



Fig. 35. A general view of the crash site compared to TU154M in a reverse position, in the correct scale.

The top down view of the main crash site shows the characteristic positioning of trees in its initial part- from the northern part to the front, in accordance with the flight path, and from the south to the back. This fact points to an active blast wave.



Fig. 36. A picture of the main crash site.

An explosion in the left part of the center wing caused the destruction of the majority of the outer skin, ribs and spar no.1 of the fuel box no.4. Those elements of the plane on the main crash site (Fig. 36) have clear shear marks and visible effects of the blast wave being the result of an explosion. The pictures below reconstruct the mechanism and scale of destruction of the left center wing.

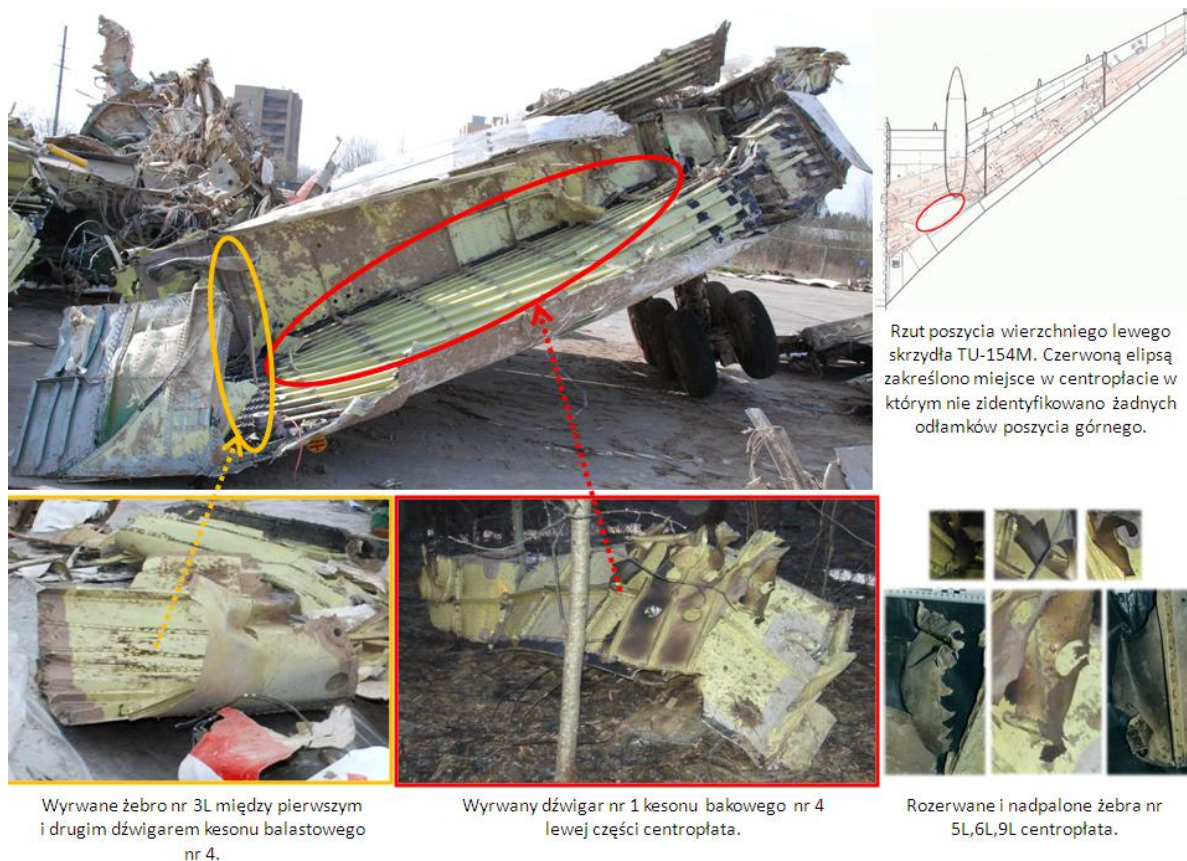


Fig. 37. Note the ripped spar no.1 of the fuel box no.4 of the left part of the center wing with clear signs of high temperature and destruction of burned ribs visible on the right side of the picture. Other parts from this area found outside the fire zones were also found with similar signs.

