

# Desert Spring Products™

## DS 3200/DS2001 Humidifier Assembly & Instruction Manual

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### Warning

- Disconnect electrical power to the furnace before starting electrical installation. Electrical shock could result in serious injury.
- Follow furnace manufacturer's recommendations for wiring of motor power supply.
- Sharp edges may cause serious injury. Use care when making openings in ducts.
- Follow local standards and codes.

### Caution

- Do not install the humidifier on the furnace jacket, only on the cold air return duct or plenum.
- If the heating system also has central cooling, the humidifier supply takeoff must have a damper. The damper should be closed during the cooling season.
- Do not lubricate any part of your humidifier. It is made from self-lubricating plastics.
- Do not connect the transformer directly to multi-speed furnace blower motors or blower motors other than 110 VAC. (Disregard for plug in style transformer)
- Turn off the water supply before starting water connection and release pressure in the system by opening a tap or flushing a toilet.
- Install the water supply valve on household water supply pressure only.
- Follow furnace manufacturer recommendations for electrical connections if provided.
- You may want to install this humidifier yourself. If you do, understand that the incorrect use of any tool can cause injury to person or product. Be sure you understand how to use the required tools to avoid any hazards or injuries. Arrange for professional installation if required.
- To ensure that your new humidifier will provide maximum benefit, your furnace must be operating in accordance with the manufacturer's specifications. If your furnace is operating outside of its manufacturer's specifications, your Desert Spring™ warranty could be voided.
- Ensure that the hot air supply temperature does not exceed 82° Celsius (180° Fahrenheit).
- Ensure that unit is mounted level.

### Thank You

- Congratulations and thank you for selecting the Desert Spring™ Humidifier. This fine product will provide you with years of reliable, low-maintenance service.

# Parts List

• Basin	1
• Lid	1
• Motor plate	1
• Air inlet	1
• Disk wheel	1
• Float	1
• Drain	1
• Cap	1
• Hanger bracket	1
• 3/16" machine screws	3
• 3/16" nuts	3
• Humidifier-to-hanger mounting screws	3
• Plastic water line	10'
• Self-piercing valve	1
• Water line expander	1
• Hot air Take-off	1
• Damper plate	1
• 6" diameter flex duct	1
• Duct clamps	2
• Hot air Take-off mounting screws	6
• Humidistat	1
• Marettes (wire nuts)	4
• Low voltage electric wire	12'
• 24 V transformer	1
• Templates	1
• Instructions	1

## Tool Suggestions

- Spirit level
- Variety of small open end wrenches
- # 1 (green) and # 2 (red) Robertson screwdrivers (square drive)
- Electric drill with 1/16" and 3/16" drill bits
- Tin snips or compass cutter
- Test meter
- Pencil or marker

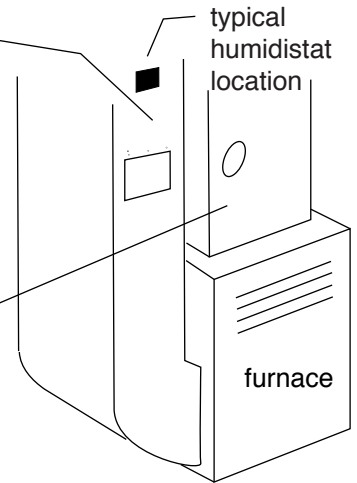
**NOTE: Teflon tape is recommended for all threaded joints**

## Warranty

This humidifier is subject to a one (1) year limited warranty issued and guaranteed by the manufacturer. This warranty is void if the unit is damaged by careless handling, improper installation, non-standard operating conditions, or improper maintenance. This warranty is limited to repair or replacement of the humidifier at the discretion of the manufacturer. No other warranty is offered or implied. This warranty is not transferable. All warranty claims must be accompanied by a receipt of purchase or record of installation.

