

**National Transportation Safety Board
Office of Aviation Safety
Washington, DC 20594**

September 24, 2007

AIR TRAFFIC CONTROL GROUP FACTUAL REPORT

LAX07MA231AB

A. AIRCRAFT ACCIDENT

Location: Phoenix, Arizona
Date: July 27, 2007
Time: 1246 Mountain Standard Time (1946 UTC)¹
Aircraft: N613TV and N215TV, Eurocopters AS-350 B2

B. ATC GROUP

Chairman: Sandra L. Rowlett, NTSB
Washington, DC

Dan Strawbridge, Federal Aviation Administration (FAA)
Washington, DC

Mark Sherry, National Air Traffic Controller's Association (NATCA)
San Francisco, California

C. SUMMARY

On July 27, 2007, about 1246 mountain standard time, Channel 3 (CH 3) and Channel 15 (CH 15) News helicopters, N13TV and N215TV, respectively, collided in mid air while maneuvering in Phoenix, Arizona. Each helicopter was an American Eurocopter AS-350 B2. Mac America Communications and US Helicopters, Inc., were operating the helicopters under the provisions of 14 CFR Part 91. The commercial pilots of both helicopters and one photojournalist in each helicopter sustained fatal injuries. Ch 15 departed Scottsdale, Arizona, at 1222, and CH 3 departed Scottsdale at 1232, as local corporate flights. Visual meteorological conditions prevailed, and no flight plans had been filed. The main wreckage for both helicopters came to rest in a park about 75 feet from each other.

D. IN-BRIEF

On July 28, 2007, the ATC Group met at the Phoenix (PHX) Air Traffic Control Tower (ATCT) / Terminal Radar Approach Control (TRACON) facility and met with Mary Kate Strawbridge, Air Traffic Office – Safety (ATO-S); Phil Thornton, Arizona District Manager; Greg Smith, PHX

¹ All times are expressed in local time.

ATCT Air Traffic Manager; Ron Mandeville, PHX ATCT Operational Manager; Robert Greene, Western Service Unit (WSU) Safety Assurance; and Todd Oldroyd, WSU. Mr. Smith explained the sequence of events leading to the accident. The team then reviewed training records, listened to recorded voice communications and reviewed a radar replay of the accident. On July 29, the team interviewed the North Local Controller and completed the field phase of the investigation.

D. DETAILS OF THE INVESTIGATION

1. In-brief Data

Mr. Greg Smith, PHX ATCT ATM, advised of the sequence of events on the day of the accident and provided facility information. Mr. Smith stated that on July 27, 2007, beginning at noon, that he and all facility supervisors were in a training session leaving a controller-in-charge (CIC) in charge of tower operations. After the accident, the CIC briefed him that at 1220 local time, a police helicopter entered the Class B airspace from the northwest to conduct a chase on a automobile driver who had assaulted a police officer. Over several minutes, 5 news helicopters arrived to film the pursuit. The CIC then advised that 2 helicopters had collided and crashed. The local controller was shaken. Two supervisors went to the cab and Mr. Smith requested that all other non-essential personnel were to leave the cab to minimize distractions. The swing shift supervisor then took charge of the tower operations. Mr. Smith and the local north controller listened to the recorded voice communications and the controller wrote his personnel statement. The controller submitted a drug test sample sometime between 1515-1530 local time.

Mr. Smith indicated that there were 8 certified professional controllers (CPC) and 1 CIC on the shift at the time of the accident. The following positions were operational at the time of the accident: Local control north (LCN), Ground Control North (GCN), Local Control South (LCS), Ground Control South (GCS), Flight Data/Clearance Delivery (FD/CD), Traffic Management (TM), and CIC. Although LCS had a handoff position, it was not open at the time of the accident. He said the facility typically used the 2-2-1 (swing-day-mid) shifts. On a midnight shift there were two controllers in the terminal radar approach control room (TRACON) and two controllers in the tower. At the time of the accident, PHX ATCT was authorized 38 controllers. There were 32 certified professional controllers (CPCs): 2 CPCs in training; 9 developmental controllers and 2 air traffic assistants (ATA) assigned to the facility. They expected two controllers to leave by January 2008.

