

BLOCK 1170.04 LOT 13 QUALIFICATION CODE _____ ADDRESS (SITE) 139 Walter Rd PERMIT NO. 98-1917



CONSTRUCTION PERMIT APPLICATION

Application Completes: Sections I, II, III (optional), IV, VI, and VII

I. IDENTIFICATION

1. Proposed Work Site at: 139 Walter Rd, Brick
2. Name of Owner in Fee: Morse Tel. () 458-9087
Address Stam street municipality zip code
3. Ownership in Fee: Public Private
4. Principal Contractor: AJ Perri Inc Tel. () 247-3131
Address 401 Hwy 35, Red Bank
License No. OR, if new home, Builder Reg. No. Exp. Date
Federal Employee No. 22-2203220 FAX: ()
5. Architect or Engineer Tel. ()
Address
6. Responsible Person in Charge of Work Rich Hulma
Tel. () FAX ()

V. FEE SUMMARY (for office use only)

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

VI. BUILDING/SITE CHARACTERISTICS

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

(office use only)

II. PROPOSED WORK

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

Est. Cost

OPTIONAL (for office use only)

Plans Rec'd by	Date Rec'd	Rejection Date	Approval Date	Re-viewer	Resubmission Dates Approval	Rejection	Re-viewer
wp	6/2/98						
resubmit	6/8/98		6/9/98	OK	7/22/98		OK
			6-10-98	OK	7/16/98		

TOTAL COSTS

4059.1

III. DO YOU WANT: (optional)

1. ☐ Partial Releases
2. ☐ Prototype Processing

IV. DOES OR WILL YOUR BUILDING CONTAIN ANY OF THE FOLLOWING?

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

VII. DESCRIPTION OF BUILDING USE

A. RESIDENTIAL

1. ☐ Hotels (R-1)
2. ☐ Multi-Family (R-2)
3. ☐ Two-Family (R-3) BOCA
4. ☐ Two-Family (R-4) CABO
5. ☒ One-Family (R-3) BOCA
6. ☐ One-Family (R-4) CABO

No. of dwelling units:

Before Construction

After Construction

Net Gain or Loss

B. NON-RESIDENTIAL

1. State Specific Use:

2. Use Group:

3. Change in Use Group, indicate Former:

LDS BR 10319872

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. 5:32-2.15(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 AT Perm, Inc
Address 401 Hwy 35
Reel Bank
Telephone () 247-3131
Signature Pace Hob

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
	Prelimin. Initial	Final Date	Prelimin. Initial	Final Date	Prelimin. Initial	Final Date	Prelimin. 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 _____ Other _____

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. <u>1912</u>	<u>7-29-98</u>	_____	_____
☐ Lead Abatement Clearance Certificate	No. _____	_____	_____	_____



CERTIFICATE

Date Issued 7-29-98
Control #
Permit # 98-1917

IDENTIFICATION

Block 1170.04 Lot 13
Work Site Location 139 Walter Road
Owner in Fee Morse
Address Same
Tele. ()
Contractor A.J. Perri, Inc.
Address 401 Hwy. 35
Red Bank, NJ
Tele. ()
Lic. No. or Bidr. Reg. No.
Federal Emp. No.
or Social Security No.

Home Warranty No. N/A
Use Group R-3 1 hour
Maximum Live Load
Description of Work/Use:

Replace gas furnace and air conditioner

Type of Warranty Plan: [] State [] Private
Construction Classification
Maximum Occupancy Load

CERTIFICATE OF OCCUPANCY/APPROVAL

☐ CERTIFICATE OF OCCUPANCY

☒ CERTIFICATE OF APPROVAL

This serves notice that said building, structure, or equipment has been constructed or installed in accordance with the New Jersey Uniform Construction Code, and is approved for use and/or occupancy.

☐ CERTIFICATE OF CONTINUED OCCUPANCY

This serves notice that based on a general inspection of the visible parts of the building there are no imminent hazards and the building is approved for continued occupancy.

☐ TEMPORARY CERTIFICATE OF OCCUPANCY

If this is a Temporary Certificate of Occupancy the following conditions must be met no later than , 19 or the owner will be subject to a fine or order to vacate:

Fee \$
Paid [] Check No.
Collected by:

CONSTRUCTION OFFICIAL



CONSTRUCTION PERMIT

Date Issued
Control #
Permit #

IDENTIFICATION Block 1170.04 Lot 13
Work Site Location 139 Walter Rd
Bricktown
Owner in Fee Morse
Address SAME
Contractor AJ Perri, Inc.
Address 401 Hwy 35
Red Bank
Tel. () 747-3131
Lic. No. or Bldrs. Reg. No.
Fed. Emp. No. 22-2203220

Is hereby granted permission to perform the following work:

- | | | |
|---|---|--|
| ☐ BUILDING | ☐ PLUMBING | ☐ LEAD HAZARD ABATEMENT |
| ☐ ELECTRICAL | ☐ FIRE PROTECTION | ☐ DEMOLITION |
| ☐ ELEVATOR DEVICES | ☐ ASBESTOS ABATEMENT | ☐ OTHER _____ |
- (Subchapter 8 only)

DESCRIPTION OF WORK:

gas furnace & AC Replacement

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.

Estimated Cost of Work \$ 4059.00

Construction Official

Date

PAYMENTS (Office Use Only)

Building _____
Electrical _____
Plumbing _____
Fire Protection _____
Elevator Devices _____
Other _____
DCA Training Fee _____
Cert. of Occupancy _____
Other _____
Total _____
Check No. _____
Cash _____
Collected by _____

U.C.C. F170
(rev. 3/96)

1 WHITE—INSPECTOR COPY 2 CANARY—OFFICE COPY 3 PINK—OFFICE COPY 4 GOLD—APPLICANT COPY

(see reverse side)

REQUIRED INSPECTIONS

Construction work must be inspected in accordance with the State Uniform Construction Code Regulations N.J.A.C. 5:23-2.18. This agency will carry out such periodic inspections during the progress of work as are necessary to insure that work installed conforms to the approved plans and the requirements of the Uniform Construction Code.

The owner or other responsible person in charge of work must notify this agency when work is ready for any required inspections specified below. Requests for inspections must be made at least 24 hours prior to the time the inspection is desired. Inspections will be performed within three business days of the time for which they are requested. The work must not proceed in a manner which will preclude the inspection until it has been made and approval given.

☐ Required inspections for all subcodes for one and two family dwellings are the following:

1. The bottom of footing trenches before placement of footings, except that in the case of pile foundations, inspections shall be made in accordance with the requirements of the building subcode;
2. Foundations and all walls up to grade level prior to back filling;
3. All structural framing and connections prior to covering with finish or infill material; plumbing underground services, rough piping, water service, sewer, septic services and storm drains; electrical rough wiring, panels and service installations; insulation installations;
4. Installation of all finished materials, sealings of exterior joints; plumbing piping, trim and fixtures; electrical wiring, devices and fixtures; mechanical systems equipment.

☐ Required special inspections. The applicant by accepting the permit will be deemed to have consented to these requirements:

☐ A final inspection is required for each applicable subcode area before a final Certificate of Occupancy or Approval may be issued.

☐ Any violations of the approved plans and/or permit will be noted and the holder of the permit notified of discrepancies.

☐ A complete copy of approved plans must be kept on the job site.

If you do not understand any of this information, please ask.

TOWNSHIP OF BRICK
401 CHAMBERS BRIDGE RD
DIVISION OF INSPECTIONS

UCC NEW JERSEY
CONSTRUCTION
PERMIT

IDENTIFICATION Block 1170.04 Lot 13

Work Site Location 139 HALTER RD
REPLACE FURNACE & A/C

Owner in Fee HORSE
Address SAME

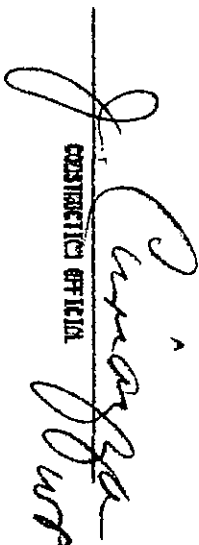
Telephone BRICK, NJ 08724-
(732)458-9087

Is hereby granted permission to perform the following work:
☐ BUILDING ☒ PLUMBING ☐ OTHER
☐ ELECTRICAL ☒ FIRE PROTECTION
☐ ELEVATOR DEVICES

DESCRIPTION OF WORK:

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.

