[Photo courtesy of Tom Philo]

The 8th Air Force Historical Society, Oregon Chapter

Saturday, February 12, 2011

Speaker: Captain Greg Wooldridge

Transcribed and Edited by Joan E. Hamilton

[This transcript was reviewed and approved by Capt. Wooldridge]

Introduction

By President Tom Davis

[Begins at 1:29 minutes]

Now for the feature of the day, Captain Greg Wooldridge. Just little highlights again if you didn't remember to read your newsletter. He had 27 years in the Navy as an attack Naval aviator. He has 8300 hours, I guess, in the air. He's made 700 carrier landings. In 1991, he was selected as the leader of the Blue Angels flight demonstration team. That was a two-year tour. In 1992, the Blue Angels were the first American team to fly in the air show in Moscow. He had a chance to fly an SU-27 and Mig-31fighter. After that tour was over, he did called back to lead them again after the Tailhook incident, where some guys lost their commissions. Then he was called back a third time, in 1996. So he led them for three times. Please welcome Greg Wooldridge.

Capt. Greg Wooldridge

Thanks, Tom. It's great to be here. It's an honor to be here. I'm really enjoying the stories. I don't consider myself the feature of the day after hearing all those great stories and great stories of meeting husbands 50, 60, almost 70 years ago. Those are heartwarming. I really enjoyed that. Thanks for inviting me. Thanks for lunch. I got guided through this by my own Tom-Tom [Tom Philo and Tom Davis] navigation system. Thank you to both Toms.

What I'm going to do today is just take you inside the Blue Angels a little bit, tell you how they came about, what they do, how we do some of the maneuvers—those of you who are aviators might get a kick out of that—and tell you a few sea stories. Everybody likes seas stories of things that happened to the team and happened to me that you might get a kick out of.

The Blue Angels

Recruiting

The Blue Angels are the Navy's main recruiting tool. They go about the country trying to influence people like young Cathy back there, the junior at Oregon, to decide to become a Naval aviator or join the Navy or Marine Corps in some respect. We represented—and I'm going to use the term "we" as if I'm still there, it's been a while since I was there, but it's easier to do it that way. We represented the Navy and the Marine Corps. There were Marines on our team. The *Fat Albert* that you may have seen, the C-130 with the jet-assisted takeoff, is a Blue Angel airplane. It was crewed out by Marines. Traditionally, the right wingman in the six-plane formation was a Marine. So both Navy and Marine Corps folks and like I said we traveled around the country and tried to bring Naval aviation to the front door of the American public. That's a little about the team…

Composition

Troops

The composition. The most important element, of course, is the people. We had about fifty or sixty enlisted troops. We had about 16 officers and a couple of civilians that represented the airplane companies that helped us out a lot. And the troops were awesome. I mean, the things they did at some of the air show sites, working overnight all night swapping out engines. In fact down in Eugene once, I went back out to the airfield about ten o'clock at night and they were out there. We had a show there and they were out putting another engine in one of the airplanes that had an engine problem. The troops really made it happen. They were awesome.

FA-18s, C-130 *Fat Albert*

Let me back up to composition and tell you about the airplanes, too. Usually about ten FA-18s. There were six in the formation. We had 2 two-seaters that we flew VIPs. When we flew VIPs it was to get publicity. Again, in the papers or on TV you may have seen some of those shots were so-and-so the look-back camera, they're in the backseat of an F-18 and they're doing these high G things and they're passing out or whatever. It was usually good publicity for the Navy and, again, helped recruiting. So ten FA-18s. Two of them were two-seaters. A couple of spares for the six-plane formation and we had *Fat Albert*, the C-130. Again, I can't tell you how great it was to have that.

Because we had all that equipment, we were autonomous. We could go anywhere in the United States and almost overseas—but we needed in-flight refueling—but we could go anywhere in the United States by ourselves. We'd put about 25-30 enlisted troops in the back of the C-130 and then they would take off, head to the show site, set up, and we would fly out either the next day or that same day with our six airplanes and get ready to go do it. So it was all self contained. More about what an advantage that was a little bit later.

There's a C-130. There's the airplane. Some of the troops out there, the best troops in the world.

History

The history, jump through that for a second, but let me go back to it. I get a kick out of talking to you Air Force folks. It's great because the Blue Angels were around before that Air Force was ever mentioned. They started in 1946 and I guess the Air Force officially—I'm making fun with this, but the Air Force officially didn't start until 1947, right? Where's our hippy? He knows that history. There he is. Is that right, sir? Drix?

[Drix]: Sure. Thank you. Call me dude, not sir. [Laughter]

All right. I get a kick out of making the point that the Blue Angels started in 1946. Admiral Nimitz, after the war was over he said—because Naval aviation was so important in the Pacific with all the carriers and all the stuff that we did there—Admiral Nimitz said, “Let’s make sure the American public doesn’t forget about airplanes on aircraft carriers and Naval aviation because the people on the coast in some of the ports may or may not see an aircraft carrier and have an appreciation for it, but the rest of the country, the heartlands, they had Air Force bases or Army Air Corps bases and they hadn’t seen Naval aviation.”

So Nimitz said to [Roy] “Butch” Voris who was a lieutenant commander ace in the war, he said, “Butch form us up a team. Go out and show the American public what Naval aviation is all about and what it can do.”

So Butch got together about four guys at the time and they went out and they started flying and there were a bunch of names offered up to what to call this team: Blue Lancers, Sky Riders. Some of these other things. The guys kept saying no, no, no, none of that’s going to work. There in the hotel in New York City and they’re looking for a place to go and eat and they look in the *New Yorker* magazine and there was a night club called The Blue Angel. The guys said, “Blue Angel. Blue Angel. That’s kind of neat.” That’s how the team got named and that stuck with it. I think it’s a really, very apt, appropriated name, though we weren’t always angels. [Laughter]. That’s kind of a little historical perspective.

So the team is now 65 years old and it’s been around a while. It’s a great tradition for sure.

Selection Process

Selection process. What’s really neat about how we do that is that we pick our own replacements. It doesn’t come down from on high from Washington or someone says, “This is going to be your next wingman” or “This is going to be your next wrench turner or your next mechanic or avionics person or whatever”. We get to go out and pick our own people. What that did, it allowed you to build a personality in the team that made you all interact really well and it gave you the opportunity to be a lot more effective that way.

