

2024



CONSTRUCTION PERMIT APPLICATION

I. IDENTIFICATION

1. Proposed Work Site at: 16 Byron rd

2. Name of Owner in Fee: Weber Tel. (732) 658-3515
Address 16 Byron rd North Brunswick
street municipality zip code

3. Ownership in Fee: Public ☐ Private ☒ **OLSON'S AIR CONDITIONING & HEATING, INC.**

4. Principal Contractor: DAYTON, NEW JERSEY 08810
Address P.O. BOX 526
License No. OR, if new home, Builder Reg. No. (732) 422-4139 Exp. Date 12-08
Federal Employee No. Fed. Id. # 651214819

5. Architect or Engineer N.J. Contractor License # 13VH02191100
Address contact

6. Responsible Person in Charge once Work has Begun Brian Olson
Tel. (732) 718-6094 FAX: (732) 422-4139

		Update	Update
1. Building	\$ 46.		
2. Electrical	23.		
3. Plumbing	43.		
4. Fire Protection	46.		
5. Elevator Devices			
6. Subtotal Admin	\$ 7.		
7. Less 20% for State Plan Review			
8. Subtotal	\$		
9. State Permit Surcharge Fee			
10. Subtotal DCA	\$ 5.		
11. Cert. of Occupancy			
12. Other			
13. TOTAL	\$ 169.		

1. Number of Stories _____
2. Height of Structure _____ ft.
3. Area — Largest Floor _____ sq. ft.
4. New Building Area _____ sq. ft.
5. Volume of New Structure _____ cu. ft.
6. Construction Classification _____
7. Total Land Area Disturbed _____ sq. ft.
8. Flood Hazard Zone _____
9. Base Flood Elevation _____ ft.
10. Wetlands yes _____
 no _____
11. Max. Live Load _____
12. Max. Occupancy Load _____

[illegible]

1. ☐ Minor Work
2. ☐ New Building
3. ☐ Addition
4. ☐ a. Repair
☐ b. Alteration
☐ c. Renovation
☐ d. Reconstruction
5. ☐ Fire Protection
6. ☒ Plumbing
7. ☒ Electrical
8. ☐ Elevator Devices
9. ☐ Asbestos Abat. Subch. 8
10. ☐ Lead Hazard Abatement
11. ☐ Demolition

[illegible]

A. RESIDENTIAL

2. Use Group:

2. Use Group:

3. Change in Use Group, Indicate Former:

4. No. of dwelling units: *All Units, income-restricted*

Before Construction

After Construction

Net Gain or Loss

1. State Specific Use:

2. Use Group:

3. Change in Use Group, Indicate Former:

- ☐ Partial Releases
- ☐ Prototype Processing

1. ☐ Elevators/Escalators/Lifts/
Dumbwaiters/Moving Walks
2. ☐ High Pressure Boilers
3. ☐ Pressure Vessels

4. ☐ Refrigeration Systems
5. ☐ Cross-Connections/Backflow Preventers
6. ☐ Hazardous Uses/Places of Assembly
7. ☐ Sprinklers

8. ☐ Smoke Control Systems in Open Wells
9. ☐ Underground Storage Tanks
10. ☐ Swimming Pools, Spas and Hot Tubs

LDS NOB-B 10103270

CERTIFICATION IN LIEU OF OATH

I. OWNER SECTION (to be completed if the applicant is the owner in fee)

I hereby certify that I am the owner in fee of the property listed on Page 1.

Mark the following applicable boxes:

- A. ☐ I further certify that a new home (private residence) will be constructed on this property for my own use and occupancy. This dwelling is to be occupied by myself and is not to be used for any purpose other than single family residential use. I attest that all construction, plumbing, or electrical work will be done, in whole or in part, by me or by subcontractors under my supervision, in accordance with all applicable laws; and, I further acknowledge that said new home is not covered under the New Home Warranty and Builders Registration Act (N.J.S.A. 46:3B-1 et seq.) and that such fact shall be disclosed to any person purchasing this property within ten years of the date of issuance of a certificate of occupancy.

I UNDERSTAND THAT IN MARKING BOX A, I ACKNOWLEDGE THAT I AM ASSUMING RESPONSIBILITY FOR THE WORK DONE ON SAID PROPERTY, THE CONDITION OF THE PROPERTY PRIOR TO, DURING, AND AFTER ANY WORK PERFORMED, AND FOR THE PERFORMANCE OF THE SUBCONTRACTORS I HIRE, EMPLOY, OR OTHERWISE CONTRACT OR WITH WHOM I MAKE AGREEMENTS TO PERFORM WORK. I AM VOLUNTARILY AND KNOWINGLY ASSUMING THIS RESPONSIBILITY.

- B. ☐ I further certify the following as required by the New Jersey Uniform Construction Code, N.J.A.C. 5:23-2.15(e)1.vii:

I personally prepared the plans submitted for: 1) the new home referred to in A.; or, 2) an addition, alteration, renovation, or repair to an existing single family residence owned and occupied by myself and located on the property listed on Page 1; or, 3) a new structure that will be physically separate from, but that will be deemed part of, an existing single family residence that is owned and occupied by myself and located on the property listed on Page 1.

- C. ☐ I further certify that I will perform or supervise the following work:

C.1. ☐ Building C.2. ☐ Fire Protection

I further certify that I will perform the following work:

C.3. ☐ Electrical C.4. ☐ Plumbing

- D. ☐ I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I understand that if any of the above statements are willfully false, I am subject to punishment.

Signature _____ Date _____

II. AGENT SECTION (to be completed if the applicant is not the owner in fee)

I hereby certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(d): the proposed work is authorized by the owner in fee; and I have been authorized by the owner in fee to make this application as his agent.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I understand that if any of the above statements are willfully false, I am subject to punishment.

☒ Check if contractor.

Agent Name Kris Olson

Address P.O. Box 526

Duxton N.J. 08810

Telephone (732) 718-6094

Signature Kris E. Olson

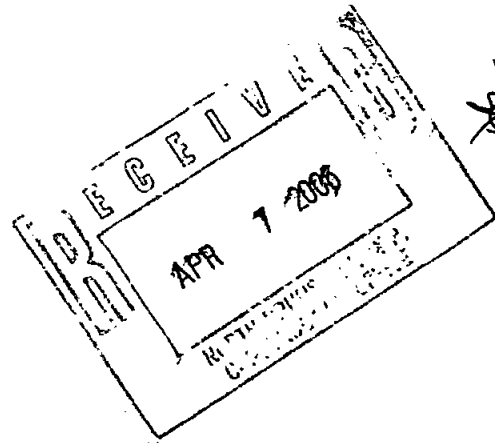
III. ☐ LEAD HAZARD ABATEMENT: Include Homeowner or Building Owner Affidavit as per N.J.A.C. 5:17.

OFFICE DATE RECEIVED: _____

VIII. PRIOR APPROVALS CHECKLIST (office use only)	LOCAL APPROVAL		COUNTY APPROVAL		REGIONAL APPROVAL		STATE APPROVAL		COMMENTS
	Prelim'n. Initial	Final Date	Prelim'n. Initial	Final Date	Prelim'n. Initial	Final Date	Prelim'n. Initial	Final Date	
☐ Zoning Officer									
☐ Planning Board									
☐ Zoning Board									
☐ Sewer Authority									
☐ Water Authority									
☐ Police Department									
☐ Health Department									
☐ Soil Conservation									
☐ N.J. Department of Community Affairs									
☐ N.J. Department of Transportation									
☐ N.J. Department of Environmental Protection									
☐ Utility Dig No.									
☐									
☐									

IX. SUBCODES AND SPECIAL REGULATIONS APPLICABLE (office use only—optional)	
Name of Code & Edition	Name of Code & Edition
Building _____	Energy _____
Electrical _____	Barrier Free _____
Plumbing _____	Flood Hazard _____
Fire Protection _____	As Built Elevation Cert. _____
Mechanical _____	Other _____

X. CERTIFICATES ISSUED (office use only)	DATE ISSUED	DATE EXPIRED	DATE REISSUED	DATE EXPIRED
☐ Temporary Certificate of Occupancy	No. _____	_____	_____	_____
☐ Temporary Certificate of Compliance	No. _____	_____	_____	_____
☐ Continued Certificate of Occupancy	No. _____	_____	_____	_____
☐ Certificate of Compliance	No. _____	_____	_____	_____
☐ Certificate of Occupancy	No. _____	_____	_____	_____
☐ Certificate of Approval	No. _____	_____	_____	_____
☐ Lead Abatement Clearance Certificate	No. _____	_____	_____	_____





TOWNSHIP OF NORTH BRUNSWICK
710 HERMANN ROAD
NORTH BRUNSWICK, NJ 08902
732 - 247-0922

Control Number: 20824
Application Date: 04/12/2006

CONSTRUCTION PERMIT

VOID

IDENTIFICATION

VOID

OWNER/PROPERTY DETAILS

Block: 148 Lot: 113 Qualification Code:
Work Site Location: 16 BYRON ROAD NORTH BRUNSWICK

Owner In Fee: DONALD WEBER
Address: 16 BYRON ROAD

NORTH BRUNSWICK NJ 08902

Telephone: (732) 658-3515

Use Group(s): R-5

Contractor: OLSON'S AIR CONDITIONING & H

Address: PO BOX 526
DATYON NJ 08810

Telephone: (732) 422-4139

Lic. No. / Bldrs. Reg. No.:

Federal Emp. No.: 65-1214819

is hereby granted permission to perform the following work :

- | | | |
|--|---|-------------------------------------|
| ☒ BUILDING | ☒ PLUMBING | ☐ DEMOLITION |
| ☒ ELECTRICAL | ☒ FIRE PROTECTION | ☐ OTHER |
| ☐ ELEVATOR DEVICES | ☐ MECHANICAL | |
| ☐ ASBESTOS ABATEMENT | ☐ LEAD HAZARD ABATEMENT | |

(Subchapter 8 only)

DESCRIPTION OF WORK:
FURNACE & ROOF JACK RE

VOID

ESTIMATED COST OF WORK:

Cost of Construction: 0.00
Cost of Rehabilitation: 3,300.00
Cost of Demolition: 0.00

Total Cost: \$3,300.00

PAYMENTS (Office Use Only)	
Building	\$46.00
Electrical	\$29.00
Plumbing	\$43.00
Fire Protection	\$46.00
Elevator Devices	
Mechanical	
VolFee (DCA)	
AltFee (DCA)	\$5.00
DCA Minimum Fee	\$0.00
Other Fees	
CO Fee	
CCO Fee	
Minimum Fee	
Total	\$169.00
All Fees Waived:	No

Amount to be Paid: \$169.00

NOTE: If construction does not commence within one (1) year of date of issuance, or if construction ceases for a period of six (6) months, this permit is void.

THOMAS PAUN
Construction Official

Date

Note:



TOWNSHIP OF NORTH BRUNSWICK
710 HERMANN ROAD
NORTH BRUNSWICK, NJ 08902
732 - 247-0922

Control Number: 20824
Application Date: 04/12/2006

CONSTRUCTION PERMIT

IDENTIFICATION

OWNER/PROPERTY DETAILS

Block : 148	Lot : 113	Qual :		
Work site Location:	16 BYRON ROAD NORTH BRUNSWICK		Contractor:	OLSON'S AIR CONDITIONING & HEAT
Owner In Fee:	DONALD WEBER		Address:	PO BOX 526
Address:	16 BYRON ROAD			DATYON NJ 08810
	NORTH BRUNSWICK NJ 08902		Telephone:	(732) - 422-4139
Telephone:	(732) - 658-3515		Lic. No. / Bldrs. Reg. No.:	
Use Group(s):	R-5		Federal Emp. No.:	65-1214819

is hereby granted permission to perform the following work :

- | | | |
|--|---|-------------------------------------|
| ☒ BUILDING | ☒ PLUMBING | ☐ DEMOLITION |
| ☒ ELECTRICAL | ☒ FIRE PROTECTION | ☐ OTHER |
| ☐ ELEVATOR DEVICES | ☐ MECHANICAL | |
| ☐ ASBESTOS ABATEMENT | ☐ LEAD HAZARD ABATEMENT | |

(Subchapter 8 only)

DESCRIPTION OF WORK:

FURNACE & ROOF JACK REPLACEMENT

ESTIMATED COST OF WORK:

Cost of Construction: 0.00
Cost of Alteration: 3,300.00
Cost of Demolition: 0.00

Total Cost: \$3,300.00

PAYMENTS (Office Use Only)

Building	\$46.00
Electrical	\$29.00
Plumbing	\$43.00
Fire Protection	\$46.00
Elevator Devices	
Mechanical	
VolFee (DCA)	
AltFee (DCA)	\$5.00
Other Fees	
CO Fee	
CCO Fee	
Minimum Fee	
Total	\$169.00
All Fees Waived :	No

Amount to be Paid: \$169.00

If construction does not commence within one year of date of issuance,
or if construction ceases for a period of six months, this permit is void.

Thomas Paun
THOMAS PAUN

4/21/06
Date

Construction Official

:: Failure to obtain all required inspections may result in administrative action.
:: Final inspections are required before final payment is to be made to contractor.
:: An approved set of plans must be kept at the worksite at all times

Note:

CONSTRUCTION PERMIT APPLICATION - COUNTER FORM

Township of North Brunswick, Construction Office, 710 Hermann Road, North Brunswick, NJ 08902 / (732) 247-0922, ext. 450

FILL OUT COMPLETELY and TYPE OR PRINT IN INK

CHECK IF: ☐ UPDATE, ☐ PROTOTYPE, or ☐ CHANGE OF CONTRACTOR and enter ORIGINAL PERMIT #

SITE / OWNER DATA:

BLOCK 148 LOT 113 WORKSITE ADDRESS 16 Bryan rd
 Owner in Fee Donald Weber
 Address 16 Bryan rd City North Brunswick State NJ Zip Code 08902
 Phone 732-658-3515

N.B.: Signature(s) below and/or on reverse certify the accuracy of all data and the authority to submit this application.

OFFICE USE ONLY:

Received _____
 Control # _____
 Issued _____
 Permit # _____

BUILDING SUBCODE

Contractor OLSON'S AIR CONDITIONING & HEATING, INC.
 Address PO. BOX 526
 City DAYTON, NEW JERSEY 08810 Zip Code 08810
 Phone (732) 422-4139
 License # (732) 422-4139 Expires 12-31-06
 Federal Employment # Fed. Id. # 65-1214819
 N.J. Contractor License # 13VH02191100

BUILDING CHARACTERISTICS:

USE GROUP: Present ☐ Proposed ☐
 CONST. CLASS: Present ☐ Proposed ☐
 New Bldg.: # of Stories ☐ Height ☐ Ft.
 Area: Largest Floor ☐ Sq. Ft. / All Floors ☐ Sq. Ft.
 Volume ☐ Cu. Ft. / Total Land Disturbed ☐ Sq. Ft.

TECHNICAL SITE DATA:

Description:

Furnace + Roof Jack replacement

TYPE OF WORK:

- ☐ New Building ☐ Addition
☐ Alteration:
☐ Roofing ☐ Pool
☐ Siding ☐ Asbestos Abatement
☐ Fence, Height ☐ Lead Hazard Abatement
☐ Sign, Sq. Ft. ☐ Other
☐ Demolition

ESTIMATED COST:

New/Addition _____ + Alteration _____ = Total \$ 1900.00

SIGNATURE Kris L. Olson Agent ☒ Owner ☐

OFFICE USE ONLY:

SUBCODE PLAN REVIEW: ☐ No Plans Required

☐ All ☐ Footing ☐ Foundation ☐ Frame ☒ Other DUCT

SIGNATURE MP DATE 4/17/06

PLUMBING SUBCODE

Contractor OLSON'S AIR CONDITIONING & HEATING, INC.
 Address PO. BOX 526
 City DAYTON, NEW JERSEY 08810 Zip Code 08810
 Phone (732) 422-4139
 License # (732) 422-4139 Expires 12-31-06
 Federal Employment # Fed. Id. # 65-1214819
 N.J. Contractor License # 13VH02191100

PLUMBING CHARACTERISTICS:

USE GROUP: Present ☐ Proposed ☐
 Building Sewer Size ☐ [] Public Sewer [] Private Septic
 Water Service Size ☐ [] Public Water [] Private Well

TECHNICAL SITE DATA:

QTY. FIXTURE/EQUIPMENT QTY. FIXTURE/EQUIPMENT

65 Water Closet Gas Piping
1 Urinal/Bidet Steam Boiler
1 Bath Tub Hot Water Boiler
1 Lavatory Sewer Pump
1 Shower Interceptor/Separator
1 Floor Drain Backflow Preventer
1 Sink Greasetrap
1 Dishwasher Sewer Connection
1 Drinking Fountain Water Service Connection
1 Washing Machine Stacks
1 Hose Bibb Other Furnace Replacement
1 Water Heater Other
1 Fuel Oil Piping Other

ESTIMATED COST:

New/Addition _____ + Alteration _____ = Total \$ 100.00

SIGNATURE Kris L. Olson
☐ Licensed Plumber (Affix Seal) ☒ Exempt Applicant

OFFICE USE ONLY:

SUBCODE PLAN REVIEW:

☐ No Plans Required ☒ Plans Approved

SIGNATURE MP DATE 4-17-06

FIRE SUBCODE

Contractor **OLSON'S AIR CONDITIONING & HEATING, INC.**
 Address **P.O. BOX 526**
 City **DAYTON, NEW JERSEY 08810** Zip Code
 Phone **(732) 422-4139**
 License # **Fed. Id. # 65-1214819** Expires
 Federal Employment # **N.J. Contractor License # 13VH02191100**

FIRE PROTECTION CHARACTERISTICS:

USE GROUP: Present _____ Proposed _____
 CONST. CLASS: Present _____ Proposed _____
 Heating System: ☒ New ☐ Existing ☐ HVAC: Location _____
 Type: ☒ Gas ☐ Oil ☐ Electric ☐ Solar ☐ Other _____
 Fire Alarm System: ☐ New ☐ Existing: Panel Location _____
 Fire Suppression/Standpipe System: ☐ New ☐ Existing
 Main Control Valve Location _____
 Method of Supervision _____
 Water Supply Source _____

TECHNICAL SITE DATA:

DESCRIPTION OF WORK:

Furnace & Roof Jack Replacement

STORAGE TANKS	CAPACITY	FUEL
☐ Flammable Liquid	_____	_____
☐ Combustible Liquid	_____	_____
☐ LPG	_____	_____
☐ LNG	_____	_____

QTY. _____
 ALARM SYSTEMS: ☐ 110 v Interconnected ☐ System
 Alarm Devices (i.e. smoke, heat, pulls, water/flow)
 Supervisory Devices (i.e. tamper, low/high air)
 Signaling Devices (i.e. horns/strobes, bells)
 Other Devices _____
 TOTAL _____

SUPPRESSION SYSTEMS: ☐ Fire Pump ☐ GPM Type
 Dry Pipe/Alarm Valves
 Pre-Action Valves
 Sprinkler Heads (dry and wet)
 Standpipes

PRE-ENGINEERED SYSTEMS: 46"
 Wet Chemical
 Dry Chemical
 CO2 Suppression
 Foam Suppression
 Halon Suppression
 Other _____
 Kitchen Hood Exhaust System
 Smoke Control System
☒ Gas or ☐ Oil Fired Appliances
 Other _____

ESTIMATED COST:

New/Addition _____ + Alteration _____ = Total \$ 1700.00

SIGNATURE *Kris E. Olson* ☐ Agent ☐ Owner

OFFICE USE ONLY:

SUBCODE PLAN REVIEW:

☒ No Plans Required ☐ Plans Approved

SIGNATURE *MD* DATE 4-10-06

ELECTRICAL SUBCODE

Contractor **OLSON'S AIR CONDITIONING & HEATING, INC.**
 Address **P.O. BOX 526**
 City **DAYTON, NEW JERSEY 08810** Zip Code
 Phone **(732) 422-4139**
 License # **Fed. Id. # 65-1214819** Expires 12-31-06
 Federal Employment # **N.J. Contractor License # 13VH02191100**

ELECTRICAL CHARACTERISTICS:

USE GROUP: Present _____ Proposed _____
☐ Pole Pad # _____ ☐ Temporary ☐ Other _____
 Building Occupied as _____ Utility Co. _____

TECHNICAL SITE DATA:

QTY. SIZE ITEMS

Lighting Fixtures
 Receptacles
 Switches
 Detectors
 Light Poles
 Motors - Fractional HP
 Emergency & Exit Lights
 Communications Points
 Alarm Devices/F.A.C. Panel
 TOTAL QUANTITY

Pool / with UW Lights
 Storable Pool/Spa/Hot Tub
 KW Elec. Range/Receptacle
 KW Oven/Surface Unit
 KW Electric Water heater
 KW Electric Dryer/Receptacle
 KW Dishwasher
 HP Garbage Disposal
 KW Central Air Conditioning Unit
 HP/KW Space Heater/Air Handler
 KW Baseboard Heat
 HP Motors 1/+ HP
 KW Transformer/Generator
 AMP Service
 AMP Subpanels
 AMP Motor Control Center
 KW Electric Sign/Outline Light
 Other *Gas Furnace Replacement*

ESTIMATED COST:

New/Addition _____ + Alteration _____ = Total \$ 100.00

SIGNATURE *Kris E. Olson*

☐ Licensed Electrician (Affix Seal) ☒ Exempt Applicant

OFFICE USE ONLY:

SUBCODE PLAN REVIEW:

☒ No Plans Required ☐ Plans Approved

SIGNATURE *AF* DATE 4/2/06



TOWNSHIP OF NORTH BRUNSWICK

710 HERMANN ROAD
NORTH BRUNSWICK, NJ 08902

Tel: (732) 247-0922 Fax: (732)-289-3822
Website: WWW.NORTHBRUNSWICKONLINE.COM

FAILURE TO PICK UP APPROVED APPLICATIONS

Control# 20824 Permit Update # Total Amount Due \$169

Date of Notice: October 12, 2011

Owner's Name: Donald Weber

Work Site Address: 16 Byron Rd. NORTH BRUNSWICK

☒_X_ Owner as shown on application **☐_Current Owner**

Contractor as shown on application: Olsons Air Conditioning/Heating PO Box 526 Dayton, NJ 08810

Proposed Work: Furnace & Roof Jack replacement **Application Approved on:** 04/21/2006

For the following Sub codes: **☒_X_Building** **☒_X_Electrical** **☒_X_Fire** **☒_X_Plumbing**

As of this date, applications for the above work have been approved, however, the fee has not been paid. Until the fees are paid, applications are not considered to be a permit. Please come to the Construction Office or mail a check made payable to North Brunswick Township so these permits can be issued. Upon receipt of payment we can schedule inspections for the work.

WORK DONE WITHOUT PROPER PERMITS MAY RESULT IN A NOTICE OF VIOLATION AND/OR INITIAL PENALTY OF UP TO \$2000

North Brunswick Construction Department

7009 0080 0001 5125 3283

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT
OF THE RETURN ADDRESS, FOLD AT DOTTED LINEU.S. Postal Service TM**CERTIFIED MAILTM RECEIPT**

(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com**OFFICIAL USE**

Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$

Postmark
Here

Sent To

Street, Apt. No.,
or PO Box No.