Mr. Smith stated that prior to the accident they had the normal morning rush but traffic was light by the time of the accident. Mr. Smith reviewed the radar replay of the accident and determined there were 6 targets in the area of the accident but he couldn't differentiate between the targets. Mr. Smith advised that the helicopters use a discreet radio frequency to communicate amongst themselves but he doesn't know the frequency,² how long they've been using it, or what was said on frequency.

There was no requirement for establishing the range settings on the STARS tower radar display; however, because the TRACON hands-off aircraft between 5-12 miles from the runway,

² The frequency is 123.025.

the controllers need to set the display to at least 12 miles. PHX TRACON (P50) was assigned 0300 codes for use of VFR aircraft/helicopters; PHX ATCT was assigned 0400 codes. There was no conflict alert and MSAW was inhibited for those codes.

The crash phone was not activated because the CIC knew the police were on site, due to the chase, so he didn't believe it was necessary.

The Letter of Agreement (LOA), "Sharp Delta", had been in use for many years but "Sharp Echo" was established on May 15, 2007. Controllers received training on "Sharp Echo" via team brief. The only significant differences between "Sharp Delta" and "Sharp Echo" were the ingress/egress to PHX and the addition of transition routes (north/south and east/west) that protect the final approach courses. The new LOA was in response to a request by the users. The users wanted to have standardized routes and verbiage as well as discreet codes for each aircraft. The discreet codes haven't been issued yet due to the facility's transition from ARTS to STARS. Mr. Smith indicated that there were many helicopter users in the valley. There were 3-5 med-evac companies; 5-6 media companies; 3-5 law enforcement companies and each have multiple helicopters.

2. History of Flight³

At about 1223, the pilot of police helicopter "Firebird 8" contacted the PHX LCN controller and requested to enter the Class B airspace stating "about four and a half to five [nautical miles] north of the downtown, one thousand eight hundred [feet msl⁴], with [ATIS⁵] kilo⁶ [would] like north...clearance via Sharp Echo." The tower controller responded, "Firebird eight, radar contact proceed via Sharp Echo as requested."

About a minute later, the pilot of Firebird eight said, "...we are following a pursuit ah aggravated assault on an officer. But we are north on twelve seven Twelfth Street. I don't know if it's going to come back or not." The tower controller advised, "That's fine, I'll watch ya."

At 1226:08, the pilot of Channel 15 (CH 15) advised they had ATIS information K, were located at Camelback Mountain, and request to enter the Class B airspace via "Sharp Echo"⁷. The controller advised "Channel 15, radar contact one mile north of Camelback, proceed via Sharp Echo as requested, say altitude and destination." The pilot advised they were "going to be heading downtown 1,800 feet and ah we are going to intercept the police chase." The tower controller acknowledged and advised "there is a firebird helicopter doing that chase right now about a mile and a half west of the Biltmore at 1,900 [feet]." The CH 15 pilot responded, "Roger that, in sight, we are going to go direct where Firebird [8] is. Thank you."

At 1228:04, the CH 15 pilot advised that they had the police helicopter in sight and "we are

³ See attachment 1, Aircraft Accident Package, for the complete transcript.

⁴ Mean sea level. All altitudes are in msl unless otherwise noted.

⁵ Automatic Terminal Information Service is the continuous broadcast of recorded non-control information in selected high activity terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information.

⁶ See section 3, "Weather Information".

⁷ For further information, see section 8, "Letter of Agreement".

talking to him on the other frequency⁸.” The tower controller responded, “Alright, thank you, there is another helicopter looks like just ah two north of your position also inbound, I’m not talking to him yet.” The pilot of CH 15 said, “yea, it’s a 12, he’ll be calling ya in a second.” At 1229:03, the pilot of CH 15 advised the LCN that they were climbing to 2,000 feet “so we are out of Firebird’s [8] way.”

