

Supplementary Equipment

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**AD/SUPP/3  
Amdt 2**

**Breeze Hoists**

**3/92**

Applicability: All Breeze BL 16600 series hoists installed in helicopters.

Requirement: 1. Deactivate hoist by pulling and locking the hoist control and cable cut circuit breakers so that inadvertent reset is not possible.

*Note: Requirements 2 to 8 inclusive must be carried out with all electrical power removed from the aircraft.*

2. Clearly identify the polarity of the terminals and cables on the existing cable cut cartridge (i.e. +Ve and -Ve) so that correct connection is self evident.
3. Replace the existing cartridge with alternative, low sensitivity cartridge P/N Y1265-2-1.
4. For Bell 206A, 206B, 206B1, 206B111 and Agusta Bell 206B aircraft:
  - a. Ensure the cable cut circuit shielding is correctly connected in accordance with Bell ASB 206-81-15 Rev A.
  - b. Ensure the hoist is electrically grounded in accordance with Bell ASB 206-81-15 Rev A.
  - c. Ensure the earth wire on the cable cut switch introduced by AD/BELL 206/87 has been disconnected or removed.
  - d. Replace existing cable cut single pole double throw switch with double pole double throw switch in accordance with Bell ASB 206-87-36 Rev A.

*Note: Agusta ASB 206-180 also refers.*

5. For Bell 206L-1 and L-3 aircraft:
  - a. Ensure that the cable cut circuit shielding is correctly connected as per Bell Helicopter Australia Drawing No 206-899-863B1 and rectify where necessary.
  - b. Ensure the hoist is electrically grounded in accordance with Bell ASB 206L-81-25.
  - c. Replace existing cable cut single pole double throw switch with double pole double throw switch in accordance with Bell ASB 206L-87-46.

6. For Bell 222 aircraft:
  - a. Ensure the hoist is electrically grounded in accordance with Bell ASB 222-81-9.
  - b. Remove the earth wire from the cable cut switch.
  - c. Replace the existing single pole double throw cable cut switch with a double pole double throw switch in accordance with Bell ASB 222-86-38.
7. For Hughes Helicopters:
  - a. Inspect the cable cut circuit shielding to ensure that it is connected as per Hughes basic handbook of maintenance Group 10.
  - b. Ensure hoist assembly is electrically bonded in accordance with AD/SUPP/16.
8. For all other helicopter types ensure the cable cut circuit shielding is correctly connected, and ensure the hoist is electrically bonded in accordance with AD/SUPP/16.
9. Verify the integrity of the hoist cable cut circuitry by testing as follows:
  - a. Remove the positive (+Ve) wire from the cable cut cartridge and connect it to one lead of an ICI 1.8 metre Electric Fuse. Remove the cartridge negative (-Ve) wire and connect it to the remaining fuse lead. This means that the Electric Fuse is now in the circuit, and the cable cut cartridge is disconnected from the system.

*CAUTION: Do not allow the fuse connections to contact each other or any part of the aircraft structure.*

- b. Reset the hoist control and cable cut circuit breakers, then with the aircraft engine running, all normal operational equipment selected, and using full rated hoist load:
  1. Ensure correct operation of the UP and DOWN limit switches;
  2. Inch the hoist a number of time (i.e. 10-12 times) in both directions; and
  3. Operate all radios and key all transmitters in the aircraft both in isolation and in combinations; operate all optional and non essential equipment in all likely combinations.

The ICI Electric Fuse MUST NOT fire during the above tests.

*CAUTION: Before testing or firing the 1.8 metre ICI Electric Fuse ensure that no flammable vapours are present and that no person is within 1 metre of the fuse.*

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- c. Operate the cable cut switch and check that the ICI Electric Fuse has fired - The fuse should explode with a "sharp crack" similar to the igniting of a large match - Ensure that the cable cut switch is returned to the OFF position.
- d. Shut down the aircraft engine. Disconnect the ICI Electric Fuse leads, and reconnect the positive (+Ve) wire and negative (-Ve) wire to the cable cutter cartridge.

*Note: ICI 1.8 metre Electric Fuses (Also known as "Match Head" fuses) are available in all capital cities at ICI Explosives Sales Offices.*

Compliance: Requirement 1:

Before further flight after 6 March 1992.

Requirements 2 to 8 (inclusive):

Before a Breeze BL 16600 series hoist can be reactivated for use.

Requirement 9:

- a. Before a Breeze BL 16600 series hoist can be reactivated for use;
- b. After any modification to the aircraft which may affect the integrity of the cable cutter system; and/or
- c. After any electrical modification to the hoist system.

Following further investigation by Breeze, Bell and this Department, Amendment 2 to this Directive has been issued to:

- a. Ensure that all Breeze BL 16600 series hoists fitted to aircraft are disabled and not used unless both the hoist and the aircraft to which it is fitted comply with all applicable Requirements of this Directive; and
- b. Consolidate existing Requirements and introduce additional safety measures (summarized below) considered necessary to maximize the level of operational safety of the cable cut circuitry and thus restore user confidence in the cable cut system:
  - (i) Ensure the cable cut circuit shielding is correctly connected;
  - (ii) Ensure the component parts of the hoist are correctly bonded, and the hoist is correctly bonded to the aircraft.
  - (iii) Introduce mandatory fitment of an alternative cable cut cartridge P/N Y1262-2-1 which has a minimum "NO FIRE" current twice that of the present cartridge thus increasing the level of safety; and
  - (iv) Replace the existing single pole double throw cable cut switch fitted to some aircraft with a double pole double throw switch. This new configuration has been shown under actual Bell Test Conditions, to provide a significant increase in the level of EMI tolerance and safety.

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- (v) Amendment of the existing ICI Electric Fuse "no fire" test to provide for testing under simulated operating conditions using all likely radio equipment combinations. Because the ICI fuse is approximately 6 times more sensitive than the Y1265-2-1 explosive squib, this test should serve to demonstrate the EMI tolerance of the cable cut circuitry under actual operating conditions thus providing a basis for restored user confidence.