

No: 8/84

INCIDENT

Ref: EW/C868

Aircraft type and registration: Boeing 747-135 N621US (Multi-Jet Public Transport Aircraft)

Year of manufacture: 1970

Date and time (GMT): 30 April 1984 at 1310 hrs

Location: London Gatwick Airport

Type of flight: Scheduled Passenger

Persons on board: Crew — 17 Passengers — 162

Injuries: Crew — Nil Passengers — Nil

Nature of damage: No. 9 tyre burst. Landing gear door stay damaged

Commander's Licence: Airline Transport Rating (USA)

Commander's Age: 58 years

Commander's total flying experience: 24000 hours (of which 6000 were on type)

Information Source: AIB Field Investigation

Circumstances

The flight was scheduled from Hamburg to Minneapolis (USA) via London Gatwick Airport and it arrived at Gatwick at 1150 hrs. Following a one hour turn round, at 1310 hrs it began its take-off roll on runway 08. The wind was 080°/10 kt with unlimited visibility and a temperature of 10°C.

During the roll another aircraft, positioned at runway access point Delta, (see Dia.) noticed N621 shedding rubber from the fuselage landing gear tyres and reported it to Air Traffic Control (ATC). ATC relayed this to N621 and declared a 'ground incident', thereby activating the Airport Fire Service.

The aircraft had achieved an indicated speed of 110 kt when the commander, hearing the transmission by the other aircraft, abandoned the take-off. N621 slowed to taxiing speed and turned off the runway at point Charlie, where a fire vehicle had just arrived in order to attend to a possible brake fire. There was considerable smoke from the hot brakes but no fire occurred.

It was the opinion of the aircraft commander that the position of the fire vehicle required him to stop the aircraft before it was clear of the runway protected area. As a result of using the parking brake some of the heat-soaked brakes locked on. It was not possible to move the aircraft, and thus fully re-open the runway until 1530 hrs. During this period the passengers were taken by coach to the terminal building.

Damage to the Aircraft

It was found that a tyre-burst had occurred on the number 9 wheel, i.e. the front inboard unit on the right hand fuselage gear. This wheel, together with its axle-mate had to be changed with the aircraft still parked on the taxi-way, the brake packs associated with these wheels having seized.

Flailing portions of tread had caused the failure of the inner door retraction strut, and had heavily marked the sidestay. In addition it was found that the No. 3 engine fan thrust reverser had become locked in the reverse thrust position, and that the nosewheel uplock switch had short-circuited. It was not clear how tyre debris could have caused the latter two defects, and it was eventually concluded that they were unrelated incidents.

