



## AO-2018-026 Loss of control and collision with water involving Eurocopter (Airbus) EC120B, VH-WII, Hardy Reef Qld.

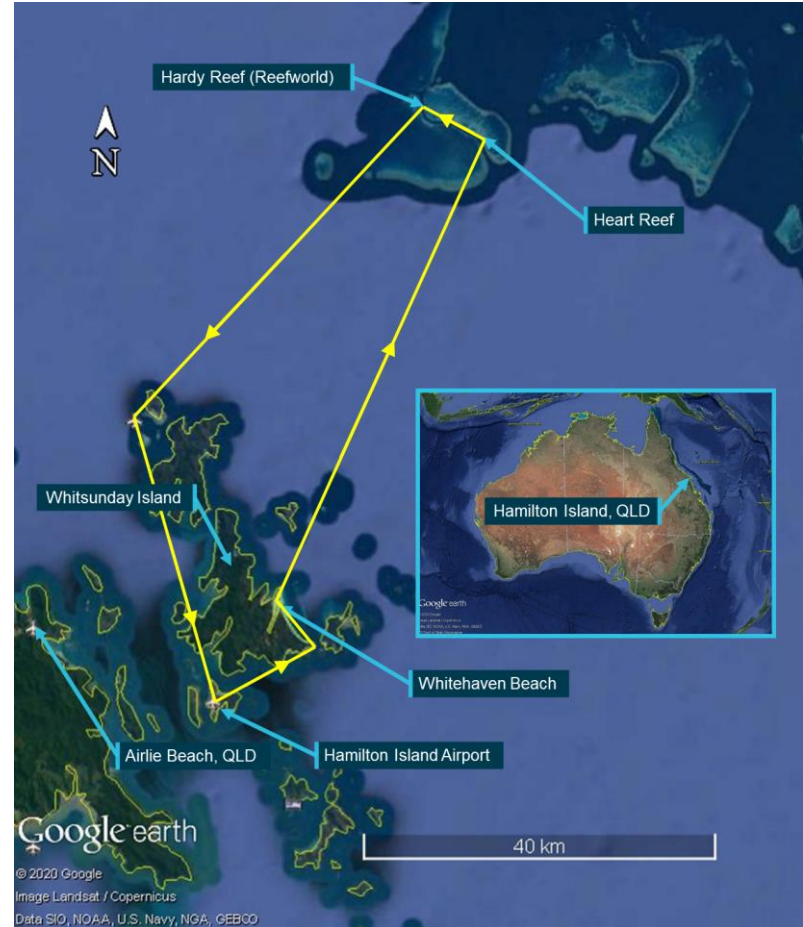


Presented by  
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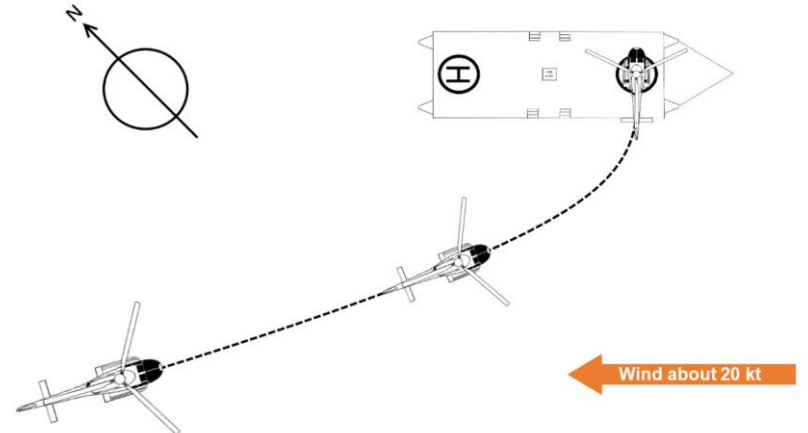
