Internship Report

Lockheed Martin Aeronautics Company

TERMA

Figure 1 (1)

DTU Technical University of Denmark		LOCKHEED MARTIN	
Student:	**Trugvi Kristiansen**	**Daily Manager:**	**Mike Lally**
Student number:	**S113666**	**Daily Lead:**	**Mike McCormick**
Period:	**January 18th – June 16th**		

Preface

This internship report is written as a part of the internship collaboration between DTU, Lockheed Martin and Terma, and outlines some of the projects, challenges and highlights I went through while attending this program.

I hope this report will help future Lockheed Martin interns by describing some of the assignments I had and the process of working for a company like Lockheed Martin.

This internship truly was a great experience, and would not be the same or even possible if it wasn't for all the great people I had the pleasure of working with.

First of all I would like to thank Mr. Scott Sadler (Lockheed Martin Aeronautics) and Mr. Jan Klinker, Mr. Anders Hjortsholm, Mr. Thor Pauli Andersen, and Mr. Erling Hansen (Terma A/S) for guiding us through the necessary paperwork required for this internship, and advising us while in the U.S. And the Technical University of Denmark for their support.

Furthermore I would like to thank Mr. Greg Dean and Mr. Mike Lally for welcoming me into the Rate Transition team, and the whole Rate Transition team for making me feel at home in our office.

A special thanks also goes to my team members Mr. Michael J. McCormick (Team lead), Mr. Richard Ringwald, Mr. A.D. King, Mr. Tue Bui, Mr. Steven J. Rathburn, Mr. Rick Urbanski, and Mr. Max Winter who I had the honor of working with every day. The F-35 Wing Transition Team treated me as a part of the team from day one. All team members had an immense willingness to take the time to pass down knowledge and made sure that I got the most out of my time here at Lockheed Martin. Not only did I learn a lot, but I truly had fun while working with the team.

Finally I would like to thank my fellow Danish Interns Liane, Andreas, Marc and Magnus for the time we spent together here in Fort Worth, and the trips we took. The experience would not be the same without the possibility to share it with them.

Table of Contents

Introduction

This internship report describes some of the projects and challenges that I encountered at my internship at Lockheed Martin.

I was selected to work in the F-35 Wing Transition Team that works on ramping up the wing part of the production line for full rate production. The team consisted of eight members (including me) which all had their specific departments in which they specialized.

During my stay I worked many different projects some individual and some in groups. The design projects were mainly in groups, and were often characterized by involving all relevant stakeholders in order to get the best design.

I worked on the individual projects in between the group projects. These assignments where mainly container tracking, Catia modeling and VBA programming.

Due to the confidentiality of this program, projects will only be described shortly without details and data.

The report also gives some recommendations to future interns on what to do with their spare time and why they should apply to this internship.

Lockheed Martin

The Glenn L. Martin Company was founded by Glenn Luther Martin in August 1912 as an aircraft and aerospace manufacturing company, which primarily produced military aircrafts for the U.S. and its allies. Later on the company moved out of the aircraft industry and into the missile and space industry.

The Glenn L. Martin Company and American-Marietta Corporation merged in 1961 forming Martin Marietta. (2) (3)

Lockheed Aircraft Corporation, was formed in December 1926 by Kenneth Jay, Fred S. Keeler, Allan Loughead and Jack Northrop. This company was established in a garage in Hollywood, and its first success was the famous six-passenger high-wing monoplane “Vega” that has been used by a number of record-breaking pilots. Lockheed would later move into the military industry as a military contractor. In 1993 Lockheed Aircraft Corporation acquired General Dynamics Corporation's military aircraft division giving them a majority share of the F-16 and F-22 jet fighter programs, and Air Force Plant No.4 which is now the headquarters of Lockheed Martin Aeronautics (4) (5)

On March 15, 1995, Martin Marietta and Lockheed merged together forming what is now known as Lockheed Martin, and making it one of the largest defense contractor’s in the world. (6) (7) (8)

Today Lockheed Martin is a global security and aerospace company that engages in high tech technology systems and advance information services. Their areas of focus are defense, space, intelligence, homeland security and information technology, including cybersecurity.

Lockheed Martin’s primary costumer is the U.S. government. They accounted for 78% of the net sales in 2015, 21% was from international customers (including foreign military sales (FMS) contracted through the U.S. Government), and 1% was from U.S. commercial and other customers. (9)

Lockheed Martin has five primary business segments:

- Aeronautics
- Information Systems & Global Solutions (IS&GS)
- Missiles and Fire Control (MFC)
- Mission Systems and Training (MST)
- Space Systems

Lockheed Martin Aeronautics

Headquarters for Lockheed Martin Aeronautics is located in Air Force Plant 4, Fort Worth, Texas. Built in 1941, the Air Force Plant 4 main building is just over one mile long and has housed programs like the B-24 Liberator, B-32 Dominator, XB-36 Peacemaker, F-16 Falcon (still in production), F-22 Raptor, and now the F-35 Lightning.

