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FOREWORD

Dear pilot

The standard method of communication between pilots and air traffic controllers is and will remain, for the time being, voice radio. One of the problems with voice communication is that all pilots being handled by a particular controller are tuned to the same frequency. As the number of flights is steadily increasing, the number of pilots tuned to a particular station also increases. On the medium to long term, data link based communications will offer new possibilities to cope with increased demands on Air Traffic Control (ATC). However, the fundamental principles will remain the same. A clear and concise communication is of the highest priority in ATC and significantly improves safety.

Following a series of highly publicized air accidents, ICAO responded to a request from its member states to investigate the potential causes. It was found that in several cases an inadequate knowledge of English could have been a contributing factor. From 5th March 2008, as a condition of licensing, all flight crew members and air traffic controllers involved in international traffic will be required to prove their competence in English.

Language is by no doubt the fundamental prerequisite for all communication. However, the pressure to handle more and more traffic while maintaining the high levels of safety and efficiency raises some concerns of marginalizing the human factors in the air traffic control system. In the past, the controller function has generally been considered to be an individual one and has therefore not focused on the teamwork aspects.

Teamwork, reflected in verbal or data link communication between controllers and flight crews, is likely to be a critical component of air traffic control. As in other technological endeavours, a high percentage of operational errors involves breakdown in communication, coordination, and group decision making. Crew and team resource management training has proved to be effective in improving team coordination in flight crews and between flight crews and controllers. The automation of components of the air traffic system may further influence team interaction with negative and positive effects on teamwork and the ability to maintain situation awareness on both sides.

In order to better understand the interface between pilot and ATC, you are any time welcome to visit one of our area control centres and to assist a shift on the "jump seat". I am convinced that this mutual understanding will further enhance the teamwork between you and the controllers and make an important contribution to aviation safety.

This new edition of **calling Radar** addresses the evolution in today's ATC environment. The author has identified and incorporated the changes of the recent years. As a result, he has created a work which I can highly recommend to all pilots. With a clear and proper communication technique, you make a personal contribution to aviation safety.

Don't hesitate to call us! We are any time pleased to offer an insight into our business.

Dübendorf, February 2009

skyguide
Chief Operating Officer

Urs Ryf

INTRODUCTION

Modern technology in air traffic control and air navigation enables pilots and controllers to make efficient use of limited airspace for the increasing amount of air traffic. Satellite navigation, inertial navigation, Radar Mode S and Controller Pilot Datalink Communication are some of the developments used in modern ATC systems.

Aeronautical communications between aircraft and ground stations are achieved by the Aeronautical Mobile Service (AMS) dealing with all messages necessary to ensure the safety of flight, employing voice transmissions and data transfer. The International Civil Aviation Organisation (ICAO) has issued procedures for radiotelephony phraseology which are followed by most countries of the world.

Because the language being used in radiotelephony may not be the mother tongue of those using it, it is essential that aircrew and controllers adopt and follow agreed procedures to ensure that phrases, words and numerals are clearly understood. The correct interpretation of ATC language is crucial if mistakes are to be avoided.

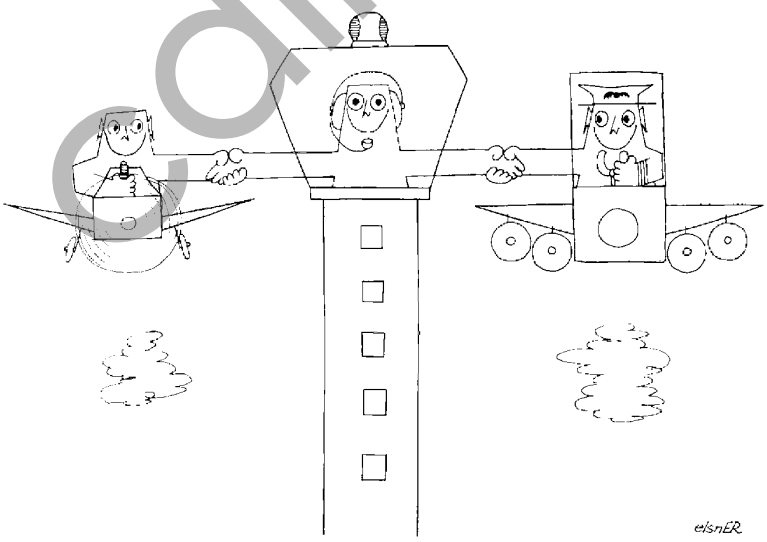
The book **calling Radar** appeared first in 1990 in a German and a French version. Both small and large training facilities in Switzerland used it for their IR ground school training and refresher courses.

calling Radar (in English since 1999) cites all phraseology procedures listed in the JAR-FCL learning objectives for IFR communications (090 07 to 090 11) and described in the ICAO documents (Annex 10 Vol. 2, Doc 4444, Doc 9432). Documents covering learning objectives for VFR communications (090 01 to 090 06) are not completely quoted in this book, only a few communication procedures covering basic phraseology are included. Nevertheless, students will be examined in these topics too.

This new February 2010 edition contains a few important changes in reporting procedures and some small additions to the text.

ACKNOWLEDGEMENTS

For his help in the preparation of this book I would like to thank Walter Roos (author of the book **calling Tower** - VFR communications) for supplying much helpful advice. He first suggested this book back in 1990, and his inputs have been most useful ever since. As member of the Working Group Communications he provided all necessary information to make **calling Radar** compatible to JAR-FCL. Another friend is William Niggli who helped me a lot to convert my own translation into English.



Pfäffikon ZH, February 2010

Silvio Giannini
Retired Air Traffic Controller