USS Iowa Facts



	www.pacificbattlesnip.com
Chronology	
Designed:	• Early 1938
	Finalized June 1938
	• At the same time the 1936 London Naval Treaty was amended to allow
	previous agreed escalations clauses to occur
Ordered:	 1 July 1939
Cost:	\$110 million
Builder:	 New York Naval Shipyard in Brooklyn, New York City
Laid down:	• 27 June 1940
Launched:	• 27 August 1942 - New York Naval Shipyard in Brooklyn, New York City
First Captain:	Captain John L. McCrea
Sponsored by:	 Ilo Wallace (Native Iowan & wife of Henry A. Wallace, the 33rd U.S VP
In attendance:	First Lady Eleanor Roosevelt
1 st Commissioned:	• 22 February 1943
Decommissioned:	 24 March 1949 – San Francisco Naval Shipyard (3yrs)
2 nd Recommissioning:	 25 August 1951 – San Francisco
2 nd Decommissioning:	 24 February 1958 – Atlantic Fleet Reserve, Philadelphia Naval Shipyard
	(26yrs)
3 rd Recommissioning:	 28 April 1984 – Pascagoula, MS
3 rd Decommissioning:	 26 October 1990 – Norfolk, VA
	 Moved to Newport, RI, Sept. 1998 (10yrs)
	 Moved to Suisun Bay, Benicia, CA – Arrived April 2001 (11yrs)
Total Service Years:	20 years active
	 50 years reserve
Struck:	 17 March 2006
Current Status:	 Awarded to Pacific Battleship Center, September 2011
	 Final tow to Port of Los Angeles, June 2012
	 Arrival at current docking, 9 June 2012
	 Moved 20" South, 2 April 2014

www.pacificbattleship.com

General Talking Points

Namesake:	Ihe State of Iowa
Nickname:	 "The Big Stick" - Based on the saying "Speak softly and carry a big stick"
	made famous from a President Theodore Roosevelt speech.
Motto:	 "Our Liberties We Prize, Our Rights We Will Maintain"
Classification:	Iowa Class Battleship
Hull Number Facts:	 BB61 - BB means battleship - 61 means the 61st battleship completed
	 The first ship of her class of battleship to be commissioned by the
	United States
	 Was the lead ship of the 4 completed (6 authorized) lowa Class
	battleships 🗧
	BB61 – Iowa – Commissioned 22 February 1943
	BB62 – New Jersey – Commissioned 23 May 1943
	BB63 – Missouri – Commissioned 11 June 1944
	BB64 – Wisconsin – Commissioned 16 April 1944
	BB65 – Illinois – 22% completed, cancelled
	BB66 – Kentucky - 73% completed, cancelled
	Bow from Kentucky was used to repair Wisconsin's after a
	collision with destroyer Eaton - 1956
	 Iowa class battleships were the largest battleships ever built by the US
	Navy
	 They were considered by many to be the greatest warships ever built
	due to their combination of great speed, armor protection, survivability
	and 16" main gun weapon systems
Honors and awards:	 11 Battle Stars - Awarded to US Navy warships for meritorious
	participation in battle, or for having suffered damage during battle
	conditions:
	9 for WWII
	2 for Korean War
	Other awards:
	1. Navy Meritorious Unit Commendation Navy E Ribbon w/ 3
	Battle E device
	2. American Campaign Medal
	3. Asiatic-Pacific Campaign Medal w/ 9 service stars
	4. World War II Victory Medal
	5. Navy Occupation Service Medal
	6. National Defense Service Medal w/ star
	7. Korean Service Medal w/ 2 service stars
	8. Armed Forces Expeditionary Medal
	9. Navy Sea Service Deployment Ribbon
	10. Philippine Presidential Unit Citation
	11. Korean Presidential Unit Citation
	12. Philippine Liberation Medal

