

Japan's Transportation Requirement & HTV Development Status



(image)

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“KIBO” Transportation Requirement

October 15, 2008

- Transportation Requirement of the Japanese experiment module “KIBO” operation and utilization (by Japan)
 - Up Mass ; 1000kg/yer
 - Down Mass; 350kg/yer



HTV Development Status

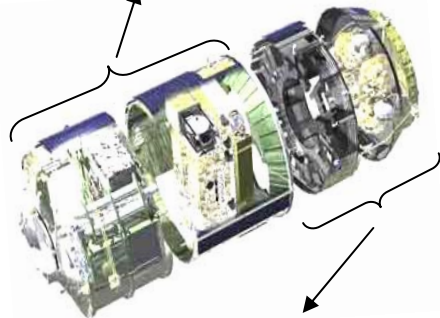
October 15, 2008

(1) HTV Flight Segment Development

- a) All modules were arrived at Tsukuba Space Center and system environment tests were completed.
- b) Final assembly and test will start at the end of 2008.
- c) Shipment for Tanegashima Space Center is scheduled at the end of April for launch in September 2009.



Pressurized / Unpressurized Carrier
for Thermal Test



(2) HTV-2, 3 (Operational Vehicle Procurement)

- a) Component procurement has started.
- b) The launch of the first operational flight (HTV-2) is planned in the summer of 2010 and the second (HTV-3) is in the summer of 2011.

(3) PROX (Proximity Communication System)

- a) The last component, GPS Antenna will be launched on ULF-2.
- b) PROX system check-out #1 was completed successfully.



Avionics /
Propulsion
Module

(4) HTV Ground Operation and Control System

- a) Development of control system hardware were completed in December 2007.
- b) Validation, Simulation and Training are on going at the HTV Control Center in Tsukuba Space Center.

