

Summary

Purpose of the visit to Lazy Dog in Montclair, CA was to investigate a couple of complaints. First, MUA was tripping off on a high pressure alarm. Second, there were hood capture complaints.

MUA

Initially measured out the MUA airflow as 12422 CFM. The pressure was measured as -1.91” pre-coil, -2.26” post coil, and 0.98” on the discharge. It was noted that the outside air intake filters were clogged. Removing the filters only slightly increased the airflow to 13054 CFM but the pressures changed to -0.15”, -0.62”, and 1.25”. The design airflow is 10,790 CFM so the VFD speed was decreased to achieve design. At this airflow the pressure was 0.88”.

Per Doug with Lazy Dog, the discharge sensor had been bypassed so that the unit wouldn’t trip off. But now that it’s bypassed there are low pressure alarms. There is no submittal information available.

The unit is a 35 ton unit based on the model number. The manual also states that the rated airflow for a 35 ton unit is 8750 CFM.

Nomenclature (MPS 015–050)

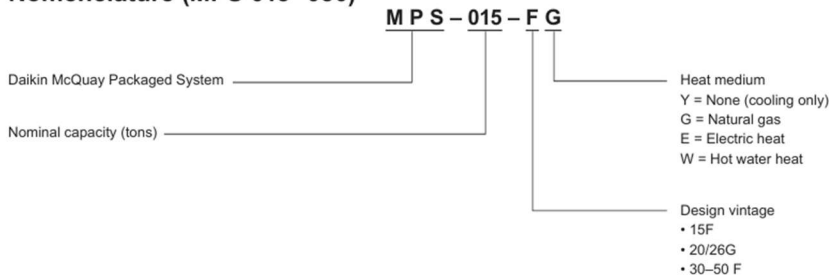


Table 13: Rated Airflow

Unit Size (tons)	AHRI Rated Airflow
015	3750
017	4375
020	5000
026	6875
030	7500
035	8750
040	10000
050	12500

The discharge pressure sensor is referenced in the manual and it is meant more for an application where the unit serves VAV’s downstream of the unit. In this setup, the system will modulate the VFD speed based on a static pressure setpoint. This set up would also have the duct pressure sensor located two thirds of the way down the duct. If the pressure sensor is installed at the unit itself this could possibly cause it to trip off. However, the manual also states that the unit will go into alarm when the pressure is above 3.5”. The measured pressure at the unit was only 0.88” so likely this isn’t what is happening.

The ductwork was reviewed and there are a number of 90 degree transitions, but this didn't appear to be impacting the airflow or causing any major pressure concerns.

Other Equipment

Total airflows for RTU's 1, 2, and 3 were all found to be within design. However the OA damper for RTU-1 was found to be fully open and the unit was letting in 100% outside air. The OA dampers on the other two RTU's were fully closed. Set all three of these to design. The actuator motors were not functional and had to be manually set.

EF-1, 2, and 3 were all read out and no changes were made. EF-1 which serves hoods 4 and 5 was found to be 3722 CFM out of design of 5000 CFM. There was poor smoke capture on this hood and likely this is a result of the low airflow. It appears that the filters are clogged with grease. It is difficult to tell when the grease gets compacted. There is room on the motor to change pulleys if needed but suggest changing the filters first.

EF-5 serving the restrooms is not functional and could not be tested. Recommend it be serviced.

After completion of testing the building is very positive. (+2978 CFM).

Recommendations

1. If at all possible, try to locate the original Daiken rep and obtain the original submittal for the MUA unit. This would provide valuable information such as the original airflow, supplied features, and design pressures.
2. The discharge pressure sensor can likely remain bypassed. After reading the manual, it appears this is a pressure sensor for a VAV application. Since Lazy Dog does not have VAV's, it is likely not needed and should not cause any performance issues.
3. Bypassing the pressure sensor revealed a couple of low pressure alarms. Looking at the manual these appear to be related the refrigeration system. Recommend the refrigeration side be serviced.
4. OA filters for the MUA and RTU's need to be cleaned. Ensure these are cleaned quarterly.
5. There is a large gap in the OA filter bank for the MUA. Properly sized filters need to be installed.
6. Based on the manual, it may be possible to reduce the fan speed of the MUA closer to 8750 CFM which is the nominal airflow for this size of unit. This would give some energy savings for the unit.
7. EF-1 serving hoods 4 and 5 is low on airflow and contributing to smoke capture issues. It appears the filters are clogged and may be the primary cause. It is difficult to tell when the grease gets compacted inside the filters but this is most likely the issue. The filters weigh around 9lb clean but were measured as 10.5 lb. Recommend these be replaced and then the airflow remeasured. A pulley change could be performed but recommend changing the filters first.
8. EF-5 (Restrooms) is not functional. Recommend replacement.

9. The outside air dampers for all three RTU's are not functional. These damper positions had to be manually set. It will function as is, but may be a good idea to service these so that they function properly. If they are serviced, the damper position needs to be reset to where we manually set them.