

# Rules and Regulations

Federal Register

Vol. 74, No. 165

Thursday, August 27, 2009

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## NUCLEAR REGULATORY COMMISSION

[NRC-2009-0098]

### 10 CFR Part 35

RIN 3150-A159

#### Medical Use of Byproduct Material—Authorized User Clarification, Confirmation of Effective Date

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Direct final rule: Confirmation of effective date.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is confirming the effective date of September 28, 2009, for the direct final rule that was published in the **Federal Register** on July 14, 2009 (74 FR 33901). This direct final rule amended the NRC's regulations to clarify that individuals who do not need to comply with the training and experience requirements as described in the applicable regulations for the medical use of byproduct material (*i.e.*, are "grandfathered") may serve as preceptors and work experience supervisors for individuals seeking recognition on NRC licenses for the same medical uses of byproduct material.

**DATES:** The effective date of September 28, 2009, is confirmed for this direct final rule.

**ADDRESSES:** Documents related to this rulemaking, including comments received, may be examined at the NRC Public Document Room, Room O-1F23, 11555 Rockville Pike, Rockville, MD 20852.

**FOR FURTHER INFORMATION CONTACT:** Edward M. Lohr, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone 301-415-0253, e-mail—[Edward.Lohr@nrc.gov](mailto:Edward.Lohr@nrc.gov).

**SUPPLEMENTARY INFORMATION:** On July 14, 2009 (74 FR 33901), the NRC published in the **Federal Register** a direct final rule amending its regulations in 10 CFR part 35 to clarify that individuals who do not need to comply with the training and experience requirements as described in the applicable regulations for the medical use of byproduct material (*i.e.*, are "grandfathered") may serve as preceptors and work experience supervisors for individuals seeking recognition on NRC licenses for the same medical uses of byproduct material. In the direct final rule, NRC stated that if no significant adverse comments were received, the direct final rule would become final on September 28, 2009. The NRC did not receive any comments that warranted withdrawal of the direct final rule. Therefore, this rule will become effective as scheduled.

Dated at Rockville, Maryland, this 21st day of August 2009.

For the Nuclear Regulatory Commission.

**Michael T. Lesar,**

*Chief, Rulemaking, Directives and Editing Branch, Division of Administrative Services, Office of Administration.*

[FR Doc. E9-20677 Filed 8-26-09; 8:45 am]

**BILLING CODE 7590-01-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 23

[Docket No. CE296; Special Conditions No. 23-236-SC]

#### Special Conditions: Cessna Aircraft Company, Model 525C (CJ4); Lithium Ion Battery Installation

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final special conditions.

**SUMMARY:** These special conditions are issued for the Cessna Aircraft Company, model 525C (CJ4) airplane. This airplane will have a novel or unusual design feature(s) associated with the installation of lithium ion (Li-ion) batteries. Cessna Aircraft Company proposes to use a lithium-ion main battery on the new model 525C (CJ4) commuter category airplane for main battery applications, and is also

considering the use of this technology in several other auxiliary battery applications in this airplane. This type of battery possesses certain failure, operational characteristics, and maintenance requirements that differ significantly from that of the nickel cadmium and lead acid rechargeable batteries currently approved in other normal, utility, acrobatic, and commuter category airplanes. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

**DATES:** *Effective Date:* August 19, 2009.

#### FOR FURTHER INFORMATION CONTACT:

Ervin Dvorak, Aerospace Engineer, Standards Office (ACE-111), Small Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone (816) 329-4123; facsimile (816) 329-4090.

#### SUPPLEMENTARY INFORMATION:

##### Background

On August 9, 2006, Cessna Aircraft Company applied for an amendment to Type Certificate Number A1WI to include the new model 525C (CJ4). The model 525C (CJ4), which is a derivative of the model 525B (CJ3) currently approved under Type Certificate Number A1WI, is a commuter category, low-winged monoplane with "T" tailed vertical and horizontal stabilizers, retractable tricycle type landing gear and twin turbofan engines mounted on the aircraft fuselage. The maximum takeoff weight is 16,950 pounds, the  $V_{MO}/M_{MO}$  is 305 KIAS/M 0.77 and maximum altitude is 45,000 feet. Cessna Aircraft Company proposes to utilize Li-ion batteries for main battery applications, and is considering the use of this technology in several other auxiliary battery applications in this airplane.

##### Type Certification Basis

Under the provisions of 14 CFR part 21, § 21.101, Cessna Aircraft Company must show that the model 525C (CJ4) meets the applicable provisions of the requirements incorporated by reference in Type Certificate No. A1W1 or 14 CFR

part 23, as amended by Amendments 23–1 through 23–57 thereto. The regulations incorporated by reference in the type certificate are commonly referred to as the original type certification basis.

In addition, the certification basis includes certain special conditions, and exemptions that are not relevant to these special conditions.

In addition to the applicable airworthiness regulations and special conditions, the model 525C (CJ4) must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36 and the FAA must issue a finding of regulatory adequacy under § 611 of Public Law 92–574, the “Noise Control Act of 1972.”

