iestroyed Pan Am 747

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The nose section of Pan Am 747 Clipper Maid of the Seas fell three miles short of the main body of wreckage

Bombc
Traces of explosive on parts of a
metal luggage pallet framework
recovered from* the wreckage
of the Pan American World
Airways 747 which crashed on
the Scottish town of Lockerbie
on December 21, killing 270
people, indicate that the aircraft
was destroyed by a bomb.
US airlines serving points in
Britain have been advised to
step up security measures. Late
last week consideration was
being given to increasing
vigilance on all international
flights by US carriers. The
moves follow a detailed exami-
nation by British scientists of
debris from the accident, which
involved a Frankfurt-London-
New York flight.
According to the UK Depart-
ment of Transport's Air Acci-
dents Investigation Branch
(AAIB), two parts of the pallet
framework "show conclusive
evidence of a detonating high
explosive. The explosive's resi-
dues recovered from the debris
have been positively identified,
and are consistent with the use
of a high-performance plastic
explosive."
The AAIB says it has yet to
establish the nature of the
explosive device, its location in
the aircraft, and the sequence of
events immediately following
its detonation.

Bomb suspected
A terrorist bomb was imme-
diately suspected when the Pan
Am Boeing 747-121 (regis-
tration N739PA) disintegrated
at high altitude, its wreckage
falling on and around the town
of Lockerbie in southern
Scotland, just after 1900 local
time on December 21. All on
board (16 crew and 243
passengers) were killed, and 11
people on the ground died.
Evidence collected by the
AAIB, including that from the
flight data recorder and cockpit
voice recorder and from the
wreckage trail on the ground,
suggests that the explosion
occurred soon after flight
PA103 crossed the Scottish
border and while cruising at
31,000ft. Primary radar tapes
reportedly show the aircraft
breaking into five sections.
Major parts of the aircraft were
still missing late last week.
AAIB investigators found no
evidence of structural failure,
which had initially been feared,
given the 747's age.

The aircraft, Pan Am's
seventh 747, entered service in
February 1970, less than a
month after the type began
transatlantic services. It was the
15th 747 off Boeing's prod-
uction line and had flown
72,000hr and logged 16,500
flight cycles.
In 1987 the airline "had the
aircraft modified for service
with the Civil Reserve Air Fleet
(CRAF)—a fleet of large civil
aircraft upon which the US
military can call at a time of
national emergency. At the time
this structural strengthening
work was done, the full "Section
41 job" was also carried out,
according to Pan Am.
The latter work, carried out
on the part of the aircraft which
includes the flightdeck "bulge"
(Section 41), was ordered by the
US Federal Aviation Adminis-
tration in 1986 as one method of
dealing with the threat of
fatigue cracks in that area;
cracks which had been discov-

ered in some older 747s during
maintenance. The other FAA-
approved method, for 747s with
more than 8,000 flight cycles,
was inspection for cracks every
3,000 additional cycles. With
this particular airframe Pan Am
had elected to go for the full
Section 41 rework.
The CRAF modification
does not involve beefing up the
whole airframe: a side-loading
cargo door is installed, and the
main deck and deck-mountings
strengthened to enable
armoured vehicles to be carried
if required. The work was
carried out at Boeing's Wichita
workshops.
Wreckage and bodies from
the aircraft were initially
reported to be in six main and
widespread locations. Most of
the wreckage fell to the east of
the A74 Glasgow-Carlisle road
(see map), stretched over a six-
to-eight-mile east-west path
about a mile wide.
Th e front fuselage section,

containing little more than the
flightdeck, was surprisingly
intact, and fell about three miles
short of the other wreckage.
When those aircraft sections
which came down on Lockerbie
hit the ground they demolished
many houses and other build-
ings, struck cars and set them
alight, and caused at least one
large crater.

Warning received
Warning of a threatened bomb
attack against a Pan Am flight
from Frankfurt to the USA had
been given more than two
weeks before the December 21
accident.
US Embassy staff in Moscow
were advised by the Federal
Aviation Administration that,
on December 5, an unidentified
caller had notified the US
embassy in Helsinki of an
impending attack. However, the
message said that the attack
would happen within two weeks
(before December 20).

2 FLIGHT INTERNATIONAL, 7 January 1989