

# Units	Complex Tests Performed Using Two (2) of the Ground Test Units	
	Vibration Tests	
	Stand-alone tests of on-board systems	
	Integrated Tests	
	Functional tests of the on-board equipment and power supply systems for the effect of pyro	
# Units	Unit Testing Purpose	Notes
2	Static Strength	1 w/o heat shield, 1 with heat shield
3	Heat shield on the nose cap and the Crew Compartment	
2	Equipment for direction findings Search and Evolution	
1	Separation systems	
1	Crew Training under weightlessness conditions with/without space suites	
38	Total Test Units	



Prior Almaz HSV testing demonstrated abort, reentry, reusability and 175 days on orbit life



European Space Agency's ATV Demonstrated elements of our planned GN&C subsystem, proximity and rendezvous operations and propulsion subsystem

Key + Includes Relaying  
o Emergency Landing

#### Technical Parameters Under Test

	Flight Object 1 (12/15/76)		Flight Object 2 (08/05/77)		Supply Spacecraft 1 7/17/77 to 8/16/77	Flight Object 3 (03/30/78)		Flight Object 4 (05/23/79)		Supply Spacecraft 2 4/25/81 to 5/24/81	Supply Spacecraft 3 3/2/83 to 8/23/83	No. of Launches Accomplished and Partially Performed
	009A	009	009/π	009/π	929	009A/π2 997	009/π2 998	102A/1 1100	102/2 1101	103/3 1103	103/3 1103	
Structure	●	●	●	●	●	●	●	●	●	●	●	8 + 2
Thermal Protection System Including Restoration	●	●	●	●	●	●	●	o	o	●	●	7 + 2 2
Automatic Flight Control Systems	●	●	●	●	●	●	●	● 67km	● 80km	●	●	8 + 2
Control Systems	●	●	●	●	●	●	●	● 67km	● 80km	●	●	7 + 2
Landing System	●	●	●	●	●	●	●			●	●	8
Seats, Cosmonaut Control Panels Suit Ventilation and Cooling System								●	●	●	●	2 + 2
Radio navigation Communications						+	+	+	+	+	●	6
Taking Bearings	●	●	●	●	●	●	●			●	●	8
Algorithms of Orientation, Decent Prior to Activation of Chutes	●	●			●	●	●	● 67km	● 80km	●	●	
Flight Models												
Launch Vehicle Emergency			●									1
Not Stabilized								●				1
Restoring of Orientation								●				1
Ballistic Descent	●	●						● 67km				2 + 1
Controlled Descent					●	●	●		● 80km	●	●	5 + 1
Propulsion												
RCS System	●	●	●		●	●	●	● 67km	● 80km	●	●	8 + 2
Solid Motors	●	●	●		●	●	●	●	●	●	●	10
Flight Duration	1 Orbit	1 Orbit			30 Days	1 Orbit	1 Orbit	2 Orbits	1 Orbit	50 Days	175 Days	
Retro Rocket Firing Altitude	241	225			211	221	219	225	221	275	362	
Maximum Acceleration (Gs)	8.4	8.6	10.5	Des- truct		4.5	5.3			5.0	5.0	