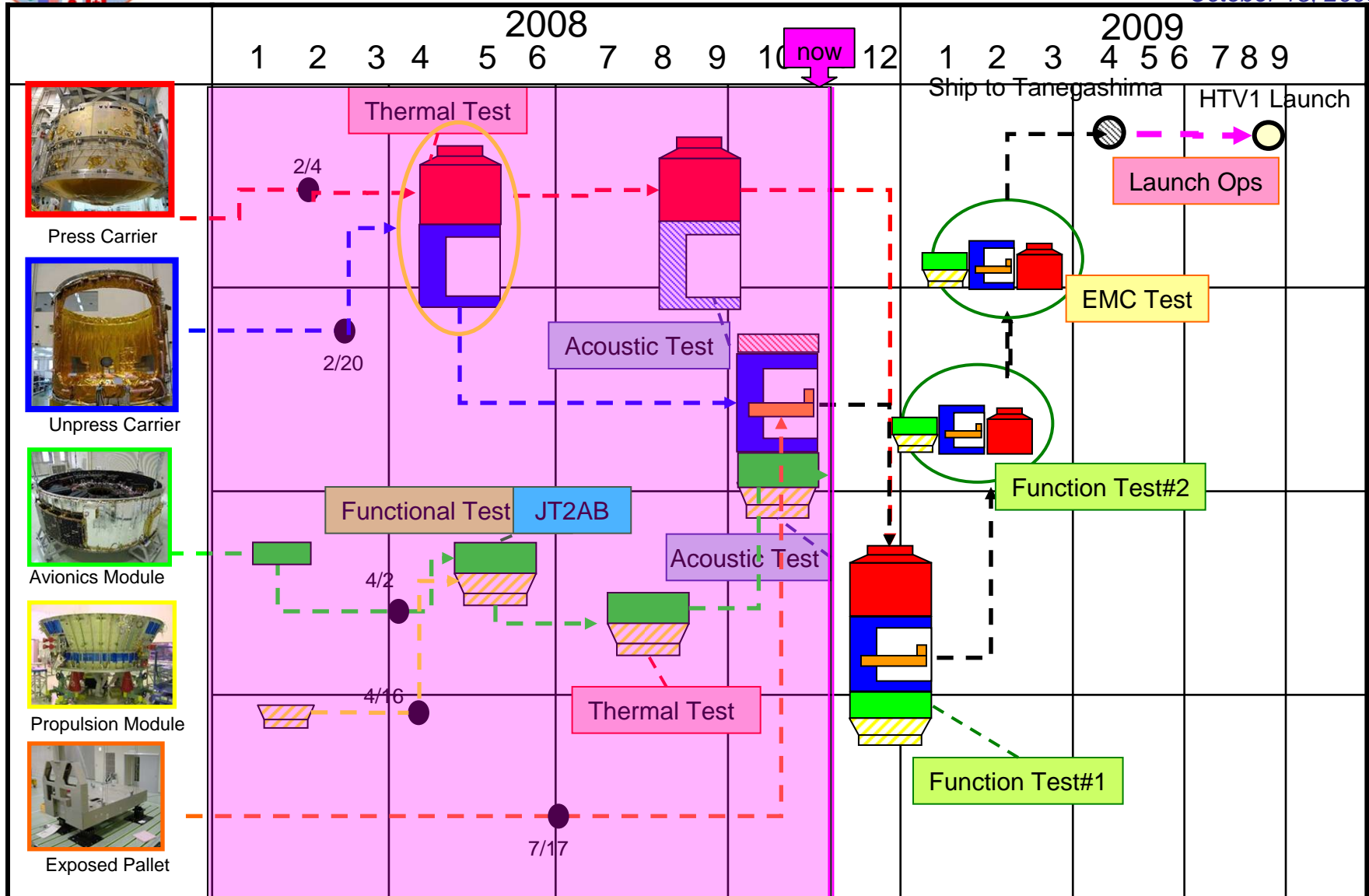
HTV Control
Center
at Tsukuba





HTV System Test Schedule

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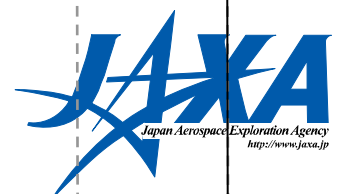
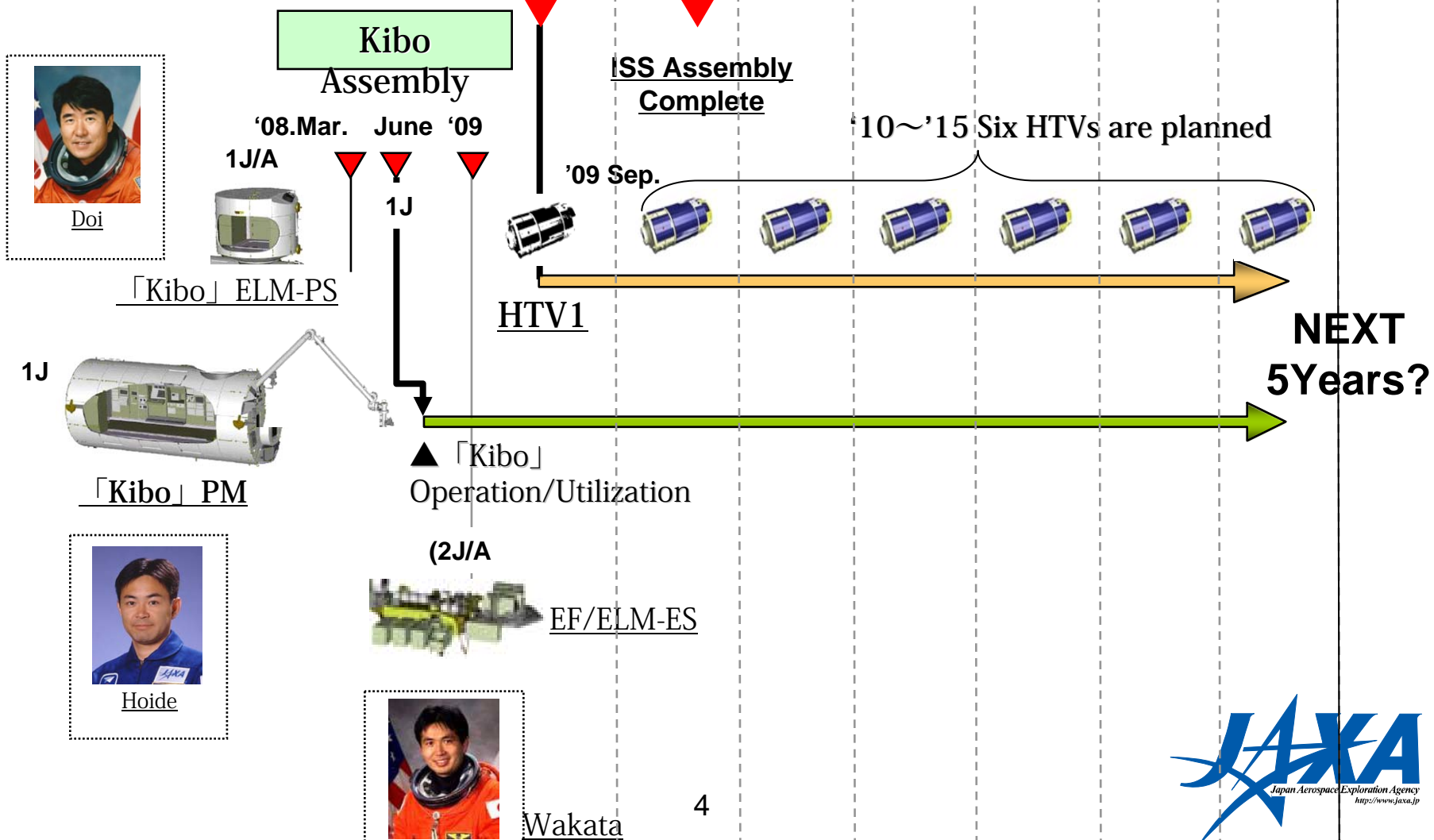
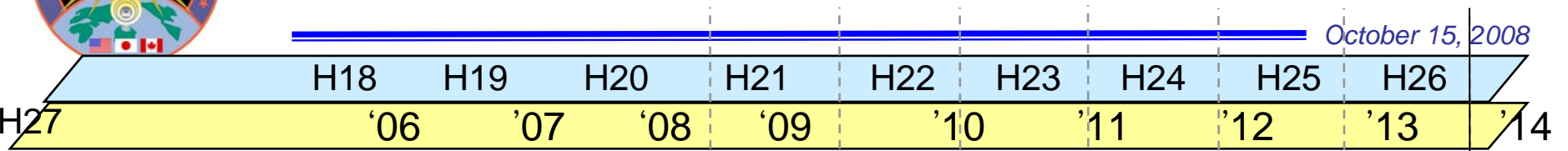
● On-Dock at Tsukuba Space Center (TKSC)

▨ the shaded portion: Dummy



Near Future Launch Schedule

October 15, 2008





HTV Evolution

October 15, 2008

Moon Exploration/Utilization



Current HTV



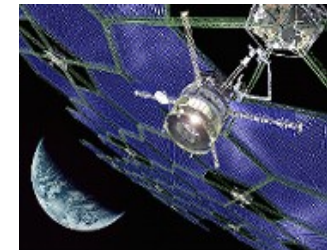
Transfer Vehicle
(Space Tag)