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 23) do not contain adequate or appropriate safety standards for the model 525C (CJ4) because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

The FAA issues special conditions, as defined in § 11.19, under § 11.38 and they become part of the type certification basis under § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same or similar novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

#### **Novel or Unusual Design Features**

Cessna Aircraft Company, model 525C (CJ4) will incorporate the following novel or unusual design features:

Cessna Aircraft Company proposes to use lithium ion (Li-ion) batteries for main battery applications, and is considering the use of this technology in several other auxiliary battery applications on the Cessna Aircraft Company, model 525C (CJ4) airplane. This type of battery possesses certain failure and operational characteristics, and maintenance requirements that differ significantly from that of the nickel cadmium (Ni-Cd) and lead acid rechargeable batteries currently approved for installation in small airplanes. Current regulations in 14 CFR part 23 do not address installation of Li-ion batteries. These special conditions require that all characteristics of the Li-ion battery and its installation that could affect safe operation of the Cessna Aircraft Company, model 525C (CJ4) airplane are addressed, along with

establishing that appropriate maintenance requirements must be provided to ensure electrical power is available from the batteries when needed.

#### **Discussion**

The applicable part 21 and part 23 airworthiness regulations governing the installation of batteries in general aviation airplanes, including part 23, § 23.1353 were derived from Civil Air Regulations (CAR 3) as part of the recodification that established Federal Aviation Regulation 14 CFR part 23. The battery requirements, which were identified as 14 CFR part 23, § 23.1353, were basically a rewording of the CAR requirements that did not add any substantive technical requirements. An increase in incidents involving battery fires and failures that accompanied the increased use of Ni-Cd batteries in airplanes resulted in rulemaking activities on the battery requirements for business jet and commuter category airplanes. These regulations were incorporated into 14 CFR part 23, § 23.1353(f) and (g), which apply only to Ni-Cd battery installations.

The proposed use of Li-ion batteries on the Cessna Aircraft Company, model 525C (CJ4) airplane has prompted the FAA to review the adequacy of the existing battery regulations with respect to that chemistry. As the result of this review, the FAA has determined that the existing regulations do not adequately address several failure, operational, and maintenance characteristics of Li-ion batteries that could affect safety of the battery installation and the reliability of the Cessna Aircraft Company, model 525C (CJ4) airplane electrical power supply.

Li-ion batteries in general are significantly more susceptible to internal failures that can result in self-sustaining increases in temperature and pressure (i.e. thermal runaway) than their Ni-Cd and lead-acid counterparts. This is especially true for overcharging a Li-ion, which will likely result in explosion, fire, or both. Certain types of Li-ion batteries pose a potential safety problem because of the instability and flammability of the organic electrolyte employed by the cells of those batteries. The severity of thermal runaway increases with increasing battery capacity due to the higher amount of electrolyte in large batteries.

If the discharge of the cells is below a typical voltage of 3.0 volts on some versions of Li-ion batteries, they will subsequently no longer accept a charge. This loss of capacity may not be detected by the simple voltage measurements commonly available to

flight crews as a means of checking battery status, a problem shared with Ni-Cd batteries.

Unlike Ni-Cd and lead-acid cells, some types of Li-ion cells employ electrolytes that are known to be flammable. This material can serve as a source of fuel for an external fire in the event of a breach of the cell container.

The intent of these special conditions is to establish appropriate airworthiness standards for Li-ion battery installations in the Cessna Aircraft Company, model 525C (CJ4) airplane, and to ensure, as required by 14 CFR part 23, § 23.601, that these battery installations do not possess hazardous or unreliable design characteristics. These special conditions adopt the following requirements as a means of addressing these concerns:

- Inclusion of those sections of 14 CFR part 23, § 23.1353 that are applicable to Li-ion batteries.
- Inclusion of the flammable fluid fire protection requirements of 14 CFR part 23, § 23.863. In the past, this rule was not applied to the batteries of business jet or commuter category airplanes since the electrolytes utilized in lead-acid and Ni-Cd batteries are not considered to be flammable.

- Addition of new requirements to address the potential hazards of overcharging and overdischarging that are unique to Li-ion battery designs.

Addition of maintenance requirements to ensure that batteries used as spares are maintained in an appropriate state of charge (SOC).

#### **Discussion of Comments**

Notice of proposed special conditions No. 23–09–02–SC for the Cessna Aircraft Company, Model 525C (CJ4) airplanes was published on June 4, 2009 (74 FR 26818). No comments were received, and the special conditions are adopted as proposed.

#### **Applicability**

As discussed above, these special conditions are applicable to the Cessna model 525C (CJ4). Should Cessna Aircraft Company apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well.

#### **Conclusion**

This action affects only certain novel or unusual design features on one model of airplane. It is not a rule of general applicability.

#### **List of Subjects in 14 CFR Part 25**

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

**Authority** 49 U.S.C. 106(g), 40113, and 44701; 14 CFR 21.16 and 21.17; 14 CFR 11.38 and 11.19.

### The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Cessna Aircraft Company, model 525C (CJ4) airplanes.

Cessna Aircraft Company, model 525C (CJ4) Li-ion battery installation.

