



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 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	BTU @ 1" PD	Min - Max BTU Capacity	Standing	Intermittent	Direct
7000 STD	Nat 300,000	10,000 – 720,000	✓	✓	✓
(Uni-Line 700)	LP 485,000	10,000 – 900,000	✓	✓	✓
7200	Nat 150,000	15,000 – 200,000	✓	✓	✓
(Uni-Line 720)	LP 240,000	15,000 – 320,000	✓	✓	✓
2000	Nat 125,000	25,000 – 170,000	✗	✓	✓
(Uni-Line 722)	LP 200,000	25,000 – 272,000	✗	✓	✓
7500	Nat 100,000	6,700 – 160,000	✓	✗	✗
(Uni-Line 722)	LP 162,000	6,700 – 226,000	✓	✗	✗
7000 LC	Nat 40,000	5,000 – 70,000	✓	✗	✗
(Uni-Line 710)	LP 65,000	5,000 – 100,000	✓	✗	✗
7000 ST	Nat 100,000	10,000 – 160,000	✓	✗	✗
(Uni-Line 700)	LP 162,000	10,000 – 225,000	✓	✗	✗

7000LC (Low Capacity) Factory Series

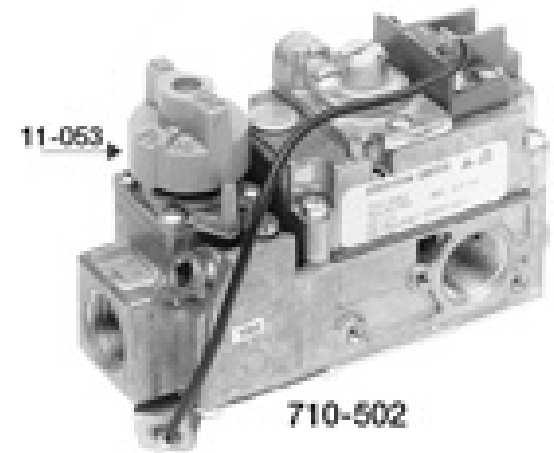
- Most popular Low Capacity Uni-Line® part is **710-502**
- Designed for:
 - Standing Pilot only
 - OEM replacements
- Incorporates the following
 - Manual Valve
 - Pilot Valve
 - Main Gas Pressure Regulator
- Applications include
 - Patio Heaters **710-100** Series Manual
 - Recreation Vehicles **710-200** Series Hydraulic
 - Wall Furnaces **710-400** Series 24 Volts
 - Fireplace Hearth **710-500** Series Millivolt



