

Airworthiness Investigation



Introduction

- Cabin Pressurization
- Emergency Pressurization
- Oxygen Distribution System



Cabin Pressurization

- Pressurization
 - Inflow greater than outflow
 - Inflow from engine “bleed air”
 - Outflow controlled by Outflow valve
- Depressurization
 - Outflow greater than inflow



Cabin Pressurization - Outflow

- External observations revealed no failure of the cabin
- Areas of the cabin not visible
- Unable to determine the integrity of the cabin



Cabin Pressurization - Inflow

- Normal inflow pathway:
 - engine bleed air[®] modulation valves[®]
flow control valve[®] cabin distribution
- Findings
 - Modulation valves partially open
 - Flow control valve fully closed
- Loss of inflow[®] cabin depressurization



Possible Reasons for Flow

Control Valve Closure

- Mechanical failure modes
 - Actuator breakdown
 - Internal blockage
- Commanded closed
 - Cabin Air switch
- Investigation could not determine reason for flow control valve closure



Emergency Pressurization

- Airplane equipped with emergency pressurization system
- Requires crew action to initiate
- Windshield Anti-Ice Shutoff Valve found closed
- Later models of this airplane have automatic emergency pressurization



Oxygen System

- Major system components
 - Single oxygen bottle
 - Regulator/shutoff valve
 - Pressure gauge
 - Crew & passenger masks
- Findings
 - Oxygen bottle -- Empty
 - Regulator/shutoff valve -- Open
 - Pressure gauge -- Depleted
 - Crew masks -- Plugged in



Oxygen System - Shutoff Valve

- Pilot reports of confusion about valve status during preflight inspection
 - Labeling indicates “OFF” when the valve is open “ON”



Regulator /Markings

“ ← OFF”



**Oxygen Bottle Regulator /Shutoff Valve
“Open (ON) Positon”**