Estimated Cost of Work \$ 4,159


CONSTRUCTION OFFICIAL

0002
981917*#

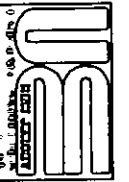
LOT	13 #	0.00
PLUMBING		35.00
FIRE		46.00
D.C.A.		3.00
TOTAL		84.00
CHECK		84.00
CHANGE		0.00
		10:25

06/16/98 NO. 5 0012A005

Date Issued 06/16/98
Control #
Permit # 98-1917

Contractor A.J. PERRI INC
Address 401 HIGHWAY 35
RED BANK, NJ 07701-
Telephone (908)747-3131
Lic. No. or Bldrs. Reg. No.
Federal Emp. No. 22-2203220
or Social Security No.

PAYMENTS (Office Use Only)
Building 0
Electrical 0
Plumbing 35
Fire Protection 46
Elevator Devices 0
Other
DCA Training Fee 3
Cert. of Occ. 0
Other
Total 84
Check No. 2572
Cash
Collected By: HP



FIRE SUBCODE TECHNICAL SECTION

6-16-98
98-1917

A. IDENTIFICATION- APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000.

Block 110-04 13

Work Site Location 139 Walter Rd

Owner in Fee Marce

Address same

Tele: (247) 3131

Contractor AT Penn, Inc

Address 401 Hwy 435

Tele: (247) 3131 Fax ()

Lic. No.

Federal Emp. No. 22-2203220

B. FIRE PROTECTION CHARACTERISTICS

Use Group Present Proposed

Constr. Class Present Proposed

Heating Systems ☐ New ☐ Existing ☐ HVAC

Type: ☐ Gas ☐ Oil ☐ Electric ☐ Solar

☐ Other

Location:

Total Cost of Fire Protection Work \$

Fire Alarm System New ☐ Existing ☐

Location of Panel:

Fire Suppression/Standpipe System New ☐ Existing ☐

Location of Main Control Valve:

JOB SUMMARY (Office Use Only)

PLAN REVIEW

☐ No Plans Required

Joint Plan Review Required:

☐ Building ☐ Plumbing

☐ Electric ☐ Elevator

☐ Fire Plans Approved

Date: 6/9/98

Approved by:

SUBCODE APPROVED

☐ CO ☐ CCO 4 PCA

Date: 7-22-98

Approved by: KEG

INSPECTIONS

Type:

Alarm System

Suppression Sys.

Standpipe

Fire Pump

Pre-Eng. System

Mechanical

Smoke Control

TCO

Final

Other

Dates (Month/Day)

Failure

Approval

Initial

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application.

Signature



Date Received 6-16-98
Date Issued
Control #
Permit # 98-1917

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK:

Water Supply Source

Method of Alarm/Suppression System Supervision

Storage Tanks

Type: ☐ Flammable Liquid ☐ Combustible Liquid

☐ LPG ☐ LNG Capacity Fuel

Alarm Systems ☐ 110v Interconnected NUMBER

☐ System

Alarm Devices (i.e., smoke, heat, pulls, water/flow)

Supervisory Devices (i.e., tamper, low/high air)

Signaling Devices (i.e., horn/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

Wet Chemical

Dry Chemical

CO₂ Suppression

Foam Suppression

Halon Suppression

Other

Kitchen Hood Exhaust System

Smoke Control System

Gas ☐ or ☐ Fired Appliances

Other

FEE (Office Use Only)

Administrative Surcharge \$

Minimum Fee \$

DCA Training Fee \$

TOTAL FEE \$

U.C.C. F140
(rev. 3/98)

- Chimney etc

- FIRE STOP



**PLUMBING
SUBCODE
TECHNICAL SECTION**



Date Received
Date Issued
Control #
Permit #
6-16-98
98-1917

A. IDENTIFICATION—APPLICANT: COMPLETE ALL APPLICABLE INFORMATION, WHEN CHANGING

CONTRACTORS, NOTIFY THIS OFFICE, CALL UTILITY DIG NO: 1-800-272-1000.
Block 1170 E 04 Lot 13
Work Location 139 Water Red.
Contractor Buck Horse
Owner in Fee Stanz
Address Stanz
Tele. () 758-9087
Contractor Bud Ellison
Address 401 Hwy 35
Tele. () 347-3131
Lic. No. 1375
Federal Emp. No. _____ or Social Security No. 155-22-2283

B. PLUMBING CHARACTERISTICS

Use Group Present _____ Proposed _____
Building Sewer Size _____ Public Sewer _____ Private Septic _____
Water Service Size _____ Public Water _____ Private Well _____
Estimated Cost of Plumbing Work \$ _____

JOB SUMMARY (Office Use Only)

PLAN REVIEW:		INSPECTIONS			
Type:		Failure	Dates (Month/Day)	Initial	
☒ No Plans Required	Slab				
☐ Joint Plan Review Required:	Rough				
☐ Bldg. () Elec.	Water				
☐ Fire () Elevator	Sewer				
☐ Plumb. Plans Approved	Fixtures				
Date: <u>6-10-98</u>	Gas Equipment				
Approved by: <u>[Signature]</u>	Solar				
SUBCODE APPROVAL:	TCO				
☐ CO () DCA	AL				
Approved By: <u>[Signature]</u>					
Date: <u>7-10-98</u>					

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of
record and am authorized to make this application
and perform the work listed on this application.

Signature—Contractor Seal
Bud Ellison

D. TECHNICAL SITE DATA (List all fixtures.)

NO.	FIXTURE/EQUIPMENT	FEE (Office Use Only)
	Water Closet	
	Urinal/Bidet	
	Bath Tub	
	Lavatory	
	Shower	
	Floor Drain	
	Sink	
	Dishwasher	
	Drinking Fountain	
	Washing Machine	
	Hose Bibb	
	Water Heater	
	Fuel Oil Piping	
☒	Gas-Firing Furnace Replace	
	Steam Boiler	
	Hot Water Boiler	
	Sewer Pump	
	Interceptor/Separator	
	Backflow Preventer	
	Greasetrap	
	Water-Cooled A/C	
	or Refrigeration Unit	
	Sewer Connection	
	Water Service Connection	
	Active Solar System	
	Other	

Paid ☐ Check # _____	Administrative Surcharge \$ _____
	Minimum Fee \$ _____
	DCA Training Fee \$ _____
Collected by: _____	TOTAL \$ _____

ELITE 80™ SERIES UP-FLOW

80.1% to 80.8% A.F.U.E.

50,000 to 100,000 Btuh (14.7 to 29.3 kW) Input

G23(X)

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February 1997

Supersedes March 1996



STANDARD FEATURES

- Fully Insulated Cabinet
- DURALOK™ Aluminized Steel Heat Exchanger
- Aluminized Steel Low Sound Burners
- Multi-speed Leadless Blower
- Induced Draft Blower With Patented Sound Enclosure
- 40VA Control Transformer
- Electronic Pilot Ignition
- Low NO_x Emissions
- Automatic Gas Control Valve
- 100% Safety Shutoff
- WatchGuard Circuit
- Flame Rollout Switch
- Blocked Vent Shutoff Sensor
- Limit Control
- BCC3 Electronic Blower Control
- Circuit Breaker Protected Control Circuit
- Field Wiring Make-up Box Furnished

OPTIONAL EQUIPMENT

- Thermostat – Thermostats & Controls Tab
- Evaporator Coils – Coils - Blower Coil Units Tab
- Condensing Units – Condensing Units Tab
- Humidifiers – Accessories Tab
- Electronic Air Cleaners – Accessories tab

