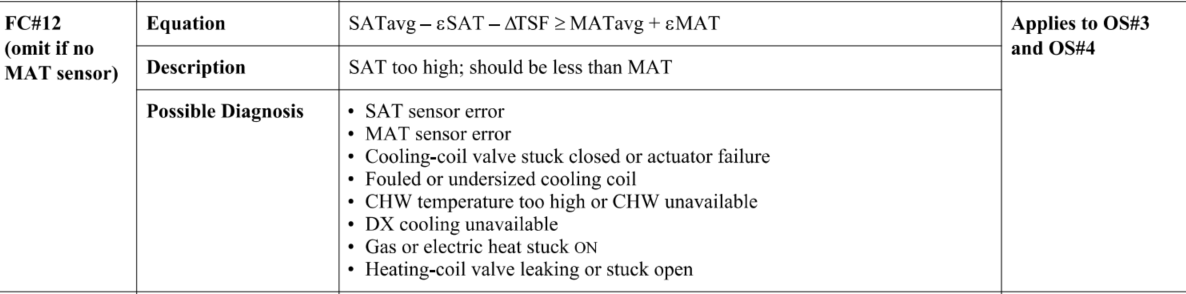
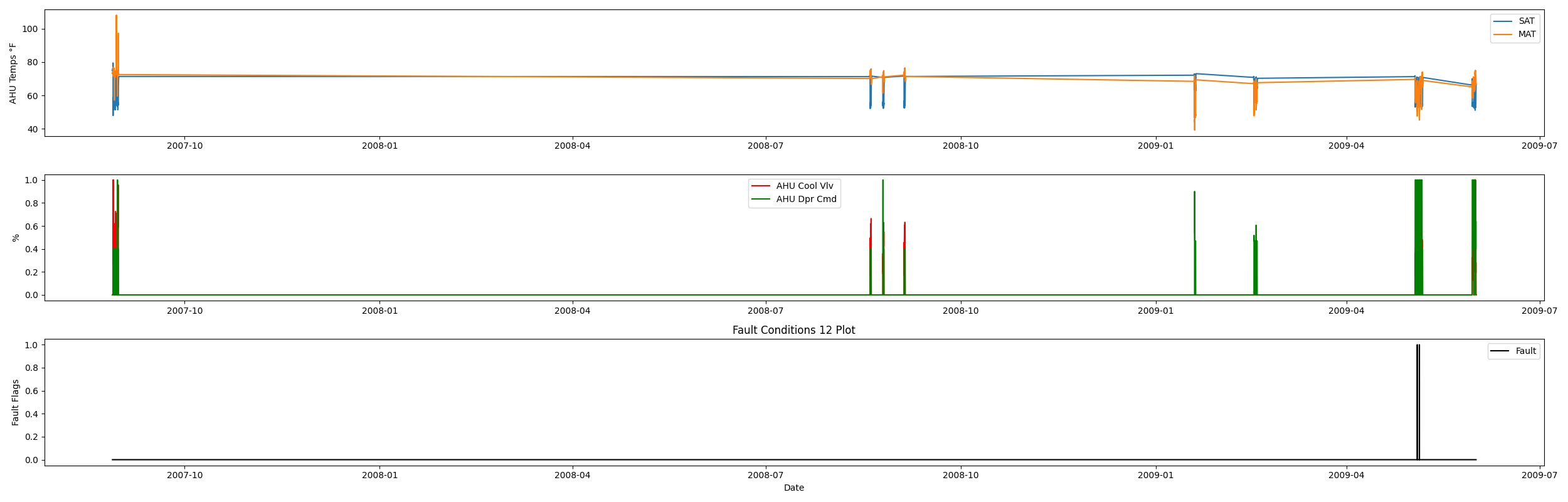
Fault Condition Twelve Report

Fault condition Twelve of ASHRAE Guideline 36 is an AHU economizer + mechanical cooling mode and AHU mechanical cooling mode only with an attempt at flagging conditions when the AHU mixing air temperature is warmer than the supply air temperature. Fault condition Twelve equation as defined by ASHRAE:



