Customer:_____

Model Number: DH - _____ Serial Number: _____

Field Start-Up Sheet

Direct Fired Gas - Door Heaters

****Please Print****

INITIAL INSPECTION

I. Miscellaneous Items

1. Visible Physical Damage? _____ No If Yes, Specify_____
2. Hardware Tight & Secure ____

Comments: _____

II. Fan & Motor

1. ___ Fan Secured Tightly to Motor Shaft
2. ___ Bushing Bolts Secure

Comments: _____

III. Burner Inspection

1. ___ Spark Igniter Secured Properly
2. ___ Unions Tight and Secure
3. ___ Flame Rod Secured Properly
4. ___ Ignition Wire Attached at Both Ends

Comments: _____

IV. Manifold & Vent Piping

1. ___ Manifold Securely Mounted
2. ___ Manifold Components Tight and Secure

Comments: _____

VI. Electric Service

1. Electrical Service Provided to Unit: ____ Volts ____ Phase ____ Hertz _____ Amps
2. Unit Nameplate Electrical Requirement: ____ Volts ____ Phase ____ Hertz _____ Amps
3. Terminal Strip Wires Tight: Main Panel __ Yes Remote Panel __ Yes
4. Componentry and Relays Mounted Securely in Place __ Yes
5. Main Fusing Size: ____ Volts ____ Amps 6. Overload Heater Size _____
6. The Unit has been grounded by the installer at the main unit panel __ Yes

Comments: _____

VII. Gas Service

(See maximum and minimum gas pressure requirements on unit rating plate)

1. __ Natural Gas __ LP Gas Service Pressure ____ " W.C. -or- ____ Lbs

VIII. Installer Responsibilities

1. Remote Panel Installed Location: __ Inside Wall __ Outside Wall ____ Feet From Unit (approx.)
2. Installation secure __ Yes __ No _____

VERIFICATION OF OPERATION

NOTE: Refer to the Sequence of Operation & Wiring Diagram in the Owners Manual for specific data on this unit.

I. Fan Operation

1. Fan Rotation is in the same direction as the rotation arrow ____ Yes
2. Check the following:

	Unit Off	Unit Running	
Phase 1:	_____ Volts	_____ Volts _____ Amps	*Verify the motor running amps does not*
Phase 2:	_____ Volts	_____ Volts _____ Amps	*exceed the motor nameplate FLA*
Phase 3:	_____ Volts	_____ Volts _____ Amps	

II. Burner Operation

1. The Burner Suction Static Pressure is _____ " W.C. (Measured at the manifold pressure tap with unit fan on and gas off)
2. The Burner Operating Pressure is _____ "W.C. (Measured as above, but with fan and gas on, and unit in forced high fire)

Note: Burner Operating Pressure plus Suction Pressure = Manifold Pressure (Example: -0.5 +3.0 = 3.5...ignore signs)
Refer to the unit rating plate for correct high fire manifold pressure

3. The High Temperature Limit Switch is pre-set to 100°F
4. The Fan Airflow Switch is field set at _____" W.C. (Adjust as needed - Factory set at 0.35" WC)
5. Check to ensure the flame signal is over 0.7 microamps at the FC- and FC+ terminals on the ignition module.

VI. Miscellaneous Operational Checks:

1. With the fan and burner operating, all of the circuit check lights are illuminated (except the burner lock-out light) __ Yes
2. The electrical drawing and sequence of operation is taped to the enclosure door. __ Yes
3. The owners manual was reviewed by me with the owner, and placed back inside the unit enclosure __ Yes
4. The owner was instructed by me on the operation of the following controls and options (check those that apply):

__ Fan Blade Maintenance
__ Flame Rod Maintenance
__ Motor Lubrication
__ Burner Maintenance
__ Spark Igniter Maintenance
__ _____

Comments:

_____

THE ABOVE START-UP WAS PERFORMED BY

Company Name: _____ Date: _____

Phone Number: (_____) - _____ Fax Number: (_____) - _____

My Name (Service Tech) _____

After Completion, Return this start-up sheet to the Owners Manual...

AbsolutAire, Inc.
5496 North Riverview Drive
Kalamazoo, MI 49004
Phone: (800) 804-4000 Fax: (269) 382-5291

ABSOLUTAIRE, INC.

GENERAL INSTALLATION & OPERATING INSTRUCTIONS

DIRECT GAS FIRED DOOR HEATERS

MODEL NO.: DH70 & DH90

The following recommendations are not intended to replace or void any requirements of federal, state or local codes having jurisdiction. All local authorities having jurisdiction should be consulted before installation is made. The heater should be installed and piped in accordance with the requirements of the National Fuel Gas Code, NFPA 54, and all wiring must be in accordance with the National Electrical Code, NFPA 70 current edition.