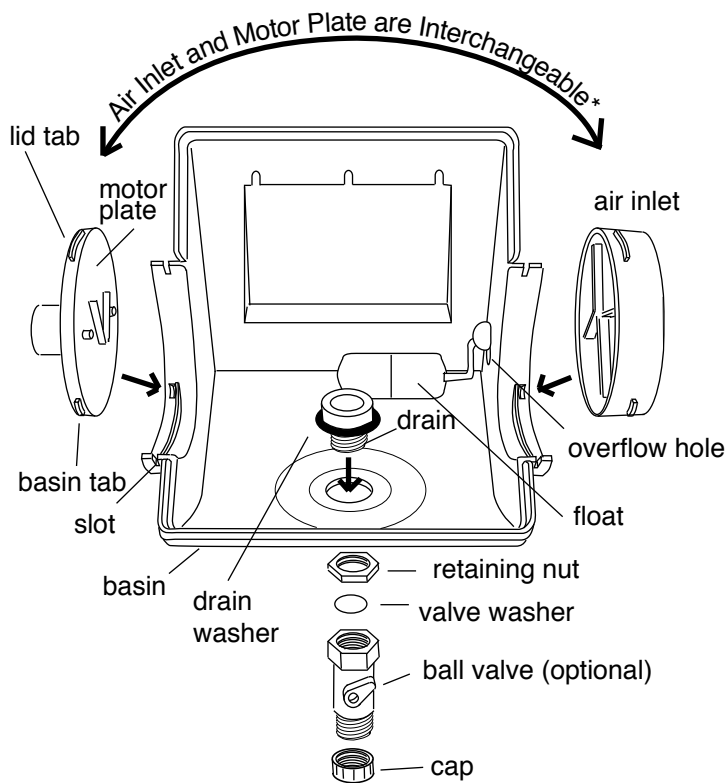
# 1. Selecting a location

- This humidifier is to be mounted on the **COLD AIR RETURN** (preferably on the narrow side) of a forced air heating system. If the humidifier must be mounted on a plenum/duct which is over 12" wide, the plenum/duct should be reinforced.
- Ensure that there is sufficient clearance for the humidifier, water supply, and air supply ductwork. If clearance problems exist with utilities, qualified tradespeople should be called.
- Air is supplied to the humidifier with a 3' flexible duct connected to the air take-off (with sliding damper) mounted on the **HOT AIR SUPPLY** coming out of the furnace .
- Follow the instructions on the humidifier **TEMPLATE** (Page 7) to locate and cut holes for the humidifier and take-off. Locate take-off within 3' to utilize flex duct supplied.
- Note that the top of the round take-off opening should be slightly higher ( one inch) than the rectangular humidifier opening. Mount the take-off so that the damper can be easily opened and closed.

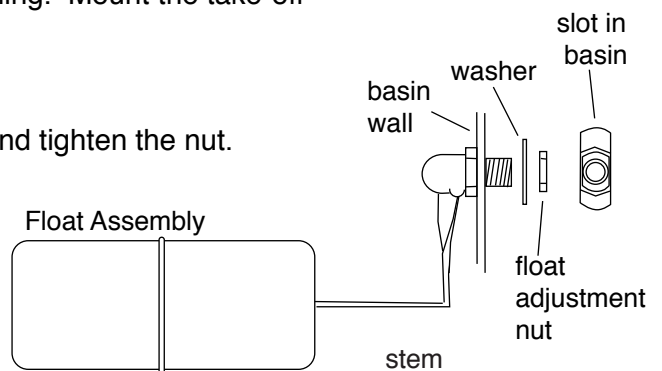


# 2. Humidifier Assembly

- Install the float into the slot in the side of the basin. Hand tighten the nut.



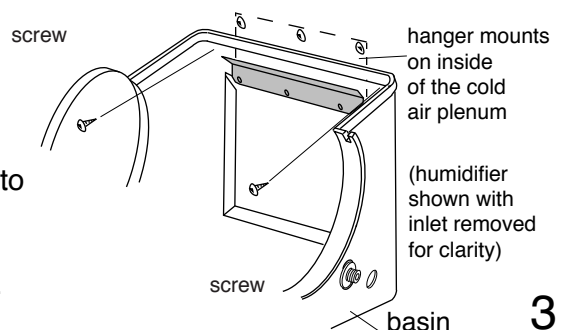
\*interchangeable: install air inlet on the side closest to the hot air supply take-off.



- Install the drain into the bottom of the basin and finger tighten retaining nut. Note - Teflon tape is recommended for these connections. After ensuring that the drain is centered, tighten securely but Do Not over tighten.
- Next install the cap. Optionally, connect a garden ball valve and a length of garden hose which extends to a floor drain.
- The humidifier can be configured with either a right or left air supply. This will depend upon the layout of your furnace.\*
- Snap the motor plate and inlet into the basin. Ensure that the basin tabs on these parts fit into the corresponding slots in the basin. To remove the motor plate and inlet, squeeze the lower tab with pliers and pull upwards.