Epicenter of the fuselage explosion and dispersion of fuselage elements

The tearing and the destruction of the fuel box could not have been a result of a hydraulic impact, caused by the impact with the ground, especially looking at the small amount of fuel and limited space. One has to consider the elements of the skin, ribs, rear spar, which were torn off, most likely due to high internal pressure. (Fig. 38 and fig. 40).

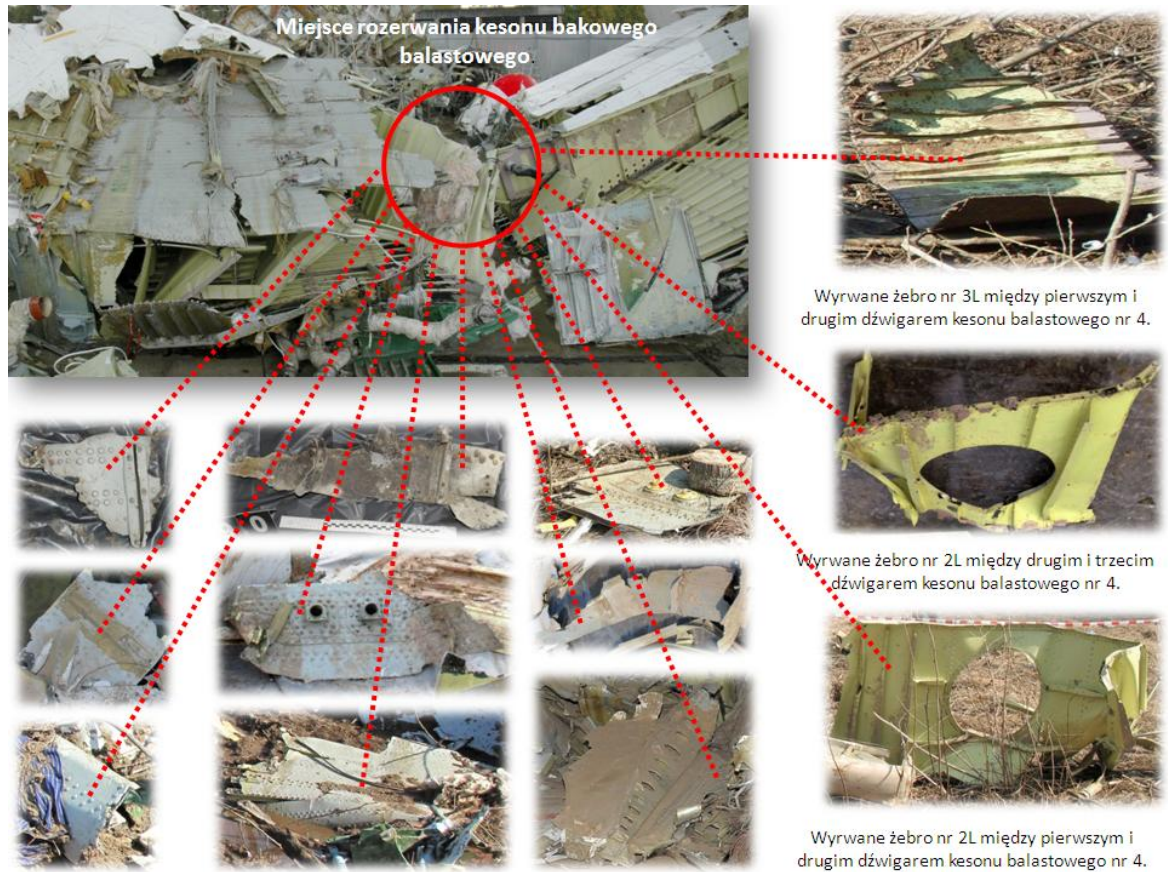


Fig. 38a. Place of the destruction of the ballast box and the destroyed elements.