FOR YOUR SAFETY: IF YOU SMELL GAS...

1. **Open Windows**
2. **Don't touch electrical switches**
3. **Extinguish any open flames**
4. **Evacuate the structure**
5. **Call your gas supplier**

Read all instructions before installing or operating this appliance. Failure to do so may void your warranty, and may result in unsafe operation, property damage, personal injury, or death.

Inspect the unit for visible damage. The unit was thoroughly inspected before leaving the factory, and the carrier has accepted and signed for it. Any damage or irregularities should be noted at the time of delivery and immediately reported to the delivery carrier. Request a written inspection report from the Claims Inspector to substantiate any necessary claim. File the claim with the delivery carrier, not with AbsolutAire, Inc.

Further inspect the unit as follows:

A) Unlatch and open electrical box door. Inspect for internal damage.

B) Remove and inspect all loose-shipped items, make certain all items are undamaged.

If questions should arise regarding the application or installation of the AbsolutAire DH70/90 System, that cannot be solved by using these instructions, please feel free to contact us at (269) 382-1875.

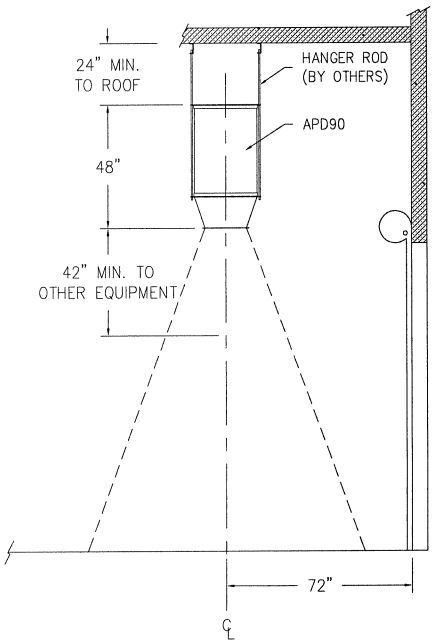
It is the responsibility of the installing contractor to see that the unit is installed within the manufacturers design parameters, as stated on the rating plate, and that the start-up procedure specified by the manufacturer is followed.

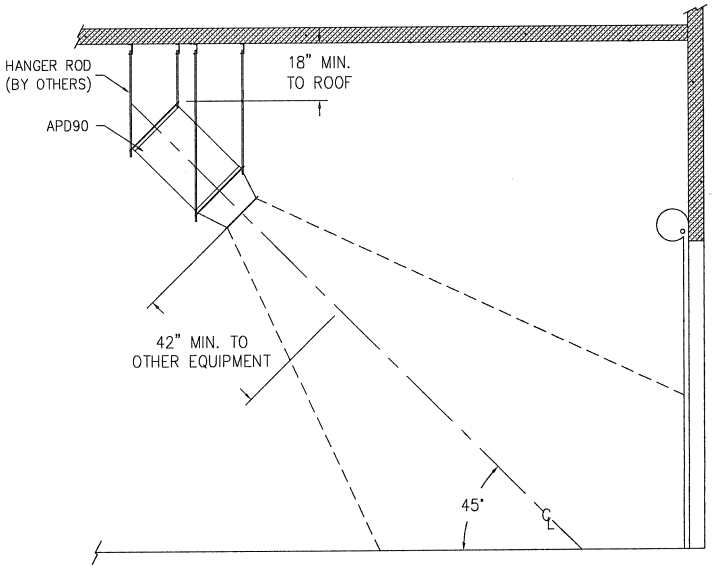
INSTALLATION

DH70/90 models are designed to be susupended within the building. Hanger rods and channel iron, adequate to support the weight of the unit, will be required. Attach the hanger rods to the building structure so they hang down and attach to the angle rings on the APD90. Make sure the rod locations don't interfere with gas train serviceability or electrical control panel access. If desired, provide one suspension type vibration isolator in each hanger rod. The minimum combined ratings of the vibration isolators and suspension materials should equal 150% of the total weight of the fully assembled unit.

Move the unit to its installation location. Fully assemble the unit with all included components. Raise the unit so that the hanger rods drop through hole(s) in the angle extensions. Attach two nuts to each hanger rod and jamb the two nuts together to prevent loosening.

DH70/90 TYPICAL (factory recommended) INSTALLATIONS





The unit is now ready for piping and wiring.

CAUTION

Be sure there are no obstructions of the unit inlet or outlet (see diagram on page 2). Most insurance requirements state that an open flame appliance such as this cannot be any closer that 20' from spray booths, dip tanks, or other sources of flammable vapor.

