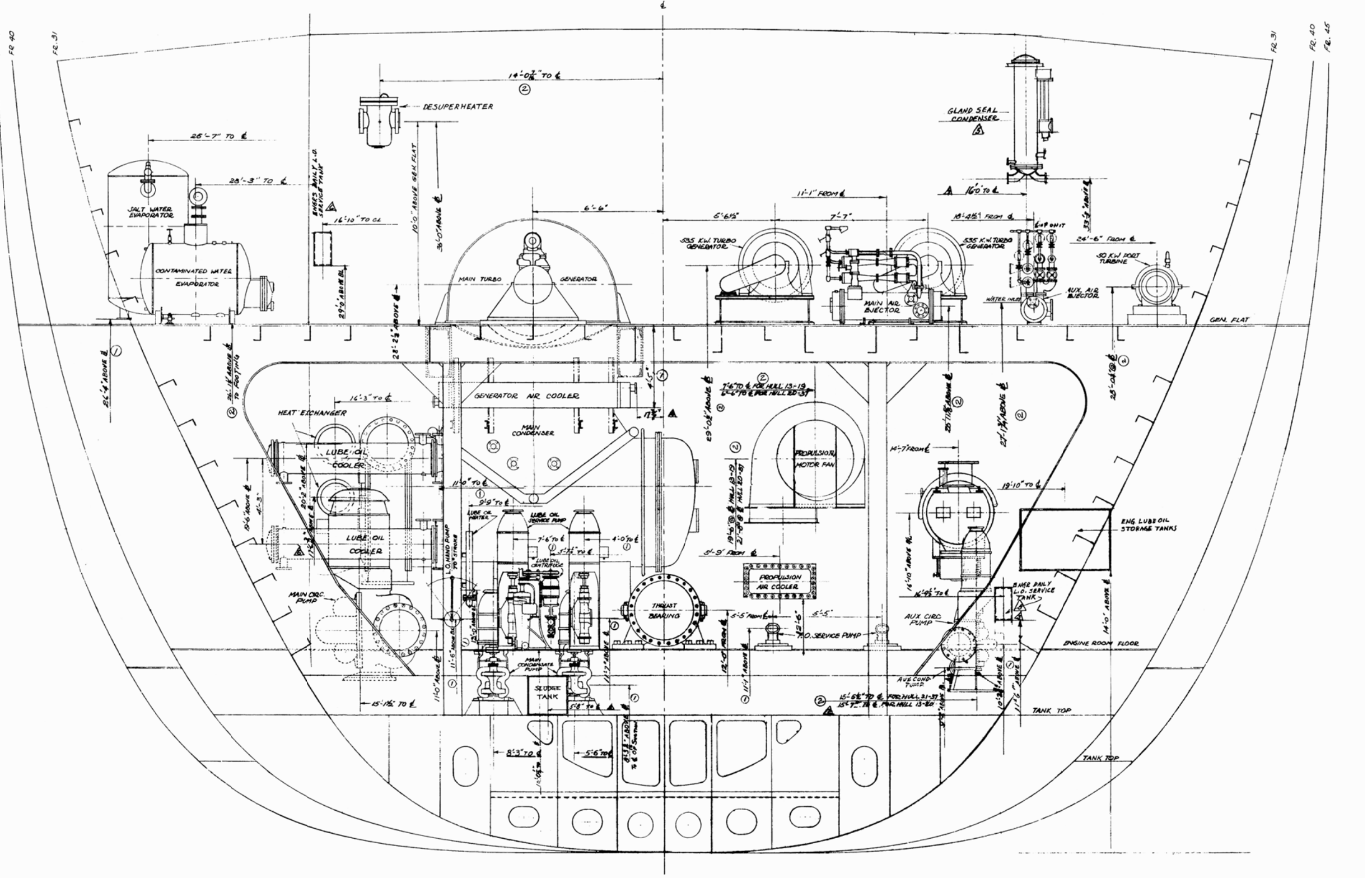
NOTE: DRAWINGS ARE SCANS OF ORIGINAL DRAWINGS LOCATED AT THE NATIONAL ARCHIVES AND RECORDS ADMINISTRATION



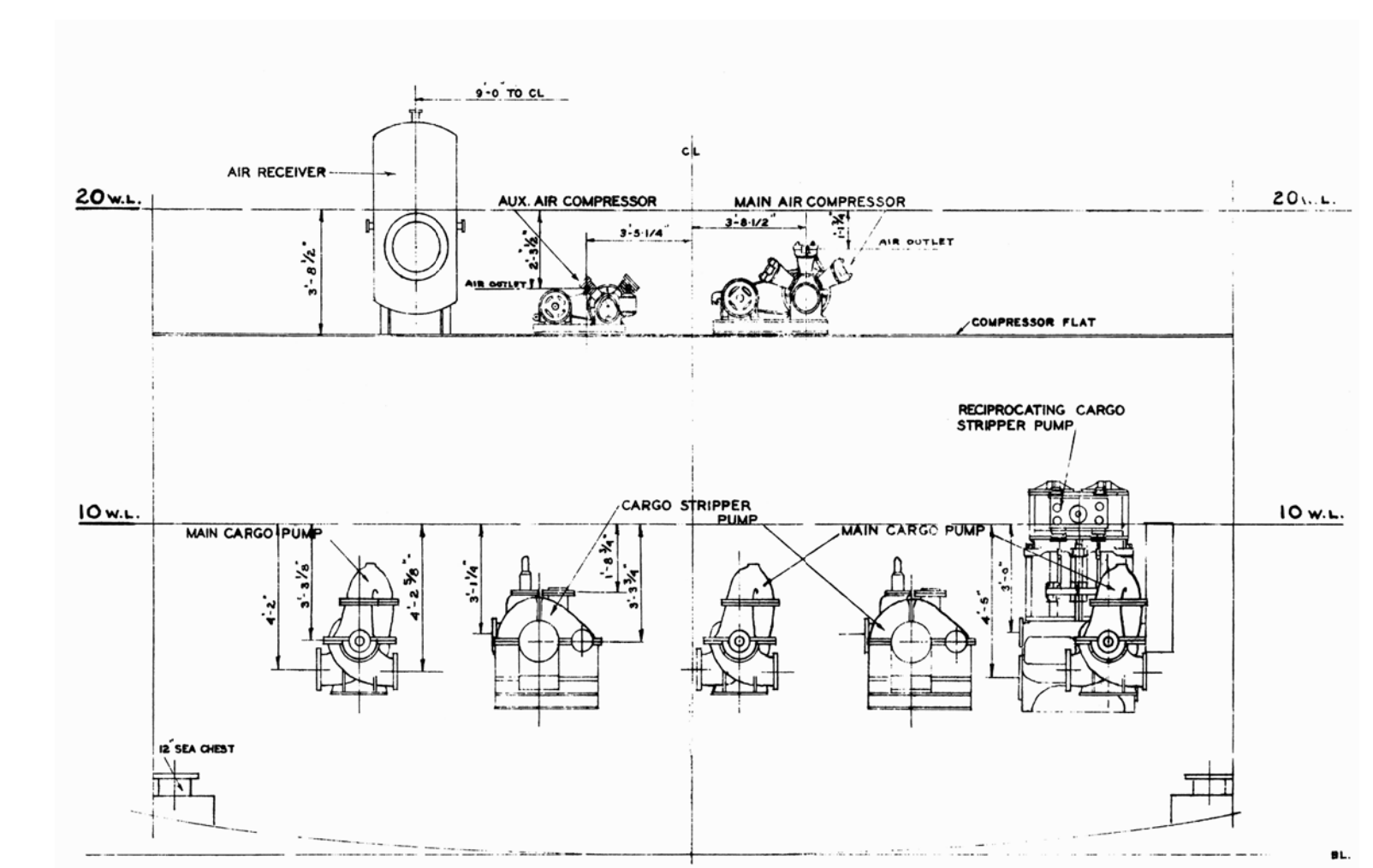
1 SECTION AT FRAME 19 LOOKING FORWARD



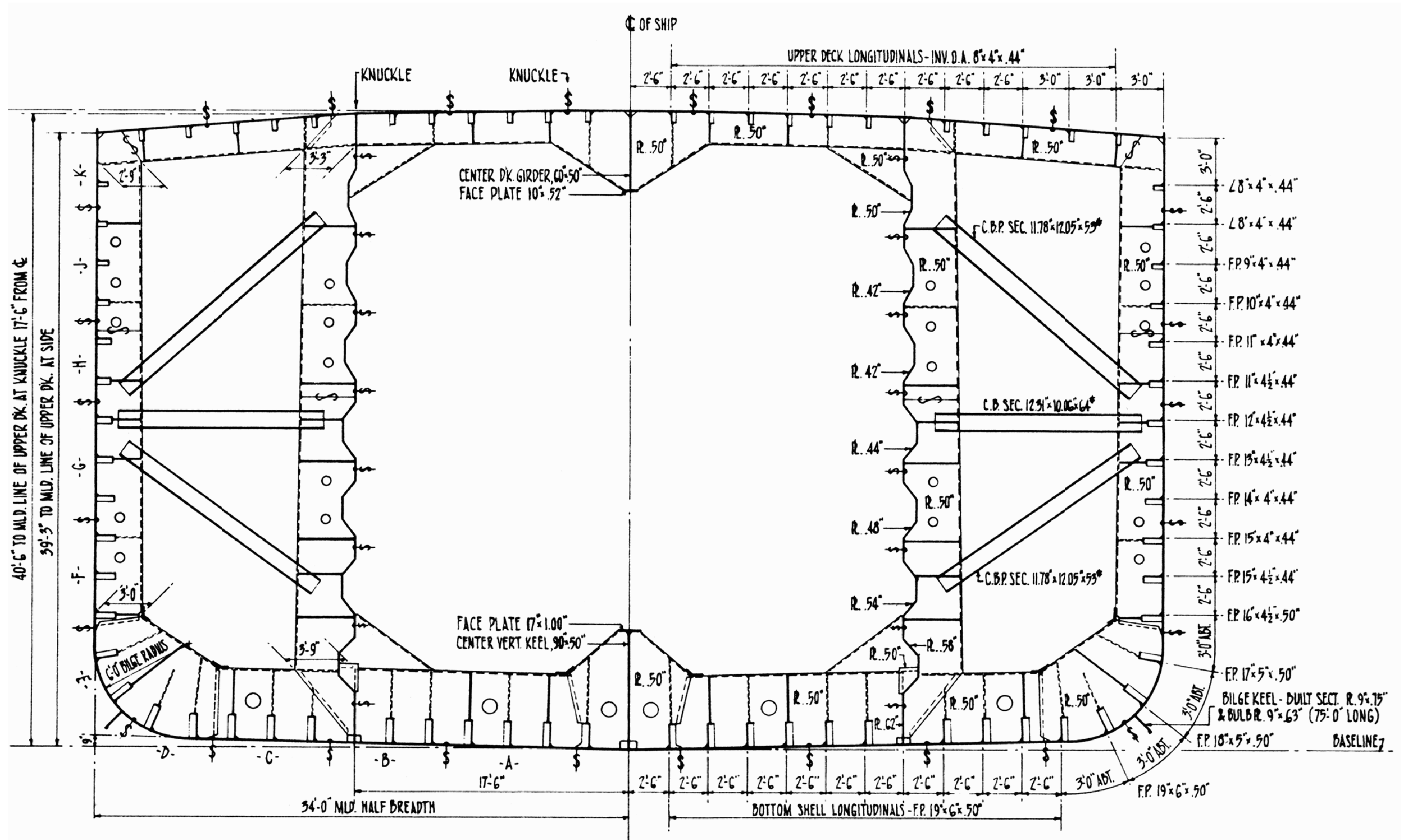
2 SECTION AT FRAME 25 LOOKING FORWARD



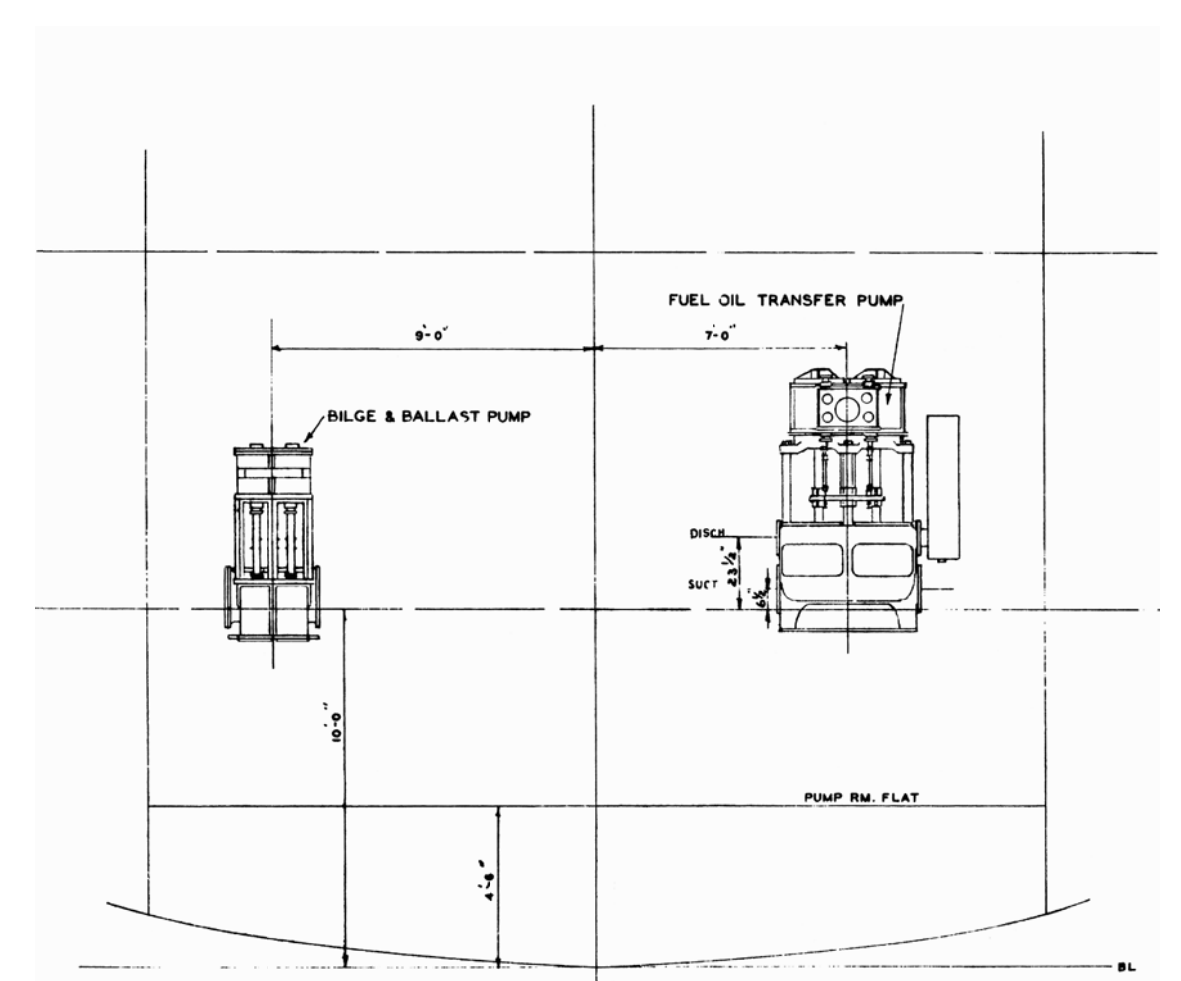
