

SERVICE BULLETIN

Carrier Corporation



Number: 07-0001

Date: 1/3/06

Supersedes: New

Title: Code 71 and 72 on 2-Stage Outdoor Units

Author: Robert L. Lambert/Sherri Wilkerson

Dept: Residential & Light
Commercial Systems

Category: Residential Splits

Dealer Bulletin Number: DSB 07-0001

PRODUCT CATEGORY:

Residential Split Systems

MODELS AFFECTED:

Bryant: 187ANA024-060, 286ANA024-060

Carrier: 24ANA724-60, 25HNA624-60

Serial Number(s): Before 4506E

SITUATION:

We have received reports of the outdoor units listed above intermittently not starting, and generating 71 (Thermal Cutout in Low Stage) and 72 (Thermal Cutout in High Stage) faults.

The reported starting issues are more likely to occur in cooling mode at outdoor temperatures above 95°F.

Engineering has performed an analysis based on these complaints, and a root cause of the issue has been identified. Poor starting can occur when power line conditions cause electrical transients in the compressor start winding during startup. These transients cause the control software to drop the start relay out before the compressor has fully started. These conditions can sometimes lead to a thermal protector cutout.

SOLUTION:

A new circuit board (HK38EA010) has been implemented into the production of the units listed above beginning with serial numbers 4506E. The software in this new control resolves starting issues related to power line transients, and extremely hard starting conditions. Two software improvements have been implemented into the HK38EA010 board:

1) **Robust Transient Response:** While an earlier version of the Two Stage control software (HK38EA008 board with date codes 3906E-4406E) resolved most of the line transient issues, the latest software in the HK38EA010 is designed to be a complete solution, extensively tested in the lab and verified in problem field sites.

2) **Improved False start Detection:** The HK38EA010 software also incorporates an improved false start detection method: When particularly difficult start conditions exist, such as excessive pressure differential or very low line voltage, the control software quickly detects this situation and turns off the contactor **before** the thermal protector cutout occurs. This generates a "No Start" Fault Code 75 or 77 and the control tries starting again every five minutes, allowing the pressures to equalize and/or the line voltage to come back up. In any other system without this protection, the thermal cutout would occur and it could take hours before it resets and the compressor can start again.

FIELD ACTION:

If nuisance 71 or 72 code issues occur during starting, replace the original HK38EA003 or HK38EA008 board with the new HK38EA010 board. This new board is now available and may be ordered through RCD.

The remaining inventory of HK38EA008 circuit boards will be used in 2-Stage units with Copeland UltraTech compressors. These units **do not** use the starting circuits and are not affected by this issue.