

The Complete Boeing 737 Cockpit Diagram: A Detailed Guide for Aviation Enthusiasts



The Boeing 737 cockpit diagram provides a comprehensive overview of the numerous controls and instruments found in the cockpit of this iconic commercial aircraft. As one of the most popular and widely used airplanes in the world, the Boeing 737 places a strong emphasis on safety, efficiency, and pilot convenience. A thorough understanding of the cockpit diagram is essential for pilots to successfully navigate and operate this powerful aircraft.

At first glance, the Boeing 737 cockpit diagram may seem like a maze of buttons, switches, and indicators. However, each element serves a critical purpose in ensuring the safe operation of the aircraft. The diagram highlights the primary flight instruments, such as the altitude indicator, airspeed indicator, and attitude indicator, which provide the pilot with essential information about the plane's position, altitude, and speed.

In addition to the flight instruments, the Boeing 737 cockpit diagram includes an array of control panels and systems. These include the throttle controls, which allow the pilot to adjust the engine power, as well as the autopilot controls, which enable the aircraft to fly on a predetermined course without continuous pilot input. The diagram also features various annunciator panels, which display important warning messages and system statuses.

Furthermore, the Boeing 737 cockpit diagram showcases the communication and navigation systems that are vital for modern flight operations. These include the radio communication controls, which allow the pilot to establish contact with air traffic control and other aircraft, and the navigation radios, which provide assistance in determining the aircraft's position and course. Additionally, the diagram highlights the multifunction displays, which serve as a central hub for accessing various system controls and displaying important flight information.

Overall, the Boeing 737 cockpit diagram represents the intricate network of controls, instruments, and systems that pilots must master in order to operate this advanced commercial aircraft. By studying and understanding this diagram, pilots can enhance their situational awareness and ensure a safe and efficient flight for both passengers and crew.

A Brief Overview of the Boeing 737 Cockpit Diagram

The Boeing 737 cockpit diagram provides pilots with a detailed layout of the controls and instruments they need to operate the aircraft. It is a crucial tool that helps pilots navigate and control the aircraft safely and efficiently. The cockpit is divided into different sections, each serving a specific purpose and providing necessary information to the pilots.

One key area in the Boeing 737 cockpit is the instrument panel, which houses various instruments that provide vital flight data. These instruments include the airspeed indicator, altimeter, vertical speed indicator, and attitude indicator, among others. The instrument panel also features engine gauges, which display critical information about the engines' performance, such as fuel level, oil pressure, and temperature.

Primary Flight Display

- The Primary Flight Display (PFD) is a central component of the Boeing 737 cockpit diagram.
- It presents the flight instruments and navigation data in an intuitive format.
- The PFD displays information such as airspeed, altitude, attitude, vertical speed, and navigation aids.
- It helps pilots maintain situational awareness and make informed decisions during flight.

Navigation Display

- The Navigation Display (ND) is another important feature in the Boeing 737 cockpit.
- It provides pilots with a graphical representation of the aircraft's position, waypoints, and flight route.
- The ND also displays weather information, airports, and other relevant navigation data.
- Pilots can use the ND to navigate and plan their flight path more effectively.

In addition to these key displays, the Boeing 737 cockpit diagram includes various switches, buttons, and knobs that control different systems and functions of the aircraft. These controls include the autopilot, communication systems, landing gear, flaps, and lighting controls, among others. Pilots rely on these controls to operate the aircraft safely and perform necessary maneuvers throughout the flight.

Overall, the Boeing 737 cockpit diagram provides pilots with a comprehensive visualization of the aircraft's controls, instruments, and displays. It allows pilots to quickly access the necessary information and make precise adjustments while flying the aircraft. The layout of the cockpit ensures that pilots have everything they need within reach, enhancing their ability to operate the Boeing 737 safely and efficiently.

