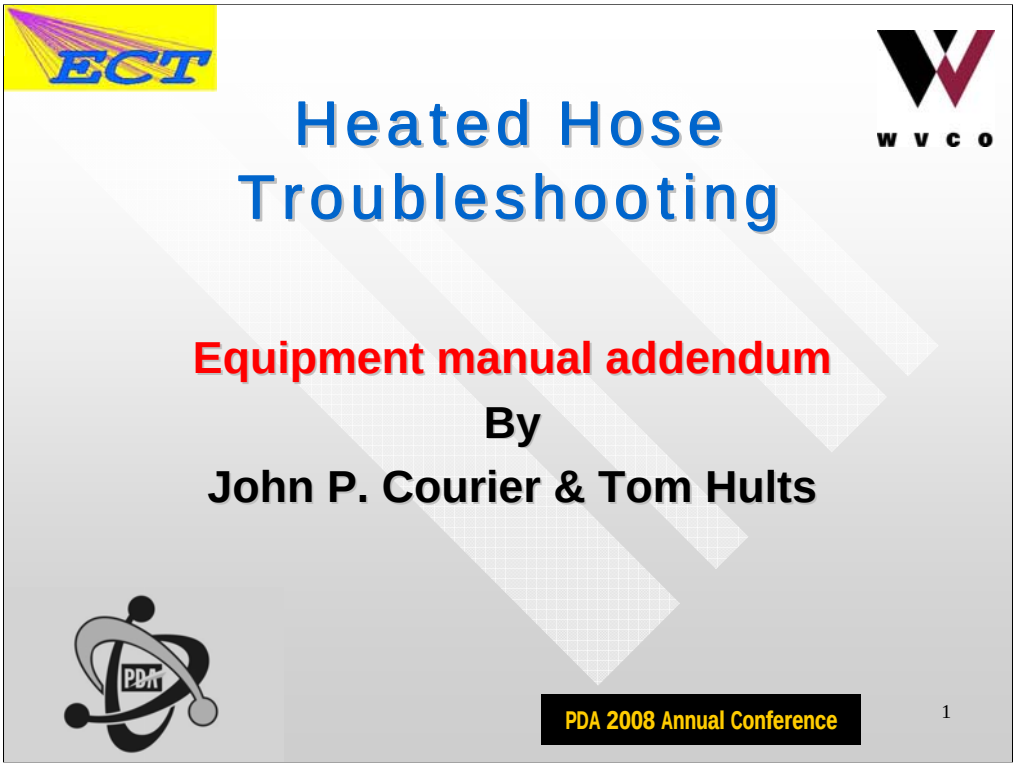

Welcome Ladies and Gentlemen to this concentrated working presentation that anyone who works around or with Spray equipment will run into this situation.

Please feel free to raise you hand and as questions as we go through this as we plan to complete this presentation as well as answer your questions. Sometimes holding a question to the end, you forget what it was and our thoughts are not as honed in on this same situation to be able to answer it more complete.

Requirements

1. Volt Ohm meter or tester.
2. Know how to set the tester to ohms for testing.
3. Know how and When to set the tester for AC or DC Volts for testing.
4. Understand Hose Heat components

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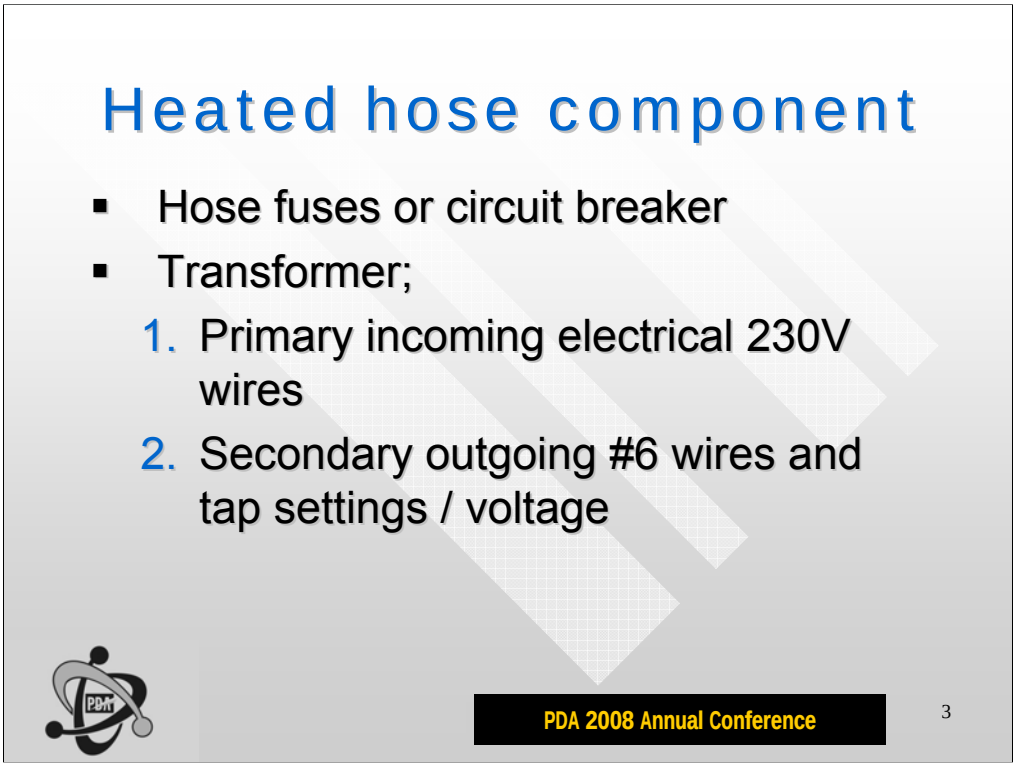
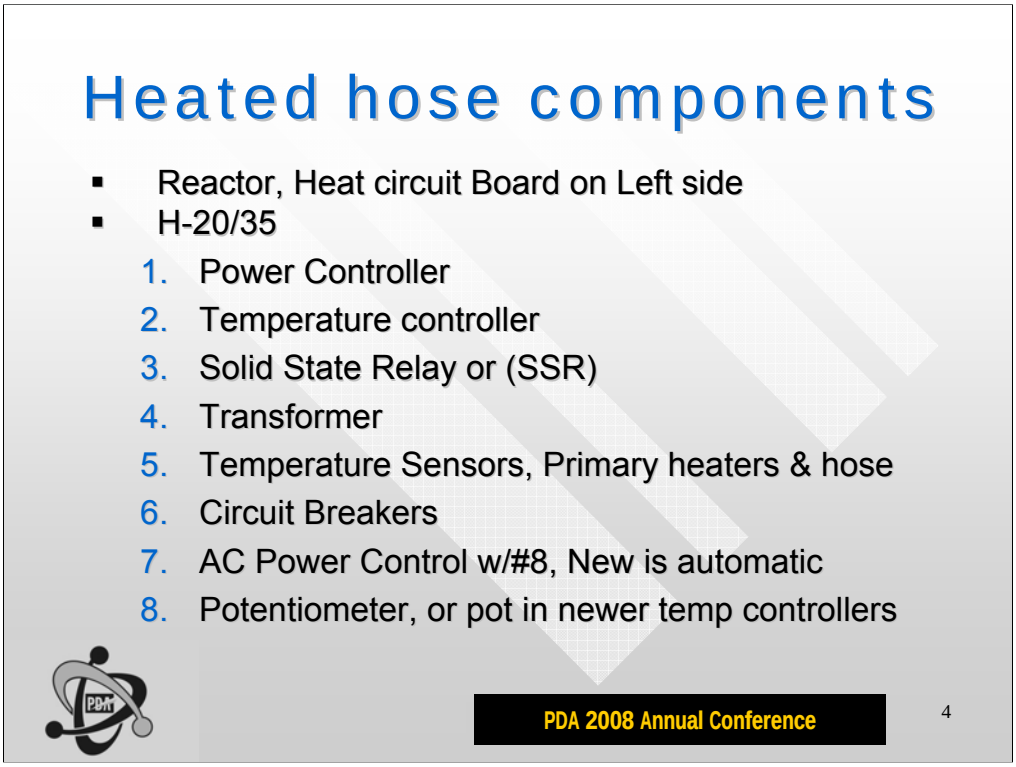
1. Understand how to set the meter on the correct Ohm range setting and how to correctly read it.
2. Typically you will be reading infinity for continuity or completed circuit testing, and Hose heat testing, FTS 10 ohms, 50' of hose 35 ohms on the TC side. All hose Power lock side > 2 ohms resistance.
3. On Voltage you will be looking for 120 or 240 Volts on the AC Range, and usually the Low Voltage is in the DC Range, example the Temperature controller or Watlow 935A will do a 5 – 24 DC volts and the Solid State Relay will have a + and — marked terminals on the block for this same DC voltage. Lets say that DC is Polarity Sensitive like a Car Battery.
4. Know where they are: Circuit breaker, Temperature Controller, Solid State Relay, Hose Transformer, AC Power Control, Rheostat, Thermocouple Sensor.



Do you understand or know how or where your hose fuses or circuit breaker are on your machine. If not take some time when you get back home and not under pressure to more familiarize yourself with these components. It will save you time and money in the future and we guaranty that!

Everyone should be able to recognize your Hose Transformer it's the biggest single electrical component in your electrical cabinet of you Proportioner or meter. Understand that in all cases at this time are 230V AC going into it with step down AC voltage coming out the Secondary side with those bigger # 6 wires. Graco is now making all of the future hose heating transformers Automatic if you Change the lengths of your Spray hose you will not have to go inside and change the tap settings like we have done in the past.

