

ASRS Database Report Set

Global Positioning System (GPS) Reports

Report Set Description.....	A variety of reports referencing use of Global Positioning System (GPS) devices.
Update Number.....	29.0
Date of Update	February 28, 2018
Number of Records in Report Set.....	50
Number of New Records in Report Set	50
Type of Records in Report Set.....	For each update, new records received at ASRS will displace a like number of the oldest records in the Report Set, with the objective of providing the fifty most recent relevant ASRS Database records. Records within this Report Set have been screened to assure their relevance to the topic.

National Aeronautics and
Space Administration

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TH: 262-7

MEMORANDUM FOR: Recipients of Aviation Safety Reporting System Data

SUBJECT: Data Derived from ASRS Reports

The attached material is furnished pursuant to a request for data from the NASA Aviation Safety Reporting System (ASRS). Recipients of this material are reminded when evaluating these data of the following points.

ASRS reports are submitted voluntarily. The existence in the ASRS database of reports concerning a specific topic cannot, therefore, be used to infer the prevalence of that problem within the National Airspace System.

Information contained in reports submitted to ASRS may be amplified by further contact with the individual who submitted them, but the information provided by the reporter is not investigated further. Such information represents the perspective of the specific individual who is describing their experience and perception of a safety related event.

After preliminary processing, all ASRS reports are de-identified and the identity of the individual who submitted the report is permanently eliminated. All ASRS report processing systems are designed to protect identifying information submitted by reporters; including names, company affiliations, and specific times of incident occurrence. After a report has been de-identified, any verification of information submitted to ASRS would be limited.

The National Aeronautics and Space Administration and its ASRS current contractor, Booz Allen Hamilton, specifically disclaim any responsibility for any interpretation which may be made by others of any material or data furnished by NASA in response to queries of the ASRS database and related materials.

Linda J. Connell

Linda J. Connell, Director
NASA Aviation Safety Reporting System

CAVEAT REGARDING USE OF ASRS DATA

Certain caveats apply to the use of ASRS data. All ASRS reports are voluntarily submitted, and thus cannot be considered a measured random sample of the full population of like events. For example, we receive several thousand altitude deviation reports each year. This number may comprise over half of all the altitude deviations that occur, or it may be just a small fraction of total occurrences.

Moreover, not all pilots, controllers, mechanics, flight attendants, dispatchers or other participants in the aviation system are equally aware of the ASRS or may be equally willing to report. Thus, the data can reflect **reporting biases**. These biases, which are not fully known or measurable, may influence ASRS information. A safety problem such as near midair collisions (NMACs) may appear to be more highly concentrated in area “A” than area “B” simply because the airmen who operate in area “A” are more aware of the ASRS program and more inclined to report should an NMAC occur. Any type of subjective, voluntary reporting will have these limitations related to quantitative statistical analysis.

One thing that can be known from ASRS data is that the number of reports received concerning specific event types represents the **lower measure** of the true number of such events that are occurring. For example, if ASRS receives 881 reports of track deviations in 2010 (this number is purely hypothetical), then it can be known with some certainty that *at least* 881 such events have occurred in 2010. With these statistical limitations in mind, we believe that the **real power** of ASRS data is the **qualitative information** contained in **report narratives**. The pilots, controllers, and others who report tell us about aviation safety incidents and situations in detail – explaining what happened, and more importantly, **why** it happened. Using report narratives effectively requires an extra measure of study, but the knowledge derived is well worth the added effort.

Report Synopses

ACN: 1508733 *(1 of 50)*

Synopsis

EMB 505 Captain reported that during initial approach, they received a GPWS VOICE ACTIVATION of Obstacle; they initiated a climb and informed ATC.

ACN: 1507035 *(2 of 50)*

Synopsis

An Airbus A320 flight crew reported that the entire navigation system completely shut down along with the aircraft pressurization system.

ACN: 1506615 *(3 of 50)*

Synopsis

GA pilot reported becoming lost and low on fuel resulting in a landing at a Class C airport without a proper clearance.

ACN: 1502716 *(4 of 50)*

Synopsis

CRJ-200 Captain reported a track deviation resulted when they temporarily lost the GPS signal for unknown reasons.

ACN: 1500466 *(5 of 50)*

Synopsis

A321 Captain reported that during climb one of the engines failed.

ACN: 1500281 *(6 of 50)*

Synopsis

Piper 32R pilot reported that during climb all electrical power was lost.

ACN: 1499623 *(7 of 50)*

Synopsis

Air carrier Captain reported the PAPI depiction on the Jeppesen 12-5 Chart for the PHL RNAV (GPS) Runway 27L approach, dated 22 Jun 2017, is shown on the incorrect side of the runway.

ACN: 1494650 *(8 of 50)*

Synopsis

CL300 pilot reported the left generator failed and possible GPS interference. These anomalies led to a course deviation which was resolved with assistance from ATC.

ACN: 1493528 *(9 of 50)*

Synopsis

I90 TRACON Controller and EMB175 flight crew reported the E175s have an FMS anomaly where a crossing restriction is programmed as "at or above" when it should be "at."

ACN: 1492899 *(10 of 50)*

Synopsis

MD-11 Captain reported returning to the departure airport after noting multiple system faults later traced to worn pitot tube cover debris.

ACN: 1492318 *(11 of 50)*

Synopsis

M20 pilot reported a loss of electrical power and diversion to an airport outside of the Mode C veil.

ACN: 1491491 *(12 of 50)*

Synopsis

Cessna 210 pilot reported task saturation, losing situational awareness, deviating from course, and asking for assistance after the Controller asked why he had made a turn. The Controller provided assistance and the flight then proceeded normally.

ACN: 1490536 *(13 of 50)*

Synopsis

Corporate jet Captain reported a deviation on the HAYEZ FIVE departure from VNY due to the First Officer reprogramming the SID and manually deleting two fixes necessary for the departure.

ACN: 1490438 *(14 of 50)*

Synopsis

Air Carrier flight crew reported that a self-induced FMC position error was the likely cause of a false GPWS Terrain Warning and track deviation after takeoff.

ACN: 1487908 *(15 of 50)*

Synopsis

CRJ200 flight crew reported being informed by ATC that they were off course. They informed the crew that there was reported GPS signal jamming in the area.

ACN: 1484949 *(16 of 50)*

Synopsis

CRJ-200 First Officer reported descending below charted altitude on approach to BTV citing fatigue as a contributing factor.

ACN: 1484367 *(17 of 50)*

Synopsis

Air Taxi pilot reported that after overshooting the LAN Runway 10R LOC, lined up for the wrong airport.

ACN: 1483468 *(18 of 50)*

Synopsis

GA pilot reported that he descended below the Decision Altitude in IMC due to improper instrument equipment setup procedures.

ACN: 1481818 *(19 of 50)*

Synopsis

GA pilot reported maneuvering to increase separation from traffic on approach to Runway 22 at PAH. He descended below the Terminal Area Altitude and received an obstacle warning on his portable GPS unit.

ACN: 1480653 *(20 of 50)*

Synopsis

BE58 pilot reported confusion with IFR clearance related to changes in filed route then cleared as filed.

ACN: 1480640 *(21 of 50)*

Synopsis

Grumman American Tiger (AA5B) pilot reported having to divert in a climb out due to a rough running engine. Pilot reported the opinion that a steep climb angle caused the fuel to fall to the back of the tank away from the forward mounted fuel pumps.

ACN: 1480503 *(22 of 50)*

Synopsis

Air carrier crew reported a runway and taxiway incursion at CHS in an area that is shown as hot spot 1 on the airport diagram.

ACN: 1478003 *(23 of 50)*

Synopsis

TBM7 pilot reported an altitude deviation resulted from a pitot static system anomaly.

ACN: 1477818 *(24 of 50)*

Synopsis

General aviation pilot reported difficulty with new navigation equipment while on a RNAV approach and experiencing rapidly deteriorating visibility while on a VFR flight.

ACN: 1477603 *(25 of 50)*

Synopsis

PC-12 pilot reported the EFIS displays flashed and went blank on approach, normal operation was regained by resetting electrical system.

ACN: 1477601 *(26 of 50)*

Synopsis

C210 pilot reported the complete loss of electrical power due to a failed alternator, and elected to divert to a nearby suitable airport where a successful landing was accomplished.

ACN: 1477019 *(27 of 50)*

Synopsis

PA28 IFR pilot sitting on the right seat flying at night in full IMC encountered Avionics Audio Panel Failure. Moments later the pilot encountered partial panel and the baggage door opened mid-flight resulting in a diversion to a nearby airport.

ACN: 1476414 *(28 of 50)*

Synopsis

NCT Controller and flight crew reported the pilots flew the SID incorrectly into confliction with a previous departure.

ACN: 1475763 *(29 of 50)*

Synopsis

SR22 pilot reported that during cruise the Multifunction Display flickered then he smelled electrical burning/arching.

ACN: 1471858 *(30 of 50)*

Synopsis

PA28 pilot reported engine malfunction that resulted in an emergency landing. Following corrective maintenance and subsequent testing, a second takeoff was attempted with an additional emergency landing.

ACN: 1470409 *(31 of 50)*

Synopsis

A Flight Instructor reported an alternator failure during an IFR training flight. The flight diverted and completed an uneventful landing.

ACN: 1469051 *(32 of 50)*

Synopsis

CRJ-200 Captain experienced a GPS failure climbing to 8,000 feet and neither crew member could remember how to bring up a VOR frequency in Flight Deck Pro. During the level off 250 knots was exceeded.

ACN: 1467720 *(33 of 50)*

Synopsis

Air carrier Captain reported that IAH's use of the "Y" designation on all RNAV (RNP) approaches is not in accord with other airports' use of the designator "Z" on (RNP) approaches.

ACN: 1467635 *(34 of 50)*

Synopsis

GA pilot reported a problem with the localizer on an approach to LSE in IMC with a G1000 system that did not have the database for that part of the country.

ACN: 1465535 *(35 of 50)*

Synopsis

EMB-175 flight crew reported an anomaly with the Honeywell FMS version 27.1 software during their initial climb. A navigational error resulted requiring a radar vector from ATC.

ACN: 1464822 *(36 of 50)*

Synopsis

Air carrier flight crew reported a temporary failure of both GPS in the vicinity of TPH VOR. After the systems recovered, the crew elected to refuse the RNAV approach and requested vectors from ATC.

ACN: 1462762 *(37 of 50)*

Synopsis

PAO Tower Controllers and a pilot reported an NMAC in the traffic pattern. The GPS Runway 31 approach was cited as a contributing factor.

ACN: 1462647 *(38 of 50)*

Synopsis

Fractional aircraft Captain reported an issue with GPS navigation which resulted in significant effect on aircraft navigation capability. Aircraft diverted to an enroute airfield.

ACN: 1462439 *(39 of 50)*

Synopsis

Piper Arrow pilot reported a gear up landing due to distractions.

ACN: 1461671 *(40 of 50)*

Synopsis

C177 pilot reported an electrical failure after takeoff followed by cellphone contact with ATC and a return to the departure airport.

ACN: 1461388 *(41 of 50)*

Synopsis

B737 flight crew reported that they were expecting a visual approach. At approximately 10,000 ft they received a new approach very steep on the ILS, but was unable to land.

ACN: 1460029 *(42 of 50)*

Synopsis

Banner tow pilot reported operating below the FAR mandated floor of 1000 feet AGL while circling an outdoor event due to turbulence and downdrafts.

ACN: 1459661 *(43 of 50)*

Synopsis

AA5 pilot at 8500 feet reported being informed by ZAB that his Mode C showed 9000 feet. The reporter believed that the problem was with ZAB.

ACN: 1458653 *(44 of 50)*

Synopsis

C172 pilot reported difficulty successfully completing an approach in IFR conditions, and at one point was issued a low altitude alert by ATC.

ACN: 1458342 *(45 of 50)*

Synopsis

PC12 flight crew reported a missed approach during an ILS due to turbulence, autopilot disengagement and full nose down trim. Crew reported a successful divert to a VMC airport.

ACN: 1458327 *(46 of 50)*

Synopsis

A TBM 850 pilot reported an AHRS (Altitude and Heading Reference System) failure at FL270. The pilot then elected to divert.

ACN: 1452997 *(47 of 50)*

Synopsis

BE35 pilot reported experiencing combined failures of GPS, ADS-B, heading, and tablet software possibly due to the fact that all of the systems were interconnected.

ACN: 1452896 *(48 of 50)*

Synopsis

CRJ-700 flight crew reported receiving a low altitude alert from ATC after descending early on approach to LGA.

ACN: 1452717 *(49 of 50)*

Synopsis

PA-31 pilot reported descending below the published altitude during a GPS approach due to misreading the chart.

ACN: 1452132 *(50 of 50)*

Synopsis

An EC130 helicopter pilot reported he unexpectedly entered IMC after doing a due diligence weather preflight which indicated VMC to his base airport. An IFR clearance was obtained enroute.

Report Narratives

Time / Day

Date : 201801
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 4000

Environment

Light : Night

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Taxi
Make Model Name : EMB-505 / Phenom 300
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Nav In Use : GPS
Flight Phase : Initial Approach
Route In Use : Vectors
Airspace.Class E : ZZZ

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1508733
Human Factors : Situational Awareness

Events

Anomaly.Conflict : Ground Conflict, Critical
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : FAR
Anomaly.Deviation - Procedural : Clearance
Detector.Automation : Aircraft Terrain Warning
Detector.Person : Flight Crew
Result.Flight Crew : Took Evasive Action
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Airspace Structure

Contributing Factors / Situations : Procedure

Primary Problem : Procedure

Narrative: 1

Under center control, I [was] executing the RNAV (GPS) Runway 27, descending from 10,000 feet [and], told to fly directly to the IAF and descend to 4,000 feet. Some distance from [the] IAF (guessing about 35nm) told to fly directly to the IF, descend to 1,500 feet and cleared RNAV 27 approach. Just about 2,000 in our descent the GPWS VOICE ACTIVATION of Obstacle, Obstacle Climb, Climb voice and climb directions began. The pilot flying immediately executed a rapid climb and I told ATC that we received the warning and were climbing. At about 4,000 feet warnings stopped and we leveled off. Told ATC warning stopped and he reissued descend to 1500 feet, cleared approach, which we did and completed approach with no further issues.

After a long day and being late, all my altitudes/distances stated should be close to what I recalled and pretty close to the actual numbers. After landing and pulling up our flight/track, when the controller cleared us from flying directly to the IAF to now flying directly to the IF, we are guessing that we entered or were very close to entering a Restricted Area. We had talked about the restricted area before and during our flight but when under the control of ATC and cleared to go from directly first to IAF for the approach and then directly to the IF with descent and approach clearance I assumed (a very bad word) that we would be clear of restricted area. Our Primary Flight Displays were displaying our approach plates and Multi-Functional Display (MFD) the airport and pink Navigation line directly to the IAF and then the IF and the runway extension. My only suggestion would be to have inquired of the controller if we were clear of Retracted Area and also have the MFD out to a further range to display the restricted area until close to the final approach fix.

Synopsis

EMB 505 Captain reported that during initial approach, they received a GPWS VOICE ACTIVATION of Obstacle; they initiated a climb and informed ATC.

Time / Day

Date : 201712

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZZ.Airport

State Reference : FO

Environment

Light : Daylight

Aircraft

Reference : X

Aircraft Operator : Air Carrier

Make Model Name : A320

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Mission : Passenger

Flight Phase : Climb

Component : 1

Aircraft Component : Flight Dynamics Navigation and Safety

Aircraft Reference : X

Problem : Failed

Component : 2

Aircraft Component : Pressurization System

Aircraft Reference : X

Problem : Failed

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Not Flying

ASRS Report Number.Accession Number : 1507035

Human Factors : Troubleshooting

Human Factors : Human-Machine Interface

Human Factors : Situational Awareness

Human Factors : Time Pressure

Human Factors : Workload

Analyst Callback : Completed

Person : 2

Reference : 2

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Flying
ASRS Report Number.Accession Number : 1507028
Human Factors : Workload
Human Factors : Situational Awareness
Human Factors : Human-Machine Interface
Human Factors : Time Pressure

Person : 3

Reference : 3
Location Of Person.Aircraft : X
Location In Aircraft : General Seating Area
Cabin Activity : Service
Reporter Organization : Air Carrier
Function.Flight Attendant : Flight Attendant In Charge
Qualification.Flight Attendant : Current
Experience.Flight Attendant.Total : 2
Experience.Flight Attendant.Airline Total : 2
Experience.Flight Attendant.Number Of Acft Qualified On : 6
Experience.Flight Attendant.Type : 70
ASRS Report Number.Accession Number : 1506893
Human Factors : Situational Awareness
Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Flight Deck / Cabin / Aircraft Event : Other / Unknown
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Diverted
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : FLC Overrode Automation
Result.Air Traffic Control : Issued New Clearance
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

On preflight, with the batteries on, once the Inertial Reference Unit (IRU) were turned to align, the blue "align on ref" was not displayed, nor were there alignment coordinates at 2 L and R. As a result I imputed the coordinates from the flight plan and then hit the prompts "align on ref" and "confirm" (not normal but not uncommon either). As I started to leave the cockpit, a "ding" occurred. Instinctively looking back I saw the blue prompt

again (which was odd, first time I had seen that). Again I pushed the blue "align on ref" prompt followed by the amber "confirm", (without reconfirming the coordinates as I had just typed them in. I definitely should have rechecked in case an error was made. A potentially serious mistake, one I will never repeat).

During push back I noticed a GPS INOP advisory on the Navigational Display (ND), that disappeared after engine start. Prior to taking the runway, all looked normal and displays were normal during takeoff roll. The NAV system came up NAV on the ND shortly after takeoff (like normal). Problem was the heading the NAV display was showing to fly, was 30+ degrees right of our known heading 053. We pulled for heading and continued our climb out away from the ground.

Unable to deduce the error, we tried direct to waypoint ZZZZZ, then the secondary flight plan. No help. Next I tried Attitude Hold (ATT) mode on IRUs (going from NAV to OFF to ATT) trying to fix the issue with the IRS and/or GPS, hopefully allowing for an in flight alignment. At one point I noticed the data on the FMC showing us a start point of ZZZZZ Waypoint? This effort (going to ATT) caused the entire system to shut down. We discussed a return to ZZZ but were uncomfortable due to severe heading divergence from known (IRS/GPS issue) and the high altitude airport, heavy/overweight landing in a mountainous terrain environment.

Although a declaration did not occur, ATC was fully aware of our situation giving us exceptional handling to the north, away from mountainous terrain, traffic and towards VMC weather.

We discussed northern divert options. Unfortunately, we were unable to get weather via ACARS for these options.

Knowing we could not enter RVSM airspace, we requested FL270 and leveled there while continuing northeast. Shortly thereafter, while trying to trouble shoot the IRU/GPS issue, we lost the cabin pressurization. This required a descent. We could not descend to 10,000ft due to terrain so we descended to 15,000ft. Able to catch the cabin altitude manually, we stayed at 15,000.

We continued flying in a northerly direction utilizing the wet compass ONLY, no ND assistance. The ATT mode did provide us PFD airspeed and altitude. ATC was able to give us ZZZZ2 weather (300-1) which we decide was not our best choice (ATC was unable to give us US airport weather). When we overflew ZZZZ3, and it was VFR, we deemed it suitable and we landed.

Following were among the numerous checklists run:

NAV/GPS primary loss

NAV/IR 1-2, 2-3 and 1-3 faults

NAV/IR align in ATT mode

plus manually running the pressurization schedule following the QRH checklist.

APU on, flaps 3 uneventful landing completed.

Post landing, during rollout, the brakes felt normal about 100kts, slowing at the end of the runway (to turn around and back-taxi), the brakes went to the floor (20mph?). I went full reverse while the First Officer (FO) jumped on binders with me. Feeling we weren't slowing enough, as I was reaching for the A/SKID NWS disct switch, the FO grabbed the parking brake bringing us to a quick stop (speed about 5mph). We were both thinking yellow system brakes just different ways to get there.

The brakes returned. As we taxied very slowly to parking stand (brakes felt normal but

getting intermittent ECAM brks caution), we queried about "tow equipment if necessary". We opted to continue taxi to gate. Uneventful.

After passengers debriefed and [maintenance] contacted (via station operations cell phone, mine does not work here) a thorough debriefing ending with Maintenance Control stating they would enter into [Maintenance computer] our issues. Maintenance Control then transferred us to the duty manager and we debriefed again. I asked to pass onto our dispatcher our scenario/issues and why I could not contact him (ACARS INOP).

Once phone calls complete, the FO and I performed a post-flight walk around. Pilot tubes and tires (complete walk around) were all checked thoroughly. No issues noted.

Callback: 1

The Reporter stated that the initial coordinates was a mistake, perhaps because of a "fat finger" problem. The Reporter stated that during climb the aircraft was attempting to turn right which was odd, they knew it wasn't correct. The Reporter stated they went through every checklist in the QRH and was unable to fix it. The Reporter stated that there is no in-flight capabilities to re-align the INS's once the data is imputed. The Reporter also stated he resorted to his military training to try and re-align the INS's by using the ATT (attitude mode) and that is when everything went blank. The Reporter stated that the pressurization system is associated with with the INS system as well as the brakes as was demonstrated during landing roll. The Reporter also stated there needs to be a warning system that alerts the crew when a "fat finger" error is made or the ability to re-align the navigation system in the air. The Reporter stated that the intent was to fly all the way to the border using basic navigation, but the loss of pressurization negated that. The Reporter also stated they had a lack of yaw control after the nav system failure so they had to make constant inputs to the rudder just to maintain a normal flight.

Narrative: 2

For this flight I was initially Pilot Flying (PF). We arrived at the airplane and airport workers were onboard. There was some congestion around the flight deck, so the Captain (CA), went in the flight deck and performed the safety checks, and initialized the systems. I got inside and the CA performed the walk around. I observed at this point no abnormalities.

We pushed back from the gate and I started both engines per the CA's instructions. We had to do a TOGA thrust takeoff due to 3 knot tailwind conditions. We were cleared for takeoff, thrust was advanced as normal for a TOGA thrust takeoff, and all normal annunciation appeared on the screens. Upon rotation, the aircraft went as normal to NAV mode for the SID. This is where I observed the first abnormality for the flight, the aircraft was commanding us to turn 30 or 40 degrees to the right, which made no sense for the departure had us climbing straight ahead on the ZZZ 053 [radial] to 6 DME initially. I commanded "pull for heading." We were tracking runway heading and climbing in VMC conditions. We then asked ATC for direct ZZZZZ Intersection with hopes it would fix the problem. It yielded no result as the aircraft wanted to turn off course again, we commanded heading select and requested vectors from ATC to the north, and a climb to avoid terrain. Around FL190 my PFD and ND went dark and red, and all indications were lost. The Captain vocalized that he selected the Attitude Hold (ATT) mode on the Inertial Reference System (IRS) Inertial Reference Unit (IRU) panel, attempting to correct the issue. I was surprised from the loss of information on the displays, but kept flying until the PFD display came back. We transferred controls and started running the ECAMS, QRH, and communicating with dispatch, maintenance, and ATC. Upon leveling off at FL270, the

automatic pressurization system failed. We descended to 15,000 and using manual mode per the ECAM we were able to restore pressurization. We continued north using the compass, and ATC vectors, towards flatter country, meanwhile evaluating suitable alternates. Maintenance suggested we run some procedures, which we tried, but none yielded any positive results. Our ACARS was intermittent as well as our ability to hear maintenance. We saw [a city] out the window and decided that based on performance, and the urgency of the situation it would be the most safe and prudent place to land. We had full cooperation from [foreign] ATC and they were providing excellent assistance the whole time as they were fully aware of our situation from the moment we had the problem. We did a flaps 3 landing, and briefed the procedure per the QRH. We landed in direct law, on the rollout, at about 10 or 15 knots the brakes failed, I tried my side and it didn't stop the plane, Captain put in full reverse and I deployed the parking brake at around 5knots. Aircraft stopped and brakes were restored. I kept my hand on the parking brake as we crept towards the gate. We deplaned the aircraft and waited for a rescue flight. While waiting on maintenance and relief crew the aircrafts GPS/IRU problem did not resolve itself. The aircraft was unable to realign, or have a functional navigation system work.

