

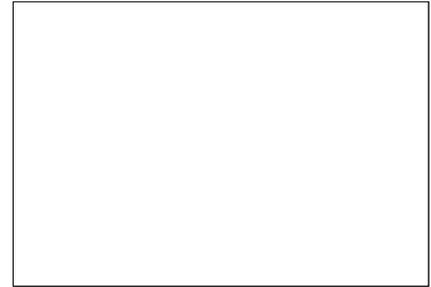
Gulf Coast Reporters' League

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Vol. VIII, Issue IV

Gulf Coast Aerospace Corridor's bimonthly update of aviation activities in the I-10 region

February 2021



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Military/Economy

Still leading, but risks acute

The United States military and the nation's defense companies are still global leaders, but unless changes are made the U.S. faces a growing, perhaps permanent, security deficit.

For the Gulf Coast I-10 region, an area of the country that builds aircraft, spacecraft, ships, electronics and more, a report that provides a snapshot of the health of U.S. industrial might is bound to be of high interest.

The *Fiscal Year 2020 Industrial Capabilities Report* released last month does just that. It notes that the American military is still the world's most powerful, its defense companies still global leaders in weapons innovation and production, and the Department of Defense is still the single biggest buyer of goods in the U.S. government.

"But unless the industrial and manufacturing base that develops and builds those goods modernizes and adjusts to the world's new geopolitical and economic realities, America will face a growing and likely permanent national security deficit," the report says.

The report points out that advanced technologies, seen by many as the way to preserve American leadership, also rely on the manufacturing complex.

It recommends a defense industrial strategy based on re-shoring the defense industrial base and supply chain, building a modern manufacturing and engineering workforce and research and development base, mod-

ernizing the defense acquisition process, and finding new ways to partner private sector innovation with public sector resources and demand.

Major trends impact the health of the industry. One is the steady deindustrialization of the United States over five decades, from 40 percent of GDP in the 1960s to less than 12 percent today. Another was the end of the Cold War and the resulting shift from defending against a peer, state adversary to fighting terrorism. But the reality of a surging, militant China and still dangerous Russia is now apparent. Another broad trend is the widespread use of advanced technologies, driving the global economy but also posing new threats to security both in the public and private sectors.

The report concludes that the United States defense industrial base has reached an inflection point regarding the balance between its vulnerabilities and its opportunities for modernization and reform.

Some might say restoring the nation's defense industrial and manufacturing base dominance will require nothing less than a miracle. But the United States and its military have shown the resolve to produce miracles is deeply steeped in U.S. history.

Ambitious policies require a willingness to make strategic decisions, like recognizing that what worked in the past may not work in the future. The report says consensus is growing across political lines on the need to reshore critical industries, create American jobs, and counter the China challenge.

The requirement that the federal government guide and direct the nation's industrial future, including its defense needs, is part and parcel of the American tradition, says the report.

In his Report on Manufactures published in 1791, Secretary of the Treasury Alexander Hamilton urged Congress to promote America's industrial base so that the United States could be "independent on foreign nations for military and other essential supplies."

In addition to protecting national independence, support for manufacturing incentives for emerging industries would level the playing field in the global markets of the day.

- *David Tortorano*

Buy American - again

President Biden signed an executive action on Jan. 25 that administration officials say will close loopholes in federal government "Buy American" policies.

The order creates a new position in the White House's budget office that will oversee the implementation of "Buy American" provisions, and the president will direct a review of waivers for these rules.

The order reflects the shifting consensus in American politics away from free trade and toward direct government intervention to promote U.S. manufacturers, a position Trump embraced as well.

Major U.S. allies oppose Buy American efforts, fearing the loss of lucrative contracts.



Key aerospace sectors

The report covers industries of high interest to the region, including aircraft, space, cybersecurity, missiles/munitions, ships and more.

The two most closely linked to Gulf Coast aerospace are aircraft and space.

Aircraft

Prime contractors and suppliers often rely on revenues from both defense customers and commercial customers, says the report.

Commercial aviation customers typically bring in large-volume orders and stable demand forecasts over longer terms than do government purchases.

Thus demand from commercial customers is essential to sustain manufacturers and suppliers within the defense industrial base.

