Customer:_____

Sales Representative: _____

Model Number: _____

Serial Number: _____

Field Start-Up Sheet

Electric Coil Heating Equipment

****Please Print****

INITIAL INSPECTION

I. Installer Responsibilities

1. Remote Panel: All interconnecting wires run from remote to unit ☐ Yes
   Temperature control interconnect wires to remote ran in: ☐ Shielded Cable ☐ Separate Conduit
   Remote Panel Location: ☐ Inside Wall ☐ Outside Wall ____ Feet From Unit (approx.)
2. Indoor Return Air Unit: Building Pressure Switch Tubing for "Low-Tap" is run outdoors ☐ Yes
3. Outdoor Return Air Unit: Building Pressure Switch Tubing for "High-Tap" is run indoors ☐ Yes
4. R366-R389 Models: The panel with the low temp limit switch is mounted ☐ Yes
5. Electrical Supply properly installed to main panel, at the voltage and amperage as stated on the unit nameplate ☐ Yes
   - NOTE: TWO SERVICES MAY BE REQUIRED WITH LARGER COIL UNITS -
6. Multi-section units: joints caulked at mating frames, all bolts and nuts installed and tightened, seam tape applied ☐ Yes
7. Upright Units: Legs attached and bolted, shimmed properly so unit does not "rock" ☐ Yes
8. Duct connections made and sealed properly ☐ Yes Return air screen installed at building wall ☐ Yes
9. Discharge head installed secure, with diffuser blades tightened and in the open position ☐ Yes
10. All "shipped loose" items installed properly - filters, vibration isolators, smoke detectors, dampers, louvers, service lights supply fan belts, service platform, roof curb, humidistat, CO detector, etc. ☐ Yes
11. All shipping and rigging paint scratches have been properly touched-up ☐ Yes

Comments:_____

_____

II. Miscellaneous Items

1. Visible Physical Damage? _____ NO IF YES, Specify_____
2. Type of Installation: ☐ Outdoor ☐ Indoor ☐ Roof Curb ☐ Platform ☐ Post ☐ Suspended ☐ Upright
3. Hardware Tight & Secure ____ 4. Damper Linkages Secure _____

Comments: _____

III. Fan & Motor Sheaves

1. ___ Fan & Motor Sheaves Secured Tightly to Shafts
2. ___ V-Belts Aligned Properly
3. ___ Fan Bearing Set screws Tight
4. ___ Fan Motor Manufacturer_____ HP_____ FLA_____ Frame Size _____
5. ___ Bushing Bolts Secure
6. ___ V-Belts Tensioned Properly
7. ___ Fan Bearing Mounting Bolts Tight

Comments: _____

IV. Electric Coil Inspection

1. ___ Heater Coil Secured Properly

Comments: _____

V. Filters

1. ___ Filters Installed Properly 2. Type: ☐ Aluminum ☐ Pleated 30% ☐ Pad & Frame ☐ Other

Comments: _____

VI. Electric Service

1. Electrical Service Provided to Unit (For Fan Motor) : ____ Volts ____ Phase ____ Hertz _____ Amps
2. Electrical Service Provided to Unit (For Coil) : ____ Volts ____ Phase ____ Hertz _____ Amps
3. Unit Nameplate Electrical Requirement: ____ Volts ____ Phase ____ Hertz _____ Amps
4. Terminal Strip Wires Tight: Main Panel ☐ Yes Remote Panel ☐ Yes
5. Componentry and Relays Mounted Securely in Place ☐ Yes
6. Light Bulbs Installed in Sockets for Control Enclosure Lighting ☐ Yes
7. Main Fusing Size: ____ Volts ____ Amps 6. Overload Heater Size _____
8. The Unit has been grounded by the installer at the main unit panel ☐ Yes

Comments: _____

VERIFICATION OF OPERATION

NOTE: Refer to the Sequence of Operation & Wiring Diagram in the Owners Manual for specific data on this unit. See Factory Start-up & Test Sheet in the Unit Owners Manual to note the unit settings prior to shipment.