City, State, ZIP+4

Weber
16 Byron
No. Bruns.

PS Form 3800, August 2006

See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits.

Article Addressed to:

Donald Weber
16 Byron Rd.
No. Bruns. NJ
08902

Article Number

(Transfer from service label)

PS Form 3811, February 2004

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

☒ Certified Mail☐ Express Mail☐ Registered☒ Return Receipt for Merchandise☐ Insured Mail☐ C.O.D.

4. Restricted Delivery? (Extra Fee)

☐ Yes

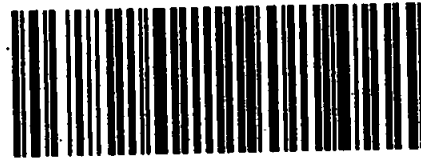
7009 0080 0001 5125 3283

Domestic Return Receipt

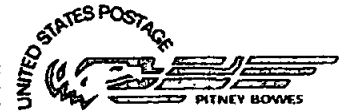
102585-02-M-1540

Construction
TOWNSHIP OF NORTH BRUNSWICK
710 HERMANN ROAD
NORTH BRUNSWICK, NJ 08902

CERTIFIED MAIL™



7009 0080 0001 5125 3289



02 1A
0004397455 FEB04 2011
MAILED FROM ZIP CODE 08902

\$ 05.54⁰

297

Donald Weber

A
C
S

- ☐ INSUFFICIENT ADDRESS
- ☐ ATTEMPTED NOT KNOWN
- ☐ NO SUCH NUMBER/ STREET
- ☐ NOT DELIVERABLE AS ADDRESSED
- ☐ OTHER
- ☐ UNABLE TO FORWARD



UNCLAIMED



TOWNSHIP OF NORTH BRUNSWICK

710 HERMANN ROAD
NORTH BRUNSWICK, NJ 08902

Tel: (732) 247-0922 Fax: (732)-289-3822
Website: WWW.NORTHBRUNSWICKONLINE.COM

FAILURE TO PICK UP APPROVED APPLICATIONS

Control# 20827

Permit Update #

Total Amount Due \$169

Date of Notice: February 4, 2011

Owner's Name: Donald Weber

Work Site Address: 16 Byron Rd.

X Owner as shown on application

Current Owner

Contractor as shown on application: Olson's Air Conditioning/Heating

Proposed Work: Furnace/Roof Jack Replace

Application Approved on: 4/21/06

For the following Sub codes: **X Building X Electrical X Fire X Plumbing**

As of this date, applications for the above work have been approved, however, the fee has not been paid. Until the fees are paid, applications are not considered to be a permit. Please come to the Construction Office or mail a check made payable to North Brunswick Township so these permits can be issued. Upon receipt of payment we can schedule inspections for the work.

**WORK DONE WITHOUT PROPER PERMITS MAY RESULT IN A NOTICE OF
VIOLATION AND/OR INITIAL PENALTY OF UP TO \$2000**

North Brunswick Construction Department



TOWNSHIP OF NORTH BRUNSWICK

710 HERMANN ROAD
NORTH BRUNSWICK, N.J. 08902

TEL. (732) 247-0922

FAX (732) 214-8812

WEBSITE: WWW.NORTHBRUNSWICKONLINE.COM

May 19, 2008

DONALD WEBER
16 Byron Rd.
North Brunswick, NJ 08902

Re: Furnace & Rood Jack
Replacement
Olson's Air/Heat

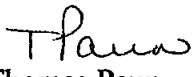
Dear Mr. Weber,

Please be advised that it has come to our attention the above referenced permit was never paid. The application date is 4/12/2006. The fee for this permit is \$169.00. It is the owner's responsibility to make sure all fees are paid.

We would very much appreciate receiving this payment as soon as possible so we can have you call for final inspections and close out this application.

If you have any questions, please feel free to contact the Building Department at 732-247-0922 ext 450.

Sincerely,

 
Thomas Paun
Construction Official

TP/db

1st written notice



TOWNSHIP OF NORTH BRUNSWICK

710 HERMANN ROAD
POST OFFICE BOX 6019
NORTH BRUNSWICK, N.J. 08902
TEL. (732) 247-0922
FAX (732) 214-8812
WEBSITE: WWW.NORTHBRUNSWICKONLINE.COM

July 13, 2006

DONALD WEBER
16 BYRON ROAD
NORTH BRUNSWICK, NJ 08902
PERMIT

Re: FURNACE&ROOF JACK

Dear Mr. Weber,

Please be advised that it has come to our attention the above referenced application was never paid. The application date is 04/12/06. The fee for this permit is \$169.00. It is the homeowner's responsibility to make sure all fees are paid.

We would very much appreciate receiving this payment as soon as possible so we can have you call for final inspections and close out this application.

If you have any questions, please feel free to contact the Building Department at 732-247-0922 ext 450.

Sincerely,

Thomas Paun
Construction Official

TP/db

1st written notice

THIS DOCUMENT IS PRINTED ON WATERMARKED PAPER, WITH A MULTI-COLORED BACKGROUND AND MULTIPLE SECURITY FEATURES. PLEASE VERIFY AUTHENTICITY.

State Of New Jersey

New Jersey Office of the Attorney General
Division of Consumer Affairs

THIS IS TO CERTIFY THAT THE
Division of Consumer Affairs

HAS REGISTERED

Olson's Air Conditioning & heating, Inc
Kris E. Olson
P.O. Box 526
Dayton NJ 08810

FOR PRACTICE IN NEW JERSEY AS A(N): Home Improvement Contractor

03/07/2006 TO 12/31/2006
VALID

13VH02191100
LICENSE/REGISTRATION/CERTIFICATION #

Signature of Licensee/Registrant/Certificate Holder

Kimberly S. Roberts
DIRECTOR

New Jersey Office of the Attorney General
Division of Consumer Affairs
THIS IS TO CERTIFY THAT THE
Division of Consumer Affairs
HAS REGISTERED
Olson's Air Conditioning & heating, Inc
Home Improvement Contractor

03/07/2006 TO 12/31/2006

VALID

SIGNATURE

13VH02191100

License/Registration/Certificate #

DIRECTOR

PLEASE DETACH HERE
IF YOUR LICENSE/REGISTRATION/
CERTIFICATE ID CARD IS LOST
PLEASE NOTIFY:

Division of Consumer Affairs
P.O. Box 46016
Newark, NJ 07101

PLEASE DETACH HERE



CHIMNEY CERTIFICATION FOR REPLACEMENT OF FUEL FIRED EQUIPMENT

BLOCK 148 LOT 113 QUALIFICATION CODE _____ PERMIT # _____
WORK SITE ADDRESS 16 Byron rd

Applicant Weber
Certifying Individual Kris Olson Company Olson's A/C & Htg. Eng.
Address P.O. Box 526 Delfon N.J. 08810
Street City State Zip Code
Tel. (____) _____

Check the Appropriate Box

Type of Replacement:

- ☐ Oil to Gas Conversion
☒ Gas Appliance Replacement
☐ Oil to Oil Replacement
☐ Other _____

Existing Vent/Chimney:

- ☐ B Label Vent
☐ L Label Vent
☐ Masonry Chimney – Tile Lined
☐ Flexible Liner
☐ Power Vent/Exhauster
☐ Other _____

PLEASE SIGN ONE OF THE FOLLOWING CERTIFICATION STATEMENTS

CERTIFICATION

For Oil to Gas Conversions:

I hereby certify that the chimney/vent is free and clear of obstruction and is substantially clean of residue from its previous use serving an oil appliance. I further certify that the chimney/vent is appropriately lined and sized for the appliance being installed

Signature

Date

Oil to Oil or Gas to Gas Replacements:

I hereby certify that the existing chimney/vent is free and clear of obstruction. I further certify that the existing chimney/vent is appropriately lined and sized for the appliance being installed.

Signature

Date

Certification Not Submitted:

I choose not to submit a certification. I understand that I will be required to be present for the inspection to remove and reinstall the chimney vent connector.

Signature

Date

Direct Vent Appliance:

No certification required:

Kris E. Olson
Signature

4-7-06
Date

THIS FORM MUST BE RETURNED TO THE CODE ENFORCEMENT OFFICE PRIOR TO FINAL INSPECTION.

INSTALLATION MANUAL

HIGH EFFICIENCY SEALED COMBUSTION GAS FURNACE

MODELS: DGAA and DGAH
(Single Stage Downflow Only)

56 - 90 MBH INPUT
(16.41 - 26.38 KW) INPUT



For Installation In:

1. Manufactured (Mobile) Homes
2. Recreational Vehicles & Park Models
3. Modular Homes & Buildings

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SECTION I: SAFETY



This is a safety alert symbol. When you see this symbol on labels or in manuals, be alert to the potential for personal injury.

Understand and pay particular attention to the signal words **DANGER**, **WARNING**, or **CAUTION**.

DANGER indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

WARNING indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation, which, if not avoided may result in minor or moderate injury. It is also used to alert against unsafe practices and hazards involving only property damage.

WARNING

Improper installation may create a condition where the operation of the product could cause personal injury or property damage.

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual for assistance or for additional information, consult a qualified contractor, installer or service agency.

CAUTION

This product must be installed in strict compliance with the installation instructions and any applicable local, state, and national codes including, but not limited to building, electrical, and mechanical codes.

SPECIFIC SAFETY RULES AND PRECAUTIONS

1. Only Natural gas or Propane (LP) gas are approved for use with this furnace. Refer to the furnace rating plate or Section IV of these instructions.
2. Install this furnace only in a location and position as specified in SECTION I of these instructions.
3. A gas-fired furnace for installation in a residential garage must be installed as specified in SECTION I of these instructions.

WARNING**FIRE OR EXPLOSION HAZARD**

Failure to follow the safety warnings exactly could result in serious injury, death or property damage.

Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury or loss of life.

4. Test for gas leaks as specified in SECTION IX of these instructions.
5. Always install the furnace to operate within the furnace's intended temperature rise range. Only connect the furnace to a duct system which has an external static pressure within the allowable range, as specified on the furnace rating plate.
6. When a furnace is installed so that supply ducts carry air circulated by the furnace to areas outside the space containing the furnace, the return air may also be handled by duct(s) sealed to the furnace casing and terminating outside the space containing the furnace. The return air duct system is not required by the furnace manufacturer provided the combustion air and vent system have been installed and maintained as a Sealed Combustion Direct Vent System and provided a return air duct system and return air plenum are not required by state, local, or regional codes.

WARNING

Improper installation may damage equipment, can create a shock hazard, and will void the warranty.

The furnace shall be installed so the electrical components are protected from water.

The furnace is not to be used for temporary heating of buildings or structures under construction.

Do not test the fuel system at more than 14 inches water column after furnace has been connected to the fuel line. Such testing may void the warranty. Any test run above 14 inches water column may damage the furnace control valve which could cause an explosion, fire, or asphyxiation.

The following requirements to be met:

- a. Clean, outside combustion air is provided to the furnace to minimize the impact of corrosive adhesives, sealants, and other construction materials. Drywall dust is a major concern during construction, which can be pulled into the combustion air path, leading to plugged heat exchangers, burners, and inducer assemblies.
- b. Filter must be installed in the furnace as specified in the installation instructions, and must be replaced or thoroughly cleaned prior to occupancy of the home. Again, drywall dust is the key issue, as that dust can be pulled into the circulating blower motor, plugging the motor vents, coating the rotors and stators, etc. which can lead to a potential fire hazard.
- c. The temperature of the return air to the furnace must not be less than 55° F (13° C), with no evening setback or furnace shutdown, to prevent condensation in the primary heat exchangers.
- d. The air temperature rise must be within the stated rise range as indicated on the furnace rating plate, and the firing input rate must be set to the unit nameplate value.

e. The external static pressure of the air distribution system ductwork must be set for heating operation to be at least 0.10 to 0.20 inches water column, based on the input rate of the furnace, with the lower value for input rates less than 55,000 btu/hr and the upper value for units with input rates above 100,000 btu/hr.

f. The furnace and ductwork should be thoroughly and completely cleaned prior to occupancy of the dwelling to insure the proper operation of the furnace and to avoid potential health concerns.

7. In Canada refer to the Natural Gas and Propane Installation code, section on Central Furnaces. When installed in a Manufactured (Mobile) Home, combustion air shall not be supplied from occupied spaces.
8. The size of the unit should be based on an acceptable heat loss calculation for the structure. ACCA, Manual J or other approved methods may be used.
9. **Manufactured (Mobile) Home and Modular Home Installation:** This appliance must be installed in a (sealed combustion) configuration using a roof jack vent system. A roof jack is only approved vent system that can be used to vent this appliance.
10. **Modular Home Definition:** Factory-built home constructed to the state, local, or regional code where the house will be located. The home is transported in one or more modules and joined at the home site.
11. **Manufactured (Mobile) Home Definition:** Factory-built home constructed, transported and installed under the federal building code administered by the U.S. Department of Housing and Urban Development (HUD Code), rather than to building codes at their destination. The house is built, transported and installed on a non-removable chassis.

SAFETY REQUIREMENTS

- Provide clearances from combustible materials as listed under Furnace Locations and Clearances.
- Provide clearances for servicing ensuring that service access is allowed for both the burners and blower.
- These models are CSA listed and approved for installation into a Modular Home, Manufactured (Mobile) Home, or Recreational Vehicles.
- Failure to carefully read and follow all instructions in this manual can result in furnace malfunction, death, personal injury and/or property damage.
- Furnaces for installation on combustible flooring shall not be installed directly on carpeting, tile or other combustible material other than wood flooring.
- Check the rating plate and power supply to be sure that the electrical characteristics match. All models use nominal 115 VAC, 1 Phase, 60-Hertz power supply. DO NOT CONNECT THIS APPLIANCE TO A 50 HZ POWER SUPPLY OR A VOLTAGE ABOVE 130 VOLTS.
- Furnace shall be installed so the electrical components are protected from water.
- Installing and servicing heating equipment can be hazardous due to the electrical components and the gas fired components. Only trained and qualified personnel should install, repair, or service gas heating equipment. Untrained service personnel can perform basic maintenance functions such as cleaning and replacing the air filters. When working on heating equipment, observe precautions in the manuals and on the labels attached to the unit and other safety precautions that may apply.
- These instructions cover minimum requirements and conform to existing national standards and safety codes. In some instances these instructions exceed certain local codes and ordinances, especially those who have not kept up with changing Modular Home and Manufactured (Mobile) Home home construction practices. These instructions are required as a minimum for a safe installation.

Manufactured homes in the U.S.A.:

- Federal Manufactured Home Construction & Safety Standard (H.U.D. Title 24, Part 3280).
- National Fuel Gas Code (ANSI-Z223.1, NFPA-54).
- National Electrical Code (NFPA 70).

Manufactured homes in Canada:

- Natural Gas and Propane Installation Code (CAN/CSA B149.1).
- Canadian Electrical Code, Part 1 (CSA C22.1)

Recreational Vehicles in U.S.A.:

- Standard on Recreational Vehicles (NFPA 1192, formerly NFPA 501C).
- National Electrical Code (NFPA 70).

Recreational Vehicles in Canada:

- Unit installation shall comply with current CSA standard CAN/CGA-Z240.4.2 - Installation Requirements for Propane Appliances and Equipment in Recreational Vehicles.
- Unit electrical wiring and grounding shall comply with current CSA standard C22.2 No.148/CAN/CSA-Z240.6.2 - Electrical Requirements for recreational vehicles.

**COMBUSTION AIR QUALITY
(LIST OF CONTAMINANTS)**

The furnace will require **OUTDOOR AIR** for combustion AT ALL TIMES, INCLUDING any of the following environments.

- Restricted Environments
- Commercial buildings
- Buildings with indoor pools
- Laundry rooms
- Hobby or craft rooms
- Near chemical storage areas
- Chemical exposure

This furnace requires **OUTDOOR AIR** for combustion AT ALL TIMES, AS WELL AS where the furnace is being exposed to the following substances and / or chemicals.

- Permanent wave solutions
- Chlorinated waxes and cleaners
- Chlorine based swimming pool chemicals
- Water softening chemicals
- De-icing salts or chemicals
- Carbon tetrachloride
- Halogen type refrigerants
- Cleaning solvents (such as perchloroethylene)
- Printing inks, paint removers, varnishes, etc.
- Hydrochloric acid
- Cements and glues
- Antistatic fabric softeners for clothes dryers
- Masonry acid washing materials

When outdoor air is used for combustion, the combustion air intake duct system termination must be located external to the building and in an area where there will be no exposure to the substances listed above.

⚠ WARNING

The furnace area must not be used as a broom closet or for any other storage purposes, as a fire hazard may be created. Never store items such as the following on, near or in contact with the furnace.

1. Spray or aerosol cans, rags, brooms, dust mops, vacuum cleaners or other cleaning tools.
2. Soap powders, bleaches, waxes or other cleaning compounds; plastic items or
3. Containers; gasoline, kerosene, cigarette lighter fluid, dry cleaning fluids or other volatile fluid.
4. Paint thinners and other painting compounds.
5. Paper bags, boxes or other paper products

Never operate the furnace with the blower door removed. To do so could result in serious personal injury and/or equipment damage.

INSPECTION

As soon as the furnace and/or accessories are received, it should be inspected for damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's freight bill. A separate request for inspection by the carrier's agent should be made in writing. Also, before installation the furnace and/or accessories should be checked for screws or bolts which have loosened in transit or shipping and spacer brackets the need to be removed.

FURNACE LOCATION AND CLEARANCES**The furnace shall be located using the following guidelines:**

1. The furnace should be located where the roof jack can be installed with out major modifications to the roof of the structure.
2. As centralized with the air distribution as possible.
3. Where there is access to fresh air particularly when the blend air accessory will be installed.
4. Where it will not interfere with proper air circulation in the confined space.
5. Where the outdoor roof jack terminal will not be blocked or restricted. Refer to "VENT CLEARANCES" located in SECTION VII of these instructions. These minimum clearances must be maintained through out the installation.
6. Where the unit will be installed in a level position with no more than 1/4" (0.64 cm) slope side-to-side and front-to-back to provide a proper roof jack connection and seal.

Installation in freezing temperatures:

1. Furnace shall be installed in an area where ventilation facilities provide for safe limits of ambient temperature under normal operating conditions. Ambient temperatures may fall below 32° F (0° C) providing the flue temperature does not fall below 260° F (127° C) at any point in the flue pipe. If the flue temperature falls below 260° F (127° C) the flue products will condense in the vent pipe causing the vent pipe to deteriorate rapidly.
2. Do not allow return air temperature to be below 55° F (13° C) for extended periods. To do so may cause condensation to occur in the main heat exchanger, leading to premature heat exchanger failure.

⚠ WARNING

Installation in an ambient below 32°F (0.0° C) could create a hazard, resulting in damage, injury or death.

3. If this furnace is installed in an unconditioned space and an extended power failure occurs, there will be potential damage to the internal components. Following a power failure situation, do not operate the unit until inspection and repairs are performed.

Clearances for access:

Ample clearances should be provided to permit easy access to the unit. The following minimum clearances are recommended:

1. Twenty-four 24 inches (61 cm) between the front of the furnace and an adjacent wall or another appliance, when access is required for servicing and cleaning.
2. Eighteen 18 inches (46 cm) at the side where access is required for passage to the front when servicing or for inspection or replacement of flue/vent connections.

In all cases, accessibility clearances shall take precedence over clearances for combustible materials where accessibility clearances are greater. See Table 1.

⚠ WARNING

Check the rating plate and power supply to be sure that the electrical characteristics match. All models use nominal 115 VAC, 1 Phase 60Hz power supply. Furnace shall be installed so the electrical components are protected from water.

Installation in a residential garage:

1. A gas-fired furnace for installation in a residential garage must be installed so the burner(s) and the ignition source are located not less than 18 inches (46 cm) above the floor, and the furnace must be located or protected to avoid physical damage by vehicles.

TABLE 1: Unit Clearances to Combustibles

Application	Top		Front		Rear		Sides		Roof Jack Flue		Floor ¹		Duct ¹	
	Closet	Alcove	Closet	Alcove	Closet	Alcove	Closet	Alcove	Closet	Alcove	Closet	Alcove	Closet	Alcove
	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)	In. (cm)
Downflow	2(50.8)	2(50.8)	6(15.24)	24(60.96)	0	0	0	0	0	0	0	0	0	0

1. Approved duct connector required for use on combustible floor.

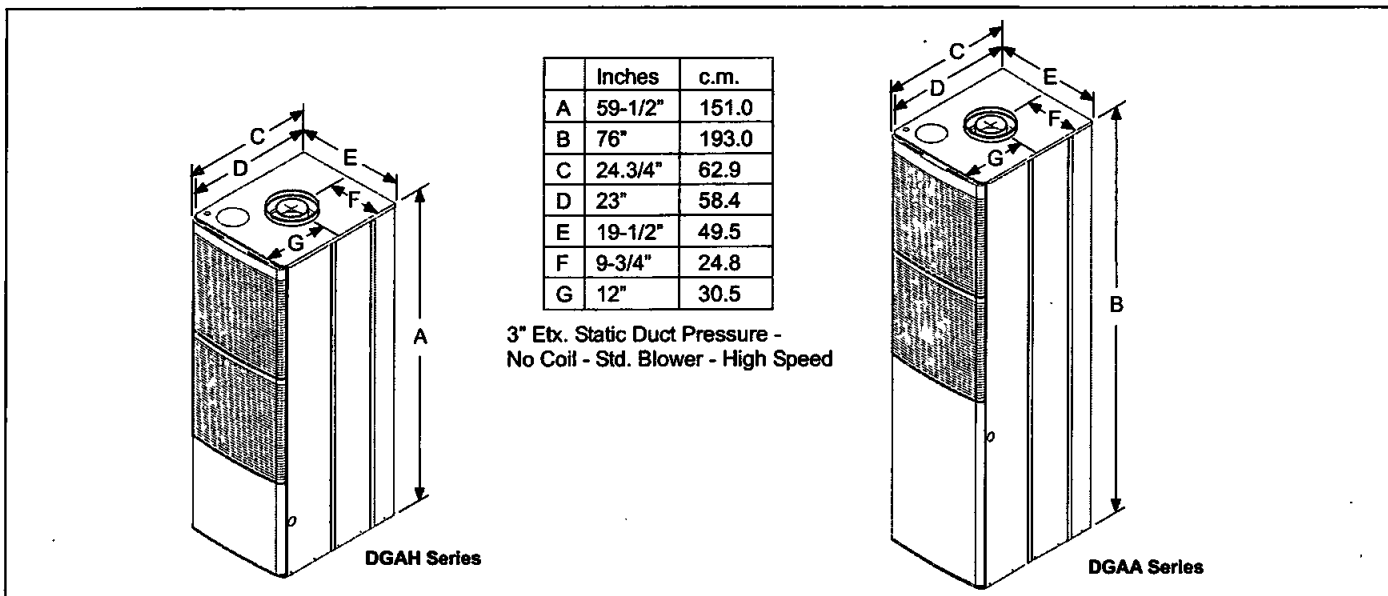


FIGURE 1: Furnace Dimensions

SECTION II: DUCTWORK

DUCTWORK GENERAL INFORMATION

The duct system's design and installation must:

- Handle an air volume appropriate for the served space and within the operating parameters of the furnace specifications.
- Be installed in accordance with standards of NFPA (National Fire Protection Association) as outlined in NFPA pamphlets 90A and 90B (latest editions), in Canada CAN/CGA-B149.1-00 Natural Gas and Propane Installation Code, or applicable national, provincial, or state, and local fire and safety codes.
- For Manufacture (Mobile) Home and Modular Home Return Duct System Installations:**
The return air duct and the return air plenum are not required by the furnace manufacturer, provided a return air duct and plenum are not required by state, local, or regional codes. The only vent system that is approved for use on this furnace is a Roof Jack which is a Sealed Combustion Direct Vent System.
- Complete a path for heated or cooled air to circulate through the air conditioning and heating equipment and to and from the conditioned space.