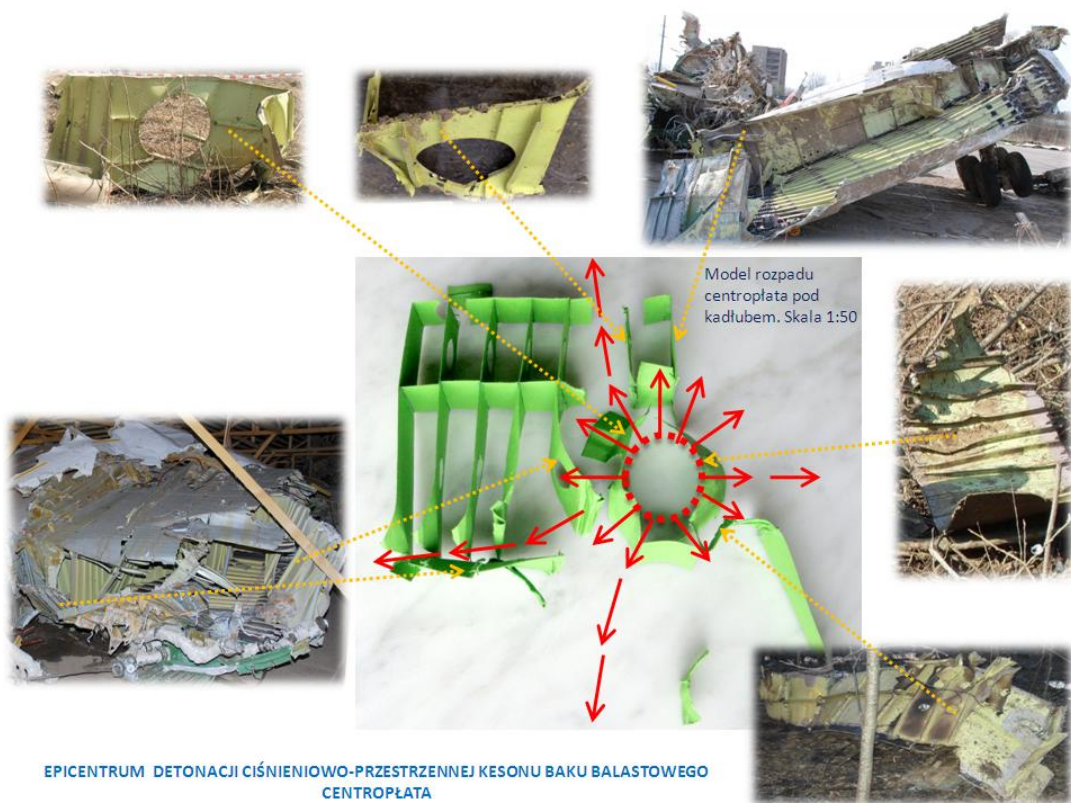


Fig. 38b. Epicenter of the wing box breakage. Study by the Committee.

