



Low Capacity Gas Valves & Accessories

UNI-LINE® PRODUCT KNOWLEDGE



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Subjects We Will Cover In This Session

- ▶ Fuel Characteristics
- ▶ Gas Valve Applications
- ▶ Robertshaw® 7000LC (Low Capacity) Series
 - ▶ Hydraulic Actuated
 - ▶ 24 Volt Actuated
 - ▶ Millivolt Actuated
- ▶ 7500 Series - Coming Soon!
- ▶ Manufacturers
- ▶ Pilot, Thermocouple, and Thermopile Basics
- ▶ Website Tools
- ▶ When You Have Questions
- ▶ Q&A





Acronyms

- ▶ BTU = British Thermal Units
- ▶ LC = Low Capacity
- ▶ LP = Liquid Propane
- ▶ MV = Main Valve
- ▶ NAT = Natural Gas
- ▶ PD = Pressure Drop
- ▶ PV = Pilot Valve
- ▶ SLC = Snap-action Low Capacity
- ▶ V = Volts
- ▶ WC" = Water Column inches





Fuel Characteristics

Natural Gas	Characteristics	Liquid Propane (LP)
0.64	Specific Gravity	1.53
1000	BTUs / Cubic Feet	2500
7"WC – 10.5"WC	Service Pressure Range	11"WC – 14"WC
1200° F	Ignition Temperature	950° F
10/1	Combustion Air/Gas Ratio	24/1

- ▶ Natural gas is lighter than air and rises
- ▶ L.P. gas is heavier and *puddles* in the lowest area it can find





Fuel Characteristics of British Thermal Units

- ▶ Definition of a BTU
 - The quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit
- ▶ Many gas appliances are rated depending on BTU output
 - The more heat needed, the higher the BTU rating
- ▶ Residential gas water heaters (regardless of fuel) are rated between 15,000 and 75,000 BTU
- ▶ Over 75,000 BTU is considered Commercial Water Heater
- ▶ Commercial Water Heaters are rated between 75,000 and 750,000 BTU





Space Heating and Hearth Applications

Factory Model Uni-Line® Part Number Catalog Page	BTU @ 1" PD Natural Gas Liquid Propane	Min - Max BTU Capacity	Standing Pilot	Intermittent Pilot	Direct Spark
7000 STD Uni-Line 700 Pages 68-82	Nat 300,000 LP 485,000	10,000 – 720,000 10,000 – 900,000	Y	Y	Y
7200 Uni-Line 720 Pages 85-87	Nat 150,000 LP 240,000	15,000 – 200,000 15,000 – 320,000	Y	Y	Y
2000 DER/IPER Uni-Line 722 Page 88	Nat 125,000 LP 200,000	25,000 – 170,000 25,000 – 272,000	N	Y (IPER)	Y (DER)
7500 Coming Soon!	Nat 100,000 LP 162,000	6,700 – 160,000 12,000 – 226,000	Y	N	N
7000 LC & SLC Uni-Line 710 Pages 83-84	Nat 40,000 LP 65,000	5,000 – 70,000 5,000 – 100,000	Y	N	N
7000 ST Uni-Line 700 Pages 70-71	Nat 100,000 LP 162,000	10,000 – 160,000 10,000 – 226,000	Y	N	N





7000LC (Low Capacity) Factory Series

- ▶ Most popular Low Capacity Uni-Line® part is **710-502**
- ▶ Designed for:
 - Standing Pilot only
 - OEM replacements
- ▶ Incorporates the following:
 - Manual Valve
 - Pilot Valve
 - Main Gas Pressure Regulator
- ▶ Applications include:

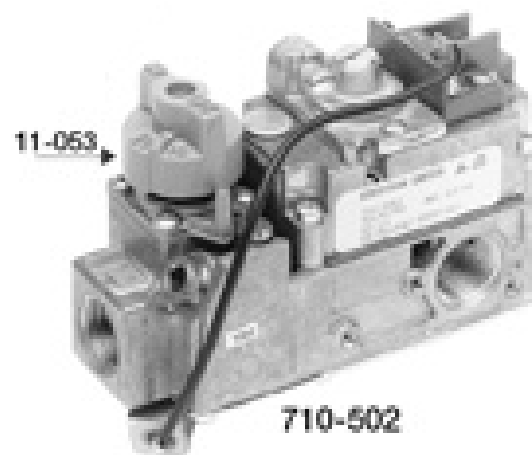
– Patio Heaters	710-100 Series	Manual
– Recreation Vehicles	710-200 Series	Hydraulic
– Wall Furnaces	710-400 Series	24 Volts
– Fireplace Hearth	710-500 Series	Millivolt