CAUTION

The cooling coil must be installed in the supply air duct, downstream of the furnace. Cooled air may not be passed over the heat exchanger, and must comply with (H.U.D.) TITLE 24, PART 3280.709

When the furnace is used in conjunction with a cooling coil, the coil must be installed parallel with, or in the supply air side of the furnace to avoid condensation in the primary heat exchanger. When a parallel flow arrangement is used, dampers or other means used to control airflow must be adequate to prevent chilled air from entering the furnace. If manually operated, the damper must be equipped with means to prevent the furnace or the air conditioner from operating unless the damper is in full heat or cool position.

WARNING

The duct system must be properly sized to obtain the correct air flow for the furnace size that is being installed.

Refer to the furnace rating plate for the correct rise range and Table 4 for static pressures.

If the ducts are undersized, the result will be high duct static pressures and/or high temperature rises which can result in a heat exchanger OVERHEATING CONDITION. This condition can result in premature heat exchanger failure, which can result in personal injury, property damage, or death.

WARNING

HAZARD OF ASPHYXIAION, DO NOT COVER OR RESTRICT FLOOR OPENING

The duct system is a very important part of the installation. If the duct system is improperly sized the furnace will not operate properly. The ducts attached to the furnace plenum, should be of sufficient size so that the furnace operates at the specified external static pressure and within the air temperature rise specified on the nameplate.

IMPORTANT: Fabricate and install an inspection door in the plenum base below the unit to allow an annual inspection of the heat exchangers. The inspection door can be fabricated by the following method.

- Cut a rectangular opening in the plenum base.
- A sheet metal plate can be made that completely covers the opening in the base.
- The plate must be secured with screws.
- This plate must be sealed to prevent leaks.

Table 2 is a guide for determining whether the rectangular duct system that the furnace is being connected to be of sufficient size for proper furnace operation.

Use the Example below to help you in calculating the duct area to determine whether the ducts have sufficient area so that the furnace operates at the specified external static pressure and within the air temperature rise specified on the nameplate.

Example: The furnace input is 80,000 BTUH, 1,200 CFM. The recommended duct area is 280 sq.in, there are two 8 x 14 rectangular ducts attached to the plenum and there are two 7 inch round ducts attached to the furnace.

1. Take 8 x 14, which equals 112 sq.in. X 2, which equals 224 square inch then go to round duct size located in Table 3.

2. The square inch area for 7 inch round pipe is 38.5, multiply by 2 for two round ducts which equals 76.9 square inch,
3. Then take the 224 square inch from the rectangular duct and add it to the 76.8 sq.in. of round duct. The total square inch of duct attached to the furnace plenum is 300.9 square inch. This exceeds the recommended 280 square inch of duct.

In this example, the duct system attached to the plenum has a sufficient area so that the furnace operates at the specified external static pressure and within the air temperature rise specified on the nameplate.

TABLE 2: Minimum Duct Sizing For Proper Airflow

Input	Airflow	Return ¹	Rectangular ²	Round ²	Supply ³	Rectangular ²	Round ²
BTU/H (kW)	CFM(m ³)	In ² (cm ²)	in. x in. (cm x cm)	in. (cm) dia.	In ² (cm ²)	in. x in. (cm x cm)	in. (cm) dia.
60000 (17.58)	1,200 (33.98)	280 (711)	14 x 20 (35.6 x 50.8)	18 (45.7)	216 (549)	12 x 18 (30.5 x 45.7)	16 (40.6)
80000 (23.44)	1,600 (45.31)	360 (914)	18 x 20 (45.7 x 50.8)	22 (55.8)	280 (711)	14 x 20 (35.6 x 50.8)	18 (45.7)
100000 (29.31)	2,000 (56.63)	440 (1,118)	20 x 22 (50.8 x 55.8)	24 (60.9)	390 (991)	16 x 22 (40.6 x 55.8)	22 (55.8)

NOTE: This chart does not replace proper duct sizing calculations or take into account static pressure drop for run length and fittings. Watch out for the temperature rise and static pressures.

1. Maximum return air velocity in rigid duct @ 700 feet per minute (19.82 m³ / minute).
2. Example return main trunk duct minimum dimensions.
3. Maximum supply air velocity in rigid duct @ 900 feet per minute (25.49 m³ / minute).

TABLE 3: Round Duct Size

Round Duct Size	Calculated Area For Each Round Duct Size
inches (cm)	Sq.in (cm ²)
5 (13)	19.6 (126)
6 (15)	28.2 (182)
7 (18)	38.4 (248)
8 (20)	50.2 (324)
9 (23)	63.6 (410)
10 (25)	78.5 (506)
11 (28)	95 (613)
12 (30)	113.1 (730)
13 (33)	132.7 (856)
14 (36)	153.9 (993)

1. The Air Temperature Rise is determined by subtracting the Return Air Temperature Reading from the Supply Air Temperature Reading.
2. The External Static Pressure is determined by the Supply Duct Static Pressure reading.

TABLES 2 & 3 are to be used as a guide only to help the installer determine if the duct sizes are large enough to obtain the proper air flow (CFM) through the furnace. TABLES 2 & 3 ARE NOT to be used to design ductwork for the building where the furnace is being installed. There are several variables associated with proper duct sizing that are not included in the tables. To properly design the ductwork for the building, Refer to the ASHRAE Fundamentals Handbook, Chapter on "DUCT DESIGN" or a company that specializes in Residential and Modular Home duct designs.

WARNING

The supply air temperature **MUST NEVER** exceed the **Maximum Supply Air Temperature**, specified on the nameplate. Operating the furnace above the maximum supply air temperature will cause the heat exchanger to overheat, causing premature heat exchanger failure. Improper duct sizing, dirty air filters, incorrect manifold pressure, incorrect gas orifice and/or a faulty limit switch can cause the furnace to operate above the maximum supply air temperature. Refer to sections II, III and XI for additional information on correcting the problem.

DUCTWORK INSTALLATION

Air Distribution Systems

For proper air distribution, the supply duct system shall be designed so that the static pressure does not exceed the listed static pressure rating on the furnace rating plate.

Three typical distribution systems are illustrated in Figure 2.

Location, size and number of registers should be selected on the basis of best air distribution and floor plan of the home.

The Air Temperature Rise is to be adjusted to obtain a temperature rise within the range(s) specified on the furnace rating plate.

DUCT DESIGN - CANADA

Supply duct design shall be in accordance with the latest HRA Digest, the ASHRAE Handbook Fundamentals, or other good engineering principles.

NOTE: Refer to HRA Digest Residential Air System Design Manual, Sections 5 and 6, the requirements of which are summarized as follows:

1. The kilowatt output of each duct register shall not exceed 2.35 kW.
2. The furnace output should not be more than 20% greater than the calculated heat loss of the home. If a larger furnace is used, the duct system shall be capable of the increased air volumes necessary to maintain a maximum air temperature rise of 50° C as the air passes over the furnace heat exchanger.
3. At least one warm air supply outlet shall be provided in each room.
4. When rooms are located adjacent to the exterior walls, warm air outlets shall be located so as to bathe at least one exterior wall and, where practical, a window area with warm air, except for bathrooms or kitchens where this might not be practical.
5. Where practical, outlets shall be provided near the exterior doors of the home.

CLEARANCE REQUIREMENTS - CANADA

Supply air ducts from warm air furnaces having a specified minimum plenum clearance shall maintain this clearance from combustible material for at least the distance specified in CSA Standards C22.2 No. 23 or B140.10 or CGA Standard CAN/CGA-2.3.

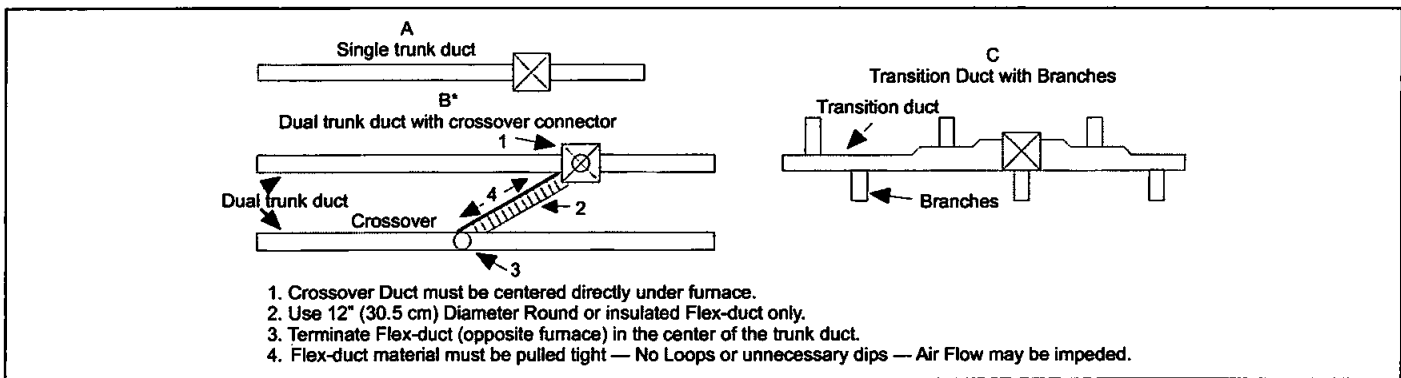


FIGURE 2: Air Distribution Systems

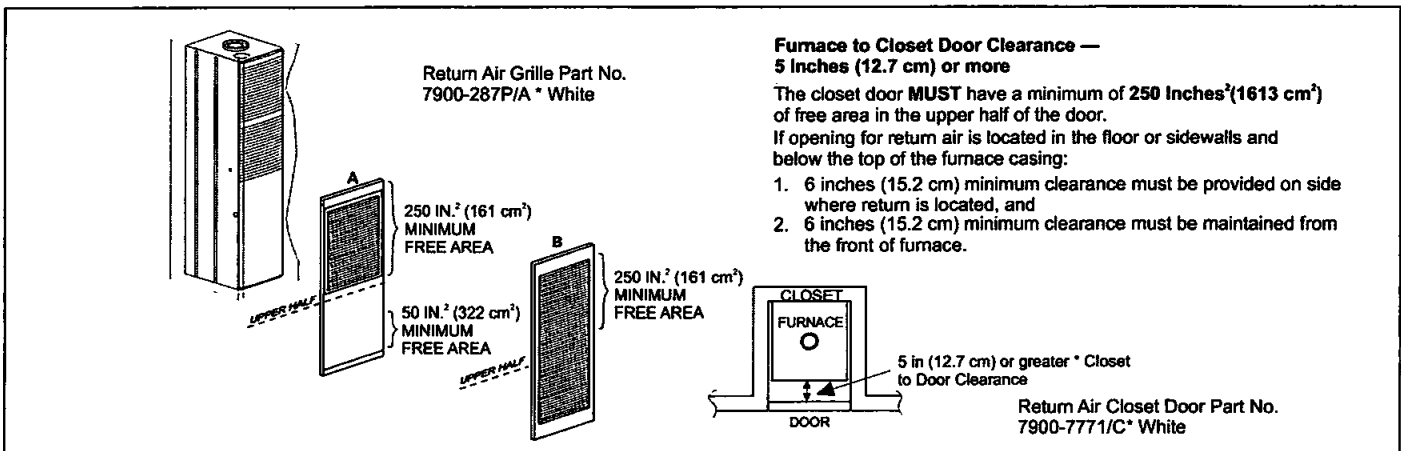


FIGURE 3: Closet To Door Clearance - 5" or Greater

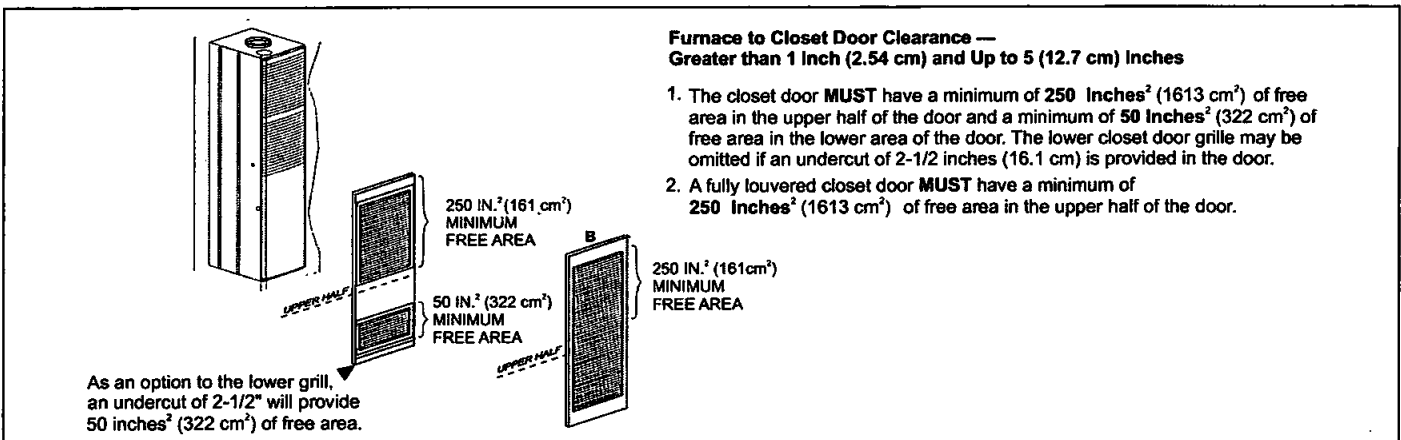


FIGURE 4: Furnace To Closet Door Clearance - 1" To 5"

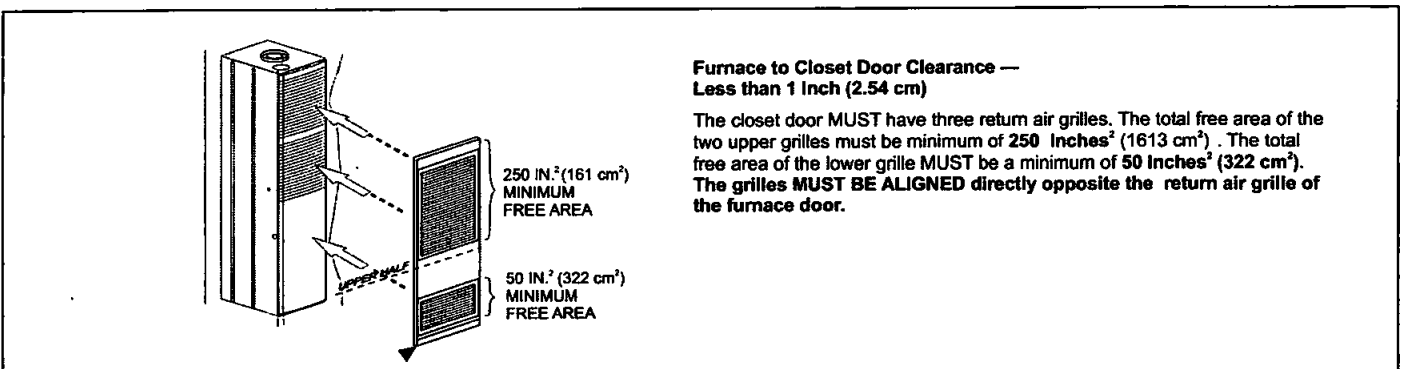


FIGURE 5: Furnace To Closet Door Clearance - Less Than 1"

DUCT CONNECTORS

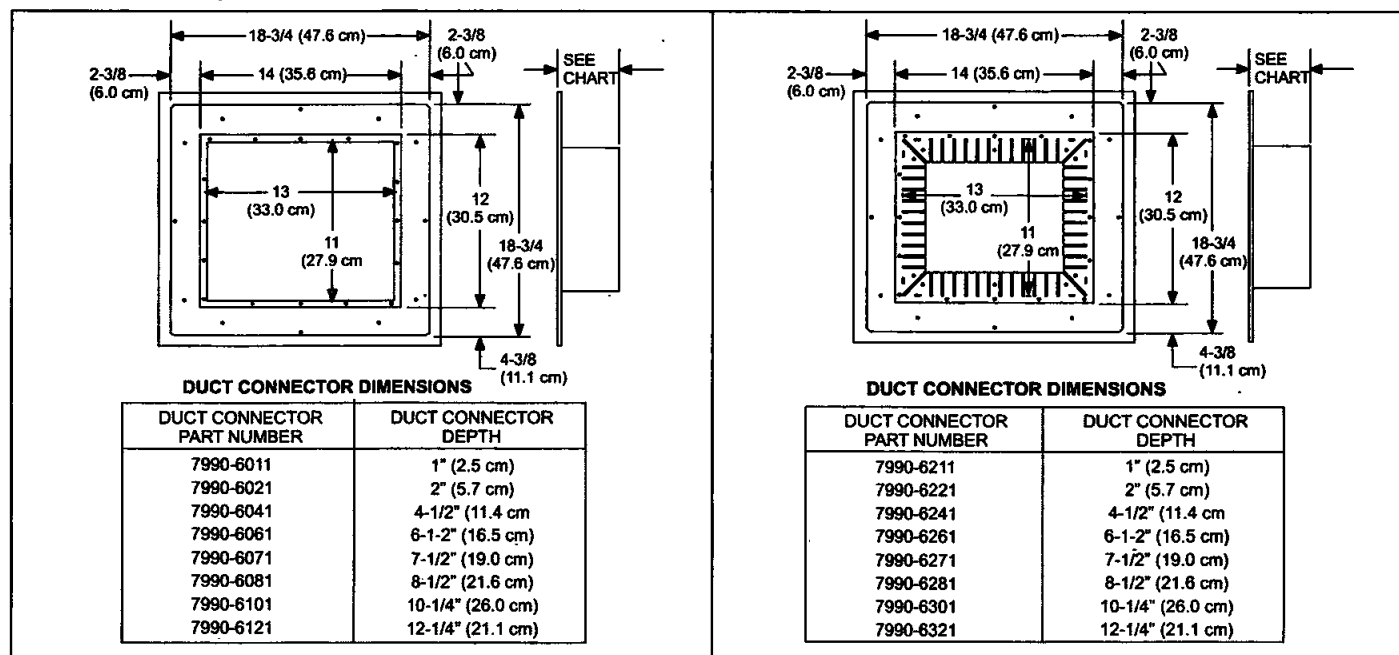


FIGURE 6: Duct Connector Dimensions

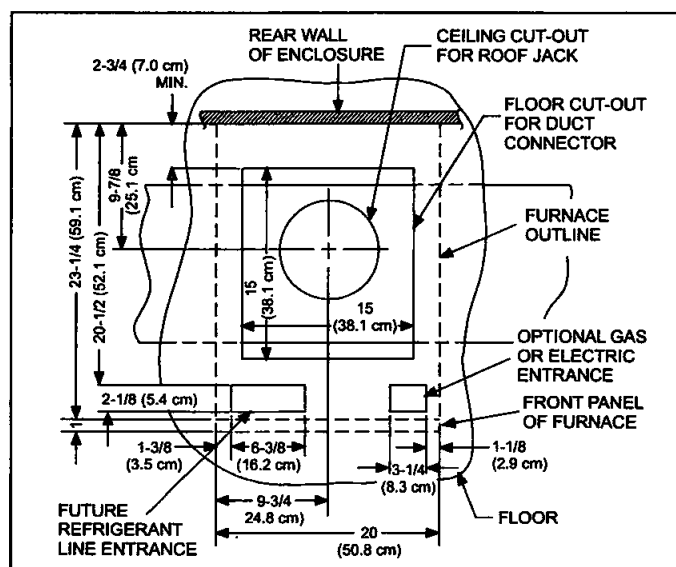


FIGURE 7: Recommended Floor Cut-out

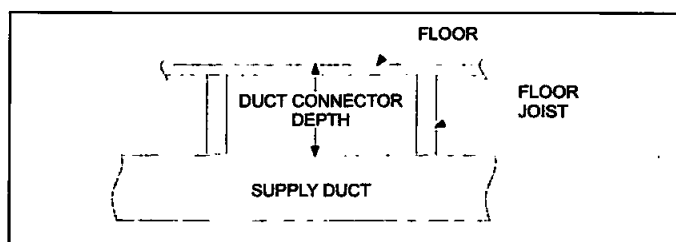


FIGURE 8: Duct Connector Depth

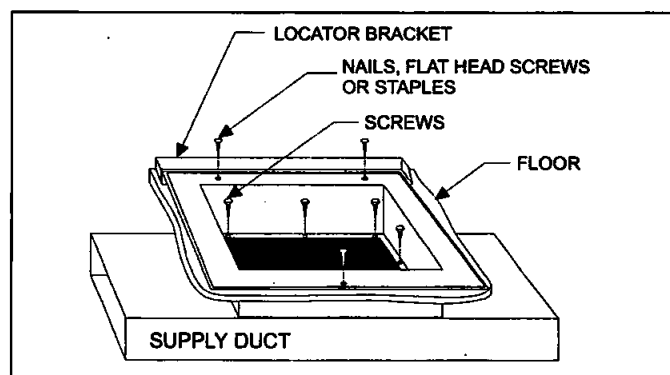


FIGURE 9: Duct Connector Screw Attachment

INSTALLATION OF SCREW ATTACHMENT DUCT CONNECTOR

1. Make floor cut out as shown in Figure 7.
2. Determine the depth of the floor cavity from the surface of the floor to the top of the supply air duct and select the appropriate duct connector from the chart.
3. Place locating bracket (supplied with the duct connector) to the back edge of the floor opening. See Figure 9.
4. Apply a water based duct sealant to the 1/2" supply duct attachment flange of the duct connector.
5. Determine which of the four positions the duct connector best centers over the supply duct and insert it through the floor cut-out.
6. When properly aligned with the supply duct, secure the duct connector to the floor with nails, flat head screws or staples.
7. Use screws as required to secure the duct connector to the supply duct.
8. Cut out the opening to the supply duct. If sealant was not used, the installer should tape the mating flanges to provide a good air seal.

NOTE: Duct sealant and tape must be classified as meeting HUD Standard 3280.715, U.L. Standard 181A.

If tape is used to provide a better air seal, it should be a type approved by the applicable national or local codes.