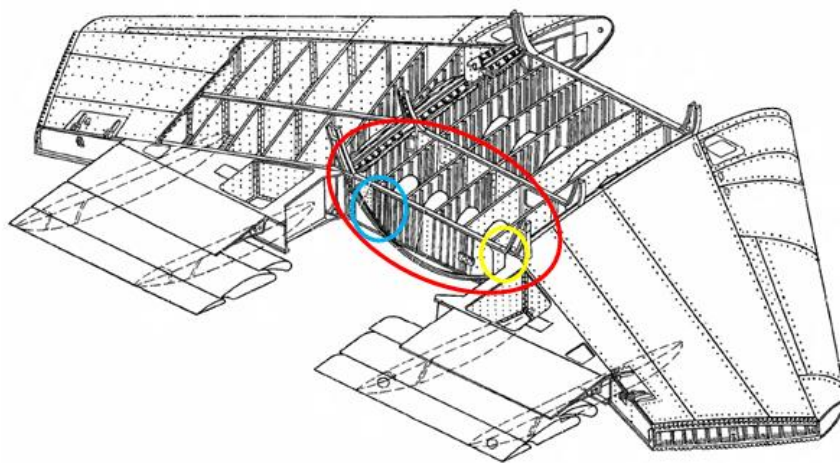


Fig. 39. Center wing box of TU-154M. Highlighted in red **fuel box no.1**.