13. United Nations Korea Medal

Basic Statistics

Index statements and the second statements	
Length:	• 887′ 3″
	 216 hull frames with 4' frame spacing
Beam:	• 108′ 2″
	 Designed to travel through the 110' wide Panama Canal with a foot of clearance on each side
Displacement	 1945: 45,000 tons (standard) 57,540 tons (full load)
Displacement.	 1945. 45,000 tons (standard), 57,540 tons (full load) Cold Mar area 48,425 tons (standard), 57,540 tons (full load)
	• Cold Wallera: 48,425 cons (standard), 57,540 cons (rui load)
Duch	Current: - 45,800 tons
Draft:	• Design: 34
	Full load: 38
Ustable	Current: 27 forward, 32 art
Height:	From keel (bottom of hull) to top of mast - 209'
	 From waterline to top of mast – 1/4'
	 From waterline to the top of the forward superstructure's MK 38 fire control is currently 126'
Speed:	 33 knots (38 mph)
Wood Decks	 Wood covers approximately 54,000 square feet.
	 Wooden decks provide insulation against hot sun and are not slippery when wet
	 Planks were originally all Teak but were replaced with more affordable Douglas Fir during her last commissioning
Overall fuel capacity:	2.4 million gallons
Crew Complement:	 1980's – 65 officers, 1,445 enlisted, plus 58 Marines
	• WWII – Close to 2,800 due to the great number of anti-aircraft guns
Armament	

	<u>1943</u>	<u>1955</u>	<u>1980's</u>
 16" 50 caliber Mark 7 guns 	9	9	9
 5" 38 caliber Mark 12 guns 	20	20	12
 40 mm 56 caliber "Borfors" (19 quads) AA guns 	76	76	
 20 mm 70 caliber "Oerlikon" AA guns 	52	(R)	
 BGM-109 Tomahawk cruise missiles 			32
RGM-84 Harpoon Anti-Ship missiles			16
 20 mm/76 caliber Phalanx CIWS 			4
 Stinger surface-to-surface missile firing positions 			5
 .50 cal heavy machine guns (4 per side) 			8

(R) = Removed at the beginning of the Korean war because they were considered obsolete against jets.

16' Main Gun Battery Turrets

16" EQ caliber Mk 7 gun
Coliber is the rotic between here diameter 8 herrel length
Caliber is the ratio between bore diameter & barrel length $16'' \times 50 = 200'' = -66.6'$
$\sigma.\sigma = 0.08 = 0.08 = 0.000$
9 guns mounted in three gunned armored turrets
77 assigned crew positions in each turret
292,000 lbs
Main fire control system:
Mark 38 director; "Spot 1 on top of forward conning tower & spot
2 top of after tower perform the functions of ganging and spotting,
feeds into Fire Control Room
Back-up fire control system
Large side "hoods" are rangefinders
Upper small "ears" for the trainer
Lower "hoods" for the pointer
1,700 tons without ammunition
2,000 tons with ammunition
Turret 1: 390, Turret 2: 460, Turret 3: 370 = 1,220 total
68' including breech
44' length outside the turret
Turrets 1 & 3: From -2° to $+45^{\circ}$ @ 12° per second
Turret 2: From 0° to +45° @ 12° per second
Fach gun can be raised senarately
Full elevation in just under 4 seconds
Each turret has a 300° turning arc $@ 4^{\circ}$ per second: full arc in 75 seconds
24 miles depending on many variables
Elight time to target: 1 5 minutes
On 20 January 1980, Java fired a $16''$ shall 26.0 mi (42.2 km)
2 rounds per minute (each gun)
Left, Right, Center, 0.60 seconds apart
Contrary to myth, the ship does not move sideways when firing
the main guns because the ship has so much mass. Blast pressure
pushes out the water giving an illusion of sideways movement
17" Class B armor on 2.5" of STS plate inclined at a 36° angle (19.5"
total)
9.25" Class A armor over 0.75" STS plate (10" total)
12" Class A armor
7.25" Class B armor
Two port side hits from a Japanese 4.7" shore battery during shelling of
Miki Atoll in the Marshall Islands during WWII in 1944
Turret 2's port side has an impact mark
Port side upper hull 30" X 50" hole deemed minor & repaired.