7000LC (Low Capacity) Example

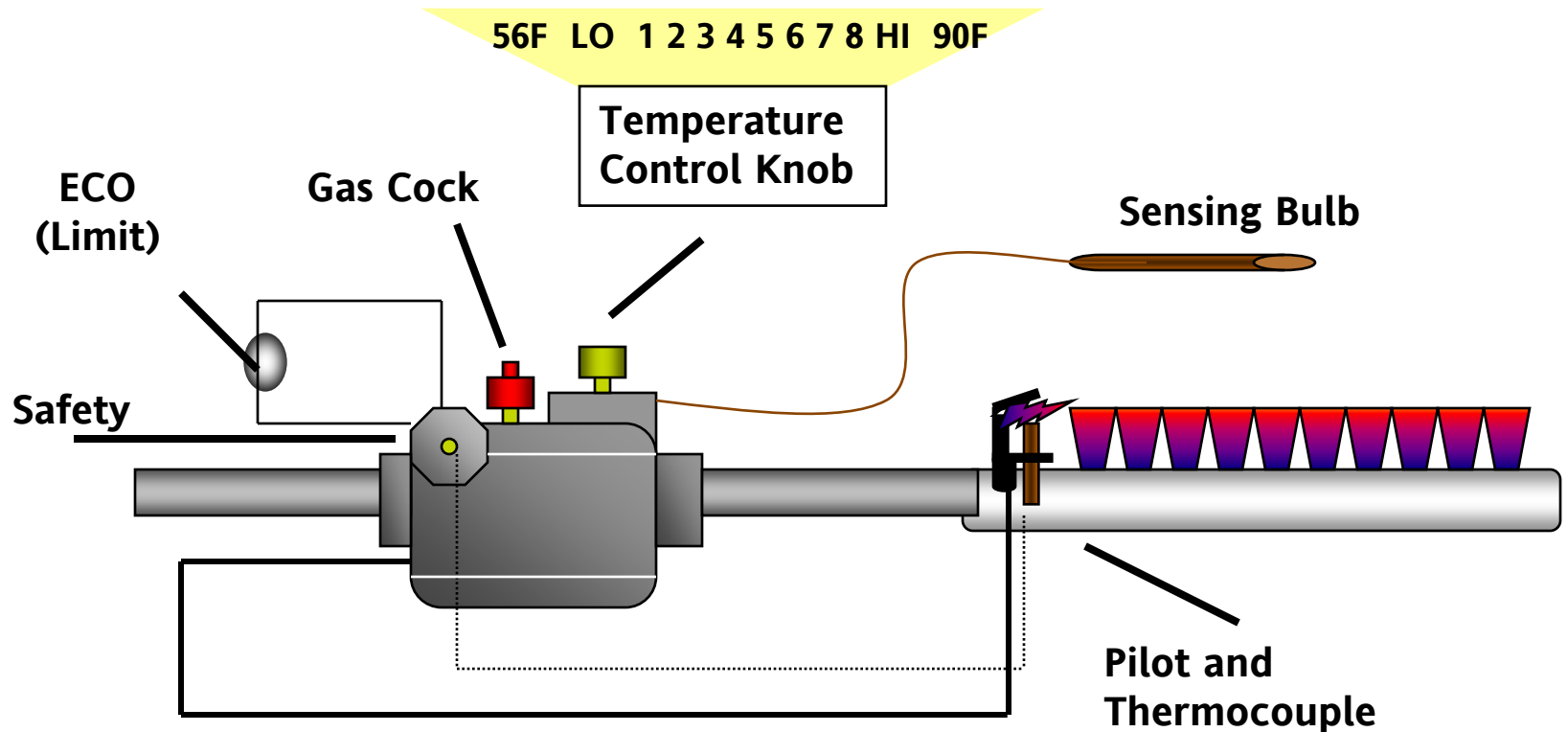
- Factory Number is 7000MVRLC
- Contains MV for Millivolt Actuator
- Contains R for Regulated
- Contains LC for Low Capacity

- 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"