SPECIFICATIONS AND DIMENSIONS

Model No.		G23Q2(X)-50	G23Q3(X)-50	G23Q2/3(X)-75	G23Q4/5(X)-75	G23Q3(X)-100
Input – Btuh (kW)		50,000 (14.7)	50,000 (14.7)	75,000 (22.0)	75,000 (22.0)	100,000 (29.3)
Output – Btuh (kW)		40,000 (11.7)	40,000 (11.7)	61,000 (17.9)	61,000 (17.9)	80,000 (23.4)
★A.F.U.E./◇California Seasonal Efficiency		80.7% / 75.5%	80.8% / 75.6%	80.4% / 76.9%	80.4% / 74.2%	80.1% / 76.6%
High static (A.G.A.) – in. wg. (Pa)		.50 (125)				
Temperature rise range – °F (°C)		30 – 60 (17 – 33)		35 – 65 (19 – 36)	20 – 50 (11 – 28)	45 – 75 (25 – 42)
Air volume range – cfm (L/s)		445 – 1225 (210 – 580)	535 – 1620 (255 – 765)	555 – 1600 (260 – 755)	1160 – 2365 (545 – 1115)	650 – 1615 (305 – 760)
Flue connection – in. (mm) dia. round		3 (76)		4 (102)		
Gas pipe size I.P.S. – in. (mm)		1/2 (13)				
Blower wheel nom. dia. & width – in. (mm)		10 x 7 (254 x 178)	10 x 8 (254 x 203)		11-1/2 x 9 (292 x 229)	10 x 8 (254 x 203)
Blower motor output – hp (W)		1/5 (149)	1/3 (249)		3/4 (560)	1/3 (249)
Tons (kW) of add-on cooling		1 to 2 (3.5 to 7)	1 to 3 (3.5 to 10.6)		3.5 to 5 (12.3 to 17.6)	1 to 3 (3.5 to 10.6)
Electrical characteristics		120 volts – 60 hertz – 1 phase (All models) (less than 12 amps)				
Dimensions – in. (mm) H x W x D		40 x 16-1/4 x 28-1/2 (1016 x 413 x 724)			46 x 21-1/4 x 28-1/2 (1168 x 540 x 724)	40 x 21-1/4 x 28-1/2 (1016 x 540 x 724)
Warm Air opening size – in. (mm)		18-7/8 x 14-1/8 (480 x 359)			18-7/8 x 19-1/8 (480 x 486)	18-7/8 x 19-1/8 (480 x 486)
Return Air opening size – in. (mm)	Sides	23 x 12 (584 x 305)			23 x 18 (584 x 457)	23 x 14 (584 x 356)
	Bottom	23 x 12 (584 x 305)			23 x 18 (584 x 457)	23 x 14 (584 x 356)
Shipping weight – lbs. (kg.) 1 package		135 (61)	140 (64)	146 (66)	186 (84)	159 (72)

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

LPG/Propane kit	Standard models	71K82		
	"X" models	15K01	15K02	15K03
Horizontal Power Venting Kit		79J15 – 25 lbs. (11 kg) all models		
Twinning Kits	Non-continuous low speed	LB-63093B (64H88) – 11 lbs. (5 kg) all models		
	Continuous low speed	LB-63093C (35J93) – 11 lbs. (5 kg) all models		
Continuous Low Speed Blower Switch		44J06 (all models) Not used with Twinning Kits		
Filter and Filter Rack Kits †No. & size of filters – in. (mm)		Single (44J20) Ten Pack (66K61) (1) 14 x 25 x 1 (356 x 635 x 25)	Single (44J21) Ten Pack (66K62) (1) 20 x 25 x 1 (508 x 635 x 25)	Single (44J22) Ten Pack (66K63) (1) 16 x 25 x 1 (406 x 635 x 25)
‡High Altitude Pressure Switch Kit		97J50		

★Annual Fuel Utilization Efficiency based on DOE test procedures and according to FTC labeling regulations. Isolated combustion system rating for non-weatherized furnaces.

◇"X" models meet California Nitrogen Oxides (NO_x) Standard and California Seasonal Efficiency requirements.

†Cleanable polyurethane frame type filter.

‡Required for proper operation at altitudes over 5000 ft. (1525 m).

Continued on Next Page ►

NOTE – Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.
©1997 Lennox Industries Inc. ◇Canadian usage only



ELITE 80™ SERIES UP-FLOW

80.0% to 80.7% A.F.U.E.

100,000 to 150,000 Btuh (29.3 to 44.0 kW) Input

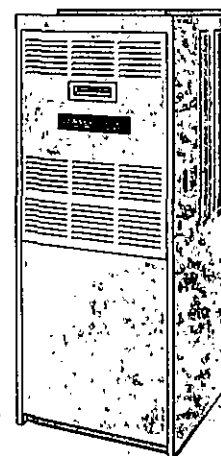


STANDARD FEATURES

- Fully Insulated Cabinet
- DURALOK™ Aluminized Steel Heat Exchanger
- Aluminized Steel Low Sound Burners
- Multi-speed Leadless Blower
- Induced Draft Blower With Patented Sound Enclosure
- 40VA Control Transformer
- Electronic Pilot Ignition
- Low NO_x Emissions
- Automatic Gas Control Valve
- 100% Safety Shutoff
- WatchGuard Circuit
- Flame Rollout Switch
- Blocked Vent Shutoff Sensor
- Limit Control
- BCC3 Electronic Blower Control
- Circuit Breaker Protected Control Circuit
- Field Wiring Make-up Box Furnished

OPTIONAL EQUIPMENT

- Thermostat – Thermostats & Controls Tab
- Evaporator Coils – Coils - Blower Coil Units Tab
- Condensing Units – Condensing Units Tab
- Humidifiers – Accessories Tab
- Electronic Air Cleaners – Accessories tab



SPECIFICATIONS AND DIMENSIONS

Model No.		G23Q3/4(X)-100	G23Q4/5(X)-100	G23Q3/4(X)-125	G23Q5/6(X)-125	G23Q5/6(X)-150
Input – Btuh (kW)		100,000 (29.3)	100,000 (29.3)	125,000 (36.6)	125,000 (36.6)	150,000 (44.0)
Output – Btuh (kW)		80,000 (23.4)	81,000 (23.7)	100,000 (29.3)	100,000 (29.3)	120,000 (35.2)
★A.F.U.E./◇California Seasonal Efficiency		80.7% / 77.3%	80.1% / 75.9%	80.0% / 76.3%	80.4% / 76.8%	80.0% / 76.8%
High static (A.G.A.) – in. wg. (Pa)		.50 (125)				
Temperature rise range – °F (°C)		40 – 70 (22 – 39)	30 – 60 (17 – 33)	45 – 75 (25 – 42)	35 – 65 (20 – 36)	40 – 70 (22 – 39)
Air volume range – cfm (L/s)		895 – 1970 (420 – 930)	1170 – 2465 (550 – 1165)	780 – 1980 (370 – 935)	1200 – 2460 (565 – 1160)	1100 – 2565 (520 – 1210)
Flue connection – in. (mm) dia. round		4 (102)		5 (127)		
Gas pipe size I.P.S. – in. (mm)		1/2 (13)				
Blower wheel nom. dia. & width – in. (mm)		10 x 8 (254 x 203)	11-1/2 x 9 (292 x 229)	10 x 10 (254 x 254)	12 x 12 (305 x 305)	
Blower motor output – hp (W)		1/2 (373)	3/4 (560)	1/2 (373)	3/4 (560)	3/4 (560)
Tons (kW) of add-on cooling		2 to 4 (7.0 to 14.1)	3.5 to 5 (12.3 to 17.6)	2 to 4 (7.0 to 14.1)	5 and 6 (17.6 and 21.1)	5 and 6 (17.6 and 21.1)
Electrical characteristics		120 volts – 60 hertz – 1 phase (All models) (less than 12 amps)				
Dimensions – in. (mm) H x W x D		46 x 21-1/4 x 28-1/2 (1168 x 540 x 724)			46 x 26-1/4 x 28-1/2 (1168 x 667 x 724)	
Warm Air opening size – in. (mm)		18-7/8 x 19-1/8 (479 x 486)			18-7/8 x 24-1/8 (479 x 613)	
Return Air opening size – in. (mm)	Sides	23 x 18 (584 x 457)				
	Bottom	23 x 18 (584 x 457)				
Shipping weight – lbs. (kg.) 1 package		143 (65)	167 (76)	195 (89)	218 (99)	223 (101)