Recovery System



Transportation for
Moon / Mars



On-orbit Platform



Crew Transfer
Vehicle



Japan' ISS Program Overview



JEM Operation Control System



Astronaut training

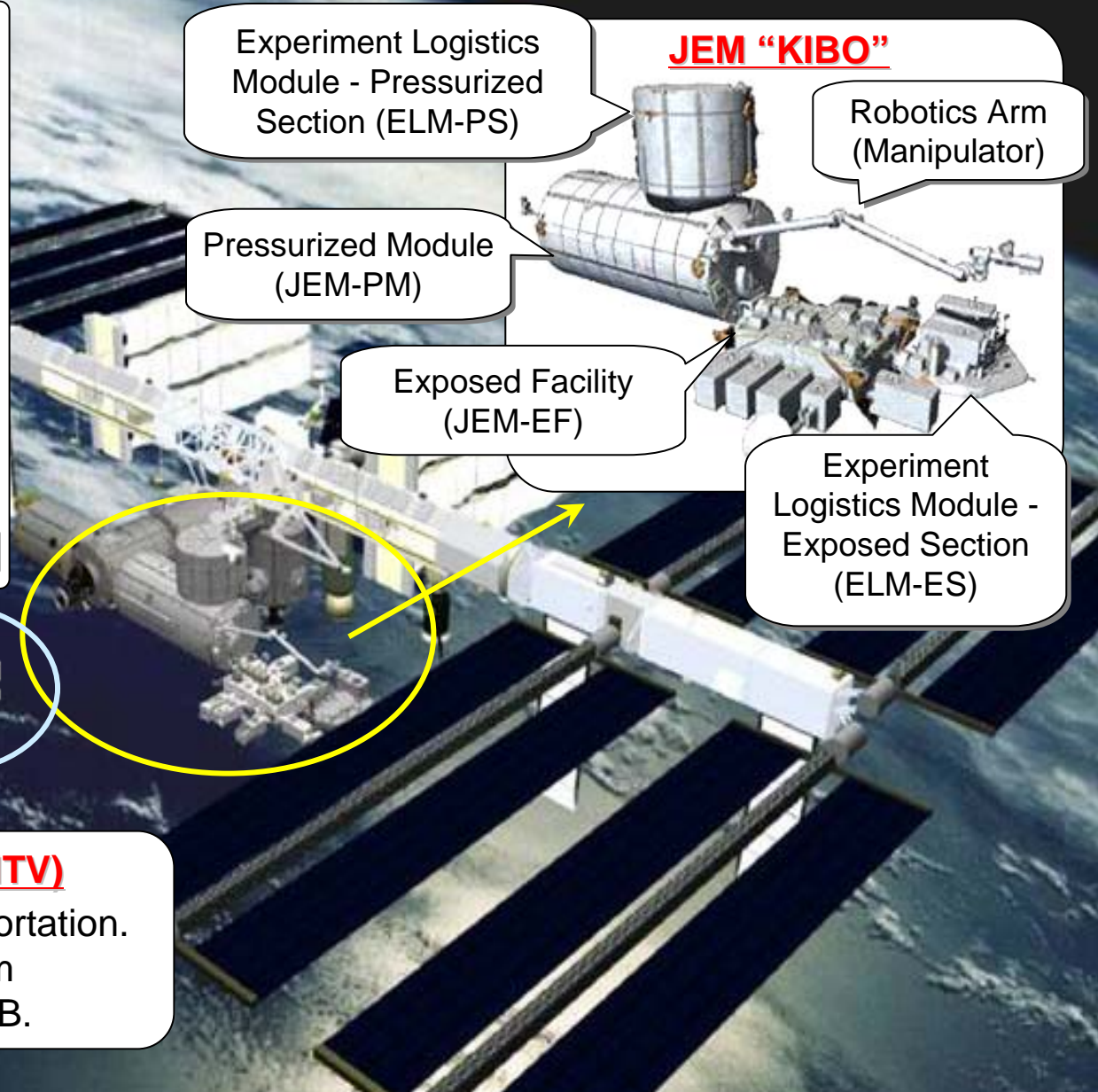
- Operations of the JEM and HTV ground systems.
- Astronaut training, skill maintenance, and health management.

