

Air traffic control communication at Detroit Metro Wayne County Airport August 17, 1987

Karen Ward
David Novick
Carolyn Sousa

Department of Computer Science and Engineering
Oregon Graduate Institute
19600 N.W. Von Neumann Drive
Beaverton, OR 97006-1999

wardk@cse.ogi.edu
novick@cse.ogi.edu

Introduction

This report contains a transcript of radio communications between air traffic controllers and pilots. The transcript was prepared as part of the ATC Interaction Research Project (AIR Project) at the Oregon Graduate Institute, which has been investigating computational representations of air traffic control (ATC) communication.

The transcript was made from a tape prepared and narrated by Lawrence L. Porter, a consultant in the field of air traffic control and aircraft accidents. It follows Northwest Airlines Flight 255 as it landed and took off from Detroit Metro Wayne County Airport on August 17, 1987, showing the pilot's interaction with each of the controller positions (Arrival Radar, Local Control, Ground Control, and Clearance Delivery). A copy of this recording on cassette may be obtained by writing to the Department of Computer Science and Engineering of the Oregon Graduate Institute. The authors thank Mr. Porter for providing the recording and narration.

The transcript is in two parts. The section entitled "Full Transcript" depicts all exchanges chronologically as they occurred. However, air traffic control dialogue can be viewed as many interleaved yet fairly independent conversations, so in the "Separated Transcripts" section utterances are grouped by aircraft to show the course of each individual conversation. The utterance numbers from the full transcript are preserved in the separated transcripts so that the utterance context may be located easily.

The notation and transcription conventions used in these transcripts are described in Appendix A. Appendix B contains charts describing the airspace around Detroit Metro Wayne County Airport..

The utterances in this transcript contain specialized terms and usages specific to the Air Traffic Control (ATC) domain. Because this transcript is assumed to be of interest primarily to researchers already working in this area, general ATC terminology and procedures are not defined here. For a good introduction to ATC, see (Rosenbaum, 1988). More detailed information may be found in (FAA, 1989; FAA, 1990).

Full Transcript

Tape One

Narration

The following tape number one, is the first set in a series of tapes labeled tape one, two, and three concerning Northwest Airlines Flight 255 which crashed on departure at Detroit Metro Airport on August 17th, 1987. Tape number one, that you're about to listen to now, which you are listening to now, is a composite of Arrival Radar East, Local Control East, Ground Control East and West, and then Clearance Delivery. The purpose of the tape is to show a history of the flight from its approach into Detroit, its ground turnaround time, subsequent taxi-out and takeoff, and then the crash, which occurred during takeoff. This particular set of tapes was chosen to illustrate the various functions and phraseology that a person would expect to hear at a relatively busy airport, showing, or demonstrating, the various functions of Arrival Radar and the local controller in the tower cab, the purpose of Ground Control, Clearance Delivery, and etcetera.

Tape number two would be Ground Control West, after the aircraft had spoken with Clearance Delivery, received its routing and clearance. You'll note that he did receive a change in routing due to weather. Following that, the aircraft requested pushback, was pushed back from the gate, given instructions to taxi by Ground Control West. I've eliminated Ground Control East on the outbound leg because it's really just a repetition of Ground Control function and seemed redundant.

Tape number three was after Ground Control had directed the aircraft into position awaiting takeoff off the runup pad of runway three center. The local controller issued the departure clearance and the aircraft responded that he was cleared to go. A few seconds later the aircraft wavered in the air, left wing struck a light pole, it dove under a bridge abutment and was totally destroyed. The listener may recall the incident from - one fact that came from it was there was one, lone, small child that survived the crash.

I'm going to begin the tape now, and the first thing you will hear is Arrival Radar East. This is when the aircraft is approaching inbound to Detroit. He's receiving radar vectors, assigned altitudes, and other instructions to place him into position on the Instrument Landing System for a landing on runway two one left. I'll interrupt the tape following the last contact with Arrival

Radar East, just prior to the aircraft switching to Local Control, and do that in each case to lead the listener through the tape. Here we go with Arrival Radar East.

Arrival Radar East

- (1) Arrival Radar: TWA seven sixty nine, maintain five thousand and reduce to a hundred and seventy knots.
- (2) TWA 769: St- Stop at five and start slowing. TWA suh seven sixty-
- (3) NW 255: Detroit approach, Northwest two fifty five with you at eight thousand with echo.
- (4) Arrival Radar: Northwest two oh nine, turn right heading of zero four zero. And descend and maintain five thousand.
- (5) NW 209: Zero four zero down to five thousand, Northwest two, zero nine.
- (6) Arrival Radar: Northwest two fifty five Detroit roger vectors to twenty one left final approach course.
- (7) NW 255: Northwest two fifty five.
(.)
- (8) Arrival Radar: TWA: seven sixty nine after your speed reduction descend and maintain four thousand. And heading of two four zero intercept the localizer.
- (9) TWA 769: Heading two four zero to intercept, speed, and then four thousand feet, TWA seven six nine.
- (10) NW 430: Northwest four thirty to tower.
- (11) Arrival Radar: Uh yes sir, tower one eighteen four for Northwest four thirty.
- (12) Arrival Radar: Northwest two fifty five, fly heading of two five zero and descend and maintain six thousand.
- (13) NW 255: Two fifty down to six, Northwest two fifty five.

- (14) Arrival Radar: Northwest hh two oh nine, descend and maintain three thousand, at three reduce to a hundred and seventy knots.
- (15) NW 209: Down to three at three, uh, back to a hundred and seventy, Northwest two zero nine.
(.)
- (16) Arrival Radar: TWA seven sixty nine, you're six from Scofi, maintain a hundred and seventy knots to Scofi, cleared ILS twenty one left approach.
- (17) TWA 769: Seventy to Scofi (cleared) approach, TWA seven sixty nine.
(.)
- (18) Arrival Radar: TWA seven sixty nine, traffic's making visual approaches to the right side, contact- excuse me, Metro tower one eighteen four.
- (19) TWA 769: -(teen) four, OK, TWA seven six nine.
(.)
- (20) Arrival Radar: Northwest two oh nine, turn left heading of three zero zero and reduce to a hundred and seventy knots.
- (21) NW 209: Three zero zero, back to a hundred and seventy, Northwest two zero nine.
- (22) Arrival Radar: Northwest two fifty fi:ve, reduce to two ten and then descend to five thousand fly heading two seven zero.
- (23) NW 255: (We will) slow to two ten, go down to five, and, uh, two seventy on the heading.
(.)
- (24) Arrival Radar: Northwest two oh nine, turn left, heading of two: four zero and intercept the twenty one left localizer.
- (25) NW 209: Two four zero intercept twenty one left localizer, Northwest two zero nine.
(.)

- (26) Arrival Radar: Northwest two fifty five, reduce your speed to a hundred and seventy knots.
- (27) NW 255: Go slower to one seventy, Northwest two fifty five.
(.)
- (28) Arrival Radar: Northwest two oh nine, you're seven from Scofi, maintain a hundred and seventy to Scofi cleared ILS twenty one left approach:, tower eighteen four ((garbled)).
- (29) NW 209: Northwest, uh, two zero nine, a hundred and seventy: to: Scofi cleared for the, uh, two (one el), two-
- (30) Arrival Radar: Northwest two fifty five, turn left heading one eight zero and intercept the localizer.
- (31) NW 209: -uh, two zero nine.
- (32) Arrival Radar: Northwest two fifty five, turn left heading one eight zero and intercept the localizer.
- (33) NW 255: Left one eighty: and, uh, to intercept, Northwest two fifty five.
(.)
- (34) Arrival Radar: Northwest two: fifty fi:ve, you're three from Robbi maintain five to Robbi a hundred and seventy knots to Scofi cleared ILS twenty one left approach.
- (35) NW 255: OK, uh, could we get, uh, four thousand, till established?
- (36) Arrival Radar: Uh, yes sir, descend to four thousand till you're established.
- (37) NW 255: OK, down to four, uh, till established, cleared for the ILS one one left, Northwest two fifty five.
- (38) Arrival Radar: That's twenty one left.
- (39) NW 255: Twenty one left.

Narration

That was Northwest 255's last contact with Arrival Radar East. The next contact will be with Local Control East. This is located in the tower cab. This man's responsibility is to conduct the operations from final approach fix inbound and space the arrival with departing aircraft using the same or parallel or crossing runways.

Local Control East

- (40) NW 255: Tower Northwest uh, two fifty five's with you (going by), uh, Scofi.
- (41) Local Control: Northwest two fifty five Metro Tower good evening, runway two one left cleared to land one two two zero eight six.
- (42) NW 255: (Clear) to land, Northwest two fifty five.
- (43) Local Control: TWA seven sixty nine, cross two one center, contact ground point eight when you clear.
- (44) TWA 769: (Nip) across and then change over, TWA seven six nine.
(.)
- (45) Local Control: Northwest two oh nine, right turn off (able), remain this frequency, hold short of two one center on fox.
- (46) NW 209: Northwest two oh nine, roger.
(.)
- (47) Local Control: Northwest two: fifty five, ((garbled)) (company) on the parallel, remain this frequency, hold short of two one center on fox.
- (48) NW 255: OK uh, we'll hold short of two one center at fox.
(.)
- (49) (Local Control): ((garbled))
- (50) Local Control: -oh nine, cross two one center, contract ground one two one point eight when you clear.

