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Inside:

OPERATIONS

U.S. Navy Seeks Portable ADS-B In Receivers For Aircraft ..... PAGE 2

Damage, Repair Assessment Of Arecibo Observatory Underway ..... PAGE 5

PROGRAMS

Northrop Tests GEM 63XL Rocket Motor ..... PAGE 2

Leonardo Flight Testing Skidded AW169 ..... PAGE 3

Osiris-Rex Looking Good For Oct. 20 Asteroid Encounter ..... PAGE 4

TECHNOLOGY

VerdeGo Runs Diesel-Hybrid Power Train At Production Power ..... PAGE 6

FLEET SNAPSHOT

Cuban Revolutionary Air And Air Defense Force ..... PAGE 7

Renewable

Energy company Phillips 66 has announced plans to convert its San Francisco Refinery into the world's largest renewable fuels plant, producing 800 million gallons a year of renewable diesel and gasoline as well as sustainable aviation fuel. The project will reconfigure the refinery's Rodeo facility to produce renewable fuels from used cooking oils, fats, greases and soybean oils. If approved by local authorities, the Rodeo Renewed project will begin producing fuels early in 2024. By ending fuel production from crude oil at the facility, the project will help California meet its environmental goals, said Phillips 66, and enable the company to meet its obligations under the state's Low-Carbon Fuel Standard.

Daily Briefs

RUSSIAN DEFENSE MINISTRY on Aug. 12 announced it will sign two state contracts for the supply of 21 Sukhoi Su-30SM2 fighters and 25 Yakolev Yak-130 advance jet trainers.

BAE SYSTEMS has $103.6m U.S. Navy contract for repair and alteration requirements for USS Preble (DDG 88) Chief of Naval Operations scheduled depot maintenance.

FIRST RF CORP. has $24.9m U.S. Air Force contract for radio frequency electronic antenna cancellation/beamforming technology software/hardware prototypes.

TRUMP ADMINISTRATION and the Pentagon announced that 100 MHz of contiguous mid-band spectrum, in the 3450-3550 MHz band, will be available for 5G by the end of summer.

BOEING has $12.8m U.S. Navy contract for development/integration of modified Nose Radome into the P-8A aircraft in support of Lot 10 full rate production VI.

PROGRAMS

Lockheed Receives Delivery Orders For F-16S To Taiwan, Morocco

STEVE TRIMBLE, steve.trimble@aviationweek.com

Lockheed Martin has received a contract to deliver 66 F-16 Block 70s to Taiwan and 25 F-16 Block 72s to Morocco worth a combined $4.94 billion, the Defense Department announced Aug. 14.

The initial order for about 90 aircraft overall includes a completion date for all deliveries by the end of 2026, the Defense Department said.

The deal confirms a long-awaited order to deliver 66 of the GE Aviation F110-powered F-16s for Taiwan and about 25 Pratt & Whitney F100-powered F-16s for Morocco. The U.S. government approved export packages for both aircraft in 2019.

The award also creates a long-term, 10-year umbrella contract for future international F-16 sales with streamlined pricing terms. The overall value of the indefinite-delivery/indefinite quantity contract over the 10-year period is $62 billion, but that represents a not-to exceed amount.

The Taiwan and Morocco deals add another boost for the F-16 program following the moving of the assembly line to Greenville, South Carolina, from Fort Worth, Texas, in 2019.

Lockheed also has signed orders for the F-16 from Bahrain, Bulgaria and Slovakia.

OPERATIONS

U.S. Navy Seeks Portable ADS-B In Receivers For Aircraft

BILL CAREY, bill.carey@aviationweek.com

The U.S. Navy is seeking information from industry to equip Navy and Marine Corps aircraft with portable automatic dependent surveillance-broadcast (ADS-B) In receivers to display weather and traffic data in the cockpit.

The service published a request for information (RFI) for the Portable ADS-B In requirement on Aug. 13, with responses due by Aug. 28.

The RFI seeks information on interface and size options, weight, power requirements and reliability, and environmental qualifications. Responses also will be used to develop preliminary cost estimates and an acquisition strategy, the service said.

Several manufacturers, including Boeing ForeFlight, Garmin, Stratux and uAvionix offer portable, dual-band (978 MHz and 1090 MHz) ADS-B receivers, typically costing in the hundreds of dollars.

Working with associated antennas, the battery-powered handheld units can be mounted by suction cup to the aircraft's window to receive and display on smartphones or tablet devices graphical weather, air-to-air ADS-B traffic, GPS position and backup attitude heading and reference system information.