Narrative: 3

We had to divert to ZZZZ2. While climbing to cruise altitude I noticed that I never heard the double chime. I called to the 2L jumpseat and asked the Flight Attendant (FA) if they heard the double chime. They said no and I then tried calling the flight deck. I didn't get an answer. About 2 minutes after that I experienced severe change in pressure and my ears started to pop really bad. 2-3 minutes after that the Captain (CA) called and told me that they were having an issue with the navigation and pressurization. I relayed this info to the other FA. About 20-30 minutes after that I didn't hear anything from the CA. Passengers were beginning to feel suspicious that something was going on and we were at a lower altitude than normal. Still no double chime. About 40 minutes into the flight, the CA made an announcement that we were going to be landing into ZZZZ2 due to navigation issues. Eventually we circled around a few times and landed. Touchdown was much harder than normal and we were at a higher landing speed. Seconds later we feel this very strong braking action and we were a few feet away from the end of the runway. Finally we arrived at the parking spot. No emergency declared nor did we have to prepare the cabin. Passengers deplaned.

Synopsis

An Airbus A320 flight crew reported that the entire navigation system completely shut down along with the aircraft pressurization system.

Time / Day

Date : 201712

Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Environment

Flight Conditions : Mixed

Weather Elements / Visibility : Fog

Weather Elements / Visibility : Rain

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.TRACON : F11

Aircraft Operator : Personal

Make Model Name : Cessna 152

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : VFR

Mission : Personal

Flight Phase : Cruise

Route In Use : None

Airspace.Class C : MCO

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Private

Experience.Flight Crew.Total : 125

ASRS Report Number.Accession Number : 1506615

Human Factors : Situational Awareness

Human Factors : Confusion

Human Factors : Time Pressure

Events

Anomaly.Airspace Violation : All Types

Anomaly.Deviation - Procedural : Published Material / Policy

Anomaly.Deviation - Procedural : Landing Without Clearance

Anomaly.Deviation - Procedural : FAR

Anomaly.Inflight Event / Encounter : Weather / Turbulence

Anomaly.Inflight Event / Encounter : Fuel Issue

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Requested ATC Assistance / Clarification

Result.Flight Crew : Landed As Precaution

Result.Flight Crew : Diverted

Result.Air Traffic Control : Provided Assistance

Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Airspace Structure

Contributing Factors / Situations : Human Factors

Contributing Factors / Situations : Weather

Primary Problem : Human Factors

Narrative: 1

I took off. I flew direct to ZZZ , then ZZZ1 but I didn't land in ZZZ1 just see the Airport and turn my heading and on my way back [home], the weather was not good enough, fog and rain too, I keep flying all the way to ZZZ2, the ceiling was very low and I can't see anything. So in order to get out of that I flew to the East and get back to the heading and get back on course and back to [home airport]. I planned that and I flew to the East but I got Lost and I called Approach for help but they didn't respond to my call, but I didn't talk to Approach. At the same time I'm lost and low on fuel too, so when I said low on fuel Approach listened and I told them that I will be landing which ever airport is near me. So Approach asked my altitude and asked me which runway you at, I told them I'm at 1,000 ft and want to land runway 27, I don't know which airport I'm landing, when I was at the ground after landing, I asked the person who refueling my aircraft and he told me, here is ZZZ3, at the same time security came and asked me, and I told them I'm lost and at same time low on fuel, so I just talked to Approach only, I didn't get any clearance to enter here, because I was low on fuel and landing without any clearance. Then they said it's good but now you got all frequencies to contact ground, tower and go back to your home airport? Then I told them Yes, I do, I got everything. Then Security told me again, you have to contact ground, then tower, then if they clear you, then you can fly back home safely, so I did that, After that I contact ground, tower and approach and they cleared me to fly at 1,600 ft until they changed me to Approach, then they cleared me to climbed to 2,500 ft then I flew back to [home].

The point here is I turned on a wrong direction and I lost and landed at a wrong airport without any clearance, the aircraft doesn't have a GPS and I'm also new in this area. I'm a training pilot just completed my private and do my time building and this accident happened. I'm reporting myself because I made a mistake.

Synopsis

GA pilot reported becoming lost and low on fuel resulting in a landing at a Class C airport without a proper clearance.

Time / Day

Date : 201711

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ATL.Airport

State Reference : GA

Altitude.MSL.Single Value : 1200

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.Tower : ATL

Aircraft Operator : Air Carrier

Make Model Name : Regional Jet 200 ER/LR (CRJ200)

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Airspace.Class B : ATL

Component

Aircraft Component : GPS & Other Satellite Navigation

Aircraft Reference : X

Problem : Malfunctioning

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Not Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1502716

Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe

Anomaly.Deviation - Track / Heading : All Types

Anomaly.Deviation - Procedural : Clearance

Detector.Person : Flight Crew

Detector.Person : Air Traffic Control

When Detected : In-flight

Result.Flight Crew : Became Reoriented
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Returned To Clearance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Human Factors
Primary Problem : Aircraft

Narrative: 1

Immediately following takeoff we experienced a course deviation incident. It was the First Officer's leg, and all aspects of the preflight and taxi out went normally and no indications were made that anything was amiss. We lined up on 8R to depart ATL on the POUNC2 departure. All flight and navigation instruments were showing normal. We had an abnormal takeoff procedure due to an MEL on the aircraft. The procedure called for us to leave the landing gear down for 10 min before slowing and retracting. We followed this procedure as instructed by the MEL, and other than the added narrative and attention, had no issue complying.

The course deviation happened after the First Officer called for speed mode, Nav Mode, and then auto pilot. After arming NAV mode, I verified that the FCP lights around the button illuminated on the Captain's side PFD FMS showed armed and then active. The auto pilot was armed and we continued with our flight profile. When checking on with departure I noticed that our flight path didn't appear to be correct and despite my side PFD showing FMS active, it wasn't following the correct course. Looking at the FO's side, his course needle had disappeared and the aircraft appeared to have remained on runway heading. We quickly acted together to try and correct the incident. While I spun the heading bug to our first fix of HRSHL and switched from NAV mode (which was still illuminated) to HDG mode, the First Officer cycled his NAV source on his side. I quickly activated the FCP to fly from my side and reactivated NAV mode. Autopilot quickly captured and flew the correct course from the Captain's side. This all occurred from about 1,200 feet to approximately 3,000 feet. In the meantime we were pulling up flaps and accelerating as is required on the Departure procedure.

I am not aware of exactly how far off course we deviated before catching the error, but the initial heading of 072 was not flown when it should have been. Air Traffic Control also identified the course deviation, and queried us at about the same time we were taking corrective action. I initiated a FCP event on the aircraft in hopes the company could look into the event to piece together a more complete picture of what may have occurred. Following the event we leveled off in cruise flight and switched the FCP back to the FOs side to see if it had any other issues, which it did not. We elected to continue flying on the CA side, after checking the FOs just in case and called Maintenance once we landed [at destination]. Maintenance Control seemed to believe the issue was a temporary loss of GPS signal.

If it was indeed a loss of GPS signal as Maintenance Control indicated, I don't know if there is some sort of steps that could be made to prevent that in such a critical phase of flight? In the future I will be more certain to verify the autopilot does indeed make the correct turns as expected shortly after arming new flight modes, or arming the autopilot. If we had identified the problem as soon as the plane was supposed to have made the turn and failed to do so, we could have flown the departure procedure manually without incident.

Synopsis

CRJ-200 Captain reported a track deviation resulted when they temporarily lost the GPS signal for unknown reasons.

Time / Day

Date : 201711

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Altitude.MSL.Single Value : 16300

Environment

Flight Conditions : VMC

Aircraft

Reference : X

ATC / Advisory.Center : ZZZ

Aircraft Operator : Air Carrier

Make Model Name : A321

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : GPS

Nav In Use : FMS Or FMC

Flight Phase : Climb

Airspace.Class B : ZZZ

Component

Aircraft Component : Turbine Engine

Aircraft Reference : X

Problem : Failed

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Total : 24500

ASRS Report Number.Accession Number : 1500466

Events

Anomaly.Aircraft Equipment Problem : Critical

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Diverted

Result.Flight Crew : Inflight Shutdown

Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed in Emergency Condition
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

After departing the Airport and climbing through 16,300 feet, we heard a loud bang associated with a compressor stall, immediately followed by an engine number 2 failure. The aircraft yawed to the right. I disconnected the autopilot, descended to 16,000 feet, and reconnected the autopilot after trimming the rudder. MCT (Max Continuous Thrust) was selected on the number 1 engine. I directed the First Officer to advise ATC of the engine failure, that we are leveling off at 16,000 feet, [exercising our PIC authority], and requested a return to the Airport.

We completed the ECAM and QRH procedures and re-established various system capabilities. The Flight Attendants were briefed (we expected a normal landing with no evacuation believed necessary), and made a public announcement to the passengers of our returning to the Airport. Utilizing the EFB, the First Officer calculated the Non-Normal Landing Distance. The result indicated that a safe landing could be made on either the Airport Runway XXR, or XXL. We were aware that [both] ILS were Out of Service. Desiring glide-path guidance to the runway, we requested the RNAV (GPS) Runway XXR. After briefing the approach, we advised ATC of our readiness to land. The Emergency Landing Checklist was completed. We were vectored to the final approach and executed an uneventful landing. The aircraft was capable of taxiing to the gate without assistance.

Synopsis

A321 Captain reported that during climb one of the engines failed.

Time / Day

Date : 201711

Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC

State Reference : US

Altitude.MSL.Single Value : 5000

Environment

Flight Conditions : VMC

Light : Night

Aircraft

Reference : X

ATC / Advisory.Tower : ZZZ

Aircraft Operator : Personal

Make Model Name : PA-32 Cherokee Six/Lance/Saratoga/6X

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Climb

Airspace.Class E : ZZZ

Component

Aircraft Component : Electrical Power

Aircraft Reference : X

Problem : Failed

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Private

Experience.Flight Crew.Total : 255

Experience.Flight Crew.Last 90 Days : 24

Experience.Flight Crew.Type : 120

ASRS Report Number.Accession Number : 1500281

Events

Anomaly.Aircraft Equipment Problem : Less Severe

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Diverted
Result.Flight Crew : Landed in Emergency Condition
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Overcame Equipment Problem
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

After an uneventful flight from to ZZZ immediately beforehand, I picked up passengers at ZZZ.

On initial climb out, I lost alternator power. Digital display on panel indicated the problem, but I did not immediately recognize it for what it was. I knew something wasn't right with the electrical system, and suspected that I had lost the alternator but was unsure. Kept an eye on instrument and saw continued negative draw on battery, and voltage dropping, and determined I had a problem.

I reported the problem to ATC, canceled my flight plan, and stated my intent to return immediately to ZZZ. I believe I was on with approach at the time. They asked if I wanted flight following, I said yes, and said I would likely lose my radios soon. By that time the panel was dimming significantly. ATC asked if I needed anything else, and I asked them to get the lights on at ZZZ, and they confirmed my request.

As I was on with ATC, I was executing a 180 turn. Shortly after ATC confirmed my request for lights, I lost all power. I was able to use my phone, which has Foreflight + GPS, to navigate to ZZZ, which was a much easier option than a dark compass. The runway lights were on (I would learn later they were activated by a nearby aircraft at the request of ATC) and I was able to manually extend the gear per memorized procedure, and successfully landed at ZZZ.

ATC had the local fire and police department waiting for me at ZZZ, for which I'm grateful, despite not needing them in the end.

Things I did well:

- Noticed the problem
- Stayed calm
- Took action and told ATC what I needed
- Prepared plan B and C in my mind if plan A didn't work out (Plan B - Call police to get runway lights turned on, Plan C - Fly to towered airport nearby)
- Had a backup nav system ready to go, and used it

Things that I did not do well / will do differently:

- Understand my digital display and electric system completely so that I recognize problems instantly
- In the event of an alternator problem, immediately slow to gear extension speed and extend gear, and turn off all unnecessary electrical items
- Practice with and carry a portable radio on all flights

Synopsis

Piper 32R pilot reported that during climb all electrical power was lost.

Time / Day

Date : 201711

Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : PHL.Airport

State Reference : PA

Environment

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.Tower : PHL

Aircraft Operator : Air Carrier

Make Model Name : Widebody, Low Wing, 2 Turbojet Eng

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Nav In Use : GPS

Flight Phase : Initial Approach

Route In Use.Other

Airspace.Class B : PHL

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1499623

Analyst Callback : Completed

Events

Anomaly.Deviation - Procedural : Published Material / Policy

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Requested ATC Assistance / Clarification

Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Chart Or Publication

Primary Problem : Chart Or Publication

Narrative: 1

Assigned and briefed Runway 27L RNAV GPS approach including location of PAPI reference to the runway. When became visual noticed the PAPI was on the "left" side of Runway 27L and not as diagrammed (right side of the runway). Crew had PHL ATC Tower confirmed we were in fact lined up with the correct runway we were cleared to land on.

JEPP Chart 12-5 (effective date 22 JUN 2017) inaccurate. Suggestion: Reprint 12-5 JEPP chart to accurately reflect location of the PAPI.

Callback: 1

The reporter reiterated the points stated in the narrative. He stated that he did not query the Tower Controller if the error on the chart was known, and that the Tower Controller gave no indication whether it was known or not. The reporter stated that he only asked whether his aircraft was lined up on the correct runway. The reporter stated that the PAPI depiction is also similarly incorrect on the PHL Jepp 11-7 (ILS or LOC Rwy 27L) chart, Effective 22 Jun 2017. He stated that the PAPI is located approximately 800 feet beyond the Runway 27L threshold on the left side.

Synopsis

Air carrier Captain reported the PAPI depiction on the Jeppesen 12-5 Chart for the PHL RNAV (GPS) Runway 27L approach, dated 22 Jun 2017, is shown on the incorrect side of the runway.

Time / Day

Date : 201711

Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZZZ.ARTCC

State Reference : US

Altitude.MSL.Single Value : 23000

Environment

Flight Conditions : IMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.Center : ZZZ

Aircraft Operator : Air Taxi

Make Model Name : Challenger 300

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Ferry

Flight Phase : Cruise

Airspace.Class A : ZZZ

Component : 1

Aircraft Component : Generator Drive

Aircraft Reference : X

Problem : Failed

Component : 2

Aircraft Component : GPS & Other Satellite Navigation

Aircraft Reference : X

Problem : Malfunctioning

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Taxi

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1494650

Human Factors : Distraction

Human Factors : Confusion

Human Factors : Workload

Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Clearance
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Environment - Non Weather Related
Primary Problem : Ambiguous

Narrative: 1

I was the Pilot Flying on a reposition flight. Shortly after entering the cruise phase of flight, the left generator failed and load shed off the system. The PNF and I ran the appropriate abnormal checklist but ran into some difficulty due to some other electrical issues occurring. We did not declare an emergency because we were able to get the APU generator online. At the same time ATC issued us instructions from our assigned route to turn direct to the ZZZ airport after ZZZZZ intersection. As the pilot flying and working the radios during the abnormal checklist, I acknowledged the instructions and proceeded to reprogram the FMS accordingly. We were within a few miles of ZZZZZ intersection so as I programmed in the new routing we began the turn. ATC then asked if we were turning towards the airport which I replied we were. She then stated that we needed to turn back towards ZZZZZ then to the airport as we were getting too close to [a restricted area]. I stated we were past the intersection but she showed us 2 miles west. We were also informed of GPS abnormalities reported in the area and that a discrepancy in our location would not be unusual. We were then instructed to proceed direct to ZZZZZ1 to transition to the approach. The rest of the flight concluded uneventfully.

The first thing we should have done was make ATC aware that we were dealing with an electrical issue even though it was not an emergency. I think if they had known, we would not have been loaded up with routing changes at that moment. I also should have focused solely on my task of flying the aircraft and working the radios and FMS instead of half listening the PNF running the checklists and working the electrical issue. I believe I became task saturated by thinking I needed to hurry in my reprogramming the FMS and may have inadvertently proceeded direct to the airport initially instead of the assigned fix and then to the airport. There was no need to rush and by asking for vectors and looping ATC into our electrical situation I could have kept the workload down and focused on one task at a time.

Synopsis

CL300 pilot reported the left generator failed and possible GPS interference. These anomalies led to a course deviation which was resolved with assistance from ATC.

Time / Day

Date : 201711

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : IAH.Airport

State Reference : TX

Altitude.MSL.Single Value : 4000

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.TRACON : I90

Aircraft Operator : Air Carrier

Make Model Name : EMB ERJ 170/175 ER/LR

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Flight Phase : Initial Approach

Route In Use.STAR : LINKK1

Route In Use.Other

Airspace.Class B : IAH

Component

Aircraft Component : FMS/FMC

Aircraft Reference : X

Problem : Malfunctioning

Person : 1

Reference : 1

Location Of Person.Facility : I90.TRACON

Reporter Organization : Government

Function.Air Traffic Control : Approach

Qualification.Air Traffic Control : Fully Certified

Experience.Air Traffic Control.Time Certified In Pos 1 (yrs) : 3

ASRS Report Number.Accession Number : 1493528

Human Factors : Situational Awareness

Human Factors : Confusion

Person : 2

Reference : 2

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1493698
Human Factors : Human-Machine Interface
Human Factors : Situational Awareness

Person : 3

Reference : 3
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1493700
Human Factors : Human-Machine Interface
Human Factors : Situational Awareness

Events

Anomaly.Deviation - Altitude : Crossing Restriction Not Met
Anomaly.Deviation - Procedural : Clearance
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Provided Assistance
Result.Air Traffic Control : Issued Advisory / Alert
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Chart Or Publication
Primary Problem : Aircraft

Narrative: 1

I was working Final and cleared Aircraft X on the RNAV approach from a fix at 4000 feet. The next fix had a crossing restriction of 3000 feet. Aircraft X was not descending and I asked the pilot if his FMS shows the fix at 3000 feet, or at or above 3000 feet. The pilot said that his FMS shows that fix is at or above 3000 feet. I indicated that the approach plate has the fix AT 3000 feet and told them to descend. I told the Supervisor on duty about the situation.

There have been multiple E175s having this issue where the FMS shows an "At or Above" altitude on the approach, and the approach plate is an "AT" altitude. Have [Company] double check their FMS to make sure it matches the approach plates.

Narrative: 2

We were flying the LINKK1 STAR into IAH with the GPS Z 27 approach transition. We were given a different descent clearance to 4000 expedited and slow to 210 kts. We were then cleared for the GPS 27 approach. After passing the fix SYYKO (the last fix before intercepting the final approach course) ATC asked us what our FMS read for the restriction at SYYKO. We stated that it read "at or above 3000 feet." ATC then informed us that it should read a hard altitude of "at 3000 feet." We were then given clearance to descend to 3000 feet and again cleared for the GPS 27 approach. We finished the approach and taxied to the gate without further incident. Once we got to the gate I called the Houston approach controller and spoke with him about the altitude deviation. He stated that this had been a reoccurring issue with our E175s flying the GPS Z 27 approach when crossing the SYYKO fix. We discussed the issue with the FMS database as well as the VNAV logic of the aircraft to want to stay high until it can perform a 3.0 degree glidepath to the next altitude restriction. He was very helpful and I told him I would send an email to the chief pilot to alert the rest of the pilot group to the FMS error and the need to manually input the 3000 foot restriction at the SYYKO fix. He also stated that there was no traffic in the area and we didn't cause any other disruption to the flow. Also I have never noticed this error using the same fix when on the ILS 27 approach.

We always read through the arrival fixes and verify each waypoint restriction however on most approaches there are not the same kinds of restrictions so verifying each waypoint altitude is not a normal part of the briefing. Also considering that with the use of ATC radar vectors we don't actually fly over many of the points on an approach and our altitude and speed are constantly being amended by ATC. On our CAT 2 checklist though one of the required briefing items is to verify every point on the approach and the associated altitude. This kind of expanded briefing and just always double-checking the approach chart to make sure you don't miss something would help prevent these kinds of deviations. If we would have noticed the discrepancy between the FMS and the chart we could have queried ATC to verify that we should be at 3000 feet at SYYKO.

Narrative: 3

[Report narrative contained no additional information.]

Synopsis

190 TRACON Controller and EMB175 flight crew reported the E175s have an FMS anomaly where a crossing restriction is programmed as "at or above" when it should be "at."

Time / Day

Date : 201710
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 0

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Carrier
Make Model Name : MD-11
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Flight Phase : Takeoff

Component

Aircraft Component : Intake Ice System
Aircraft Reference : X
Problem : Improperly Operated

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1492899
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Flight Cancelled / Delayed
Result.General : Maintenance Action
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Returned To Departure Airport
Result.Flight Crew : Landed As Precaution

Assessments

Contributing Factors / Situations : Human Factors

Contributing Factors / Situations : Aircraft

Primary Problem : Human Factors

Narrative: 1

Preflight and taxi out normal, FO takeoff. At 80 kts callout I thought I heard the FO confirm 80 kts but in debrief what I heard was not his confirmation but rather a hesitation as he was trying to evaluate why he was seeing a much higher airspeed than I. As we continued down runway I could tell something not quite right and started to make some comparisons of the airspeed indicators. By the time I could determine the airspeed was in error it was too late to reject and the FO rotated aircraft and climbed out normally but Captain's airspeed was 30-40 kts lower than the FO's and upon looking at the auxiliary airspeed it did not appear to match either airspeed indicator so the climb out was pretty much conducted by attitude and power setting (which was done perfectly by the FO). At about the gear up call we had numerous alerts and failures. Trying to evaluate all the information was time consuming and extensive. I elected to have FO continue flying and coordinated with ATC to fly aircraft out over water because we were at least sure we had an airspeed problem and not sure what our actual speed was, it also would put us in position for an immediate approach back to [departure airport] if needed. Level 2 alerts SEL ELEV FEEL MAN and SEL FLAP LIM OVRD, Auto pilot would not engage, Flight directors removed from view, PROF did not appear to function and Flap retract speeds went away also IAS comparator light came on.

After being confident the aircraft was flying in a safe regime (airspeed and altitude) began working the checklist initially for SEL ELEV FEEL MAN as it was on top of list. A jumpseater who was in the RFO seat initially suggested we were not in the flight mode but when the flaps came back on at 3000 feet that was discounted later he suggested it might be a central air data computer problem, I elected to continue with the checklist (not John Wayne the situation by pushing switches) as we were in good control and fuel was not an issue. The checklist (SEL ELEV FEEL MAN and SEL FLAP LIM OVRD) directed us to UNRELIABLE AIRSPEED which did eventually take me to the central air data computer and that did clear the problem. The jumpseater was also very helpful in visually backing us up and checking all the circuit breakers and trying to contact the company for us. While maneuvering out over the ocean we were constantly trying to determine our correct airspeed by cross checking the 3 Airspeed indicators/ground speed indications (INS/GPS) and ground speed from ATC, I elected to leave the slats extended throughout as I thought it allowed us a large room for error.