About 30 seconds later the tower controller cleared SKY 12 into the Class B airspace to also film the chase. The pilot of SKY 12 advised, “for traffic avoidance I’m gonna go up to two point five (2,500 feet) if you don’t mind.” The LCN controller approved the request.

At 1234:39, the LCN controller was relieved from position by another controller. In the relief briefing, the LCN said, “...Firebird 8, CH 15, SKY 12, in this area, doing a police chase. I told Firebird 8 he can go in and out [of the Class B airspace] at his discretion. SKY 12 is the [helicopter] that’s at 2,500 [feet].”

At 1235:29, the pilot of Newshawk 5 advised they were inbound at 2,200 feet with the ATIS. He further stated, “Like to come inbound operate with the other helicopters we’ll be talking to them.” The LCN controller allowed him to enter the Class B airspace and advised, “there’s three helicopters out there” and offered to give him the call signs. “The pilot responded, “...I do have that Firebird, [SKY] 12, and [CH] 15, and I think ... three will be behind me shortly and we’ll be on [123.025].” The LCN tower controller acknowledged.

At 1236:41, the pilot of TV 3 made radio contact with the LCN controller. Ten seconds later the pilot said, “...is Westside of Piestewa Peak, Sharp Echo, for the North Bravo, ah, going where the other helicopters are over there.” The controller responded, “...radar contact, proceed via Sharp Echo as requested. There’s three helicopters on sight and Newshawk 5 is about a mile ahead of ya.” The pilot responded, “Copy, Newshawk in sight, and I got a couple of the others in sight as well. Thank you. TV 3.”

At 1244:40, the pilot of SKYFOX 10 advised, “...Piestewa Peak, like to operate in the [Class] Bravo [airspace], Sharp Echo, with the other ones if we could. Have them in sight and we’ll be talk[ing] to them.” The controller instructed the pilot to “squawk 0400.” The pilot advised they were on transponder code 0400. The LCN said, “...radar contact one mile southwest Piestewa Peak, proceed via Sharp Echo as requested be advised there’s about five helicopters on site and ah one that is just passing your nose I don’t have him on my frequency but he’s no factor anymore.” The pilot advised that he saw the helicopter passing in front and “we’re talking to the other ones, thanks.”

At 1246:21, the pilot of SKYFOX 10 advised, “just had a midair collision over here at the park, two helicopters, two helicopters down.” About two minutes later the pilot advised that CH 15 and TV 3 were involved in the collision.

The LCN advised the CIC who decided to not activate the crash phone for the midair because the midair occurred “well off airport property” and the police and news helicopters were

⁸ Frequency 123.025 is designated by the FCC for air-air communications by helicopter pilots.

already on site. He also stated that he believed that the 911 operators were already inundated with phone calls and he would be more of a problem than help.

3. Weather Information

Automatic Terminal Information System (ATIS) “K” for 1855 UTC included the following weather information:

Wind 280/6G14; visibility 10 statute miles; ceiling 5,500 broken, 15,000 broken, 25,000 broken; temperature 34, dew point 19; altimeter 29.94.

4. Facility/Airport Information

At the time of the accident, PHX ATCT was an Air Traffic Control (ATC) Level 11 tower facility. According to PHX ATCT 7110.1E⁹, “Standard Operating Procedures”, Chapter 7, “Airspace”, paragraph 7-1 a (3):

The Class B Surface Area is that airspace within a horizontal radius of five (5) statute miles from the geographical center of the airport, extending from the surface up to, but not including, an altitude of 3,000' AGL (Phoenix Sky Harbor elevation 1,132' MSL, to 4,100' MSL).

North Local Controller airspace is described as “that portion of the airspace that lies north of taxiway Delta (D).”

The tower was equipped with a STARS radar display slaved from the PHX ASR-9 located 33-25-7.19 N / 112-00-23.34 W, with a variation of 12 degrees East, at an elevation of 1120 feet mean sea level.