"Numerous Navy and Marine Corps aircraft are looking for weather and traffic information for use in the cockpit," says the RFI from the Naval Air Systems Command's PMA-209 Combat Electronics Program Office. "PMA-209 is looking for solutions that can be quickly fielded to meet these needs for improved situational awareness."

As of Jan. 1, the FAA requires that aircraft flying within most controlled airspace in the U.S. be equipped to broadcast their GPS-derived position, altitude, velocity, identity and other information at once per second to its network of ground stations by the function called ADS-B Out. Aircraft equipped for ADS-B In have the ability to receive and display targets from other aircraft broadcasting by ADS-B Out.

Aircraft equipped with ADS-B In receivers also have access to the FAA's Traffic Information Services-Broadcast (TIS-B) and ADS-Rebroadcast (ADS-R) services when within the coverage range of an ADS-B ground station and terrestrial radar or multilateration systems.

TIS-B provides surveillance data on nearby ADS-B equipped and nonequipped aircraft; ADS-R relays traffic information from aircraft equipped with 1090 MHz ADS-B Out transponders to aircraft equipped with 978 MHz Universal Access Transceivers (UAT) within range of an ADS-B ground station.

The FAA allows aircraft that operate below 18,000 ft. to use just UAT transceivers to signal their position. The UAT frequency receives the FAA's Flight Information Services-Broadcast service, with national and regional weather.

The Navy said that it expects to issue a single-award indefinite delivery, indefinite quantity contract with firm fixed-price delivery orders. The selected portable receiver must integrate with tablet devices that are suitable for Navy and Marine Corps aircraft.

PROGRAMS

Northrop Tests GEM 63XL Rocket Motor

JEN DIMASCIO, jen.dimascio@aviationweek.com

Northrop Grumman on Aug. 13 conducted the first ground test of an extended-length solid rocket motor it is developing with United Launch Alliance (ULA) for the Vulcan Centaur rocket at Northrop's facility in Promontary, Utah.

The 63-in.-dia. Graphite Epoxy Motor (GEM 63XL) is being created to add lift capability to the Vulcan Centaur. The static test was the first of two. It sought to qualify the motor for ballistic performance and design in cold temperatures.

During the static test, the motor fired for about 90 sec., producing nearly 449,000 lb. of thrust. The test demonstrated technologies that were similar to a motor that was qualified for flight in October 2019. Other test objectives included determining the insulation/nozzle thermal performance factors, measuring ablative nozzle erosion, determining nozzle plug performance and the evaluating performance factors of the igniter insulator.

"Our new GEM 63XL motors leverage its flight-proven heritage while utilizing state-of-the-art manufacturing technology to enhance launch vehicle heavy-lift capabilities," said Charlie Precourt, vice president for propulsion systems at Northrop Grumman. "The GEM 63XL increases thrust and performance by 15-20% compared to a standard GEM 63."

At 72 ft. (22 m), the GEM 63XL is the longest single-case rocket motor, longer than the 65-ft. GEM 63 that Northrop plans to fly for the first time on a ULA Atlas V later this year.

The U.S. Air Force recently chose ULA's Vulcan to fly 60% of its national security space launch missions purchased through 2024; SpaceX will be assigned the remaining 40% of launches on its Falcon 9 and Falcon Heavy rockets.

PROGRAMS

Leonardo Flight Testing Skidded AW169

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LONDON, ANKARA—Leonardo has equipped one of its prototype AW169 twin-engine intermediate-medium helicopters with skidded landing gear as part of flight testing for a militarized version of the platform ordered by the Italian armed forces.

Images of the aircraft, taken by an aviation enthusiast during flight testing in Italy, show the aircraft fitted with skids instead of the standard retractable wheeled landing gear. They also reveal that the company appears to be testing new endplate configurations for the AW169's horizontal stabilizers.

Production-standard AW169s feature a horizontal stabilizer with an upturned swept tip not unlike a winglet.

The test configuration is more like a wingtip fence but with the upper section angled back toward the tail boom at an acute angle to the horizontal stabilizer, extending about half the length of the lower stabilizer. The configuration may be an attempt to generate more lift. Airbus' new H160 uses what the OEM calls a biplane stabilizer, which improves lift and stability at low speeds.

The endplate configuration is often one of the last elements of a new helicopter to be finalized; the design is often adjusted to improve stability and controllability, particularly in the cruise.