In 2019 the aircraft sector was one of the strongest with growing commercial demand and stable defense demands, but two events in 2020 changed everything. One was the production halt in January of the Boeing 737 Max after two deadly crashes. The other was the pandemic, which disrupted the supply chain with shutdowns, absences, and furloughs. Air travel took a huge hit worldwide.

Matt Coughlin, executive director of Pensacola International Airport, said that although Pensacola is down from pre-pandemic numbers, the passenger counts locally are relatively robust in comparison to the national numbers showing a decrease of 60 to 65 percent across the system as compared to one year ago.

Many industry experts anticipate it will take at least three to five years for the airline industry to return to pre-COVID global passenger traffic.

Due to the downturn of the commercial aviation, suppliers may choose to downsize capacity by closing facilities or not operating equipment and machines, the report says.

This in turn can potentially create

supply chain bottlenecks, especially when airline passenger traffic numbers improve and the aircraft original equipment manufacturers start increasing order quantities again.

Space

Demand for space capabilities and services, and resulting capability development, is increasingly driven by foreign and domestic commercial markets, says the report.

The U.S. is in the fortunate position of being the overall world leader in commercial space, but near peer competitors such as China are rapidly expanding their commercial space industrial bases.

But certain National Security Space Mission requirements are unique and require support outside the growing commercial sector.

The DoD, in coordination with other federal agencies, including NASA, will continue to leverage, support, and promote the commercial space industry, where appropriate.

There are potential areas of support where the DoD and partner agencies can positively help the U.S. commercial space industry. For example, recent economic analysis by the U.S. Air Force Office of Commercial and Economic Analysis and the MITRE Corporation highlight that government support of the launch industry, coupled with commercial efforts to reduce space launch costs and increase reliability, is effective in helping U.S. commercial launch service providers gain additional global market share.

However, the U.S. government should simultaneously be aware of the likely oversaturation of launch service providers, especially small launch providers, when considering the foreseeable Total Addressable Market for space launch, the report says.



Military

Military retirees bring money *and* skills

Sure, getting new businesses helps an area, but so does having a large population of military retirees who bring fresh dollars and skills to the local economy.

Nearly 55,000 military retirees in 18 counties and parishes in the Gulf Coast I-10 region receive close to \$143 million every month in Department of Defense retirement payments, according to the latest figures from the DoD Office of the Actuary.

The figures as of Sept. 30, 2020, show the financial impact of military retirees to the region between Southeast Louisiana and Northwest Florida. The retiree pay does not include retired members of the U.S. Coast Guard, part of the Department of Homeland Security.

While all economic development officials strive to attract new businesses and help businesses already there, attracting military retirees is also high on the list. The larger the number of military retirees, the larger the infusion of federal dollars into the local economy. But there's much more beyond the dollars.

Nathan Sparks, executive director of the Okaloosa Economic Development Council, says that while it's apparent the federal retirement dollars helps the local economy, having so many former military is indicative of a skill pipeline that appeals to businesses.

"It's vitally important for us," and a major piece of the county's economic development effort, he says. Retired military, along with veterans who do not get a retirement check, provide a pool of skilled talent.



"They are uniquely qualified to transition into a number of jobs," Sparks says. "By and large they are excellent private sector employees. We find that it resonates" with existing and new businesses alike.

Sparks says that today 50 percent of those transitioning from military to civilian life from area bases stay in Okaloosa County. Just four years ago it was 35 percent.

Okaloosa County is one of five counties in Northwest Florida that account for just under \$102.4 million in retiree pay every month, followed by three counties in South Mississippi, which account for nearly \$20.8 million. Military retirees from eight parishes in Southeast Louisiana bring in just over \$10 million while two counties in South

Alabama account for nearly \$9.6 million.

The breakdown is as expected since military retirees frequently chose to enter civilian life in areas with bases and associated facilities that they can use. Northwest Florida is home to the most military bases in the I-10 region.

Northwest Florida

Florida, already one of the nation's leading retirement destinations, is aggressive in recruiting military retirees. There's no state income tax, so no tax on military pensions. The state highlights the large number of bases in Florida, meaning retirees have easy access to on-base amenities like golf courses, health clubs, and tax-free shopping.

Florida is also among the states with programs to help military retirees transition into new careers.