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

LPG/Propane Kit	Standard models	71K82		
	"X" models	15K03	15K04	15K05
Horizontal Power Venting Kit		79J15 – 25 lbs. (11 kg) all models		
Twinning Kits	Non-continuous low speed	LB-63093B (64H88) – 11 lbs. (5 kg) all models		
	Continuous low speed	LB-63093C (35J93) – 11 lbs. (5 kg) all models		
Continuous Low Speed Blower Switch		44J06 (all models) Not used with Twinning Kits		
Filter and Filter Rack Kits ‡No. & size of filters – in. (mm)		Single (44J21) Ten Pack (66K62) (1) 20 x 25 x 1 (508 x 635 x 25)		
□High Altitude Pressure Switch Kits		97J50		67K30

★Annual Fuel Utilization Efficiency based on DOE test procedures and according to FTC labeling regulations. Isolated combustion system rating for non-weatherized furnaces.
 ◇"X" models meets California Nitrogen Oxides (NO_x) Standard and California Seasonal Efficiency requirements.
 ‡Cleanable polyurethane frame type filter.
 □Required for proper operation at altitudes over 5000 ft. (1525 m).

NOTE – Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.
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CHIMNEY CERTIFICATION FOR REPLACEMENT OF
FUEL FIRED EQUIPMENT

BLOCK: 1170.04

LOT: 13

PERMIT#: _____

WORKSITE ADDRESS: _____

Certifying Individual(Print Name)

Name: Chris Byrne

Address _____

Street: 401 Hwy 35

State: New Jersey

Company

Name: HJ Pern, Inc

City: Red Bank

Zip: 07701

Phone: (732) 747-3131

Check The Appropriate Box

Type of replacement:

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

☐ Other (describe): _____

Existing vent/chimney:

- ☐ B label vent
☐ L label vent
☒ Masonry chimney-Tile lined
☐ Flexible liner
☐ Power vent/exhauster
☐ Other (describe): _____

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.

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:

Signature

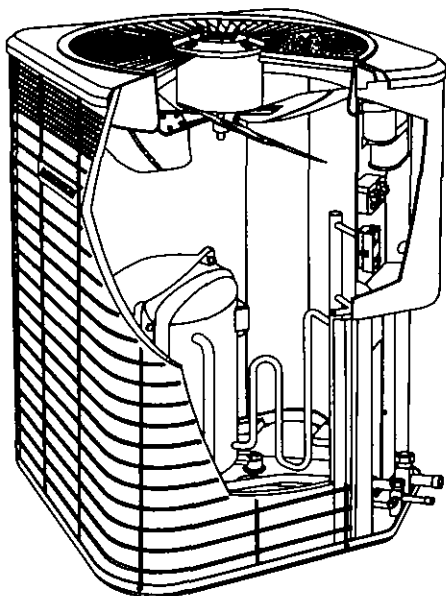
Date

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

LENNOX®

PRODUCT LITERATURE

©1994 Lennox Industries Inc.
Dallas, Texas



ELITE 10™ CONDENSING UNIT

Elite 10 condensing units are designed for expansion valve (TXV) and RFC systems. Refer to Lennox engineering handbook for expansion valve kits which must be ordered separately.

SHIPPING AND PACKING LIST

- 1- Assembled HS29 condensing unit
- 1- Thermometer well (field-installed)
- 1- 45° copper street elbow
- 1- RFCIV refrigerant metering device (bullet)
- 1- Coupling, 5/16 x 3/8" (211, 261, 311)

Check unit for shipping damage. Consult last carrier immediately if damage is found.

GENERAL INFORMATION

These instructions are intended as a general guide and do not supersede national or local codes in any way. Authorities having jurisdiction should be consulted before installation.

⚠ IMPORTANT

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFC's and HCFC's) as of July 1, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incarceration may be levied for non-compliance.

INSTALLATION INSTRUCTIONS

Elite™ Series HS29 Condensing Units

CONDENSING UNITS
1-1/2 through 5 ton
503,139M
11/94

TTP Technical
Publications
Litho U.S.A.

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RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

⚠ WARNING

Product contains fiberglass wool.

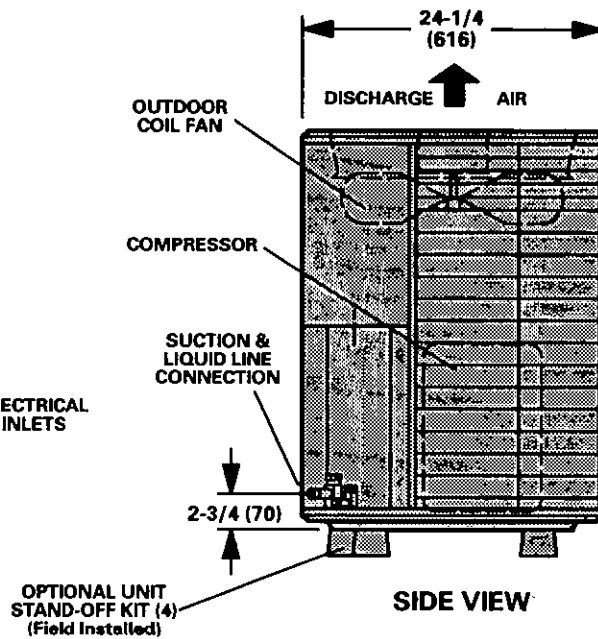
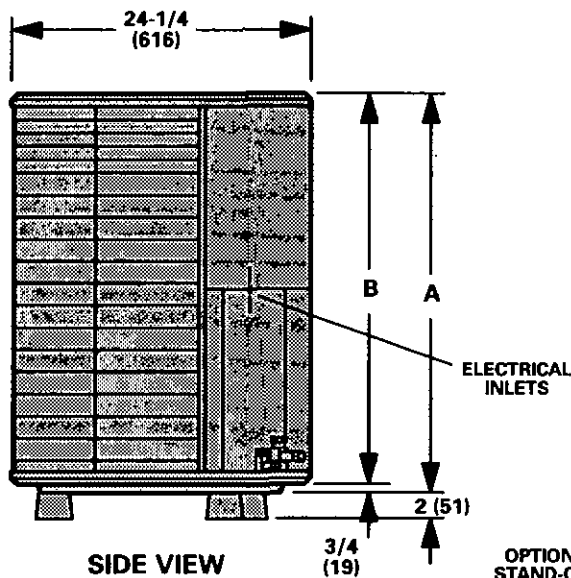
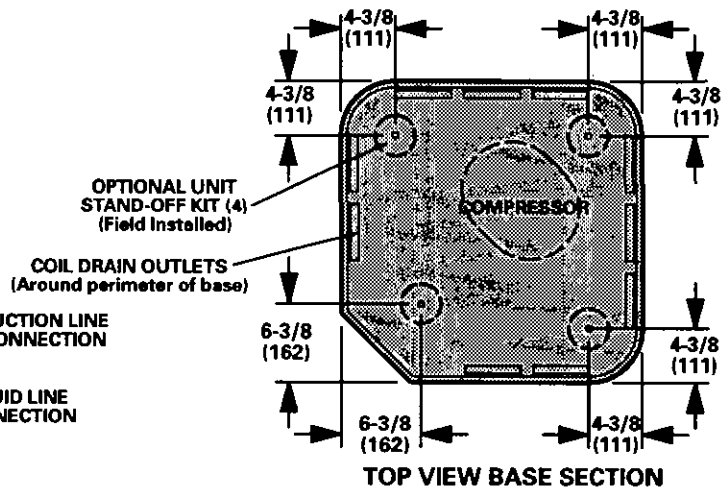
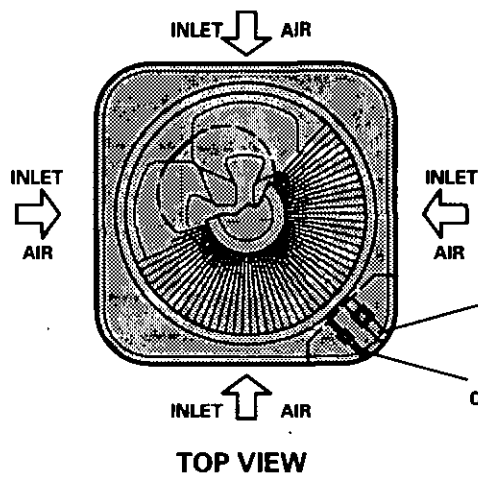
Disturbing the insulation in this product during installation, maintenance, or repair will expose you to fiberglass wool. Breathing this may cause lung cancer. (Fiberglass wool is known to the State of California to cause cancer.)

