Federal Aviation Administration

Memorandum

Date: July 20, 2012

To: Terry Allen, Acting Manager, AIR-200

From: Assistant Chief Counsel for Regulations

Subject: Interpretation whether Yves Rossy's 'Jetman' Wing is an "Aircraft"

You have asked for a legal interpretation whether Yves Rossy's "Jetman" Wing is an "aircraft" under the definition in 49 USC §40102(a)(6), i.e. "...any contrivance invented, used or designed to navigate, or fly in, the air." Mr. Rossy has designed and constructed an amateur built wing with four (4) jet engines, which he straps to his back, and with which he jumps from an aircraft, starts the engines, flies in a prone position using weight-shifting and body-movement for flight control, and lands by parachuting back to the surface. Mr. Rossy has flown numerous iterations of his "Jetman" Wing and, to date, has used it to fly in Europe, across the English Channel, over the Grand Canyon and in close formation with other aircraft. These flights have been widely publicized, witnessed and viewed on the internet. I understand that the "Jetman" Wing: is powered by four Jet-cat P200 turbojet engines; weighs about 66 pounds empty, and about 121 pounds with fuel and smoke generating fluid; has a fuel capacity of 8 gallons; flies at an average speed of 108 knots; climbs at 97 knots; and descends at up to 162 knots.

Do the facts that the "Jetman" Wing is "worn" by its pilot (it is only a wing – not an aircraft); must be carried aloft in an aircraft (it can't "takeoff" on its own); and needs the pilot's body motions for its flight control mean it is not an "aircraft"?

For the reasons stated below, the "Jetman" Wing, when worn and operated by a person in flight, is an "aircraft" as defined in 49 USC §40102(a)(6).

It is only a wing.

The "Jetman" Wing, when worn by a human operator, has demonstrated the ability to "fly in...the air". Although the "Jetman" wing cannot be flown in controlled flight unless worn by a human operator, neither can a powered parachute (eligible for a special airworthiness certificate as a light sport aircraft). By extension, with the exception of unmanned aircraft systems (UAS) (considered an "aircraft" by FAA per Policy), no other aircraft can be flown without a pilot onboard - "embedded" in the airframe.

The "Jetman" Wing cannot leave the ground unassisted.

The "Jetman", wearing his Wing, is carried aloft and falls from the "launch" aircraft to begin his flight. Other aircraft, gliders, are unable to leave the surface of the earth unassisted and need to be towed aloft by another aircraft, an automobile or a winch.

It is controlled by the pilot's body motions.

The "Jetman" controls his three axes of flight through appropriate arching motions of his back, and appropriate maneuvering of his head, arms, hands, legs and feet. Title 14 CFR §1.1 contains definitions for "Powered parachute" and "Weight-shift-control aircraft," which are powered "aircraft" controlled in whole or in part by the pilot's physical ability to change the attitude of the aircraft's airfoil or the aircraft's center of gravity, respectively. The definition of "aircraft" therefore already includes aircraft controlled in flight, wholly or in part, directly by the pilot's body motions.

Conclusion:

Mr. Yves Rossy's "jetman" wing , when worn and operated by its pilot, is an "aircraft" as that term is defined in 49 USC §40102(a)(6). With respect to concern "that not all the regulatory requirements can be met with this type of "airplane"...," that may be true - it is not unusual or unprecedented for invention to precede regulation. When confronted with requests to operate the "Jetman" wing as a civil aircraft, the FAA will need to designate appropriate types of certification for the aircraft and the airman, and insure that the operator achieves compliance with necessary conditions and limitations to provide an appropriate level of safety for the operation.

This response was prepared by Gary A. Michel, Manager; Airworthiness, Advanced Aircraft, and Commercial Space Law. If we can be of further assistance, please contact us at (202) 267-3073.

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