In lieu of the requirements of 14 CFR part 23, § 23.1353 (a) through (e), Li-ion batteries and battery installations on the Cessna Aircraft Company, model 525C (CJ4) airplane must be designed and installed as follows:

(1) Safe cell temperatures and pressures must be maintained during any probable charging or discharging condition, or during any failure of the charging or battery monitoring system not shown to be extremely remote. The Li-ion battery installation must be designed to preclude explosion or fire in the event of those failures.

(2) Li-ion batteries must be designed to preclude the occurrence of self-sustaining, uncontrolled increases in temperature or pressure.

(3) No explosive or toxic gases emitted by any Li-ion battery in normal operation or as the result of any failure of the battery charging or monitoring system, or battery installation not shown to be extremely remote, may accumulate in hazardous quantities within the airplane.

(4) Li-ion batteries that contain flammable fluids must comply with the flammable fluid fire protection requirements of 14 CFR part 23, § 23.863(a) through (d).

(5) No corrosive fluids or gases that may escape from any Li-ion battery may damage surrounding airplane structure or adjacent essential equipment.

(6) Each Li-ion battery installation must have provisions to prevent any hazardous effect on structure or essential systems that may be caused by the maximum amount of heat the battery can generate during a short circuit of the battery or of its individual cells.

(7) Li-ion battery installations must have a system to control the charging rate of the battery automatically, so as to prevent battery overheating or overcharging, and

(i) A battery temperature sensing and over-temperature warning system with a means for automatically disconnecting the battery from its charging source in

the event of an over-temperature condition, or,

(ii) A battery failure sensing and warning system with a means for automatically disconnecting the battery from its charging source in the event of battery failure.

(8) Any Li-ion battery installation whose function is required for safe operation of the airplane, must incorporate a monitoring and warning feature that will provide an indication to the appropriate flight crewmembers, whenever the capacity and SOC of the batteries have fallen below levels considered acceptable for dispatch of the airplane.

(9) The Instructions for Continued Airworthiness (ICAW) must contain recommended manufacturers maintenance and inspection requirements to ensure that batteries, including single cells, meet a safety function level essential to the aircraft's continued airworthiness.

(i) The ICAW must contain operating instructions and equipment limitations in an installation maintenance manual.

(ii) The ICAW must contain installation procedures and limitation in a maintenance manual, sufficient to ensure that cells or batteries, when installed according to the installation procedures, still meet safety functional levels, essential to the aircraft's continued airworthiness. The limitation must identify any unique aspects of the installation.

(iii) The ICAW must contain corrective maintenance procedures to functionally check battery capacity at manufacturers recommended inspection intervals.

(iv) The ICAW must contain scheduled servicing information to replace batteries at manufacturers recommended replacement time.

(v) The ICAW must contain maintenance inspection requirements to visually check for a battery and/or charger degradation.

(10) The ICAW must contain requirements that batteries in a rotating stock (spares) that have experienced degraded charge retention capability or other damage due to prolonged storage must be functionally checked at manufacturers recommended inspection intervals before installation.

(11) The System Safety Assessment process must address the software and complex hardware levels for the sensing, monitoring and warning systems, if these systems contain complex devices. The functional hazard assessment (FHA) for the system is required based on the intended functions described. The criticality of the specific functions will be

determined by the safety assessment process for compliance with 14 CFR part 23, § 23.1309, and Advisory Circular 23.1309-1D contains acceptable means for accomplishing this requirement. For determining the failure condition, the criticality of a function will include the mitigating factors. The failure conditions must address the loss of function and improper operations.

These special conditions are not intended to replace 14 CFR part 23, § 23.1353 in the certification basis of the Cessna Aircraft Company, model 525C (CJ4) airplanes. These special conditions apply only to Li-ion batteries and battery installations. The battery requirements of 14 CFR part 23, § 23.1353 would remain in effect for batteries and battery installations on the Cessna Aircraft Company, model 525C (CJ4) airplane that do not use Li-ion chemistry.

Issued in Kansas City, Missouri, on August 19, 2009.

**Kim Smith,**

*Manager, Small Airplane Directorate, Aircraft Certification Service.*

[FR Doc. E9-20726 Filed 8-26-09; 8:45 am]

**BILLING CODE 4910-13-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

**[Docket No. FAA-2007-28035; Directorate Identifier 2006-NM-293-AD; Amendment 39-15998; AD 2009-18-02]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Boeing Model 767 Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final rule.

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain Boeing Model 767 airplanes. This AD requires sealing certain fasteners and stiffeners in the fuel tank, changing certain wire bundle clamp configurations on the fuel tank walls, inspecting certain fasteners in the fuel tanks and to determine the method of attachment of the vortex generators, and corrective action if necessary. This AD results from fuel system reviews conducted by the manufacturer. We are issuing this AD to prevent possible ignition sources in the auxiliary fuel tank, main fuel tanks, and surge tanks caused by a wiring short or lightning strike, which could result in fuel tank