16' 50 caliber Projectiles

Conventional:	•	Mark 8 AP (Armor Piercing) Projectile
		2,700 lbs X 72" tall
		Muzzle velocity 2,500 ft/sec
		Can penetrate 30' of reinforced concrete
		Can penetrate 18" of armor on enemy vessels depending on distance
		fired & angle of penetration
	•	Mark 13 HC (High Capacity)
		1,900 lbs X 64" tall
		Muzzle velocity 2,690 ft/sec
		Used for shore bombardment or soft targets
		Can create a crater 50 ft) wide, 20 ft deep with 200 yrd bursting
		In Korea, Iowa class battleships were used to destroy enemy ports,
		In Vietnam, a single HC round fired into the jungle created a
		helicopter landing zone over 200 vds) in diameter and defoliated trees
		for 300 yrds beyond that
		At night a 16" salvo would light up the sky like sunrise
		The shell sounds like a train going overhead
		At extreme distance, a 16" projectile will take 1.5 minutes to reach
		the target.
Nuclear:	•	Mark 23 "Katie" nuclear projectile
		64" tall
		1055 1062
		1955 - 1963 The Neur neuer confirmed their presence on lowe
Othory		"Eirocrocker" anti personnel cluster rounds
other.		Scattered 400 anti-personnel grenades over 9 acres
		Several other rounds were available for practice
Propellant & velocity		Full charge of propellant was 6 110lb bags of powder
		Reduced charges were also used
	-	Reduced charges were also used

5' Secondary Gun Battery

Caliber:	• 5" 38 caliber Mk 12 guns
	 Caliber is the ratio between bore diameter & barrel length
	5" X 38 = 190" = 15.8'
Number of guns:	 12 guns in Mk 28 Mod 2 Twin enclosed mount (not turret)
Armor:	• 2.5"
Crew:	 27 in the mount and upper handling room plus personnel in the
	magazine
Total gun weight:	Each twin mount weighs 3,990 lb
Total mount weight:	Each twin mount weighs 170,635 lb
Overall gun length:	• 18.65′
Vertical elevation:	 Both guns raise and lower together from -15^o to + 85^o
Rate of Fire:	• 15 rounds per minute but could surge up to 21 depending on the level of
	crew training
Recoil:	• 15″
Ammunition:	 Simi-fixed meaning the 55 lb projectile is separate from the 28 lb brass
	or steel alloy powder case
	 Each magazine held 595 projectiles and 595 powder canisters
Purpose:	 Dual purpose surface action & anti-aircraft
Effective Range:	• 10 mi - surface
	 7 mi or 37,000' - anti-aircraft
Fire control system:	Mk 37 directors
	 Located forward, aft, port and starboard
	 Performs the function of ranging and bearing and elevation data to the
	plot rooms
	 Tracks both ground targets and aircraft
Four of th	ne twin 5" mounts were removed during the 1908's Cold War conversion to
make ree	m for the addition of Harpoon & Tomahawk missilos and Phalany CIM/S guins

make room for the addition of Harpoon & Tomahawk missiles and Phalanx CIWS guns The 5" 38 gun was considered the "gun that won the Pacific and were carried on almost every U.S. warship

Anti-aircraft Weapons – 1945

40mm Bofors anti-aircraft guns

- Caliber:: 40mm 56 caliber Bofors anti-aircraft guns
 - 19 quad mount (76 barrels) Bofors 40 mm guns
- Number of guns: Rate of fire:
- Up to 160 rounds per barrel per minute
- Projectile weight:
- -15° to +90°
- Effective AA ceiling:
- 22,000'

Other Iowa class battleships had one additional 40 mm quad atop Turret 2. Since Iowa was a fleet flagship with an extra bridge level (03 Level) to accommodate an admiral, a quad 40 mm on Turret 2 would have impaired visibility