Important Components in the Boeing 737 Cockpit

The Boeing 737 cockpit is equipped with a variety of important components that allow pilots to operate the aircraft safely and efficiently. These components include:

- **Primary Flight Display (PFD):** The PFD provides the pilots with essential flight information, such as airspeed, altitude, attitude, and navigation data. It is a crucial tool for maintaining situational awareness and monitoring the aircraft's performance.
- **Navigation Display (ND):** The ND displays the aircraft's position and route on a map, along with other relevant information, such as weather conditions and traffic. It helps pilots in navigating the aircraft and choosing the most efficient flight path.
- **Control Stand:** The control stand houses various controls and switches that are used to operate the aircraft. This includes the throttle levers, the landing gear controls, the flap controls, and other important systems for controlling the aircraft's performance.
- **Autopilot Panel:** The autopilot panel allows the pilots to engage and control the autopilot system. The autopilot can assist in various flight phases, including takeoff, climb, cruise, descent, and landing, reducing the workload on the pilots and enhancing flight stability.
- **Engine Instruments:** The engine instruments display the critical parameters of the aircraft's engines, such as engine speed, temperature, oil pressure, and fuel flow. Monitoring these instruments is essential for maintaining the engines' performance and detecting any abnormalities or malfunctions.

In addition to these components, the Boeing 737 cockpit also features various other instruments, switches, and displays that provide pilots with a comprehensive overview of the aircraft's systems and performance. These components work together to ensure safe and efficient flight operations.

Primary Flight Display (PFD)

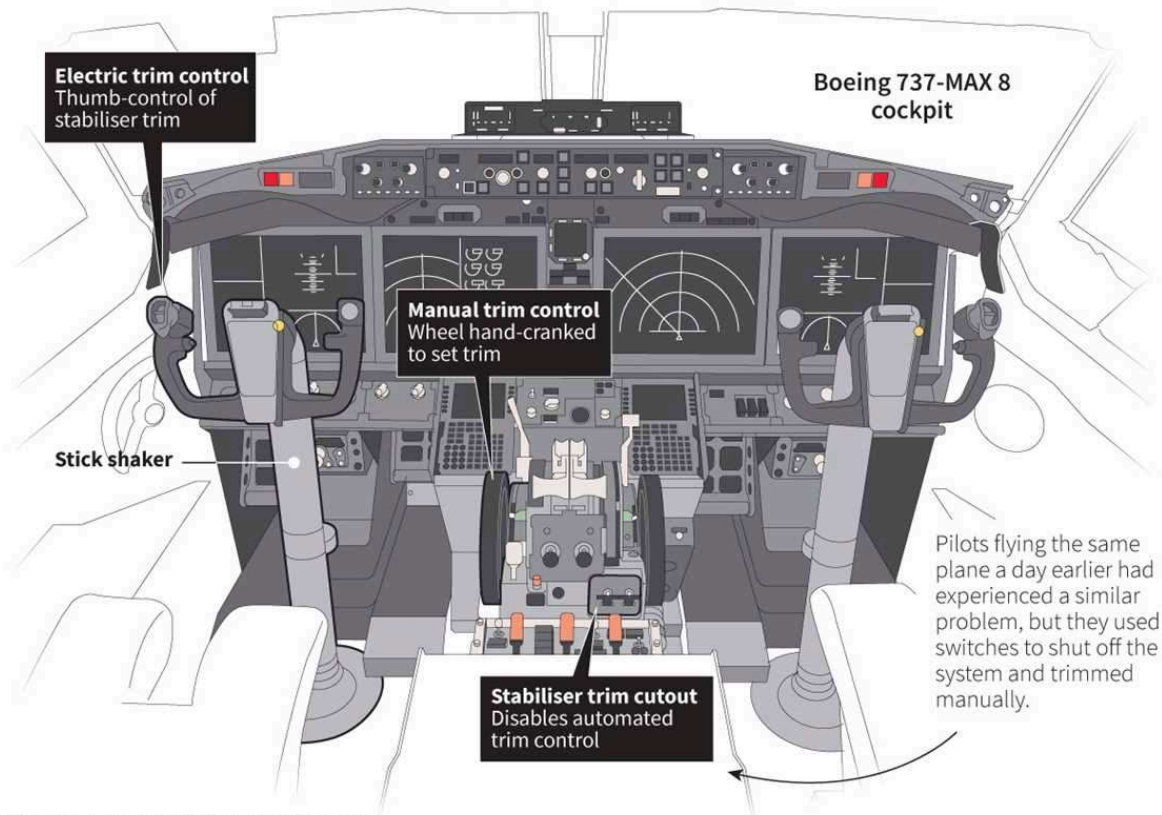
Boeing 737 MAX flight controls

A European document shows aviation regulators were aware that certain flight conditions similar to those experienced in recent crashes could require pilots to manipulate a rarely used wheel in the aircraft's centre console to better control the nose position rather than the usual electronic thumb switch on the control yoke.