5. Personnel Information

Erik Bowering (Operating initials: EB)

PHX Tower Local North Tower Controller

a. Training Records

According to the training records:

Entered on duty (EOD) FAA: July 19, 1989

EOD Concord, California (CCR) ATCT: November 5, 1989

Facility rated: July 18, 1990

EOD Reno, Nevada (RNO) Tower/TRACON: February 7, 1993

Facility rated: May 17, 1994

EOD PHX: June 10, 2000

Facility rated: February 27, 2001

CIC Certification: August 22, 2001

⁹ Dated March 22, 2001

Control Tower Operator, CCR: November 1, 1989

Training:

Sharp Delta LOA: April 16, 2002 (30 minutes); August 2, 2004 (10 minutes); April 25, 2006 (30 minutes)

Helicopter Operations: October 31, 2006 (15 minutes)

b. Interview Summary

On July 29, 2007, the ATC group interviewed Mr. Bowering; his representative was Steve Palmer, NATCA. In response to questions, Mr. Bowering provided the following information:

His medical certification was current. He had a waiver for Lipitor and glasses for far vision that he was wearing the day of the accident.

The accident occurred on the last day of his workweek, Friday, July 27. His regular days off were Saturday and Sunday. He typically worked 2 evening shifts and 3 day shifts. The day of the accident he was working 0530 – 1330 local time. At the time of the accident, he'd been on position for 5 minutes and traffic was light. When he relieved the previous controller at 1235, there were 3 helicopters on scene (a police helicopter and 2 news copters), 2 or 3 arrivals to PHX, and a lifeguard helicopter going to a hospital.

At the time of the accident, he was standing with his headset on and there were no distractions. He did not see the accident occur but he saw the smoke plume after being advised of the collision. When the aircraft collided, he was looking at a B757 taxiing to his runway for departure. Flights typically don't depart from runway 26 so he was trying to determine where the flight would fit in the departure sequence.

He explained that every couple of minutes a news helicopter checked in. He'd advise them of the traffic and cleared them into the airspace. The last helicopter was Fox 10. Fox 10 was on the scene for about one minute when the pilot advised of the midair collision. Mr. Bowering asked if the pilot knew the call signs of the helicopters involved in the accident and notified the CIC. Because Mr. Bowering didn't know which helicopters were involved, he asked each helicopter systematically, starting with Chopper 15, if they were on frequency but there was no response. He then asked Firebird 8 but there was no response. Sky 12 then advised the helicopters involved were Chopper 15 and TV 3.

He advised the CIC who called the manager and supervisors and Mr. Bowering was relieved from position. He was on position about 10 minutes.

When Mr. Bowering assumed the local control position, he received a position relief briefing using the checklist on the IDS (Information Display System) computer but couldn't recall the specifics of the briefing items.

He explained how controllers clear helicopters into the airspace: helicopters typically come in from either Deer Valley or Scottsdale transition airspace and use the “Sharp Echo” LOA as a means to clear the flight into the Class B. Because of the LOA, pilots know to advise the controllers of their desire to use “Sharp Echo”, their position, and their transponder code was already set at 0400. The controller radar identifies the flight, clears them into Class B airspace via “Sharp Echo”, and advises of traffic. If they don’t have the ATIS, the controller should provide the altimeter. Mr. Bowering stated that he radar identified the flights by position correlation. The day of the accident he said he provided the altimeter in most instances but it’s a lower priority duty than traffic advisories and “I might have let the ATIS code slip”.

The STARS display in the tower is certified for radar use. He offset the display 8 miles on the departure end and 14 miles on the arrival side for the west flow (landing 26) to allow him to look at the arrival airspace. The altitude filter limits was the floor of the airspace, 1100 feet, and 4,400 or 4,500 feet at the top.

The helicopters were in the northwest sector that has good radar coverage. It is typical for targets to go in to “coast” in the northeast sector especially with numerous targets in close proximity.

