



# LOVITT TECHNOLOGIES AUSTRALIA

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*Precision Engineers and CNC Machinists - Aerospace, Communications and Defence*



Aerospace  
AS 9100

18<sup>th</sup> February 2016

Foreign Affairs, Defence and Trade Committee  
Joint Strike Fighter Inquiry  
Department of the Senate  
PO Box 6100  
Parliament House  
Canberra ACT 2600

RE: The planned acquisition of the F-35 Lightning II (Joint Strike Fighter).

The cost and benefits of the program to Australia, including industrial costs and benefits received and forecast;

Submission From :

**Lovitt Technologies Australia**

And

**Electromold Australia**

Dear Chairman and Committee Members,

Please find attached our submission to this enquiry, please note that this submission covers only the Point b of the terms of reference, and more specifically the industrial costs and benefits related to the 2 manufacturing organisations owned by ourselves.

Lovitt Technologies Australia and Electromold Australia are both our businesses in different fields of the aerospace industry.

## **Summary**

Involvement in the F-35 program has created 42 jobs across the company over the past 2 years and set the company on a path to transform the style and complexity of work we manufacture into the future.

The F-35 program was the impetus to establish commercially available in-country wet processing, removing a roadblock hindering manufacturers participating in the F-35 and various other aerospace production programs, and thus enabling various niche Australian manufacturers to begin to organise themselves into an industry.

## **Background Lovitt Technologies Australia**

Lovitt is a precision machining house located in Montmorency in Melbourne's outer suburbs. Founded in 1954 specifically to service the automotive industry and moving into aerospace in the 1980's, Lovitt has been a manufacturer of complex metallic components for the aerospace industry for over 30 years, predominately OEM (original equipment manufacturer) components for commercial jetliners. With a staff of 69, Lovitt manufactures Titanium and Aluminium components using computer controlled milling machines.

Operating in a purely 'build to print' environment, Lovitt does not own any intellectual property over the items manufactures, but rather competes on price, quality and delivery. Lovitt's intellectual property lies within the technology used to manufacture the parts and the manner in which it is used, it is how innovatively we approach the manufacture of our parts that allows us to compete.

## **Lovitt's F-35 Experiences**

Lovitt manufactured its first detail part for Lockheed Martin on the F-35 in 2006 after many years of visitations by Lockheed personnel and officials, tenders and contract negotiations.

At that time Lovitt was also involved with 2 other development programs, those being the Airbus A380 and the Boeing 787, both of which were suffering from development challenges and unforeseen delays. Every aircraft development program experiences significant engineering challenges and delays, we knew Lovitt could not afford to have another delayed program, so engagement on the F-35 was approached cautiously and conservatively.

Over the ensuing years a strong business relationship grew with Lockheed Martin and Lovitt's work statement slowly grew also. For the period 2006 to 2013 Lovitt shipped approximately 5500 detail parts to Lockheed Martin, but sales remained at no more than 10% of the business turnover.

During this time Lovitt also saw exposure from various other US and UK based manufacturers on the program and formed brief business relationships with some, although none as large or long lasting as Lockheed Martin. Lovitt is currently part of the supply chain for the F-35 contracts held by Quickstep Technologies in Bankstown, NSW and do a lesser amount Northrop Grumman in California, USA.

In 2013 Lockheed Martin challenged Lovitt with larger and more complex components and minor aircraft assemblies. We now felt mature enough as a company and the program had stabilised enough that we decided to tackle these challenges. This new work statement and scope would require Lovitt to invest in equipment, technology and people, signing long term contracts gave us the customer commitment we needed. Lovitt was starting to transform.

Among these investments has been the installation of a Makino T1 machining centre, the only one of its kind in Australia and the tenth installed worldwide. This machine is specifically designed for efficient machining of large titanium components and runs around the clock.

Another investment has been the installation of a Mitutoyo Coordinate Measuring Machine (CMM) with an inbuilt laser scanner, this has allowed us to measure complex assemblies in minutes rather than hours without even touching the part. Traditionally a complex assembly needs to be measured with very expensive and part specific jigs and fixtures. This CMM allows us to place any assembly on the CMM table and scan the entire assembly with the scan not only measuring dimensions, but also verifying fasteners are installed the correct way around and paint masking has been completed correctly.

Since 2013 Lovitt has employed 23 new staff members and invested \$4.9M in the latest, most efficient machines in Australia. In the past 2 years, thanks to more value added products and increased production rates the total value of the product Lovitt has shipped to Lockheed Martin on the F-35 is greater than all other years combined.

