

# ON CLOSER INSPECTION

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Rocket Lab USA, Inc.  
rocketlabusa.com





SATELLITES

1

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INCLINATION

98

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# Mission OVERVIEW

About 'On Closer Inspection'



The 'On Closer Inspection' mission is scheduled to launch from Pad B at Launch Complex 1 in Mahia, New Zealand, and will carry a single satellite for Astroscale.

Space is becoming a crowded place. Since the launch of the first satellite in 1957, the amount of space debris in orbit has been steadily increasing. Much of this debris is comprised of spent rocket stages and satellites that have reached the end of their lifespan.

# MISSION PROFILE

About 'On Closer Inspection'



**Tracking Target:** H-IIA  
(spent rocket stage)

**Country of origin:** Japan

**Launched:** January 2009

**Dimensions:** 11m x 4m / 3 tons

**Altitude:** Approx. 600km

The tracking target that ADRAS-J will monitor is the H-IIA spent rocket stage. It does not provide any GPS data on its own, meaning the precise location and orbital position needed for an RPO mission is not available. Once deployed to a precise orbit, ADRAS-J will use ground based observation data of the target's approximate orbital position to initially approach from a safe distance based on this limited information.

Once the ADRAS-J is within a certain distance from H-IIA, ADRAS-J will use its own on-board rendezvous payload sensors to conduct a safe approach with the target. These sensors will capture various types of relative navigation information about the H-IIA, such as distance and attitude, needed to demonstrate RPO technologies to safely approach. Seamless switching and coordination between these sensors is crucial to the success of the mission. Switching between the sensors can be likened to transitioning between a telescope, binoculars, and a magnifying glass while in a fast-moving vehicle on Earth. This is a challenge that must be overcome for this type of mission. For this mission, ADRAS-J will conduct a close approach and orbit around the target to gather data and images to assess the stage's condition such as: spin rate, spin axis, and condition of the structure. The mission will demonstrate the most challenging RPO technologies necessary for on-orbit services, however ADRAS-J will not dock with the target stage.

# LAUNCH SITE OVERVIEW

Rocket Lab Launch Complex-1

# Viewing

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Time	Event
00:00:00	Lift-off
V00:00:55	Vehicle Supersonic
V00:01:0	Max-Q
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# Electron Launch Vehicle

## Overall

### LENGTH

18m

### DIAMETER (MAX)

1.2m

### STAGES

2 + Kick Stage

### VEHICLE MASS (LIFT-OFF)

13,000kg

### MATERIAL/STRUCTURE

Carbon Fiber Composite/Monocoque

### PROPELLANT

LOX/Kerosene

## Payload

### NOMINAL PAYLOAD

320kg / 440lbm To 500km

### FAIRING DIAMETER

1.2m

### FAIRING HEIGHT

2.5m

### FAIRING SEP SYSTEM

Pneumatic Unlocking, Springs

## Stage 2

### PROPULSION

1x Rutherford Vacuum Engine

### THRUST

5800 LBF Vacuum

### ISP

343 Sec

## Interstage

### SEPARATION SYSTEM

Pneumatic Pusher

## Stage 1

### PROPULSION

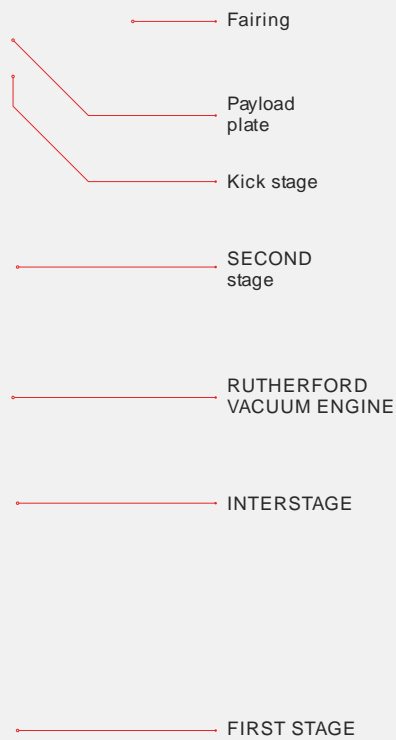
9x Rutherford Sea Level Engines

### THRUST

5600 LBF Sea Level (Per Engine)

### ISP

311 Sec





# MISSION PATCH ANATOMY

This patch was designed with a strong focus on the core characteristics of the unique mission – deploying a spacecraft on a pathway

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Star #1 – representing the piece of debris being investigated.

ADRAS-J  
(Active Debris Removal by Astroscale-Japan).

Tracking Target H-IIA  
(spent rocket stage)


Star #2 – representing the payload.


The ADRAS-J Spacecraft.

Signal rays from the spacecraft tracking data and taking imagery of the orbital debris.

Mission merchandise, including this mission patch, can be found online at: [rocketlabusa.com/shop](https://rocketlabusa.com/shop)

## Contact us

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