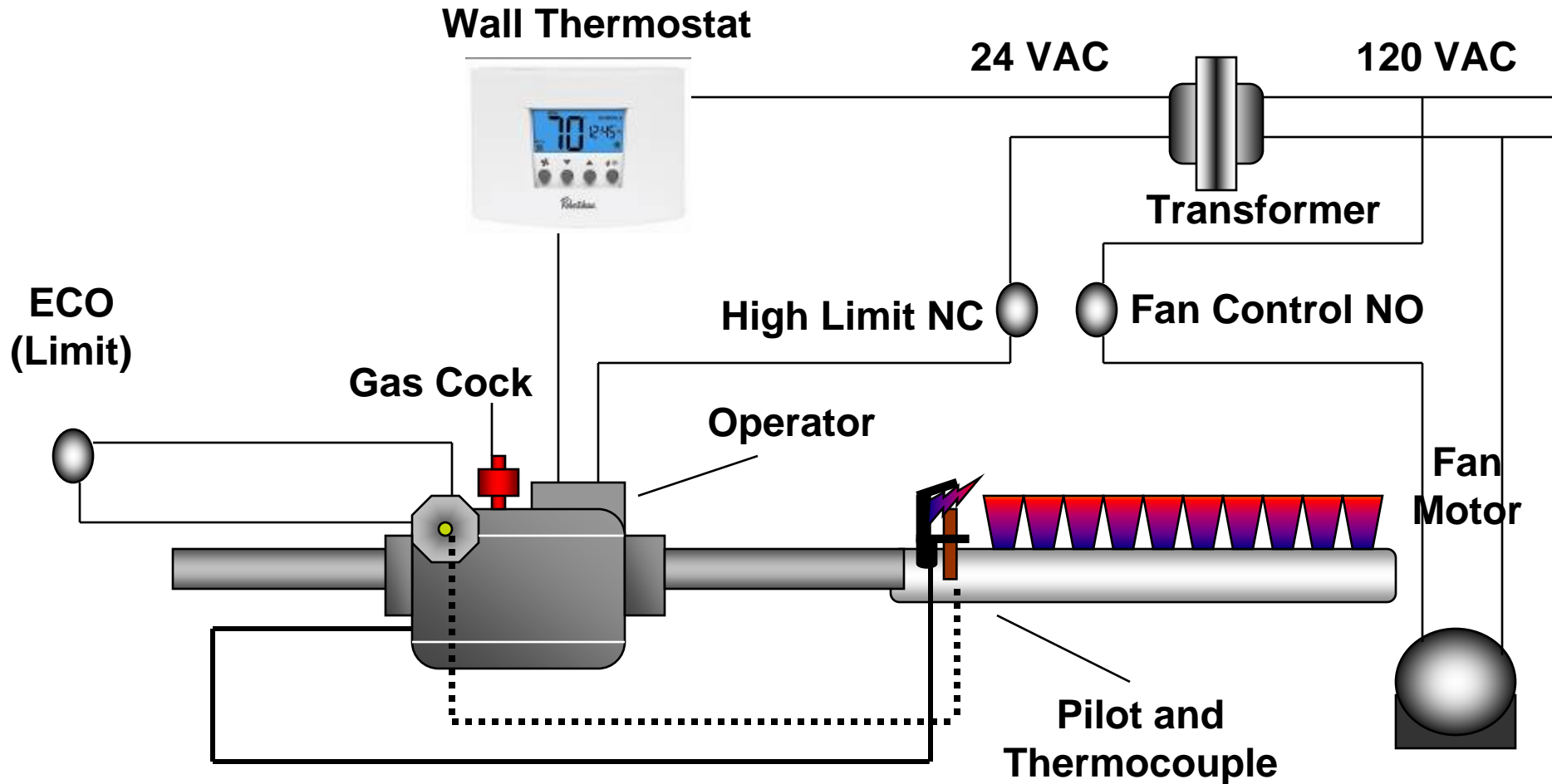
7000LC Hydraulic Actuated Gas Valve

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

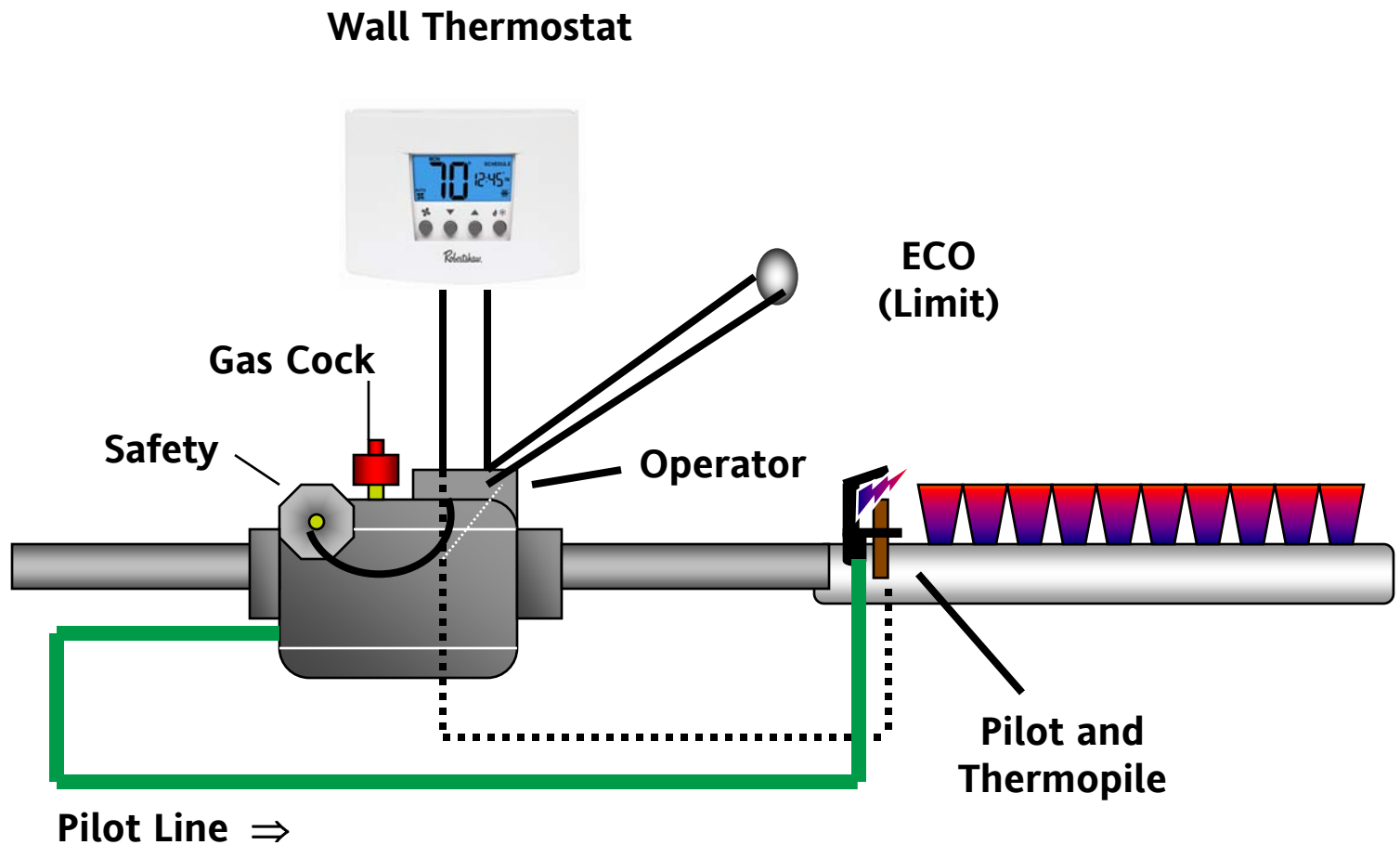