Air Force Plant 4 is the main production site for the F-35 and houses approximately 13500 employees. Parts are shipped in daily from the partnering nations and assembled, mated, painted and tested.

One plane is built every week; but with the upgrades under way, the plant will capable of producing as many as one aircraft a day.

Joint Strike Fighter Program

In November 1996 the Defense Department selected Boeing and Lockheed Martin to compete for the Joint Strike Fighter (JSF) Program, and to demonstrate competing designs for the program.

The JSF Program evolved due to the high cost of tactical aviation and the need to reduce cost and upgrade the capabilities of the current fleet to address future threats. The program was intended to develop and build a family of 5^{th}-generation aircraft for the Air Force, Navy, Marine Corps and the Royal British Navy, and additional aircraft would potentially be sold to other allies including Denmark.

Three highly common variants of the aircraft were to be developed for different purposes.

F-35A (CTOL) – Conventional Take Off and Landing

F-35B (STOVL) – Short Take Off and Landing

F-35C (CV) – Carrier Version

The competition ran for 5 years, Boeing and Lockheed Martin presented two very different designs. On October 26, 2001, the Defense Department selected Lockheed Martin to continue the Joint Strike Fighter program. (10)

Lockheed Martin became the program lead for this contract, while BAE systems and Northrop Grumman are strategic partners.

F-35

The Lockheed Martin F-35 Lightning II is a family of three highly common variants of Stealth Multirole Fighters.
Descended from the X-35 (Lockheed Martin's winning design), the F-35 is a 5th-Generation, single engine, single seat, multirole stealth fighter. (11)

Figure 2, F-35 A (12)

F-35A Specifications:

- Length: 15.7 m / 51.4 ft
- Wing area: 42.7 m2 / 460 ft2
- Wingspan: 10.7m / 35 ft
- Maximal airspeed: 1,931 km/h (Mach 1.6)
- Max G-rating: 9 g.
- Motor: 1 x Pratt & Whitney F135 afterburning turbofan (F135-PW-100)
- Thrust: 40,000 lb with afterburner / 25,000 lb without afterburner.
- Weapons payload 8,160 kg / 18,000 lb

The three F-35 versions will replace legacy airplanes like the F-16, the AV-8B Harrier, the F/A-18, and the F-15. (13) (12)

Collaboration

From the very beginning the JSF program has included foreign participation. This was done to enhance equipment interoperability with allies, to promote foreign acquisition of the aircraft, to share the financial burdens of development and production, to share U.S. know-how with strategic foreign allies, and to gain access to unique technologies and capabilities available from key allies. (8)

There were nine partnering nations in the F-35's system development and demonstration (SDD) phase. Denmark, along with Australia, Canada, Norway, Italy, the Netherlands, and Turkey participated in the acquisition of the Joint Strike Fighter.

The purchasing plans pr. 01/02/2016 (14) were:

- United States 1,763 F-35As + 680 F-35B/Cs
- United Kingdom 138 F-35Bs
- Australia, 100 F-35As
- Canada, 65 F-35As (Optional)
- Norway, 52 F-35As
- Turkey, 100 F-35As
- Italy, 60 F-35As/30 F-35Bs
- Netherlands 37 F-35As
- Denmark 30 F-35As (Optional)

There will also aircrafts planned to be sold under FMS (Foreign Military Sales) to Japan (42 F-35As), South Korea (40 F-35As) and Israel (33 F-35As). These stakeholders would not (as the partner countries) have the possibility to shape the program and the features of the aircraft, but may have some in country production related to the F-35 program.

At 10 a.m. local time May 12, 2016 the prime minister of Denmark announced that the Danish government is recommending buying 27 F-35 aircrafts. This is the first phase out of two and the decision still has to be debated and approved by the Danish parliament. If approved this decision will have a big impact on the Danish industry and military. (15)

The best known Danish contractor is Terma, which is considered a major strategic supplier to the F-35 program, and has delivered products and services totaling more than 500 million DKK to the program.

Currently Terma supplies these products to the F-35 program

- Composite Conventional Edges for the aircraft Horizontal Tails
- Advanced lightweight composite components for the Center Fuselage
- Missionized Gun Pods for the STOVL and CV Variants
- Data Acquisition Pods for Flight Test Instrumentation
- Air-to-Ground Pylons
- Radar electronics. (13)

Assignments

Container Tracker

As mentioned previously the Joint Strike Fighter program is a global program with allied participation and production in all of the partner nations. One of the many challenges of having vendors spread all over the world is transporting the parts safely between the different production sites.

