Loss of two ADIRUS, Airbus A320-200, I-BIKE

Micro-summary: **This airplane experienced the loss of two ADIRUS, resulting in the partial loss of flight info to the crew and a number of system inconveniences, all compounded by a go-around.**

Event Date: **2005-06-25 at 0740 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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INCIDENT

Aircraft Type and Registration:	Airbus A320-200, I-BIKE
No & Type of Engines:	2 CFM-56 turbofan engines
Year of Manufacture:	1999
Date & Time (UTC):	25 June 2005 at 0740 hrs
Location:	On approach to Runway 09L at London Heathrow Airport
Type of Flight:	Public Transport (Passenger)
Persons on Board:	Crew - 6 Passengers - 98
Injuries:	Crew - None Passengers - None
Nature of Damage:	Failure of No 1 and 3 ADIRUs
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	41 years
Commander's Flying Experience:	8,300 hours (of which 1,300 were on type) Last 90 days - 130 hours Last 28 days - 50 hours
Information Source:	AAIB Field Investigation

Synopsis

The aircraft had departed on a scheduled passenger flight from Milan to London Heathrow Airport, with an unserviceable No 3 Air Data Inertial Reference Unit (ADIRU). On final approach to Runway 09L at London Heathrow, in Instrument Meteorological Conditions (IMC), the Inertial Reference (IR) part of the No 1 ADIRU failed, depriving the commander (the pilot flying) of much of the information on his Primary Flight and Navigation Displays. ATC required the aircraft to go-around from a height of 200 ft on short final approach due to another aircraft still occupying the runway. The co-pilot, who had been handed control, performed the go-around and the aircraft was radar vectored for a second approach. The crew then turned off the No 1 ADIRU whilst attempting to diagnose the problem, contrary to prescribed procedures. As a result, additional data was lost from the commander's electronic instrument displays, the nosewheel steering became inoperative and it became necessary to lower the landing gear by gravity extension. The aircraft landed safely.

History of the flight

The history of the flight is derived from multiple sources, including data from both the Flight Data Recorder (FDR) and Cockpit Voice Data Recorder (CVR).

The flight departed from Milan Airport at 0547 hrs on a scheduled flight to London Heathrow Airport (LHR) with

the commander as the Pilot Flying (PF). The previous day, the No 3 ADIRU was found to be unserviceable and had been turned off; the Minimum Equipment List (MEL) allowed the aircraft to depart in this condition, as both the Nos 1 and 2 ADIRUs were serviceable. During the flight, as a precautionary measure, the commander and co-pilot reviewed the Flight Manual Abnormal Procedures for the actions to be taken in the event of a second ADIRU becoming unserviceable.

Following an uneventful transit, the aircraft was given radar vectors and became fully established on the ILS approach to Runway 09L at LHR. Two stages of flap were selected and, at 1,820 ft (QNH), the landing gear was lowered. Some 16 seconds later, just as the landing gear locked down, the Inertial Reference (IR) part of the No 1 ADIRU failed and a 'NAV IR 1 FAULT' message appeared on the aircraft's Electronic Centralised Aircraft Monitor[1] (ECAM). The autopilot and autothrottle both disconnected and much of the flight instrument information on the commander's Primary Flight Display (PFD) and Navigation Display (ND) was lost, with only the ILS localiser and glideslope, airspeed and altitude indications remaining on his PFD. In addition, the aircraft's flight control laws changed from NORMAL to DIRECT law and both flight directors and the No 1 yaw damper became unavailable. Some 14 seconds after the landing gear locked down, the Enhanced Proximity Warning System (EGPWS) indicated that the terrain warning function was no longer available. The commander handed over control of the aircraft to the co-pilot, whose PFD and ND were functioning normally, and the ILS approach was continued.

