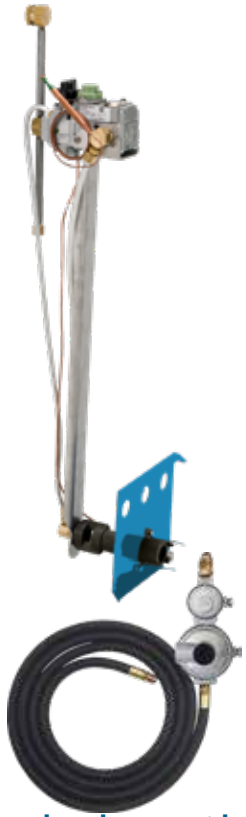
Trojan 66B

LP Gas Stock Tank Heater

Universal User's Manual & Troubleshooting Guide



Unit and replacement burner now includes Trojan Hook-Up Kit required to connect to your fuel tank!

**If you still have questions or concerns regarding your Trojan 66B Stock Tank Heater after consulting this manual, please contact Trojan Specialty Products for prompt and professional customer service and troubleshooting at 800-279-1770*

Trojan 66B
LP Gas Stock Tank Heater Specifications

The 66B features the current new style burner assembly with the same great function and dependability that you receive with every Trojan product!

- Powder-coated, heavy-duty steel casing
- Control & burner assembly is easily removed for servicing and is designed to stay lit
- AGA listed automatic control for safe operation
- Produces up to 12,400 BTU every hour needed
- Must be submerged in a minimum of 2 feet of water during operation
- Suggested for 100 gallon tanks and larger
- Propane hook up kit included with 66B*
- Dimensions:
  - Height: 35”
  - Diameter: 8.5”
  - Weight: 54 lbs (Round)/75 lbs (US Square)
  - Casing and heat chamber length: 20”

*The 66B LP Stock Tank Heater (round style only) is now Lab-tested and Certified for **propane-use** in the US and Canada!*

Suggested Tools for easy installation:

Bracket Installation for Round Casing:
- ½” Wrench
- 9⁄16” Wrench
- 7⁄16” Wrench

Bracket Installation for Square Casing:
- (2) 9⁄16” Wrenches
- ¾” Wrench

Opening & Securing Lid:
- 10mm Socket and Ratchet

Hook-Up Kit Installation:
- ⅞” Wrench (Outlet Fitting)
- ⅝” Wrench (Inlet Fitting)

Trojan Hook-Up Kit is now included!

This kit provides the connecting link between an LP cylinder and a stock tank heater or other low-pressure equipment and appliances.

Hook-Up Kit Includes:
- Two-Stage Pressure Regulator
- 10 Foot Hose
- Excess Flow POL Fitting 1/4” MPT Outlet Fittings
- 1/4” FPT Inlet x 3/8” Outlet

Capacity:
125,000 BTU/hour at 25 PSI inlet pressure.

***Must be used with included LP gas pressure regulator for warranty coverage**

May also be used with:
- Stock Tank Heaters (i.e.: 66B)
- Gas Grills
- Patio Lights
- Construction Heaters
- Many more items

NOTE:
- Not for use with torches or high pressure equipment.

FOR OUTDOOR USE ONLY
WARNING FOR LP PROPANE USERS:

To avoid possible injury, fire, explosion, or carbon monoxide poisoning, please read and follow these precautions and all instructions on this appliance BEFORE lighting the pilot.

This appliance uses LP (Propane) gas that is heavier than air and will remain at low levels if there is a leak. **Before lighting, sniff air at low levels. If you smell gas, follow these rules:**

- Shut off gas at LP tank
- **DO NOT attempt to light**
- Move to fresh air and follow standard LP safety procedures

If the gas control has been exposed to WATER in any way:

- **DO NOT** try to use it. It must be replaced.
- **DO NOT attempt to repair the gas control or temperature sensing bulb.**

Tampering is DANGEROUS and voids ALL warranties.

If the LP tank runs out of fuel:

- Turn off gas at the stock tank heater and LP tank respectively.
- After the LP tank is refilled, the stock tank heater must be re-lit according to manufacturer's instructions listed in this manual.

ALWAYS use the hose and regulator in the Trojan Hook-Up Kit to connect the Burner Assembly to the gas line. High pressure can damage the Unitrol, causing a hazardous condition.

Not using the supplied Trojan Hook-Up Kit VOIDS ALL WARRANTIES.