Fiberglass wool may also cause respiratory, skin, and eye irritation.

To reduce exposure to this substance or for further information, consult material safety data sheets available from address shown below, or contact your supervisor.

Lennox Industries Inc.
P.O. Box 799900
Dallas, TX 75379-9900

HS29 UNIT DIMENSIONS-INCHES (MM)



Model No.		A	B
HS29-211 HS29-261	in.	25	24-1/4
	mm	635	616
HS29-311	in.	29	28-1/4
	mm	737	718
HS29-411-413 HS29-461-463 HS29-511-513 HS29-651-653	in.	33	32-1/4
	mm	838	819

SETTING THE UNIT

Refer to unit dimensions on page 2 for sizing mounting slab, platforms or supports. Refer to figure 1 for installation clearances.

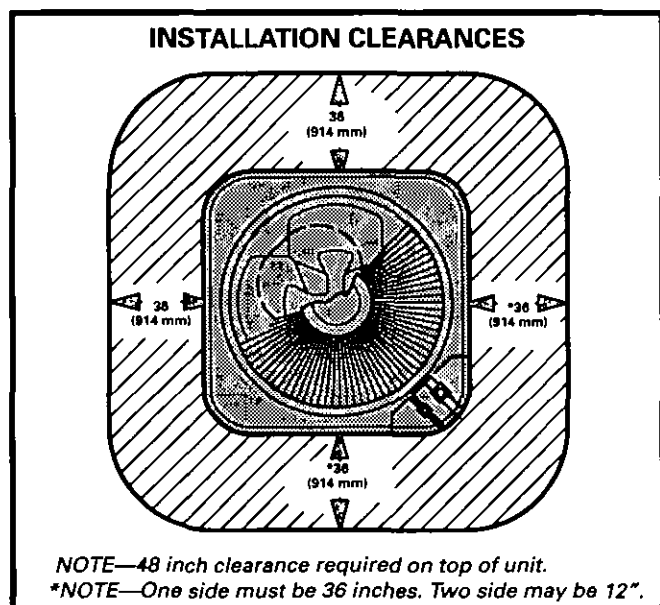


FIGURE 1

Slab Mounting

When installing unit at grade level, install on a level slab high enough above grade to allow adequate drainage of water. Top of slab should be located so run-off water from higher ground will not collect around unit.

Roof Mounting

Install unit at a minimum of 4 inches above the surface of the roof. Care must be taken to ensure weight of unit is properly distributed over roof joists and rafters. Either redwood or steel supports are recommended.

ELECTRICAL

Wiring must conform to current standards of the National Electric Code (NEC), Canadian Electrical Code (CEC) and local codes. Refer to the furnace or blower coil installation instructions for additional wiring application diagrams and refer to unit rating plate for minimum circuit ampacity and maximum overcurrent protection size.

WARNING

Unit must be grounded in accordance with national and local codes. Electric Shock Hazard. Can cause injury or death.

Line Voltage

To facilitate conduit, a hole is provided in bottom of the control box. Connect conduit to hole in control box with proper conduit fitting.

NOTE—Units are approved for use with copper conductors only.

24V, Class II Circuit

24V, Class II Circuit connections are made up in the low voltage junction box. Refer to figure 2 for field wiring diagram.

NOTE—A complete unit wiring diagram is located inside the unit control box cover.

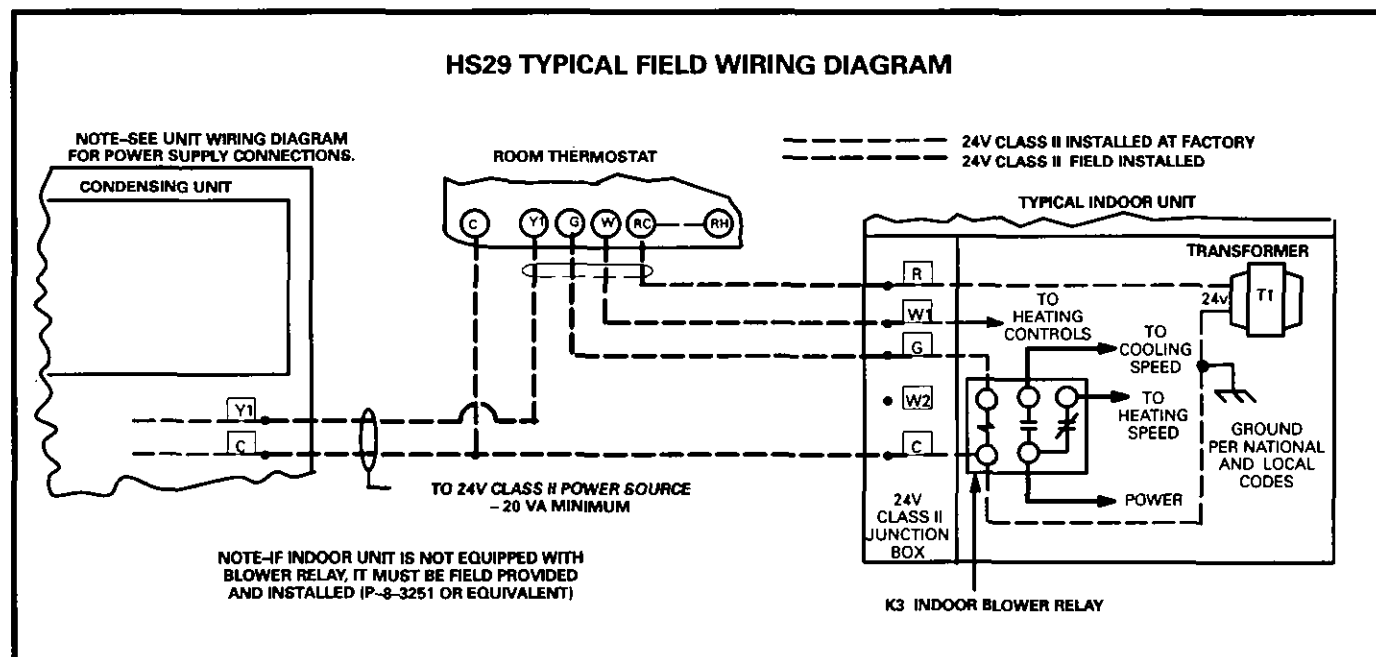


FIGURE 2

PLUMBING

Field refrigerant piping consists of liquid and suction lines from the condensing unit (sweat connections) to the indoor evaporator coil (flare or sweat connections). Use Lennox L10 (flare) or L15 (sweat, non-flare) series line sets as shown in table 1 or use field-fabricated refrigerant lines. Refer to unit information manual piping section for proper size, type and application of field-fabricated lines.

Sweat Connection Procedure

- 1- Ends of refrigerant lines must be cut square, free from nicks or dents, deburred. Pipe must remain round, do not pinch end of line.
- 2- The thermometer well (packaged separately) should be installed in the liquid line close to the HS29 unit as shown in figure 3. Connect thermometer well male end to female end of liquid valve. Take care to install thermometer well so that the thermometer can be inserted and read easily. Wrap a wet cloth around the liquid line valve body and copper tube stub to protect from heat damage during brazing. Wrap another wet cloth underneath the liquid valve to protect the base paint.