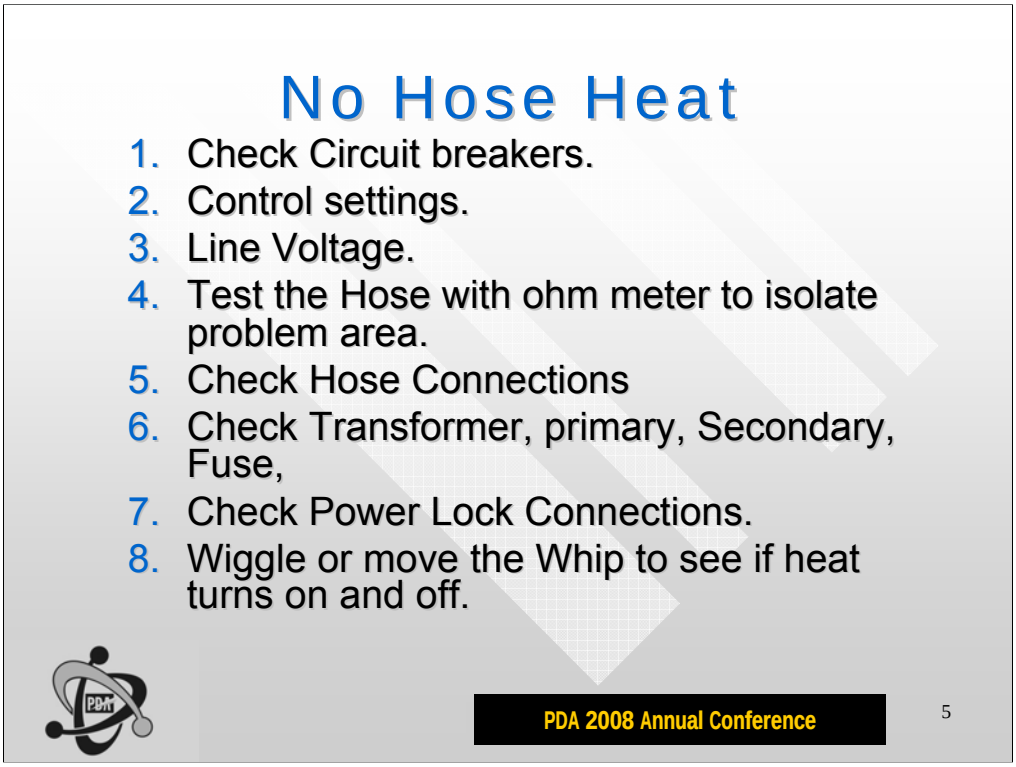


Even as we speak today things are continually changing. For example in the new Reactors they have changed the once large circuit board to a newer 3 module or pod system which are A Primary heater, B Primary Heater, Hose Heat.

This does make it easier and simpler for the technician to troubleshoot and isolate the problem. Plus the fact that you then will only have a smaller part to replace once the faulty component is diagnosed. The 3 new modules are interchangeable, Helpful to know when testing.

All of the Gusmer and GlasCraft meters were this way.

On the older meters or especially the H-20/35 units they all have these same component to make this Heated hose circuit work, its just that you need to be able to identify and know where they are on your Proportioner or meter.



This is the Reason your here today, everyone gets or will have this problem mainly because of the abuse that the heated hoses get.

Before you do anything, first double check that everything is on and settings are correct.

Second important step is to Isolate the problem being in the Meter or the Hose.

There are preliminary Steps to take here that we will go into detail later in this presentation.

Take a special look at #8 as this is a common problem and may save you a lot of time.

Main Cause of Hose Heat Failure

1. Broken Copper band, in Whip typical
2. Faulty components
3. Loose Connections
4. Thermocouple (TC) wire.

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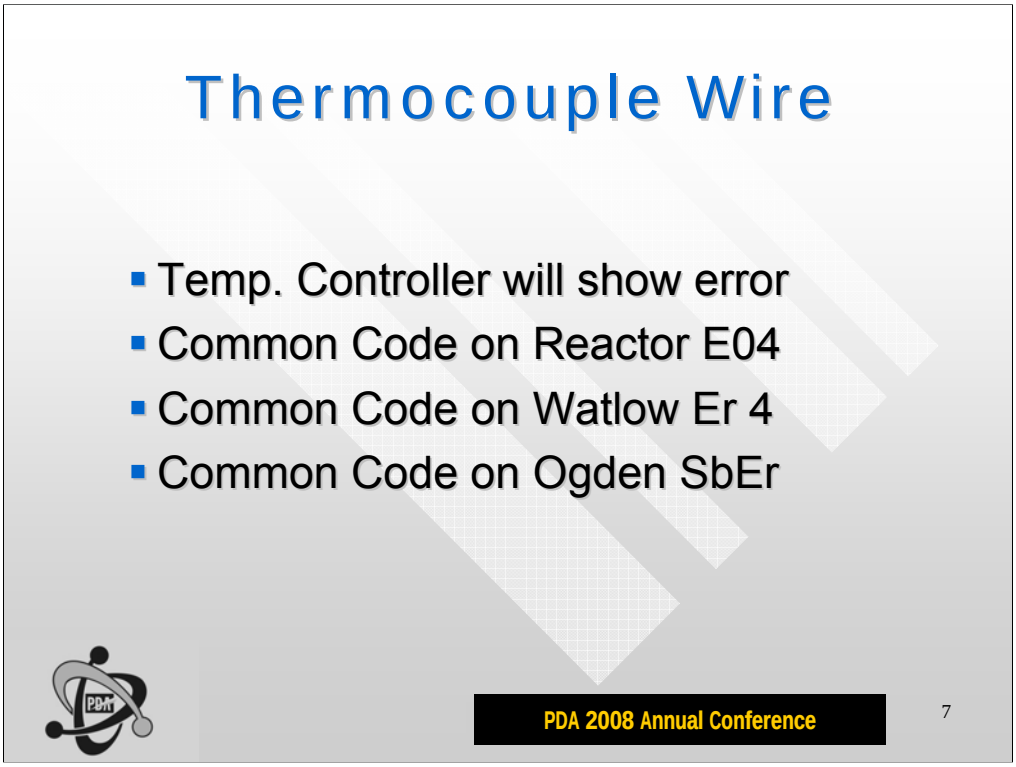
Like we just said in the last slide all of the flexing of the whip does fatigue and eventually break the copper heating bands typically and usually in the whip. By doing #8 on the last slide and watching your meter if the hose heat works intermittently as you move the whip, you know where the problem is.

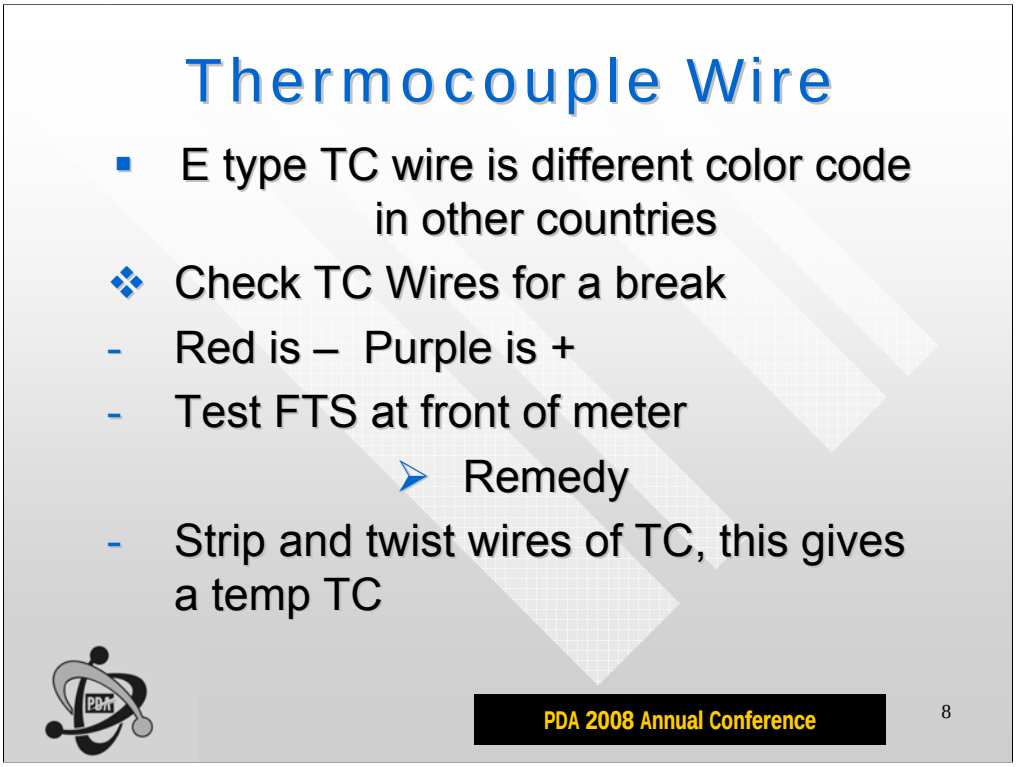
This photo in the lower right corner shows the 2 copper bands that make up your heated hose.



First lets Isolate the problem by standing in front of the meter, to see if the problem is in the Controlling or actual heating components.

If its in the controlling side Most all digital temperature controllers will indicate this error.

If you have and older dial system you may need to do a TS in front of the meter that we will explain later.



Remember that both the Thermocouple wires as well as the DC power wires from the Controller to the SSR are Polarity Sensitive. We primarily use the E type of which we are talking about today but, the colors of this same E type TC wire is different color code identification in other countries.

Most all of our Thermocouple wires are the E type, and No you can not use a piece of regular wire to splice into thermocouple wire if its too short. It will give you totally false readings.

Most manuals say to take the TSU or FTS and plug in at the front of the meter, but that's a lot of work just to get to that point, having to cut open the scuff jacket and un-tape everything.

You can even do all of this work prescribed in you manual and still not know what component is faulty.