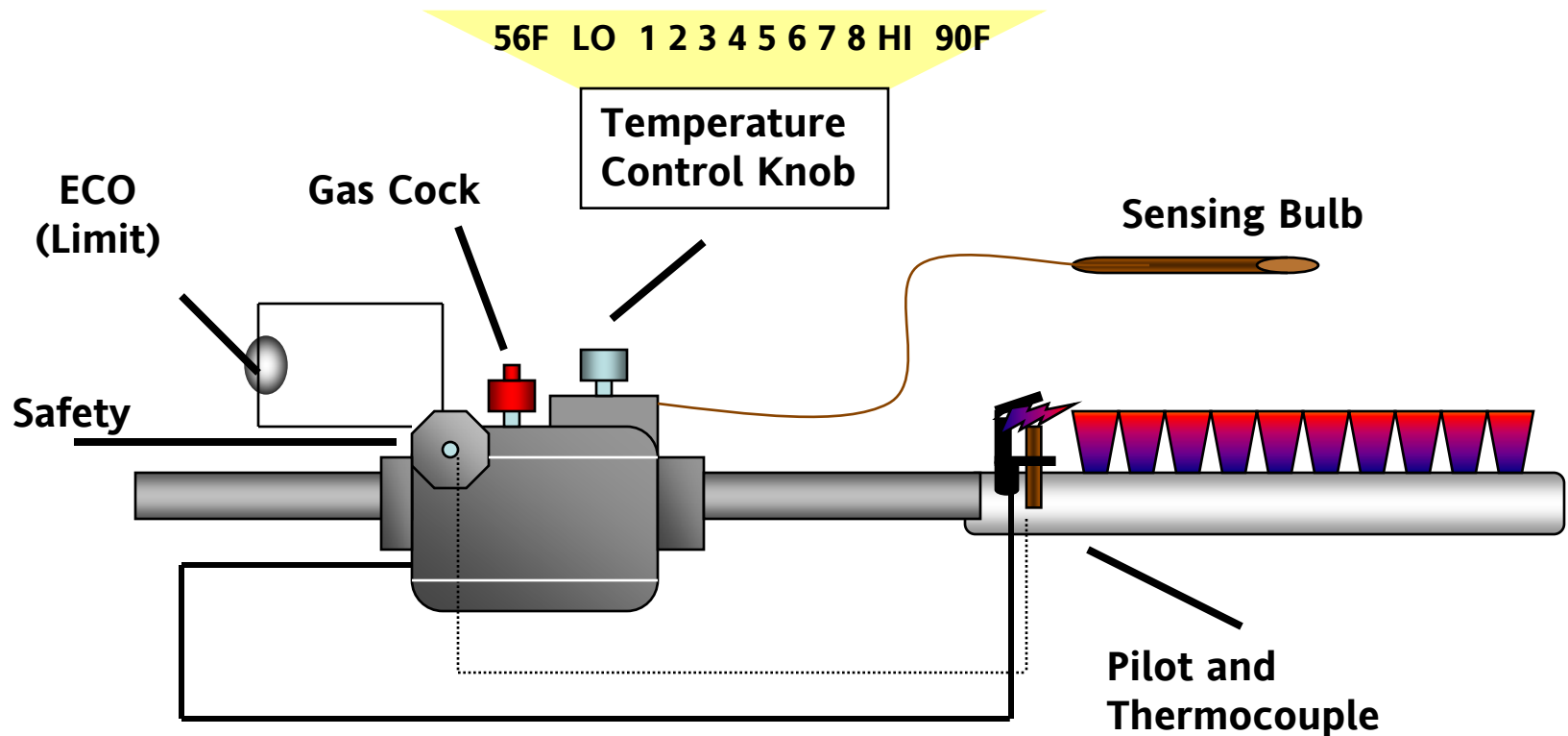
7000LC (Low Capacity) Example

- ▶ Factory Number is **7000MVRLC**
- ▶ Contains **MV** for Millivolt Actuator
- ▶ Contains **R** for Regulated
- ▶ Contains **LC** for Low Capacity
- ▶ Uni-Line® Part **710-502**
- ▶ BTU rating range is 5,600 - 70,000
- ▶ Regulator is 3.5" WC for Natural Gas
- ▶ Inlet and outlet size are 1/2" x 1/2"
- ▶ Pilot outlet is 1/4"