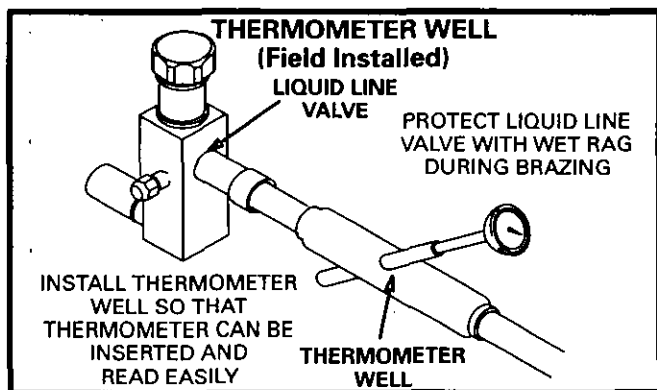


FIGURE 3

- 3- Quench the joints with a wet cloth to prevent possible heat damage to the valve core and opening port.
- 4- A field provided filter drier should be installed as close as possible to the expansion device.

REFRIGERANT METERING DEVICE

HS29 units are applicable to either RFCIV or an expansion-valve system. See indoor coil installation instructions and the Lennox engineering handbook for approved RFC and TXV match-ups and application information. Table 1 lists HS29 unit liquid and suction line sizes and corresponding line sets.

NOTE—Line length should be no greater than 50 feet (15.2 m). Select line set diameters from table 1 to ensure oil return to compressor.

TABLE 1
REFRIGERANT LINE KITS

UNIT	LIQUID LINE	SUCTION LINE	L10 LINE SETS	L15 LINE SETS
-211	5/16 in* (8 mm)	5/8 in (16 mm)	L10-21 20 ft. - 50 ft. (6 m - 15 m)	L15-21 20 ft. - 50 ft. (6 m - 15 m)
-261				L15-21 20 ft. - 50 ft. (6 m - 15 m)
-311	5/16 in* (8 mm)	3/4 in. (19 mm)	FIELD FABRICATED	L15-31 20 ft. - 50 ft. (6 m - 15 m)
-410	3/8 in (10 mm)	3/4 in. (19 mm)	L10-41 20 ft. - 50 ft. (6 m - 15 m)	L15-41 20 ft. - 50 ft. (6 m - 15 m)
-460	3/8 in (10 mm)	7/8 in. (22 mm)	L10-65 30 ft. - 50 ft. (9 m - 15 m)	L15-65 30 ft. - 50 ft. (9 m - 15 m)
-510				L15-65 30 ft. - 50 ft. (9 m - 15 m)
-650	3/8 in (10 mm)	1-1/8 in. (29 mm)	FIELD FABRICATED	FIELD FABRICATED

*Use reducer supplied in bag assembly.

RFC Systems

HS29 units are shipped with an RFCIV metering device. Replace existing RFCIV in indoor unit with RFCIV supplied with the outdoor unit. Place the supplied RFCIV sticker on indoor cabinet after installation. See table 2 for size of RFCIV bullet shipped in each HS29 unit. In cases of non-traditional applications, RFCIV bullet shipped may not be appropriate. Refer to the indoor coil installation instructions and the engineering handbook for specific orifice information.

TABLE 2
RFCIV DRILL SIZES

HS29 UNIT	RFCIV PART #	RFCIV DRILL SIZE
HS29-211	42J39	0.055
HS29-261	66J87	0.062
HS29-311	42J44	0.065
HS29-410	42J49	0.074
HS29-460	42J52	0.080
HS29-510	42J55	0.086

NOTE—RFC bullet not used on five-ton units.

RFCIV bullet is installed as shown in figure 4. Take care not to twist cap tubes when loosening seal nut from orifice body.

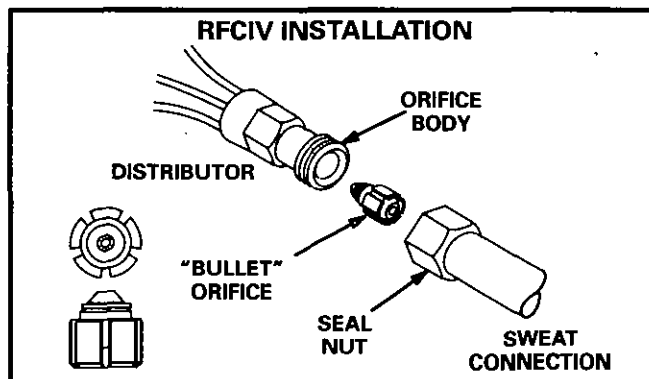


FIGURE 4

Expansion Valve Systems

Expansion valves equipped with either "Chatleff" or flare type fittings are available from Lennox. Refer to the indoor coil installation instructions or the engineering handbook for applicable expansion valves for use with specific match-ups.

If an expansion valve application is desired with indoor coil product shipped with an RFCIV orifice, the RFCIV restrictor must be removed before installing the expansion valve.

⚠ IMPORTANT

Failure to remove RFCIV when installing an expansion valve to the indoor coil will result in improper operation and damage to the system.

MANIFOLD GAUGE SET

A manifold gauge set equipped with "low loss" hoses should be used when checking unit charge. A manifold gauge set with anything other than "low loss" hose should not be used.

LIQUID & SUCTION LINE SERVICE VALVES

The liquid line and suction line service valves (figures 5 and 6) and gauge ports are accessible from outside the unit. The service ports are used for leak testing, evacuating, charging and checking charge.

The valve is equipped with a service port. A schrader valve is factory installed. A service port cap is supplied to protect the schrader valve from contamination and serve as the primary leak seal.

To Access Schrader Port:

- 1- Remove service port cap with an adjustable wrench.
- 2- Connect gauge to the service port.
- 3- When testing is completed, replace service port cap. Tighten finger tight, then an additional 1/6 turn.

To Open Liquid or Suction Line Service Valve:

- 1- Remove stem cap with an adjustable wrench.

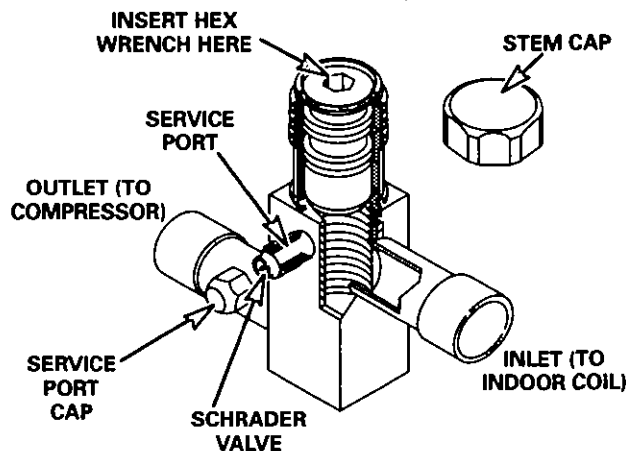
- 2- Using service wrench and 5/16" hex head extension back the stem out counterclockwise until the valve stem just touches the retaining ring.

⚠ DANGER

Do not attempt to backseat this valve. Attempts to backseat this valve will cause snap ring to explode from valve body under pressure of refrigerant. Personal injury and unit damage will result.

- 3- Replace stem cap tighten firmly. Tighten finger tight, then tighten an additional 1/6 turn.

LIQUID LINE SERVICE VALVE (VALVE OPEN)



LIQUID LINE SERVICE VALVE (VALVE CLOSED)

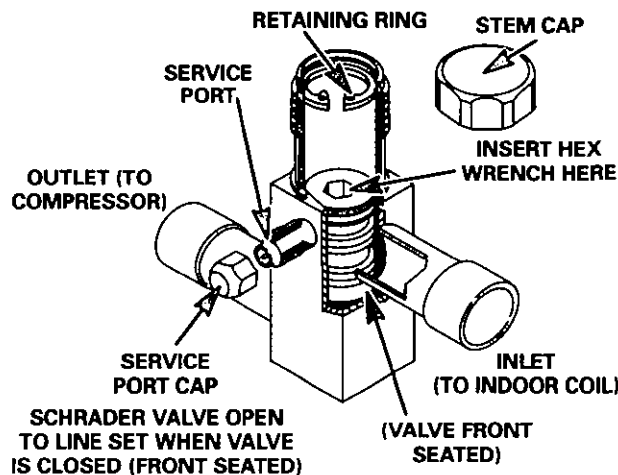


FIGURE 5

To Close Liquid or Suction Line Service Valve:

- 1- Remove stem cap with an adjustable wrench.
- 2- Using service wrench and 5/16" hex head extension, turn stem clockwise to seat the valve. Tighten firmly.
- 3- Replace stem cap. Tighten finger tight, then tighten an additional 1/6 turn.

