

**INCIDENT**

<b>Aircraft Type and Registration:</b>	Fokker 70, G-BVTE	
<b>No &amp; Type of Engines:</b>	2 Rolls-Royce Tay 620-15 turbofan engines	
<b>Year of Manufacture:</b>	1995	
<b>Date &amp; Time (UTC):</b>	1 January 1996 at 1953 hrs	
<b>Location:</b>	East Midlands Airport, Derbyshire	
<b>Type of Flight:</b>	Public Transport	
<b>Persons on Board:</b>	Crew - 6	Passengers - 68
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	None	
<b>Commander's Licence:</b>	Airline Transport Pilot's Licence	
<b>Commander's Age:</b>	43 years	
<b>Commander's Flying Experience:</b>	8,657 hours (of which 80 were on type) Last 90 days - 21 hours Last 28 days - 12 hours	
<b>Information Source:</b>	AAIB Field Investigation	

**History of the Flight**

The aircraft was on a scheduled flight from Amsterdam to East Midlands Airport. The airfield forecast for the expected approach time was surface wind 050°/04 kt, visibility 200 metres in fog and overcast at ground level. Before starting the descent, the commander, who was the handling pilot for this sector, briefed the first officer for a Category IIIa approach and landing on Runway 27. Both pilots had converted to the Fokker 70 in August 1995 from an earlier generation aircraft which did not have an autoland capability. The briefing included the weather minima for the approach, with a decision height (DH) of 50 feet and a runway visual range (RVR) of 200 metres, and that it was to be a fully coupled automatic approach and landing. East Midlands Airport was cleared by the CAA to Category III status in November 1995 and one of the conditions imposed for this status was that the runway exits 'C' and 'D' are not to be used during Category III operations and the lead off lights for these exits must be switched off (see aerodrome chart at Figure 1). As these two runway exits were not to

be used and therefore the aircraft must leave the runway at the upwind end, the commander briefed that reverse thrust would not be used. The Operations Manual (Flying) for this aircraft states that idle reverse thrust must be used for all landings.

The descent and approach that was flown under the instructions of ATC was unhurried and the aircraft became established on the extended localiser at 17 miles and 3,000 feet; shortly afterwards the flight was cleared to 2,000 feet. At 8 miles it was cleared by ATC to descend on the ILS and it proceeded to carry out a fully coupled automatic approach and landing using 42° flap at an estimated landing weight of 34,600 kg. Speed control by the auto thrust system was accurate at the planned approach speed of 127 kt and the aircraft touched down abeam the Precision Approach Path Indicator (PAPI), in the correct touchdown zone and approximately one metre to the left of the runway centreline.

Speedbrakes were deployed almost immediately after landing, having been activated by wheel spin-up of the main undercarriage. The aircraft continued along the runway, directional control being maintained by the autopilot rollout mode. The crew's attention at this time became focused on the accuracy with which the aircraft continued to track the runway centreline, to the exclusion of its speed and position relative to the end of the runway. Required calls at 80 kt and 60 kt were omitted during the landing roll. When the airspeed reached 67 kt the commander gently commenced light braking. It was the crew's experience that the carbon brakes had a tendency to snatch on initial application causing the aircraft to deviate from the runway centreline. The aircraft was not fitted with an autobrake system. The autopilot was then disconnected and directional control assumed by the commander. Seven seconds later both pilots observed that the aircraft was rapidly approaching the end of the runway and moderate braking was applied, however it failed to prevent the aircraft overrunning the paved area and travelling a distance of 35 metres over the grass. Nosewheel steering was used in an attempt to turn the aircraft during the overrun and, after it had turned through 40° from the runway centreline, the nosewheels sank into the soft ground and the aircraft came to a standstill.

The aircraft was undamaged by the overrun and the engines were shut down with the Auxiliary Power Unit (APU) running. As there was no risk of fire, the passengers remained on board until ground transport arrived; they then left the aircraft normally using the forward left cabin door which is an integral airstair.

### **Meteorological Information**

At the start of the approach, the broadcast airfield weather information was ATIS information 'X' which had commenced transmission at 1919 hrs. At 1940 hrs this gave...."Runway in use 27, wind 050°/4 kt, visibility 300 metres in fog, vertical visibility 100 feet, temperature +2, dewpoint +2, QNH 1003. Low visibility procedures are in force; every alternate row of touchdown zone lights are unserviceable and runway exits C and D are unavailable."