A DH70/90 cannot substitute for make-up air. If severe negative pressure exists because of exhaust loads, make-up air must be provided for the DH70/90 to operate properly.

PIPING

A female pipe connection has been provided on the upstream side of the first control on the unit for connection of the inlet gas pipe. This is the only gas connection required. Be sure the gas supply pipe is large enough to insure the proper gas volume and line pressure at the inlet of the unit. Gas pipe must be sized and installed in accordance with applicable codes and standards. After connection of the gas pipe, check for leaks and bleed the line. Incoming gas piping to the heater must be independently supported. A drip leg and ground joint union must be provided in the gas supply line.

NOTE: NFPA 54 National Fuel Gas Code requires that an approved manual gas valve be installed within six feet of the unit. We recommend use of a gas valve with a pressure tap on the inlet to measure gas supply pressure.

NOTE: An inlet gas pressure measurement must be taken to insure proper inlet gas pressure. Inlet pressure should be neither too low or too high. Check the nameplate for the minimum and maximum pressure requirements for the DH70/90. If the supply gas pressure exceeds the maximum inlet supply pressure as stated on the unit rating plate, an auxiliary high pressure regulator must be installed in the incoming gas line by the contractor. The gas supply pressure must meet or exceed the minimum inlet gas supply pressure, as stated on the unit rating plate, while the burner is under full fire.

WIRING

All electrical wiring must be in accordance with applicable codes and standards. See the electrical diagram on the unit door or in the service manual before attempting any wiring. Refer to the unit rating plate for required incoming voltage and phase. Check for concurrence with voltage and phase shown on the wiring diagram.

The manual reset high temperature limit (HTL) switch is located in the electrical box. The HTL bulb is in the side of the housing.

DOOR INTERLOCK SWITCH

This unit cannot be operated without the door interlock switch being installed properly. The interlock switch must be:

- installed in locations not subject to accidental operation.
- Mounted rigidly with suitable clearances for serviceability.
- Installed with conduit end down.
- Installed on the overhead door frame, so that it trips when the door opens.

WARNING! ! !

Spark testing or shorting of control wires by any means will render the control transformer inoperative. DO NOT allow this to happen as it IS NOT covered under the warranty.

We recommend that the wires for the control circuit be routed through the conduit provided with the main electrical service to the equipment. This procedure is provided for in Chapter 3, Article 300-3(a) of the NFPA 70 1984 National Electrical Code. It reads as follows: "Conductors of 600 volts or less shall be permitted to occupy the same equipment wiring enclosure, cable or raceway, without regard to whether the individual circuits are alternating current or direct current, where all conductors are insulated for the maximum voltage of any conductor within the enclosure, cable or raceway."

An electric disconnect switch having adequate ampacity shall be installed in accordance with Article 430 of the National Electric Code (N.E.C.), ANSI/NFPA 70. If not factory installed, please refer to the unit rating plate for voltage and ampacity requirements. Open cover on disconnect box, connect line voltage wiring to terminal block provided.

Feed the control wiring through the conduit to the master panel. Connect color coded and/or numbered control wires to the terminal strip per the wiring diagram.

Energize the system and check for unusual noises or vibrations, etc. Check the fan for proper rotation. THIS MUST BE A VISUAL CHECK as fans will move air even if they are running backward, but the system will not perform properly. Check the amp draw to all motors to insure it does not exceed the rated maximum current rating of the motor.

Recirculation of room air may be hazardous in the presence of:

***Flammable liquids, solids and gases**
***Explosive dusts or powders**
***Substances which become toxic when exposed to heat**

In order to reduce the chance of interior condensation, recirculation is not recommended in non-insulated buildings where outdoor temperatures fall below 32°F (0°C).

MAINTENANCE

Monthly - check the operation of the following:

- Flame Safeguard
- Air flow switch
- High temperature limit
- Clean fan blades

Annually - check the operation of the following:

- Clean burner ports and mixing plates
- Check gas manifold pressure
- Replace spark igniter
- Check ignition wire for deterioration
- Clean fan blades
- Check motor and burner tightness
- Check unit installation and supports
- Check for gas leaks with a soap solution
- Lubricate motor

Initial Start-up After Installation

1. Check all gas piping for leaks with a soap solution.
2. Check that the fan is rotating in the proper direction
3. Manually reset the flame relay and the high temperature limit switch.
4. Open main gas cock and turn unit on. Check and adjust gas pressure as needed.
5. Cycle the unit on and off several times to ensure proper operation.

In damp or wet environments, it may be necessary to run the unit with the fan only for several minutes upon initial morning start-up to dry off the spark igniter.

