1. Reference materials

Overview

Purpose

Gas technicians/fitters install, service, and maintain gas equipment and piping systems daily. The systems and types of equipment they work on are constantly changing; therefore, having access to current reference material is vital. Moreover, installation and servicing of gas-fired equipment according to codes, regulations, and manufacturer's specifications is a must. This Chapter will explain the various reference materials that the gas technician/fitter will encounter and how to use them to ensure safety and efficiency of work.

Objectives

At the end of this Chapter, you will be able to:

- locate specific information in reference materials.

Terminology

Term	Abbreviation (symbol)	Definition
Manufacturer service bulletins		From a manufacturer, instructions with guidelines for servicing and maintaining the appliance or equipment or updates on equipment problems and provisions for solutions
Manufacturer specifications		From a manufacturer, the specifications and certified installation instructions for its appliances and equipment

Types of reference materials

A gas technician/fitter will need to reference code books, installation manuals, and government acts, regulations, bulletins, and directives, as well as manufacturer's manuals, specifications and service bulletins.

CSA Group Gas Trade Training Materials – Red Seal Alignment

Red Seal		CSA Gas Trade Unit	1	2	3	4	4A	5	6	7	8	9
2014 Red Seal Block	2014 Red Seal Task	Title	Safety	Fasteners, Tools and Testing Instruments	Properties, Characteristics, and Safe Handling of Fuel Gases	Utilization Codes, Acts and Regulations	Utilization Codes, Acts, and Regulations – Ontario Supplement	Introduction to Electricity	Technical Manuals, Specifications, Drawings and Graphs	Customer Relations	Introduction to Piping and Tubing Systems	Introduction to Gas Appliances
A - Common Occupational Skills	Task 1	Performs safety-related functions.	✓									
	Task 2	Maintains and uses tools and equipment.	✓	✓	✓							
	Task 3	Plans and prepares for installation, service and maintenance.	✓			✓	✓	✓	✓			
B - Gas Piping Preparation and Assembly	Task 4	Fits tube and tubing for gas piping systems.									✓	
	Task 5	Fits plastic pipe for gas piping systems.									✓	
	Task 6	Fits steel pipe for gas piping systems.									✓	
C - Venting and Air Supply Systems	Task 7	Installs venting.									✓	✓
	Task 8	Installs air supply system.										
	Task 9	Installs draft control systems.										
D - Controls and Electrical Systems	Task 10	Selects and installs electronic components.						✓				
	Task 11	Selects and installs electrical components.										
	Task 12	Installs automation and instrumentation control systems.										
E - Installation of Systems and Equipment	Task 13	Installs gas-fired system piping and equipment.									✓	✓
	Task 14	Installs gas-fired system components.										
	Task 15	Installs propane storage and handling systems.										
F - Testing & Commissioning of Gas-fired Systems	Task 16	Tests gas-fired systems.										
	Task 17	Commissions gas-fired systems.	✓	✓	✓	✓	✓	✓			✓	✓
G - Servicing Gas-fired Systems	Task 18	Maintains gas-fired systems.										
	Task 19	Repairs gas-fired systems.										✓
	Task 20	Decommissions gas-fired systems.	✓	✓	✓	✓	✓	✓			✓	✓

Code books and manuals

CSA B149.1 Natural gas and propane installation code

The *Natural gas and propane installation code*, CSA B149.1, has 10 main sections, as identified in the Code's Table of Contents.

You can find a topic by either searching the Table of contents by "Clause" titles or by using the key word index at the back of the Code. The index is the preferred method since it may show cross-references on the topic in various clauses of the Code.

CSA B149.2 Propane storage and handling code

The *Propane storage and handling code*, CSA B149.2, has nine main sections, as identified in the Code's Table of contents. You can also locate information by looking in the Table of Contents or index.

CSA B149.3 Code for field approval of fuel-burning appliances and equipment

CSA B149.3 contains requirements for the field approval of non-certified or upgraded gas appliances, equipment, fuel-related components, accessories, and their assembly located downstream of the appliance manual shut-off valve.