7000LC 24 Volt Actuated Gas Valve

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

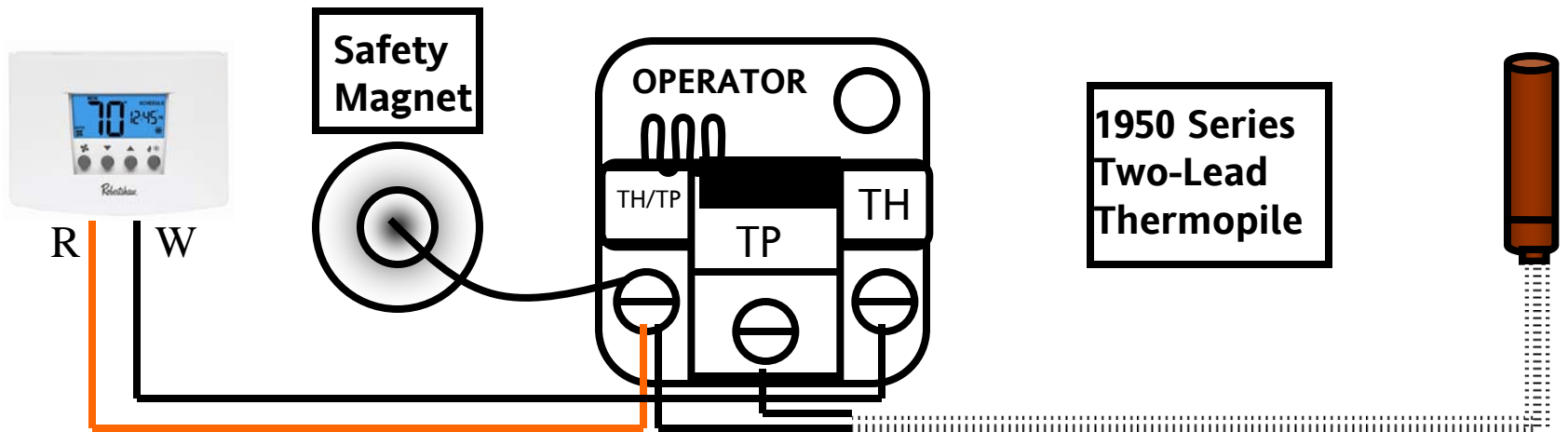
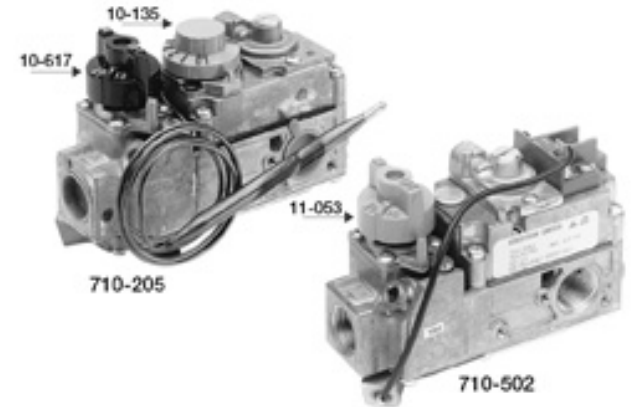