Tsukuba, Japan

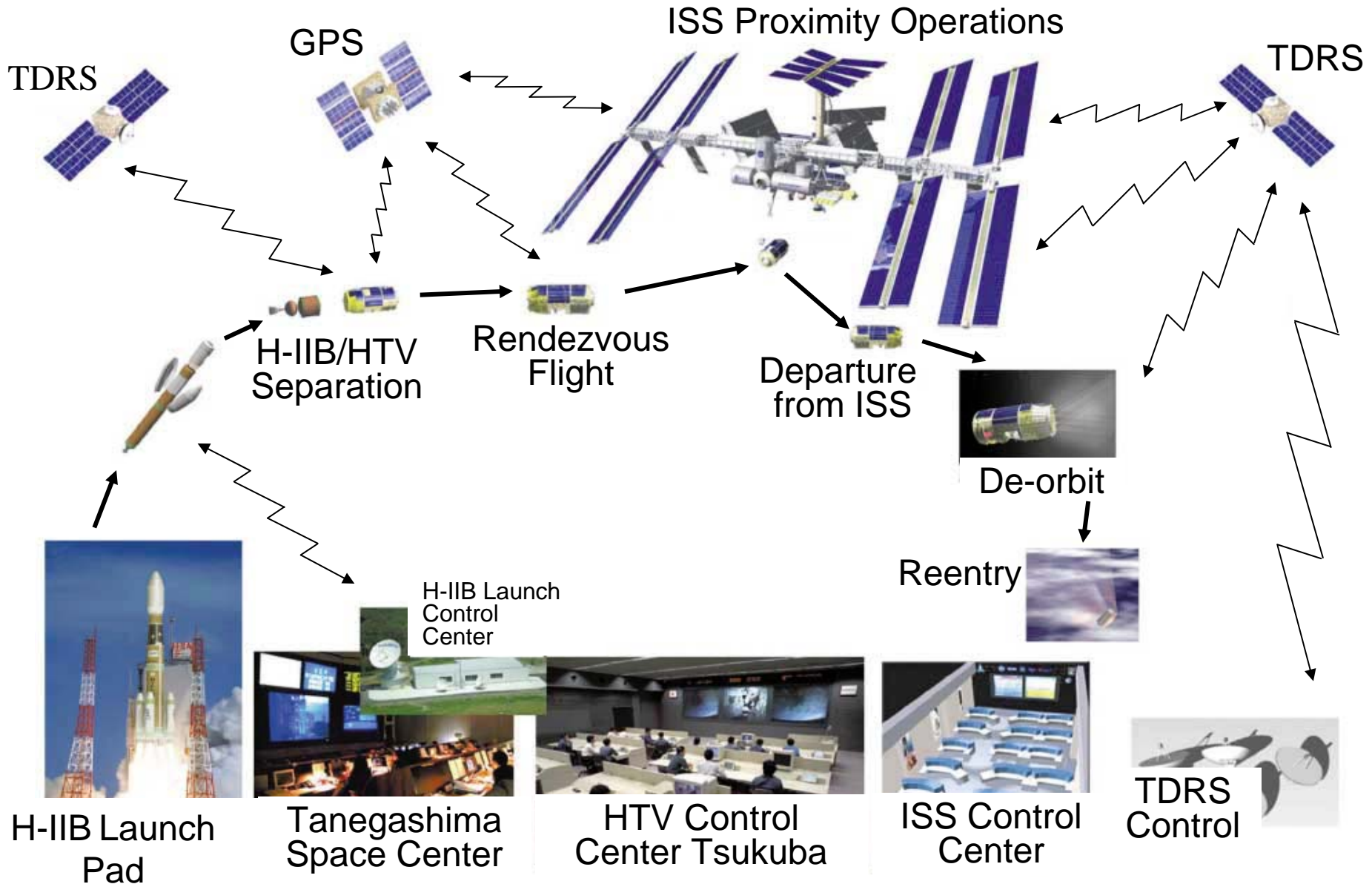


H-II Transfer Vehicle (HTV)

- Cargo / User payload transportation.
- ISS cargo transportation from Tanegashima, Japan on H-IIB.