STRUGGLE FOR CONTROL

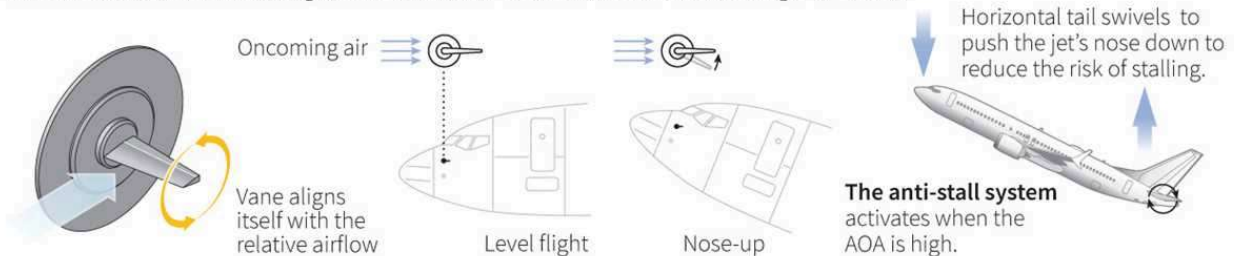
Information retrieved from the flight data recorder of Lion Air Flight JT610 that crashed into the sea in October last year, showed the "stick shaker" was vibrating the captain's controls, warning of a stall throughout most of the 13 minutes aloft based on what investigators believe to have been erroneous data on its **angle of attack** to the oncoming air.

The airplane's **anti-stall system** repeatedly pushed its nose down, which is how pilots usually get air under the wings. The system reacted based on incorrect sensor reading, prompting an eight-minute battle between the captain pulling the nose back up and computers holding it down.



ANGLE-OF-ATTACK (AOA) SENSOR

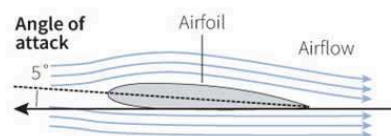
Acts like a windvane, measuring the direction of air to determine the aircraft's angle-of-attack.



WHAT THE ANTI-STALL SYSTEM PREVENTS

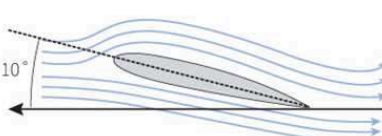
The angle of attack (AOA) is a key flight parameter that must remain narrow enough to preserve lift and avoid a stall.

Low AOA



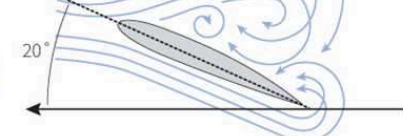
For a wing to produce lift, the air

High AOA



As a wing increases its angle of

Stalling AOA



When a wing stalls, lift will no longer be

flowing past an aircraft must be aligned to the airfoil in order to provide a smooth airflow. Lift overcomes the weight of the aircraft.

attack, smooth airflow over the wing diminishes and eddies of air form, decreasing lift and causing the wing to approach stall speed.

produced. As the aircraft's weight is unopposed, it will fall towards the ground. But with sufficient altitude, stall recovery is possible by decreasing the AOA.

Source: Boeing; Federal Aviation Administration; National Transport Safety Committee, Indonesia; The Air Current.

C. Inton, 28/03/2019



The Primary Flight Display (PFD) is a crucial instrument on the Boeing 737 cockpit diagram that provides the pilot with important flight information in a clear and concise manner. It is usually located in the center of the instrument panel and is the main source of information for the flight crew.

The PFD is a multi-function display that presents a variety of flight information such as airspeed, altitude, vertical speed, attitude (pitch and roll), heading, and navigation data. It is designed to be easily readable and comprehensible, even in challenging flight conditions.

The PFD utilizes different graphical elements and symbols to represent the flight information. For example, the airspeed indicator is displayed as a vertical tape on the left side of the display, showing the current airspeed in knots. The altitude information is displayed as a digital readout and a vertical tape on the right side of the display, indicating the current altitude in feet.

