

UNIT 10 Hydraulic system failure

A United flight from Washington Dulles, DC heading for San Francisco was climbing out when the crew reported a hydraulic problem.



TASK 1 : Describe what you can see in the picture and speculate about the possible causes and outcomes of the situation. Use the words below.

hydraulics / hose / wear and tear / pressure / redundancy / maintenance / inoperative

TASK 2: Listen to the real life ATC recording and write down the answers to these questions.

1. What does the crew want to do as a consequence of the malfunction?
2. What do the ATC want the United 1564 to do pertaining to fuel?
3. What does the crew ask the ATC to safeguard?
4. Why might the emergency landing cause delays on runway 1R?

TASK 3: Listen again and complete the text below.

UAL1564: United 1564, with you, at (1)_____ for 3000. Err ... look like were gonna have a... you know ... a hydraulic problem here. If you could find some place to over here? Talk to you later.

KIAD Departure: 1564, would you like to hold? (2)_____ to hold at MARTINBURG VOR, MIKE-ROMEO- BRAVO.

UAL1564: OK, MIKE-ROMEO-BRAVO, United 1564.

UAL1564: United 1564

KIAD Departure: 1564?

UAL1564: Any chance we (3)_____ go direct now on MIKE-ROMEO-BRAVO hold there, because we've just lost a left hydraulic system?

KIAD Departure: 1564, roger that. Proceed direct to MARTINSBURG, next controller have all instructions for you. And I (4)_____ you do wanna go back to Dulles?

UAL1564: That's affirm.

KIAD Departure: Roger that, and, err, what's your fuel remaining on, err, ... fuel remaining, and pounds or (5)_____, or whatever you've got.

UAL1564: United 1564, we'll get back to you in just a second.

KIAD Departure: And also say (6)_____ on board.

UAL1564: 1564, 158 souls on board. I'll get right back to you on the fuel.

KIAD Departure: 1564, you're gonna change your holding (7)_____. You're gonna hold at CASANOVA, CHARLIE-SIERRA-NOVEMBER, and turn left heading 270.

UAL1564: OK, left turn heading 270, and expect to hold at CASANOVA, United 16...1564.

KIAD Departure: 1564, you need to hold, just to (8)_____ some fuel, before you go back in.

UAL1564: Alright, negative, we're just (9)_____ through our checklist, just to, err, see if there is anything we could do about this but, err, I don't think we (10)_____ have to hold. Give me one second to check.

KIAD Departure: 1564, roger that for now, heading 270 and expect to hold at CASANOVA again, CARLIE-SIERRA-NOVEMBER, and, when (11)_____, your fuel on board.

UAL1564: OK, Roger. We're heading 270, United 16 ... 1564...

KIAD Departure: 1564, turn left heading 220, maintain 4000.

UAL1564: Left 220, we'll maintain 4000, we'll call it, err, stand by, one second.

...

UAL1564: We'll call it, err, (12)_____ hours of fuel on board.

KIAD Departure: 1564, roger. Thank you very much. Approach on 126.65, now 26.65.

UAL1564: 26.65, United 1564.

...

UAL1564: Hello Center, United 1564, 4000 direct to Casanova.

KIAD Approach: United 1564, Dulles Approach, level to (13)_____ 2963.

UAL1564: 22963.

...

UAL1564: United 1564, which runway should we (14)_____?

KIAD Approach: 1564, runway 1C.

UAL1564: Got it. Thank you.

...

UAL1564: United 1564, we are (15)_____ a hold at Casanova, and so, err, is the inbound radio good?

KIAD Departure: United 1564, I'm sorry, you've got (16)_____ out. Say again.

UAL1564: Err, Just curious if this inbound radio here is going to be good for our hold at Casanova.

KIAD Departure; 1564, roger, and, err, can you expect runway 1R when you are ready to (17)_____ back?

UAL1564: Err, sure.

KIAD Departure: Expect runway 1R. You're cleared to Casanova to hold on your inbound radio. To hold north, with 3 hand turns 10 mile leg, and just (18)_____ when you're ready to come back in.

UAL1564: OK, will advise. We'll hold at Casanova, inbound radio, hold north 10 mile legs, United 1564.

...

UAL1564: And just to make it official for United 1564 we are (19)_____ an emergency.

KIAD Departure: 1564, roger. Thank you.