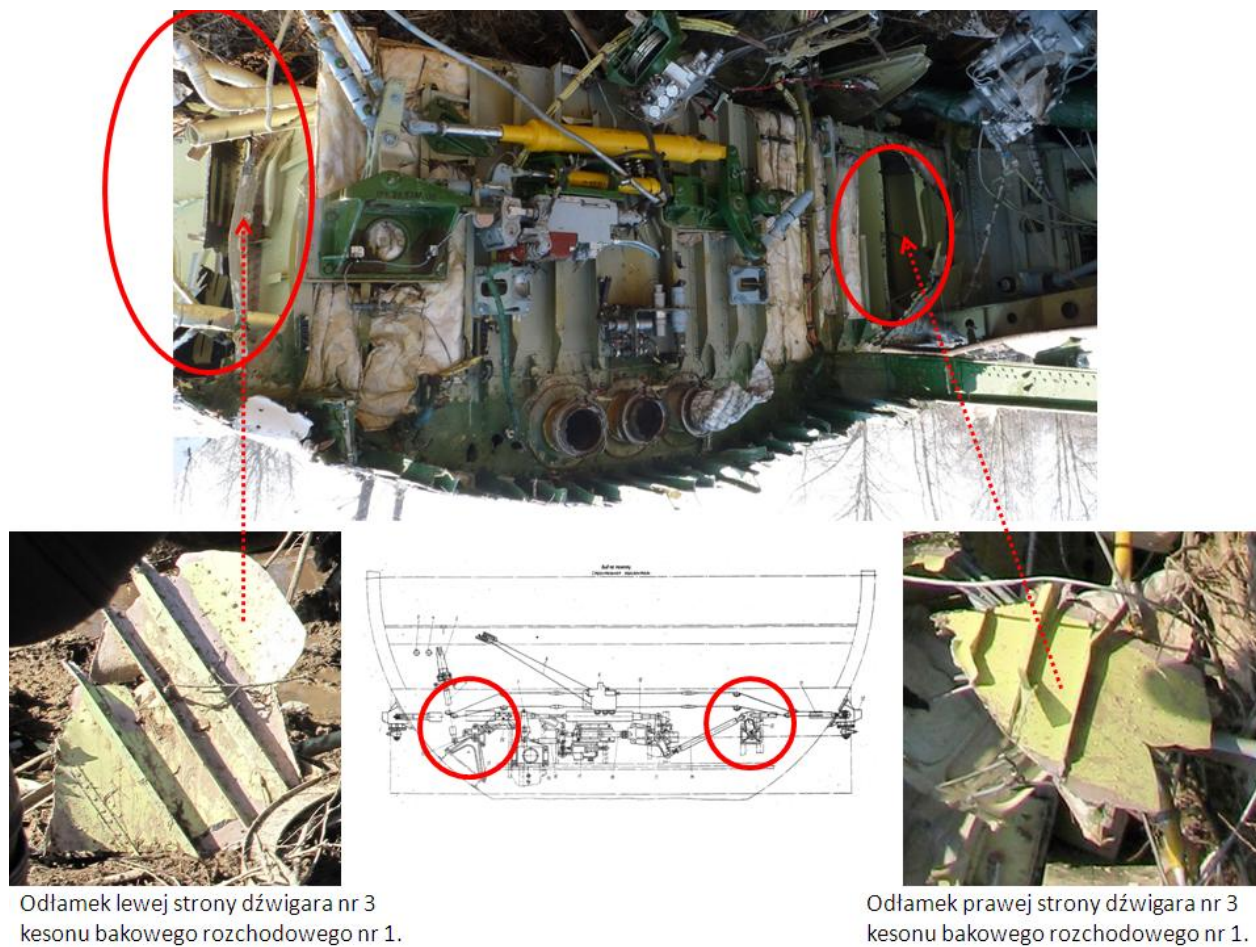


Fig. 40 Pieces of the left and right side of spar no.3 of fuel box no.1.

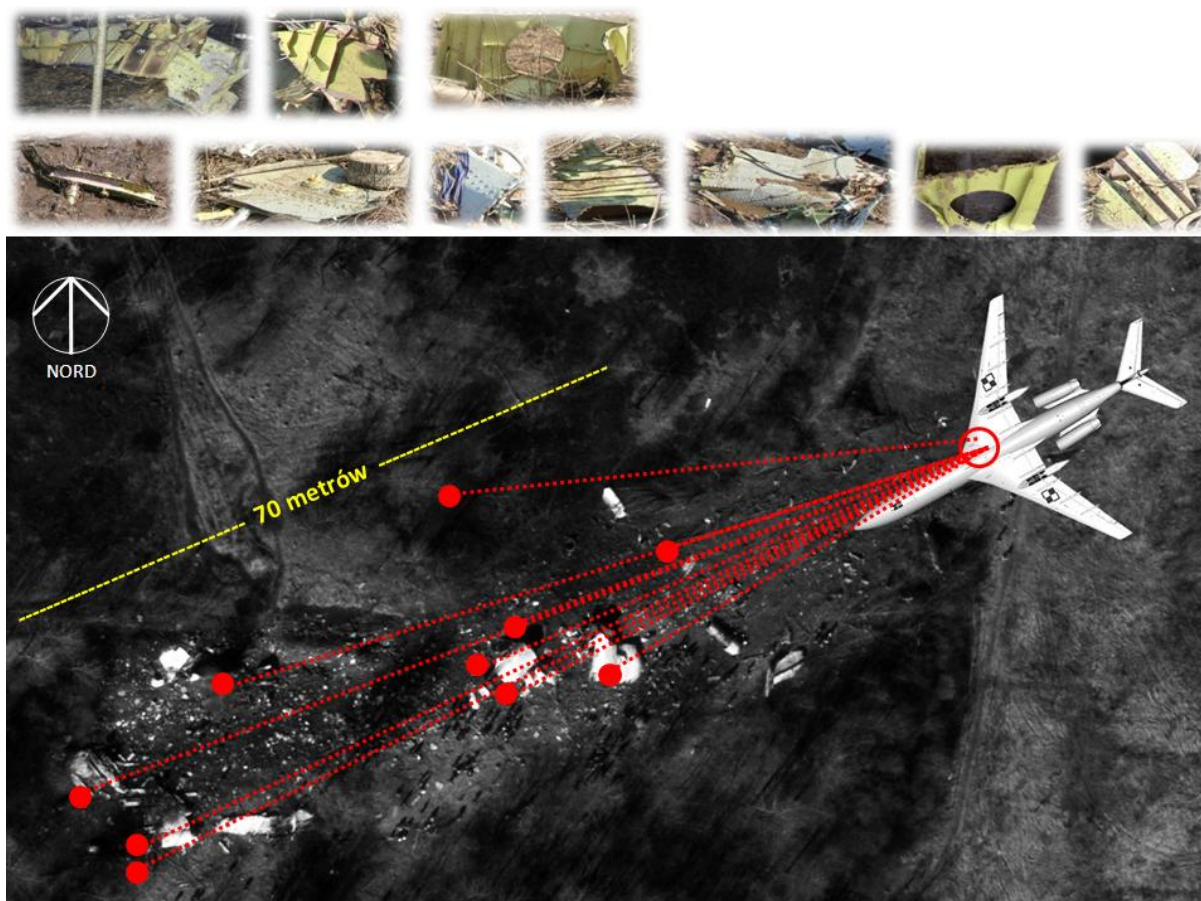


Fig. 41. General dispersion of the pieces of the centerwing on the crash site with the distance and place where the most important pieces fell.

