

STATEMENT FOR THE RECORD

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Before the
Senate Committee on Commerce, Science and Transportation

At a Hearing Entitled
Closing the Skills Gap and Boosting U.S. Competitiveness

March 29, 2017
Dirksen Senate Office Building
Room G50

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Mr. Chairman, Ranking Member Nelson, and members of the Committee, thank you for the opportunity to appear before you today.

I am honored to be here representing the 15,000 women and men of Gulfstream Aerospace. The issues being addressed here are critically important, and timely. They are important to advanced manufacturing companies like Gulfstream, and even more important to the individuals in this country who are missing great opportunities because their talent is left untapped.

The most valuable asset of any company is its employees, and that is particularly true at Gulfstream. With that in mind, we have evolved a workforce development strategy for the many technical skills required in our business. Although this effort is very much a work in progress, Gulfstream is honored to share our experience with this Committee.

1. Gulfstream Operations Overview.

As context for my remarks, it is important to understand Gulfstream's operations. We have two distinct but very interrelated lines of business. First, we design, manufacture and sell business aircraft. The second distinct area is our Gulfstream aircraft maintenance, repair and overhaul ("MRO") business, which we refer to as Product Support.

Our current production models include the G280, G550 and G650/G650ER, all of which are currently in-service with customers, plus the G500 and G600 that both are in flight test working towards Federal Aviation Administration ("FAA") Certification.

Although the majority of our aircraft are used in traditional business aircraft roles, we have a strong and growing business with Special Mission configurations. This business is well illustrated by our highly successful SIGINT programs with Israel – the SEMA and CAEW Programs – and a similar configuration currently competing for the USAF JSTARS and Compass Call programs.

Our business is very international from both competition and sales standpoints. All of our key competitors are located outside of the United States: Bombardier in Canada, Dassault in France and Embraer in Brazil. With sales, approximately fifty percent (50%) of our new aircraft sales are in the United States and approximately fifty percent (50%) are international. From a balance of trade perspective, it is instructive to note that the percentage of our international sales has grown over the last fifteen (15) to twenty (20) years from roughly twenty percent (20%) to fifty percent (50%).

Gulfstream's corporate headquarters, largest manufacturing site and largest MRO base are in

Savannah, Georgia, where approximately ten thousand (10,000) of our fifteen thousand (15,000) person workforce is based. Our operations also include the following facilities:

- Locations with both Manufacturing and MRO Operations
 - Long Beach, California
 - Dallas, Texas
 - Appleton, Wisconsin

- Locations with MRO Operations
 - West Palm Beach, Florida
 - Brunswick, Georgia
 - Westfield, Massachusetts
 - Las Vegas, Nevada

2. **Gulfstream's Workforce Development Strategy.**

Over the past ten (10) years, Gulfstream has become increasingly proactive in nurturing and recruiting new talent for our technical jobs. We have done so by focusing on four areas:

- Elementary, Middle School and High School Student Engagement
- Technical School Engagement and Recruiting
- Military Engagement and Recruiting
- University Engagement and Recruiting

This work also is supplemented by our post-hire internal training programs, which include initial training and advanced training using our own employees and, for advanced maintenance and pilot training, FlightSafety International.

A foundational point underpinning this strategy is that our younger generations need help understanding what great opportunities are available in technical fields, and how to take advantage of those opportunities. This awareness work must include students and, likely more importantly, their parents and teachers. So, our approach is to start with young students to build awareness, build desire and, through mentoring and other resources, guide them down the path towards those goals.

We continue this same basic approach for Technical Colleges, Military and Universities, but with a more direct connection between the individual and a specific job at Gulfstream for which that person is suited.

3. **External Workforce Development Resources.**

Although we indeed do have a technical skills gap in this country, there is a good news side to this story. As evidenced by this hearing itself, there is a growing understanding of the problem and a corresponding application of resources to address it. Gulfstream's experience, in every

state in which we do business, is that local, state and federal organizations are investing in new ideas and approaches for changing the paradigm.

Gulfstream's workforce development strategy relies very heavily on these external resources. Indeed, you will hear several examples as I review Gulfstream's specific activities.