PROCEED WITH THE FIELD START-UP CHECK LIST

TROUBLESHOOTING

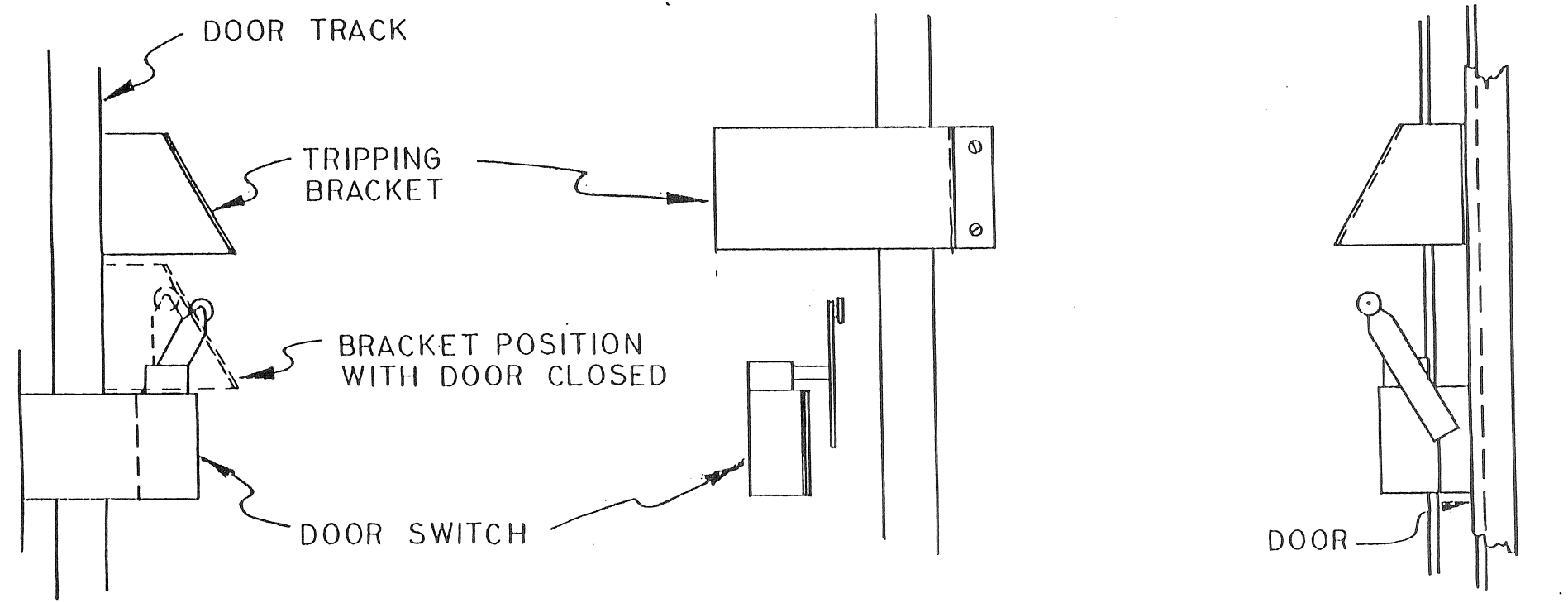
1. **Fan Will Not Operate.**
   - A. Make sure disconnect switch is closed.
   - B. Be sure that the fan on-off switch, at remote station, is in the on position.
   - C. Make sure the door interlock is made
   - D. Check motor starter overloads, reset if necessary.
   - E. Check transformer fuses.

2. **Fan Runs - Burner Doesn't Light.**
   - A. Make sure the main gas cock is open.
   - B. Be sure that the heat on-off switch, at remote station, is in the on position.
   - C. Check the air flow switch to be sure steady contact is being made.
   - D. Reset the flame relay if tripped.
   - E. Check the high limit switch and reset if necessary.
   - F. Check gas pressure at burner.
   - G. Check flame rod for cracks, dirt, etc.
   - H. Check spark igniter for cracks, dirt, etc.
   - I. Check solenoid valve for proper voltages.

NOTE: Only use factory replacement parts, unless authorized to do otherwise.