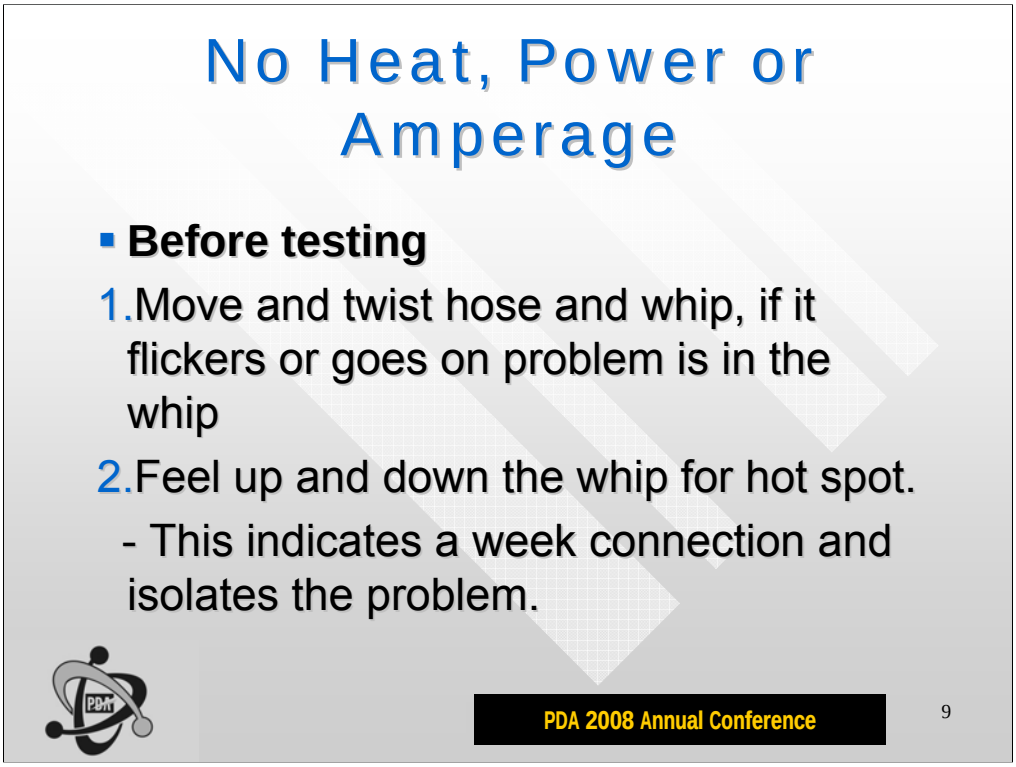
Example: if you take the TSU or FTS and plug in right at the meter, if it still does not work; you do Not know if the problem is in the TSU or FTS or in the Meter! This is were proper testing comes into play.

You can use a Ohm meter to test the FTS but if it is shorted, would give you a false reading. And you can Not use your Ohm meter to test the meter side whether the machine is powered On or Off.

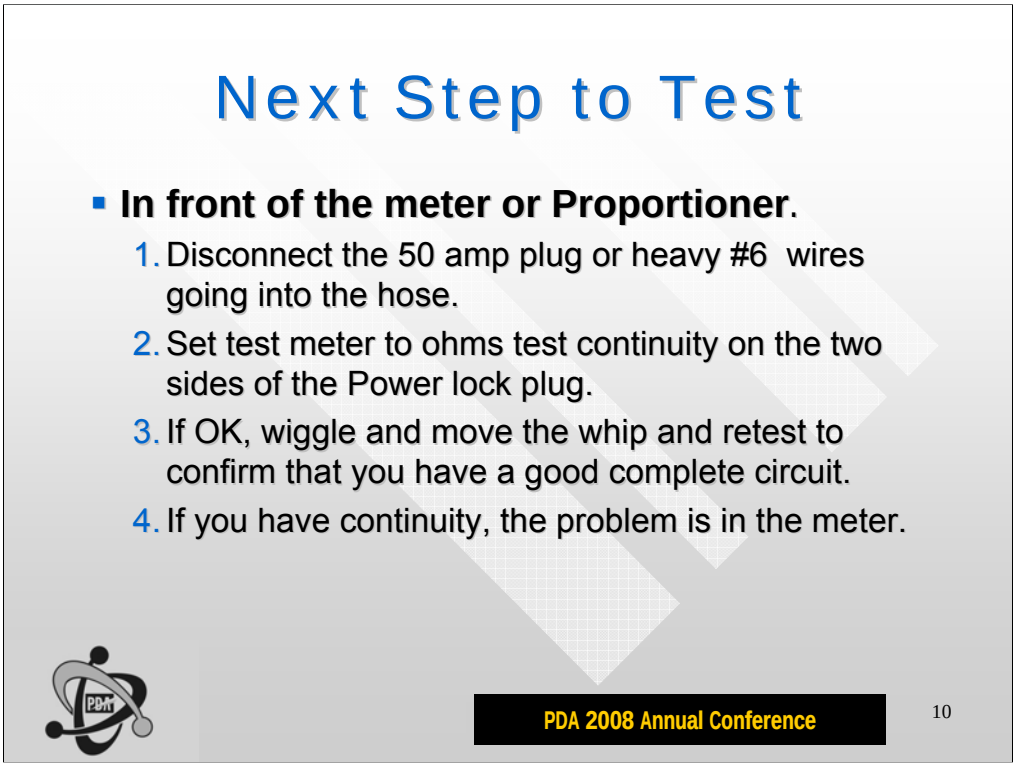
This is where you have to get some real technical knowledge about your system.

We recommend that you start in Front of the meter, Take the TC wire apart at the plug and check both directions.

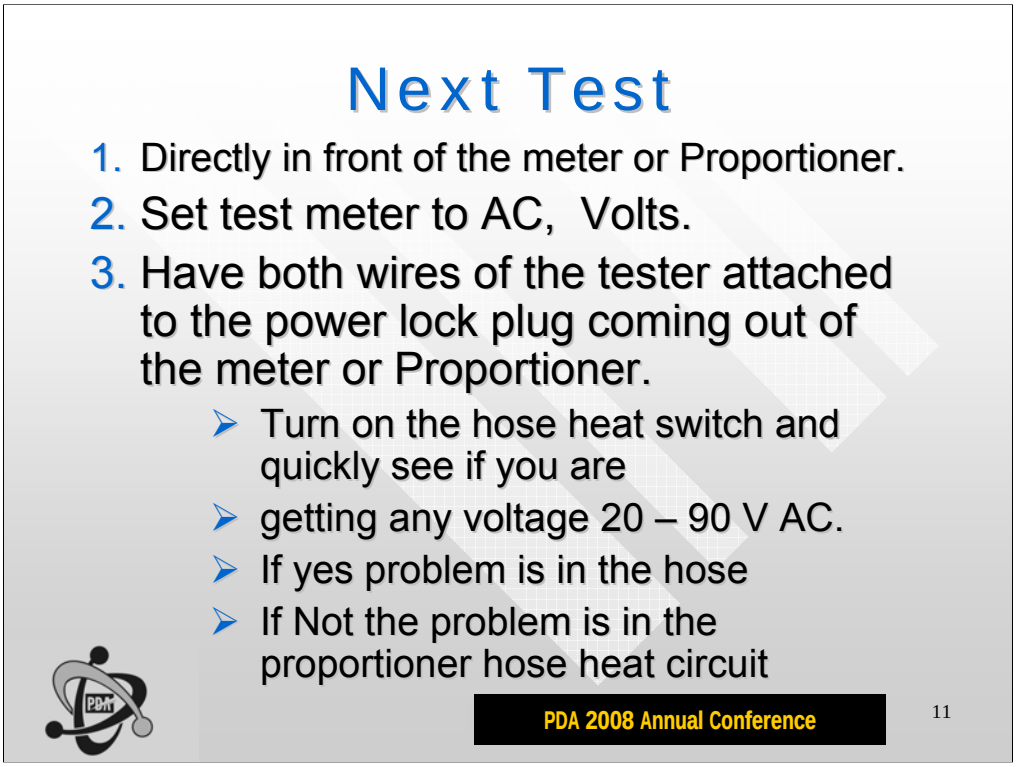
How do you do this? You can use a Ohm meter in the Hose sections 10 ohms in the FTS and 10 ohms per each 50' length of hose. This would give you the most correct reading especially if you had a short in the TC system.



Really look over everything before doing anything. That includes, are the switches on.

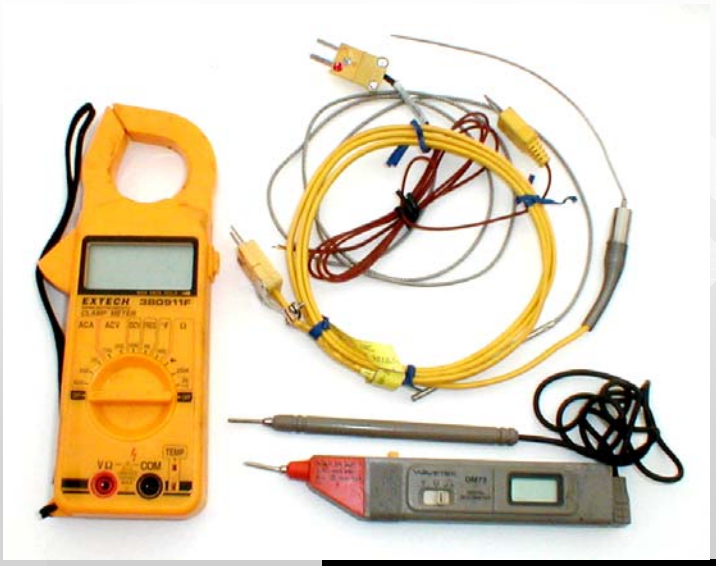


This Power lock plug may now be replaced with the Butt splice kits and takes a little more to get apart.



You must disconnect the large #6 wires in order to properly test the circuit in the heated hose. It is possible to just disconnect one side and then test the hose circuit.