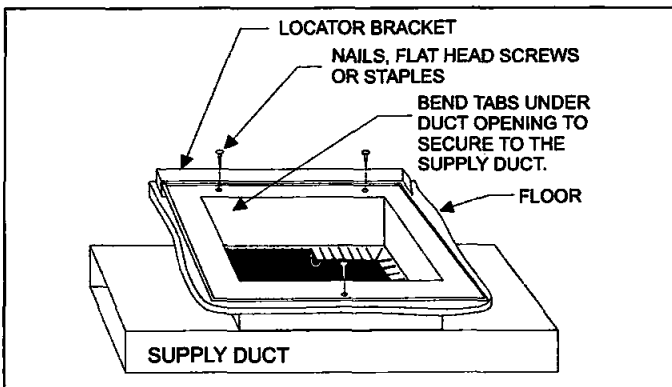


FIGURE 10: Duct Connector Tab Attachment

INSTALLATION OF TAB ATTACHMENT DUCT CONNECTORS

1. Make floor cut out as shown in Figure 9.
2. Determine the depth of the floor cavity from the surface of the floor to the top of the supply air duct and select the appropriate duct connector from the chart.
3. Place locating bracket (supplied with the duct connector) to the rear of the floor area for the furnace. See Figure 10.
4. Determine which of the four positions the duct connector best centers over the supply duct and insert it through the floor cut-out.
5. Mark cut-out location on the supply duct and remove the duct connector.
6. Cut out the opening to the supply duct.
7. Bend tabs down through and back up under the supply duct.
8. Secure the duct connector to the floor with nails, flat head screws or staples.

The duct connector is designed for use on ducts down to 12" in width. When using the connector on smaller width ducts, there will not be sufficient clearance to bend the tabs on two sides of the duct connector.

In such cases the tabs may be attached to the sides of the duct by using sheet metal screws or other suitable fasteners. Holes for sheet metal screws are provided in three (3) tabs on each side of the duct connector. If more than 3 tabs need to be used to provide a more secure and air tight connection, the remaining tabs can also be fastened to the duct with screws after drilling the required screw hole.

Furnace and Air Conditioner Installations

If an air conditioner is installed which does not use the blower for air distribution and operates completely independent of the furnace, the thermostat system must have an interlock to prevent the furnace and air conditioner from operating at the same time. This interlock system usually contains a heat-cool switch which must be turned to either HEAT or COOL to activate either heating or cooling operation, or a positive OFF switch on the cooling thermostat.

When used in connection with a cooling unit the furnace shall be installed parallel with or on the upstream side of the cooling unit to avoid condensation in the heat exchanger.

For installations with a parallel flow arrangement, the furnace must be equipped with a damper to prevent cold air from being discharged up around the heat exchanger. Cold air causes condensation inside the exchanger and can cause it to rust out which can allow products of combustion to be circulated into the living area by the furnace blower resulting in possible asphyxiation. An air flow activated automatic damper, P/N 7900-6771, is available from furnace manufacturer. See Figure 11.

NOTE: See label on coil panel for conversion and lighting instructions. Obtain a temperature rise within the ranges specified on the name plate.

CAUTION

All installations must have a filter installed.

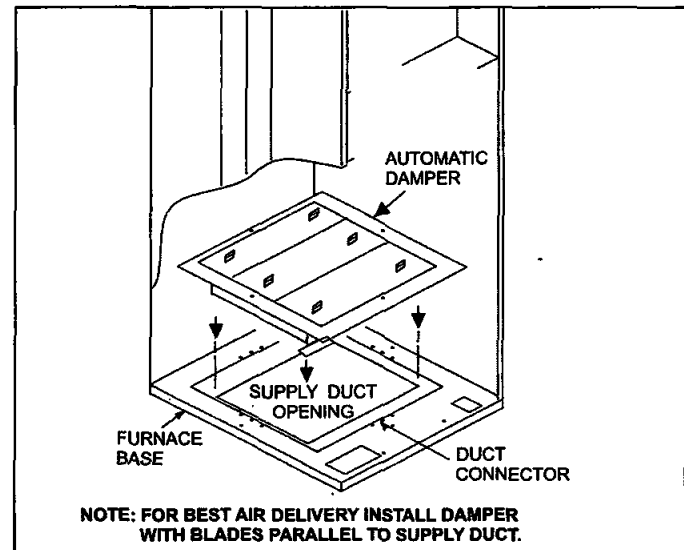


FIGURE 11: Anti-Backflow Damper

INSTALLATION RECOMMENDATIONS

1. Remove the front panels and set the furnace onto the duct connector. Slide it back until the rear of the unit engages the locator bracket.
2. Secure the front of the furnace with two screws at the mounting holes provided.
3. Secure the top of the furnace to a structural member using screw through the strap at the back of the furnace. Strap may be moved to any of the holes located along the top back of the furnace. Installer may provide an equivalent method, such as screws through the casing side.

The duct system is a very important part of the installation. If the duct system is improperly sized the furnace will not operate properly. The ducts attached to the furnace plenum, should be of sufficient size so that the furnace operates at the specified external static pressure and within the air temperature rise specified on the nameplate.

Consideration should be given to the heating capacity required and also to the air quantity (CFM) required. These factors can be determined by calculating the heat loss and heat gain of the home or structure. If these calculations are not performed and the furnace is over-sized, the following may result:

1. Short cycling of the furnace.
2. Wide temperature fluctuations from the thermostat setting.
3. Reduced overall operating efficiency of the furnace.

The supply and return duct system must be of adequate size and designed such that the furnace will operate within the designed air temperature rise range and not exceed the maximum designed static pressure. These values are listed in Table 4.

SECTION III: RETURN AIR REQUIREMENTS

CLOSET INSTALLATIONS

Additional Requirements

Additional requirements for floor and ceiling return system for closet installed sealed combustion heating appliance are given in the next paragraph.

Floor or Ceiling Return Air System

Listed in the next paragraph are the conditions to be met by Manufactured Home Manufacturers to have U.L. acceptance of in-floor or ceiling return air systems of closet installed direct vent forced air heating appliances for Manufactured Homes to be sold in the United States.

1. The return air opening into the closet, regardless of location, is to be sized not less than 16" X 24".
2. If the return air opening is located on the floor of the closet (versus the vertical front or side wall), the opening is to be provided with means to prevent its inadvertent closure by a flat object placed over the opening.
3. The cross sectional area of the return duct system (when located in the floor or ceiling of the manufactured home) leading into the closet is to be not less than 16" X 24".
4. At least one register is to be located where likelihood of its being covered by carpeting, boxes, and other objects is minimized.
5. Materials located in the return duct system have a flame spread classification of 200 or less.
6. Non-combustible pans having one-inch upturned flanges are located beneath openings in the floor return duct system.
7. Wiring materials located in the return duct system conform to Article 300-22 (B&C) of the National Electrical Code (NFPA-70).
8. Fuel piping is not run in or through the return duct system.
9. The negative pressure in the closet as determined by test with the air circulating fan operating at high heating speed and the closet door closed is to be not more negative than minus 0.05 inches water column.
10. For floor return systems, the manufactured home manufacturer or installer shall affix a prominent marking on or near the appliance where it is easily read when the closet door is open. The marking shall read:

WARNING

HAZARD OF ASPHYXIATION, DO NOT COVER OR RESTRICT FLOOR OPENING.

TABLE 4: External Static Pressure Range

Input		Output		Nominal Air Flow ¹		Ext. Static Pressure			
						Minimum		Maximum	
MBH	kW	MBH	kW	CFM	cmm	In.W.C	kPa	In.W.C	kPa
56	16.4	45	12.9	1305	36.9	0.10	0.0249	0.30	0.0747
70	20.5	56	16.4	1305	36.9	0.10	0.0249	0.30	0.0747
77	22.5	62	18.0	1305	36.9	0.10	0.0249	0.30	0.0747
90	26.3	72	21.1	1305	36.9	0.10	0.0249	0.30	0.0747

1. Std. Blower-High Speed-No Coil.

IMPORTANT: The air temperature rise should be taken only after the furnace has been operating for at least 15 minutes. Temperatures should be taken 6" (15.2 cm) past the first bend from the furnace in the supply duct. The return air temperature must be taken at the return air louvered door. Return static pressures can be taken by pushing probe through the air filter on the louvered door.

BLEND AIR INSTALLATIONS

If a blend air ventilation system is installed, the 5" (12.7 cm) diameter knockout in the top cover must be removed. The blend air damper is to be placed on the top cover and secured with screws as shown in Figure 12. The power wires for the Blend Air Damper are inserted through the 7/8" (2.22 cm) hole in the top cover. The wires to the Blend Air Damper will be connected as shown in Figure 20. Refer to the Blend Air Installation Manual to complete the installation.

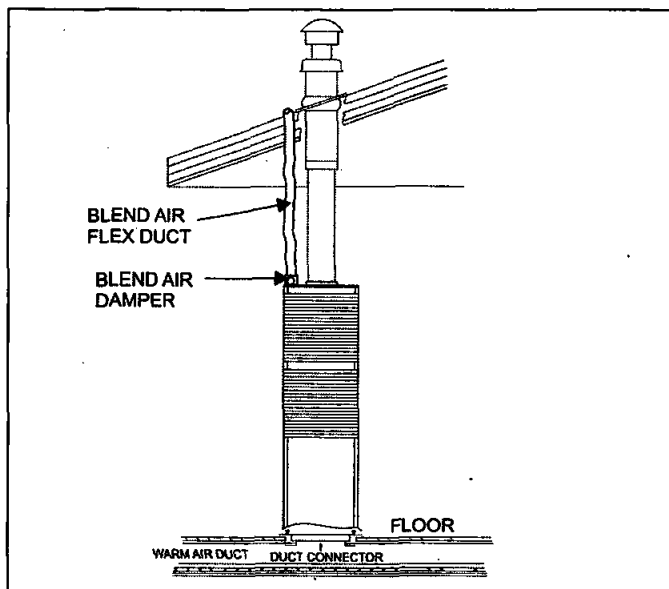


FIGURE 12: Floor Installation

SECTION IV: FILTERS

FILTER INSTALLATION

All applications require the use of a filter. A standard air filter is located in the return filter rack on the louvered door. The air filter(s) must be replaced with air filter(s) that are the same size and same type. Replacement filter size is shown in Table 5.

Downflow Filters:

There are two types of downflow filter racks.

1. **FURNACE FILTER RACK:** A return filter rack with two standard throwaway type filters are supplied on all models. The return filter rack is located on the inside of the louvered door. This type of filter rack is designed for two standard air filters only. Pleated Media or Washable Filters cannot be used in this filter rack because they cause too much pressure drop causing a reduction in airflow. Refer to Figure 13.
2. **EXTERNAL RETURN FILTER GRILLE:** The second type is an external return air filter grille that **can only be used in applications where the furnace is installed in a closet**. This type of filter grille is typically installed in a closet door or wall with the filters located within 12" (30.5 cm) of the return air opening of the furnace. There must be a minimum clearance of 6" (15.2 cm) between the front of the furnace and the closet door and/or the furnace and the filter grille to prevent the return air flow from being obstructed. Refer to Table 1 Unit Clearances to Combustibles.

NOTE: Remove air filters inside louvered door when using an external filter grille.

- If the standard throwaway filter are used the external filter grille must have a minimum area of 540 in² (3483 cm²) which would equal a 15" X 36" filter grille.
- If the Pleated Media or Washable Filters are used the external filter grille must have a minimum area of 684 in² (4413 cm²) which would equal a 18" X 38" filter grille. The increased area is to reduce the pressure drop across the air filter.
- Consideration should be given when locating the return filter grille for maintenance.
- Any filter that has a large pressure drop should be checked to be sure the pressure drop caused by the air filter will not prevent the furnace from operating within the rise range, specified on the rating plate and in Table 8. If the furnace does not operate within the specified rise range then a larger air filter or an air filter that has a lower pressure drop must be installed.

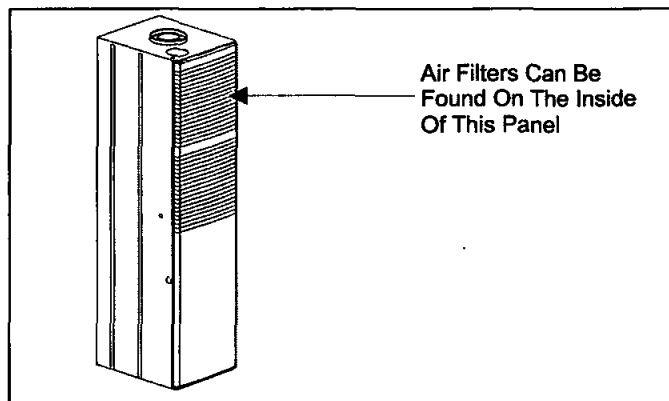


FIGURE 13: Furnace Air Filters

TABLE 5: Filter Sizes - All Models

Input		Output		Air Flow		Cabinet Width	Door Filter ¹	
MBH	kW	MBH	kW	CFM	cmm	In	In	cm
56	16.4	44.8	13.1	1305	34.0	19 3/4	2 - 16 x 20 x 1	2 x 41 x 51
70	20.5	56	16.4	1305	34.0	19 3/4	2 - 16 x 20 x 1	2 x 41 x 51
77	22.5	62	18.1	1305	34.0	19 3/4	2 - 16 x 20 x 1	2 x 41 x 51
90	26.3	72	21.1	1305	34.0	19 3/4	2 - 16 x 20 x 1	2 x 41 x 51

1. All Models shipped with disposable filters mounted inside upper furnace door. Pleated Filters have high pressure drop and require cleaning every 60 days. Dirty filters can cause excess heating bills, lower air flow, and reduce heat exchanger life.

SECTION V: GAS LINE INSTALLATION

GAS SAFETY

⚠ DANGER

This furnace is designed to operate on NATURAL GAS or PROPANE GAS ONLY. Do Not Burn any other Fuel in this furnace. Burning any fuel except NATURAL GAS or PROPANE GAS can cause premature heat exchanger burnout, high levels of carbon monoxide, excessive sooting, a fire hazard, personal injury, property damage and/or death.

⚠ DANGER

An overpressure protection device, such as a pressure regulator, must be installed in the gas piping system upstream of the furnace and must act to limit the downstream pressure to the gas valve so it does not exceed 0.5 PSI (14" w.c. (3.48 kPa). Pressures exceeding 0.5 PSI (14" w.c. (3.48 kPa) at the gas valve will cause damage to the gas valve, resulting in a fire or explosion or cause damage to the furnace or some of its components that will result in property damage and loss of life.

GAS PIPING

Installation and Checking of Gas Line

Gas Supply piping must be sized in accordance with the recommendations contained in National Fuel Gas Code (ANSI-Z223.1, NFPA-54) unless local codes or regulations state otherwise.

Materials used and pipe sizing for U.S. manufactured homes must comply with requirements contained in Manufactured Homes A119.1, Recreational Vehicles A119.2 and H.U.D. Title 24, Section 3280.705 and any local or state codes.

NOTE: The gas line inlet on the gas valve is 1/2-14 N.P.T. The gas line may be installed through the furnace floor or furnace side to the gas valve.

⚠ CAUTION

If the gas input to the furnace is too great because of excessive gas pressure, wrong size orifice, high altitude, etc., the burner flame will be sooty and may produce carbon monoxide, which could result in unsafe operation, explosion, and/or fire or asphyxiation.

⚠ CAUTION

To install gas line and to connect it to the gas valve, care must be taken to hold gas valve firmly to prevent misalignment of the burner orifice, or to damage gas valve which could result in improper heating, explosion, fire or asphyxiation.

DO NOT USE EXCESSIVE PIPE SEALANT ON PIPE JOINTS. Pipe sealant, metal chips or other foreign material that could be deposited in the inlet of the gas valve, when gas pipe is installed or carried through the gas piping into the gas valve inlet after installation, may cause the gas valve to malfunction and could result in possible improper heating, explosion, fire or asphyxiation. Also, pipe sealant must be resistant to Propane gas.

Where regulations require, a main shut-off valve shall be installed externally of furnace casing. After piping has been installed, turn gas on and check all connections with a leak detector or soap solution.

Never use open flame to test for gas leaks as fire or explosion could occur.

Do not test the fuel system at more than 14" W.C. after furnace has been connected to fuel line. Such testing could void the warranty. Any test run above 14" W.C. may damage furnace control valve which could cause an explosion, fire or asphyxiation.

A drip leg is recommended in the gas supply line to trap moisture and contaminations. Refer to Figure 14.

For natural gas operation, the furnace is designed for 7" W.C. inlet gas pressure. Pressure to main burner is then reduced to 3 1/2" W.C.

GAS PIPING INSTALLATION

Properly sized wrought iron, approved flexible or steel pipe must be used when making gas connections to the unit. If local codes allow the use of a flexible gas appliance connection, always use a new listed connector. Do not use a connector that has previously serviced another gas appliance.

Some utility companies or local codes require pipe sizes larger than the minimum sizes listed in these instructions and in the codes. The furnace rating plate and the instructions in this section specify the type of gas approved for this furnace - only use those approved gases.

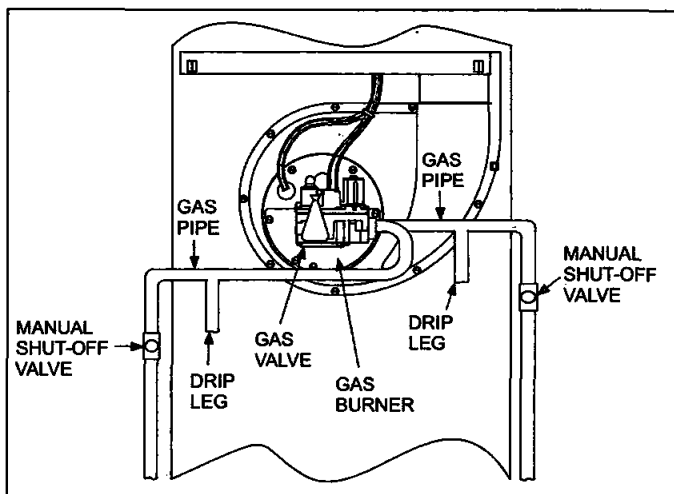


FIGURE 14: Gas Piping

IMPORTANT: An accessible manual shut-off valve must be installed upstream of the furnace gas controls and within 6 feet (1.8 m) of the furnace.

The furnace must be isolated from the gas supply piping system by closing its individual external manual shut-off valve during any pressure testing of the gas supply piping system at pressures equal to or less than 1/2 psig (3.5 kPa).

CAUTION

The gas valve body is a very thin casting that cannot take any external pressure. Never apply a pipe wrench to the body of the gas valve when installing piping. A wrench must be placed on the square hub located on the gas inlet side of the valve. Placing a wrench to the body of the gas valve will damage the valve causing improper operation and/or the valve to leak.

Gas piping may be connected from either side of the furnace using any of the gas pipe entry knockouts on both sides of the furnace. Refer to Figure 14 Gas-Piping.

GAS ORIFICE CONVERSION FOR PROPANE (LP)

This furnace is constructed at the factory for natural gas-fired operation, but may be converted to operate on propane (LP) gas by using a factory-supplied LP conversion kit. Follow the instructions supplied with the LP kit. Refer to Table 6 or the instructions in the propane (LP) conversion kit for the proper gas orifice size.

IMPORTANT: When converting gas valve from or to Propane gas, it will be necessary to change main burner orifice to prevent an underfired or overfired condition. See label inside lower furnace door for complete instructions.

HIGH ALTITUDE GAS ORIFICE CONVERSION

This furnace is constructed at the factory for natural gas-fired operation at 0 – 2,000 ft. (0 m – 610 m) above sea level.

The gas orifices on this furnace must be changed in order to maintain proper and safe operation, when the furnace is installed in a location where the altitude is greater than 2,000 ft. (610 m) above sea level on natural gas or the altitude is greater than 4,000 ft. (1219 m) above sea level on propane (LP) gas. Refer to Table 6 or the instructions in the high altitude conversion kit for the proper gas orifice size.

For Propane gas operation, the furnace is designed for 11" W.C. inlet gas pressure. Pressure to main burner is then reduced to 10" W.C.

The unit may also be converted for altitudes up to 10,000 ft. (3048 m) on natural and propane (LP) gas with additional derate as shown in Table 6 or refer to ANSI Z223.1 NFPA 54 National Fuel Gas Code or in Canada CAN/CGA-B149.1-00 Natural Gas and Propane Installation Code.

HIGH ALTITUDE PRESSURE SWITCH CONVERSION

For installation in locations where the altitude is less than 4,500 feet (1372 m), it is not required that the pressure switch be changed. For altitudes above 4,500 feet (137 m), refer to Instructions in the Accessory High Altitude Kit.

⚠ DANGER

PROPANE AND HIGH ALTITUDE CONVERSION KITS

It is very important to choose the correct kit and/or gas orifices for the altitude and the type of gas for which the furnace is being installed.

Only use natural gas in furnaces designed for natural gas. Only use propane (LP) gas for furnaces that have been properly converted to use propane (LP) gas. Do not use this furnace with butane gas.

Incorrect gas orifices or a furnace that has been improperly converted will create an extremely dangerous condition resulting in premature heat exchanger failure, excessive sooting, high levels of carbon monoxide, personal injury, property damage, a fire hazard and/or death.

High altitude and propane (LP) conversions are required in order for the appliance to satisfactorily meet the application.

An authorized distributor or dealer must make all gas conversions.

In Canada, a certified conversion station or other qualified agency, using factory specified and/or approved parts, must perform the conversion.

The installer must take every precaution to insure that the furnace has been converted to the proper gas orifice size when the furnace is installed. Do not attempt to drill out any orifices to obtain the proper orifice size. Drilling out a gas orifice will cause misalignment of the burner flames, causing premature heat exchanger burnout, high levels of carbon monoxide, excessive sooting, a fire hazard, personal injury, property damage and/or death.