7000LC Millivolt Actuated Gas Valve



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

Attributes	Robertshaw®	Honeywell	White-Rodgers	Dexen	SIT
US Based Engineering	✓	✓	✓	✗	✗
US Based Technical Services	✓	✓	✗	✗	✗
Space & Central	✓	✓	✓	✓	✓
Residential Water	✓	✓	✓	✗	✗
Hearth Products	✓	✓	✗	✓	✓
Pilot, Thermocouple and Ignition Controls	✓	✓	✓	✗	✓

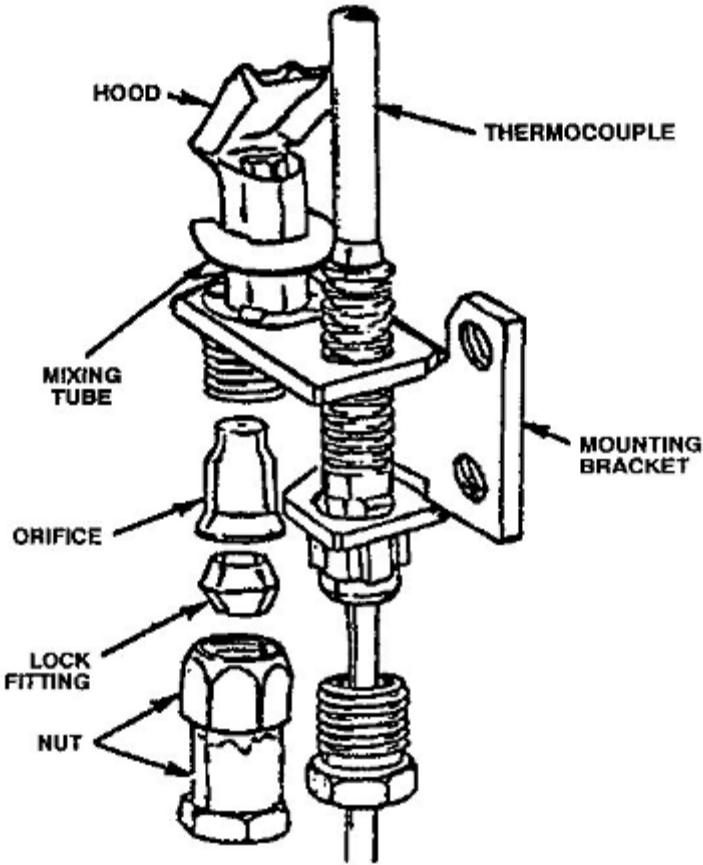
Robertshaw® Gas Valve Accessories

- Pilots