Designed in the 1930's by Swedish arms manufacturer AB Bofors

20mm Oerlikon anti-aircraft guns

Caliber:: • 20mm 70 caliber Oerlikon anti-aircraft guns

Number of guns:

- 52 single barrels8 twin barrels
- Rate of fire:
 - Up to 450 rounds per minute
 .25 lb

Projectile weight: Vertical elevation:

-15^o to +90^o

Effective range: Maximum range: 0.6 mi (0.96 km) against low-flying aircraft
Maximum range at 45°: 2.7 mi

In later years of WWII this weapon became less effective especially against Kamikaze attacks. All were removed during Iowa's 2nd commissioning

The 20mm caliber cannon was originally designed in Germany during WWI Originally known as the 20mm Becker (designer's name)

Oerlikon was the Zürich suburb and name of the company that produced the weapon

Missiles Systems – 1980's

<u>RGM-84 Harpoon:</u>	
Type:	 Radar guided anti-ship missile, over-the-horizon strike capability
Quantity:	 16 missiles launched from 4 quadruple Kevlar-armored Mk-142
	Canister Missile Launchers
Range:	Range: 75 mi
Location:	 Located on the port and starboard sides of the 2nd funnel
BGM-109 Tomahav	<u>vk:</u>
Type:	 Configurations: 1) Anti-ship 2) land attack 3) land-attack nuclear
Quantity:	 32 missiles launched from 8 Armored Box Launchers (ABL's)
Range:	 Range based on configuration:
	250 mi to 1,500 mi
Location:	 Located 4 aft & 4 amidships
The Harpo	oon and Tomahawks launched initially using solid-propellant rocket booster
until the t	urbofan jet engine takes over

- Up to 160
 2 lb
- ectile weight:
- Vertical elevation: -1

Defensive Systems – 1980's

20 mm Phalanx	CIWS:
Type:	• Mk 15 Phalanx Close-In Weapon Systems, a six barrel Gatling-type
	gun. Often called "sea whiz" or R2D2
Quantity:	• 4
Bullets:	Depleted uranium
Rate of fire:	 3,000 rounds per minute
Gun locker:	 1,000 round magazines
Range:	Range: 1.1 mi
Fire Control:	 Closed -loop radar system capable of tracking its own bullets to the
	target
FIM-92 Stinger:	
Type:	 Portable shoulder fired surface-to-air missile (SAM)
Quantity:	 Five firing positions with stored weapons and ready service rounds
Range:	Effective firing range: 3.0 miles
Fire Control:	 Infrared homing
<u>SRBOC – Chaff 8</u>	<u>k Decoy:</u>
Type:	 Super Rapid Blooming Offboard Countermeasures
Quantity:	 48 - 24 port side, 24 starboard side
Location:	 05 Level port and starboard
A typical	round is rocket launched to an altitude of 1,300 ft 0.9 miles from the ship,
where de	coy devices such as flares or aluminum foil are deployed
Electronic Warfa	are:
Type:	SLQ-32 Electronic Warfare System
Location:	 011 Level port and starboard side
These un	its try to jam or confuse incoming missiles. The SLQ-32 system is tied into
both CIW	'S and SRBOC
50 caliber Guns:	
Type:	 50 caliber guns used for protection against attacks from small craft
	(such as what occurred against the destroyer USS Cole)
Quantity:	• 8
Location:	 4 port and 4 starboard