Northwest Florida is a hot spot for military bases, and five counties there have 37,203 military retirees paid by DoD, according to figures from the Office of the Actuary.

Okaloosa County, home of sprawling Eglin Air Force Base, Hurlburt Field and Duke Field, has the largest number of military retirees, 14,386, most retired from the Air Force. They receive \$40,804,000 every month from DoD.

The home of Naval Air Station Pensacola, Escambia County is next with 10,122 mostly Navy retirees, who receive \$27,677,000 from DoD. Next is Santa Rosa County, home of Naval Air Station Whiting Field, with 8,261 military retirees, mostly Air Force. They receive \$21,605,000 every month from DoD. The large number of Air Force retirees is likely due to the county's proximity to Eglin and Hurlburt immediately to the east of Santa Rosa County.

Bay County, home of Tyndall Air Force Base and the Naval Support Activity Panama City, has 2,812 mostly Air Force military retirees paid \$7,872,000, and Walton County, home of Eglin's Site C-6 radar installation, has 1,622 military retirees. Most of those retirees are from the Air Force, and they are paid \$4,435,000 per month.

South Mississippi

In South Mississippi, Harrison County, home of Keesler Air Force Base and the Naval Construction Battalion Center, has 5,875 military retirees, most from the Air Force, paid \$13,134,000 per month by DoD. Jackson County has the next largest number of military retirees,

most from the Air Force, with 2,732 paid \$6,177,000 every month. Last is Hancock County, home of NASA's Stennis Space Center and its largest tenant, the Navy. It has 640 mostly Navy retirees, paid \$1,475,000 per month.

Southeast Louisiana

In Southeast Louisiana, St. Tammany Parish has 2,100 mostly Navy retirees who receive \$5,327,000 per month from DoD, followed by Orleans Parish with 1,122. Most of Orleans Parish retirees are Navy, paid \$2,691,000 per month. Jefferson Parish has 577 mostly Navy retirees paid \$1,158,000 every month.

Retirees in five other parishes receive less than \$1 million a month: St. Charles, 290, mostly Army, paid \$590,000; St. Bernard, 93 mostly Army, paid \$164,000; St. John the Baptist, 33, almost evenly split between the Air Force and Navy, paid \$56,000; St. James, 27 evenly split between Air Force and Army retirees, who are paid \$53,000; and Plaquemines, 19 retirees paid \$42,000, almost evenly split between the Marines, Army and Navy.

South Alabama

In South Alabama, Baldwin County, home of several Navy outlying landing fields and immediately west of Escambia County, Fla., has 2,800 military retirees, most from the Army, who receive \$7,264,000 every month. Mobile County, has 1,111 military retirees, most from the Army, paid \$2,325,000.

The number of retirees who receive monthly checks is not an exact reflection of the number of military retirees. All of the counties also have military retirees whose net pay

is zero or less after any Survivor Benefit premium deductions and other offsets such as Veterans Administration payments and waiving retirement pay to receive a Civil Service Annuity.

Compared with other retirees, people who retire from the military are often younger. Service members typically can retire after twenty years of service and collect 50 percent of their salary for the rest of their lives. Those who serve longer than twenty years receive a higher payout.

WalletHub in May 2020 ranked Florida second after Virginia as the best state for military retirees. Alabama was sixth, Louisiana 31st and Mississippi 46th.

In order to determine the best and worst states for military retirement, WalletHub compared the 50 states and the District of Columbia across three key dimensions: 1) economic environment, 2) quality of life and 3) healthcare.

The US military offers very generous pension benefits. After 20 years of service, members can retire with 50 percent of their final salary for the rest of their lives. Since that allows most to retire around age 40, the payouts may last for a very long time (and they are also adjusted for inflation).

Generally, economists are usually the most interested in how capital infusions positively affect income. Most economists believe that capital infusions of any kind, whether from the governmental or corporate level, will have a broad snowball effect on various aspects of economic activity.

- David Tortorano

Space

NASA opts for second Green Run test

The long-awaited Green Run test of the Space Launch System core was cut short, but NASA will get another crack at testing the four RS-25 engines this month.

Stennis Space Center, Miss.