When Capt on central air data computer 2 was selected all indications and auto flight systems were restored, but not completely trusted. Speed was again cross checked with GPS and ATC ground speed readout. When all checklists were done and we were confident that what our instruments were displaying was correct we [advised ATC] and maneuvered for the ILS. I elected to fly the approach manually and assumed control from the FO and disconnected the autopilot early to make sure I had a good feel for the aircraft. I added a couple of extra knots to the approach speed for safety sake and we had a normal flaps 35 landing. When we returned to the gate and talked to Maintenance they quickly went to check the pitot tubes and brought back to the cockpit a few pieces of fabric which was pulled from the Captains pitot tube. The fabric was easily traced back to the interior of the worn pitot tube covers onboard the aircraft.

I believe these pitot tube covers need to be replaced with some that can hold up to the

constant use (being installed and removed) every day. If they are used fleet wide it is easy to see this happening again. Also looking at the 80 kts callout almost in the same vain as a GO/NO GO callout, there really is very little time to evaluate indications before you are at V1 and VR. When pilot monitoring has the bad or in this case slower indications the person flying needs to challenge when he reaches 80 kts and has not heard the reference from the pilot not flying. This call needs to be clear and assertive.

Synopsis

MD-11 Captain reported returning to the departure airport after noting multiple system faults later traced to worn pitot tube cover debris.

Time / Day

Date : 201710
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.TRACON
State Reference : US
Altitude.MSL.Single Value : 5500

Environment

Flight Conditions : VMC
Light : Night

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Personal
Make Model Name : M-20 Series Undifferentiated or Other Model
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : VFR
Mission : Personal
Flight Phase : Landing
Route In Use : Visual Approach
Airspace.Class E : ZZZ

Component

Aircraft Component : Electrical Power
Aircraft Reference : X
Problem : Malfunctioning

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Private
Experience.Flight Crew.Total : 177
Experience.Flight Crew.Last 90 Days : 50
Experience.Flight Crew.Type : 90
ASRS Report Number.Accession Number : 1492318
Human Factors : Communication Breakdown
Human Factors : Confusion
Human Factors : Time Pressure
Human Factors : Distraction
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew
Communication Breakdown.Party2 : ATC

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Flight Deck / Cabin / Aircraft Event : Other / Unknown
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Diverted
Result.Flight Crew : Overcame Equipment Problem
Result.Flight Crew : Landed As Precaution

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Airspace Structure
Primary Problem : Aircraft

Narrative: 1

Flight conditions VFR. [In cruise], electrical problems developed and GPS intermittently lost power. PIC made the decision to return to ZZZ. Enroute to ZZZ, GPS/Primary Comms lost all power. Comm 2 was activated. Further on, Comm 2 lost power, and transponder eventually lost power. Decision was made to land at ZZZ1 since it was apparent electrical problems were developing quickly. Flight did not continue to ZZZ because it was fully within the Mode-C veil, and transponder had lost power. ZZZ1 was chosen because it was closest and partially outside the Mode-C area. As flight progressed, aircraft lost lights and on-board intercom, creating an immediate need to land and possibly quasi-emergency situation. Flight landed safely at ZZZ1 after pilot controlled runway lighting was successfully activated by a hand held transceiver. A non-flying pilot contacted the TRACON on the ground and requested permission to enter the Mode-C area without a transponder, in the event the aircraft could be safely restarted and flown to ZZZ. Permission was granted by TRACON, though the controller seemed indifferent provided the aircraft stayed outside (under) the Class B airspace. The aircraft could not be restarted and flown, and was left at ZZZ1 for repair.

Synopsis

M20 pilot reported a loss of electrical power and diversion to an airport outside of the Mode C veil.

Time / Day

Date : 201710

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : NUW.TRACON

State Reference : WA

Altitude.MSL.Single Value : 6000

Environment

Flight Conditions : IMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.TRACON : NUW

Aircraft Operator : Personal

Make Model Name : Cessna 210 Centurion / Turbo Centurion 210C, 210D

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Personal

Flight Phase : Cruise

Airspace.Class E : NUW

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Commercial

Qualification.Flight Crew : Flight Instructor

Qualification.Flight Crew : Instrument

Experience.Flight Crew.Total : 566

Experience.Flight Crew.Last 90 Days : 8

Experience.Flight Crew.Type : 30

ASRS Report Number.Accession Number : 1491491

Human Factors : Human-Machine Interface

Human Factors : Situational Awareness

Human Factors : Time Pressure

Human Factors : Workload

Human Factors : Confusion

Events

Anomaly.Deviation - Track / Heading : All Types

Anomaly.Deviation - Procedural : Clearance

Anomaly.Deviation - Procedural : Published Material / Policy

Detector.Person : Air Traffic Control
When Detected : In-flight
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Became Reoriented
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Issued New Clearance
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

I was flying an IFR trip to Vancouver in an aircraft I don't have a lot of time in. I'm instrument rated, current, but evidently not 100% proficient. I was flying along with GPSS enabled on the Aspen PFD, feeding from the Garmin 480 (#1 nav). About 4 miles before the Penn Cove VOR (CVV), ATC instructed me to fly to the VOR and fly outbound the 310 radial to intercept the YVR 145 radial. In my effort to tune and identify both stations, I got behind the airplane. By the time I got YVR tuned into my #2 Nav, I was already past the 145 radial and I had lost situational awareness. I flip-flopped the #1 nav to the YVR VOR and turned to intercept. But because I was task saturated, I didn't realize that I had twisted a 145 course (not a 325 course) into the Aspen. Further, I rotated the heading bug to make the aircraft turn to intercept a course of 145. I had lost situational awareness and failed to see the big picture (I knew, of course, that the YVR VOR was North West of my position, I just didn't incorporate that information). As I was in the turn, ATC asked me for my heading. I can't remember what it was, but in response they said "Why are you going that way, that won't intercept the VOR." At that point I confessed and complied, saying something like "Well help me out, then please. What heading should I fly?" They gave me an on-course heading, I realized my mistake, tuned in the VOR correctly, and completed the remainder of the flight uneventfully.

So what happened? Well, it was difficult to transition between the 480 as a GPS navigator and a nav radio. In retrospect, there are three things I could have done, one of which I know how to do off the top of my head, two of which I will/have looked up to improve my familiarity.

1) I should have had CVV dialed in as a backup. I think the principle of being able to "step down the ladder" in terms of complexity is helpful, but not if you have to scramble to lookup frequencies, tune, identify, twist, etc. And I could even have had YVR as a cross radial already, knowing that it would add to situational awareness. All this even though I was on a flight plan on a capable GPS navigator.

2) Use Foreflight to get some more situational awareness. In this case, that was complicated a bit. I was using their new Jeppesen IFR low charts which doesn't show the navaid frequency or Morse ID, so I had to do more hunting. I could have input the radial intersection as a waypoint and seen a graphical display, but I didn't know how to do that at the time (it turns out you can enter with a series of slashes: CVV/310/YVR/145). That would have improved my situational awareness.

3) Use the GNS 480 to intercept a course off of a GPS fix. I know this can be done, but I have to lookup how.

Things I did well:

Ask ATC for help. Especially in single-pilot ops they are a great cross check (as they were here). They're quite good at pointing out errors/deviations, but they sometimes need to be nudged to provide help. Flying IFR is hard. I would have rather not have made this mistake, but I'm happy ATC called me out and helped me get back on course.

Synopsis

Cessna 210 pilot reported task saturation, losing situational awareness, deviating from course, and asking for assistance after the Controller asked why he had made a turn. The Controller provided assistance and the flight then proceeded normally.

Time / Day

Date : 201710
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : VNY.Airport
State Reference : CA
Altitude.MSL.Single Value : 6000

Environment

Flight Conditions : VMC
Weather Elements / Visibility.Visibility : 10
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.TRACON : SCT
Aircraft Operator : Air Taxi
Make Model Name : Light Transport, Low Wing, 2 Turbojet Eng
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Nav In Use : FMS Or FMC
Nav In Use : GPS
Flight Phase : Initial Climb
Route In Use.SID : HAYEZ FIVE
Airspace.Class E : SCT

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 11000
Experience.Flight Crew.Last 90 Days : 35
Experience.Flight Crew.Type : 500
ASRS Report Number.Accession Number : 1490536
Human Factors : Communication Breakdown
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

Taxiing out of the FBO the flight crew were advised by ATC of an amendment to our IFR departure clearance. A new SID was issued and I observed while the first officer selected the HAYEZ FIVE as the current departure loaded to our aircraft's FMS flight plan. This procedure was selected to replace the HARYS ONE departure which we had manually loaded together a few minutes earlier. On taxi out I scanned the aircraft's EFB iPad to confirm the fixes automatically loaded in the FMS matched the SID plate and as part of the takeoff briefing read aloud the name of each fix we would cross on the SID, the most immediate turns and the speed/altitude restrictions appropriate at each fix.

Takeoff clearance was received from VNY Tower and as we lifted off I relied on the first officer to help monitor our progress with the Garmin 750 visual display set in map mode to help ensure the course in the Departure Procedure was accurately flown during this IFR departure. Very soon after takeoff between CONDS and TRAFF we were switched to SoCal Departure and the first officer's hand came up covering the map screen as he changed frequencies on the Garmin 750's integral communication radio. I expected his hand to go down quickly so I could resume reference to the screen and also receive his inputs verifying our position relative to each of the closely spaced fixes. Instead, his hand remained covering the display so I assumed he was taking a little delay as he sometimes does inputting frequencies on this device. While I focused on flying the aircraft the first officer had taken it upon himself to switch the GNS 750 display from Map into Flight Plan mode and was reprogramming the SID by manually deleting 2 immediately upcoming fixes necessary to navigate the departure! When his hand came down the display was now out of map mode and I had to reorient myself to the fixes in map mode. This was distracting as I now had to reset the screen mode, re-evaluate our position and search for fixes on the Departure Procedure that I had no idea had been deliberately removed. At that moment the SoCal controller jumped in very annoyed we had missed the important first turn and while discussion ensued between himself and the [first officer], I attempted to regain enough situational awareness to re-intercept the proper course. The controller chastised us rather bluntly and finally issued vectors to the proper course. The weather was VMC and no traffic conflict occurred to my knowledge.

Later, while debriefing, [the first officer] claimed he didn't have enough time on the ground to verify the loaded departure and was concerned to delete possible duplicate fixes between the new departure and one previously loaded. I replied that the Garmin appeared to accurately display the loaded procedure from its database and if he thought otherwise he should have stated so. Further, by acknowledging the takeoff briefing and accepting the takeoff clearance this implied to me that he was ready to provide his full support and participation in executing the departure as briefed. [He] acknowledged this and apologized for interfering with my ability to utilize the FMS for navigation but could offer no rational

explanation as to why he would reprogram it without mutual consent as well as his failure to monitor the departure in progress as is normal procedure. I consider my part in this breakdown of communications was to not fully recognize this first officer was overwhelmed at the speed at which things were happening. VNY was very busy and we were in fact hustling as the Departure Procedure change caught us out of the gate. I believe [he] did his best to catch up to his own satisfaction but it's inexplicable if he could not realize those actions he took with the FMS were out of step as well as inaccurate and therefore distracting and contrary to the pilot flying performing his duties. In retrospect, I should have advised the controller at the first sign of a failure in the FMS/GPS programming and solicited his help in navigation.

Synopsis

Corporate jet Captain reported a deviation on the HAYEZ FIVE departure from VNY due to the First Officer reprogramming the SID and manually deleting two fixes necessary for the departure.

Time / Day

Date : 201710

Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : RFD.Airport

State Reference : IL

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.Center : ZAU

Aircraft Operator : Air Carrier

Make Model Name : Widebody, Low Wing, 2 Turbojet Eng

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Nav In Use : FMS Or FMC

Nav In Use : GPS

Nav In Use.VOR / VORTAC : mzv

Flight Phase : Initial Climb

Flight Phase : Takeoff

Flight Phase : Parked

Route In Use : Vectors

Airspace.Class D : RFD

Airspace.Class E : ZAU

Component

Aircraft Component : FMS/FMC

Aircraft Reference : X

Problem : Improperly Operated

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Not Flying

Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1490438

Human Factors : Confusion

Human Factors : Situational Awareness

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1490859
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Automation : Aircraft Terrain Warning
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Issued New Clearance
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

The initial preparation for the flight went well, and was completed properly and accurately In Accordance with SOP. This report pertains to an event with the navigation system/FMC. There were no prior issues with the system recently reported. The IRUs were initialized from OFF, and the ramp position was derived from the Airport Diagram, Electronic Flight Bag (EFB) [page] "10-9", compared to the airport reference coordinates, and also, as a triple check, compared to the GPS position displayed on the EFBs. It was verified by both of us as being properly entered into the FMC during initial alignment. The FMC in this case is a non-GPS equipped "Legacy Box", which does not automatically update position to the selected runway when the "N1/EPR button" is pushed at the beginning of the takeoff roll, often requiring a position update prior to entering the runway for takeoff.

After a normal and early block out, we taxied out. I recall viewing the ND (Navigational Display), and we appeared to be in a reasonable position relative to the selected runway, 19. Prior to block out, in anticipation of possibly updating our position prior to takeoff, I retrieved the runway coordinates from the FMC database by selecting the LOC/BC 19 approach, line selecting the runway point from its list of waypoints onto the scratchpad, erasing the approach without executing it, pulling up the index page, selecting NAVIGATION DATA, and moving the runway point to the open blocks on that page. This presented the Runway 19 coordinates..., which I wrote down on my paper scratchpad, as well as onto the scratchpad of the CDU, and checked them against the Airport Diagram.

Upon reaching the hold short point at the intersection of F/19, I stopped the aircraft. Although we appeared to have been still in a fairly accurate position situation on the ND, I

had extra time, and I decided to update the FMC position prior to takeoff. I initiated a quick realign of the IRUs, and went to move the coordinates from the CDU scratchpad to the open aircraft position blocks on the Position page, when I noticed that the coordinates were no longer in the scratchpad. This is where things may have gone wrong, barring any deficiencies found post flight by Maintenance, which I am currently unaware of.

I repeated the coordinate retrieval process described earlier, and typed those coordinates back into the CDU scratchpad. I returned to the Position page, showed the coordinates to the First Officer (FO), he agreed with me, and I entered and executed them, neglecting to also compare them to the coordinates I had written down on paper the first time. The Alignment completed seconds later, and Tower cleared us onto the runway, cleared for takeoff, direct to MZV VOR. I believe at this point, I rotated my ND range selector from the lowest range to a much further out range in order to mentally orient myself with the direction of MZV. This action may have prevented me from noticing a self-induced "Map Shift" event, or the map just hadn't caught up yet. Either way, I had mentally already "checked that box", so to speak, but that was before the position update, so that was null and void.

We initiated the takeoff roll with the FO as Pilot Flying, and all appeared normal. After liftoff, we received an aural "Terrain" warning, in VMC conditions, where there was obviously no terrain or obstacle present. I immediately referenced the ND, and saw that the RFD airport was depicted on it directly in front of us. Obviously, it was actually behind us. We continued the climb out otherwise normally, and I immediately selected Manual on the VOR control head. I compared the DME to the mileages depicted on the LEGS page and the FIX page with MZV entered. The difference was about 8 miles. By the time I had processed this in formation, I was about to contact Center, and had just passed over the MZV VOR, according to the Navigation Radio. We had not yet reached it according to the FMC. He contacted us right then, and confirmed that we were just past it. I requested a radar vector, and informed him that we had a navigational problem, and we're working on it, and that we would like to remain on vectors for the time being. The controller was very understanding, and seemed eager to assist us.

Although I am not certain of this, I will assume that the discrepancy was caused by operator error, mostly on my part. I did not stress enough to the FO the importance of cross checking my coordinate selections, or their input, or the verification of aircraft position afterwards. The FO may not have realized at that time that I had to re-type those coordinates into the scratch pad after they disappeared, so he may not have felt the need to re-check them. I may have typed in [the wrong coordinates] by accident the second time, and not caught it at that point. I may have selected the wrong waypoint from the list, which was very similar in name to the runway waypoint, and used those coordinates the second time around. I needed to take an extra moment before entering the runway for takeoff to verify our aircraft position on the ND, but had mentally checked that off already. Unfortunately, that mental check was completed before the position update. Being cleared for takeoff and directly to MZV, just before positioning, I increased the range out to view MZV on the ND, which degraded the apparent accuracy of that picture, making it more difficult to notice that we were not quite in the right place.

Narrative: 2

We did some troubleshooting and found that the IRSs were in a degraded situation, hence the inaccurate map position and false GPWS warning earlier.... We continued to [destination] on our filed jet route, tracking VORs along the way.

Synopsis

Air Carrier flight crew reported that a self-induced FMC position error was the likely cause of a false GPWS Terrain Warning and track deviation after takeoff.

Time / Day

Date : 201710

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZLA.ARTCC

State Reference : CA

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.Center : ZLA

Aircraft Operator : Air Carrier

Make Model Name : Regional Jet 200 ER/LR (CRJ200)

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Flight Phase : Descent

Route In Use.STAR : HUULL 1

Airspace.Class A : ZLA

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Not Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1487908

Human Factors : Confusion

Person : 2

Reference : 2

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : First Officer

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1487906

Human Factors : Confusion

Events

Anomaly.ATC Issue : All Types
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : Other / Unknown
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Air Traffic Control : Issued New Clearance
Result.Air Traffic Control : Issued Advisory / Alert

Assessments

Contributing Factors / Situations : Equipment / Tooling
Contributing Factors / Situations : Human Factors
Primary Problem : Equipment / Tooling

Narrative: 1

It seems that the new SID/STARS for LAX have not been added in the database for LAX. I could not find the HUULL 1 STAR in the breakdown. We were assigned the HUULL 1 TOKIO transition into LAX. While on the STAR past TOKIO, ATC (LA Center) queried about our position. I answered that we were on course and ATC alleged that we were not. We checked the flight plan in the FMS and double checked, then checked our position again, and everything checked out. We were on course, as far as our equipment was concerned. ATC gave us a heading, and stated that there may be some interference with the GPS in the area. In a minute or less, he cleared us direct HUULL. In another minute or so, he gave us a frequency change and, at that time he apologized for the inconvenience, stating that indeed, there was GPS signal jamming in the area. He then apologized again, quote, for the inconvenience, end quote.

After landing in LAX, Ground Control gave us a phone number to call for LAX Center, stating there was a possible pilot deviation. I called after we got to the gate, and the LA Center controller that I talked to stated that we were two miles off course and that he had to file a report, and that we should file [a report]. I advised him of the events as explained above and I told him that as far as we could tell, we did nothing wrong. We concluded the conversation, and about ten minutes later, I got a call from the same gentleman who told me that he listened to the tapes, and also talked to the supervisor on duty at the time, who confirmed that there was GPS jamming at the time, but somehow, he was wrong about it. And he also suggested that it could have been equipment malfunction on our side (the aircraft). I thanked him for the info and that was the end of the conversation. Not sure of what the reason for the deviation was, but we double checked and triple checked and everything in the FMS was entered correctly and looked as it should, however, as far as ATC stated, we were off course. Again, not sure to the cause of this event, so I can't offer any mitigating solutions.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

CRJ200 flight crew reported being informed by ATC that they were off course. They informed the crew that there was reported GPS signal jamming in the area.

Time / Day

Date : 201709

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : BTV.Airport

State Reference : VT

Altitude.MSL.Single Value : 5500

Environment

Flight Conditions : IMC

Light : Night

Aircraft

Reference : X

ATC / Advisory.TRACON : BTV

Aircraft Operator : Air Carrier

Make Model Name : Medium Transport, Low Wing, 2 Turbojet Eng

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : GPS

Nav In Use : FMS Or FMC

Flight Phase : Initial Approach

Airspace.Class E : BTV

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Not Flying

Function.Flight Crew : First Officer

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1484949

Human Factors : Fatigue

Human Factors : Situational Awareness

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude

Anomaly.Deviation - Track / Heading : All Types

Anomaly.Deviation - Procedural : Clearance

Anomaly.Inflight Event / Encounter : CFTT / CFIT

Detector.Person : Air Traffic Control

When Detected : In-flight

Result.Flight Crew : Became Reoriented

Result.Air Traffic Control : Issued New Clearance

Result.Air Traffic Control : Issued Advisory / Alert

Assessments

Contributing Factors / Situations : Human Factors

Primary Problem : Human Factors

Narrative: 1

While heading into BTV we were on vectors to RNAV GPS Z Rwy 33. We were at 5500 feet and on a heading to intercept the final course inbound. While on this heading we were cleared for the approach. We intercepted the inbound course and proceeded with the approach. What I failed to realize is that we were outside NIDUQ. The minimum crossing at NIDUQ is 5400 feet. We were lower than the required 5400 ft and just about to level at HONIB when approach stated that we descended below the required crossing restriction of 5400 feet at NIDUQ. At this point, we had the airport in sight and told approach that we had the airport in sight. He cleared us for the visual and we continued and landed safely without issue.

This was the third night. I was tired as I didn't sleep well the night before and I didn't get enough sleep during the day. I definitely tried to sleep during the day, but only slept about 3 hrs. Once on the ground and parked at the gate. I dug into how I missed the fix. I reloaded the approach with vectors and realized that it doesn't load any fixes past HONIB. I have learned my lesson and will always select an IAF instead of vectors. I was also complacent in thinking that it was going to be a visual approach with the RNAV as a backup.

Synopsis

CRJ-200 First Officer reported descending below charted altitude on approach to BTV citing fatigue as a contributing factor.

Time / Day

Date : 201709

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : LAN.Airport

State Reference : US

Environment

Weather Elements / Visibility : Cloudy

Light : Night

Aircraft

Reference : X

ATC / Advisory.Tower : LAN

Aircraft Operator : Air Taxi

Make Model Name : Small Transport, Low Wing, 2 Turboprop Eng

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 135

Flight Plan : IFR

Nav In Use.Localizer/Glideslope/ILS : Runway 10R

Flight Phase : Initial Approach

Airspace.Class C : LAN

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Taxi

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Commercial

ASRS Report Number.Accession Number : 1484367

Human Factors : Communication Breakdown

Human Factors : Confusion

Human Factors : Situational Awareness

Communication Breakdown.Party1 : Flight Crew

Communication Breakdown.Party2 : ATC

Events

Anomaly.Aircraft Equipment Problem : Less Severe

Anomaly.ATC Issue : All Types

Anomaly.Deviation - Track / Heading : All Types

Anomaly.Deviation - Procedural : Published Material / Policy

Anomaly.Deviation - Procedural : Clearance

Anomaly.Inflight Event / Encounter : CFTT / CFIT

Detector.Automation : Air Traffic Control

Detector.Person : Flight Crew

Detector.Person : Air Traffic Control

When Detected : In-flight

Result.Flight Crew : Returned To Clearance

Result.Flight Crew : Requested ATC Assistance / Clarification

Result.Flight Crew : Overcame Equipment Problem

Result.Flight Crew : Became Reoriented

Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft

Contributing Factors / Situations : Airspace Structure

Contributing Factors / Situations : Human Factors

Contributing Factors / Situations : Procedure

Primary Problem : Procedure

Narrative: 1

Weather at LAN was reporting reduced visibility and a broken layer so I was told by ATC to expect the ILS 10R and to proceed direct to PETKE which put me on an approximate heading of 180. The controller instructed me to turn to HDG 130 to intercept the localizer when I was approximately 1 NM to the fix, which lead on an overshoot of the LOC (due to the fact that my ground speed was 200 kts and performing a standard rate turn resulted in a wide turning radius that lead to the overshoot). Once I corrected for the overshoot and turned to a HDG to re-intercept the LOC I noticed at this time that I had a NAV FLAG on HSI 1 & 2. After a quick troubleshoot of swapping frequencies to standby and back the flag went away. It was around this time I was instructed to contact tower, and after the frequency change I saw a runway in the distance, which I thought was LAN RWY 10R. I told tower I was with them for the ILS 10R and that I had the runway in sight and I was then informed that I was cleared to land. I began to continue visually to the runway in sight, but quickly realized this was the incorrect airport/runway and at the time the tower controller told me to check altitude and that I was reported at being low. I then began a climb and transitioned back to the instruments thus realizing I was actually not lined up with the correct runway. I informed the tower that I was correcting and the controller told me that it was okay and it wasn't the first time someone had done the same thing by attempting to land at the wrong airport while on this approach and it happens all the time. After a safe landing I taxied in and shut down without any communication that there was a potential pilot deviation or else I would've completed a report right away.