On this point, I want to thank the Committee for including in the Senate-passed FAA Reauthorization bill last year a section regarding safety workforce training for the FAA. This section focuses on knowledge sharing opportunities between the FAA and industry in new technologies, best practices, and other areas of interest related to safety oversight. It also fosters an inspector and engineer workforce at the FAA that can implement successful risk-based approaches to safety. Gulfstream strongly supports this initiative and the entire certification title. We hope Congress can pass the entire package of certification reforms this year to benefit safety, competitiveness, and job growth in the industry. Fully utilizing ODA authorities, and facilitating validation and acceptance of FAA safety standards and product approvals globally, is critical and time-sensitive. Continued progress on workforce training and these reforms will leave U.S. industry in a much strengthened competitive position.

4. **Elementary, Middle and High Schools.**

Gulfstream engages younger students because, in our view, building awareness and excitement early on helps guide students in their academic decisions, and other life choices, during those formative years. For example, a ninth grader who is excited about a career as an aviation mechanic will have a very different perspective on his or her math and science courses than a classmate with no particular career in mind.

Our younger student engagement falls into two categories: targeted individual student engagement and awareness activities. These two sets of activities work well together by raising awareness across a large population while, through the targeted engagements, providing in-depth substance that validates the message with real world successes.

a. **Targeted Student Engagement.**

Youth Apprenticeship Program ("YAP").

Gulfstream's YAP, which we operate in partnership with local High Schools, allows students to earn High School credits while earning money working part time during the school year at Gulfstream. This provides real world experience to students, and hands-on mentoring by their direct supervisors and co-workers, which they use to identify and further their personal career paths.

Our 2016-17 YAP has approximately seventy (70) High School Juniors and Seniors in Georgia, California and Texas. They are working in thirty-seven (37) different job functions, including aircraft assembly, cabinet shop, quality control, accounting, aircraft maintenance operations, engineering and our Advanced Aircraft Integrated Test Facility. Just like a potential full-time employee, students fill out applications, apply for specific jobs using the same computer-based

system used for full time employees and are interviewed in person by their hiring manager. Once hired as apprentices, they work fifteen (15) to twenty five (25) hours per week, are paid ten dollars (\$10) per hour and earn High School Credits for their work.

An important aspect of this program is its ability to correlate students' academic study with future job prospects. An apprentice can see first-hand that math and writing skills, for example, are necessary for their future success and not simply abstract concepts without any connection to their future success.

Technical/Vocational High Schools.

The increase in High Schools with specific technical curricula is an effective tool in this area as well. By incorporating courses directed at specific technical careers, these schools bring technical career opportunities quite literally directly into the classroom.

Gulfstream supports a number of these schools with funding, equipment and mentors, and we encourage others to do so. Technical High schools with which we are involved include Woodville-Tompkins Technical and Career High School (Aviation, Manufacturing – Georgia), Westfield Vocational School (Aviation – Massachusetts), West Michigan Aviation Academy (Aviation – Michigan) and Effingham County College and Career Academy (Engineering – Georgia).

Dual High School and Technical College Enrollment.

An example of another program with similar impact is Georgia's Dual Enrollment Program. This allows High School students with an interest in technical jobs to take courses at one of the State's Technical Colleges and simultaneously earn credits toward both High School graduation and a Technical College Degree.

Programs like this get High School students actively engaged in making career choices while also expediting their entry into the workforce, and financial independence. We encourage support for programs such as this, and are interested in exploring a combination of this type of program with apprenticeships.

Student Leadership Program (“SLP”).

In addition to the gap in technical skills themselves, many young students also lack the needed soft life-skills and ability to make an informed decision about their own careers. To address this issue, Gulfstream started SLP in 2008 as a means to mentor at-risk High School students and help them develop life skills, explore the many available career paths and, by their Senior year, develop and implement post-graduation career plan for themselves. Since then, Gulfstream has expanded SLP to Brunswick, Georgia and Appleton, Wisconsin.

SLP in Savannah, for example, is a four (4) year program that begins in the students' Freshman year. Mentoring sessions are facilitated by a professional team retained by Gulfstream, and volunteer mentors drawn from Gulfstream and approximately forty (40) other area businesses.

Of the 1,500 applications typically received each year, one hundred fifty (150) students are selected for the incoming Freshman class. Once selected, the students who remain with the program stay together throughout their four (4) years of High School.

Freshman year is focused on developing students' soft skills such as appropriate work attire, etiquette and interview skills. Throughout the remaining three years, students explore available career opportunities in detail – *e.g.*, trades and Technical Schools, military, four-year degree programs – select their desired path, develop a specific plan for doing so and execute that plan so that they graduate and step right into the next phase of their life.

