THIS INSTRUCTION MANUAL IS FOR USE BY AN AUTHORIZED SERVICE TECHNICIAN TO INSTALL AN ATWOOD - hydro flame™ FURNACE.

INSTALLER: LEAVE THIS MANUAL WITH THE APPLIANCE.

CONSUMER: RETAIN THIS MANUAL FOR FUTURE REFERENCE.

This furnace design has been certified by the American Gas Association and Canadian Gas Association for installation in recreation vehicles as a MSP Category III furnace. Follow this installation instruction to insure safe operation of the furnace. Failure to install furnace according to this installation instruction nullifies the furnace warranty.

SAFETY ALERT SYMBOLS
Safety Symbols alerting you to potential personal safety hazards. Obey all safety messages following these symbols.

⚠️ WARNING
Avoid possible injury or death

⚠️ CAUTION
Avoid possible injury and/or property damage

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 vehicle.
- Shut off gas supply at gas container or source.
- Do not touch any electrical switch, or use any phone or radio in vehicle.
- Do not start vehicle’s engine or electric generator.
- Contact 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 gas supply until gas leak(s) has been repaired.

Installation and service must be performed by a qualified Service Technician, Service Center or gas supplier.
Spacing of 1/4" to ducting within 3 feet 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.

**NOTE:** If zero clearance is maintained from furnace to cabinet structure, a 4" x 4" air intake cutout must be provided to blower wheel side of furnace at air intake opening.

**NOTE:** Clearances are specifically for plywood or similar building materials surrounding the furnace (i.e. furnace should not be located under furniture or in a closet space where clothing or other material could be located.)

**NOTE:** Furnace efficiency rating is a thermal rating determined under continuous operating conditions, independent of any installation. Eff. rate is given at 77% minimum, actual efficiency rating may be higher. *When furnaces are installed to minimum clearances, an additional 16 in² of return air must be provided to blower side of furnace, or a 2" clearance full length and height on blower side must be maintained.*

### WARNING

**CARBON MONOXIDE POISONING**

- Furnace must be installed and vented to these instructions.
- Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.
- Improper installation location may cause furnace to produce negative pressure, affecting combustion air or venting of other appliances.

### CRITICAL INSTALLATION WARNINGS

- **DO NOT** install furnace on material that restricts return air, like carpet or any soft material such as vinyl.
- **DO NOT** install where clearance to combustibles cannot be maintained.
- **DO NOT** modify furnace in any way.
- **DO NOT** alter furnace for a positive ground system.
- **DO NOT** HI-POT furnace unless electronic ignition system (circuit board) has been disconnected.
- **DO NOT** use battery charger to supply power to DC model furnace even when testing.
- **DO NOT** use 120 volt AC current with DC models.
- **DO NOT** use furnace cabinet area as a storage compartment.
- **DO NOT** vent furnace with venting system serving another appliance.
- **DO NOT** vent furnace to an outside enclosed porch area.
- **DO NOT** use for temporary heating of buildings or structures under construction.
- Protect building materials from degrading from flue gas exhaust.
- Protect furnace electrical components from water.

**USA AND CANADA - FOLLOW ALL APPLICABLE STATE AND LOCAL CODES -**

**IN THE ABSENCE OF LOCAL CODES OR REGULATIONS, REFER TO CURRENT STANDARDS OF:**
- Recreation Vehicles ANSI 1192/NFPA 1192.
- National Fuel Gas Code ANSI Z223.1 /CAN/CGA B149 Installation Codes
- Federal Mobile Home Construction & Safety Standard, Title 24 CFR, part 3280, or when this Standard is not applicable, the Standard for Manufactured Home Installations (Manufactured Home Sites, Communities and Set-Ups), ANSI A255.1 and/or CAN/CSA-Z234 MH Series, Mobile Homes.
- Ground - National Electrical Code ANSI/NFPA No. 70 and/or CSA C22.1
- Park Trailers ANSI 119.5

**NOTE:** The direct high voltage spark ignition generates a radio frequency that could cause interference with other microprocessor based equipment. Locate equipment at least five feet from furnace location. If this distance cannot be maintained, purchase KIT MPD 37773 (a shielded high voltage lead).

### WARNING

**CARBON MONOXIDE POISONING**

- Properly seal vent cap to side wall to prevent carbon monoxide from entering coach.
- **DO NOT** draw combustion air from living area. **DO NOT** vent exhaust air into the living area or an enclosed porch.