Electrical Testing Tools



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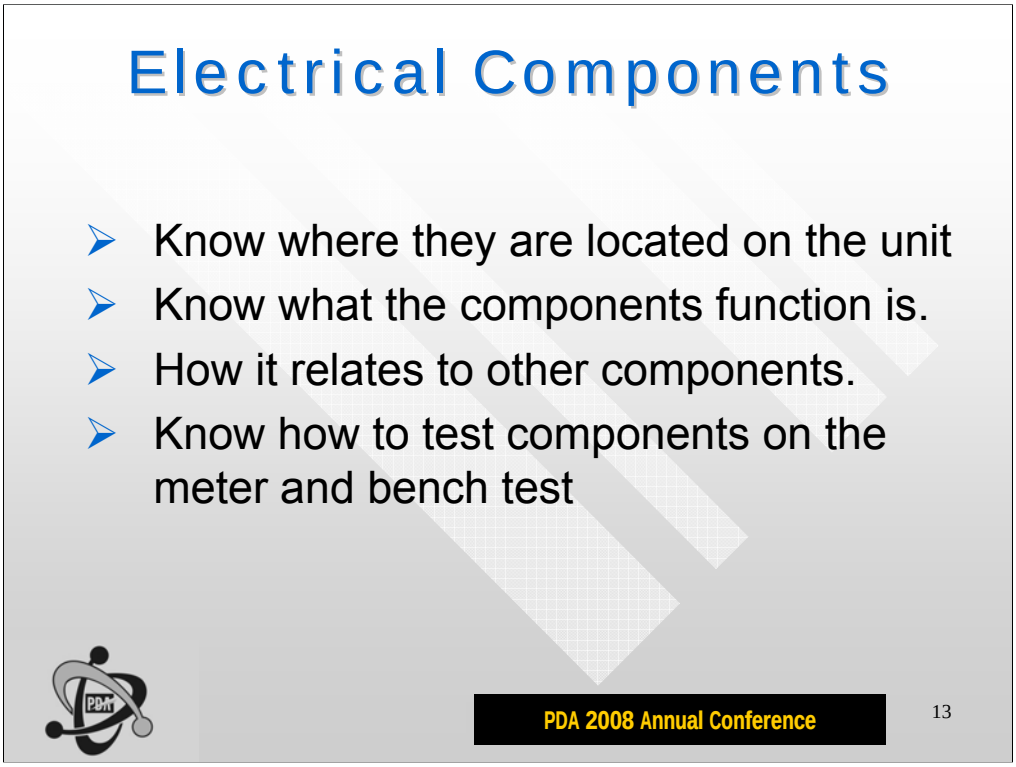
These are a couple of testers but there are many on the market and price really effects the Quality of these instruments.

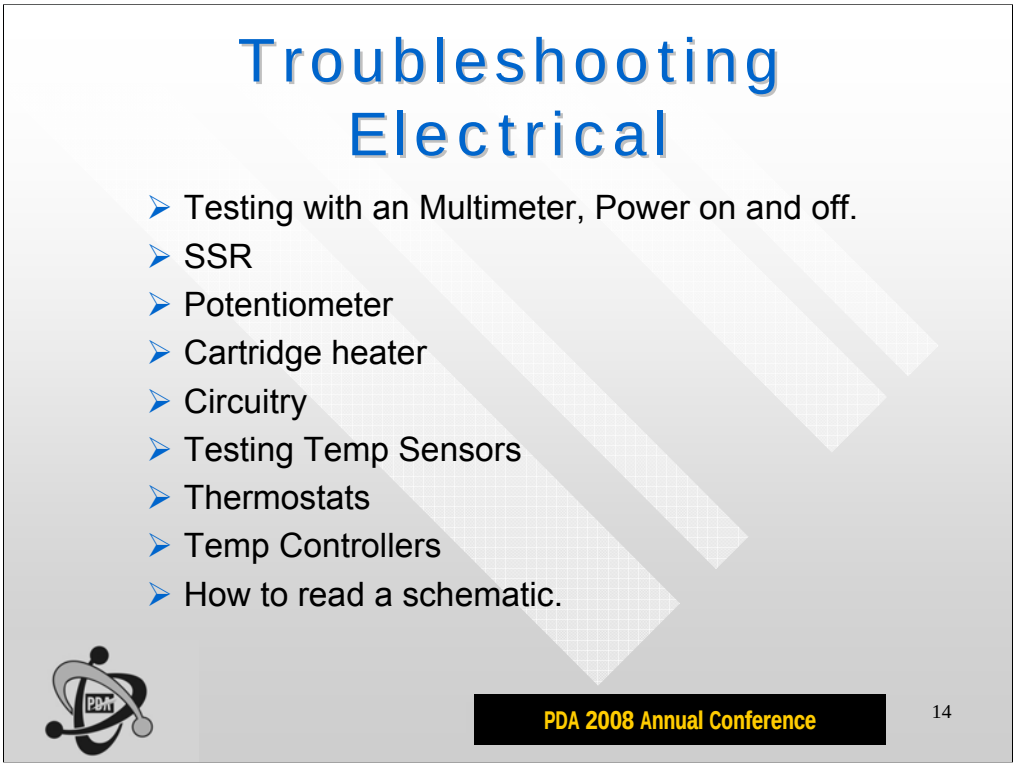
The Yellow tester to the left has the Clamp on Amp reading capability, valuable when reading hose heating current or amps.

The small Flute tester is handy when getting in and around tight areas.

There is a difference between Digital and Analog Amp Meter Testing. The Reactor signal when close to temperature will upset the digital meters, and analog will give you a more consistent reading.



Its our goal that you have a much better understanding of your electrical components and how they function in your system by the end of this presentation.



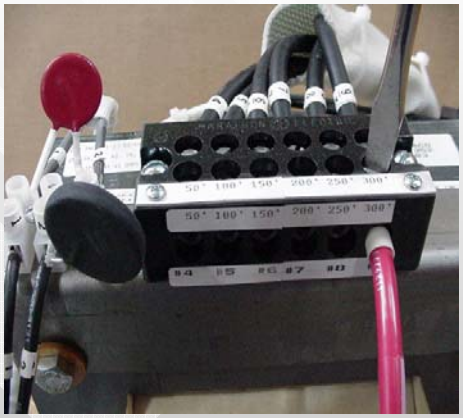
These items should be very familiar to you and your components. If not, learn them so that when you have a problem you can quickly diagnose and fix the problem and save you a lot of time and Money!

On big Union Jobs the Electrician may not be able to help you. If your far from a town, you may be on your own.

You Need to be prepared to troubleshoot and fix your electrical problems your self!

Error Code E02

1. High Hose Current
2. Check transformer connections
3. To short of hose will cause error



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Like we said earlier, the New Meters will be Automatic Hose heat when you change the length of your heated hoses.

Error Code E03

- No Hose Current

1. Checks
   1. Circuit Breaker
   2. Hose Connections
   3. Hose Resistance, Must have hose connected to whip
      > 2Ω / 50'
      > 2Ω / 10'
   4. Check electrical hardware, connectors, components

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It could be a simple circuit breaker tripped.

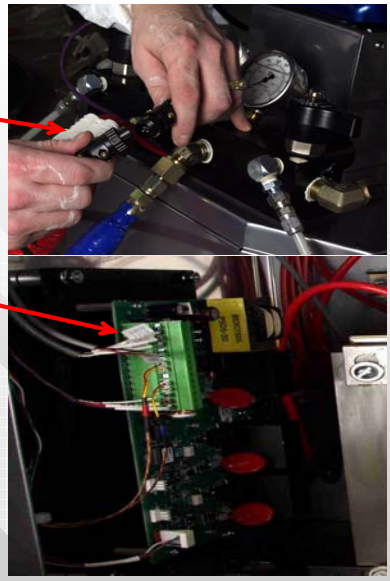
We have seen the Power Lock plugs get corroded and not make good contact.

Note also the Newer Graco #6 wires have gone to individual butt lock connectors.

These Varistors will be black if blown.

Error Code E04

1. FTS or Thermocouple not connected
2. Check connection
3. Check Board connection
4. FTS Pin Connector
   - Continuity end to end
   - No continuity pin to pin



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The Hands here are on the TC Amphenol plug not the Power Lock plug. Just checking and tightening the screws has been known to fix a problem.

TS Thermocouple Wire

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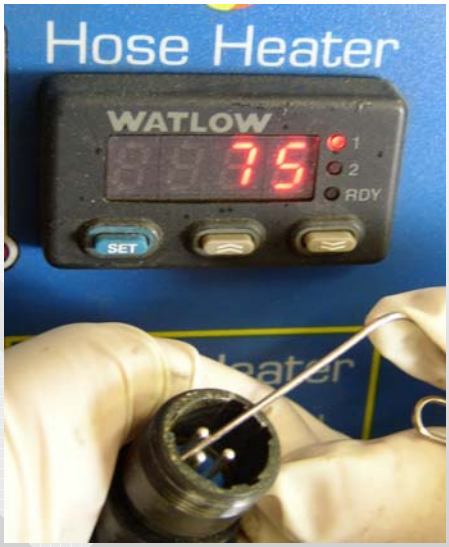
These are typical Thermocouple wire error messages.

Lower Right shows the meter end of the TC wire and these pins are numbered 1= red or – and 2 = Purple or + and the 3 is the ground. You will be able to see numbers inside the plug.

TS Thermocouple

- Er 4 tells you that you have an open circuit
- Disconnect TC wire connector in front of meter
- Jump Terminals 1 & 2
- If Watlow responds with a temperature
- Problem in the hose thermocouple circuit



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This is how you can test either a Reactor or any of the digital Temperature controllers.

Putting a paper clip, knife blade or small screwdriver blade across pins 1 & 2.

With the Reactor you need to touch the on button again while holding the jumper to pick up the temperature reading.

If This produces a temperature reading, indicates that the problem is in the Hose wiring or TSU or FTS.

This same test can also be done on the Ogden Controllers.

