SERIOUS INCIDENT

Aircraft Type and Registration:	Airbus A319-111, G-EZDD	
No & Type of Engines:	2 CFM56-5B5/P turbofan engines	
Year of Manufacture:	2008 (Serial no: 3442)	
Date & Time (UTC):	25 August 2020 at 1529 hrs	
Location:	On descent towards Gatwick Airport	
Type of Flight:	Commercial Air Transport (Passenger)	
Persons on Board:	Crew - 6	Passengers - 64
Injuries:	Crew - None	Passengers - None
Nature of Damage:	None	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	30 years	
Commander's Flying Experience:	6,250 hours (of which 1,055 were on type) 3,155 hours as PIC (of which 1,055 were on type) Last 90 days - 27 hours Last 28 days - 27 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

On approach to Gatwick Airport the crew noticed a "wet sock" smell coming from the air conditioning vents in the cockpit and an "acrid smell" in the cabin. As a precaution both pilots donned oxygen masks and continued the approach to Gatwick. After landing the crew went to a local hospital for precautionary medical checks.

The cause of the smell was traced to oil contamination of the environmental air conditioning system.

History of the flight

Passing 6,000 ft in the descent to Gatwick Airport, the flight crew became aware of a strong "wet sock" smell coming from the cockpit air conditioning ducts. At the same time the cabin crew contacted the flight deck to alert them to "an acrid smell" in the cabin.

The flight crew donned their oxygen masks as a precaution and continued their approach for an otherwise uneventful landing. As a safeguard, the crew went to a local hospital for medical checks after the flight.

Aircraft examination

The aircraft had been the subject of three different '*Smell in Aircraft Reports*' (SIAR) in the previous three weeks:

- On 5 August engineers found evidence of a leak from the aircraft's Auxiliary Power Unit's (APU) drain mast and its oil cooler. These units were replaced and, after a '*pack burn off procedure*' to remove any remaining traces of oil, the aircraft was returned to service.
- On 12 August a further report was raised by flight crew but no fault was found during the Operator's standard SIAR fault finding procedure.
- On 13 August fault finding following a third SIAR found evidence of an oil leak from an APU gearbox plug. After the plug's O-ring had been replaced the aircraft was returned to service.

During the diagnosis for the incident event, the engineers found further evidence of oil leaks associated with other Line Replaceable Units (LRU) on the APU. After additional functional tests, it was decided to replace the APU, but the "oil smell" was still present. Suspecting downstream contamination of the environmental air conditioning system (ECS), nine components within the No 2 ECS were replaced. There were no further reports of SIC events between the aircraft returning to service and the conclusion of the investigation.

Medical

Two of the crew experienced "tight chests" and "tingling" fingertips during the fumes event but suffered no long-lasting effects. The commander reported that, on arrival at the local hospital, medical staff were not expecting them and did not have a specific fumes-related investigation protocol.

The Operator's policy for post-flight medical support following smell events is described in their '*Cabin Smell Event Care Pathway'* document. The Operator's expectation is that '*local medical procedures*' would be applied if immediate medical support is required, and they do not provide specific instructions to supporting facilities. If symptoms persist crews are referred to local occupational health services for ongoing support.

The UK CAA publish fumes event care pathway guidance documents on their website[1].

Other information

The Bureau d'Enquetes at d'Analyses report[2] into a fumes event aboard an Airbus A320 which diverted into Marseille-Provence airport concluded that implementing '*prior local arrangements*' between aircraft operators, airports and medical facilities could benefit the investigation of future cabin air quality events.

Footnote

[1] https://www.caa.co.uk/Passengers/Before-you-fly/Am-I-fit-to-fly/Guidance-for-health-professionals/Aircraft-Fume-Events [Accessed February 2021].

[2] https://www.bea.aero/les-enquetes/evenements-notifies/detail/incident-grave-de-lairbus-a320-immatricule-ec-hqj-et-exploite-par-vueling-survenu-le-17-11-2017-en-croisiere [Accessed January 2021].

Discussion

The cause of the “wet sock” smell was traced to oil contamination of the aircraft’s No 2 ECS system. The source of the contamination is likely to have been oil leaking from at least one of the APU’s LRUs.

While not a significant factor in the analysis of this incident, standardised medical protocols for assessing personnel experiencing cabin air quality events could help immediate treatment and provide supporting evidence to future investigations.