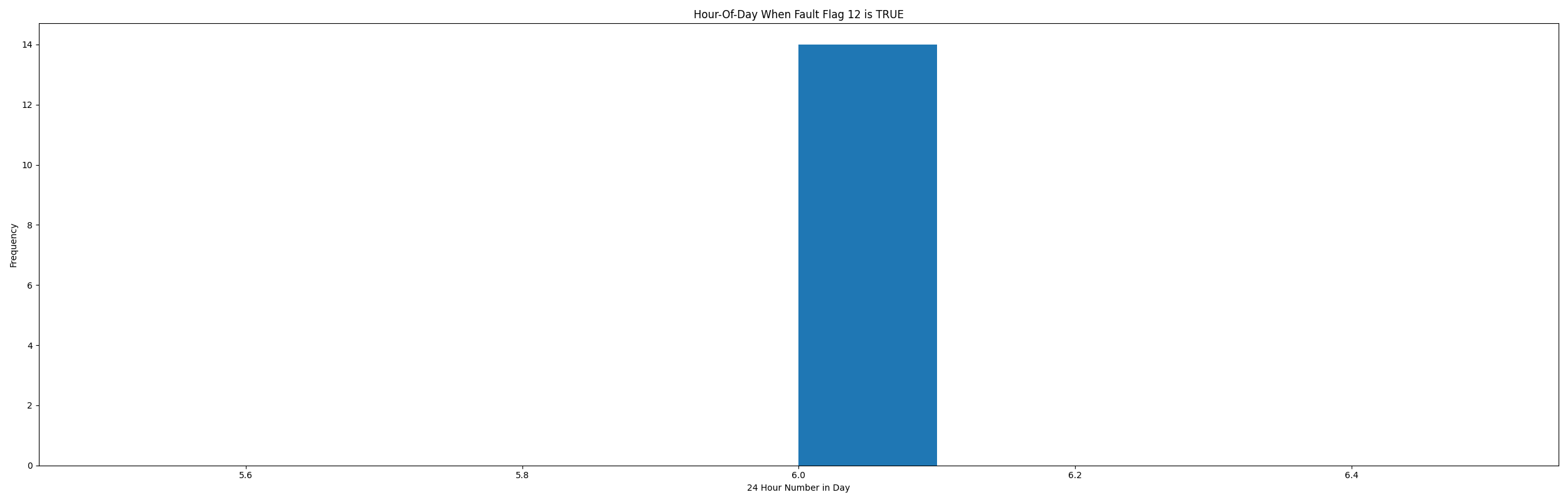
## Dataset Plot



## Dataset Statistics

* Total time in days calculated in dataset: 643.0
* Total time in hours calculated in dataset: 15431.983333333334
* Total time in hours for when fault flag is True: 0.23333333333333334
* Percent of time in the dataset when the fault flag is True: 0.06%
* Percent of time in the dataset when the fault flag is False: 99.94%
* Calculated motor runtime in hours based off of VFD signal > zero: 15431.98
* This fan system appears to run 24/7 consider implementing occupancy schedules to reduce building fuel use through HVAC

## Time-of-day Histogram Plots



* When fault condition 12 is True the average AHU mix air is 50.54 in °F and the supply air temperature is 61.23 in °F.

# Summary Statistics filtered for when the AHU is running

### Supply Air Temp

* count 21600.000000  
  mean 62.996892  
  std 7.352721  
  min 46.624000  
  25% 55.150000  
  50% 64.792000  
  75% 70.430000  
  max 79.474000  
  Name: AHU: Supply Air Temperature, dtype: float64

### Mix Air Temp

* count 21600.000000  
  mean 67.488601  
  std 7.859105  
  min 39.212000  
  25% 64.080000  
  50% 68.684000  
  75% 72.590000  
  max 108.130000  
  Name: AHU: Mixed Air Temperature, dtype: float64

## Suggestions based on data analysis

* The percent True metric that represents the amount of time for when the fault flag is True is low inidicating the AHU components are within calibration for this fault equation Ok.

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