- (51) NW 209: Northwest two oh nine roger cleared to cross.
(.)
- (52) Local Control: Northwest two fifty five, cross two one center, contact ground one two one point eight when you clear.
- (53) NW 255: We're cleared to cross the center, twenty one eight the other side, Northwest two fifty five.
- (54) Local Control: Fact is, probably it'd be easier if you'd follow the ramp all the way around to bravo, right up bravo (juliett) to two seven northeast to fox ((garbled)) south side. ((Not the same voice as the other Local Control utterances in this section.))
- (55) NW 255: OK, we'll do that.

Narration

That was Northwest 255's last contact with local controller. The next contact will be with Ground Control.

Ground Control East

- (56) NW 209: Tower, Northwest two oh nine's clearing the center, we're going to foxtrot five, it's occupied.
- (57) Ground Control: Northwest two oh nine, make a right turn (right there) ((garbled)) and uh left on two seven, park east of fox on the south side.
- (58) NW 209: Roger.
(.)
- (59) AM 687: American six eight seven heavy bravo nine pushback.
- (60) Ground Control: American six eighty seven heavy push though.
- (61) AM 687: Thank you

- (.)
- (62) NW 255: (Tower) Northwest two fifty five's uh with you, going to delta fifteen.
- (63) Ground Control: Northwest two fifty five, right on golf to the gate.
- (64) NW 255: OK.
(.)
- (65) Ground Control: You're seven twenty eight sixteen, Metro ((garbled))
(.)
- (66) Ground Control: Northwest two oh nine, uh, you still got your radar on?
- (67) NW 209: That's a negative, Northwest two zero nine.
- (68) Ground Control: OK.
(.)
- (69) NW 255: Two fifty five does.
- (70) Ground Control: How does that weather look over there uh, about eleven, twelve o'clock to you?
- (71) NW 255: It's going to cloud up and rain on you here pretty quick.
- (72) Ground Control: Does it look severe, or just, uh, moderate rain showers?
- (73) NW 255: It looks like, heavy rain showers, uh, we're getting a lot of, uh, very strong echoes. About, oh, uh eight separate ones, and they're, all at least ten miles in diameter.
- (74) Ground Control: O:K, thanks.
(.)
- (75) AM 687: American six eight seven heavy taxi.
- (76) Ground Control: American six eighty seven heavy taxi runway two one center.
- (77) AM 687: (-ay) two one center, that's six eighty seven.
(.)
- (78) Fire 2: ((garbled)) (to ground) (fire two).

- (79) Ground Control: Fire two ground.
- (80) Fire 2: ((garbled)) (corner) on foxtrot nine two thousand back to (the fire hall).
- (81) Ground Control: Fire two (that's approved). Follow American.
- (82) Fire 2: Roger.
(.)
- (83) AM 248: (Tower) American two forty eight's clear.
- (84) Ground Control: American two forty eight, cross, uh, the ramp to foxtrot (past) the gate.
- (85) AM 248: Cross to foxtrot back to the gate, American two forty eight.
- (86) NW 255: Uh, Ground, Northwest two fifty five, we went right by the delta concourse. Can we make a one eighty here and go back to, uh, delta fifteen?
- (87) Ground Control: Sure can.
- (88) NW 255: Thank you.
(.)
- (89) ((garbled)): Metro Ground, ((garbled)) (clear) ((garbled)) (taxiway).
- (90) Ground Control: Roger.
(.)
- (91) Ground Control: Continental five twenty seven, tower eighteen four's got uh, your (clearance held).
(.)
- (92) NW 494: Ground, Northwest four ninety four ((garbled)) (echo) eleven.
- (93) Ground Control: OK, Northwest four ninety four, right on fox (to the gate).
- (94) NW 494: Right on fox to the gate, Northwest four ninety four.
(.)
- (95) NW 185: Ground, Northwest one eighty five is clear of the center, uh, we're going to dog seven.

- (96) Ground Control: Northwest one eighty five roger, straight ahead on fox, follow a DC nine that's behind a seven fifty seven to (a) gate.
- (97) NW 185: OK, ahead on fox, follow DC nine, uh, one eighty five.
- (98) Unknown: Metro ground, (craft) six five.
- (99) Ground Control: Six five, ground.
- (100) Unknown: I'm on the apron, uh, approaching taxiway alpha, I'd like clearance to the northeast end of juliett.
- (101) Ground Control: Sixty five, that's approved.
- (102) Unknown: Roger.
- (103) Ground Control: You got two more cars with you?
- (104) Unknown: That's affirmative.
- (105) Ground Control: OK.

Narration

That concludes the section on local control.

The aircraft is now at the gate, and there's been some delay due to weather. Normal turnaround time's 35 to 40 minutes. He was on the ground a little over an hour. They're now anticipating loading passengers and preparing for pushback.

The next contact is with Clearance Delivery. If you'll recall from our earlier conversations, Clearance Delivery is a non-control position. It's primary function is to issue flight plans as filed, or make any amendments or corrections as necessary. You will note some correction in 255's flight plan. Here we go with Clearance Delivery position.

Clearance Delivery

- (106) NW 255: Clearance, Northwest two fifty five, we're in delta fifteen going to Phoenix with, uh, foxtrot.
- (107) Clear. Deliv.: Northwest two fifty five, uh, I have some weather routing for you. Cleared for Phoenix, Detroit Metro five departure. Radar vectors Waterville. Direct Goshen.

- Jet sixty. Iowa City. Direct Lamoni. Then as filed. Squawk seven four seven zero.
- (108) NW 255: ((noise)) OK, uh, Metro five departure radar vectors Waterville, direct Goshen, J, uh, sixty, Iowa City, direct Lamoni as filed, squawk seven four seven zero, Northwest two fifty five.
- (109) Clear. Deliv.: That is correct. (And out).
- (110) NW 1457: Northwest fourteen fifty seven to, uh, south (bound) ((garbled)).
- (111) Clear. Deliv.: Northwest fourteen fifty seven's cleared to South (Bend) Detroit Metro five departure as filed, squawk five seven seven five.
- (112) NW 1457: Five seven seven five and ((garbled)) departure (that uh) ((garbled))?
- (113) Clear. Deliv.: No.
- (114) NW 1457: Will we then have a ((garbled))?
- (115) Clear. Deliv.: (Yeah, remember) we're on a gate hold. Uh, nothing westbound.
- (116) ((garbled)): ((garbled)) (foxtrot) delta four.
- (117) Clear. Deliv.: (Start over) ((garbled)) fourteen fifty seven. You get your clearance OK first of all?
- (118) NW 1457: Yeah, fifty seven's at (five), and, uh, (what was that again about the) gate hold?
- (119) Clear. Deliv.: OK, (we're-) we're running gate holds westbound and no-one's leaving.
- (120) Trans 2881: Trans delivery ((garbled)) twenty eight eighty one to Battle Creek with foxtrot.
- (121) Clear. Deliv.: Says twenty eight eighty one's cleared to Battle Creek Detroit Metro five departure as filed squawk five seven six five.
- (122) Trans 2881: Metro five as filed fifty seven sixty five.
- (123) Clear. Deliv.: That's correct. Delays on all westbounds, no traffic's being accepted by the center due to the thunderstorms.

- (124) NW 287: I (touched out) again, Northwest two eighty seven delta four echo, uh, we have the ATIS and, uh,- San Diego.
(.)
- (125) NW 287: Clearance read, Northwest two eight seven.
- (126) Clear. Deliv.: Uh, two eighty seven, sure do. I've got to get your full route out of there. All the westbounds are stopped. I'll have it in a minute or two.
- (127) NW 287: Thanks a lot.
- (128) NW 1457: (well do) you want fourteen fifty seven to call you when we're ready to start?
- (129) Clear. Deliv.: No, that won't be necessary. You planning (out) on time?
- (130) NW 1457: Well, so far, yeah.
- (131) Clear. Deliv.: OK. I've got you on my list here. Uh, I have a feeling it's going to be a while.
- (132) NW 1457: OK, well, uh, then you want us to call you (then), correct?
- (133) Clear. Deliv.: I you can, uh, remain this frequency and, uh, (check) in occasionally if you like, uh, I'll let you know how things are going.
- (134) NW 1457: OK.
- (135) NW 753: Northwest seven fifty three heavy.
- (136) Clear. Deliv.: Seven fifty three heavy, go ahead.
- (137) NW 753: Uh, we'll stand by for (a while). You have any, uh, update or timewise ((garbled)), cause they're waiting to see about boarding four hundred people.
- (138) Clear. Deliv.: Yeah, sure will. I'll let you know as soon as I hear.
- (139) NW 753: Right now everything's on hold?
- (140) Clear. Deliv.: Yeah, right now, yeah.

Narration

That concludes tape number one. If you'll go to tape number two now, we'll pick up Ground Control, as the aircraft pushes back from the gate and begins its taxi for takeoff. This will be the last narration. Just follow the tapes, one through three. And, that concludes this tape.