At about 0724 hrs, the flap lever was set to position three. Shortly after this time the aircraft started to deviate from the glideslope and localiser. The aircraft altitude continued decreasing and, by about 300 ft radio altitude and when at an airspeed of 130 kt, the aircraft had deviated some 1.3 'dots' below the glideslope. Almost coincident with this, the CVR recorded an EGPWS "glideslope" warning (see Figure 1 Point B). The deviation below the glideslope continued to increase and a second EGPWS "glideslope" warning was recorded by the time the aircraft was at some 1.84 'dots' below the glideslope.

As the crew continued their approach, ATC advised that they would receive a late clearance to land. When the aircraft was at about 250 ft radio altitude an EGPWS "too low flap" warning was recorded on the CVR. The commander then decided to go-around in order to attempt to restore the NAV IR 1 fault condition but, before he could do so, ATC instructed the aircraft to go-around as the preceding aircraft had not yet cleared the runway. The commander acknowledged this instruction and called "GOING AROUND, REQUEST A HOLDING PATTERN OVERHEAD CHILTERN OR OCKAM TO RESOLVE A LITTLE FAILURE" but ATC were not advised of the specific nature of the failure. The thrust levers were set to the takeoff/go-around (TOGA) detent and, having descended to a minimum radio altitude of 159 ft, the aircraft then started to climb, Figure, 1 Point C. The landing gear lever was selected up, Figure 1, Point D, and the landing gear retracted normally. At this point, the EGPWS warning ceased.

The controller became concerned that the aircraft was drifting south of the runway extended centreline and

Footnote

[1] The ECAM system presents information to the pilots on the status and performance of systems on the aircraft and provides visual and aural warnings of failures and critical situations. It incorporates two electronic displays located centrally in the instrument panel. The upper, the Engine/Warning Display (E/WD), shows engine parameters, fuel state, flap/slat positions, as well as warning, caution and memo messages. The lower, the System Display (SD), shows synoptics indicating the status of the aircraft's systems and normal and emergency checklists to be actioned by the crew.