The aviator selection process was one where they would come to show sites where you were flying and we tried to get them out to half a dozen or so before we selected the new guys every year and we would see how they interacted with the public. It's a Navy recruiting tool. We wanted people to be able to maintain their "grin and grip" stamina if you will through two years. So we wanted guys that could really put the word of Naval aviation out in front of the people. It's kind of backwards in a lot of people's mind, "Well, didn't you test them to see how they flew? Didn't you give them flight examinations or anything like that?

No. When they came into the selection process, they had gone through a gate of a certain number of flight hours. They had come with recommendations and we made the assumption that these guys we can train. What we don't know is how are they going to do with the public? How big is their head going to get when they start getting on the road? Are they going to become rock stars in their own minds? We needed to have control of all of that. So it was very important to see how they interacted with people. So we were able to train them about 99 percent of the time. Every once in a while somebody would drop out, but by the time we had interacted with them and had them meet our wives and go to functions with us, we knew pretty much how they were going to do as ambassadors for the Navy and Marine Corps. So it was great to be able to select our own people.

Flight Leader

The only person that didn't get selected by the team was the flight leader. The flight leader got selected by the folks on high, but through an interesting selection process. I can tell you about my own real quick. I was out commanding a squadron off the USS *Midway* which is homeported in Yokosuka, Japan. Believe it or not we still have an aircraft carrier that's in Yokosuka, Japan as its homeport all the time even though it's usually out in the Indian Ocean or the North Pacific or someplace like that. I was on that ship commanding a squadron. I was sitting in the Ready Room reading the message board. We didn't have e-mail. It said, hey we need some guys to apply to be the flight leader of the Blue Angels." I looked and I go, "Boy, wouldn't that be sweet."

Because it's a post-command tour, so you have to have commanded a squadron. I thought, "Boy, that would be fun. Nah, they'd never pick me. I'm not going to do it."

It was my guys, my young fellas, the junior officers in the squadron said, "Skipper, skipper, you need to apply. You'd be great at that. Besides, then we could say we know the flight leader."

I said, "All right. All right. I'll try."

So I got a recommendation from the air wing commander. That was the only recommendation in my package compared to some of the guys who applied that had dossiers very, very well documented. But I thought, "Okay, I'll try."

I sent it in. I got selected as a finalist and there were five of us. I was off the coast of Okinawa on the ship, flew back to Corpus Christi. I said, "This is going to be great. I'm going to go back, have some good Mexican food." I hadn't had any in Japan in a long time. I hadn't had any in a while in Japan, obviously. Went back to Corpus and looked at the guys I was competing with. Here was a CO of Top Gun. Here was a guy that had done all of the F-14 flight demonstrations on the East Coast, blonde, wavy hair, an Adonis. And there were a couple of other guys that were just, you know, look at this guy, look at that guy. I give up. I quit. I didn't quit, but I said, "I'm going to relax and have a good time." We spent a couple of days there. We went out to dinner with the admiral and the chief of staff and their wives. I was really relaxed.

While I was there, I had an opportunity to be close to what we called the message center. The selection process for the troops was going on at the time for advancement to see who was going to get promoted. I was very, very interested in making sure my guys got moved along, moved up in their careers. So I was running over to the message center, "Okay, what's the outcome of the chief's exam? What's the outcome of the petty officer first class exam? Second class?" I really wanted to track how my guys were doing and I guess—it wasn't to put on a show or anything—but I guess that word got back to the admiral and he said, "This guy's going to take care of his folks."

I think that actually played well for me and I was lucky enough to get selected. I couldn't believe it. They said, "Yeah, you're the one."

I said, "It must be a mistake."

Rotation

Sorry about that digression, but that was part of the selection process for the flight lead and that's what happens every two years. I'll tell you how the rotation works. There are six for the formation and for most of the officers on the team. There are six folks in the formation. There are no substitutes or anything like that in the six-plane formation. Every year, there are three new pilots added to the formation. They figure we can only do this for two years because of the 300 days out of the year on the road, the intensity of flying air shows and meeting the public and being away from your family. So they limit it to two years. That meant, in order to get passed down and be able to do the show every year, you swapped out three people in the formation. So the year that the new boss came onboard, there was a second year right wingman who became kind of his mentor in the learning process. .When I went into my second year, there was a new number two, so I kind of taught him. So it was kind of a really nice, well-thought-out progression of replacing people in the formation. Two years was the normal tour. I got a couple extras as you heard in the introduction. Anyway, it was a good process.

Again, we got to pick our own people. So we formed a nucleus of folks that were kind of like thinking and knew that we could get along because we had screened them in the process.

Schedule

The Schedule. Every year, we would fly about 35 different cities in about 70 air shows. So beginning in the middle of March, we would fly from there until about the middle of November in a different city every week. Generally, if it was east of the Rockies, we were home based in Pensacola, Florida—if it was east of the Rockies, we'd fly out on Thursday morning, go out, get our landmarks at the show site—let's say it was in Colorado Springs or Michigan or someplace like that—get our landmarks on Thursday after we arrived at the show site, fly a second flight to get out landmarks, then fly a third practice air show. So Thursday was a busy day. We flew three times.

On Friday morning we would get up. During the school year, all the pilots would go to a high school and we would all talk about staying in school, excelling, becoming excited about school because that was a step toward—and we'd show a video—and it was a step toward being able to do things like this. Really stressing the importance of school and staying away from substances, too. That was a big push for us. We'd do that in the morning and then we would fly a practice show on Friday afternoon. Every time we flew, we had the same intensify: the brief, the flying, the debrief was the same exact thing no matter whether it was a practice or a show the intensity had to be there in order to stay safe. So we'd fly a practice show on Friday. And on Friday also was our Make-A-Wish day with all the Make-A-Wish kids. That was great. We'd bring them out to the airplanes, hold them [up]. Oh, man, it was tough. That was good. We would deal with the early recruitees and all that sort of stuff. That Make-A-Wish thing gets me.

So Friday evening there'd always be a social event, something in the town hall or something. Saturday morning was the only morning we had to ourselves. I'd usually go drive around to some park and just enjoy the scenery of the area, just really relax. And then Saturday afternoon we'd have a scheduled air show and Saturday night was another social event usually which was always a lot of fun, either an air show party or something like that.

Then Sunday we'd fly another show and Sunday afternoon after the show was over, some of the guys may want to fly off somewhere on the way back to Pensacola. We would allow that. Generally, we'd all fly back to Pensacola, take Monday off—that would be a good day for me to come in and do paperwork and some of the other guys, so we really didn't ever take any days off.

Tuesday we'd have a practice. Wednesday we'd have a practice and Thursday hit the road again.

