



# GENESIS ENGINEERING SOLUTIONS, INC.

Solutions in Space and Technology

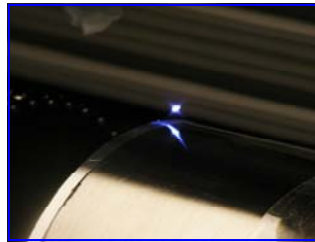
Celebrating  
**15 Years**  
of Engineering Excellence

Fall 2008 Edition

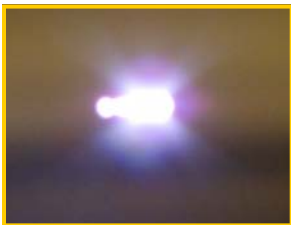
## Laser Technology

### Laser Induced Shock Wave Cleaning

The concept of a continuous "printing-press style", a.k.a. Roll to Roll, manufacturing process for electronics and displays is starting to come to fruition. These methods promise to produce displays and electronics at speeds comparable to the production of paper media and with similar characteristics, *i.e.* thin, flexible, and durable substrates. Several key obstacles still need to be addressed and resolved before this vision can become reality. One of these key obstacles is the cleanliness of the material throughout the manufacturing process. Cleanliness has always been a concern in the electronics manufacturing industry since it has a direct impact on the manufacturing yield and quality of the device. Genesis Engineering Solutions (GES) was recently approached by several industry leaders and asked to come up with a solution to address this problem. Our answer is Laser Induced Shock Wave (LISW) Cleaning.



In a nutshell, LISW cleaning removes particulates from a surface by a shock wave (a wave expanding faster than the speed of sound) created by a rapidly expanding plasma, which essentially sweeps the particles off of the surface. When applied to a curved flexible surface this becomes an effective method to remove surface contaminants. In the past year, GES has been developing a system to clean flexible substrate surfaces using LISW and have demonstrated the success of this cleaning method. Our current plans include the development of a general tool or a process unit that can be used either as a standalone unit or be installed and implemented at different stages throughout the manufacturing process, wherever a cleaning process is required.



A shock wave is formed from a laser induced plasma.

## GES Quick Facts

- Winner of the Small Business Award in 2006 from the TECH Council of Prince George's County, MD
- Founded in 1993
- Engineering Products Include: Aerospace, Laser Technology, Composite Materials
- Services Include: Design, Manufacturing, Testing, Training
- Over 150 critical parts to orbit on numerous spaceflight missions
- GSA Schedule Contract Provider

## Vision

Genesis will further its proven leadership in engineering solutions for challenges in aerospace and high-tech commercial applications. Our versatility will enable us to grow as a premier aerospace and technology provider.

## Mission

Genesis was founded to pursue passions, exercise talents, and create high-tech engineering solutions. Our mission can be stated simply: **We deliver excellence.**

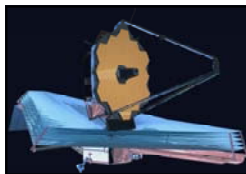
We are set apart from other engineering companies by combining three key elements to our solutions: honest business conduct, technical proficiency, and responsive management. We take great pride to ensure that customer expectations are exceeded in all three of these areas. Our goal is to make our customers successful by delivering excellence, yesterday, today and tomorrow.



## JWST Electronics Compartment

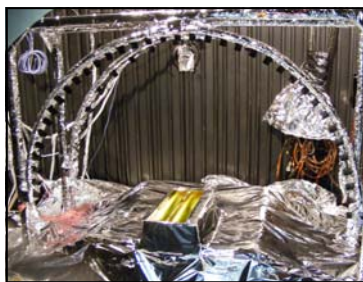
IEC

ISIM Electronics Compartment



One of the challenges of the IEC project is to effectively emit heat generated by the electronics compartment away from the telescope's science instruments.

The IEC team has developed a unique baffle solution fabricated with composite materials. The design was recently tested in a thermal vacuum environment. The results of the test have shown that the design concept will be an effective solution for the success of the James Webb Space Telescope.



The project continues moving forward. The JWST is planned for a 2013 launch.



Mike Lynch and Chad Sheng installing the Baffle Test Fixture in the Thermal Vacuum Chamber.

# Company Event

The **Annual Fall Picnic** was held at High Point Farm in Clarksburg, MD. The family event included great food, games, tractor/wagon ride, and a bonfire with S'mores. Somehow Robert Rashford managed to win the highly competitive sack race! →



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Check out our updated website  
[www.GenesisES1.com](http://www.GenesisES1.com)