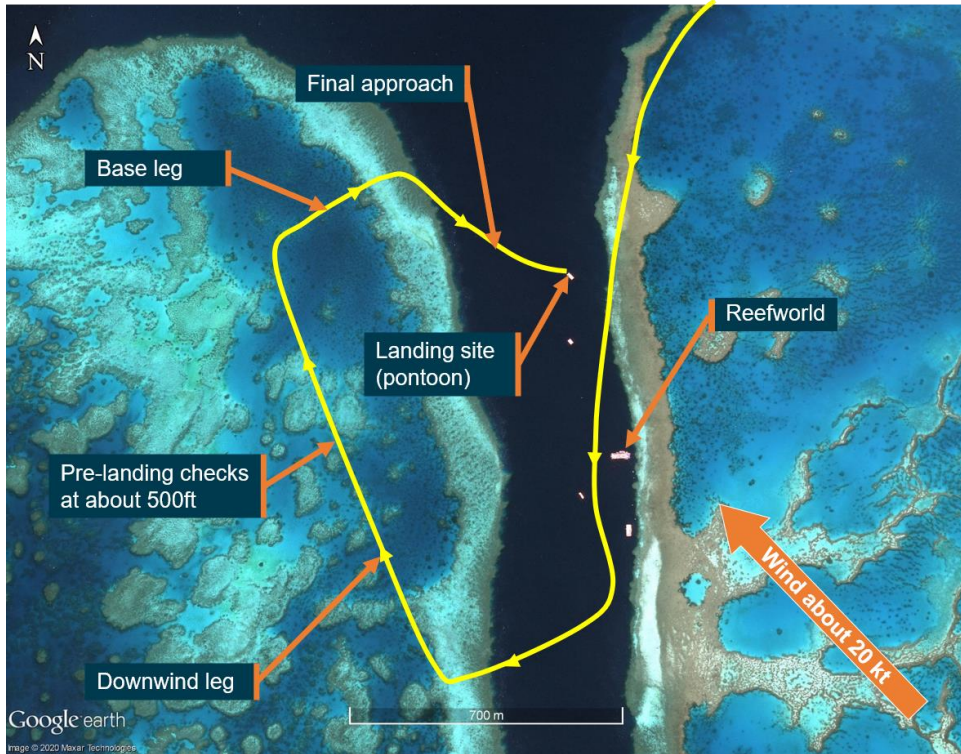
# What happened - departure

- Delayed
- Passenger weights
- APU loaded into cargo hold
- Briefing to passengers in terminal
- 'Hot loaded'
- Passenger with reduced mobility

