

The invention relates to detecting damage to the rotor of an aircraft engine that includes means for measuring vibration and speed in order to acquire data relating to the speed of the rotor and also to the amplitude and the phase of rotor vibration during a determined flight. The method comprises the following steps: reading said acquired data; calculating a mean vibration vector over a determined rotor speed range on the basis of said acquired data; calculating a vector difference between the mean vibration vector of said determined flight and the mean vibration vector of a reference flight for said rotor speed range; comparing the modulus of said vector difference with a predetermined threshold value; and issuing a warning signal when the modulus of said vector difference exceeds said predetermined threshold value, said steps being performed after said determined flight has been completed.