Approximately ninety-six percent (96%) of the enrolled students since inception remained in the program through graduation. In light of the significantly lower graduation rates for these schools, Gulfstream is proud of this program's success.

b. Awareness Activities.

Gulfstream, like many companies, engages in a wide range of activities to raise awareness among students, parents and teachers. Here are a few examples of our activities in this area.

Job Shadow Programs

Our Westfield, Massachusetts, and Dallas, Texas, facilities both have successful job shadow programs. In Westfield, we partner with the Westfield Vocational Technical High School, which has a robust aviation program, to bring students into our MRO facility and shadow our aircraft maintenance technicians during their work day. This effort is part of the FAA's "Walk In My Boots" initiative aimed at exposing students to the benefit of an aviation maintenance career.

Similarly, in Dallas, we partner with local High Schools and host students for two days of aviation job experiences. Activities include wiring the avionics for an aircraft, working with sheet metal, making a sales pitch and visiting Dallas Love Field's control tower.

GAMA/Build A Plane Aviation Design Challenge

Gulfstream also supports the General Aviation Manufacturer's Association ("GAMA") / Build A Plane Design Challenge, which started in 2013 as a way to introduce High School students to aviation careers. For this competition, schools receive student and teacher copies of the Fly to Learn curriculum and software powered by X-Plane. Over the course of six weeks, they learn about topics such as the four forces of flight, aspect ratio, and even advanced subjects such as supersonic flight. They then compete in a fly-off that requires them to modify a virtual airplane to fly a specific tasked mission in a simulator. GAMA takes into account the score from this flyoff, as well as a checklist of the steps they took to complete the flight, a summary of the design changes they made to the airplane, and three videos submitted throughout the competition on what they learned.

Weyauwega-Fremont High School in Weyauwega, Wisconsin is the winner of the 2016 GAMA/Build A Plane Aviation Design Challenge. As the prize, four students, one teacher, and

one chaperone traveled to Glasair Aviation in Arlington, Washington, to build a Glasair Sportsman aircraft. For the winning team, the hands-on experience working side-by-side with experts as they build a real airplane is phenomenal.

STARBASE

Gulfstream partners with the U.S. Department of Defense to sponsor week-long camps for fifth-grade students at Hunter Army Airfield in Savannah, Georgia. The program offers “hands-on, mind-on” activities meant to spark student interest in STEM programs. Students interact with military personnel by working on computers, flying aircraft simulators and participating in other hands-on activities.

5. Technical Colleges.

In Gulfstream’s business, Technical Colleges are a critical pipeline for developing tradesmen and craftsmen for work in our manufacturing and MRO operations. Although these schools’ existing, standard programs provide a solid skills development base, our most valuable work with them has been in situations where we have helped develop the curricula.

Georgia’s High Demand Career Initiative is an excellent example of this approach. This initiative recognizes that manufacturing and other technologies are changing so rapidly that it is difficult, if not impossible, for schools to keep their curricula aligned with companies’ needs. That is true with current needs, but even more so for what industry will need in three (3), five (5) or ten (10) years. To solve this problem, this initiative seeks to bring companies into the schools to help plan and develop course content. Significantly, this can be part of a full degree program or simply for a Certificate program in which a student need only invest a number of weeks or months to earn a Certificate that demonstrates that they have specific skills for a specific job.

This joint development can range from simply including industry on Advisory Boards, to the other end of the spectrum where a business co-develops and even co-teaches a course. Several examples from Gulfstream’s experience, we believe, will give the Committee insight.

Example: A&P School.

Gulfstream’s MRO operations are an important, and growing, part of our business across the country. FAA regulations require that aircraft maintenance technicians have an FAA-issued Airframe and Powerplant license (an “A&P License”). Given our need for qualified A&P technicians, we partnered with the A&P School of the Savannah Technical College, which is part of the Technical College System of Georgia, to ensure that its courses aligned with our needs.

The school appointed our experts to the Advisory Board. Gulfstream donated equipment to the school to provide the students with real-world equipment, including a complete Gulfstream aircraft – a model G100 that had reached the end of its useful life. By being an active participant in the A&P School’s curriculum development, and ongoing class work, we are able to help the faculty stay aligned with the latest industry techniques and get to know the students.

Example: Advanced Cabinet Maker Course.