Check TSU or FTS

- Using a Volt Ohm Multimeter to test for continuity in the TSU/FTS
- Test across pins 1 & 2
- Should have Continuity
- If an open Circuit Isolate and test TC components

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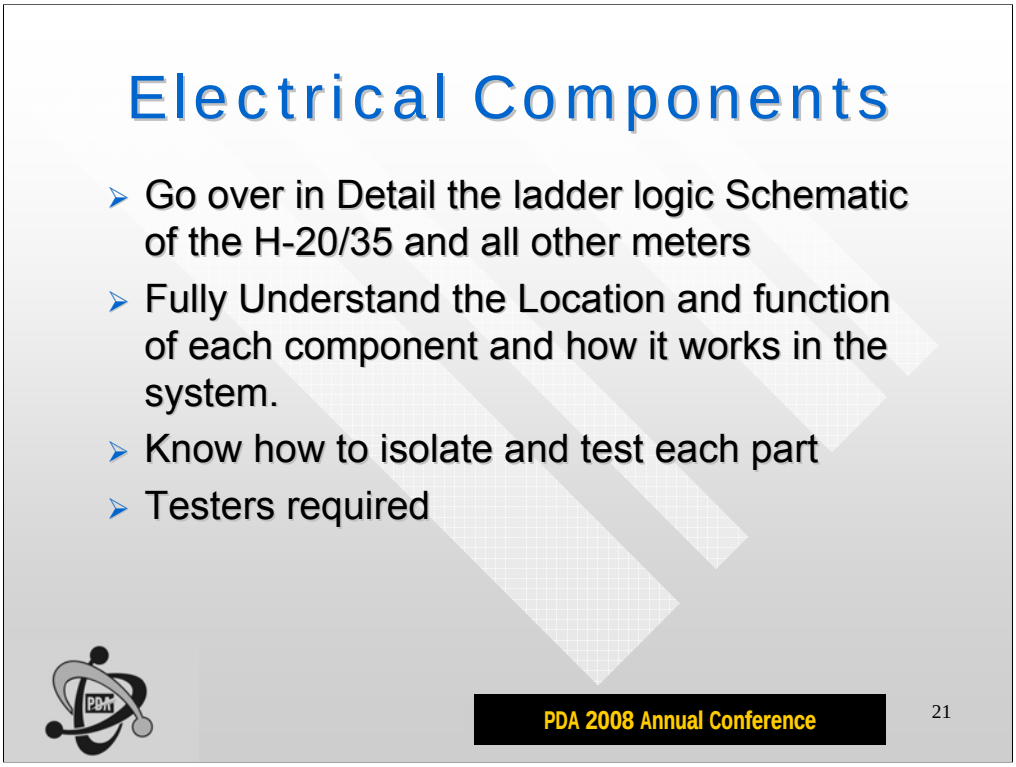
This is checking the TC wires into the hose and TSU/FTS

If you know how to read Ohms it should be in the range of 10 ohms for TSU/FTS and 50 ohms per each 50'.

This photo shows checking a TSU/FTS showing 8.8 Ohms, which is OK.

Tip: a paper clip works to get into these pin holes if your probes won't work.

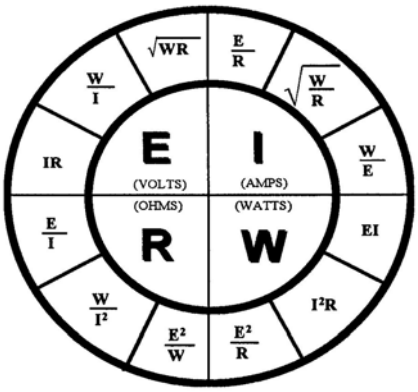


Basically, Understand your system and all of the components.

HEAT OUTPUT CHANGE DUE TO VOLTAGE CHANGE

$$\text{Actual Wattage} = \text{Rated Wattage} \times \frac{(\text{Applied Voltage})^2}{(\text{Rated Voltage})^2}$$

Ohm's Law



$$\text{3 Phase Ampheres} = \frac{\text{Total Watts}}{\text{Volts X 1.732}}$$

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This is just an easy chart of electrical formulas and Ohm's Law.

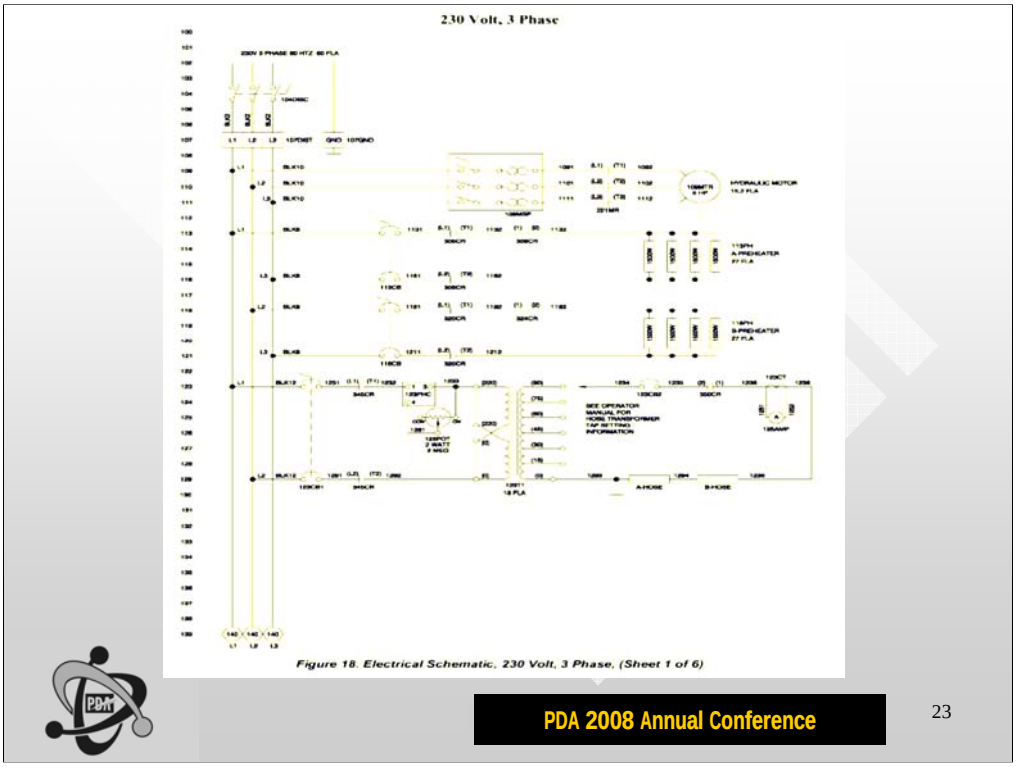


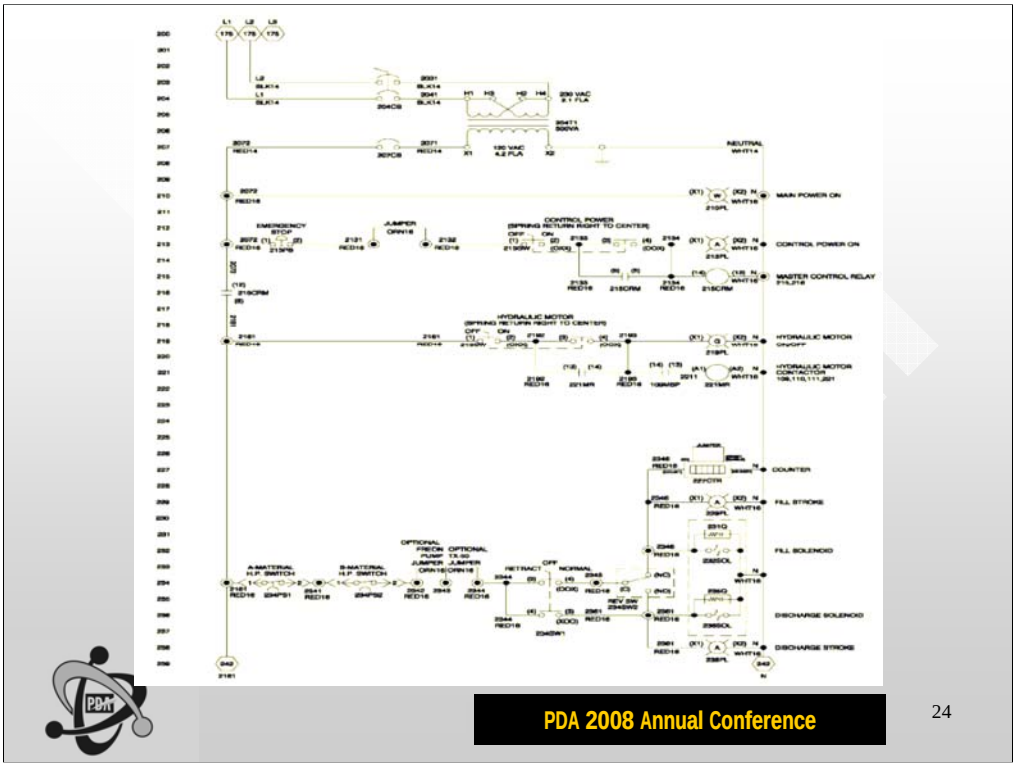
Figure 18. Electrical Schematic, 230 Volt, 3 Phase, (Sheet 1 of 6)

This is one of 6 pages of a schematic, do you know which meter it fits?

Can you identify some of the components?

Electrical is like Piping instead of water its electricity.

We will run through some of these components and see if you can identify them for me.

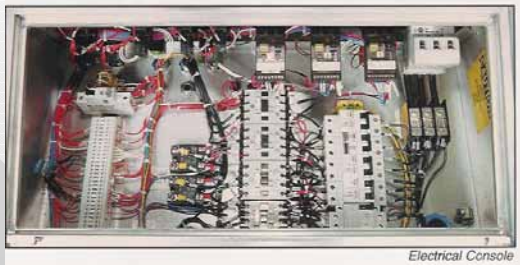


This is another page of the schematics.

Can you Recognize the Transformer.