TABLE 6: High Altitude Duration Chart

NATURAL GAS													
Elevation Feet	56,000 — Input				70,000 — Input			77,000 — Input			90,000 — Input		
	Meters	Orifice Dia.	Drill Size	Part #	Orifice Dia.	Drill Size	Part #	Orifice Dia.	Drill Size	Part #	Orifice Dia.	Drill Size	Part #
Sea Level		0.136	29	9951-1361	0.154	23	9951-1541	0.161	20	9951-1611	0.180	15	9951-1801
2,000	618	0.136	29	9951-1361	0.149	25	9951-1491	0.157	22	9951-1571	0.177	16	9951-1771
3,000	914	0.128	30	9951-1281	0.149	25	9951-1491	0.157	22	9951-1571	0.173	17	9951-1731
4,000	1219	0.128	30	9951-1281	0.147	26	9951-1471	0.154	23	9951-1541	0.173	17	9951-1731
5,000	1524	0.128	30	9951-1281	0.144	27	9951-1441	0.152	24	9951-1521	0.169	18	9951-1691
6,000	1829	0.128	30	9951-1281	0.144	27	9951-1441	0.149	25	9951-1491	0.166	19	9951-1661
7,000	2134	0.120	31	9951-1201	0.140	28	9951-1401	0.147	26	9951-1471	0.161	20	9951-1611
8,000	2438	0.120	31	9951-1201	0.136	29	9951-1361	0.144	27	9951-1441	0.161	20	9951-1611
9,000	2743	0.120	31	9951-1201	0.136	29	9951-1361	0.140	28	9951-1401	0.157	22	9951-1571
10,000	3048	0.116	32	9951-1161	0.128	30	9951-1281	0.136	29	9951-1361	0.152	24	9951-1521

PROPANE GAS													
Elevation Feet	56,000 — Input				70,000 — Input			77,000 — Input			90,000 — Input		
	Meters	Orifice Dia.	Drill Size	Part #	Orifice Dia.	Drill Size	Part #	Orifice Dia.	Drill Size	Part #	Orifice Dia.	Drill Size	Part #
Sea Level		0.082	45	9951-0821	0.093	42	9951-0931	0.098	40	9951-0981	0.106	36	9951-1061
2,000	618	0.081	46	9951-0811	0.093	42	9951-0931	0.096	41	9951-0961	0.104	37	9951-1041
3,000	914	0.078	47	9951-0781	0.089	43	9951-0891	0.093	42	9951-0931	0.101	38	9951-1011
4,000	1219	0.078	47	9951-0781	0.089	43	9951-0891	0.093	42	9951-0931	0.101	38	9951-1011
5,000	1524	0.078	47	9951-0781	0.089	43	9951-0891	0.093	42	9951-0931	0.099	39	9951-0991
6,000	1829	0.076	48	9951-0761	0.086	44	9951-0861	0.089	43	9951-0891	0.098	40	9951-0981
7,000	2134	0.076	48	9951-0761	0.086	44	9951-0861	0.089	43	9951-0891	0.096	41	9951-0961
8,000	2438	0.073	49	9951-0731	0.082	45	9951-0821	0.086	44	9951-0861	0.096	41	9951-0961
9,000	2743	0.073	49	9951-0731	0.081	46	9951-0811	0.086	44	9951-0861	0.093	42	9951-0931
10,000	3048	0.070	50	9951-0731	0.078	47	9951-0781	0.082	45	9951-0821	0.089	43	9951-0891

Table shows 4% Input Reduction per 1,000 feet Elevation. Reference Source: NFPA No. 54, ANSI Z 223.1, National Fuel Gas Code.
For Canadian high altitude (2000 - 4500 feet), reduce gas manifold pressure to 3.0" W.C. for Natural gas, 9.0" W.C. for Propane gas

SECTION VI: ELECTRICAL POWER

Electrical Power Connections

Field wiring to the unit must be grounded. Electric wires that are field installed shall conform to the temperature limitation for 63°F (35°C) rise wire when installed in accordance with instructions. Refer to Table 7 in these instructions for specific furnace electrical data.

CAUTION

Use copper conductors only.

SUPPLY VOLTAGE CONNECTIONS

- Provide a power supply separate from all other circuits. Install overcurrent protection and disconnect switch per local/national electrical codes. The switch should be close to the unit for convenience in servicing. With the disconnect or fused switch in the OFF position, check all wiring against the unit wiring label. Refer to the wiring diagram in this instruction.
- Remove the screws retaining the wiring box cover. Route the power wiring through the opening in the unit into the junction box with a conduit connector or other proper connection. In the junction box there will be three wires, a Black Wire, a White Wire and a Green Wire. Connect the power supply as shown on the unit-wiring label on the inside of the blower compartment door or the wiring schematic in this section. The black furnace lead must be connected to the L1 (hot) wire from the power supply. The white furnace lead must be connected to neutral. Connect the green furnace lead (equipment ground) to the power supply ground.
- The furnace's control system requires correct polarity of the power supply and a proper ground connection. Refer to Figure 15.

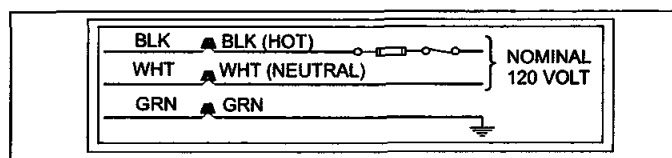


FIGURE 15: Line Wiring Connections

LOW VOLTAGE CONTROL WIRING CONNECTIONS

- Insert 24 volt wires through the small plastic bushing just above the control panel.
- Connect the thermostat wires to the furnace low voltage pigtails. See Figure 16 (heating only) and Figure 17 or 18 (heating and cooling).
- Connect thermostat wires to the furnace when installing blend air accessory as shown in Figure 19.
- Connect low-voltage circuit to the wall thermostat pigtails.

NOTE: Five-conductor thermostat cable is recommended for all installations to allow easy installation of an air conditioning system at a later time.

Eighteen gauge thermostat wire is highly recommended.

Smaller gauge thermostat wire may be used only if the guideline below is followed.

Thermostat Wire Length (Furnace to Thermostat)	Thermostat Wire Gauge
0 - 45 feet	22
0 - 70 feet	20

Do not use the thermostat wire smaller than 22 gauge. If thermostat wire small than 18 gauge is used, pay particular attention that the connections between the different wire sizes are tight.

Operational problems may be caused by loose connections or by the use of thermostat wire that is too small to carry the required load. Any such problems are the responsibility of the installer.

A separate 115 V.A.C. supply circuit must be used for the furnace. The circuit should be protected by a 15 amp fuse or circuit breaker.

Avoid locations where the thermostat could be subject to drafts from outside, or exposed to direct light from lamps, sun, fireplaces, etc., or affected by air from a duct register blowing directly on the thermostat.

The wall thermostat should be located 52 to 66 inches above the floor. The preferred location is on an inside wall situated in an area with good air circulation, and where the temperature will be reasonably representative of other living areas the thermostat is controlling.

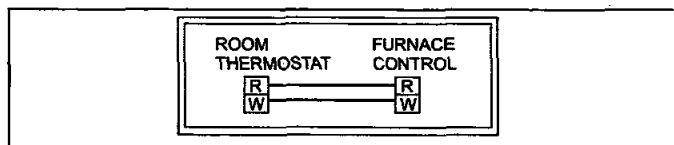


FIGURE 16: Wiring for Heat Only Thermostat

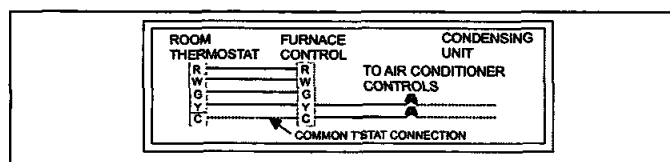


FIGURE 17: Wiring for Electronic Heat-Cool Thermostat

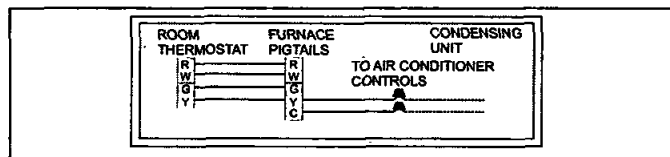


FIGURE 18: Wiring for Standard Heat-Cool Thermostat

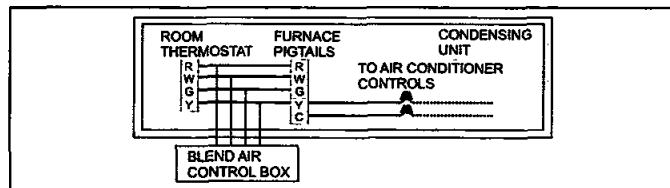


FIGURE 19: Wiring for Blend Air Accessory

TABLE 7: Ratings & Physical / Electrical Data

Input		Output		Nominal ¹ CFM(m ³ /min)		Cabinet Width		AFUE	Air Temp. Rise		Operation Wgt.	
MBH	KW	MBH	KW	CFM	cmm	In.	cm		°F	°C	LBS	Kg
DGAA SERIES												
56	16	45	13	1305	37	19-1/2	49.5	80.0	45 - 75	25 - 41.7	163	73.9
70	21	56	16	1305	37	19-1/2	49.5	80.0	45 - 75	25 - 41.7	163	73.9
77	23	62	18	1305	37	19-1/2	49.5	80.0	45 - 75	25 - 41.7	163	73.9
90	26	72	21	1305	37	19-1/2	49.5	80.0	45 - 75	25 - 41.7	163	73.9
DGAH SERIES												
56	16	45	13	1050	30	19-1/2	49.5	80.0	45 - 75	25 - 41.7	146	66.2
77	23	62	18	1050	30	19-1/2	49.5	80.0	45 - 75	25 - 41.7	146	66.2
Input		Max. Outlet Air Temp		Blower		Blower Size		Total Unit	Ignitor	Booster Motor & Gas Valve	Max Over-Current Protect	Min. wire Size (awg) @ 75 ft one way
MBH	KW	°F	°C	Hp	Amps	In.	cm	Amps	Amps	Amps		
DGAA SERIES												
56	16	165	73.9	1/3	7.3	10 x 8	25.4 x 20.3	12.0	4.1	0.6	15	14
70	21	165	73.9	1/3	7.3	10 x 8	25.4 x 20.3	12.0	4.1	0.6	15	14
77	23	165	73.9	1/3	7.3	165	73.9	12.0	4.1	0.6	15	14
90	26	165	73.9	1/3	7.3	165	73.9	12.0	4.1	0.6	15	14
DGAH SERIES												
56	16	165	73.9	1/6	7.8	165	73.9	12.4	4.1	0.6	15	14
77	23	165	73.9	1/6	7.8	165	73.9	12.4	4.1	0.6	15	14

1. 3" Ext. Static Duct Pressure - No Coil - Std. Blower - High Speed

SECTION VII: ROOF JACK VENT/ COMBUSTION AIR SYSTEM

VENT AND COMBUSTION AIR SAFETY

This Category I, furnace is designed for Manufactured (Mobile) Home and Modular Home application. It may be installed without modification in a garage, equipment room, alcove or any other indoor location where all required clearance to combustibles and other restrictions are met, AND providing factory Roof Jack System meets all installation requirements.

The venting system must be installed in accordance with Section 5.3, Air for Combustion and Ventilation, of the National Fuel Gas Code Z223.1/ NFPA 54 (latest edition), or Sections 7.2, 7.3 or 7.4 of CAN/CGA B149.1-00, National Gas and Propane Codes (latest edition) or applicable provisions of the local building code and these instructions. The furnace shall not be connected to any chimney, a flue serving a separate appliance, or any appliance designed to burn solid fuel. The furnace rating plate lists the maximum vent gas temperature.

It is recommended that the appliance be installed in a location where the space temperature is 32 °F (0°C) or higher. If the appliance is installed in a location where the ambient temperature is below 32 °F (0°C), the combustion by-products could condense causing damage to the appliance heat exchanger and/or the Roof Jack.

IMPORTANT: The "VENT SYSTEM" must be installed as specified in these instructions for Manufactured (Mobile) Home and Modular Homes. This appliance must be vented with an approved roof jack may not be common vented with another gas appliance.

Modular Homes must be vented with an approved roof jack and may not be common vented with other appliances.

WARNING

Failure to follow all venting instructions can result in fire, asphyxiation, or explosion.

⚠ CAUTION

Only use the appropriate roof jack. See Figures 20 & 21 for correct application.

Do not exceed the maximum height as determined from Figures 20 & 21. Installer should allow an additional 1-1/2" travel before the flue pipe assembly is fully extended against the built-in stop. This provides an additional safeguard against the flue assembly being pulled from the roof jack during transportation or other stress conditions.

EXISTING FURNACE REPLACEMENT

If this furnace replaces an existing furnace, do the following:

1. If a 2nd roof, roof cap or addition has been made to the existing roof of the home, remove the old roof jack completely! To avoid the possibility of an improperly installed pipe or gaps in the old roof jack, **INSTALL A NEW ROOF JACK**. Your ceiling and roof height will determine the correct roof jack to use. Refer to the vent selection table, of the furnace installation instructions.
2. After unpacking the roof jack, check the rain caps. Insure they are not damaged, tilted or crooked. Do not twist, crush or sit on the roof caps during installation. Damaged roof caps will cause improper furnace operation. The furnace will not heat properly and could result in explosion.
3. Before inserting the roof jack into the furnace top, inspect the furnace flue and combustion air opening for debris or insulation which might have fallen in during pre-installation steps. Do not proceed unless all debris has been cleaned out or removed.
4. After installing roof jack on furnace top collar, check to make sure there is no gap in back or side between the pipe collar and the furnace casing top.
5. Use only the pipes provided with the roof jack assembly. Do not add to or adapt other sheet metal pipes. Do not cut, insert or add other pipes to this assembly.
6. In no case should there be a gap between sections of the flue pipe or the combustion air pipe. If necessary to prevent excessive air leakage, the installer should seal joints in the combustion air tube with aluminum type or other suitable sealant.

NEW HOME INSTALLATION

If this furnace is installed in a new home do the following:

1. Inspect the furnace top collars for signs of insulation or ceiling debris which might have fallen in during cutting of the ceiling and roof holes. Remove all debris before continuing.
2. After unpacking the roof jack, check the rain caps. Insure they are not damaged, tilted or crooked. Do not twist, crush or sit on the roof caps during installation. Damaged roof caps will cause improper furnace operation. The furnace will not heat properly and could result in explosion.
3. Before inserting the vent pipe into the furnace top, inspect the furnace flue and combustion air opening for debris or insulation which have fallen in during pre-installation steps. Do not proceed unless all debris have been cleaned out or removed.
4. After installing roof jack on furnace top collar, check to make sure there is no gap in back or side between the pipe collar and the furnace casing top. If necessary to prevent excessive air leakage, the installer should seal joints in the combustion air tube with aluminum type or other suitable sealant.

INSTALLATION IN SNOW REGIONS

When the combustion air pipe inlet is covered or blocked with snow, the furnace will not operate properly due to the depleted combustion air supply.

Therefore, if the furnace will be located in regions where snow accumulation on the roof exceeds 4" or in H.U.D. Snow Load Zones, a roof jack extension (Part No. 7680B6541) is recommended.

LOCATING AND CUTTING ROOF JACK OPENING

To facilitate the proper installation of the roof jack, it is very important that the roof jack opening in the ceiling and roof be on the same vertical center line as the furnace flue collar. See Figure 20 or 21.

Mark this location on ceiling and scribe a circle with a 5" radius (10" diameter) around this mark. Cut opening for roof jack through ceiling and roof. (If furnace was installed during construction, cover furnace and flue opening to prevent debris from entering flue when hole is cut for roof jack.)

INSTALLING ROOF JACK IN THE ROOF

(See Figures 20 & 21 for Dimensional requirements.)

Insert roof jack into opening in the roof.

The roof jack should be secured to the furnace before roof flange (flashing) is secured to the roof. This will insure a better alignment of the flue pipe and furnace flue collar. Caulk around and under roof flange to provide a water tight seal, before securing roof jack flashing to roof.

1. Provide protection for Vent Connector and Air-Intake Connector from damage and debris.
2. Mark Roof Jack center line on ceiling. Cut a 5" radius (10" diameter) hole through ceiling.
3. Mark Roof Jack center line on roof. Cut oblong hole through roof.
4. Insert Roof Jack through roof opening. Do not secure Roof Jack to roof.

Connect Roof Jack to Furnace

1. Verify gasket is around outside of Air-Intake Connector. Install new gasket if missing or damaged.
2. Pull the Roof Jack's telescoping section down onto furnace. Fully engage Roof Jack onto Vent Connector and Air-Intake Connector and compress gasket. See Figure 24. Refer to Interior Roof Jack Extension installation instructions, if applicable.
3. Align holes in Roof Jack and Air-Intake Connector. Secure Roof Jack to furnace using #10 x 1/2 - 1-1/2" Type AB or Type B sheet metal screw.

Secure Roof Jack to Roof

1. Apply caulk or other sealant to underside of Roof Jack flashing.
2. Locate Roof Jack such that pipes are plumb.
3. Secure Roof Jack flashing with nails, screws or staples.
4. Install roofing material over Roof Jack flashing.
5. Seal Roof Jack swivel joint with silicone sealant or other sealant suitable for local weather conditions. Not required for Roof Jacks with fixed slant flashing.

Complete Installation, as required

1. Install Exterior Roof Jack Extension, if applicable. Refer to installation instructions provided with Exterior Roof Jack Extension. Refer to Figure 22.

SWIVEL FLASHING ADJUSTS FROM 0/12 TO 5/12 PITCH	SLANT FLASHING 3/12 PITCH	DGAH FURNACES	DGAA FURNACES
		INSTALLATION DIMENSIONS	INSTALLATION DIMENSIONS
		"A" ADJUSTABLE HEIGHT	"B" ADJUSTABLE HEIGHT
4000-7101/C	4000-6101/A	70" to 79"	86" to 95"
4000-7121/C	4000-6121/A	75" to 86"	91" to 102"
4000-7141/C	4000-6141/A	83" to 104"	99" to 120"
4000-7151/C	4000-6151/A	90" to 116"	106" to 132"
4000-7171/C	4000-6171/A	127" to 157"	143" to 173"

¹ The 4084-7141 is dimensionally the same as 4000-7141/C and is available only in Canada.

² The 4084-7151 is dimensionally the same as 4000-7151/C and is available only in Canada.

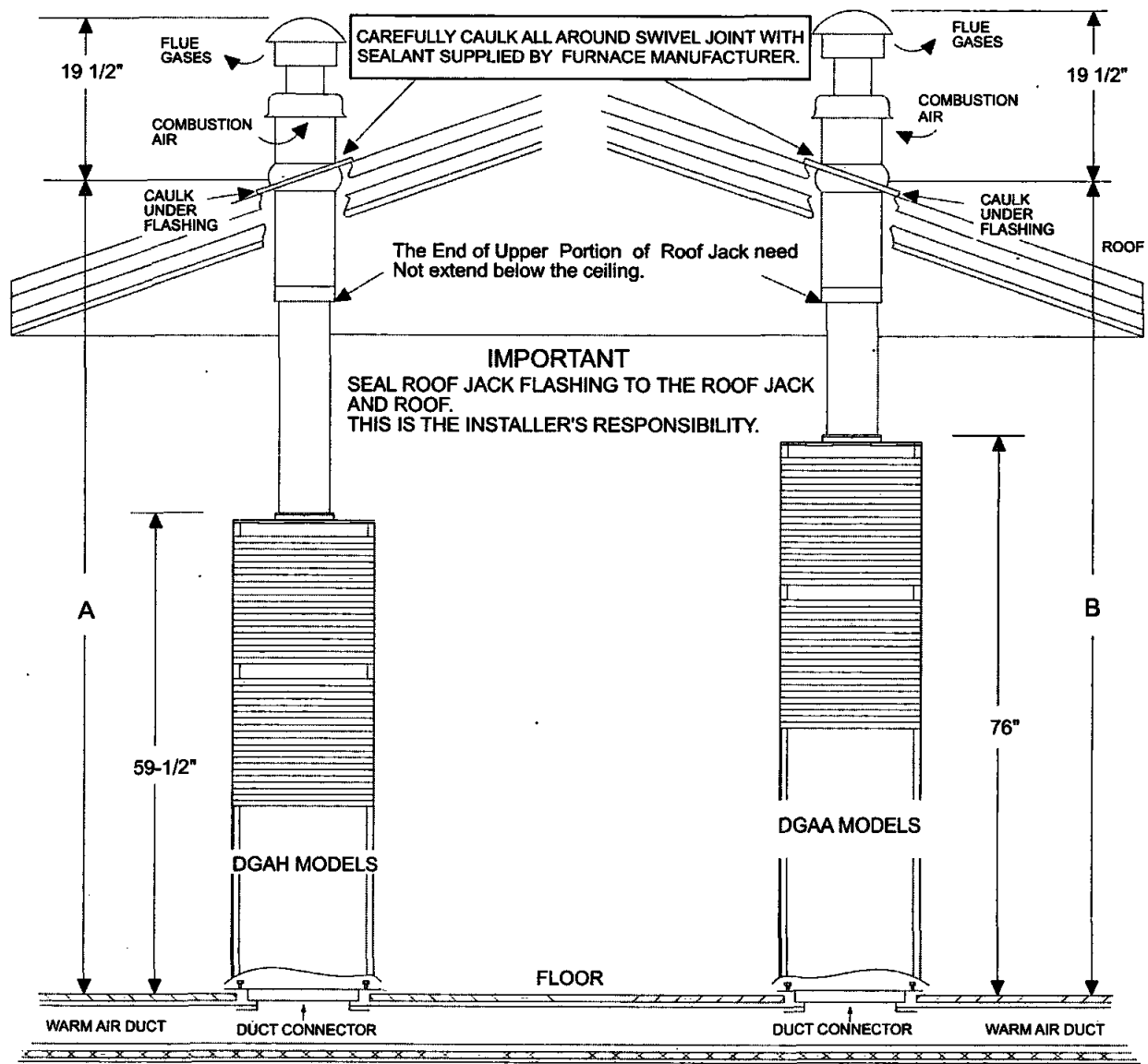


FIGURE 20: Standard Roof Jack

SWIVEL FLASHING ADJUSTS FROM 0/12 TO 5/12 PITCH	SLANT FLASHING 3/12 PITCH	DGAH FURNACES	DGAA FURNACES
		INSTALLATION DIMENSIONS	INSTALLATION DIMENSIONS
		"A" ADJUSTABLE HEIGHT	"B" ADJUSTABLE HEIGHT
4000-8161/C	4000-9161/A	85" to 101"	101" to 117"
4000-8181/C	4000-9181/A	99" to 129"	115" to 145"