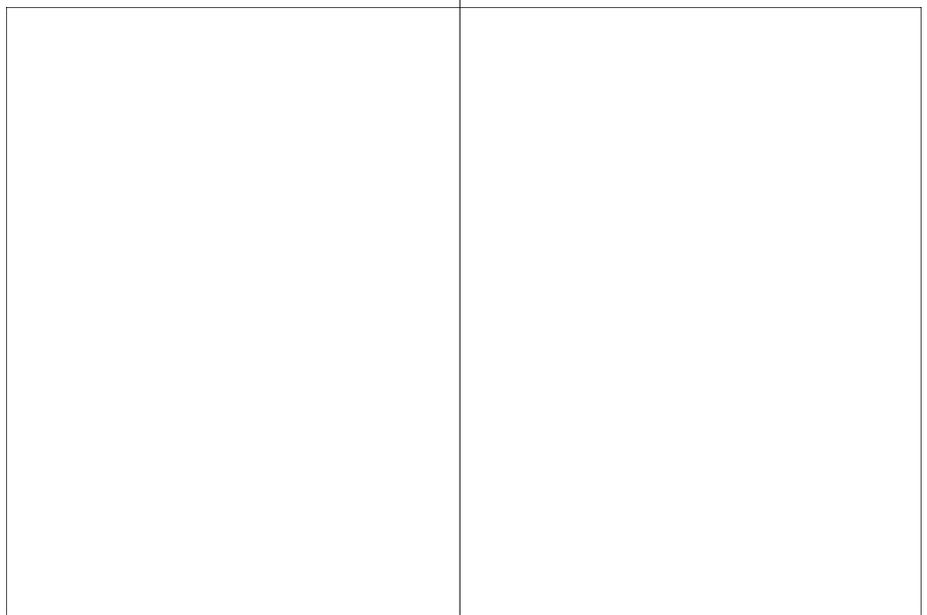
The loudest rocket engine test in South Mississippi since the days of the Saturn rocket ended early Jan. 16 when a hydraulic system for one of the four RS-25 engines hit an intentionally conservative limit during the test.

What should have been an eight-minute test was instead just over a minute when the hydraulic system for Engine 2 on the core stage “exceeded the pre-set test limits that had been established” for the Green Run test, according to a NASA statement.

While NASA said it got valuable data from the short test, the question remained. Would NASA opt to conduct another test or would it be satisfied with the data collected in the aborted test and ship the core to Kennedy Space Center.

It didn’t take long for an answer. The decision was made before the end of January to conduct a second test. NASA decided to schedule a second Green Run test of the Space Launch System core stage the week of Feb. 21 on the B-2 test stand. The specific date for the test will be set following the test readiness review, the agency said.

There was little doubt the test in January was a disappointment. The hope was to gain all the data needed to ensure a launch from Kennedy Space Center later this year.



Four RS-25 engines are fired in a test at Stennis Space Center, Miss.

NASA/SSC photo

But the hydraulic problem during the Jan. 16 test dashed the hope of collecting the data. But, in fact, the system worked the way it was intended - shutting down.

“As they were programmed to do, the flight computers automatically ended the test,” said a statement from NASA after the aborted test.

That hydraulic system is part of a control system used to gimbal the engine to direct its thrust, and is powered by a Core Stage Auxiliary Power Unit, or CAPU. One CAPU shut down during a gimbaling test that was part of the static fire.

“This gimbaling test event that resulted in shutting down the CAPU was an intentionally stressing case for the system that was intended to exercise the capabilities of the system,” according to NASA. Had it happened in flight, the SLS would have used other CAPUs to power the thrust vector control system.

In addition to the hydraulic system problem, there was also a major component failure reported by test controllers about 45 seconds after ignition. NASA said the major component failure occurred 1.5 seconds after ignition, and was caused by the loss of one leg of redundancy in instrumentation for Engine 4.

But the test was set up to proceed with this condition because the engine control system still has sufficient redundancy to ensure safe engine operation during the test, NASA said.

NASA had previously said the parameters for the Green Run test would be “intentionally conservative” to keep the core safe since it is flight hardware intended for use on the first SLS launch, Artemis 1.

“This core stage is a high-value flight article that will return America to deep space,” said John Shannon, vice president and SLS program manager at Boeing, in a com-

pany statement about the Green Run test. "Our redline limits were set to achieve data collection without unnecessarily risking the system."