Tape Two

((Tape two was not transcribed.))

Tape Three

Local Control

- (141) Local Control: Northwest three twenty three runway two one center is available.
- (142) NW 323: (Here) uh, three twenty three, uh, I'll take her for the center.
- (143) Local Control: Northwest three twenty three runway two one center, clear to land.
- (144) NW 323: (Clear) to land, two one center, Northwest three twenty three.
(.)
- (145) NW 583: Northwest five eighty three's coming up (delta) to the right.
- (146) Local Control: Northwest five eighty three Metro tower, the taxiways south of runway niner two seven are closed, traffic's on a half mile final. Runway two one right, clear to land. Wind two zero zero at six.
- (147) NW 583: We land two one right, copied it all, Northwest five eighty three.
(.)
- (148) NW 332: Uh, Northwest three: thirty two has, uh, two one left in sight.
- (149) Local Control: Northwest three thirty two heavy Metro tower traffic here (on final) has changed to the center runway, runway two one

left, clear to land. Wind two zero zero at six.

(150) NW 332: Clear to land, thank you very much.
(.)

(151) Local Control: Northwest fourteen fifty six contact ground point eight.

(152) NW 1456: Fourteen fifty six.
(.)

(153) NW 825: Northwest eight twenty five's final for the right.

(154) Local Control: Northwest eight twenty five Metro tower two one right clear to land.

(155) NW 825: (We'll) land two one right, eight twenty five.

(156) Unknown: Local-

(157) Local Control: Just a second.=

(158) Local Control: Baron four zero C turn left on the parallel, contact ground one two one point eight.

(159) Baron: Roger.

(160) Delta 230: Delta two thirty with you for twenty one left.

(161) Local Control: United seven fifty eight heading one eight zero contact departure.

(162) United 758: One eight oh, going to departure, we'll see you.

(163) Local Control: Northwest eight fifty eight continue north on romeo, turn left on hotel, hold short of two one center on hotel.

(164) NW 858: Turn left on hotel short of the center on hotel eight five eight.

(165) Local Control: Delta two thirty ((garbled)), two one left clear to land.

(166) Delta 230: Clear to land Delta two thirty.

(167) Local Control: Wind shear alert center field wind two nine zero at one seven. Southbound your wind, three zero at one one.

- (.)
- (168) Delta 230: Uh, tower Delta two thirty, if you can give us the center runway, we'll give you uh, the glide slope and the localizer off of uh- one eight left- or rather two one left.
- (169) Local Control: Delta two thirty, runway two one center clear to land.
- (170) Delta 230: Clear to land on the center, Delta two thirty. We no longer need the uh, localizer.
- (171) Local Control: Delta two thirty, understand.
(.)
- (172) Local Control: Northwest eight fifty two, remain this frequency taxi north on romeo hold short of two one center on taxiway hotel.
- (173) NW 274: Two seventy four, we're short of uh romeo on hotel.
- (174) Local Control: Northwest two seventy four pardon that was for you uh, hold short of two one center on taxiway hotel.
- (175) NW 274: Hold short of center on hotel. And uh, we did not notice any wind shear on final.
- (176) Local Control: Northwest two seventy four, thank-.
(.)
- (177) (Unknown A): (*garbled*)
- (178) (Local Control): Hello-
- (179) (Unknown A): You got uh, Delta landing on the center?
- (180) (Local Control): Yes he is-
- (181) (Unknown A): I'm taking a localizer //down on twenty one.
- (182) (Unknown B): //Freeze-
- (183) (Local Control): OK.
- (184) (Unknown A): Thank you.
- (185) (Unknown C): Local-
- (186) (Local Control): What?
- (187) (Unknown C): (We can) change uh, three left localizer?

- (188) (Local Control): Yeah you can take both of them, Delta's going to center.
- (189) (Unknown C): All right.
(.)
- (190) Local Control: Northwest eight twenty five turn left the next intersection and contact ground control on frequency one, two one point eight.
- (191) NW 825: Eight twenty five will do.
- (192) Unknown: Wind check.
- (193) Local Control: Winds, two niner zero at two one and uh, we're setting a wind shear alert on the field center field winds two niner zero at two one, and the north bounds are winds three zero zero at five.
- (194) Unknown: (OK).
(.)
- (195) Local Control: Delta two thirty make a right turn at next intersection, plan to go straight ahead on foxtrot, contact ground control one one niner point four five.
- (196) Delta 230: Two thirty roger.
- (197) Local Control: Northwest eight thirty five you're number one holding short of the center.
- (198) NW 858: Fifty eight's holding short.
- (199) Local Control: Northwest eight fifty eight roger, cross the center runway contact ground one one niner point four five on the other side, stay on hotel.
- (200) NW 858: ((garbled)) across stay on hotel, eight five eight.
- (201) Local Control: Northwest two seventy four you're just crossing two seven now going north?
- (202) NW 274: That's correct.
- (203) Local Control: Two seventy four roger, left turn on hotel cross the center runway contact ground one one niner point four five at the other side.

- (204) NW 274: We'll cross the center on uh, hotel Northwest uh, two seventy four.
(.)
- (205) NW 6: Tower Northwest six, fifty nine miles out for the left.
- (206) Local Control: Northwest six Metro tower winds two niner zero at one seven, runway three left, clear to land.
- (207) NW 6: Clear to land, Northwest six.
(.)
- (208) Local Control: Continental two oh one Metro tower are you ready for departure, I'll be able to get you off now.
- (209) Eastern 499: Eastern four ninety nine's ready.
- (210) Local Control: Eastern four ninety nine roger hold short of the run up pad for right now, you may be following one of the air craft out of there.
- (211) Eastern 499: Eastern four ninety nine.
- (212) Local Control: Continental two zero one Metro tower are you with me?
- (213) NW 544: Five forty four's ready.
- (214) Local Control: Northwest five forty four roger you'll get release time in about three minutes plan to follow the Eastern DC nine approaching from your left.
- (215) NW 544: OK, we'll do that, thanks.
- (216) Local Control: Continental two zero one Metro tower are you with me?
(.)
- (217) Cont. 201: Detroit tower Continental two oh one.
- (218) Local Control: Continental two oh one Metro tower are you ready to go?
- (219) Cont. 201: In about, ah, forty five seconds.
- (220) Local Control: Continental two oh one roger just hold on the run up pad I'll recall your sequence=

- (221) Local Control: Eastern four ninety nine runway th:ree center, taxi into the clear and hold.
- (222) Eastern 499: (Push and release) four ninety nine.
- (223) Local Control: Northwest five forty four now follow the Eastern DC nine, you are now number two for runway three center.
- (224) NW 544: Five forty four local.
- (225) Local Control: Thank you=
- (226) Local Control: Northwest three ninety Metro tower are you with me?
- (227) NW 390: Yes sir we are.
- (228) Local Control: Northwest three ninety follow your company's seven twenty seven from out of the run up pad please.
- (229) NW 390: Uh, roger Northwest three ninety.
- (230) Cont. 201: Two oh one say our sequence now.
- (231) Local Control: Continental two oh one when I get a chance I'll get back to you, just stand by.=
- (232) Local Control: Eastern four ninety nine, runway two one center turn right, heading zero six zero. Or correction it's three center. Turn right heading zero six zero, you're cleared for takeoff.
- (233) Eastern 499: Clear to go, Eastern four ninety nine, zero six zero.
- (234) Local Control: Southwest four eighteen Metro tower if you're with me? Winds three zero zero at one four, runway three right, clear to land.
- (235) SW 418: OK thank you clear to land, we are with you Southwest, four eighteen.
- (236) Local Control: Thank you.=
- (237) Local Control: Northwest five forty four Metro tower runway three center, taxi into position and hold.
- (238) NW 544: Position and hold, Northwest five forty four.

- (239) Local Control: Continental two oh one, follow the Northwest seven twenty seven approaching from your left, he'll be the second three holer.
- (240) Cont. 201: Ah, two oh one roger.
(.)
- (241) Local Control: Northwest six, plan to roll out all the way to oscar for me please.
- (242) NW 6: To oscar, Northwest six.
- (243) Local Control: Northwest five forty four turn right heading zero six zero runway three center, clear for takeoff.
- (244) NW 544: Right zero six zero clear to go on the center forty, five forty four.
- (245) Local Control: Northwest three ninety Metro tower three center taxi into position and hold.
- (246) NW 390: Position and hold three center northwest three ninety.
- (247) Local Control: Eastern four ninety nine contact departure goodday.
- (248) Eastern 499: (E four) thank you.
- (249) Local Control: And- I missed the other call Northwest two sixty two was it?
- (250) NW 262: Yes sir, Northwest two sixty two for three left.
- (251) NW 262: Northwest two sixty two Metro tower three left clear to land, winds two niner zero at one five.
- (252) NW 262: Clear to land Northwest two sixty two.
- (253) Local Control: Northwest six contact ground one two one point eight goodday.
- (254) NW 6: Good night.
(.)
- (255) Local Control: Northwest three ninety fly runway heading runway three center clear for takeoff.
- (256) NW 390: Three ninety runway (heading) we're cleared to go.

