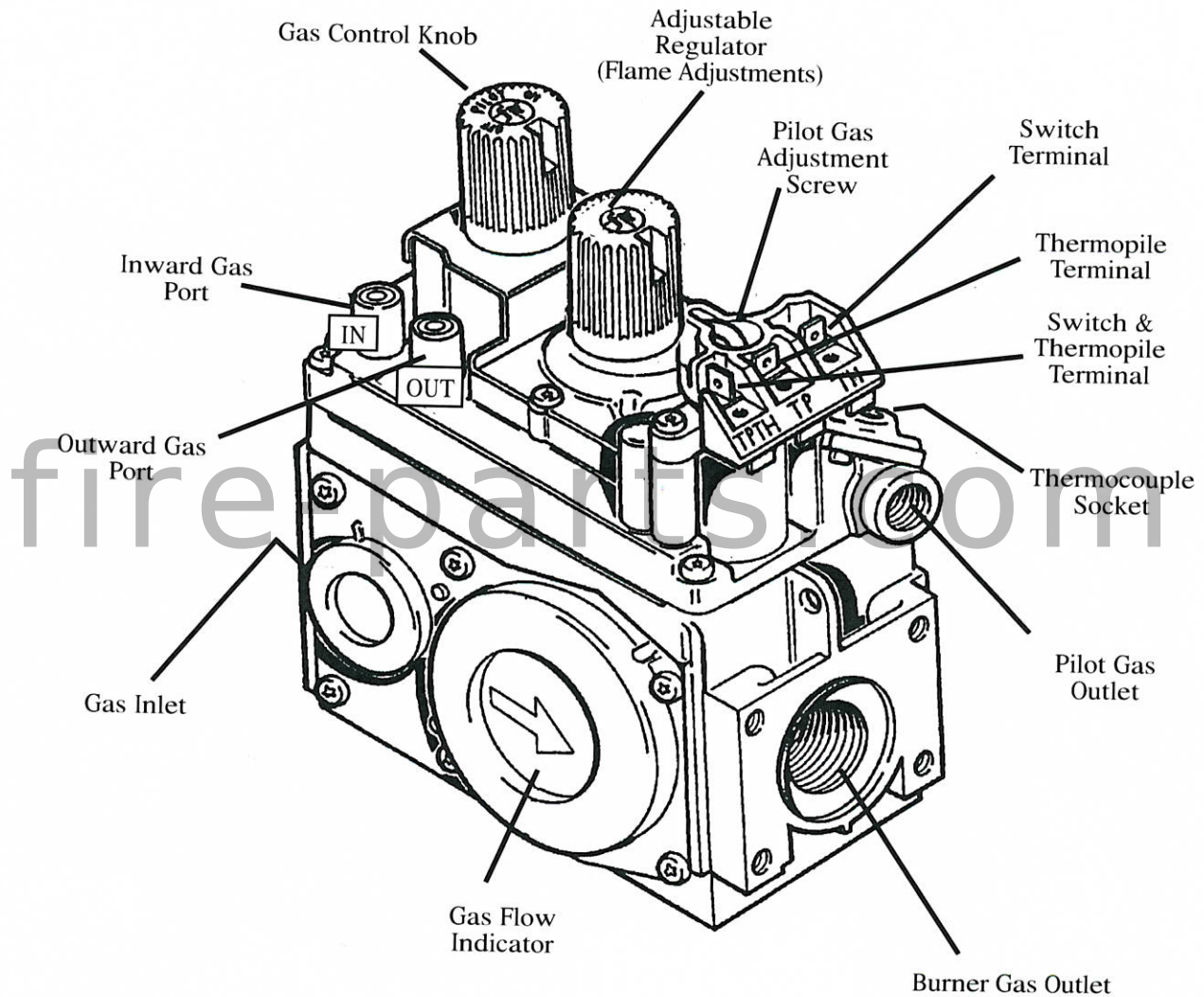


# SIT Gas Control Valve



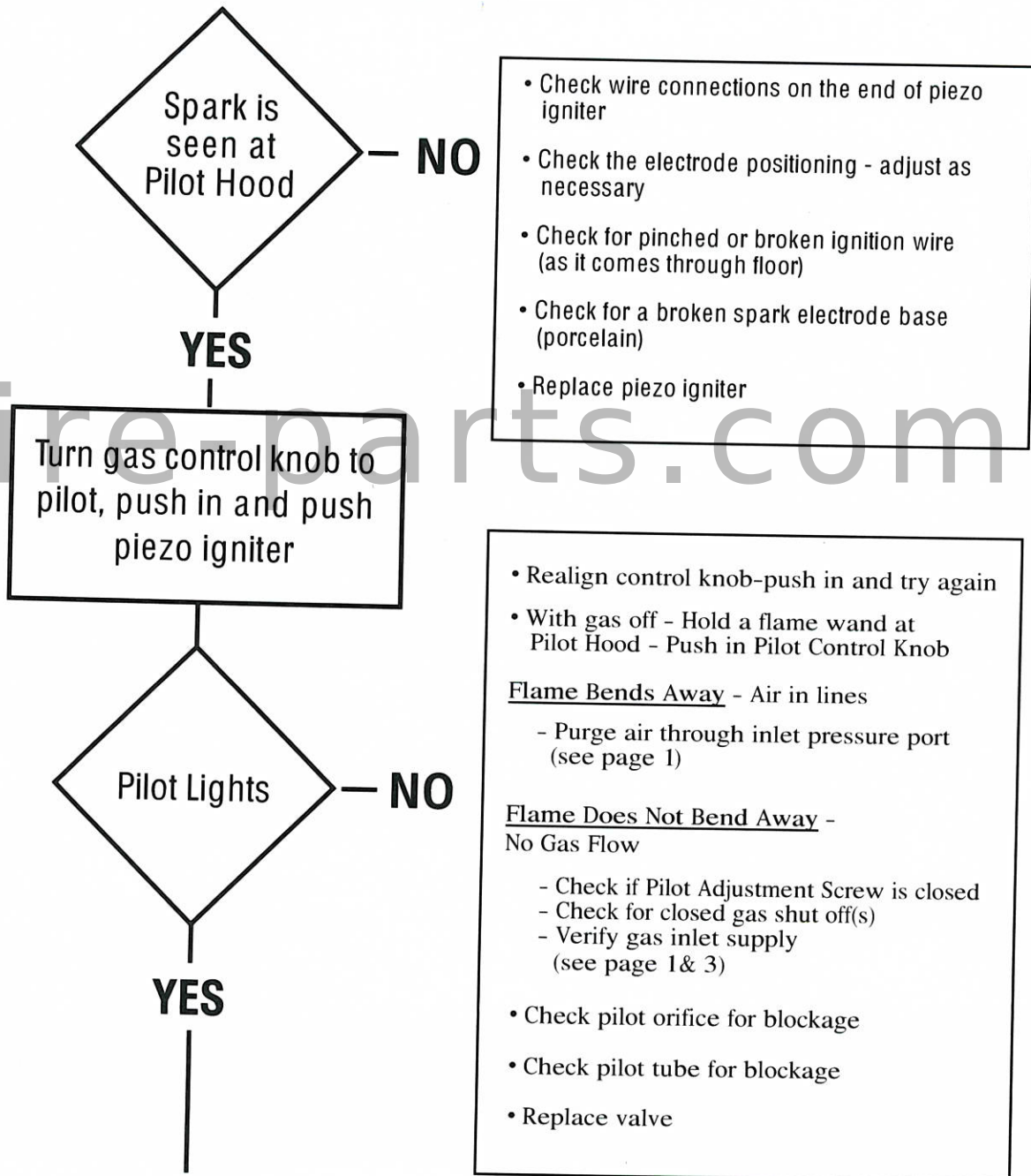
# SIT Gas Control Valve

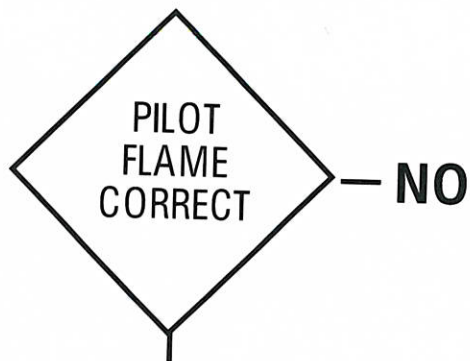
Troubleshooting Flow Chart	Page A - C
SIT Gas Control Testing Diagram	Page D
SIT Gas Control	Page E
Purging Air	Page 1
Pilot Adjustment	Page 2
Measuring Incoming Gas Pressure	Page 3
Thermocouple Testing	Page 4 - 5
EPU Testing	Page 6
Thermopile Testing (Voltage Test 1)	Page 7
Operator Head Test (Voltage Test 2)	Page 8
Operator Head Continuity Test	Page 9
Thermostat Circuit Test (Voltage Test 3)	Page 10
Thermostat/Switch Circuit Continuity Test	Page 11
Measuring Outgoing Gas Pressure	Page 12

# SIT

## Gas Troubleshooting Flow Chart

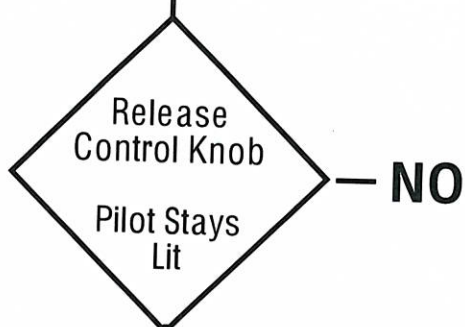