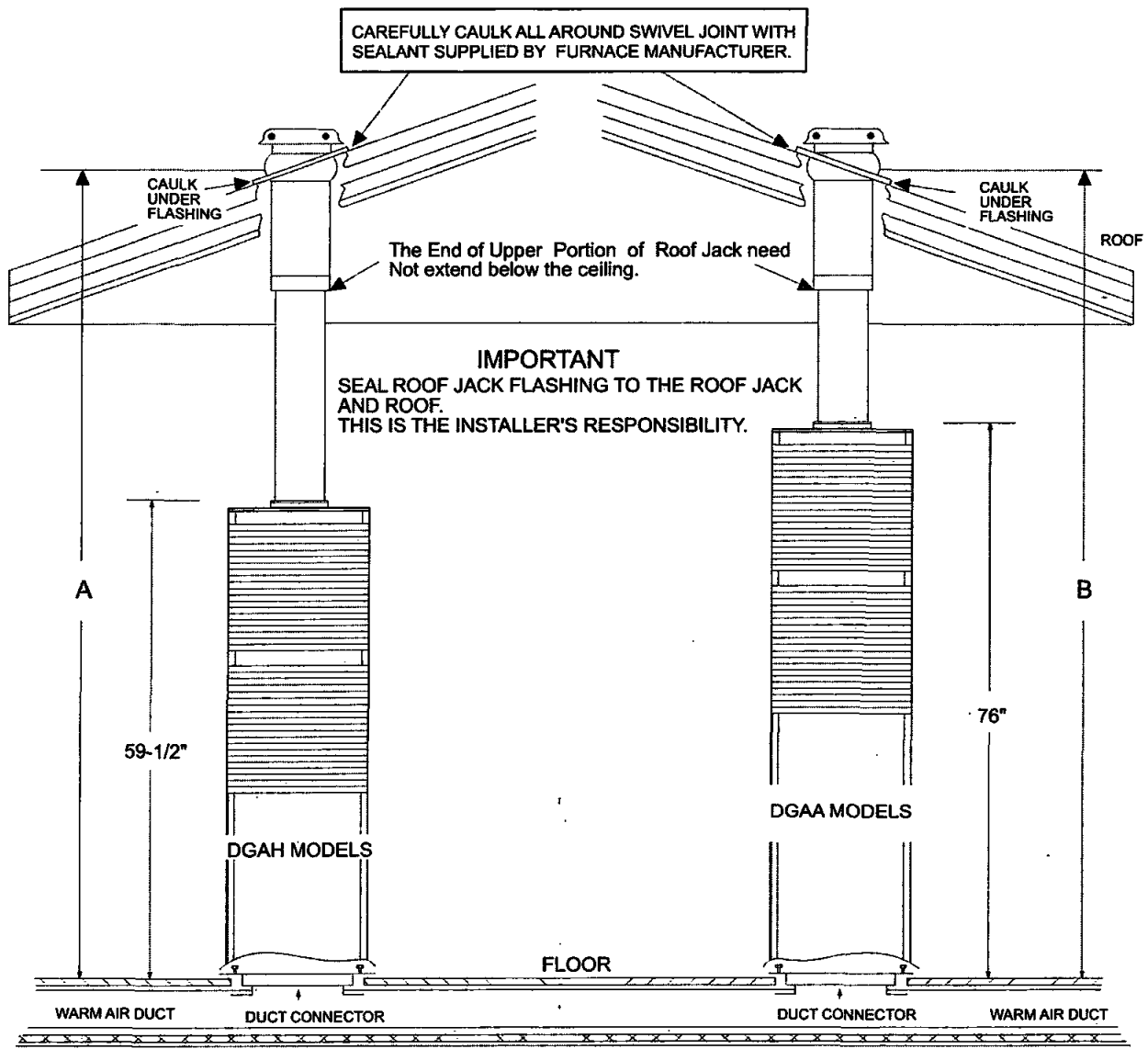


FIGURE 21: Roof Jack With Removable Crowns

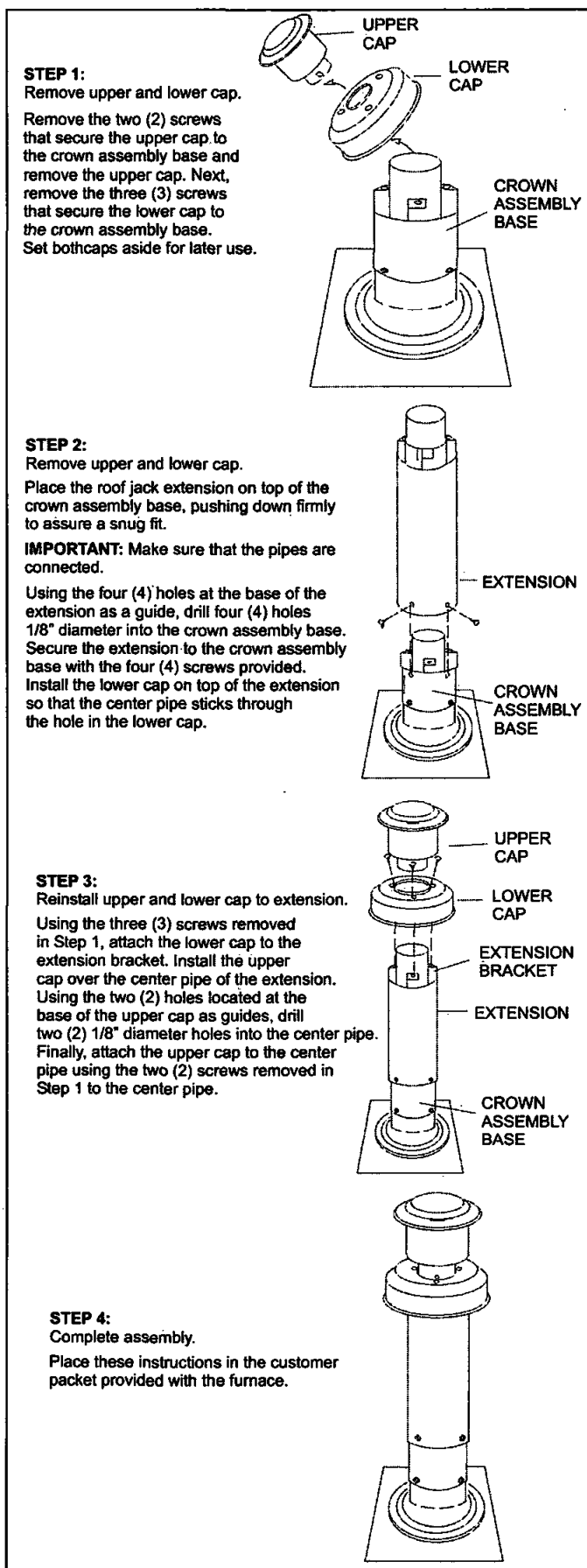


FIGURE 22: Roof Jack

EXTERIOR ROOF JACK EXTENSION

Available to comply with instances in which the roof jack crown needs to be raised to meet a roof clearance requirement. One extension will raise the roof jack crown by 18 inches.

CONNECTING ROOF JACK TO FURNACE**CAUTION**

The inner flue pipe must be present.

*It is mandatory that the combustion air pipe and flue pipe assembly be fully engaged. The combustion air pipe **MUST** be securely fastened to the furnace with a sheet metal screw in the hole provided.*

Use a 1/2" blunt or sharp end sheet metal screw to fasten roof jack combustion air pipe to furnace combustion air collar. Screw hole is provided in the pipe and collar. Excessively long screws may extend to flue pipe and puncture it. Screws are not to exceed 1 1/2" in length.

NOTE: Combustion air tube and flue pipe are part of the same assembly. Only the combustion air tube need be fastened to the furnace.

1. Check to be certain that the flue pipe and combustion air tube are present.
2. Pull the telescoping flue tube and combustion air tube assembly down from the roof jack. Slide the flue tube/combustion air tube assembly down firmly over the furnace flue outlet and combustion air collar. Insure that the back, side and front of combustion air tube collar is fully engaged and is in contact with gasket. Fasten the combustion air tube to the furnace combustion air collar using a 1/2 inch sheet metal screw. (Screw hole provided in combustion air tube and furnace combustion air collar. See Figure 23).

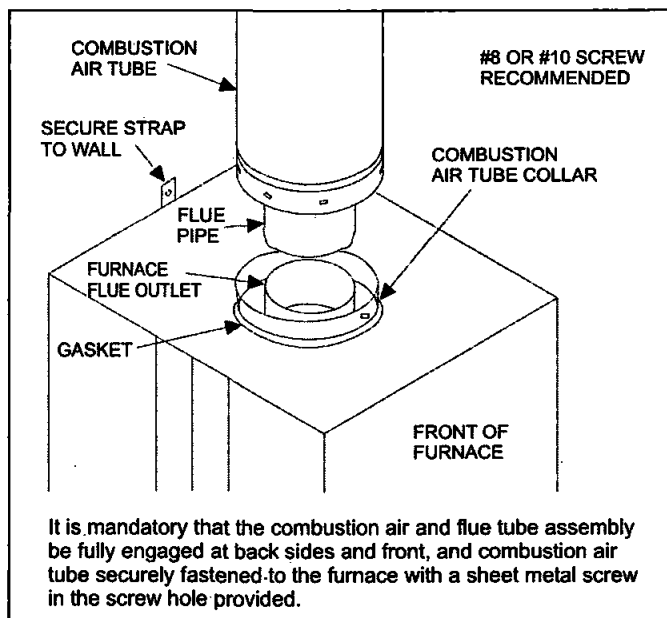


FIGURE 23: Connecting Roof Jack to Furnace

COMBUSTION AND VENTILATION AIR

This furnace is a sealed combustion (direct vent) unit and is design certified to use only a 4000 Series roof jack. These roof jacks are designed to provide combustion air to the furnace and to exhaust flue products to the outside. No other combustion air openings or ducts are needed.

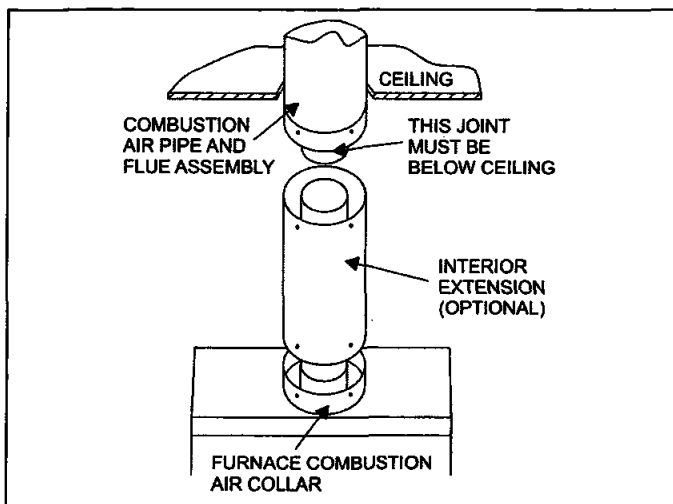


FIGURE 24: Roof Jack Assembly

INTERIOR EXTENSIONS

To choose the proper length roof jack with or without the optional extension see Figure 24 and Table 8. More than one interior extension may be used to accommodate A "dimensions up to 110" (284.5 cm).

WARNING

The joint where the optional interior extension connects to the roof jack must be below the ceiling. Failure to observe this requirement may result in asphyxiation, fire, or explosion

NOTE: Use of an interior extension will increase the roof jack adjustable heights by the amount of the interior extension height. If the furnace is installed on an elevated plenum, the plenum height must be added to the roof jack height.

CAUTION

Do not exceed the maximum adjustable height as listed in Table 8. These maximum heights allow an additional 1 1/2" (3.81 cm) travel before the flue pipe assembly is fully extended against the built-in stop. This provides an additional safeguard against the flue assembly being pulled from the roof jack if upward movement should occur when the home is being transported or subjected to other stress conditions. Failure to follow these instructions may result in fire, explosion, or asphyxiation.

TABLE 8: Roof Jack Options

Roof Jack Model Number	Adjustable Height with no Interior Extension	Adjustable Height with on 17" Interior Extension
4000B7141	14" to 78"	64" to 95"
4000B7151	66" to 90"	83" to 107"
4000B8161	59" to 79"	76" to 96"
4000B8181	73" to 103"	90" to 110"

Models 4000B8161 and 4000B8181 have removable crowns.

CAUTION

Use 1/2" (1.27 cm) blunt or sharp end sheet metal screws to fasten roof jack combustion air pipe to furnace combustion air collar. Screw holes are provided in pipe and collar. Excessively long screws may extend to flue pipe and puncture it. If substitute screws are used, they must not exceed 1 1/2" (3.81 cm) in length. It is mandatory that the combustion air and flue tube assembly be properly engaged, and the combustion air pipe fastened to the furnace with sheet metal screws in the holes provided.

If using an optional interior extension, place extension down on furnace top and mate with furnace flue and combustion air collar until it lines up with screw holes in combustion air collar. Secure the extension to the furnace using the pre-punched holes. Use 1/2" (1.27 cm) blunt or sharp end sheet metal screws to fasten roof jack combustion air pipe to furnace combustion air collar. Screw holes are provided in pipe and collar. Excessively long screws may extend to flue pipe and puncture it. If substitute screws are used, they must not exceed 1 1/2" (3.81 cm) in length. Pull the roof jack flue and combustion air pipe assembly down and mate with extension flue and combustion air pipes until the screw holes line up. See Figure 24. Fasten interior extension to combustion air pipe assembly with sheet metal screws not exceeding 1 1/2" (3.8 cm) in length.

IMPORTANT: Under no circumstances shall the connection between the flue and combustion air pipe assembly of the roof jack and the interior extension be above the ceiling line.

Secure the roof jack to the roof with screws. Non-hardening mastic sealer or caulking compound must be used to seal the roof flange to prevent water leakage. The roof jack swivel joint must also be sealed to prevent water leakage.

INSTALLING CEILING RING

The ceiling ring is to meet fire stop requirements. Accessory Ceiling Ring may be used (See Figure 25) or the mobile home or modular home manufacturer or the installer may use other approved methods to fire stop. If required, three sections of the Accessory ring may be used as in Figure 25 to provide closer clearance around the roof jack.

NOTE: A portion of the outer edge of the ceiling ring may be trimmed so the ring will fit between the warm air plenum and roof jack.

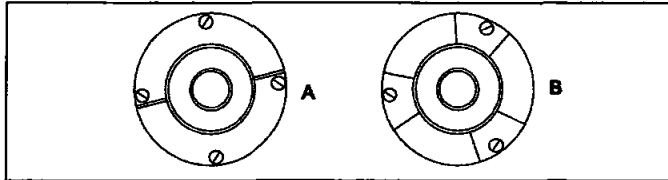


FIGURE 25: Ceiling Rings

VENT CLEARANCES

IMPORTANT: The vent must be installed with the minimum clearances as shown in Figure 26, and must comply with local, state, regional codes and requirements.

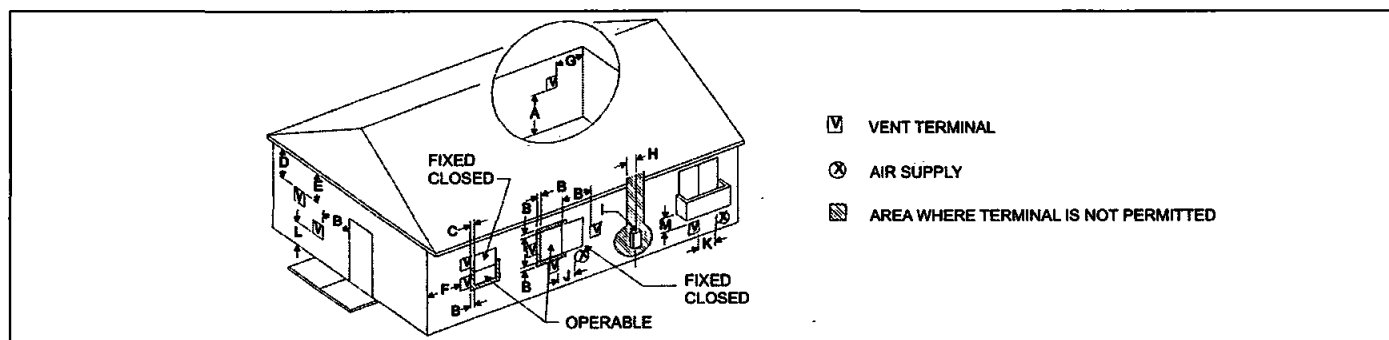


FIGURE 26: Home Layout

	Canadian Installations ¹	US Installation ²
A. Clearance above grade, veranda, porch, deck, or balcony	12 inches (30 cm)	12 inches (30 cm)
B. Clearance to window or door that may be opened	12 inches (30 cm) for models <100,000 BTUH (30 kW), 36 inches (91 cm) for models > 100,000 BTUH (30 kW)	4 Feet
C. Clearance to permanently closed window	4 Feet	4 Feet
D. Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	4 Feet	4 Feet
E. Clearance to unventilated soffit	12 Inches	12 Inches
F. Clearance to outside corner	12 Inches	12 Inches
G. Clearance to inside corner	6 Feet	6 Feet
H. Clearance to each side of center line extended above meter/regulator assembly	3 feet (91 cm) within a height 15 feet (4.5 m) above the meter/regulator assembly	3 feet (91 cm) within a height 15 feet (4.5 m) above the meter/regulator assembly
I. Clearance to service regulator vent outlet	3 feet (91 cm)	3 feet (91 cm)
J. Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	12 inches (30 cm) for models <100,000 BTUH (30 kW), 35 inches (91 cm) for models >100,000 BTUH (30 kW)	4 Feet
K. Clearance to a mechanical supply inlet	6 feet (1.83 m)	3 feet (91 cm) above if within 10 feet (3 m) horizontally
L. Clearance above paved sidewalk or paved driveway located on public property	7 feet (2.13 m) †	7 feet (2.13 m) †
M. Clearance under veranda, porch, deck, or balcony	12 inches (30.4 cm)	12 inches (30.4 cm)
Vent Termination from any Building Surface	12" (30.4 cm)	12" (30.4 cm)
Above anticipated snow depth	12" (30.4 cm)	12" (30.4 cm)

1. In accordance with the current CSA B149.1-00, Natural Gas and Propane Installation Code.

2. In accordance with the current ANSI Z223.1 / NFPA 54, National Gas Code. In accordance with the current UL 311 Standard for Safety for Roof Jacks for Manufactured Homes and Recreational Vehicles.

† A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

‡ Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor. For clearance not specified in ANSI Z223.1 / NFPA 54 or CSA B149.1-00.

** Clearance in accordance with local installation codes and the requirements of the gas supplier and the manufacturer's Installation Manual.

Any fresh air or make up inlet for dryer or furnace area is considered to be forced air inlet.

Avoid areas where condensate drippage may cause problems such as above planters, patios, or adjacent to windows where steam may cause fogging.

A terminus of a vent shall be either:

Fitted with a cap in accordance with the vent manufacturer's Installation instructions, or In accordance with the installation instructions for a special venting system.

IMPORTANT: Consideration must be given for degradation of building materials by flue gases. Sidewall termination may require sealing or shielding of building surfaces with a corrosion resistant material to protect against combustion product corrosion. Consideration must be given to wind direction in order to prevent flue products and/or condensate from being blown against the building surfaces. If a metal shield is used it must be a stainless steel material at a minimum dimension of 20 inches. It is recommended that a retaining type collar be used that is attached to the building surface to prevent movement of the vent pipe.

Responsibility for the provision of proper adequate venting and air supply for application shall rest with the installer.

Vent shall extend high enough above building, or a neighboring obstruction, so that wind from any direction will not create a positive pressure in the vicinity of the vent.

▲ WARNING

CARBON MONOXIDE POISONING HAZARD

Failure to follow the steps outlined below for each appliance connected to the venting system being placed into operation could result in carbon monoxide poisoning or death.

The following steps shall be followed for each appliance connected to the venting system being placed into operation, while all other appliances connected to the venting system are not in operation:

1. Inspect the venting system for proper size and horizontal pitch. Determine that there is no blockage, restriction, leakage, corrosion or other deficiencies, which could cause an unsafe condition
2. Close all building doors and windows and all doors.
3. Turn on clothes dryers and TURN ON any exhaust fans, such as range hoods and bathroom exhausts, so they shall operate at maximum speed. Open the fireplace dampers. Do not operate a summer exhaust fan.
4. Follow the lighting instructions. Place the appliance being inspected in operation. Adjust thermostat so the appliance shall operate continuously.
5. Test each appliance (such as a water heater) equipped with a draft hood for spillage (down-draft or no draft) at the draft hood relief opening after 5 minutes of main burner operation. Appliances that do not have draft hoods need to be checked at the vent pipe as close to the appliance as possible. Use a combustion analyzer to check the CO₂ and CO levels of each appliance. Use a draft gauge to check for a downdraft or inadequate draft condition.
6. After it has been determined that each appliance properly vents when tested as outlined above, return doors, windows, exhaust fans, fireplace dampers and any other gas burning appliance to their normal condition.
7. If improper venting is observed during any of the above tests, a problem exists with either the venting system or the appliance does not have enough combustion air (Supply Air from outside) to complete combustion. This condition must be corrected before the appliance can function safely.

NOTE: An unsafe condition exists when the CO reading at the furnace vent exceeds 40 ppm and the draft reading is not in excess of - 0.1 in. W.C. (-25 kPa) with all of the appliance(s) operating at the same time.

8. Any corrections to the venting system and / or to the supply (outside) air system must be in accordance with the National Fuel Gas Code Z223.1 or CAN/CGA B149.1-00 Natural Gas and Propane Installation Code (latest editions). If the vent system must be resized, follow the appropriate tables in Appendix G of the above codes or for this appliance.

FAN-ASSISTED COMBUSTION SYSTEM

An appliance equipped with an integral mechanical means to either draw or force products of combustion through the combustion chamber and/or heat exchanger.

SECTION VIII: SAFETY CONTROLS

CONTROL CIRCUIT FUSE

A 3-amp fuse is provided on the control circuit board to protect the 24-volt transformer from overload caused by control circuit wiring errors. This is an ATO 3, automotive type fuse and is located on the control board.

PRESSURE SWITCHES

This furnace is supplied with a pressure switch, which monitors the flow through the combustion air/vent piping system. This switch de-energizes the ignition control module and the gas valve if any of the following conditions are present. Refer to Figure 27 for tubing connections.

1. Blockage of combustion air piping or terminal.
2. Blockage of vent piping or terminal.
3. Failure of combustion air blower motor.

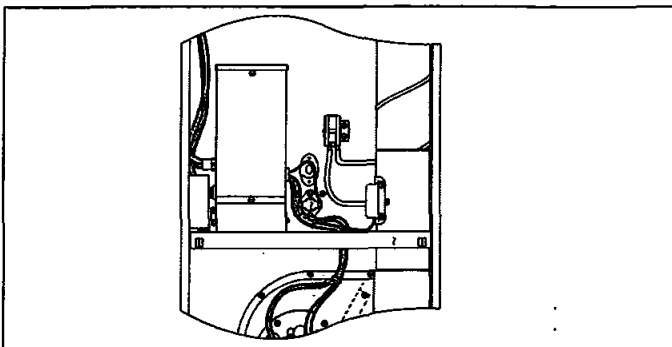


FIGURE 27: Pressure Switch Tubing Routing

LIMIT CONTROLS

There is high temperature limit control located on the furnace vestibule panel near the gas valve. This is an automatic reset control that provides over temperature protection due to reduced airflow, that may be caused by a dirty filter, or if the indoor fan motor should fail. The control module will lockout if the limit trips 3 consecutive times. Control will reset and try ignition again after 1 hour.

SECTION IX: START-UP AND ADJUSTMENTS

The initial start-up of the furnace requires the following additional procedures:

IMPORTANT: All electrical connections made in the field and in the factory should be checked for proper tightness.

When the gas supply is initially connected to the furnace, the gas piping may be full of air. In order to purge this air, it is recommended that the ground union be loosened until the odor of gas is detected. When gas is detected, immediately retighten the union and check for leaks. Allow five minutes for any gas to dissipate before continuing with the start-up procedure. Be sure proper ventilation is available to dilute and carry away any vented gas.

TOOLS AND INFORMATION THAT WILL BE REQUIRED IN ORDER TO PROPERLY PERFORM THE FURNACE START-UP PROCEDURE.