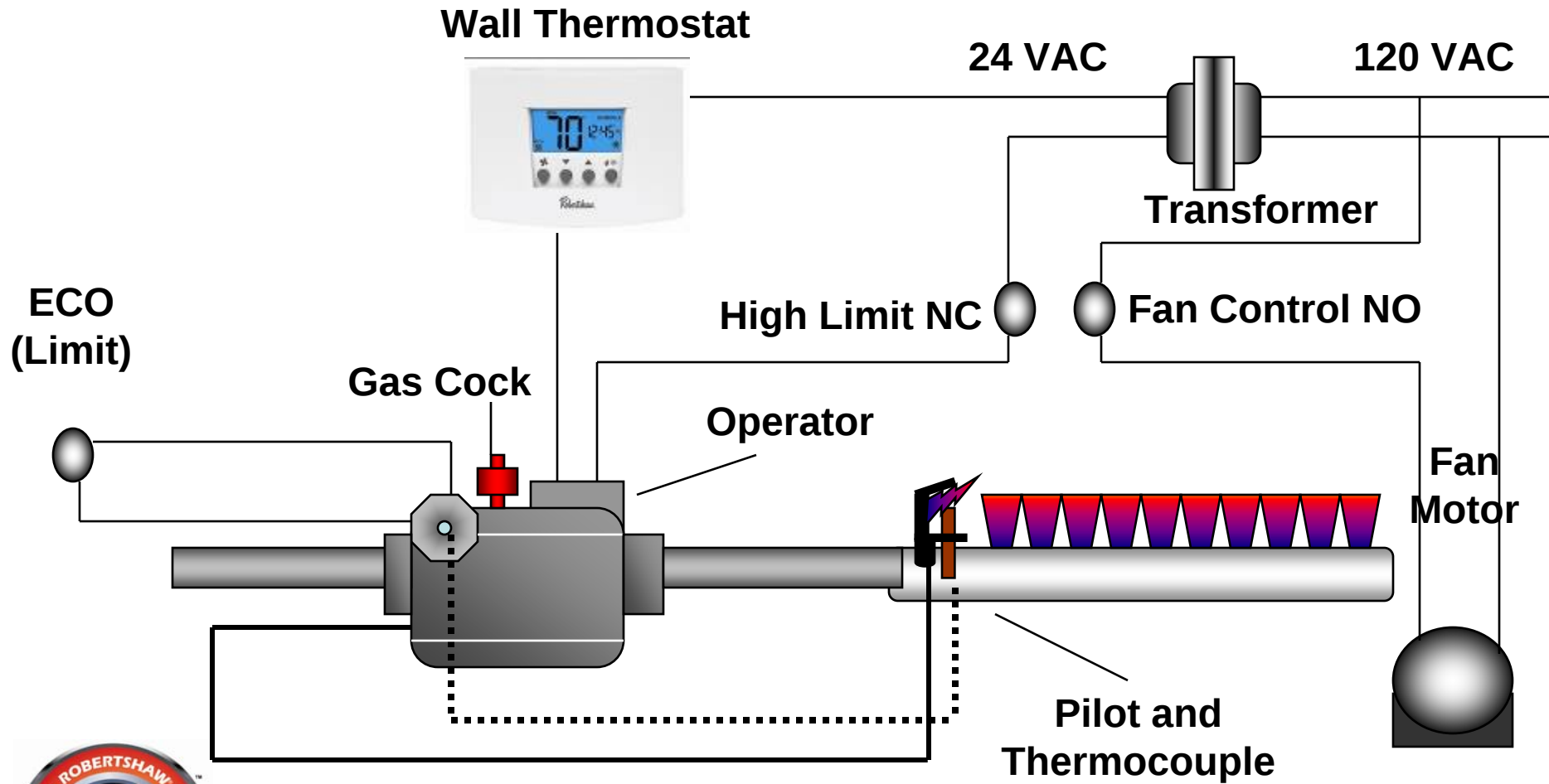
7000LC Hydraulic Actuated Gas Valve

- ▶ Most popular Hydraulic Snap-Action part is 710-205
- ▶ Add “S” to Factory Part for Snap-Action ie. 7000SRLC