**Push The Piezo Igniter**





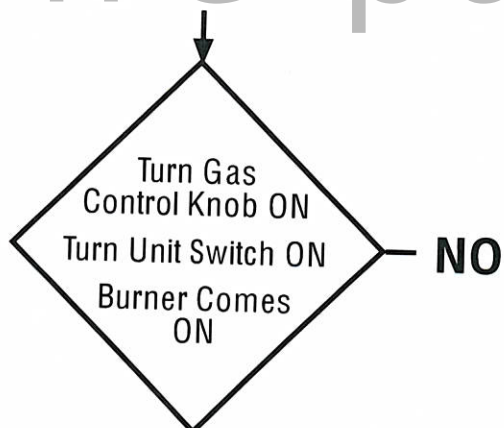
- Adjust pilot gas (see page 2 of testing section)
- Check Pilot Orifice
  - Size
  - Partial Blockage
- Check incoming pressure (see page 3)

YES



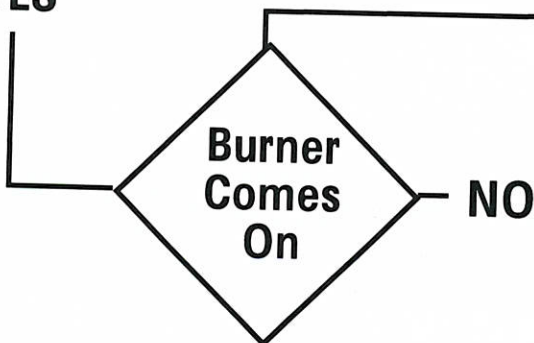
- Re-light and hold Control Knob in for 30 seconds
- Check thermocouple voltage production (see pages 4 to 5)
- Check EPU of gas control valve (see page 6)

YES



- Is the control knob turned to ON?
- Check - Is there a wall thermostat and is it calling for heat?
- Is the wiring proper?
- Conduct thermopile voltage test #1 (see page 7)
- Conduct valve operator head voltage test #2 (see page 8)
- Conduct thermostat/switch circuit voltage test #3 (see page 10)