Flight out to the reef was uneventful



# What happened – approach and go-around



# What happened - pilot and passenger recall

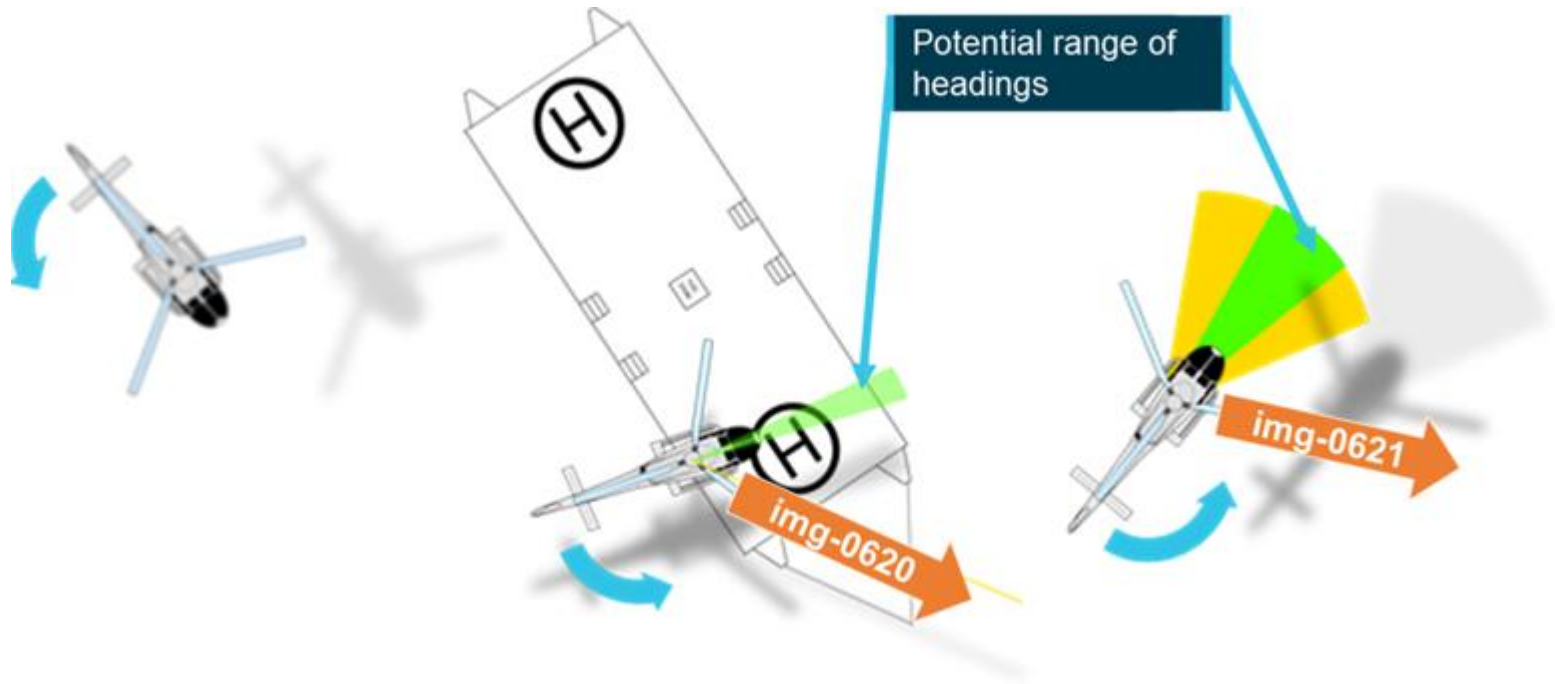
Image 0620



Image 0621

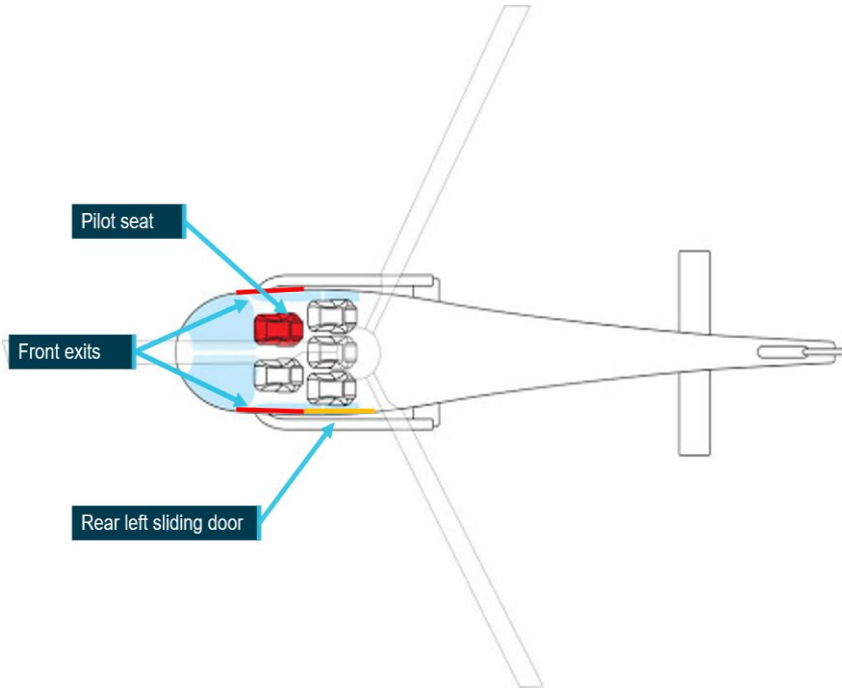


# What happened - estimated flight path





# What happened - evacuation and emergency response



## Context - pilot experience and helicopter differences

- 11.0 hours on the EC120B (including ICUS)
- From an agricultural background flying R44
- Also flew the Bell206L for the operator
- Second day that they had flown VH-WII
- VEMD / Fenestron tail rotor



Vehicle and Engine Multifunction Display (VEMD)



Caution and Warning Panel (CWP)