- Thermocouples
- Thermopiles

Pilot Basics



TYPICAL PILOT ASSEMBLY



Pilot Parts

- 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

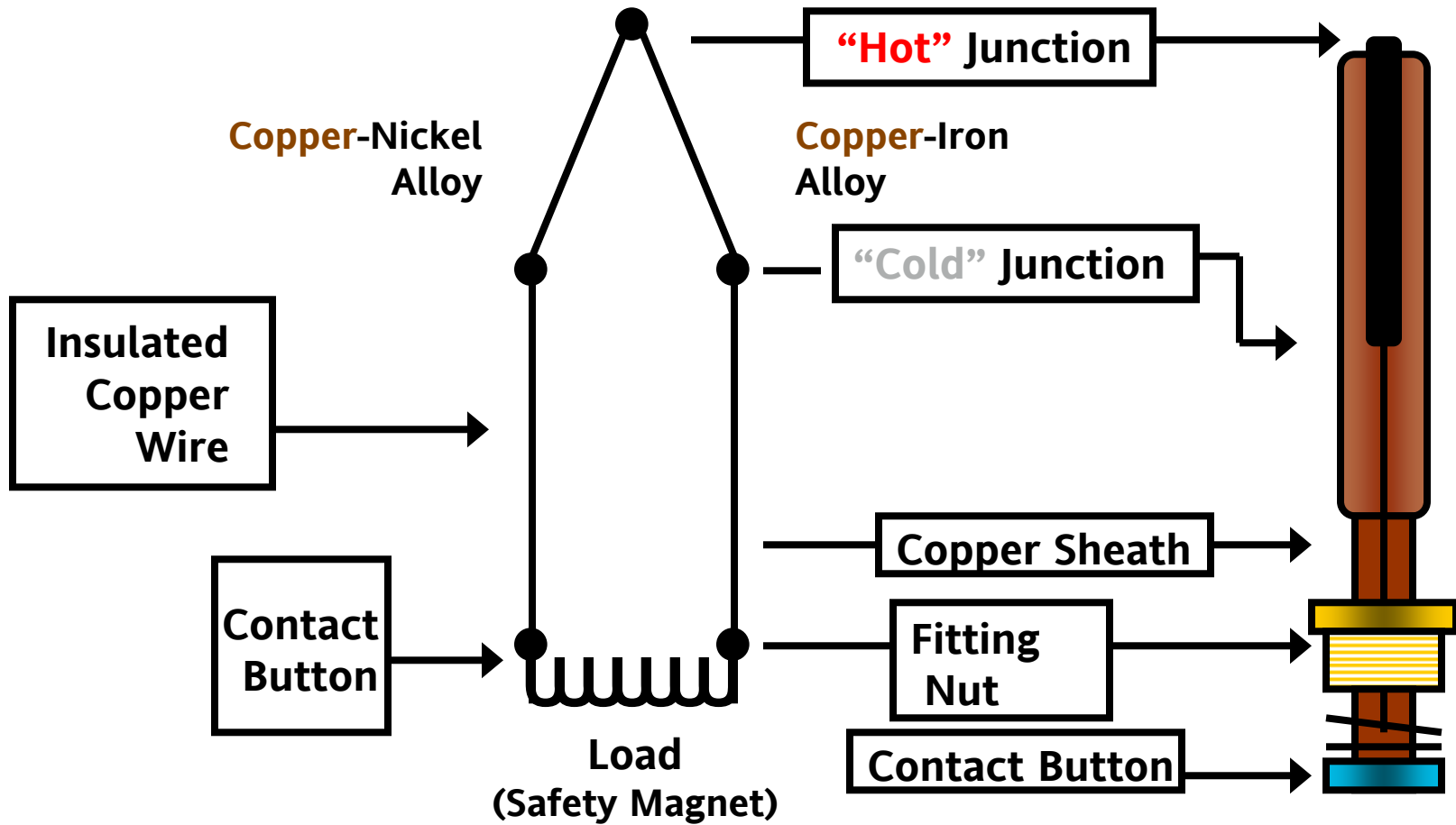


Product Number	1820-029
Description	1820 SERIES PG9 REPLACEMENT PILOT UNI-KITS®
Factory No.	
Hood Type	
Mounting Bracket Type	
Flame Pattern Type	90° Right
Comments	
Lead Length	
Photo No.	
With Thermopile	Pilot Only
Replaces - ITT General Part	