The Instrument Runway Visual Range (IRVR) was given by the Approach controller as 800, 600 and 700 metres respectively. At 1947 hrs, this was amended to 750, 600 and 650 metres. Although this was better than CAT I limits, the approach was continued using the CAT IIIa minima of 50 feet decision height and 200 metres RVR in accordance with the approach briefing.

With a rollout RVR of 650 metres, the first centreline red light would have been visible at a distance of 1,550 metres, from the upwind end of the runway, ie, the RVR plus the distance of the first red light from that runway end. The total runway length at East Midlands Airport is 2,280 metres (7,480 feet). Neither pilot could subsequently recall seeing any red lights prior to observing the end of the runway.

## **Performance**

Using the published landing data for Runway 27 at East Midlands airport, ie, threshold elevation 280 feet, slope 0.33 UP, and taking into consideration the actual wind of 050°/4 kt, which is equivalent to a 3 kt tailwind component, the landing distance required for the F70 at a weight of 34.6 tonnes is 4,638 feet. To this distance must be added an increment of 2,050 feet for an automatic landing, resulting in a total landing distance required of 6,688 feet. The landing distance available on Runway 27 is 7,480 feet. The maximum allowable landing weight for the runway is 36,740 kg which is also the maximum structural landing weight for the aircraft.

## **Aircraft Standard Operating Procedures (SOP)**

The following items are extracted from the airline's Operations Manual as being of particular note when carrying out automatic landings:

1. 'ATS (auto thrust system) will automatically retard the thrust levers to idle at 50 ft and will disengage upon touchdown.'
2. 'Upon touchdown of the main landing gear, pull the reverse levers to idle reverse position, lower the nose wheels, and apply reverse thrust as required.'
3. 'After nose wheel touchdown, apply brakes as required. 'Aerodynamic' braking is not recommended.'
4. 'The PNF calls "Reverse", "80 kts", "60 kts".'
5. 'Reduce to idle reverse not later than 60 kts.'
6. 'When reaching taxi speed, select forward idle thrust and disconnect autopilot.'

Items 2, 3, 4 and 6 were not complied with on this occasion.

## **Engineering Aspects**

Tyre marks associated with the aircraft could be identified over only the final 10 metres of the runway surface. They showed that the aircraft had diverged by about 5° to the left of the runway heading as it left the runway but showed no sign of skidding and were not considered to be indicative of scalding from aquaplaning. There was no sign of any cycling of the anti-skid system.

No significant defects were recorded in the aircraft's Technical Log or in the Central Fault Display Unit. Functional checks carried out on the reversers, spoilers and anti-skid system revealed no malfunctions. Brake pack wear was in the middle of the usable range and the tyres were in good condition and correctly inflated. The only anomaly found was that one tyre (No 4) had two small areas of very light damage of a type which might indicate the melting or reversion which is associated with aquaplaning.

## **Safety Recommendation**

**96-5:** It is recommended that the CAA should amend the requirements for Flight Crew Training for low visibility operations as laid down in CAP 359 to ensure that during the simulator phase of all such training, all landings are continued to the completion of the rollout phase with subsequent clearing of the runway onto a designated taxiway. In addition consideration should be given to the utilisation of a suitably limiting runway length for such training.

