(2) Each fan is located so that a fan blade failure will not jeopardize safety; or
(3) Each fan blade can withstand an ultimate load of 1.5 times the centrifugal force expected in service, limited by either—
(i) The highest rotational speeds achievable under uncontrolled conditions; or
(ii) An overspeed limiting device.

(c) Fatigue evaluation.

Unless a fatigue evaluation under §29.571 is conducted, it must be shown that cooling fan blades are not operating at resonant conditions within the operating limits of the rotorcraft.

§29.921 Rotor brake.

If there is a means to control the rotation of the rotor drive system independently of the engine, any limitations on the use of that means must be specified, and the control for that means must be guarded to prevent inadvertent operation.

§29.923 Rotor drive system and control mechanism tests.

(a) Endurance tests, general. Each rotor drive system and rotor control mechanism must be tested, as prescribed in paragraphs (b) through (n) and (p) of this section, for at least 200 hours plus the time required to meet the requirements of paragraphs (b)(2), (b)(3), and (k) of this section. These tests must be conducted as follows:

(1) Ten-hour test cycles must be used, except that the test cycle must be extended to include the OEI test of paragraphs (b)(2) and (k), of this section if OEI ratings are requested.

(2) The tests must be conducted on the rotorcraft.

(3) The test torque and rotational speed must be—

(i) Determined by the powerplant limitations; and

(ii) Held at 110 percent of the test speed.

(4) Each test cycle must be repeated until the test has been made for at least 200 hours, or until the test is discontinued because of failure or fatigue of the test specimen.

(5) The test may be run under any of the following conditions:

(i) The test may be run with the engine(s) off.

(ii) The test may be run with the engine(s) on, with the propeller(s) off.

(iii) The test may be run with the engine(s) on, with the propeller(s) on.

(6) Each test cycle must be completed in such a manner that the test specimen is capable of continuing in the test without damage or failure.

(7) The test cycle must be terminated by the operator of the test specimen immediately after the completion of the last test cycle, or after the test specimen has failed.

§29.925 Rotor drive system and control mechanism tests, engine out.

(a) Endurance tests of engine out.

Each test cycle must be conducted with the engine(s) on in the position(s) where the engine(s) would be during normal operation.

§29.927 Rotor drive system and control mechanism tests, engine out, with propeller(s) off.

(a) Endurance tests of engine out, with propeller(s) off.

Each test cycle must be conducted with the engine(s) on in the position(s) where the engine(s) would be during normal operation.

§29.929 Rotor drive system and control mechanism tests, engine out, with propeller(s) on.

(a) Endurance tests of engine out, with propeller(s) on.

Each test cycle must be conducted with the engine(s) on in the position(s) where the engine(s) would be during normal operation.

§29.931 Rotor drive system and control mechanism tests, engine out, with propeller(s) on, with propeller(s) antitorque.

(a) Endurance tests of engine out, with propeller(s) on, with propeller(s) antitorque.

Each test cycle must be conducted with the engine(s) on in the position(s) where the engine(s) would be during normal operation.

§29.933 Rotor drive system and control mechanism tests, engine out, with propeller(s) on, with propeller(s) antitorque, with propeller(s) wiper(s).

(a) Endurance tests of engine out, with propeller(s) on, with propeller(s) antitorque, with propeller(s) wiper(s).

Each test cycle must be conducted with the engine(s) on in the position(s) where the engine(s) would be during normal operation.

§29.935 Rotor drive system and control mechanism tests, engine out, with propeller(s) on, with propeller(s) antitorque, with propeller(s) wiper(s), with propeller(s) debrake.

(a) Endurance tests of engine out, with propeller(s) on, with propeller(s) antitorque, with propeller(s) wiper(s), with propeller(s) debrake.

Each test cycle must be conducted with the engine(s) on in the position(s) where the engine(s) would be during normal operation.

§29.937 Rotor drive system and control mechanism tests, engine out, with propeller(s) on, with propeller(s) antitorque, with propeller(s) wiper(s), with propeller(s) debrake, with propeller(s) debrake, with propeller(s) debrake.

(a) Endurance tests of engine out, with propeller(s) on, with propeller(s) antitorque, with propeller(s) wiper(s), with propeller(s) debrake, with propeller(s) debrake, with propeller(s) debrake.

Each test cycle must be conducted with the engine(s) on in the position(s) where the engine(s) would be during normal operation.