1. Call the local gas supplier to obtain heating value of the natural gas. If you cannot obtain the heating value of the gas from the gas supplier, you may use a default value of 1030 BTU/SCF (38.8 MJ / m³).
2. You will need a thermometer or portable digital thermometer to read the supply and return air temperatures.
3. You will need a U-tube manometer or digital equipment that has the ability to read pressures between 0 – 15" in.w.c (0 - 3.73 kPa) in order to measure the gas line and the manifold pressures.
4. You will need a 3/32" Allen wrench for the pressure port plugs in the gas valve.
5. You will need 2 pieces of 1/8" (0.3 cm) ID flexible tubing that is 12" (30 cm) in length, 2 – pieces of 1/8" (0.3 cm) tubing that are 4" (10.0 cm) in length, and a 1/8" (0.3 cm) adapter to connect the U-tube manometer or the digital pressure measuring equipment to the gas valve pressure ports.

There is an accessory kit (1PK0601) available from Source 1, which has the following items:

- 1 - 12" (30 cm) length x 1/8" (0.3 cm) diameter tubing
- 2 – pieces of 4" (10 cm) length x 1/8" (0.3 cm) diameter tubing
- 1 - 5/16" (0.8 cm) tee
- 1 - 5/16" (0.8 cm) x 1/8" (0.3 cm) reducing coupling
- 1 - 1/8" (0.3 cm) adapter

There is a accessory kit (1PK0602) available from Source 1, which has the following items:

- 12" (30 cm) length x 1/8" (0.3 cm) diameter tubing
- 2 – pieces of 4" (10 cm) length x 1/8" (0.3 cm) diameter tubing
- 1 - 5/16" (0.8 cm) tee
- 1 - 5/16" (0.8 cm) x 1/8" (0.3 cm) reducing coupling
- 1 - 1/8" (0.3 cm) adapter
- 1 - Dwyer – Manometer

These items are required in order to properly perform the required start-up procedure.

IGNITION SYSTEM SEQUENCE

1. Turn the gas supply ON at external valve and main gas valve.
2. Set the thermostat above room temperature to call for heat.
3. System start-up will occur as follows:

- a. The induced draft blower motor will start and come up to speed. Shortly after inducer start-up, the hot surface igniter will glow for about 17 seconds.
- b. After this warm up, the ignition module will energize (open) the main gas valve.
- c. After flame is established, the supply air blower will start in about 30 seconds.

WARNING

FIRE OR EXPLOSION HAZARD

Failure to follow the safety warnings exactly could result in serious injury, death or property damage.

Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury or loss of life.

IMPORTANT: Burner ignition may not be satisfactory on first start-up due to residual air in the gas line or until gas manifold pressure is adjusted. The ignition control will make 3 attempts to light before locking out.

With furnace in operation, check all of the pipe joints, gas valve connections and manual valve connections for leakage using an approved gas detector, a non-corrosive leak detection fluid, or other leak detection methods. Take appropriate steps to stop any leak. If a leak persists, replace the component.

The furnace and its equipment shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 PSI (3.45 kPa).

The furnace must be isolated from the gas supply piping system by closing the equipment shut-off valve during any pressure testing of the gas supply piping system.

CALCULATING THE FURNACE INPUT (NATURAL GAS)

NOTE: Burner orifices are sized to provide proper input rate using natural gas with a heating value of 1030 BTU/Ft³. If the heating value of your gas is significantly different, it may be necessary to replace the orifices.

1. Turn off all other gas appliances connected to the gas meter.
2. At the gas meter, measure the time (with a stop watch) it takes to use 2 cubic ft. (0.0566 m³) of gas.
3. Calculate the furnace input by using one of the following equations.

In the USA use the following formula to calculate the furnace input.

For natural gas multiply the heat content of the gas BTU/SCF or Default 1030 BTU/SCF (38.4 MJ/m³), times 2 cubic ft. (0.056 m) of gas measured at the gas meter, times a barometric pressure and temperature correction factor of 0.960; times 3600, then divided by the time (In seconds) it took to measure 2 cubic ft. (0.056 m) of gas from the gas meter.

For propane (LP) gas multiply the heat content of the gas BTU/SCF or Default 2500 BTU/SCF (93.15 MJ/m³), times 1 cubic ft. (0.028 m) of gas measured at the gas meter, times a barometric pressure and temperature correction factor of 0.960; times 3600, then divided by the time (In seconds) it took to measure 1 cubic ft. (0.028 m) of gas from the gas meter.

The formula for US input calculation using a cubic foot gas meter:

$\frac{\text{BTU/ft}^3 \times 2 \text{ cu.ft.} \times 0.960 \times 3600}{\text{Seconds it took to measure the 2 cu.ft. of gas}}$	=	BTU/H	$\frac{\text{BTU/ft}^3 \times 1 \text{ cu.ft.} \times 0.960 \times 3600}{\text{Seconds it took to measure the 1 cu.ft. of gas}}$	=	BTU/H
NATURAL GAS INPUT CALCULATION					
EXAMPLE:					
$\frac{1030 \times 2 \times 0.960 \times 3600}{90.5}$	=	78,666.90	$\frac{2500 \times 1 \times 0.960 \times 3600}{108}$	=	80,000.00
Natural Gas			Propane Gas		
1030 BTU/SCF			2500 BTU/SCF		

In Canada you will use the following formula to calculate the furnace input if you are using a cubic foot gas meter.

For Natural Gas multiply the Heat content of the gas MJ/m³ (or Default 38.4), times 2 cubic ft. of gas x 0.028 to convert from cubic feet to cubic meters measured at the gas meter, times a barometric pressure and temperature correction factor of 0.960; times 3600, then divided by the time it took to measure 2 cubic ft. (0.056 m) of gas from the gas meter.

For Propane (LP) Gas multiply the Heat content of the gas MJ/m³ (or Default 93.15), times 1 cu. ft. of gas x 0.028 to convert from cubic feet to cubic meters measured at the gas meter, times a barometric pressure and temperature correction factor of 0.960; times 3600, then divided by the time it took to measure 1 cubic ft. (0.028 m) of gas from the gas meter.

The formula for metric input calculation using a cubic foot gas meter:

$\frac{\text{MJ/m}^3 \times 2 \text{ cu.ft.} \times 0.028 \times 0.960 \times 3600}{\text{Seconds it took to measure the 2 cu.ft. of gas}}$	=	MJ/H	x	0.2777	=	kW	x	3412.14	=	BTU/H
NATURAL GAS INPUT CALCULATION										
EXAMPLE:										
$\frac{38.4 \times 2 \times 0.028 \times 0.960 \times 3600}{90.5}$	=	82.12	x	0.2777	=	22.80	x	3412.14	=	77,796.80
Natural Gas										
1030 BTU/SCF = 38.4 MJ/m ³										
PROPANE (LP) GAS INPUT CALCULATION										
EXAMPLE:										
$\frac{93.15 \times 1 \times 0.028 \times 0.960 \times 3600}{108}$	=	83.46	x	0.2777	=	23.18	x	3412.14	=	79,093.4
Propane Gas										
2500 BTU/SCF = 93.15 MJ/m ³										

In Canada use the following formula to calculate the furnace input if you are using a gas meter that measures cubic meters.

For Natural Gas multiply the Heat content of the gas MJ/m³ (or Default 38.4), times 0.10 m³ of gas measured at the gas meter, times a barometric pressure and temperature correction factor of 0.960; times 3600, then divided by the time it took to measure 0.10 m³ of gas from the gas meter.

For Propane (LP) Gas multiply the Heat content of the gas MJ/m³ (or Default 93.15), times 0.10 m³ of gas measured at the gas meter, times a barometric pressure and temperature correction factor of 0.960; times 3600, then divided by the time it took to measure 0.10 m³ of gas from the gas meter.

The formula for metric input calculation using a cubic meter gas meter:

$\frac{\text{MJ/m}^3 \times \text{m}^3 \times 0.960 \times 3600}{\text{Seconds it took to measure the 0.10 m}^3 \text{ of gas}}$	=	MJ/H	x	0.2777	=	kW	x	3412.14	=	BTU/H
NATURAL GAS INPUT CALCULATION										
EXAMPLE:										
$\frac{38.4 \times 0.1 \times 0.960 \times 3600}{160}$	=	82.94	x	0.2777	=	23.03	x	3412.14	=	78,581.60
Natural Gas										
1030 BTU/SCF = 38.4 MJ/m ³										
PROPANE (LP) GAS INPUT CALCULATION										
EXAMPLE:										
$\frac{93.15 \times 0.1 \times 0.960 \times 3600}{387}$	=	83.19	x	0.2777	=	23.10	x	3412.14	=	78,826.3
Propane Gas										
2500 BTU/SCF = 93.15 MJ/m ³										

DO NOT ADJUST the manifold pressure regulator if the actual input is equal to or within 8% less than the furnace input specified on the rating plate or if the furnace rise is above the specified rise range on the rating plate.

If the actual input is significantly higher than the furnace input specified on the rating plate then replace the gas orifices with the gas orifices of the proper size for the type of gas you are using.

For altitudes above 2,000 ft. (610 m) the furnace input MUST BE DERATED. Refer to the GAS CONVERSION FOR PROPANE (LP) AND HIGH ALTITUDES IN SECTION IV for information on high altitude conversions.

CAUTION

Be sure to relight any gas appliances that were turned off at the start of this input check.

CHECKING THE GAS PRESSURES

1. The pressure ports on the gas valve are marked OUT PRESSURE TAP and INLET PRESSURE TAP.
2. The manifold pressure must be taken at the port marked OUT P.
3. The inlet gas supply pressure must be taken at the port marked IN P.
4. Using a 3/32" (0.2 cm) Allen wrench, loosen the set screw by turning it 1 turn counter clockwise. **DO NOT REMOVE THE SET SCREW FROM THE PRESSURE PORT.**
5. Push one end of the 3/8" (0.9 cm) ID flexible tubing over the pressure port so that the body of the port is inside the tubing.
6. Use a reducer connector to connect the 3/8" (0.9 cm) ID flexible tube that is connected to a "U" tube manometer or digital pressure measuring equipment.

TABLE 9: Inlet Gas Pressure Range

INLET GAS PRESSURE RANGE		
	Natural Gas	Propane (LP)
Minimum	4.5" W.C. (1.12 kPa)	8.0" W.C. (1.99 kPa)
Maximum	10.5" W.C. (2.61 kPa)	13.0" (3.24 kPa) W.C.

IMPORTANT: The inlet gas pressure operating range table specifies the minimum and maximum gas line pressures required for safe furnace operation.

The minimum inlet gas pressure required to obtain the BTU input specified on the rating plate and in these instructions is shown below:

- 4.5" W.C. (1.12 kPa) for Natural Gas
- 11.0" W.C. (2.74 kPa) for Propane (LP) Gas

ADJUSTMENT OF MANIFOLD GAS PRESSURE

Manifold gas pressure may be measured at the gas valve.

Turn gas off at the ball valve or gas cock on gas supply line before the gas valve. Find the pressure ports on the gas valve marked OUT P and IN P.

1. The manifold pressure must be taken at the port marked OUT P.
2. The gas line pressure must be taken at the port marked IN P.
3. Using a 3/32" Allen wrench, loosen the set screw by turning it 1 turn counter clockwise. **DO NOT REMOVE THE SET SCREW FROM THE PRESSURE PORT.**

Use the 4" (10.2 cm) piece of 1/8" (0.3 cm) tubing to connect the positive side of the manometer to the gas valve pressure reference port. Refer to Figure 29 for connection details.

IMPORTANT: The cap for the pressure regulator must be removed entirely to gain access to the adjustment screw. Loosening or tightening the cap does not adjust the flow of gas.

1. Refer to Figure 28 for location of pressure regulator adjustment cap and adjustment screw on main gas valve.
2. Turn gas and electrical supplies on and follow the operating instructions to place the unit back in operation.
3. Adjust manifold pressure by adjusting gas valve regulator screw for the appropriate gas per the following:

TABLE 10: Nominal Manifold Pressure

NOMINAL MANIFOLD PRESSURE	
Natural Gas	3.5" w.c. (0.87 kPa)
Propane (LP) Gas	10.0" w.c. (2.488 kPa)

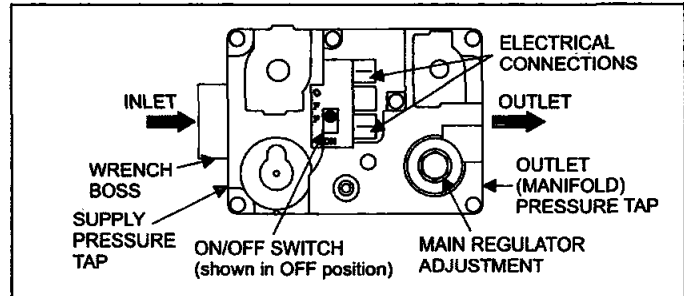


FIGURE 28: Gas Valve

IMPORTANT: If gas valve regulator is turned in (clockwise), manifold pressure is increased. If screw is turned out (counter clockwise), manifold pressure will decrease.

4. After the manifold pressure has been adjusted, re-calculate the furnace input to make sure you have not exceeded the specified input on the rating plate. Refer to "CALCULATING THE FURNACE INPUT (NATURAL GAS)".
5. Once the correct BTU (kW) input has been established, turn the gas valve to OFF and turn the electrical supply switch to OFF; then remove the flexible tubing and fittings from the gas valve pressure tap and tighten the pressure tap plug using the 3/32" Allen wrench.
6. Turn the electrical and gas supplies back on, and with the burners in operation, check for gas leakage around the gas valve pressure port for leakage using an approved gas detector, a non-corrosive leak detection fluid, or other leak detection methods.

WARNING

The manifold pressure must be checked with the screw-off cap for the gas valve pressure regulator in place. If not, the manifold pressure setting could result in an over-fire condition. A high manifold pressure will cause an over-fire condition, which could cause premature heat exchanger failure. If the manifold pressure is too low, sooting and eventual clogging of the heat exchanger could occur. Be sure that gas valve regulator cap is in place and burner box to gas valve pressure reference hose is connected.

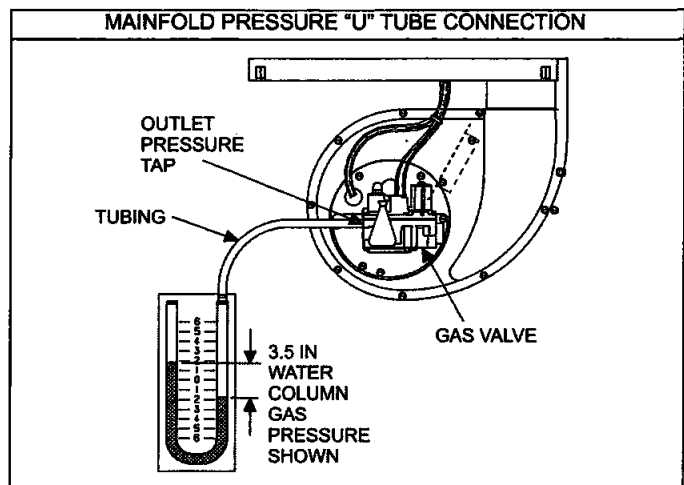


FIGURE 29: Reading Gas Pressure

ADJUSTMENT OF TEMPERATURE RISE

⚠ DANGER

The temperature rise, or temperature difference between the return air and the supply (heated) air from the furnace, must be within the range shown on the furnace rating plate and within the application limitations shown in Table 7 "ELECTRICAL AND PERFORMANCE DATA".

The supply air temperature cannot exceed the "Maximum Supply Air Temperature" specified in these instructions and on the furnace rating plate. Under NO circumstances can the furnace be allowed to operate above the Maximum Supply Air Temperature. Operating the furnace above the Maximum Supply Air Temperature will cause premature heat exchanger failure, high levels of Carbon Monoxide, a fire hazard, personal injury, property damage, and/or death.

The temperature rise, or temperature difference between the return air and the heated supply air from the furnace, must be within the range shown on the furnace rating plate and within the application limitations as shown in Table 7.

After about 20 minutes of operation, determine the furnace temperature rise. Take readings of both the return air and the heated air in the ducts. Increase the blower speed to decrease the temperature rise; decrease the blower speed to increase the rise.

⚠ CAUTION

Do not energize more than one motor speed at a time or damage to the motor will result.

ADJUSTMENT OF FAN CONTROL SETTINGS

This furnace is equipped with a time-on/time-off heating fan control. The fan on delay is fixed at 30 seconds. The fan off delay has 4 settings (60, 90, 120 and 180 seconds). The fan off delay is factory set to 120 seconds. The fan-off setting must be long enough to adequately cool the furnace, but not so long that cold air is blown into the heated space. The fan-off timing may be adjusted by positioning the jumper on two of the four pins as shown in Figure 30.

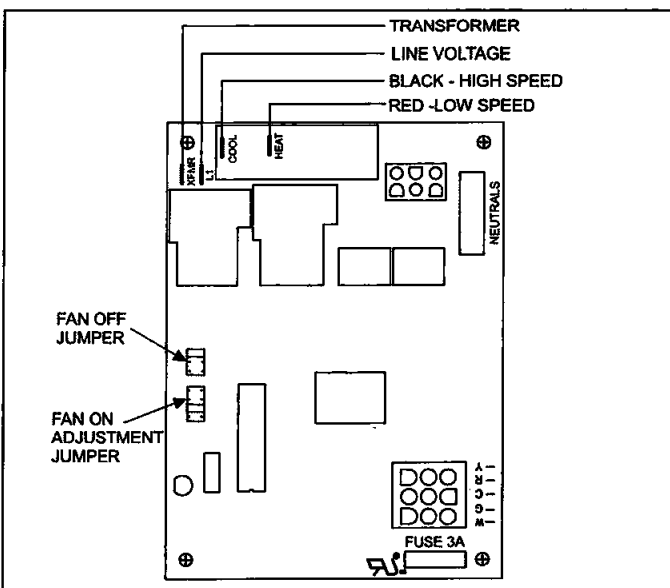


FIGURE 30: Furnace Control Board

FILTER PERFORMANCE

The airflow capacity data published in Table 11 represents blower performance WITHOUT filters.

APPLYING FILTER PRESSURE DROP TO DETERMINE SYSTEM AIRFLOW

Example: For a 90,000 BTUH (26.4 kW) furnace operating on high-speed blower, it is found that total system static is 0.30" (0.075 kPa) w.c. To determine the system airflow, complete the following steps:

Obtain the airflow values at 0.10 w.c. (0.02 Pa) & 0.20 w.c. (0.05 Pa) ESP.

Airflow @ 0.10": 1425 CFM (40.4 m³/min)

Airflow @ 0.20": 1380 CFM (38.2 m³/min)

Subtract the airflow @ 0.10 w.c. (0.02 Pa) from the airflow @ 0.20 w.c. (0.05 Pa) to obtain airflow difference.

1425 - 1250 = -175 CFM (5.0 m³/min)

Subtract the total system static from 0.10 w.c. (125 Pa) and divide this difference by the difference in ESP values in the table 0.30 w.c. (0.075 kPa) - 0.10 w.c. (125 Pa), to obtain a percentage.

$(0.3 - 0.10) / (0.20 - 0.10) = 0.2$

Multiply percentage by airflow difference to obtain airflow reduction.

$(0.2) \times (175) = -35 \text{ CFM } (0.99 \text{ m}^3/\text{min})$

Subtract airflow reduction value to airflow @ 0.10 w.c. (125 Pa) to obtain actual airflow @ 0.3 in. w.c. (0.075 kPa) ESP.

1425 (40.4) - 35 = 1390 (39.4 m³/min)

FINAL PROCEDURE

Install Furnace Doors

Install the lower door first by sliding the bottom of the door down until the tabs on the casing base engage the slots in the bottom door end cap. Then push the top of the lower door in until the door clips snap into place. Install the upper door in a similar manner, first engaging the slots in the top of the upper door on the tabs on the casing top. Then snap the bottom of the upper door into place against the casing.

Finish and Trim

Alcove and Closet Installations may now be finished and trimmed as necessary.