In a statement to Aerospace DAILY, Leonardo Helicopters would not comment on the endplate configurations. But it said the new skidded configuration would "provide a further option for the global market leveraging the outstanding versatility by design and growth potential of the AW169."

The company says customers will be able to select between the option of electrically retracted wheeled, fixed wheeled and skidded landing gear. "The addition of skids to the available customized options of the AW169 is intended to meet market needs in both the military and public service domains," the company says.

The Italian Army has requirements for a fleet of skid-equipped AW169 Light Utility Helicopters that would replace long-serving Agusta A109s and Agusta/Bell-produced AB206 JetRangers, AB205 Iroquois and AB212 Twin Hueys and AB412 Griffons. Proposals to order a first batch of around 15 helicopters were detailed in Italian government procurement documents in April, the platform referred to as the AW169 Advanced Multirole. These will be fitted with skidded landing gear and an advanced command, control and communication system for interoperability with other NATO platforms.

To pave the way for the new AW169 LUH/AM aircraft, the Italian Army has purchased two commercial AW169s for crew training; the first was handed over in July.

PROGRAMS

Second Prototype Akinci UAS Flies

TONY OSBORNE, tony.osborne@aviationweek.com

ANKARA—Turkey's Baykar Makina has flown the second prototype Akinci medium-altitude/long-endurance unmanned aircraft system.

The second Akinci—coded PT-2—took to the air from Corlu airport, west of Istanbul, on Aug. 13 and flew for 1 hr. 2 min., the manufacturer announced.

The company also confirmed that a third prototype of the twin-engine UAS will join the flight test program by year's end.

According to the translated press release, the first flight by the second prototype is only the third flight of the Akinci platform so far, with progress being much slower than the original timeline had suggested. The original schedule for the program envisioned the Akinci flying in early 2019 and entering service in 2021. But this appears increasingly unlikely, given the slow pace of flight testing.

The first Akinci flew on Dec. 6 and made a second flight on Jan. 10. There are no obvious external differences between the first and second prototypes.

Baykar developed the Akinci primarily for the armed attack mission, with the platform able to carry up to 1,000 kg (2,200 lb.) of weapons, primarily locally developed bombs and missiles. Along with conventional electro-optical sensor payloads, Baykar plans for the Akinci to carry an active electronically scanned array radar and synthetic aperture radar. Communications will be performed by a beyond-line-of-sight satellite communications system.

The platform builds on the success of the smaller Tactical TB2 platform, which is in widespread use across the Turkish armed forces and has seen operational use in Libya and Syria.

Currently without a nationally developed turboprop engine, the Akinci is powered by a pair of Ukrainian-made Motor Sich AI-450C turboprop engines.

Baykar is a partner on a Ukrainian joint venture to develop the platform, following the successful sale and delivery of Bayraktar TB2 armed tactical UAVs to the Ukrainian armed forces.

PROGRAMS

Osiris-Rex Looking Good For Oct. 20 Asteroid Encounter

MARK CARREAU, mark.carreau@gmail.com

NASA's Osiris-Rex sample return mission spacecraft is on a path to execute a brief landing on the rocky surface of the asteroid Bennu on Oct. 20 following a successful second rehearsal of the steps necessary to execute the descent and ascent earlier this week, according to the mission team.

In a first for NASA, Osiris-Rex is to extend its 11-ft.-long, multi-jointed Touch-and-Go Sample Collection Mechanism (TAGSAM) for a 5-sec. encounter with the floor of Nightingale Crater near the north pole of the spherical, 1,640-ft.-wide, carbon-rich body. Bennu is believed to hold new clues as to how the planets formed and obtained their water and organics, the building blocks of life.

Verifying systems

The 4 1/2-hr. Aug. 11 rehearsal verified the spacecraft's imaging, navigation and ranging systems as well as the probe's onboard hazard avoidance features. Operating 180 million mi. from Earth, Osiris-Rex is programmed to recognize and maneuver autonomously away from hazards on the boulder-strewn surface of the 66-ft.-wide impact crater.

The spacecraft can perform up to three attempts to descend for the collection of up to 4.4 lb. of pebbles and soil. TAGSAM is to tap the surface at Nightingale, releasing a burst of nitrogen gas that will stir surface material up and into a circular container before ascending.

