# ASX Announcement





CONTACT DETAILS

41-43 Wittenberg Drive
Canning Vale, WA
AUSTRALIA 6155

enquiries@auroralabs3d.com
t. +61 (0)8 9434 1934
auroralabs3d.com

ASX CODE: A3D
ACN: 601 164 505

## A3D Successfully Manufactures Australian Gas Turbine Engine with 3D Metal Printed Parts

**Highlights:**

- **Successful design, print and testing of A3D's 200N Class gas turbine engine comprised of 3D metal printed, and sovereign-built parts, with demonstrated capability of sustained firing, thrust and fuel efficiency data captured to share with select customers**
- **As a first mover, A3D continues to fast track turbine designs in the Australian market with increased power for 400N Class gas turbine engine**
- **Ongoing turbine application discussions with customers in target markets of defence and aerospace continues with positive responses**

Aurora Labs Limited ("A3D" or "the Company") (ASX:A3D), is pleased to announce its continued product development of a 200N Class gas turbine.

A micro gas turbine is a combustion engine at the centre of a small propulsion system or power plant that can convert natural gas or other liquid fuels to mechanical energy for requirements in applications including unmanned arial vehicles or instant power generation.

The current model will be available in the market as early as next month with capabilities for lightweight propulsion systems in a broad range of markets. In parallel the development of a 400N Class model is progressing.

Commenting on activities, CEO Rebekah Letheby, said:" 3D metal printing has worked to its strength in accelerating the product prototyping process of A3D's sovereign turbine engine.

The team has manufactured an advanced product in under 4 months. The turbine engine design and printing has successfully met benchmarks for laboratory prototype testing, which is at the cutting edge of high energy 3D metal printing of components. Testing will now move to the field where the engine can be fitted to a remotely piloted airframe.

We have an excellent level of interest for A3D's printed engines which also have application not only to unmanned aerial vehicles, but also instant power generation.

It is our goal to have a cutting-edge piece of technology to sell to the sizeable defence and aerospace markets."

## Turbine Development

A3D in development of the prototype turbine engine has set about meeting market established benchmarks for its 200N Class turbine engine. The required thrust, air intake efficiencies, engine weight and fuel consumption constraints have been met, and we have further scope for improvement through unique generative design changes, suited for 3D printing.

The engine operates and compares in function and performance requirements to comparable engines built by traditional manufacturing methods. The advantage with the A3D engine is fewer complex parts, that result in a fast and reliable assembly process, without compromising on performance. A3D has the 3D printing machines and expertise to carry out production runs of the engine, onshore in Australia.

Efficiency and the weight of turbines are some of the key areas of A3D's testing focus. These two items are linked in our turbine model by selecting individual parts which can be lightweighted through design, but also to select metal materials which ensure efficient material performance and allow for a reduction in overall mass. A lighter engine will benefit aircraft with improved fuel efficiency. The design team also focus to ensure parts of the A3D turbine are amalgamated and printed as one assembly. While this is not possible for all parts currently, the reduction in the current number of parts has ensured time taken to assemble the engine is optimised and the ease of assembly is also improved by using less parts. In one section of the engine, we have managed to take 18 parts and amalgamate that into just 1 printed part, all while realising a 20% weight reduction on traditional engines of the same class.