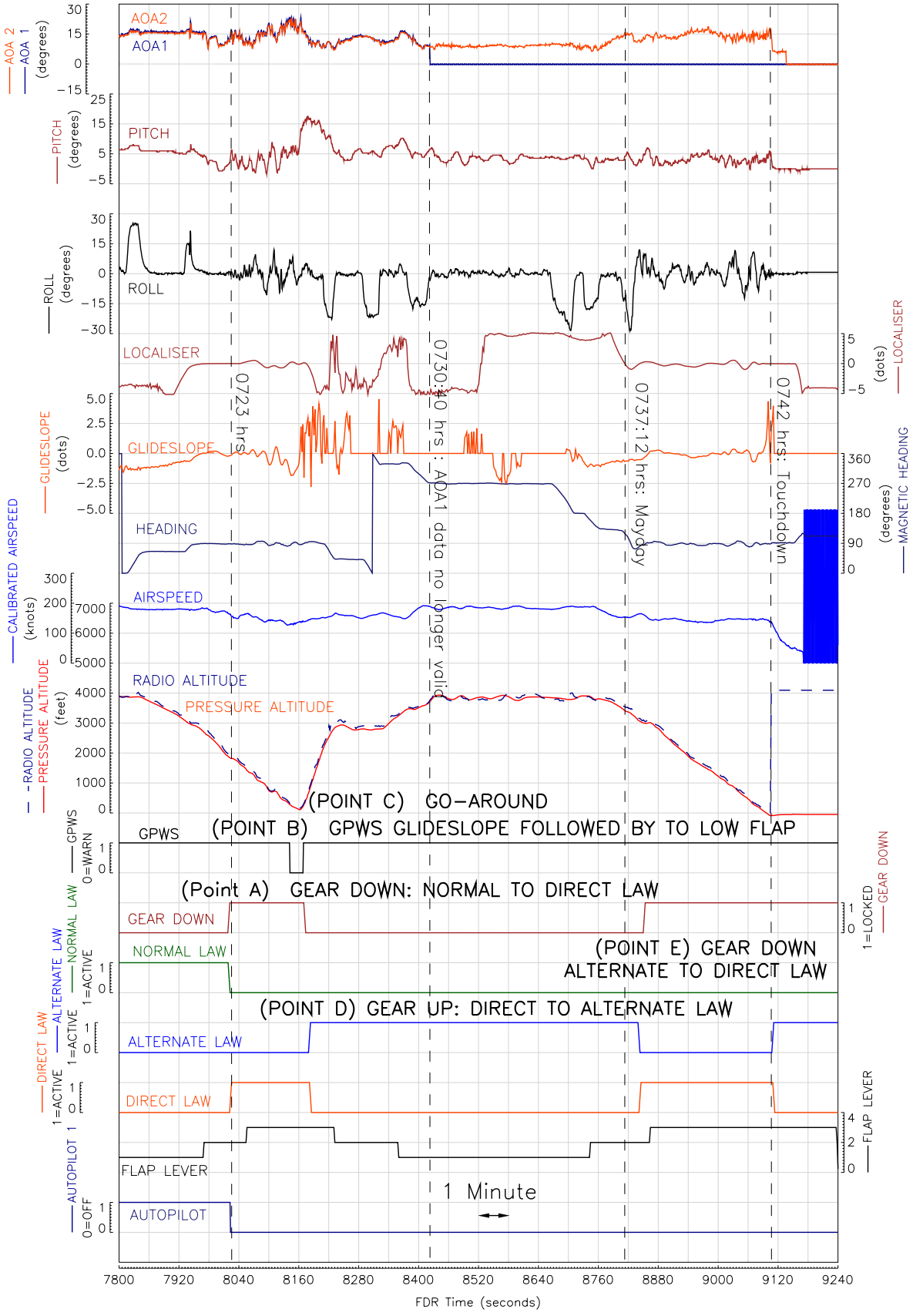

Figure 1

advised the crew of the missed approach procedure, but did not acknowledge the commander's request to enter a hold. He then transferred the aircraft to the Intermediate Approach Controller. Following the frequency change, the commander again requested radar vectors and said "WE REQUIRE A FEW MINUTES TO RESOLVE A LITTLE…NAVIGATION FAILURE...". The controller asked for the message to be repeated, possibly due to the commander's heavily accented English, and subsequently acknowledged the request.

The co-pilot carried out the go-around and, in accordance with the prescribed procedure, turned the aircraft onto a heading of 040° and climbed to an altitude of 3,000 ft. The flaps were retracted, following which the aircraft was radar vectored downwind and instructed to climb to 4,000 ft. The Intermediate Approach Controller instructed the crew to fly at 220 kt and offered them 23 nm (track miles) to touch down. The commander accepted the distance but requested a speed of 180 kt, to give more time to address the problem. This was accepted by ATC. The crew carried out the procedures displayed on the ECAM, which stated that IR may be available from the No 1 ADIRU, if the rotary selector switch was selected to ATT (attitude), and an alignment procedure was performed. However, the weather at LHR was deteriorating with the cloud base reported by another pilot at 350 ft aal. With the IR fault on the No 1 ADIRU and the No 3 ADIRU unavailable, I-BIKE was limited to carrying out a CAT 1[1] ILS approach. The commander decided to expedite the landing, accepting the flight instrument display limitations that he had, and did not attempt the IR alignment procedure which would have delayed the aircraft's arrival.

Footnote

[1] Decision height at LHR for a CAT 1 ILS approach for this aircraft to Runway 09L was 200 ft (decision altitude 297 ft).

