



**HUGHES  
SERVICE INFORMATION  
LETTER**

LETTER NO. HL-14

DATE 17 Dec 1971

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TO—All owners and operators of Hughes Helicopters

SUBJECT: **INSPECTION OF NICKEL-CADMIUM BATTERIES - FAA  
AIRWORTHINESS DIRECTIVE NOTE 71-21-5**

MODELS AFFECTED: **All 369H Series Helicopters Equipped With Ni-Cad Batteries  
Containing Polystyrene Cell Cases**

Reference

500 Series - Basic Handbook of Maintenance Instructions, Revised 1 June 1971

Your attention is directed to the FAA Airworthiness Directive Note 71-21-5 reprinted as part of this Service Information Letter. The AD lists inspection requirements for nickel-cadmium batteries containing polystyrene cell cases. The polystyrene cases can be identified by their clear or slightly yellow plastic appearance.

It is noted that Marathon (Sonotone) nickel-cadmium batteries manufactured in 1969 or later contain nylon cell cases and are not affected by the AD. Otherwise, compliance is required as indicated. Nickel-cadmium batteries installed on 369H Series helicopters are rated at 13-ampere-hour.

Edward Koch, Manager  
Customer Service Department  
Hughes Tool Company

## NICKEL-CADMIUM BATTERY

### Airworthiness Directive

(Volume I & II)

**71-21-5 Nickel-Cadmium Battery.** Amdt. 39-1302. Applies to all turbine engine powered aircraft having a primary electrical system that includes a nickel-cadmium battery containing any polystyrene cell cases that is capable of being used to start the aircraft's engine or APU, except those aircraft that have the charging rate of such a battery automatically controlled as a function of battery temperature and except Learjet Models 23, 24, and 25 airplanes.

Compliance is required as indicated.

(a) Visually inspect each battery, including the cell links and cell tops, for evidence of heat damage within the next 10 hours' time in service after the effective date of this AD unless already accomplished within the last 10 hours' time in service, and thereafter -

(1) For any battery rated at 33 or less amp-hours, at least once each day after the effective date of this AD that the battery is used for an engine or APU start or an attempted start, or at intervals not to exceed 10 engine starts or attempted starts, 14 APU starts or attempted starts, or a combination of 12 engine and APU starts or attempted starts, using the battery for power, whichever occurs sooner, until paragraph (e) is complied with.

(2) For any battery rated at 34 or more amp-hours, at least once each week that the battery is used for an engine or APU start or attempted start, until paragraph (e) is complied with.

(b) If any battery is found to have evidence of heat damage during an inspection required by paragraph (a), before further flight replace the battery with an equivalent serviceable battery.

(c) For any battery rated at 33 or less amp-hours, within the next 500 hours' time in service after the effective date of this AD, or before April 15, 1972, whichever occurs sooner, comply with paragraph (e).

(d) For any battery rated at 34 or more amp-hours, within the next 1,500 hours' time in service after the effective date of this AD, or before April 15, 1972, whichever occurs sooner, comply with paragraph (e).

(e) Comply with at least one of the following:

(1) Replace each cell having a polystyrene cell case with an equivalent cell having a nylon case; or

(2) Replace any battery containing any polystyrene cell case with a battery containing all nylon cell cases that is approved by the Chief, Engineering and Manufacturing Branch of an FAA Region (or in the case of the Western Region, the Chief, Aircraft Engineering Division); or

(3) Install a battery temperature sensing and overtemperature warning system and provide an operating procedure for disconnecting batteries from the charging source in the event of a battery over-temperature warning that are approved by the Chief, Engineering and Manufacturing Branch of an FAA Region (or in the case of the Western Region, the Chief, Aircraft Engineering Division); or

(4) Install a battery charging rate control system that automatically controls the battery charging rate as a function of battery temperature that is approved by the Chief, Engineering and Manufacturing Branch of an FAA Region (or in the case of the Western Region, the Chief, Aircraft Engineering Division).

(f) Upon request of an operator, the Chief, Engineering and Manufacturing Branch of an FAA Region (or in the case of the Western Region, the Chief, Aircraft Engineering Division) may increase the number of engine or APU starts or attempted starts that an operator may make between the inspections specified in paragraph (a)(1) that are required on the basis of the number of engine or APU starts or attempted starts, if the request contains substantiating data, based on

the operator's battery maintenance program and engine and APU starting procedures, which justifies an increase for the operator.

NOTE: Polystyrene cell cases can be identified by their clear or slightly yellow plastic appearance. Marathon (Sonotone) batteries manufactured prior to 1969 (Type CA20, CA20H, and CA21H) contained polystyrene cell cases. Marathon batteries manufactured in 1969 or later and those manu-

factured by others contain nylon cells which can be identified by their milky white or bluish appearance. Any battery rebuilt since new may contain a mixture of polystyrene and nylon cells.

This amendment is effective upon publication in the Federal Register as to all persons except those persons to whom it was made effective immediately upon receipt of the airmail letter dated September 1, 1971.