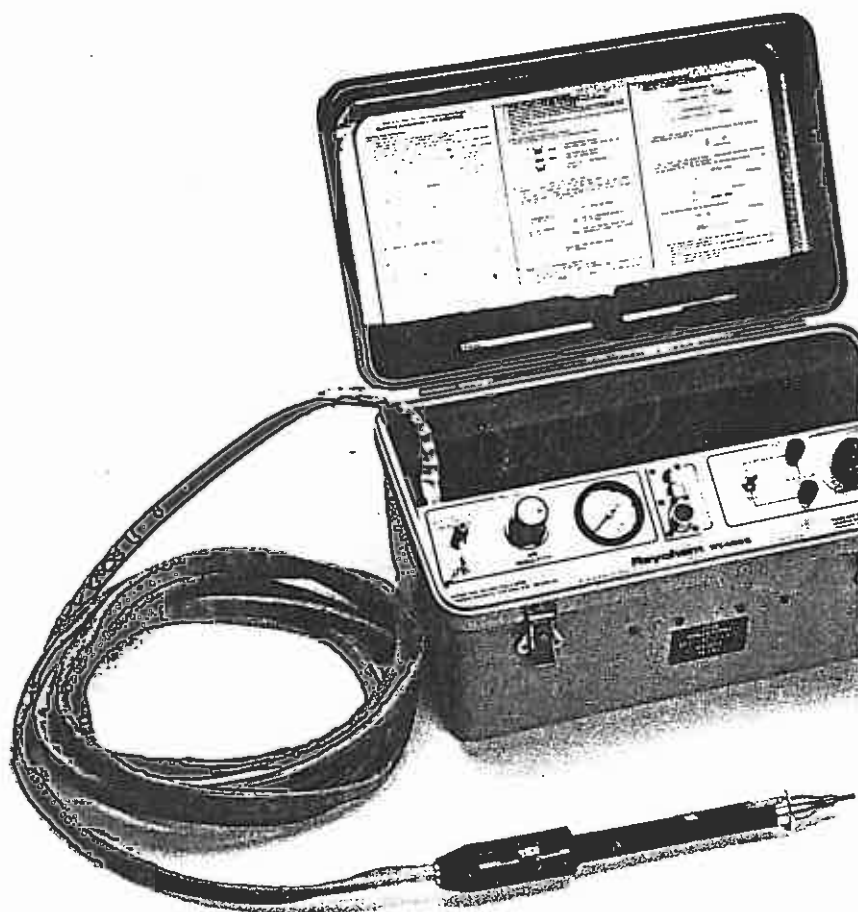


Raychem

**HT-900B/920B
Compressed Air Nitrogen Heating Tool
Operations and Maintenance Manual**



Description

The HT-900B/920B compressed air/nitrogen heating tool supplies a stream of heated air or nitrogen for the field installation of heat-shrinkable insulation and termination products.

The heating tool consists of a heat gun and a control module built into a fiberglass case. Also included are hot air reflectors, a spare heating element, the thermocouple, and operating instructions. The heat

gun is permanently attached to the control module by a hose assembly, which contains air hoses and electrical wires.

Function

The compressed air/nitrogen heating tool operates by passing a stream of air or nitrogen through an electrically heated element located in the body of the heat gun.

The compressed air or nitrogen, at input pressures of 80 to 200 pounds per square inch (psi), enters through the compressed air fitting on the front panel and is fed to a relief valve and to the pressure regulator/filter. The relief valve prevents damage to the heating tool if the source pressure is too great. The filter screens out solid contaminants, and the pressure regulator permits the operator to adjust the pressure of the air/nitrogen passing through the heating element. The pressure gauge indicates the air/nitrogen pressure at the heat gun.

The regulated air/nitrogen is fed through a flexible hose to the heat gun. Part of this air/nitrogen passes through the tubular heating element, where it is heated to a

temperature of 550°F to 920°F (290°C to 495°C) by the heating coils and controlled by the temperature controller setting, and flows out the center orifice of the nozzle. The rest of the air/nitrogen reaching the heat gun passes between the heating element and the walls of the handle body, keeping the handle body cool. This cooling air flows out through the four orifices on the sides of the heat gun housing.