I. Fan Operation

1. The Inlet Damper is fully open when fan comes on ☐ Yes ☐ NA Discharge Damper operates properly ☐ Yes ☐ NA
2. The low-temperature limit switch is field set at _____°F. (Factory set at 40°F.)
3. The low-limit by-pass timer completes its cycle in _____ minutes _____ seconds (normal: 5 minutes)
4. Fan Rotation is in the same direction as the rotation arrow ☐ Yes
5. Discharge External Static Pressure _____ " W.C.
6. Check the following:

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

II. Space Temperature Control Systems

1. The heating stage contactors energize in sequence on a call for increased space temperature ☐ Yes ☐ No

III. Discharge Temperature Control Systems

1. The heating stage contactors energize in sequence on a call for increased discharge temperature ☐ Yes ☐ No

IV. Damper Control Options

Manual Pot Control:

1. With the manual pot set to zero (0%), the outdoor air damper is closed and the return air damper is open. ☐ Yes
2. With the manual pot set to 100%, the outdoor air damper is open and the return air damper is closed. ☐ Yes
3. The manual pot was left set at _____% and the owner was instructed on its operation by me. ☐ Yes

Building Pressure Control:

1. The differential setting on the building pressure switch is field set at _____ " WC (Typical is .01 - .03" WC)
2. By opening a building door or turning on an exhaust fan in the building, the unit pressure switch calls for more outside air (OA), causing the OA damper to open, and the return air (RA) damper to close. When the building door is closed, or the exhaust fan turned off, the OA and RA dampers react opposite. ☐ Yes

Comments: _____

V. Miscellaneous Operational Checks:

1. With the unit fan and electric coil operating, all of the circuit check lights are illuminated (except the the low temperature switch pilot light) ☐ Yes
2. If furnished, the time clock has been programmed per owner instructions, and training provided to him by me ☐ Yes
3. If provided, the following temperature control stats have been set by me, and instructions provided to the owner:

   _____ Cycle Stat _____ Cool-down Stat ____ Mild Weather Stat ____ Freeze Stat

4. The electrical drawing and sequence of operation is taped to the enclosure door. ☐ Yes
5. The owners manual was reviewed by me with the owner, and placed back inside the unit enclosure ☐ Yes
6. The owner was instructed by me on the operation of the following controls and options (check those that apply):

☐ Keyed Switches on remote panel	☐ Space Temperature Selector
☐ Discharge Temperature Selector	☐ Smoke Detector
☐ 3-phase Power Monitor	☐ CO Detector
☐ Magnahelic Gauge	☐ Photohelic Gauge
☐ 120V GFI Outlet	☐ Spray/Bake Control Operation
☐ Dirty Filter Light/Alarm	☐ Evaporative Cooler
☐ Fan Bearing Grease Type & Lube Cycle	☐ Filter Maintenance
☐ Exhaust Cycle Operation	☐ Internal By-Pass Operation
☐ Discharge Head Deflection Blade Adjustment	☐ Coil Maintenance
☐ _____	☐ _____

Comments

_____

_____

_____

_____

_____

_____

_____

_____

_____

THE ABOVE START-UP WAS PERFORMED BY

Company Name: _____ Date: _____

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

My Name (Service Tech) _____

- MAKE A COPY FOR YOUR FILES AS NECESSARY

The Owner Representative that I met with and discussed the unit controls and operation was:

NAME: _____ **TITLE:** _____
(Please Print)

CUSTOMER'S AUTHORIZED SIGNATURE
I acknowledge that I have been instructed on the operation of this unit:

Signature_____ Date: _____ Phone No. _____

After Completion, Return this start-up sheet to:

AbsolutAire, Inc.

5496 North Riverview Drive
Kalamazoo, MI 49004

Phone: (800) 804-4000 Fax: (616) 382-5291
www.absolutaire.com

(stupelec) ***10/99***

ABSOLUTAIRE, INC.
GENERAL INSTALLATION INSTRUCTIONS
ELECTRIC HEATING AND MAKE-UP AIR UNITS

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 NFPA 54, and all wiring in accordance with the National Electrical Code, NFPA 70 current edition.

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 carrier, not with *ABSOLUTAIRE.*

Further inspect the unit as follows:

A) Unlatch and open Unit Access Doors. Inspect for internal damage.

B) Remove and inspect all loose-shipped items, including remote mount control panel. Make certain all items are undamaged.

If questions or complications should arise regarding the application or installation of the *ABSOLUTAIRE* Air Handling System, that cannot be solved by using these instructions or the Maintenance Guidelines, please feel free to contact us at (800) 804-4000.

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 the start-up procedure specified by the manufacturer is followed. Failure to comply may void our warranty and/or the component manufacturer's warranty.

INSTALLATION

Inspect the blower wheels, shaft and motor for any shipping blocks which must be removed before operation.

ROOFTOP/CURB MOUNTED

For a unit that discharges downward through a curb, locate the required opening for connecting ductwork. Cut through roof deck for connection of duct to blower discharge. Allow adequate, at least one inch, clearance on all sides between ductwork and decking material. Position the curb on the roof in relation to the roof penetration, as shown on the blueprint. Secure the curb to the structural members. The curb may now be flashed into the roof. Roof top, down discharge units are provided with a skirt that is larger than the curb on all sides. This allows for roofing up to the top of the curb, if so desired. On applicable models, attach the furnished support legs to the intake end of unit, one on each side. The unit may now be lifted up onto the curb

.