As an excellent example of the in-depth approach, a number of years ago Gulfstream was having difficulty finding skilled cabinet makers to build furniture for our aircraft interiors. To address this issue, Gulfstream partnered with Savannah Technical College. In doing so, we learned that other area businesses in the boat and home construction industries were having similar issues.

Gulfstream paired our cabinet shop master craftsmen with the school to develop a course. We also provided a master craftsman to co-teach the course with the school's faculty. This provided the double-benefit of ensuring that instruction matched our requirements and it allowed our instructor to identify the top students for recruitment to Gulfstream.

Example: Basic Skills Course.

Gulfstream has difficulty finding qualified entry-level candidates for our manufacturing operations. Illustrating the breadth of the skills gap in some areas, one candidate for sheet metal work – whose resume suggested that he had basic skills – was asked in a shop setting to bring the instructor a Phillips head screwdriver. His response was to ask the instructor whether that is the one that looks like a “plus sign” or a “minus sign.” Clearly, that person did not come with the necessary basic skills to enter Gulfstream's manufacturing workforce.

To help address this, we are partnering with the local Technical College to develop a basic skills Certificate course. Although still in development, the most likely approach is to develop a set of specific skills tests and a course for teaching those skills. Candidates who believe that they already have the necessary skills would take the hands-on tests, and by passing obtain their Certificate without taking the full course. Candidates without those skills coming in, of course, would go through the full course.

Example: Manufacturing Technology Transition Training.

Gulfstream's G650, which first entered customer service in 2012, is built using significantly different manufacturing techniques than aircraft produced previously. Consequently, ramp up of that production line necessitated transition training for our existing employees moving from other aircraft to the G650.

To assist, we enlisted the help of Georgia's Quick Start Program. Quick Start, which is a part of the Technical College System of Georgia, offers tailored employee training services to qualified companies. Quick Start instructors paired with our team to develop transition training programs for specific, proprietary manufacturing techniques used for the G650. Because the program's mandate allows it to enter into Proprietary Information Agreements with its customers, Gulfstream was able to use this resource without jeopardizing our valuable trade secrets.

6. **Military.**

Recruiting from U.S. Military Veterans is a vital part of Gulfstream's strategy for finding employees with the necessary technical skills. As direct evidence of that fact, nearly thirty percent (30%) of Gulfstream's domestic employees are U.S. Military Veterans. This high percentage is a testament to the quality of training within our Armed Services, and to the cultural fit between them and Gulfstream.

Gulfstream recruits veterans heavily because of the combination of technical skills, disciplined work ethic and leadership skills that they so consistently demonstrate. Aircraft maintenance and avionics technicians, for example, come to Gulfstream with skills and experience that enable them to quickly integrate into our operations.

To recruit Veterans, we use a proactive, comprehensive approach that includes extensive in-person outreach to military bases – including participation in Transition Assistance Program Classes at those bases – customized Veteran recruitment advertising, and active participation in a number of Veterans organizations.

7. **Engineering Universities.**

Our engagement with Universities relies heavily on our intern and co-op programs with those schools. Also, in keeping with the High Demand Career Initiative concepts discussed above, we are becoming increasingly active in providing input on specific skills-needs and engaging students in for-credit research projects that complement their skills development and our research needs.

Like many companies, we have intern and full co-op programs in our engineering department. Interns and co-ops are hired through a competitive selection process. While working, they are paid a competitive hourly wage and receive 401k and life insurance benefits. Gulfstream also provides housing for students who do not live in the local area. In 2016, we had one hundred eighty seven (187) interns and one hundred sixty two (162) co-ops.

Interns typically work during their summer breaks. Co-ops alternate between a semester of school and a semester at Gulfstream, and must complete three (3) semesters at Gulfstream.

These programs provide an excellent resource for hiring students with the right skills, and as importantly the right cultural fit, for Gulfstream. Students work alongside our full-time engineers our various programs. They also rotate between departments within engineering, so that they and we can find the best fit.

The success of these programs is demonstrated by the hiring. Over ninety percent (90%) of Gulfstream's entry-level engineering positions are filled through our intern and co-op programs.

In keeping with the High Demand Career Initiative, we have developed and continue to mature our partnership agreements with Universities. These agreements include both formal and

informal arrangements for research projects, mini-sabbatical opportunities for faculty to work at Gulfstream and Gulfstream participation in Advisory Boards.

Mr. Chairman, Members of the Committee, I thank you for the opportunity to share Gulfstream's experience in this critically important area of skilled, technical workforce development.