Our Team has responsibility for certain types of containers that had to be monitored and tracked in order to know their location. This includes determining if they are on schedule and knowing if we had enough containers at the different locations to satisfy the demand. This was done by gathering information from different stakeholders, and setting it up in an understandable way on spreadsheets and on a map in our office.

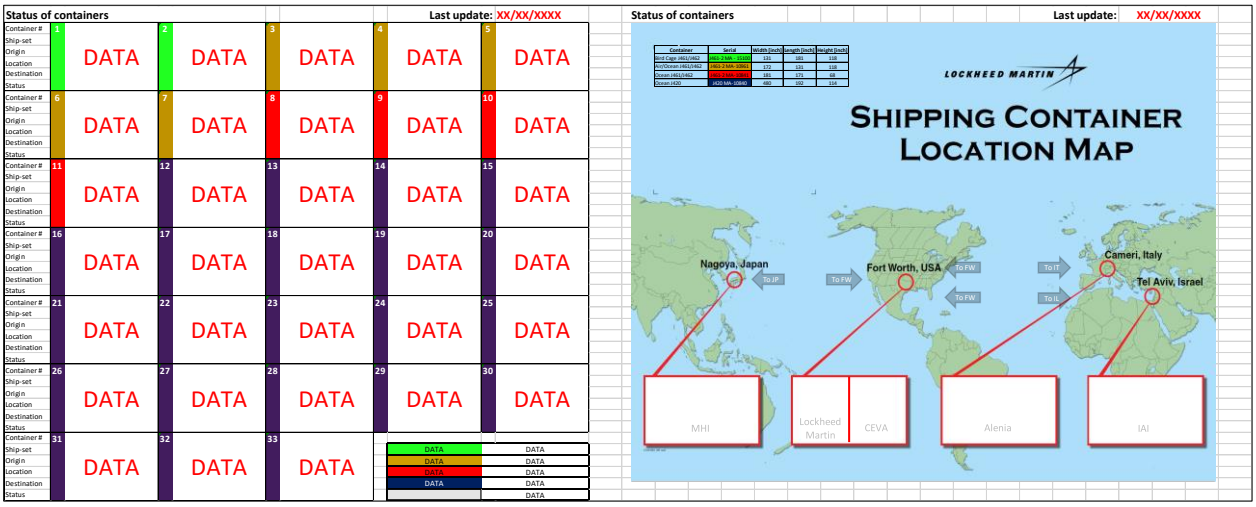

Figure 3, Container tracker schedule and map (16)

The previous interns had done some of the work in creating different templates and developing a concept for how this should be done. I further developed these templates to give a better overview, and to adjust to the current state.

One of the big challenges with this assignment was to gather the information required to know where the containers were located, and knowing which type of container it was. The containers get shipped between four main countries, and transported by road, sea and air. This sometimes made it difficult to determine the estimated transport time and location.

Every component being shipped to or from Fort Worth has a deadline, and is scheduled to be mated to a specific aircraft on the production line. In order to avoid delays on the production line all parts therefore have to arrive on time and without damage.

This assignment gave me an overview on the international scale of this program. We only tracked a few dozen of the many containers that are shipped in this program, and for me it really set things in perspective.

Wing Skin Flow Process

To streamline the transport process between the different stations in the plant, an overview of parts going from A to B on the factory floor had to be created. To get this information, ME's and managers from the affected areas had to be questioned, and showed us around the shop floor in order to fully understand the process. The managers did well at explaining the current process and always knew where we could find the necessary information. They also added value by suggesting future improvements.
After mapping the current process, the future process was to be mapped. This had to be done in order to know what the future demand would be for transport equipment and to know how and where it would be stored. Here we had to gather the stakeholders in the affected areas and get their input on how the future flow process would look.
The current and future processes were then documented on a process map, and mapped on a plot of the factory floor to provide a visual overview.
The complexity of safely and efficiently transporting parts around on the factory floor is staggering when you're building the most advanced aircraft in the world, on a mile long factory floor; The hard work is making it as simple as possible.

Future floor design

Another interesting assignment was to be a part of the planning of the future factory floor. In order to rework the concrete on the floor, our department had to figure out where to place the incoming equipment for full rate production, and when the different equipment was scheduled to arrive. One of the main concerns with this assignment was to phase the plan with Facilities Engineering so that the concrete work would not affect the current production plan, but still be complete so that all the equipment was ready for full production rate in time.

The reason for planning the concrete is that the thickness has to be sufficient enough to bear the heavy tools and keep their tolerances. The tools also need to be carefully placed in order to optimize the workflow.

