



Imagine, while in flight, being able to see other aircraft in near real-time on a cockpit display. Also, imagine having timely weather graphics and text information displayed in the cockpit during rapidly changing thunderstorms. This would certainly improve the safety and efficiency of flight operations. A new technology called Automatic Dependent Surveillance-Broadcast (ADS-B) can provide that capability and so much more. ADS-B is available today.

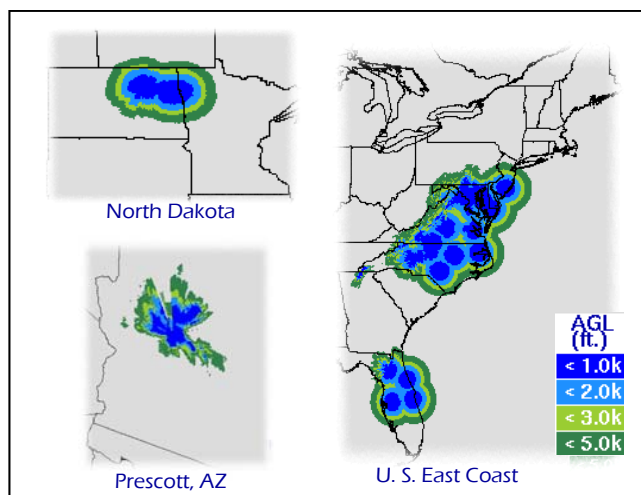


Figure 1

ADS-B technology as an advisory only display of real-time traffic and ground-based weather radar, is becoming a desired upgrade for many commercial and private aircraft owners/operators. As an avionics installer, it is important to understand what ADS-B is and why your customers want to upgrade to this new safety enhancing technology. ADS-B is part of a suite of broadcast services provided, without fee, by the FAA. The suite of services or “bundled benefits” consists of ADS-B, Traffic Information Service-Broadcast (TIS-B) for traffic and Flight Information Service-Broadcast (FIS-B) for weather. These bundled benefits are being provided at key sites including the east coast, Arizona and North Dakota as identified in Figure 1.

ADS-B requires equipped aircraft and a series of centrally managed ground stations. Interfaces to both surveillance and weather radar supply graphical weather products. Text products are also made available in the broadcast data. From a central location, the traffic and

weather information is then continuously distributed to the appropriate ground stations for broadcast to ADS-B equipped aircraft. To demonstrate the current broad applicability of ADS-B, the Supplemental Type Certificate (STC) for the GDL-90 ADS-B transceiver references an Approved Model List which includes over 700 aircraft models.

TYPICAL AVIONICS INSTALLATION

Figure 2 represents an example of the basic equipment suite to add ADS-B, TIS-B and FIS-B services into a typical general aviation aircraft. Installing the MX-20 display could require significant panel work to rearrange avionics to accommodate the MX-20 in an easy to view location. The remotely mounted GDL-90 has an internal TSO C-145 Wide Area Augmentation System (WAAS) capable Global Positioning Sys-

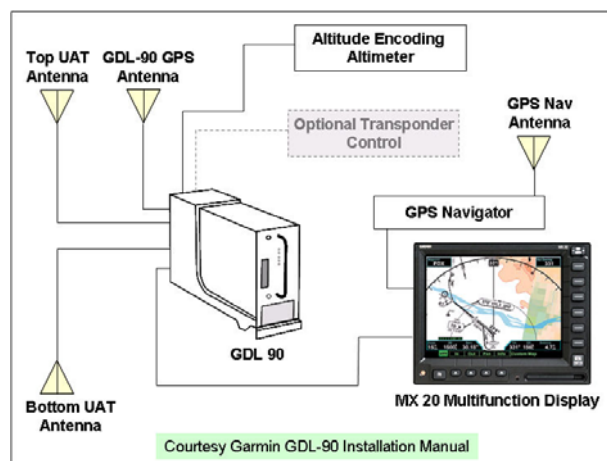


Figure 2

tem (GPS), however, to provide area-nav capabilities a GPS area-nav receiver is also required to display navigation functions on the MX-20. Detailed installation information, including a list of aircraft and installers in Alaska, is available on the Alaska Capstone website www.alaska.faa.gov/capstone/. In Florida, installations were done by the Embry-Riddle Aeronautical University maintenance facility at the Daytona Beach Airport (DAB). The FAA’s National Airspace System (NAS) Architecture, version 5.0, calls



