AMCA 202-17

Troubleshooting

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AMCA Publications

Authority AMCA Publication 202-17 was adopted by the membership of the Air Movement and Control Association International Inc. on February 28, 2017

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1. Introduction

This publication combines past experience from end users, fan manufacturers and independent third parties to help troubleshoot problems that can occur during fan installations. The diagnostic approach laid out in this publication is based on observable symptoms and associated lists of probable causes. Following this approach will likely provide the fastest method to identifying the root cause of a fan installation problem.

1.1 Purpose

The purpose of this publication is to provide a guide to help identify the root cause of problems that can occur with fan installations. Once the root cause has been identified, a set of corrective actions can be implemented.

1.2 Scope

The scope of this document covers both new and existing fan installations. It covers aerodynamic performance as well as noise, vibration and mechanical issues.

This document is intended to help identify and fix relatively common problems, but it does not address every possible issue. If the problem still cannot be solved after following this guide, additional troubleshooting may be required (typically with the assistance of the manufacturer).

2. Procedure for Troubleshooting

1. Consult the manufacturer-supplied installation and operation manuals for the fan, drive components and appurtenances.
2. Look in the "Master Troubleshooting Annexes" for a subject which corresponds with the apparent problem.
3. Check each of the "Probable Causes" listed.
4. If the cause of the trouble is not found, proceed through "System Checklist" (see Section 4).
5. If the problem has still not been solved, contact the representative of the fan manufacturer. They should be given the results of the system checklist you completed and the additional information listed in Section 5.1.
6. Allow the fan manufacturer or their representative to analyze the information submitted, as outlined in Section 5. With this information and, if necessary, an onsite inspection, they may be able to explain why the system is not achieving its design performance and may recommend changes in the system or the fan installation that will overcome the problem.

3. Safety Precautions

Onsite procedures (e.g., confined space entry, fall protection, lock-out/tag-out, etc.) must be followed. Appropriate safety equipment must be worn at all times. Always use caution when working with moving or electrical components.

For external inspection, it may be necessary to shut down the fan for inspection as part of the troubleshooting process. During an internal inspection, the fan must be electrically isolated and all disconnect switches and other controls locked in the "off" position. The same procedure must also be followed for any system components or nearby equipment that could pose a safety hazard while working on the fan. If the fan has been handling a high temperature airstream, ensure the fan and system has cooled to a safe level.

Caution: even when locked out electrically, fans located outdoors or in a parallel or series fan system may be subject to free spinning, or “windmilling.” Therefore, as an added precaution, the impeller should be secured to physically restrict rotational movement.