

# AMCA Publication 202-98 (R2007)

## Troubleshooting



**AIR MOVEMENT AND CONTROL  
ASSOCIATION INTERNATIONAL, INC.**

The International Authority on Air System Components

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# Troubleshooting



Air Movement and Control Association International, Inc.  
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Arlington Heights, IL 60004-1893

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## Related AMCA Standards and Publications

### Publication 200      ***AIR SYSTEMS***

System Pressure Losses  
Fan Performance Characteristics  
System Effect  
System Design Tolerances

*Air Systems* is intended to provide basic information needed to design effective and energy efficient air systems. Discussion is limited to systems where there is a clear separation of the fan inlet and outlet and does not cover applications in which fans are used only to circulate air in an open space.

### Publication 201      ***FANS AND SYSTEMS***

Fan Testing and Rating  
The Fan "Laws"  
Air Systems  
Fan and System Interaction  
System Effect Factors

*Fans and Systems* is aimed primarily at the designer of the air moving system and discusses the effect on inlet and outlet connections of the fan's performance. System Effect Factors, which must be included in the basic design calculations, are listed for various configurations. AMCA 202 and AMCA 203 are companion documents.

### Publication 202      ***TROUBLESHOOTING***

System Checklist  
Fan Manufacturer's Analysis  
Master Troubleshooting Appendices

*Troubleshooting* is intended to help identify and correct problems with the performance and operation of the air moving system after installation. AMCA 201 and AMCA 203 are companion documents.

### Publication 203      ***FIELD PERFORMANCE MEASUREMENTS OF FAN SYSTEMS***

Acceptance Tests  
Test Methods and Instruments  
Precautions  
Limitations and Expected Accuracies  
Calculations

*Field Performance Measurements of Fan Systems* reviews the various problems of making field measurements and calculating the actual performance of the fan and system. AMCA 201 and AMCA 202 are companion documents.

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## Troubleshooting

### 1. Introduction

After the installation of an air moving system is completed, a system sometimes fails to achieve its designed performance.

This part of the AMCA Fan Application Manual will help you identify what is wrong and decide how to correct it.

### 2. Procedure for Troubleshooting

**2.1** Look in the "Master Troubleshooting Appendices" for a subject which corresponds with the apparent problem.

**2.2** Check each of the "Probable Causes" listed.

**2.3** If the cause of the trouble is not found proceed through the "System Checklist" (see Section 4).

**2.4** If the problem has still not been solved, it is now advisable to contact the representative of the fan manufacturer. He should be given the results of the "System Checklist" and the additional information listed in Section 5.1.

**2.5** The fan manufacturer or his representative will analyze the information submitted, as outlined in Section 5.2. With this information and, if necessary, an on-site inspection, he 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 which will overcome the problem.

### 3. Safety Precautions

Before checking the fan and system it will be necessary to shut down the fan. During inspection the fan must be electrically isolated and all disconnect switches and other controls **LOCKED** in the "OFF" position. Where these are in locations remote from the fan, prominent **DO NOT START** signs should also be in place.

**CAUTION** - Even when **LOCKED** out electrically, fans located outdoors or in a parallel or series fan system may be subject to "wind-milling." Therefore, as an added precaution, the impeller should be secured to physically restrict rotational movement.

### 4. System Checklist

Poor system performance may arise from a number of causes including:

- Improper installation or assembly of the fan
- Damage in handling or transit
- System design error
- Deterioration of the system
- Faulty controls
- Poor fan selection
- A combination of several factors.

A systematic check of the items listed here should help identify the problem - or problems - and allow suitable corrective action to be taken.