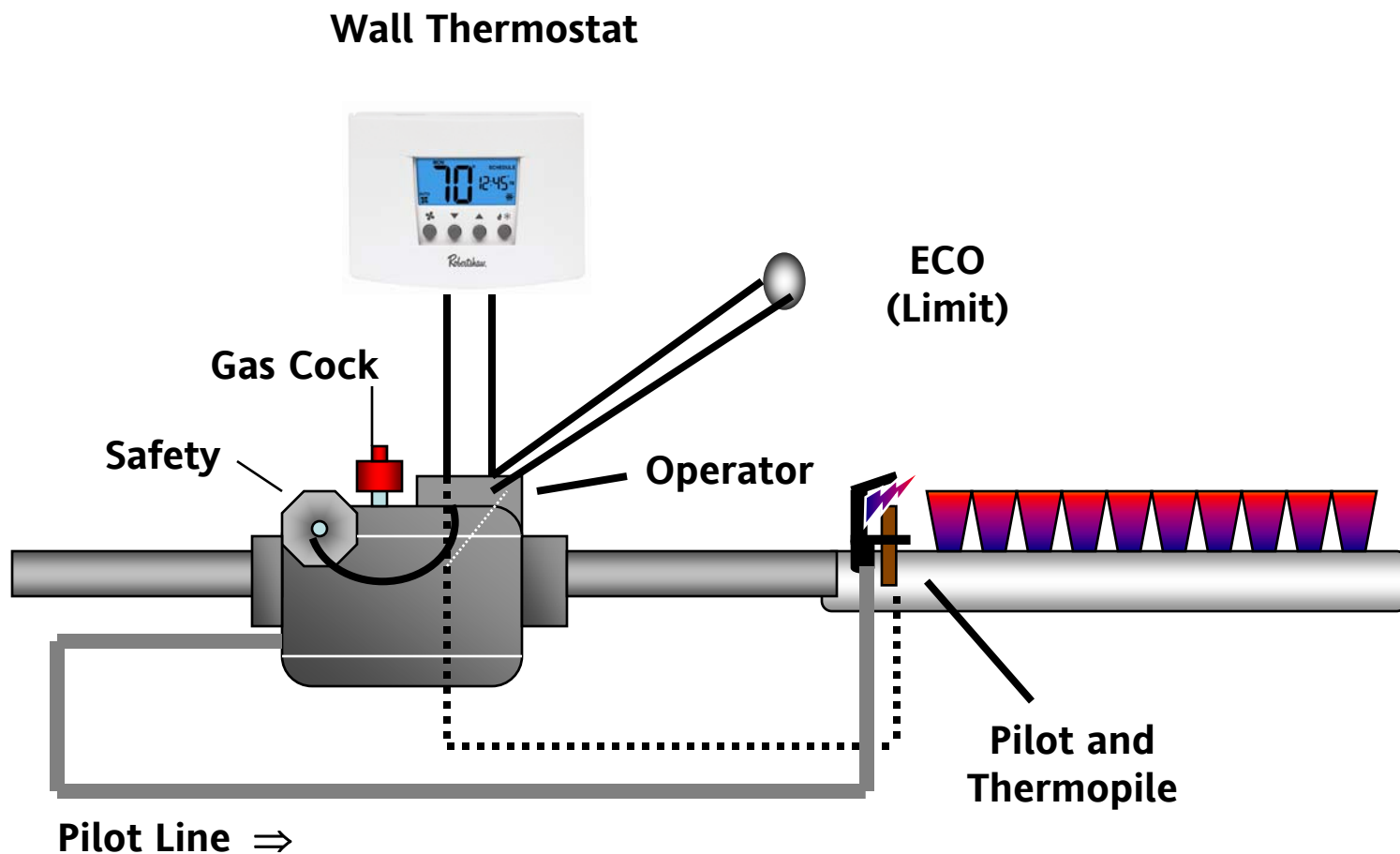


Most popular Uni-Line® part is 710-402, Factory Part 7000-ERLC





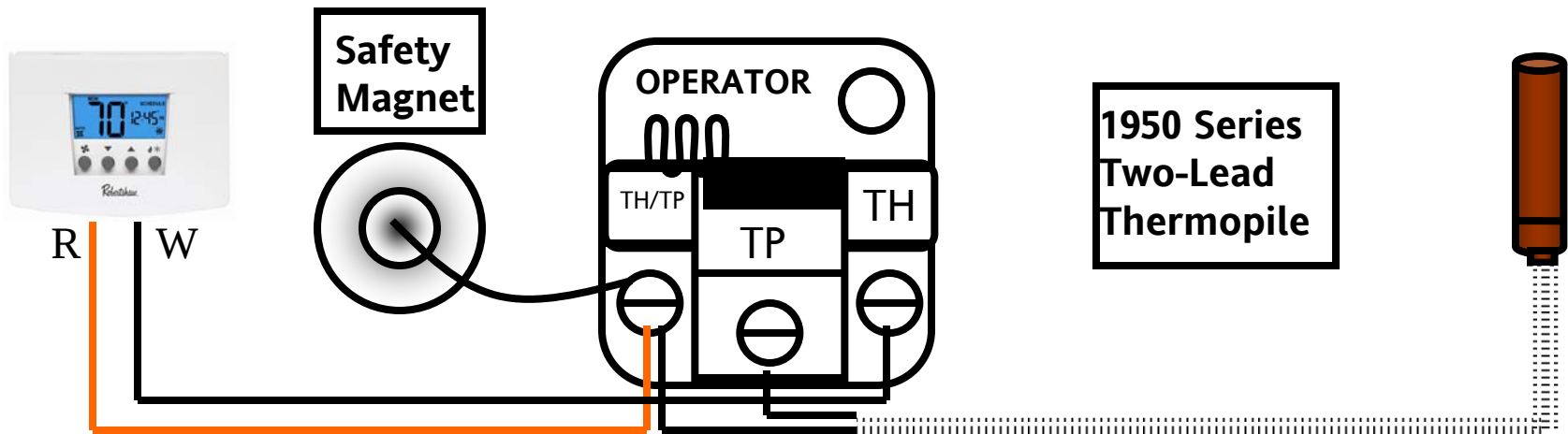
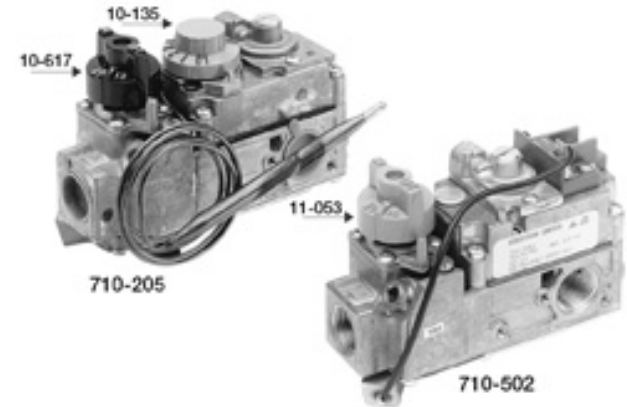
7000LC Millivolt Actuated Gas Valve





7000LC Millivolt Actuated - Wiring

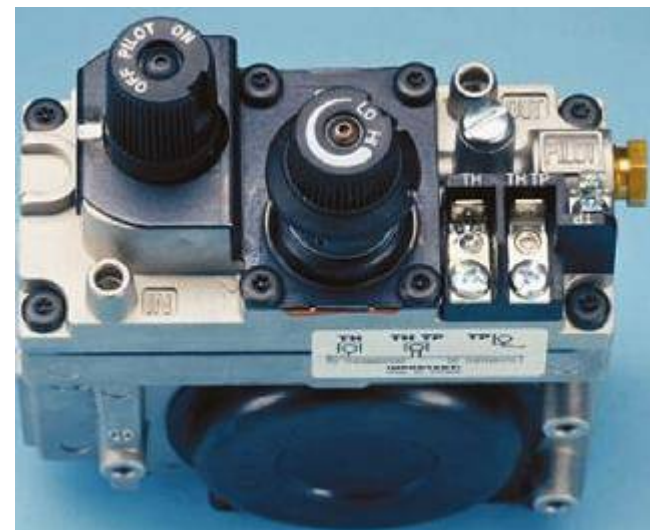
- ▶ Most popular part is 710-502
- ▶ Factory model is 7000MVRLC





7500 Series Gas Valve – Coming Soon!

- ▶ Designed for:
 - OEM replacements
 - Smaller Locations
- ▶ Incorporates the following:
 - Manual Valve
 - Pilot Valve
 - Main Gas Pressure Regulator
 - Field Convertible without additional components
- ▶ Applications include:
 - Central Heating Units
 - Wall Heaters
 - Hearth Fireplaces





Gas Valve Manufacturers

Markets	Robertshaw® USA based Engineering and Technical Services	Honeywell USA based Engineering and Technical Services	White- Rodgers USA based Engineering and Technical Services	Dexen Taiwan based No Engineering nor Technical Services	SIT Italian based Engineering and Technical Services
Space & Central Heating	Yes	Yes	Yes	Yes	Yes
Residential Water Heating	Yes	Yes	Yes	No	Yes
Hearth Products	Yes	Yes	No	Yes	Yes
Pilots, Thermo-couples, Ignition systems	Yes	Yes	Yes	No	Yes