After being brought to my attention that there was a potential pilot deviation I have been able to reflect on the situation and have come up with a few conclusions. To begin with I had a bad vector to intercept the LOC, which I had even stated on the radio to the tower controller. The approach controller allowed me to get far too close to the PETKE waypoint without the understanding that the aircraft would require more time and distance to make the turn to be wings level prior to intercepting the LOC. Instead, I was given insufficient distance and time to complete the turn prior to overshooting the LOC. By the time I was wings level at the intercept HDG he gave me I was already 1 dot past the LOC. In the future to prevent this I will not accept a bad vector. I will inform them that I am unable and will need to be vectored around with a better intercept HDG.

The next thing that went wrong was the fact that I got a NAV FLAG on both HSIs and didn't immediately report the failure of NAV equipment, instead I troubleshoot the issue (which seemed to correct itself since I originally had the correct frequency in the NAV radio to begin with). I believe the correct action if this happens in the future is to immediately execute a published missed approach procedure and ask for a HDG and

altitude if necessary to insure that everything is being done to aviate safely and without violation of FARs.

Next was the lack of communication/misunderstanding of ATC communications that occurred. After the handoff from approach to tower when I reported field in sight and was told that I was clear to land. I was under the impression that at this point it was considered a visual approach therefore when I continued visually (only to quickly realize that this was NOT my intended runway of landing) and I further disregarded my flight instruments. I believe, this was a lack of effective communication from the tower and myself and also a pilot error on my part. The communication portion I believe could have been solved when I called field in sight that the tower (knowing visibility and ceilings were reduced and NOT having me in sight on final approach) would have verified that I actually have the correct airport in sight and not cleared me to land unless they indeed had a visual on me as well. In terms of the pilot error portion, I failed to cross-check my flight instruments until I had already descended and only then did I realize there was a disagreement between what I saw in my windscreen and what the instruments were telling me.

The last (and possibly most concerning) thing about this incident that I believe requires immediate action is the fact that the controller informed me that this exact situation happens quite often on a frequent basis. I asked another pilot if they had any issues and they informed me the same thing happened to them, but without any notification of an incident or any action brought forth against them. To me, this is a major safety issue that needs to be addressed. I believe that the local FAA agency needs to reevaluate this particular approach procedure and consider a revision. For starters, the approach requires radar services, therefore if I'm expected to execute this approach utilizing the radar services I need to have a controller who is on duty that is competent to effectively and safely vector me onto an appropriate intercept HDG. Next, if there have been so many issues in the past perhaps changing this to a DME IAP procedure would be better, seeing as there is no way (other than using RADAR or GPS) to identify the PETKE intersection or even the distance to the OM/RADAR (FAMLI) final approach fix. Lastly, there should be information readily available to any/all pilots landing LAN on Runway 10R airport about the close proximity of an airport with a runway that is only 6 miles to the west of the field that is aligned almost exactly on the approach path to the 10R runway. I believe that this type of communication can/will prevent this type of incident from happening in the future.

Overall, this has been a learning experience for me and I believe with the proper education and communication this is something that could've been easily been prevented. I can only hope that this information will be used to further educate and prevent further incidents from happening in the future so that we, as aviators, can continue to operate safely, efficiently, and legally for years to come.

Synopsis

Air Taxi pilot reported that after overshooting the LAN Runway 10R LOC, lined up for the wrong airport.

Time / Day

Date : 201709
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : COS.Airport
State Reference : CO
Altitude.MSL.Single Value : 9000

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Cloudy
Weather Elements / Visibility.Visibility : 10
Light : Daylight
Ceiling.Single Value : 7600

Aircraft

Reference : X
ATC / Advisory.Tower : COS
ATC / Advisory.TRACON : PUB
Aircraft Operator : Personal
Make Model Name : Small Aircraft, Low Wing, 1 Eng, Fixed Gear
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : VFR
Mission : Personal
Nav In Use : GPS
Nav In Use.Localizer/Glideslope/ILS : Runway 17L
Flight Phase : Final Approach
Route In Use : Vectors
Airspace.Class C : COS

Component

Aircraft Component : GPS & Other Satellite Navigation
Aircraft Reference : X
Problem : Improperly Operated

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 950
Experience.Flight Crew.Last 90 Days : 25
Experience.Flight Crew.Type : 450

ASRS Report Number.Accession Number : 1483468
Human Factors : Situational Awareness
Human Factors : Training / Qualification
Human Factors : Human-Machine Interface

Events

Anomaly.Flight Deck / Cabin / Aircraft Event : Other / Unknown
Anomaly.Inflight Event / Encounter : Unstabilized Approach
Anomaly.Inflight Event / Encounter : CFTT / CFIT
Detector.Person : Flight Crew
Miss Distance.Vertical : 120
When Detected : In-flight
Result.Flight Crew : Became Reoriented

Assessments

Contributing Factors / Situations : Procedure
Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

I was vectored in IMC at 9000 FT to the ILS 17L approach at COS by Pueblo approach then switched to tower outside of AWONE. Ceiling at COS broadcast at 1500 overcast 1000 broken.

I set up the Garmin GNS 430 and NAV 2 (Navigation 2) for the ILS 17L approach and noticed on the Garmin OBS (Omni Bearing Selector) that the glideslope indicator was centered. Not realizing there was a problem I started down following what I thought was the glideslope.

My problem, in hindsight was that I did not compare the Garmin OBS with the NAV 2 to verify they were agreeing with each other. I also did not double check my altitude compared to the intermediate fixes. I found that I broke out of the clouds at 120 AGL, much lower than expected. Also, I broke out too far away from the runway.

Based on my research I believe one of two things occurred during my setup of the GNS 430. I either did not activate the ILS frequency 109.1 and/or did not verify that it switched from GPS to "VLOC". As mentioned, I did not compare the two OBS to determine consistency and did not verify location versus altitude. I did not receive a low altitude alert from tower, nor did I notice a terrain alert from the GNS 430.

I am current with the necessary number of approaches and I wonder if the transition from a GPS environment to the occasional ILS/VOR environment causes confusion, especially in the heat of battle. I'm wondering if there may be some way to alter the functionality of future devices, or the training curriculum to help negate the inherent confusion to such a transition.

I came back to the airport two days later to fly with a local CFI to help figure out what went awry. This along with my plans to go back up with my own instructor to refresh myself on proper techniques should help prevent this in the future.

Synopsis

GA pilot reported that he descended below the Decision Altitude in IMC due to improper instrument equipment setup procedures.

Time / Day

Date : 201709

Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : PAH.Airport

State Reference : KY

Relative Position.Angle.Radial : 045

Relative Position.Distance.Nautical Miles : 5

Altitude.MSL.Single Value : 2000

Environment

Flight Conditions : VMC

Weather Elements / Visibility.Visibility : 10

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.Tower : PAH

Aircraft Operator : Personal

Make Model Name : Small Aircraft, Low Wing, 1 Eng, Retractable Gear

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Personal

Flight Phase : Initial Approach

Route In Use : Visual Approach

Airspace.Class D : PAH

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : PAH

Aircraft Operator : Personal

Make Model Name : Small Aircraft, High Wing, 1 Eng, Fixed Gear

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Mission : Personal

Flight Phase : Initial Approach

Airspace.Class D : PAH

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Commercial

Qualification.Flight Crew : Multiengine

Experience.Flight Crew.Total : 2828
Experience.Flight Crew.Last 90 Days : 24
Experience.Flight Crew.Type : 2137
ASRS Report Number.Accession Number : 1481818
Human Factors : Workload
Human Factors : Distraction
Human Factors : Situational Awareness

Events

Anomaly.ATC Issue : All Types
Anomaly.Conflict : Airborne Conflict
Anomaly.Inflight Event / Encounter : CFTT / CFIT
Detector.Automation : Aircraft TA
Miss Distance.Horizontal : 2500
Miss Distance.Vertical : 500
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Took Evasive Action
Result.Air Traffic Control : Issued Advisory / Alert

Assessments

Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Procedure

Narrative: 1

About midway through an IFR trip, I was at 4000 feet in visual conditions as I approached my refueling stop, PAH, from the southeast. At my request, the Memphis Center controller cleared me direct to JIPGO (the initial approach fix for the RNAV (GPS) Approach to RWY 32) and instructed me to enter a hold there as published to the southeast. As I completed my second turn in the hold, Center said he was working a jet inbound to PAH about 50 NM to the northwest and a switch to RWY 22 might help a little bit but not much.

I then asked Center if it would help if I cancelled IFR and went VFR. He said it would, cancelled my IFR clearance and approved a frequency change to PAH Tower. I switched to Tower, who requested my location and told me to report a two mile final for RWY 32. Passing JIPGO, I could clearly see PAH about 12 nm to the northwest. Assuming I would be cleared to land on RWY 22, I disengaged my autopilot, began a gradual descent to 2000 feet and continued inbound. About then, the jet told Tower he was entering a six mile right base for RWY 22. When Tower requested my position and altitude. I reported that I was approaching VUCUC at about 2000 feet. Given the traffic situation, I offered to switch to RWY 22 behind the jet. Tower approved the RWY change and asked me to advise when I had the jet in sight and could follow him to RWY 22. I acknowledged those instructions and turned to the north.

As I continued northbound, Tower asked if I had the jet in sight. I advised that the jet was not yet in sight and that I was turning to the northeast to enter a left downwind for RWY 22. Tower then said the jet had turned about a five mile final and confirmed he was over the Ohio River. As I continued downwind for RWY 22, a GA aircraft advised Tower they were five miles to the northeast inbound for landing. Tower acknowledged the aircraft's transmission and told them that they were number three behind our aircraft. The aircraft then advised that he had the jet in sight and was going to enter a left 360.

At that point, my Garmin Aera 660 portable GPS sounded a "Caution - Obstacle" alert, presumably for the 1325 foot obstacle located about 5 nm east of PAH. I then advised Tower I still had not made visual contact with the jet. Tower said the jet was on a three mile final for RWY 22. I entered a left base for RWY 22 at about 2000 feet and observed the GA aircraft on my Skywatch TCAD. He appeared to be maneuvering about two or three miles to the north. As I continued on the left base, I told Tower I had the GA aircraft in sight, about 500 feet below me. Tower cleared me to land on RWY 22 and advised the GA aircraft I had him in sight. The GA aircraft said he could not see me and requested my position. I replied that I was just about abeam his location and off his left wing. At that point, my TCAD issued an aural "Traffic, Traffic!" alert and my Garmin GMX 200 multifunction display switched from normal map view to its traffic alert format. I deviated about 10 degrees to my left to increase my separation from the other aircraft. The GA aircraft again asked for my location, and I replied that I was abeam their aircraft and about 500 feet above them. I assume their view was blocked by their high wing configuration. The GA aircraft then told Tower they wanted to deviate to the east. At that point, I was approaching the extended centerline of RWY 22, and I advised Tower I was turning final. Tower cleared me to land on RWY 22, and advised he had both my aircraft and the GA aircraft in sight. The GA aircraft also confirmed that he had me in sight. The rest of our approach and landing were uneventful.

As soon as Tower authorized my change to RWY 22, I should have:

1. Reengaged my autopilot and climbed back up to the 3000 foot Terminal Arrival Area/Terminal Area Altitude (TAA) depicted on the approach plates for the RNAV (GPS) approaches to RWYs 22 and 32.
2. Highlighted on the approach plate the 1325 foot obstacle about five nm east of PAH.
3. Loaded the RNAV (GPS) RWY 22 approach in my Garmin CNX-80 GPS WAAS mapcom (which would automatically load it on my MFD).
4. Maintained an altitude sufficient for obstacle clearance until I began my base-to-final turn.

Synopsis

GA pilot reported maneuvering to increase separation from traffic on approach to Runway 22 at PAH. He descended below the Terminal Area Altitude and received an obstacle warning on his portable GPS unit.

Time / Day

Date : 201709

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Altitude.AGL.Single Value : 0

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.Ground : ZZZ

Aircraft Operator : Personal

Make Model Name : Baron 58/58TC

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Personal

Flight Phase : Taxi

Route In Use : Direct

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Private

Qualification.Flight Crew : Multiengine

Qualification.Flight Crew : Instrument

Experience.Flight Crew.Total : 3500

Experience.Flight Crew.Last 90 Days : 20

Experience.Flight Crew.Type : 150

ASRS Report Number.Accession Number : 1480653

Human Factors : Confusion

Human Factors : Communication Breakdown

Communication Breakdown.Party1 : ATC

Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.ATC Issue : All Types

Anomaly.Deviation - Procedural : Published Material / Policy

Anomaly.Deviation - Procedural : Clearance

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Ambiguous

Narrative: 1

This appears to be an ongoing problem, reported by a number of pilots I have talked with. This issue is that the route I filed appears to have been changed, and the departure clearance was to fly "as filed." However, that is not what ATC expected me to fly. This could lead to conflicts.

I filed an IFR flight plan using Foreflight. The route was direct from ZZZ to ZZZ1. Within a minute of filing, I received a text message giving me a different route to expect. I entered this route into my Foreflight flight plan.

When I called for my clearance with ground control, I was given the clearance to proceed "as filed." Since I had filed DIRECT, I entered that into the aircraft's GPS and planned that route.

When I was cleared by the tower for takeoff, the clearance was "Cleared for takeoff runway 4L, turn left direct ZZZZZ." That seemed strange for the "direct" clearance I was given by ground.

Once airborne, I checked in with departure control and told them I was cleared direct to ZZZ1, and asked them to confirm that was the routing they were seeing. No, they said. And they gave me the full route (which matched the "expect" routing I was texted).

Fortunately, the sky was clear and I was not overloaded. In busy airspace, in IMC, getting a completely new full route clearance at 1,000 feet AGL could be a problem.

It appears that the something is happening to the routing clearance, and the controller either is unaware that what he or she is seeing is not what was filed, or that information is available to the controller, and he or she is missing the fact that this is a new routing. Either way, the controller must not issue "cleared as filed" when someone or some computer has changed the routing from what was originally filed.

Synopsis

BE58 pilot reported confusion with IFR clearance related to changes in filed route then cleared as filed.

Time / Day

Date : 201709
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 3500

Environment

Flight Conditions : VMC
Weather Elements / Visibility.Visibility : 10
Light : Daylight
Ceiling.Single Value : 7000

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Personal
Make Model Name : Cheetah, Tiger, Traveler AA5 Series
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 91
Flight Plan : None
Mission : Personal
Flight Phase : Climb
Route In Use : Direct
Airspace.Class E : ZZZ

Component

Aircraft Component : Fuel System
Aircraft Reference : X
Problem : Malfunctioning

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 1000
Experience.Flight Crew.Last 90 Days : 250
Experience.Flight Crew.Type : 300
ASRS Report Number.Accession Number : 1480640

Events

Anomaly.Aircraft Equipment Problem : Less Severe

Anomaly.Inflight Event / Encounter : Fuel Issue

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Diverted

Assessments

Contributing Factors / Situations : Aircraft

Primary Problem : Aircraft

Narrative: 1

I, pilot flying pilot 1, along with a non-required flight crew member pilot 2 who was assigned to assist navigating and working radio communications, departed to ZZZ for a practice instrument approach and then to proceed to [another airport] for a fuel-stop. We (pilot 1 and pilot 2) departed with approximately 32 gallons of fuel on board. En route, we averaged 8 gallons an hour of fuel burn, comprising of 30 minutes of burn on the left tank, and an hour and fifteen minutes on the right tank, including an increased burn due to takeoff. Upon arrival at ZZZ for our practice approach, we calculated 7.0 gallons in the left tank and 10.0 gallons in the right tank, enough for an hour and a half of flight.

After our practice approach into ZZZ, we proceed to climb out in a left turn. We were expecting and experienced a 25 knot tailwind to assist us on our way to [get fuel], resulting in an estimated arrival in 25 minutes. We calculated to land with six gallons of fuel, approximately 45 minutes of fuel at cruise.

On the climbout, I began to notice abnormal Engine Exhaust Gas Temperatures on the Number 4 cylinder. Normal readings range from 1,300-1,450 degrees, whereas I was reading 1550 degrees and climbing. I also noticed an abnormally high reading from the fuel flow indicator whereas in a climb the normal readings ranged from 14.0 GPH to 17.0 GPH. I was reading 22.0 GPH. At the same time, I experienced an error message with one of our GPS units. As I was working through the situation, I asked pilot 2, "Are you seeing these numbers?" at which he replied "Yeah, do you feel that?" At that time, I felt the engine running rough and immediately increased full mixture (it was leaned for 1,400 degrees EGT after 3,000 feet), ensured that the fuel pump was on, and switched fuel tanks. I leveled the aircraft into a straight and level cruise and immediately searched for a nearby airport.

There were no airports in front of the aircraft, which would have been the favorable glide direction, and ZZZ was the closest airport to our location. I informed pilot 2 that I was [requesting priority handling] with Center and returning to ZZZ, which we completed a safe and successful landing. Approximately two minutes after leveling the aircraft, the conditions ceased. We were met and escorted by the local Airport Rescue and Fire Fighting (ARFF) unit to the FBO.

Upon landing, we performed a visual inspection of the engine and engine compartment. Other than a slightly low oil level (to which we added a quart of oil), we did not notice any issues with the engine exterior. We called for fuel from the local FBO and asked for a top off. We received 19 gallons in the right tank, and 17 gallons in the left tank, leading us to calculate having 7 gallons remaining in the right tank, and 9 gallons in the left tank upon landing (a normal two hours at cruise). After receiving fuel, we performed a through engine run-up and determined that there was no further issue concerning safety of flight and we departed.

Prior to departure, we determined that the engine roughness, high EGT indications, and high fuel flow indications were caused by a partial fuel starvation of the engine induced by a steep climb attitude causing the fuel to fall to the back of the fuel tank. In the Grumman Tiger, fuel pumps are located at the forward position of the fuel tank. Therefore, in a steep climb, fuel will have difficulty being pumped to the engine if there is less than approximately 7 gallons.

In my personal opinion, I believe that the situation was handled with care and safety in mind. The limitation of low-fuel levels in a climb was unknown to myself, and to my current knowledge, is not published in the aircraft POH or other information manuals. Pilot 1 and pilot 2 both performed pre-assigned duties during the emergency and handled the aircraft in a safe manner.

Synopsis

Grumman American Tiger (AA5B) pilot reported having to divert in a climb out due to a rough running engine. Pilot reported the opinion that a steep climb angle caused the fuel to fall to the back of the tank away from the forward mounted fuel pumps.

Time / Day

Date : 201709

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : CHS.Airport

State Reference : SC

Altitude.AGL.Single Value : 0

Environment

Flight Conditions : IMC

Weather Elements / Visibility : Rain

Aircraft

Reference : X

ATC / Advisory.Tower : CHS

Aircraft Operator : Air Carrier

Make Model Name : Large Transport

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Taxi

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Type : 1646

ASRS Report Number.Accession Number : 1480503

Human Factors : Situational Awareness

Person : 2

Reference : 2

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Not Flying

Function.Flight Crew : First Officer

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Type : 672

ASRS Report Number.Accession Number : 1480269

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Procedural : Clearance
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Ground Incursion : Taxiway
Anomaly.Ground Incursion : Runway
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
When Detected : Taxi

Assessments

Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

After flying the RNAV (GPS) Y RWY 3 in moderate to heavy rain and winds to minimums and landing, we cleared the runway at Taxiway F with a right turn. We had the wipers on full and visibility was somewhat limited by the blowing rain associated with a hurricane which made it difficult to see and hear well. We received taxi instructions to the terminal which we both thought was F, what sounded like G, A, cleared to cross Runway 33 to the gate, but that may have been incorrect. We were never told by the Tower that we had errored, but I believe that my clearance might have been F, A, to the ramp, so I would have missed the turn at A and crossed Runway 33 in error. The distance from Runway 3 to Taxiway F is very short and it is identified as a hotspot, so it appears it is easy to miss Taxiway A. As soon as we crossed Runway 33, which we both believed we had clearance to do, I saw Taxiway G and believed at that point we had errored because the route didn't appear to make sense, so I instructed my First Officer to call the Tower and tell them we believed we had missed a turn. We were then given clearance to taxi via G, cross 33, A to the ramp which we did. There was no other communication with Tower.

As far as we know there was no other aircraft on approach to CHS at the time, and there was only an aircraft waiting to depart on Runway 3. Should I be correct, and I did indeed miss the turn, will have a number of factors that I need to take note of and be cognizant of in the future.

1. I woke up [very early] that day on day 4 of flying and day 5 away from home due to commuting so I was tired.
2. I was reassigned to fly to CHS instead of [another airport] that was on my pairing and was only scheduled with about 40 minutes of connection, so I was hurrying. I didn't know that had happened until about an hour prior to departing.
3. It was my first or second time to CHS, so I wasn't familiar with the airport.
4. Weather and turbulence enroute didn't give me as much time to review CHS as I would normally. Because we were watching winds to be sure we wouldn't exceed the wet runway crosswind limits on the aircraft, we changed from planning on Runway 33 to Runway 3 instead about mid-flight, but because the weather was bad and getting worse as we approached, I focused on safely flying the aircraft. I did brief the turnoff at F as a possibility, but thought I would end up at the runway intersection or A, so was more prepared for that.
5. The wipers in the [aircraft] are very loud, but I could not see without them, so I really

should have come to a full stop, set the brakes and confirmed the taxi route. I use my own sheet to record data for each flight I fly which has a section to record taxi instructions, and I did write down as F, C (not G, don't know why), A cleared to cross Runway 33 on it.

6. The weather associated with [a hurricane] made taxiing even more difficult than normal. I did, as I always do, confirm with my First Officer that we were cleared to cross the runway which he agreed we were, but the noise from the wipers, coupled with the limited visibility from the squalls, and added to the unfamiliar airport should have signaled me to be even more vigilant.

7. The taxi chart pop-up function on my Jeppesen-Pro on the iPad did not come up on landing, so I had to manually bring up the page which took me a couple of tries to do, so I was already up to A by the time the chart displayed. I really wish Jeppesen would make the target area on the screen for your finger a bit larger.

