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MPD 36235

EXCALIBUR
8500-III Series

hydro flame Furnace

INSTALLATION INSTRUCTIONS

English/French-Canadian

Effective 9/95

IMPORTANT

For your safety read all instructions before operating furnace.

- To the Installer:** Affix documents adjacent to the furnace.
- To the Consumer:** Keep documents available for future reference.



WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS —**
 - Evacuate all persons from the vehicle.
 - Shut off the gas supply at the gas container or source.
 - Do not touch any electrical switch, or use any phone or radio in the vehicle.
 - Do not start the vehicle's engine or electric generator.
 - Contact the nearest gas supplier or qualified service technician for repairs.
 - If you cannot reach a gas supplier or qualified service technician, contact the nearest fire department.
 - Do not turn on the gas supply until the gas leak(s) has been repaired.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

This furnace design has been certified by the American Gas Association and the Canadian Gas Association for installation in recreational vehicles, as a MSP Category III furnace. These installation instructions are to be followed to insure safe operation of the furnace. Failure to install the furnace according to the installation instructions contained herein nullifies the furnace warranty.



This symbol identifies important safety instructions. Failure to follow these instructions may result in death, personal injury and/or property damage to yourself or others using this furnace.

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FURNACE INSTALLATION



WARNING

This furnace must be installed and vented according to these instructions. Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. For assistance or additional information, consult a qualified installer, service agency or gas supplier.

Negative pressure produced by the furnace can affect the combustion air or venting of other appliances if not installed in a proper location.

CRITICAL INSTALLATION WARNINGS

1. Do not install the furnace on material that restricts return air, such as carpet, or any soft material, such as vinyl.
2. Do not install furnace where clearance to combustibles cannot be maintained.
3. Do not modify the furnace in any way.
4. Do not alter the furnace for a positive grounding system.
5. Do not HI-POT this furnace unless the electronic ignition system (DSI Board) has been disconnected.
6. Do not use a battery charger to supply power to DC model furnace even when testing.
7. Do not use 120 volt AC current with DC models.
8. Do not use the furnace cabinet area as a storage compartment.
9. Do not vent this furnace with a venting system serving any other appliance.
10. Do not vent this furnace to an outside enclosed porch area.
11. This furnace is not to be used for temporary heating of buildings or structures under construction.
12. Locate the furnace in an area that will not be blocked by snow.
13. Locate the furnace in an area where the flue gases will not cause building materials to degrade over time.
14. Install furnace so electrical components are protected from water.

The furnace must be installed in accordance with local codes and regulations. In the absence of local codes or regulations, refer to:

U.S.A:

- Current standard for Recreational Vehicles ANSI A119.2/NFPA 501C.
- Current National Fuel Gas Code ANSI Z223.1.
- Ground in accordance with current National Electrical Code ANSI/NFPA No. 70.

Canada:

- Standard CSA Z240.4 Gas Equipped Recreational Vehicles and Mobile Housing.

- CSA Standard Z240.6.1 and Z240.6.2 - Electrical Requirements for Recreational Vehicles.
- CAN1-B149 Installation Code.

GENERAL INSTALLATION INSTRUCTIONS

Select a location to install furnace through an outside wall. Do not install furnace near tilt-out rooms, slide-outs, doors or other projections that could obstruct furnace exhaust. On single furnace applications, locate furnace near the midpoint of the coach. Keep furnace away from wires, pipes, or other objects that may interfere with the installation or operation of the furnace. Do not install furnace on material that restricts return air, such as directly on carpet, or any soft material, such as vinyl. If it must be installed on carpet or soft material, install furnace on cleats, or on a wood or metal panel extending the full width and depth of the furnace plus the minimum clearances to combustibles to insure it is above the carpet.

Return air is supplied through openings in the furnace casing. All return air supply ways must be kept clear and side clearances maintained for the furnace to function properly. (Refer to the cavity described in "MINIMUM CLEARANCE TO FLOORBOARDS, WALLS & SIMILAR COMBUSTIBLE BUILDING MATERIAL" of this manual.) The total, unobstructed return air opening size(s) must not be less than specified in the Minimum Return Air. Failure to provide the minimum return air requirements nullifies the furnace warranty.



WARNING

Combustion air must NOT be drawn from the living area. The exhaust can not be vented into the living area or enclosed porch.

HORIZONTAL INSTALLATION OPTION

(Read and follow previous instructions and warnings under Installation before proceeding.) Maximum wall thickness 2-1/2 inches (64mm), 1-1/2 inches (38mm) recommended.

1. Cut a 17 inch wide by 7-1/2 inch high (432mm x 191mm) opening through the exterior wall. Do not over-size the hole; over-sizing can result in water leakage (See Figure #1).
2. Insert the furnace so that the edge of the control box is flush with the coach's outer skin, with the mounting tabs protruding (See Figure #2). A tight fit around the door is important to prevent water leakage.

VERTICAL INSTALLATION OPTION

Read and follow the previous instructions and warnings under Installation before proceeding. Maximum wall thickness 2-1/2 inches, 1-1/2 inches (64mm, 38mm) recommended.

1. Cut a 7-1/2 inch wide x 17 inches high (191mm x 431mm) opening through the exterior wall. Do not over-size the hole; over-sizing can result in water leakage (See Figure #3).
2. Insert the furnace so that the gas connection is on the bottom and the edge of the control box is flush with the coach's outer skin, with the mounting tabs protruding. (See Figure #4) A tight fit around door is important to prevent water leakage.

- To prevent moisture from entering the inside of the coach, apply RTV type sealant to the following areas: (See Figure #5)
 - along the welded joints of the two bottom corners;
 - around the black slide plate where it joins the metal casing;
 - around the red gas inlet plug where the slide plate and the casing bottom intersect;
 - around the gas line where it enters the gas inlet plug.

RECESS BEZEL INSTALLATION OPTION

(Read and follow the previous instructions and warnings under installation before proceeding with these instructions.) Maximum wall thickness 2-1/2 inches, 1-1/2 inches (64mm, 38mm) recommended.