3 SECTION AT FRAME 31 LOOKING FORWARD



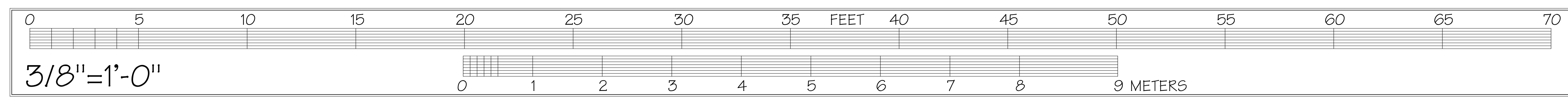
4 SECTION AT FRAME 45 LOOKING FORWARD



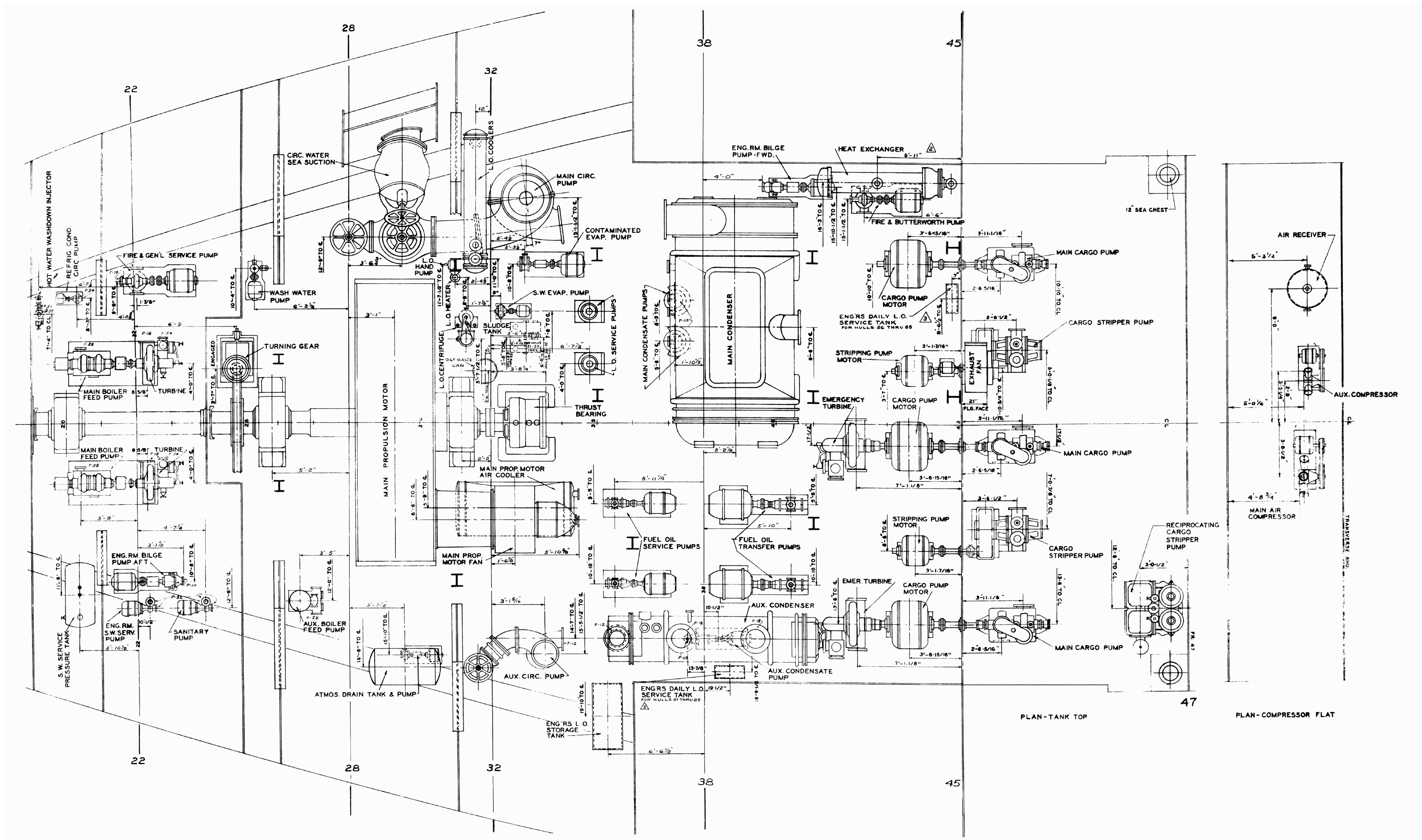
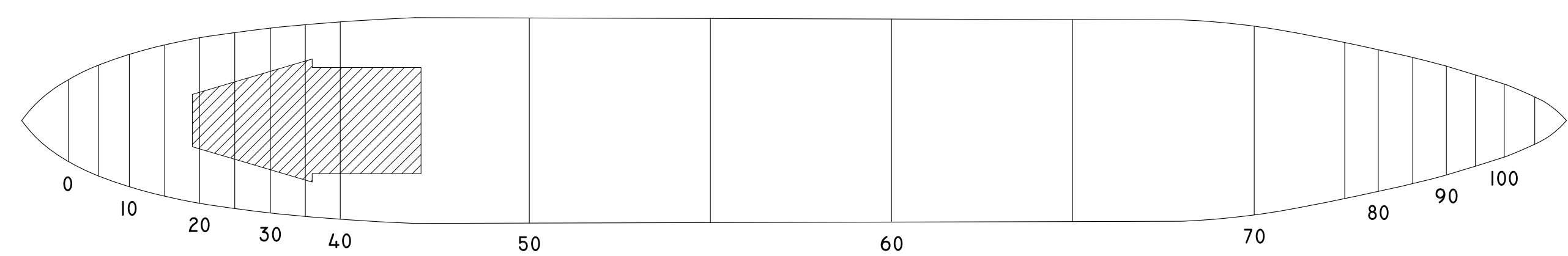
5 SECTION THROUGH CORRUGATED CARGO TANK MID-SHIP



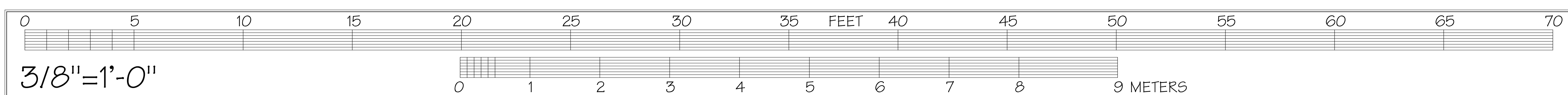
6 SECTION AT FRAME 73 LOOKING FORWARD



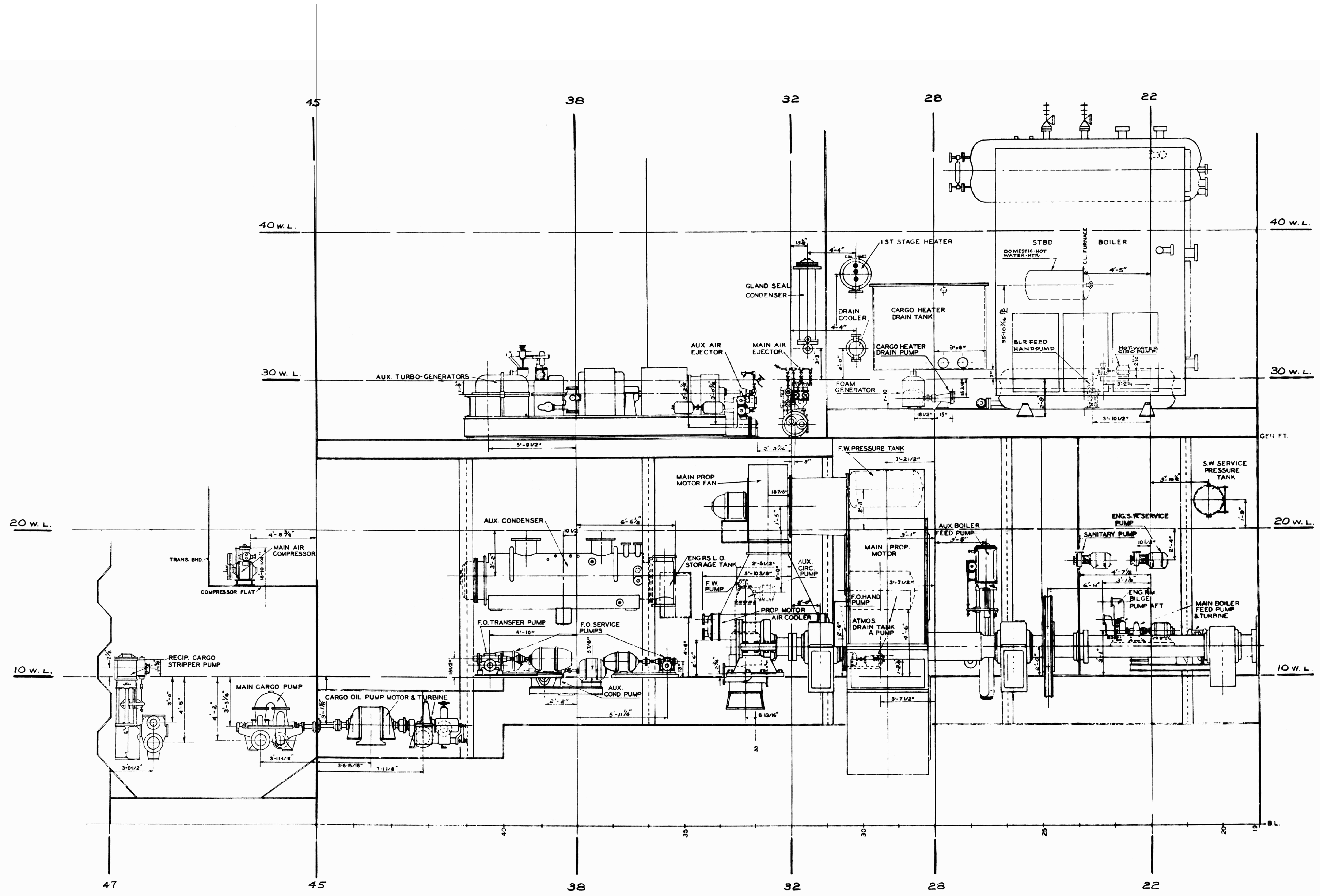