I take pride in the fact that I am very careful and always try to operate in the safest manner possible, so it bothers me immensely that I may have blown a taxi clearance and crossed a runway without clearance. I hope that was not the case, but either way there will be lessons learned from this.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

Air carrier crew reported a runway and taxiway incursion at CHS in an area that is shown as hot spot 1 on the airport diagram.

Time / Day

Date : 201708
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : PDK.Airport
State Reference : GA
Relative Position.Distance.Nautical Miles : 10
Altitude.MSL.Single Value : 5000

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Rain
Weather Elements / Visibility : Turbulence
Weather Elements / Visibility.Visibility : 3
Light : Dawn
Ceiling.Single Value : 1500

Aircraft

Reference : X
ATC / Advisory.TRACON : A80
Aircraft Operator : Personal
Make Model Name : TBM 700/TBM 850
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Personal
Flight Phase : Climb
Route In Use : Vectors
Airspace.Class B : ATL

Component

Aircraft Component : Pitot-Static System
Aircraft Reference : X
Problem : Malfunctioning

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Commercial
Experience.Flight Crew.Total : 1000
Experience.Flight Crew.Last 90 Days : 20
Experience.Flight Crew.Type : 700
ASRS Report Number.Accession Number : 1478003

Human Factors : Workload
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Altitude : Overshoot
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Human Factors
Primary Problem : Aircraft

Narrative: 1

On climb out in hard IMC/turbulence/rain I had a complete airspeed indicator failure on pilot side. I misdiagnosed this as a pitot failure (since glass instruments were still reporting altitude and the indication "seemed to make sense" for stage of climb out) and began to operate off copilot airspeed but otherwise pilot side instruments for altitude and heading. Autopilot kicked off when airspeed on G600 failed. Unfortunately it was still reporting altitude and I believed what I saw. I leveled on heading 270 at indicated 5,000 feet and began to diagnose/debug. Checked pitot heat, checked power settings, etc. while hand-flying to maintain altitude [and] heading. High workload environment to say the least. After several other steps, I pulled the alternate static - immediately restored airspeed indicator on pilot side but, to my surprise, altitude also immediately wound up to approximately 7,500-8,000 feet. Apparently it was not a pitot tube problem but a static problem. I cross checked to GPS altitude and began correcting, while hand-flying and maintaining 270. ATC no doubt saw same as me - a near instantaneous altitude gain of 2,500-3,000 feet - and contacted me for an immediate course change to 360. I complied and we worked together to get back to assigned altitude.

Learnings: Cross check constantly in IMC even when instruments seem to make sense but especially if one fails. Do not just cross check the failed instrument as there may be cascaded problems and the initial diagnosis may be incorrect.

Synopsis

TBM7 pilot reported an altitude deviation resulted from a pitot static system anomaly.

Time / Day

Date : 201708
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : TTD.Airport
State Reference : OR
Altitude.MSL.Single Value : 2500

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Haze / Smoke
Weather Elements / Visibility.Visibility : 10
Light : Daylight
Ceiling.Single Value : 1300

Aircraft

Reference : X
ATC / Advisory.TRACON : P80
Aircraft Operator : Personal
Make Model Name : Small Aircraft, High Wing, 1 Eng, Fixed Gear
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Personal
Nav In Use : GPS
Flight Phase : Initial Approach
Route In Use : Vectors
Airspace.Class E : P80

Component

Aircraft Component : GPS & Other Satellite Navigation
Aircraft Reference : X
Problem : Malfunctioning

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 410
Experience.Flight Crew.Last 90 Days : 16
Experience.Flight Crew.Type : 17
ASRS Report Number.Accession Number : 1477818
Human Factors : Training / Qualification
Human Factors : Human-Machine Interface

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Procedural : Clearance
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : VFR In IMC
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Weather
Contributing Factors / Situations : Procedure
Primary Problem : Human Factors

Narrative: 1

There were two instances of concern on this flight:

1. Vectors were provided from HHOOD to the RNAV-A approach into KTTD. This plane's GPS was a recently upgraded to a Garmin 650, with which I have very little practice beyond one approach in VFR conditions, and some time on a simulator. The tops were at about 3,000 feet.

After being cleared for the approach and stated to maintain at or above 2,500 MSL over WOODD, I continued on. The GPS was set to vectors. The GPS did not increment to the next fix, and I did not know how to increment it to the next leg. The controller stated I was on course, so I just turned to follow the course, rather than asking for missed vectors while I get the GPS sorted out. Fortunately, the ceiling was plenty high, so when I broke out about 1/4 mile off course, I was able to cancel IFR and land VFR.

-The biggest learning item was that I need to become more familiar with this GPS prior to flying an approach in IFR conditions. This could have been dangerous, had the clouds been lower.

2. Also, on this same flight, the haze northeast of the airport was quite severe, although it was VFR. As I was eating lunch, the haze suddenly became much darker and it went to solid IFR conditions. I called and received an IFR clearance from Seattle Center. Fortunately I was on flight following, so the clearance came quickly. Lessons learned: If it is at all marginal, just get an IFR clearance. Don't try to push on into questionable VFR conditions. It was amazing how fast the haze from the forest fires just slowly became more and more dense until it was too dense to see.

Synopsis

General aviation pilot reported difficulty with new navigation equipment while on a RNAV approach and experiencing rapidly deteriorating visibility while on a VFR flight.

Time / Day

Date : 201708

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZZZ.TRACON

State Reference : NC

Altitude.MSL.Single Value : 4000

Environment

Weather Elements / Visibility : Fog

Weather Elements / Visibility : Icing

Weather Elements / Visibility : Rain

Weather Elements / Visibility.Visibility : 1

Light : Daylight

Ceiling.Single Value : 700

RVR.Single Value : 3000

Aircraft

Reference : X

ATC / Advisory.TRACON : ZZZ

Aircraft Operator : Corporate

Make Model Name : PC-12

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Cargo / Freight

Flight Phase : Descent

Route In Use : Direct

Airspace.Class C : ZZZ

Component

Aircraft Component : Navigational Equipment and Processing

Aircraft Reference : X

Problem : Malfunctioning

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Corporate

Function.Flight Crew : Captain

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Air Transport Pilot (ATP)

Qualification.Flight Crew : Multiengine

Experience.Flight Crew.Total : 15000

Experience.Flight Crew.Last 90 Days : 250

Experience.Flight Crew.Type : 700
ASRS Report Number.Accession Number : 1477603

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

[While] descending from FL210, going through heavy rain, fog, ice, at 13,000 FT, electrical EFIS/GPS displays flashed once, then again at 5,000 FT, then went blank at 4,000 FT as about to enter hold. Informed [ATC] of electrical issue, would not be able to complete ILS, stabilized at 4,000 FT in a right hand pattern hold, then reset electrical and all came back, made another lap in the hold, informed [ATC] to set me up for [the approach], then proceeded on the approach, landed and informed maintenance of the incident and did an internal report.

We replaced the number 1 generator and we will test fly tomorrow and verify all is okay.

Synopsis

PC-12 pilot reported the EFIS displays flashed and went blank on approach, normal operation was regained by resetting electrical system.

Time / Day

Date : 201708
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : PUB.Airport
State Reference : CO
Relative Position.Angle.Radial : 205
Relative Position.Distance.Nautical Miles : 40
Altitude.MSL.Single Value : 11500

Environment

Flight Conditions : VMC
Weather Elements / Visibility.Visibility : 50
Light : Daylight
Ceiling.Single Value : 25000

Aircraft

Reference : X
ATC / Advisory.Center : ZDV
Aircraft Operator : Personal
Make Model Name : Cessna 210 Centurion / Turbo Centurion 210C, 210D
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : None
Mission : Personal
Flight Phase : Cruise
Route In Use : Direct
Airspace.Class E : ZDV

Component

Aircraft Component : AC Generator/Alternator
Aircraft Reference : X
Problem : Failed

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 2300
Experience.Flight Crew.Last 90 Days : 15
Experience.Flight Crew.Type : 800
ASRS Report Number.Accession Number : 1477601

Human Factors : Workload
Human Factors : Time Pressure
Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Diverted
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Landed As Precaution
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

East of La Veta Pass at 11,500 a discharge on ammeter was noted. Cross checked ammeter with graphic engine monitor and determined no output from alternator. Master switch recycled, all circuit breakers checked, alternator still offline. At this time I was in contact with Denver center on a discretionary code (flight following). Decision made to divert to PUB for maintenance. Decision also made to lower the landing gear to avoid having to lower manually. Gear lowered and depleted remaining power. All avionics went offline including comm/gps/transponder. Separate "stratus" ADS-B used to show navigation and traffic, plus current conditions at PUB on an ipad. Entered PUB traffic pattern on a downwind leg, observed green light from tower and entered left base for landing while watching for light gun signals and traffic. Taxied to FBO while observing flashing green tower light. Tower indicated they had been informed by Denver Center of our landing at PUB.

Synopsis

C210 pilot reported the complete loss of electrical power due to a failed alternator, and elected to divert to a nearby suitable airport where a successful landing was accomplished.

Time / Day

Date : 201708

Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.ARTCC

State Reference : US

Altitude.MSL.Single Value : 10000

Environment

Flight Conditions : IMC

Weather Elements / Visibility : Haze / Smoke

Weather Elements / Visibility.Visibility : 2

Light : Night

Aircraft

Reference : X

ATC / Advisory.Center : ZZZ

Aircraft Operator : Personal

Make Model Name : PA-28R Cherokee Arrow All Series

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Personal

Flight Phase : Cruise

Route In Use : Direct

Route In Use : Vectors

Airspace.Class E : ZZZ

Component : 1

Aircraft Component : VHF

Aircraft Reference : X

Problem : Failed

Component : 2

Aircraft Component : Attitude Indicator(Gyro/Horizon/ADI)

Problem : Malfunctioning

Component : 3

Aircraft Component : Cargo Door

Aircraft Reference : X

Problem : Malfunctioning

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Pilot Flying
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 700
Experience.Flight Crew.Last 90 Days : 100
Experience.Flight Crew.Type : 150
ASRS Report Number.Accession Number : 1477019
Human Factors : Situational Awareness
Human Factors : Distraction
Human Factors : Confusion

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : FAR
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Diverted
Result.Flight Crew : Landed in Emergency Condition
Result.Air Traffic Control : Provided Assistance
Result.Air Traffic Control : Issued New Clearance
Result.Air Traffic Control : Issued Advisory / Alert

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Human Factors
Primary Problem : Aircraft

Narrative: 1

I was flying a Piper Arrow. When I landed for fuel and the aircraft was okay, full tank, and an IFR plan was filed to my final destination. I had already flown approximately 2.5 hours that day solo and 5 hours instructing before this final leg. The scheduled leg was to be approximately 2.5 hours and I felt fine to push on with no hint of fatigue.

On climbout, night settled in and I continued along my IFR flight plan when problems began 1 hour into the flight. My first issue was the audio panel controlling my aircraft a PMA 450, which when transmitting and seeing at Tx on my 650, multiple times it shut down my comms, reset it and made it unable to Transmit or Receive ATC calls. This was difficult since I was on an IFR flight plan at night in thick Haze, so when I had the chance I notified ATC of my issue and they helped me by asking me my plan to land at airports within 50 miles of my course with instrument approaches. I did have a moment when I lost comms with ATC for 3 mins because of the bad transmitter. So I made a plan if NORDO continued to land at suitable airports that are VFR and ATC accommodated me for the issue. In trouble shooting I isolated the issue by shutting down one comm out of the 2 and continued on no issue.

Now... If that was the worst part, about 1.5 into the flight, ATC warned me of a track deviation. I did my scan and looked, turns out I had a bad Attitude Indicator (AI). I looked at the suction gauge and it was within limits, 4.8"-5.2", I HAD PARTIAL PANEL. As an

instructor and as a former student instructor who taught Partial Panel regularly in simulated conditions both in Sims and VFR flight, I felt that I could again continue this flight and continued along with my flight. I understand that it is a required instrument for IFR flight, but again I thought I could continue and will only tell ATC if extremely necessary and will Declare accordingly.

Only 45 mins from my destination, all of a sudden I heard a loud WOOSH!!! MY REAR BAGGAGE DOOR OPENED MID-FLIGHT!! And my backpack was 1/4th outside the aircraft. I lost control of the aircraft for a few seconds and made a sharp turn left off course as I became distracted.

Immediately I notified ATC and told them I need a lower altitude ASAP, I needed vectors for a nearby field and I need to LAND. I regained control and was now focused on one task, flying the aircraft. My second task, not let my baggage fall out of the aircraft and if so, not hurt people down below. I kept the aircraft in a side slip to reduce airflow on the side where my door was open.

ATC gave me vectors and ask me to state souls on board and fuel remaining. I was approx. 35nm from the field when I regained control and was being vectored to descend, first to 8000 then the MVA which was 5600.

ATC set me up for the VOR approach which I got ready for, then they told me the VOR approach is N/A at night. So I asked for vectors for the GPS approach. At this point, I am now 15nm from the field and I told ATC I am 5 miles from the FAF 3000 feet high and I can intercept the GPS and 360 descend down to enter. ATC denied me and said, "Unless I see the runway I cannot descend", the field was reporting 5.5 FEW with the HZ and since I was single comms I switched frequencies to raise ATC when I found I can't see the field. I thought the lights had failed. When it downed on me... Pre-landing checklist.

Since I was already in IMC earlier I turned off strobes. I turned the strobes and landing light on.... I was in the soup and VIS was 0. I told ATC I can't see it and asked to descend, he told me unable and that he will lose comms with me at 5.6. He said he needs to vector me 10 miles out for the GPS approach. This was not going to work with me given the nature of the situation. I needed to get down ASAP!

What I did next was exercise my privileges under 91.3B and disobeyed ATC by descending down on the course to 5.4 10 miles from the airport and I was able to pop out of the clouds and see the field. I reported to ATC that I can see it but it was 2X5 on the response. So I relayed to a nearby aircraft that I was okay and that I would call ATC when I landed.

I spiraled down to descend since I was about 3K over TPA to enter the field and descended to land on left turns to keep by luggage in the aircraft.

Fortunately for me, fatigue never became an issue. After a whole day of flying, it's good to keep a calm head when mistakes occur and especially single pilot IFR at night it's good to maintain SA and think what can be done with what is there not when we want to be there. Now in hindsight after the comms issue, I should have decided to turn back, but my desire to make it to my destination made me under appreciate the issue of the partial panel in the aircraft. The door open and near loss of my luggage was a sure reminder of how bad flights can go in an instant. I should not have disobeyed the ATC instructions and stayed higher, but in my mind, getting down ASAP was the only solution at the time.

I am filing this report since I disobeyed ATC but am glad to say that I made it back safely and flew remainder of the flight VFR no problems.

Synopsis

PA28 IFR pilot sitting on the right seat flying at night in full IMC encountered Avionics Audio Panel Failure. Moments later the pilot encountered partial panel and the baggage door opened mid-flight resulting in a diversion to a nearby airport.

Time / Day

Date : 201708

Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : SJC.Airport

State Reference : CA

Altitude.MSL.Single Value : 1400

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft : 1

Reference : X

ATC / Advisory.TRACON : NCT

Aircraft Operator : Corporate

Make Model Name : Falcon 10/100

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Ferry

Flight Phase : Initial Climb

Route In Use.SID : SJC2

Airspace.Class C : SJC

Aircraft : 2

Reference : Y

ATC / Advisory.TRACON : NCT

Aircraft Operator : Air Carrier

Make Model Name : EMB ERJ 170/175 ER/LR

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Flight Phase : Takeoff

Airspace.Class C : SJC

Component

Aircraft Component : DME

Aircraft Reference : X

Problem : Malfunctioning

Person : 1

Reference : 1

Location Of Person.Facility : NCT.TRACON

Reporter Organization : Government

Function.Air Traffic Control : Departure
Qualification.Air Traffic Control : Fully Certified
Experience.Air Traffic Control.Time Certified In Pos 1 (yrs) : 10
ASRS Report Number.Accession Number : 1476414
Human Factors : Situational Awareness

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Total : 32000
Experience.Flight Crew.Last 90 Days : 100
Experience.Flight Crew.Type : 1000
ASRS Report Number.Accession Number : 1478009
Human Factors : Situational Awareness
Human Factors : Troubleshooting
Human Factors : Distraction
Human Factors : Confusion
Human Factors : Human-Machine Interface

Person : 3

Reference : 3
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Not Flying
Experience.Flight Crew.Total : 1264
Experience.Flight Crew.Last 90 Days : 310
Experience.Flight Crew.Type : 367
ASRS Report Number.Accession Number : 1477070
Human Factors : Human-Machine Interface
Human Factors : Situational Awareness
Human Factors : Troubleshooting
Human Factors : Workload
Human Factors : Confusion
Human Factors : Distraction

Events

Anomaly.ATC Issue : All Types
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Became Reoriented
Result.Flight Crew : Requested ATC Assistance / Clarification

Result.Air Traffic Control : Separated Traffic
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Contributing Factors / Situations : Chart Or Publication
Contributing Factors / Situations : ATC Equipment / Nav Facility / Buildings
Primary Problem : Procedure

Narrative: 1

Aircraft X departed SJC on SJC2 Departure. Approximately one half mile off the departure end I noticed the aircraft in a right turn climbing out of 1400 feet. The aircraft appeared not to be on the correct departure procedure, and was turning inside of the previous departure off of SJC Aircraft Y. I turned Aircraft Y to heading 090, and amended Aircraft X's altitude to maintain 4000. I established vertical and lateral separation between both aircraft and the vectored both aircraft on their proper way.

Again an aircraft does not fly a departure procedure correctly off of SJC. Last week I filed two separate reports on two aircraft within 7 minutes of each other that did not fly the procedures correctly. The departure procedures off of SJC have been poorly developed and published. SJC has a long history of aircraft not flying the departure procedures correctly. The SIDs are at times confusing to the pilots, and every departure flies the procedure differently. Again, I recommend that since SJC Tower is responsible for successive departure separation, that they ensure aircraft are in the turn appropriately prior to communication transfer. Because this doesn't happen, SJC Tower keeps launching departures while the departure controller is busy trying to point out, and separate these aircraft that don't fly the departure right.

Narrative: 2

Our clearance required the SJC2 departure procedure from SJC. Prior to take off, I advised the copilot that we were not receiving the DME from SJC VOR probably due to line of sight issues. I had a GPS DME from a waypoint behind us (MOONY), so I suggested we add 1.8 DME to it in the event we did not get the SJC DME after takeoff. We were then given a takeoff clearance and after takeoff were still not receiving the SJC DME. We started our turn on our previous discussion using the GPS DME. Upon completing the turn, approach advised us we may have a violation due to early turn. He said we got too close to the aircraft that took off before us. I advised him that we were not receiving the SJC DME, so we used the GPS DME. At 59.7 DME from SJC our DME came on. I'm not sure if it was the VOR or our equipment that was down. The departure calls for a 180 degree course change, so I'm not really sure how ATC expected to have separation when the other aircraft is essentially turning back towards us on departure without vertical separation.

We also were having a cabin pressurization issue on departure that was distracting, but probably could have thought of advising ATC of the lack of DME from SJC VOR.

Narrative: 3

[Report narrative contained no additional information.]

Synopsis

NCT Controller and flight crew reported the pilots flew the SID incorrectly into confliction with a previous departure.

Time / Day

Date : 201707

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZZZ.ARTCC

State Reference : US

Altitude.MSL.Single Value : 10000

Environment

Flight Conditions : VMC

Weather Elements / Visibility.Visibility : 10

Light : Daylight

Ceiling.Single Value : 1600

Aircraft

Reference : X

ATC / Advisory.Center : ZZZ

Aircraft Operator : Personal

Make Model Name : SR22

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Personal

Flight Phase : Cruise

Route In Use : Direct

Airspace.Class E : ZZZ

Component

Aircraft Component : Navigational Equipment and Processing

Aircraft Reference : X

Problem : Malfunctioning

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Instrument

Qualification.Flight Crew : Private

Experience.Flight Crew.Total : 1905

Experience.Flight Crew.Last 90 Days : 28

Experience.Flight Crew.Type : 1260

ASRS Report Number.Accession Number : 1475763

Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Flight Deck / Cabin / Aircraft Event : Smoke / Fire / Fumes / Odor
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Diverted
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Landed in Emergency Condition
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

In cruise, having just passed over ZZZ airport. Was navigating to fly through a wide gap in thunderstorms approximately 40 nm south of position. Noticed the Avidyne Multifunction Display (MFD) flicker, followed immediately by the smell of electrical burning/arcng. Elected to turn 180 deg immediately and informed ATC my intention to land at ZZZ with priority handling. I had my copilot get the ATIS for landing information while I descended rapidly through the OVC layer. No fire, no smoke. Display remained on during descent, but smell continued. Due to altitude and short distance to ZZZ, I overshoot airport and had to spiral back, all in IMC. Broke out of OVC on downwind to runway, saw runway and landed visually. Was able to taxi to the ramp and shut down without further incident. Call made to ZZZ tower as requested.

In hindsight, I could have pulled the breaker for the MFD and relied on my GPS or iPad for navigation to ZZZ. The display continued to function without smoke, however, and I used it to locate the airport as I spiraled down in IMC.

Synopsis

SR22 pilot reported that during cruise the Multifunction Display flickered then he smelled electrical burning/arching.

Time / Day

Date : 201707

Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ2.Airport

State Reference : US

Altitude.AGL.Single Value : 175

Environment

Flight Conditions : VMC

Weather Elements / Visibility.Visibility : 10

Light : Daylight

Ceiling.Single Value : 12000

Aircraft

Reference : X

ATC / Advisory.CTAF : ZZZ

Aircraft Operator : Personal

Make Model Name : PA-28 Cherokee/Archer/Dakota/Pillan/Warrior

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : None

Mission : Personal

Flight Phase : Takeoff

Flight Phase : Initial Climb

Flight Phase : Taxi

Route In Use : VFR Route

Airspace.Class G : ZZZ

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Private

Experience.Flight Crew.Total : 1594

Experience.Flight Crew.Last 90 Days : 5

Experience.Flight Crew.Type : 1594

ASRS Report Number.Accession Number : 1471858

Human Factors : Training / Qualification

Human Factors : Troubleshooting

Human Factors : Workload

Human Factors : Distraction

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Procedural : FAR
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Ground Personnel
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Maintenance Action
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Landed in Emergency Condition
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

I picked up the aircraft from [a service center] located at ZZZ. I performed a thorough preflight and departed ZZZ to the SW headed for ZZZ1. The flight was approximately 1 hour with maneuvering and operated flawlessly with no issues. Approximately 1 hour later I departed ZZZ headed for ZZZ2. This flight was approximately 2 hours and as well was flawless with absolutely no issues. I fueled at ZZZ2 self-serve Avgas pump with about 21 gallons. After performing a pre-flight inspection I departed back to ZZZ. Upon departure I began a gradual climb at about 250 FPM on a runway heading. At about 3100 feet MSL the engine went to what I perceived as idle or about 1000 RPMs.

I ran through the emergency checklist and hit nearest suitable airport on the GPS which said ZZZ2 behind me. I began a gradual left turn to head back to the airport while trouble shooting the engine issue and establishing the best glide speed of 76 knots airspeed. When I looked at the distance to ZZZ2 it was 5.9 NM and I knew I could not make it with the altitude I had. I looked for a suitable landing location and choose a field to my right that I felt was my only option. Once I felt I had made the field I put in all the flaps and performed a successful no power landing. I then inspected the plane for any damage and began to look for the source of the problem, I manually checked the fuel in both tanks and at the engine drain and it appeared to be clean 100 Octane Low Level with no deficiencies. I then removed the cover and started the engine while holding the brakes and slowly pushed up the throttle at about 2000 RPM the engine acted as if it was not getting fuel and began to lose RPM almost immediately.

