

# *ROTARY WING SHIP SUITABILITY*



Rotary wing aircraft integration with the shipboard environment, called “Dynamic Interface”, is accomplished with a unique combination of simulation, land-based facilities, and ships at sea. The end result is safe helicopter operations in a highly dynamic, shipboard environment under widely varying wind conditions, turbulence, and sea state.

# ROTARY WING DYNAMIC INTERFACE TESTS

Dynamic Interface (DI) shipboard helicopter flight test and analytic efforts are conducted to develop, evaluate, and optimize all aspects of shipboard rotorcraft compatibility. Many factors influence a helicopter pilot's ability to conduct safe shipboard flight operations.

The distinctive performance capabilities and

potentially adverse factors on the shipboard helicopter operations; to determine the limiting values of these factors for safe operations; and, to present these limits in a format that is useful and straightforward to fleet operators.

The most significant product of a typical DI test program is a set of shipboard

schemes, and procedures for both Night Vision Device (NVD) and non-NVD night operations.

The DI team conducts landbased simulation and testing to enhance safety and optimize the effectiveness of shipboard test programs. NAWCAD capabilities include test facilities located at NAS Patuxent River, MD and NAS Lakehurst, NJ. The facilities frequently used for these landbased operations include the Manned Flight Simulator (MFS) and the Elevated Fixed Platform (EFP).

The EFP is a full-scale elevated landing pad designed to replicate an FFG 7-class ship, with realistic markings, lighting, and a fully operational Recovery Assist, Secure, and Traverse (RAST) system. Although the EFP cannot move (and thus cannot simulate various relative wind or ship motion conditions) it is a useful tool for pilot proficiency and preliminary evaluation of flight deck markings, lighting, obstruction clearances, and shipboard helicopter operating procedures.

*For more information about Rotary Wing Ship Suitability at Naval Air Warfare Center, Patuxent River, contact Naval Aviation Systems Team at (301) 342-1374*



limitations associated with each helicopter type, coupled with the unique ship motion, airwake, and flight deck geometric parameters associated with each ship class, create conditions very different than those present during landbased flight operations. Shipboard lighting and marking inadequacies may further increase shipboard helicopter operational difficulties.

DI testing is conducted to measure and evaluate the effects of each of these

helicopter envelopes for launch/recovery operations. These are published in aircraft flight manuals and ship helicopter operations manuals. For a specific helicopter type and ship class, these envelopes graphically convey the safe range of operating conditions to the aircrew and ship personnel.

In addition to developing operational envelopes, typical DI tests also evaluate shipboard visual landing aid packages, ship flight deck and interior lighting