



# DEBRIEFING

**Flight Safety is Everybody's Business**

## SAR TECH ELECTROSTATIC DISCHARGES

(05 Dec 03 - Occurrence #114440

(17 Dec 03 - Occurrence # 114548)

Two electrostatic discharge (ESD) incidents recently took place during live hoisting training from CH149 Cormorant helicopters.



The first incident occurred when the first SAR TECH reached approximately 15 ft AGL and the Flight Engineer (FE) noticed an unusual hand signal by the SAR TECH. The SAR TECH was hoisted in and secured; he was noticeably "stunned" and was administered first aid. There was no pulse present for a short period of time. Upon return to Base, the SAR TECH was taken to MIR for examination. The second occurrence happened 12 days later while the second of two SAR TECHs being hoisted down encountered a series of strong ESDs which prevented him from undoing the pip pin on the hook. Discharges started at approximately 3m above ground from a 20m hoist.

**Debriefing.** These two incidents are still under investigation and have raised concerns for the safety of our SAR TECHs. It may be useful to ponder a few points. First, reporting and documenting these events are key in ensuring that effective preventive measures can be implemented in a timely manner. We have some concerns that some ESD incidents have not been reported. The potential for injury must be the key factor in deciding whether or not ESD incidents should be reported. It is essential for all to gather as much information as possible on this; for example, the weather conditions, the temperature, the humidity, etc. may contribute to the accumulation and dissipation of electrostatic charge. The FSIS occur-

rence report is an ideal tool for reporting these incidents. The Hazard Reports can also be used to help identify and track these risks. Second, we could learn from other helicopter fleets to see if any preventive measures could be adapted to the Cormorant. A quick search on the FSIS revealed that at least nine (9) similar incidents occurred from 1983 to 1999, three (3) were on the CH124 and six (6) on the CH146. There were no incidents reported after 1999. This leads us to believe that the preventive measures introduced on these aircraft were effective in preventing or mitigating occurrences of ESD. One of these measures was the introduction of a static discharge cable (SDC) or grounding cable used by SAR TECHs for hoisting whenever the weather conditions were favourable for ESD. The cable is still undergoing certification but has proven to help reduce and even eliminate the effects of ESD. It is even designed to penetrate snow to a certain depth. The principle of the cable is that the discharge will follow the path of least resistance. The static cables are designed to be less resistant than human bodies and if the static cable is hanging below the SAR TECH's feet, the ESD should go through the cable. Also, electrostatic charges accumulate on sharp edges or points that is why the shocks are received in the wintertime through the fingers rather than large parts of the body. Another reason to suggest that the ESD will go through the cable is the pointed end of the cable compared to the boot shape. This simple fix may be the solution for the Cormorant and could be authorized in the near future.



In conclusion, as in all occurrences, **prompt reporting and accurate documentation** are essential in ensuring that measures can be identified and authorized to mitigate potentially disastrous situations.

## DFS KUDOS

A well deserved Kudos to 12 AMS for producing an excellent annual calendar for 2004.