After calling [the service center] I found a ride home and drove back. I flew back to ZZZ2 with [someone from the service center] and we got a ride to the field where the plane was located. We pulled the upper and lower engine covers and inspected the engine top to bottom. After determining everything was as it should be we started the engine and as I increased the throttle the engine began to die as if starving for fuel within a minute or so. We then shut it down and inspected the engine again and noticed that it had a fuel leak on the primer line that runs to 3 of the 4 cylinders. After closer inspection, we determined the line was broken near a clamp so we repaired it with a ferrules fitting. We then started the engine and ran it up to full rpm it maintained 2350 rpm for about 12 minutes with no issues. We then replaced all the engine covers and began to discuss options. We did some calculations and determined the field was more than 3000 feet long smooth low-cut grass. We discussed that we could taxi the aircraft to the high end of the field and set it up in a takeoff configuration and increase the throttle to full as if to take off but remain on the ground, to further test the engine.

I taxied to the starting point and put in 1 notch of flaps then increased the throttle to full. When the aircraft wheels departed the ground, the speed increased very quickly and before I could set it back down I realized I may not have enough room to stop. The aircraft lifted off the ground and at approximately 150-175 feet AGL the engine appeared to stop or at least went to idle. I had no options for a straight ahead landing so I made a somewhat hard left turn and attempted to keep the aircraft from stalling. I cleared several obstacles and an electric pole/line. In an effort to avert the stall I pushed the nose down and impacted the ground with the front nose wheel and the aircraft slid to a stop. When I began to review my documents for the insurance claim I realized that I had inadvertently allowed my Biennial Flight Review to expire. To avoid a situation like this in the future I would never operate an aircraft that had a problem that could not be definitively identified and corrected by a person with the appropriate credentials and I will also employ the use of additional devices (such as electronic reminder) and monitor my credentials more closely.

Synopsis

PA28 pilot reported engine malfunction that resulted in an emergency landing. Following corrective maintenance and subsequent testing, a second takeoff was attempted with an additional emergency landing.

Time / Day

Date : 201708
Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZZZ.TRACON
State Reference : US
Altitude.MSL.Single Value : 8000

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Rain
Weather Elements / Visibility.Visibility : 5
Light : Daylight
Ceiling.Single Value : 600

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : FBO
Make Model Name : PA-28 Cherokee/Archer/Dakota/Pillan/Warrior
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Training
Nav In Use : GPS
Flight Phase : Cruise
Route In Use : Direct
Airspace.Class E : ZZZ

Component

Aircraft Component : AC Generator/Alternator
Aircraft Reference : X
Problem : Failed

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : FBO
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 403
Experience.Flight Crew.Last 90 Days : 163
Experience.Flight Crew.Type : 315

ASRS Report Number.Accession Number : 1470409
Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Procedural : Maintenance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Landed As Precaution
Result.Flight Crew : Diverted
Result.Air Traffic Control : Issued New Clearance
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Equipment / Tooling
Primary Problem : Equipment / Tooling

Narrative: 1

I was conducting an instrument training flight as a flight instructor with one other person onboard. Conditions along the route of flight were IMC, with ceilings variable between 500 ft and 4000 ft. Tops were being reported as variable between 17000 ft and 21000 ft. Upon reaching [our destination], we flew an ILS to a touch and go, before turning back east bound and resuming our flight plan back to [the departure airport]. Our filed altitude on the way was 9000 ft, and in the climb-out through 8000 ft, we received an annunciator light for "ALT INOP" and "LO BUS" and also noted the ammeter had dropped to 0. We immediately ran the checklist and attempted to reset the alternator by switching it back on (per the checklist). This did not remedy the situation. I then advised Approach of the situation and requested vectors back to [the airport]. Approach cleared us direct, but also offered that the nearest airport was ZZZ. I requested ZZZ and at began looking for approaches in Electronic flight charts, but none were published. I asked ATC whether approaches were available, and they informed me that I have my choice of RNAV 18 or RNAV 36. The GPS in our aircraft had the approaches, and winds favored 36 so I requested the RNAV 36. [Approach Control] acknowledged my [condition], and cleared me direct to the IAF at 4000 ft. I proceeded direct to the fix and shortly thereafter advised [Approach] that we were going to intercept the final approach course between the IF and IAF instead. Without the approach being published, I requested altitudes from [Approach Control] who gave me the altitude between the IF and the IAF as 3300, so I descended to 3300. During this time, I also switched off all lights, my second GPS, and dimmed the PFD/MFD to reduce the electrical load. Upon intercepting the course, [Approach] told me to switch to CTAF and cancel IFR with flight service on the ground. I switched to CTAF and announced my position as an emergency aircraft. We descended out of 3300 MSL after the IAF and upon reaching roughly 800-900 AGL, we saw the ground and the runway threshold. At 600-700 AGL we were clear of clouds and continued visually to the runway. Shortly before landing, we saw a fire truck pulling onto the ramp. The landing was uneventful and safe, and we taxied over to the ramp where we were marshaled in. I cancelled with flight service after exiting the aircraft, then began coordinating with my company. The maintenance facility opened the engine cowling and found that the part of the pulley system connecting the belt to the alternator itself had sheared off in flight, so the belt was no longer connected to the alternator. This came as a surprise to me, as we didn't hear any unusual noises or feel any vibrations during any part of the flight, so my guess is that the structural failure occurred suddenly, though I have no way of confirming

this for sure. Overall, I believe the situation was handled professionally and expeditiously by all parties involved, approach was prompt and helpful, and the services at ZZZ were timely and they took every precaution. I can't speak on behalf of the true cause of the structural failure that caused the emergency situation, nor did the nature of the cowling of the aircraft allow me to physically see and inspect the alternator components prior to flight, but I can say that I believe the situation was ultimately handled well and that there was no harm to persons, aircraft, or airport property as a result.

Synopsis

A Flight Instructor reported an alternator failure during an IFR training flight. The flight diverted and completed an uneventful landing.

Time / Day

Date : 201707

Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.ARTCC

State Reference : US

Altitude.MSL.Single Value : 8000

Environment

Flight Conditions : VMC

Aircraft

Reference : X

ATC / Advisory.TRACON : ZZZ

Aircraft Operator : Air Carrier

Make Model Name : Regional Jet 200 ER/LR (CRJ200)

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Mission : Passenger

Flight Phase : Cruise

Airspace.Class E : ZZZ

Component : 1

Aircraft Component : Electronic Flt Bag (EFB)

Aircraft Reference : X

Component : 2

Aircraft Component : GPS & Other Satellite Navigation

Aircraft Reference : X

Problem : Failed

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1469051

Human Factors : Distraction

Human Factors : Training / Qualification

Human Factors : Workload

Events

Anomaly.Aircraft Equipment Problem : Less Severe

Anomaly.Deviation - Speed : All Types

Anomaly.Deviation - Procedural : FAR
Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented
Result.Flight Crew : Returned To Clearance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

After a GPS failure and while trying to find VOR frequencies on Flight Deck Pro and proceeding to our flight planned route using VHF navigation the aircraft leveled off at 8,000 feet the aircraft accelerated beyond 250 KIAS while below 10,000 feet. Upon seeing the speed above the speed limit I reduced thrust and returned to 250 KIAS and proceeded with the flight.

This was the first time both the first officer and I had to find VOR frequencies using flight deck pro while in flight. We both did not remember you had to touch the NAVAID to pull up the frequency. At a time when we found ourselves behind the aircraft because of a system failure during a high workload period, needing to figure out how to find a frequency put us further behind the aircraft and was a contributing factor in the excessive speed. Continued training on Jeppesen Flight Deck to remind us how to intuitively find information within the application we don't routinely use might be helpful.

Synopsis

CRJ-200 Captain experienced a GPS failure climbing to 8,000 feet and neither crew member could remember how to bring up a VOR frequency in Flight Deck Pro. During the level off 250 knots was exceeded.

Time / Day

Date : 201707

Place

Locale Reference.Airport : IAH.Airport
State Reference : TX

Aircraft

Reference : X
ATC / Advisory.Tower : IAH
Aircraft Operator : Air Carrier
Make Model Name : Large Transport, Low Wing, 2 Turbojet Eng
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 121
Flight Plan : IFR
Mission : Passenger
Flight Phase : Final Approach
Airspace.Class B : IAH

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1467720
Analyst Callback : Attempted

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Chart Or Publication
Primary Problem : Chart Or Publication

Narrative: 1

IAH recently published several new RNAV approaches. All of the RNAV (RNP) approaches in IAH have the phonetic alphabet "Y" in the title. At other airports that have RNAV (RNP) approaches the letter "Z" is in the title. So at most airports we are cleared for RNAV (RNP) Z RWY XX approach. At Houston we are cleared for RNAV (RNP) Y RWY XX approaches. At the other airports, the RNAV Y approaches have (GPS) in the title of the approach- RNAV (GPS) Y RWY XX. RNP and GPS approaches have a slightly different FMC box programming

protocol. Not sure if the IAH approaches were coded wrong, but it would be nice to have a consistent naming protocol when using RNAV (RNP).

Synopsis

Air carrier Captain reported that IAH's use of the "Y" designation on all RNAV (RNP) approaches is not in accord with other airports' use of the designator "Z" on (RNP) approaches.

Time / Day

Date : 201707

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : LSE.Airport

State Reference : WI

Altitude.MSL.Single Value : 2000

Environment

Flight Conditions : IMC

Weather Elements / Visibility : Fog

Weather Elements / Visibility.Visibility : 10

Light : Daylight

Ceiling.Single Value : 800

Aircraft

Reference : X

ATC / Advisory.Tower : LSE

Aircraft Operator : FBO

Make Model Name : Small Aircraft, Low Wing, 2 Eng, Retractable Gear

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Personal

Nav In Use.Localizer/Glideslope/ILS : Runway 18

Flight Phase : Final Approach

Route In Use : Vectors

Airspace.Class D : LSE

Component

Aircraft Component : ILS/VOR

Aircraft Reference : X

Problem : Malfunctioning

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : FBO

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Private

Qualification.Flight Crew : Instrument

Experience.Flight Crew.Total : 290

Experience.Flight Crew.Last 90 Days : 72.9

Experience.Flight Crew.Type : 97

ASRS Report Number.Accession Number : 1467635

Human Factors : Distraction
Human Factors : Human-Machine Interface
Human Factors : Confusion
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Track / Heading : All Types
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Human Factors
Primary Problem : Aircraft

Narrative: 1

Another pilot and I headed to KOSH. I flew the first leg then he flew to (Nebraska), and I flew to (South Dakota), where we stayed for the night. During dinner, we looked into getting an IFR slot for Oshkosh, but alas they were all full for the next day. The forecast was IFR until around noon, so instead we decided to sleep in. The ceiling was something like OVC011, and all airports to the east were varying between 900 ft. and 100 ft. (!) ceilings. I filed KLSE that was reporting OVC080. The plan was to get a bit closer to KOSH and wait there until [the] weather improved.

My companion pilot is a retired airline captain, so obviously a very capable IFR pilot, but unfortunately he's not IFR current. I have been doing a lot of IFR flights recently in IMC, and I'm very familiar with the plane, so we made a perfect team: I had the plane, and he had the radios. Pilot flying and pilot monitoring.

We get our clearance, and while I'm holding short after I'm done with my checklist, I loaded the flight plan, when I realized that KLSE was not in our database. Before going on the trip, we knew that we had only a "US west" database (rental aircraft...). We didn't know what the limit was exactly, and given that up until then we had been fine, we forgot about that. So I looked into the ILS 18 in more detail, the approach I was planning to do, to see if it required DME (which we don't have), and to see how complicated it would be to fly without GPS (I have practiced this during my training, but I wanted to take a hard look at it before I ventured in real IMC after having mostly relied on GPS for waypoint identification...). I decided that even if we didn't get vectors, I was proficient enough to fly the whole thing without GPS, so our plan was then to take off, and upon reaching our last waypoint, ODI, let ATC know that we were downgrading to V. We had more than 5 hours of fuel and our alternate (VFR), which I did verify was in our database.

Fast-forward an hour and a half, as we're approaching ODI we were told to expect vectors for the ILS 18. Perfect! Just what we wanted. We briefed the approach, and I loaded all the NAV frequencies I was going to use: ODI in NAV 1, the ILS in NAV 1 STBY as a backup, ILS in NAV 2, and LSE (for the missed approach) in NAV 2 STBY. I ran through my approach checklists, and I was 100% ready. I switched CDI and realize that when going back to NAV 2 the G1000 had lost the course I had set up for the ILS... That's weird, I thought. The other pilot suggested that I use NAV 1 for the ILS, which I thought was a good idea anyway, so I switched my frequencies around. We identified the ILS, and

verified my course was set to 180.

We got a final vector and cleared for the approach just outside of JONRO, an IF. I disengaged the AP and FD and got stabilized, so I began my descent to the next minimum altitude in the approach, and we entered IMC. We finally reach the FAF. I anticipated the GS with power, and started coming down at around 500fpm.

Everything was going great. I got my scan going: attitude, speed, attitude, GS, attitude, heading and localizer, attitude, GS, attitude... wait a second, where's the GS? After about a minute inside the FAF I had lost the GS. I immediately ask "what are the localizer minimums?" I quickly update them in my PFD. While I'm doing that, I'm noticing my localizer is flying away from me, so I try to correct by turning to the left... but deflection keeps increasing even more to the left. What's going on? About 5 seconds later I realize that my localizer needle has a FROM indication (the arrow as pointing down)! I take my right hand from the throttle, turn the course, and realize that it was at like ~300. I put it back to 180, and I recover the GS (incredibly it was still centered despite the chaos), and now my localizer is no longer giving me reverse sensing... so I notice I have a 1-dot deflection to the right, which I corrected immediately.

Obviously I got pretty tense, but I continued flying the plane instead of thinking why that happened... we were still in IMC, and I got the plane stabilized again. About another minute later, G1000 starts screaming "TERRAIN, PULL UP". What?? Both my needles are centered, and I'm still more than 1000ft above minimums. Right away I remembered something I'd learned recently: if the airport is not in the DB, it's going to think you're flying into terrain. So again, I ignore the distractions and continue flying the plane, while my companion is trying to silence the warnings.

We finally break out, and finish with a good landing, despite the alerts going off all the way to touch down.

So in the end, it was a successful ILS approach that could have ended much more differently if I hadn't reacted quickly. Granted, if I had gotten full deflection before noticing the course issue I would have gone missed, but still. IFR flying is already hard enough without all this handicap. Accidents are always a chain of events, and this could have easily been the beginning of that chain.

I imagine the fact that the ILS was not in the DB must have had something to do with it, but still, even if we had been flying a VOR or anything else, why would the course suddenly change to something else, by itself?

Synopsis

GA pilot reported a problem with the localizer on an approach to LSE in IMC with a G1000 system that did not have the database for that part of the country.

Time / Day

Date : 201707

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : SFO.Airport

State Reference : CA

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.Tower : SFO

Aircraft Operator : Air Carrier

Make Model Name : EMB ERJ 170/175 ER/LR

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Flight Phase : Climb

Airspace.Class B : SFO

Component

Aircraft Component : FMS/FMC

Aircraft Reference : X

Problem : Malfunctioning

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : First Officer

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1465535

Human Factors : Human-Machine Interface

Human Factors : Troubleshooting

Human Factors : Confusion

Human Factors : Distraction

Person : 2

Reference : 2

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
ASRS Report Number.Accession Number : 1465532
Human Factors : Troubleshooting
Human Factors : Distraction
Human Factors : Confusion
Human Factors : Human-Machine Interface

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Returned To Clearance
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

Prior to push I called Clearance Delivery to check and see if we needed an amendment to the clearance due to recent software issues with the FMS. They said no this departure is fine. As we started our initial climb the intercept fix and first GPS fix moved to different locations on the MFD causing the flight director to show a right turn instead of left. I flew for another few seconds and asked the Captain to get us a heading. When he decided to do so ATC assigned a left turn.

Recent issues with the 27.1 Honeywell software. Have SFO Clearance delivery issue headings until it's fixed.

Narrative: 2

On departure out of SFO we deviated from the published course on the Offshore 1 departure. The offshore requires a turn to intercept the 350 degree radial off of SFO. We continued to fly straight for approximately 4 miles. The flight director on the PFD never commanded a turn, on the map screen of the MFD the point where the turn was supposed to occur continuously "bumped" to some distance down the road. The First Officer and I both discussed what was happening, as it was happening and knew that a turn was required by the time we decided to ignore the flight directors commands the ATC controller gave us a left turn direct SEGUL. I believe the cause of this event was a glitch in the FMS. A contributing factor is the fact that we as the flight crew did not recognize the problem in a timely enough fashion and make the turn to the appropriate course. In order to avoid an event like this from happening in the future I think that it is important for flight crews to know the departure that is being performed thoroughly and be able to revert to a different form of navigation, either going to VOR nav or advising the ATC of a malfunction FMS and asking for assistance.

Synopsis

EMB-175 flight crew reported an anomaly with the Honeywell FMS version 27.1 software during their initial climb. A navigational error resulted requiring a radar vector from ATC.

Time / Day

Date : 201707

Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZOA.ARTCC

State Reference : CA

Altitude.MSL.Single Value : 36000

Environment

Flight Conditions : VMC

Light : Night

Aircraft

Reference : X

ATC / Advisory.Center : ZOA

Aircraft Operator : Air Carrier

Make Model Name : Large Transport, Low Wing, 2 Turbojet Eng

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Nav In Use : GPS

Flight Phase : Cruise

Airspace.Class A : ZOA

Component

Aircraft Component : GPS & Other Satellite Navigation

Aircraft Reference : X

Problem : Failed

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Type : 143

ASRS Report Number.Accession Number : 1464822

Person : 2

Reference : 2

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Not Flying
Function.Flight Crew : First Officer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Experience.Flight Crew.Type : 1387
ASRS Report Number.Accession Number : 1464842

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Inflight Event / Encounter : Other / Unknown
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Flight Crew : Overcame Equipment Problem
Result.Air Traffic Control : Issued Advisory / Alert
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Environment - Non Weather Related
Contributing Factors / Situations : ATC Equipment / Nav Facility / Buildings
Contributing Factors / Situations : Aircraft
Primary Problem : Ambiguous

Narrative: 1

Both GPS failed; ATC queried us as to our navigation, showing us going south of course. We asked for vectors. Later, when both GPS recovered, we still refused to accept clearance for the RNAV arrival, opting instead for vectors.

Narrative: 2

Both GPS 1 and 2 failed while at cruise at 36,000 feet. ATC advised we were drifting about 1/2 mile left of course. We requested radar vectors back on course and refused the RNAV Arrival into SMF. Both GPS recovered without further incident.

Synopsis

Air carrier flight crew reported a temporary failure of both GPS in the vicinity of TPH VOR. After the systems recovered, the crew elected to refuse the RNAV approach and requested vectors from ATC.

Time / Day

Date : 201707

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : PAO.Airport

State Reference : CA

Environment

Flight Conditions : VMC

Light : Daylight

Ceiling : CLR

Aircraft : 1

Reference : X

ATC / Advisory.Tower : PAO

Aircraft Operator : Personal

Make Model Name : Amateur/Home Built/Experimental

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : VFR

Mission : Personal

Flight Phase : Initial Approach

Route In Use : VFR Route

Airspace.Class D : PAO

Aircraft : 2

Reference : Y

ATC / Advisory.Tower : PAO

Aircraft Operator : Personal

Make Model Name : Small Aircraft, High Wing, 1 Eng, Fixed Gear

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : VFR

Mission : Personal

Flight Phase : Initial Approach

Route In Use : VFR Route

Airspace.Class D : PAO

Aircraft : 3

Reference : Z

ATC / Advisory.Tower : PAO

Make Model Name : Small Transport

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Passenger

Nav In Use : GPS

Flight Phase : Initial Approach

Airspace.Class D : PAO

Person : 1

Reference : 1
Location Of Person.Facility : PAO.Tower
Reporter Organization : Government
Function.Air Traffic Control : Local
Function.Air Traffic Control : Instructor
Qualification.Air Traffic Control : Fully Certified
ASRS Report Number.Accession Number : 1462762
Human Factors : Distraction
Human Factors : Training / Qualification
Human Factors : Workload
Human Factors : Situational Awareness

Person : 2

Reference : 2
Location Of Person.Facility : PAO.Tower
Reporter Organization : Government
Function.Air Traffic Control : Local
Qualification.Air Traffic Control : Developmental
ASRS Report Number.Accession Number : 1462767
Human Factors : Workload
Human Factors : Situational Awareness
Human Factors : Distraction
Human Factors : Confusion
Human Factors : Training / Qualification

Person : 3

Reference : 3
Location Of Person.Facility : PAO.Tower
Reporter Organization : Government
Function.Air Traffic Control : Ground
Function.Air Traffic Control : Supervisor / CIC
Qualification.Air Traffic Control : Fully Certified
ASRS Report Number.Accession Number : 1463369
Human Factors : Situational Awareness

Person : 4

Reference : 4
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Single Pilot
Experience.Flight Crew.Total : 2080
Experience.Flight Crew.Last 90 Days : 42
Experience.Flight Crew.Type : 1901
ASRS Report Number.Accession Number : 1463329
Human Factors : Confusion
Human Factors : Distraction

Events

Anomaly.ATC Issue : All Types
Anomaly.Conflict : NMAC
Detector.Person : Flight Crew
When Detected : In-flight
Result.General : Flight Cancelled / Delayed
Result.Flight Crew : Took Evasive Action
Result.Flight Crew : Requested ATC Assistance / Clarification

Assessments

Contributing Factors / Situations : Airport
Contributing Factors / Situations : Airspace Structure
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Contributing Factors / Situations : Staffing
Primary Problem : Procedure

Narrative: 1

I was providing OJT on Local Control at the time of the event. Aircraft X entered the traffic pattern via left traffic and Aircraft Y entered via mid-field left-downwind entry. The aircraft were on converging courses after a few minutes. To resolve the conflict, the trainee controller told Aircraft Y to widen out to the left and pass behind Aircraft X. While the developmental was providing control instructions, I looked and found both aircraft out the window. The instructions alleviated the conflict.

Several minutes later, Aircraft X was opposite direction with an aircraft inbound on a GPS Approach. The GPS Approach brings aircraft into the pattern slightly offset south of final and often in the face of left-downwind traffic. The trainee controller told Aircraft X to widen out their left-downwind and quoted traffic about the approaching aircraft. Aircraft Y who had been following Aircraft X did not widen out their downwind and due to a speed reduction by Aircraft X, ended up passing Aircraft X.

The two aircraft passing each other placed Aircraft Y on the left side of Aircraft X. As Aircraft X attempted left base, they noticed the aircraft off their left wing and reported something about "traffic blowing through the pattern." I was distracted by the complexity of the situation and trying to assist the trainee controller to keep the operation flowing. I failed to notice that Aircraft Y had passed or even encroached upon Aircraft X because Aircraft X's RADAR tag was covering up data tag for Aircraft Y and the tag from the aircraft on the GPS approach was also interfering.