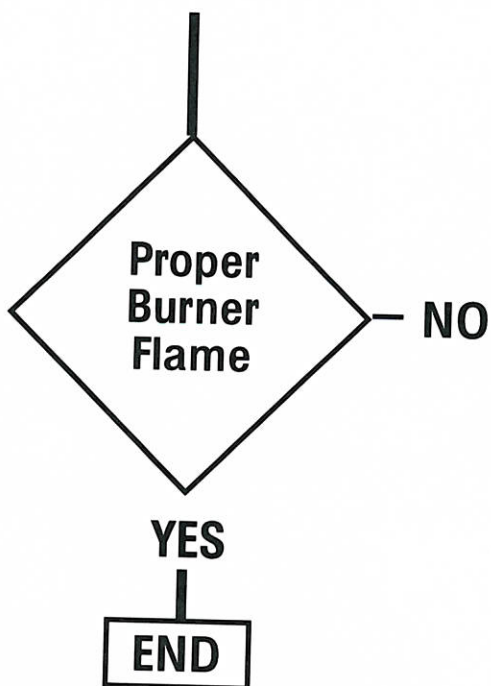
YES



**BLOCKAGE**

- Check out going pressure (see page 12)



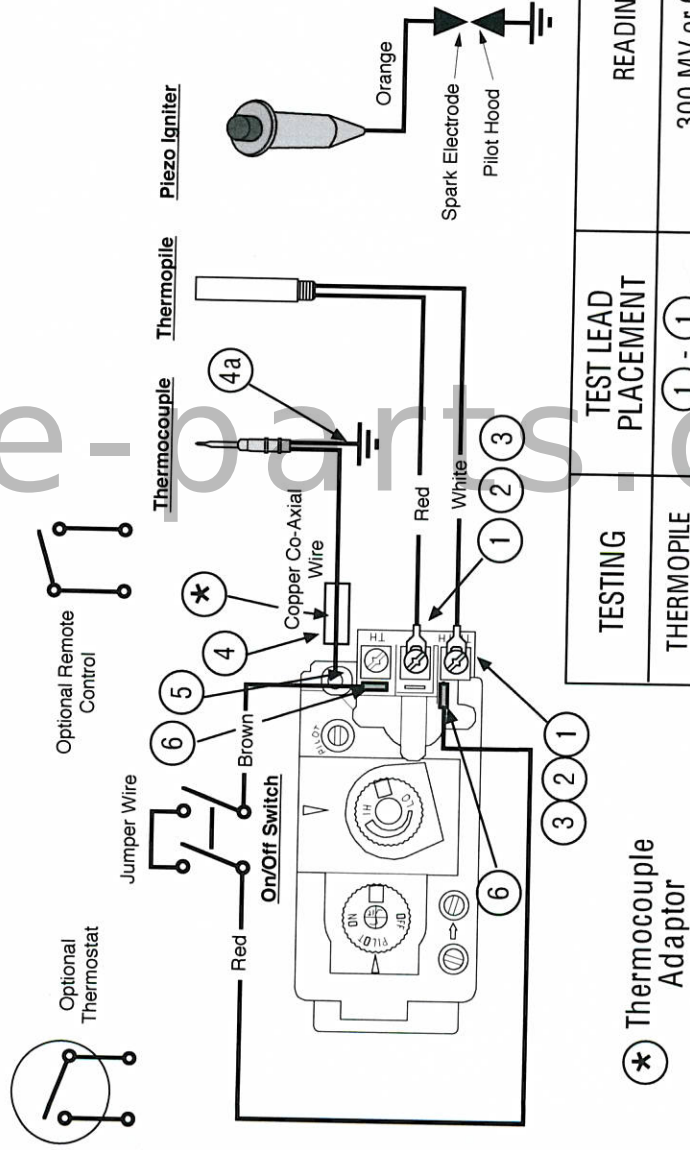


- Check regulator to make sure it is appropriate for type of fuel
- Check proper orifice size
- Check incoming pressure (see page 3)
- Check outgoing pressure (see page 12)
- Check for partial blockage of burner
- Replace gas control valve (bad diaphragm)

fire-parts.com

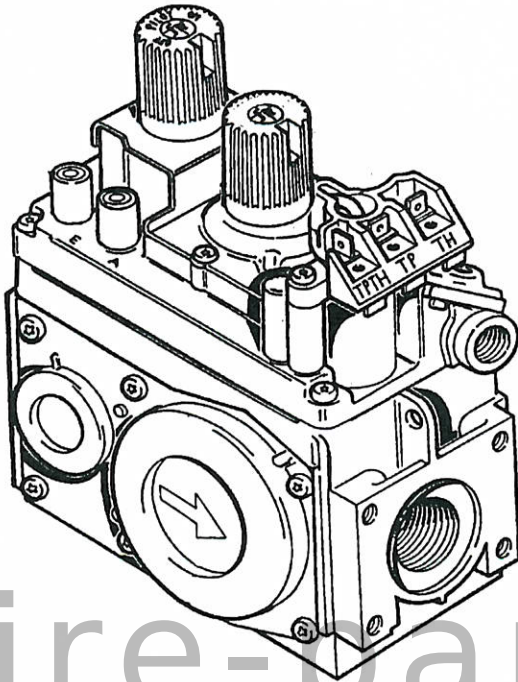
# Testing Direct Vents Using A SIT Gas Control

## Wiring Diagram



TESTING	TEST LEAD PLACEMENT	READINGS	REFERENCE PAGE
THERMOPILE	① - ①	300 MV or Greater	7
INTERNAL VALVE	② - ②	Minimum 225 MV - But Not Equal or Greater than Test ① - ①	8
THERMOSTAT CIRCUIT	③ - ③	145 MV or Greater-But Not Equal To ① - ①	10
THERMOCOUPLE	④ - ④	Minimum 6 MV	4-5
EPU	⑤ - ⑤	Continuity	6
SWITCH CIRCUIT CONTINUITY	Disconnect ⑥ - ⑥ and Test Wire	Continuity	11

# SIT Gas Control Valve



- Millivolt gas valve
  - Used on newer Travis gas appliances
  - Not used with any older B-Vented appliances
  - Is modulating remote compatible
  - Contains a pilot side and burner side operation
- Operation head coil resistance  
2.25 OHMS  
± .5 OHMS
  - EPU coil resistance  
.018 OHMS  
± .003