## Context - anti-torque pedals and unanticipated yaw

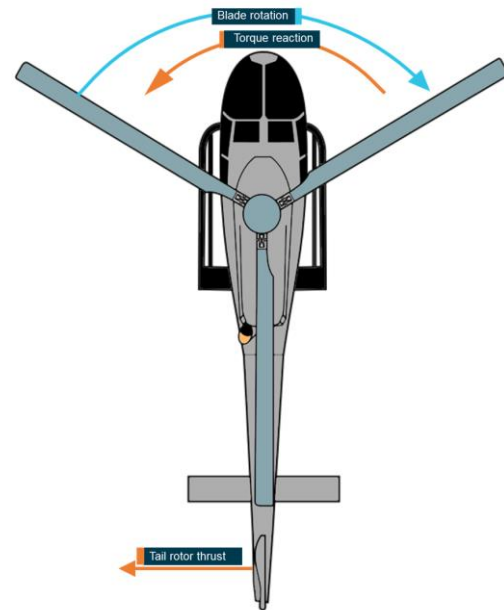
- Main rotor of the EC120B rotated clockwise, this is mostly the same in European manufactured helicopters
- Helicopters manufactured in North America rotate the opposite way

**Manufacturers provided guidance in both 2005 and 2019 explaining conditions to avoid and what to do if it occurs**

**Procedure when unanticipated yaw is experienced**

Apply full opposite sustained pedal

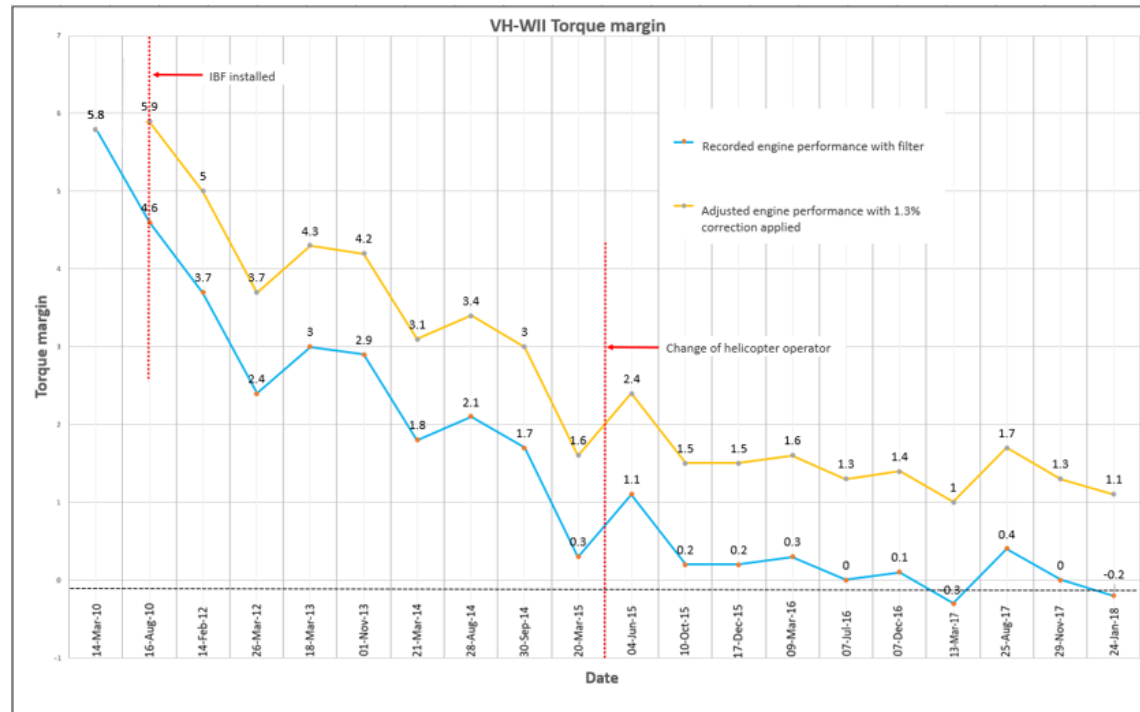
**Can be mistaken for LTE – ask Peter to explain (I did about 400 times)**





## Context - VH-WII engine power

- Inlet barrier filter fitted
- Engine health checks were conducted by the operator on a regular basis, but this data was not used for trend monitoring
- At the time of the accident the engine was close to its lowest allowable limit