The assignment went very well, we presented the plans and handed them over to facilities.

New slider design

Lockheed Martin is continually working on making their processes more safe, efficient, and improving their workers environment. Safety and ergonomics are therefore of the uppermost importance. This led to my team getting the assignment to acquire new designs for the sliders on the production platforms.
Sliders are the part of the platform that slide out to meet the aircraft profile. This prevents a gap from existing between the platform and the aircraft component. A gap larger than 1 inch is not acceptable due to OSHA (Occupational Safety and Health Act) requirements. The design process was primarily to meet with vendors, discuss ideas and designs, and later reviewing the designs.
The design and materials used had to be thoroughly thought through. The lifetime of the parts is expected to be ten to twenty years, they had to be easy to maintain, and safe to use.

Figure 4, Picture shows sliders against the forward fuselage of an F-35B (17)

This process was especially interesting because of the impact the chosen design would have on the factory floor, and therefore how interested the different stakeholders were in this project.
The project team was very thorough in every step of the process in order to secure the best design and to obtain clear communication between Lockheed Martin, the vendors and other stakeholders. Unfortunately the project was not finished when my internship ended, and therefore I could not be there for the final design.

3PL Wing Skin Dolly

Because of the special circumstances of this program, conventional transport methods and equipment aren't always sufficient. Many of the parts are large and fragile, and therefore need special dollies for transporting.

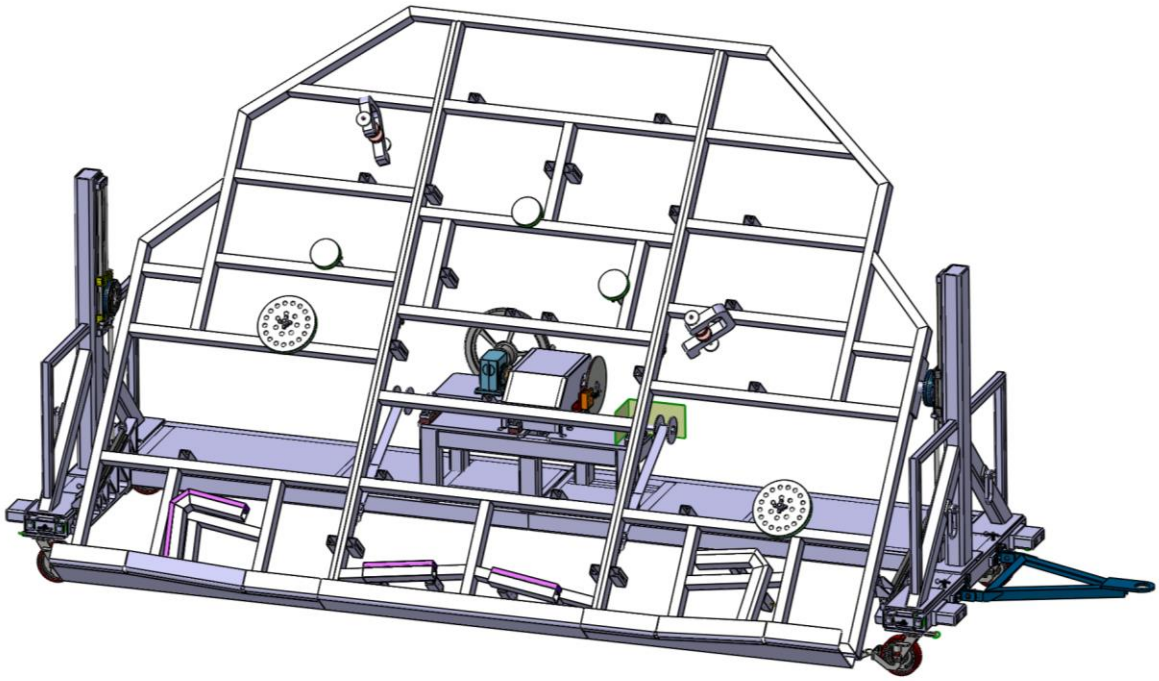

Figure 5, Catia 3D model of Wing Skin Dolly prototype (18)

Our team had the assignment to acquire a design and prototype for one of the dollies transporting specific parts for the wing. This process was already underway when I arrived at Lockheed Martin. The vendor was selected and had started the design of the first dolly. My first assignment in this project was to catch up, and read through the material for this project, and get ready for our first design meeting. Over time we reviewed the designs several times at specific milestones of the program, and met with the vendor to discuss different alterations to the dolly and to discuss the time schedule. I really applied my mechanical engineering experience in this assignment. I was able to help analyze the stress analysis, materials, tolerances and design of the dolly.
One of the special aspects of this assignment was that I traveled to the vendor every week to review their progress and to see how the build was coming along.