ADDITIONAL IMPORTANT SAFETY TIPS:

- NO SMOKING or open flames near the heater, propane tank, or supply hose.
- Use outdoors only. Never operate in a barn, shed, garage, building, or any enclosed or partially enclosed space. This appliance can produce carbon monoxide.
- Perform a soap-and-water leak test on all gas connections after installation or reinstallation. Never use an open flame to test for leaks.
- Keep children, pets, and unauthorized persons away from the heater and LP tank at all times.
- Keep the LP cylinder upright on a stable, level surface and at least 3 feet away from any ignition source.
- Inspect the hose, regulator, and all fittings for cracks, wear, or damage before each use. Replace immediately if damaged.
- Do not allow water to enter the burner assembly, gas control, or hose connections. Frozen water in components can cause malfunction or gas leaks.
- Inspect the 66B casing for corrosion, rust, or damage before each installation or reinstallation, or annually as required for safety compliance.

Important Operational Tips:

- Do not use pipe compound, shellac, or any other sealing compound on any of the fittings between supply lines and this control unit.
- Brass to brass or brass to aluminum connections do not require any sealing compound. If any particle of sealing compound gets into the control, it will not allow the control to function properly.
- The use of a sealing compound and/or the servicing of the Robertshaw Unitrol by anyone, will **void the warranty on the control.**

To prevent damage to the temperature sensing bulb:

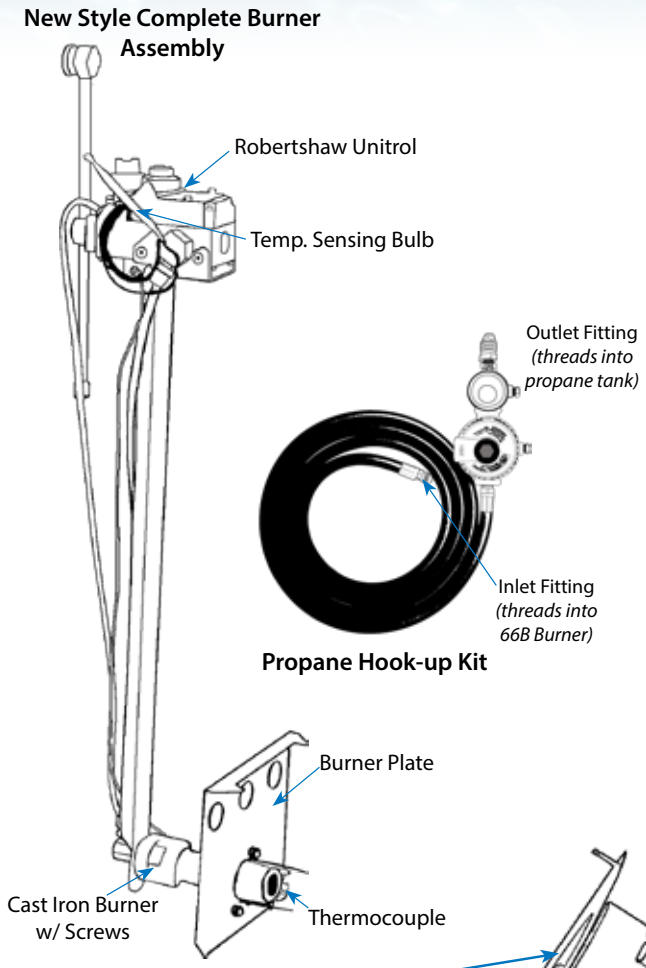
- Add enough vegetable oil into the bulb guide, where the temperature sensing bulb sits, to completely cover the bulb in order to prevent freezing.
- DO NOT allow the bulb guide to fill with water, as the water will freeze and crush the temperature sensing bulb.
- Keep the temperature sensing bulb inside of the bulb guide submerged in vegetable oil at all times when the burner assembly is in operation.