Subsequent Investigation

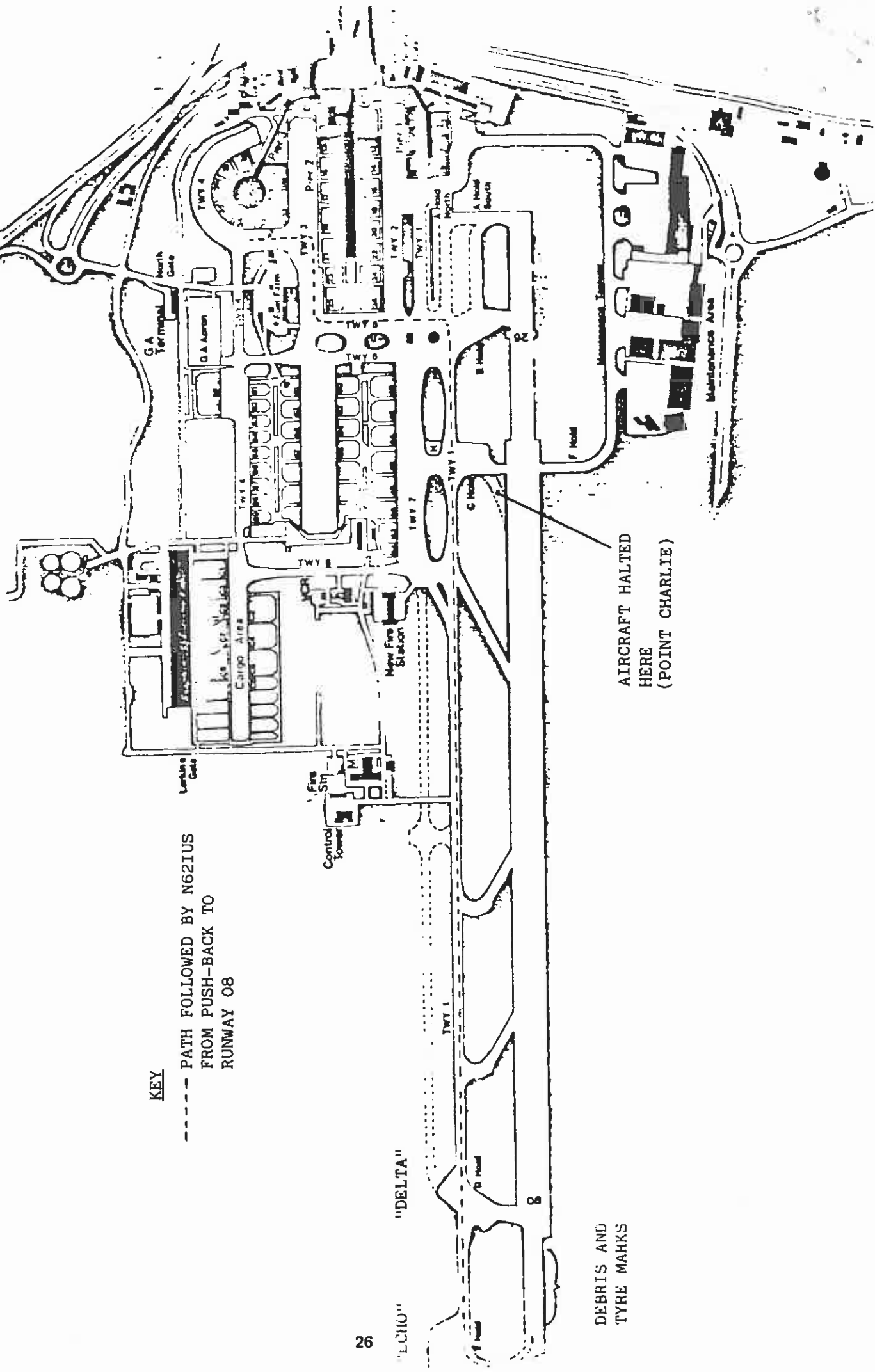
(a) Fuselage undercarriage steering gear

Following the wheel changes on the taxiway, the aircraft was towed back to the stand. During this time, the ground crew observed that the right hand fuselage undercarriage was not steering when the aircraft was turning to the left. This was confirmed by scuff marks on the treads of the newly fitted tyres. Considerable scuffing was also evident on the tyre of the wheel removed from the same axle as the burst tyre indicating that the steering problem existed before the take-off attempt. Accordingly, the steering gear was deactivated for the flight to Minneapolis, where an airline investigation confirmed the existence of a short-circuited position feed back transducer on the inboard actuator of the right hand fuselage undercarriage.

(b) Tyre break-up

Marks on the runway indicated that the tyre had started to break up between the 'Echo' and 'Delta' holding points, i.e. during the first few hundred feet of the take-off roll. Examination of the tyre debris indicated that the failure was a shoulder blow-out, resulting in most of the carcass remaining on the wheel. Pronounced wrinkling on the inner liner was indicative of the tyre being taxied in a low pressure condition prior to failure, although it could not be established when this had occurred. The ground crew reported checking the tyre pressures at 215 psi prior to push-back; thus in view of the defect subsequently confirmed on the steering gear, it is conceivable that tyre deflation could have occurred during a left turn on the 2½ mile taxi to runway 08 prior to the take-off roll.

INCIDENT TO B747-135 N62IUS AT GATWICK ON 30.4.84



KEY

--- PATH FOLLOWED BY N62IUS
FROM PUSH-BACK TO
RUNWAY 08

AIRCRAFT HALTED
HERE
(POINT CHARLIE)

"DELTA"

DEBRIS AND
TYRE MARKS