- (257) Unknown: Let's say your winds please.
- (258) Local Control: Winds two niner zero at one seven, =
- (259) Local Control: Northwest five forty four contact departure.
- (260) NW 544: Five forty four.
- (261) Local Control: Southwest four eighteen, turn left to high speed, remain this frequency and hold short of runway three center taxiway hotel.
- (262) SW 418: Four eighteen.
- (263) Local Control: Continental two zero one Metro tower runway three center taxi into position and hold.
- (264) Cont. 201: Position and hold Continental two oh one.
- (265) Local Control: Wind check two niner zero at one seven.
(.)
- (266) Local Control: Continental two zero one fly runway heading runway three center, clear for takeoff, up a turn once you're airborne.
- (267) Cont. 201: Runway heading clear to go three center Continental two oh one.
(.)
- (268) Local Control: Northwest one eighty one Metro tower runway three center taxi into position and hold.
- (269) NW 181: Position and hold Northwest one eighty one.
- (270) Local Control: Northwest three ninety nine contact departure. Or correction, three ninety, contact departure, turn right heading zero six zero.
- (271) NW 390: Zero six zero over to departure, good night.
- (272) Local Control: Good night.
(.)
- (273) Local Control: Northwest one eighty one fly runway heading runway three center, clear for takeoff, up a turn once you're airborne.

- (274) NW 181: Runway heading, clear to go, one eighty one.
- (275) Local Control: Continental two zero one, turn right heading zero six zero, contact departure, goodday.
- (276) Cont. 201: Zero six zero, Continental two oh one's (out).
- (277) Local Control: Northwest seven fifty two are you number, now number one at the center?
(.)
- (278) Local Control: Northwest two sixty two turn right to next intersection contact ground control one two one point eight.
- (279) NW 262: Two sixty two.
(.)
- (280) NW 752: Seven fifty two's ready.
- (281) Local Control: Northwest seven fifty two roger I got to put you fifteen miles in trail of your company. What I'd like to have you do if we can work it out i:s take position and hold three center, but pull off to your right because there is a Jetstream commuter behind you that I can get out right now.
- (282) NW 752: OK, we do that, we'll pull over there in the corner and hold for northwest seven five two.
- (283) Local Control: Northwest seven five two thank you,=
- (284) Local Control: Southwest four eighteen cross the center runway contact ground one one niner point four five at the other side.
- (285) SW 418: Uh, four eighteen roger.
- (286) Local Control: Northwest one eighty one turn right heading zero six zero contact departure.
- (287) NW 181: Zero six zero and gadolinite.
- (288) Local Control: Blue Streak fifty sixty four Metro tower are you with me?
- (289) Blue Streak: Yes sir.

- (290) Local Control: OK, traffic in front of you has a fifteen mile in trail separation behind the other DC nine that just departed, so it's going to take me ah-, couple minutes to get him off. What he's going to do is pull off to the right, and I can get you out in front of him, he's going to leave room for you to taxi by if you'd like to do that.
- (291) Blue Streak: Fifty sixty four we'd like to do that, thank you.
- (292) Local Control: Blue Streak fifty sixty four again the DC nine will be holding on the runway, taxi into position and hold runway three center in front of that traffic. There is also seven forty seven crossing downfield.
- (293) Blue Streak: Position and hold fifty: sixty four.
- (294) Local Control: Northwest two eighty eight Metro tower are you with me?
- (295) NW 288: To the left.
- (296) Local Control: Northwest two eighty eight Metro tower winds three zero zero at one four runway three left, clear to land.
- (297) NW 388: Clear to land on the left, Northwest three eighty eight.
- (298) Blue Streak: Tell Northwest, appreciate it. ((Not the same voice as the other utterances from this aircraft.))
- (299) Local Control: And Northwest seven fifty two the commuter says thank you.
- (300) NW 752: OK uh, no problem, thank you.
(.)
- (301) Local Control: Blue Streak fifty sixty four runway three center, the winds three zero zero at one four. Turn right heading zero eight zero, clear for takeoff.
- (302) Blue Streak: OK zero eight zero clear for takeoff, Blue Streak fifty sixty four.
- (303) NW 766: Metro tower, Northwest seven sixty six just inside of run up.

- (304) Local Control: Northwest seven sixty six Metro tower, winds three zero zero at one four, runway three left. Clear to land. Traffic is on, uh, four mile final.
- (305) NW 766: OK ah, clear to land three left, ah, looking for that traffic, Northwest seven sixty six.
(.)
- (306) NW 766: Ah, where- what kind of airplane is that in front of Northwest seven sixty six?
- (307) Local Control: Northwest seven sixty six my mistake sir, I thought you were, uh, further out than what you are, you are number one for three left. The traffic you're following is on the ground.
- (308) NW 766: Sixty six.
- (309) Local Control: Northwest seven fifty two turn right heading zero six zero, three center clear for takeoff.
- (310) NW 752: (Bearing) to zero six zero, clear to roll, on the center Northwest seven fifty two.
- (311) Local Control: Blue Streak's fifty sixty four contact departure goodday.
- (312) Blue Streak: Good day, sir.
- (313) Local Control: Northwest two eighty eight turn right the next intersection contact ground one two one point eight.
- (314) NW 288: Goodday.
- (315) NW 255: Northwest uh, two fifty five's ready on the center.
- (316) Local Control: Northwest's two fifty five Metro tower roger, I need you to make a, ah, disregard Northwest two fifty five. Runway three center taxi into position and hold, you have about three minutes on the runway, you have an in trail separation behind traffic just departing.
- (317) NW 255: Position and hold, Northwest, ah, two fifty five.

- (318) Simmons 2796: Simmons twenty seven ninety six with you on the left side.
- (319) Local Control: Simmons twenty seven ninety six Metro tower winds three zero zero at one three traffic's a DC nine, mile final runway three left you're clear to land.
- (320) Simmons 2796: Clear to land, twenty seven ninety six.
(.)
- (321) Local Control: Northwest one eighty five Metro tower if your with me plan to make a right turn on the run up pad.
- (322) NW 185: OK, one eighty five uh, we'll go in there on the pad.
- (323) Local Control: One eighty five, thank you. You've got a one five mile in trail restriction behind company on the runway. He has the same restriction behind the aircraft that just departed.
- (324) NW 185: OK one eighty five.
- (325) Local Control: Northwest seven fifty two contact departure, thanks for all your help this evening.
- (326) NW 752: Seven fifty two, good night sir.
(.)
- (327) Local Control: Simmons twenty seven ninety six long landing's approved if you like.
- (328) Simmons 2796: Twenty seven ninety six, thank you.
(.)
- (329) Local Control: Northwest one eighty five, you can plan to follow a Continental seven thirty seven. Or correction one eighty five disregard that, taxi up to and hold short, I'll be able to get you out, that jet behind you also has a delay.
- (330) NW 185: OK one eighty five we'll uh, hold short of the runway.
- (331) Citation: Citation five niner four charlie charlie working with you on the approach for three right.

- (332) Local Control: Citation five niner four charlie charlie Metro tower winds three zero zero at one three, runway three right clear to land where are you parking on the field?
- (333) Citation: Three zero zero at one three and we'll be going to (Paige Avjet).
- (334) Local Control: Northwest seven sixty six contact ground one two one point eight.
- (335) NW 766: Northwest seven sixty six.
- (336) Local Control: Northwest two fifty five runway three center. Turn right heading zero six zero. Clear for takeoff.
- (337) NW 255: Head to zero six zero, clear to go, Northwest two fifty five.
- (338) Local Control: Northwest one eighty five Metro tower three center, taxi into position and hold, you have about three minutes two to three minutes on the runway.
- (339) NW 185: OK position and hold Northwest one eighty five.
(.)
- (340) NW 1466: Northwest fourteen sixty six on final for three left.
- (341) Local Control: Northwest fourteen sixty six Metro tower. Traffic you're following is very short final, runway three left, clear to land. Winds three zero zero at one three.
- (342) NW 1466: Zero zero at one three clear to land, Northwest fourteen sixty six. Is it OK if we roll it down to the end?
- (343) Local Control: Northwest fourteen sixty six s:o far that's approved I'll advise different.
- (344) NW 1466: -teen sixty six.
(.)

((At this point, the controller was notified that a crash had occurred, and the airport was closed. The remainder of the tape does not reflect typical ATC-pilot communications and so was not transcribed.))

Separated Transcripts

American 248

- (83) AM 248: (Tower) American two forty eight's clear.
- (84) Ground Control: American two forty eight, cross, uh, the ramp to foxtrot (past) the gate.
- (85) AM 248: Cross to foxtrot back to the gate, American two forty eight.

American 687

- (59) AM 687: American six eight seven heavy bravo nine pushback.
- (60) Ground Control: American six eighty seven heavy push though.
- (61) AM 687: Thank you
- (75) AM 687: American six eight seven heavy taxi.
- (76) Ground Control: American six eighty seven heavy taxi runway two one center.
- (77) AM 687: (-ay) two one center, that's six eighty seven.

Baron 40C

(158) Local Control: Baron four zero C turn left on the parallel, contact ground one two one point eight.

