

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

December 11, 2009

Selected Air Route Traffic Control Center Transmissions Overlay Report

Specialist's Report
By Cassandra Johnson

1. EVENT SUMMARY

Location: Minneapolis, MN
Date: October 21, 2009
Aircraft: Airbus A320, Registration: N374NW
Operator: Northwest, Flight 188
NTSB Number: DCA10IA001

On October 21, 2009, Northwest Airlines (NWA) flight 188, an Airbus A320, N374NW, did not respond to air traffic control communications for approximately one hour 17 minutes during cruise at FL370. Flight 188 flew past their intended destination while the flight was NORDO (no radio communications) but landed without further incident once radio communication was reestablished. There were no injuries to the 2 pilots, 3 flight attendants and 144 passengers onboard. The flight was a regularly scheduled passenger flight operating under 14 Code of Federal Air Regulation Part 121 from San Diego International Airport (SAN), San Diego, California, to Minneapolis-St Paul International/Wold-Chamberlain Airport (MSP), Minneapolis, Minnesota.

2. OVERLAY DETAILS

One selected Denver Air Route Traffic Control Center (ARTCC) transmission and six Minneapolis ARTCC transmissions¹ were overlaid onto two flight data recorder (FDR²) plots using the parameters listed in Table 1.

Parameter Name	Parameter Description
1. Altitude Pressure (ft)	Pressure Altitude (feet)
2. AP Lateral Modes	Auto Pilot Lateral Modes (discrete)
3. AP Longitudinal Modes	Auto Pilot Longitudinal Modes (discrete)
4. AP-1 Status	Auto Pilot 1 Status (discrete)
5. Gear WOW-L	Weight on Wheels Left Gear (discrete)
6. Gear WOW-N	Weight on Wheels Nose Gear (discrete)
7. Gear WOW-R	Weight on Wheels Right Gear (discrete)
8. Heading (deg)	Magnetic Heading (degrees)
9. Key VHF	Key VHF (discrete)

¹ Refer to the Air Traffic Control Factual Report for further details.

² Refer to the Flight Data Recorder Factual report for further details.