Robertshaw® Gas Valve Accessories

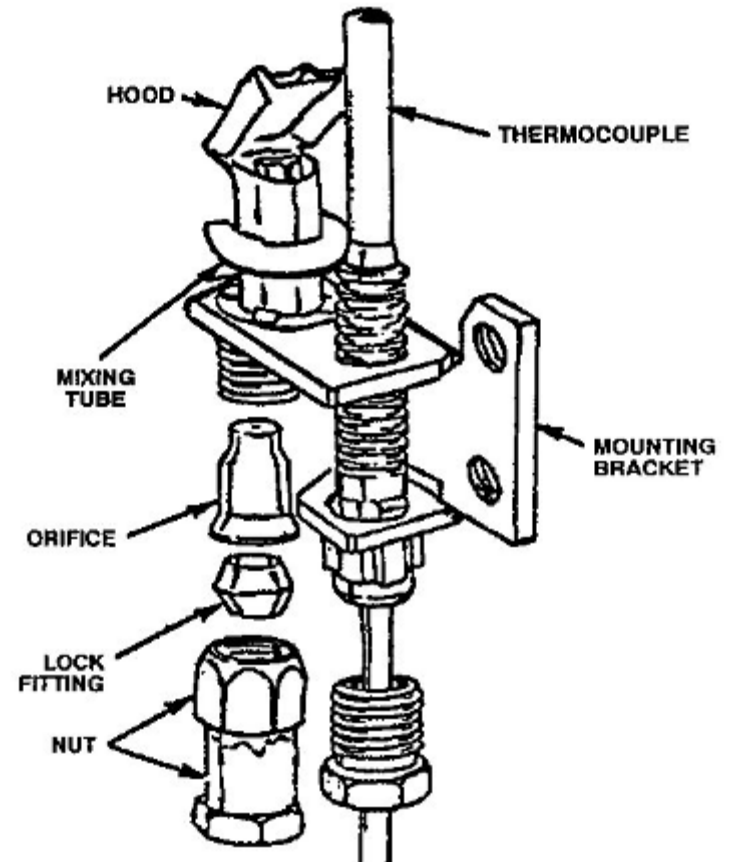
- ▶ Pilots
- ▶ Thermocouples
- ▶ Thermopiles





Pilot Basics

TYPICAL PILOT ASSEMBLY



- ▶ Order 1820 Series with Left or Right flame pattern type
- ▶ Pilot Uni-Kits® are with or without Thermopile pre-mounted



Product Number 1820-009
 Description 1820 SERIES PG9 REPLACEMENT PILOT UNI-KITS®
 Factory No.
 Hood Type
 Mounting
 Bracket Type
 Flame Pattern Type 90° Right
 Comments
 Lead Length
 Photo No.
 With Thermopile 1950-532 Thermopile
 Replaces - ITT General PG9A42JTL02



Product Number 1820-019
 Description 1820 SERIES PG9 REPLACEMENT PILOT UNI-KITS®
 Factory No.
 Hood Type
 Mounting
 Bracket Type
 Flame Pattern Type 90° Left
 Comments
 Lead Length
 Photo No.
 With Thermopile 1950-532 Thermopile
 Replaces - ITT General Part PG9A41JTL020



Product Number 1820-029
 Description 1820 SERIES PG9 REPLACEMENT PILOT UNI-KITS®
 Factory No.
 Hood Type
 Mounting
 Bracket Type
 Flame Pattern Type 90° Right
 Comments
 Lead Length
 Photo No.
 With Thermopile Pilot Only
 Replaces - ITT General Part