J461/J462 Ocean Containers Proof Load

Also concerning transport of parts were the air/ocean shipping containers that were being built outside of Fort Worth and arrived here for load testing. This process was to verify that the parts loaded as wanted, and were not damaged while being transported.
The containers have been specially designed so they can be freighted by air and sea, and therefore have a light and compact design. The container is mainly aluminum, but high strength areas are steel.
The container was loaded with production wings from the assembly line that were handled by Tooling and Transport personnel. During proof loading we identified minor reworks that had to be done, but nothing major considering the scope of the project. All the reported reworks were repaired, registered and sent to the vendor to verify that these features were corrected on the next container.

This process was repeated twice, in order to verify the quality of the vendor and container. Lockheed Martin has strict quality requirements for their vendors and are therefore meticulous when doing these load tests.

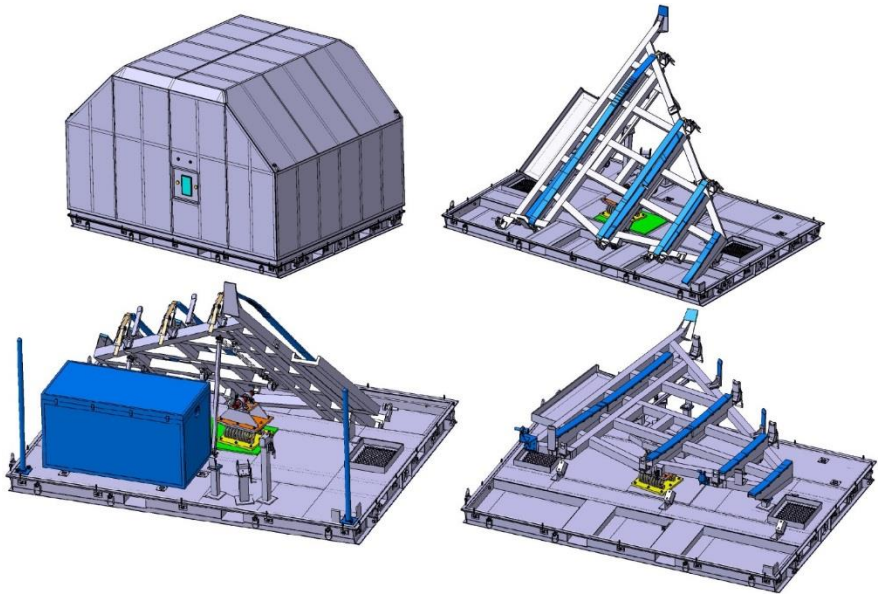

Figure 6, 3D model of containers (19)

After the proof load test, these containers would be shipped out at which point I would insert them into the container tracker and begin keeping track of their location.

Tool database

One of the main assignments the team had was to buy and keep track of tools in our department. There were different databases to keep track of these, but there was a need for a simpler solution. The current situation had the information divided into different databases accessed only by specific staff. The future database would have all relevant information in the same place and easily accessible.

The challenge with this assignment was to get familiar with the process and how the tool was going to be used. Inputting the wrong purpose would risk having too much irrelevant data, and making this a non-user-friendly database.

Another challenge was to get access to the required data. The databases that contained the required data where not accessible to the interns, and therefore made the flow of this assignment rather slow.

Creating shadowboxing for tool chart

Every week meetings are held where managers, engineers, and mechanics can address problems and improvements for the production floor. This process contributes to continual optimization of the F-35 program and overall reduction of hours spent building the plane.
One of the assignments that derived from one of these meetings was to optimize tracking of certain tools belonging to the wing department. One way of doing this was to optimize the shadow boxes and layouts showing how to lay the tools into the cart.
This assignment was already started by a previous intern, and was therefore fairly easy and straight forward. The design was built, and the foam was sent out for prototyping the first week of my internship.