"This rehearsal confirmed that the team and all of the spacecraft's systems are ready to collect a sample in October," University of Arizona principal investigator Dante Lauretta said in an Aug. 12 update. "Many important systems were exercised during this rehearsal from communications, spacecraft thrusters, and most importantly, the onboard Natural Feature Tracking guidance system and hazard map. Now that we've completed this milestone, we are confident in finalizing the procedures for the TAG event."

After the exercise, Osiris-Rex began a lengthy return to its safe home orbit above Bennu. The return will include four maneuvers scheduled to begin Aug. 14 and conclude with an Aug. 27 orbit insertion, according to an Aug. 13 update from Kenneth Getzandanner, the spacecraft's fight dynamics manager at NASA's Goddard Space Flight Center.

Mission challenges include the distance between Earth and Bennu, a near-Earth asteroid that is of interest because it has a remote chance (estimated at 1/2,700) of impacting the Earth between 2175 and 2199. The long distance means that commands to and data back from the spacecraft require 16 min. of travel each way.

Prior commands

In response to prior commands, Osiris-Rex departed its half-mile-high home orbit for the Aug. 11 rehearsal and carried out so-called Checkpoint and Matchpoint maneuvers that brought it to an altitude of 131 ft. over Bennu and matched the spacecraft's motion to the asteroid's rotation before backing away. In April, a first rehearsal carried the probe through the Checkpoint descent maneuver, bringing it to 246 ft. over the surface, and exercised the TAGSAM deployment and repositioning of the solar arrays to assure they will avoid contact with the asteroid's surface.

Then came another challenge: the global coronavirus pandemic. The mission team responded with workplace safety measures and rescheduled the sample collection from August to late October.

Osiris-Rex is a $1 billion NASA New Horizons mission launched in September 2016. The probe reached Bennu in December 2018 to begin a lengthy surface reconnaissance and sample site selection process. The spacecraft is to depart Bennu in early 2021. It is to return to Earth, dropping off its sample container for a parachute-assisted descent onto the U.S. Army's Utah Test and Training Range, on Sept. 24, 2023.

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OPERATIONS

Damage, Repair Assessment Of Arecibo Observatory Underway

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An investigation into an incident that damaged the National Science Foundation (NSF) Arecibo Observatory in Puerto Rico was continuing Aug.14, focusing on the cause and the cost of repairs.

A break in an auxiliary support cable on Aug. 10 left a 100-ft.-long gash in the large reflector dish and exterior of the suspended Gregorian dome antenna.

Efforts to identify the cause are focused on the 3 1/4-in.-wide cable's connection to a support socket that gave way.

Arecibo's 1,000-ft.-dia., 167-ft.-deep dish is among the world's largest single-dish radio telescopes. Among a full slate of around-the-clock astronomical activities underway at the time of the incident were observations of gravity waves, pulsars and studies by NASA's Planetary Defense Program of near Earth asteroids that could pose an impact threat to Earth.

The staff's initial concern is making sure the observatory's structure is sufficiently sound to permit a thorough evaluation of the damage without risking injury, Francisco Cordova, the Arecibo Observatory director, and Ray Lugo, director of the Florida Space Institute at the University of Central Florida and the observatory's lead researcher, told an Aug. 14 news briefing. The observatory is managed for the NSF by the University of Central Florida.

The damaged cabling was installed about 20 years ago as part of the addition of the Gregorian dome structure. Possible damage linked to recent seismic activity in the region has not been ruled out, Cordova said.

As it fell, the cable damaged an estimated 250 of 40,000 panels comprising the giant reflector dish. It appears that receiver and transmitter instrumentation within the Gregorian dome was not damaged, though eight exterior aluminum panels were, Cordova and Lugo said.

"This is just another bump in the road for the observatory and the community," Cordova told the briefing. "The importance of the observatory is super clear. We all understand that. We are a pretty resilient bunch. I think we have proven that after the impact of Hurricane Maria. And then we have been kind of tested with some earthquakes and then tested again with the pandemic. Certainly it's a significant event, but we are working really hard to make sure we re-establish capability and continue to move forward."

In September 2017, Hurricane Maria devastated much of Puerto Rico, leading to sustained power losses. The observatory managed to recover from limited damage and turn to generators to resume observations. Then earlier this year a series of earthquakes in the region temporarily interrupted observations. Meanwhile, the coronavirus pandemic has interrupted scheduling and workplace access at businesses and institutions globally since March.

The observatory's staff is reaching out to prospective contractors and manufacturers of the customized cabling to establish initial cost estimates for repairs. The information could be forthcoming by the end of next week, Cordova said. At the same time, the staff is assessing whether temporary repairs might be possible in the interim.