Armor Protection

lowa is c	designed to withstand the following types of attacks:
	Gun fire Torpedoes
	Aerial bombardment Mines
Triple bottom:	 Protection against near-miss bombs mines and torpedoes exploding under the ship
Torpedo bulkheads:	• Torpedo protection is multilayered. Three bulkheads between the
The citadel:	outer hull and the ship's interior form four voids for absorbing and dissipating the explosion. Torpedo Bulkhead No. 3 is the 19° inclined armored belt An armored "box" protecting the ship's boilers, engine rooms, gun
	magazines and fire control systems. It runs from Frame 50 (forward of Turret 1) to Frame 166 (aft of Turret 3). The belts form the sides, 2 nd deck the overhead, triple hull the bottom and the transverse bulkheads the ends (Frames 50 and 166, respectively)
Immune zone:	• Iowa is designed to withstand hits from 16" or smaller guns. However, protection is not defined by armor thickness but by something called the immune zone
*	It is impractical to protect Iowa in all circumstances because the armor would be too thick and heavy. If an enemy was too close, direct fire from large caliber guns could penetrate Iowa. If the enemy was far away but within gun range, the plunging fire could penetrate the deck
	Between these two extremes is an area where Iowa is reasonably well protected. The original Iowa-class design specified protection against 16"/45 caliber shells between 18,000 yrds (10 miles) and 30,000 yrds (17 miles). One battle strategy would have been to keep the ship in the immune zone when engaging an enemy
	 Four types of armor are used on the ship. Each with characteristics
Types of armor:	designed to meet specific threats Class A armor: Class A is surfaced hardened on the outside face, the idea being to "de-cap" or strip the armor piercing cap off the projectile before it can penetrate into the ship. Case hardened steel tends to be brittle, but the cracks on the sides of the Turret 2 barbette are from the quenching process used in manufacturing Class B armor: Class B or homogeneous armor is not surface hardened and so, has some "give STS armor: Special Treatment Steel or STS is homogeneous armor plate under 4" thick intended for splinter protection. STS is similar
	to Class B and is used in the ship structures Cast armor: Cast directly into its final shape such as rangefinders

Cast armor: Cast directly into its final shape such as rangefin and sight hoods Types of armor:

16" turret gun (gun house)

The gun house is the rotating portion of the turret that extends above the barbette and contains the 16" guns. The armor is a combination of Class A, Class B and STS plate

Face plate: 17" Class B armor on 2.5" of STS place inclined at a 360 angle; 19.5" total

Side plates: 9.25" Class A armor over 0.75" STS plate; 10" total

Back plates: 12" Class A armor

16" Barbette

The barbette is the armored, non-rotating portion of the turret directly under the gun house and is 11.6" to 17.3" Class A armor The abeam portion is 17.3" tapering at the quarters to 14.8" and finally tapering to 11.6" dead ahead and astern

5" enclosed mounts

2.5" STS plate

• Armored conning tower

17.3" Class B armor. Each door weighs 4,000lb or 2 tons. Iowa is unique because the armored conning tower has 3 levels; 03 Level, 04 Level and 05 Level. Iowa's sisters do not have an armored 03 Level

Belts

The belts from both sides of the citadel are a combination of Class A and Class B armor. Each belt runs horizontally on the port and starboard sides of the ship from Fram 50 just forward of Turret 1 to Frame 166 just aft of Turret 3 and vertically from 2nd Deck to the triple bottom. Each belt is 12.2" thick starting ad 2nd Deck, tapering to 1.62" at the triple bottom and slanted at a 19^o angle

• Transverse bulkheads

11.3" Class A armor protecting the forward and aft ends of the citadel

Armor deck

2nd Deck is 4.75" Class B armor laid on top of 1.25" STS plate (6" total) running from Frame 50 to Frame 166. The is the overhead of the citadel

Splinter Deck/3rd Deck

Protected within a 13.5" Class A armored compartment

Steering gear

Between 2nd Deck and 3Rd Deck is a splinter deck consisting of 0.625" STS plate. The purpose of this deck is to catch spall or splinters from hits on the armor deck (2nd Deck) above. 3rd Deck is also 0.625" STS plate

Critical communications and fire control

Protected within 15 armored tubes inside the superstructure with varying armor protection from 2" to 16" thick