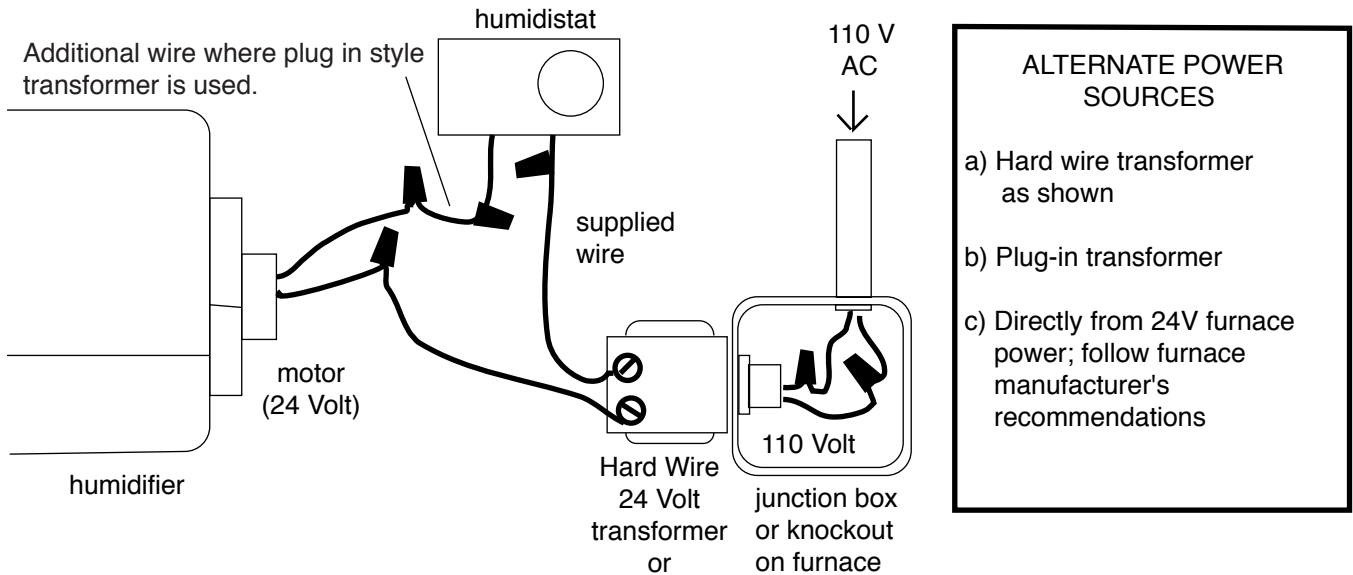
# 3. Hanging the Basin

- Hang the basin from the mounting hanger on the **COLD AIR RETURN**. See template for instructions to mount the hanger. (Page 7)
- Install two screws in the upper corners of the basin. Drive screw into plenum for added rigidity.



## 4. Electrical connections

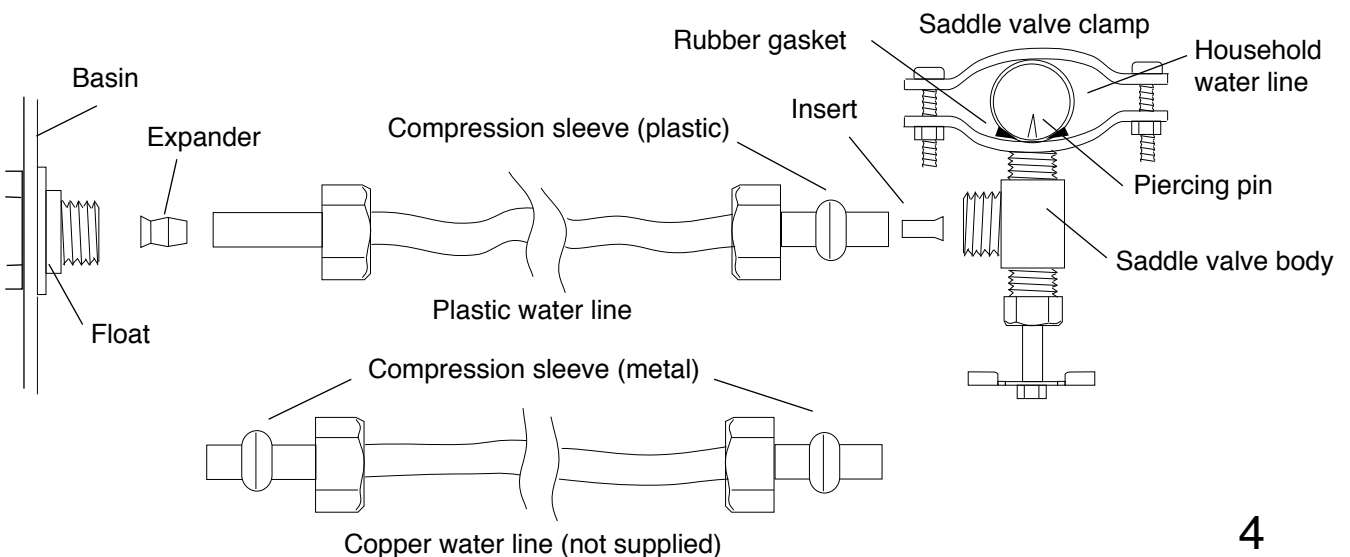
- Mount the humidistat according to the guidelines supplied in the humidistat box. Note Humidistat must be located at least 8" upstream of the Humidifier. Optional, locate beside your thermostat if additional wiring exists.
- Before making electrical connections ENSURE THAT THE POWER IS OFF!
- Consult furnace manufacturers recommendations or connect the motor leads as shown below.