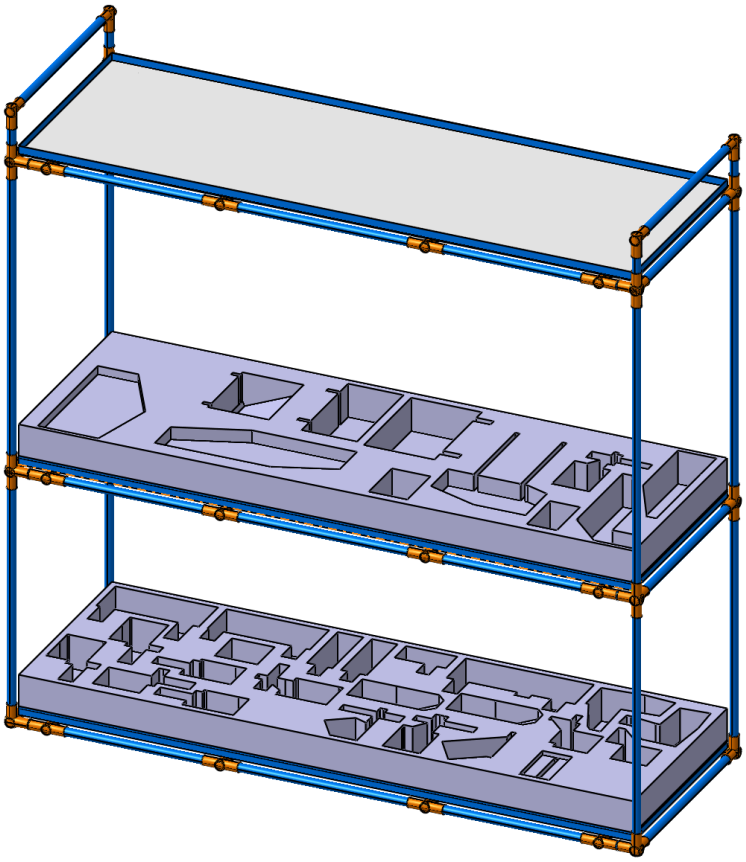

Figure 7, Catia 3D model of tool cart (20)

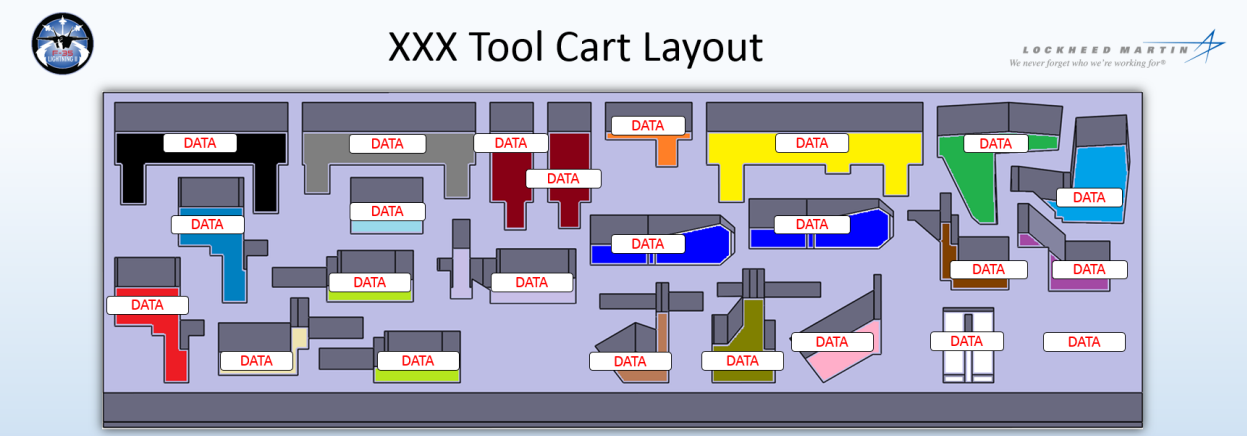

Figure 8, Layout for tool cart (21)

Some weeks later the prototypes arrived and could be tested on the floor. We were satisfied with the design and sent it out for final production with some small adjustments.

Visual aids had to be created in order for the workers to easily use the shadowboxing correctly and verify that all part numbers were present. The layouts were made using Catia V5 and Power Point and afterwards they were printed and laminated.

3D model of the AJTF rack

Because of the fast pace that 3D CAD programs are evolving Lockheed Martin has to work continually keeping their drawings updated, and one of my assignments became to redraw a large "rack" so it could be used in newer software. This assignment was a great learning opportunity because I had not previously worked with Catia V5 or used imperial units.

While working with this project we had a five day course in Catia V5. This course sped things up and helped me structure the models in a way that other engineers could use the model in the future.

The equipment and training for this assignment was more than sufficient. The only opportunity for improvement would be if I didn't have to find an escort every time I needed a measurement.