Aft Main Deck

Iowa's aft deck is currently configured for helicopter landings Over 6 different types of helicopters could land on her aft deck during the 1980's. Most common was the CH-53 Sea Stallion. The "helo" control station is above Turret 3 The remotely piloted vehicle (RPV) Pioneer used for observation with a camera and as a laser designator was also launched and recovered here in a net during the 1980's During WWII floatplanes were used for reconnaissance, fall of projectiles spotting, and rescuing downed aviators

Initially Iowa was built with 2 catapults, aft, port & starboard, used to launch floatplanes. 3 were carried on board. The Vought 0S2U Kingfisher was carried in the first part of WWII and later the Curtiss SC-1 Seahawk

Two catapults were removed during the Korean War (1950), as they interfered with the helicopters landing (the early days of helicopters at sea)

The stern crane was removed during the Cold War conversion

٠	1943-1945	Three	Vought	OS2U	Kingfisher	floatpl	anes
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1945-1948 Curtis SC-1 Seahawk floatplanes

Korea:

WWII:

• Piasecki HUP-1 helicopter

Cold War:

Sikorsky HO35-1 helicopter

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5 RQ-2 Pioneer unmanned aerial vehicles (UAV) Supported the following helicopters: ٠

UH-1 Iroquis "Huey" SH-2 Seasprite SH-3 Sea King

CH-46 Sea Knight CH-53 Sea Stallion SH-60B Seahawk

"Bull's Eyes"

1-119-6Q	Note: The ship has 217 hull frames spaced 4'apart and
FR 119-127	numbered sequentially starting at frame 0 near the bow
X-2	

	1-119-6Q	
1	Level or deck	This compartment is on the Main Deck
-	Called a "tack"	
119	The furthest forward from in the compartment	Frame 119
6	Location of the compartment relative to the centerline of the ship. Even numbers to the port, odd numbers to starboard	This is the 6th compartment outboard from the centerline to the port side
Q	Compartment use	Miscellaneous

Battleship Class:	United States Navy		Imperial	Nazi Germany	
	9			Japanese Navy	Kriegsmarine
Battleship Class:	Pennsylvania	North Carolina	South Dakota	Yamato	Bismark
Names:	BB38 Pennsylvania BB39 Arizona	BB55 North Carolina BB56 Washington	BB57 South Dakota BB58 Indiana BB59 Massachusetts	Yamato Musashi	Bismark Tirpitz
			BB60 Alabama		
First Launched:	1915	1940	1941/1942	1940	1939
Overall Length:	608	729"	680″	862' 10"	623'5"
Beam:	106	108.4"	108.2"	121' 1"	118'1"
Draft:	30.2"	25″	32.3"	36' 1"	31′
Displacement – Standard:	31,400t	37,200t	35,000t	71,111t	46,000
Displacement – Full:	32,567t	47,400t	44,519t	73,000t	55,400
Horsepower	34,000	121,000	130,000	150,000	150,170
Speed:	21k	28k	27k	27k	30k
Propellers:	4	4	4	4	3
18.1" Guns	X			9	×
16"/50 Caliber Guns:					
16"/45 Caliber Guns:		9 (3 Turrets)			
38 cm (15") Guns:					8 (4 Turrets)
14"/45 Caliber Guns:	12 (4 Turrets)		9 (4 Turrets)		
155 mm (6.1"):				6	
15 cm (5.9"):					12
127 mm (5.0"):				24	
5"/51 Caliber Guns:	12				
5"/38 Caliber Guns:		20	16		
5"/25 Caliber Guns:	8			- 2	
10.5 cm (4.1"):			1	ър.	16
40mm "Borfors" Guns:		15 Quads	17 Quads		
3.7 cm (1.5"):					16
25 mm (0.98"):				162	
20mm "Oerlikon" Guns:		46	76		
2 cm (0.79"):	а. Х.				12
13.2 mm (0.52")				4	×
50 Caliber Machine Guns:	8				

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• 1945-1948 Curtis SC-1 Seahawk floatplanes

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Piasecki HUP-1 helicopter

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- Sikorsky HO35-1 helicopter
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IOWA RADIO COMMUNICATIONS TALKING POINTS FOR TOUR GUIDES

Guide:

Date:

Welcome to Iowa's Radio Communications spaces.