Pilots are required to sign the “Sharp Echo” LOA and there’s a copy of the signatories in the tower. Because “Sharp Echo” is an odd name, if a controller says it and the pilot doesn’t understand, tower controllers treat them differently because controllers work helicopters every day. He further explained “Sharp Echo” is used every time a controller works LC.

Mr. Bowering kept a record of the helicopters under his control by writing the acronym for call signs on the right side of a pad of paper. He used an abbreviation for the hospital if the flight planned to land there. He knew the helicopters were not landing so he wrote just the call sign. If there are 5 or 6 helicopters in a small area he can’t differentiate between them. When asked if he ever assigned a beacon code to several helicopters in a small area, he said “no it wouldn’t work, the targets would just go into coast,” but he could.

Each target on the STARS tower display showed a primary target as a blue square. A secondary target was a yellow line through the blue square and a position symbol over the top of that. Helicopters using transponder code 0400 are displayed as a square. The square indicated transponder code 0400. If they used transponder code 1200, the symbol was an asterisk (*).

According to FAA Order 7110.65, he was not required to provide separation to VFR helicopters in Class B airspace.

After returning to the facility from military duty, Mr. Bowering was given time to review all the crew briefs which included the change from “Sharp Delta” to “Sharp Echo”. “Sharp Echo” improved the old version in 2 areas: 1) it assigned the east/west transition as standard routings and altitudes and 2) added transition airspace that allowed controllers to identify aircraft outside Class B airspace.

Mr. Bowering stated that helicopter users operated on a discreet radio frequency and

most communication was done there. The pilots advise controllers that they're using the frequency so controllers don't duplicate traffic information. When leaving the Class B airspace, sometimes they leave all at the same time and sometimes not.

He did look at the helicopters the day of the accident through the binoculars and saw the police helicopter in a low left orbit and the other helicopters were hovering, stacked vertically and laterally and not moving. He could not determine which helicopter was which. He looked at the helicopters well before the accident and before the arrival of the other three helicopters. He stated that all the model helicopters look similar but have different logos for each station but you can't see the logo with the naked eye from the tower (about 4-4.5 miles away). The helicopters were right on the horizon.

He never heard any reports of a near midair collision between helicopters.

Mr. Bowering couldn't recall if it was hazy.

It was fairly standard to have that many helicopters because there were numerous TV stations and when something occurs they all go.

When asked about altitude separation, Mr. Bowering stated that the pilots speak to each other on a discreet frequency and he didn't believe it would be a good idea to listen to the frequency because it would add to the pilot's workload. Controllers can't distinguish between the helicopters so can't really do much for them.

Part of "Sharp Echo" was a requirement for the pilot to advise the controller when they were leaving the Class B airspace.

Mike Imes (Operating Initials: MI)

Controller-in-Charge (CIC)

On August 6, 2007, the ATC group interviewed Mr. Imes via telephone. He named Mr. Rodney Black, NATCA, as his representative. In response to questions, he provided the following information:

Mr. Imes was employed by the FAA in 1990 when he went to the Academy in Oklahoma City, OK. After graduation, he transferred to Miami Air Route Traffic Control Center where he worked for about 6.5 years. He transferred to Jacksonville ATCT/TRACON then to PHX ATCT in August 1999. He was certified on all positions in the tower cab and became a CIC in early 2000.

As CIC, he typically monitors the busiest position or the person he believes needs help. At the time of the accident he wasn't monitoring any frequency because he had just signed on as CIC and was shifting the staff around to ensure positions were staffed appropriately while still permitting others to attend team briefings or go home.

Mr. Imes explained the purpose of the "Sharp Echo" LOA was to allow helicopters pilots to operate within the Class B airspace as safely and efficiently as possible with minimal

frequency congestion. He likes the LOA and believes it is effective. He received training on the LOA.

He stated that according to the LOA, pilots are responsible for asking for clearance into the Class B, provide their location and ATIS code (or state that they have the numbers) and have their transponder set on 0400. The controller then provides a clearance into the Class B airspace. He stated that he doesn't issue discreet codes, such as 0401, to helicopter pilots because there is no need.

