

Roman Space Telescope



Roman Community Forum Project Status

October 26, 2022

Project ManagerDeputy Project ManagerDeputy Project Manager / TechnicalDeputy Project Manager / ResourcesProject ScientistDeputy Project ScientistMission Systems EngineerChief Safety & Mission Assur. OfficerGround System Manager

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NASA GODDARD SPACE FLIGHT CENTER • JET PROPULSION LABORATORY •
 L3HARRIS TECHNOLOGIES • BALL AEROSPACE • TELEDYNE • NASA KENNEDY SPACE CENTER •
 • SPACE TELESCOPE SCIENCE INSTITUTE • IPAC • EUROPEAN SPACE AGENCY •
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Mission Overview



Science Description

- Survey the NIR sky
- Determine the nature of the dark energy that is driving the current accelerating expansion of the universe
- Perform statistical census of planetary systems through microlensing survey
- Provide the community with a wide field telescope for pointed observations



Project Description	Key Information	Instruments	Partners & Contractors
A NASA observatory designed to perform wide-field imaging and slitless spectroscopic surveys of the near infrared (NIR) sky for the community	Mission Phase: C Launch Date: October 2026 Mission Life: 5 years Category: 1 Class: A tailored Launch Vehicle: Falcon Heavy Technical Authority: Goddard Program Office/Center: ASMP/HQ	Wide-Field Instrument (GSFC in-house and Ball Aerospace (WOMA)) Coronagraph Instrument (JPL) - technology demonstration	 Partners: ESA, JAXA, CNES, LAM, MPIA NASA Centers: GSFC (lead), JPL, KSC/LSP Significant Subcontractors: AURA/Space Telescope Science Institute Ball Aerospace L3Harris Technologies Teledyne Imaging Systems

	Year 2019			Year 2020				Year 2021				Year 2022					Year	2023		Year 2024				Year 2025					Year 2026				Year 2027	
	Roman Schedule				2020			FY 2021			FY 2022			FY 2023				FY 2024				FY 2025				FY 2026					FY 2027			
Concurat	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	
Major Milestones			PDR	KDP-C																				IR KDP-D					PSR C	\mathbb{R}^{R} KDP-E				





RECENT UPDATES



Wide Field Instrument (WFI) Integration Underway!

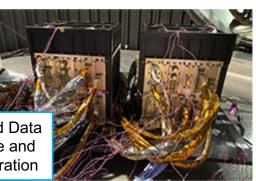


Ball and GSFC making good progress on WFI **Element Wheel** Assembly (EWA)

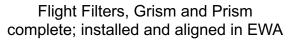


Flight Mosaic Plate Assembly with all Sensor Chip Assemblies and optical fibers is complete

Instrument Command and Data Handling boxes complete and delivered to Ball for integration









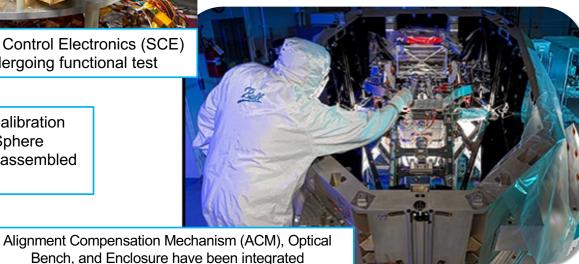
life test complete





First 4 Flight Sensor Control Electronics (SCE) installed and undergoing functional test

simplified Relative Calibration System (sRCS) Sphere Engineering Test Unit assembled and in test



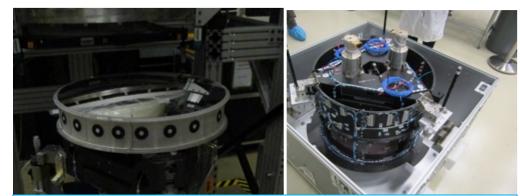


Optical Telescope Assembly (OTA) Integration Underway!





Primary Mirror Assembly (PMA) vibration testing complete!