NOTE: Units which discharge down through the curb with discharge dampers must have the roof opening cut large enough to allow access to the damper motor and linkage from below the roof. The damper should be mounted and motor wired with pigtail provided before the unit is set on the curb.

NOTE: We recommend the connection of a short length of ductwork to the unit before setting on the curb to extend through the roof if minimum (1") clearance is being used around the duct.

PAD MOUNTED

For a unit designed to mount on a pad or other support and discharge horizontally, vibration isolators are recommended. A channel iron support adequate to carry the weight of the unit must be secured to the bottom of the unit, one at each end, extending at least 3" past the sides of the unit. On standard models, four vibration isolators will be used, one for each corner of the unit. On some models, refer to your submittal or record drawing for size, quantity, and location of isolators. Anchor the vibration isolators to the pad. The unit may now be set down onto the isolators and bolted to them.

INDOOR/SUSPENDED

For a unit designed to be suspended within the building, hanger rods and channel iron adequate to support the weight of the unit will be required. On standard models, the channel iron must be secured to the bottom of the unit, one at each end, extending at least 3" past the sides of the unit. On some models refer to your submittal or record drawing for size, quantity, and location of channel iron and isolators. Attach the hanger rods to the building structure so they hang down to the channel extensions under the unit. Make sure the rod location does not interfere with the removal of unit access panels. Provide one suspension type vibration isolator in each hanger rod. The minimum combined ratings of the vibration isolators and suspension materials should equal the total weight of the fully assembled unit. Move the unit to its installation location. Fully assemble the unit with all included components (motorized discharge dampers, etc.) Raise the unit so that one hanger rod drops through holes in the channel extensions. Attach two nuts to hanger rods and level unit, jamb the two nuts together to prevent loosening.

The unit is now ready for wiring, and connection to any required ductwork.

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.

Refer to wiring diagram for numbers of wires needed for main power connection and remote control wiring. Field wiring is shown with dashed lines.

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

DUCTWORK

Ductwork must be sized and installed in accordance with applicable codes and standards. On units mounted outdoors, it is recommended that all discharge and return air ducts be insulated to prevent condensation during the "Off" cycle in cold weather. A fresh air intake hood with bird screen and/or filters may have been supplied by *ABSOLUTAIRE* with the heater.

The requirements for discharge ductwork are usually considerably less than with a conventional system. Generally, a "Splash Plate" or other method of distributing the air may be all that is necessary.

SOUND CONTROL

Flexible connectors should be employed on all ductwork connections. Unit vibration isolators are recommended for suspended units and can be supplied by *ABSOLUTAIRE* as optional equipment.

DO NOT OPERATE UNIT FOR MORE THAN SIXTY (60) SECONDS WITHOUT ALL ACCESS DOORS CLOSED, WITH EXCEPTION OF THE ELECTRICAL PANEL.

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.

If not factory installed, a low temperature limit switch can be interlocked with this heater to prevent prolonged discharge of cold air in the event of burner lockout or shutdown.

PROCEED WITH THE FIELD START-UP AND CHECK LIST

ABSOLUTAIRE, INC.
5496 North Riverview Drive
Kalamazoo, MI 49004

Telephone: (800) 804-4000
Facsimile: (616) 382-5291

ABSOLUTAIRE, INC.
MAINTENANCE GUIDELINES
ELECTRIC HEATERS AND MAKE-UP AIR UNITS

5496 North Riverview Drive / Kalamazoo, MI 49004
Phone (800) 804-4000 / Facsimile (616) 382-5291

Your *ABSOLUTAIRE* product is engineered to provide trouble-free operation. In order to assure proper performance the following maintenance schedule is recommended.

MOTOR:

Check the motor sheave set-screws and the motor slide base bolts for tightness upon initial start-up and before each heating season. The motor bearings are pre-lubricated at the factory for initial operation but should be re-lubricated (when provided with grease fittings) at six (6) month intervals. *ABSOLUTAIRE, Inc.* recommends the use of Shell Oil Company's "Dolium R", Chevron Oil's "SRI No. 2", or Texaco "Premium RB" lubricant. Clean the grease fitting and then apply the grease with a proper grease gun. Use two full strokes for each bearing.

CAUTION: Do not over lubricate.
Keep grease clean.
Lubricate motors at standstill.
Do not mix petroleum grease with silicone grease.

BLOWER:

After initial start-up, check the tightness of the fan sheave, fan hub set screws, fan bearing collar set screws, and fan bearing mounting bolts. Also when re-tensioning the v-belts, when re-lubricating the fan bearings, and before each heating season.