(159) Baron: Roger.

Blue Streak 5064

- (288) Local Control: Blue Streak fifty sixty four Metro tower are you with me?
- (289) Blue Streak: Yes sir.
- (290) Local Control: OK, traffic in front of you has a fifteen mile in trail separation behind the other DC nine that just departed, so it's going to take me ah-, couple minutes to get him off. What he's going to do is pull off to the right, and I can get you out in front of him, he's going to leave room for you to taxi by if you'd like to do that.
- (291) Blue Streak: Fifty sixty four we'd like to do that, thank you.
- (292) Local Control: Blue Streak fifty sixty four again the DC nine will be holding on the runway, taxi into position and hold runway three center in front of that traffic. There is also seven forty seven crossing downfield.
- (293) Blue Streak: Position and hold fifty: sixty four.
- (298) Blue Streak: Tell Northwest, appreciate it. (*Not the same voice as the other utterances from this aircraft.*)
- (301) Local Control: Blue Streak fifty sixty four runway three center, the winds three zero zero at one four. Turn right heading zero eight zero, clear for takeoff.
- (302) Blue Streak: OK zero eight zero clear for takeoff, Blue Streak fifty sixty four.
- (311) Local Control: Blue Streak's fifty sixty four contact departure good day.
- (312) Blue Streak: Good day, sir.

Continental 201

- (208) Local Control: Continental two oh one Metro tower are you ready for departure, I'll be able to get you off now.
- (212) Local Control: Continental two zero one Metro tower are you with me?
- (216) Local Control: Continental two zero one Metro tower are you with me?
- (217) Cont. 201: Detroit tower Continental two oh one.
- (218) Local Control: Continental two oh one Metro tower are you ready to go?
- (219) Cont. 201: In about, ah, forty five seconds.
- (220) Local Control: Continental two oh one roger just hold on the run up pad I'll recall your sequence=
- (230) Cont. 201: Two oh one say our sequence now.
- (231) Local Control: Continental two oh one when I get a chance I'll get back to you, just stand by.=
- (239) Local Control: Continental two oh one, follow the Northwest seven twenty seven approaching from your left, he'll be the second three holer.
- (240) Cont. 201: Ah, two oh one roger.
- (263) Local Control: Continental two zero one Metro tower runway three center taxi into position and hold.
- (264) Cont. 201: Position and hold Continental two oh one.
- (265) Local Control: Wind check two niner zero at one seven.
- (266) Local Control: Continental two zero one fly runway heading runway three center, clear for takeoff, up a turn once you're airborne.
- (267) Cont. 201: Runway heading clear to go three center Continental two oh one.
- (275) Local Control: Continental two zero one, turn right heading zero six zero, contact departure, goodday.
- (276) Cont. 201: Zero six zero, Continental two oh one's (out).

Continental 527

(91) Ground Control: Continental five twenty seven, tower
eighteen four's got uh, your (clearance
held).

Citation 594CC

- (331) Citation: Citation five niner four charlie charlie working with you on the approach for three right.
- (332) Local Control: Citation five niner four charlie charlie Metro tower winds three zero zero at one three, runway three right clear to land where are you parking on the field?
- (333) Citation: Three zero zero at one three and we'll be going to (Paige Avjet).

Delta 230

- (160) Delta 230: Delta two thirty with you for twenty one left.
- (165) Local Control: Delta two thirty ((*garbled*)), two one left clear to land.
- (166) Delta 230: Clear to land Delta two thirty.
- (168) Delta 230: Uh, tower Delta two thirty, if you can give us the center runway, we'll give you uh, the glide slope and the localizer off of uh- one eight left- or rather two one left.
- (169) Local Control: Delta two thirty, runway two one center clear to land.
- (170) Delta 230: Clear to land on the center, Delta two thirty. We no longer need the uh, localizer.
- (171) Local Control: Delta two thirty, understand.
- (195) Local Control: Delta two thirty make a right turn at next intersection, plan to go straight ahead on foxtrot, contact ground control one one niner point four five.
- (196) Delta 230: Two thirty roger.

Eastern 499

- (209) Eastern 499: Eastern four ninety nine's ready.
- (210) Local Control: Eastern four ninety nine roger hold short of the run up pad for right now, you may be following one of the air craft out of there.
- (211) Eastern 499: Eastern four ninety nine.
- (221) Local Control: Eastern four ninety nine runway th:ree center, taxi into the clear and hold.
- (222) Eastern 499: (Push and release) four ninety nine.
- (232) Local Control: Eastern four ninety nine, runway two one center turn right, heading zero six zero. Or correction it's three center. Turn right heading zero six zero, you're cleared for takeoff.
- (233) Eastern 499: Clear to go, Eastern four ninety nine, zero six zero.
- (247) Local Control: Eastern four ninety nine contact departure goodday.
- (248) Eastern 499: (E four) thank you.

Fire 2

- (78) Fire 2: ((garbled)) (to ground) (fire two).
- (79) Ground Control: Fire two ground.
- (80) Fire 2: ((garbled)) (corner) on foxtrot nine two thousand back to (the fire hall).
- (81) Ground Control: Fire two (that's approved). Follow American.
- (82) Fire 2: Roger.

Northwest 6

- (205) NW 6: Tower Northwest six, fifty nine miles out for the left.
- (206) Local Control: Northwest six Metro tower winds two niner zero at one seven, runway three left, clear to land.
- (207) NW 6: Clear to land, Northwest six.
- (241) Local Control: Northwest six, plan to roll out all the way to oscar for me please.
- (242) NW 6: To oscar, Northwest six.
- (253) Local Control: Northwest six contact ground one two one point eight goodday.
- (254) NW 6: Good night.

Northwest 181

- (268) Local Control: Northwest one eighty one Metro tower runway three center taxi into position and hold.
- (269) NW 181: Position and hold Northwest one eighty one.
- (273) Local Control: Northwest one eighty one fly runway heading runway three center, clear for takeoff, up a turn once you're airborne.
- (274) NW 181: Runway heading, clear to go, one eighty one.
- (286) Local Control: Northwest one eighty one turn right heading zero six zero contact departure.
- (287) NW 181: Zero six zero and good night.

Northwest 185

- (95) NW 185: Ground, Northwest one eighty five is clear of the center, uh, we're going to dog seven.
- (96) Ground Control: Northwest one eighty five roger, straight ahead on fox, follow a DC nine that's behind a seven fifty seven to (a) gate.
- (97) NW 185: OK, ahead on fox, follow DC nine, uh, one eighty five.
- (321) Local Control: Northwest one eighty five Metro tower if your with me plan to make a right turn on the run up pad.
- (322) NW 185: OK, one eighty five uh, we'll go in there on the pad.
- (323) Local Control: One eighty five, thank you. You've got a one five mile in trail restriction behind company on the runway. He has the same restriction behind the aircraft that just departed.
- (324) NW 185: OK one eighty five.
- (329) Local Control: Northwest one eighty five, you can plan to follow a Continental seven thirty seven. Or correction one eighty five disregard that, taxi up to and hold short, I'll be able to get you out, that jet behind you also has a delay.
- (330) NW 185: OK one eighty five we'll uh, hold short of the runway.
- (338) Local Control: Northwest one eighty five Metro tower three center, taxi into position and hold, you have about three minutes two to three minutes on the runway.
- (339) NW 185: OK position and hold Northwest one eighty five.

Northwest 209

- (4) Arrival Radar: Northwest two oh nine, turn right heading of zero four zero. And descend and maintain five thousand.
- (5) NW 209: Zero four zero down to five thousand, Northwest two, zero nine.
- (14) Arrival Radar: Northwest hh two oh nine, descend and maintain three thousand, at three reduce to a hundred and seventy knots.
- (15) NW 209: Down to three at three, uh, back to a hundred and seventy, Northwest two zero nine.
- (20) Arrival Radar: Northwest two oh nine, turn left heading of three zero zero and reduce to a hundred and seventy knots.
- (21) NW 209: Three zero zero, back to a hundred and seventy, Northwest two zero nine.
- (24) Arrival Radar: Northwest two oh nine, turn left, heading of two: four zero and intercept the twenty one left localizer.
- (25) NW 209: Two four zero intercept twenty one left localizer, Northwest two zero nine.
- (28) Arrival Radar: Northwest two oh nine, you're seven from Scofi, maintain a hundred and seventy to Scofi cleared ILS twenty one left approach:, tower eighteen four ((garbled)).
- (29) NW 209: Northwest, uh, two zero nine, a hundred and seventy: to: Scofi cleared for the, uh, two (one el), two-
- (31) NW 209: -uh, two zero nine.
- (45) Local Control: Northwest two oh nine, right turn off (able), remain this frequency, hold short of two one center on fox.
- (46) NW 209: Northwest two oh nine, roger.
- (50) Local Control: -oh nine, cross two one center, contract ground one two one point eight when you clear.