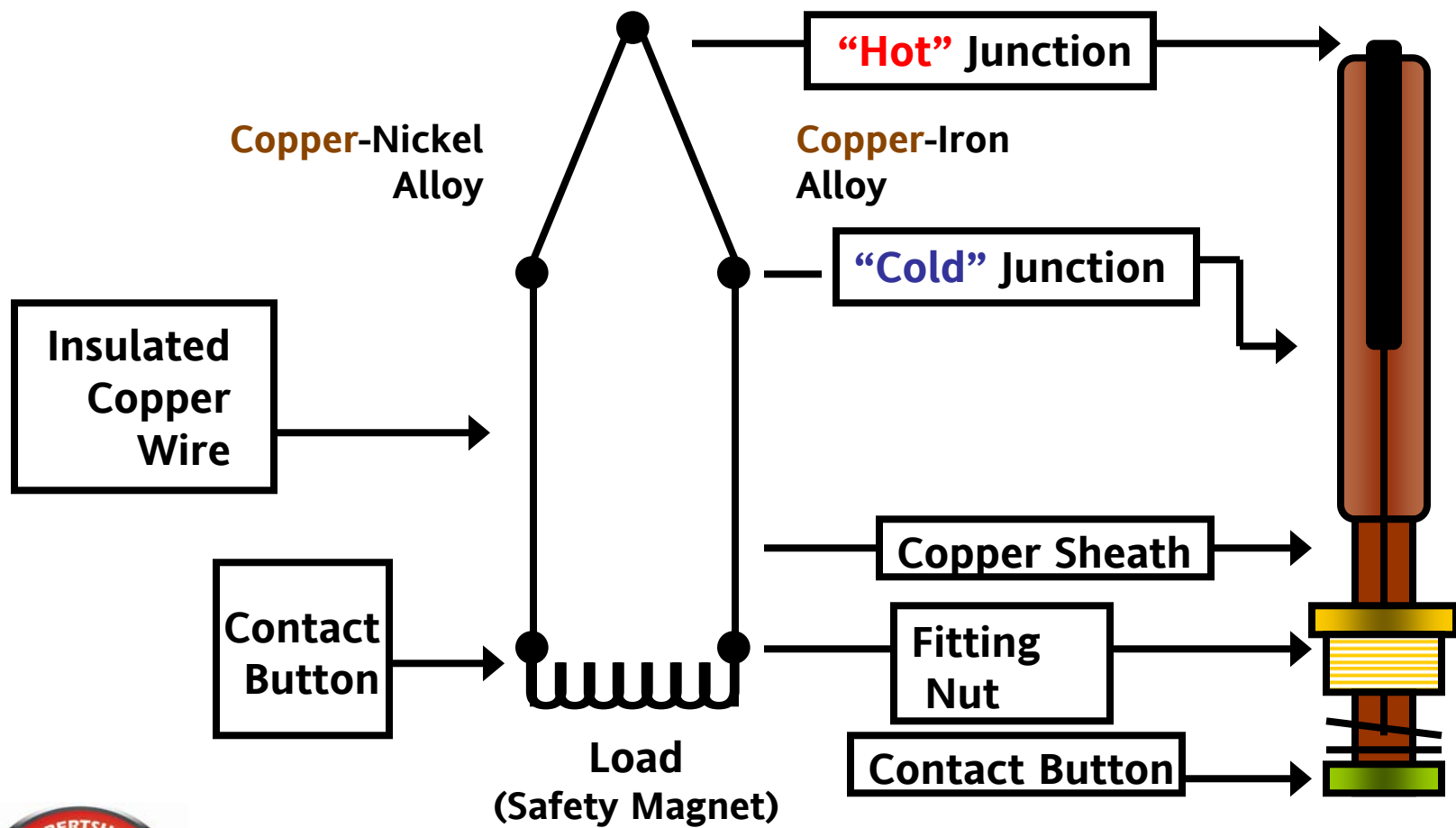


Product Number 1820-039
 Description 1820 SERIES PG9 REPLACEMENT PILOT UNI-KITS®
 Factory No.
 Hood Type
 Mounting
 Bracket Type
 Flame Pattern Type 90° Left
 Comments
 Lead Length
 Photo No.
 With Thermopile Pilot Only
 Replaces - ITT General Part





