

THE ADS-B GUIDE

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INTRODUCTION, BUYER BEWARE, FAQ, AND MYTHS

Introduction

An educated consumer can spend wisely, avoid errors and obtain best utility. ADS-B is crowded with details and one cannot expect to have a full understating however one can acquire an overview which will aid in knowing what questions to ask.

With the deadline of January 1, 2020 and the wide varieties of equipment options and capabilities available for ADS-B OUT regulatory (FAR 91.225 and 91.227) equipage requirement there is heightened interest and a nagging uncertainty about ADS-B. Adding to the discussion ADS-B IN which is not required but very desirable addition we have a dizzying array of equipment choices.

This book gives an overview of the ADS-B system and its capabilities and use and then provides a detailed guidance on how to make equipment purchase decisions. This book also provides a detailed overview of considerations in selecting ADS-B equipment and the use of this equipment to educate the pilot and enable effective communications between the pilot/aircraft owner and Avionics Dealers, Manufacturers and the FAA.

There are brand new aircraft being sold with Legacy ADS-B equipment which are non-compliant (will not meet January 1, 2020 requirements) and there are many used aircraft with legacy ADS-B equipment installed which also does not meet the FAA requirements for ADS-B airspace January 1, 2020 rule. We discuss these issues and explain how to know what you are buying to avoid having unacceptable ADS-B.

This book has some sections that provide an overview and then some sections with much more depth. This result is some repetition of some information so that the individual chapters are readable without having to jump back and forth to other sections

Why a Book?

Why a book when there is so much information (some not correct) available on the web and other sources? It is hard to collect the information from multiple sources, sort out the correct from incorrect and organize the material into a useable form. This book provides a single dependable factual source which ties all the information together in an orderly and easy to understand structure. We cover both equipment selection and installation and use of the equipment and the reader can select the topics of interest.

Experimental Aircraft

Experimental aircraft owners often have the opinion they can do what they want. That is not the case. Any aircraft flying into ADS-B airspace must follow FAR 91.225/91,227.

The difference between experimental and certified is in the requirement the FAA has imposed to prove compliance; we discuss these issues. The ADS-B system is evolving with performance improvements being introduced. There are always gray areas and room for interpretation in FAA guidance and regulations. We discuss some of these issues and provide a background and basis for a conversation with the avionic dealer and regulatory authorities.

As well the number of vendors proving equipment is increasing with a wide range of capability and pricing. It is often difficult to know what is included in a particular offering and this book provides guidance on the questions that should be asked before a commitment to purchase is made.

Equipment Complexity

The choices and combinations of ADS-B equipment seems endless.

We explain the simplest low-cost options and build on this to the more complex choices. There are so many possible combinations of equipment that we cannot detail every possibility however this book provides a basis for discussions with an avionics dealer to make individual decisions.

New and Used Aircraft Purchase

A buyer might find out that a used or brand-new aircraft being purchased believing it is ADS-B equipped does not meet current regulations.

There are brand new aircraft being sold with Legacy ADS-B equipment which is non-compliant (will not meet January 1, 2020 requirements) and there are many used aircraft with legacy ADS-B equipment installed which does not meet the FAA requirements for ADS-B airspace January 1, 2020 rule.

Legacy Equipment

ADS-B requirements have evolved over the years and ADS-B OUT equipment was available in the US and Overseas before requirements were finalized. Some legacy systems can still be used overseas and could be legally installed in US aircraft but would not meet US 2020 requirements. These systems are referred to as “legacy” (Version 0 or 1, Version 2 is now required) ADS-B systems. Version 2 systems now required could be installed in a way that makes them non-compliant, so we must have the correct equipment correctly installed and with the correct paper work. We discuss these legacy systems and provide guidance on their limitations, how to avoid purchasing these systems, how to tell if you have them and what to do about it.

Why are new aircraft sold with non-compliant ADS-B? In some cases, the systems were certified before the current rules were firm and the manufacturers have chosen to not spend the money to upgrade the systems. In some cases only a software update is required however the manufacturer may not have certified the software for all aircraft affected. In addition, it

may not be possible to upgrade these systems to meet January 1, 2020 requirement without replacing or adding additional equipment.

If these legacy systems are properly transmitting the data in the ADS-B OUT signal that correctly indicates their status in most cases they will not be seen by ATC and in some cases, will not be seen by ADS-B IN systems.



Buyer Beware

Some Gotchas which deserve some special awareness and are discussed in detail elsewhere in this book. This summary prepares the buyer/pilot for some of the discussions to follow.

Buying a New Aircraft with ADS-B

ADS-B Equipped does not automatically mean the ADS-B Installed is compliant with January 1, 2020 requirements (FAR 91.225/91.227). Old versions of ADS-B have been installed legally which are not compliant with January 1, 2020 requirements and can still be installed using the older certification basis. Older approvals have not been revoked. Brand new aircraft can come off the production line and be sold with ADS-B approved by legacy FAA approvals that does not meet January 1, 2020 requirements.

You should check that any ADS-B Installed is compliant with the January 1, 2020 requirements.

Buying a Used Aircraft with ADS-B

There are many legacy ADS-B systems legally installed that do not meet the January 1, 2020 requirements. Some of these systems may be update to 2020 requirements others may not. The FAA has not invalidated (By airworthiness Directive or other FAA action) or otherwise required that older systems legally installed be deactivated or removed so they are still legal. There are also installations which may not have complied with regulations in effect at the time of installation but never the less are in aircraft.

To fly in ADS-B airspace you must have equipment compliant with FAR 91.225/91.227.