- (51) NW 209: Northwest two oh nine roger cleared to cross.
- (56) NW 209: Tower, Northwest two oh nine's clearing the center, we're going to foxtrot five, it's occupied.
- (57) Ground Control: Northwest two oh nine, make a right turn (right there) ((*garbled*)) and uh left on two seven, park east of fox on the south side.
- (58) NW 209: Roger.
- (66) Ground Control: Northwest two oh nine, uh, you still got your radar on?
- (67) NW 209: That's a negative, Northwest two zero nine.
- (68) Ground Control: OK.

Northwest 255

- (3) NW 255: Detroit approach, Northwest two fifty five with you at eight thousand with echo.
- (6) Arrival Radar: Northwest two fifty five Detroit roger vectors to twenty one left final approach course.
- (7) NW 255: Northwest two fifty five.
- (12) Arrival Radar: Northwest two fifty five, fly heading of two five zero and descend and maintain six thousand.
- (13) NW 255: Two fifty down to six, Northwest two fifty five.
- (22) Arrival Radar: Northwest two fifty five, reduce to two ten and then descend to five thousand fly heading two seven zero.
- (23) NW 255: (We will) slow to two ten, go down to five, and, uh, two seventy on the heading.
- (26) Arrival Radar: Northwest two fifty five, reduce your speed to a hundred and seventy knots.
- (27) NW 255: Go slower to one seventy, Northwest two fifty five.
- (30) Arrival Radar: Northwest two fifty five, turn left heading one eight zero and intercept the localizer.
- (32) Arrival Radar: Northwest two fifty five, turn left heading one eight zero and intercept the localizer.
- (33) NW 255: Left one eighty: and, uh, to intercept, Northwest two fifty five.
- (34) Arrival Radar: Northwest two: fifty five, you're three from Robbi maintain five to Robbi a hundred and seventy knots to Scofi cleared ILS twenty one left approach.
- (35) NW 255: OK, uh, could we get, uh, four thousand, till established?
- (36) Arrival Radar: Uh, yes sir, descend to four thousand till you're established.

- (37) NW 255: OK, down to four, uh, till established, cleared for the ILS one one left, Northwest two fifty five.
- (38) Arrival Radar: That's twenty one left.
- (39) NW 255: Twenty one left.
- (40) NW 255: Tower Northwest uh, two fifty five's with you (going by), uh, Scofi.
- (41) Local Control: Northwest two fifty five Metro Tower good evening, runway two one left cleared to land one two two zero eight six.
- (42) NW 255: (Clear) to land, Northwest two fifty five.
- (47) Local Control: Northwest two: fifty five, ((garbled)) (company) on the parallel, remain this frequency, hold short of two one center on fox.
- (48) NW 255: OK uh, we'll hold short of two one center at fox.
- (52) Local Control: Northwest two fifty five, cross two one center, contact ground one two one point eight when you clear.
- (53) NW 255: We're cleared to cross the center, twenty one eight the other side, Northwest two fifty five.
- (54) Local Control: Fact is, probably it'd be easier if you'd follow the ramp all the way around to bravo, right up bravo (juliett) to two seven northeast to fox ((garbled)) south side. ((*Not the same voice as the other Local Control utterances in this section.*))
- (55) NW 255: OK, we'll do that.
- (62) NW 255: (Tower) Northwest two fifty five's uh with you, going to delta fifteen.
- (63) Ground Control: Northwest two fifty five, right on golf to the gate.
- (64) NW 255: OK.
- (69) NW 255: Two fifty five does.

- (70) Ground Control: How does that weather look over there uh, about eleven, twelve o'clock to you?
- (71) NW 255: It's going to cloud up and rain on you here pretty quick.
- (72) Ground Control: Does it look severe, or just, uh, moderate rain showers?
- (73) NW 255: It looks like, heavy rain showers, uh, we're getting a lot of, uh, very strong echo. About, oh, uh eight separate ones, and they're, all at least ten miles in diameter.
- (74) Ground Control: O:K, thanks.
- (86) NW 255: Uh, Ground, Northwest two fifty five, we went right by the delta concourse. Can we make a one eighty here and go back to, uh, delta fifteen?
- (87) Ground Control: Sure can.
- (88) NW 255: Thank you.
- (106) NW 255: Clearance, Northwest two fifty five, we're in delta fifteen going to Phoenix with, uh, foxtrot.
- (107) Clear. Deliv.: Northwest two fifty five, uh, I have some weather routing for you. Cleared for Phoenix, Detroit Metro five departure. Radar vectors Waterville. Direct Goshen. Jet sixty. Iowa City. Direct (lamoney). Then as filed. Squawk seven four seven zero.
- (108) NW 255: ((noise)) OK, uh, Metro five departure radar vectors Waterville, direct Goshen, J, uh, sixty, Iowa City, direct (lamoney) as filed, squawk seven four seven zero, Northwest two fifty five.
- (109) Clear. Deliv.: That is correct. (And out).
- (315) NW 255: Northwest uh, two fifty five's ready on the center.
- (316) Local Control: Northwest's two fifty five Metro tower roger, I need you to make a, ah, disregard Northwest two fifty five. Runway three center taxi into position and hold, you

have about three minutes on the runway,
you have an in trail separation behind
traffic just departing.

(317) NW 255: Position and hold, Northwest, ah, two
fifty five.

(336) Local Control: Northwest two fifty five runway three
center. Turn right heading zero six zero.
Clear for takeoff.

(337) NW 255: Head to zero six zero, clear to go,
Northwest two fifty five.

Northwest 262

- (249) Local Control: And- I missed the other call Northwest two sixty two was it?
- (250) NW 262: Yes sir, Northwest two sixty two for three left.
- (251) NW 262: Northwest two sixty two Metro tower three left clear to land, winds two niner zero at one five.
- (252) NW 262: Clear to land Northwest two sixty two.
- (278) Local Control: Northwest two sixty two turn right to next intersection contact ground control one two one point eight.
- (279) NW 262: Two sixty two.

Northwest 274

- (172) Local Control: Northwest eight fifty two, remain this frequency taxi north on romeo hold short of two one center on taxiway hotel.
- (173) NW 274: Two seventy four, we're short of uh romeo on hotel.
- (174) Local Control: Northwest two seventy four pardon that was for you uh, hold short of two one center on taxiway hotel.
- (175) NW 274: Hold short of center on hotel. And uh, we did not notice any wind shear on final.
- (176) Local Control: Northwest two seventy four, thank-.
- (201) Local Control: Northwest two seventy four you're just crossing two seven now going north?
- (202) NW 274: That's correct.
- (203) Local Control: Two seventy four roger, left turn on hotel cross the center runway contact ground one one niner point four five at the other side.
- (204) NW 274: We'll cross the center on uh, hotel Northwest uh, two seventy four.

Northwest 287

- (124) NW 287: I (touched out) again, Northwest two eighty seven delta four echo, uh, we have the ATIS and, uh, - San Diego.
- (125) NW 287: Clearance read, Northwest two eight seven.
- (126) Clear. Deliv.: Uh, two eighty seven, sure do. I've got to get your full route out of there. All the westbounds are stopped. I'll have it in a minute or two.
- (127) NW 287: Thanks a lot.

Northwest 288

- (294) Local Control: Northwest two eighty eight Metro tower
are you with me?
- (295) NW 288: To the left.
- (296) Local Control: Northwest two eighty eight Metro tower
winds three zero zero at one four runway
three left, clear to land.
- (297) NW 388: Clear to land on the left, Northwest
three eighty eight.
- (313) Local Control: Northwest two eighty eight turn right the
next intersection contact ground one two
one point eight.
- (314) NW 288: Goodday.

Northwest 323

- (141) Local Control: Northwest three twenty three runway two one center is available.
- (142) NW 323: (Here) uh, three twenty three, uh, I'll take her for the center.
- (143) Local Control: Northwest three twenty three runway two one center, clear to land.
- (144) NW 323: (Clear) to land, two one center, Northwest three twenty three.

Northwest 332

- (148) NW 332: Uh, Northwest three: thirty two has, uh, two one left in sight.
- (149) Local Control: Northwest three thirty two heavy Metro tower traffic here (on final) has changed to the center runway, runway two one left, clear to land. Wind two zero zero at six.
- (150) NW 332: Clear to land, thank you very much.

Northwest 390

- (226) Local Control: Northwest three ninety Metro tower are you with me?
- (227) NW 390: Yes sir we are.
- (228) Local Control: Northwest three ninety follow your company's seven twenty seven from out of the run up pad please.
- (229) NW 390: Uh, roger Northwest three ninety.
- (245) Local Control: Northwest three ninety Metro tower three center taxi into position and hold.
- (246) NW 390: Position and hold three center northwest three ninety.
- (255) Local Control: Northwest three ninety fly runway heading runway three center clear for takeoff.
- (256) NW 390: Three ninety runway (heading) we're cleared to go.
- (270) Local Control: Northwest three ninety nine contact departure. Or correction, three ninety, contact departure, turn right heading zero six zero.
- (271) NW 390: Zero six zero over to departure, good night.
- (272) Local Control: Good night.

Northwest 430

- (10) NW 430: Northwest four thirty to tower.
- (11) Arrival Radar: Uh yes sir, tower one eighteen four for Northwest four thirty.