When asked if he's provided a safety alert to helicopter pilots he stated that he provides traffic information that could be a safety alert. There are times when he doesn't receive an acknowledgement, which is frustrating. He said that he continues to issue the traffic until he gets an acknowledgment. Mr. Imes stated it rarely occurs when he needs to issue traffic about a fixed wing aircraft on final but not as much as when the helicopters are gathered together. He hasn't asked for a pilot deviation report to be filed on the pilot for not maintaining 2 way radio communications but he has advised pilots once they return to the frequency that they need to monitor it.

The day of the accident Mr. Imes said that there were high clouds but he could see for miles. The weather was "very good" and he wouldn't consider it hazy.

He arrived at 1230 and signed in as CIC at about 1235. He received a briefing from the previous CIC. Mr. Imes explained that at that time there were no supervisors in the cab because they were all in a meeting. He then started to relieve controllers so they could attend the team briefing or go home. About 15-20 minutes later he noticed 2 large smoke plumes in the northwest sector. He reached for the binoculars and asked the LC what happened. At the same time, the LC reached for binoculars and advised he had two helicopters down. Mr. Imes said there was 1 or 2 seconds where his mind didn't process the information then realized there was an accident.

Controllers asked if they should call 911 or activate the crash phone but Mr. Imes decided that because it happened well off airport property, and the police and news helicopters were already on site, and that the 911 phones were probably "ringing off the hook", he would be more of a problem than help.

He had someone relieve LCN. Someone asked if they should keep working or stop but he determined that they should continue with regular operations. He called for management support then relieved the LCS controller.

No one in the facility or the fire department questioned his decision not to activate the crash phone or call 911. There have not been any discussions or training for activating the crash phone when an accident occurs off airport. The CIC/Supervisor should use his own judgment in determining if it should be activated.

Since the accident, they have used the "Sharp Echo" LOA and there have not been any changes to the document. There have not been as many helicopters in one area since the

accident.

6. Aeronautical Information Manual (AIM)

The Aeronautical Information Manual (AIM) explains Class B airspace and the requirements for operating in the airspace. The manual states in part:

3-2-3. Class B Airspace

a. Definition. Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of IFR operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspace areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds."

b. Operating Rules and Pilot/Equipment Requirements for VFR Operations. Regardless of weather conditions, an ATC clearance is required prior to operating within Class B airspace. Pilots should not request a clearance to operate within Class B airspace unless the requirements of 14 CFR Section 91.215 and 14 CFR Section 91.131 are met. Included among these requirements are:

1. Unless otherwise authorized by ATC, aircraft must be equipped with an operable two-way radio capable of communicating with ATC on appropriate frequencies for that Class B airspace.

5. Unless otherwise authorized by ATC, each aircraft must be equipped as follows:

(b) For all operations, a two-way radio capable of communications with ATC on appropriate frequencies for that area; and

(c) Unless otherwise authorized by ATC, an operable radar beacon transponder with automatic altitude reporting equipment.

d. Flight Procedures.

2. VFR Flights.

(a) Arriving aircraft must obtain an ATC clearance prior to entering Class B airspace and must contact ATC on the appropriate frequency, and in relation to geographical fixes shown on local charts. Although a pilot may be operating beneath the floor of the Class B airspace on initial contact, communications with ATC should be established in relation to the points indicated for spacing and sequencing purposes.

(c) Aircraft not landing or departing the primary airport may obtain an ATC clearance to transit the Class B airspace when traffic conditions permit and provided the requirements of 14 CFR Section 91.131 are met. Such VFR aircraft are encouraged, to the extent possible, to operate at altitudes above or below the Class B airspace or transit through established VFR corridors. Pilots operating in VFR corridors are urged to use frequency 122.750 MHz for the exchange of aircraft position information.

e. ATC Clearances and Separation. An ATC clearance is required to enter and operate within Class B airspace. VFR pilots are provided sequencing and separation from other aircraft while operating within Class B airspace.

