InSpace Inspection Needs For Human Spacecraft

External Leak Detection
• Technologies
  • Temperature
  • Molecular sensing
  • ?

Pressure Vessel Health
• Impacts
• Composites
  • Stress rupture
• Metallic Fatigue
• Structural mounts health
• Technologies – In Space
  • ?

Propellant Mass Gauging
• Propellant Usage – Zero-G and Settled
  • Engine health – mixture ratio, Isp
  • Internal leakage
    • Valves Cooling jackets
• Technologies
  • Flowmeters
  • dP sensors
  • RF gauges
  • Capacitance Probes
  • MPG – Modal Propellant Gauge
  • etc

Engine Health Monitoring
• Turbomachinery
• Valve Health
• Leakage
• Combustion Instability
• Fatigue
• Erosion
• Plume Diagnostics

Future NASA Exploration Missions are Longer Duration and Higher Cycle Life that will benefit from InSpace Inspection/NDT