§ 27.1435 Hydraulic systems.

(a) Design. Each hydraulic system and its elements must withstand, without yielding, any structural loads expected in addition to hydraulic loads.

(b) Tests. Each system must be substantiated by proof pressure tests. When proof tested, no part of any system may fail, malfunction, or experience a permanent set. The proof load of each system must be at least 1.5 times the maximum operating pressure of that system.

(c) Accumulators. No hydraulic accumulator or pressurized reservoir may be installed on the engine side of any firewall unless it is an integral part of an engine.

§ 27.1457 Cockpit voice recorders.

(a) Each cockpit voice recorder required by the operating rules of this chapter must be approved, and must be installed so that it will record the following:

(1) Voice communications transmitted from or received in the rotorcraft by radio.

(2) Voice communications of flight crewmembers on the flight deck.

(3) Voice communications of flight crewmembers on the flight deck, using the rotorcraft’s interphone system.

(4) Voice or audio signals identifying navigation or approach aids introduced into a headset or speaker.

(5) Voice communications of flight crewmembers using the passenger loudspeaker system, if there is such a system, and if the fourth channel is available in accordance with the requirements of paragraph (c)(4)(ii) of this section.

(6) If datalink communication equipment is installed, all datalink communications, using an approved data message set. Datalink messages must be recorded as the output signal from the communications unit that translates the signal into usable data.

(b) The recording requirements of paragraph (a)(2) of this section may be met:

(1) By installing a cockpit-mounted area microphone located in the best position for recording voice communications originating at the first and second pilot stations and voice communications of other crewmembers on the flight deck when directed to those stations; or

(2) By installing a continually energized or voice-actuated lip microphone at the first and second pilot stations.

The microphone specified in this paragraph must be so located and, if necessary, the preamplifiers and filters of the recorder must be adjusted or supplemented so that the recorded communications are intelligible when recorded under flight cockpit noise conditions and played back. The level of intelligibility must be approved by the Administrator. Repeated aural or visual playback of the record may be used in evaluating intelligibility.

(c) Each cockpit voice recorder must be installed so that the part of the communication or audio signals specified in paragraph (a) of this section obtained from each of the following sources is recorded on a separate channel:

(1) For the first channel, from each microphone, headset, or speaker used at the first pilot station.

(2) For the second channel, from each microphone, headset, or speaker used at the second pilot station.

(3) For the third channel, from the cockpit-mounted area microphone, or the continually energized or voice-actuated lip microphone at the first and second pilot stations.

(4) For the fourth channel, from:

(i) Each microphone, headset, or speaker used at the stations for the third and fourth crewmembers; or

(ii) If the stations specified in paragraph (c)(4)(i) of this section are not required or if the signal at such a station is picked up by another channel, each microphone on the flight deck that is used with the passenger loudspeaker system if its signals are not picked up by another channel.

(iii) Each microphone on the flight deck that is used with the rotorcraft’s loudspeaker system if its signals are not picked up by another channel.

(d) Each cockpit voice recorder must be installed so that:

(1)(i) It receives its electrical power from the bus that provides the maximum reliability for operation of the cockpit voice recorder without jeopardizing service to essential or emergency loads.