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

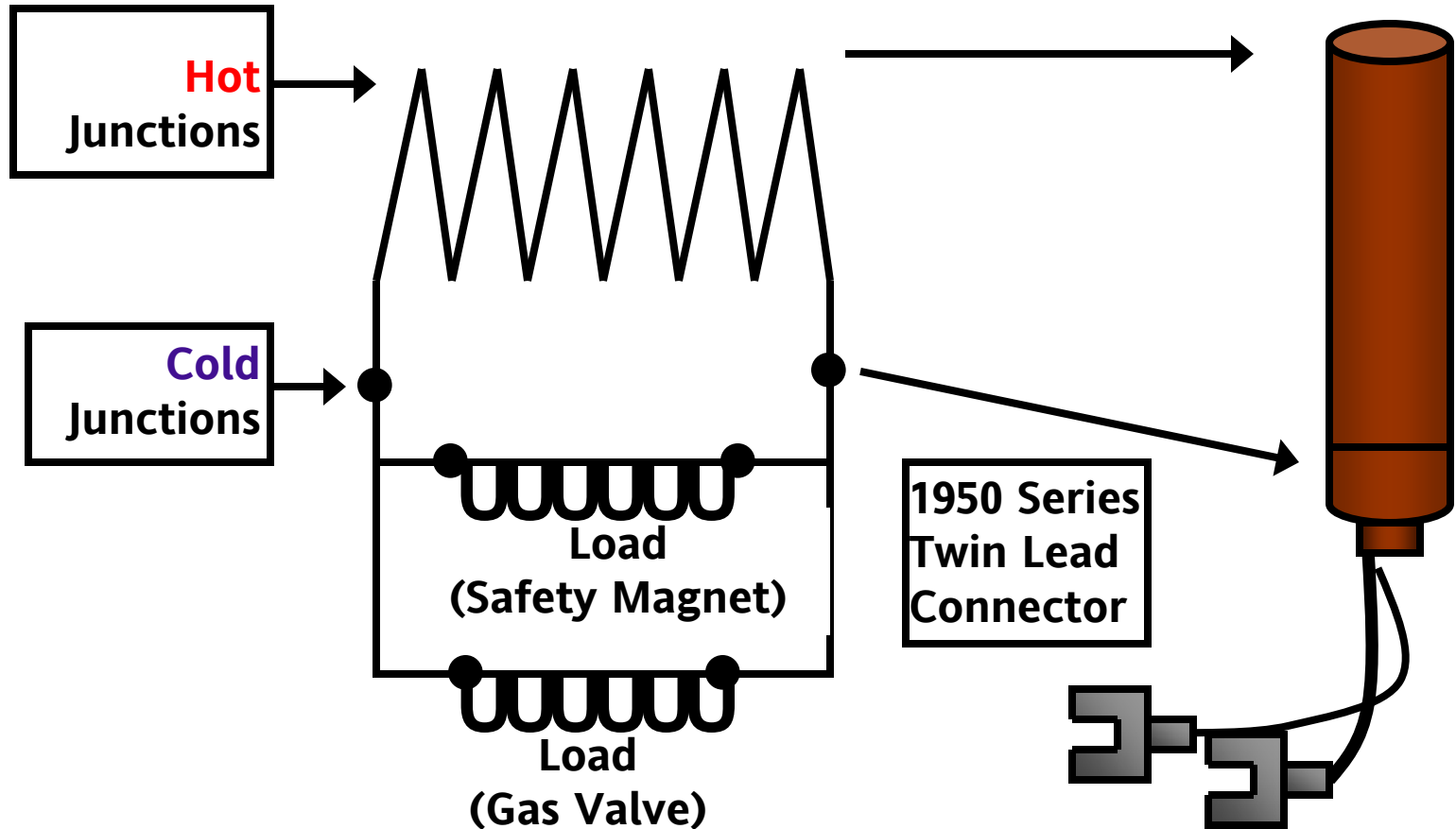


Thermocouple Parts

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



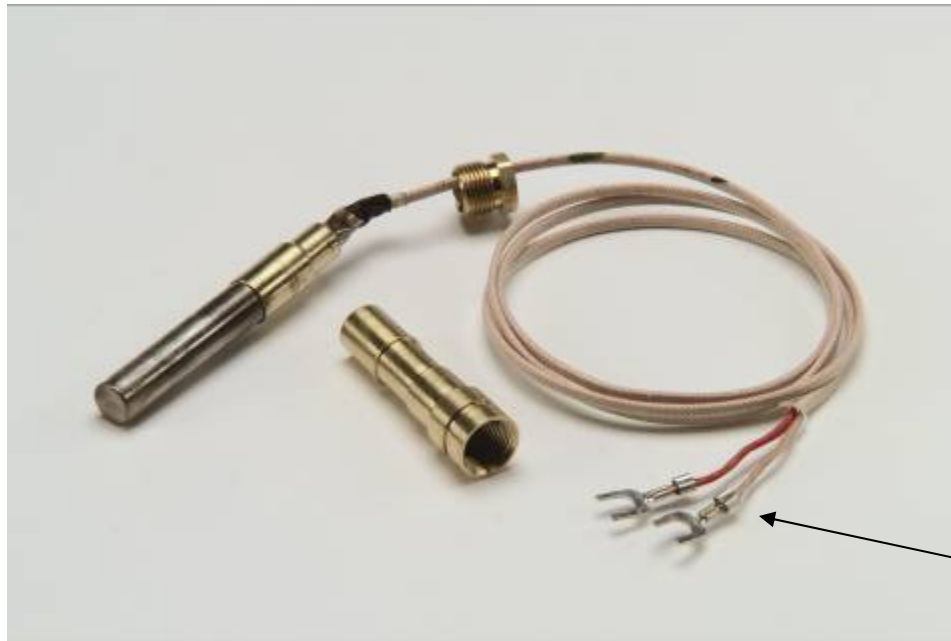
Thermopile Basics



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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Cooking		

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