Northwest 494

- (92) NW 494: Ground, Northwest four ninety four
((garbled)) (echo) eleven.
- (93) Ground Control: OK, Northwest four ninety four, right on
fox (to the gate).
- (94) NW 494: Right on fox to the gate, Northwest four
ninety four.

Northwest 544

- (213) NW 544: Five forty four's ready.
- (214) Local Control: Northwest five forty four roger you'll get release time in about three minutes plan to follow the Eastern DC nine approaching from your left.
- (215) NW 544: OK, we'll do that, thanks.
- (223) Local Control: Northwest five forty four now follow the Eastern DC nine, you are now number two for runway three center.
- (224) NW 544: Five forty four local.
- (225) Local Control: Thank you=
- (237) Local Control: Northwest five forty four Metro tower runway three center, taxi into position and hold.
- (238) NW 544: Position and hold, Northwest five forty four.
- (243) Local Control: Northwest five forty four turn right heading zero six zero runway three center, clear for takeoff.
- (244) NW 544: Right zero six zero clear to go on the center forty, five forty four.
- (259) Local Control: Northwest five forty four contact departure.
- (260) NW 544: Five forty four.

Northwest 583

- (145) NW 583: Northwest five eighty three's coming up (delta) to the right.
- (146) Local Control: Northwest five eighty three Metro tower, the taxiways south of runway niner two seven are closed, traffic's on a half mile final. Runway two one right, clear to land. Wind two zero zero at six.
- (147) NW 583: We land two one right, copied it all, Northwest five eighty three.

Northwest 752

- (277) Local Control: Northwest seven fifty two are you number, now number one at the center?
- (280) NW 752: Seven fifty two's ready.
- (281) Local Control: Northwest seven fifty two roger I got to put you fifteen miles in trail of your company. What I'd like to have you do if we can work it out i:s take position and hold three center, but pull off to your right because there is a Jetstream commuter behind you that I can get out right now.
- (282) NW 752: OK, we do that, we'll pull over there in the corner and hold for northwest seven five two.
- (283) Local Control: Northwest seven five two thank you,=
- (299) Local Control: And Northwest seven fifty two the commuter says thank you.
- (300) NW 752: OK uh, no problem, thank you.
- (309) Local Control: Northwest seven fifty two turn right heading zero six zero, three center clear for takeoff.
- (310) NW 752: (Bearing) to zero six zero, clear to roll, on the center Northwest seven fifty two.
- (325) Local Control: Northwest seven fifty two contact departure, thanks for all your help this evening.
- (326) NW 752: Seven fifty two, good night sir.

Northwest 753

- (135) NW 753: Northwest seven fifty three heavy.
- (136) Clear. Deliv.: Seven fifty three heavy, go ahead.
- (137) NW 753: Uh, we'll stand by for (a while). You have any, uh, update or timewise ((*garbled*)), cause they're waiting to see about boarding four hundred people.
- (138) Clear. Deliv.: Yeah, sure will. I'll let you know as soon as I hear.
- (139) NW 753: Right now everything's on hold?
- (140) Clear. Deliv.: Yeah, right now, yeah.

Northwest 766

- (303) NW 766: Metro tower, Northwest seven sixty six just inside of run up.
- (304) Local Control: Northwest seven sixty six Metro tower, winds three zero zero at one four, runway three left. Clear to land. Traffic is on, uh, four mile final.
- (305) NW 766: OK ah, clear to land three left, ah, looking for that traffic, Northwest seven sixty six.
- (306) NW 766: Ah, where- what kind of airplane is that in front of Northwest seven sixty six?
- (307) Local Control: Northwest seven sixty six my mistake sir, I thought you were, uh, further out than what you are, you are number one for three left. The traffic you're following is on the ground.
- (308) NW 766: Sixty six.
- (334) Local Control: Northwest seven sixty six contact ground one two one point eight.
- (335) NW 766: Northwest seven sixty six.

Northwest 825

- (153) NW 825: Northwest eight twenty five's final for the right.
- (154) Local Control: Northwest eight twenty five Metro tower two one right clear to land.
- (155) NW 825: (We'll) land two one right, eight twenty five.
- (190) Local Control: Northwest eight twenty five turn left the next intersection and contact ground control on frequency one, two one point eight.
- (191) NW 825: Eight twenty five will do.

Northwest 858

- (163) Local Control: Northwest eight fifty eight continue north on romeo, turn left on hotel, hold short of two one center on hotel.
- (164) NW 858: Turn left on hotel short of the center on hotel eight five eight.
- (197) Local Control: Northwest eight thirty five you're number one holding short of the center.
- (198) NW 858: Fifty eight's holding short.
- (199) Local Control: Northwest eight fifty eight roger, cross the center runway contact ground one one niner point four five on the other side, stay on hotel.
- (200) NW 858: ((garbled)) across stay on hotel, eight five eight.

Northwest 1456

- (151) Local Control: Northwest fourteen fifty six contact
ground point eight.
- (152) NW 1456: Fourteen fifty six.

Northwest 1457

- (110) NW 1457: Northwest fourteen fifty seven to, uh, south (bound) ((garbled)).
- (111) Clear. Deliv.: Northwest fourteen fifty seven's cleared to South (Bend) Detroit Metro five departure as filed, squawk five seven seven five.
- (112) NW 1457: Five seven seven five and ((garbled)) departure (that uh) ((garbled))?
- (113) Clear. Deliv.: No.
- (114) NW 1457: Will we then have a ((garbled))?
- (115) Clear. Deliv.: (Yeah, remember) we're on a gate hold. Uh, nothing westbound.
- (116) ((garbled)): ((garbled)) (foxtrot) delta four.
- (117) Clear. Deliv.: (Start over) ((garbled)) fourteen fifty seven. You get your clearance OK first of all?
- (118) NW 1457: Yeah, fifty seven's at (five), and, uh, (what was that again about the) gate hold?
- (119) Clear. Deliv.: OK, (we're-) we're running gate holds westbound and no-one's leaving.
- (128) NW 1457: (well do) you want fourteen fifty seven to call you when we're ready to start?
- (129) Clear. Deliv.: No, that won't be necessary. You planning (out) on time?
- (130) NW 1457: Well, so far, yeah.
- (131) Clear. Deliv.: OK. I've got you on my list here. Uh, I have a feeling it's going to be a while.
- (132) NW 1457: OK, well, uh, then you want us to call you (then), correct?
- (133) Clear. Deliv.: I you can, uh, remain this frequency and, uh, (check) in occasionally if you like, uh, I'll let you know how things are going.
- (134) NW 1457: OK.

Northwest 1466

- (340) NW 1466: Northwest fourteen sixty six on final for three left.
- (341) Local Control: Northwest fourteen sixty six Metro tower. Traffic you're following is very short final, runway three left, clear to land. Winds three zero zero at one three.
- (342) NW 1466: Zero zero at one three clear to land, Northwest fourteen sixty six. Is it OK if we roll it down to the end?
- (343) Local Control: Northwest fourteen sixty six s:o far that's approved I'll advise different.
- (344) NW 1466: -teen sixty six.

Simmons 2796

- (318) Simmons 2796: Simmons twenty seven ninety six with you on the left side.
- (319) Local Control: Simmons twenty seven ninety six Metro tower winds three zero zero at one three traffic's a DC nine, mile final runway three left you're clear to land.
- (320) Simmons 2796: Clear to land, twenty seven ninety six.
- (327) Local Control: Simmons twenty seven ninety six long landing's approved if you like.
- (328) Simmons 2796: Twenty seven ninety six, thank you.

Southwest 418

- (234) Local Control: Southwest four eighteen Metro tower if you're with me? Winds three zero zero at one four, runway three right, clear to land.
- (235) SW 418: OK thank you clear to land, we are with you Southwest, four eighteen.
- (236) Local Control: Thank you.=
- (261) Local Control: Southwest four eighteen, turn left to high speed, remain this frequency and hold short of runway three center taxiway hotel.
- (262) SW 418: Four eighteen.
- (284) Local Control: Southwest four eighteen cross the center runway contact ground one one niner point four five at the other side.
- (285) SW 418: Uh, four eighteen roger.

Trans Delivery 2881

- (120) Trans 2881: Trans delivery ((*garbled*)) twenty eight eighty one to Battle Creek with foxtrot.
- (121) Clear. Deliv.: Says twenty eight eighty one's cleared to Battle Creek Detroit Metro five departure as filed squawk five seven six five.
- (122) Trans 2881: Metro five as filed fifty seven sixty five.
- (123) Clear. Deliv.: That's correct. Delays on all westbounds, no traffic's being accepted by the center due to the thunderstorms.

TWA 769

- (1) Arrival Radar: TWA seven sixty nine, maintain five thousand and reduce to a hundred and seventy knots.
- (2) TWA 769: St- Stop at five and start slowing. TWA suh seven sixty-
- (8) Arrival Radar: TWA: seven sixty nine after your speed reduction descend and maintain four thousand. And heading of two four zero intercept the localizer.
- (9) TWA 769: Heading two four zero to intercept, speed, and then four thousand feet, TWA seven six nine.
- (16) Arrival Radar: TWA seven sixty nine, you're six from Scofi, maintain a hundred and seventy knots to Scofi, cleared ILS twenty one left approach.
- (17) TWA 769: Seventy to Scofi (cleared) approach, TWA seven sixty nine.
- (18) Arrival Radar: TWA seven sixty nine, traffic's making visual approaches to the right side, contact- excuse me, Metro tower one eighteen four.
- (19) TWA 769: -(teen) four, OK, TWA seven six nine.
- (43) Local Control: TWA seven sixty nine, cross two one center, contact ground point eight when you clear.
- (44) TWA 769: (Nip) across and then change over, TWA seven six nine.