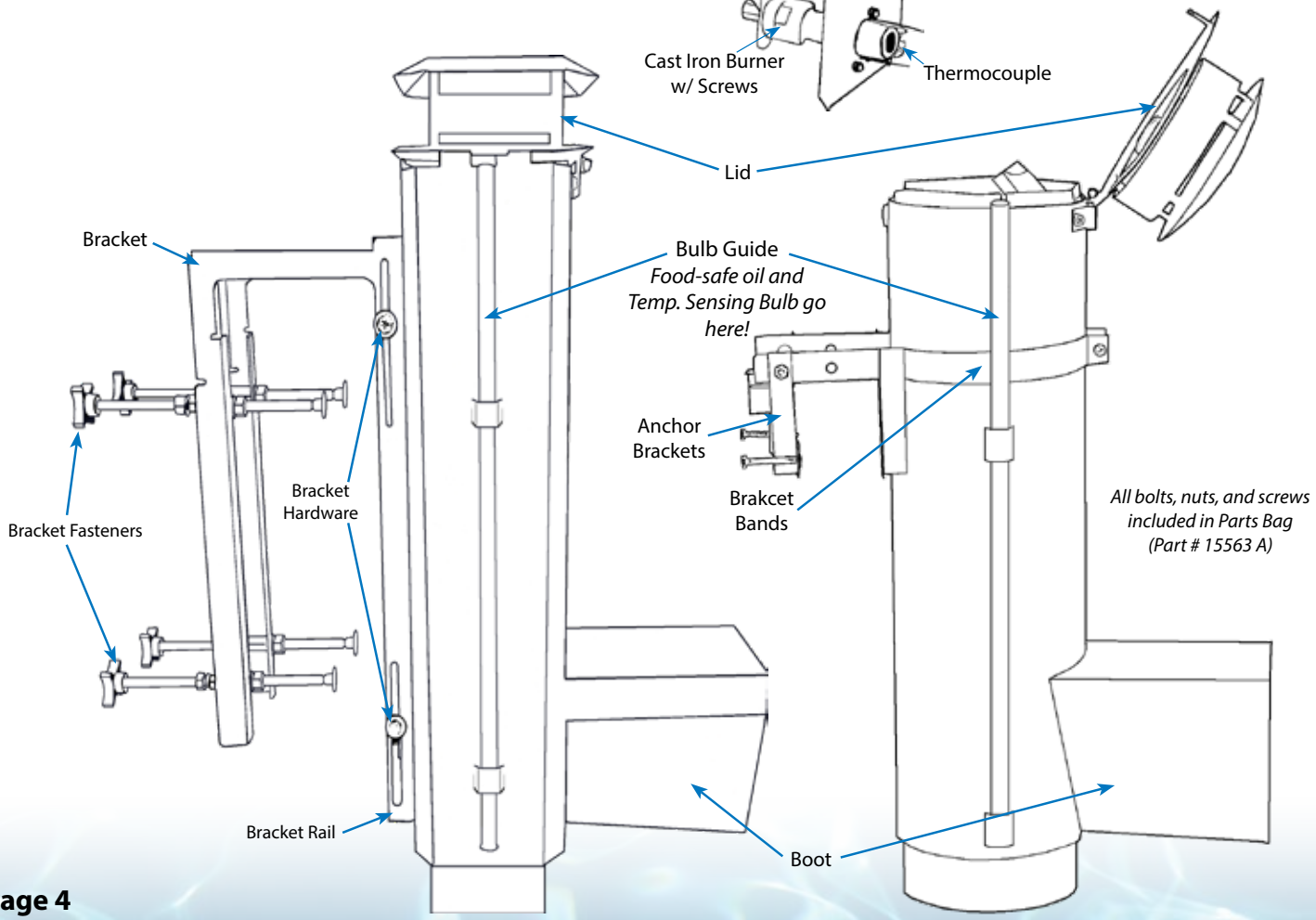
Diagrams

Figure No. 1: 66B Stock Tank Heater

Part No.	Description
11870	Robertshaw Unitrol 7000SLC
50000	Trojan Hook-up Kit
13989	Burner Plate
13995	1/4" Pilot Tube - 23"
13997	Pilot Assembly
14428	#58 Orifice - Main Burner - LP only
14429	26" Thermocouple
11454	Brass Locator Fitting
11450	Brass Inlet Fitting
11457	90° Orifice Holder
15418	Pilot Orifice Pkg. - LP
14963	1/8" x 5" Nipple Pipe
15092	Cast Iron Burner w/ Screws
15467 A	New Style Complete Burner Assembly
	Complete Casing Assembly

Current pricing can be obtained at:
www.trojanlivestock.com





Installation Instructions

1. Remove all packaging and wrapping from burner assembly and casing.
2. Ensure stock tank is at least 3 feet away from any building, board fence, or any structure to eliminate downdrafts.
3. Connect brackets as instructed on Pages 6 & 7 and make sure that the casing is tilted forward, towards the middle of the stock tank, with the boot slightly lower than the base of the casing to allow the burner assembly to evaporate any potential condensation build-up.
4. Connect the Trojan Hookup Kit to 66B and the propane tank according to propane supplier recommendations and precautions. *(⅞" wrench for the Outlet Fitting and a ⅝" wrench for the Inlet Fitting)*
5. Raise the burner assembly out of the casing, making sure the temperature sensing bulb is free to be raised, as well, with the burner assembly.
6. Turn the control knob/pilot button to "OFF" position and turn the temperature dial to lowest reading. (See Figure 2 in Trouble Shooting section for Robertshaw Unitrol diagram)
7. Turn the control knob/pilot button to pilot position.
8. Hold a flame at the pilot and completely depress the control knob/pilot button to light the pilot. *It may take several seconds for gas to reach the pilot.*
9. After the pilot lights, keep the control knob/pilot button depressed for 60 seconds to give plenty of time for components to reach operating conditions.
10. Release control knob/pilot button. If the pilot goes out, repeat steps four through eight.
11. After pilot is properly lit, with the control knob/pilot button still on the "Pilot" setting, lower the burner assembly into the casing making sure the burner is correctly positioned. This step will ensure that the proper oxygen levels are achieved for proper function.
12. Once the burner is in position, turn the control knob/pilot button to the "On" setting.
13. Insert the temperature sensing bulb in the bulb tube guide, being careful not to bend, dent, or crimp the temperature sensing bulb. *Damage to the sensing bulb will require the Robertshaw Unitrol to be replace and will void the warranty.*
14. Fill bulb guide with a water-safe oil such as canola oil, vegetable oil, or soybean oil. *DO NOT USE ANTIFREEZE*
15. Turn temperature dial to desired setting. See the chart below for the approximate temperatures for each setting.