2.1. Time Correlation

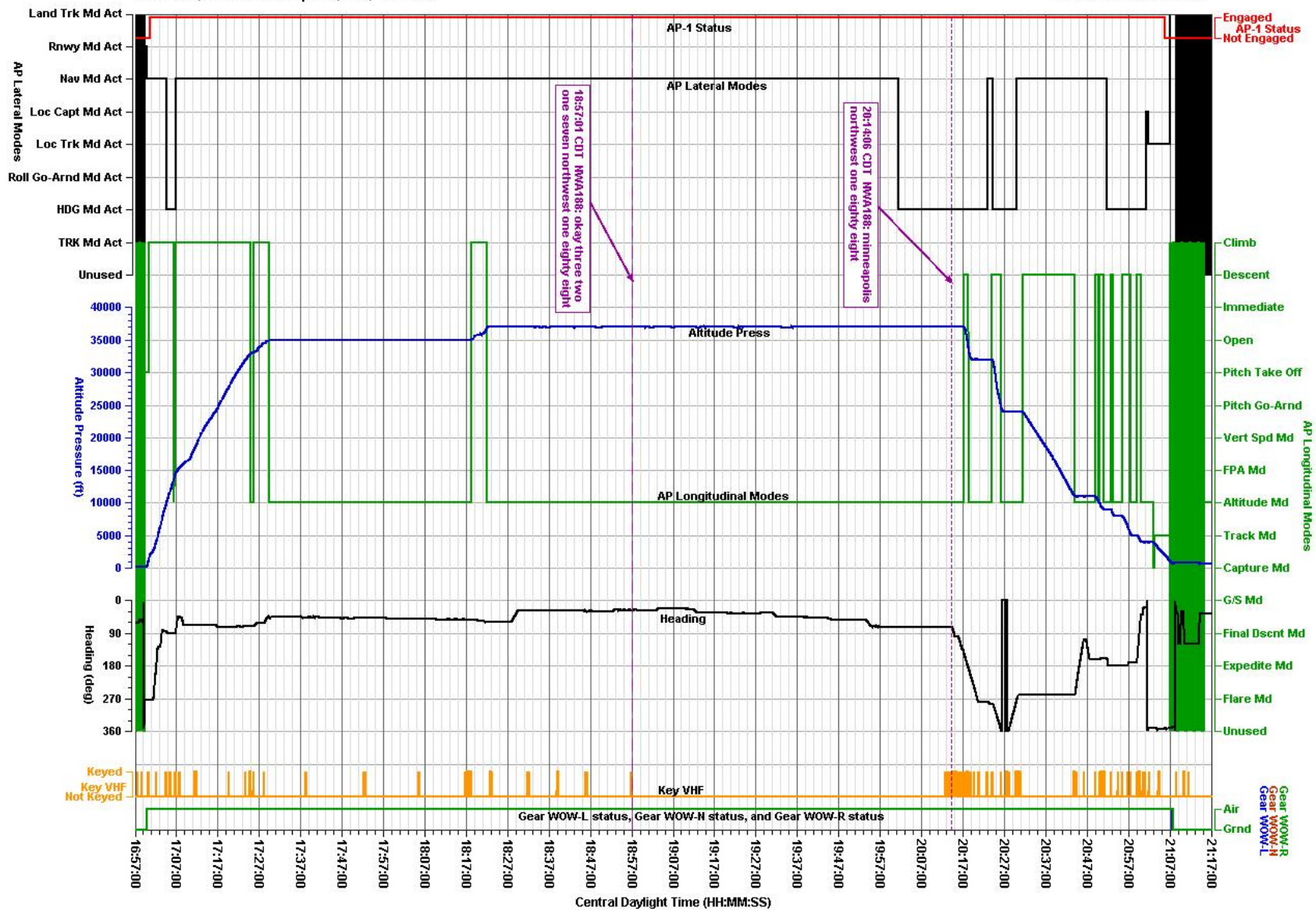
The FDR data is in central daylight time (CDT) and the ARTCC transmission times were provided in Coordinated Universal Time (UTC). Therefore, in order to overlay the ARTCC transmissions onto the FDR plots, 5 hours were subtracted from each transmission time to obtain CDT.

2.2. AIR ROUTE TRAFFIC CONTROL CENTER OVERLAY PLOTS

The following two plots contain FDR data recorded during the October 21, 2009 event including one selected Denver ARTCC transmission and six selected Minneapolis ARTCC transmissions. All of the parameters in Table 1 are plotted. Plot 1 covers the entire event flight (16:57:00 CDT to 21:17:00 CDT) and has one Denver ARTCC transmission and one Minneapolis ARTCC transmission. Plot 2 covers 17 minutes of flight including the descent from 37,000 feet to 24,000 feet (20:11:05 CDT to 20:28:05 CDT) and has six Minneapolis ARTCC transmissions where the first transmission is the same transmission in Plot 1.

Similar to the FDR plots provided in the FDR Factual Report, these plots are configured such that right turns are indicated by the trace moving toward the bottom of the page, left turns towards the top of the page, and nose up attitudes toward the top of the page.

Northwest, Airbus A320, Flight No. 188, N374NW, Select Air Route Traffic Control Center Transmissions Overlay (Entire Flight)
 Location, Date: Minneapolis, MN, 10/21/09
 NTSB No. DCA10IA001