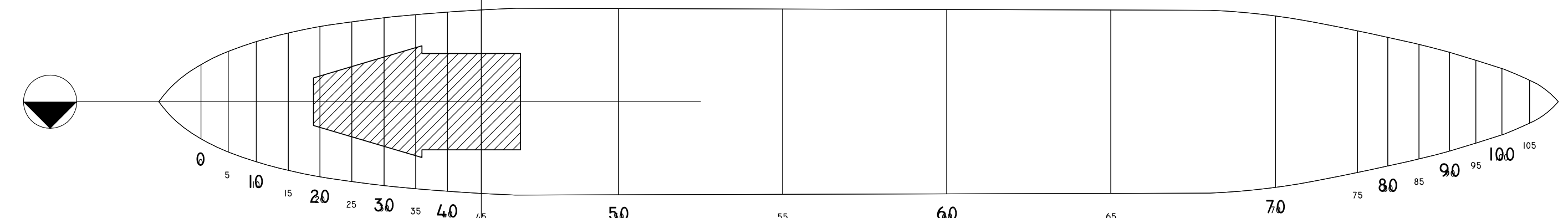
NOTE: DRAWINGS ARE SCANS OF ORIGINAL DRAWINGS LOCATED AT THE NATIONAL ARCHIVES AND RECORDS ADMINISTRATION



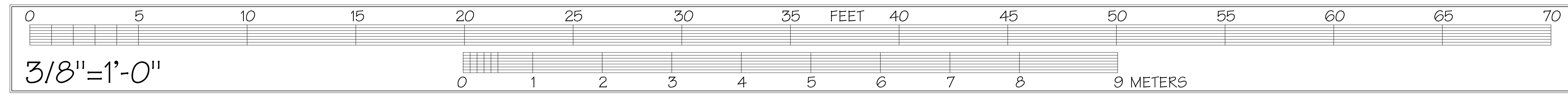
PLAN: ENGINE ROOM AFT PUMP ROOM AFT



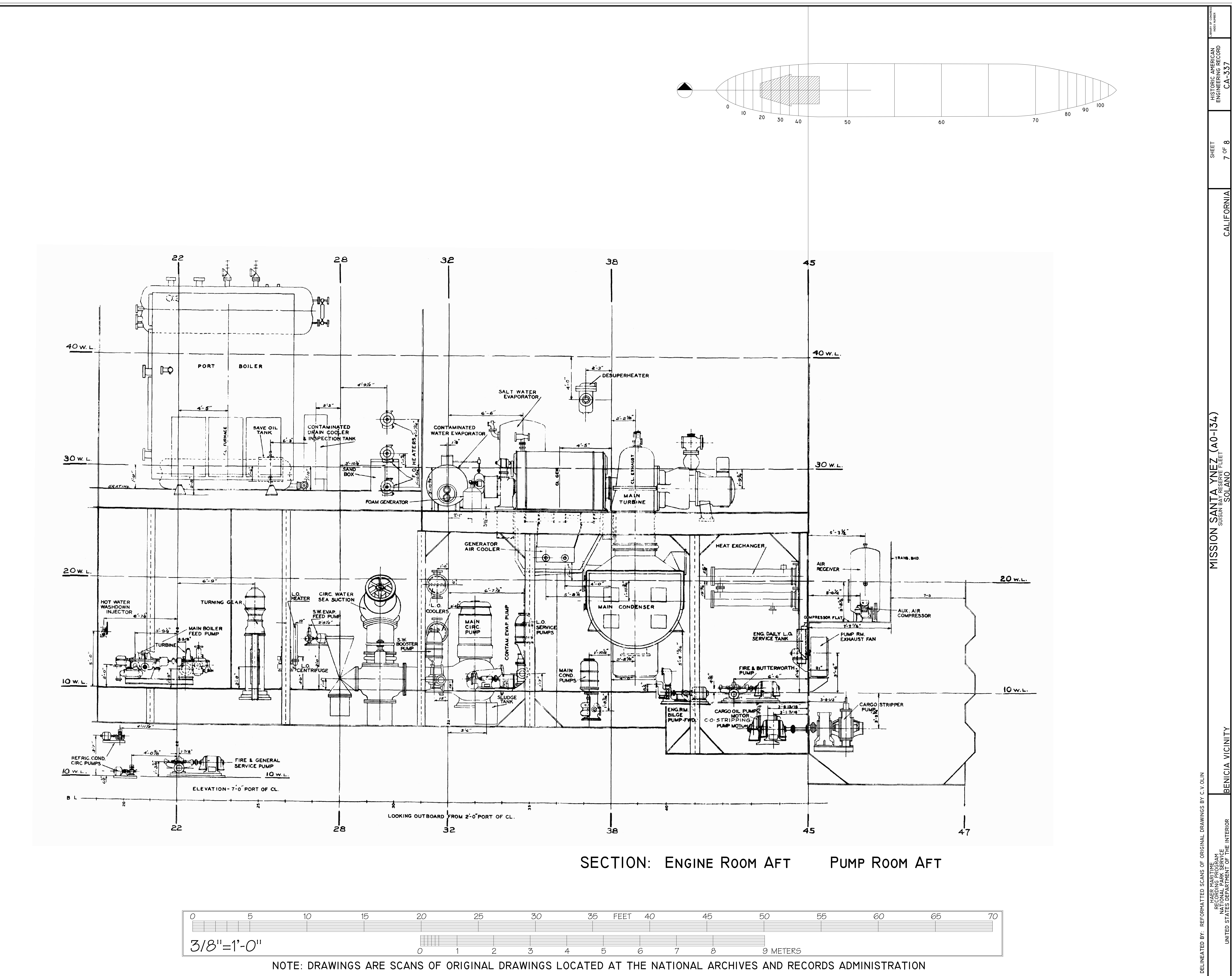
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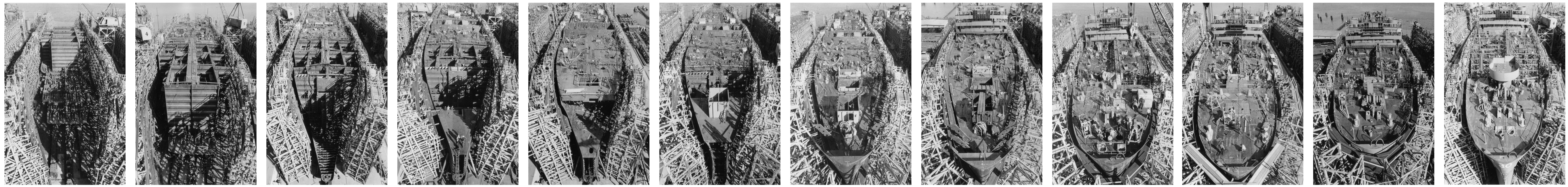