- Cut a 19-1/2 inch wide x 10 inch (495mm x 254mm) high opening. With rounded corners, through the exterior wall. Do not over-size hole; over-sizing can result in water leakage. (See Figure #6)
- Insert the recess bezel into hole. Make sure caulking is applied to the entire back flange creating a water tight seal.
- Insert furnace so the edge of the control box is flush with recess pan, with mounting tabs protruding. A tight fit around door is important to prevent water leakage.

DUCTING OPTIONS

Proper duct installation is critical to the operation of this furnace. When installing ducts, use materials rated for continuous use at 200°F (93°C). When using flexible ducts, avoid sharp bends or crushed ducts. Stretch all ducts and run them directly to outlets, keeping bends to a minimum. It is recommended that for furnaces installed horizontally, a minimum of one duct should be taken from both the left and right side of the casing. See page 14.

Minimum Discharge Requirements (See STATIC PRESSURE TEST)

Models	Discharge Requirements	
8516-III, 8520-III, 8525-III	24 in ²	155cm ²
8531-III, 8535-III	36 in ²	232cm ²
All models with top or bottom discharge systems	48 in ²	310cm ²
8531-III, 8535-III vertical installations (except when using the rear three duct openings)—See Ducting Chart.	48 in ²	310cm ²

Each four inch round duct opening provides 12 in² (77cm²) of discharge area. Provide an extra 12 in² (77cm²) of non closeable duct discharge area for each closeable register used. Ducting in dead air space with no return air such as holding tank areas does not count toward achieving minimum discharge requirements. Use of 2" ducts does not count toward achieving minimum discharge requirements.

FOUR-INCH FLEXIBLE DUCTING

- Remove the cover plates from the desired outlets.
- Attach a duct adapter to each opening, by inserting the flange over the casing, locking the tab into casing slot and turn adapter 90 degrees.
- Attach and secure flexible ducts to the adapters.

- Run ducts to desired location within the RV and secure to registers. Avoid crushing ducts, avoid sharp bends, keep bends to a minimum and stretch all ducts.
- Additional ducting may be used to maintain correct static pressure.

BOTTOM DISCHARGE

- Remove bottom discharge cover plate. This ducting option must be connected to a hard ducting system. (If a cutout is required, see Figure #8 for dimensions.) A gasket and plenum plate kit are available when attaching furnace to the plenum. (See Figure #7)
- Fasten plenum plate over the cutout. If a gasket and plenum plate are not used, seal the furnace to the hard duct system, making sure the seal is air-tight, and continue at step #5.
- Position the gasket on plenum plate.
- Set the furnace on gasket, making sure the gasket remains in position.
- Additional ducting can be used to maintain correct static pressure.

Hard duct systems must be designed correctly for the furnace to operate properly. Undersized ducting will cause limiting, whereas oversized ducting can cause inadequate air flow from the registers.

EXTENSION BOX SYSTEM

For top or bottom discharge installation, a casing extension adapter can be used. A casing extension box adds 5 inches (127mm) of depth to the furnace. (See Figure #9)

- Remove the three knockouts from the rear of furnace.
- Place extension box with foam tape against the furnace, making sure the three knockouts are enclosed within the extension box. With box held in place, secure with two 1/2 inch sheet metal screws. (See Figure #10) If a cutout into the hard duct is required, see Figure #9 for proper sizing and location.
- Fasten plenum plate over the cutout.
- Position gasket on the plenum plate.
- Set furnace on the gasket, making sure gasket remains in position.
- Fasten extension box to the floor.
- Additional ducting can be used to maintain correct static pressure.

FLEX ADAPTER KIT

A flex adapter kit can be used to provide more flexibility for alignment of discharge opening on hard duct systems. This system provides ducting from the rear of the furnace on all models without using side ducts. This system can be used on all models installed horizontally or vertically.

- Remove the three knockouts from rear of furnace.
- Install duct adapters in each opening.
- Place the flex adapter plate with foam tape against the hard ducting, making sure the opening lines up.
- With plate held in place, fasten plate to the ducting. (See Figure #11)
- Install three duct adapters into the flex adapter plate.
- Attach flexible ducting from furnace to the flex adapter plate, and secure ducting in place.

PROPANE GAS CONNECTION

Connect gas line to the manifold on right side of the furnace. (See Figure #12) Be sure all male pipe threads other than flare fittings are treated with a sealing compound resistant to the action of propane (LP) gas. DO NOT put sealing compound on flare fittings.

1. Remove black slide plate and red gas inlet plug from the furnace.
2. Insert the gas line through red gas inlet plug. (Do not cut gas inlet plug.)
3. Connection is accomplished inside furnace casing immediately ahead of the gas control valve.
4. A 3/8 inch flared fitting connection is provided at the gas control valve inlet for gas supply connection to the furnace. The gas supply line of the furnace must be of adequate size to provide 11" W.C. (27.5mbar) gas pressure. This pressure must be maintained under maximum flow conditions with all gas appliances in operation.
5. An 1/8 inch N.P.T. plug is accessible for test gauge connection on the gas valve assembly.
6. When attaching gas line to the manifold, use two wrenches to hold the manifold and flare nut when tightening. DO NOT twist valve assembly.

ELECTRICAL CONNECTION

ELECTRICAL POWER SHOULD BE DISCONNECTED BEFORE SERVICING.

CAUTION: Label all wires before disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

This furnace is designed for negative ground 12 volts DC only. Do not attempt to alter the furnace for a positive ground system or connect the furnace directly to 120 volts AC. Damage to furnace components will occur and the warranty will be voided.

Use a minimum of 16 gauge wire to minimize voltage drop. All electrical wiring must comply with NFPA 70 Article 551. To make electrical connections:

1. Route wiring to the left side of the furnace.
2. Connect the red wire to the positive side of the power supply. (See Figure #13)
3. Connect the yellow wire to the grounded side of the power supply.
4. Connect the blue wire to the positive marked thermostat lead using 22-18 gauge stranded wire.
5. Connect the other blue wire to the other thermostat lead using minimum 22-18 gauge stranded wire.