## **Background Electromold Australia**

Electromold is a fully approved aerospace chemical processing shop performing various services for aerospace metallic parts within Australia. These services broadly include crack detection, surface treatment and painting. Within the aerospace industry the activities that Electromold perform are amongst the most tightly controlled by OEM's due to their criticality to detect defects and prevent corrosion.

Electromold processed its first aerospace component in 2009 following approval of its procedures and controls by Lockheed Martin for the F-35 program. Currently employing 42 staff, Electromold was purchased by Lovitt in 2013.

Electromold is the only Lockheed Martin approved commercial processing facility in Australia and currently supports the following Australian companies also involved in the F-35 program :

Lovitt Technologies Australia

Levett Engineering

Marand Precision

Heat Treat Australia

Quickstep Technologies

Varley Group

Ferra Engineering

A.W. Bell Pty. Ltd.

## **Electromold's F-35 Experiences**

Electromold's story on the F-35 began in 2008 when a decision (by previous ownership) was made to transform the business from a generalist chemical processing shop into an aerospace chemical processing shop. This is a significant decision as the investment required in quality systems, auditing, people, training and equipment was substantial. It was also significant as up to this point there was no approved commercially available chemical processing in Australia, meaning that aerospace manufacturers had no option but to send their product overseas during manufacture to have the chemical processing completed.

During various industry briefings at the time Lockheed Martin had indicated that in-country chemical processing was a necessity for the manufacturers in Australia to be successful on the F-35 program.

During 2009, after a relatively large investment in time and money, Electromold received Lockheed Martin approval, followed closely by the necessary industry approval commonly known as NADCAP.

For the next few years the previous owners of Electromold, having invested very heavily in the program waited for the program rates to increase and for the 'critical mass' of work to arrive to justify the investment.

During this time Boeing, as part of its Global Supply Chain activities had made it very clear that in-country wet processing was a pre-requisite for Australian manufacturers to be considered to participate in their OAIC (Office of Australian Industry Capability) programs also. Consequently Boeing, Federal and State governments, and industry (including Lovitt) assisted Electromold with knowledge and funds to obtain the

necessary Boeing approvals. Electromold gaining Boeing approval removed a roadblock inhibiting Boeing work coming into Australia, this would not have been achieved if Electromold had not already been LM and NADCAP approved.

Sadly for the previous owners of Electromold, the critical mass never eventuated during their ownership and their ability to fund the organisation ran out during 2013 when they approached Lovitt hoping to save the jobs of the 23 staff and keep the business running. Electromold had by then become a linchpin to Lovitt's survival, but also to the future of aerospace metallic parts manufacturing in country. Lovitt made the decision to purchase Electromold, maintaining the approvals and people and continuing to offer services to parts manufacturers in Australia. Lovitt bought Electromold at the end of 2013.

During 2015 Electromold grew significantly on the back of the growth of Lovitt and also increased activity of the various manufacturers within Australia, mostly F-35 related. Electromold has employed 19 new staff members since the purchase by Lovitt and expanded operations significantly.

With continued growth of the industry into the future we look forward to the day when another processing shop becomes more viable, a healthy processing base is a very good yardstick to a healthy industry.

One of the most exciting productivity improvement projects that has been worked on at Electromold in recent times has been tackling the issue of masking for paint applications. Traditionally masking activities are very laborious and require very good understanding of the engineering drawing being worked upon to be able to apply the mask in the correct spot. Electromold have developed 3D printed masking aids for all types of applications. An engineering review of a drawing extracts all of the relevant engineering information, which is then translated into a plastic throw away printed masking aid which has a simple location point and ensures accurate placement of the mask, thus making the masking process significantly faster and more accurate.

## **Conclusion**

Lovitt has always been a respected manufacturer of small component parts in aluminium and titanium, and has built a worldwide reputation. Lockheed Martin's F-35 commitment to Lovitt has allowed us to transition into larger detail parts, and minor aircraft assemblies, a feat not easily achieved in Australia with limited opportunities.

The F-35 program has provided stimulus and incentive to the detail parts manufacturers which could only be described as niche several years ago, it has introduced opportunities either directly through the program, or indirectly through capability development, which has seen the entrance of many new companies and investment in people and technology.

An interruption of any kind in the level of continued growth due to the F-35 will have almost immediate negative affect on many businesses, including our own, meaning a loss of talent, capacity and momentum.

Marcus Ramsay

Managing Director