"Spirit & Opportunity in the Aerospace Industry"

Engineering Experiences
Rockwell Collins
Cedar Rapids, IA
August 21, 2009

Marion C. Blakey
President and CEO
Aerospace Industries Association

Remarks as Prepared for Delivery

Good morning. I'm delighted to have the opportunity to speak with you today.

Clay, I really enjoyed your remarks. The Federal Highway Act of 1956 provided a momentous boost for the traveling public and the automobile industry that still ripples through our culture today.

I was pleased when Clay asked me to join you here today. As you know, Rockwell Collins is one of the nation's preeminent aerospace companies. However, you may not know that in addition to his day-to-day responsibilities, Clay is also a leader in the industry, most recently chairing the Aerospace Industries Association to support policies in Washington that will help keep the industry competitive.

Thank you too, Cindy, for that wonderful introduction. Cindy is involved in supporting education beyond Rockwell Collins. She is on AIA's team charged with developing an industry-wide approach to filling the pipeline of aerospace employees, many of whom are getting ready to retire.

Now, I imagine that folks in Iowa are used to people in Washington visiting to talk about national issues — in fact, as I recall, every four years Iowa becomes a stomping ground of reknowned proportions.

But for me personally, I have to say that one reason I appreciate visiting here today is to learn firsthand about the excellent programs that truly make a difference day-in and day-out.

The Engineering Experiences program is truly a shining example of how our industry and educators are helping to advance science and math education. I want to say upfront how valuable your contributions are and how much they are appreciated. We can talk about policy initiatives in Washington until the cows come home, but ultimately what makes a difference are the teachers, mentors and volunteers like you who directly impact young people and their parents. It's this commitment and community involvement that have made this country great.

Today I would like to talk about the challenges facing aerospace and science, technology and math education — the STEM disciplines. I realize that you know far more than I do about

the education challenges facing our country, but let's think together about those through the prism of aerospace.

Picture this: Just about five years ago, a team of scientists and engineers — some of them very young — were standing in a crowded room. The glare of monitors reflect off of their perspiring faces. The mood in the room is thick with anticipation.

Meanwhile… over 300,000,000 miles away, the fruit of their labor is about to make history as it bounces down on what was once thought to be an unknowable alien world.

Let's roll the video…(Video clip: 2004 Mars Rover Landing 1.5 min)

I think that little clip captures the immense scope and complexity of this endeavor and the excitement — the back-slapping jubilation that filled through the mission control room when the twin rovers landed successfully — all based on a marvelously educated and trained group of people.

And, I'm particularly struck that the names of those rovers — "Spirit" and "Opportunity" — characterize so much of what a career in aerospace is all about.

The spirit of aerospace is that sense of adventure and innovation first captured in 1903 when the Wright Brothers, after numerous attempts, flew 12 seconds and 120 feet across the dunes of North Carolina.

This summer we commemorated another huge example of the spirit of our industry: the 40th anniversary of the Apollo moon landing. I should note that Rockwell Collins had a major role in that aerospace moment in time.

Many of you know doubt know that the Collins radio company provided the communications equipment that allowed millions of Americans to watch in awe as the television images flashed from the moon's surface as Neil Armstrong and Buzz Aldrin planted the American flag. Then we heard the scratchy words, "that's one small step for a man, one giant leap for mankind"… beamed back to earth on Collins equipment.

What can I say…from the 'dunes' to the 'Moon', that is aerospace — 106 years of spirit.

And then there's Opportunity — the opportunity of a career in the aerospace industry.

I hope you will remind your students that being part of the aerospace team offers tremendous opportunities to really make a difference. Whether it is designing the next-generation air transportation system or developments that will make us more environmentally friendly such as biofuels, aerospace truly is a career full of opportunity.

But don't take it from me. Let's hear from a young aerospace engineer talking about her career.

(Video clip: Ride the Leading Edge (excerpt 6:23-7:51) 1.5 min)

Looks like fun, doesn't it?

The rewards of the aerospace industry are also very tangible. Did you know that engineers earn some of the highest average-entry salaries among new graduates with bachelor's degrees? *Aviation Week & Space Technology* recently surveyed aerospace companies and reported that the average starting salaries of engineers are above $50,000.

And I have to tell you, there's a growing need.

There is an oncoming crisis in lost experience facing many technical fields today because of retirements in areas from nuclear weapons maintenance to manned space flight.

Critical science and engineering skills that can be gained only through hands-on experience are disappearing, and organizations such as NASA, where half the workforce is eligible for retirement, are trying to stave off amnesia through knowledge-transfer programs.

AIA conducted a survey last year and a number of our companies reported that within 10 years half of their workforce will be eligible for retirement.