ABSOLUTAIRE, INC.
5496 North Riverview Drive
Kalamazoo, MI 49004-1595
Telephone: (269) 382-1875
Facsimile: (269) 382-5291

MC-163DH 5/06



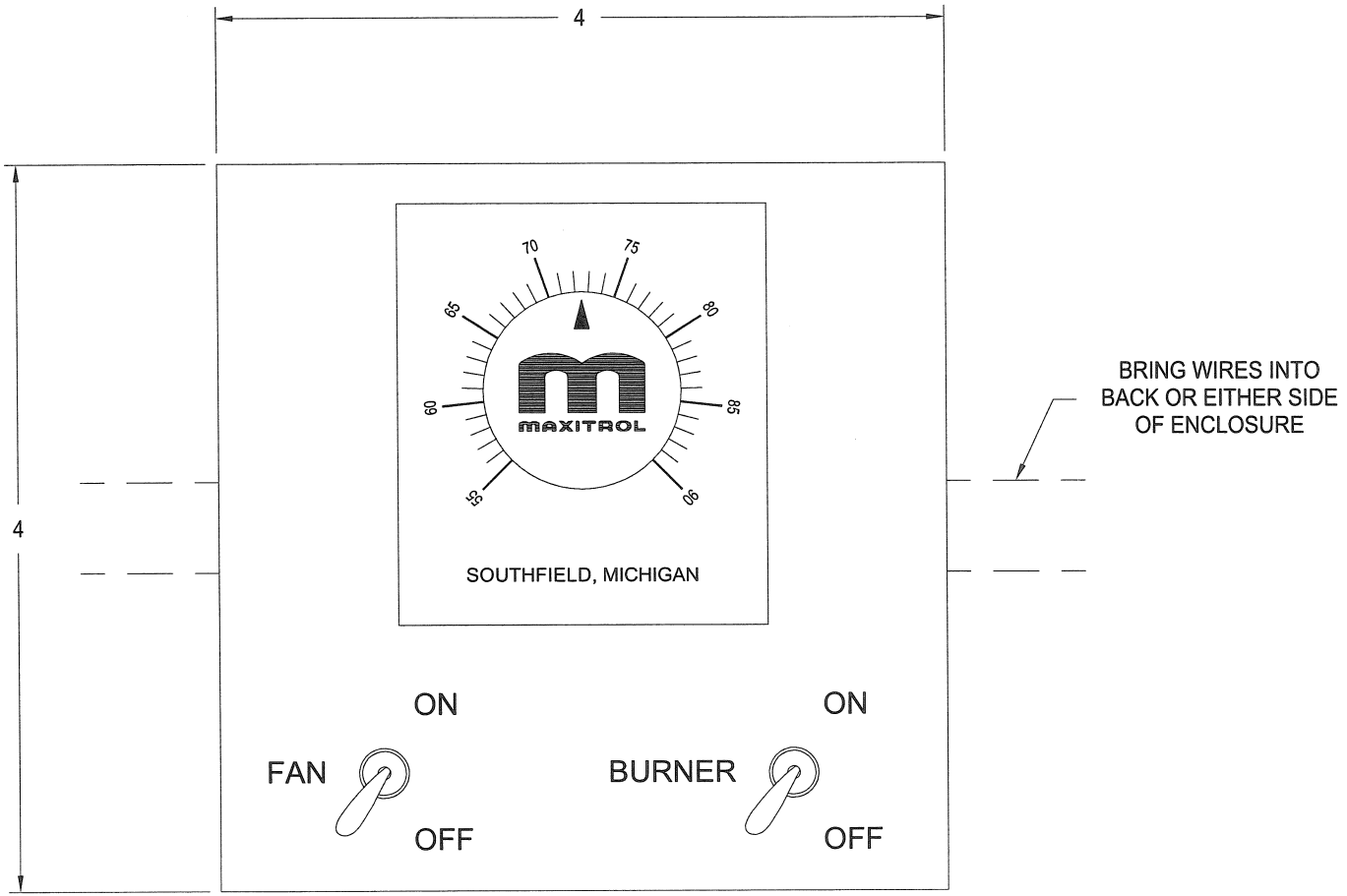
LEFT SIDE VIEW

FRONT VIEW

RIGHT SIDE VIEW

TYPICAL DOOR SWITCH INSTALLATION

PROPRIETARY



LAST REVISION: -	REV.	ECO#	DATE	CK BY	-	-	-
NOTES:					NET QTY	MATERIAL	MATERIAL SIZE
					Absolut Aire, Inc. 5496 North Riverview Dr., Kalamazoo MI 49004		
					DESC. DH70/90 - REMOTE STATION		
ALL O-LINES (OR 0,0) WILL ALWAYS BE IN THE LOWER LEFT-HAND CORNER OF THE PART	-	-	-	-	SCALE NONE	DRAWN BY: AMB	DATE: 5-16-06	REV. -	FILE NO.: DH90-R
DRAWING FILE LOCATION: T:\HTR-LIT	AAI PART #: -				PLOT RATIO: 1=1	CK BY: -	WO# -		