If we had a show west of the Rockies, like sometimes we'd go to Seafair and then Eugene and then Fleet Week in San Francisco or maybe a show down at Miramar. We would stay on the road for two or three weeks west of the Rockies, but it just depended. We did that about twice a year.

There were a lot of great shows. When the season wound to an end in the middle of November, we'd fly our last show in Pensacola, our home show, and then the selection process would've occurred. We'd just change personnel and start flying again a little bit in Pensacola and then on January 1st or January 2nd, we would fly all the team out to El Centro, California, leave the cars behind, the kids behind, the dogs behind, the wives behind and focus for ten weeks flying twice a day, six days a week in El Centro in the desert down there where we could generally count on the weather being good. At the end of those ten weeks, we'd fly a show right there in El Centro at Naval Air Facility El Centro and then hit the road usually flying one more show before we got back to Pensacola.

So that's part of the 300 days out of the year where we were gone. We'd work out every day at the end of flying twice. So it's a busy schedule. Two years of that…

Shows

Seattle, Washington

Guess where that is? Anybody recognize that? Seattle. Right on. Lake Washington. Coming down off the back of the hill there. That's one of the solos. They would do their head-on things and come blasting down. Seattle was a great show. I remember a lot of neat things about Seattle. One time, we're getting ready to go out there in about four weeks and I was sitting in my office in Pensacola and the FBI called and said, "This is Agent so-and-so from Seattle."

I said, "Yes, sir."

He said, "Have you been in Seattle lately?"

I said, "No, no, no. I'm getting ready to come out in four or five weeks."

He said, "Well, there's a guy out here running around to stores and places trying to get freebies and he says he's you, you know, for the Blue Angels, trying to get parties going and all this sort of thing."

I said, "Well, it wasn't me, but if you could find out where those parties are scheduled for, let us know. We'll take advantage of that." [Laughter]

The other thing about Seattle, though, that was kind of fun. We had just a diverse group of folks that met us in Seattle. There's a bookstore down in the Pike Place. The bookstore was a way, way out there bookstore, if you know what I mean. In the window it had a poster of the number three Blue Angel in a dive with a bomb coming off of it and a couple of kids sitting down there on the ground. So you know what they thought about the Blue Angels. It was a number three jet and I always gave Dino, the number three guy, I said, "Dino, were you doing that again?"

Then about three in the morning, one of the shows in Seattle, my maintenance officer called me. He said, "Hey, boss, we've had our planes shot at out at the ramp at Boeing Field."

I said, "Okay. Look around. Make sure there's no holes or anything like that."

Found a couple of spent rounds, but no holes. Then we parked them behind the JBDs up there, the jet-blast deflectors, where they test out the airplanes and we never had a problem with it again. It was like a drive-by shooting or something. There's a couple of other stories about Seattle, but Seattle was a great place to fly. Mostly patriots but a couple of crazies. Anyway, Seattle was neat.

Other Shows

A couple of other shows, you know we went to all these fancy places: San Francisco, San Diego, big cities, the show in Chicago was really wild. I could tell you about some of the things there. There was one in Allenton, Pennsylvania as well. We said, "We're going to have trouble with this one hot piece of highway."

We needed a five-mile radius of no air traffic and then we needed a one-mile box of no people. There was a little edge of this one highway that went by. We said, "We're going to have trouble with that. I'm not sure we're going to be able to fly this show."

The guy that was running the air show there was Italian. He said, "Don't worry. I'll get Guido to take of that."

He was serious [inaudible]. He said, "Guido will take a semi and lay it on its side and it will stop that traffic while you guys are flying." That was great. That was just great.

Moscow

And there are stories of Bulgaria and Romania, but a couple of the stories about Moscow that are really fun. We did get to go to Moscow. One of the neat things that preceded going to Moscow was right here in Hillsboro in 1992, the Russians came in with their IL-76. I think it was an IL-76, great big airplane, biggest airplane in the world, I think, at the time. It might still be. I don't know. But they brought that in and then they brought in two SU-27 Flankers that were part of their air demonstration team. Apparently Hillsboro, the Rose Festival at the time, had paid to have all of them come over and fly a little bit. We met the two pilots in the formation there in their demo team. They were great guys. We drank beer together.

Then, as fate would have it, we were going back to their home turf about four months later when we went to fly our overseas trip. We flew in about eight different overseas cities in three weeks which was really rigorous, you might imagine. Moscow was one of them. So we got to meet them again.

One of the neat things was, about going into Moscow, we had just left Turku, Finland. That was where we had flown a show before we went to Moscow. So we launched up eight airplanes, heading in, checked in with St. Petersburg control which was like the Russian boundary. We checked in. I called them. I had their frequency. I said, "St. Petersburg, Blue Angel One."

He said, "Blue Angel One, go ahead."

I said, "We're checking in at 3,000 meters"—or whatever it was in meters, I don't remember what it was, but "We're checking in" and he said, "Roger, Blue Angel One, what are you?"

This was supposed to have been arranged through the embassy and everything else. So we're eight U.S. Navy F-18s. He said, "Roger, continue" and we didn't say another word to him. We just kept on going. [Laughter]

So at about 80 miles we were supposed to be intercepted by the Russian Air Force Interceptors. Pretty soon at about 60 miles from Kubinka where we were staging, we started picking up contacts on our radars and we started talking about how we would shoot these guys down if it were real life because, we were just all fighter pilots at heart. So we were targeting all their guys. And we kept waiting and waiting. At about 25 miles they finally joined on us, so they had a hell of a time finding us. We had them pegged. I like to say that. It was great.

So we get in there and we get to the field. We fly in. We're going to come in to our fancy breakup there over the field. I look down at the runway, beautifully, freshly-painted center line on the runway. You could tell they were going all out. Only thing is the center line was just a little squiggly. Ah, bless their hearts, you know. So we get in there, we break up, we land and we're doing our fancy little formation walk back and they had these great big hexagonal concrete slabs and, again to greet us in our military-to-military exchange program, they had freshly tarred the cracks in the slab. So we're trying to walk back in formation and our feet are sticking. This is looking great. Again, they were just going all out and all the generals were there and the ladies in their traditional garb breaking bread and the salt and the band and all this other stuff. It was really awesome, it really was. Hundreds of airplanes at the base, Russian fighters and all kinds of helicopters and things like that. So it was really cool. So we got out and met them. All the generals were about that tall [about a foot to a half foot shorter than he was] and most of us on the team were my size or so except for one or two. They must've thought we were giants and cowboys and everything else…

So we got checked in. We got driven in by bus to the hotel in downtown Moscow. It was the Hotel Moskva where they used to have all the party meetings right next to the Kremlin. We check in. This is another fun story for me. We check in, you get issued a wooden paddle with a number on it, no key, a wooden paddle. I'm schlepping all my own bags. We carried all our own stuff. I go up to like the third floor and none of the rooms really have room numbers on them and I don't know how I'm going to get in the room. There's no key. At the end of the hall, there was a lady sitting at a desk. It was kind of like it reminded me of the old commercial, "Where's the beef?" You know that lady, "Where's the beef?" The big Russian woman sitting there.