This Code has 20 sections and Annexes A-K (all informative), which are listed in the *Contents* section. Annex B, *Valve diagrams*, contains symbols (see Figure B.1) and diagrams [Figures B.2 to B.11 g)].

Acts, regulations, and directives

The gas technician/fitter needs to be aware of provincial acts and regulations that govern the installation of gas and propane equipment and the qualifications required for the persons performing the work.

Provincial acts

An act is a piece of government legislation that defines or assigns responsibilities and enables the writing of regulations. The gas technician/fitter should be familiar with those portions of the applicable act(s) pertaining to the gas technician's/fitter's responsibility. The title of the act dealing with installation of gas equipment and/or the certification of gas technicians/fitters varies from province to province.

Provincial regulations

A regulation is a piece of government legislation made under the authority of an act. It is more specific than an act. There are usually separate regulations for certification or apprenticeship, gas installations, and propane storage. See the various provincial regulations governing the fuels industry.

Safety directives/bulletins

The provincial authority having jurisdiction may periodically issue directives and bulletins that pertain to product approval or installation practices. The authority having jurisdiction (AHJ) is responsible for the adoption of the national installation codes, often with changes.

Manufacturer's specifications

Manufacturers publish specifications and certified installation instructions for their appliances and equipment. It is very important that you read the manufacturer's publications before installing an appliance and make sure that the specifications and instructions pertain to the appliance you are installing. Ensure that the installation instructions have received certification. You should see the symbol of the certification organization printed on the cover of the instructions.

Compliance with manufacturer's certified instructions is a legal requirement. CSA B149.1 *Natural gas and propane installation code* states that "[a]n appliance, accessory, component, equipment, or any other item shall be installed in accordance with the manufacturer's certified instructions and this Code."

Typically, you will find the following information in gas appliance manufacture's publications:

- size of area needed for installation and service;
- physical dimensions of the equipment;
- model numbers and part numbers;
- gas input rate and pressure requirements also the combustion parameters;
- venting material and configuration requirements;
- air supply requirements;
- electrical diagrams and electrical rating;
- operating sequence;
- maintenance requirements; and
- troubleshooting tips.

Manufacturer's service bulletins

Manufacturer's service bulletins give the service technician the guidelines for servicing and maintaining the appliance or equipment (see Figure 1-1). Manufacturers also publish, as necessary, updates on equipment problems and provisions for solutions (see Figure 1-2).

The Internet is a powerful tool for remaining current on the most up-to-date information available concerning a specific appliance or component. A gas technician/fitter should check the manufacturer's website on a regular basis for any new information or service bulletin regarding the appliance or component being installed or serviced.


It is very important to carefully read all materials available from the manufacturer.

Figure 1-1
Example of a service bulletin

Heating & Air Conditioning
Amana
LASTS AND LASTS AND LASTS.™

Goodman
Air Conditioning & Heating

Service Bulletin

SF-034

DATE: April 26, 2010
TO: All Service and Parts Managers
SUBJECT: Introduction of Honeywell Gas Valves on Furnaces

We have introduced Honeywell gas valves on single stage furnaces in March 2010 and on two stage furnaces beginning in April 2010. Furnaces equipped with the Honeywell gas valve will show a change in the minor revision level. Example: an "AB" revision furnace will become an "AC" revision when built with the Honeywell valve.

Service part manuals will show new part numbers with the addition of Honeywell Gas Valves. It is recommended that if a replacement gas valve is needed, it should be the same brand gas valve as the original. It is possible to replace a White-Rodgers valve with a Honeywell valve but there are differences to be aware of.

Single Stage: Honeywell valve is approximately ½" longer than the White-Rodgers valve. Both valves have the same ¼" push on 24 volt electrical connections.

Two Stage: Honeywell valve is approximately 1" longer than the White-Rodgers valve. Both valves have a 3 pin harness for the 24 volt electrical connection but are different in their shape and wiring arrangements.

To replace a single stage White-Rodgers valve with a single stage Honeywell valve: The ½" difference in valve length must be considered. If installed on the 33 3/8" chassis the use of a 90°street elbow will be necessary to get proper alignment between the gas valve and the gas line hole in the left or right side of the cabinet. Electrical connections are the same for both valves.

