

# ALERT BULLETIN

AB 2014:9/1-1

3/31/2014

1139702

TO: FAA (AFS-400)

INFO: FAA (AVP-1, AVP-200, AFS-200, AFS-230, ANM-100, SEA-AEG, AQS-230),  
A4A, ALPA, AMFA, APA, ASAP, ATSG, CAPA, IAM, IATA, ICASS, IFALPA, IPA,  
PAMA, RAA, TWU, USAPA, Bombardier Inc. Canadair

FROM: Linda J. Connell, Director  
NASA Aviation Safety Reporting System

SUBJ: CRJ-700 Localizer Capture Faults

We recently received an ASRS report describing a safety concern which may involve your area of operational responsibility. We do not have sufficient details to assess either the factual accuracy or possible gravity of the report. It is our policy to relay the reported information to the appropriate authority for evaluation and any necessary follow-up. We feel you should be aware of the following:

ASRS received a report from the Captain of a CRJ-700 describing an Approach Mode Armed turn away from the localizer final approach course after LOC CAP. The reporter indicated that while on base to intercept the localizer, and while switching from "white needles to green needles," the autopilot captured the localizer and initiated an erroneous turn. The Captain listed a company memo clarifying expected crew actions but also indicated that recent proficiency training countered the memo's instructions. The reporter added that the FMS manufacturer has no apparent fix for the problem.

To properly assess the usefulness of our alert message service, we would appreciate it if you would take the time to give us your feedback on the value of the information that we have provided. Please contact Dennis Doyle at (408) 541-2831 or email at [dennis.j.doyle@nasa.gov](mailto:dennis.j.doyle@nasa.gov)



Aviation Safety Reporting System  
P.O. Box 189 | Moffett Field, CA | 94035-0189



ACN: 1139702

#### **Time**

Date: 201312

Local Time Of Day: 0601-1200

#### **Place**

Locale Reference.Airport: ZZZ.Airport

State Reference: US

#### **Environment**

Flight Conditions: IMC

#### **Aircraft 1**

ATC / Advisory.TRACON: ZZZ

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

#### **Component 1**

Aircraft Component: Autopilot

#### **Person 1**

Function.Flight Crew: Captain

Function.Flight Crew: Pilot Not Flying

ASRS Report Number: 1139702

#### **Events**

Anomaly.Aircraft Equipment Problem: Critical

Anomaly.Conflict: Airborne Conflict

Anomaly.Deviation - Track / Heading: All Types

Anomaly.Deviation - Procedural: Clearance

Anomaly.Deviation - Procedural: Published Material / Policy

Detector.Person: Air Traffic Control

Detector.Person: Flight Crew

Result.Flight Crew: Returned To Clearance

Result.Flight Crew: Took Evasive Action

Result.Air Traffic Control: Issued Advisory / Alert

Result.Air Traffic Control: Issued New Clearance

#### **Narrative 1**

While on our base turn to intercept the localizer both Pilot Flying and Pilot Not Flying switched from white needles to green needles with the final approach course set to 190 degrees. On the final vector turn (heading 160 degrees) the approach mode was armed. The autopilot captured the localizer and initiated an erroneous left turn to a heading of approximately 110 degrees before I noticed it and instructed the Pilot Flying to select heading mode and turn the aircraft manually to a heading of 210 to re-intercept the localizer. At this time I checked to see that we were not in conflict with an aircraft on the parallel approach and luckily they were below us by about 1,500 FT. Approach Control asked if we had the localizer captured and I stated we had an autopilot issue but were established on the course inbound.

CRJ pilots received a memo about this issue with the autopilot system. It will occasionally capture and aggressively attempt [to] align the aircraft with the inbound course, sometimes outside the maneuvering capabilities of the aircraft. The manufacturer has no fix for this issue so the solution is to capture the inbound course using white needles and then switch to green needles. Lately, during yearly proficiency training, pilots, including myself and the Pilot Flying

have been told to capture using green needles which contradicts the memo. While I understand capturing using green needles works 100% of the time in the simulator it does not in the real world.

In the future I will follow the guidance of the memo and hope the manufacturer is able to come up with a fix for this potentially lethal issue in the future.

### **Callback 1**

The reporter stated a Company bulletin describes the issue experienced by this crew and adds that the same event can occur during or prior to glideslope capture. In fact, several years ago the reporter's aircraft did attempt to abruptly fly up to the glideslope before the glideslope was active and captured. The current procedure at his Company is contrary to the published procedure in that the crews are to capture in White Needles (VOR/LOC), let the aircraft stabilize then select Green Needles. The reporter is concerned about parallel and PRM approaches in the future. He has noticed in his years as a Captain that ATC is spacing aircraft more closely, and in this specific event the margin of safety was maintained by the altitude separation.

### **Synopsis**

A CRJ-700 in Green Needles with the Approach Mode Armed turned away from the localizer final approach course after LOC CAP so the crew selected heading mode and returned to the localizer. The particular aircraft's compass system was an AHRS and the reporter has noticed that the Inertial equipped aircraft seem to be somewhat more stable in the capture mode.