TABLE 11: Blower Performance CFM - Downflow Without Filters

STANDARD HEATING BLOWERS			Speed Tap	EXTERNAL STATIC PRESSURE, INCHES WC (kPa)									
BTU/H (kW) Input / Output	Nominal CFM(m³/min)	Cabinet Size		0.1 (0.025)		0.2 (0.050)		0.3 (0.075)		0.4 (0.099)		0.5 (0.124)	
				cfm	cm/m	cfm	cm/m	cfm	cm/m	cfm	cm/m	cfm	cm/m
56/45 (16.4/13.1)	1305 (34)	A	High No Coil	1425	40.4	1380	39.1	1305	37.0	1245	35.3	1180	33.4
			High w/Coil	1385	39.2	1315	37.3	1260	35.7	1200	34.0	1135	32.2
			Low No Coil	1250	35.4	1205	34.1	1145	32.4	1085	30.7	1030	29.2
			Low w/Coil	1235	35.0	1190	33.7	1135	32.2	1080	30.6	1015	28.8
70/56 (20.5/16.4)	1305 (34)	A	High No Coil	1425	40.4	1380	39.1	1305	37.0	1245	35.3	1180	33.4
			High w/Coil	1385	39.2	1315	37.3	1260	35.7	1200	34.0	1135	32.2
			Low No Coil	1250	35.4	1205	34.1	1145	32.4	1085	30.7	1030	29.2
			Low w/Coil	1235	35.0	1190	33.7	1135	32.2	1080	30.6	1015	28.8
77/62 (22.5/18.5)	1305 (34)	A	High No Coil	1425	40.4	1380	39.1	1305	37.0	1245	35.3	1180	33.4
			High w/Coil	1385	39.2	1315	37.3	1260	35.7	1200	34.0	1135	32.2
			Low No Coil	1250	35.4	1205	34.1	1145	32.4	1085	30.7	1030	29.2
			Low w/Coil	1235	35.0	1190	33.7	1135	32.2	1080	30.6	1015	28.8
90/72 (26.3/21.1)	1305 (34)	A	High No Coil	1425	40.4	1380	39.1	1305	37.0	1245	35.3	1180	33.4
			High w/Coil	1385	39.2	1315	37.3	1260	35.7	1200	34.0	1135	32.2
			Low No Coil	1250	35.4	1205	34.1	1145	32.4	1085	30.7	1030	29.2
			Low w/Coil	1235	35.0	1190	33.7	1135	32.2	1080	30.6	1015	28.8
7900 - 7751 AC/ACCESSORY BLOWER			Speed Tap	EXTERNAL STATIC PRESSURE, INCHES WC (kPa)									
BTU/H (kW) Input / Output	Nominal CFM(m³/min)	Cabinet Size		0.1 (0.025)		0.2 (0.050)		0.3 (0.075)		0.4 (0.099)		0.5 (0.124)	
				cfm	cm/m	cfm	cm/m	cfm	cm/m	cfm	cm/m	cfm	cm/m
56/45 (16.4/13.1)	1305 (34)	A	High w/Coil	1800	51.0	1760	49.9	1725	48.9	1680	47.6	1650	46.7
			Med High w/Coil	1535	43.5	1505	42.6	1480	41.9	1445	40.9	1410	39.9
			Med Low w/Coil	1270	36.0	1240	35.1	1215	34.4	1185	33.6	1100	31.2
			Low w/Coil	1085	30.7	1055	29.9	1025	29.0	1005	28.5	980	27.8
70/56 (20.5/16.4)	1305 (34)	A	High No Coil	1800	51.0	1760	49.9	1725	48.9	1680	47.6	1650	46.7
			High w/Coil	1535	43.5	1505	42.6	1480	41.9	1445	40.9	1410	39.9
			Low No Coil	1270	36.0	1240	35.1	1215	34.4	1185	33.6	1100	31.2
			Low w/Coil	1085	30.7	1055	29.9	1025	29.0	1005	28.5	980	27.8
77/62 (22.5/18.5)	1305 (34)	A	High No Coil	1800	51.0	1760	49.9	1725	48.9	1680	47.6	1650	46.7
			High w/Coil	1535	43.5	1505	42.6	1480	41.9	1445	40.9	1410	39.9
			Low No Coil	1270	36.0	1240	35.1	1215	34.4	1185	33.6	1100	31.2
			Low w/Coil	1085	30.7	1055	29.9	1025	29.0	1005	28.5	980	27.8
90/72 (26.3/21.1)	1305 (34)	A	High No Coil	1800	51.0	1760	49.9	1725	48.9	1680	47.6	1650	46.7
			High w/Coil	1535	43.5	1505	42.6	1480	41.9	1445	40.9	1410	39.9
			Low No Coil	1270	36.0	1240	35.1	1215	34.4	1185	33.6	1100	31.2
			Low w/Coil	1085	30.7	1055	29.9	1025	29.0	1005	28.5	980	27.8

TABLE 12: AC Accessories

MODEL NO.	DESCRIPTION	USED WITH
7900-7761	AC CONTROL KIT	A/C RELAY FOR DGPH MODELS
7900-7741	4 TON BLOWER	4 TON, 2 SPEED BLOWER FOR DGPH, DGPA
7900-7751	5 TON BLOWER	5 TON, 4 SPEED BLOWER FOR ALL MODELS

SECTION X: WIRING DIAGRAM

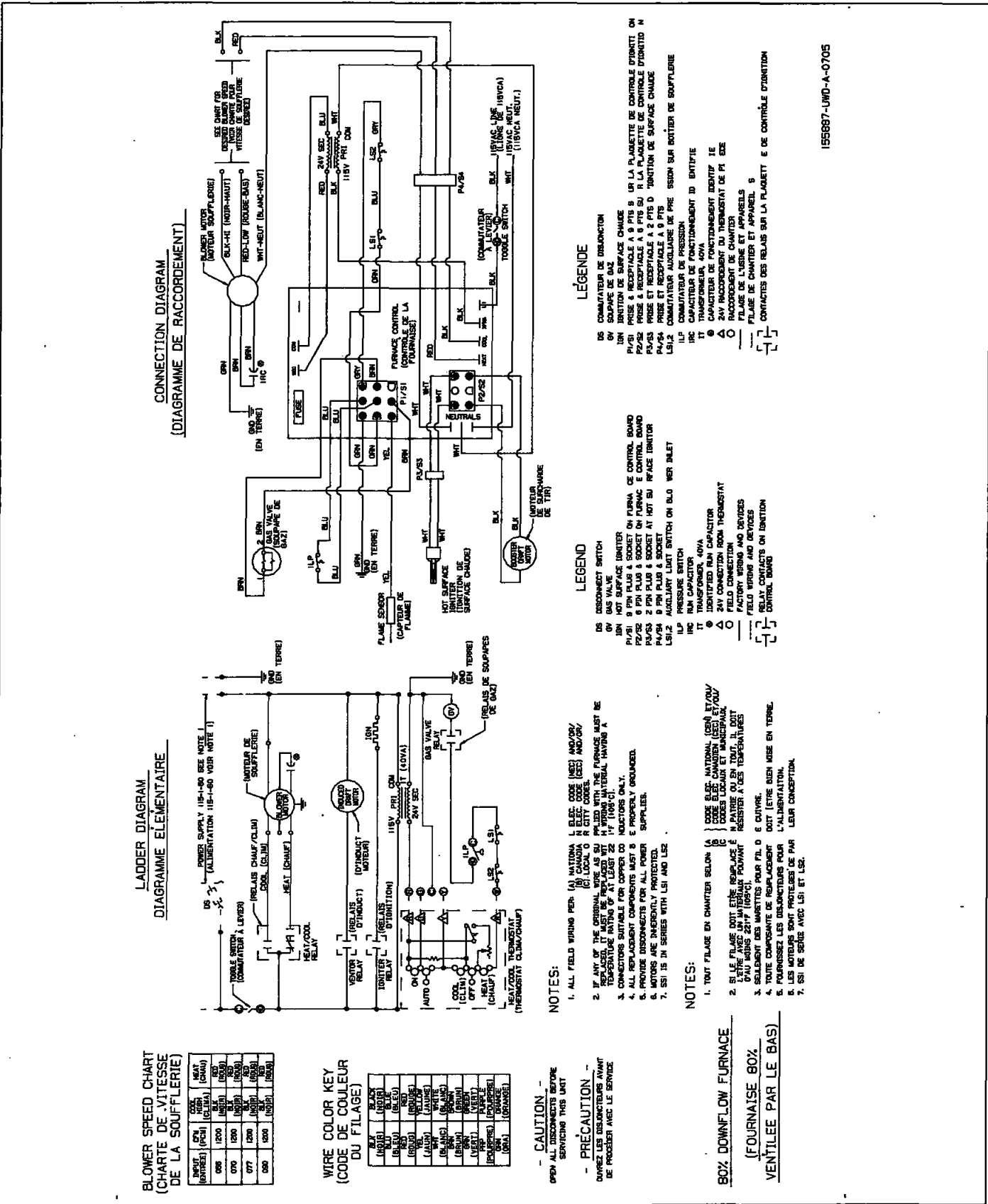
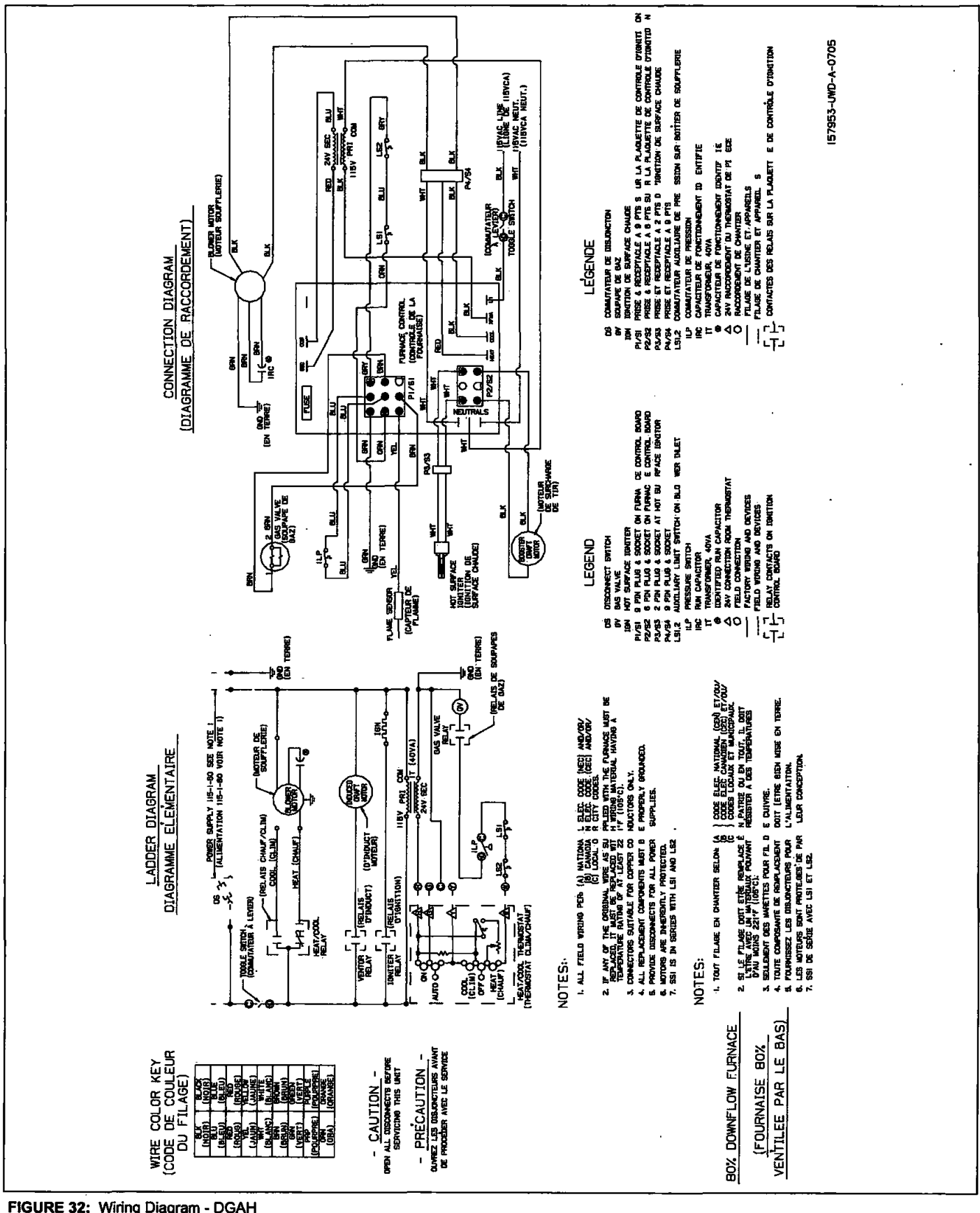


FIGURE 31: Wiring Diagram - DGAA



ACCESSORY KIT INSTALLATION INSTRUCTIONS

4000 SERIES ROOF JACK

GENERAL

WARNING

These instructions are intended for use by qualified individuals specially trained and experienced in installation of this type of equipment and related system components.

Carefully follow all instructions and warnings in this instruction. Failure to follow these instructions and the instructions provided with the furnace can result in fire, asphyxiation, or explosion.

The 4000 Series Roof Jack is used on furnaces only when listed on the appliance rating plate, including CGAT, COAS, COAT, DGAA, DGAH, DGAM, DGAT, DGPA, DGPH, DGPT and DLAS furnaces.

The following accessories may be used with the 4000 Series Roof Jack;

4084-6541 - Exterior Roof Jack Extension

7680B6541 - Exterior Roof Jack Extension

7900A6111 - Interior Roof Jack Extension, 11"

7900A6171 - Interior Roof Jack Extension, 17"

An Exterior Roof Jack Extension is recommended when the furnace is installed in a region where snow accumulation on the roof exceeds 7" or in H.U.D. Snow Load Zones.

WARNING

Combustion air inlet must remain unobstructed to allow adequate combustion air supply. A blocked air inlet can result in fire, asphyxiation, or explosion.

Roof Jacks with removable crowns must use the Crown Assembly provided with the Roof Jack or Crown Assembly 4000-6941/A. Follow instructions provided with the Crown assembly for proper installation.

The Accessory Ceiling Ring (7660-2841) may be used to meet fire stop requirements mandated by the local authority having jurisdiction. Acceptable fire stop methods may also be provided by the manufactured housing manufacturer or by the installer.

PRE-INSTALLATION

Replacement Furnace

1. Proceed to "Verify correct Roof Jack" if furnace is installed in a new home or as a replacement for a damaged Roof Jack.
2. Inspect existing Roof Jack. Remove existing Roof Jack if any of the following conditions exist:
 - a. Roof Jack series is not listed on the furnace rating plate.
 - b. Roof Jack is damaged, tilted, crooked, or shows deterioration.
 - c. Roof Jack centerline does not align with new furnace flue centerline. Verify correct Roof Jack See Steps 1-2 below.
 - d. Roof Jack extension does not match requirements for new furnace. See "Verify correct Roof Jack", Steps 3-5 below.
 - e. A second roof, roofcap or addition has been added to the original roof.

Verify correct Roof Jack

1. Determine furnace location. Refer to furnace installation instructions.
2. Determine Roof Jack centerline. Refer to furnace installation instructions.
3. Determine distance from floor to roofline along flue centerline. See Figure 1.
4. Add additional 1-1/2" to distance measured in Step 3 to provide safeguard against Roof Jack being pulled upward during transportation or other stress conditions.
5. Select Roof Jack based on dimension A or B. See Table 1.

Table 1: ROOF JACK

SWIVEL FLASHING ADJUSTS FROM 0/12 TO 5/12 PITCH	SLANT FLASHING 3/12 PITCH	INSTALLATION DIMENSIONS	
		“A” ADJUSTABLE HEIGHT 59-1/2” CASING	“B” ADJUSTABLE HEIGHT 76” CASING
STANDARD ROOF JACK			
4000-7101/C	4000-6101/A	70” to 79”	86” to 95”
4000-7121/C	4000-6121/A	75” to 86”	91” to 102”
4000-7141/C	4000-6141/A	83” to 104”	99” to 120”
4084-7141*			
4000-7151/C	4000-6151/A	90” to 116”	106” to 132”
4084-7151*			
ROOF JACK WITH REMOVABLE CROWN			
4000-7171/C	4000-6171/A	127” to 157”	143” to 173”
4000-8161/C	4000-9161/A	85” to 101”	101” to 117”
4000-8181/C	4000-9181/A	99” to 129”	115” to 145”

* Available in Canada Only.

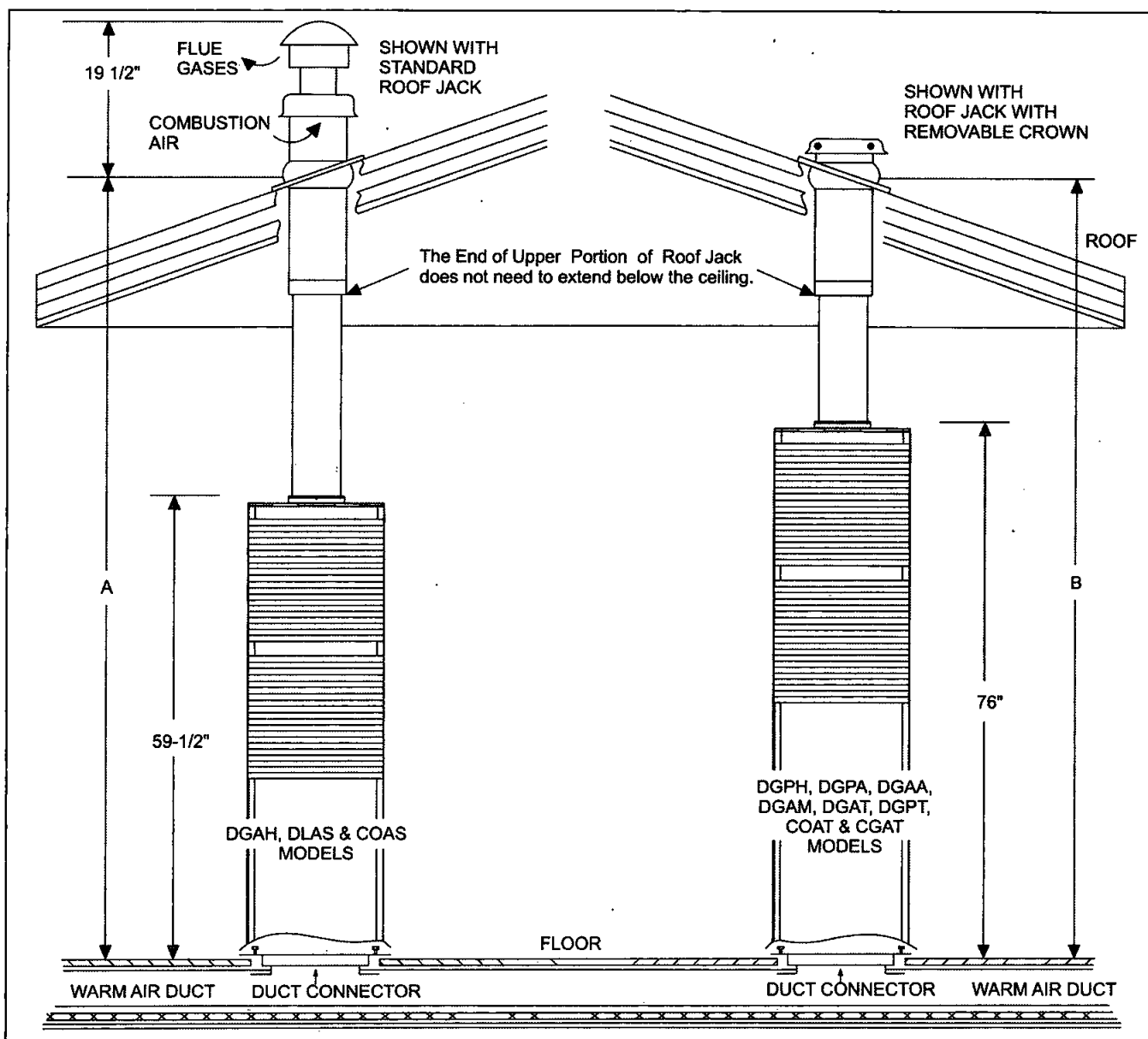


FIGURE 1 - ROOF JACK

INSTALLATION

Install Roof Jack

1. Install furnace. Refer to furnace installation instructions. Provide protection for Vent Connector and Air-Intake Connector from damage and debris.
2. Mark Roof Jack centerline on ceiling. Cut a 5" radius (10" diameter) hole through ceiling.
3. Mark Roof Jack centerline on roof. Cut oblong hole through roof.
4. Insert Roof Jack through roof opening. Do not secure Roof Jack to roof.

Connect Roof Jack to Furnace

1. CGAT, COAS and COAT furnace only. Install Flue Shield inside Vent Connector. Push Flue Shield down until in contact with the built-in stop inside the Vent Connector. See Figure 2.

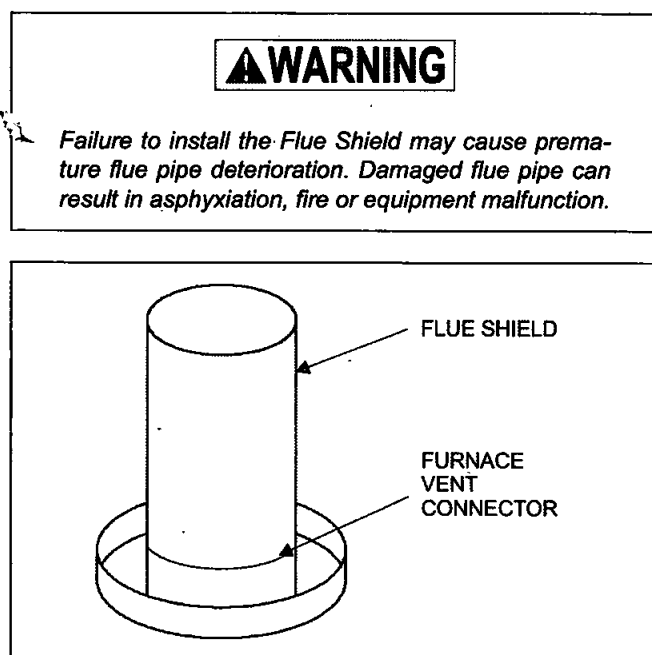


FIGURE 2 - Flue Shield Installation

2. Verify gasket is around outside of Air-Intake Connector. Install new gasket if missing or damaged.

3. Pull the Roof Jack's telescoping section down onto furnace. Fully engage Roof Jack onto Vent Connector and Air-Intake Connector and compress gasket. See Figure 3. Refer to Interior Roof Jack Extension installation instructions, if applicable.
4. Align holes in Roof Jack and Air-Intake Connector. Secure Roof Jack to furnace using #10 x 1/2 - 1-1/2" Type AB or Type B sheet metal screw.

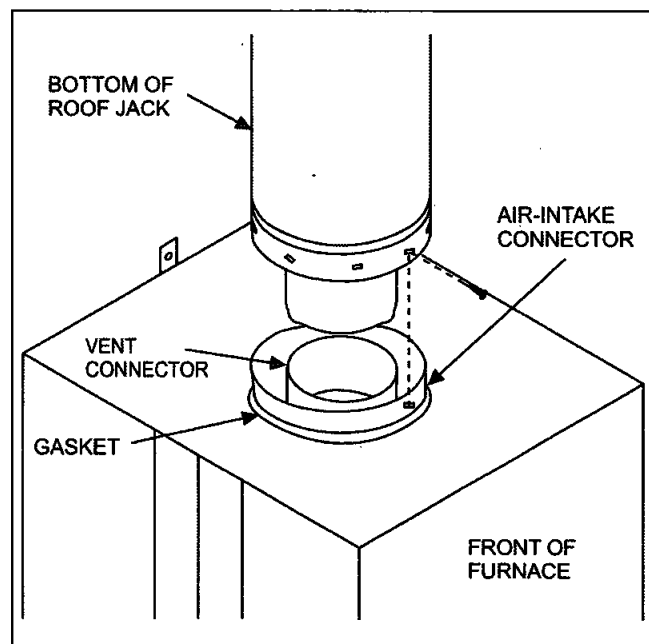


FIGURE 3 - Roof Jack Attachment to Furnace

Secure Roof Jack to Roof

1. Apply caulk or other sealant to underside of Roof Jack flashing.
2. Locate Roof Jack such that pipes are plumb.
3. Secure Roof Jack flashing with nails, screws or staples.
4. Install roofing material over Roof Jack flashing.
5. Seal Roof Jack swivel joint with silicone sealant or other sealant suitable for local weather conditions. Not required for Roof Jacks with fixed slant flashing.

Complete Installation, as required.

1. Install Exterior Roof Jack Extension, if applicable. Refer to installation instructions provided with Exterior Roof Jack Extension.
2. Install Crown Assembly, if applicable. Refer to installation instructions provided with Crown Assembly. If Crown Assembly is not installed, attach warning tags provided with Roof Jack to:
 - a. Fuel supply connection to the home.
 - b. Furnace gas valve (gas furnaces) or burner oil pump (oil furnaces).
 - c. Thermostat

▲WARNING

The Crown Assembly must be installed before operating furnace. Failure to install the Crown Assembly can result in fire, explosion, or asphyxiation.

3. Install Ceiling Ring. See Figure 4. Use three (3) sections of the Ceiling Ring to provide closer clearance around Roof Jack.

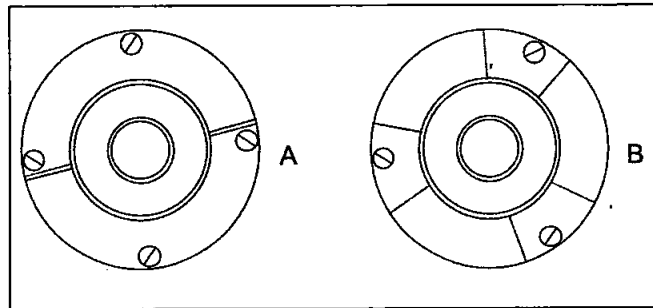


FIGURE 4 - Ceiling Ring

4. Place these instructions in the Customer Envelope provided with the furnace.