Temperature Dial Markings correspond approximately to the following OFF temperatures:

DIAL POSITION	1	2	3	4*	5	6	7	8	9
TEMP. °F (7000SLC)	36°	40°	44°	48°	52°	56°	60°	64°	68°

**** Suggested starting temperature***

Storage Instructions

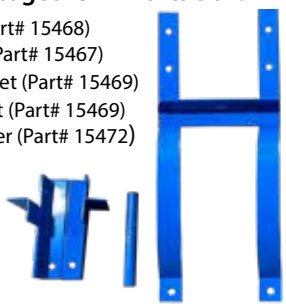
1. Remove the complete stock tank heater from the stock tank and store the complete unit in an air tight container free from water, dirt, and dust.
   - *If it is not possible to store complete stock tank heater in air tight container:*
     - Remove the complete burner assembly (the insides) from the casing. Place a plug in the gas inlet opening or tape over the opening. Then, wrap the burner in a plastic bag, leaving the Robertshaw Unitrol uncovered. *Covering the Unitrol could cause damage and result in replacing gas valve (Unitrol)*
     - The burner assembly should not be exposed to water.
     - Turn casing upside down and, if possible, cover it. If the unit must be stored in an upright position, it is important that it is kept protected from water accumulating in the casing.
   - *If you are leaving the stock tank heater in the stock tank,* leave the gas supply intact and leave the pilot lit. This will help prevent premature rusting and gas valve (Unitrol) failure. Gas valve failure will require the valve to be replaced.
2. **Before reinstalling the unit, inspect the casing for any rust, corrosion, or damage as required for safety compliance. Additionally, ensure the casing is free of all debris to maintain proper function before startup, following all previously stated precautions and procedures.**

Mounting Bracket Installation Instructions

<u>Please read the mounting bracket installation instructions thoroughly prior to installation.</u>
To make this process easier, please follow the steps below in order.

Parts bundled together in Parts Box:

Left-Hand Band (Part# 15468)
Right-Hand Band (Part# 15467)
Right Anchor Bracket (Part# 15469)
Left Anchor Bracket (Part# 15469)
Center Brace Hanger (Part# 15472)



Suggested Tools:

- ½" Wrench
- 9/16" Wrench
- 7/16" Wrench

Step 1

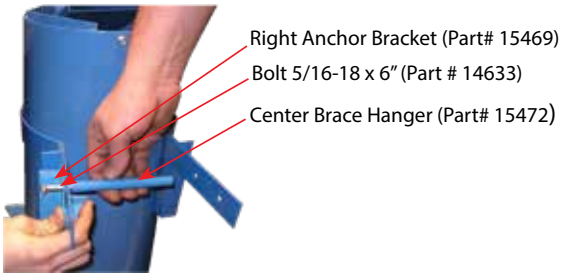
Place the right-hand band (Part# 15467) behind the bulb guide as shown below, with the angle bracket section of the band pointing towards the same direction as the flue. Then, slide the band down to the desired position.

Step 2

Place the left-hand band (Part #15468) at the same position on the opposing side of the casing as shown in the picture below. On the boot-side of the casing, insert the bolt (Part # 14425) into the holes on the bands, as shown. Apply the nut (Part# 11369) onto the bolt turning it roughly two turns.

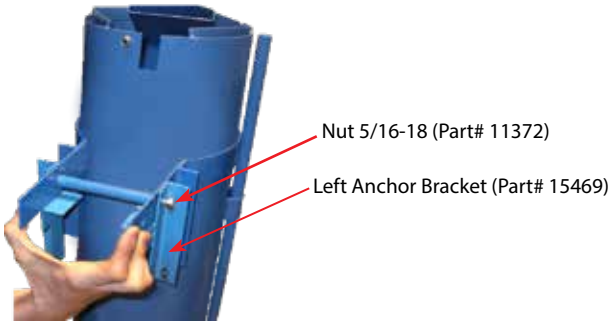
Step 3

Align the right anchor bracket (Part #15469) with the desired bolt hole on the right-hand band, as shown below. Align the center brace hanger (Part # 15472) with the desired bolt hole on the right anchor bracket. Insert the bolt (Part# 14633) through the bolt hole right anchor bracket and center brace hanger.