The GPS approach causes unnecessary conflicts with left-downwind traffic due to the opposite direction nature of the two pattern legs. A thorough review of the GPS course and potentially re-writing the approach to bring aircraft "straight-in" would provide great benefit and improve safety all around. Had the approaching aircraft on the GPS approach not been a factor for the two aircraft in left-downwind, the two aircraft would have continued to follow each other preventing a "cut out" and NMAC report.

My recommendation is to revise the GPS approach to mimic a straight-in.

Narrative: 2

[Report narrative contained no additional information.]

Narrative: 3

I was working Controller in Charge (CIC) and Ground Control combined while training was in progress on the Local Control position. Traffic was heavy and fairly complex weekend traffic. Aircraft X was inbound from the west and instructed to enter left downwind. Aircraft Y was inbound from the south and instructed to fly direct midfield for a left downwind entry. As Aircraft Y approached from the south they were instructed to turn left and follow the experimental. Aircraft Y acknowledged the turn, but never reported traffic in sight. I watched on the radar and then looked out the window and it appeared that Aircraft Y was positioning themselves appropriately to follow. Aircraft X was sequenced to follow an aircraft inbound on the GPS approach, which is a straight in offset to the south. Aircraft X reported it in sight and would widen out to the right to follow. As Aircraft X was going to turn base he observed an aircraft flying past him on his left, approximately 200 feet apart laterally at about the same altitude. An unidentified call on local frequency stated "someone flew through the pattern."

After parking the aircraft, the pilot of Aircraft X called on ground control's frequency that he'd like to file a near midair collision. I had just given the CIC and Ground Position to another controller and was still conducting the two minute overlap when that call came in. I asked my replacement to give him the recorded line number and I will take the call. I spoke with the pilot. The pilot also noted that he had slowed Aircraft X down as part of his maneuvering to follow the aircraft on the GPS approach in an effort to reduce how far extended he would have to fly to follow the aircraft.

There are several changes that could be made that would reduce the odds of an event like this from happening again. First it is required to advertise the GPS approach by Letter of Agreement with TRACON. The profile of the GPS approach making an offset straight in from the south is constantly a traffic conflict with regular pattern work. Creating an RNAV approach that would intercept a 3 mile final and then directly straight in would alleviate most of the traffic conflicts. Another option would be to issue visual approaches so long as field conditions permit, so that aircraft would give pattern entry instructions to work with the VFR traffic at the airport.

Second, better staffing at the facility would help. Having Ground Control and CIC combined reduced my ability to monitor everything going on Local Control's frequency. Staffing levels were already reduced by several different leave requests being approved, including a Supervisor covering an opening CIC's shift only to leave about just past halfway into the shift. No attempts to fill the approved leave were made with overtime or credit.

Third, the OJT Instructor and I should be cognizant of the trainee's skill level and that the traffic built to a level above the trainee's skill level. This is easy to see in hindsight, the OJT Instructor was doing a lot of coaching throughout and appeared to be under control until that event occurred.

Fourth, limits of the radar display were a factor. The data block for Aircraft X was partially to completely overlapping the target of Aircraft Y. This made it harder to see the overtake situation developing in the downwind and hid the details that the conflict alert was going off for Aircraft X and Aircraft Y. The conflict alert was also going off for Aircraft X and Aircraft Z (who is inbound on the GPS approach) and the following aircraft had them in sight which led me to think the alarm was for a situation that had been resolved. There are a lot of nuisance alarms for aircraft in the traffic pattern which in makes us have to question if a conflict alert is a genuine situation or not.

Narrative: 4

On arriving from the west on a busy afternoon I saw a high wing aircraft at my 9:00 and 1/2 mile that I was overtaking. Automatic Position Reporting System (APRS) helped me visually find this aircraft, so I called it in sight when checking in with Tower. ATC had not called it out to me. I was still squawking a code given to me by ATC. My ground speed was 138 knots. I was instructed by the Tower to enter left downwind. When asked to extend my downwind for an aircraft on a 6 mile final, I slowed the aircraft to 45-50 knots to avoid flying well into Moffett Field's Class D airspace and then flying a long final back.

There were multiple aircraft in the pattern and at one point a helicopter was advised that landing at 'the spot' (a designated helicopter landing location) would be more expedient as they would otherwise be #7 to land. I did not know that the high wing aircraft I'd seen prior to pattern entry was also landing, but learned afterward when I called the Tower that it was instructed to follow me. The aircraft on a GPS approach which is offset about 10 degrees west of the centerline. Tower called out the aircraft to me at 12:00 and more than a mile so I angled my downwind west to parallel the approach path of the aircraft. When Aircraft Y passed me on final I initiated my base turn, but quickly saw the high wing aircraft passing me on the left at the same altitude approximately 200 feet distant. I never heard any call from the Tower advising this traffic to either slow down or make a right 360 for spacing as is sometimes done.

Not realizing that it was also landing I transmitted on Tower frequency that [an aircraft] had just blown through the pattern. As my downwind had now taken me west I presumed the traffic was transitioning or perhaps traffic reporting. After waiting for the conflicting traffic to pass I continued to turn base and landed uneventfully behind the aircraft on the GPS approach. The delay in turning base allowed enough spacing between myself and the aircraft for another aircraft to depart. After parking I contacted Ground Control and they gave me a telephone number. I then talked with the Tower Controller as he was familiar with the specifics of what had just transpired and said my ground speed on downwind was 60 knots while that of the trailing aircraft was 80 knots. I told him that I called because I thought events like this should be recorded in a database to inform the controllers.

The busyness of the traffic pattern made it difficult to build a mental picture of the location of all aircraft in it based on the transmissions. I was also focused on visually finding the aircraft on final, so may have missed a transmission to the trailing aircraft that would have helped me anticipate his overtaking me, but I heard nothing that drew my attention. No call was made to me by the Tower beyond advising me of the aircraft on final and I heard no call to the trailing aircraft to advise him of the conflict, so it came as surprise to see him as I started to turn base. Apparently the aircraft behind me did not see me as he passed me.

Since Tower is radar equipped and it's hard to visually track aircraft 2 miles away on downwind, radar should be used to anticipate potential conflicts and usually is. Why the potential for this conflict was not communicated more effectively I don't know.

Synopsis

PAO Tower Controllers and a pilot reported an NMAC in the traffic pattern. The GPS Runway 31 approach was cited as a contributing factor.

Time / Day

Date : 201707

Local Time Of Day : 1201-1800

Place

Locale Reference.ATC Facility : ZBW.ARTCC

State Reference : NH

Altitude.MSL.Single Value : 24000

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.Center : ZBW

Aircraft Operator : Fractional

Make Model Name : Small Transport

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 135

Flight Plan : IFR

Mission : Passenger

Nav In Use : FMS Or FMC

Nav In Use : GPS

Flight Phase : Cruise

Route In Use.STAR : HYPER7

Airspace.Class A : ZBW

Component

Aircraft Component : GPS & Other Satellite Navigation

Aircraft Reference : X

Problem : Malfunctioning

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Fractional

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1462647

Human Factors : Troubleshooting

Events

Anomaly.Aircraft Equipment Problem : Critical

Anomaly.Deviation - Track / Heading : All Types

Detector.Person : Flight Crew

When Detected : In-flight
Result.Flight Crew : Diverted
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : ATC Equipment / Nav Facility / Buildings
Primary Problem : Ambiguous

Narrative: 1

On a flight at FL240 we diverted to ZZZ due to multiple and continuing GPS failures. The GTN GPS first failed without warning, causing the autopilot to enter roll mode and causing the MFD map and Weather functions to fail. This happened just prior to crossing BAF VOR and starting the HYPER7 arrival. The GPS flashed a warning that it had lost all satellites and was in DR mode.

We asked BOS Center for an initial heading while we worked on the problem. After about 3 minutes the GPS regained its position. We informed BOS Center that we could continue, they cleared us direct a fix on the HYPER7. After a few minutes the GPS again lost all satellites and the associated failures occurred again. We waited a minute to see if the GPS would regain its position, it did not.

Due to restricted airspace around and near IAD and several storms and reported low IFR conditions we decided to divert to ZZZ which we had just passed and was good VFR. We informed BOS Center and we diverted and landed uneventfully at ZZZ.

Synopsis

Fractional aircraft Captain reported an issue with GPS navigation which resulted in significant effect on aircraft navigation capability. Aircraft diverted to an enroute airfield.

Time / Day

Date : 201707

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Environment

Weather Elements / Visibility : Haze / Smoke

Weather Elements / Visibility.Visibility : 6

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.CTAF : ZZZ

Aircraft Operator : Personal

Make Model Name : PA-28R Cherokee Arrow All Series

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : VFR

Mission : Training

Flight Phase : Landing

Route In Use : Visual Approach

Route In Use : Direct

Airspace.Class E : ZZZ

Component

Aircraft Component : Gear Extend/Retract Mechanism

Aircraft Reference : X

Problem : Improperly Operated

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Trainee

Qualification.Flight Crew : Private

Qualification.Flight Crew : Instrument

ASRS Report Number.Accession Number : 1462439

Human Factors : Situational Awareness

Human Factors : Distraction

Events

Anomaly.Flight Deck / Cabin / Aircraft Event : Other / Unknown

Anomaly.Deviation - Procedural : Published Material / Policy

Anomaly.Ground Event / Encounter : Gear Up Landing
Detector.Person : Flight Crew
When Detected : In-flight
Result.Aircraft : Aircraft Damaged

Assessments

Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

Doing a Flight Review with a flight instructor. The plan was to fly to ZZZ to do one touch and go and one full stop landing (on a very narrow runway) before proceeding to the "South west practice area". The distance is about 11 nautical miles, thus a very short flight. After being advised to go to advisory frequency until flying over ZZZ was less than 2 min. Realizing I was midfield and at pattern altitude I slowed the aircraft down to approach speed and was proceeding with traffic advisers, and setting up my landing pattern. At this point I should have done GUMP but inadvertently failed to do so. I did a fairly close pattern due to some towers not far from the approach end of runway but as wide as I could to get a good stable approach for what was a very narrow runway relative to my experience. The final approach I became fixated on maintaining precise center line and approach speed to be able to do a short field touch and go. In [doing] this I again failed to GUMP (Gas UNDERCARRIAGE Mixture Prop). I then very nicely landed dead center of the runway just at the touch down point with my gear up.

Things that contributed to my not maintaining my normal landing routine.

- 1) Trying to fly and listen to an instructor (keep a sterile cockpit)
- 2) Not using the GPS to navigate - I always use a GPS and distance tells me when to slow down, GUMP ...
- 3) Focusing on the narrow runway generally at about 200 AGL I will check the gear lights one more time.
- 4) Having transitioned from a [Cessna] right after I got my Private to [Piper Arrow] and doing all my instrument training in it, the VAST majority of my experience in a retractable landing gear is long (10 + miles) straight-ins. Typically I will GUMP 3 or 4 times in during that approach phase.

Synopsis

Piper Arrow pilot reported a gear up landing due to distractions.

Time / Day

Date : 201707

Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Altitude.AGL.Single Value : 250

Environment

Flight Conditions : VMC

Light : Daylight

Aircraft

Reference : X

ATC / Advisory.Tower : ZZZ

Aircraft Operator : Personal

Make Model Name : Cardinal 177/177RG

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : None

Mission : Personal

Flight Phase : Initial Climb

Route In Use : None

Airspace.Class D : ZZZ

Component

Aircraft Component : Electrical Power

Aircraft Reference : X

Problem : Failed

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Single Pilot

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Private

Qualification.Flight Crew : Instrument

Experience.Flight Crew.Total : 1284

Experience.Flight Crew.Last 90 Days : 13

Experience.Flight Crew.Type : 509

ASRS Report Number.Accession Number : 1461671

Human Factors : Distraction

Human Factors : Situational Awareness

Human Factors : Communication Breakdown

Communication Breakdown.Party1 : Flight Crew

Communication Breakdown.Party2 : ATC

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.ATC Issue : All Types
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem
Result.Air Traffic Control : Provided Assistance

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Human Factors
Primary Problem : Ambiguous

Narrative: 1

Filed IFR flight plan. Upon preflight check, found battery dead. FBO assisted in starting aircraft with my jumper cables and their tug. Lineman connected cables backwards on tug battery. Problem corrected after two attempts to start plane. Plane started successfully. All systems appeared operational - battery charging from alternator at 13.2 Volts. Idled on ground checking additional systems - radios, GPS, flaps, etc. Contacted Tower and cancelled IFR flight plan to ZZZ; requested flight advisories to ZZZ1, altitude 5,500 MSL. Taxi/run up normal. Took off, climbing somewhere between 100-400 AGL went to retract landing gear and experienced total electrical system failure.

Turned left, climbed to 2,500 MSL and began racetrack pattern south of [departure airport]. Attempted to contact FSS via cellphone and became frustrated with inability to navigate automated FSS phone options to contact a live person. Found Tower number in my cellphone. Called and an Air Traffic Controller answered. Advised of my situation and said I would look for light signals. I first wanted to work through manual procedures to make sure landing gear was down/locked. Communication was difficult. Bluetooth connection to headphones not able to maintain connection. Used cellphone without headset with significant background engine noise.

Completed gear check, maneuvered to left downwind, looked for light signals, and was unable to visualize. Called back to tower and was connected to voice mail then multiple busy signals. Finally got someone to answer. Found out later the number I had was for a manager's office that isn't always occupied. Was given phone number direct to tower controllers and I transcribed it wrong. Asked by ATC to leave phone on and I responded unable.

Before hanging up, expressed concern about nose gear being fully engaged. Advised by tower to make low approach. Upon completion, made phone contact with tower again on initial manager's line and was advised gear appeared in position. Was given clearance to land. Never looked again for light signals.

Landing successfully and uneventfully. Tower manager met me on apron. No additional reporting required.

Synopsis

C177 pilot reported an electrical failure after takeoff followed by cellphone contact with ATC and a return to the departure airport.

Time / Day

Date : 201707

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Altitude.AGL.Single Value : 1000

Environment

Flight Conditions : VMC

Aircraft

Reference : X

ATC / Advisory.Tower : ZZZ

Aircraft Operator : Air Carrier

Make Model Name : Medium Transport, Low Wing, 2 Turbojet Eng

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Landing

Flight Phase : Final Approach

Route In Use : Visual Approach

Airspace.Class B : ZZZ

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : First Officer

Function.Flight Crew : Pilot Not Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Total : 4758

ASRS Report Number.Accession Number : 1461388

Human Factors : Communication Breakdown

Communication Breakdown.Party1 : Flight Crew

Communication Breakdown.Party2 : Flight Crew

Person : 2

Reference : 2

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Captain

Qualification.Flight Crew : Air Transport Pilot (ATP)

Experience.Flight Crew.Total : 9379

Experience.Flight Crew.Type : 3095
ASRS Report Number.Accession Number : 1461940
Human Factors : Communication Breakdown
Human Factors : Situational Awareness
Communication Breakdown.Party1 : Flight Crew
Communication Breakdown.Party2 : Flight Crew

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Inflight Event / Encounter : Unstabilized Approach
When Detected : In-flight
Result.Flight Crew : Executed Go Around / Missed Approach

Assessments

Contributing Factors / Situations : Airspace Structure
Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Primary Problem : Human Factors

Narrative: 1

ATIS was advertising visual to 31. We briefed the RNAV Visual 31, I was going to request that with approach. I checked on and we were told to expect the ILS to 4, circle 31. We began to set up the ILS as we checked on at 6,000 ft. We were given a descent and cleared the ILS4/circle 31 quickly. We were at 6,000 ft and chart altitude was 3,000 ft. I asked the Captain if he wanted to continue, he said yes. We began configuring the plane. We switched to tower, still high and fast. Before I called the tower I asked the Captain if he wanted to continue after pointing out the airport, he said he'll get it down. He flew the localizer and above glide slope down and leveled just above circling minimums. He turned right to circle to 31.

I loaded the GPS 31 in the box to give him vertical guidance. The Captain began turning final close and high to the runway. Rolling towards 30 [degree] bank, I called "watch the bank". He rolled through 30 to 45. I called "bank angle, it's not going to work, lets go-around". The aircraft also alerted "bank angle". He rolled it back to less than 30 while increasing decent rate. He said "it'll work". We at the same time got "sink rate" GPWS. I called "watch your descent, we're too high let's go-around". The Captain didn't respond. After GPWS repeated "sink rate" the Captain called the go-around.

On the second approach the Captain was closer to profile but still a high. He increased the descent rate to about 1,300 fpm passing 1,000 ft. I called "watch your descent rate, coming onto PAPIs. The fpm momentarily went to 1,600 fpm, then he corrected and stabilized the approach. He touched down at the 1,000 ft markers. At the gate the Captain debriefed that he should have gone around sooner.

My thoughts on preventing this in the future. Do proficiency training for VFR circles to short runways in the simulator. Do multiple approaches in various wind and weather conditions.

We should have done a more thorough brief after getting the short notice on the approach. I should have said "Go-Around" more firmly and as a stand-alone statement. He apparently interpreted my go-around statements as suggestions. I also should have been more firm (and will be in the future) earlier in the approach on just abandoning the

approach early. I ask him several times if he wanted to continue before we even began the circle.

Narrative: 2

On arrival, we were expecting [the] visual approach. At approximately 10,000 ft received new approach ILS 04 circle to land 31. Received late descent clearance for the ILS, ceiling was approx 1500 ft BKN. Very steep on the ILS but was going to circle to land I thought it would work. At 2.5nm final for RW04 began circling maneuver. Visual with airport, I felt I was fine. As I picked up the REIL lights, I increased bank angle to attempt to roll out on final. This is when the Bank Angle warning sounded. I was startled, decreased bank which resulted in an overshoot. As I decreased bank, I relaxed back pressure which resulted in Pull-Up/Sink Rate Warning. First Officer said "You are going to go-around aren't you?" That is when I started the go-around.

Synopsis

B737 flight crew reported that they were expecting a visual approach. At approximately 10,000 ft they received a new approach very steep on the ILS, but was unable to land.

Time / Day

Date : 201706
Local Time Of Day : 1201-1800

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.AGL.Single Value : 900

Environment

Flight Conditions : VMC
Weather Elements / Visibility : Turbulence
Weather Elements / Visibility.Visibility : 10
Light : Daylight
Ceiling.Single Value : 4000

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Corporate
Make Model Name : Small Aircraft
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : None
Mission : Banner Tow
Flight Phase : Cruise
Route In Use : None
Airspace.Class E : ZZZ

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Contracted Service
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 2143
Experience.Flight Crew.Last 90 Days : 94
Experience.Flight Crew.Type : 1210
ASRS Report Number.Accession Number : 1460029
Human Factors : Situational Awareness

Events

Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : FAR
Anomaly.Inflight Event / Encounter : Weather / Turbulence

Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Became Reoriented

Assessments

Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

I have an aerial advertising company and was contracted to fly a total of 4 hour and 15 minute flight over a concert. The FAA requirements are that aerial advertising aircraft are to be at a minimum of 1000 AGL while towing banners over populated areas. There were continuous mild to moderate up and downdrafts over the venue area. I was flying a 5 ft letter banner approximately 120 ft long. Most of the time I was at 1100 to 1200 AGL to cushion any downdrafts that normally show up. Probably 4 or 5 times in the 3 hours I was over the venue, I got into a moderate downdraft of 1000 feet per minute descent from a little more powerful downdraft and my initial power applications were not enough to stop the descent before dropping to 900 AGL. I have a Garmin 496 GPS that has a very accurate Vertical Speed indicator that I use to detect downward vertical movement. Maybe two of those times I was also being directed by Approach Control to look for approaching aircraft that were in my general area and my attention was diverted for a little more outside time than my normal scan and I got a late start on the power application.

Corrective actions would be to be a little more aggressive on power applications. That being said we also have to consider the noise issues of the people we are flying circles around. The more power the more potential for complaints. I will also try and be 50 to 100 ft higher to have a little more cushion on that 1000 ft minimum when we have the potential for stronger downdrafts.

Synopsis

Banner tow pilot reported operating below the FAR mandated floor of 1000 feet AGL while circling an outdoor event due to turbulence and downdrafts.

Time / Day

Date : 201706

Local Time Of Day : 0601-1200

Place

Locale Reference.ATC Facility : ZAB.ARTCC

State Reference : NM

Altitude.MSL.Single Value : 8500

Environment

Weather Elements / Visibility.Visibility : 10

Ceiling.Single Value : 25000

Aircraft

Reference : X

ATC / Advisory.Center : ZAB

Aircraft Operator : Personal

Make Model Name : Cheetah, Tiger, Traveler AA5 Series

Operating Under FAR Part : Part 91

Flight Plan : VFR

Mission : Personal

Nav In Use : GPS

Flight Phase : Cruise

Route In Use : Direct

Airspace.Class E : ZAB

Component

Aircraft Component : Altitude

Aircraft Reference : X

Problem : Malfunctioning

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Instrument

ASRS Report Number.Accession Number : 1459661

Events

Anomaly.Aircraft Equipment Problem : Less Severe

Anomaly.ATC Issue : All Types

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Became Reoriented

Result.Flight Crew : Requested ATC Assistance / Clarification
Result.Air Traffic Control : Issued Advisory / Alert

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

ATC reported me as traffic to another aircraft, telling him I was at 9000 ft, when I was at 8500 ft. I had the correct altimeter setting, and cross checked against the Mode C report display on my transponder, and it was reporting 8500 in corrected PA. (Altimeter setting was 29.91 so corrected and uncorrected should be close). Communicating to ATC, he was unconvinced there was something unusual happening, but I further cross checked against the pressure altimeter in my iPad mini4, and it agreed that I was at about 8500 ft. The GPS altitude was about 9000 ft, though, and I have ADS-B out. After frequency change to LA center, a very similar discrepancy seemed to occur between a different aircraft and ATC. Is it possible that ATC displays are showing altitudes that are sometimes derived from ADS-B and sometimes from Mode-C? That seems really dangerous under conditions where GPS altitude differs from corrected pressure altitude.

Synopsis

AA5 pilot at 8500 feet reported being informed by ZAB that his Mode C showed 9000 feet. The reporter believed that the problem was with ZAB.

Time / Day

Date : 201706

Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZAN.ARTCC

State Reference : AK

Relative Position.Distance.Nautical Miles : 0

Altitude.MSL.Single Value : 3000

Environment

Flight Conditions : IMC

Light : Daylight

Aircraft

Reference : X

Aircraft Operator : Personal

Make Model Name : Skyhawk 172/Cutlass 172

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : IFR

Mission : Personal

Flight Phase : Initial Approach

Route In Use.Other

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Personal

Function.Flight Crew : Pilot Flying

Function.Flight Crew : Single Pilot

Qualification.Flight Crew : Private

Qualification.Flight Crew : Instrument

ASRS Report Number.Accession Number : 1458653

Human Factors : Workload

Human Factors : Situational Awareness

Events

Anomaly.Deviation - Altitude : Crossing Restriction Not Met

Anomaly.Deviation - Track / Heading : All Types

Anomaly.Inflight Event / Encounter : Unstabilized Approach

Anomaly.Inflight Event / Encounter : Weather / Turbulence

Anomaly.Inflight Event / Encounter : CFTT / CFIT

Detector.Person : Flight Crew

Detector.Person : Air Traffic Control

When Detected : In-flight

Result.Flight Crew : Executed Go Around / Missed Approach

Result.Flight Crew : Became Reoriented

Assessments

Contributing Factors / Situations : Human Factors

Contributing Factors / Situations : Weather

Primary Problem : Human Factors

Narrative: 1

I was on an IFR flight plan. I descended into the clouds at about 5500 feet, and was cleared for the ILS 11 approach. Bases were reported at 600'. Minimums for the approach were 200'. I was given instructions to maintain 3000' until established.

