

# AVIATION MANDATES TIMELINE



**Honeywell**

# HELPING YOU MEET UPCOMING MANDATES

Our dedication to the aviation industry includes helping you meet upcoming mandates. This timeline illustrates past and future mandates and the ways we can help you meet them.

3. Upgraded Cockpit Voice Recorders and Underwater Locating Devices (Europe)
4. Crew Resource Management Requirements (Canada)
5. Fuel Requirement Rules (Australia)
6. Equipment or sensor malfunction
7. Fuel issues
8. In-air collisions
9. Landings
10. Life support systems
11. Pilot fatigue and workload
12. Runway safety
13. Safety data retention
14. Terrain awareness

# PAST MANDATES: UPGRADED COCKPIT VOICE RECORDERS AND UNDERWATER LOCATING DEVICES (EUROPE)

The European Aviation Safety Agency (EASA) required upgraded Cockpit Voice Recorders (CVRs) and Underwater Locating Devices (ULDs). All CVRs had to have a two-hour recording capability and record onto solid-state material. Airplanes with a maximum takeoff weight of at least 59,500 pounds with more than 19 passenger seats performing transoceanic flights had to be retrofitted with an “additional ULD with a very long detection range.”

<<COCKPIT IMAGE TBD>>

## LIGHTWEIGHT COCKPIT VOICE RECORDERS

We offer [multiple CVR options](#) that use a modular crash-survivable memory unit (CSMU) to protect the solid-state voice recording memory. The CSMU retains the most recent two hours of audio, digital and timing information. Our CVRs are FAA compliant with new mandates for data link recording.

## RESCU 406

Honeywell's [RESCU 406®](#) automatic fixed navigation delivers the next generation of emergency locator transmitter with a smaller, lighter configuration and an easy-to-use interface.



# CREW RESOURCE MANAGEMENT REQUIREMENTS (CANADA)

This latest Crew Resource Management (CRM) requirement now includes the concept of threat and error management (TEM). TEM “advocates the careful analysis of potential hazards and taking the appropriate steps to avoid, trap, or mitigate threats and manage errors before they lead to an undesired aircraft state.” The new standards relate to the training of crews for commercial aircraft operations, including air taxis.

IMAGE OF PILOTS/OTHER  
AIRCRAFT CREW TBD

## CONNECTED AIRCRAFT SOLUTIONS

**The Connected Aircraft** can help to reduce errors by uncovering threats through safety analysis and by providing better information. **GoDirect® Flight Preview**, for instance, lets pilots review destination airports in 3-D, allowing them to prepare for safe landings as never before.

## TERRAIN AND TRAFFIC AWARENESS

Honeywell has long been at the forefront of safety, including inventing the first traffic collision avoidance system in 1968. We offer **a wide variety of terrain, traffic and synthetic vision products** to make the job of piloting easier.

FEB  
- 28 -  
2019

# FUEL REQUIREMENT RULES (AUSTRALIA)

New rules covering minimum fuel requirements for all Australian aircraft reintroduce fuel reserve requirements and require pilots to conduct in-flight fuel management with regular fuel quantity checks. The mandate also simplifies planning requirements for fuel contingencies.

<<IMAGE OF PLANE FUELING TBD>>



## **GODIRECT FLIGHT EFFICIENCY**

Maintain compliance with new environmental and fuel-use mandates using **GoDirect® software and services** that help you better understand how fuel is spent, conduct trajectory analysis, monitor initiatives and more.

# HELICOPTER AIR AMBULANCE, COMMERCIAL HELICOPTER AND PART 91 HELICOPTER OPERATIONS (UNITED STATES)

Operators must have equipped their aircraft with flight data monitoring (FDM) equipment, helicopter terrain and warning system (HTAWS) technology, and radar altimeters. The FAA regulations required operators to begin capturing data pertaining to the aircraft's state (such as heading, altitude and attitude), condition (such as rotors, transmission, engine parameters and flight controls) and system performance.



## SKY CONNECT TRACKER III

Collect data from onboard systems to record and communicate aircraft performance and potential maintenance needs. Generate alerts based on the factors you care about and communicate them to ground operations via satellite. [Tracker III](#) can help you improve operations, speed maintenance and reduce costs.

## ENHANCED GROUND PROXIMITY WARNING SYSTEM

We invented this system and have delivered more than 2,000 helicopter Enhanced Ground Proximity Warning System (EGPWS) units. The solution comes in two formats: [one ideal for VFR-equipped lighter helicopters](#) without radio altimeters, and

our [MK XXII EGPWS](#), with highly advanced safety functions for larger IFR-equipped helicopters with radio altimeters.

