

Addenda to ANSI Z21.40.1-1996 • CGA 2.91a-M96

AMERICAN NATIONAL STANDARD/CANADIAN GAS ASSOCIATION STANDARD

FOR

GAS-FIRED, HEAT ACTIVATED AIR-CONDITIONING AND HEAT PUMP APPLIANCES



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PREFACE

The standards set forth herein apply to the first edition of the Standard for Gas-Fired, Heat Activated Air-Conditioning and Heat Pump Appliances, ANSI Z21.40.1-1996 · CGA 2.91-M96, and supersede corresponding standards therein. Following their preparation by the supervising subcommittee, they were accepted by ANSI, the Interprovincial Gas Advisory Council, International Approval Services - U.S., Inc. and the Canadian Gas Association and subsequently approved.

NOTE: Changes, other than editorial, are denoted by a vertical line in the margin.



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CANADIAN GAS ASSOCIATION STANDARD FOR
GAS-FIRED, HEAT ACTIVATED AIR-CONDITIONING
AND HEAT PUMP APPLIANCES**

**PART I
CONSTRUCTION**

1.2 GENERAL CONSTRUCTION

1.2.2 Asbestos shall not be used in the construction of an appliance.

(Former 1.2.2 through 1.2.6 become 1.2.3 through 1.2.7, respectively.)

1.2.8 All fuel gas and safety controls provided with the appliance, with the exception of the manual gas shutoff valve, shall be assembled on the appliance as shipped from the manufacturer's plant.

(Former 1.2.7 through 1.2.9 become 1.2.9 through 1.2.11, respectively.)

1.13 LIMIT CONTROLS AND PRESSURE RELIEF DEVICES

Limit controls and pressure relief devices shall comply with the appropriate sections of the *Standard Safety Code for Mechanical Refrigeration, ANSI/ASHRAE 15*. Effective means shall also be provided for limiting the temperature within the highest temperature component to a value that will not result in dissociation or other changes in the refrigerant, solvent, coolant, absorbent, or adsorbent that are likely to lead to the formation of a hazardous condition.

1.13.1 Appliances Which Produce Heated and or Cooled Air, Liquid or Refrigerant.

- a. Temperature and pressure limit controls and fan controls shall comply with the *Safety Standard for Limit Controls, ANSI/UL 353*, or equivalent.**
- b. Primary temperature limit controls shall not be of the automatic recycling type and shall each have a manufacturer's specified differential of not less than 10°F (5.5°C).**

If an auxiliary limit control is supplied, it may be of the automatic reset type but shall be an integral part of the appliance.

(Former proposed 1.13.2, unchanged.)

PART II

PERFORMANCE

2.6 AUTOMATIC IGNITION SYSTEMS

2.6.13 Under the conditions of voltage variation and pilot rate reduction specified in the following Method of Test, an automatic pilot ignition system shall ignite the pilot burner gas within 30 seconds after gas reaches the pilot burner port(s). During this test, igniter coils and spark gaps shall show no signs of deterioration or wear.

Method of Test

Before testing, it shall be determined that all gas piping is filled with gas.

These tests shall be conducted at normal inlet test pressure under the following voltage and pilot input rate conditions:

a. Undervoltage

The voltage to the appliance shall be adjusted to 85 percent of the appliance rating plate voltage.

b. Overvoltage

The voltage to the appliance shall be adjusted to 110 percent of the appliance rating plate voltage.

c. Reduced Pilot Input Rate

The pilot gas supply shall be reduced to an amount just sufficient to keep the valve of the safety shutoff device open or to an amount just above the point of flame extinction, whichever represents the higher pilot gas flow, and the appliance rating plate voltage shall be supplied.

Under the conditions specified in “-a,” “-b” and “-c” above, ignition cycles shall be repeated 10 times.

In each case the pilot igniter, shall ignite the pilot burner gas within 30 seconds after gas reaches the pilot burner port(s).

2.7 DIRECT IGNITION SYSTEMS

2.7.4 Under the conditions of voltage variation specified in the following Method of Test, the direct ignition system shall ignite main burner gas within 4 seconds after gas reaches the main burner port(s).

Method of Test

The following voltages shall be used during conduct of the test:

a. Undervoltage

The voltage to the appliance shall be adjusted to 85 percent of the appliance rating plate voltage.

b. Overvoltage

The voltage to the appliance shall be adjusted to 110 percent of the appliance rating plate voltage.

Under the conditions of both undervoltage and overvoltage as specified above, ignition cycles shall be repeated 25 times.

In each case the direct ignition system shall ignite main burner gas within 4 seconds after gas reaches the main burner port(s).

2.13 TEMPERATURE AND PRESSURE LIMITING DEVICES

2.13.3 Liquid Temperature Limiting Devices

- a. **A liquid temperature limiting device, when adjusted at the maximum temperature setting, shall in no case permit a produced liquid temperature in excess of 200°F (93°C).**

Method of Test

If adjustment features designed for consumer's use are provided in the device, the adjustment shall be at the maximum temperature setting. A limiting device without an adjustable feature for consumer's use shall be tested as received, the manufacturer's setting being considered the maximum. Arrangements shall be made so the maximum temperature of the liquid may be obtained at any time by means of a bead type thermocouple, accurate to 1°F (0.5°C), or equivalent means, located not more than 4 inches (102 mm) downstream of the appliance hot liquid outlet.

The appliance shall be operated at normal inlet test pressure. The flow of produced liquid shall be gradually restricted until the temperature limit control acts to shut off the gas supply. The maximum liquid temperature at the appliance outlet shall be determined and shall not be in excess of 200°F (93°C). This test shall be repeated 4 times.

- b. **The assembly of a liquid temperature limiting device on the appliance shall cause no leakage of liquid when the assembly is subjected to a hydrostatic pressure three times its normal working gauge pressure or 50 psi (334.7 kPa), whichever is greater.**