The furnace must be installed so that the electrical components are protected from water. A wiring diagram is shown in Figure #13

If the furnace power supply is from a converter equipped with a charging port, for best results, wire the converter to the furnace parallel with the battery. This is recommended to provide consistent voltage to the furnace, to increase component life and to filter power surges and AC spikes. (See Figure #14A)

Each unit is shipped with a standard field harness connection with 12" (305mm) wire leads. An optional field harness with a double end can be purchased by ordering in bulk part number 36327. This harness contains 12" (305mm) leads, a four pin housing, and the standard six pin housing (See Figure #14).

THERMOSTAT INSTALLATION

(These instructions are for the provided thermostat.)

The thermostat is very sensitive. Handle with care at all times.

1. Select a location for the thermostat. Whenever possible, the thermostat should be positioned 48 to 54 inches (1.2-1.37M) above the floor on an inside wall away from areas of abnormal heat or cold.
2. Run two wires from the furnace to the thermostat location using minimum 22 gauge stranded wire.
3. Connect the two wires from the furnace to the back of the thermostat (See Figure #15)
4. With the cover removed from the thermostat, mount the base of the thermostat to the wall.
5. Turn the thermostat off and snap the cover on, making sure not to pinch the contact wire. (See Figures #16 and #17)

HEAT ANTICIPATOR

The heat anticipator is located on the base plate of the thermostat behind the cover (See Figure #17). Its purpose is to provide flexibility to the heating cycles of the furnace. The heat anticipator is factory set at the highest setting (1.0). If a change is desired, as a starting point, set the heat anticipator to the stated valve amperage (.48).

- To increase the heating cycle time, adjust the anticipator by moving the contact arm to a larger number value.
- To shorten the heating cycle time, adjust the anticipator by moving the contact arm to a smaller number value.

Heat anticipator adjustments are not covered under warranty.

DOOR INSTALLATION

Special care should be taken to seal the door assembly to prevent water or combustion products from leaking into the RV. Assure a water tight seal around all mounting flanges and openings. Use caulking or sealant to fill all spaces created during the installation of these parts. Caulk the entire back flange of the door bezel. Fill tab slots with caulking after bending the tabs over and securing with screws.

HORIZONTAL AND VERTICAL DOOR INSTALLATION

(Read and follow the instructions and warnings above under Door Installation before proceeding.)

1. Apply caulking to the entire mounting surface of the door bezel, making sure the caulking is tight against the inner flange of the bezel. (See Figure #19)
2. Make sure that the red inlet plug and the black slide plate are in the closed position and the bezel flange is inside of casing. Insert the six mounting tabs through the slots provided in the bezel, making sure the bezel is tight against the casing and cutting into the caulking on the bezel.
3. Bend the tabs flush with the door bezel, aligning the holes in the tabs with the slots in the door bezel.

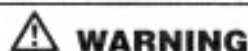
4. Install 12 mounting screws, taking care not to deform the bezel. (See Figure #20)
5. Remove excess caulking from around the door bezel and visually inspect the door bezel to make sure it is completely sealed.
6. Secure mounting legs to floor for horizontal installation. For vertical installations secure the legs to a vertical member that is attached to the floor (see figure 19/20).

RECESS BEZEL DOOR OPTION

(Read and follow the instructions and warnings in Door Installation section before proceeding.)

1. Position and secure the mounting brackets to door framing on each side of the opening, allowing 5/16 inches (8mm) from end of bracket face to the outside of the coach. (See Figure #22)
2. Insert the recess bezel and door bezel so that the furnace tabs go through the notches on the door bezel. Caulk the entire back flange of the recess bezel and the entire back flange of the door bezel before securing to the mounting brackets. (See Figure #21)
3. Fasten the recess bezel and door bezel to the brackets with 3 screws on each side. Do not deform recess bezel or door bezel. (See Figure #23)
4. Bend the tabs over and secure with 6 screws. Fill tab slots with caulking after installing furnace.

DRAFT CAP ASSEMBLY INSTALLATION



WARNING

Failure to properly seal the door and adjust the draft cap can result in serious illness or death due to carbon monoxide entering the coach.

With the wing nut loose on the draft assembly (see figure #18), close the door and adjust the draft cap. The draft cap assembly must be pulled out tight against the door screen. Open the door and tighten the wing nut. Use a regular screwdriver to fasten the door closed.

PROPANE GAS SYSTEM PRESSURE TEST



WARNING

Never check for gas leaks with an open flame.

The furnace and any individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of the system at test pressures more than 1/2 PSI.

Before furnace is connected, piping systems shall be proven by test to be leak-free by maintaining air pressure of at least 6 inches of mercury or 3 PSI (20.7 kPa) for at least 10 minutes and performed according to the ANSI A119.2/NFPA 501C Recreational Vehicles Standard section 2-4.18.1.

After furnace is connected, the entire piping system shall be pressurized to not less than 10 inches (2.5 kPa) nor more than 14 inches (3.5 Kpa) water column. Test the gas connections for leakage with either soapy water or bubble solution, according to ANSI A119.2/NFPA 501C Recreational Vehicles Standard section 2-4.18.2.

For information about gas piping, refer to Federal Mobile Home Construction & Safety Standard, part 280, ANSI/NFPA 54 or ANSI/NFPA 501C and all applicable state and local codes.

STATIC PRESSURE TEST

With the ducts attached and the furnace operating at 12 volts without gas, the casing static pressure should not exceed values specified in Casing Static Pressure Table (See page 5). Voltage greater than 12 volts will cause higher static readings. Reducing the number of duct turns and stretching the ducts will increase air flow and reduce static pressure. Adding ducts or increasing discharge system (hard ducting) will also reduce static pressures.