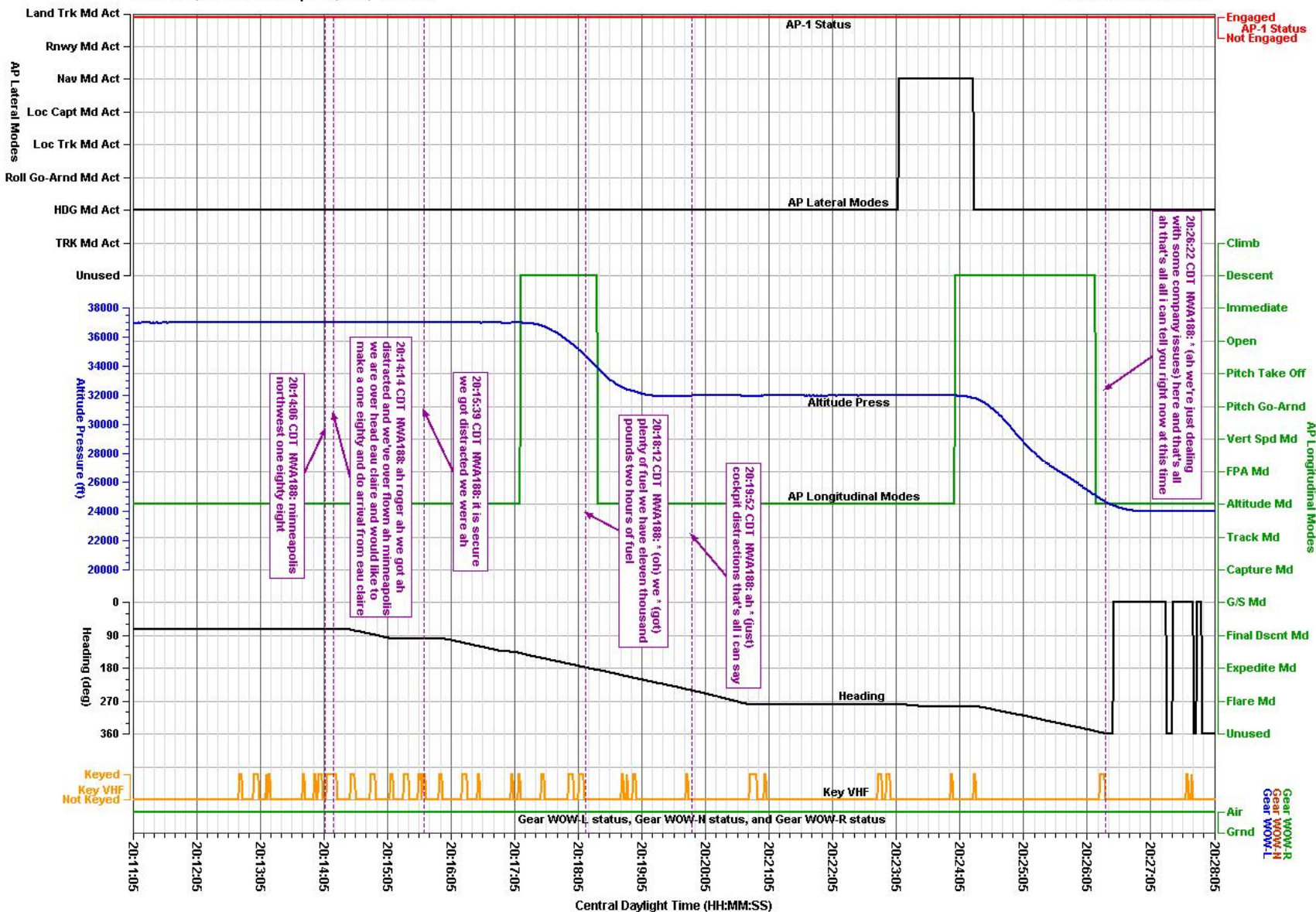
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Entire Flight

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Plot 1: Selected ARTCC Transmissions Overlay on FDR Plot (Entire Flight)

Northwest, Airbus A320, Flight No. 188, N374NW, Select Air Route Traffic Control Center Transmissions Overlay (20:11:05 to 20:28:05 CDT)
 Location, Date: Minneapolis, MN, 10/21/09 NTSB No. DCA10IA001



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Descent from 37,000 ft to 24,000 ft

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Plot 2: Selected ARTCC Transmissions Overlay on FDR Plot (17 Minutes)