

BEA's Safety Recommendations

The BEA has issued 10 new safety recommendations as a result of its ongoing investigation into the loss of AFR447, in four broad categories:

OPERATIONS/TRAINING

The BEA's "investigation brought to light weaknesses in the two copilots: the inappropriate inputs by the PF on the flight controls at high altitude were not noted by the PNF through an absence of effective surveillance of the flight path. The stall warning and the buffeting were not identified either."

The BEA recommends regulatory authorities "review the content of check and training programmes and make mandatory...specific and regular exercises dedicated to manual aircraft handling of approach to stall and stall recovery, including at high altitude."

Further, the "investigation showed that an absence of training and practice for a crew consisting of two copilots does not guarantee a level of performance equivalent to a crew consisting of a Captain and a copilot when faced with a degraded situation." The agency recommended "additional criteria for...relief Captain so as to ensure better task-sharing in case of relief crews."

AIRPLANE CERTIFICATION

The BEA noted the AFR447 "crew never formally identified the stall situation. Information on angle of attack is not directly accessible to pilots." Thus, regulatory authorities should "evaluate...requiring...an angle of attack indicator."

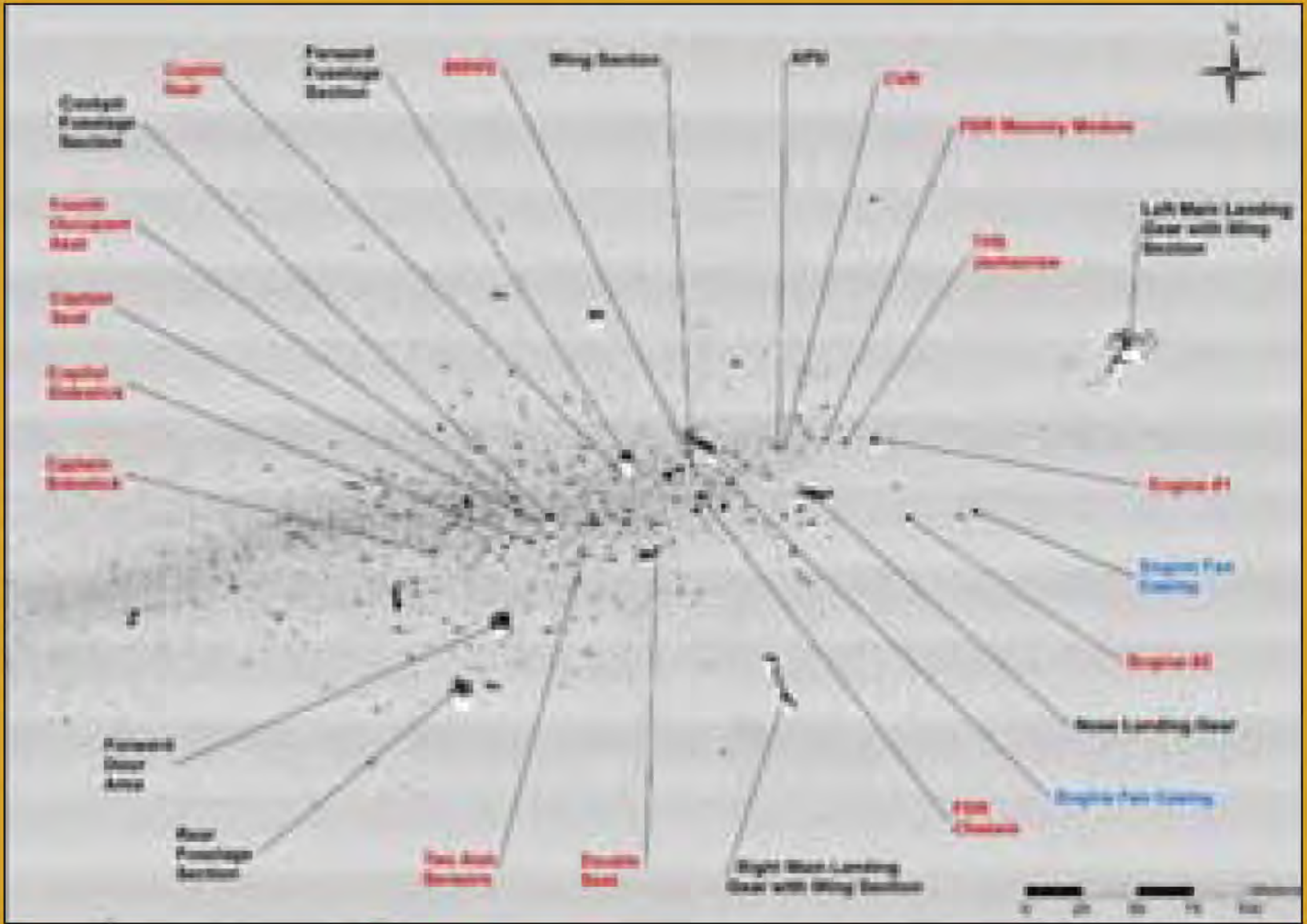
FLIGHT RECORDERS

When considering the information available from flight and cockpit data recorders, the BEA noted "it is difficult to reconstruct the indications that were available to the crew on their instrument panel, especially the instructions given by the Flight Director.... It is also impossible to see whether there have been any attempts to re-engage the autopilot." Accordingly, two recommendations involve cockpit-mounted video recorders and rules guaranteeing their confidentiality.

Two additional recommendations would record both the flight director crossbar positions and data displayed on the right-side PFD, plus "evaluate recording of the air data and inertial parameters" used.

TRANSMITTING FLIGHT DATA/POSITION

Owing to the difficulties authorities encountered in finding the flight's wreckage, the BEA recommended "triggering of data transmission to facilitate localisation as soon as an emergency situation is detected" and ELT activation "when an emergency situation is detected on board."



Top, one of the engines from AFR447 is retrieved from the Atlantic Ocean. Bottom, a map cataloging various aircraft components on the ocean floor.