Electrical Components

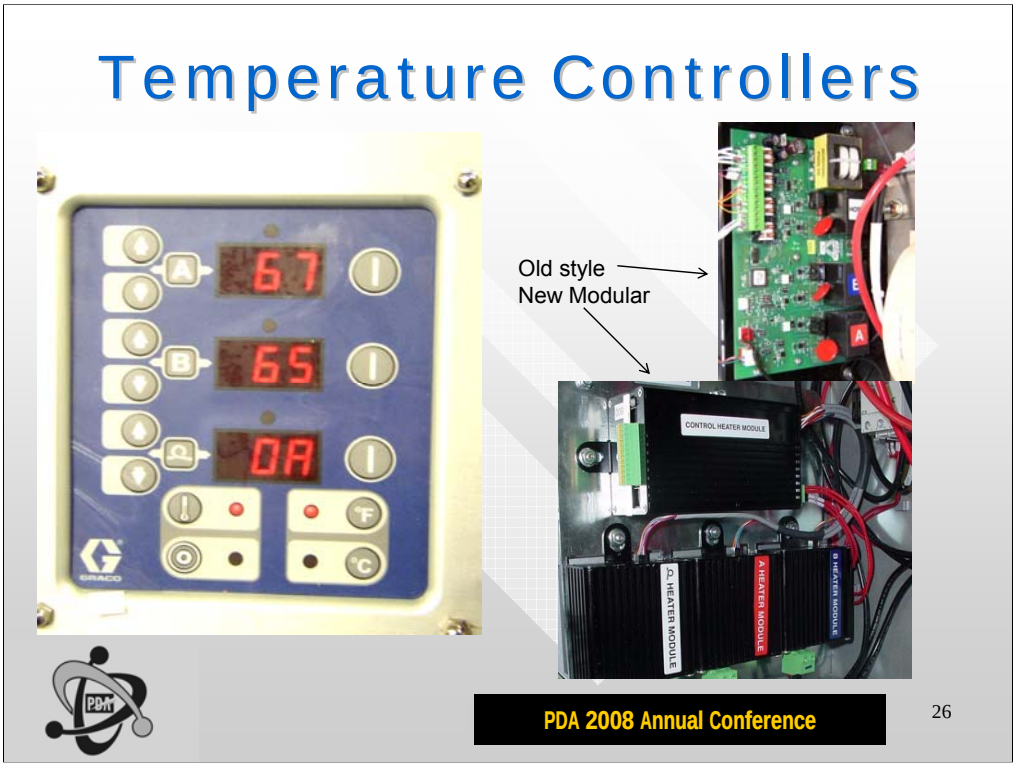
- Circuit breakers
- SSR's and size Primary voltage DC, Secondary switch amps.
- Temperature Controllers. Watlow 935
- Programming of the Watlow 935 Temperature Controllers.
- Making their own emergency TSU
- Temperature sensors
- Fuses and Sizes. Or present circuit breakers.
- Thermostats



Electrical Console

Do you know which meter this is?

Lets go through some of the components.

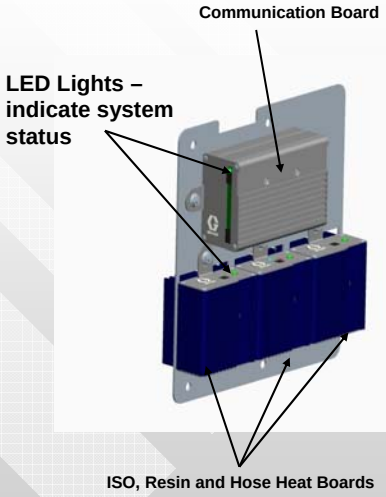


Remember that the Hose heat can double as an ammeter.

Photo on the upper right is the old Style Circuit Board and the New modular look below for a Reactor.

NEW – Electronic Controls

1. New electronics increases control and accuracy
2. New electronics design
   1. Increased reliability
   2. Reduced downtime
3. Heater board sectioned into four components
   1. 1 communication board
   2. 3 identical heat boards
      1. Control ISO, Resin and Hose heating zones
   3. Each heat board is interchangeable with the other



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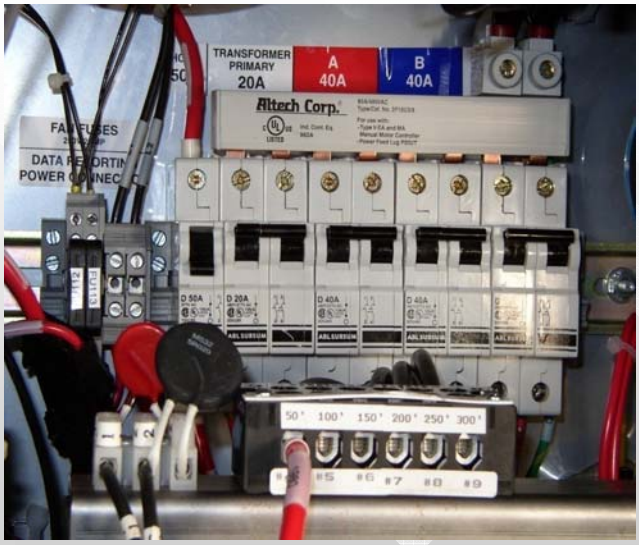
This is the upgraded Heating board for the Reactor Series, as its now a Modular system.

You can Retrofit this to your older Reactor.

Electrical Components



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Notice the first breaker tripped.

Electrical Components

Temperature Controllers

- Gusmer, Watlow 935
- Programming of the Watlow 935 Temperature Controllers
- Testing of the Controller
- Polarity sensitive
- E Type

This slide shows you the wiring for the back of the Temperature controllers on the Gusmer meters.

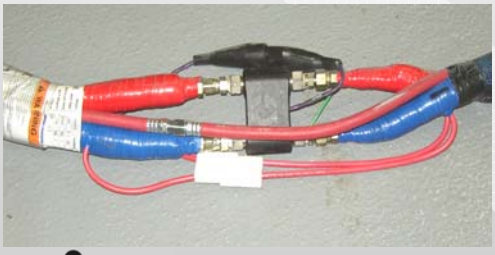
Notice on the upper that the 24V DC output has a + and — indicating Polarity sensitive.

On the lower Watlow it is in the OT1 3 is — and 4 is + indicating the DC polarity to the SSR.

Also on the TC input wires they are marked indicating the red wire to be – & the purple wire to be + .

As we mentioned before Thermocouple wire is a special with and you can not substitute with a regular wire.

Temperature sensors (TSU) OR (FTS)



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You have 3 temperature sensors on each Proportioner or Meter, two primary heaters and hose.

Note the new TSU or FTS is now separated into two parts, they are not connected but have a tube extension on the Resin side.

Hose Amperage Control

- Digital
  - Not over 45 amps
- Hose Amp Settings
  - Not over 30 amps
- **If you lost your Thermocouple wire the controller is capable of manual over ride to continue hose heat.**

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On the Reactor if you lost your TC control side you can disconnect it, or take the TC apart, then turn the hose heat back on. It will show this and the manual mode. Hitting the Target will show the Amps that is going out to the hose. You can manually change this.

Note, in this mode you need to monitor the hose heat with a thermometer as the heat will be on all the time.

Hose Amperage Control

- Rt. Digital
  - Not over 45 amps
- Lower Selector Switch Type
- Lower TC Jack
- Hose Amp Settings
  - Not over 30 amps
- Lower Rt. Left, Pot control W/Lock
  - Not over 50 amps

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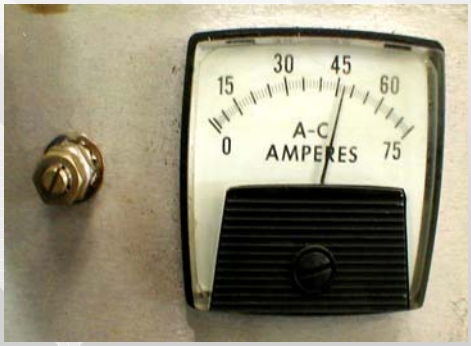
Can you identify all of these components. Its always helpful to know as you may not always have the same meter that you presently have.

Potentiometer W Amp meter

Do Not set more than 50 amps



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You will see this amp meter cycling between 0 & set point when temperature gets close to the set-point, that is normal.

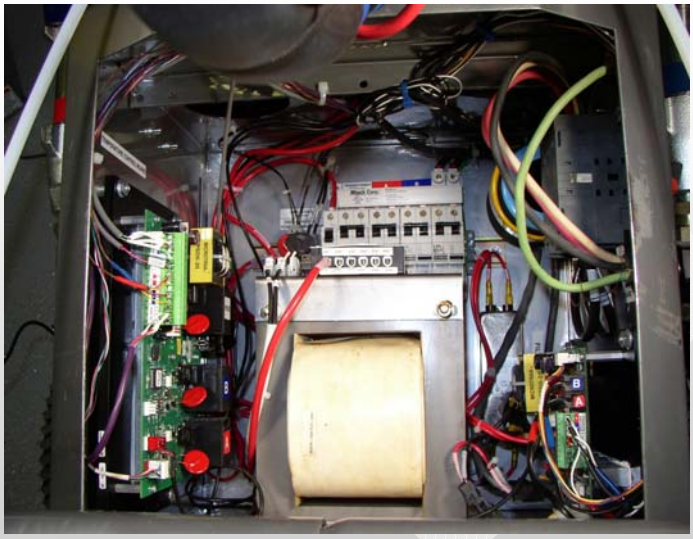
Primary or Control Transformer

- Input and output voltages
- 220 Volt in
- Older units 24V out
- H-20/35 120V out
- Better response on Solenoids
- How To Test

This is Not your hose Transformer. Do you know what it is?

Yes, it's the Control system Transformer.

Hose Heating Transformer



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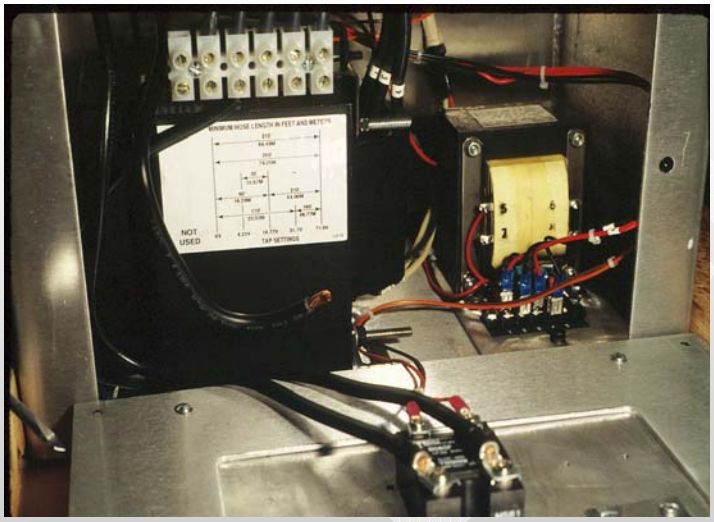
This is the Hose Heating transformer in the original Reactor.