"Certainly, our commitment is to have this back up and running as quickly as possible," Cordova said. "With that being said, our science teams are still hard at work. We have plenty of Arecibo data to analyze. Certainly, we won't be making new observations until we have re-established the structural integrity."

PROGRAMS

U.S. Army Finally Conducts IBCS Limited User Test

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After about a four-month delay because of issues related to the spread of the novel coronavirus, the U.S. Army has completed a successful live-fire test of the Integrated Air and Missile Defense Battle Command System (IBCS) at White Sands Missile Range in New Mexico.

The Aug. 13 test incorporated a slew of sensors and shooters and featured a command-and-control system that designated a response to the appropriate shooter. The sensors and shooters included in the test were Patriot Advanced Capability-3 (PAC-3) Cost Reduction Initiative (CRI) interceptors, Sentinel radar and MQM-178 cruise missile surrogate targets.

The distance between nodes was more than 50 km (30 mi.), Col. Phil Rottenborn, a project manager at the program executive office for missiles and space, told reporters Aug. 13.

The PAC-3 CRI interceptors were fired from different launchers at the same battery site against MQM-178s, he said.

This is different from how the Army normally operates. Typically the service would fire two interceptors at each target because they would not know the cruise missile's flight pattern.

"The benefit to that is it'll save us interceptors in the future battle, whereas normally we would run out of interceptors," Col. Tony Behrens, army capability manager director at Army Air and Missile Defense Command, said during the same briefing.

The Army is prepping for another IBCS test in the coming weeks that will include both cruise missile and ballistic missile targets, Army Futures Command chief Gen. John Murray said.

TECHNOLOGY

VerdeGo Runs Diesel-Hybrid Power Train At Production Power

GRAHAM WARWICK, graham.warwick@aviationweek.com

Electric power train developer VerdeGo Aero is running what the startup describes as "the most powerful piston hybrid system in the world."

The system has run at production power at VerdeGo's headquarters in Dayton Beach, Florida, co-founder and CEO Eric Bartsch told Aviation Week's Urban Air Mobility virtual conference Aug. 13.

Test and refinement

VerdeGo has teamed with Continental Aerospace Technologies to develop hybrid-electric power trains based on the engine manufacturer's Jet A-burning diesel-cycle piston powerplants. The startup is targeting distributed electric propulsion systems for commercial aircraft up to 7,500 lb. gross weight.

"We've entered the test and refinement phase to get toward a conformal design to enter production," Bartsch said. "We've moved from hardware that was under development to hardware that's being tested."

VerdeGo's hybrid core couples a Continental Jet-A piston engine with a generator that outputs more than 184 kW of electricity. The system weighs 277 kg (609 lb.) and has a volume of 1.22 x 0.91 x 0.86 m (48 x 36 x 34 in.) including cooling system, power distribution and exhaust.

"As an industry we want to be electric because of its efficiency, emissions and noise. When we think why we want to be a hybrid, the answer is to have enough electrons on board to make that electric aircraft useful and safe," Bartsch said.

"If we put a hybrid system into that aircraft that is loud and burns a lot of fuel and has huge CO2 emissions, then we're not actually achieving that goal," he said. "Why we're doing diesel hybrids is to ensure that the hybrid is additive to the concept of electrification and isn't negating the concept."

Compared with a system built around a turbine engine, a diesel hybrid is 40% cheaper to operate, generates 35% less CO2 and is more than 10 dB quieter, VerdeGo calculates. "So there is a huge rationale for hybridization, and we're very bullish on this over the next 10-20 years," Bartsch said.

VerdeGo also is developing a battery-electric power train, but hybrid-electric offers higher performance in the near term. "The energy density challenges [with batteries] are substantial. But even if those were solved we have some significant challenges with cycle lifetime, calendar lifetime, charge rate and charging infrastructure," he said.

With the relatively short cycle lives of current high-power battery packs "it's actually far cheaper to operate a hybrid-electric power train than it is battery-electric powertrain," Bartsch said. "Because while the energy is much cheaper for the battery-electric power train, the replacement batteries drive up the cost."