Thermocouple Basics





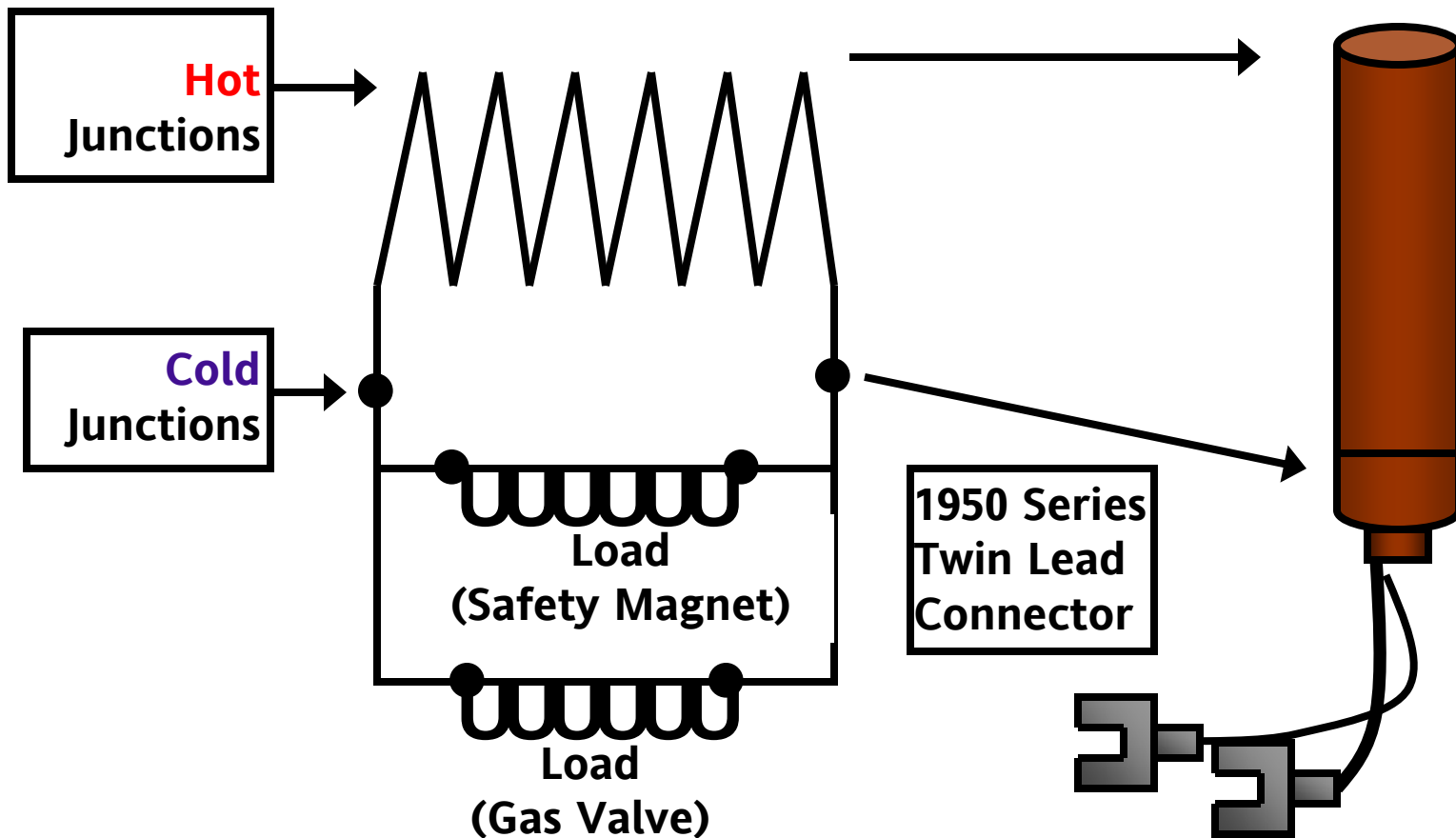
Thermocouple Parts

- ▶ The 1980 series offers easy installation into most pilot burners
- ▶ Uses Snap-Fit® technology
- ▶ End of part number refers to various lengths:
 - 1980-012 is 12 inches
 - 1980-072 is 72 inches





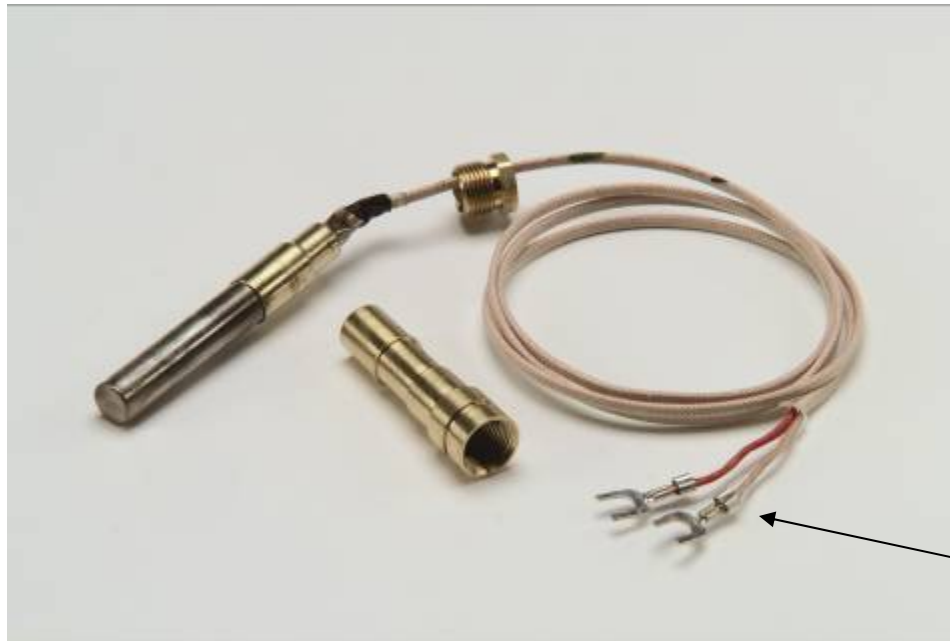
Thermopile Basics





Thermopile Parts

- ▶ The 1950 series thermopiles have two lead wire connections and are primarily used in HVAC applications
- ▶ Note: The 1951 coaxial series used mostly on Commercial Cooking applications



Twin lead wires





Quiz Question #1

- ▶ What is the difference between thermocouples and thermopiles?
 - A. Voltage
 - B. Size
 - C. Application
 - D. All of the Above





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- ▶ **Customer Service** **1-800-304-6563** **Fax 1-800-426-0804**

- ▶ **Uni-Line® Catalog Website:** www.Uni-Line.com

- ▶ **Cross Reference Website:**

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- ▶ **General Information Websites:**

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