1. With the door open, remove the DSI board and static pressure tap plug (see Figure #24).
2. Insert the static pressure tube into the hole 1/8" maximum and attach an incline manometer. With the plastic door closed, the pressure should not exceed values specified in Casing Static Pressure Table (see page 5).
3. Remove the pressure tube and replace the static pressure tap plug and DSI board before closing the door.
4. The furnace should be installed and adjusted to obtain the temperature rise specified on the furnace rating plate.

Casing Static Pressure Table

(Duct Static Pressure - See Specification Table)

If duct static pressure cannot be set, casing static pressure should not exceed the values listed below when taken cold.)

Duct Discharge Type	8516-III	8520-III	8525-III
Horizontal Discharge	.25 in. W.C. .62mbar	.25 in. W.C. .62mbar	.25 in. W.C. .62mbar
Vertical Discharge	.25 in. W.C. .62mbar	.25 in. W.C. .62mbar	.30 in. W.C. .75mbar
Rear (3) Discharge	.25 in. W.C. .62mbar	.25 in. W.C. .62mbar	.25 in. W.C. .62mbar
Top or Bottom Discharge	.25 in. W.C. .62mbar	.25 in. W.C. .62mbar	.35 in. W.C. .87mbar
Duct Discharge Type	8531-III	8535-III	
Horizontal Discharge	.25 in. W.C. .62mbar	.25 in. W.C. .62mbar	
Vertical Discharge	.30 in. W.C. .75mbar	.30 in. W.C. .75mbar	
Rear (3) Discharge	.25 in. W.C. .62mbar	.25 in. W.C. .62mbar	
Top or Bottom Discharge	.35 in. W.C. .87mbar	.35 in. W.C. .87mbar	

SPECIFICATIONS

Model #	8516-III		8520-III		8525-III	
Input BTU/HR	16,000	4.7kw	20,000	5.9kw	25,000	7.4kw
Output Capacity BTU/HR	12,160	3.6kw	15,200	4.5kw	19,000	5.6kw
Duct Static Pressure*	.20"W.C.	.5mbar	.10"W.C.	.25mbar	.10"W.C.	.25mbar
12 Volt Amperage	4.4 amps		4.4 amps		5.5 amps	
Watts	52 watts		52 watts		66 watts	
Power Supply	12 volt DC		12 volt DC		12 volt DC	
Recommended Return Air	80 in ²	516cm ²	80 in ²	516cm ²	80 in ²	516cm ²
Minimum Return Air ²	65 in ²	419cm ²	65 in ²	419cm ²	65 in ²	419cm ²

	8531-III		8535-III	
Input BTU/HR	31,000	9.1kw	35,000	10.3kw
Output Capacity BTU/HR	23,560	6.9kw	26,600	7.8kw
Duct Static Pressure*	.10"W.C.	.25mbar	.10"W.C.	.25mbar
12 Volt Amperage	8.2 amps		8.2 amps	
Watts	98watts		98 watts	
Power Supply	12 volt DC		12 volt DC	
Recommended Return Air	80 in ²	516cm ²	80 in ²	516cm ²
Minimum Return Air ²	65 in ²	419cm ²	65 in ²	419cm ²

*W.C. = Water Column

FURNACE DIMENSIONS

	WIDTH		HEIGHT		DEPTH		WEIGHT	
Casing	16-1/2"	419mm	7-3/8"	178mm	18"	457mm	Furnace	30 lbs. 13.6 kg
Door	19-1/4"	489mm	9-1/4"	235mm	1/4"	6mm	Shipping	32 lbs. 14.5 kg
Recess Bezel	20-9/16"	522mm	11-1/2"	292mm				

MINIMUM CLEARANCE TO FLOORBOARDS, WALLS, & SIMILAR COMBUSTIBLE BUILDING MATERIALS*

Must be provided the full length & width of unit — Top & Sides = 1/2" inch (13mm)
 Rear = 1" inch (25.4mm)
 Bottom = 3/16" inch (5mm) to casing 0" to spacers (screw heads)

Spacing of 1/4" inch (6mm) to ducting within 3 feet (.9M) of furnace must be provided unless UL listed wire bound vinyl ducts are used. All ducting material should be rated for continuous use of 200°F (93°C).

*NOTE: The efficiency rating of the appliance is a product of thermal efficiency rating determined under continuous operating conditions and was determined independently of any installation. Efficiency are given at 76% minimum, actual efficiency may be higher.

* When furnaces are installed to minimum clearances, an additional 16 in² (41 cm²) of return air must be provided to the blower side of the furnace or a 2 inch (51mm) clearance the full length and height on the blower side must be maintained.