\*Plug-in Transformer to nearest outlet after making the above connections.

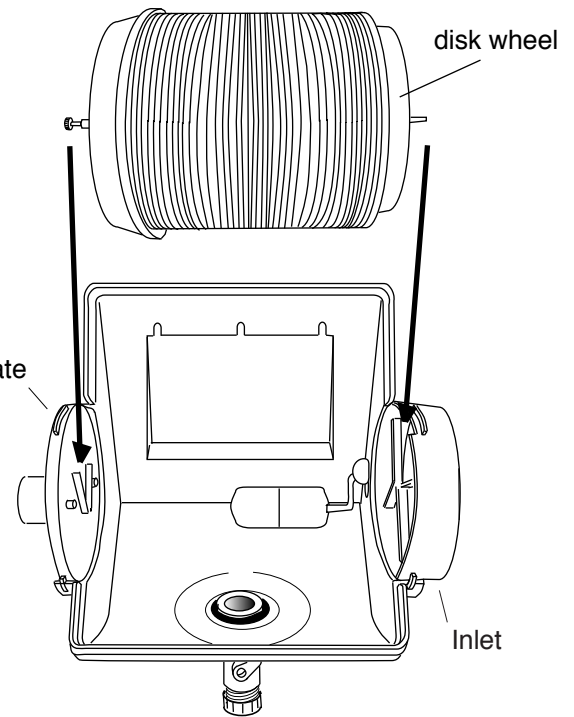
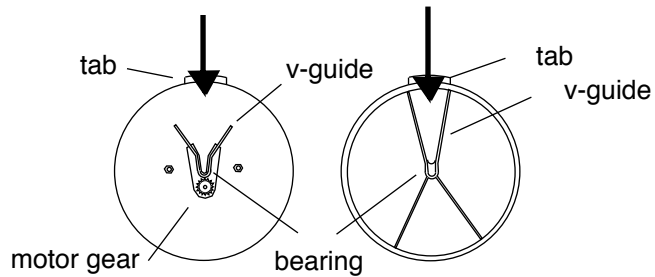
## 5. Water connections

- Humidifier can be connected to hard or softened water. NOTE: Soften water may require more frequent cleaning.
- Before starting TURN OFF THE WATER SUPPLY and relieve the pressure.
- Install the saddle valve on a copper water line as close to the humidifier as possible.
- CAUTION: ensure that the piercing pin is backed up into the valve body. If installing on galvanized pipe, pre drill a 1/8" diameter hole that the piercing pin fits into.
- Assemble one side of the top clamp to the bottom clamp and place over the water line ensuring that the rubber gasket is in place over the piercing pin.
- Assemble the other side of the top clamp to the bottom clamp with remaining fastener and tighten evenly until unit is firmly attached to water pipe.
- Connect supplied plastic water line to valve and float as shown below. Use the plastic compression fitting and insert on the valve end of plastic line and insert the brass expander in the float end. Tighten both fittings securely. If using copper line, use metal compression sleeves.
- Turn the valve handle clockwise fully to pierce the water pipe. NOTE: This is the off position.