So I'm walking on down. I get within about 10 feet—and this is no kidding—I get within about 10 feet of this lady and I'm just looking at this paddle, I'm looking at her. Of course, I can't speak Russian.

I get to about 4 feet from her and, no kidding, a panel in the wall opens up and two guys in coat and tie walk out, say something to her, she gives me a key, they disappear, and I've got my room key. I thought, "I'm really in Moscow. This is great. Bond, James Bond."

So I don't know, I guess they were watching us the whole time. It was really something. Anyway, Moscow was great. The heart, those folks, everything was pretty rudimentary in their military, but they had the hearts of lions. One of my guys, Dino, I mentioned him before, he was my left wingman. He was a big old boy from Missouri, "Hey, boss, what's going on?"

After seeing all this, he said, "Hey, boss, we should've played them in the big one."

I said, "Dino, don't say that. Don't say that."

He was a warrior at heart. He said, "We could've done this."

Moscow was great.

In the Heartlands

These highlights of shows, but the most rewarding shows were the ones like in the quad cities like in Iowa/Illinois border there where you'd have the Vets out there and they'd be standing at the chain-link fence watching these guys go by and tears in their eyes. They were just so proud of what their military was and what they'd been affiliated with. Just salt-of-the-earth, bread-basket America. I guess you'd call them common-place show sites were probably the most rewarding. They were a lot of fun.

Hometown Air Show

Lots of good shows to be remembered. Some to be forgotten. I'll say this tongue-in-cheek. 1996, I finally got to fly an air show in my hometown. That was the second time I'd been called back to the Blues. So in '96 I got to fly an air show in Springfield, Illinois. That's where I claim my home. Both of my kids had moved back there and gotten married. Even though I was traveling all over the world, all over the country.

So they were both back there [and had] gotten married. They were coming out to the air show. So there we are. Remember, this was the third time I'd flown with the Blues, so I was getting kind of long-of-tooth if you know what I mean. So I'm out there walking down with all these young fighter pilots. We're in our formation again without the tar on the pavement. We're walking along getting ready to peel off and go to our individual jets and out in the crowd I hear, "Go, Papa, go!"

It was my grandson. So here's all these young fighter pilots and here's this old grandad out there. I just smiled. It was great. It was just great. I was forty-nine at the time. It's a show not to be forgotten, but just to be thought of.

The Show Sites and Landmarks

The Show. Every show site for you guys that have flown, ladies that have flown in the military or whatever, every show site was like a new target. So many things you had to memorize about it: all the different headings, all the different maneuver headings for all the different flight maneuvers we did, all the landmarks. So I went on Thursdays and we got to the show site [and it] was to get a visual landmark and it couldn't be a school bus because it may not be there on Saturday when you flew…But bridges and roads and trees and barns and different-colored things, the Exxon Station, whatever. I had to have all these landmarks to plan the maneuvers and fly the maneuvers. So every show site was exciting like that. So it took a lot of study on everybody's part.

[Elmendorf AFB photo?] It might've been. We flew on Elmendorf.

San Francisco, beautiful, Golden Gate Bridge. And, no, we never flew under the Golden Gate Bridge and, no, that latest internet picture of the high-speed passes where the Blue Angel's going by with the vapor coming off of it, no, it wasn't his last flight. No, he didn't break the sound barrier. All those urban legends.

[Tom Philo said that one year at the Reno Air Show one of the Thunderbirds broke the sound barrier. He got nicknamed “Boom boom” after that.]

Response: Yeah, we did that. Boom, boom? We did that in winter training once and blew the windows out of the truck out in the desert there.

[Audience Question]: How’d you take that picture there?

Response: That was probably taken from a two-seat airplane in the slot, the four-plane formation. That’s the right wingman right there. That’s the lead up there. The slot is right up behind the lead and probably a two-seater with somebody in the backseat taking pictures is how that would be done. That’s beautiful. The Bay Area was an incredible place to fly to.

[Audience by Tom Philo]: Did you ever get permission to fly underneath the Golden Gate Bridge?

Response: Helicopters, but not fixed wing. We never did.

[Tom Philo]: In WWII, they did.

Response: I’m sure they did.

[Tom Philo]: They got reported all the time.

Pilot Qualifications Questions

[Question by Tom Richardson]: Do your pilots, do they all have to be jet qualified before they get to you or do you grab guys out of P-3 community or the helicopter community or the C-130 community to go and fly?

Response: To fly in the formation? No, it had to be a carrier-based pilot with 1500 flight hours at least and a couple of hundred carrier landings, something like that.

[Tom Richardson]: While you guys are flying as Blue Angels, do you have to go out each year and still requalify on hitting the boat?

Response: No, because it’s only two years. So you go from probably a fleet squadron to the Blue Angels which is actually shore duty despite all the time away and then you go back to a fleet squadron. So a couple of years away from flying off the ship is not really that bad. By the way, you’re building a lot of flight hours and you’re very finely honing your aviation skills. It helps you as you fly on the ship with all the skills you start working on.

The Brief

Shows, Weather

The Brief. Every show site, like I said, was different. So we had to get in and talk in the brief about what we were going to do. The weather, of course, makes a difference. We had three different shows we could fly. One was a high show based on at least 10,000 foot of clearance from the bottom of the clouds to the ground or the water, whatever we're flying over, where we could do our overhead maneuvers, our loops, and breakups and big crosses and things like that. The next level down was 5,000 feet. That was called a low show and we'd do some of our rolling maneuvers, but not looping maneuvers. So there was a different sequence of events there. The third was a flat show where we didn't do anything overhead. We just did kind of formation fly-bys and a low-level cross. We hated flying the flat show. That was actually, believe it or not, the hardest show to fly. But we had to set up the brief based on the weather. There were times when we would brief one show, get to the end of the runway and clouds would either lift or come in and change everything. We couldn't rebrief it, so we just said, "Okay, it's going to be a high show" and we just had to rely on our knowledge that we had built in winter training to be able to fly that show.