HORIZONTAL & VERTICAL INSTALLATION OPTIONS OPTIONS D'INSTALLATION HORIZONTALE ET VERTICALE

FIGURE #1

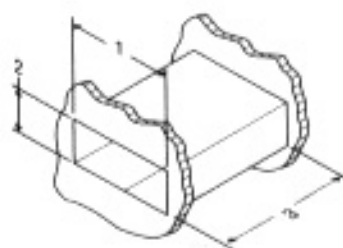


FIGURE #3

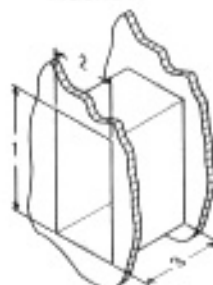


FIGURE #5

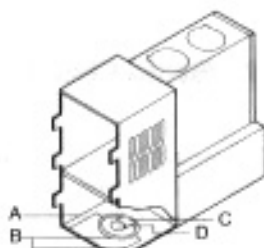


FIGURE #6

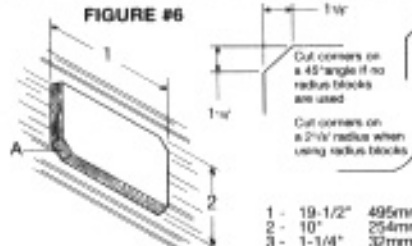


FIGURE #2

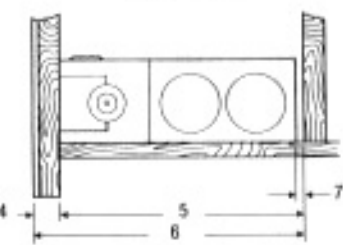
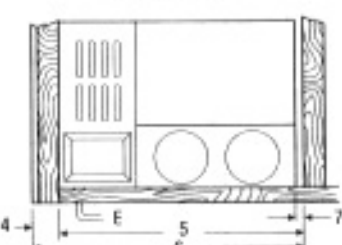
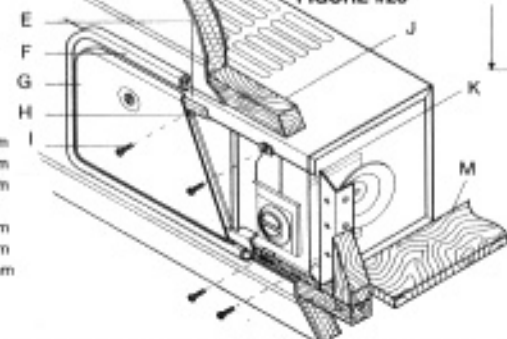


FIGURE #4



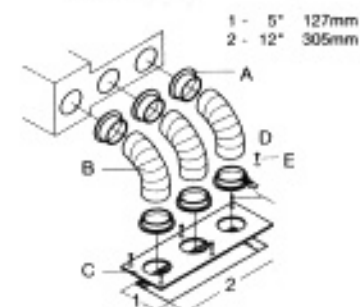
- A-D Caulking points
Endroits de caillatage
E - Gas line
Conduite de gaz
- | | |
|--------------|--------|
| 1 - 17" | 431mm |
| 2 - 7-1/2" | 191mm |
| 3 - 19" | 483mm |
| 4 - 1-1/2" | 38mm |
| 5 - 17-1/2" | 446mm |
| 6 - 19" min. | 483mm |
| 7 - 1" | 25.4mm |

FIGURE #23



FLEX ADAPTER KIT KIT D'ADAPTEUR FLEXIBLE

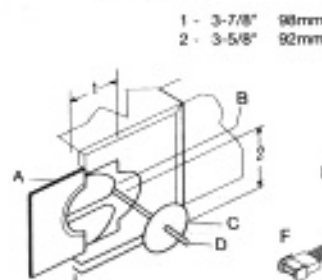
FIGURE #11



- A- Duct Adapters
B- Ducts
C- Plenum plate
D- Duct Adapters
E- Fasteners
- A- Adaptateurs des gaines
B- Gaines
C- Plaque plénum
D- Adaptateurs des gaines
E- Attaches

PROPANE GAS CONNECTION RACCORDEMENT DU GAZ

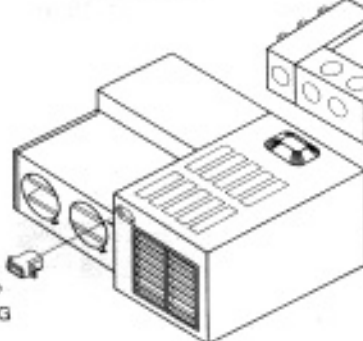
FIGURE #12



- A- Plastic Insert
B- Flare Nut on Gas Fitting
C- Grommet
D- Copper Gas Tube
- A- Couvercle en plastique
B- Écrou conique sur raccord à gaz
C- Rondelle
D- Tuyaux de gaz en cuivre

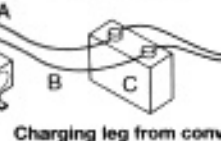
ELECTRICAL CONNECTION BRANCHEMENT ÉLECTRIQUE

FIGURE #14



- 12VDC Yellow
-12VDC Red
Battery
120VAC Output
Amp Block #1-480704-0,
PIN #350874-3
Amp Block #1-480703-0,
PIN #350874-3
Standard Field Harness
- A- Conducteur jaune, 12V c.c.
B- Conducteur rouge, 12V c.c.
C- Batterie
D- Sortie 120V c.a.
E- Bloc mp #1-480704-0,
PIN #350874-3
F- Bloc mp #1-480703-0,
PIN #350874-3
G- Jeu standard de câblage

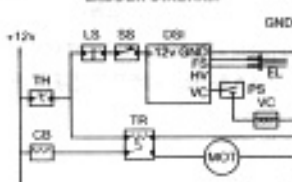
FIGURE #14A



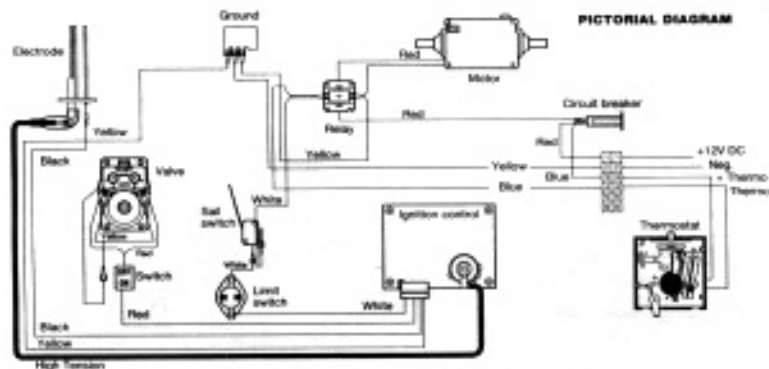
ELECTRICAL CONNECTION

FIGURE #13

LADDER DIAGRAM



- CB = Circuit Breaker
DS = Direct Spark Ignition
GND = Ground
GV = Gas Valve
HV = High Voltage
E = Electrode
FS = Flame Sensor
MOT = Blower Motor
SS = Sol Switch
- TH = Thermostat
LS = Temperature Limit Switch
TR = Thermo Relay
VC = Valve Control
PS = Power Switch



IMPORTANT: If any original wire has to be replaced, it must be replaced with type 105°C or its equivalent.

