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| l | **Forward to the Moon with ESA****January 2020****A-Roll****Duration: 4 mins** **Text intro:** The first flight of the Artemis programme, which will see humans return to the Moon, is scheduled to begin soon. The lunar spacecraft consists of NASA's Orion crew module and the European Service Module, or ESM. Developed by ESA and building on technology from its Automated Transfer Vehicle [ATV], the ESM will provide propulsion, life support, environmental control and electrical power to Orion. The Artemis 1 spacecraft modules are undergoing thermal vacuum and electromagnetic interference tests in the world's largest space simulation vacuum chamber at the Glenn Research Centre's Plum Brook Station in Sandusky, Ohio, USA.This A&B Roll highlights preparations and testing of Orion at Plum Brook Station with interviews in English and French. |

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| **Timecode** | **Footage** | **Voiceover** |
| **10:00:00** | Opening titles |  |
| **10:00:10** | Still: the MoonGVs Orion/ESM in cleanroom at NASA's Plum Brook Station, Sandusky, Ohio, December 2019Exterior GVs Space Environment Complex [SEC]; Space Simulation Vacuum Chamber at NASA's Plum Brook Station, Sandusky, Ohio, December 2019 | **Fifty years after humans first walked on the Moon, NASA is planning to return - with ESA as an integral partner.** **This silver capsule is Orion, the crew module - and below it is the European Service Module or ESM, the European element that will make the journey possible.****Orion and ESM are at the Glenn Research Centre's Plum Brook Station in Ohio, USA, where they are undergoing a series of tests in readiness for their upcoming spaceflight.** |
| **10:00:43** | Soundbite: Nicole Smith, Project Manager, Orion Testing, NASA[overlay: Orion/ESM in cleanroom at NASA's Plum Brook Station, Sandusky, Ohio, December 2019] | *“We put it in the world's largest space simulation chamber, we pump all the air out of it and then we give it the cold background of space and we hit it with hot in certain areas to simulate being on orbit, no air, in the sun, very very hot, in the shade, very very cold. And then we hit it with radio frequency waves, so we simulate for example sitting on top of a rocket on the pad, it gets pinged with radar as it's sitting there, we run all the electrical systems, make sure everything continues to work despite being hit with these radio frequencies.”*  |
| **10:01:20** | Animation Orion/ESMArchive: ATV-5 docking to the ISS, August 12th 2014 | **The Orion crew capsule was developed by NASA, who entrusted ESA with creating a service module to propel and power it – as well as providing life support.****The ESM's technology builds on systems used in ESA's Automated Transfer Vehicle, which ferried supplies to the International Space Station between 2008 and 2014.** |
| **10:01:44** | Soundbite: Pierre Boisvert, ESM Test Campaign Manager, ESA[underlay: GVs Orion/ESM preparations for transfer to Space Simulation Vacuum Chamber at NASA's Plum Brook Station, Sandusky, Ohio, December 2019] | *“It was described as being derived from the ATV, on various aspects of avionics components – of course the function is different from ATV itself. It provides thrust from the propulsion system, it provides commodities for the crew such as water, nitrogen, it provides all of the temperature control to keep the crew in a good environment, it provides the electronic equipment as well.”*  |
| **10:02:12** | GVs Orion/ESM preparations for transfer to Space Simulation Vacuum Chamber at NASA's Plum Brook Station, Sandusky, Ohio, December 2019Graphics: the Artemis 1 mission | **The tests in Plum Brook station will take two months, after which the lunar spacecraft will be transported back to Kennedy Space Center to meet its launcher – the newly-developed Space Launch System, or SLS.****Following ESA's recent Space19+ Ministerial Conference in Seville, Spain, four European Service Modules have been budgeted for. The first uncrewed mission, Artemis 1, will launch the spacecraft into an elliptical orbit around the Moon.**  |
| **10:02:44** | Soundbite: Nicole Smith, Project Manager, Orion Testing, NASA | *“Artemis 1's success is very critical, we want this mission to be as perfect as it possibly can be, we want it to achieve all of its goals, we want everything to be perfectly safe because we want to make sure we say yes, we are OK to launch people on the second Artemis.”*  |
| **10:03:00** | GVs Orion/ESM preparations for transfer to Space Simulation Vacuum Chamber at NASA's Plum Brook Station, Sandusky, Ohio, December 2019 | **Named after the Greek god Apollo's twin sister, the Artemis programme incorporates a series of progressively complex flights for Orion and ESM.** **The third Artemis mission will put humans on the moon for the first time since 1972 - a dream come true for everyone working on this ambitious programme.** |
| **10:03:21** | Soundbite: Pierre Boisvert, ESM Test Campaign Manager, ESA[underlay: GVs Orion/ESM preparations for transfer to Space Simulation Vacuum Chamber at NASA's Plum Brook Station, Sandusky, Ohio, December 2019] | *“It's been a very long design phase, a lot of development, build-up of hardware, integration, assembly, testing, it's a very challenging programme of course but it is a big, big achievement I believe.”*  |
| **10:03:40** | GVs Orion/ESM ttransferred to Space Simulation Vacuum Chamber at NASA's Plum Brook Station, Sandusky, Ohio, December 2019 | **After the tests at Plum Brook have been completed, Artemis 1 will be qualified for flight - and ready to begin the bold space programme that will see astronauts re-visit our Moon.** |
| **10:04:00** | **A-Roll ends** |  |
|  | **Back to the Moon with ESA****January 2020****B-Roll****Duration: 22 mins** |
| **10:04:00** | **Soundbites: Pierre Boisvert, ESM Test Campaign Manager, ESA [English]** |
| **10:06:44** | **Soundbites: Pierre Boisvert, ESM Test Campaign Manager, ESA [French]** |
| **10:09:28** | **Soundbite: Nicole Smith, Project Manager, Orion Testing, NASA [English]** |
| **10:13:43** | **GVs Space Environment Complex [SEC] at NASA's Plum Brook Station, Sandusky, Ohio, December 2019 © NASA** |
| **10:14:14** | **GVs/timelapse transportation and arrival of Orion/ESM at NASA's Plum Brook Station, Sandusky, Ohio, November 2019** |
| **10:16:18** | **GVs Orion/ESM in cleanroom at NASA's Plum Brook Station, Sandusky, Ohio, December 2019** |
| **10:17:24** | **GVs Orion/ESM preparations for transfer to Space Simulation Vacuum Chamber at NASA's Plum Brook Station, Sandusky, Ohio, December 2019** |
| **10:21:36** | **GVs Orion/ESM transferred to Space Simulation Vacuum Chamber at NASA's Plum Brook Station, Sandusky, Ohio, December 2019** |
| **10:22:09** | **Animation: the Artemis 1 mission** |
| **10:24:36** | **GVs ATV-5 docking to the International Space Station, August 12th 2014 ©ESA/NASA** |
| **10:25:54** | **End titles** |
| **10:25:58** | **B-Roll ends** |