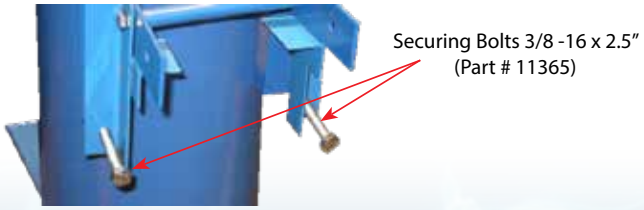
Step 4

Squeeze the left and right half band's together (this may require some force), push the bolt through the bolt hole on the other band. Apply the nut to the end of the bolt. Tighten as needed.



Step 5

Insert both securing bolts (Part # 11365) several turns. Position the 66B into the stock tank with the casing tilted slightly forward as mentioned in Step 3 of Installation Instructions.



Step 6

Tighten the front mounting assembly bolts from Step 2. Once the front mounting bolts are tightened, tighten the two securing bolts to the side of the stock tank.

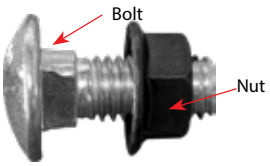
Mounting Bracket Installation Instructions

<u>Please read the mounting bracket installation instructions thoroughly prior to installation.</u>
To make this process easier, please follow the steps below in order.

Suggested Tools:

- (2) 9⁄16" Wrenches
- 3⁄4" Wrench

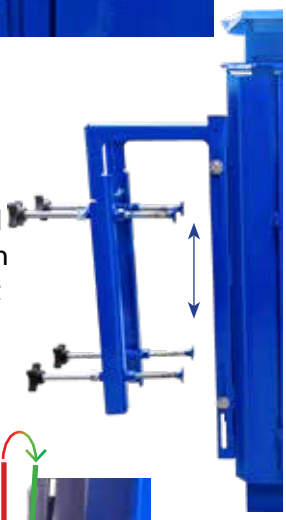
Step 1
Remove Upper and Lower Bracket Hardware (bolt and nut) from bracket.



Step 2
Position bracket at the desired level and align the bolt holes with the bracket rails.

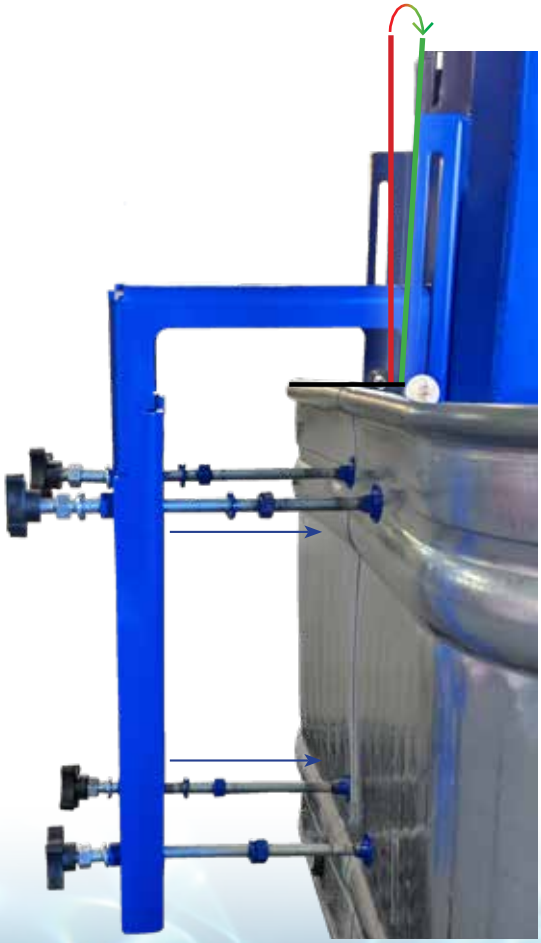
Step 3
Insert the Bracket Bolt, through the bracket rail into the bolt hole on the bracket. Thread the nut onto the bolt until it is hand tight. Repeat working from top to bottom.

Step 4
Reposition brackets as needed for tank wall height and tighten the hardware until the bracket is secure.



Step 5
Position the 66B into the stock tank with the casing tilted slightly forward as mentioned in Step 3 of Installation Instructions. Tighten bracket fasteners against the stock tank walls until the 66B is secured to the side of the stock tank and casing does not pull away.