The air/nitrogen pressure within the heat gun is monitored by a small pressure-sensing hose, which feeds the pressure back to a pressure switch in the control module. This pressure switch cuts off electrical power to the heating element whenever the sensed pressure falls below a set point. This safety feature protects the heat gun from overheating in the event that the supply hose is kinked or ruptured or the air/nitrogen pressure at the pressure gauge falls below 5.0 psi.

The on-off switch in the handle of the heat gun operates by interrupting the feedback air to the pressure switch, which in turn controls electrical power to the heating element.

The power switch controls the electrical power to the entire heating tool and also provides electrical overload protection.

The power-on indicator light is illuminated whenever the heating tool is plugged in and the power switch is in the ON position.

The heated air indicator light is illuminated whenever electrical power is being supplied to the heating element.

The temperature controller controls the output air temperature between 550°F (290°C) and 920°F (495°C). The temperature is a function of the controller setting and is based on a thermocouple feedback control system.

Model information

| Model | Nominal operating voltage | Case color | Part number |
|---------|---------------------------|------------|-------------|
| HT-900B | 115 V | Yellow | 910987 |
| HT-900B | 115 V | Olive drab | 837097 |
| HT-920B | 230 V | Yellow | 303754 |
| HT-920B | 230 V | Olive drab | 712121 |

Specifications

| | |
|--------------------------------|--|
| Weight | 20 pounds |
| Electrical power | 115 V, 50-400 Hz, 1Ø, 7 A (HT-900B) 230 V, 50-400 Hz, 1Ø, 3.5 A (HT-920B) |
| Heat gun output temperature | 550°F-920°F (290°C - 495°C) |
| Compressed air/nitrogen supply | 80 psi-200 psi, 4 SCFM (dry and oil free) |
| Tool case dimensions | 9.7" high by 17.3" wide by 11.5" deep |

Heating element replacement instructions (See Figure 1)

Step 1
Important: Disconnect the heating tool from its electrical power and air/nitrogen sources before attempting repairs.

Step 2
 Remove the handle cover screw (5/64 hex socket head) and separate the two halves of the handle.

Step 3
 Disconnect the two air hoses. Do not remove the air hose fittings.

Step 4
 Disconnect the two heating element terminal screws.

Step 5
 Remove the two breech plug screws (3/32 hex socket head) and slide the breech plug back carefully, clearing the thermocouple wire and terminal leads.

Step 6
 Slide out the heating element.

Step 7
 Install the two O-rings over the end of the heating element near the lead wires.

Step 8
 Apply silicone lubricant to the O-rings.

Step 9
 Slide the new heating element into position.

Step 10
 Install the rubber spacer into the breech plug.

Step 11
 Slide the heating element into final position with the aid of the breech plug. Make certain that the breech plug O-ring is in its groove in the face of the breech plug.

Step 12
 Install the two breech plug screws with the ground lead connected to one of them.

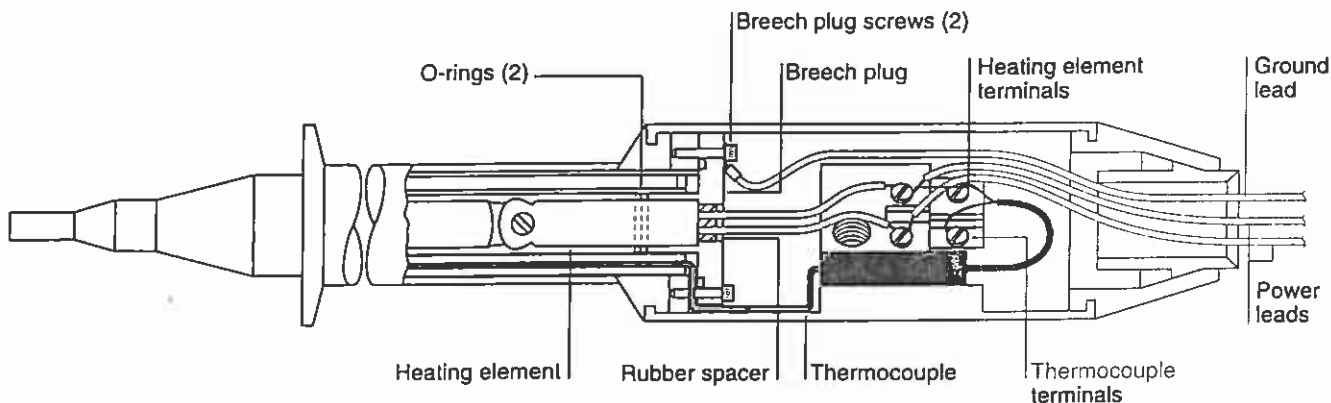
Step 13
 Connect the heating-element terminal leads to the screw terminals. These leads are not polarized; either lead may be attached to either terminal.