IZEL INSTALLATION OPTION LA COLLETTTE D'ENCASTREMENT

BOTTOM DISCHARGE — EXTENSION BOX SYSTEM SORTIE INFÉRIEURE — SYSTÈME DE BLOC DE PROLONGEMENT

FIGURE #21



Cauk entire back flange of both parts

Calfeuter la face arrière de la colerette de deux pièces

FIGURE #7

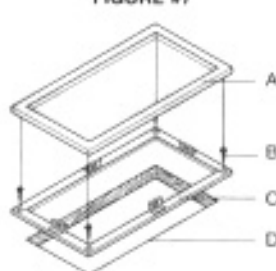
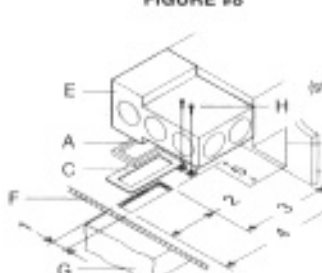


FIGURE #8



Gasket	-A-	Garniture
Fasteners	-B-	Attaches
(staples, screws, nails)		(crampons, vis, clous)
Plenum plate	-C-	Plaque plénum
Cutout	-D-	Ouverture
Furnace	-E-	Générateur d'air chaud
Floor	-F-	Plancher
Duct plenum	-G-	Plénum de gaine
Mounting screws	-H-	Vis de fixation
Furnace side	-I-	Côté du générateur d'air chaud
Outside wall	-J-	Mur extérieur

1 - 6-1/4"	159mm	3 - 8-1/4"	210mm
2 - 9-1/2"	241mm	4 - 17-3/4"	451mm
		5 - 10"	254mm

FIGURE #10

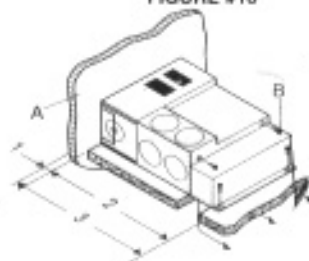
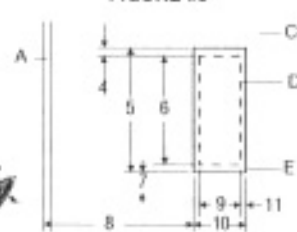


FIGURE #9



Outside Wall	-A-		
Mounting Screws	-B-		
Furnace	-C-		
Bottom Discharge Opening	-D-		
4"x11" (102mm x 279mm)			
Floor Cut	-E-		
5" x 12" (127mm x 305mm)			
1 - 2"	51mm	6 - 11"	279mm
2 - 21"	533mm	7 - 2-3/4"	70mm
3 - 23"	584mm	8 - 18"	457mm
4 - 1/2"	13mm	9 - 4"	102mm
5 - 12"	305mm	10 - 5"	127mm
		11 - 1/2"	13mm

HEAT ANTICIPATOR & THERMOSTAT INSTALLATION INSTALLATION DU THERMOSTAT ET DE L'ANTICIPATEUR DE CHALEUR

DRAFT CAP ASSEMBLY BOUCHE DE TIRAGE

HORIZONTAL & VERTICAL DOOR PORTE HORIZONTALE ET PORTE VERTICALE

FIGURE #15

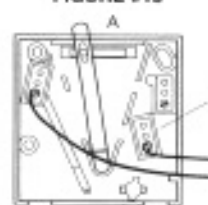


FIGURE #17

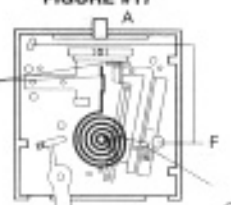
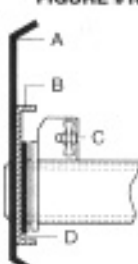


FIGURE #16



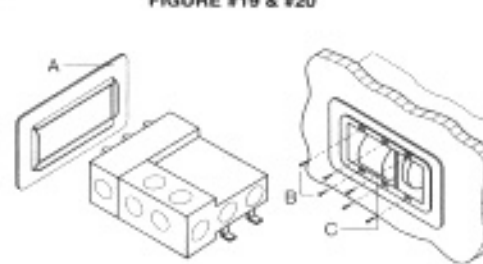
Temperature Control	-A-	Manette de réglage
Thermometer	-B-	Thermomètre
On/Off Switch	-C-	Interrupteur marche-arrêt
Terminal W	-D-	Borne W
Contacts	-E-	Contacts
Mounting Hole	-F-	Trous de vissage
Terminal R (common)	-G-	Borne R (commun)
Thermostat Wire	-H-	Conducteurs de branchement au thermostat

FIGURE #18



A- Outer Door
B- Door Screen
C- Wing Nut
D- Draft Cap Assembly to be tight against screen

FIGURE #19 & #20



A- Caulk entire back flange of door bezel
B- Mounting Screws
C- Apply caulking to top and bottom notches

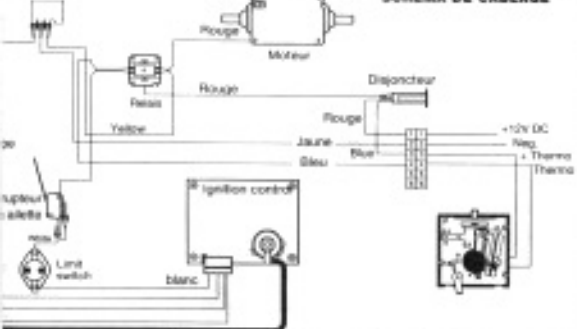
A- Calfeuter la face arrière de la colerette du cadre de la porte
B- Vis de fixation
C- Calfeuter les crans supérieurs et inférieurs

BRANCHEMENT ÉLECTRIQUE

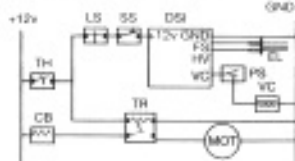
STATIC PRESSURE TEST ESSAI DE PRESSION STATIQUE