EAST MIDLANDS

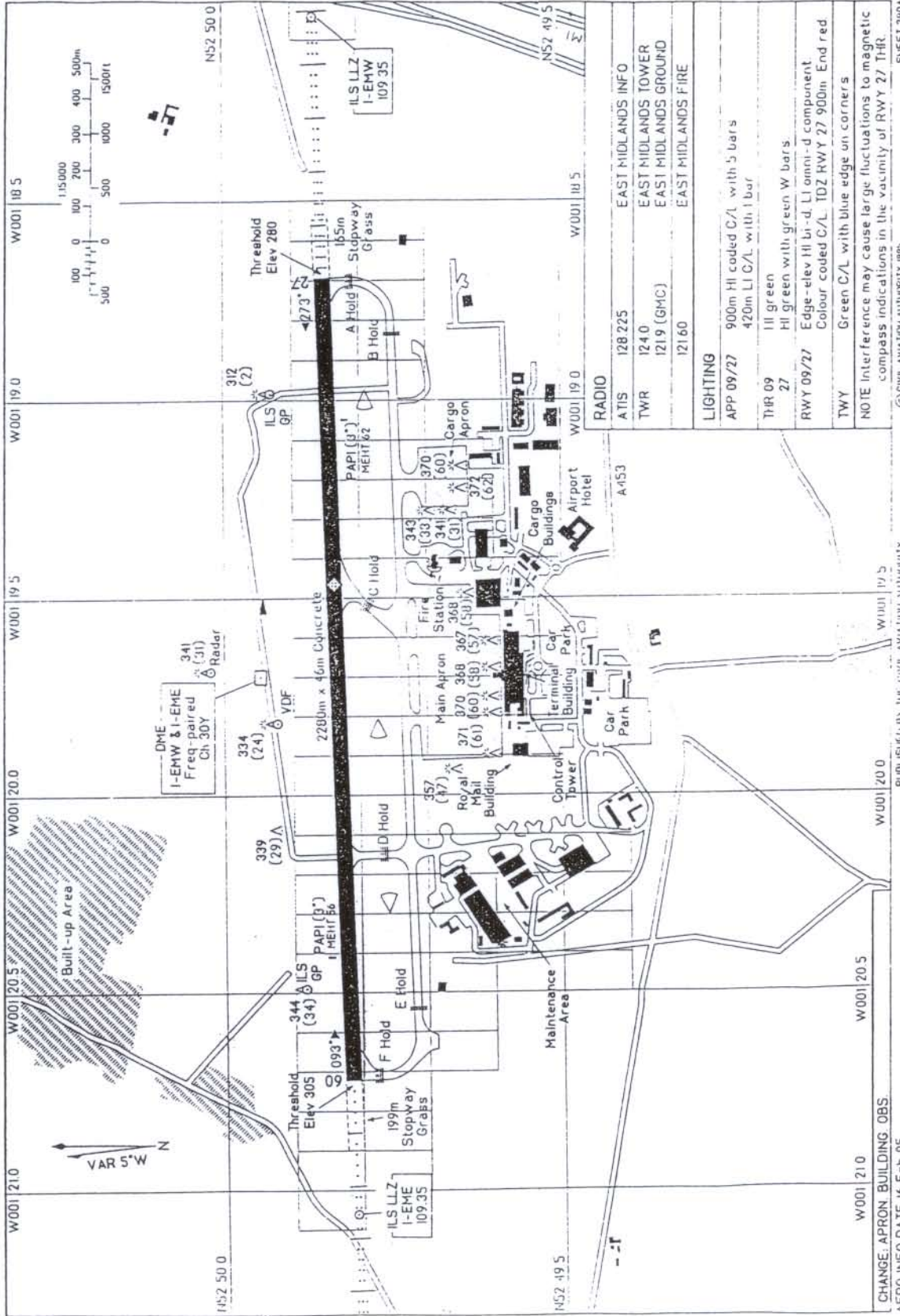
EAST MIDLANDS  
EGNX

N52 49.85  
W001 19.47

ELEV 310FT

INS DA LUM: 056036  
BEARINGS ARE MAGNETIC  
ELEVATIONS IN FEET AMSL  
HEIGHTS IN FEET ABOVE AD  
372  
(62)

AERODROME  
CHART - ICAO



RADIO	
ATIS	128 225
TWR	124.0
	121.9 (GMC)
	121.60

LIGHTING	
APP 09/27	900m HI coded C/L with 5 bars 420m LI C/L with 1 bar
THR 09	27
	III green HI green with green W bars
RWY 09/27	Edge-elev III bi-d, LI omni-d component Colour coded C/L IDZ RWY 27 900m End red
TWY	Green C/L with blue edge on corners

EAST MIDLANDS INFO	
	EAST MIDLANDS TOWER
	EAST MIDLANDS GROUND
	EAST MIDLANDS FIRE

NOTE Interference may cause large fluctuations to magnetic compass indications in the vicinity of RWY 27 THR.  
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CHANGE: APRON, BUILDING, OBS.  
 AERO INFO DATE 16 Feb 95

SHEET 7904

Figure 1