The torn off pieces of the rear spar No.3 of fuel box No.1 of the central part of the center wing.

The torn off pieces of the rear spar no.3 of the fuel box no.1 of the central part of the center wing confirms the theory that the destruction was a result of an explosion and not a hydraulic impact to its front wall during the fall of TU154M to the ground.

The explosion of the ballast box (Fig. 42) was the main reason for the destruction of TU154M a moment before it hit the ground. The destruction, which took place, destroyed the box, meaning the fragment of the left part of the center wing together with the front spar and destroyed soothed ribs. This spar flew and landed 70m to the west. The explosion destroyed the third salon, killing all the occupants and distributing those parts on the entire crash site. At the same time the detonation wave blew away the left passenger door (2L), which were rammed into the ground with huge force, one meter deep. The galley and thousands of its pieces were dispersed over 1/3 of the crash site area. The detonation wave, heading in the

direction of the tail, destroyed this part of the fuselage and curled the left and right side of the plane together with the roof outwards. The floor panel, which is torn off alongside the left side of the airplane provides evidence for the direction of the blast wave.

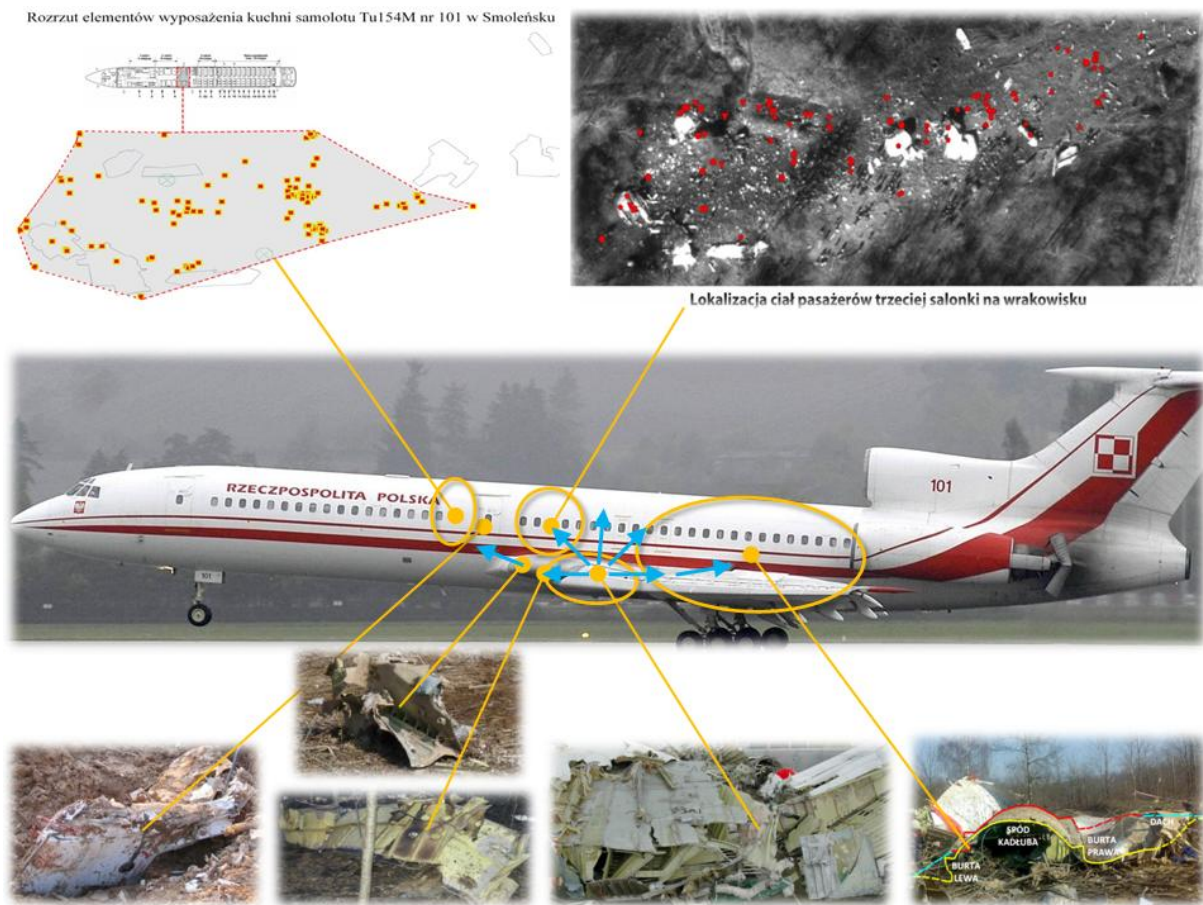


Fig. 42. The effects of the explosion of the ballast tank caisson. From the left of the top picture: galley area, left passenger door no 2. (823), third salon, fragments of the left part of the center wing, passenger compartment. The bottom left picture shows the left door rammed into the ground. The bottom right picture shows the rear fuselage after the crash with both sides opened outwards.

Main crash site

An overview of the main crash site can be seen in Fig. 43.