The briefing was really unique. The briefing and debriefing were both pretty unique and intense. We took Marty Schottenheimer, the old coach of Kansas City and then San Diego and then a couple of other teams, we took him for a flight one time when we were in El Centro and he sat in on the brief, the flight, and the debrief. He said, "I am taking this back to the Chargers and we're going to use these techniques to debrief football games and look at the slides, look at the video and use your techniques. This is fantastic." We were really complimented by that. Even after I left the Blues, it was really interesting because there were a couple of videos made of the times when I was on the Blues. One was called "The Blue Angels Around the World at the Speed of Sound". They talked a lot about Moscow and the brief and the debrief. I've had guys in airports come up to me and say, "You're Greg Wooldridge, aren't you?"

I'd say, "Yes."

“I saw your video and I saw the briefing and debriefing techniques you use. I use them with my kid’s soccer teams” and football teams and basketball teams. They would all talk about how they employed these techniques in the sports world. These techniques have also been taken to the business world. I won’t be into that, but I have had an opportunity to address a couple of businesses, corporations with some of these ideas.

Visualization, Cadence

But the brief was really great because we would get all these administrative things done and then I would recite verbatim the word—in a compressed form—the words that all the wingmen were going to hear in the formation. Like “We’re cleared for takeoff. The wind’s 270 at 5. We’re going to do a burner, diamond loop with a left turn out. “Off brakes, now. Burners ready, now.” I’ll tell you about the cadence in a second, the importance of what I’m saying, the exact words. “Gear. [Inaudible] drive. Up we go.” On the “G” in “go”, we’d start up over the top of the loop. Anyway, you go through that. You compress it, but what’s really neat—I’ll have to use both hands—one of the neat things about the brief was to watch the wingmen around the table. They would be sitting there a lot of them as they’re hearing me make these calls like “Coming left. O-kay.” They would be sitting there with their left hand on the throttle, the right hand on the stick. Some of them with their eyes closed. They’re visualizing exactly what’s going to happen. Visualization. If you hear golfers talk of that a little bit. Visualizations. “Coming left. O-kay.” You see their hand moving the stick as if they were actually, they’re visualizing looking at me and how this maneuver is going to go, thinking about what checkpoints on my airplane they’re using to keep their position so that the visualization in the brief was just essential and it really was effective.

I love that maneuver. Anybody know what that island is there on the left? Alcatraz, exactly. We’ve got the gear down and we’re in a loop all four airplanes with the landing gear down, the diamond dirty loop. I guess we’re the only team that does a maneuver like that with the gear down. You can see the aquatic pier down to the right. The diamond dirty loop was probably the easiest maneuver we did and it would look like it would be really hard, but we really liked it. It was fun.

I talked about the brief with reciting what we're going to do. It was called a cadence. "Coming left, o-kay." I'll have to use my fighter pilot hands again. If you can imagine four planes lined out in a formation: one, two, three, and four. If I didn't say anything and we're going to start this maneuver or start moving in one direction, if I started coming left, I'd start coming a little left, this guy would come a little left, a little left, a little left and you'd see this big ripple effect. If you've ever seen the Blue Angels, you never see a ripple effect. They move as if they're welded together and it's because of trust. What happens is I'm talking on the radio the whole time, "Coming left. O-kay." On the "K" on the "Ka" in "K", they turn into me without seeing me move because they know the flight leader every time is going to do exactly the same thing. That's how you get these maneuvers where the formation and the positioning is absolutely—I won't say perfect, we never got to perfect, we never had a perfect air show—but absolutely welded so-to-speak.

So it's a cadence and consistency in making that cadence sound the same and doing it the same. If I said, "Coming left. O-kay" and didn't turn right away, that was a safety violation on my part and we'd hear about it in the debrief. I'd take whips and lashes for it verbally and well deserved and we'd fix it for the next show. I'll talk about the debrief in a second.

So the cadence had to be perfect every time. It really paid off. It made us safe. It made us efficient and made the show look good. There's the trust. Without the trust, you can't fly. You can't do it.

Diamond Dirty Loop, Center Point

There's the diamond dirty look again. You can tell I like that maneuver.

[Question by Tom Richardson]: How fast can you go with your gear down without doing damage to it?

Response: 250 [knots]. What's interesting, you can see it in the video where all the gear to the main landing gear doors are all chewed up. You can't see it here, but it's from the low takeoffs and low transitions and stuff like that and pulling the gear up too soon—not too soon unsafe-wise, but--.

Diamond dirty loop again. It's just a really neat visual to see the airplanes on their back up high in formation with the gear up or gear up, gear down. One of our favorites and, like I say, this is one of the easier maneuvers. The tougher maneuvers were the ones that looked easy where you just see a formation of airplanes flying by in front of you. And everybody thinks that, if you're flying in a diamond, a group of four airplanes, that everybody is in the same position every time you fly that. No, what happens is, at the show site, there is a center point, usually a semi or a bus parked out there in front of the crowd, that we key all our maneuvers from and we know that, when we fly across that center point, we want the audience out there to see something that looks like a perfect formation. If we flew exactly the same thing, position for every maneuver, it wouldn't look symmetrical. Even though it's not symmetrical, we wanted it to look symmetrical. That's a little bit of a contradiction, but we didn't fly in the same position all the time. Every maneuver took a different position for the wingman to fly to make it look good as we passed the crowd over here as we went by center point. Every maneuver had a little different look. So how did the guys achieve that look for that maneuver? They would look for something on the airplane. Let's see, let's go to the next slide. Well, the look. The look at center point. We would look for something on the airplane that these guys down here would look at looking up. So, just for an example, let's say you were way out here on the right wing—can't see it—but we added this little '57 Chevy fin—that's kind of a point of interest—to the F-18 our second year in the show. The F-18s fleet wide did that. I'll tell you why we did that in a second.

But let's say we're in a maneuver where you want to be in a certain position, you might line up the tip of that little fin on the fillet there, the [inaudible] the leading edge extension with maybe the "F" in the "FA-18". That's how you would know. You'd maintain that visual sight picture.

It’s like if you’re driving down the highway and you wanted to keep your car in the same relative position to the car next to you. You might look at the—if you’re on the left side of this other car—you might look at the driver’s side door handle and line it up with maybe an antenna or something on the other side of the car. If you got back, the antenna would move in front of the car handle [and] you’d know you had to accelerate forward to hold that same position. So that’s kind of what they’re doing, but instead of in two dimensions, in three dimensions. It’s all somewhat scientific to achieve a certain look.