for the deployment of over 550 ADS-B ground stations nationwide. The current status of the ADS-B ground installations can be found at www.flyadsb.com or toll free 1- 877-FLYADSB (877 359-2372).

Table 1

Description	Weight (lbs.)
UAT and mounting bracket	6.4
UAT antenna (.3 x 2)	2.5
UAT coax and connectors	0.6
UAT harness	2.8
GX60 w/tray, kit, antenna, coupler	4.3
MX20 with tray	4.8
GX and MX harness	1.5
TCl encoder and plug	0.9
Total installation weight	23.8
Paperwork (<i>not incl. in above total</i>)	4.0

Table 1 identifies the typical weight associated with ADS-B equipment that includes an ADS-B universal access transceiver (UAT).

Figure 3 is a photograph of an MX-20 and a GPS navigator installed in a Cessna 185 aircraft operating in Alaska. This is an example of an avionics installation to display traffic, weather and navigation information in a general aviation aircraft.

Figure 4 is an example of ADS-B and TIS-B traffic on



Figure 3

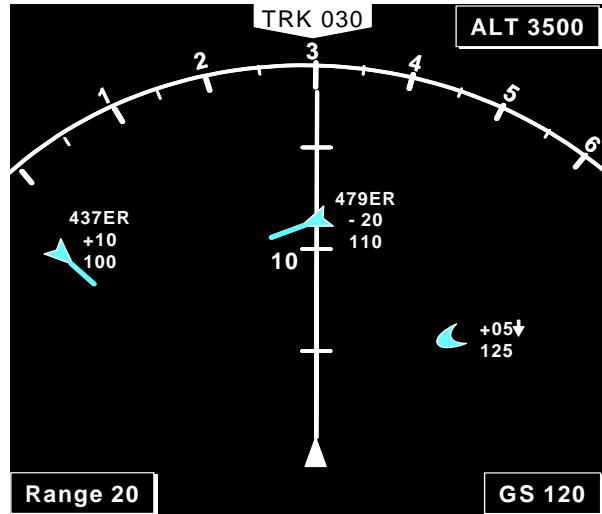


Figure 4

a typical cockpit display. This display is in sector mode showing 30 degrees left and right of ground track. ADS-B traffic is 12:00, 12 miles and 2000 ft below. The tip of the vector out the front of the aircraft (479ER) shows where the aircraft will be in 1

minute. Traffic that does not meet the accuracy requirements of ADS-B are depicted as at 1:30 and 7 miles. This is TIS-B traffic as it has no identifier and is shown 500 ft above and descending. TIS-B traffic has no vector indicating where the

traffic will be in one minute. Displays and display features may differ depending on the specific avionics manufacturer, but the basic concept for the display of traffic is the same.

As more ADS-B ground stations are installed, expect to hear from more and more customers who want to invest in ADS-B to realize the benefits of the situational awareness and safety the new system provides.

To understand more about how ADS-B can enhance your avionics operation and for further installation details contact James McDaniel, Project Lead, Safe Flight 21.

Information on ADS-B installations is available on the Alaska Capstone website at: www.alaska.faa.gov/capstone/ ADS-B Status: www.flyadsb.com or 1 877 FLY ADSB

James McDaniel
 FAA Safe Flight 21
 Phone (202) 493-4707
 Email james.mcdaniel@faa.gov



Federal Aviation Administration

WWW.FLYADSB.COM or 1 877 FLY ADSB