Step 14
 Install air hoses over the fittings. Use the existing hose clamp on the large air hose.

Step 15
 Assemble the handle. The two halves and the handle end are keyed together and must be properly aligned.

Step 16
 Test for proper operation per the operating instructions in the case lid.

Figure 1. Interior view of heat gun (air hoses and on-off switch not shown)



Thermocouple replacement instructions (see Figure 1)

Step 1
Important: Disconnect the heating tool from its electrical power and air/nitrogen sources before attempting repairs.

Step 2
 Remove the handle cover screw (5/64 hex socket head) and separate the two halves of the handle.

Step 3
 Disconnect the two air hoses from the breech plug. Do not remove the air hose fittings.

Step 4
 Remove the two power lead screws.

Step 5
 Remove the two thermocouple terminal screws.

Step 6
 Remove the two breech plug screws and slide the breech plug back carefully.

Step 7
 Slide out the thermocouple.

Step 8
 Insert a new thermocouple.

Step 9
 Install the breech plug and breech plug screws. Make sure that the breech plug O-ring is in its groove in the face of the breech plug, and that the ground lead is connected to one of these screws.

Step 10
 Terminate the thermocouple leads: red to red, yellow to yellow.

Step 11
 Terminate the power leads. These leads are not polarized; either lead may be attached to either terminal.

Step 12
 Install air hoses onto their respective fittings in the breech plug. Use the existing hose clamp on the large air hose.

Step 13
 Assemble the handle. Two halves and the handle end are keyed together and must be properly aligned.

Step 14
 Test for proper operation per the operating instructions.

Maintenance procedures (continued)

Control module and cover installation instructions

Step 1
Important: Disconnect the heating tool from its electrical power and air/nitrogen sources before attempting repairs.

Step 2
Remove the contents of the storage compartment.

Step 3
Disengage the spring latch on the back of

the control module.

Step 4
Swing the control module out of the case, reach underneath, and release the quick-disconnect hinge by squeezing the knurled pins together and upward.

Step 5
Remove the control module from the case.

Step 6
Remove the bottom cover from the control module by removing two screws and four hex nuts.

Control module and cover installation instructions

Step 1
Install the bottom cover on the control module and secure it in place with two screws and four hex nuts.

Step 2
Install the control module in the case. To engage the quick-disconnect hinge, move the knurled pins downward and let them snap into place.

Step 3
When the hinge is securely engaged, swing the control module into the case and engage the spring latch.

Air filter element removal and installation (see Figure 2)

Step 1
Important: Disconnect the heating tool from its electrical power and air/nitrogen sources before attempting repairs.

Step 2
Remove the control module and cover.

Step 3
Remove the two regulator drain deflector screws. Rotate and remove the deflector.

Step 4
Remove the filter bowl by turning it coun-

terclockwise.

Step 5
Unscrew the filter element assembly from the regulator; use gloves or a cloth to protect your fingers.

Step 6
Clean or replace the filter element assembly.

