
Low fuel, Lockheed L-1011 Tristar, C-GTSB

Micro-summary: This Lockheed L-1011 experienced a low-fuel situation requiring a diversion.

Event Date: 1998-09-12 at 1117 UTC

Investigative Body: Aircraft Accident Investigation Board (AAIB), United Kingdom

Investigative Body's Web Site: <http://www.aaib.dft.gov/uk/>

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Lockheed L-1011 Tristar, C-GTSB

AAIB Bulletin No: 6/99 Ref: EW/C98/9/1 Category: 1.1

Aircraft Type and Registration: Lockheed L-1011 Tristar, C-GTSB

No & Type of Engines: 3 Rolls Royce RB211-22B-02 turbofan engines

Year of Manufacture: 1975

Date & Time (UTC): 12 September 1998 at 1117 hrs

Location: Diverting to London Stansted Airport

Type of Flight: Public Transport

Persons on Board: Crew - 13 - Passengers - 299

Injuries: Crew - Nil - Passengers - Nil

Nature of Damage: Nil

Commander's Licence: Airline Transport Pilot's Licence

Commander's Age: 55 years

Commander's Flying Experience: 24,618 hours (of which 1,518 hours were on type)
Last 90 days - 130 hours
Last 28 days - 69 hours

Information Source: AAIB Field Investigation

History of flight

Following a flight from Toronto, C-GTSB landed at Glasgow Airport at 0826 hrs. A fresh crew took over for the next flight to London Gatwick Airport and uplifted 10,400 litres of fuel to give a total on board of 30,800 lb. Using the callsign TSC 267, the commander taxied off stand at 0952 hrs and took off at 1007 hrs.

On arrival in the Gatwick area at 1100 hrs, TSC 267 was instructed to take up the 'Willo' hold at Flight Level (FL) 110 and was initially informed that the delay would be around 15 minutes. Then, at 1104 hrs, the crew asked for confirmation of the delay and informed the controller that they would have to divert if it was too long. The controller acknowledged their request and asked them to standby while he checked. At 1106 hrs, he informed TSC 267 that their expected approach time was 1134 hrs. The crew replied that they could not accept that delay and that they would have to divert to Stansted. This message was acknowledged by the controller and, while he was co-ordinating the diversion, he instructed TSC 267 to maintain the aircraft's present heading of 270°.

Shortly afterwards, TSC 267 was turned right onto 360° and then transferred to London Control (Biggin Sector) at 1109 hrs.

On check-in with London Control, TSC 267 was turned right onto 055° and the crew advised the controller that they would like to land at Stansted "as fast as possible". The controller confirmed that he was giving them vectors to Stansted and then transferred TSC 267 to London Control (Northwest Departures) at 1112 hrs. On the new frequency, the crew established radio contact and asked the controller to confirm that there would be no delay going into Stansted. The controller informed TSC that there was no delay and that they were "currently number two for Stansted". Then, at 1117 hrs the crew asked for descent. When they were instructed to maintain altitude for a short time, the crew informed the controller that they were now requesting priority on landing as they were getting low on fuel. The controller asked TSC 267 if they wished to declare a Mayday for fuel shortage. In response, the crew asked for information on the estimated time before they would be landing. When they were informed that they had 40 track miles to touchdown, the crew requested a shorter track as they estimated their distance from Stansted to be 24 miles. The controller then advised TSC 267 that the surface wind at Stansted was 270°/06 kt and asked if they like to land on Runway 05 (landing runway at the time was Runway 23). When the crew replied in the affirmative, the aircraft was turned left onto 350°. Thereafter, TSC 267 was given a stepped descent and radar vectors for the ILS at Stansted and transferred though Essex Radar to Stansted Tower. Examination of the radio recording indicates that the aircraft landed at Stansted at 1128 hrs; the last surface wind report prior to landing was 250°/08 kt.

Company information

Examination of the aircraft documentation and discussions with the operating company revealed that TSC 267 landed at Stansted with 7,000 lb; this is the minimum landing fuel for the aircraft type detailed in the company operating manual and equates to 30 minutes flying time at 1,500 feet agl. Prior to departure at Glasgow, the aircraft had sufficient fuel on board to comply with company regulations. This comprised the trip fuel from Glasgow to Gatwick plus 5% contingency, alternate fuel based on Stansted, the 7,000 lb minimum and a standard taxi fuel of 1,500 lb. There was 940 lb of additional fuel carried to make a total fuel on board of 30,800 lb. If the flight went as planned, the crew would have the capability of holding for approximately 8 minutes without using diversion fuel.

The navigation plan showed a planned flight time of 54 minutes and a diversion flight time of 18 minutes; with the additional 8 minutes holding capability, the crew could land after 80 minutes with the minimum fuel of 7,000 lb. After 53 minutes, TSC 267 entered the hold at 'Willo' and 6 minutes later the commander made the decision to divert. It then took another 22 minutes before C-GTSB landed at Stansted even with an approach to the most optimum runway; the total flying time was 81 minutes.

ATC information

AIC 36/1998 dated 24 March 1998 states that "Pilots should also be aware that although every effort will be made to expedite their arrival, a call such as 'FUEL EMERGENCY' has no status in the UK and ATC cannot give priority to an aircraft with a shortage of fuel unless an emergency is declared". In the case of C-GTSB, following the crew's request for priority the controller asked the crew if they wished to declare an emergency. Thereafter, even though no emergency was declared, the controller was conscious of some tension from the crew's radio transmissions and he arranged an expeditious approach including a change of runway at Stansted. This change of runway resulted

in one UK registered aircraft being held off from his intended approach to Runway 23 and a further aircraft diverting to London (Luton) Airport. Additionally, the AFS at Stansted was brought to standby as a precautionary measure.

Within Canadian aeronautical regulations, there is provision for pilots to advise controllers of a minimum fuel state. Both pilots and controllers are aware that this is not an emergency situation but merely an advisory to indicate that an emergency situation is possible if any undue delay occurs.

Summary

The commander departed from Glasgow with fuel to hold for approximately 8 minutes in addition to his minimum requirements. On arrival in the Gatwick area, he had to decide whether to hold or to divert. He decided to divert to ensure that he landed with his company minimum fuel reserve. However, even though ATC accorded him a high priority including a change of runway at his diversion airport, the aircraft landed with minimum company fuel. This would indicate that the commander made the decision to divert too late or the diversion fuel calculation was too optimistic. The commander made his decision to divert after 59 minutes flying time and would have expected to be on the ground at Stansted in a further 18 minutes. This expectation was reasonable based on his navigation plan but the diversion flight time was longer than planned even though ATC accorded him an expeditious route. Therefore, the planned diversion fuel calculation was too optimistic.

When the commander realised that C-GTSB might land with less than his minimum company fuel requirement, he requested priority for his landing. Thereafter, ATC asked him if he wished to declare an emergency. However, the subsequent routing provided by ATC precluded the need for an emergency declaration. Nevertheless, this shortened route involved a change of runway at Stansted and disruption to two other aircraft.

Subsequent to the incident, an AAIB Inspector visited the aircraft parent company to discuss the incident. The company undertook to review their fuel policy to ensure additional fuel reserves when operating in high density traffic areas such as London; additionally, they would remind all their crews that the UK does not recognise the use of a fuel priority or fuel advisory call. It would also be appropriate for the regulatory authorities in Canada to remind all of their registered companies who operate into UK of this fact.

Recommendation 99-20 It is recommended that Transport Canada remind all of their air transport companies who operate into the United Kingdom that Air Traffic Control organisations within the United Kingdom do not recognise the declaration of a fuel shortage unless the crew declare a Mayday or a Pan call.