All of Iowa's orders and directives to sail and perform her strategic, tactical, and operational missions were processed in these spaces.

lowa's Communications Center is comprised of the **Message Processing Center** and **Facilities Control 1**. Time permitting we will also visit the **Main Transmitter Room** that in below us on Deck 3. All circuits and messages passed through these spaces for processing and distribution. At one time these were highly classified spaces and included the cryptographic equipment in **Facilities Control 2** where Iowa's main computer server is today.

During Iowa's 20 years of service, thousands of Radiomen, Teletype men, Communications Yeomen, and Electronics Technicians stood watches on a 24/7 basis in these spaces even when the ship was in port supporting Iowa's wartime and peace time missions. These sailors processed millions of incoming and outgoing messages, tuned and operated equipment and performed troubleshooting, maintenance and repair of every piece of equipment you see in these spaces. The Communications Center was the communications hub that controlled all of Iowa's access to the military's world-wide external communications system. Through the decades of service, Iowa's crew has called these spaces Radio Shack, Main Radio, Main Communications, Message Center and Radio Central.

During her active service, Iowa transitioned through three eras of communications technologies:

- Morse Code -- transmitted manually via CW (continuous wave) by turning a transmitter's carrier off and on
- Amplitude Modulation (AM) -- the original voice communication mode
- Single Sideband (SSB) -- a later more power efficient mode of voice modulation

- Radio Teletypewriter (RTTY)-- using hard copy and paper tape
- Satellite Communications (SATCOM) with computers.

Morse code, amplitude modulation voice, SSB voice and teletype modes used mostly high frequency shortwave frequencies and manual message processing methods. The satellite communications systems were computer based automated message handling systems with high data transmission rates. Through the decades of Iowa's active service, these spaces underwent major modifications several times to accommodate the advances in communication media.

Within this Communications Center is the **Message Processing Center or MPC** used to support Iowa's various departments and the Admiral's staff. The teletype machines were used to send and receive messages during the era when paper tape and communications over high frequency systems were the primary methods of naval communications. During special Museum events we may have a short demonstration so you may get an idea how a teletype functions and how teletypes helped us process messages.

Equipment racks marked NAVMACS (Naval Modular Automated

Communications System) contain the much quieter and faster computerized automated message processing equipment which replaced some of the radio teletype system for processing messages.

The **Message Processing Center** transmitted, received and processed thousands of naval messages each day through lowa's communications satellite and non-satellite communications systems via world-wide communications links with major Naval Communication Stations ashore. Radiomen stood watches in this space in three 8-hour watch sections performing various message processing functions. Electronics Technicians maintained and repaired the numerous individual pieces of equipment that comprised the communications systems. Messages which required immediate action were taken directly to the responsible officer(s) by a "runner" with proper clearances. Messages of a routine nature were reproduced with copier machines and multiple copies were placed in the messages slots much like post office boxes pending pick up by messengers. The message window was the portal through which lowa sailors picked up routine hard copy of messages for their departments and commands.

As of today there are two radio systems operational aboard the lowa.

The Battleship Iowa Amateur Radio Association(BIARA)has two high frequency stations in the message center. The antennas in use by these two stations are the discage antenna on the bow and the trussed monopole atop the helo ops shack on the fantail. With these 100-watt transceivers using SSB voice or Morse code BIARA operators communicate with other amateur radio operators and their stations all over the world. BIARA is an association of FCC-licensed radio amateurs whose purpose is the support of radio activities on, or associated with, the Battleship Iowa. While BIARA is and will continue to be an organization separate from PBC, members of BIARA shall be required to become volunteers of PBC and to abide by all volunteer guidelines and directives as may be established by PBC; including, but not limited to, the completion of a volunteer application, having a PBC ID Card issued, and attending a volunteer orientation. BIARA has an MOU with the PBC to be the "face or amateur radio" aboard Iowa. Their stations operate under their call sign, NI6BB, most Wednesdays and are available be utilized by properly licensed and certified BIARA members. When the original Iowa military radio systems have been restored to operability BIARA members will be able to operate them on the amateur radio frequencies. BIARA participates in special amateur radio events such as the annual Museum Ship Weekend, the scouts Jamboree on the Air and many dates with Iowa and or military history significance. BIARA also has a cadre of volunteer examiners who administer FCC commercial and amateur radio exams under the VE system.