UAL1564: And, err, if you could have a, err, to inform everybody (20)_____ by, when we, err, com in, for United 1564.

KIAD Departure: United 1564, yeah, the equipment will be on stand by.

UAL1564: Yeah, cool. Thanks.

...

UAL1564: United 1564 is in a hold at Casanova, 4000ft.

KIAD Departure: United 1564, in the holding position.

UAL1564: United 1564, we're ready [...] ready.

KIAD Departure: United 1564, roger. (21)_____ to right turn heading 100.

UAL1564: Right turn, 100, United 1564.

KIAD Departure: 1564 contact Potomac Approach, 125.8.

UAL1564: 25.8, United 1564.

...

UAL1564: And United 16...1564 is within 4000.

...

UAL1564: Approach, United 1564, 4000.

KIAD Approach: United 1564, Potomac Approach, runway 1R.

UAL1564: 1R, United 1564.

KIAD Approach: United 1564, turn left heading 080.

UAL1564: 080, United 1564.

KIAD Approach: United 1564, (22)_____ and maintain 3000.

UAL1564: 3000, United 1564.

...

UAL1564: Potomac Approach, United 1564.

KIAD Approach: United 1564, go ahead.

UAL1564: Can you (23)_____ tower also we will have no nose steering, that we'll be stopping on the runway.

KIAD Approach: No nose wheel steering, will be stopping on the runway.

UAL1564: Affirm, we lost (24)_____ hydraulics.

KIAD Approach: United 1564, the airport is at your (25)_____ o'clock, 14 miles.

UAL1564: Ok, field in sight, United 1564.

KIAD Approach: United 1564, roger.

...

KIAD Approach: United 1564, cleared visual approach, runway 1R.

UAL1564: Cleared visual 1R, United 1564.

KIAD Approach: United 1564, contact Dulles tower 120.1.

UAL1564: 120.1, United 1564.

KIAD Tower: OPS2, (26)_____ on the emergency aircraft, he has no wheel steering and he will stop on the runway.

...

KIAD Tower: OPS2, they moved the couple (27)_____ arrivals around you. The emergency aircraft will be the next arrival. He's o a 6 mile final.

...

KIAD Tower: OPS2, negative. There will be no more (28)_____ departures. Emergency aircraft at 4 mile final.

UAL1564: Tower, United 1564. We're after 1R.

KIAD Tower: United 1564, Dulles tower, good evening. (29)_____ 330 at 16, gust 24. Runway 1R, cleared to land.