At about 0731 hrs, ATC requested if the aircraft had a problem. The commander reported that the aircraft had had "a double inertial reference failure" but the controller replied that the implications of this were not understood. Another aircraft that had heard the message then advised the controller "THAT BASICALLY MEANS THAT THEY HAVEN'T GOT ALL THE NICE BITS OF NAV KIT…THEY ARE BASICALLY POINT AND SHOOT.....". The commander of I-BIKE then stated that they were able to perform a CAT 1 ILS approach only. At about 0734 hrs, he transmitted a PAN call requesting assistance for a radar vectored approach to Runway 09L, explaining the aircraft had suffered a navigation problem. ATC did not respond initially, due to a double transmission, but another aircraft brought it to their attention. Following this, the requested vectors were provided to position the aircraft at the agreed distance of 23 nm (track miles) to touchdown.

In attempting to address the problem with the No 1 ADIRU, the flight crew turned the No 1 ADIRU rotary switch to the OFF position. The ECAM actions did not call for this action in the event of the IR part of an ADIRU failing, but the crew recalled from their review of abnormal procedures in the Flight Manual during the transit from Milan, that there were circumstances when this was required. The commander attempted to find the relevant text in the Flight Manual but was unable to do so before ATC instructed the aircraft to turn onto base leg.

The crew's decision to deviate from the ECAM procedure, by switching off the No 1 ADIRU (with the No 3 ADIRU unavailable) caused the loss of further information from the commander's instrument displays. The landing gear normal extension system was also rendered inoperative, but it was successfully lowered using the emergency gravity (free fall) extension system.

Another consequence of this was that the nosewheel steering system became inoperative. Accordingly, the commander advised ATC that he was not sure if the aircraft would be able to clear the runway after landing. As the aircraft was radar vectored onto an intercept heading for the localiser, the commander upgraded his PAN to a MAYDAY, transmitting "ON FINAL, MAYDAY FROM THIS MOMENT, WE CANNOT PERFORM A GO-AROUND, AH FINALS 09L"[1], in order to ensure priority. ATC switched traffic ahead of I-BIKE onto Runway 09R to provide a clear approach and, due to his reduced airspeed, also radar vectored a following aircraft to the north. At 0739 hrs, the crew advised ATC that the aircraft was fully established. Control of the aircraft was transferred to the tower controller who advised that there was traffic on the runway to vacate. The crew responded by advising that "WE HAVE AN EMERGENCY", which the controller acknowledged. Landing clearance was given for Runway 09L a short time later.

Although the tower controller was aware that I-BIKE had a navigation problem and that it may not be able to clear the runway after landing, he was not made aware that the commander had declared a MAYDAY and so did not bring the airport Rescue and Fire Fighting Service (RFFS) to a Local Standby state.

The aircraft touched down at 0742:05 hrs at an airspeed of about 134 kt and began to decelerate. Some 50 seconds later, when the ground speed was about 50 kt, the aircraft made a right turn, using rudder and asymmetrical braking, onto the adjacent taxiway. The aircraft came to a stop and the park brake was applied; the crew then requested a tug to tow the aircraft to the stand.

Footnote

[1] The normal protocol for transmitting a PAN is to call the word PAN six times, as three groups of two words, and the word MAYDAY three times as a single group.

Abnormal procedures

With an IR fault in the No 1 ADIRU and the No 3 ADIRU not available, the IR alignment procedure displayed on the ECAM may recover attitude and heading information to the commander's PFD and ND, provided the fault is limited to the loss of the ability to navigate. This procedure requires the rotary selector switch on the Air Data and Inertial Reference System (ADIRS) control panel to be set to the ATT position and aircraft heading data to be entered via the numeric keyboard on the control panel. The aircraft must be maintained level at a constant speed for 30 seconds during this procedure. If the alignment procedure is not carried out, then no changes of rotary switch selector position on the ADIRS control panel are required. By leaving the rotary control switch in the NAV position, air data is still available with airspeed and altitude, etc. being provided to the commander's PFD. Also, the normal landing gear extension and nosewheel steering systems remain available.

Weather

The synoptic situation at 0600 hrs showed an area of high pressure in the mid-Atlantic feeding a north-easterly flow over south-east England with a weak cold front over the London area.