# Context - Aircraft loading

- Use of volunteered weights
- Cabin items and the APU
- No regulatory requirement to weigh passengers to obtain actual weights
- Guidance from other countries about the use of volunteered weights

| Item  | Pilot estimate | ATSB estimate | Difference |
|---|----------------|---------------|------------|
| Basic empty weight                                    | 1,155.3        | 1,155.3       |            |
| Pilot seat  | 85.0           | 85.0          |            |
| Front left seat                                       | 59.0           | 60.0          | 1.0        |
| Rear left seat  | 79.0           | 79.0          |            |
| Rear middle seat                                      | 95.0           | 105.0         | 10.0       |
| Rear right seat                                       | 68.0           | 68.0          |            |
| Items in the cabin                                    | 0              | 9.5           | 9.5        |
| Items in baggage compartment (including portable APU) | (at least) 5.0 | 22.8          | 17.8       |
| Zero fuel weight                                      | 1,546.3        | 1,584.6       | 38.3       |
| 48% fuel (196 L)                                      | 155.2          | 155.2         |            |
| Weight at take-off                                    | 1,701.5        | 1,739.8       | 38.3       |
| Max all-up weight                                     | 1,715.0        | 1,715.0       |            |
| Margin at take-off                                    | 13.5           | -24.8         |            |
| Fuel burn (0.6 hours flight)                          | 56.9           | 60.7          |            |
| Fuel remaining on arrival                             | 104.3          | 100.5         |            |
| Weight at landing                                     | 1,650.6        | 1,685.1       | 34.5       |
| Margin at landing                                     | 64.4           | 26.8          |            |

## Context - landing at the pontoons

- Swing mooring – adjusts according to wind and tide
- Wooden and carbon fibre surface – mesh (allows the bird poo to fall through)

I'll get to the birds....

- Although being a suitable HLS, being a mesh surface over open water, ground effect would be reduced to a point that a pilot could not rely on it for performance



## Context - Birds

Prevalence and actions following birdstrike



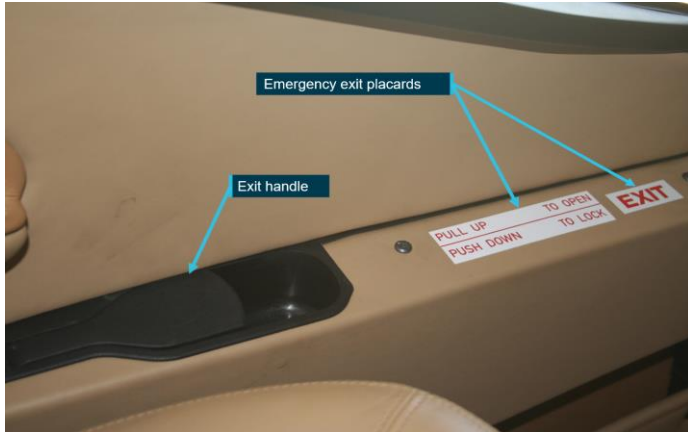




# Context - Rear left sliding door on the EC120B

ATSB examined a number of EC120B

- Handle not obvious
- Inconsistencies with placards
- Three distinct actions for the rear left sliding door



# Context - Passenger handling at pontoons



# What the ATSB found

# 17 findings, including 7 safety issues

## Safety Issues:

1. Consolidation of skills
2. Passenger and baggage weights
3. Briefing on the method for operating the emergency exits
4. Design of the rear left sliding door (became a recommendation)
5. Management of passengers with reduced mobility
6. Management of birdstrikes
7. Leaving the controls of the helicopters with the rotors turning

# Safety action – what's happened as a result

## *Operator*

- Processes for consolidation (20 hours into wind for example)
- SMS
- Update to operations manual to include pontoon operations and SOPs for each type
- Guidance on birdstrike for pilots
- Change to passenger loading and briefing practices

## **CASA**

- CASR part 133.235, 133.240 briefing requirements and additional guidance specific to helicopter operations

## *Airbus*

- 2019 production of safety information notice (SIN) on unanticipated yaw
- Human factors review of the identification and use of the rear left sliding door



**If you would like to read the final report:**

