

TECHNICAL INFORMATION COMMUNICATION



Quality and Continuous Improvement

Number: TIC2023-0012

Date: 09/26/2023

Title: ULN90 Combustion Air Filter

Revision

Product Category: Residential Furnaces

Products Affected:

Condensing Ultra-Low NOx Gas Furnaces

MODELS AFFECTED:

Carrier	Bryant
59CU5	935C
59SU5	935S

Situation:

Carrier has found that airborne fiberglass insulation in attics can be pulled into the burner box on the Ultra-Low NOx, condensing gas furnaces. Fine fibers of fiberglass insulation remain airborne in attics well after insulation installation. The fiberglass insulation causes a restriction in the burner box that can lead to undesirable combustion tone/noise during operation, increased burner box temperatures and BTS (Burner Thermal Switch) trips. The destructive analysis of failed burner boxes has clearly shown glass fibers entrapped in the burner mesh and diffuser plate as the root cause of restricted burner boxes.

Solution:

Carrier engineering has tested and approved three field installed solution for preventing airborne glass fibers and other debris from being pulled into the furnace burner box.

Solution 1 (Recommended):

Install the combustion air/vent system as a direct-vent, two pipe system. Drawing combustion air from a space outside the attic will greatly reduce the chance of noncombustible material being drawn into the burner box and burner mesh.

Only trained and qualified personnel should design, install, repair and service HVAC systems and equipment. All national standards and safety codes must be followed when designing, installing, repairing and servicing HVAC systems and equipment. It is the responsibility of the Dealer to ensure local codes, standards, and ordinances are met.

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Solution 2:

If unable or unwilling to orient the combustion air pipe to pull fresh air from outside of the attic space, create an intake filter using a PVC increaser (2x4 if using 2" intake piping, 3x4 if using 3" intake piping), a 4" termination screen, a 6" x 6" square of 1" polyester merv 4-6 filter media, and a 4" band clamp.

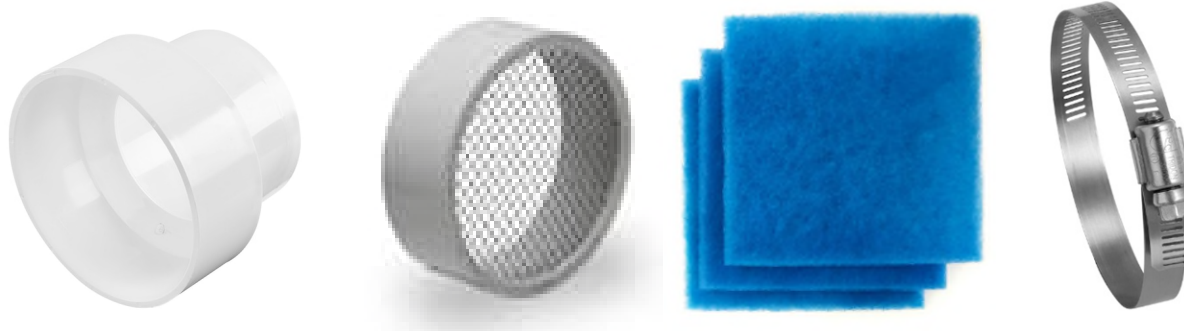


Fig 1. Solution 2 Components

ASSEMBLY INSTRUCTIONS (Refer to Fig 1)

- a. Assemble PVC increaser to the end of the intake combustion air pipe.
- b. Install termination screen into 4" end of PVC increaser.
- c. Lightly stretch polyester filter media over termination screening and increaser.
- d. Place band clamp to hold filter media in place and tighten until snug.
- e. Trim excess filter media as needed.
- f. Affix a copy of the notice label in **Appendix A** to the furnace in a visible location to inform the homeowner and future servicers about the combustion air filter. The MERV 4-6 filter installed is expected to last 2-5 years in most attic applications. The combustion air filter should be inspected annually during regular preventative maintenance visits. Debris on the surface of the filter can be gently vacuumed if significant accumulation has occurred, or filter media can be replaced.

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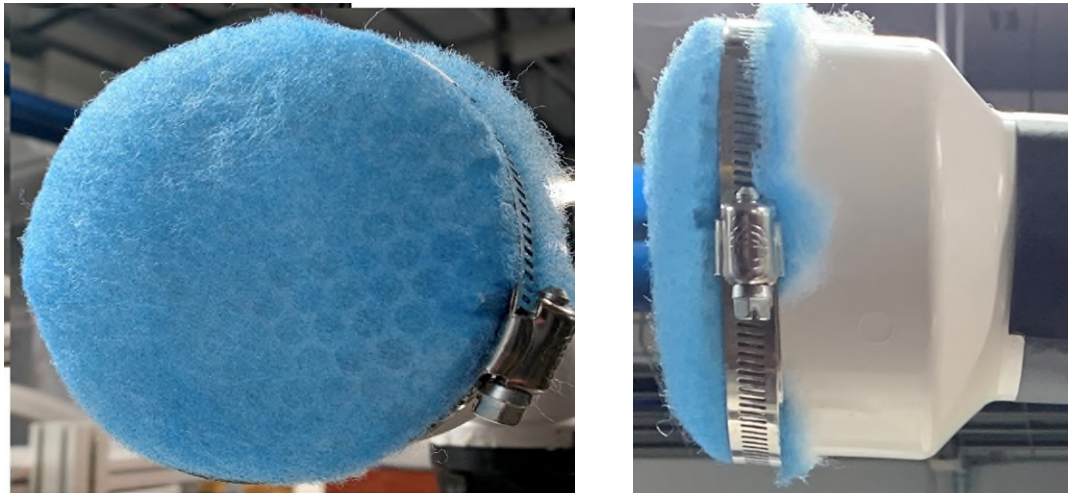


Fig. 2 Assembled intake air filter

Solution 3:

Utilize an inline filtration box to filter intake combustion air.



These intake air filter boxes are available from multiple third-party suppliers in various sizes to fit space constraints.

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Appendix A

NOTICE

This furnace is equipped with a semi-permanent combustion air filter. This filter has been installed per manufacturer recommendations to prevent airborne debris from entering the furnace. A 3" clearance to the face of the combustion air filter needs to be maintained. The combustion air filter should be inspected annually. Debris on the surface of the filter can be gently vacuumed. Replace this filter only if filter is damaged or excessively dirty. Expected filter life is 2-5 years in most attic applications.

See Carrier Informational Bulletin TIC2023-0012 for additional information.

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