Difficult Maneuvers

This is probably our hardest maneuver to make sure that, when their tapes are replayed for the video and for the debrief, that all the noses were in the same place. This would not have normally made one of our better maneuver pictures because, if you look at the third airplane down, his nose is a little bit back. That’s at like 340 knots in front of the crowd at about probably about 400 feet off the ground, 300 down to maybe 250, at the end of the year.

Turbulence, Position

[Comment by Bert Campbell]: He can’t be more than about a foot back.

Response: Right. You’re about--. The guy on the lead’s right wing out there, his canopy is probably about this far from the wing underneath that airplane. In that video, “The Magic of Flight”, I talked on there about how it looks easy, but it’s not. I also talked about how, if you get in turbulence. If we get into turbulence and I start getting bumped around and I get bumped up, I don’t push forward to get bumped down and come back down. I just hold the stick steady. Let the turbulence do what it’s going to do to the airplanes. I tell the guys, “Don’t react to the turbulence. Just hold what you’re got. Hold what you’ve got.”

It was really important in Chicago where it was a combination of turbulence and the wind coming through the skyscrapers: the Sears Tower and Hancock Building, whatever they call them now. We would be flying along, let's say, straight and level and the nose of my airplane, because the wind would be blowing strong from the south or the southwest, I'd be tracking along like this with a little bit of a crab. Then all of a sudden the buildings would knock out the wind and the nose would come back straight and then it would go to the left and then it would come back straight. I told the guys, I briefed them, "We're going to hit this. Just don't do anything. Just hold your position. I'm not going to try to correct for that. It's just a matter of turbulence."

It was challenging.

[Question by Bert Campbell]: When you're flying like that and that number three guy is back, let's say, a foot and he has to bring it up and be in position, how much throttle do you have to add or subtract to make that?

Response: If I were just to say a random guess, I'd say a half an inch of subtle move, maybe. You're just moving your wrist a little bit. You're not really jamming it back and forth, hopefully. And you know as close as that is, in number two, he could be the most aggressive, great formation pilot in the world, but if he got too close to me, it would screw it up for three and four because there's no way three and four could match that because two's moving around a little bit. Three is going to be moving around a little bit more. And then four is going, "There's no way I can do this." So it would really screw up the formation. That's why there had to be consistency in your positioning.

That's all six planes.

Safe Airspace

[Audience Question]: Is there any point at which you would break off?

Response: Absolutely and we demanded that anybody that ever felt like they were out of position had to leave the formation. And the way we did that, we called it, "Go to your safe airspace." And believe it or not, we'd have guys in maneuvers go to their safe airspace which was like an extra foot and a half away from what they were supposed to be in and people would say, "We never saw anybody in--. The maneuver looked great."

Well, one of the tell-tale things was, if you had to leave your position, if you had to go to safe airspace, you had to turn your smoke off. So if there were not four smoke trails, you might know that somebody went to clear airspace which was safe. They went to their clear airspace.

Schedule

[Question by Marilyn Gallagher]: Did you have shows in Yuma, Arizona?

Response: I don't think I ever flew one in Yuma. I flew in Phoenix and a couple of other places, but not Yuma.

[Marilyn Gallagher] …El Centro, California, when I lived there I was pretty sure there were some Blue Angels flights out at the Marine Corps air station.

Response: They probably did. Probably did some of the years, but it's not the same every year. The recruiting command built most of our schedule because they said, "We're soft on recruiting in Eugene. We're soft on recruiting in Billings" or "We're soft in recruiting in Omaha. We need you to go there next year." We would build the schedule around what the Navy recruiting said we needed to do.

Heat, Sun, Performance Time

[Marilyn Gallagher] Did the heat of the desert make a difference?

Response: It did. When it was 110 in Lemoore, California or 100 in Fallon where the surface elevation was 4000 feet—because you lose performance as you go up and you lose performance as the temperature rises—so there would actually be some maneuvers we couldn't do performance-wise because of the heat or the elevation.

[Marilyn Gallagher] It seems like they always had the shows in the morning.

Response: No, actually, they were always around 1:30 in the afternoon or two o'clock when we flew. We had times beyond which we couldn't fly because the sun got too close to the horizon. That's part of the reason why our helmets had these gold visors on them so that, when the sun got too low, the guys trying to fly as close as they could, this really reflected a lot of the sun. Normally, most of the guys flew with the visors up unless the sun got really bad.

These gold visors were originally designed for dropping nuclear bombs. When I flew A-4s off carriers, we would wear—I guess this is all unclassified now—but we had all these targets that we planned for. And after we dropped our bomb, we would put—well, before we dropped our bomb, we'd put our eye patch on to save one eye even though we got flash blinded possibly in one eye and we always put our gold visors down so that they'd deflect as much of the flash of the nuclear weapon as possible. That's where the gold visors came from, but we kept them for staring into the sun, that's the biggest nuclear blast going, but staring into the sun at low altitudes. So we didn't want to get too late in the day because then the sun became a real factor. It was usually we flew about one or two in the afternoon, about two o'clock in the afternoon. I don't remember the context of that question, but that's when we--.

[Marilyn Gallagher] I was thinking that I remembered that the show was in the morning because of the heat.

Response: No, we didn't want that to happen. We wanted to be usually at the end of the air show where all of the civilian performers had already flown and that's when we flew.

Debrief

The Debrief, probably the most critical thing we did to keep us safe and alive. We'd start off, we'd go out to the flight line after we flew, sign autographs for all, especially for the kids, again, promoting Naval aviation and "grin and grip" if you will. Kind of a derogatory term, but that's basically what it was. We did that for about a half an hour. No matter what kind of show we had, we always went to the crowd line with the happy face even though we know, "I'm going to get hammered in the debrief on this one." "Hey, what's going on?"

That was part of the selection process, getting people that could handle that sort of criticism as well as being able to project themselves.

So the debrief, we'd get in there. We'd go around the table. We'd be [at] a long table like two of these put together with all the officers on the team. Every officer had an input whether they were in the formation or not. Every input was considered.

They all had “buy-in”. They all had ownership. They all had accountability to do their job correctly. So we’d go around to all 16 officers or however many we took on the road. It could be 14. And we’d say, “Okay, safety. Anybody have any safeties?”