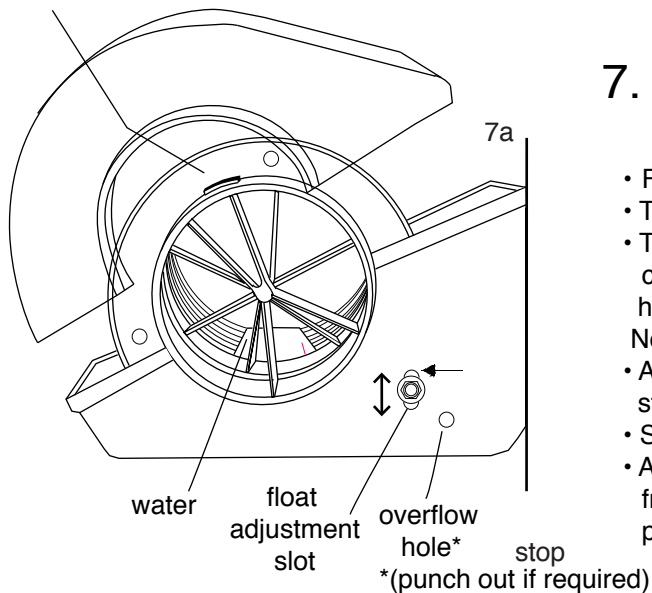


## 6. Installing the Disk Wheel

- Using the tabs as indicators, lower the disk wheel assembly into the V-guides on the inlet and motor plates. Ensure that the inlet end of the axle is seated in the bearing at the bottom of the V-guide and that the gear on the other end of the axle is engaged with the motor gear.



Ensure tabs on inlet and motor plate fit into slots in lid flanges

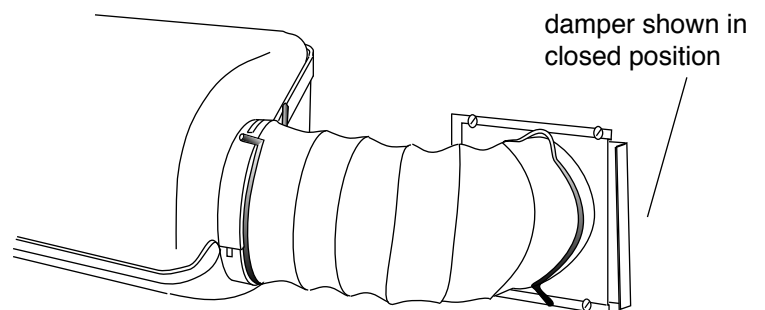


## 7. Installing the Lid and adjusting the water level

- Fit the lid onto the basin.
- Turn on the water supply and check for any leaks.
- The float assembly should be adjusted so that the water fully covers the disks as illustrated in 7a. This will ensure maximum humidity output and will minimize calcium build up.  
Note - look through the inlet to see the water level.
- Adjust the float as required. Do Not lift installed float against stop, instead hold stem with pliers and gently bend as required.
- Secure the float adjustment nut with a 9/16" wrench.
- As an additional convenience, you may wish to run a hose from the overflow hole to your floor drain. The necessary parts are available from your local plumbing supplier.

## 8. Connecting the air supply

- Use one of the supplied wire clamps to hold the flex ducting to the hot air take-off.
- Use the remaining wire clamp to secure the flex duct to the humidifier's inlet.
- For maximum efficiency, do not let the flex duct sag. If you need to trim the length of the flex duct ensure that you cut the ends square.
- If the humidifier is located beyond 3' from the hot air take-off, it may be necessary to buy a longer flex duct at your local hardware store.
- Ensure damper is set in the OPEN position.



Caution - if screws are used in place of the wire clips supplier, the inlet must be predrilled to avoid cracking the inlet.

## 9. About humidity

- Humidity requirements will vary from home to home.
- Your comfort level is the best gauge of the correct humidity. If your windows are fogged then you have too much humidity. If there is no moisture visible in the window corners and along the edges then you could have too little humidity.
- In some cases it may take a week or more for the humidity to build up to the proper level. Setting the furnace fan to run continuous will speed up this process.
- Humidity buildup will be hampered by sloppy fitting (or open) windows and doors, exhaust fans, open fireplace dampers, house plants, and large attics.
- Some types of carpets produce static electricity even with the correct humidity.
- Too much humidity can cause damage to your home and furnishings, and can promote the growth of household molds and fungi.
- Tests were conducted, to determine safe, relative humidity levels for homes exposed to various low outside temperatures. Recommended humidity levels are shown in the chart below.