Courses

- FOD (Foreign Object Debris) Prevention Certification
    - All Lockheed Martin personnel that work near the aircraft are required to take FOD Prevention Certification. In this class you learn how to identify and prevent FOD and protocol when near the aircraft.
- FOD Free Audit Classroom Quality
    - This class was an extended class of the FOD Prevention Certification. In this class we learned how to identify FOD on aircraft, and also had a hands on training session where we were trained how to inspect an aircraft and identify FOD using our hands, a flashlight, and a mirror.
- F-35 Familiarization Course
    - This course gave us a high level overview of the Joint Strike Fighter program and key facets of the F-35 Air systems and Air vehicle.
- Catia V5 Course
    - In the 5 day Catia V5 training course we learned to use the Catia software to make 3D drawings, 3D assemblies, and drafting.
- PDCA (White Belt) training
    - In this course we learned advanced problem solving and how to continually improve processes in a systematic way.
- Basic Geometric Dimensioning and Tolerances training
    - The Basic Geometric Dimensioning and Tolerances training course taught how to read drawings and how to use GD&T according to the ASME Y14.5-2009 standard when drawing.

Self-Reflection

It's hard to sum up all the things I learned while I worked at Lockheed Martin. I had the privilege of working with many skilled people that weren't shy about explaining how things work, and I was also in a team involved in many different projects.

In my time here I was included in many different projects in different phases. This gave me a good insight into how a company as big as Lockheed Martin does project management and all of the requirements a government contractor has to meet too.

As I said before the wing team is involved in various projects, and there was a great deal to learn from every single assignment.

I was involved in several design projects which I especially liked. These projects gave me the opportunity to see how the different stakeholders were involved in planning, purchasing, and designing the different tools. Getting to talk directly to the contractors, proof loading the equipment, reviewing the project with the team, and having a say in the design was something that made these projects a great learning experience.

There was also a lot to learn in how a company like Lockheed Martin does business, especially thinking about the scale of this project. There are so many different stakeholders, and the stakes are high. Every part has to be ready in time, and they ship from all over the world. I got to see a small part of this process because of the assignments my team had in managing the shipping containers, and tracking these containers globally.

The internship

The internship positions were released September 2015 and even though I was not expecting to get the chance I applied thinking that this was a once in a lifetime opportunity. About three weeks later I got an answer telling me to come to the first interview. The first interview was divided into two part; an introduction to the program, and then a personal interview. After this I was down selected to the phone interviews with Lockheed Martin where for the first time I got to talk to some of the people I ended up working with. The interview went great, and some weeks after I got a phone call telling me that I was selected for the Wing Transition Team.

The process of going to the U.S started as soon as we were selected. We needed to apply for a J-1 Visa and security approval and there wasn't a lot of time for doing this. Terma helped us with the paperwork involved and prepped us for the internship.

After getting the applications sent off we needed to get things arranged with our school and find accommodation. To arrange all aspects of housing all the interns met (for the first time) to discuss how we were going to live and who was going to live together.

January 12th Magnus and Andreas (they arrived before us) picked up Marc, Liane, and myself at the DFW airport. We bought the furniture from the previous Dutch interns and were therefore almost all set for the stay. We used the first week getting other necessities. The second week we purchased our van, a Toyota Sienna. This became our main car for road trips, and it turned out to be a good deal.

Spare Time

Texas is a great place! The weather is good, the people are nice (southern hospitality), and the food is amazing. So there is always something to do while you're here. The state itself is huge and there are a lot of exciting places to travel to while here. Much of the time we spent enjoying Fort Worth. The city itself has a calming atmosphere where people are nice and welcoming. There is also a great deal of things to see like the Stockyards, the Bureau of Engraving and Printing, Seventh Street, Magnolia Street, Sundance Square, May Fest, drive in cinema and so on.

We tried seeing as much of Texas as possible, and used many of our three day weekends for long road trips. Here are some of our activities:

- Dallas
- Houston
- Galveston Island
- Austin
- San Antonio
- New Orleans
- South Padre Island
- Nascar
- Air Power Expo (Airshow)
- Gun ranges
- Golfing

Future Interns

It doesn't get better than this! At least not if you're a mechanical engineer. Machines, materials, and designs as you never seen them before. The F-35 is the most advanced aircraft in the world, and getting to be a part of building it is an amazing experience.

The scale of the project is hard to describe. Every day you will arrive to the mile long plant on a four lane highway. On your way from the car to the plant jets take off and you feel the rush from the afterburners. Once you arrive at the plant you pass house sized CNC machines capable of making a cut better than most surgeons, huge Auto drills drilling into composites, titanium, and aluminum, and parts worth more than ten Ferrari's. Once you sit down you're a part of the biggest contract in the world and helping building the F-35.

You will get challenged daily both professional and personally, and will get the chance to learn skills you would not get anywhere else. The staff treats one as a colleague, and you're expected to perform like one them of too.

You get the opportunity to see the jets being built first hand, talk to the people who build them, and also see the machines that make it all possible. For me this was a treat every time, and there was always something new to learn.

Another reason to apply for this internship is the career opportunity. Lockheed Martin is one of the leading manufacturers of high tech equipment and having been a part of that will be a huge benefit in the future. During the internship you also get the opportunity to attend courses that strengthen your resume even further.

