Some Airplane Black Box Design Features

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"Black boxes" — or, more precisely, the flight data recorder and the cockpit voice recorder — came into general use in civil aviation during the 1950s. They have evolved over the years and today's generation are highly sophisticated digital devices able to withstand intensely high temperatures — and, in the world's deepest oceans, crushing water pressures. They are housed in extremely strong metal boxes designed to be resistant to all but the most violent impacts.

All passenger airliners and many military transports now carry them.

The flight data recorder monitors dozens of flight parameters and the crew's control inputs, thus helping accident investigators figure out the sequence of events that may have led to a crash or other incident.

Investigators also use cockpit voice recordings to figure out what the crew was doing or intending to do to deal with the situation.

The recorders, which can be housed in a single box or two separate ones, are equipped with transmitters that start pinging when submerged, in order to make it easier for searchers to locate them underwater.

Some military aircraft already carry secondary flight recorders, usually mounted on the rear of the airframe, that are detachable and come off during a crash at sea. They remain afloat on the surface where searchers can hone in on the signals they emit. There are plans to put these on civilian airliners in the future.

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