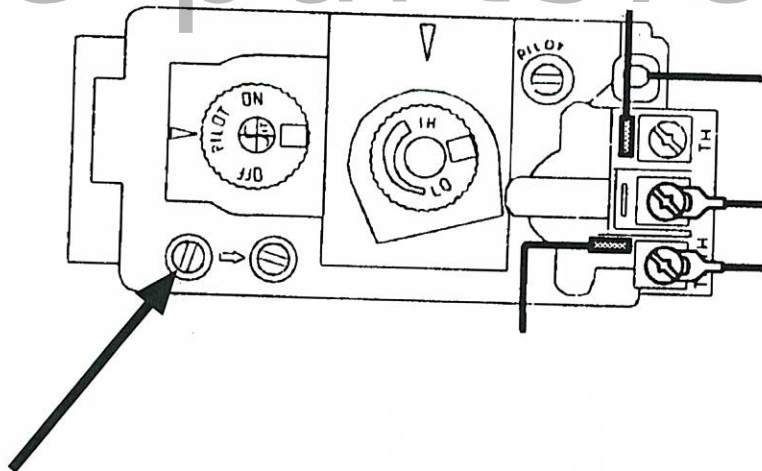
Pilot  
Does Not  
Light

## Purging Air From Gas Supply Lines

### SIT Gas Control Valve

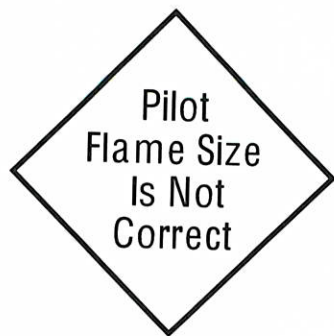
- Loosen inward pressure tap 2-3 turns
- Leave open until air is purged
- Tighten pressure tap

fire-parts.com



- Loosen pressure tap 2-3 turns  
(No cover cap)





# SIT Pilot Flame Adjustment

- No cover cap screw (Uses Double O Ring)
- Turn Adjustment Screw



SMALLER  
FLAME



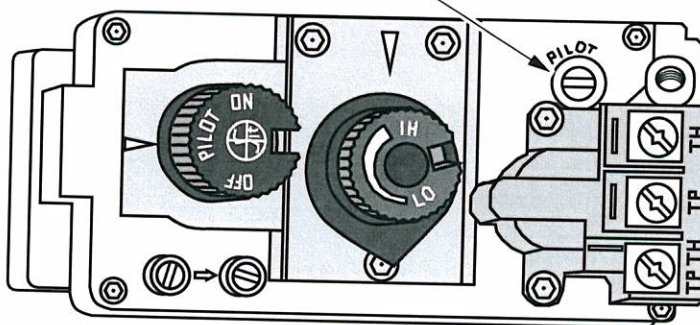
LARGER  
FLAME

- Pilot Flame Should Be A Soft Blue Flame With Good Thermocouple/Thermopile Engagement

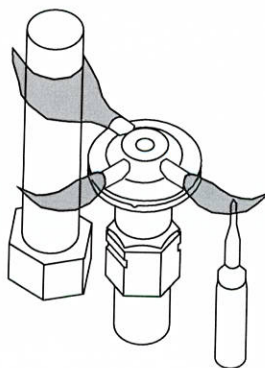
To adjust the pilot flame, turn this screw clockwise to lower the flame/counter-clockwise to raise the flame.



Standard  
Screwdriver



The pilot flame must contact the thermocouple and thermopile. Adjust the pilot flame up or down as necessary.



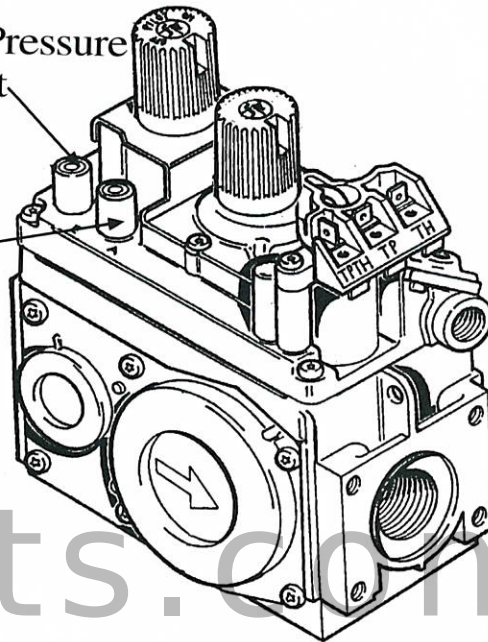
Burner  
Does Not  
Have Proper  
Flame

Pilot  
Flame Not  
Correct

## Measuring Incoming Gas Pressure

Gas Inlet Pressure  
- Test Port

Gas Outlet  
Pressure  
- Test Port



SIT Control Valve

### Digital Pressure Gauge

- 1) Zero out digital pressure gauge
- 2) Loosen input pressure tap (about two or three turns)
- 3) Slip pressure hose over the inlet port
- 4) Light the pilot
- 5) Turn control knob to ON
- 6) Turn ON the main burner (high)
- 7) Read pressure (see chart)

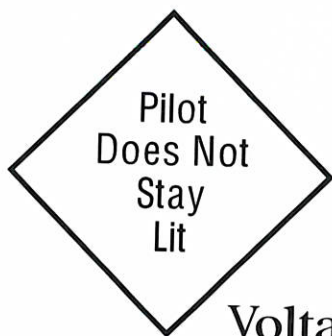
Then

- 8) Turn OFF burner
- 9) Turn control knob to OFF
- 10) Remove pressure hose
- 11) Tighten pressure port screw

### Min. Input Pressure

NG	LP
7 W.C.	11 W.C.