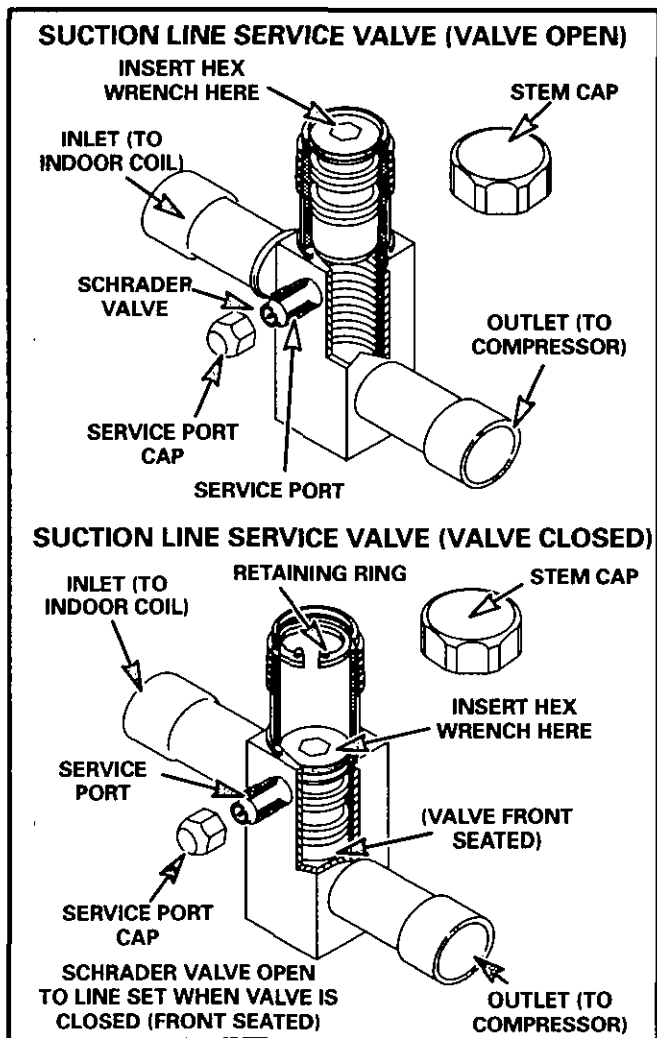


FIGURE 6

LEAK TESTING

After the line set has been connected to the indoor and outdoor units, the line set connections and indoor unit must be checked for leaks.

⚠ WARNING

Never use oxygen to pressurize refrigeration or air conditioning system. Oxygen will explode on contact with oil and could cause personal injury. When using high pressure gas such as nitrogen or CO₂ for this purpose, be sure to use a regulator that can control the pressure down to 1 or 2 psig.

Using an Electronic Leak Detector or Halide

- 1- Connect a cylinder of nitrogen with a pressure regulating valve to the center port of the manifold gauge set.
- 2- Connect the high pressure hose of the manifold gauge set to the service port of the suction valve. *(Normally, the high pressure hose is connected to the liquid line port, however, connecting it to the suction port better protects the manifold gauge set from high pressure damage.)*
- 3- With both manifold valves closed, open the valve on the R22 bottle (vapor only).
- 4- Open the high pressure side of the manifold to allow R22 into the line set and indoor unit. Weigh in a trace amount of R22. *(A trace amount is a maximum of 2 ounces or 3 pounds pressure.)* Close the valve on the R22 bottle and the valve on the high pressure side of the manifold gauge set. Disconnect R22 bottle.
- 5- Adjust nitrogen pressure to 150 psig. Open the valve on the high side of the manifold gauge set which will pressurize line set and indoor unit.
- 6- After a short period of time, open a refrigerant port to make sure the refrigerant added is adequate to be detected. *(Amounts of refrigerant will vary with line lengths.)* Check all joints for leaks. Purge nitrogen and R22 mixture. Correct any leaks and recheck.

EVACUATING

Evacuating the system of non-condensables is critical for proper operation of the unit. Non-condensables are defined as any gas that will not condense under temperatures and pressures present during operation of an air conditioning system. Non-condensables and water vapor combine with refrigerant to produce substances that corrode copper piping and compressor parts.

- 1- Connect manifold gauge set to the service valve ports as follows: low pressure gauge to suction line service valve; high pressure gauge to liquid line service valve.
- 2- Connect the vacuum pump (with vacuum gauge) to the center port of the manifold gauge set.
- 3- Open both manifold valves and start vacuum pump.
- 4- Evacuate the line set and indoor unit to an **absolute pressure** of 23mm of mercury or approximately 1 inch of mercury. During the early stages of evacuation, it is desirable to close the manifold gauge valve at least once to determine if there is a rapid rise in **absolute pressure**. A rapid rise in pressure indicates a relatively large leak. If this occurs, the leak testing procedure must be repeated.

*NOTE - The term **absolute pressure** means the total actual pressure within a given volume or system, above the absolute zero of pressure. Absolute pressure in a vacuum is equal to atmospheric pressure minus vacuum pressure.*

- 5- When the absolute pressure reaches 23mm of mercury, close the manifold gauge valves, turn off the vacuum pump and disconnect the manifold gauge center port hose from vacuum pump. Attach the manifold center port hose to a nitrogen cylinder with pressure regulator set to 150 psig and purge the hose. Open the manifold gauge valves to break the vacuum in the line set and indoor unit. Close the manifold gauge valves.

CAUTION

Danger of Equipment Damage.
Avoid deep vacuum operation. Do not use compressors to evacuate a system.
Extremely low vacuums can cause internal arcing and compressor failure.
Damage caused by deep vacuum operation will void warranty.

- 6- Shut off the nitrogen cylinder and remove the manifold gauge hose from the cylinder. Open the manifold gauge valves to release the nitrogen from the line set and indoor unit.
- 7- Reconnect the manifold gauge to the vacuum pump, turn the pump on and continue to evacuate the line set and indoor unit until the absolute pressure does not rise above .5mm of mercury within a 20 minute period after shutting off the vacuum pump and closing the manifold gauge valves.
- 8- Depending on the equipment used to determine the vacuum level, the following units are equivalent to absolute pressure of .5mm of mercury or 500 microns.
- 9- When the absolute pressure requirement above has been met, disconnect the manifold hose from the vacuum pump and connect it to an upright bottle of R22 refrigerant. Open the manifold gauge valves to break the vacuum in the line set and indoor unit. Close manifold gauge valves and shut off R22 bottle and remove manifold gauge set.

START-UP

IMPORTANT

Crankcase heater (used on 3-1/2, 4 and 5 ton units) should be energized 24 hours before unit start-up to prevent compressor damage as a result of slugging.

- 1- Rotate fan to check for frozen bearings or binding.
- 2- Inspect all factory and field-installed wiring for loose connections.
- 3- After evacuation is complete, open liquid line and suction line service valves to release refrigerant charge (contained in condensing unit) into the system.
- 4- Replace stem caps and secure finger tight, then tighten an additional (1/6) one-sixth of a turn.
- 5- Check voltage supply at the disconnect switch. The voltage must be within the range listed on unit nameplate. If not, do not start the equipment until the power company has been consulted and the voltage condition corrected.
- 6- Set the thermostat for cooling demand, turn on power to evaporator blower and close condensing unit disconnect switch to start unit.

- 7- Recheck voltage with unit running. Power must be within range shown on nameplate. Check amperage draw of unit. Refer to unit nameplate for correct running amps.

CHARGING CONSIDERATIONS

Units are factory charged with the amount of R22 refrigerant indicated on the unit rating plate. This charge is based on a matching indoor coil and outdoor coil with 20 ft. (6096 mm) line set. For varying lengths of line set, refer to table 3 for refrigerant charge adjustment. A blank space is provided on the rating plate to list the actual field charge.