Step 6
Once the 66B is positioned and secured, tighten the nuts on the fastener rods against the bracket to ensure the fasteners do not loosen.



Troubleshooting

PROBLEM	POSSIBLE CAUSE	WHAT TO DO
Pilot lights but burner does not	**Control off-on set to "PILOT"**	Turn control knob/pilot button to "ON"
	Temperature is set too low	Turn temperature dial to a higher setting.
	Temperature sensing bulb too warm	Bulb must be less than 60 degrees to light burner. If bulb is less than 40 degrees and burner still won't light, see next cause. Sensing bulb must be below water level in bulb guide.
	Temperature sensing bulb or line is damaged	Dents in temperature sensing bulb partially crushed due to water freezing in the bulb tube guide (see Fig. No. 2) or sharp bends in the line may cause the control to "think" the temperature is higher than it is. If the damage is major, replacing the Robertshaw Unitrol is required. Temperature sensing bulbs are not sold separately.
	Burner Orifice is clogged	• Use 8mm socket to unscrew and remove orifice • Clean with compressed air; DO NOT use drill bit or wire as this may change the size of the orifice and cause an improper or unsafe flame • Reinstall Orifice
	Damaged bellows	• Temperature sensing bulb exposed to high temperature or crushed due to water freezing in the bulb tube guide. • May have to replace Robertshaw Unitrol unit.
Burner lights but doesn't shut off	**Temperature sensing bulb is too cold**	Warm to 50 degrees and check
	Temperature sensing bulb or copper line damaged causing it to leak	If temperature sensing bulb has lost some or all of Its fluid, the control may "think" the temperature is higher than it is. If the damage is major, replacing the Robertshaw Unitrol is required. Temperature sensing bulbs are not sold separately.
Melted valve knobs	**Main burner orifice partly plugged**	Remove burner and clean
	Low pressure or bad gas supply	Correct fuel issues
	Burner assembly is not properly inserted into casing	• Remove and reinsert burner assembly making sure that it is all the way to the bottom and sitting snuggly against the boot. • Replace melted knobs
	Chimney could be partially plugged	Remove burner assembly. Blow compressed air into top of chimney to dislodge debris. Remove debris and reinsert burner assembly.
Burner assembly works fine outside of the casing, but goes out when inside the casing	**Wind blowing out flame.**	Check the pilot. if it is weak, clean pilot orifice: • Remove flare nut and ¼" line *See Figure 1 Number 14. • Pull line back & remove orifice • Clean with compressed air; DO NOT use drill bit or wire as this may change the size of the orifice and cause an improper or unsafe flame.
		Always keep top cover closed
		Adjust the position of the unit so the tip of the boot is pointing into the prevailing wind
	The stack (chimney) passage plugged	Remove burner assembly. Remove debris and reinsert burner assembly.
	Lack of air flue convection	Allow sufficient time for the heat from the pilot light to create a convection after installing burner assembly inside of the casing before starting the main burner
	Excessive water (condensation) build-up in the casing	Empty water and operate at a slightly higher temperature dial setting. Runs best between #4 and #6
		Adjust casing so the boot is tilted slightly forward.