AA Model Heaters: Most AA units with 18" and smaller blowers are provided with pre-lubricated sealed bearings which require no additional lubrication for the life of the bearing. Some AA models are provided with pillow block bearings and should be lubricated annually using the following (or equivalent) grease:

ESSO Beacon 325 or Shell Alvania #3 or equivalant

R300 Model Heaters: All R300 fan bearings should be lubricated after the first one hundred (100) hours of operation, and re-lubricated on a quarterly basis thereafter. We recommend the use of the following (or equivalent) grease:

MOBIL SHC460

Clean the grease fitting and then apply the grease with a proper grease gun. Inject enough grease until a small amount shows between the seal and the bearing race.

Examine the blower wheel at six (6) month intervals for accumulation of dust and dirt on the fan blades. Any build-up must be cleaned off to maintain performance. If the accumulation is heavy, more frequent cleaning may be required.

BELTS: Due to belt stretching, adjust belt tension after the first one hundred (100) hours of operation. Check belts every three months thereafter for proper tension. Do not over tighten. Adjustment should result in a belt deflection of 3/4" to 1" for each foot of span when applying medium thumb pressure inward at the center of the span.

FILTERS: Inspect monthly until an appropriate schedule can be established, based on need. Replace or clean as necessary.

COILS: Inspect and carefully clean the coil fins on the entering air side annually. If these inspections indicate that more frequent cleaning is required, establish a cleaning schedule accordingly.

EVAP COOLERS: The evap cooler sump tank should be drained and cleaned on a regular periodic basis, as needed depending on your usage. Any scale, dirt and rust should be wiped and/or wire-brushed as necessary before reusing.

AIR PRESSURE SWITCHES: An annual check of the tube for the air flow switch, and the entering and leaving side of building pressure switches, should be made to insure against blockage.

DAMPER AND MOTOR: Check linkage connection and/or set screws for tightness. Lubricate the damper bushings as required.

PAINTING: After unit installation, touch up any scratches caused by handling. Periodic touch-up painting should be done thereafter as needed.

GASKETS: Inspect door gasket seals annually. Replace those showing damage or deterioration.

Fan Bearing Lubrication Frequency

Under normal conditions, no relubrication is the rule. The bearing lubricant cavity is 1/3 to 1/2 filled as shipped from the factory. A lithium based grease, suitable for long term use, is sealed in the bearing making relubrication unnecessary under most operating conditions. Insert bearings are non-lubricatable. Pillow-block bearings have a grease fitting. **Never lubricate new bearings**

As a guideline with large safety margins, bearing manufacturers publish a mathematical method to calculate the service life of grease based on the bearing RPM, diameter, and load. For example, the grease service life of a 910 blower delivering 2000 CFM against 1-1/2" S.P. @ 1019 RPM is 38,000 hrs (4 years +). The grease service life in the same application but with a 1-3/16" shaft is slightly less at 35,000 (4 years). **Using larger bearings does not increase the grease service life.**

Relubrication frequency should be increased when bearings are exposed to abnormal conditions such as elevated temperatures, water, or excessive dust.

Type of Lubricant

The bearings supplied by Delhi use ESSO - Beacon 325 grease, which has lithium-soap thickening agent. When relubricating, it is important to use a compatible grease (i.e. similar thickener). **Mixing of non-compatible lubricants can cause a drastic change in the lubricant properties and may result in premature bearing failure.** Compatible lubricants are ESSO - Beacon 325 or Shell - Alvania Grease #3.

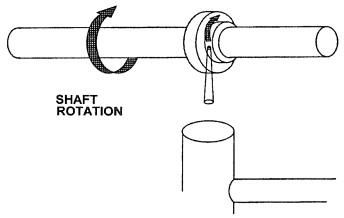
Lubrication Procedure

Disconnect and lock-out the power to the unit. Remove the belt and rotate the blower by hand while adding a small amount of grease. One to two shots from a grease gun is satisfactory. Do not over lubricate - **over lubrication will cause higher operating temperatures and lead to premature failure.**

Bearing Installation

Eccentric locking collar type

With the bearing positioned and mounted, slip the collar over the inner eccentric ring and rotate the collar in the direction of rotation. Insert a drift pin in the pin hole and tap in the direction of rotation to set. Tighten locking collar set screw collar firmly.



Set Screw type

The 2 Set screws located 120 deg. apart should be tightened equally. A small flat can be filed on the shaft under the set screw for added security and to facilitate future replacement by recessing the set screw burr. Follow the manufacturers torque recommendations since overtightened set screws can fracture the inner ring. Recommended torque settings are shown below:

Bearing Size	Recommended Torque IN-LB
3/4" & 1"	28
1-3/16" & 1-7/16"	37
1-11/16" & 1-15/16"	58
2-3/16"	83

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