With Main Burner ON

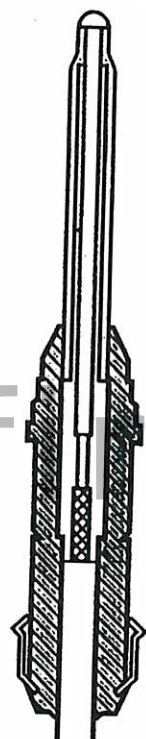


# Testing Thermocouple

Voltage On A SIT or RobertShaw Gas Control Valve

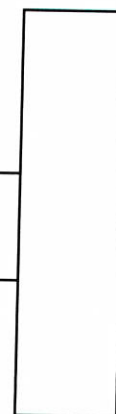
Testing MV Production

SIT Gas Control  
Minimum 6 MV



Thermocouple  
Adaptor MUST  
BE USED

Screw  
thermocouple  
into the gas  
control valve



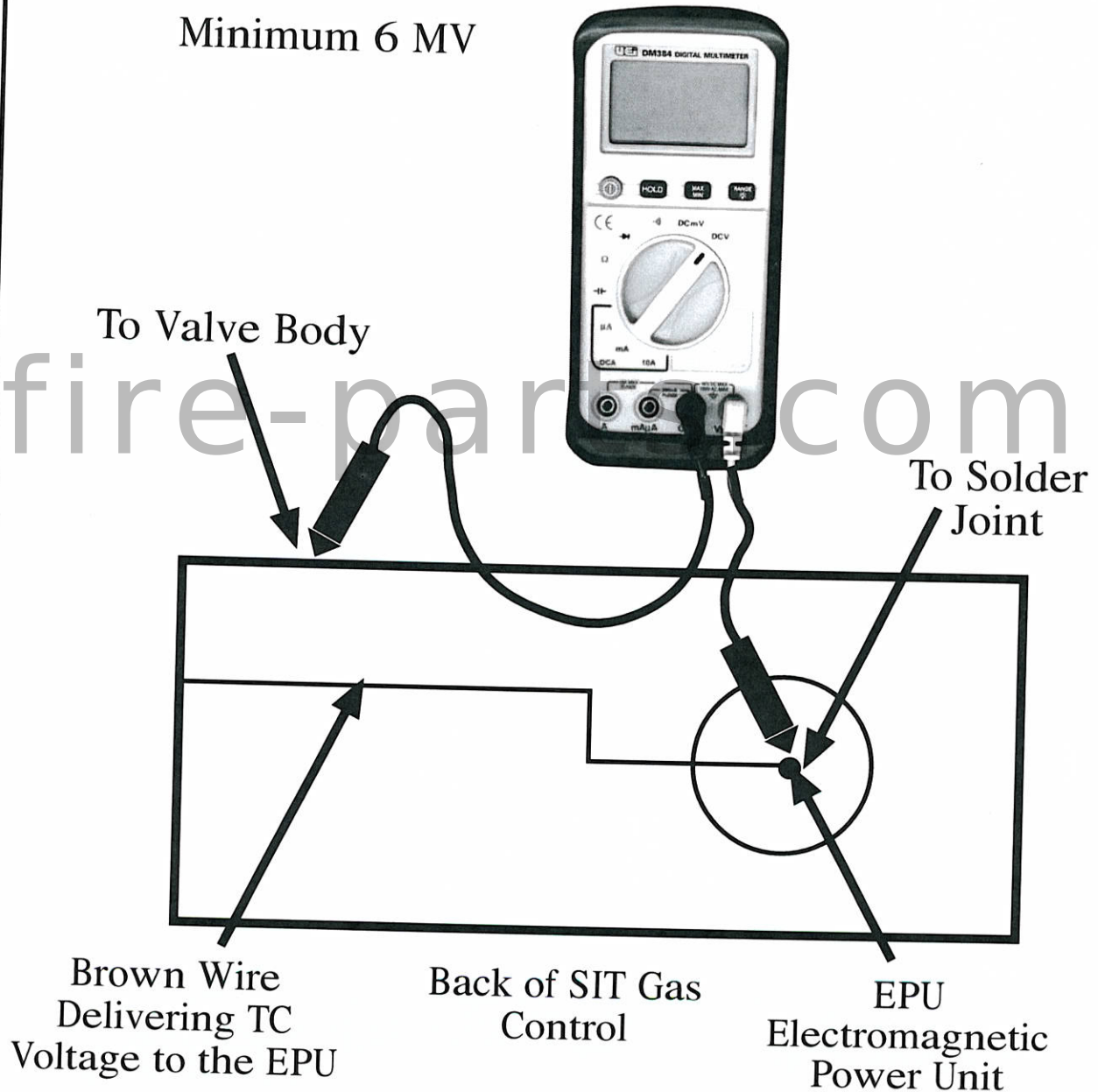




# Testing Thermocouple

Voltage On A SIT Gas Control

Minimum 6 MV







Pilot  
Does Not  
Stay  
Lit

## Testing Pilot Coil (EPU) for Continuity

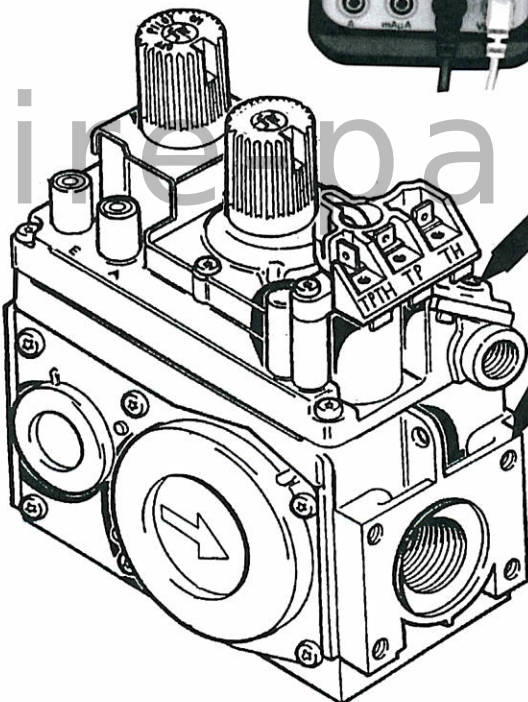
# SIT Control Valve



1. Socket Center to any ground point\*

or