SECTION: PUMP ROOM AFT ENGINE ROOM AFT



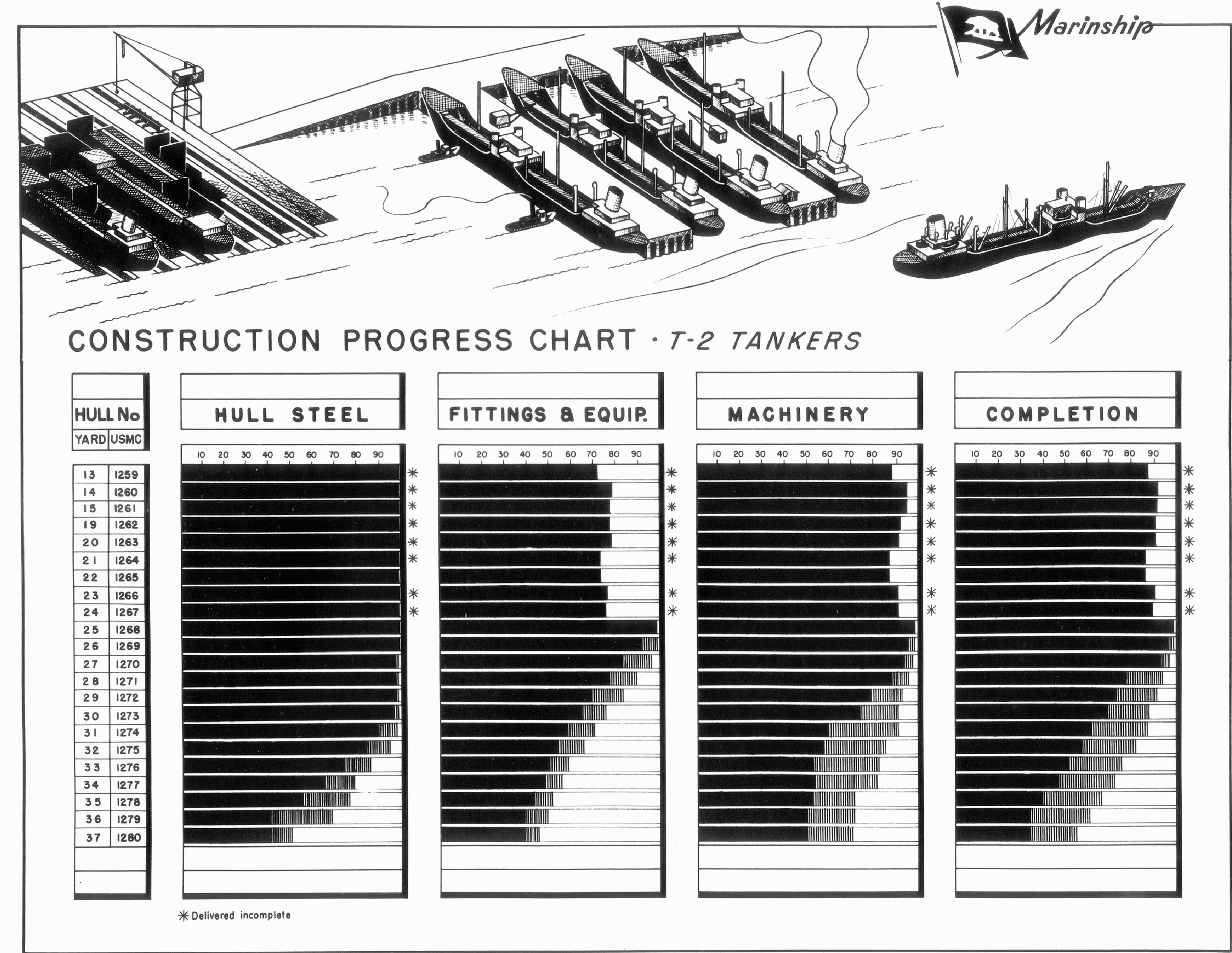
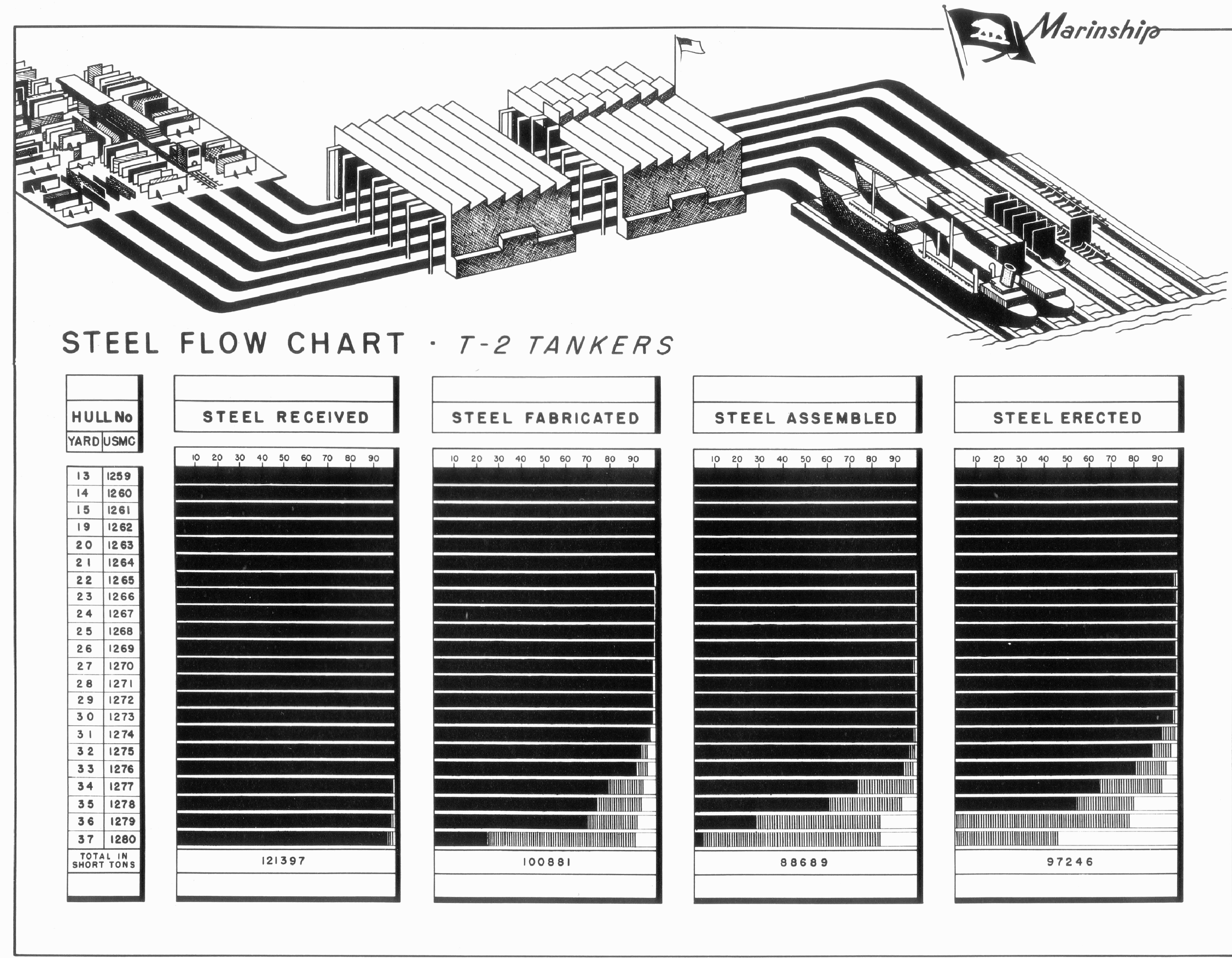
NOTE: DRAWINGS ARE SCANS OF ORIGINAL DRAWINGS LOCATED AT THE NATIONAL ARCHIVES AND RECORDS ADMINISTRATION





BOW VIEW HULL 37, WAY 2 November 26, 1943 0 Days after Keel
BOW VIEW HULL 35, WAY 4 November 26, 1943 14 Days after Keel