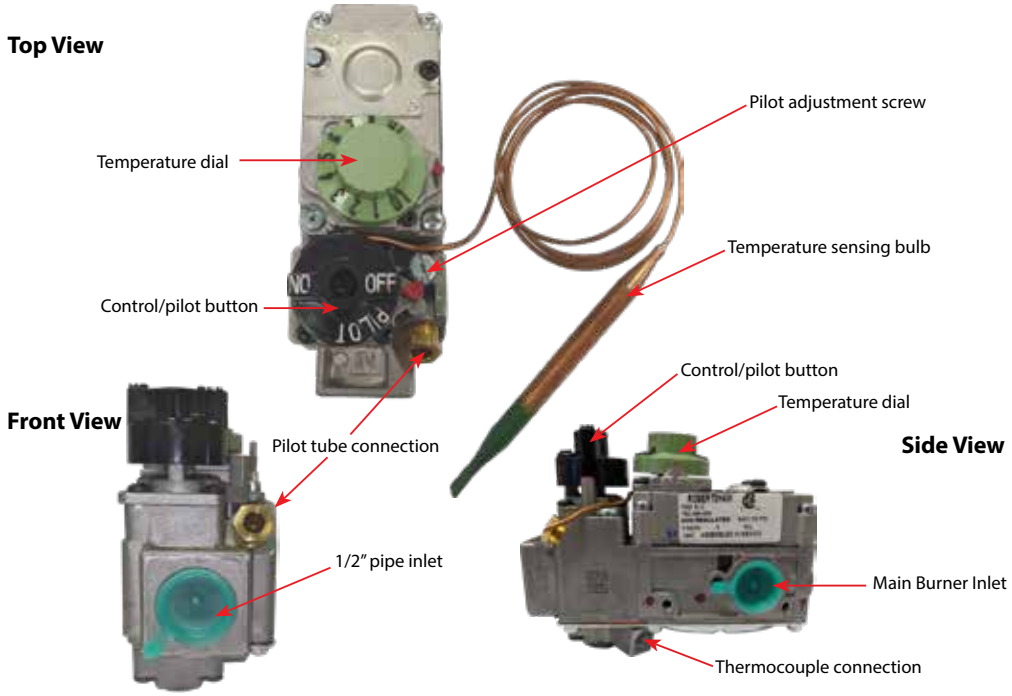
Troubleshooting

PROBLEM	POSSIBLE CAUSE	WHAT TO DO
Pilot doesn't light	**Pilot burner not getting gas**	Check to see if tank valve is "ON"
		Control off-on set to "pilot"
		Pilot button depressed (it may take 30 to 60 seconds to bleed all air from line)
	Pilot orifice blocked	• Remove flare nut and ¼" line *See Figure 1 Number 14. • Pull line back & remove orifice • Clean with compressed air; DO NOT use drill bit or wire as this may change the size of the orifice and cause an improper or unsafe flame.
	Control Knob not in "Pilot" position	Check to see if control knob is set in "Pilot" position
	Pilot button caught on copper tubing connected to the sensing bulb	• Move copper tubing out of the way of the button • Remove Pilot button, light burner pushing the post down, and replace knob
	Regulator is clogged	• Disconnect regulator from burner • Turn on gas to check for flow • If there is no gas flow, replace, call Trojan Specialty Products for a replacement Hook-Up Kit
Pilot will light but doesn't stay lit	**Are you using a the supplied Regulator?**	If the Trojan Hookup Kit included with your unit is not being used, install it immediately. Operation of the unit without it could ruin the Robertshaw Unitrol unit and void the warranty of your unit.
	Pilot orifice blocked	• Remove flare nut and ¼" line *See Figure 1 Number 14. • Pull line back & remove orifice • Clean with compressed air; DO NOT use drill bit or wire as this may change the size of the orifice and cause an improper or unsafe flame.
	Thermocouple is not hot enough	Hold the control knob/pilot button down longer. It should not take more than 30-40 seconds.
	Damaged or defective thermocouple (Kinked, hole, frozen, etc)	• Replace with a new thermocouple • Tighten the thermocouple nut finger tight plus ¼ turn • Do Not Overtighten. This may damage the thermocouple or magnet.
	Pilot flame in wrong position	Flame should contact the upper 1/3 and including the tip of the thermocouple (3/8" to 1/2"). Bend the flame deflector hood as needed. It operates best when it is bent in an "L" shape.
	Pilot flame is wrong size	• Adjust pilot adjustment screw. See Figure 2. • If the thermocouple has swelled, the flame is too hot and the thermocouple may be damaged. • Order a replacement.
	Weak magnet	Replace the Robertshaw Unitrol. NOTE: See test procedure Number 2 (Page 10).
	Buttons Melted or Deformed	Replace control knob/pilot button if the knob will not push down into correct position.
Sensing Bulb froze down in tube	**Frozen water in tube**	• Thaw tube and remove water from the tube • Inspect bulb and copper line for damage. If the damage is major, replacing the Robertshaw Unitrol is required. Temperature sensing bulbs are not sold separately. • If there is no damage to the sensing bulb or copper tube, fill the bulb guide with vegetable oil and reinsert bulb. *Note: because vegetable oil floats on water, monitor the bulb guide in case of a leak.

Robertshaw Unitrol Diagram & Specifications

Pilot Burner Adjustment (see Figure 2 and 3) 1. Adjust pilot adjustment screw (Figure 2) to provide properly sized flame (Figure 3).
2. Improper flame size can result in pilot light not staying lit (Figure 3).

Figure 2. Robertshaw Unitrol Diagram



Specifications

Recommended Pressures	Natural Gas*	Propane
Minimum Supply Pressure	7.0"wc (0.25 PSI)	11.0"wc (0.397 PSI)
Maximum Manifold Pressure	5.0"wc (0.18 PSI)	10.9"wc (0.393 PSI)

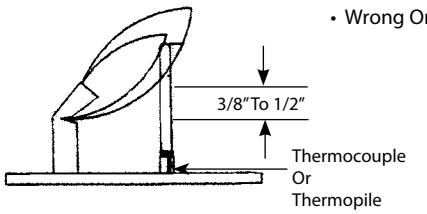
Input Ratings	
Propane	13,000 BTU/HR @ 10.9"wc at Manifold
Natural Gas*	13,000 BTU/HR @ 5.0"wc at Manifold

Orifice Sizes	Natural Gas*	Propane
Main Burner	#53	#58
Pilot Burner	#77	#87

* - Use with natural gas is not included or approved within the current lab-testing certification.

