



PIRATE FLYER

NC-4 | Crew Resource Management (CRM) | 1919

HU Captain's Culture

THE SAFETY TRAIL

- Trust** - Safe, Valued, Respect
- Report** - Proactive, Accessible
- Adapt** - Flexible, Innovative
- Inform** - Sharing, Transparent
- Learn** - Share Safety Intel

Name The First Aircraft to Cross the Atlantic



And in What Year?

Safety Reporting



Crew Resource Management in 1919

The U.S. Navy's Curtiss NC-4 flying boat achieved the first authenticated transatlantic flight in May 1919, traveling from New York to Lisbon via staged stops. While often remembered as a technological milestone, the success of the NC-4 was equally a triumph of human factors—what modern aviation would classify as Crew Resource Management (CRM). The crew's effective application of decision making, assertiveness, mission planning, communication, leadership, adaptability, and situational awareness played a decisive role in completing a journey that pushed the limits of early aviation.

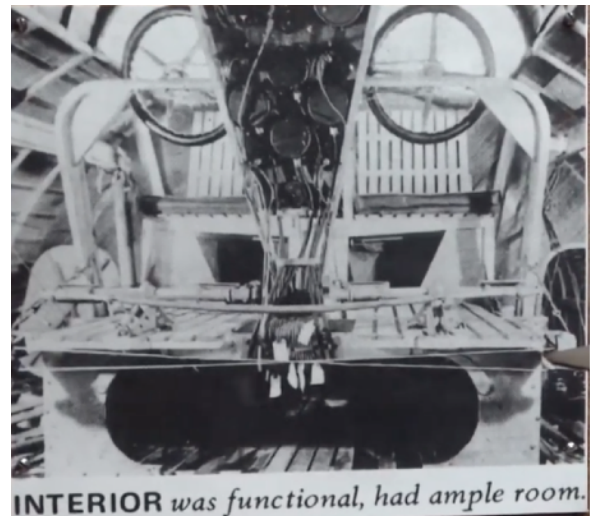


Mission planning formed the foundation of the NC-4's success. At a time when aircraft range, navigation systems, and reliability were limited, the U.S. Navy designed a carefully staged route with multiple refueling stops: Newfoundland, the Azores, and Portugal. Ships were strategically positioned along the route to act as visual navigation aids and rescue points. This level of detailed planning reflects a core CRM principle: identifying risks and building redundancies. Rather than attempting a nonstop crossing, the planners recognized operational limitations and developed a route that maximized safety and feasibility.



Decision making was equally critical throughout the mission. The NC-4 was part of a three-aircraft formation (NC-1, NC-3, and NC-4), but only NC-4 completed the full crossing. Weather conditions and mechanical challenges forced the other aircraft to land prematurely. The NC-4 crew demonstrated sound aeronautical decision making by evaluating weather, fuel status, and aircraft condition at each stage. When faced with uncertain conditions, the crew chose conservative actions, prioritizing survival and mission completion over speed or risk-taking. This aligns with CRM's emphasis on risk-based, informed decision processes.

Assertiveness within the crew ensured that concerns were voiced and addressed promptly. Early aviation lacked the structured cockpit hierarchies of today, yet the NC-4 crew showed the ability to speak up when necessary. Whether addressing mechanical issues or navigation uncertainties, crew members contributed their expertise without hesitation. This assertiveness prevented errors from going unchallenged and enabled collaborative problem-solving, a critical CRM element that improves overall safety and performance.



INTERIOR was functional, had ample room.

Communication served as the glue that held the operation together. The NC-4 crew maintained continuous internal coordination regarding navigation, engine performance, and environmental conditions. Externally, communication with support ships and ground stations—though primitive—was essential. The visual line of ships spaced across the Atlantic provided both navigational cues and psychological assurance. Effective communication ensured shared understanding, minimized ambiguity, and allowed the crew to respond cohesively to changing circumstances.

Leadership played a defining role in guiding the mission. Lieutenant Commander Albert C. Read, the aircraft commander, demonstrated calm, decisive leadership throughout the journey. His ability to balance authority with collaboration reflects modern CRM leadership principles. Read fostered an environment where crew input was valued, yet he maintained responsibility for final decisions. This balance ensured both discipline and flexibility, enabling the crew to function as a cohesive unit under pressure.

The chief mechanic on the NC-4's transatlantic flight in 1919 was Chief Machinist's Mate Eugene S. Rhoads. He served as the chief mechanic/engineer, responsible for maintaining and monitoring the aircraft's engines and mechanical systems during the mission.



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THE CREW OF THE N.C. 4

Photograph taken immediately after their arrival in Plymouth while they are still in their flying clothes. Commander Read stands in front; behind, from left to right, are Lieut. J. L. Breese (reserve pilot engineer), Lieut. Walter Hinton (Pilot), Ensign Charles Rodd (Radio Operator), Lieut. E. F. Stone (Pilot), and Chief Special Mechanic, E. C. Rhoads



Adaptability proved indispensable in an era of unpredictable weather and fragile technology. The NC-4 crew encountered fog, rough seas, and mechanical challenges that required real-time adjustments. When visibility deteriorated, they relied on alternative navigation methods, including dead reckoning and visual references from ships. When other aircraft were forced down, the NC-4 crew adapted their expectations and continued independently. CRM emphasizes flexibility in the face of uncertainty, and the crew's ability to adjust plans without losing focus was key to success.

Finally, **situational awareness** underpinned every phase of the flight. The crew constantly monitored their environment, aircraft systems, fuel state, and position relative to support ships. In an age before advanced instruments, maintaining mental awareness of multiple variables was vital. Loss of situational awareness could have resulted in disorientation or fuel exhaustion over open ocean. Instead, the crew maintained a clear, shared understanding of their status and surroundings, enabling timely and accurate decisions.



NC-4 Arrives Plymouth, England

In conclusion, the NC-4's historic transatlantic flight was not solely a technological achievement but a demonstration of principles that would later be formalized as Crew Resource Management. Through meticulous mission planning, disciplined decision making, assertive collaboration, effective communication, strong leadership, adaptability, and keen situational awareness, the NC-4 crew overcame the immense challenges of early transoceanic flight. Their success illustrates that even in the earliest days of aviation, human factors were as critical as engineering in achieving safe and successful outcomes.