

- 1  02 Listen to this lecture about an FDR (flight data recorder). Underline the correct alternatives in the specification chart.



Operating frequency	375 kilohertz / <u>37.5 kilohertz</u>
Maximum operating depth	14,000 feet / 40,000 feet
Frequency of transmission of signal	once every 30 seconds / <u>once per second</u>
Duration of signal	13 days / 30 days
Shelf-life of battery	6 months / 6 years
Method of transporting FDR if it has been in water	<u>in a container of ice</u> / water
Shape of beacon	<u>cylindrical</u> / conical
Colour of FDR	<u>orange</u> / black

Task 2. Complete the description of how an FDR's locator beacon works. Use the correct form of one of the words in each pair for each gap.

activate/deactivate; attach/detach; manually/automatically;
receive/transmit; release/fasten; sink/float; winch up / lower

The circular memory units with the flight data are stored in a large rigid cylinder that is (1) _____ onto the base of the FDR. The FDR is usually mounted in the tail section of the plane. In an accident, it becomes (2) _____ from its mount. There is a submergence sensor on the side of the FDR's beacon. When water touches the sensor, this (3) _____ the beacon (4) _____. The beacon can (5) _____ signals under water and above ground. Because of the weight of the FDR, it does not (6) _____ on the surface of the water, but comes to rest on the seabed. After a diver has located the FDR on the seabed, it is (7) _____ and transported to the computer lab for analysis.

Task 3. Fill in the gaps with the most suitable words from the list below.

winches, detachment, precision, remains accessible, transmission,
remotely operated, float, withstand, winching process,
valuable data, automatically activates,

The flight data recorder, commonly known as the "black box," plays a crucial role in aviation safety. Despite its name, it is typically painted bright orange for easy visibility. This robust device is designed to 1) _____ the most severe impacts and temperatures in the event of a plane crash.

Upon 2) _____ from the aircraft, the flight data recorder 3) _____ its array of sensors and begins recording a wealth of information. These include crucial flight parameters such as altitude, airspeed, vertical acceleration, heading, and conversations in the cockpit. Its detached state triggers a self-contained buoyancy system, causing the recorder to 4) _____ on water surfaces, ensuring that it 5) _____ even in challenging crash scenarios involving bodies of water.

In the event of a crash over water, the floatation feature ensures that the flight data recorder remains buoyant, making retrieval possible. Once floating, the recorder's automated distress signal 6) _____ begins. This operation, often done through an underwater locator beacon, helps search and rescue teams pinpoint the wreckage location.

During the recovery process, specialized teams utilize 7) _____ vehicles equipped with 8) _____ to carefully bring the detached flight data recorder to the surface. The retrieval is a meticulous operation, and the 9) _____ is conducted with 10) _____ to prevent damage to the 11) _____ stored within.

Task 4. Fill in the gaps in the Summary with the words definitions of which you have below.

In summary, the flight data recorder is a critical component in aviation safety, automatically 1) _____ upon detachment, capable of floating on water, and 2) _____ with mechanisms to 3) _____ distress signals. Its robust design and the use of 4) _____ technologies ensure that it withstands the harshest conditions, providing investigators with essential data to analyze and understand the circumstances 5) _____ to an aviation incident.

- To send or communicate signals, information, or data from one point to another. In the context of technology, it often refers to the sending of electronic signals or data

- Provided with the necessary tools, resources, or features. When something is equipped, it is furnished or supplied with what is needed for a particular purpose.
- Highly developed or having progressed beyond basic stages. In the context of technology or knowledge, it refers to a state of being more sophisticated, complex, or refined.
- Set into motion or started. When a device or system is activated, it begins operating or performing its intended functions.
- Serving as the principal or main element. In a leadership context, it refers to being at the forefront or in a prominent position. In other contexts, it may mean guiding or directing.

Task 5. Match the parts 1-10 and a-j to form sentences.

1. The flight data recorder, commonly known as the "black box," is	a) it to withstand extreme conditions, ensuring data preservation.
2. Equipped with an array of sensors, the flight data recorder	b) during the entire duration of a flight.
3. Its primary function is to record and store crucial flight parameters	c) bright orange color for easy visibility and retrieval.
4. In the event of a crash, the flight data recorder's robust design allows	d) a critical component in aviation safety.
5. The device is not truly black but painted in a distinctive	e) automatically activates upon detachment from the aircraft.
6. Floating capabilities enable the flight data recorder to remain	f) and rescue teams in locating the wreckage swiftly.
7. An automated distress signal transmission system aids search	g) altitude, airspeed, and cockpit conversations, is invaluable for investigators.
8. Remotely operated vehicles equipped with winches are used	h) recorders play a pivotal role in enhancing aviation safety and preventing future accidents.
9. The information stored in the black box, including	i) accessible in water-related incidents.
10. Through continuous advancements, flight data	j) to delicately retrieve the flight data recorder during recovery operations.