The second system station is a Navy and Marine Corps Military Affiliate Radio System (MARS) digipeater. This is located on level 10, is fully automated and is part of a digital network that provides gateway service for the MARS system communications serving the Southern California area from San Diego to Port Hueneme. The MARS System is manned by licensed amateur radio operators who have been qualified and licensed to augment military communications systems during a local, national, or international necessities. MARS affiliates have procured a Navy MARS call sign of NNNOCIA for the Iowa and well as a military recreational station license. This will allow for possible future operations during events such as the Armed Forces Day Cross Band Tests when amateurs communicate with stations operating on designated frequencies while the military station listens on the amateur frequencies. If or when BIARA and or the PBC has a membership including MARS licensed persons, the existing BIARA radio stations can also be put into service on military frequencies for net or training sessions.

The next space aft is **Facilities Control**. This space is the heart of our radio complex and contains the low and high frequency receivers, audio, RTTY and digital patch panels and transfer switchboards for connecting all external tactical ship to ship, ship to aircraft and ship to shore voice and data communications networks. The various patch boards and switchboards are used to patch equipment and hundreds of circuits throughout the ship's tactical spaces such as the Admiral's and Captain's bridges, Combat Information Center (CIC), Combat Engagement Center (CEC)supporting the lowa's operational missions. A minimum of four highly skilled senior Radiomen, known as Tech Controllers, stood watches in this space. Radiomen who worked in this space received specialized training in the nuances of tuning high frequency radios and operating satellite communications equipment, as well as tending to the patch boards and switch boards. These Radiomen required detailed knowledge of the ship's internal and external communications capabilities as well as those of the Naval Communications System ashore.

When you visit the Main Deck you will be able to see many of the **Iowa's antennas**. On the bow is the DISCAGE (discone/cage) HF general purpose transmitting antenna. Up to eight high power HF transmitters at a time can use this antenna. Its location minimizes interference by the super structure resulting in a nearly circular transmission pattern. During the Christmas season this supports lighting for Iowa's "tree" while still being able to function as an antenna with reduced power. 35' vertical whips above and forward of the bridge, two others port and starboard of the bridge, smaller verticals forward of the mid-ship Tomahawk missile containers and port and starboard fan antennas were used primarily for HF receiving. A 14' trussed monopole antenna sits unobtrusively atop the helo ops shack. Although this is used by BIARA for HF communications you will often see it used as support for lighting when fantail events are hosted. VHF, UHF and SATCOM antennas can be seen at various levels on the mast and superstructure. At this time they are not in service as most of their feed lines were sawed through when the mast was removed after the last decommissioning. These antennas were essential to the operation of our radio complex and were maintained and repaired by Radiomen.

The **Main Transmitter Room** housed many 1000 watt HF transmitter sets (power supply / exciter / amplifier / antenna auto coupler) as well the VHF, UHF and SATCOM transmitters and or transceivers. These systems generated a lot of heat during their operation. Placing them below deck resulted a cooler environment that was easier to control with the ship's chilled water-based air conditioning. Specific equipment will be pointed out and explained as possible.

Thank you for visiting our communications spaces and do enjoy the remainder of your visit on battleship IOWA.

COMMENTS / FEEDBACK / QUESTIONS:



USS IOWA RADIO SYSTEM

SIGNAL FLOW



John P 5/13/2017 (v 3.0)

USS IOWA RADIO SYSTEM

SIGNAL FLOW



John P 5/13/2017 (v 3.0)