

The U.S. Marine Corps invited the media Aug. 28 to visit the USS Wasp amphibious assault ship where the second set of developmental test trails for the F-35B are taking place. Being the savvy PAs that they are, USMC shipped us out and back on their newest rotorcraft, the Bell/Boeing MV-22 to see their newest fighter. (They also happen to be the Pentagon's most expensive rotorcraft and fighter).

Here are few statistics they shared:

As of the morning of Aug. 29, the BF-1 and BF-5 had conducted 94 short takeoffs (STOs) and 95 vertical landings (VLs).

They also conducted 19 night sorties, including STOs and VLs.

DT-2 is a follow on Aug. 12-30 to expand the envelope for the aircraft operating around the ship to include night operations, and landings using various headings on the aft parking area of the USS Wasp.

Officials reported a 90% availability rate of the two aircraft during the trials as of Aug. 28, but unfortunately both BF-5 (left) and BF-1 (right) were both down in the morning when we were on the ship owing to maintenance issues.



BF-1, heavily instrumented for the trials, was down owing to a faulty cooling fan in the engine nacelle; this was repaired and the aircraft conducted flights later in the day after we departed the ship. BF-5, a production representative model, was having trouble with its thermal management subsystem.

Peter Wilson, a BAE test pilot, was able to test the F-35B landing at four headings, each 90-deg. apart. He says the testing validates the aircraft can conduct VLs at any heading on the ship.

The VLs were conducted on spots in the aft portion of the ship that have been treated with Thermion, a new heat resistant coating that includes ceramic and steel; it is a vast improvement over the current anti-skid coating used on the deck and might be applied to other F-35 ships in the future, says Joe Spitz, lead tester on deck for Naval Sea Systems Command.

During one of the tests, Wilson landed an F-35B with its nose off toward the port side of the deck and its engine and hot nozzle exhaust on the port side. During this test, the engine nozzle was just at the

demarcation on the deck between the Thermion and baseline anti-skid coatings on the deck. The effects are obvious. The anti-skid coating is brown as a result of the intense heat, while the Thermion appears unaffected.

Spitz says that while the anti-skid coating typical on can handle F-35 operations, its service life could be compromised over time. So, the Navy is assessing whether it will outline decks – or at least portions to be used by the F-35B – with this Thermion material in the future. The performance tradeoff is cost; Thermion is more expensive, he says.

However, heat output is an issue also with the MV-22s landing on the decks of carriers and small-deck ships, so it is possible the Navy will take into account the operational use of these tiltrotor aircraft as it plots a way forward for the use of Thermion.

Below, the dark section on the right is the Thermion coating. You can see on the left where Wilson landed with the engine nozzle just over the divider between the Thermion and standard anti-skid -- the the latter a bit toasted.