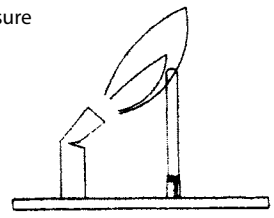
Pilot Flame Troubleshooting

1. CORRECT FLAME



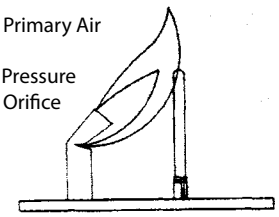
2. NOISY, LIFTING, BLOWING

Check For:
- High Gas Pressure
- Wrong Orifice



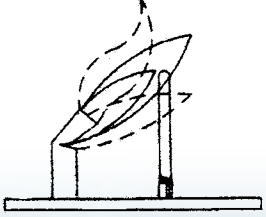
3. LAZY, YELLOW FLAME

Check For:
- Clogged Primary Air Opening
- Low Gas Pressure
- Clogged Orifice



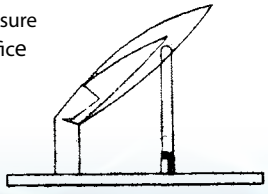
4. WAVING BLUE FLAME

Check For:
- Drafts At Pilot Location



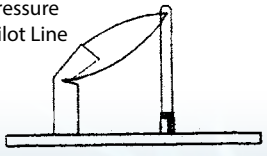
5. HARD SHARP FLAME

Check For:
- High Gas Pressure
- Too Small Orifice



6. SMALL BLUE FLAME

Check For:
- Wrong Orifice
- Low Gas Pressure
- Clogged Pilot Line



Additional Trojan Heater Products

AG82 Universal Automatic Gas Heater ***(Part No. 15045)***

The Trojan AG82 is an efficient way to keep your livestock waterer thawed without electricity. Using the same control and thermostat as the Trojan 66B, the AG82 provides a non-submersible LP or Natural Gas fueled heating option for the control panel of your waterer, providing up to 4050 btu per hour. This unit measures 4 1/2 inches from top to bottom, 13 3/4 inches from end to end, and 4 inches from side to side.

HotScot® Heater ***(Part No. 12520)***

The HotScot Heater is a non-submersible space heater that uses an adjustable thermostat ranging from 30 degrees Fahrenheit to 150 degrees Fahrenheit. Because of the HotScot's compact size, it is perfect for keeping well houses and access panels of livestock waterers thawed during the cold months.

- 450W, 120V Space heater requiring 4 amps
- Compact size measuring 8 $^{1}/_{8}$" by 3" by 2 $^{1}/_{8}$"

Pipe-N-Hot® Heater ***(Part No. 12523)***The Trojan Pipe-N-Hot Heater is an excellent source for supplemental heat for water supply lines. This heater attaches to any plastic or metal pipe or water supply line using 2 springs attached to the unit.

- 100W Heating Element
- Easy and fast installation
- Connects to any 110V electrical supply line or thermostat

8' Cable Heater ***(Part No. 15450)***The Trojan 8' Cable Heater is a simple and efficient solution for supply line freezing. The Cable heater connects to a new or existing thermostat and hangs down inside the supply line tube or tile.

- Provides 6 Watts of heat per foot
- Must be wired through an existing thermostat

For warranty registration please log on to:
www.trojanlivestock.com/66b-warranty-registration
Or fill out the warranty card below and mail to:

Trojan Specialty Products
PO Box 1735
Dodge City, KS 67801

Square Trojan 66B Warranty Registration Card	
Your Name:	Phone Number:
Full Address:	
Store Name:	Store Location(City/State):
Date of Purchase:	Is this replacing an existing product? Y N
Why did you choose the Trojan 66B?	If Yes, what type did you have previously?
TO BE VALID, THIS FORM MUST BE COMPLETED AND MAILED WITHIN 30 DAYS AFTER PURCHASE	

Owner's Reference

Date Purchased:_____

Purchased From:_____

This Automatic Gas Stock Tank Heater is designed to operate efficiently and economically when properly installed using the required equipment. If given the proper care, this heater will give the best service for many years. Each unit has been tested for leaks and proper burning operation. This unit is guaranteed for one year from the date of purchase against defects in materials and workmanship. If you find any defects in materials or workmanship, please contact our Customer Service Department using the information below.

DO NOT RETURN THE ITEM TO THE PLACE OF PURCHASE.

SPECIAL ATTENTION: A receipt showing proof of purchase is required for any refund or replacement.

Beck Sales Company, Inc. 'dba' Trojan Specialty Products

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