2. Ground to solder joint on the bottom of the valve\*\*- Disconnect Thermocouple from valve



## 1. EPU Coil Continuity Test\*

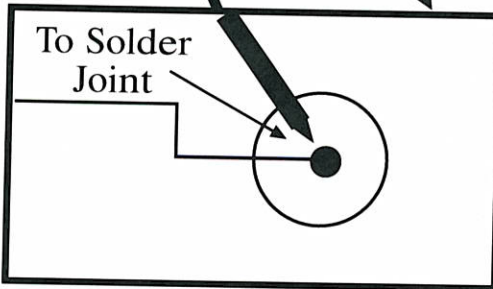
\* Make sure your test lead does not touch the side of the socket

## 2. EPU Coil Continuity Test\*

## \*\* Disconnect Thermocouple From Unit

To Valve  
Body

To Solder  
Joint \



## Back of SIT Gas Control

Burner  
Does Not  
Light

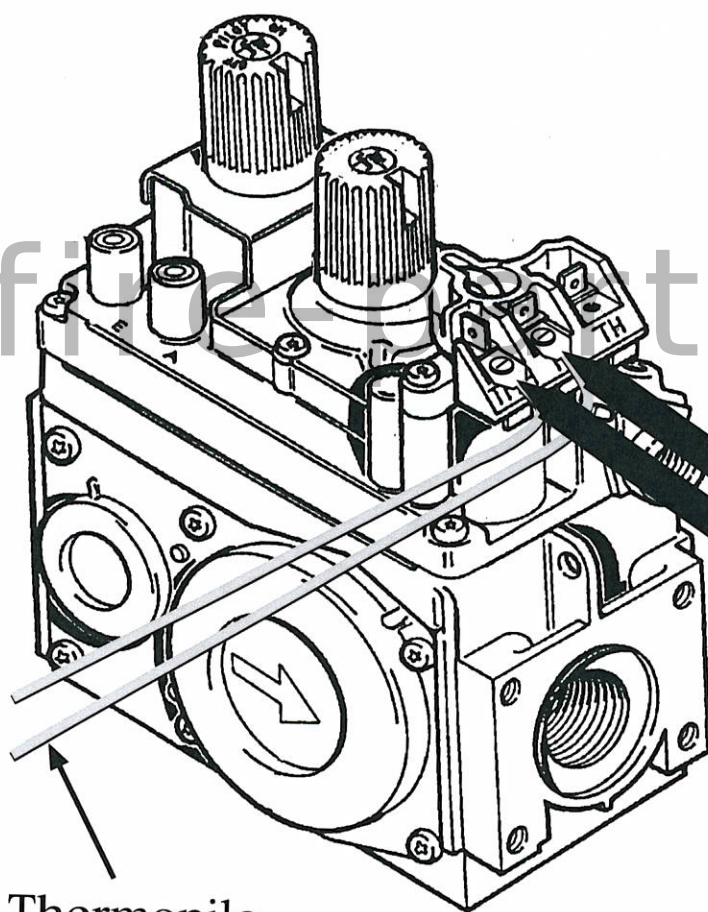
# Voltage Testing

## Thermopile Test 1 Control Knob In Pilot Position

1. Pilot Lit for  
Approximately  
3 Minutes

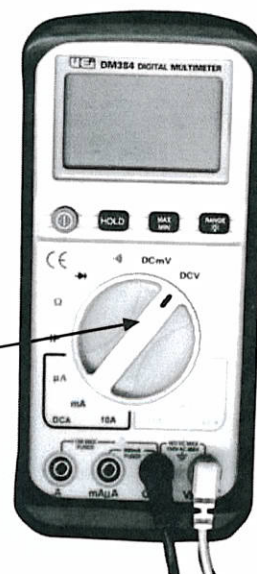
2. Disconnect All  
Wires EXCEPT  
the Thermopile  
Wires