Of course, the guys in the formation would say, “Well, I was 20 feet low at the cross.” That’s what kind of tolerances we had. Or “I simo-ed into you. I turned into you when I shouldn’t have” or something like that. Also, the ground officers had their safeties, too. One of our guys was always in the control tower, if he missed an intruder into our 5-mile airspace, that was a safety on his part. So everybody had a part. Everybody had to be accountable. Everybody was expected to fess up to their mistakes. If the debrief portion, the safety portion, went by you and somebody at the other end of the table said, “Hey, you know”—we all used call signs—“Spartan”—never had anybody called Spartan, but I’ll use that one—“Spartan, it looked to me like you were a little bit low out there.” He says, “Oh, was I?” Immediately lost credibility. Loss of the feeling that that guy really wanted to contribute to making this better and safer. So it was very incombent upon everybody to admit their mistakes, me as well. And if you fessed up to your mistakes, you’d, “Oh, you dummy.” But you appreciated that and you loved them the same. You didn’t lose any respect and you asked them, “How are you going to fix that?” and “Do you need help in fixing that mistake for the next time we [fly]?”

So we’d look for fixes and ways to solve those problems.

Safety around the table and then we’d get our video debrief of the whole air show from the walk down, if somebody got out of line in that line of guys, all the way to the end when we walked back in. The whole thing was debriefed. We had our maintenance officer and our doctor do all the debriefs of all the flight maneuvers especially. That way we had no aviators debriefing the flight maneuvers. All they knew is what they saw. After winter training of doing this all winter training of critiquing our flights, they saw positioning. They saw all the positioning, when the smokes come on, when they went off, and they made objective grades on us and that worked out really great because they were not aviators. There was no jealousy. There was no, “You wouldn’t be able to do that.” Or anything like that. You knew that what they were saying was really good.

And we would freeze-frame—like this picture here—we would run the whole air show, freeze-frame, stop. How's it look? Stop. How's it look? Stop. How's it look. And address any out-of-position maneuvers. The doctor, the flight surgeon, or the maintenance officer would each have an assignment to critique an air show or a practice. The debrief for the practices were just as involved. So the debrief usually took about an hour and a half. People would wonder, "What are you guys doing in there all that time?" Well, that's what we were doing.

Like I said, we'd come back in after flying. Everybody patting us on the back as we were going back, "That was a great show, great show."

We'd sit down and we'd go, "That was a piece of crap. That was one of the worst things we've done in a long time." [Laughter]

We'd go, "Okay, we've got to fix this" or something like that. My wife used to say, "You know, one of you could eject and the fans would think it was great."

Crash an airplane, "That was a great show."

But to keep safe, we really had to practice.

[Charlie Gallagher] In that picture there, third from the left, is he having nose down a bit or is that the way that the smoke is being deflected?

Response: Over here? If you look at this is the flight lead. That's the guy they're all flying off of. This guy is pretty good nose position. This guy looks a little forward, but you have to analyze it. You have to say, "Is he forward or is he aft? Is he back. Should he be more forward?"

[Charlie Gallagher] Yeah, but the smoke is not parallel to the others?

Response: Well, this guy is in the slot. There's a guy down underneath the lead right there, so they're not going to be--. And the wind can make it do that. The smoke position wasn't always important as to whether all six planes smoke came on at the same time or it went off at the same time. You see the maneuver complete and the planes flying off and the smoke would quit and there'd be one guy that was a little bit of smoke puff beyond, "You knucklehead. Your smoke was late." [Laughter]

Anyway, the debrief was critical, absolutely critical.

Leadership

Leadership. Everybody on the team was a leader. They all had a part. Team leadership, a team process is so much different than a regular squadron process. Regular squadron process you'd say, "This is what we're going to do. Go make it happen."

Team, again, you'd sit around the table and talk about what's coming up and you'd listen to every input or if you had a problem, everybody had an input. It took longer. It was grueling at times, but you'd be surprised how many times--. I'd go in as a commander as the flight leader as the commanding officer of the squadron and say, "Okay, I know what we're going to do, but I've got to go through this process, letting everybody say their piece."

Well, the butter bar down there, the supply officer, would say, "I think maybe we could do it this way."

And you'd listen and you'd go, "Wow. That's it. That is the answer." So teamwork and the decision making and the debriefing and everything else is just critical to making it better. So everybody had a leadership role. They all had "buy-in". They all had ownership which was another great advantage to having a team concept. But as the leader of the team, I had 51 percent of the vote, but I think in my four years at varying times as the flight leader, I may have exercised 51 percent twice because they're all smart. They're all motivated. They all want what's best for the team. As a team, we would come up with the way to do things.

I remember one time specifically, Breitling Watch Company—I don't know if you've ever heard of them, they're really aviation oriented—their Breitling USA representative wanted to give all the Blue suiters, all the officers on the team, a watch like a $4000 watch. All the guys are going, "This is going to be great."

So I called the JAG officer. I called the legal guy and said, "Look, they want to do this."

He said, “Standards of conduct. Unless the whole Navy gets offered free watches--.” Because you’re out there spending taxpayer’s money. You’re flying taxpayer’s airplanes. You’re getting paid by the taxpayers. You can’t take that accomplishment as a tool—bad word, good word, whatever—a tool of the taxpayers to take freebies. I finally had to say, “Guys, we can’t do it. It’s against the standards of conduct and we have to be very strict about that.” So that was one of the—

[Question by Bert Campbell]: You couldn’t even do it as the entire Blue Angels?

Response: No

[Bert Campbell]: So it was either the whole Navy?

Response: I think that was just an exaggeration to say that you really can’t do it.

[Question by Tom Richardson]: I was wondering, on your two-seaters, do you have a stick, rudder, gas in the back, too? It’s a B version?

Response: Yes. So it can be flown from the backseat. It’s a B version. Now they have A, B, C, D, E, F. Every second letter, the B is a two-seater, the D is a two-seater, and the F is a two-seater.

[Tom Richardson]: The single-seaters are As then or Cs?

Response: Yes because the As and Bs came out and then the Cs and Ds came out and then the Es and Fs came out, a little bit different each time. But those first letters are all single-seaters.

In Leadership, you had to do--. As a leader, you had to make it look like fun. You didn’t want the guys around you saying, “I never want to do that. He’s obviously in pain. He obviously doesn’t like what he’s doing. I never want to get in a leadership position.”

You wanted to make them say, “Look at the boss. He’s having a good time.”

Not that I’m out out-drinking them or anything else like that, but that I’m having a good time. I’m getting my rewards or making this happen. As a leader, you want to always do that. Make people want to do what you do and take care of your people. That’s one of the things I stress.

SU-27 Flanker, Warning Voice

[Question by Don Bourgeois]: Before I forget it, what did you think of the Soviet aircraft?

