March 4, 2000

BEAL AEROSPACE FIRES LARGEST LIQUID ROCKET ENGINE IN 30 YEARS

Texas Company Builds World's Largest Liquid Engine Since Apollo Moon Program

Beal Aerospace fired today the largest liquid rocket engine built since the historic Apollo program of the 1960s. The 810,000-pound vacuum thrust hydrogen peroxide/kerosene engine, designated the BA-810, is the Stage 2 engine for Beal's forthcoming BA-2 heavy-lift launch vehicle, scheduled for inaugural launch in 2002. The engine made a 21-second firing at the company's engine test facility in McGregor, Texas before a large crowd of company employees, industry and government VIPs, news media and other guests.

Today's test was the third firing of the engine. Beal engineers completed 30 seconds of testing on the engine in two previous tests in preparation for today's firing. The engine consumes almost 3,000 pounds of propellants per second of operation and generates the equivalent of 6.7 million horsepower.

A new thrust chamber was fitted for today's tests. The chamber used in the previous two tests is undergoing analysis at Beal's engineering and assembly facility in Frisco, Texas, near Dallas, and will return to the stand for future tests.

"This is a remarkable achievement for our program," said company founder and CEO Andrew Beal. "Our program started small in 1997, with a vision to build a more reliable, more economic means to space for the international satellite community. After a steady stream of successes in our engine development and composite-tank programs, we're beginning to generate a lot of attention. Building the largest liquid engine in 30 years is an extraordinary achievement – particularly for a private company."

The engine marks several milestones in the aerospace community:

- It is the second largest liquid engine ever built, second only to the powerful F-1 engines used in the Apollo program. It is 10 times more powerful than the Redstone rocket that put the first American into space in 1961.
- It is the largest liquid engine built since the F-1 flew on the last Apollo mission in 1973.
- It is the largest thrust chamber ever made from carbon-fiber filament. The space-flight version of the chamber will be 26 feet in length and 20 feet in diameter at its exit nozzle.
- It is the largest hydrogen peroxide-propelled engine ever built. Hydrogen peroxide was first developed as a rocket propellant in the 1930s, then was replaced in later years for more potent alternatives like liquid oxygen. Advances in engine design and chemical engineering, pioneered at Beal Aerospace, have led to a rediscovery of hydrogen peroxide and its operational and environmental advantages. Hydrogen peroxide, for example, is stored and handled at ambient temperature, rather than cryogenic temperatures like other propellants.
- It is the largest engine ever built by a private program with no ties or funding by the

government. Beal Aerospace is a fully private company dedicated to build more reliable and economic access to space for the international satellite community.

Beal's McGregor facility features two additional test stands: a vertical-fire test stand for smaller engines, and a 220-feet tall vertical-fire stand, currently under construction, for larger engines. The McGregor test facility also houses a five-ton-per-day hydrogen peroxide concentrator, designed and built by company engineers. Headquartered in Frisco, Texas, near Dallas, Beal Aerospace designs, is building and will launch heavy-lift vehicles for the international satellite community.