300 or More MV  
If Not, Adjust Pilot  
or Replace  
Thermopile



Thermopile  
Wires

DCV

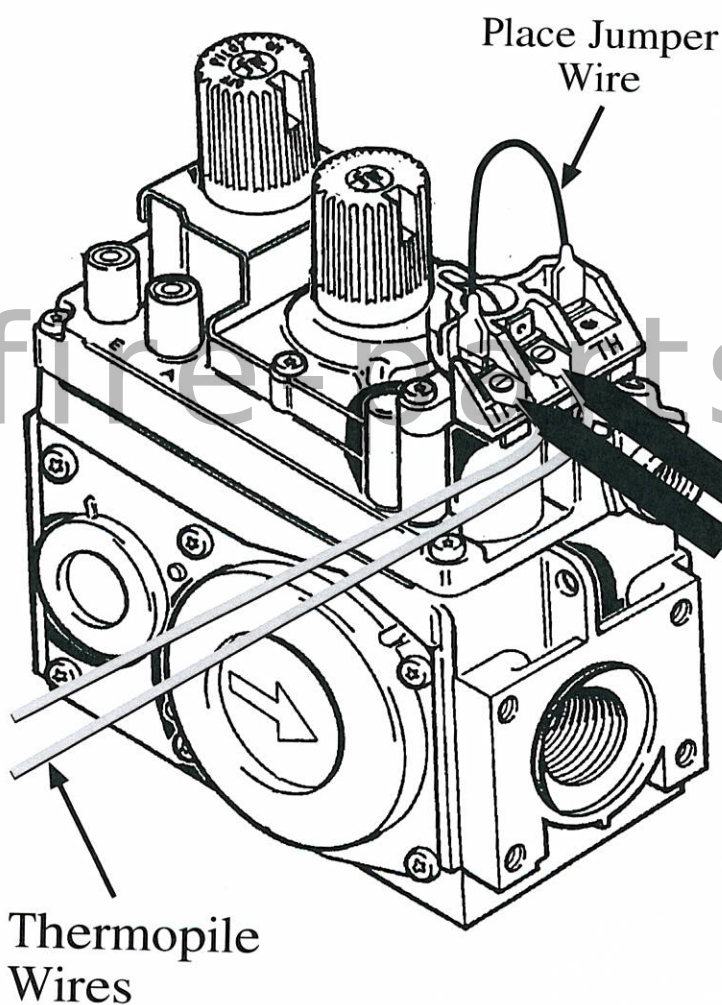




Burner  
Does Not  
Light

# Voltage Testing

## Operator Head Test 2 Control Knob In Pilot Position

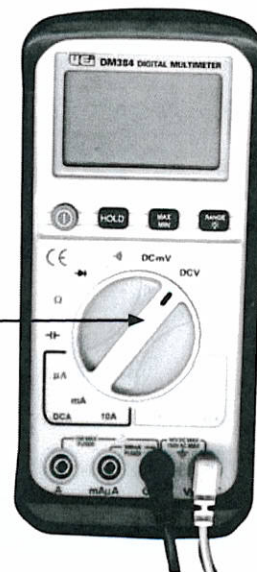


225\* MV or Greater

\* NOTE: Voltage should not be equal to or greater than the voltage in Test # 1

If it is, you have an open (defective) Operator Head and the Valve needs replacing

DCV



\* If less than 225 MV, this indicates Operator Head has too much resistance - replace Gas Control Valve

(Conduct a resistance test on page 9)

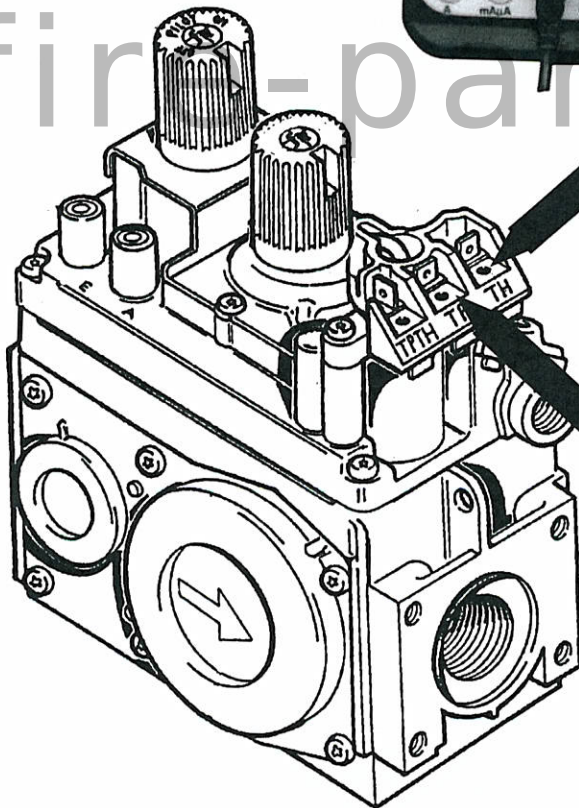
# Coil Operator Head Test for Continuity

SIT  
Control  
Valve



- TP to  
TH  
Terminals

Head Coil  
Continuity  
Test  
2.25 OHMS  
± .5 OHMS



NOTE: If the  
voltage on Test  
#2, page 8, is less  
than 225 MV

AND the gas  
control operating  
head does not  
meet the above  
OHMS  
specification, it  
should be  
replaced



Burner  
Does Not  
Light

# Voltage Testing

## Thermostat Circuit Test 3

Control Knob In Pilot Position

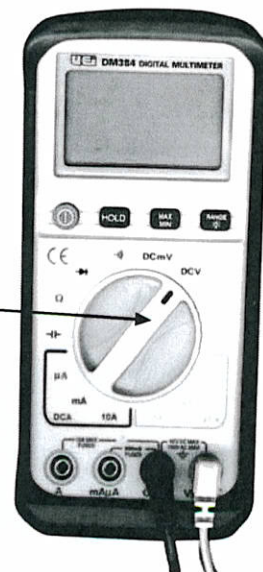
Remove Jumper Wire and  
Connect Thermostat Circuit  
Wires - Turn Burner Switch ON

