

MODERN IDENTIFICATION METHODS AT THE SERVICE OF THE RED CROSS

The Red Cross is concerned with improving identification systems for medical aircraft, bearing in mind the modern methods of detection used by armed forces. Its efforts in this sector were encouraged by government experts attending the Conference held in Geneva in May and June 1971.¹

The ICRC was asked to consult intergovernmental organizations specialized in the subject, including the International Electrotechnical Commission which published an article in the matter in its Bulletin (Geneva, No. 17) and which we feel it would be useful to reproduce.

For over a century the well known emblem of a red cross (or a red crescent or red lion and sun) on a white background has been internationally recognized as identifying a vehicle used for the transport of the wounded or medical supplies. As in many other fields, the advance of technology has changed the concept of identification and the use of modern weapons means that visual procedures no longer provide sufficient protection. Modern defence systems are designed to cope with supersonic aircraft flying at great heights, and once an aircraft has been detected by ground surveillance radars, if the correct identification signal is not received, a missile is likely to be fired without further ado.

In accordance with the 1949 Geneva Conventions, the protection of medical missions is dependent on the agreement of a flight plan—altitude, route and time—for the aircraft between the belligerent parties, but the obligation to negotiate with all the parties involved—sometimes many—can effectively block the use of aircraft for medical missions.

The International Committee of the Red Cross (ICRC), conscious of the fact that the strict observance of the 1949 Conventions without some additional form of identification rendered the use of aircraft for medical missions difficult, recently convened a meeting of experts to formulate proposals for means of supple-

¹ See *International Review*, July 1971

menting the flight plan system and red cross markings with luminous and radio signals. These proposals are to be submitted to a diplomatic conference for international agreement by Governments.

The International Electrotechnical Commission (IEC) was asked if it could help the ICRC to find an expert who could give advice in formulating the technical solution to be proposed. Thanks to the assistance of the Swedish Electrotechnical Committee, it was possible to find an electronics expert who had not only experience as a ground controller but who was also a pilot.

Several means of identification are possible; for example, instructions can be given for the aircraft to carry out specific movements which can be easily observed by a radar operator, but this method again requires time and ground-to-air contacts.

Secondary surveillance radar (S.S.R.) used in both civilian and military control systems would be another way. In this system the aircraft is equipped with a transponder which sends identification signals to the ground station when interrogated. The principle shortcoming of S.S.R. in this context is its reliance on expensive and relatively scarce equipment which may not necessarily be found in areas where military operations are in progress.

On the other hand, in contrast to the S.S.R., primary radar is used on a wide geographical basis. A means of identifying the medical aircraft on the ground or airborne radar operator's Plan Position Indicator (P.P.I.) display would therefore provide a practical method.

The difficulties lie in "labelling" the medical aircraft on the visual P.P.I. display or on a data processed read-out without interfering in any way with the operational efficiency of the primary radar. There is the risk that if the "labelling" is too broad, an attack could be launched by aircraft obscured for the primary radar by the trace of the "label". A non negligible difficulty is that primary radar frequencies are usually a closely guarded secret and may deliberately be varied to avoid jamming.

The suggestion made by the IEC expert was to use thin-film electronic techniques to design a sealed "black-box" on the medical aircraft. The receiver in the "black-box" would auto-

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matically sweep the frequency band used for the primary radars in the area. On the detection of a primary radar signal of any frequency, the device would lock onto that frequency and automatically transmit a coded identification signal. For example—the letters "C.R." (Croix-Rouge) could be sent in morse code which would appear on the P.P.I. display well separated from, but associated with, the image of the medical aircraft. As the box could be sealed under neutral supervision and no external indications would appear, the use of the device should not constitute a military risk.

The solution proposed by the expert found by the IEC may or may not be adopted finally, but the IEC has been able to make a tangible contribution to the humanitarian work of the International Committee of the Red Cross, by proposing a solution that is as up-to-date as the problem.