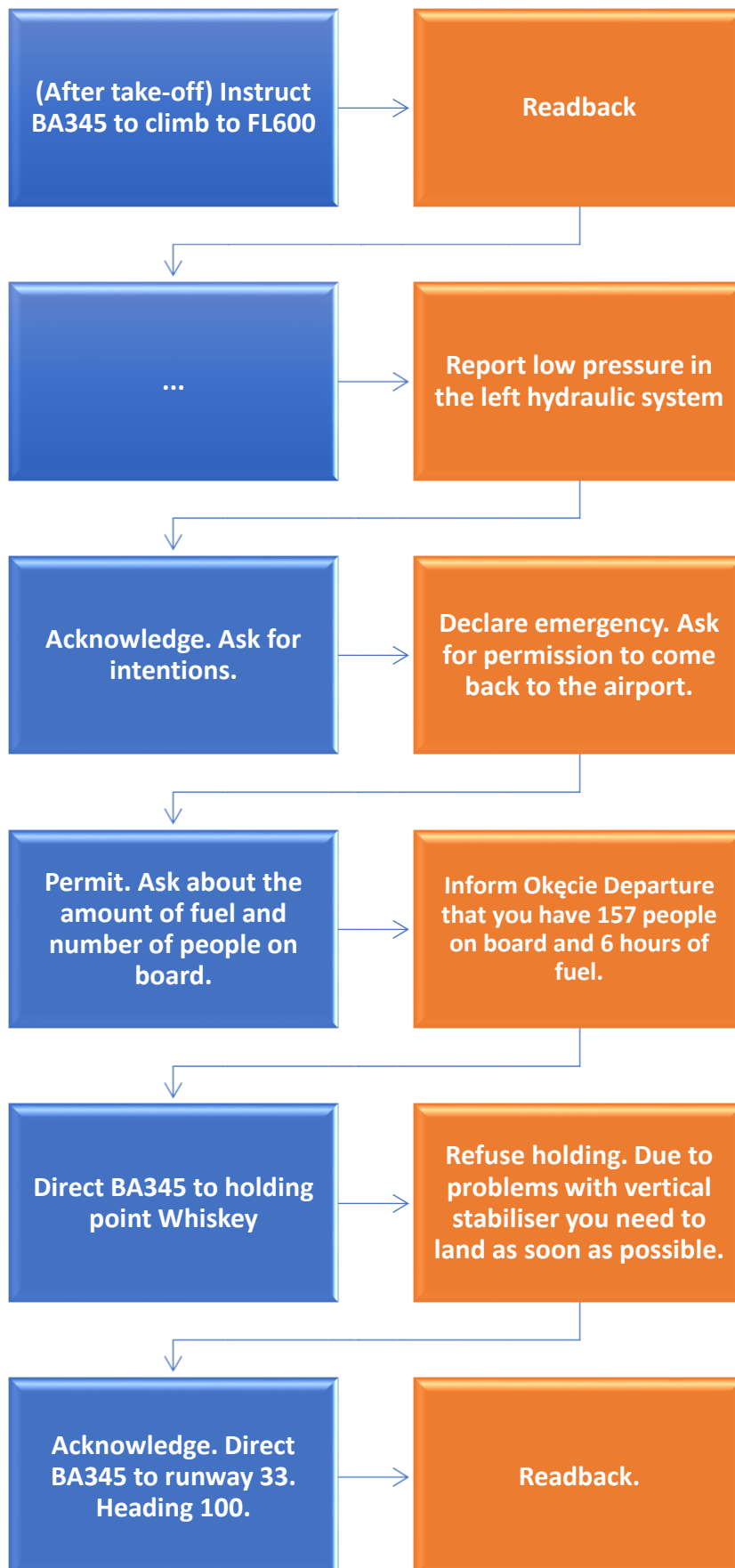
UAL1564: Cleared to land, United 1564.

KIAD Tower: United 1564, the emergency (30)_____ is coming around the plane now.

UAL1564: Alright, thank you very much.

Okęcie Tower/Departure EPWA (ATC)

BA 345 (Pilot)



TASK 4: In pairs discuss the questions.

1. Which aircraft systems use hydraulics?
2. What can hydraulics malfunctions lead to?
3. How can hydraulic systems malfunctions be prevented?
4. What (if any) alternatives to hydraulic systems in aviation can you think of?
5. What can pilots do in case of the hydraulic systems failure?

KEY

UAL1564: United 1564, with you, at 2000 for 3000. Err ... look like were gonna have a... you know ... a hydraulic problem here. If you could find some place to over here? Talk to you later.

KIAD Departure: 1564, would you like to hold? Expect to hold at MARTINBURG VOR, MIKE-ROMEO-BRAVO.

UAL1564: OK, MIKE-ROMEO-BRAVO, United 1564.

UAL1564: United 1564

KIAD Departure: 1564?

UAL1564: Any chance we could go direct now on MIKE-ROMEO-BRAVO hold there, because we've just lost a left hydraulic system?

KIAD Departure: 1564, roger that. Proceed direct to MARTINSBURG, next controller have all instructions for you. And I understand you do wanna go back to Dulles?

UAL1564: That's affirm.

KIAD Departure: Roger that, and, err, what's your fuel remaining on, err, ... fuel remaining, and pounds or hours, or whatever you've got.

UAL1564: United 1564, we'll get back to you in just a second.

KIAD Departure: And also say souls on board.

UAL1564: 1564, 158 souls on board. I'll get right back to you on the fuel.

KIAD Departure: 1564, you're gonna change your holding area. You're gonna hold at CASANOVA, CHARLIE-SIERRA-NOVEMBER, and turn left heading 270.

UAL1564: OK, left turn heading 270, and expect to hold at CASANOVA, United 16...1564.

KIAD Departure: 1564, you need to hold, just to burn some fuel, before you go back in.

UAL1564: Alright, negative, we're just running through our checklist, just to, err, see if there is anything we could do about this but, err, I don't think we actually have to hold. Give me one second to check.