Step 7
Install the filter element assembly. Using gloves or a piece of cloth, hand-tighten the

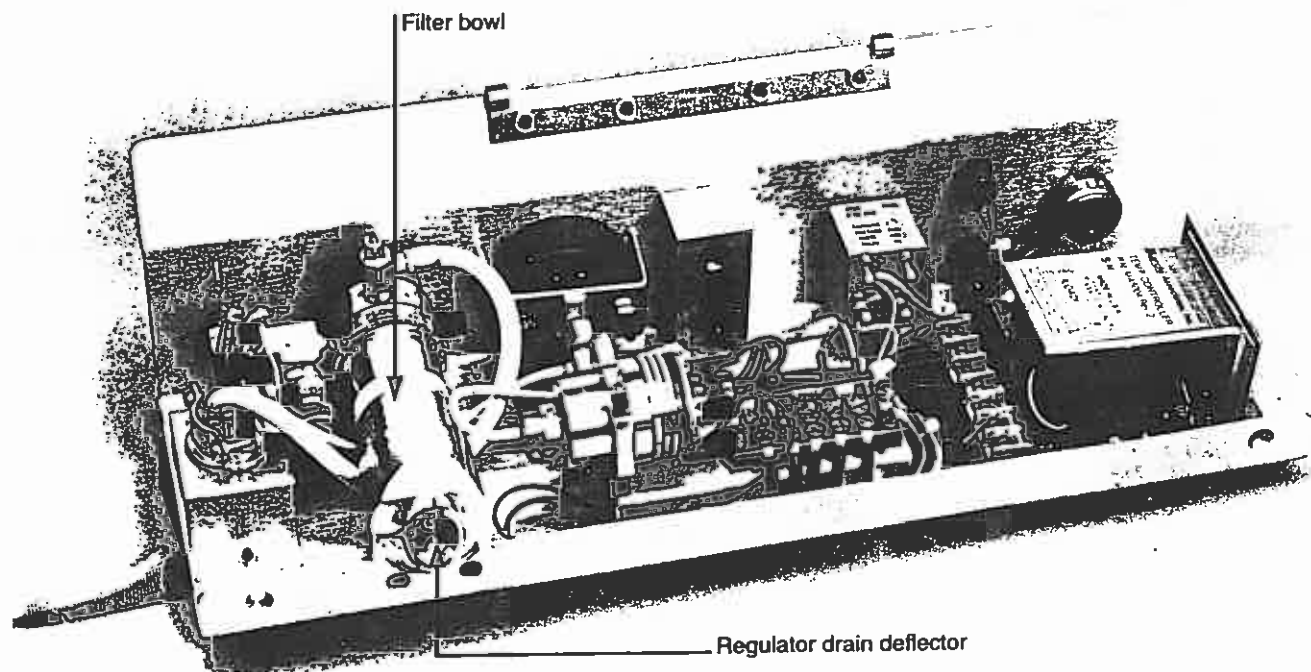
assembly.

Step 8
Coat the threads of the filter bowl with antiseize sealant and install the filter bowl. Hand-tighten only.

Step 9
Install the regulator drain deflector.

Step 10
Install the control module and cover.

Figure 2 Interior view of control module (Model HT-900B shown for reference)



Operating instructions

Preparations for use

Warning

The attached standard universal power plug is not approved for use in hazardous locations as defined in NFPA 70-1984, Article 500. If this heating device must be used in a hazardous location as defined in NFPA 70-1984, Article 500, the universal power plug must be replaced with a plug designed for use in a hazardous location.

It is the responsibility of the user to provide appropriate connection to the power source. Failure to comply with these instructions may result in fire or explosion.

Step 1

Connect the power cord to the electrical power source:

- 115 V, 7.0 A, 50–400 Hz for model HT-900B.
- 230 V, 3.5 A, 50–400 Hz for model HT-920B.

Step 2

Move the power switch to the ON position. The power lamp should illuminate.

Step 3

Press the HEATED AIR indicator to test indicator lamp function. Proceed only if the lamp functions.

Step 4

Move the power switch to the OFF position.

Step 5

Make sure the heat gun is removed from its case, and check the air hose for kinks or pinching.

Step 6

Attach the appropriate reflector to the heat gun nozzle.