CROQUIS #13

SCHEMA DE CÂBLAGE



SCHEMA DES CIRCUITS



CB	= Disjoncteur	VC	= Commande des soupapes
DS	= Allumage direct par étincelle	PS	= Interrupteur d'alimentation
GV	= Soupape de gaz		
GND	= Mise à terre		
E	= Électrode		
FS	= Détecteur de flamme		
MOT	= Moteur de ventilateur		
SS	= Interrupteur à sécurité		
TH	= Thermostat		
TLS	= Coupe-circuit de température		
TR	= Relais thermique		

FIGURE #24

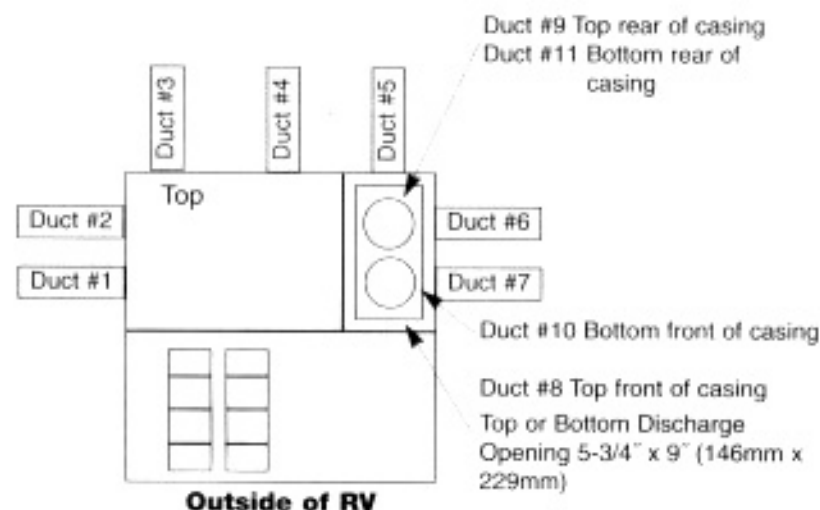


A- Circuit Breaker
B- Relay
C- DSI board
D- Static pressure tap plug

A- Disjoncteur
B- Relais
C- Bouchon de l'orifice de mesurage
D- de pression statique

IMPORTANT: Si il faut substituer un fil original, utiliser un fil conçu pour résister des températures permanentes de 135°C (275°F) ou l'équivalent.

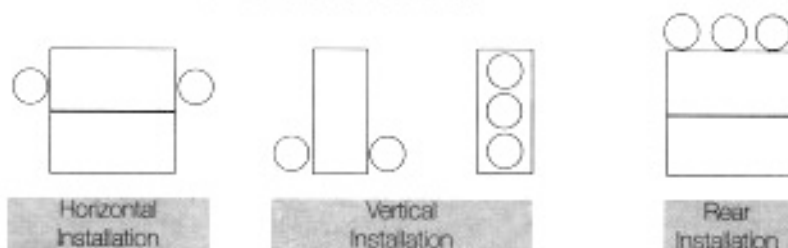
RECOMMENDED MINIMUM DUCTING



Return Air Requirements:
Recommended - 80 square inches
Minimum - 65 square inches

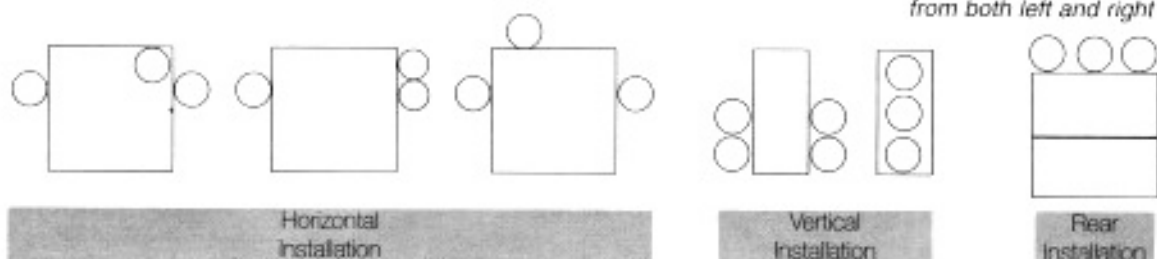
Clearance to Combustibles:
1/2 inch top and sides
3/16 inch bottom
0 inches from spacers

Typical Two Duct Configurations Models 8516-III / 8520-III / 8525-III



Horizontal installations recommended using one duct from both left and right side

Typical Three Duct Configurations Models 8531-III / 8535-III



Horizontal installations recommended using one duct from both left and right side

Duct Configuration -

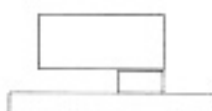
Top, Bottom or Rear Discharge

Models 8516-III / 8520-III / 8525-III / 8531-III / 8535-III



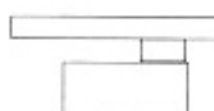
Rear Discharge

Using extension box opening.
Three duct openings must be open.
Recommended minimum 48 square inches of ducted discharge.