And while the United States graduates approximately 70,000 engineers each year, only 44,000 are qualified for aerospace careers. Further, we compete with many other industries, and the talent pool is often limited because of the requirement for security clearances, which non-U.S. citizens can't obtain.

Why do I bring this up here? In a nutshell, to reinforce the opportunity that this industry offers. And particularly in this economy, where there have been layoffs across all industries, aerospace for the most part has not been as hard hit, and in fact companies are still in hot pursuit of young engineers.

This is the message I hope that everyone in this room takes with you when you go back to the classroom, volunteer or mentor with Engineering Experiences.

I know I mentioned earlier that Rockwell Collins truly is one of the top companies in the industry. It has to do with the leadership of Clay and his team, and also with all of you. And I've got some news for you — *Aviation Week and Space Technology*'s annual workforce issue comes out on Monday, and Rockwell Collins is among the leading organizations identified in the article on "Where Aerospace & Defense Professionals Want to Work."

Congratulations! Let's have a round of applause for everyone here who contributed to that!

So there's ample reason to encourage young people to consider careers in aerospace. But I do want to touch on a sobering fact that faces us — the barriers that will prevent students who

have the curiosity, talent and interest from experiencing the spirit and opportunity of the aerospace industry.

STEM statistics on how young U.S. people rank on scales when compared with international youth are alarming. Our 15-year olds currently rank 21st out of 30 in science and 25th out of 30 in math, compared to other developed countries. Generally, our eighth graders are about 70 percent below proficient when it comes to math and science.

We are on a trajectory of being vastly outpaced in our scientific and technological prowess — if we're not already — by nations such as China and India.

Developing our future science and engineering workforce is a top priority for AIA, not just for the competitiveness of our companies, but for the health and prosperity of our nation. Science and technology create jobs for everyone and keep our nation safe.

According to industry executive Norm Augustine — and I quote — "Americans, with only 5 percent of the world's population but with nearly 30 percent of the world's wealth, tend to believe that scientific and technological leadership and the high standard of living it underpins is somehow the natural state of affairs. But such good fortune is *not* a birthright. If we wish our children and grandchildren to enjoy the standard of living most Americans have come to expect, there is only one answer: we must get out and compete."

And key to that competition is getting involved, like all of you in this room already are, and working with the education system, not against it.

However, despite the worrying statistics about our educational performance, I am very confident about our nation's ability to develop solutions. In particular, I see the aerospace industry, which is all about finding solutions to tough challenges, stepping up to the plate.

The important point is that the aerospace industry is one of the leaders in sponsoring programs that promote science and engineering, as well as aerospace careers. We are working hard to prime the pipeline for future employees.

Last year, AIA surveyed our membership to get an idea of what our companies are doing with STEM education. We found:

- AIA companies on average support 26 STEM education programs;
- Seven out of 10 companies provide volunteers to these programs, like Rockwell Collins;
- AIA member companies on average invest 8 million dollars in STEM per year — for companies with over 100,000 workers that number jumps to 10 million dollars.

Aerospace companies provide scholarships and internship opportunities, and we encourage our employees to get involved in their communities, especially in education.

One of the big programs offering this opportunity is U.S. First that in part draws upon the spirit of the Mars rover mission for a variety of engineering design challenge programs from elementary school through college.

You heard Clay talk about Rockwell's commitment to U.S. First, and many of AIA's companies are involved in promoting all the skills our industry needs, not only science and math, but creativity, teamwork and innovation.

So I think FIRST is doing an amazing job when it comes to inspiring our next generation of scientists and engineers. And I think our employees who volunteer with FIRST also have a good time. It's an absolute win-win for the industry.

And while FIRST covers robots, I'd be remiss as an aerospace representative if I didn't mention a competition with rockets!

AIA's Team America Rocketry Challenge — or TARC — is the world's largest rocket competition.

To give you a taste of the "TARC experience" I have another clip to show you:

(Video Clip: TARC: The Sky is not the Limit 2:35 min.)

Rockwell Collins and 33 other aerospace companies sponsor this competition, and I understand that Iowa has fielded several teams.

The winning team goes on an all-expense paid trip to the international competition for the "Trans-Atlantic Trophy." Last year our students were in Paris and the year before that, London. And, the top-scoring teams get invited by NASA to participate in a more advanced rocketry program, the Student Launch Initiative.

TARC is a very easy program to implement at your school. It's low-cost, and we pair you up with a professional mentor from the National Association of Rocketry who will work with you and your students to build and launch the rockets in a safe environment.

So in closing, whether a student is involved in FIRST Robotics, The Team America Rocketry Challenge, the Science Bowl or what have you — these young people are the future talent of the aerospace industry. And as mentors and teachers, you have such an important influence on them. In a few short years, these young people may be members of teams making important discoveries that will change the face of our world. In short, they are the spirit and the opportunity of aerospace.

-AIA-