Step 7

Connect the heating tool to a clean, dry, compressed air or nitrogen source with a pressure of 80 to 200 psi.

Step 8

Move the on-off switch in the heat gun handle to the ON position.

Step 9

Pull the AIR REGULATOR control, and adjust the control to 5–7 psi.

Step 10

Push the AIR REGULATOR control to lock it at the desired setting.

Step 11

Move the power switch to the ON position. The heated-air indicator lamp should illuminate.

Step 12

Allow one minute for warm-up. After warm-up the air pressure gauge will indicate 10–15 psi. This is normal; do not readjust the setting.

Step 13

Adjust the TEMP CONTROL knob to the desired setting.

Warning

The nozzle and output air are hot (900°F). Burns may result from direct contact.

Performing heating operation

The heat gun can be used while it is positioned in a holder, or it can be hand-held. Follow the application instructions for the particular product being installed.

Power to the heating element can be turned on and off during use by means of the on-off switch in the heat gun handle.

Shut-off procedure

Note:

Failure to cool the gun as directed will shorten the heating element's life.

Step 1

Move the power switch to the OFF position and cool the heat gun by allowing air/nitrogen to flow until it is cool (approximately one minute).

Step 2

Pull the AIR REGULATOR control and adjust the control for a gauge reading of 0 psi.

Step 3

Move the on-off switch in the heat gun handle to the OFF position.

Step 4

Disconnect the heating tool from the electrical power source.

Step 5

Disconnect the heating tool from the compressed-air/nitrogen source and replace the cap on the AIR INLET.

Step 6

Place the air hose and power cord in the storage compartment.

Troubleshooting procedures

| Trouble | Probable cause | Corrective action |
|---|---|--|
| Unable to obtain pressure. | Inadequate pressure from the air/nitrogen source. | Check the air/nitrogen source. It should be at least 80 psi. |
| | Filter is dirty or clogged. | Clean or replace the filter element. |
| | Air/nitrogen supply lines are pinched or kinked. | Check supply lines for kinks or pinching. |
| Power-on indicator light does not illuminate. | Breaker is tripped. | Turn the power switch off and on. |
| | No power. | Check the power source. |
| | Lamp is burned out. | Press to test. Replace the bulb. |
| Heated-air indicator light does not illuminate and output air/nitrogen is not heated. | On-off switch in the handle is in the OFF position. | Move the handle switch to the ON position. |
| Heated-air indicator light does not illuminate but output air/nitrogen is hot. | Lamp is burned out. | Press to test. Replace the bulb. |
| Output air/nitrogen is not hot but heated air indicator light illuminates. | Heating element is burned out. | Replace the heating element. |
| | Faulty thermocouple. | Replace the thermocouple. |
| Output air/nitrogen is not hot enough. | Air pressure setting is too high. | Decrease the air pressure setting. |
| | Supply voltage is too low. | Check the supply voltage. |
| | Faulty heating element. | Replace the heating element. |
| | Faulty thermocouple. | Replace the thermocouple. |
| Output air/nitrogen is too hot. | Air pressure setting is too low. | Increase the air pressure setting. |
| | Supply voltage is too high. | Check the supply voltage. |
| | Defective thermocouple. | Replace the thermocouple. |
| | Defective heating element. | Replace the heating element. |

Warning

Important safety features may be affected by mishandling or improper service. Perform corrective actions and repair procedures only in accordance with the maintenance procedures outlined on the following pages of this manual. Other service or repairs and replacement of other parts should be performed only by authorized service facilities. Raychem will not be responsible for any tool not maintained properly in accordance with these procedures.

Parts list

| Part description | Raychem Part Number |
|--|----------------------------|
| Heating element for HT-900B, 115 V | 508744 |
| Heating element for HT-920B, 230 V | 011349 |
| Thermocouple | 729711 |
| Boot and tubing reflector | 979691 |
| Miniature termination sleeve reflector | 979663 |
| Termination sleeve reflector | 491878 |
| Needle point reflector | 979647 |
| Large boot and tubing reflector | 444100 |

To reorder this manual from Raychem, specify Part Number 488076.

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