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HOMING CAPABILITY OF SEARCH AND  
RESCUE (SAR) AIRCRAFT

RESOLUTION A.225(VII)  
adopted on 12 October 1971

THE ASSEMBLY,

NOTING Article 16(i) of the Convention on the Inter-Governmental Maritime Consultative Organization, concerning the functions of the Assembly,

HAVING EXAMINED the Report of the Maritime Safety Committee on its twenty-fourth session,

RECOGNIZING that equipment for homing on the radio distress frequencies carried on SAR aircraft would provide a valuable aid to the rapid location of ships in distress and of survival craft provided with radio equipment,

RECALLING the earlier decision, endorsed at the third regular session of the Assembly, to the effect that SAR aircraft should be equipped with means of communicating on 2182 kHz and should have the possibility of homing on that frequency as well,

NOTING that emergency position-indicating radio beacons are transmitting only with relatively low power compared with that of ship-installed radio apparatus,

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NOTING FURTHER the difficulties experienced on SAR aircraft when homing on low-power radio beacons transmitting on 2182 kHz with an initial field strength of at least 2.5 microvolts per metre according to Appendix 20A of the Radio Regulations,

STRONGLY RECOMMENDS that all search and rescue aircraft be equipped with direction finders of sufficient sensitivity and frequency coverage to permit homing on:

- (a) radio transmissions on all distress frequencies;
- (b) transmissions of emergency position-indicating radio beacons using internationally approved frequencies,

INVITES attention to recommended measures concerning future SAR radio direction-finding equipment as described at Annex to this Resolution.

#### ANNEX

##### HOMING ON SAR AIRCRAFT ON LOW POWER BEACONS AND EMERGENCY TRANSMITTERS OPERATING ON 2182 kHz

The radio direction finders which have been used so far in SAR aircraft, even if they include the frequency of 2182 kHz, are, as a rule, either unsatisfactory for the homing of low power beacons (EPIRB) and small emergency transmitters on this frequency, or they achieve only a low homing range, respectively.

Tests carried out on SAR aircraft with more sensitive maritime type direction finders and with more suitable DF-antennae have shown that bearing ranges of 40 nm can easily be achieved with received field strengths of between 1.8 and 2.5  $\mu\text{V/m}$ .

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The following measures for future SAR radio direction-finding equipment are recommended:

1. Improvement of the bearing sensitivity to  $2.5 \mu\text{V/m}$ , for instance by modifying the DF-bearing antenna system (e.g. by means of loops installed at a suitable place within the aircraft or by using an improved crossed-loop ferrite antenna).
  2. Improvement of the frequency-setting-accuracy and stability of the DF receivers.
  3. Adapting the setting speed of the DF-pointers to the low power EPIRB-signals (e.g. 1 sec. of transmission interrupted by 1 sec. of silence).
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