145 MV or Larger

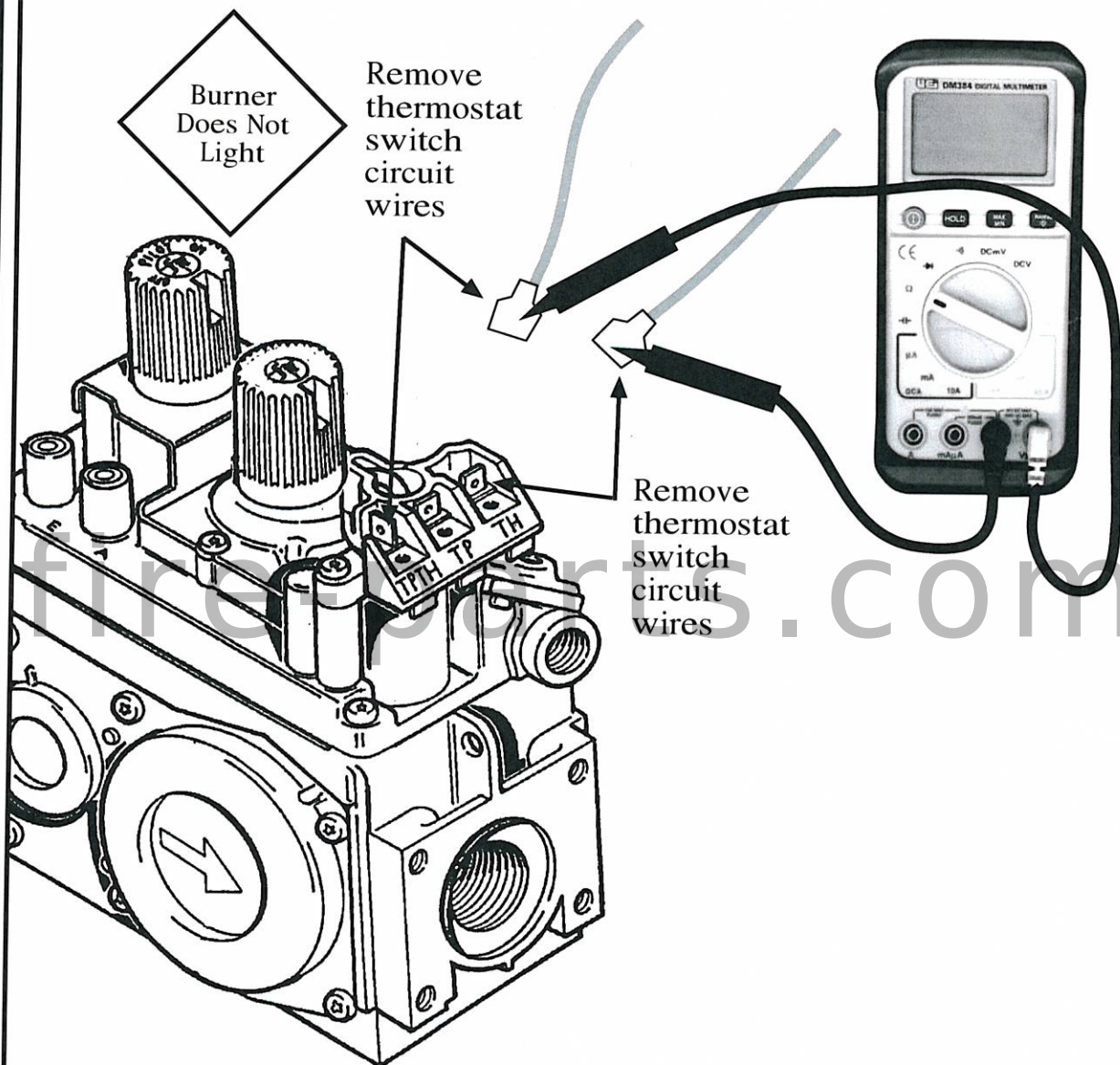
If = to or greater than Test  
#1 there is a  
switch circuit problem -  
Conduct a continuity  
test on the thermostat switch  
circuit (see page 11)

Thermopile  
Wires

DCV

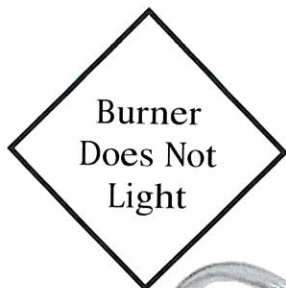


# Thermostat/Switch Circuit Continuity Test

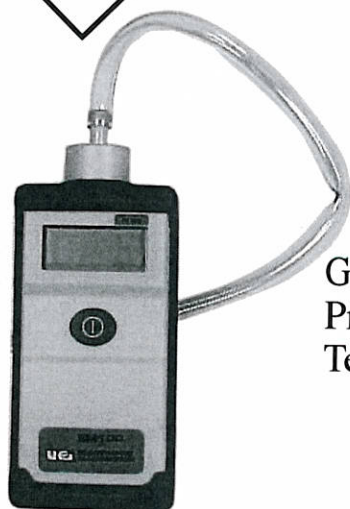


- Test continuity of the thermostat switch circuit
- Turn rocker switch to ON or make sure thermostat contacts are closed
- NO Continuity - Bad wires or defective thermostat/switch

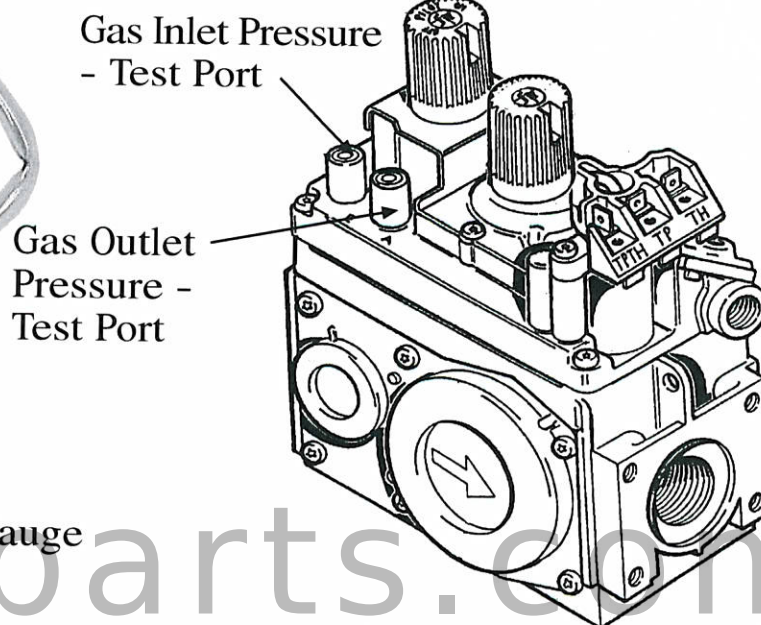




# Measuring Outgoing Gas Pressure



Digital Pressure Gauge



SIT Control Valve

- 1) Loosen output pressure tap (about two or three turns)
- 2) Zero out digital pressure gauge
- 3) Slip pressure hose over the outlet port
- 4) Light the pilot (knob on pilot)
- 5) Turn control knob to ON
- 6) Turn ON the main burner (high)
- 7) Read pressure (see chart)

## Then

- 8) Turn OFF burner
- 9) Turn control knob to OFF
- 10) Remove pressure hose
- 11) Tighten pressure port screw

No  
Outgoing Pressure  
Replace Regulator  
Body - Then if  
Necessary, Gas  
Control Valve

Outgoing Pressure  
But Still No Flame  
• Check Burner Orifice  
for Blockage  
• Check Burner Supply  
Tube

## Output Pressures

NG	LP
1.8	2.7
3.5 W.C.	11 W.C.