

Q-MAC ELECTRONICS



MAC

HF TRANSCEIVERS &
ANTENNA SYSTEMS



**Communications for
Aid and Relief**

HF HELP FILES



Q-MAC Electronics Pty Ltd

HF HELP FILES

Communications for Aid and Relief

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1 Introduction



High frequency radio has been used for many years by aid/relief organisations around the globe as a means of communicating effectively over long distances. Furthermore it is predicted that HF radio will remain the primary means of communication for these users well into the 21st century. There are a number of very good reasons for this.

1.1 Ability to communicate over very long distances and in 'difficult' terrain.

Given the nature of high frequency skywave propagation, HF radio operators are able to communicate over very long distances - up to 3,000km in the 'right' conditions. HF skywave propagation is also largely terrain independent. There are few limitations with respect to hilly terrain and gorges (unlike UHF/VHF radio) or bush cover and precipitation (unlike satellite phones).

1.2 Ability to communicate in broadcast mode

Whereas satellite phones will only allow point-to-point communications, HF radio will allow point-to-multipoint

communications (or broadcast mode), which is vital when coordinating large numbers of personnel for an emergency relief effort. It is also invaluable when coordinating with other agencies, as many aid/relief workers must do on a frequent basis.

1.3 Not reliant on infrastructure

HF radio propagation is such that one radio can communicate directly with others, without the need for expensive repeater systems and without having to rely on a satellite. There have been a number of instances where conveying important information via satellite has placed operators in compromising situations. Furthermore, the availability of satellite links may be subject to political situations and/or technical considerations.

1.4 Low cost

HF radio is still significantly less expensive than alternative forms of communication, in terms of the upfront capital cost and the long term running costs. It goes without saying that this is an important factor when selecting the right communication system.

2 The Q-MAC HF-90 Compact Transceiver - making HF radio communications more adaptable.

Aid/relief workers, by virtue of their positions, frequently find themselves operating in hostile conditions - both in terms of the physical environment around them, as well as the political environment. They often have to move in and out of civil war environments very rapidly, traverse difficult terrain on foot or on beast to access disaster victims, airlift fully-equipped rescue teams into remote areas, or search for flood victims for days on end only with the aid of very simple rubber dinghies; to name but a few examples. As a result of the challenging conditions which aid/relief workers find themselves in, it is imperative that their HF communication systems are truly portable and adaptable.

The HF-90 Compact Transceiver, manufactured by Australian company Q-MAC Electronics Pty Ltd, is fast becoming accepted as the HF transceiver of choice amongst aid/relief organisations, for portable and specialist applications. Many organisations, which are currently using Codan HF transceivers for their standard base station and vehicle applications, are now complementing their networks with the addition of the Q-MAC HF-90 Transceiver. Not only is the HF-90 fully compatible with the Codan product, in terms of the industry standard 4-digit Selcall format, but it fills a void which no other HF transceiver manufacturers have adequately addressed - that of the truly portable and adaptable HF transceiver.

2.1 Key features and benefits of the HF-90 Compact

2.1.1 Compact/lightweight unit

The HF-90 is extremely compact (less than ¼ the size of the smallest Codan transceiver) and weighs just 1kg!

2.1.2 High performance specification

The HF-90 features a 50Watt PEP power output and the ability to program up to 255 channels between 2 and 30MHz. It can operate on a variety of different power sources of either 12 or 24V and has low current consumption. It also incorporates Selcall (Selective Calling) which is fully compatible with the standard format used by Codan.

2.1.3 Multi-role capability

The HF-90, as a result of its compact size and high performance spec, can operate in a variety of portable and specialist roles. It is supplied by Q-MAC in a comprehensive range of packages with related accessories. The most popular of these packages has been the HF-90 Portable Package; incorporating the HF-90 Transceiver, portable broadband antenna and rechargeable battery system supplied in a compact fibreglass carry case, plus the HF-90 Manpack; incorporating the HF-90 Transceiver, TM-90 Tuner, collapsible whip antenna and rechargeable battery system supplied in a canvas backpack. In addition, Q-MAC frequently supply custom-designed packages for very specific customer requirements.

2.1.4 Ease of operation

The HF-90 is designed for simple 'fuss-free' operation. It incorporates just six keys plus on/off switch and volume control knob. A rugged 6-digit LED display confirms key entry. The Selcall related functions are controlled from the associated DTMF microphone. Programming may be controlled via PC or directly from the DTMF microphone. Many customers currently using the HF-90 as part of their HF network comment that the requirement for operational training is minimal.