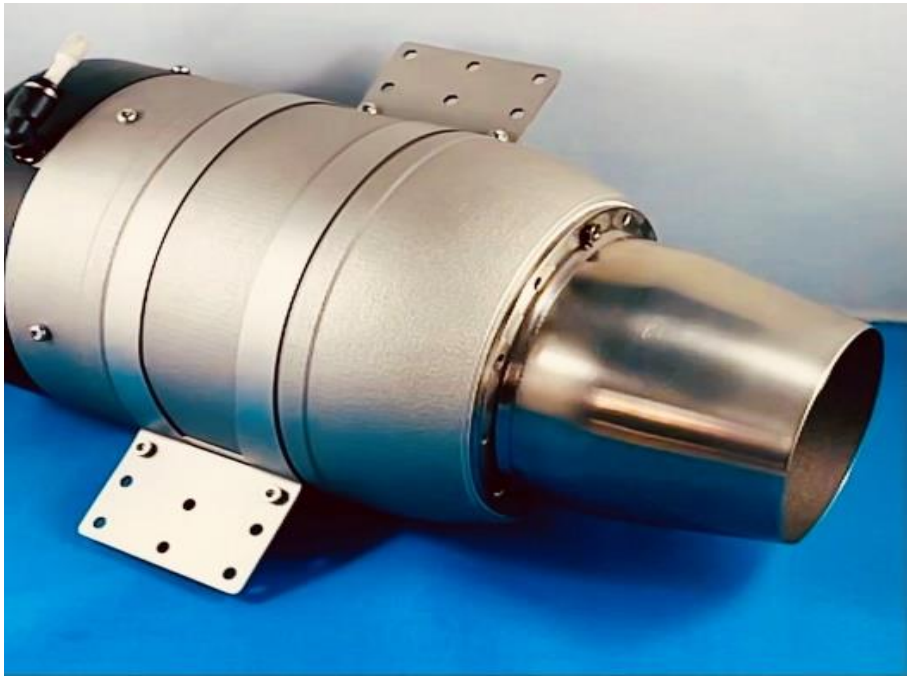

*Figure 1: Turbine prepared for testing*

The metal materials selected for the 3D printed parts show the required mechanical strength. Testing has shown that the printed interior components can perform with the required metallurgy withstanding the stress and high temperature that the metal material is subject to during the firing of the engine. The printed material is comparable to conventional metal materials which gives assurance to users that the end quality of the metal product is reliable and repeatable with the A3D printing method.

Fuel type is also of consideration with our turbine able to run on Jet-A1, kerosene and diesel fuels. This enables the end user the opportunity to use the turbine in many different environments, where specific fuel types may not be readily available.

## Defence and Aerospace Industry Engagement

A3D has actively demonstrated its current version of its printed gas turbine engine. Data from the current testing round will be supplied to several prospective customers which have requirements for gas turbine systems in various applications, including propulsion of unmanned aerial vehicles or instant power generation.

The supply of our engine which is sovereign designed, manufactured and assembled is of particular importance in supporting defence capabilities which are Australian based, and fits well with the pillars of the Australian Defence Review, 2023.

*Figure 2: 3D Printed gas turbine, being readied for inspection after successful test fire.*

## Next Steps

A3D is working with several customers who have seen the capabilities of our design and prototyping services and our gas turbine engine whilst in testing. In conjunction with testing of the 200N Class model, the Company is fast tracking the design and build of the larger 400N Class gas turbine model which will further enhance the market opportunities for large scale applications in the unmanned aerial vehicle sector where small turbines can be utilised as propulsion systems.

*Figure 3: Turbine exhaust nozzle prototypes in test*

Printed 3D metal parts and the use of additive manufacturing in the defence and aerospace industries will continue to be promoted to both large and small enterprises seeking innovative solutions provided by additive manufacturing, particularly with targeted geometries which excel in 3D metal printing.

In parallel, the Company continues to work towards delivery of the first AL250 printer.

Ends
Approved for release by the Company's Board of Directors.
For further information, please contact: Rebekah Letheby, Chief Executive Officer
+61 (0)8 9434 1934 or by email enquiries@auroralabs3D.com

## ABOUT AURORA LABS

Aurora Labs Limited ("the Company"), an industrial technology and innovation company that specialises in the development of 3D metal printers, powders, digital parts and their associated intellectual property.

Aurora Labs is listed on the Australian Securities Exchange (ASX: A3D)

## FORWARD LOOKING STATEMENTS

This announcement contains forward-looking statements which incorporate an element of uncertainty or risk, such as 'intends', 'may', 'could', 'believes', 'estimates', 'targets' or 'expects'. These statements are based on an evaluation of current economic and operating conditions, as well as assumptions regarding future events.

These events are, as at the date of this announcement, expected to take place, but there cannot be any guarantee that such events will occur as anticipated or at all given that many of the events are outside Aurora's control.

Accordingly, Aurora and the directors cannot and do not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this announcement will actually occur. For further information, please contact: enquiries@auroralabs3D.com