This was my first time flying an approach in this particular aircraft, and it only had a single axis autopilot (my usual aircraft has dual axis). I intercepted the inbound course high above the glidepath and started to descend. Within a minute, I noted that I was high above the glidepath and I was too close to the airport to continue to safely descend, so I executed the missed approach and informed ATC that I needed to try again.

Mistake #1 that set up the rest of this flight... As I reviewed the initial error with my radar track (later on the ground), I realize now that ATC had likely intended and expected me to fly the full approach with a procedure turn. I thought I was being given a direct intercept to the final approach course, so I did not fly the full approach the first time, and that is why I was too high.

After this initial missed approach, I accepted another clearance for the full approach with procedure turn. That approach and one more subsequent approach also ended in missed approaches with my altitude too high. As I was hand flying the aircraft for much of the time, I misread the chart and did not realize that I should have been descending to 1300' before glideslope intercept. On one attempt, ATC offered a DME arc as an alternative as it would have given me a more natural intercept without requiring a quick descent from 3000 to 1300'. I declined this offer, as I did not want to reprogram the GPS while hand flying in IMC.

At one point, I may have become slightly disoriented while hand flying, and I had to recover from a slight unusual attitude in IMC. I engaged the autopilot in ROL mode to regain my bearings. I noted that the CDI and Glideslope indicator seemed to jump in and out on occasion, and the autopilot would not accurately track the inbound course in either APR or NAV mode. I had to hand fly.

I declined the offer of a VFR alternate from ATC, as the closest VFR airport was 200 miles away. I would not have had enough fuel to fly there.

On my final attempt at an approach, I decided to descend below the clouds as much as possible while still over water so that I could establish visual reference with the ground without risk of obstructions. I intentionally descended below the glidepath while following my course on Foreflight so that I could establish contact with the ground. I did break out and establish contact with the ground, and I followed the CDI to the airport. ATC gave me a low altitude warning and instructed me to climb to 3000'. I declined, and let them know that I had the airport in sight. Visibility was good below the clouds.

This entire ordeal had at least two human causes. My initial expectation of a direct approach caused the initial missed approach. My subsequent stress of hand flying in IMC caused me to misread the chart and remain too high to intercept on the next two approaches. I overcorrected my course adjustments, and never stabilized on any

approach. I initially expected this to be an easy garden variety ILS approach, and was not prepared for hand flying an unfamiliar airplane in IMC.

Synopsis

C172 pilot reported difficulty successfully completing an approach in IFR conditions, and at one point was issued a low altitude alert by ATC.

Time / Day

Date : 201706
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Relative Position.Distance.Nautical Miles : 2
Altitude.MSL.Single Value : 900

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Turbulence
Weather Elements / Visibility : Fog
Weather Elements / Visibility : Windshear
Weather Elements / Visibility.Visibility : .75
Light : Daylight
Ceiling.Single Value : 200
RVR.Single Value : 2400

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Air Taxi
Make Model Name : PC-12
Crew Size.Number Of Crew : 2
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Flight Phase : Final Approach
Route In Use : Vectors
Airspace.Class D : ZZZ

Component

Aircraft Component : Elevator Trim System
Aircraft Reference : X
Problem : Malfunctioning

Person : 1

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Not Flying
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Instrument

Experience.Flight Crew.Total : 2740
Experience.Flight Crew.Last 90 Days : 91
Experience.Flight Crew.Type : 1035
ASRS Report Number.Accession Number : 1458342

Person : 2

Reference : 2
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Carrier
Function.Flight Crew : First Officer
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Flight Instructor
Experience.Flight Crew.Total : 3248
Experience.Flight Crew.Last 90 Days : 174
Experience.Flight Crew.Type : 293
ASRS Report Number.Accession Number : 1458627

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Diverted
Result.Flight Crew : Executed Go Around / Missed Approach

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Weather
Primary Problem : Aircraft

Narrative: 1

On final approach, tower told us there was moderate turbulence reported and cleared us to land on RWY XY. We were on the ILS and proceeding with an autopilot coupled approach. As we continued our approach we experienced a wave of moderate-severe turbulence that disengaged the autopilot. The turbulence started at approximately 1200 feet MSL. We reengaged the autopilot and successfully recaptured the localizer and glide-slope. At approximately 600 feet MSL, we encountered another wave of moderate-severe turbulence that was more intense than the first one. The autopilot disengaged again and I noticed the CDI was deflecting rapidly. I also noticed Generator 2 voltage dropping from 22V. I called for missed approach as the CDI was rapidly approaching half scale deflection. The Pilot Flying pressed the go-around button and began to climb as I called tower and advised we were on the missed. Tower gave us a heading, told us to climb to 3000 feet and asked our intentions. At that moment, I advised we would like to try the approach again. During the process of cleaning up the airplane, we heard the "sink rate" call out and I noticed we were descending. I instructed PF to climb. He told me he couldn't and needed help. I noticed he was pulling back on the yoke. As I grabbed the yoke I realized it was extremely heavy. I looked down and saw the stab trim was all the way down. I tried to re-trim and

about that time we heard rapid beeping. I quickly hit trim interrupt-norm and pushed the test button on the autopilot. I then tried again to re-trim and was successful. ATC called and advised they showed us in a descent and asked if everything was ok. I advised we had a control issue and we were trying to climb. We were both pulling back pressure on the yoke and wings were level but was still slowly descending until we were able to get the stab trim back. I then advised ATC we were electing to go to [a nearby airport]. Tower handed us off to Approach and we were given our route. I elected [said airport] due to previous knowledge that it was VFR. I did not know if the turbulence caused damage or if the autopilot/trim was the problem or any other anomalies so I did not want to go back into IMC conditions, especially did not want to conduct any low Instrument Approach Procedures. We continued our flight without any more control problems so I did not [advise of any emergency conditions]. We did not get any Central Aural Warning System warnings during this event. Closer to [diversion airport], approach advised us that no one was landing [there] visually and told us to expect GPS 24. At that time, we were in VMC conditions and had [a third airport] in sight. I cancelled IFR with approach. They advised us cancellation was received, maintain VFR and gave us tower frequency. We proceeded to [the third airport] and landed successfully.

Narrative: 2

[Report narrative contained no additional information.]

Synopsis

PC12 flight crew reported a missed approach during an ILS due to turbulence, autopilot disengagement and full nose down trim. Crew reported a successful divert to a VMC airport.

Time / Day

Date : 201706
Local Time Of Day : 1801-2400

Place

Locale Reference.ATC Facility : ZZZ.ARTCC
State Reference : US
Altitude.MSL.Single Value : 27000

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft

Reference : X
ATC / Advisory.Center : ZZZ
Aircraft Operator : Air Taxi
Make Model Name : TBM 700/TBM 850
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 135
Flight Plan : IFR
Mission : Passenger
Flight Phase : Cruise
Route In Use : Direct
Airspace.Class A : ZZZ

Component

Aircraft Component : AHRS/ND
Aircraft Reference : X
Problem : Malfunctioning

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Air Taxi
Function.Flight Crew : Captain
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Instrument
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Multiengine
Experience.Flight Crew.Total : 9000
Experience.Flight Crew.Last 90 Days : 100
Experience.Flight Crew.Type : 780
ASRS Report Number.Accession Number : 1458327
Human Factors : Situational Awareness

Events

Anomaly.Aircraft Equipment Problem : Less Severe
Detector.Automation : Aircraft Other Automation
Detector.Person : Flight Crew
When Detected : In-flight
Result.Flight Crew : Diverted
Result.Flight Crew : Landed As Precaution
Result.Aircraft : Equipment Problem Dissipated

Assessments

Contributing Factors / Situations : Aircraft
Primary Problem : Aircraft

Narrative: 1

In cruise in VMC aircraft AP began to command a left turn into what was an erroneous wind vector that rapidly increased through 200 knots. AP was disconnected and control was established.

Shortly after an Attitude Fail message was displayed on the PFD, followed by a red AHRS (Attitude and Heading Reference System) FAIL with associated loss of all pitch and roll data along with heading information. After a few minutes the system reset. It then failed again for a couple minutes before again resetting and operating normally for the duration of the diversion to landing.

There were no other associated air data or GPS signal failures noted. Aircraft control and safety of flight were not jeopardized. Being day VMC was a significant factor in the outcome of this event. While the electronic backup instrument still had good attitude information it's heading also failed with the PFD. Steam gauge instruments are fully independent and provided good attitude information but being on the far side of the cockpit and not providing GPS navigation they are a poor substitute.

Systems are Garmin G600 PFD and dual Garmin GTN700 navigators.

Synopsis

A TBM 850 pilot reported an AHRS (Altitude and Heading Reference System) failure at FL270. The pilot then elected to divert.

Time / Day

Date : 201705
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 5000

Environment

Flight Conditions : IMC
Weather Elements / Visibility : Rain
Weather Elements / Visibility : Turbulence
Weather Elements / Visibility.Visibility : 5
Light : Night
Ceiling.Single Value : 2000

Aircraft

Reference : X
ATC / Advisory.TRACON : ZZZ
Aircraft Operator : Personal
Make Model Name : Bonanza 35
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Passenger
Flight Phase : Climb
Route In Use : Direct
Airspace.Class B : ZZZ

Component : 1

Aircraft Component : GPS & Other Satellite Navigation
Aircraft Reference : X
Problem : Failed

Component : 2

Aircraft Component : Electronic Flt Bag (EFB)
Aircraft Reference : X
Problem : Malfunctioning

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Instrument

Experience.Flight Crew.Total : 1000
Experience.Flight Crew.Last 90 Days : 8
Experience.Flight Crew.Type : 50
ASRS Report Number.Accession Number : 1452997
Human Factors : Human-Machine Interface
Human Factors : Troubleshooting
Human Factors : Confusion

Events

Anomaly.Aircraft Equipment Problem : Critical
Anomaly.Deviation - Track / Heading : All Types
Anomaly.Inflight Event / Encounter : Weather / Turbulence
Detector.Person : Flight Crew
Were Passengers Involved In Event : N
When Detected : In-flight
Result.Flight Crew : Overcame Equipment Problem

Assessments

Contributing Factors / Situations : Aircraft
Contributing Factors / Situations : Human Factors
Primary Problem : Aircraft

Narrative: 1

I was flying our Beechcraft V35. The departure was into dusk with squalls so I planned to depart VFR and collect my IMC clearance rapidly and then climb into a darkening sky. At about 2000 feet I contacted ATC and was turned on course direct and at that point noted a GPS error on the panel. The aircraft had been updated with an Aspen 1500, a Garmin GTN 650 with a new Garmin GTX 327 transponder. In addition the GTN has the Flightstream 210 connection. So all-in-all a comprehensive panel for IFR navigation. In addition I had an iPad mini on the yoke with Foreflight running (this was connected to the panel via the Flightstream and GTX) and an Aera portable with XM weather in easy view). The GPS signal briefly went away and I continued on autopilot heading mode and then within 30 seconds everything was normal again. At this point I was still VMC but climbing for 5000 with worse weather ahead. I considered remaining VFR or aborting my flight but the brief GPS loss seemed an illusion. ATC said no one else has reported an outage so I wondered if I had encountered a trucker with a GPS jammer on a highway or similar. So I continued - into the rain, clouds and turbulence climbing for 8000.

Then all hell broke loose: GPS signal failure, ADSB failure, multiple cascading messages on the GTN. With my trusty iPad on the yoke as backup, I did not panic figuring I could continue with heading mode and navigate with ATC heading and fly the plane. But of course my iPad was receiving erroneous inputs from the panel and rapidly showed me at a 90 degree course error. The attitude information on the iPad was similarly crazy. Now the problem was I had no error message on the iPad and had not made the connection that it was also receiving erroneous GPS data from the panel. My confidence in the heading indicator was rocked and I was now depending on the backup instruments - compass and turn coordinator. We all train for it, but to fly this in turbulence with rain and dark while troubleshooting a glass panel with multiple error messages and conflicting information, I can tell anyone, is no fun.

With the ADSB error messages did the GTX 327 get the flu or a cable problem? Was there a cross talk problem with three possible GPS inputs in conflict? I know in the future if this

happens the first call is to disconnect the iPad from the panel and doing that helped immensely. I have not heard anyone discuss this before.

Synopsis

BE35 pilot reported experiencing combined failures of GPS, ADS-B, heading, and tablet software possibly due to the fact that all of the systems were interconnected.

Time / Day

Date : 201705

Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : LGA.Airport

State Reference : NY

Altitude.MSL.Single Value : 1300

Environment

Flight Conditions : IMC

Light : Night

Aircraft

Reference : X

ATC / Advisory.Tower : LGA

Aircraft Operator : Air Carrier

Make Model Name : Regional Jet 700 ER/LR (CRJ700)

Crew Size.Number Of Crew : 2

Operating Under FAR Part : Part 121

Flight Plan : IFR

Mission : Passenger

Flight Phase : Initial Approach

Route In Use.Other

Airspace.Class B : LGA

Person : 1

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1452896

Human Factors : Distraction

Human Factors : Situational Awareness

Human Factors : Workload

Person : 2

Reference : 2

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Carrier

Function.Flight Crew : Pilot Not Flying

Function.Flight Crew : First Officer

Qualification.Flight Crew : Air Transport Pilot (ATP)

ASRS Report Number.Accession Number : 1452889

Human Factors : Situational Awareness

Human Factors : Distraction
Human Factors : Workload

Events

Anomaly.Deviation - Altitude : Excursion From Assigned Altitude
Anomaly.Deviation - Procedural : Published Material / Policy
Anomaly.Deviation - Procedural : Clearance
Anomaly.Inflight Event / Encounter : CFTT / CFIT
Detector.Automation : Air Traffic Control
Detector.Person : Flight Crew
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Issued Advisory / Alert

Assessments

Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Weather
Primary Problem : Human Factors

Narrative: 1

Going into LGA we were told to expect the RNAV GPS approach for runway 13. After briefing and setting up for the approach we were given a 030 heading after the LGA VOR and then another vector to join the final before the CHNZO fix. ATC broadcasted that the visibility had dropped to 1.5 miles at about the same time we were joining the final. We were discussing the minimums when we were cleared for the approach. I mistakenly started my descent at the CHNZO fix instead of the RABBY fix to 1300 feet. The FO was putting the gear down and getting us configured so he was busy with the checklist while I descended. By the time I caught my error we were at the MEATZ fix which allowed a crossing at 1300 feet so I continued the approach with no further problems. I discovered that I had descended about 2 miles early.

The main threat that distracted me was the broadcasting of the deteriorating visibility while we were joining final along with task saturation of getting configured for the approach. Slow down and if you get behind just go around and set back up for the approach.

Narrative: 2

Once [I] saw a corrective action by the PF (selected ALT), [I] looked away to make the new configuration/frequency changes and when [I] looked back up, the plane was leveling at 1300. Before getting the first word in with Tower, the Controller made contact and indicated she was getting a low altitude alert on us and to continue. [I] acknowledged. The short remainder of the approach and landing went smoothly and as reported earlier by the Approach Controller, we broke out of the weather right above minimums.

We established several threats in this event. The RNAV GPS 13 is an approach that is rarely used on a runway that is also used for landing fairly infrequently. Both my Captain and I have lots of experience operating in and out of LGA and we both believe that this day was the first time flying this particular approach leading to a lack of familiarity even though the details were thoroughly briefed both times we flew it. The information the Approach Controller issued us also lead to a significant threat. We were just outside the CHNZO fix on vectors when the conversation about deteriorating weather began and

making us the second aircraft to try the approach with these conditions. This obviously led to an increase in workload as we double checked the approach plate minimums and continued with heading/altitude changes. Then the Controller gave us a strange clearance (twice). By clearing us to cross CHNZO above 2000, it caused a distraction from the fact that 2000 actually needs to be maintained beyond the next fix (RABBY) leading to the undesired aircraft state of starting the descent early and being low at RABBY. Workload for both pilots reached a maximum at the point of altitude correction/configuration and frequency change just prior to Tower noticing the low altitude alert.

If I could change any behavior in what I learned from this event, it would be to express a concern as PM more clearly to the PF in the form of a direct observation/correction. What needed to be said at the CHNZO fix was "we need to maintain 2000 until beyond RABBY" and the deviation could have been corrected quickly or not happened at all. I would argue that the clearance from approach control did not help the situation of flying a complicated, unfamiliar approach but nothing he said was incorrect, just distracting. The most important learning tool from this event is something we already hammer down on in every day operations but needs to be reiterated: a thorough approach briefing is absolutely necessary, especially when flying a full IMC approach, and both pilots need to be clear on every detail of every segment of the approach before it begins.

Synopsis

CRJ-700 flight crew reported receiving a low altitude alert from ATC after descending early on approach to LGA.

Time / Day

Date : 201705
Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ZZZ.Airport
State Reference : US
Altitude.MSL.Single Value : 2000

Environment

Flight Conditions : IMC
Weather Elements / Visibility.Visibility : 10
Ceiling.Single Value : 700

Aircraft

Reference : X
ATC / Advisory.Tower : ZZZ
Aircraft Operator : Personal
Make Model Name : PA-31 Navajo/Chieftan/Mojave/T1040
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : IFR
Mission : Personal
Nav In Use : GPS
Flight Phase : Initial Approach
Airspace.Class C : ZZZ

Person

Reference : 1
Location Of Person.Aircraft : X
Location In Aircraft : Flight Deck
Reporter Organization : Personal
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Flight Engineer
Qualification.Flight Crew : Air Transport Pilot (ATP)
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Multiengine
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 17300
Experience.Flight Crew.Last 90 Days : 45
Experience.Flight Crew.Type : 1350
ASRS Report Number.Accession Number : 1452717
Human Factors : Situational Awareness
Human Factors : Distraction

Events

Anomaly.Deviation - Altitude : Overshoot
Anomaly.Deviation - Procedural : Published Material / Policy

Anomaly.Deviation - Procedural : Clearance
Detector.Automation : Aircraft Terrain Warning
Detector.Person : Flight Crew
Detector.Person : Air Traffic Control
When Detected : In-flight
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Human Factors
Primary Problem : Human Factors

Narrative: 1

Flying GPS/LPV RWY 13. Misread approach chart and saw alt from IF to FAF as 2000 ft. rather than charted 2400 ft. Approaching FAF tower informed me I was indicating 2000 ft. rather than 2400 ft. Shortly before this at about 2250 ft., Avidyne IFD 440 had given me a yellow low altitude warning, but I assumed it was in error. Did not get a terrain warning since I remained at least 1200 ft. above terrain/obstacles below or ahead of me. I was tired and too comfortable flying into my home field though it was an approach I had not flown before. I should not have assumed the low altitude warning was an error, and instead rechecked the approach chart immediately. I held 2000 ft. till intercepting the GP (Glide Path).

Synopsis

PA-31 pilot reported descending below the published altitude during a GPS approach due to misreading the chart.

Time / Day

Date : 201705

Local Time Of Day : 0001-0600

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Altitude.MSL.Single Value : 2800

Environment

Flight Conditions : IMC

Weather Elements / Visibility : Fog

Light : Night

Aircraft

Reference : X

ATC / Advisory.TRACON : ZZZ

Aircraft Operator : Air Taxi

Make Model Name : EC130

Crew Size.Number Of Crew : 1

Operating Under FAR Part : Part 91

Flight Plan : VFR

Mission : Ferry

Nav In Use : GPS

Flight Phase : Cruise

Route In Use : Visual Approach

Airspace.Class E : ZZZ

Person

Reference : 1

Location Of Person.Aircraft : X

Location In Aircraft : Flight Deck

Reporter Organization : Air Taxi

Function.Flight Crew : Captain

Function.Flight Crew : Pilot Flying

Qualification.Flight Crew : Commercial

ASRS Report Number.Accession Number : 1452132

Human Factors : Situational Awareness

Human Factors : Workload

Human Factors : Confusion

Human Factors : Distraction

Events

Anomaly.Inflight Event / Encounter : Weather / Turbulence

Anomaly.Inflight Event / Encounter : VFR In IMC

Detector.Person : Flight Crew

When Detected : In-flight

Result.Flight Crew : Took Evasive Action

Result.Flight Crew : Requested ATC Assistance / Clarification

Result.Flight Crew : Diverted
Result.Flight Crew : Became Reoriented
Result.Air Traffic Control : Issued New Clearance

Assessments

Contributing Factors / Situations : Human Factors
Contributing Factors / Situations : Procedure
Contributing Factors / Situations : Weather
Primary Problem : Weather

Narrative: 1

The crew and I just completed a scene flight and were at the hospital. I refueled the aircraft and double checked weather prior to making our return leg to base. All weather reporting stations along our route were all reporting VFR. The closest weather reporting station to our base, was reporting winds 240 at 8 knots, 10 SM visibility, ceilings 9,000 feet scattered, temperature 75 degrees, dew point 64 degrees, humidity 84%, and about 16% illumination. Winds at 1,000 feet AGL was 250 26-28 knots. We departed to the northeast enroute back to base at 2,000 feet MSL, which is a 20 minute flight.

Approximately 15 minutes into the flight I noticed some small patches of fog below us at about 500 feet AGL. Our route takes us along the river, and we were approaching a power plant with several bright lights. Once we got to the power plant, the crew and I realized it was very hazy and I decided to deviate from our route and head northbound toward a local Airport. I could still see ground lights and cars driving on the roads. Weather wasn't looking much better to the north, so I made a slight left turn toward the northwest to attempt to get away from the river. I also elected to start a climb in the event we went in Inadvertent Instrument Meteorological Conditions (IIMC). I referenced the GPS and we were 11.3 NM south of the airport now at 2,500 feet. I already had the UNICOM frequency tuned in so I attempted to activate the airport lighting via radio clicks. I saw no signs of lights to the north, and ground lights were deteriorating directly below us. I told the crew we were IIMC and I was coming inside and committing to instruments.

I followed the IIMC procedure and got established on a northwest heading. I knew we were in the clouds at this point because the strobe light on the belly of the aircraft was reflecting into the cockpit, so I turned it off. Once I was at my MSA of 4,000 feet MSL, I made a small left turn to 270 and planned on recovering to a county airport as we had just been there previously and I knew it was VMC there when we left about an hour prior. I then switched up Approach control, which was in the standby frequency, and established communication and let them know I was [requesting priority handling] for IIMC. I elected to maintain our company discrete squawk code. I stated my altitude and heading and requested radar vectors to the County Airport. Once they had me on radar he had me turn left to 220 and that would put me on a track toward the airport, which was 14 miles away. After flying this track approximately 5 minutes we broke out of IMC conditions. I told ATC that I was now VMC and had the Airport in sight, but was going to stay committed onto the instruments until I got closer. I told ATC I requested to get set up for the ILS into the county airport for planning purposes. I then descend down to glide slope intercept altitude of 2,500 feet as I was still currently VMC and wanted to make sure I could stay that way at a lower altitude. Approach then advised me that they knew I said I had the airport in sight, but wanted to confirm and the Airport was 12 o'clock and 5 miles. I stated that indeed I had the airport in sight and could cancel the clearance and descend down to the airport VFR. We landed at the airport with no other issues.

Not much we can do to remedy this issue, except add more accurate weather reporting stations, especially in known troubled areas.

Synopsis

An EC130 helicopter pilot reported he unexpectedly entered IMC after doing a due diligence weather preflight which indicated VMC to his base airport. An IFR clearance was obtained enroute.