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2.1.5 Rugged construction

The HF-90 incorporates a solid one-piece aluminium extrusion with metal front/backplates. All controls/connectors are fully protected by virtue of the metal handles on the front panel and the heatsink on the rear panel. Furthermore, every consideration has been given to the hostile nature of operating environments, with respect to the design of the portable cases/packs supplied with the HF-90.

2.1.6 Serviceability and after-sales support

The HF-90 Transceiver comprises just three main PCBs which form a 'sandwich' structure within the HF-90 metal extrusion. Boards may be serviced/replaced by simply unplugging as there are no cable looms and de-soldering is not required. This makes emergency in-field servicing a reality. Q-MAC offers a comprehensive three year warranty for aid/relief organisations and has an international network of dealers which provide after-sales service. These dealers are required to hold a minimum inventory of spares for emergency requirements. However, if customers are operating in areas where there is no authorised dealer, Q-MAC will send replacement units by DHL airbag. The HF-90 is the only HF transceiver of its kind which can fit into a standard DHL airbag!



3 Aid/relief organisations currently using the HF-90

A large number of aid/relief organisations around the globe are now using the HF-90. The large majority of HF-90 systems supplied to date have been supplied into East Africa (Kenya, Southern Sudan and Somalia) via Q-MAC's Premium Dealer - Navcom Limited, based in Nairobi. However Q-MAC has also supplied a significant number of units into West Africa and the Pacific Region. The aid/relief organisations which Q-MAC has supplied to include:-

3.1 UN Agencies

UN Operation Lifeline Sudan (OLS), UNHCR and World Food Programme.

3.2 Non-Government Organisations (NGOs)

International Committee for the Red Cross, World Vision International, Save the Children Fund, CARE, MERLIN - OXFAM, International Rescue Committee, Medecins Sans Frontieres (Belgium), Medecines Sans Frontieres (Holland), Veterinarianes Sans Frontieres (Belgium), Church Ecumenical Action in Sudan, MEDAIR, Action Contre La Faim, Medecins du Monde, ACROSS, Adventist Development & Relief Agency, CONCERN, GTZ and GOAL International.

Some of the specialist type applications, for which the HF-90 has been used, include:-

3.3 World Food Programme

Q-MAC has supplied custom designed portable packages to WFP which are larger than the standard HF-90 Portable Package, incorporating the HF-90 Transceiver, TM-90 Tuner with collapsible whip antenna, alternative portable broadband antenna system, a dual battery system, AC mains charger, and a compact fold-up solar panel charger. All items were supplied in a rugged self-contained fibreglass carry case. These systems were used during the catastrophic floods, which occurred in Somalia early in 1998. They were used aboard the 6m boats which were sent out to help rescue drowning flood victims. They have also been used on the Tana River in Kenya in 9m metal boats, during the same floods.

3.4 Medecins Sans Frontieres (Belgium)

Q-MAC has also supplied systems to MSF Belgium, where they have been used for flood rescue in 5m boats on the Tana River. In addition, this same customer has used the HF-90 to communicate between health centres in Southern Sudan, and back to base in Lokichokio and Nairobi - once again in boats.

3.5 UN OLS

This organisation has used the HF-90 Rapid-Use Portable Package for humanitarian missions which were flown in by Helicopter to Somalia.

3.6 Others

Aside from the above, there have been numerous cases where aid/relief organisations working in the South of Sudan have used the HF-90 Portable Package and HF-90 Manpack in areas where there is no vehicle access. The HF-90 systems have been known to be carried/used whilst on foot, on bicycle, motorcycle - even by camel!

In summary, the Q-MAC HF-90 Compact Transceiver is a proven product with respect to aid/relief applications, its purpose is to complement existing HF communications networks (not compete with them) and it is truly adaptable and portable for the most demanding of applications.

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4 Other Information

4.1 About Q-MAC Electronics

Q-MAC Electronics is specialist designer and manufacturer of HF Transceivers. The flagship product the HF-90 is the world's smallest high performance HF SSB Transceiver. The HF-90 and Q-MAC Electronics have been awarded many accolades and is currently used by thousands of users in over 80 countries worldwide. The HF-90 is one of the most versatile HF transceivers available and is suited to military, paramilitary and humanitarian aid and relief applications.

Q-MAC offers the HF-90 in a variety of configurations suited to manpack, vehicle and base station applications. A full complement of accessories is also offered for use with the HF-90; including antennas, field battery charging accessories, carry packs/cases and more. All Q-MAC products are backed by the company's strong commitment to after sales service, support and certified ISO9001 quality standards.

4.2 Contact Details

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