

Communication Summary

5/8/2015

Information From: Mr. Mark Stuntzner, Bell Helicopter



Summary & Factual Information: Mr. Stuntzner commented on the facts of the case. The summarized comments, in part, included:

In referencing the IR [incident recorder] data, the Np rpm (i.e. N2) and Nr rpm remained joined throughout the flight. Np/Nr rpm both initially droop to about 89%, but when collective is reduced, both rpm regain to 100% and above. The Np/Nr remained joined and begin to droop again when the collective is increased near the end of the flight, presumably prior to touchdown on the water. A “droop in engine power” is noticed in the IR data, but not a full “loss of power”.

According to the IR data, the Nr and Np were not split as suggested by the pilot, but instead were joined together throughout the time of the mishap. The simultaneous condition of 90% Nr and 100% Np (redline) is not a condition that occurred in this mishap according to the IR data. It should be pointed out that the IR data and the pilot’s statement are not the same regarding values of Nr and Np. It is not possible for a reverse split between Nr and Np unless the freewheeling unit was slipping and slipping is not suspected. Freewheeling slippage is a rare event and is the result of a severely worn freewheeling unit. If the freewheeling unit was not replaced before returning the helicopter to service after the mishap, it is suspected that there were no slippage problems with it at the time of the mishap.

From the IR data it appears that the throttle remained at 66 PLA degrees (essentially the Fly position) while the helicopter was in-flight and was not rolled to idle (38 PLA degrees) until after water touchdown.

The IR data shows that the pilot entered a power on approach with collective initially at the full down position and with throttle at 66 PLA degrees (essentially the FLY position).

The T1 sensor had been removed from the engine and was not shipped with the engine to Rolls Royce facilities.

During the engine run in a test cell the engine was operational and anomalies were identified. The bleed valve was found on the test cell to be closing early prior to its schedule. The engine was found to be below new engine performance standards by about 7%, which is 2% below the minimum required by the power assurance chart when the engine is in service. Power applications and reductions (accel/decel) during testing to duplicate engine surges did not produce any surging.

Since the incident engine was test run with a different ECU and T1 sensor, it is possible that these missing items may have contributed to the surging during the mishap flight. The ECU Maintenance Terminal download shows that the helicopter had one surge event on its last flight and one surge event was noted in the Engine History Data.

The engine investigation tests were unable to duplicate any surging, or duplicate Np/Nr droop, or reproduce the ECU code that indicated maximum fuel flow being requested.

I can attest that the above summary is correct to the best of my knowledge:

Edward F. Malinowski
National Transportation Safety Board
Air Safety Investigator