KIAD Departure: 1564, roger that for now, heading 270 and expect to hold at CASANOVA again, CARLIE-SIERRA-NOVEMBER, and, when able, your fuel on board.

UAL1564: OK, Roger. We're heading 270, United 16 ... 1564...

KIAD Departure: 1564, turn left heading 220, maintain 4000.

UAL1564: Left 220, we'll maintain 4000, we'll call it, err, stand by, one second.

...

UAL1564: We'll call it, err, 4.5 hours of fuel on board.

KIAD Departure: 1564, roger. Thank you very much. Approach on 126.65, now 26.65.

UAL1564: 26.65, United 1564.

...

UAL1564: Hello Center, United 1564, 4000 direct to Casanova.

KIAD Approach: United 1564, Dulles Approach, level to altimeter 2963.

UAL1564: 22963.

...

UAL1564: United 1564, which runway should we expect?

KIAD Approach: 1564, runway 1C.

UAL1564: Got it. Thank you.

...

UAL1564: United 1564, we are expecting a hold at Casanova, and so, err, is the inbound radio good?

KIAD Departure: United 1564, I'm sorry, you've got cut out. Say again.

UAL1564: Err, Just curious if this inbound radio here is going to be good for our hold at Casanova.

KIAD Departure; 1564, roger, and, err, can you expect runway 1R when you are ready to come back?

UAL1564: Err, sure.

KIAD Departure: Expect runway 1R. You're cleared to Casanova to hold on your inbound radio. T hold north, with 3 hand turns 10 mile leg, and just advise when you're ready to come back in.

UAL1564: OK, will advise. We'll hold at Casanova, inbound radio, hold north 10 mile legs, United 1564.

...

UAL1564: And just to make it official for United 1564 we are declaring an emergency.

KIAD Departure: 1564, roger. Thank you.

UAL1564: And, err, if you could have a, err, to inform everybody standing by, when we, err, com in, for United 1564.

KIAD Departure: United 1564, yeah, the equipment will be on stand by.

UAL1564: Yeah, cool. Thanks.

...

UAL1564: United 1564 is in a hold at Casanova, 4000ft.

KIAD Departure: United 1564, in the holding position.

UAL1564: United 1564, we're ready [...] ready.

KIAD Departure: United 1564, roger. Continue to right turn heading 100.

UAL1564: Right turn, 100, United 1564.

KIAD Departure: 1564 contact Potomac Approach, 125.8.

UAL1564: 25.8, United 1564.

...

UAL1564: And United 16...1564 is within 4000.

...

UAL1564: Approach, United 1564, 4000.

KIAD Approach: United 1564, Potomac Approach, runway 1R.

UAL1564: 1R, United 1564.

KIAD Approach: United 1564, turn left heading 080.

UAL1564: 080, United 1564.

KIAD Approach: United 1564, descend and maintain 3000.

UAL1564: 3000, United 1564.

...

UAL1564: Potomac Approach, United 1564.

KIAD Approach: United 1564, go ahead.

UAL1564: Can you advise tower also we will have no nose steering, that we'll be stopping on the runway.

KIAD Approach: No nose wheel steering, will be stopping on the runway.

UAL1564: Affirm, we lost left hydraulics.

KIAD Approach: United 1564, the airport is at your 11 o'clock, 14 miles.

UAL1564: Ok, field in sight, United 1564.

KIAD Approach: United 1564, roger.

...

KIAD Approach: United 1564, cleared visual approach, runway 1R.

UAL1564: Cleared visual 1R, United 1564.

KIAD Approach: United 1564, contact Dulles tower 120.1.

UAL1564: 120.1, United 1564.

KIAD Tower: OPS2, update on the emergency aircraft, he has no wheel steering and he will stop on the runway.

...

KIAD Tower: OPS2, they moved the couple arrivals around you. The emergency aircraft will be the next arrival. He's on a 6 mile final.

...

KIAD Tower: OPS2, negative. There will be no more departures. Emergency aircraft at 4 mile final.

UAL1564: Tower, United 1564. We're after 1R.

KIAD Tower: United 1564, Dulles tower, good evening. Downwind 330 at 16, gust 24. Runway 1R, cleared to land.

UAL1564: Cleared to land, United 1564.

KIAD Tower: United 1564, the emergency vehicle is coming around the plane now.

UAL1564: Alright, thank you very much.