METARS for London Heathrow covering the landing period were:

EGLL 250720Z 04006KT 350V080 2800 HZ BKN006 OVC 011 17/16 Q1018 BECMG 5000=

EGLL 250750Z 03007KT 340V060 2700 HZ SCT005 BKN007 OVC011 17/15 Q1018 BECMG 5000=

Conditions were better than CAT I minima for the approach and the nominated diversion for the flight, London Gatwick airport, was experiencing similar weather.

Engineering investigation

Aircraft maintenance history

On 24 June 2005, the aircraft suffered an IR fault in the No 3 ADIRU. An attempt was made to reset the unit, but this proved unsuccessful. The aircraft was released for service with this ADIRU selected OFF, in accordance with procedure 01-34-3-10-01 a), (562) of the operator's MEL and, accordingly, an Acceptable Deferred Defect was raised in the Aircraft Technical Log. This is a Category C item under the JAA MMEL/MEL.040 definition, and such items must be rectified within ten calendar days, excluding the day of discovery of the defect. The Technical Log entry reflected that the defect must be rectified by 4 July 2005.

A320 Air Data and Inertial Reference System, ADIRS

General description

The ADIRS supplies air data and inertial reference information to the pilots' Electronic Flight Instrument (EFIS) displays and other user systems on the aircraft, including, but not limited to, the engines, autopilot, flight control and landing gear systems.

The aircraft is equipped with three identical ADIRUs and each receives air and inertial reference data from independent sensors. The ADIRU is divided into two parts, either of which can operate independently in case of a failure of the other. The Air Data Reference (ADR) part provides airspeed, angle of attack, temperature and barometric altitude data, and the Inertial Reference (IR) part attitude, flight path vector, ground speed and positional data.

The commander's and co-pilot's EFIS displays are identical and comprise the PFD and the ND units, which show flight parameters and navigation information respectively. In normal operation, the No 1 ADIRU feeds the commander's displays and the No 2 ADIRU the co-pilot's displays. The No 3 ADIRU is a standby unit and, in the event of a partial or complete failure of either the No 1 or No 2 unit, the No 3 ADIRU may be selected to supply air data and/or inertial reference data to either the commander's or the co-pilot's displays. There is no cross-channel redundancy between the No 1 and 2 ADIRUs, No 3 ADIRU being the only alternate source of air and inertial reference data.

ADIRS operation

The ADIRS is controlled via the ADIRS control panel on the overhead panel, Figure 2. In normal operation, the rotary selector mode switches are set to the NAV position. In this configuration, the No 1 and 2 ADIRUs supply data to the commander's and co-pilot's EFIS displays respectively, with No 3 ADIRU available as a standby. Following loss of the ADR and/or IR function of either the No 1 or 2 ADIRU, rotary selector switches on the SWITCHING panel on the centre pedestal, Figure 3, enable air data and/or inertial data from the No 3 ADIRU to be selected to replace the data from the failed unit.

An IR fault in ADIRU No 1 or 2 will cause a loss of attitude and navigation information on their associated PFD and ND screens. An ADR fault will cause the loss of airspeed and altitude information on the affected display. In either case the information is restored by selecting the No 3 ADIRU.

According to the Flight Crew Operating Manual, a failure of the IR section of the ADIRU is indicated by a steady amber FAULT light on the corresponding IR push button on the ADIRS control panel, with