Fleet Snapshot

Cuban Revolutionary Air And Air Defense Force

Family	Type	Sub-Mission	Currently In Service
Fighter			
MiG-29/35	MiG-29 (9.12B)	Air Combat	2
	MiG-29UB (9.51)	Training Version	1
MiG-21 (J-7/8)	MiG-21bis L	Air Combat	8
	MiG-21UM	Training Version	3
Trainer			
L-39/59/159	L-39C	Advanced Jet Trainer	6
Transport			
An-24	An-26	General	1
ATR 42/72	ATR 42-500	VIP	1
Falcon 50	Falcon 50	VIP	2
Falcon 900	Falcon 900	VIP	1
Rotary Wing - Transport			
Mi-24/35	Mi-35 (Mi-24V)	Assault	3
Mi-8/14/17	Mi-17	General	14
	Mi-171 (Mi-8AMT)	VIP	2
	Mi-8MTV-1	Medevac	2
	Mi-8P	General	2
Total Fleet			**48**

Source: Aviation Week's Fleet Discovery Database. To learn about our fleet data products and services, go to: pgs.aviationweek.com/FleetDataServices

Prepared by Sam Archer and Nate Taylor

Calendar

To list an event, send information in calendar format to Amy Hardcastle at amy.hardcastle@informa.com. For a complete list of Aviation Week Network's upcoming events, and to register, visit www.aviationweek.com/events (Bold type indicates new calendar listing.)

[Virtual Event] Biweekly mini sessions starting Aug. 19 and Ongoing—Bombardier Safety Standdown 2020, https://safetystanddown.com/en

[Virtual Event] Aug. 20-21—Space Warfighting Industry Forum (SWIF). For more information go to https://www.ndia.org/events/2020/8/20/space-warfighting-industry-forum

[Virtual Event] Aug. 24-26—AIAA Propulsion and Energy Forum. For more information go to https://www.aiaa.org/propulsionenergy#

[Virtual Event] Aug. 25-26—SpeedNews Aerospace Manufacturing Conference. For more information go to https://amc.speednews.com

[Virtual Event] Aug. 25-28—UAS West Virtual Symposium. For more information go to asdnews.com/news/defense/2020/06/26/uas-west-virtual-symposium

[Drive-In Format] Aug. 29-30—New York International Air Show, NY Stewart Int'l Airport, Hudson Valley, NY. For more information go to https://airshowny.com

[Virtual Event] Aug. 31-Sept. 3—2020 Humans to Mars Summit, For more information go to https://www.exploremars.org/summit

[Virtual Event] Sept. 2-3—Military Robotics and Autonomous Systems 2020 Conference. For more information go to http://www.smi-online.co.uk/defence/uk/conference/robotic-autonomous-systems

[Virtual Event] Sept. 3-4—Military Space Situational Awareness Conference 2020. For more information go to https://smi-online.co.uk/defence/uk/milspace

[Virtual Event] Sept. 10—Women In Defense National Leadership Symposium. For more information go to https://www.womenindefense.net/events/2020/9/10/women-in-defense-virtual-leadership-symposium

[Virtual Event] Sept. 15-16—SpeedNews Commercial Aviation Industry Suppliers Conference. For more information go to https://ace.speednews.com

[Virtual Event] Sept. 22-24—Modern Day Marine. For more information go to https://www.marinemilitaryexpos.com/modern-day-marine/home

[Virtual Event] Sept. 22-24—Full Spectrum Air Defence Digital Conference. For more information go to https://www.marinemilitaryexpos.com/modern-day-marine/home

[Virtual Event] Oct. 12-14—IAC 71st International Astronautical Congress - The CyberSpace Edition. For more information go to http://iac2020.org

Oct. 19—Aviation Week Network's 63rd Annual Laureate Awards, The Ritz-Carlton Tysons Corner, McLean, VA. For more information go to https://laureates.aviationweek.com/en/home.html

[Virtual Event] Oct. 19-29—SPACECOM, For more information go to https://spacecomexpo.com

Oct. 20-21—Aviation Week DefenseChain Conference, The Ritz-Carlton Tysons Corner, McLean, Virginia. For more information go to https://defensechain.aviationweek.com/en/home.html

Oct. 21—Aviation Week Program Excellence Awards and Banquet, The Ritz-Carlton Tysons Corner, McLean, Virginia. For more information go to https://defensechain.aviationweek.com/en/home.html

Oct. 27-28—Mexico's Aerospace Summit, Querétaro Congress Center, Santiago de Querétaro , Mexico. For more information go to https://www.mexicoaerospacesummit.com

[Virtual Event] Oct. 27–29—Aviation Week MRO TransAtlantic. For more information go to https://mrotransatlantic.aviationweek.com/en/home.html