### INSTALLATION PROCEDURE

#### ZERO CLEARANCE - AIR INTAKE CUTOUT (FIG 1)

A 4" x 4" cabinet cut out must be provided when there is zero clearance between furnace and cabinet structure.

1. Set aside combustion air box and exhaust tube extensions for installation from outside coach.

#### FURNACE / VENT - CUTOUTS (FIG. 2)

<table>
<thead>
<tr>
<th>CUT OUT DIMENSION</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABINET WALL</td>
<td>2-3/4&quot;</td>
<td>3-5/8&quot;</td>
<td>4&quot;</td>
<td>4&quot;</td>
</tr>
</tbody>
</table>

**DO NOT OVERSIZE HOLE - OVERSIZING CAN RESULT IN WATER LEAKAGE**

<table>
<thead>
<tr>
<th>CUT OUT DIMENSION</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>COACH EXTerior WALL FOR VENT</td>
<td>4-7/8&quot;</td>
</tr>
</tbody>
</table>

#### DUCTING (FIG. 3)

Proper duct installation is critical to operation of furnace. When installing ducts, use materials rated for continuous use at 200°F. Front discharge temperature should not exceed 250°F.

#### Flexible Ducting System

When designing Flexible Duct Systems:
- **avoid sharp bends or crushed ducts**
- **stretch all ducts and run them directly to outlets, keeping quantity and angles of bends to a minimum**

2. A variety of vent kits are available to provide the correct venting from furnace to outside of vehicle. To determine vent LENGTH (V DIM), measure the distance from the back of furnace casing to outside vehicle side wall. For proper vent kit check your V DIM ON VENTING CHART.

3. Ducting available:

<table>
<thead>
<tr>
<th>TYPE OF DISCHARGE</th>
<th>REMOVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIDE ONLY</td>
<td>duct covers from both sides</td>
</tr>
<tr>
<td>COMBINATION</td>
<td>front discharge cover plate and side duct cover plate</td>
</tr>
<tr>
<td>FRONT &amp; SIDE</td>
<td>front discharge cover plate</td>
</tr>
</tbody>
</table>

4. Install the furnace through cutout in cabinet area. Secure furnace with two screws FIG 5-A.

**OPTIONAL - Installation:** The 79-II furnace may be installed in a cabinet behind a return air grille FIG 4-I. Door MUST be on furnace. Return air grille must supply a minimum of 35 in² of open area and
be in front of door to furnace. Provide an access opening for service and/or removal of furnace. The furnace must be side ducted (NO front discharge). Secure furnace to floor with one screw fig 4-J.

5. Remove cover plate from furnace fig 4-D. To install duct adapters for side discharge models, insert back flange over casing and insert tab into square notch, then twist adapter 180° fig 4-E.

6. Insert furnace into cabinet opening and secure with two screws through holes in control box flanges fig 5-A.

7. For side duct applications, slide 4” flexible ducting material over duct adapters and secure fig 3.

**VENTING**

1. To install extension box fig 4-C, apply mastic or sealant to back of flanges on box. Slide through outside wall cut out and into furnace air channel. **DO NOT FORCE OR BEND PARTS.**

2. Apply mastic or sealant to the top and sides of outer edge of vent cap. **DO NOT PLUG HOLES.** Slide assembly over furnace exhaust tube fig 4-B, push into wall and secure with two screws. Note that bottom flange is not sealed to allow water drainage.

3. The extension box has no minimum clearance requirement fig 4-C.

4. The vent outlet shall be installed as to be in the same atmospheric pressure zone as the combustion air intake. No modification of vent system is allowed.

**ELECTRICAL CONNECTION**

1. **WARNING INJURY OR PROPERTY DAMAGE**

   • Label all wires before disconnecting for service. Wiring errors can cause improper, dangerous operation. Verify proper operation after servicing.

   • Disconnect electrical power before servicing.

**Conductor Sizing Table - MAX. 10% VOLTAGE DROP - (12 VDC)**

<table>
<thead>
<tr>
<th>CURRENT DRAW (AMPS)</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAGE</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>MAX. LENGTH OF SAE CONDUCTOR (IN FEET) FROM SOURCE TO DEVICE</td>
<td>61</td>
<td>60</td>
<td>59</td>
<td>58</td>
<td>57</td>
<td>56</td>
<td>55</td>
<td>54</td>
<td>53</td>
</tr>
</tbody>
</table>

**WARNING CARBON MONOXIDE POISONING**

* Properly seal vent system preventing carbon monoxide from entering coach.

