

**REQUIRED TOOLS**

Screw Driver:

5/32" Hex Driver (Fig. A)

3/32" Hex Driver (Fig. B)



Figure A

Figure B

**STEP 1**

**SEAT ASSEMBLY**

Loose the Seat Assembly by turning the Pointer counter clock wise (Fig. 1.1 and 1.2).



Figure 1.1

Figure 1.2

Remove the Set Screw by using the 3/32" Hex Driver (Fig. 1.3) and remove the seat from the Pointer (Figure 1.4).



Figure 1.3

Figure 1.4

Remove O-Ring from Seat No. 596 (Fig. 1.5).



Figure 1.5

**STEP 2**

**BONNET**

Remove the Bonnet by loosening the four screws using a 5/32" Hex Driver (Fig. 2.1 and 2.2).



Figure 2.1

Figure 2.2

DISASSEMBLY

STEP 3

HOUSING ASSEMBLY

First Scenario:

Use a wrench to loosen the lower seat (Fig. 3.1).

If the Housing comes apart first (Fig. 3.2), use a pair of pliers and a wrench to loose the Seat from the Housing (Fig. 3.3). Then remove the O-Ring from the Lower Seat (Fig. 3.4).



Figure 3.1



Figure 3.2



Figure 3.3



Figure 3.4

Second Scenario:

Use a wrench to loose the lower seat (Fig. 3.1).

If the Seat comes apart by itself, remove the O-Ring from the Lower Seat (Fig. 3.4) and then use a pair of pliers to remove the Housing from the base (Fig. 3.5 and 3.6).



Figure 3.5



Figure 3.6

Use a pair of needle nose pliers to remove the spring from the Housing (Fig. 3.7)



Figure 3.7



Figure 3.8

Remove the Diaphragm Assembly from the Housing (Fig. 3.8).

BASE

Check for straightness by a sight inspection. (Fig 4.1).



Figure 4.1



REQUIRED TOOLS

Screw Driver:

5/32" Hex Driver (Fig. A)

3/32" Hex Driver (Fig. B)



Figure A

Figure B

STEP 1

BASE

Tighten Jig in vice (Fig. 1.1).

Screw the base on Jig (Fig. 1.2).



Figure 1.1

Figure 1.2

Check the concentricity between the Low Expansion Rod hole and the Base.

If the Low Expansion Rod hole is not in centered (Fig. 1.3), tap the Base bottom with your hand (Fig. 1.4) until you find concentricity (Fig. 1.5).

Note: Do not bend the base by tapping too hard.



Figure 1.3

Figure 1.4

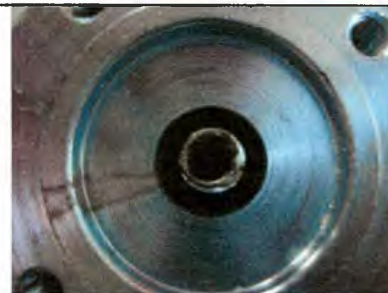


Figure 1.5

ASSEMBLY

STEP 2

HOUSING ASSEMBLY

Insert the Upper plate in the Housing (Fig. 2.1).

Insert the Diaphragm (Fig. 2.2)



Figure 2.1



Figure 2.2

Insert the Lower Plate (Fig. 2.3).

Screw the Housing in to the Low Expansion Rod hole (Fig. 2.4).



Figure 2.3



Figure 2.4

Finger tighten the Housing (Fig. 2.5).

Use a pair of needle nose pliers to insert the spring in the Housing placing the wider side on bottom (Fig. 2.6).



Figure 2.5



Figure 2.6

STEP 3

SEAT

Insert O-Ring on Seat (Fig. 3.1).

Introduce Peanut in Seat (Fig. 3.2).



Figure 3.1



Figure 3.2

Insert Seat on Housing (Fig. 3.3) and tighten with a wrench (Fig. 3.4).



Figure 3.3



Figure 3.4

**STEP 4**  
**BONNET**

Place the Bonnet on top of the Base and tighten (Fig. 4.1)



Figure 4.1

Figure 4.2

Insert bolts on Bonnet and tighten with a 5/32" Hex Driver (Fig. 4.2 and 4.3).



Figure 4.3

**STEP 5**  
**HOUSING**

Insert O-Ring in Housing (Fig. 5.1).

Insert Housing in Bonnet (Fig. 5.2).



Figure 5.1

Figure 5.2

**STEP 6**  
**POINTER**

Use the 3/32" Hex Driver to thread the Set Screw (Fig. 6.1).



Figure 6.1

EQUIPMENT & REQUIREMENTS

Screw Driver:  
 5/32" Hex Driver (Fig. A)  
 3/32" Hex Driver (Fig. B)



Figure A

Figure B

Jig:  
 Made with a 3/4" Tee, 3/4" pipe 8" long  
 and a 3/4" to 1/2" reducer nipple. (Fig. C).