Figure 2

ADIRS Control Panel

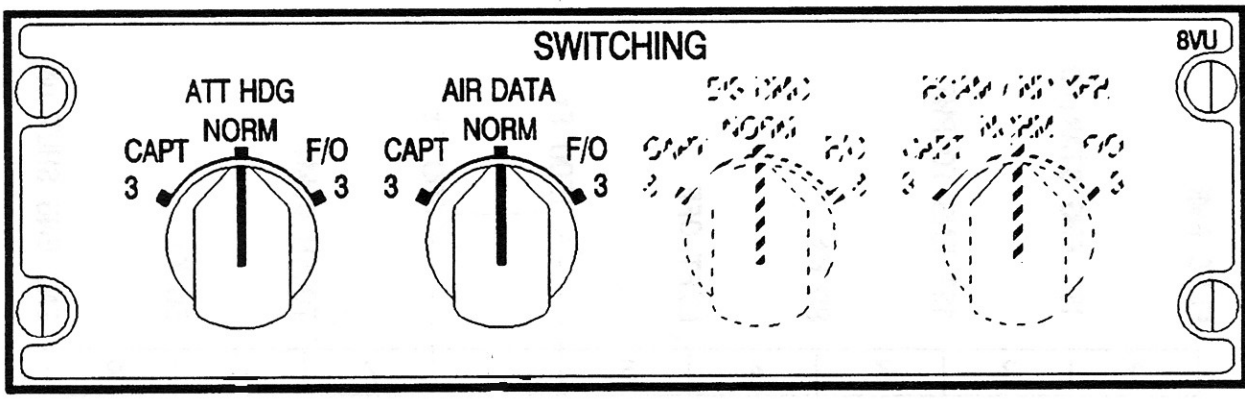

Figure 3

Switching Panel

an associated caution message on one of the ECAM displays. A flashing amber light indicates that the affected system has lost the ability to navigate, but attitude and heading information may be recovered by setting the mode rotary selector switch to the ATT position and performing an alignment procedure. An ADR failure is indicated by a steady amber FAULT light on the corresponding ADR push button and an associated ECAM caution message. In the event of an ADR failure in an ADIRU, the air data output may be switched off by pressing the appropriate ADR push button switch on the ADIRS control panel.

The landing gear control system also uses airspeed information from the No 1 and 3 ADIRUs. The Landing Gear Control and Interface Units (LGCIUs) require airspeed data for the landing gear overspeed protection function. When the airspeed exceeds 260 kt, a safety valve closes to isolate the hydraulic supply, thus inhibiting deployment of the landing gear in order to avoid structural damage. Loss of both airspeed data sources from the No 1 and 3 ADIRUs will also cause the valve to close, with the effect that the landing gear cannot be operated hydraulically and must be lowered by gravity using the emergency extension system. The nosewheel steering system requires the nose landing gear doors to be closed before hydraulic pressure can be applied to the steering actuator. Since the landing gear doors remain open after gravity extension, the nosewheel steering system is also rendered inoperative.

Enhanced Ground Proximity Warning System

The aircraft was installed with an Enhanced Ground Proximity Warning System (EGPWS). The EGPWS system provides a number of warning modes, two of which are Mode 4 and Mode 5. Mode 5 provides a "glideslope" warning if the aircraft descends more than 1.3 'dots' below the glideslope when the aircraft is below 1,000 ft radio altitude, the landing gear is down and the aircraft is on approach. Mode 4 provides a "too low flap" warning when the aircraft is below 245 ft radio altitude, the landing gear is down, the flaps are not fully extended[1], airspeed is below 159 kt and the cockpit overhead panel LANDING CONF 3 push button has not been selected to ON. The LANDING CONF 3 selection inhibits the "too low flap" warning whenever the aircraft is configured with the flaps set at position three for landing.

Centralised Fault Display System (CFDS) information

The main function of the CFDS is to acquire and store data on aircraft systems faults. The recorded faults and associated messages are labelled according to the phase of flight in which they occurred, and the time of occurrence. At the end of a flight, the CFDS generates a Post-Flight Report, containing a list of any recorded system faults, together with the corresponding ECAM fault messages, that occurred during the flight. This serves as a troubleshooting aid to maintenance personnel.