In comments before the first test, NASA and Boeing officials said that while the test was scheduled to last for 485 seconds, they would collect most of the data they needed after 250 seconds. However, the engine shutdown took place after just 67.2 seconds.

If the test the week of Feb. 21 is successful, the core stage will be shipped by barge to Florida's Kennedy Space Center. It is highly likely the new test will delay the launch scheduled for later this year.

Prior to the January test, NASA informed area residents that they should expect elevated decibel levels at SSC during the test of the core stage.

The test of all four RS-25 engines produced a combined 1.6 million pounds of thrust. The acoustic level produced is about 10-20 decibels higher than during a normal single engine test at the site.

The actual acoustic level experienced by area residents depended on their location relative to the test site and the prevailing weather conditions.

Because of COVID-19 protocols, there was no opportunity for the general public to be on hand for the January test, but it was shown live on NASA television. A limited number of journalists will be allowed for the February test, according to an advisory sent out by NASA.

- Gulf Coast Reporters League

Single engine tests begin again at SSC

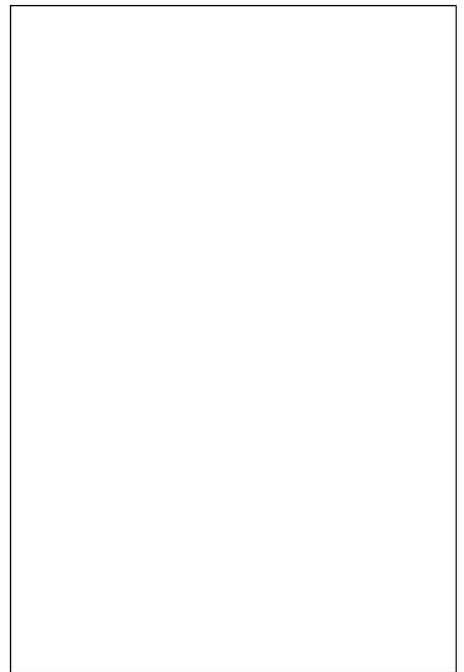
NASA officials began a new round of tests for development of RS-25 engines that will help power the Space Launch System (SLS) rocket on future missions to the Moon and, eventually, Mars.

The first test of the new series was Jan. 28 on the A-1 Test Stand at Stennis Space Center (SSC) in Southwest Mississippi. The engine was fired the full duration of about eight-and-a-half minutes (500 seconds), the time the engines must fire to help send SLS to orbit.

The engine was fired at 111 percent of its original space shuttle main engine design power and the same power level needed to help launch SLS on its missions.

The seven-test series uses RS-25 developmental engine No. 0528, and will provide data for engine-builder Aerojet Rocketdyne as it begins production of new RS-25 engines for use after the first four SLS flights, which use upgraded space shuttle main engines and have completed certification testing. NASA now is focused on providing data to enhance production of new RS-25 engines and components for use on subsequent SLS missions.

The new engines and components will be manufactured with cutting-edge and cost-saving technologies, including 3D print technology and hot isostatic pressure

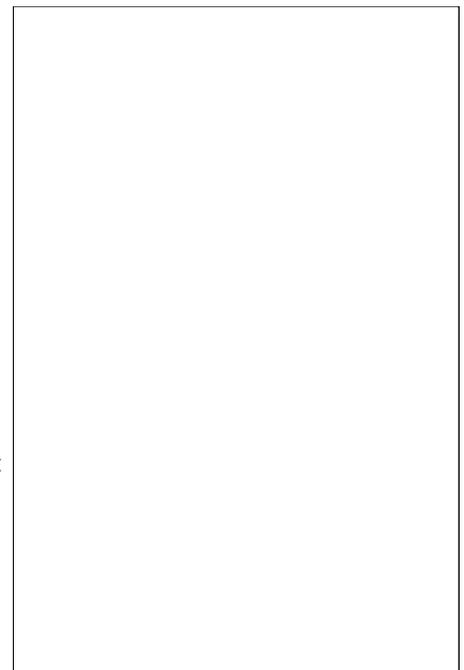


RS-25 hoisted on A-1. NASA/SSC photo

bonding.

The SSC test engine will be fired seven times for a total of 3,650 seconds during the first half of 2021.

■■■



RS-25 test Jan. 28 at SSC. NASA/SSC photo