BOW VIEW HULL 34, WAY 5 October 29, 1943 21 Days after Keel
BOW VIEW HULL 36, WAY 3 November 26, 1943 25 Days after Keel
BOW VIEW HULL 33, WAY 6 October 29, 1943 34 Days after Keel
BOW VIEW HULL 35, WAY 4 November 26, 1943 42 Days after Keel
BOW VIEW HULL 34, WAY 5 November 26, 1943 49 Days after Keel
BOW VIEW HULL 32, WAY 1 October 29, 1943 50 Days after Keel
BOW VIEW HULL 35, WAY 6 November 26, 1943 62 Days after Keel
BOW VIEW HULL 31, WAY 2 October 29, 1943 64 Days after Keel
BOW VIEW HULL 32, WAY 1 November 26, 1943 78 Days after Keel
BOW VIEW HULL 30, WAY 3 October 29, 1943 79 Days after Keel

ASSEMBLY AND CONSTRUCTION OF T2 NAVY TANKERS



BOW VIEW HULL 31, DOCK A-3 November 26, 1943 1 Day after Launching
BOW VIEW HULL 29, DOCK D-1 October 29, 1943 15 Days after Launching
BOW VIEW HULL 28, DOCK A-2 October 29, 1943 22 Days after Launching
BOW VIEW HULL 30, DOCK A November 26, 1943 26 Days after Launching
BOW VIEW HULL 29, DOCK D November 26, 1943 43 Days after Launching
BOW VIEW HULL 28, DOCK C November 26, 1943 50 Days after Launching
BOW VIEW HULL 26, DOCK B October 29, 1943 51 Days after Launching
BOW VIEW HULL 27, DOCK B October 29, 1943 55 Days after Launching
BOW VIEW HULL 27, DOCK B November 26, 1943 63 Days after Launching
BOW VIEW HULL 26, DOCK A-2 November 26, 1943 79 Days after Launching
BOW VIEW HULL 22, DOCK A October 29, 1943 111 Days after Launching
BOW VIEW HULL 22, DOCK A-1 November 26, 1943 139 Days after Launching