Hose Heat Transformer



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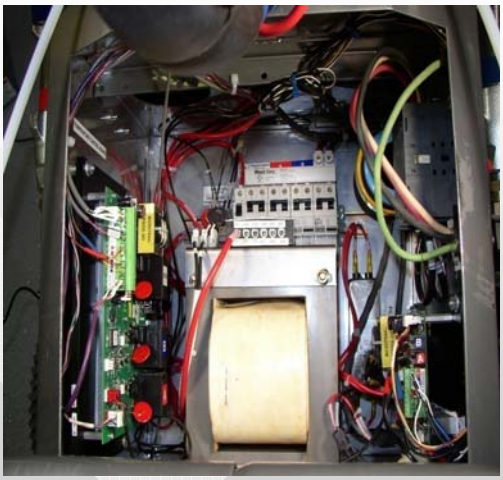
Hose Heat Transformer, Left, 24 V Control Transformer, Right and the Hose heating SSR in the front.

This is an older H-3500

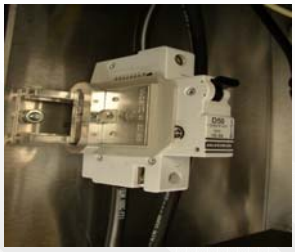
Hose Heating Transformer

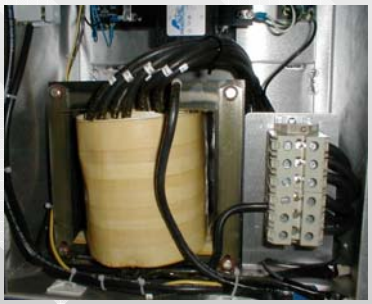


A GlasCraft on the Left and Reactor on the Right.

Hose Heating Transformer

- Primary side components
- Potentiometer 200 K ohm
- Phase control and testing for short. Or Bypassing
- Tap Settings vs. lengths of hoses
- Current amp meter and limits
- Testing for TS, in the meter or in the Hoses
- Further test procedures of this circuit





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This is the H-20/35 Hose transformer and secondary amps Breaker.

Hose Heating Transformer

- This is the Newer Auto Hose heat type of transformer.
- Breaker in upper left is the secondary side of the transformer.
- Lower right is the auto hose length module
- Notice; no tap settings.

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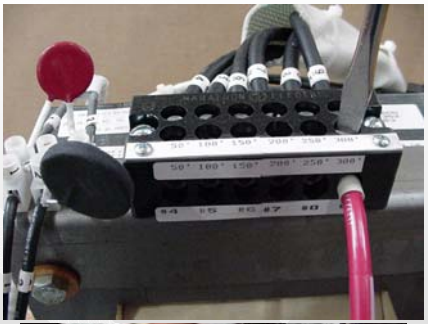
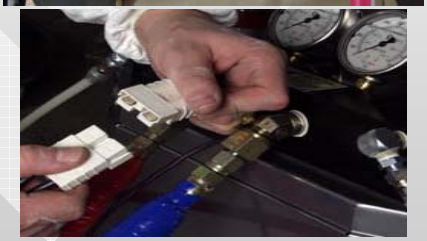
This is the Automatic Hose Heating transformer set up in a Reactor & the H series.

Transformer Test

1. Check Voltage at Hose Connection on front
    1. Press stop button to shut off heaters
    2. Disconnect Power Lock
    3. Test at connector
    4. Turn on hose heater
    5. Will supply voltage for 3 seconds.
    6. 50’ = 15 Vac 200’ = 60 Vac 100’ = 30 Vac 250’ = 75 Vac, 150’ = 45 Vac 300’ = 90 Vac





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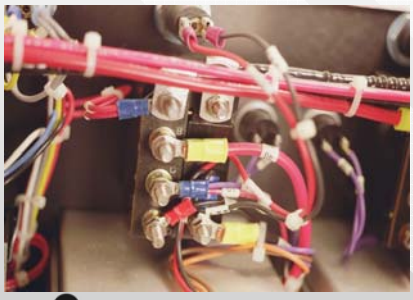
Tap Setting on older Reactor set for 300’

Power lock apart for checking the Voltage output.

Circuit Breakers or Fuses

- Fuses and Sizes. Or present circuit breakers.
- Quench Arc How it functions.



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What is that Blue Thing? It's a Quench Arc, and basically High voltage spike protection devise.

This is the back side of the older Gusmer Circuit Breakers. Actually is 240V AC on each of the top two legs from the Buss bar. The second one down on the left is the other side of the switch as well as the bottom right hand corner for the other side of the breaker.

The bottom two left are the 24VAC system.

Potentiometer

1. This can be tested with a Ohm meter
2. 200 K Ohms

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This is the potentiometer that when you turn adjusts your hose heating amperage by: Actually reducing the incoming voltage to the Hose transformer.

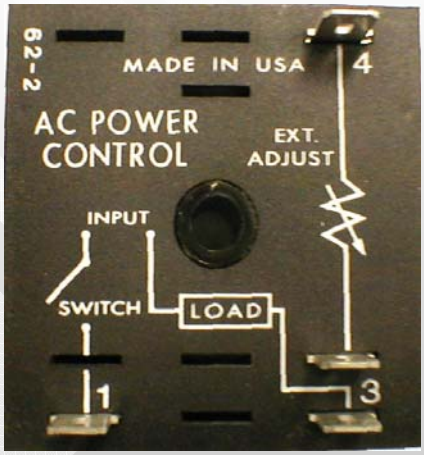
Make sure if you get a new one and no wires are attached that you match the configuration of the old pot.

See how the wires are labeled to which terminal they should go to,

See next slide.

AC Power control

1. Transformers. Bypassing the controllers on the Primary Side.
2. Wire from center of pot to #4.
3. Other wire to #3.
4. Remove wire from upper #3.
5. Take wire from #1and put on upper #3.
6. Check amperage to hoses.
7. May have to lower amps by changing tap settings on the hose transformer.



This is the controller that the above potentiometer is adjusting the inline voltage to the hose heat transformer.

You can see on the information on the slide how to bypass it should it or the pot not work properly.

Make sure that if you re-mount a new control that you use heat sink compound on the back when mounting to the Aluminum heat dissipating chassis.

If you do the by pass, make sure that your hose amperage is not higher than 50 amps. If it is; turn off immediately and change the tap setting on your transformer.

AC Power Control

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Here is how you might see it mounted on your meter.

Remember if you just take the lower blue terminal off and put the Left Yellow one on top of the other Yellow they are tied together and this then jumps the control and the Pot.

Bad AC Power Controller

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This photo is a example of what will happen if you do Not use a heat sink compound on the bottom and mount it on to a heat dissipating surface like a aluminum plate.

Solid State Relays

1. SSR's and size Primary voltage DC, Secondary switch amps.
2. Input side DC voltage
3. Output side is the High Amperage
4. Testing

You can not however check a SSR or Solid State Relay unless it has voltage feeding it. Lets say it this way. The two small terminals need a DC Direct current voltage source like a car battery, 3 to 32 volts. Remember that there is a positive and negative and it is very important to make sure that you are hooked to the right terminal like a car battery or it will not run. Turning on and off this source is the same as turning on and off the two large terminals which is designed for higher current or ampere wires or lines. So it is essentially a switch. One of the most important items to remember when mounting these is that you need to add a heat sink compound to the back and mount on a aluminum plate to help dissipate the heat that can be created with high amps turning on & OFF.

TS Thermocouple Wire

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This is telling you that you have lost continuity in the thermocouple wire to the Temperature sensor.

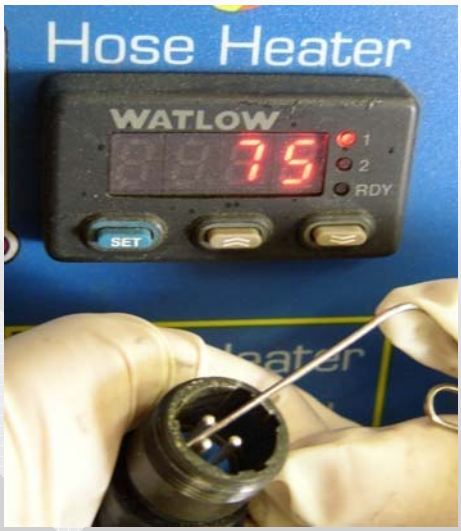
And you need to find the opening in the circuit.

There are also some other codes in the Watlow manual but this is the most common problem.

The Ogden manual is quite different than the Watlow.

TS Thermocouple

1. Er 4 tells you that you have an open circuit
2. Disconnect TC wire connector in front of meter
3. Jump Terminals 1 & 2
4. If Watlow responds with a temperature
5. Problem in the hose



This slide tells you what to do once you have disconnected the TC wire right in front of the meter or Proportioner.

The next place to check is the Temperature Sensor.

TS Thermocouple

1. SbEr tells you that you have an open circuit
2. Disconnect TC wire connector in front of meter
3. Jump Terminals 1 & 2
4. If Ogden responds with a temperature
5. Problem in the hose

Ogden Temperature Controller
On the H Series meters.

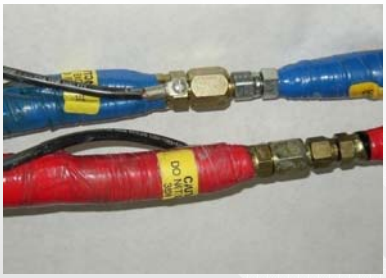
This slide tells you what to do once you have disconnected the TC wire right in front of the meter or Proportioner.

This is what the Odgen ETR-3200 series looks like on the H Model meters.

As you see the SbEr code is also different than any of the other meters.

The next place to check is the Temperature Sensor.

Test Hose Heat Circuitry



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If a error code shows Er 4, it's a sign that you have lost your thermocouple connection.

You should not be able to test for voltage or current flow until you have fixed the thermocouple and it is sending a signal to the SSR to turn the hose heat on.

When the TC is fixed and still No heating here is the next test.

The best place to start testing is right in front of the meter where your heating wires go into the hose. It could also be in the newer Power lock type connections. Either way you will want to test across these two wires with a AC voltmeter. If you read a voltage usually set for the length of hoses somewhere around 15 Volts per 50' section. Then you are getting current to the hoses. This is a different test than reading Ohms.

You can also check that you have a complete closed or Open circuit.

