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NATIONAL TRANSPORTATION SAFETY BOARD
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FIRE AND EXPLOSION GROUPS FACTUAL REPORT
Addendum 1
Addendum to the Fire Factual

TWA FLIGHT 800 ACCIDENT INVESTIGATION

FIRE AND EXPLOSION

ADDENDUM 1

Addendum to Fire and Explosion Group Report

9/11/97

1. This addendum section applies to Section 4.2, Center Wing Section Upper Skin CW1XX Series.

CW114	Z3028	Upper Surface Close inspection of the upper surface of this piece indicates that the splatter pattern may be overcoated with soot/dirt. Protruding rear facing surfaces have heavier deposits indicating forward flow. The support structure for seat tracks that is fastened to CW114 has splatter on the outboard side and the stiffeners on the support have heavy accumulation of soot/splatter on the rear facing surfaces. There is no splatter pattern on the inboard side of the seat track support structure. See Section 15.2 which addresses floor panels, and indicates there is no evidence of a pre-existing fire that would melt urethane foam on the floor panel lower surfaces to provide a source for this splatter.
CW164	W4013	This piece forms the forward left hand corner of the upper center wing skin. It extends from the S-30 to the front spar, and from ~ LBL 88 to the left side of body rib. The current (9/11/97) green source tag indicates 6581-156,157. The back side of this tag indicates 11/8/96-15. The structures book notes (created 11/8/96, signed off Feb/March 97) indicate that it has orange tag W2001, source tag 6581, and had once been called CW136. Upper Surface The upper surface is clean except for the inboard side. There are splatter marks, but not as heavy, as are recorded on the upper surface of CW114. Protruding rear-facing surfaces on the inboard side have heavier splattering deposits. The splattering shows of having been deposited in a forward flow manner. There is an area of discontinuity in the splatter pattern between CW164 and CW114, but there is no splatter or soot on the fracture surfaces of these two pieces. See Section 15.2 which addresses floor panels, and indicates there is no evidence of a pre-existing fire that would melt urethane foam on the floor panel lower surfaces to provide a source for this splatter.

		Lower Surface The lower surface has a very light coating of soot/dirt which darkens moving aft and inboard. There are light blackish tails pointing inboard from the fastener heads at LBL 98 between S-31 and the front spar. These tails are about 2 inches long at S-31 and progressively shorten to about ½ inch at the front spar. It is not clear that they are soot or some other dirt-like material and are the result of "wiping" that occurred prior to recovery. Fracture Surfaces All fracture surfaces are clean.

2. This addendum section applies to Section 4.13, Center Wing Tank Keel Beam, and to Section 13, Air Conditioning Equipment.

Air Conditioning Bay (ACS) Area, R/H Side.

The vapor barrier that separates the air conditioning bay from the landing gear bay on the right hand side showed extensive thermal damage on the aluminum and composite structure. The aluminum webbing on the forward, lower, and top sides is missing and the edges are white indicating exposure to high temperature. The fiberglass facing on the landing gear side is not thermally damaged on the outboard section. Further inboard the binder has been burned out of the fiberglass in the area of an air conditioning air duct that passes through the barrier. The red rubber boot (probably silicone) that seals the opening for the air duct in the barrier is still pliable.

There is slightly heavier sooting on the keel beam forward of the intersection with the Gear Bay/ACS vapor barrier than there is aft of that intersection.

3. This addendum section applies to Section 14, Lower Access Doors and Fairings

Portions from the fairing panels which enclose the Air Conditioning Equipment Bay were recovered. These panels are located between FS 987 to FS 1236 and LBL 104 to RBL 104, and were laid out in their relative positions on the floor of the hangar. The panels were examined for evidence of exposure to a fire while the fairing pieces were in the installed (prior to separation from the aircraft) condition. While some of the interior/upper surfaces of these panels did have dark soot/grime deposits, the distribution of this material indicated that it was the result of in-service deposition, rather than as a result of an in-flight fire. This conclusion is further supported by the lack of any thermal damage to these panels on these surfaces.

4. This addendum section applies to Section 13, Air Conditioning Equipment

The primary and secondary plenum chambers on the inboard side of the No. 2 ACM heat exchanger unit have been crushed. These chambers have considerable soot–like discoloration which, if the chambers were in their original design shape, would be on their lower circumferences. Additionally, uniform soot-like discoloration is on the inboard side of this heat exchanger's lower flange, and extends from the forward inboard corner to the aft inboard corner. No soot or discoloration is evident on the remaining forward, outboard, or aft lower flanges.

5. This addendum section applies to Section 15.2, Floor Panels

Replace the second paragraph in Section 15.2, which reads,

Most of the floor panels over the center wing fuel tank are not included in this reconstruction. Of those that are present, very few show any evidence of fire damage or sooting.

with this paragraph.

Some of the floor panels over the center wing fuel tank were identified and are included in a reconstruction. Floor panels over the center wing fuel tank and wheel well (STA 980 - 1500) have a layer of polyurethane foam bonded to the lower surface for thermal insulation purposes. Very few of the panels in the reconstruction show any evidence of fire damage or sooting. There is no fire damage to any of the foam that shows evidence of a fire while the panels were in place.

6. This addendum section applies to Section 4.3, Center Wing Tank Lower Skin CW2XX.

CW216	C-2148	On the lower surface, an area slightly less than 100 square inches at the forward edge inboard of the keel beam mounting pad is completely unsooted. Immediately adjacent to this area, on the left outboard side of the keel beam mounting pad, moderate sooting is evident.

7. This addendum section applies to Section 8, Left Fuselage.

Replace the last sentence in LF6, which reads,

There is apparent heat damage to the aluminum attachments for the wing-to-body fairing, and the enamel is blistered and bubbled.

with following:

There is blistering/bubbling of the enamel which may be due to thermal effects or to solvent action such as hydraulic fluid.