United 758

(161) Local Control: United seven fifty eight heading one
eight zero contact departure.

(162) United 758: One eight oh, going to departure, we'll
see you.

Unknown

((These utterances could not be clearly associated with any dialogue, or the conversant could not be identified. Utterance 167 appears to have been directed at all aircraft.))

- (49) (Local Control): ((garbled))
- (65) Ground Control: You're seven twenty eight sixteen, Metro
((garbled))
- (89) ((garbled)): Metro Ground, ((garbled)) (clear)
((garbled)) (taxiway).
- (90) Ground Control: Roger.
- (98) Unknown: Metro ground, (craft) six five.
- (99) Ground Control: Six five, ground.
- (100) Unknown: I'm on the apron, uh, approaching taxiway
alpha, I'd like clearance to the
northeast end of juliett.
- (101) Ground Control: Sixty five, that's approved.
- (102) Unknown: Roger.
- (103) Ground Control: You got two more cars with you?
- (104) Unknown: That's affirmative.
- (105) Ground Control: OK.
- (156) Unknown: Local-
- (157) Local Control: Just a second.=
- (167) Local Control: Wind shear alert center field wind two
nine zero at one seven. Southbound your
wind, three zero at one one.
- (177) (Unknown A): ((garbled))
- (178) (Local Control): Hello-
- (179) (Unknown A): You got uh, Delta landing on the center?

- (180) (Local Control): Yes he is-
- (181) (Unknown A): I'm takin' a localizer //down on twenty one.
- (182) (Unknown B): //Freeze-
- (183) (Local Control): OK.
- (184) (Unknown A): Thank you.
- (185) (Unknown C): Local-
- (186) (Local Control): What?
- (187) (Unknown C): (We can) change uh, three left localizer?
- (188) (Local Control): Yeah you can take both of them, Delta's going to center.
- (189) (Unknown C): All right.
-
- (192) Unknown: Wind check.
- (193) Local Control: Winds, two niner zero at two one and uh, we're setting a wind shear alert on the field center field winds two niner zero at two one, and the north bounds are winds three zero zero at five.
- (194) Unknown: (OK).
-
- (257) Unknown: Let's say your winds please.
- (258) Local Control: Winds two niner zero at one seven, =

References

Federal Aviation Administration (1989). *Air traffic control*. Pub. No. 7110.65F.

Federal Aviation Administration (1990). *Airman's information manual*.

Rosenbaum, S. L. (1988). A user's view of the air traffic control (ATC) system, Internal Memorandum 46321-881130-01.IM, AT&T Bell Laboratories, Nov. 1988.

Appendix A Transcription Conventions

For the purposes of this transcript, an utterance is defined to be a single transmission directed toward a single recipient. That is, an utterance is ended when either

- the speaker begins addressing a different recipient, or
- the speaker ends the transmission (by closing the microphone).

Each utterance is numbered and labeled with the speaker, if known, or with “Unknown” if the speaker’s identity could not be determined.

The end of a transmission is typically accompanied by a pause of a second or so while other potential speakers realize that the channel is available. These brief pauses are not noted in the transcript. Pauses longer than two or three seconds are marked as untimed pauses (see below), and indicate that no conversant who could transmit wished to do so. The determination of whether a pause had occurred was made subjectively by the transcriber.

Except for the notation indicated below, words are spelled using standard spellings. No attempt was made to depict alternate pronunciations that may have been used (e.g., “goin” for “going”).

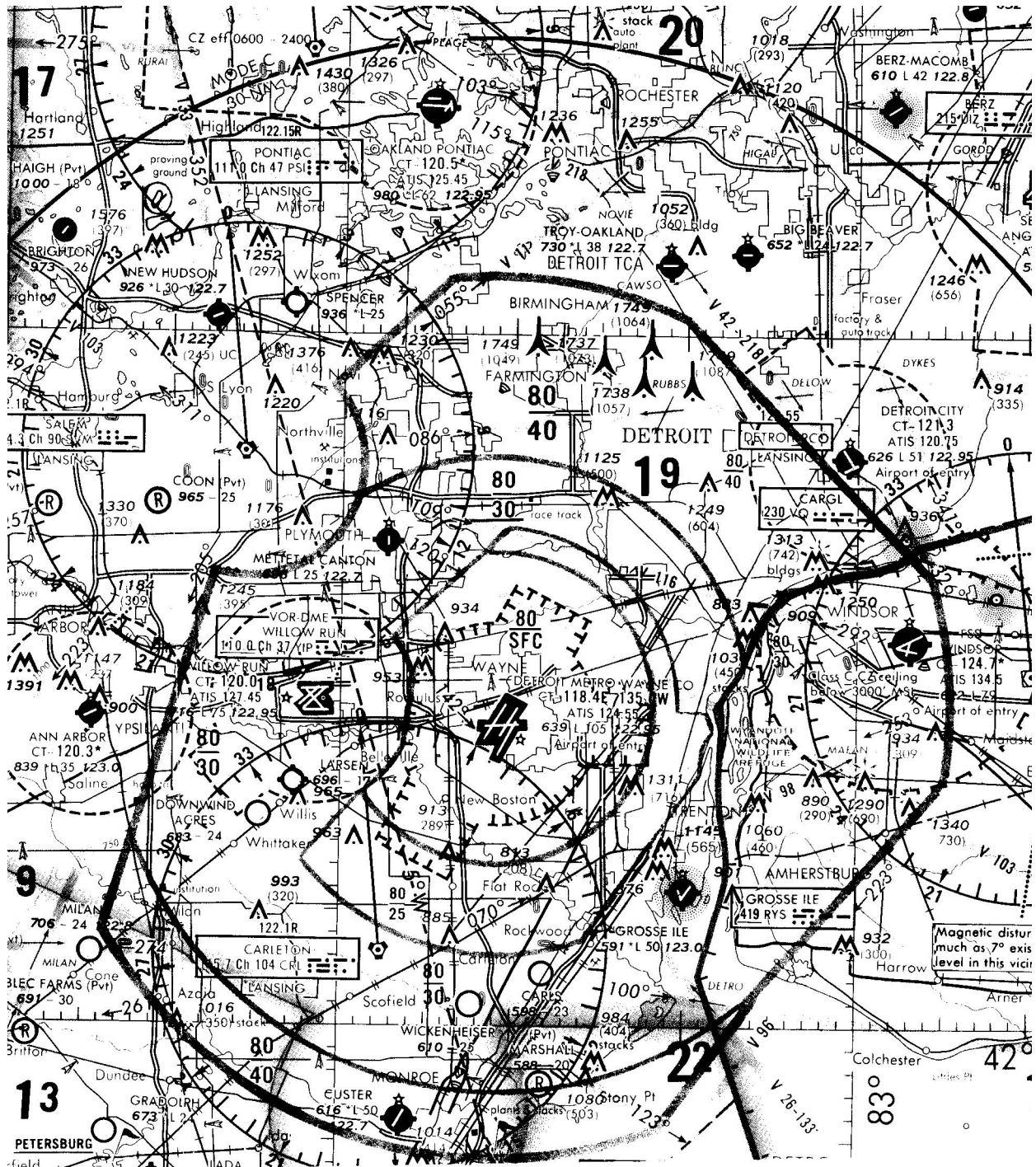
TABLE 1. Notation

:	(colon)	Denotes a lengthened sound within a word.
-	(dash)	Indicates a stop, a cutting off of sound. In mid-utterance, it denotes a verbal hesitation. It also occurs at the end of an utterance when the microphone is closed before the speaker finishes speaking.
((words in parenthesis)	Transcriber was uncertain of the words.
((<i>italics in double parenthesis</i>)	Transcriber notes.
.	(period)	A full stop, with falling intonation.
?	(question mark)	A rising intonation.
,	(comma)	A short pause with slight falling intonation, less than that indicated by a period.
.	(.)	Untimed pause between utterances.
//	(double slash)	Current speaker’s talk is overlapped by the talk of the next speaker.
.hh	(double h)	Audible breath. Dot before indicates inbreath, no dot indicates outbreath.

No special notation is used in the Narration sections.

Appendix B Charts

1. Area surrounding Detroit Metro Wayne County Airport, Detroit Sectional aeronautical chart, 39th edition, October 19, 1989, U.S. Department of Commerce.
2. Airport diagram, Detroit Metro Wayne County (DTW), Instrument approach procedures, U.S. East Central Region, November 15, 1991, U.S. Department of Commerce, 57



1. Area surrounding Detroit Metro Wayne County Airport, Detroit Sectional aeronautical chart, 39th edition, October 19, 1989, U.S. Department of Commerce.