A review of the CFDS Post Flight Report following this incident showed that NAV IR 1 FAULT and F/CTL DIRECT LAW ECAM warning messages occurred at 0724 hrs UTC, approximately 18 minutes prior to touchdown. At 0726 hrs, an F/CTL ALTN LAW warning occurred. At 0730 hrs, the following ECAM warnings occurred: NAV IR 1 FAULT, NAV GPWS TERR DET FAULT, NAV ADR 1+3 FAULT, NAV GPWS FAULT, SFCS and, at 0737 hrs, an ECAM warning for F/CTL DIRECT LAW was recorded.

Footnote

[1] There are five flap positions, designated 0 (fully retracted, 1, 2, 3 and FULL (fully extended). Landings are normally conducted with the flaps fully extended, but position 3 may be used in some circumstances.

Dispatch with No 3 ADIRU inoperative

The operator's MEL, which is based on the manufacturer's Master Minimum Equipment List (MMEL), permits the aircraft to be dispatched with the IR function of either the No 2 or the No 3 ADIRUs inoperative. Dispatch is also permissible with the ADR function of either the No 2 or the No 3 ADIRU inoperative. The IR or ADR functions may not be inoperative on more than one ADIRU (MEL item 01-34-3-10-01 a) refers). If an IR fault occurs on either the No 2 or No 3 ADIRU, the MEL procedure for despatching the aircraft requires the rotary selector switch for the affected ADIRU to be selected to OFF. This has the effect of switching off the entire ADIRU and is necessary because there is no way of switching off the IR part of the ADIRU in isolation. The MEL rationale for switching off the entire ADIRU is to ensure that the faulty computer cannot interfere with the aircraft systems.

With the No 3 ADIRU unavailable, the operation of the aircraft is unaffected provided no faults arise in the remaining ADIRUs. If IR or ADR data is lost from a second ADIRU, systems degradations will occur, as the No 3 ADIRU is no longer available to replace the missing data.

Effects of the loss of No 1 and 3 ADIRU data

Various systems on the aircraft require air data and inertial reference data for their control and operation. According to the aircraft manufacturer, with the No 3 ADIRU inoperative, a subsequent No 1 ADIRU IR fault will cause the following systems to become inoperative:

- Autopilot No 1 and No 2 (and consequently Flight Director No 1 and No 2)
- Autothrust system
- Yaw damper No 1
- Enhanced functions of the EGPWS
- Loss of attitude and navigational data from the commander's PFD and ND

The flight control system 'Normal Laws' are no longer available and revert to 'Alternate Laws' with the corresponding loss of some of the flight control protections, including the 'High Speed' and 'Angle-of-Attack' protection features. The airspeed is restricted to 320 kt, due to loss of the 'High Speed' protection function. In the event of a complete failure of the No 1 ADIRU or, as in this incident, it being switched to OFF with the No 3 ADIRU already inoperative, the following additional systems will be inoperative:

- GPWS
- Rudder Travel Limit unit No 1

Analysis

Air traffic control

Following the go-around from the first approach, the aircraft commander initially wanted to enter a hold at Ockham or Chiltern in order to resolve the ADIRU problem. Either this request was not understood, possibly due to the commander's heavily accented English, or it may have been missed, because the controller was concerned by the aircraft's drift to the south of the runway centreline. However, the weather at LHR was deteriorating with the cloudbase reported by another pilot at 350 ft aal. With the IR fault on the No 1 ADIRU and the No 3 ADIRU unavailable, I-BIKE was limited to carrying out a CAT 1 ILS approach. The commander therefore changed his

mind and decided to expedite the landing, accepting the flight instrument display limitations he had, and not to attempt the IR alignment procedure, which would have resulted in further delay. The subsequent PAN call was masked by a double transmission and the controller was made aware of the PAN and the limitations imposed by the 'double inertial reference failure' by another pilot. Whilst ATC did not completely understand the problem, they did not want to place additional workload on the commander whilst he was handling an abnormal situation and they ensured priority was given to the aircraft.