## ALTIMETER INDICATOR

The Honeywell [KRA-405B Altimeter](#) offers expanded scale for helicopter operation and provides analog and ARINC 429 outputs. Our [BendixKing](#) Radar Altimeter Indicator is ideal for displaying radar altitude and EGPWS information in a vivid color display for easy viewing in any conditions.

## AIR METHODS BOOSTS SAFETY WITH THE SKY CONNECT TRACKER III



# FUTURE MANDATES: AUTOMATIC DEPENDENT SURVEILLANCE- BROADCAST OUT (UNITED STATES)

Aircraft that require a Mode-S transponder today will need functioning Version 2 Automatic Dependent Surveillance-Broadcast Out (ADS-B Out), a precise satellite-based surveillance system. ADS-B Out uses GPS to determine an aircraft's location, airspeed and other data. It enhances safety by making an aircraft visible, in real time, to air traffic control and to other appropriately equipped ADS-B aircraft, with position and velocity data transmitted every second.

<<PILOT COCKPIT OR COMMUNICATION  
IMAGE TBD>>

## PRIMUS II RADIO

**The Primus® II radio system** is a complete system featuring integrated navigation and communication, combined control, and blended audio systems. If you're flying an aircraft equipped with older, noncompliant Primus II radios, you can cost-effectively upgrade to new, fully compliant Primus II radios now.

## RM-855 RADIO MANAGEMENT UNIT

The **RM-855 Radio Management Unit (RMU)** is mounted in the cockpit panel and is the primary interface used to control the Primus II radio system in the Primus 1000 and Primus 2000 flight decks. Our RMU software versions -97X and -98X provide the control, testing and additional failure indications necessary for ADS-B Out functionality.

## GPS AND GLOBAL NAVIGATION SYSTEM SENSOR UNITS

To be ADS-B compliant, a GPS "Selective Availability Aware" sensor must provide position, velocity, altitude, figure of merit and integrity limit data. **Our GPS units** provide highly accurate navigation information to help you meet the requirement.

## ADS-B UPGRADES KEEP CANADIAN OPERATOR FLYING IN THE U.S.





# FANS 1/A: CPDLC (UNITED STATES) AND PM-CPDLA (EUROPE)

There are multiple mandates concerning Future Air Navigation System 1/A (FANS 1/A):

- FANS 1/A provides Controller Pilot Data Link Communications (CPDLC) for oceanic or remote-region operations, with SATCOM as the primary means of communications. CPDLC is essentially a high-speed version of text messaging for pilots, and it allows pilots and air traffic control to send preset data messages between the ground and the aircraft.
- FANS 1/A is used on the North Atlantic Tracks, a series of six “highways” across the North Atlantic, and will apply to all flight levels in these tracks in 2020.
- PM-CPDLC will be required for overland applications in Europe. The mandate is effective February 2020. PM-CPDLC is



## FMZ-2000 FLIGHT MANAGEMENT SYSTEM

For more than 20 years, our **FMZ-2000** has been the Flight Management System (FMS) of choice for pilots and original equipment manufacturers. This latest upgrade meets the FANS and CPDLC mandate and delivers superior performance to continually exceed the requirements of modern airspace.

## MARK II+ COMMUNICATIONS MANAGEMENT UNIT

Our Communications Management Unit (CMU) enables data and messaging transfers between airborne and ground-based systems by hosting communications protocols that allow for message routing over various channels.

**The Mark II+ CMU** supports FANS and PM-CPDLC.

## VHF DATA LINK (VDL) MODE 2 RADIOS

To be ADS-B compliant, a GPS “Selective Availability Aware” sensor must provide position, velocity, altitude, figure of merit and integrity limit data. **Our GPS units** provide highly accurate navigation information to help you meet the requirement.

## MCS-7147 MULTI-CHANNEL SATELLITE COMMUNICATIONS SYSTEM

Our **MCS-7147** includes the HD-710 high-speed data unit, with Inmarsat Swift 64 and SwiftBroadband services, and provides the newest functionality in data and voice capabilities. It is a simple retrofit for existing MCS-4000/7000 systems, and is required for the FANS 1/A mandate on many aircraft.