1. VFR aircraft are separated from all VFR/IFR aircraft which weigh 19,000 pounds or less by a minimum of:

- (a) Target resolution, or
- (b) 500 feet vertical separation, or
- (c) Visual separation.

2. VFR aircraft are separated from all VFR/IFR aircraft which weigh more than 19,000 and turbojets by no less than:

- (a) 1 1/2 miles lateral separation, or
- (b) 500 feet vertical separation, or
- (c) Visual separation.

7. FAA Order 7110.65, “Air Traffic Control”, dated March 15, 2007

This order prescribes air traffic control procedures and phraseology for use by persons providing air traffic control services. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations that are not covered by it.

7-9-1. APPLICATION

Apply Class B services and procedures within the designated Class B airspace.

a. No person may operate an aircraft within Class B airspace unless:

- 1. The aircraft has an operable two-way radio capable of communications with ATC on appropriate frequencies for that Class B airspace.
- 2. The aircraft is equipped with the applicable operating transponder and automatic altitude reporting equipment specified in para (a) of 14 CFR Section 91.215, except as provided in para (d) of that section.

7-9-2. VFR AIRCRAFT IN CLASS B AIRSPACE

a. VFR aircraft must obtain an ATC clearance to operate in Class B airspace.

REFERENCE-

FAAO 7110.65, Operational Requests, Para 2-1-18.

FAAO 7110.65, Airspace Classes, Para 2-4-22.

PHRASEOLOGY-

CLEARED THROUGH/TO ENTER/OUT OF BRAVO AIRSPACE,

and as appropriate,

VIA (route). MAINTAIN (altitude) WHILE IN BRAVO AIRSPACE.

or

CLEARED AS REQUESTED.

(Additional instructions, as necessary.)

REMAIN OUTSIDE BRAVO AIRSPACE. (When necessary, reason and/or additional instructions.)

NOTE-

1. Assignment of radar headings, routes, or altitudes is based on the provision that a pilot operating in accordance with VFR is expected to advise ATC if compliance will cause violation of any part of the CFR.

2. Separation and sequencing for VFR aircraft is dependent upon radar. Efforts should be made to segregate VFR traffic from IFR traffic flows when a radar outage occurs.

b. Approve/deny requests from VFR aircraft to operate in Class B airspace based on workload, operational limitations and traffic conditions.

c. Inform the pilot when to expect further clearance when VFR aircraft are held either inside or outside Class B airspace.

d. Inform VFR aircraft when leaving Class B airspace.

PHRASEOLOGY-

LEAVING (name) BRAVO AIRSPACE,

and as appropriate,

RESUME OWN NAVIGATION, REMAIN THIS FREQUENCY FOR TRAFFIC ADVISORIES, RADAR SERVICE TERMINATED, SQUAWK ONE TWO ZERO ZERO.

7-9-5. TRAFFIC ADVISORIES

a. Provide mandatory traffic advisories and safety alerts, between all aircraft.

7-9-6. HELICOPTER TRAFFIC

VFR helicopters need not be separated from VFR or IFR helicopters. Traffic advisories and safety alerts shall be issued as appropriate.

8. Letter of Agreement

The LOA “Phoenix Tower and Helicopters Operating in the Phoenix Class B Airspace¹⁰”, effective May 15, 2007, stated that the purpose of the agreement was to specify responsibilities, define terms, and establish procedures to be used between Phoenix Tower and signatory operators for the control and operation of VFR and Special VFR helicopters within the Phoenix Class B airspace.

According to Section 4, “Procedures”, Section a. “Definition of Terms”,

(3) “Sharp Echo” states:

“Sharp Echo” shall be used by pilots on initial contact with Phoenix Tower to indicate their understanding of and participation in this program. The pilot must state that they have the current ATIS code (e.g. “I have information Bravo”) or the numbers.

(1) “*PROCEED VIA SHARP ECHO*”

(a) Shall be used by Phoenix Tower to approve departure or landing at a location:

- 1 Not visible from the Tower.
- 2 Not certified for helicopter use.
- 3 Unlighted at night.
- 4 Off the Phoenix Sky Harbor International Airport.