The attitude indicator, which shows the aircraft's pitch and roll attitude, is usually located in the center of the display and is represented by a wide pitch ladder and a small aircraft symbol. The heading information is displayed as a numerical value at the top of the display and is also represented by a compass rose that rotates with the aircraft's heading.

Overall, the Primary Flight Display (PFD) plays a crucial role in providing the pilot with essential flight information, helping them maintain situational awareness and make informed decisions during all phases of flight. Its clear and intuitive design helps enhance flight safety and efficiency.

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Boeing 737-800 5 Poster Set

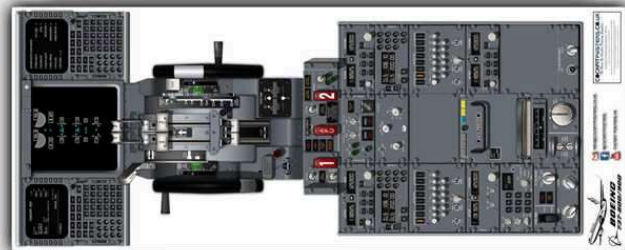
MAIN INSTRUMENT PANEL



OVERHEAD PANEL



CENTRE PEDESTAL PANEL



LEFT & RIGHT ANCILLARY CONTROLS



The Navigation Display (ND) is a crucial component of the Boeing 737 cockpit, providing vital information regarding the aircraft's navigation and flight path. It is typically located in the center of the instrument panel and is an essential tool for pilots to monitor their position and track progress during flight.

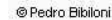
The ND presents a variety of information in a graphical format, allowing pilots to easily interpret and understand their current position relative to the intended route. It displays a moving map, which includes details such as airports, waypoints, airways, and the aircraft's current position. The map can also be adjusted to display different scales and orientations, providing pilots with a customizable view that suits their needs.

The ND also provides information on the aircraft's groundspeed, true airspeed, wind direction and speed, as well as altitude and vertical speed. This data allows pilots to make informed decisions and adjustments during the flight. Additionally, the ND can display weather radar imagery, which is crucial for avoiding hazardous weather conditions and ensuring the safety of the flight.

The Navigation Display is controlled by various systems on the aircraft, including the Flight Management Computer (FMC) and the Inertial Reference System (IRS). These systems gather and process data from various sources, such as GPS satellites and the aircraft's sensors, to provide accurate and up-to-date information to the ND. This ensures that pilots have reliable and precise navigation data to guide their flight.

In conclusion, the Navigation Display (ND) is a vital tool in the Boeing 737 cockpit, enabling pilots to monitor their position, track progress, and make informed decisions during flight. With its graphical representation of navigation information and customizable display options, the ND provides pilots with the necessary information to safely navigate the aircraft to its destination.

BOEING 737 Cockpit Shell



The EICAS display is located in the center of the instrument panel, just below the main flight displays. It consists of multiple screens that can be configured to show different types of information. The primary EICAS display shows the current engine parameters, such as N1 and N2 rotation speeds, exhaust gas temperature, fuel flow, oil pressure, and temperature. It also displays warnings and cautions related to engine performance, such as low oil pressure or high exhaust gas temperature.

The EICAS system not only monitors engine parameters but also provides information about other aircraft systems, such as the hydraulic system, electrical system, and fuel system. This allows pilots to have a comprehensive overview of the aircraft's status and identify any potential problems or malfunctions. By providing real-time and accurate data, the EICAS plays a crucial role in maintaining the safety and efficiency of the Boeing 737.

Multi-Function Display (MFD)

The MFD is customizable and can display a wide range of information, including flight parameters, system status, navigation data, engine performance, weather radar imagery, and more. It is capable of presenting data in various formats, such as charts, graphs, and textual information, allowing pilots to quickly and easily interpret the displayed information.

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- **Communication and Surveillance:** The MFD allows pilots to access and control communication and surveillance systems, including radios, transponders, and traffic collision avoidance systems (TCAS). It provides pilots with information about other aircraft in the vicinity, enabling them to maintain situational awareness and avoid potential conflicts.

The Multi-Function Display enables pilots to effectively manage and control various aircraft systems and functions, enhancing flight safety and efficiency. It provides them with essential information at a glance, allowing them to make critical decisions in a timely manner.

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