TABLE 3

Liquid Line Set Diameter	Ozs. per 5 ft. (ml per mm) adjust from 20 ft. (6096 mm) line set*
5/16 in. (8mm)	2 ounce per 5 ft. (60ml per 1524 mm)
3/8 in. (10mm)	3 ounce per 5 ft. (90ml per 1524 mm)

*If line length is greater than 20 feet (6096 mm), add this amount. If line length is less than 20 feet (6096 mm), subtract this amount.

If the system is void of refrigerant, the recommended and most accurate method of charging is to weigh the refrigerant into the unit according to the total amount shown on the unit nameplate. This may be done after any leaks have been repaired. If weighing facilities are not available or if unit is just low on charge, use one of the procedures outlined.

Charging a condensing unit is recommended during warm weather. However, applications arise in which charging must occur in the colder months. *The way the unit is charged depends on the unit's refrigerant metering device and the outdoor ambient temperature.*

For RFC systems, **weighing in the charge** and **Subcooling** are two acceptable means of charging under certain conditions. For installations of an RFC system where the outdoor ambient is less than 60°F, weighing in the charge is the best method. However, in installations where the outdoor ambient is 60°F or above, subcooling is the best method.

The "**weighing in the charge**" and the **Approach** methods are the two recommended procedures for charging the HS29 using an expansion valve system for refrigerant metering. The difference between the two involves the outdoor ambient temperature. For expansion valve systems where the outdoor ambient temperature is 60°F or above, the Approach method may be used. For expansion valve systems where the outdoor ambient temperature is below 60°F, weighing in the charge is recommended.

Before charging the unit, follow the procedure below to determine: the liquid line temperature and the outdoor ambient temperature.

- 1- Connect manifold gauge set to service valves: low pressure gauge to suction valve service port; high pressure gauge to liquid valve service port. Connect the center manifold hose to an upright bottle of R22. Close manifold gauge set valves.
- 2- Set the room thermostat to call for heat. This will create the necessary load for properly charging the system in the cooling cycle.
- 3- Fill the thermometer well with mineral oil.
- 4- Record the outdoor ambient temperature. For greater accuracy, use the same thermometer to measure liquid temperature.
- 5- When thermostat demand has been satisfied, switch to cooling mode with a set point of 68°F. When pressures have stabilized, place the thermometer in thermometer well and record the liquid line temperature.
- 6- The outdoor temperature will determine which charging method to use. Proceed with the appropriate charging procedure below.

CHARGING FOR RFC SYSTEMS

Weighing in the Charge Method

RFC Systems, < 60°F Outdoor Temp

- 1- Recover the refrigerant from the unit.
- 2- Conduct a leak check, then evacuate as previously outlined.
- 3- Weigh in the factory charge as shown on the outdoor unit's rating plate.

The Subcooling Method

RFC Systems, ≥ 60°F Outdoor Temp

- 1- With the manifold gauge hose still on the liquid service port and the unit operating stably, record the liquid line temperature.
- 2- At the same time, record the liquid line pressure reading.
- 3- Using a temperature/pressure chart for R22, determine the saturation temperature for the liquid line pressure reading.
- 4- Subtract the liquid line temperature from the saturation temperature (according to the chart) to determine subcooling. (**Saturation temperature - Liquid line temperature = Subcooling**)
- 5- Compare the subcooling value with those in table 4. If subcooling is greater than shown, some refrigerant must be recovered. If subcooling is less than shown, some refrigerant must be added.

**TABLE 4
SUBCOOLING FOR RFC SYSTEMS**

OUTDOOR TEMP. (°F)	LIQUID SUBCOOLING (± 1°F)					
	-211	-261	-311	-410	-460	-510
60	15	14	16	14	16	21
65	14	12	15	13	15	20
70	13	10	14	12	14	19
75	12	8	13	10	13	17
80	11	7	12	9	12	16
85	10	6	11	8	11	15
90	9	5	10	7	10	14
95	7	4	9	6	9	13
100	6	3	8	5	8	12
105	5	2	7	4	6	10
110	4	2	5	3	5	9
115	3	1	3	2	3	8

CHARGING FOR TXV SYSTEMS

Weighing in the Charge Method

TXV Systems, < 60° F Outdoor Temp

- 1- Recover the refrigerant from the unit.
- 2- Conduct a leak check, then evacuate as previously outlined.
- 3- Weigh in the factory charge as shown on the outdoor unit's rating plate.

The Approach Method

TXV Systems, ≥ 60° F Outdoor Temp

Having taken the outdoor ambient and liquid line temperature readings, subtract the outdoor ambient temperature from the liquid line temperature to determine the Approach temperature. (**Liquid line °F – Outdoor Ambient °F = Approach temperature**) The resulting difference (Approach temperature) should agree with the values given in table 5. If not, add refrigerant to lower the approach temperature or recover refrigerant from the system to increase the approach temperature.

**TABLE 5
APPROACH METHOD**

MODEL NO.	APPROACH TEMPERATURE LIQUID LINE ° F – OUTDOOR AMBIENT ° F
HS29-211	12
HS29-261	19
HS29-311	15
HS29-410	12
HS29-460	19
HS29-510	15
HS29-650	22

Note—For best results, the same thermometer should be used to check both outdoor ambient and liquid temperatures.

SYSTEM OPERATION

Condensing unit and indoor blower cycle on demand from room thermostat. When thermostat blower switch is switched to **ON** position, indoor blower operates continuously.

Crankcase Heater

Three and one-half, four and five ton units are equipped with internal self-regulating crankcase heaters.

Compressor Start Kit

Three and one half, four and five ton single phase units have internal start components and do not require field installation of a compressor start kit.

MAINTENANCE

⚠ WARNING



Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

At the beginning of each cooling season, the system should be checked as follows:

- 1- Clean and inspect condenser coil. Coil may be flushed with a water hose. Make sure power is off before cleaning.
- 2- Visually inspect connecting lines and coils for evidence of oil leaks.
- 3- Check wiring for loose connections.
- 4- Check for correct voltage at unit (unit operating).
- 5- Check condenser fan motor amp-draw.

Unit nameplate _____ Actual _____

NOTE—If owner complains of insufficient cooling, the unit should be gauged and refrigerant charge checked. Refer to section on refrigerant charging in this instruction.

Evaporator Coil

- 1- Clean coil, if necessary.
- 2- Check connecting lines and coils for evidence of oil leaks.
- 3- Check condensate line and clean, if necessary.

Indoor Unit

- 1- Clean or change filters.
- 2- Adjust blower speed for cooling. The pressure drop over the coil should be measured to determine the correct blower CFM. Refer to the unit information service manual for pressure drop tables and procedure.
- 3- **Belt Drive Blowers** — Check belt for wear and proper tension.
- 4- Check all wiring for loose connections
- 5- Check for correct voltage at unit (blower operating).
- 6- Check amp-draw on blower motor
Unit nameplate _____ Actual _____

START-UP AND PERFORMANCE CHECK LIST

Job Name _____ Job No. _____ Date _____

Job Location _____ City _____ State _____

Installer _____ City _____ State _____

Unit Model No. _____ Serial No. _____ Service technician _____

Nameplate Voltage _____ Amps: _____

Minimum Circuit Ampacity _____ Supply _____ Condenser Fan _____

Maximum Overcurrent Protection Size _____ Compressor _____

Electrical Connections Tight? ☐

Indoor Filter Clean? ☐

Indoor Blower CFM _____

Supply Voltage (Unit Off) _____ S.P. Drop Over Evaporator (Dry) _____

Refrigerant Lines:

COOLING SECTION

Leak Checked? ☐

Condenser Entering Air Temperature _____

Service Valves Fully Open? ☐

Discharge Pressure _____ Suction Pressure _____

Properly Insulated? ☐

Refrigerant Charge Checked? ☐

Service Valve Caps Tight? ☐

Condenser Fan Checked? ☐

Voltage With Compressor Operating _____

THERMOSTAT

Properly Set? ☐

Level? ☐