Secondary Mirror / Secondary Optical Assembly (SOA) complete

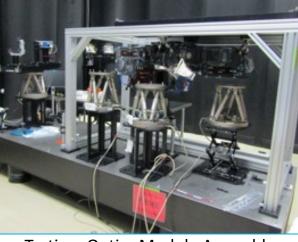


Secondary Mirror Support Tubes (SMST) complete

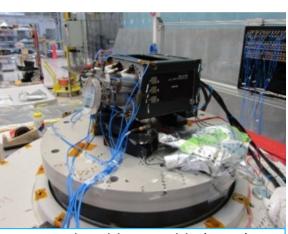
L3Harris in Rochester, NY, is making good progress on the OTA



Aft Optics Structure (AOS) Thermal-electric work in progress



Tertiary Optics Module Assembly (TOMA) configured for alignment

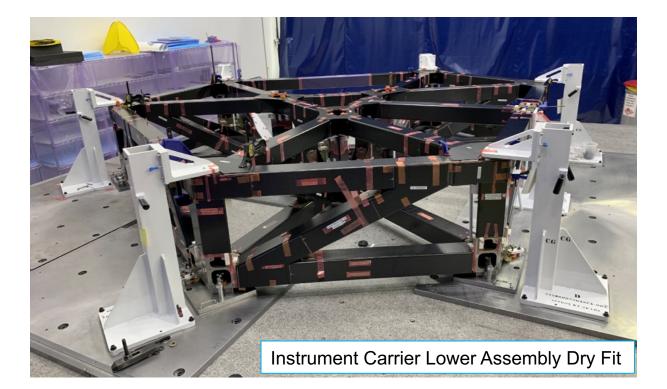


Tip Tilt Fold Assembly (TTFA) vibration testing complete





- Lower structure assembly is in bonding. Nodes for upper assembly are the critical path and have been tracking to schedule
- Launch Loads Vibration Isolation System (LLVIS) Engineering Development Unit parts in fabrication
- New issue reported by Northrop Grumman indicates out-of-tolerance fittings in the partially bonded lower assembly. Repair plan is in work; rework expected to be complete within available slack





Instrument Carrier Upper Assembly Titanium Fitting - fabrication nearly complete



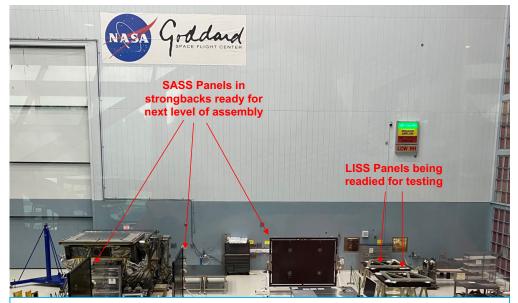
Spacecraft Bus Assembly Underway!



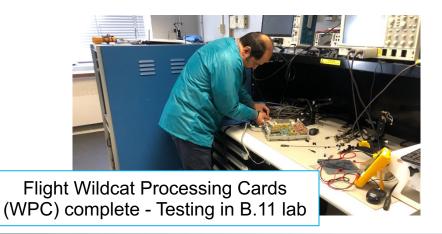
- Spacecraft structure, SASS, and LISS panels delivered
- Spacecraft Engineering Test Unit (ETU) avionics boards complete; flight builds in process
 - First flight boards complete: Flight Wildcat Processor Cards (WPC) delivered to Spacecraft and Instrument Command and Data Handling (C&DH) teams



Spacecraft Bus primary structure in B.5 high bay



Solar Array Sun Shield (SASS) and Lower Instrument Sun Shade (LISS) Panels in the B.29 SSDIF Clean Room



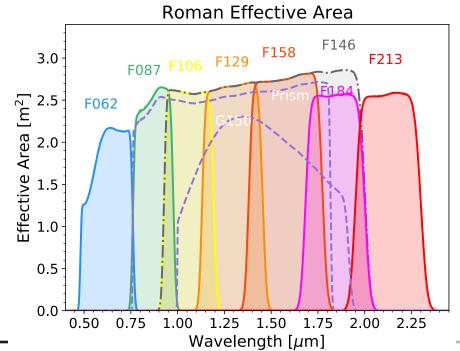




- Continue building and testing components, assembling the main elements
 - WFI, CGI, S/C, IC, OTA
 - Will be ongoing next ~1.5 years
- Performance characterization
 - Already have nearly all component-level data —
 - Filter characterization is ongoing esp. field-angle dependence
 - Instrument-level WFI characterization will occur during WFI thermal vacuum testing
 - Detector readout optimization is ongoing

Plot based on measured properties of the flight SCAs, mirrors, prism, grism.

Filter transmission still from a model, but apart from small ripple the actual transmission is as good or few% better.







THE ROMAN PROJECT REMAINS ON TRACK FOR LAUNCH IN FALL 2026