Air System Problems

GE BWR/4 Technology Course

R-504B – 4.6

Objectives

1. Recognize the potential consequences of a loss of instrument air event.
2. Recognize how instrument air can be used in safety related applications.
3. Identify potential causes of the instrument air system failures or degradation.
4. Identify the primary strategies used by licensees to ensure adequate air quality, system reliability and piping integrity.

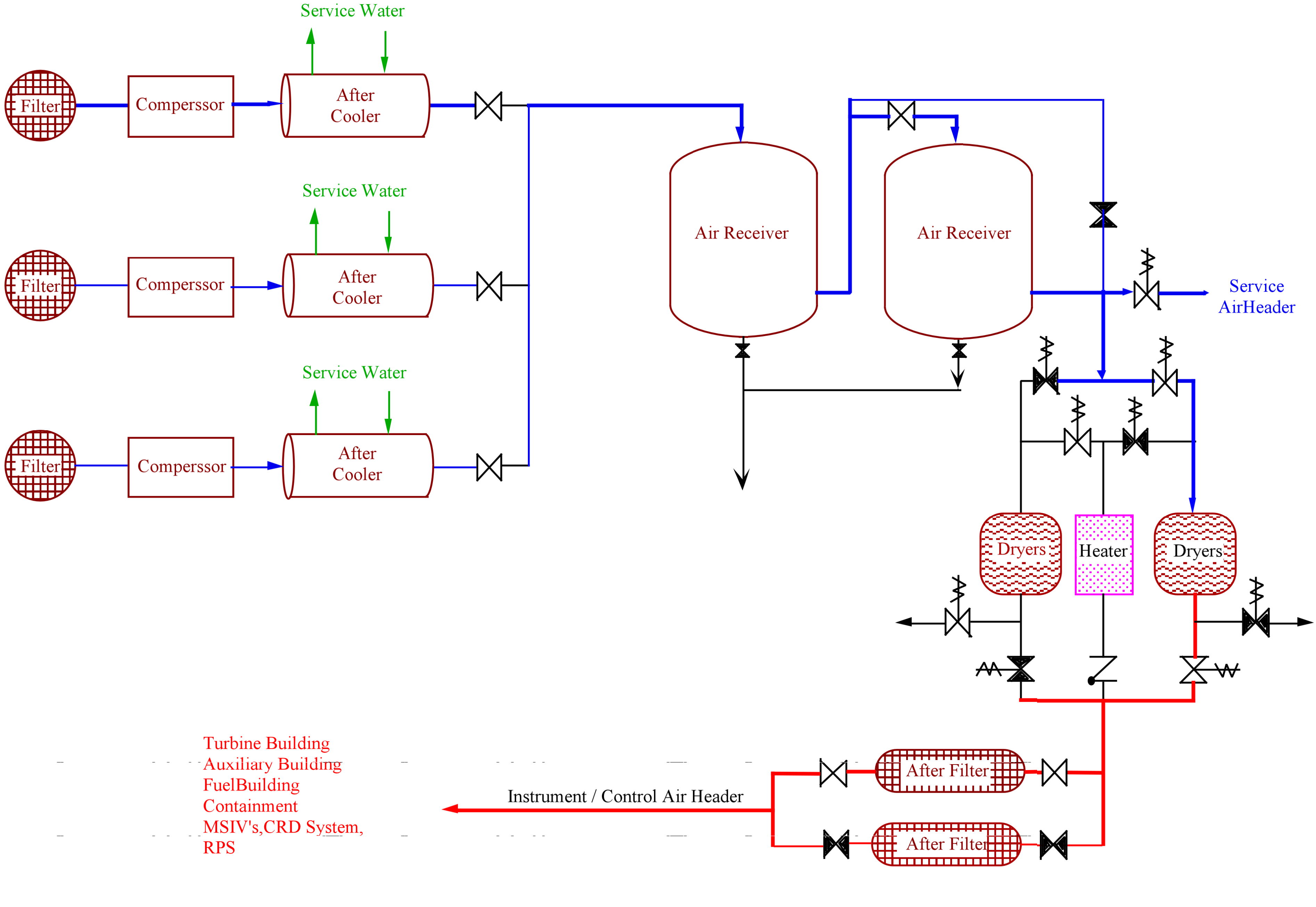
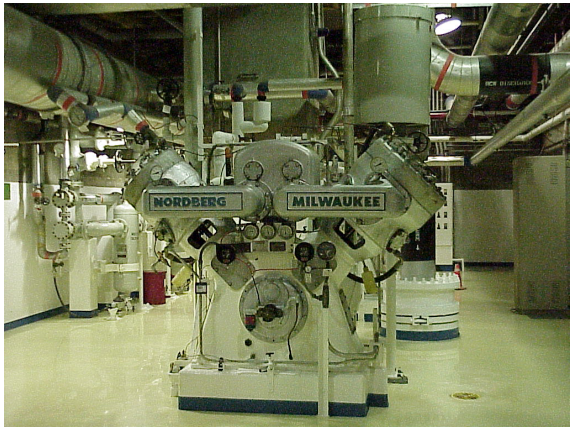


Figure 4.6-1 Typical Air System

Instrument Air System

- <u>NOT</u> safety related
- <u>NOT</u> safety powered
- 2-3 Compressors
- Air receivers
- Dryers & Heaters
- Standby Compressor(s) auto start
- Some use one PS for all compressors etc.
- Nitrogen is essentially a different system



Typical Safety Related Loads:

- Scram Valves
- Containment Isolation Valves
- HVAC systems
- Outboard MSIVs
- Refueling Equipment

Since IAS is not safety related, either:

- Provide accumulators
- Fail Safe

Non-safety Loads

Heater drain valves
Turbine oil cooling
Extraction steam valves
Hotwell level control system
Feed and condensate pump min flow valves
Generator Hydrogen cooling water
Offgas system

Diesel Generator Building

Starting air typically independent of plant air
Support systems (HVAC)

Problems

- Water Contamination
- Particulates
- Hydrocarbons
- Manufacturing/Design/Fabrication Defects
- Material Degradation

Solutions

- Air drying
- Air Filtration
- Material Selections
- Corrosion Control
- Fabrication
- Surveillances
- System Cleanliness

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Questions?