JAN  
- 01 -  
2020

# TCAS/ACAS 7.1 (MEXICO)

Operators of aircraft with Traffic Alert and Collision Avoidance System II (TCAS II) FA installed and also conducting international flight operations should have already performed the upgrade to version 7.1 in compliance with International Civil Aviation Organization (ICAO) Annex 10. On Jan 1, 2020, Mexico will begin implementing and enforcing this ICAO rule in its airspace.



## **HONEYWELL TPA-100B TRAFFIC COMPUTER**

Our **TPA-100B Traffic Computer** implements version 7.1 changes that not only meet the mandate requirements, but provide a number of benefits ranging from fuel savings, greater situational awareness, fewer delays and fewer expensive aircraft-on-ground situations.

JAN  
- 01 -  
2020

JAN  
- 01 -  
2028

# AIRCRAFT CO<sub>2</sub> EMISSIONS STANDARDS (INTERNATIONAL)

The International Civil Aviation Organization (ICAO) adopted a **new aircraft carbon dioxide emissions standard** that calls for reduced aviation greenhouse gas emissions. It will apply to new aircraft designs starting in 2020 and to aircraft designs already in production as of 2023. In-production aircraft that by 2028 do not meet the standard will no longer be able to be produced. All covered in-production airplanes must meet the standard by Jan 1, 2028.



## GODIRECT FLIGHT EFFICIENCY

Maintain compliance with new environmental and fuel-use mandates using **GoDirect® software and services** that help you better understand how fuel is spent, conduct trajectory analysis, monitor initiatives and more.

JAN  
- 30 -  
2020

# CONTROLLER-PILOT DATA LINK COMMUNICATIONS (EUROPE)

CPDLC is essentially text messaging for pilots, and it allows pilots and air traffic control to send preset or “canned” data messages between the ground and the aircraft. Technical problems caused Europe to postpone enforcement (originally scheduled for Jan 1, 2020) to February 2020.

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FEB  
- 05 -  
2020

MAR  
- 26 -  
2020

# FLIGHT AND DUTY TIMES (AUSTRALIA)

Commercial operators, including business aircraft charter and fractional operators, will need to transition to new fatigue requirements by Mar 26, 2020. The revised rules include a revision of flight and duty periods to align more closely to international averages, an updated approach to approving and monitoring fatigue risk management systems, and improved guidance on flight and duty time limits and fatigue risk management systems.



## **GODIRECT FLIGHT SENTINEL**

**GODIRECT® FLIGHT SENTINEL** can help you reduce fatigue and risk by making flights more efficient, making flight planning easy and reducing flight delays. Our flight control specialists use the latest route-management techniques to put you on the right route to avoid traffic congestion and weather delays.



JUN  
-07-  
2020

# ADS-B OUT (EUROPE)

ADS-B Out is a precise satellite-based surveillance system that uses GPS to determine an aircraft's location, airspeed and other data. It enhances safety by making an aircraft visible, in real time, to air traffic control and to other appropriately equipped ADS-B aircraft, with position and velocity data transmitted every second. This is the same retrofit required in the United States, with a slightly later date, June 2020.



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## EXXAERO BEATS ADS-B OUT UPGRADE GROUNDING AND COST FEARS.

<https://youtu.be/u5TjhuKeimE>



JAN  
- 01 -  
2021

# COCKPIT VOICE RECORDERS (EUROPE)

Cockpit voice recorders with a recording duration of at least 25 hours will be required on commercial airplanes with a maximum takeoff weight (MTOW) of 60,000 pounds or more manufactured from Jan 1, 2021.



## LIGHTWEIGHT COCKPIT VOICE RECORDERS

We offer [multiple CVR options](#) that use a modular crash-survivable memory unit (CSMU) to protect the solid-state voice recording memory. The CSMU retains the most recent two hours of audio, digital and timing information. Our CVRs are FAA compliant with new mandates for data link recording.

## RECORDER TEST AND GROUND EQUIPMENT

Honeywell's [recorder test and ground support equipment](#) delivers a single, common, rugged laptop to support and host ground support software applications to download, test, play back and analyze solid-state recorders.



**THE  
FUTURE  
IS  
WHAT  
WE  
MAKE  
IT.**

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**Honeywell**





# PAST MANDATES:

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<<HELICOPTER IMAGE  
TBD>>

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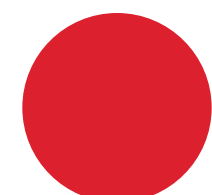
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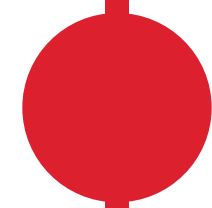
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**JAN-01-2019**

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