To replace a two stage White-Rodgers valve with a two stage Honeywell valve: The 1" difference in valve length must be considered. If installed on a 33 3/8" chassis furnace the use of a 90°street elbow will be necessary to get proper alignment between the gas valve and the gas line hole in the left or right side of the cabinet. An adapter harness part number **0259M00004** would also be needed.

To replace a two stage Honeywell valve with a two stage White Rodgers valve: Simply remove and discard the short adapter harness and connect the remaining connector to the White-Rodgers gas valve.

Propane Kits:
We have introduced two new L.P. kits. The LPT-03 kit will convert a single stage Honeywell or White-Rodgers valve to L.P. The LPM-06 will convert a two stage Honeywell or White-Rodgers valve to L.P. Existing LPT-00A and LPM-05 kits can still be used to convert White-Rodgers valves only. If replacing a White-Rodgers gas valve with a Honeywell in an LP application, it is essential that you use the Honeywell gas valve spring, do not use the spring from the WR valve.

Technical Services Department • 1810 Wilson Parkway • Fayetteville, TN 37334
Main: 888.593.9988 • Service Fax: 713.316.5541

Figure 1-2
Example of a service notice

SERVICE AND APPLICATION NOTES

August 11, 2006
Revised January 2, 2009
H-06-4

New replacement combustion air inducer kits (24W95 & 43W85) For G40U, G50, & G60 furnaces

The new inducer can be identified by the new port location on the side of the inducer body. See figure 1. The original inducer figure 2 is being phased out and the new side port inducer will be used as a replacement for all dash number G40UH/DF, G50UH/DF and G60UH/DF furnaces.

New combustion air inducer

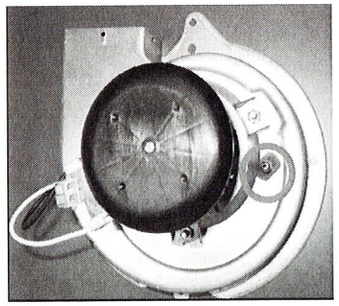

FIGURE 1

Original combustion air inducer

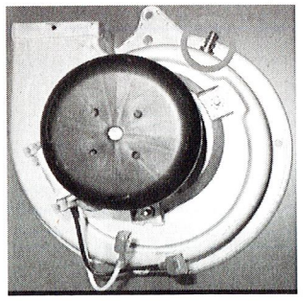

FIGURE 2

The CAI kits contain the following:

1 – Combustion air inducer (CAI) assembly
2 – Replacement gaskets
4 – #8–18–1/2" screws
1 – 7" length of tubing (used in single–stage applications, –14 and earlier)
1 – 9" length of tubing (used in two–stage applications, –8 and earlier)

These combustion air inducer replacement kits are applied as necessary to furnaces as listed in table 1.

TABLE 1

Model numbers	Kit catalog number
G40UH, G40DF, G50UH & G50DF	24W95
G60UH(V) & G60DF(V)	43W85

G40DF, G40UH, G50DF and G50UH units with dash numbers of 14 or earlier or G60DF(V) and G60UH(V) units with dash numbers of 8 or earlier – existing pressure switch may not be compatible with replacement combustion air inducer. Check pressure switch part number against required part number listed in table 2 and replace if necessary.

TABLE 2

Model numbers	0 – 7,500 feet			7,501 – 10,000 feet		
	Pressure switch cat number	Pressure switch part number	Setpoint (inches w.c)	Pressure switch cat number	Pressure switch part number	Setpoint (inches w.c.)
G40UH, G50UH	24W97	101231–01	0.40	56L32	56L3201	0.36
G40DF, G50DF	24W98	101231–02	0.31	24W98	101231–02	0.31
G60UHV	18M61	18M6101	0.20/0.40	18M64	18M6401	0.200/0.35
G60DF(V)	18M64	18M6401	0.20/0.35	44W31	102052–01	0.20/0.30

LENNOX

Corp. 0637–L7