References

1. **Roberts/Released, U.S. Marine Corps photo by Cpl. Unique.** Flickr.com. *flickr.com/photos/marine_corps.* [Online] U.S. Marine Corps , 05 21, 2015. [Cited: 05 12, 2016.] https://www.flickr.com/photos/marine_corps/17560411392/.

2. **Lockheed Martin.** Our History: A Merger of Equals. *www.LockheedMartin.com.* [Online] [Cited: 4 25, 2016.] http://www.lockheedmartin.com/us/100years/stories/merger.html.

3. **Wikipedia.** Glenn L. Martin Company. *Wikipedia.* [Online] [Cited: 4 25, 2016.] https://en.wikipedia.org/wiki/Glenn_L._Martin_Company.

4. —. Lockheed Vega. *Wikipedia.* [Online] Wikipedia. [Cited: 4 25, 2016.] https://en.wikipedia.org/wiki/Lockheed_Vega.

5. **SIMS, CALVIN.** Business Day: Lockheed Makes Big Plane Deal. *New York Times.* [Online] 12 10, 1992. [Cited: 04 25, 2016.] http://www.nytimes.com/1992/12/10/business/lockheed-makes-big-plane-deal.html.

6. **Wikipedia.** Allan Lockheed. *Wikipedia.* [Online] Wikipedia. [Cited: 4 25, 2016.] https://en.wikipedia.org/wiki/Allan_Lockheed.

7. —. Lockheed Corporation. *Wikipedia.* [Online] 04 25, 2016. https://en.wikipedia.org/wiki/Lockheed_Corporation.

8. **Lockheed Martin.** Our History. *Lockheedmartin.com.* [Online] [Cited: 04 25, 2016.] http://www.lockheedmartin.com/us/100years.html.

9. —. *2015 ANNUAL REPORT.* Bethesda : Lockheed Martin Cooperation, 2016.

10. **Bolkcom, Christopher.** *Joint Strike Fighter (JSF) Program: Background, Status, and Issues.* Washington DC : Congressional Research Service, The Library of Congress, 2003.

11. **Lockheed Martin.** F-35. *Capabilities.* [Online] Lockheed Martin. [Cited: 05 09, 2016.] https://www.f35.com/about/capabilities.

12. —. F-35. *F-35A – The World's Only 5th Generation Multirole Fighter.* [Online] [Cited: 05 09, 2016.] https://www.f35.com/assets/uploads/downloads/13537/f35a_2.pdf.

13. **Terma.** Terma.com. *The worlds largest industrial project.* [Online] Terma. [Cited: 05 09, 2016.] http://www.terma.com/aero/the-worlds-largest-industrial-project/.

14. **Lockheed Martin.** F-35. *F-35 Lightning II Program Status and Fast Facts.* [Online] Lockheed Martin, 02 01, 2016. [Cited: 05 12, 2016.] https://a855196877272cb14560-2a4fa819a63ddcc0c289f9457bc3ebab.ssl.cf2.rackcdn.com/13567/f-35fast_facts_1q2016.pdf.

15. —. F-35. *Denmark's Government Recommends Buying 27 F-35s* . [Online] Lockheed Martin, 05 23, 2016. [Cited: 05 23, 2016.] https://www.f35.com/news/detail/denmarks-government-recommends-buying-27-f-35s.

16. **Container tracker that I worked with . Fort Worth : s.n., 2016.**

17. F-35 LIGHTNING II PROGRAM . JSF.mil. ***F-35B Manufacturing.*** **[Online] [Cited: 05 09, 2016.] http://www.jsf.mil/images/gallery/sdd/f35_manufacturing/b/sdd_f35manfb_013.jpg.**

18. Kristiansen, Trugvi. Print Screen Wing Skin Dolly from Catia V5. 2016.

19. Midtgaard, Frederik Roi. ***ENGINEERING TRAINING REPORT (Lockheed Martin).*** **s.l. : AARHUS UNIVERSITY, 2015.**

20. Kristiansen, Trugvi. Print Screen of Tool Cart from Catia V5. 2016.

21. —. Print Screen of shadowbox layout from Power Point. 2016.

22. www.lockheedmartin.com. [Online] http://lockheedmartin.com/us/100years.html.

23. John Birkler, John C. Graser, Mark V. Arena, Cynthia R. Cook, Gordon T. Lee, Mark A. Lorell, Giles K. Smith, Fred Timson, Obaid Younossi, Jon Grossman. ***Assessing Competitive Strategies for the Joint Strike Fighter.*** **s.l. : RAND CORPORATION, 2001. 0-8330-3009-4.**