(b) Shall mean the departure or landing will be conducted at the pilot’s own risk, and may be used with other instructions and/or clearance items.

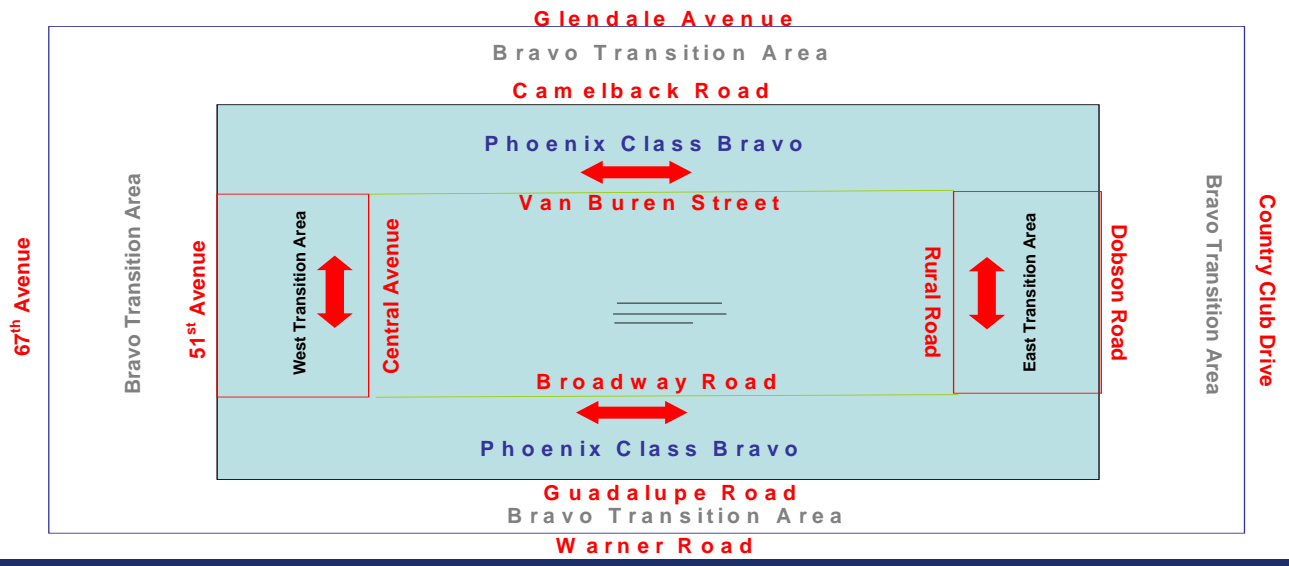
(c) Shall be used by Phoenix Tower as clearance into the Phoenix Class B airspace and/or the pilot’s requested routing. It shall mean the helicopter is cleared into the Class B airspace and/or may proceed in accordance with the requested routing. It may be used with other instructions and/or clearance items.

d. **Altitude Assignments.** Helicopters shall operate between 2000 feet MSL and 2500 feet MSL north of Thomas Road, and between 1600 feet MSL and 2500 feet MSL south of Thomas Road, while in the Class B Airspace, unless otherwise required (**See Annex 2, Section 5 and Annex 3, Section 5.**) Between the hours of 11:00 p.m. and 5:00 a.m., helicopters shall maintain 2500 feet MSL while in the Class B Airspace. Requests to deviate from these altitudes shall be approved on a traffic-permitting basis. Tower may also assign 1600 feet MSL for traffic while in the Class B Airspace south of Thomas Road.

¹⁰ See attachment 2.

e. **Frequencies.** Helicopters shall contact Phoenix Tower on 118.7 when north of and on 120.9 when south of an imaginary line extending to the east and west parallel with and between the runways at Phoenix Sky Harbor International Airport. Ground Control is 132.55 unless otherwise advertised on the ATIS.

Annex 4 East and West Transition Map



Sandra Rowlett
ATC Group Chairman