Outside Air Temperature	Recommended Control Setting
-30°C/-20°F	15 %
-25°C/-10°F	20 %
-20°C/0°F	25 %
-10°C/10°F	30 %
-5°C/20°F	35 %
>0°C/20°F	40 %



We recommend that homeowners invest in a quality hygrometer similar to the one shown above to monitor humidity levels throughout the home.

## 10. Startup, maintenance and shutdown

- Turn on the water supply to the humidifier (if it has not been previously done), turn on the electrical power and adjust the humidistat so that the humidifier starts. Adjust humidistat to the desired setting. Regularly change the setting in accordance with the outside temperature.
- At the end of the humidifying season, turn off the water, remove the disk wheel, agitate the water in a circular motion and drain the sediment and any water from the basin. Replace the disk wheel and lid. Turn the humidistat off. Slide the damper to the closed position.
- Under normal conditions, minimal maintenance should be required. If you live in an area where the mineral content of the water is high (hard water), you may wish to drain the sediment as described above and periodically clean any minor sediment deposits from the basin and disk wheel. Use vinegar or Desert Spring EnviroClean Descaler.
- After soaking in vinegar or cleaning solution, the disk wheel should be rinsed.
- Over time metal parts may discolor. This is a normal reaction and will not affect performance.
- For excessive mineral buildup, lower water level and scoop minerals out. Hardened minerals will break off cleanly with minimal effort. For superior results, apply Desert Spring EnviroClean descaler.

### Disclaimer

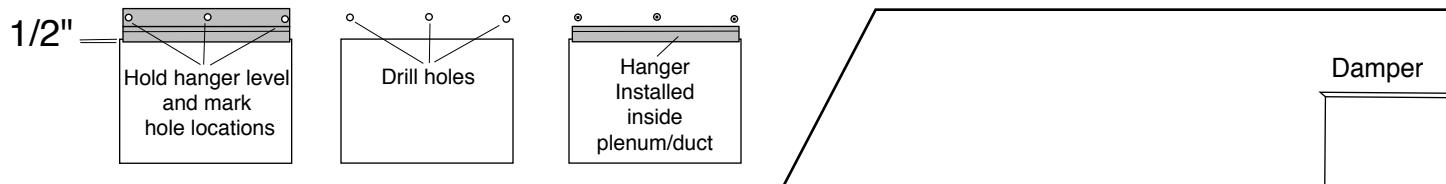
- Except as expressly stated in this manual, Desert Spring Products Limited makes no representation or warranty with respect to the humidifier and disclaims all implied warranties including any warranty of merchantability or fitness for a particular purpose. In no event will Desert Spring Products Limited be liable to any customer or user of the humidifier for any indirect, incidental, or consequential damages or loss of revenues or profits, whether the same are foreseeable or not, occasioned by any cause whatsoever including, but not limited to, the installation or operation of the humidifier.

# DESERT SPRING® HUMIDIFIER MOUNTING TEMPLATE

## TO USE TEMPLATE:

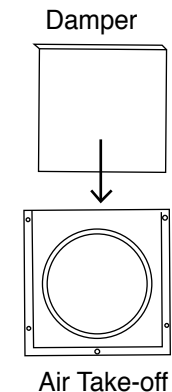
- Cut out opening from paper, retain inside as instruction sheet, outside as template.
- Tape template onto RETURN duct/plenum so that it is level and draw the opening shape onto the duct.
- Drill starter hole in a corner, cut out opening with tin snips. Use care to cut opening accurately. CAUTION - CUT EDGES ARE VERY SHARP.
- Hold hanger bracket against duct/plenum so that the bottom of the hanger bracket is about 1/2" from the top edge of the opening in the duct/plenum. Ensure that it is level and mark the three mounting bolt locations. Drill three 3/16" holes in the duct/plenum. Mount the hanger bracket on the inside of the duct/plenum using the 3/16" machine screws and nuts.

Hanger may be dropped up to 3/4" to accommodate larger preexisting holes.



## HOT AIR SUPPLY TEMPLATE

- Use the sheet metal hot air take-off as a template.
- Hold Hot Air Take-off against the HOT AIR supply and trace inside the opening.
- Drill a starter hole inside the line and cut with compass cutter or tin snips.
- Hold the air take-off over the opening and mark the screw locations.
- Drill 1/16" pilot holes and or drive the screws directly into the SUPPLY duct.
- Slide the damper into place before final tightening of the mounting screws.
- Rotation of the hot air take-off depends on your clearances to slide the damper plate open and closed.



starter hole

7.8"

6"