5. Install return-air system to ensure negative pressure, created by the circulating blower, does not effect another appliance’s combustion air supply or act to mix products of combustion with circulating air. All appliances in the furnace cabinet must be directly vented outside.

**DIRECTIONAL AIRBOX INSERT (FIG. 7)**

1. Remove front door of furnace.

2. Follow shutdown procedure instructions affixed to furnace.

3. Remove sheet metal screw holding circuit board plate to air box. Retain to fasten Air Box Insert to bottom of air box fig 7-A.

4. Install Air Box Insert into air box (pay attention to the direction you would like warm air diverted). Make sure two holes in Air Box Insert line up with existing holes in air box fig 7-B.

5. Fasten Air Box Insert to top of air box using a 1/4” long #6 sheet metal screw. Fasten bottom of Air Box Insert and circuit board plate to bottom of air box using the screw removed.

6. Follow lighting instructions to place furnace in operation.

7. Replace front door on furnace.

**PROPANE GAS CONNECTION (FIG. 5)**

Connect gas line to brass fitting on left side of furnace. 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 SEAL COMPOUND ON FLARE FITTINGS.**

1. Insert gas line through hole on left side.

2. Connect gas line to brass fitting inside furnace casing immediately ahead of gas control valve fig 5-B.

3. A 3/8” flared fitting connection is provided at gas control valve inlet for gas supply connection to furnace. The gas supply line of furnace must be of adequate size to provide 11” W.C. gas pressure. This pressure must be maintained under maximum flow conditions with all gas appliances operating.

4. A 1/8” N.P.T. plug is accessible for test gauge connection on gas valve assembly fig 5-H.

5. Use two wrenches to hold brass fitting and flare nut when tightening gas line to brass fitting. **DO NOT TWIST VALVE ASSEMBLY FIG 6.**
### Item # | Description of Parts
---|---
1 | Front Door
2 | Electronic Ignition Board
3 | Valve
4 | Front Discharge Cover Plate
5 | Electrode Cover Plate
6 | Electrode
7 | Electrode Gasket
8 | Heat Exchanger
9 | Burner Plate Gasket
10 | Sail Switch (79-II)
11 | Sail Switch (80-II)
12 | Blower Wheel (79-II)
13 | Blower Wheel (80-II)
14 | Motor (79-II)
15 | Motor (80-II)
16 | Combustion Wheel
17 | Duct Adapter
18 | Duct Cover Plate
19 | Air Hose
20 | Thermostat - SPECIFY COLOR
21 | Limit Switch (L-170)
22 | Relay
23 | On/Off Circuit Breaker
24 | Burner Head
25 | Manifold
26 | Motor Gasket
27 | Motor Spacer
28 | Small Burner Air Baffle - SPECIFY RATE
29 | Large Burner Air Baffle - SPECIFY RATE
30 | Electronic Ignition Mounting Plate
31 | Valve Bracket
32 | Electrode Gasket
33 | Vent Kit Specify Length
34 | Exhaust Tube Assembly - SPECIFY LENGTH & MATERIAL
35 | Air Box Assembly - SPECIFY LENGTH
36 | Orifice - SPECIFY RATE

### Item # | Description of Parts
---|---
12 | Motor (80-II)
13 | Ventilateur d’air de combustion
14 | Adaptateur de conduit
15 | Couvercle d’ouverture de branchement
16 | Tuyau à air
17 | Thermostat - PRÉCISEZ LA COULEUR
18 | Rupteur thermique (L-170)
19 | Relais
20 | Coupe-circuit marche/arrêt
21 | Tête de brûleur (79II/80II)
22 | Collecteur
23 | Joint d’étanchéité du moteur
24 | Entretoise du moteur
25 | Petit déflecteur d’air du brûleur - PRÉCISEZ LES CARACTÉRISTIQUES NOMINALES
26 | Grand déflecteur d’air du brûleur - PRÉCISEZ LES CARACTÉRISTIQUES NOMINALES
27 | Plaque de montage de l’allumage électronique
28 | Petit déflecteur d’air du brûleur - PRÉCISEZ LES CARACTÉRISTIQUES NOMINALES
29 | Support de soupape
30 | Module d’évacuation - PRÉCISEZ LA LONGUEUR & LE MATERIAU
31 | Exhaus Tube Assembly - PRÉCISEZ LA LONGUEUR & LE MATERIAU
32 | Boîte à air - PRÉCISEZ LA LONGUEUR
33 | Lumière - PRÉCISEZ LE CALIBRE