



Unit IV – The US Navy

Chapter 2 - Naval Aviation

Section 1 – The Background of Naval Aviation



What You Will Learn to Do

Understand the background of US Navy aviation and learn about Navy aircraft in use today



Objectives

1. Explain the background of naval aviation



Key Terms

- Pontoon -** A floating structure, such as the float on a seaplane
- Man of war -** A general term for an armed naval vessel
- Drone -** An unmanned aircraft or ship guided by remote control
- Modification -** An alteration or adjustment, as of an aircraft or other vehicle



Naval Aviation Begins...

Eugene Ely accomplished two significant milestones in Navy aviation:

- Was first pilot to complete a **takeoff** from a ship – November 1910
- Was first pilot to successfully **land** an aircraft on the deck of a ship – January 1911





Naval Aviation Begins...

The Navy attempted to combine aircraft with the fleet with four distinct approaches in the “**First Era of Aviation:**”

Propeller-driven combat planes took off from small early **aircraft carriers**



Flying boats flew antisubmarine warfare (ASW) patrols





Naval Aviation Begins...

The Navy attempted to combine aircraft with the fleet with four distinct approaches in the “**First Era of Aviation:**”

Lighter-than-Air Craft:

Dirigibles – rigid frame,
Blimps – no solid frame



Pontoon planes operated from
ships other than aircraft carriers
men of war





Naval Aviation Begins...

The
“Second
Era of
Aviation”
followed



Jet Aircraft



Aircraft Carriers



Helicopters



Long-range Patrol Planes



Naval Aviation Begins...

The first aircraft carrier, **USS Langley (CV1)**:

- Commissioned 20 March 1922
- Originally collier (coal carrying ship) but converted to this new purpose
- Followed by USS Lexington (CV2) and USS Saratoga (CV3), previously commissioned as cruisers but approved for change to aircraft carriers in 1927





Naval Aviation Begins...

Video on
first
Aircraft
carrier





Naval Aviation Begins...

In World War II, **air power** became key to strategy and execution.

Japanese attack on Pearl Harbor on 7 December 1941 showed the effectiveness of long-range carrier-based air strikes.





Naval Aviation Begins...

In the **Battle of the Coral Sea**, May 1942, aircraft launched from carriers in an engagement where US and Japanese fleets never saw each other.

Photo # 80-G-17026 Torpedo hit on Japanese carrier Shoho, 7 May 1942





Aircraft

In the early years of Navy aviation, lighter-than-air craft were used for scouting missions. Today, helicopters are used for scouting as well as rescue and patrol.





Aircraft

Modern naval aircraft are divided into two general categories...



Fixed Wing



Rotary Wing



Aircraft

Three **important developments in aircraft carriers** after WWII:

- Angled flight deck - 1952
 - Allows a carrier to launch and recover aircraft at same time
- Steam Catapult – 1954
 - Can propel a 60,000 pound aircraft to a speed of 150 mph in 2 seconds
- Nuclear Power – 1961
 - Allowed carriers to accommodate more planes and larger crews, stay at sea longer, and steam at 30 knots for extended periods





Aircraft

Fixed-Wing Aircraft Missions:

- Strike against an enemy
- Protect the fleet from enemy aircraft and surface ships
- Perform undersea warfare, photography and escort
- Perform reconnaissance and early warning





Aircraft

Rotary-Wing Aircraft Missions:

- Amphibious operations
- Vertical replenishment
- Search and rescue
- Minesweeping
- Undersea warfare
- Special warfare



Versatility realized
Korean War
1950-1953



Aircraft Model Designations

Tri-service designations – means that a given model of plane has same code whether used in Navy, Army or Air Force.

Basic designation structure:

**1 letter + number (1,2 or 3 digits) + optional
A, B or C**



Aircraft Model Designations

Basic designation format:

1 letter + **number (1,2 or 3 digits)** + **optional A,B or C**

Example :

F - 14

AIRCRAFT DESIGNATIONS

A - Attack

O - Observation

B - Bomber

P - Patrol

C - Cargo/transport

R - Reconnaissance

E - Special electronic

S - Antisubmarine

installation

T - Trainer

F - Fighter

U - Utility

H - Helicopter

V - VTOL or STOL

K - Tanker

X - Research



Aircraft Model Designations

Basic designation format:

1 letter + **number (1,2 or 3 digits)** + **optional A,B or C**

Example

F – 14

Number 14 signifies the 14th
design of this fighter



Aircraft Model Designations

Basic designation format:

1 letter + number(1,2 or 3 digits) + optional A,B or C

Example :

S-3B

Antisubmarine craft, 3rd
design, with “B” showing
modification of 3rd design.



Aircraft Model Designations

Basic designation format:

1 letter + number(1,2 or 3 digits) + optional A,B or C

When the mission of an aircraft changes, a second letter goes in front of the basic mission letter.

Example :

F/A-18 = an E/A-18 modified to be an electronic-warfare aircraft

MISSION-MODIFICATION DESIGNATIONS

A - Attack

C - Cargo/transport

D – Director

(for control of drones)

E - Special electronic installation

H - Search and rescue

K – Tanker

L - Cold weather

M – Missile carrier

Q - Drone

R - Reconnaissance

S - Antisubmarine

T - Trainer

U - Utility

V – Staff

W - Weather



Aircraft Model Designations

Basic designation format:

1 letter + number (1,2 or 3 digits) + optional A, B or C

When an aircraft has some special status, one of the special-use designations is placed in front

Example

**GA-6 = an A-6
that is permanently
grounded**

SPECIAL-USE DESIGNATIONS

G – Permanently grounded

J – Special test, temporary (when tests are complete, craft gets its original design back)

N – Special test, permanent

X – Experimental stage of development

Y – Prototype (for design testing)

Z – Early stages of planning or development



Questions?