Response: The SU-27 Flanker? The most powerful airplane I've ever flown in. I flew that in Moscow with their flight leader. Then I took him for a ride in the two-seater F-18. It was the most powerful plane I've ever flown in. Very impressive. Honest aerodynamics. A great airplane. I will say the avionics from what I could tell were probably about 20 years behind from what we had.

One of the fun things, in the F-18, whenever you have an engine failure or you get too low or you have a flight control discrepancy, there's a lady's voice that comes up and says, "Flight controls. Flight controls."

Because this is back in the days when there weren't too many women pilots, yet, in the Navy. You'd hear this woman's voice and you'd go, "Okay" and you'd look down at your display and see what was going on. Like coming out of Travis City one time, we took off to go fly an air show over the water—beautiful show, wonderful place to fly—and the little lady came up. We called the little lady "Bitchin' Betty". So "Bitchin' Betty" comes up and says, "Engine right. Engine right."

My engine had come apart. My right engine was just starting to come apart and I could see the guys in the formation moving away from me. I haven't even really felt it yet, but they had sensed my deceleration on takeoff. So "Bitchin' Betty", she was great. So in the Russian airplane I guess they duplicated that as they tend to do with our technology. I remember hearing a voice come up and it was always the same. It never talked about specific system like ours did, but I called it "Nasty Natasha". So we had our "Bitchin' Betty" and their "Nasty Natasha". That's my own name for it. That was great. It was a great airplane, the Su-27. Rudimentary facilities, communications, but I don't think we want to take them on yet or ever.

[Audience Question]: What did they think about the airplane?

Response: They were most excited about taking pictures of the landing gear because they were developing their own aircraft-carrier based airplanes and the drag-link technology in the landing gear in the F-18 is pretty cool. So the whole time we're in Moscow, these guys are all taking pictures. They weren't too impressed with the thrust, although our engines probably lasted about four times as long as theirs did.

This is a little bit off of that topic, but while we're in Moscow at Kubinka, we were going to fly an air show for the expatriates in Moscow at Kubinka in addition to the one we flew over Moscow for their 200th anniversary of the city—200 or 300, what's a hundred here or there—anyway, we flew over Kubinka. We did our show and then the Russian Knights were going to fly their show after we did. The Russian general, upon seeing our show, canceled the Russian Knights. That was really uncomfortable believe me for all of us, very uncomfortable, but I guess they just didn't want to try to measure up. That evening we all went into Moscow, had dinner with the mayor of Moscow on my left and the chief of staff of the Russian air force on my right. I was the senior Navy guy there, a young Navy captain, and it was impressive. Drank a lot of Vodka. It was great.

[Question by Tom Richardson]: Did the Russians put you through that cobra maneuver they like to go through sometimes?

Response: When I flew in the Flanker, they did a little bit of a slow-speed thing. It was pretty cool, but not the one where they actually get to zero and then nose it over. But it was a great airplane.

Other questions before we wrap it up?

[Audience Question]: I've got an observation of your presentation which was tremendous. If you could take those things that you've described to our U.S. Congress. [Applause]

Response: Thank you. I wish I could and maybe I'll talk to my buddy that wants to be a Congressman about that.

[Inaudible comments]…about not accepting gifts.

Response: Right. Now in the State Legislature, U.S. Legislatures, they really watch that stuff closely. It's a real problem. Ethics. Absolutely. Standards of conduct. Ethics in government. It's important to observe them.

[Audience Question]: Do you still fly?

I don't fly anymore.

[Audience Question]: Not even virtually?

Response: No. When you've done it for real. Some of the simulators are pretty neat.

[Comment by Tom Philo]: You fly simulation; you can do all the stuff you'd never want to try in real life.

Response: That's right. That's right. And they have some great simulators in the F-18. Great domed, bogeys out here. Turn. Fight. Shoot.

[Comment by Tom Philo] …On there, you can fly underneath the Golden Gate Bridge.

Response: That's right.

[Audience Question]: Where you were flying F-18s off the *Midway*--?

Response: I was. Great ship. That's the one in San Diego now. We're trying to bring a ship to Chinook Landing, USS *Ranger*. I'm on that board, too. That's great.

[Audience Question]: Early in the talk, you talked about when you were leaving an air show and going home, if the guys wanted to take it [home]. Were they flying one of those Blue Angels?

Response: Yeah. Go home and see Mom and Dad. Go see their girlfriend. Whatever they want to do.

[Audience Question]: What about parking it at the local airport?

Response: You could do that. You could park on an FBO, on a fixed-based operator ramp or on a military base.

[Audience Question]: Just had to get going again.

Response: It's self-contained. As long as you've got fuel, it's got a battery—a battery-powered unit—a little tiny jet engine that starts the engine. Self-contained. It was great.

[Tom Davis]: One more question. That's got to be it.

Response: Another question. I hear there's going to be a fire drill at two, so we better get going. Thanks, Tom.

[Tom Davis]: Thank you, Greg. [Applause]

[End of speech at 65 minutes]

References of Interest

Blue Angels Flight Demonstration Team
http://www.skyhawk.org/3e/blues/blues.htm

Blue Angels official web site
http://www.blueangels.navy.mil/index.htm

Brandon S. Templeton, "Rocky Mountain Aviator Enjoys 'Angel' Encounter"
http://www.rocky.edu/news/news/BlueAngels09.shtml

Defense Talk, "Blue Angels salute from lineman"
http://www.defencetalk.com/pictures/showphoto.php/photo/19938

Military Print Company, artist Stan Stokes, "Angels and Knights"
http://www.military-art.com/mall/more.php?ProdID=12562

GlobalSecurity.org "Sukhoi SU-27 Flanker"
http://www.globalsecurity.org/military/world/russia/su-27.htm

"The Blue Angels around the World at the Speed of Sound" A&E Home Video, November 1998
http://www.amazon.com/gp/product/images/6303231497/ref=dp_image_text_0?ie=UTF8&n=130&s=dvd

Wikipedia "USS Midway (CV-41)"
http://en.wikipedia.org/wiki/USS_Midway_(CV-41)

Veronico, Nicholas. The Blue Angels: A Fly-By History: Sixty Years of Aerial Excellence (Zenith Press, 2005).

Veronico, Nickolas and Marga R. Fritz. Blue Angels 50 Years of Precision Flight. (Zenith Press, 1996).

Williamson, Ronald M. Naval Air Station Jacksonville, Florida, 1940-2000: An Illustrated History (Turner Publishing Company, 2000).