At a range of 11 nm from touchdown, when the commander transmitted "ON FINAL, MAYDAY FROM THIS MOMENT, WE CANNOT PERFORM A GO AROUND, AH FINALS 09L", the MAYDAY element of this call was not heard by the controller. This was probably due to a combination of the commander not announcing the MAYDAY using the expected protocol and his heavily accented English, rather than any failing within ATC. As a result, the RFFS was not brought to Local Standby for the landing aircraft which had declared an emergency. This highlights a problem occasionally faced by ATC controllers of some flight crews not adopting the accepted protocol when declaring an emergency situation, (see footnote page 7).

Aircrew

When the ADIRU 1 fault occurred, the commander handed control to the co-pilot. They agreed to carry out a go-around and take up a holding pattern in order to action the ECAM abnormal procedure as adequate fuel was available to delay the landing. The commander found monitoring the radio to be distracting, given the high level of radio traffic in the London area. This also possibly contributed to his desire for more time to resolve the ADIRU fault and prepare the aircraft for landing, and hence his request to take up a holding pattern. However, in view of the deteriorating weather situation and the fact that only a single ADIRU was functioning normally, the commander then decided against carrying out the NAV alignment procedure and delay the landing and, therefore, did not repeat his request to ATC to take up a holding pattern.

The excursion below the glidepath, late on in the initial approach, following the No 1 ADIRU fault, was co-incidental with a "too low flaps" warning from the EGPWS, as the aircraft was not configured for a normal landing, ie, FULL flap had not been selected and the LANDING CONFIG 3 button had not been pressed. This occurred with the co-pilot flying the aircraft (manually) in an unusual configuration, ie, in 'Direct Law'. Otherwise, he flew the aircraft accurately, both in 'Alternate' and 'Direct Law', to the subsequent uneventful landing.

The commander subsequently found himself in a situation where there was no clear best course of action and with little spare time in which to deal with the problem. Although the crew took action in response to the ECAM messages, they also attempted to locate the relevant pages in the Flight Manual relating to a No 1 ADIRU failure. The commander recalled a requirement to turn the ADIRU rotary selector switch to OFF, but this action was not called for on the ECAM. Unable to find the information in the time available, the crew elected to select the rotary switch to OFF, but this action unnecessarily degraded the aircraft systems further, resulting in the need to extend the landing gear by gravity extension and the loss of nosewheel steering.

EGPWS

When the EGPWS Mode 4 "too low flap" warning was recorded, the aircraft flaps were in configuration three, the airspeed was below 159 kt and the landing gear was down. The EGPWS Mode 4 warning would have been active at that time as long as the LANDING CONF 3 push button had not been selected on the flight deck to inhibit the warning. Although the operation of this push button was not recorded on the FDR, it was considered most probable that it had not been selected to ON during the first approach, as the warning was activated.

During the initial approach, the recording of both the EGPWS Mode 5 "glideslope" warning and Mode 4 "too low flap" warning indicated that air data information was still available to the EGPWS from the ADR part of the No 1 ADIRU. Had data not been available, both EGPWS warnings would have been inhibited. It was concluded, therefore, that data from the ADR section of the No1 ADIRU remained available following the failure of the IR section.

Conclusions

During this investigation, it was apparent that the operator's training organisation train their flight crews to a high standard and that nothing in the training of the I-BIKE crew should have led them to deviate from the checklist displayed on the ECAM. The operator's training organisation took the view that the commander had correctly elected to carry out a go-around and deal with the failure of the navigation equipment in a holding pattern. However, the reducing cloudbase, combined with being limited to a CAT 1 ILS approach, then became the main consideration of the crew to land the aircraft without unnecessary delay. The incorrect action by the crew of selecting the No 1 ADIRU to OFF, rather than following the ECAM checklist, was carried out from memory at a time of relatively high workload, and led to further loss of aircraft systems.

By not adopting the usual protocol for declaring a MAYDAY, the commander may have contributed to ATC not being fully aware that the crew had declared an emergency situation. His heavy accent may also been a factor. This resulted in the airport RFFS not being brought to a Local Standby state of readiness for the landing.