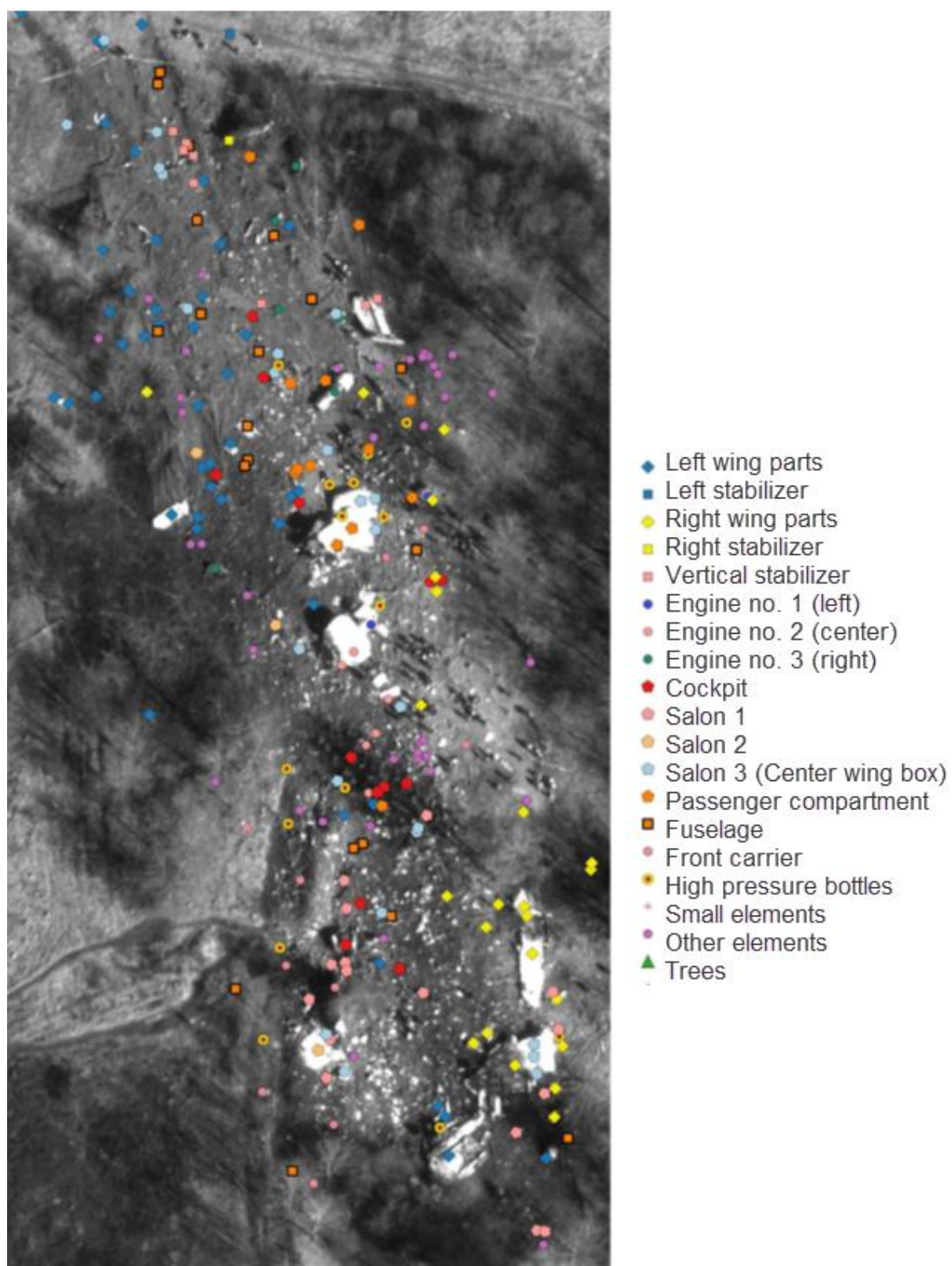


Fig. 43. Dispersion of part of the aircraft on the wreck. Study of the Committee. The direction of the flight is from the top left corner and down towards the bottom right corner.

The TU154M aircraft disintegrated into more than 60,000 pieces. The majority of the elements were rammed into the ground, and though located, they were never extracted. 10,000 pieces were collected 6 months after the crash. Up until the present day the number of elements that were in the ground was not calculated and were not collected when the debris was put at the debris storage place.

Source: report of the archeologists, materials of the Committee

The main crash site is 45mx160m, which means that the movement of the aircraft in this area, with its total destruction, happened in a distance corresponding to 3 lengths of the plane. The plane's impact on the ground happened in the reverse position to the aircraft, which is visible based on the dispersion of pieces of the left and right wing at the crash site. Indentations were observed in the ground at the place of the crash but without a deep crater. On the entire crash site there is no trace of a strong impact of the fuselage in the ground. All the seats were totally destroyed, meaning that the seating part, back lean, armrest, frame lay separately. Apart from the front part of the fuselage between the nose and the beginning of the center wing, pieces from the right side of the plane were found mainly on the left side of the crash site, and pieces from the left side of the plane were found mainly on the right side of the crash site.

Source: Analysis of pictures and videos made by the Committee

The part of the fuselage between the center wing and the tail was found in an upside down position with both sides of the plane curled outwards. Studies by Sandia laboratories in the US and simulations done at Akron University show that this can happen when the fuselage is exposed to a high internal pressure in mid-air. The side of the plane curled outwards was cut the day after the crash by the Russian services.

Source: Analysis of pictures from the materials of the Committee. Materials from Sandia National Laboratories in the USA.

Some parts of the aircraft from the front of the fuselage between the front and the center wing were found at the main crash site in the normal position (as for landing). In sector 2 and 3 these were: a part under the cockpit (technical compartment no. 1), the right side of the Salon No. 1 and No. 2, the first luggage compartment and the compartment of the first main chassis together with the front chassis. The part with the salons No. 1 and 2 was set up in the opposite direction to the flight path of the aircraft.

Source: Analysis of own pictures and materials of the Committee

Parts of the passenger fuselage

Destruction of part of the fuselage with both sides of the plane opened and a corresponding reconstruction show an explosion in the fuselage, when the plane was in the air. Below: parts of floor panels with characteristic, explosive destruction of the panel being close to the left side of the plane and a corresponding reconstruction.