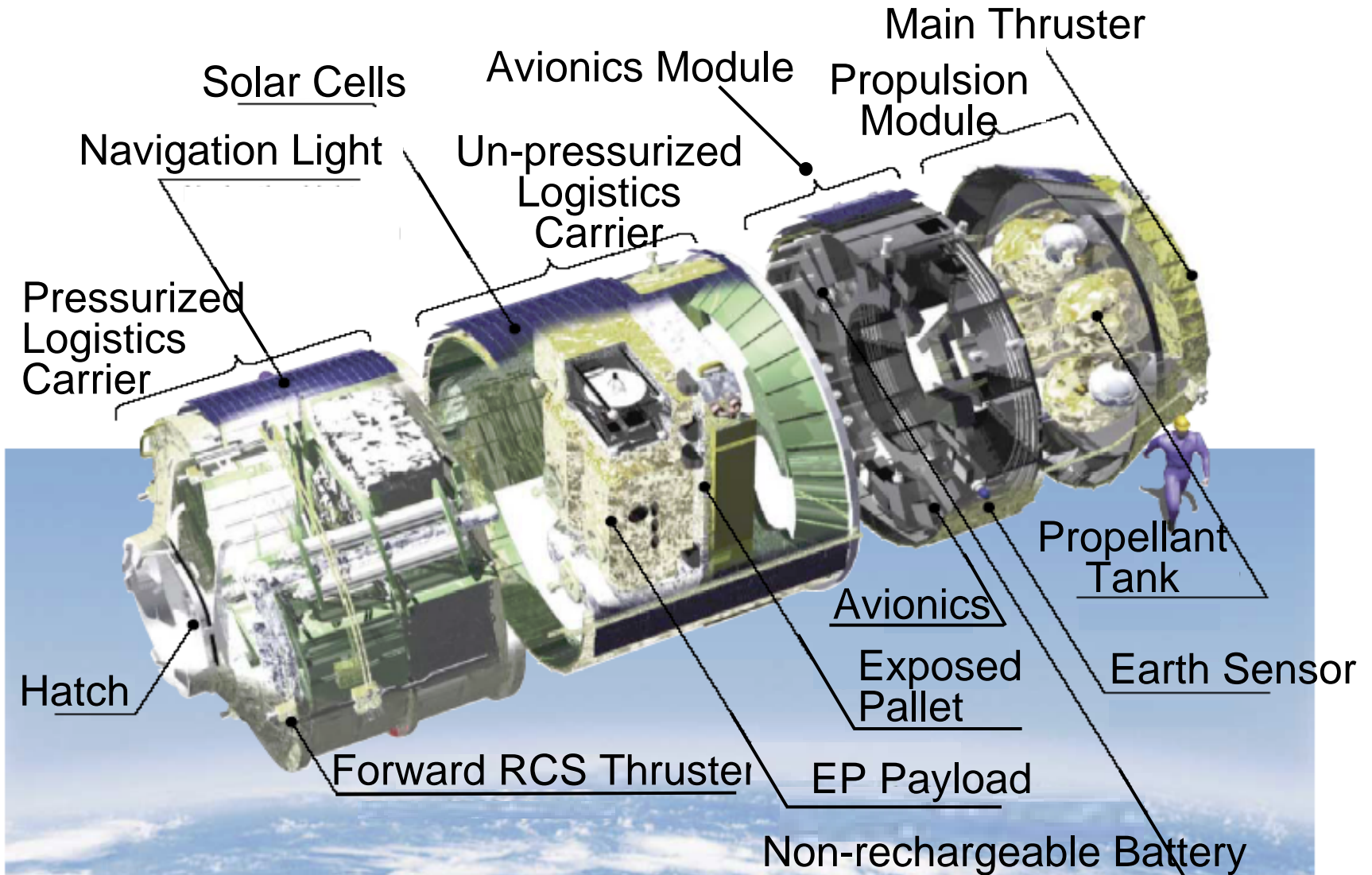


HTV Operation Profile



HTV (H-II Transfer Vehicle)

The mission of the H-II Transfer Vehicle (HTV) is to transfer ISS cargo from the ground to the ISS, such as crew resupply, internal and external spares and experiment facilities.



HTV Features



Functions		Transport pressurized and unpressurized cargo to ISS and de-orbit
Launch Vehicle		H-IIB Launch Vehicle
Spec	Dimensions	Length: 9.2m, Diameter: 4.4m
	Launch Mass	16.5 ton
	Propulsion	<ul style="list-style-type: none"> • Four 500N Main thrusters • Twenty-eight 110N RCS thrusters
Target Orbit		<ul style="list-style-type: none"> • Altitude: 350km – 460km • Inclination: 51.6 deg
Payload Accommodation		6 ton (total of pressurized and unpressurized cargo mass)
	Pressurized	<ul style="list-style-type: none"> • Up to 5.2 ton of pressurized cargo • 8 HTV Resupply Racks or International Standard Payload Racks • 600kg potable water
	Unpressurized	<ul style="list-style-type: none"> • Up to 1.5 ton of EF payloads • Up to 3 EF payloads • Up to 6 Battery ORUs