TSU/FTS Test

1. Error Code E04
   FTS not connected
2. Check
   A. Cable connections
   B. Temperature Sensor connection to board
   C. FTS operation by connecting directly to proportioner

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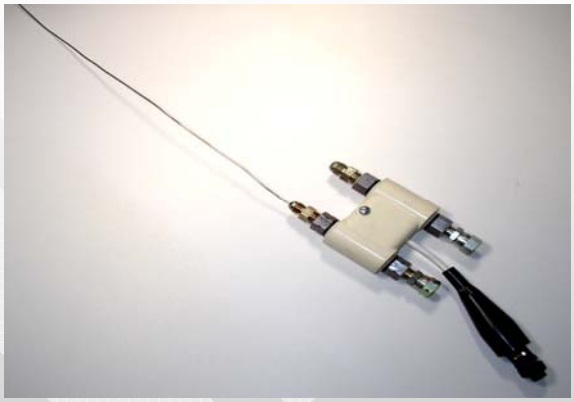
This is the FTS in the Reactor. In this older one the TC probe goes up the A side toward the Meter.

As we said earlier this is now two pieces.

Temperature Sensing Units
Or Fluid Temperature Sensor Testing

1. **Probe is 14” long and usually goes in the A ISO side of the hose**
2. **Different size fittings in the TSU’s**
3. **How to Test**
   A. FTS removed from hose tests.
      1. Should read ambient and then rise if tip pinched by fingers
      2. Place probe in ice water should read ≈34°F



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If you test in front of the meter and when you jumped it; the error code went away and showed ambient temperature. This is telling you that the problem is out in the hoses some where and more than likely out in the Temperature sensor.

That is the next best place to test. If its OK then start at the meter taking each connector apart and doing the same jump test until you get a temperature reading instead of a Er 4 code.

Ohm Testing procedures were explained earlier.

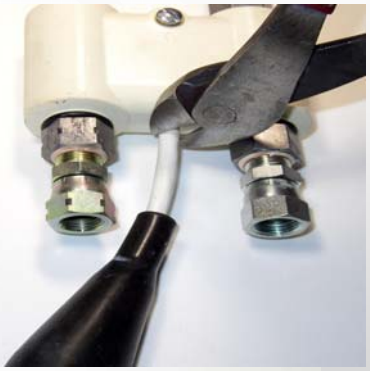
These units are an E type of thermocouple, it should always have this probe on it going into the Whip on the Gusmer units and up in the 3/8” hose back toward the meter on the Graco units.

The Glascraft meters have a different type of sensor.

As you saw, a paper clip works well to test across terminals 1 & 2 for continuity.

Fluid Temperature Sensor

1. Making your own emergency TSU/FTS
2. Cut Thermocouple with dykes close to housing.
3. Twist Red & Purple.



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Take a pair of dykes or side cutters and cut the thermocouple wire off as close to the housing as you can.

Strip the outer covering back a couple of inches.

Strip the Red and purple wires indicating E type of thermocouple back a inch.

Now tightly twist these wires together with a pair of pliers. You can snip the end of square when done.

You have just made a thermocouple.

If you would now test between terminals 1 & 2 you should get continuity. If not you have a break in the black electrical plug and need to take it apart.

Next slide

FTS/TSU Field Fix

1. Place as shown in photo
2. Between Copper bands on Top of Butyl Jacket.
3. Tightly tape with Electrical Tape
4. Insulate to get better reading
5. Reduce Hose heat setting by 10° F

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You should be able to figure this out by the photo and instructions.

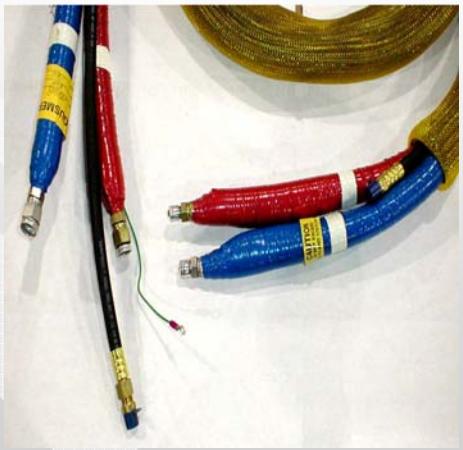
When you get this all tightly secured, you can then plug it into the TC wire that goes to your meter or Proportioner. The Er 4 light should be gone and now showing temperature.

When you get a new Temperature sensor and replace it. Be sure to take this off and put in your tool box in case you would need it some time later. If you had this it would have also been easy to just hook this up in front of the meter when you did the initial testing, or anywhere down the hose.

Notice the 2 copper heating bands in the hose under the Butyl Rubber Jacket.

Whip

- unheated whips or sections.
- Trouble shooting the electrical
- Recommended Back up part.



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The older hose whips had a tighter Copper band and higher Watt Density and this problem was fixed around 2001.

Some are using a very flexible but un-heated whips but, you waste a lot more product with this set up.

If in the previous slide you did get current at the meter but still had a open circuit; then the problem is more than likely right here in the Whip.

These newer styled whips have the copper bands wired to a #6 wire that comes back 18” and then terminated with solder-less terminals.

Sometimes this connection comes loose causing an open circuit. This shows as a Hot spot before breaking.

Other times all of the gun twisting and turning; the wire breaks at the copper band.

A case when moving the hose and the hose heat goes on and off as you move is usually a very strong indication that the problem is in the Whip.

Recap Why no Hose Heat

- **Determine where the problem is**

1. **Test the hoses**
2. **Test the circuitry**

- **You then determine, is the problem in the machine or the hose?**

As you noticed a few slides were redundant but our goal hear today is to give you a much better understanding in how to Troubleshoot your hose heat system.

Now lets do a quick recap of what all we talked about.

Causes of Hose Heat failure

1. Broken Copper band
2. Faulty components
3. Loose Connections
4. Thermocouple (TC) wire.

Slide is Self Explanatory.

Thermocouple TC TS

- Most temperature controllers show error.
- Reactor E04.
- Watlow Er4.
- Ogden SbEr
- Remedy - Check TC Wires for a break
- Test FTS or TSU
- Strip and twist ends of TC for temp TC, hose heat is reduced by 15° F

Lets re- read each of these.

No Heat, Power or Amperage

- Before testing

1. Move and twist hose and whip, if it flickers or goes on problem is in the whip
2. Feel up and down the whip for hot spot.

This indicates a week connection and isolates the problem.

Don't forget to do this First before disconnecting any components.

Next you are isolating whether it's the TC or Current problem.

First Step to Test

- In front of the meter or Proportioner.
  1. Disconnect the 50 amp plug or heavy #6 wires going into the hose.
  2. Set test meter to ohms to test continuity between the Power lock plug on the hose side.
  3. If OK, wiggle and move the whip and retest to confirm that you have a good complete circuit.
  4. If you have continuity, the problem is in the meter.

If you don't have a error code on the controller its then in the current side and this is the first procedure.

Next Test

1. Directly in front of the meter or Proportioner.
2. Set test meter to AC, Volts.
3. Have both wires of the tester attached to the power lock plug coming out of the meter or Proportioner.
   - Turn on the hose heat switch and quickly see if you are.
   - getting any voltage 20 – 90 V AC.
   - If yes problem is in the hose.
   - If No, problem its in the proportioner hose heat circuit.

For those that Don't have a Volt meter and need to do this test there is another way.

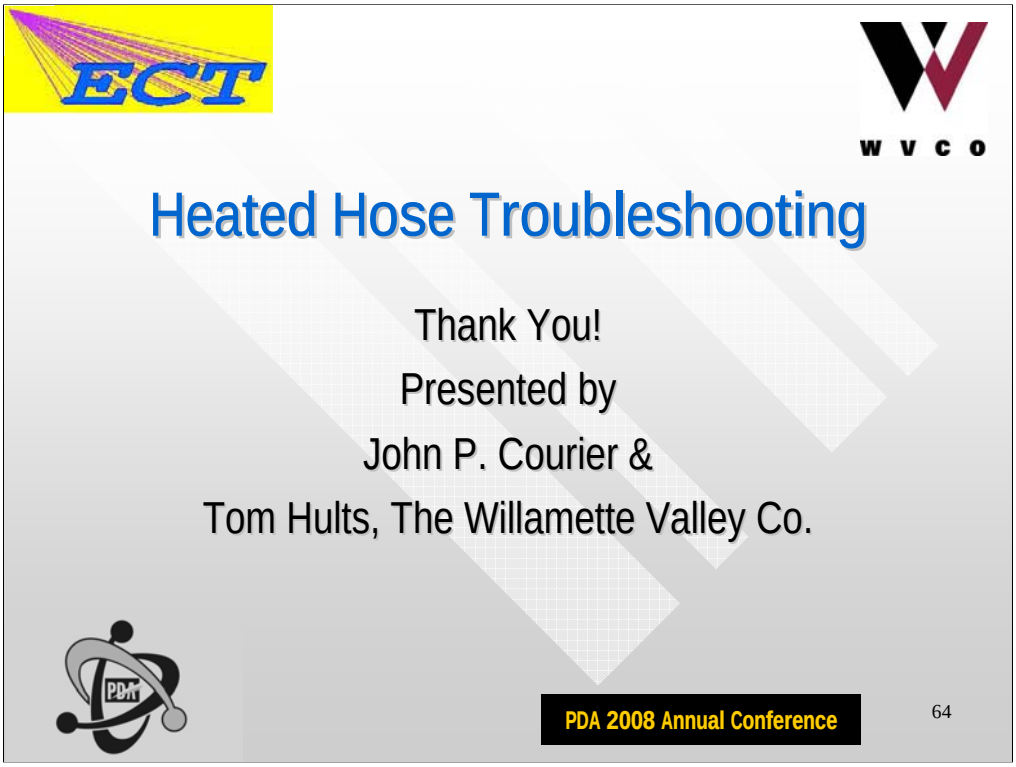
Please talk to us after this presentation and I will explain.

Heated Hose Troubleshooting

- Time is money!
- Have a planned procedure for this.
- Have the correct tools for testing.
- Do your test steps correct the first time.
- Every applicator has and will have this problem, Have a master plan!

We sincerely hope that you have learned here today many major steps in saving you this TS time.

Remember Also that if you really take good care of your hoses and whip they will last many years.



We would like to Thank you All, for Coming to this Presentation Today!

Please feel free to talk with either of us if you have individual comments that you would like to tell or Ask us.

Thank You!