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**REPUBLIC OF NAMIBIA**

NAMIBIA CIVIL AVIATION AUTHORITY

**AERONAUTICAL INFORMATION CIRCULAR**

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**AIC**
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**AIRWORTHINESS**

**MAINTENANCE**

**406 MHz ELT BEACONS**

1. Introduction

A decision has been made by the COSPAS-SARSAT Council to replace all 121.5 MHz distress beacons with 406 MHz distress beacons. All beacon owners and users should begin taking steps to replace their 121.5 MHz beacons.

2. General:
   2.1. Distress emergency beacons are carried onboard ships, aircraft and by individuals and when activated, during a distress it sends a signal to nearby rescue authorities. They include Emergency Position Indicating Radio Beacons (EPIRBs) carried by ships, Emergency Locator Transmitters (ELTs) carried on board aircraft and Personal Locator Beacons (PLBs) carried by persons such as hikers, mountaineers etc.
   2.2. They are designed in different shapes and sizes but they serve the same purpose by providing emergency distress alerts. There are now the highly advanced and more accurate replacement distress beacons available. These are highly advanced 406 MHz distress beacons that are available as EPIRBs, ELTs and PLBs.
   2.3. Converting to the superior 406 MHz would help speed up the process of prosecuting emergency distress situations and enhance the effectiveness of search and rescue operations thus saving more lives.
   2.4. Although the 406 MHz beacons are a little bit expensive as compared to the 121.5 MHz beacons, they are more reliable and accurate in terms of beacon location. Beacon location can be pinpointed to within 5 km or better with the use of a 406 MHz. A further advantage of the 406 MHz is the option to incorporate a GNSS Receiver (GPS Receiver) into or connected to a beacon. This option can produce position data that will be detected by the geo stationary satellites within minutes.
   2.5. 406 MHz beacons transmit a digital signal that identifies the owner through the identification code, unlike the analogue 121.5 MHz beacons where only one alert out of every 50 alerts is genuine. With the 406 MHz beacons, the position of the distress can therefore be relayed to rescue services more quickly, more reliably and with greater accuracy.

2.6. A decision has already been taken by the Cospas-Sarsat Council to cease the satellite processing of 121.5 MHz analogue signals in response to guidance from the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO). These United Nations organizations mandate safety requirements for aircraft and maritime vessels and have recognized the limitations of the 121.5/243 MHz beacons and the superior capabilities of the 406 MHz alerting system.

2.7. By the beginning of 2009, only 406 MHz beacons will be detected by the Cospas-Sarsat satellite system. This affects all maritime beacons (EPIRBs), all aviation beacons (ELTs) and all personal beacons (PLBs).

3. Regulations

3.1. The International Civil Aviation Authority (ICAO) has published standards and recommended practices in their Annexes 6 and 10, relating to the requirements and standards for this ELT transfer.

3.2. NAM-CAR's Parts 91, 121 and 135 require that no owner or pilot in command, as the case may be, of an aircraft, shall operate the aircraft unless it is equipped with an Automatic Emergency Locator Transmitter. This Authority has discussed this matter with other Civil Aviation Authorities and the Namibia aviation industry over the past three months.

4. Compliance

4.1. In giving due consideration to this ICAO requirement, it's impact to both safety and viability the NCAA requires that each aircraft will have to be fitted with a 406 MHz ELT, that meets the NAMCAR 91.04.22 , 2024 as amended.

NOTE: Technical characteristics under remarks

4.2. All Transport and commercial operating category aircraft must meet this requirement by 01st June 2010.

4.3. All other aircraft must meet this requirement by their next Certificate of Airworthiness renewal date after the 01st June 2010 but no later than 31st December 2010.

4.4. Please contact the Airworthiness section of this Authority to establish the registration process.

4.5. By the end of the whole registration process the NCAA, Aircraft Owner or/and Operator should be in possession of the following information:

4.5.1. Transmitter identification expressed in the form of an alphanumerical code of 15 hexadecimal characters.

4.5.2. Transmitter manufacturer, model and serial number

4.5.3. COSPAS-SARSAT type approval number,

4.5.4. Owner and Operator's name address and emergency telephone number,

4.5.5. Aircraft manufacturer, type and model,

4.5.6. Aircraft colour.

4.6. 406 MHz ELT shall:

4.6.1. Be properly fitted by a NCAA Approved Maintenance Organisation in accordance with the Manufacturers requirements.

4.6.2. Displays the expiry date of it's battery

4.6.3. Be properly tested and registered.

Remarks:

1. A beacon should not be switched-off once they're on during the distress situation until advised to do so by a rescue authority.
2. It is very important to ensure that those 121.5 MHz units are properly decommissioned, including the removal of the battery from the unit and disabling the electronics. Unnecessary searches leading to garbage dumps because the units have been discarded without being properly disassembled have been recorded. Curious children have also been reported as activating ELT's after finding them on sight.

Technical References:

Detailed information of the 406 MHz ELT may be found in the following:

I.C.A.O Annexe 10 Vol III Chapter 5.
Document ITU-R.M.633
RTC document DO-204 and European Organisation for Civil Aviation Equipment document ED-62.
COSPAS-SARSAT document C/S T.012.
FAA TSO-C126 with TSO C-142a battery current status