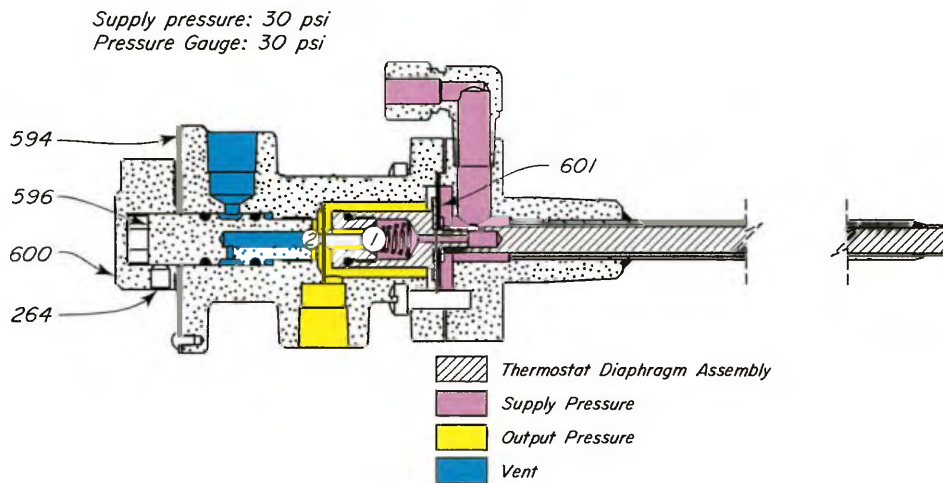


Figure C

Thermometer:  
 Required to measure atmospheric tem-  
 perature. (Fig. D).



Figure D





STEP 1  
Tighten the jig in vice (Fig. 1.1).



Figure 1.1

STEP 2  
Install a readable Pressure Gauge for 30 psi, as shown in the yellow outlet connection of the Base Assembly. (Fig. 2.1).



Figure 2.1

STEP 3  
Supply the Temperature Controller with 30 psi of air pressure. (Fig. 3.1).



Figure 3.1

STEP 4  
Loosen screw No. 264 (Fig. 4.1) and remove Pointer No. 600 (Fig. 4.2).



Figure 4.1

Figure 4.2

**STEP 5**

If pressure is indicated on the yellow outlet gauge, turn the 596 Seat counter clockwise slowly until the pressure vents from the gauge (Fig. 5.1). Check for air leakage from the hole in No. 596. There should only be a slow bubble blow from a soap solution (Fig. 5.2). This test Ball and Seat No.1.



Figure 5.1

Figure 5.2

Now turn No. 596 Seat clockwise until the output pressure equals the supply then continue for approximately 7 turn clockwise. (Fig. 5.3). Check for air leakage from the hole in No. 596 Seat. There should only be a slow bubble blown from a soap solution (Fig. 5.4). This checks Ball and Seat No.2



Figure 5.3

Figure 5.4

**STEP 6**

If Ball and Seat No.1 are leaking excessively, it may be due to a small foreign object. You may wish to remove No. 596 (Fig. 6.1) and then with a small rod (about 1/4" diameter) push against Ball No.2 to push Ball No. 1 off its Seat several times to purge the Seat clean (Fig. 6.2)



Figure 6.1

Figure 6.2

**STEP 7**

If Ball and Seat No.1 or No.2 continues to leak excessively, they should be removed clean and lapped.

- Prepare a lapping compound (Fig. 7.1)
- Spread the lapping compound in Ball No. 1. (Fig. 7.2)
- Hand rub the ball in the seat (Fig. 7.3)
- Use a air nozzle to blow out the particles left (Fig. 7.4)



Figure 7.1

Figure 7.2

If either Ball or Seat is pitted, they should be replaced.

Note: If you do not have a lapping compound it can be made by using sandpaper grit and water.



Figure 7.3

Figure 7.4





TESTING & CALIBRATION

STEP 8

With no pressure on the yellow outlet gauge, slowly turn seat No. 596 clockwise until the Gauge reads 10 to 15 lbs (Fig. 8.1).



Figure 8.1



Figure 8.2

The sensing tube of the controller should be sensing Atmospheric temperature which you can check with a thermometer (Fig. 8.2).

Locate this atmospheric temperature on the scale of the controller. Install the Pointer on Seat 596 with the Pointer at Atmospheric Temperature (Fig. 8.3). The Pointer should be pushed on just far enough to be able to tighten the Set Screw. Be careful not to turn No. 569



Figure 8.3



Figure 8.4

Now turn Pointer clock wise to maximum temperature setting required by counting the dial subdivisions. Do not exceed the controller rating (Fig. 8.4).

At this maximum temperature loosen set screw 264. Push the Pointer on 596 as low as possible and tighten Set Screw No. 264 (Fig. 8.5)



Figure 8.5



Figure 8.6

The Pointer can now be moved to any desired temperature setting below the maximum (Figure 8.6).

FIELD SETTING

For field setting this same procedure may be used except instead of using a pressure gauge, observe the Burner Valve as it opens and closes to position the Pointer at the proper temperature in accordance with a Thermometer on the vessel.