Bottom Discharge

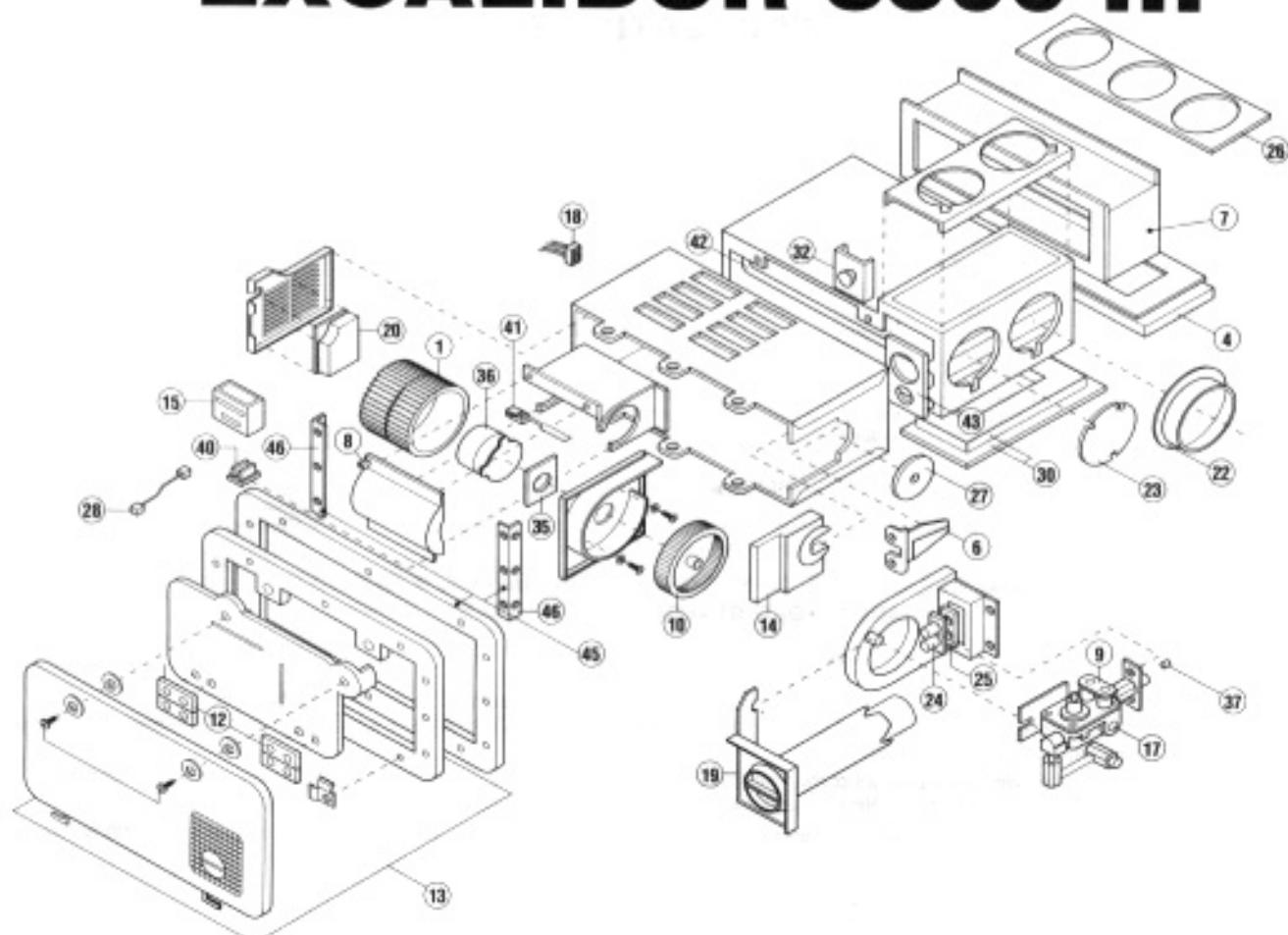
Recommended minimum 48 square inches of ducted discharge



Top Discharge

Recommended minimum 48 square inches of ducted discharge

EXCALIBUR 8500-III



Replacement Parts

Please use item number when ordering parts.

8516	8520	8525	8531	8535	Description of Parts
36170	36170	36179	36170	36170	Blower Wheel
36332	36332	36332	36332	36332	Assbly, Plate & Gasket
33842	33842	33842	32811	32811	Burner Assbly
					Casing Extension Box
31028	31028	32331	33590	33590	Circuit Breaker
33475	33475	33475	33475	33475	Replacement Coil
32777	32777	32777	32777	36216	Combustion Wheel
					Door Hinges
					Door Assbly (Specify Color)
33729	33729	33729	33729	33729	Slide Plate
31030	31030	31030	31030	31030	Thermostat
33337	33337	33337	33337	33337	Valve
See figure 14 E, F, G					
33650	33650	33650	33650	33650	Wiring Harness
36215	36215	36215	36215	36215	Draft Cap Assbly
31474	31474	31474	31474	31474	DSI Board (05-30)
31361	31361	31361	31361	31361	Duct Adapters
33902	33902	33902	33902	33902	Duct Cover Plate
32172	32172	32172	32172	32172	Electrode
34438	34438	34438	34438	34438	Electrode Gasket
33567	33567	33567	33567	33567	Flex Adapter Plate Assembly
35193	35193	35193	35193	35193	Gas Inlet Plug
36277	36277	36277	36277	36277	High Tension Lead
36176	36176	36176	36176	36176	Bottom Plenum Plate
32841	32841	32841	32841	32841	Limit Switch
36195	36195	36195	36195	36195	Motor Gasket
31257	31257	31257	31257	31257	Motor
31017	31017	31017	31017	31017	Orifice
35052	35052	35052	35052	35052	Relay
36110	36110	36110	36299	36299	Sail Switch
32926	32926	32926	32926	32926	Element Assbly
					Exhaust Wall Gasket
					Recess Pan Assbly (Spec Color)

Pièces de rechange

Prière d'indiquer le numéro de pièce sur la commande.

Drawing # No de pièce	Description
1	Roue à aubes de ventilateur
4	Ensemble, plaque et garniture
6	Ensemble brûleur
7	Rallonge de l'enveloppe
8	Disjoncteur
9	Bobine de rechange
10	Roue à aubes de combustion
12	Charnières de porte
13	Ensemble porte (préciser la couleur)
14	Plaque coulissante
15	Thermostat
17	Soupape
18	Pince de câblage
19	Bouche de tirage
20	Carte DSI (05-30)
22	Raccord de gaine
23	Plaque-couvercle de sortie
24	Électrode
25	Garniture d'électrode
26	Plaque de raccord articulée
27	Membrane passe-tube
28	Fil haute tension
30	Plaque inférieure de surpression
32	Coupe-circuit
35	Garniture de moteur
36	Moteur
37	Orifice
40	Relais
41	Interrupteur à alette
42	Ensemble élément
43	Garniture pour paroi de sortie
45	Ensemble cadre d'encastrement (préciser la couleur)