**First Hour Delivery**

Conditions:

1. Flow Rate: 3.0 +/- 0.25 GPM
2. Inlet Water Temperature: 58 +/- 2°F

Test Sequence:

1. Start Test with Heating Element On (Pre-Draw) – Draw Until Any Heat Source
2. Monitor TC Tree AVG Every Minute – Wait for Max Stabilized Temp (T\*max,1)
3. Reset Timer at Draw Start (Tau\*=0)
4. Record RTD Out 15 Seconds after Draw Initialization (5 second Interval Thereafter)
5. Draw Until T\*max,1-°15 (Label as T\*min,1)
6. Record the below data (Tavg, outlet water temp, V\*,1 gallons removed)
7. Repeat as many times as possible.
8. Remove power at 1 hour
9. End Conditions:
10. If Draw is occurring at 1 hour continue until Tmax,n -15
11. If Draw is not occurring at 1 hour, Draw for 30 seconds, Draw until previous cut-out temp

**Heat-Up Test – 50 Gallon**

Conditions:

1. Flow Rate: 3.0 +/- 0.25 GPM
2. Inlet Water Temperature: 58 +/- 2°F

Test Sequence:

1. Set Mode and Tank Setpoint (User Defined)
2. Wait for Full Cutout
3. Dwell for 30 Minutes
4. Draw 10.72 Gallons of Water
5. Wait 5 seconds
6. If heat source does NOT energize during 10.72
   1. Dwell for 10 minutes (see if it turns on)
      1. If it turns ON, wait for Full Cutout
         1. Dwell for 10 Minutes
         2. Draw Until UE and Large Draw Flag (if Heat Pump Mode, draw for 40 Gallons)
      2. If it does NOT turn ON, Exit Failure
7. If heat source energizes before 10.72, Draw Until UE and Large Draw Flag (if Heat Pump Mode, draw for 40 Gallons)
8. Wait for UE Cutout, then switch mode to Heat Pump
9. Wait for Full Cutout
10. Dwell for 30 Minutes

Test Sequence:

1. Set Mode and Tank Setpoint (User Defined – Heat Pump)
2. Wait for Full Cutout
3. Set To Hybrid Mode
4. Dwell for 30 Minutes
5. Draw 10.72 Gallons of Water
6. Wait 5 seconds
7. If heat source does NOT energize during 10.72
   1. Dwell for 10 minutes (see if it turns on)
      1. If it turns ON, wait for Full Cutout
         1. Dwell for 10 Minutes
         2. Draw Until UE and Large Draw Flag (if Heat Pump Mode, draw for 40 Gallons)
      2. If it does NOT turn ON, Exit Failure
8. If heat source energizes before 10.72, Draw Until UE and Large Draw Flag (if Heat Pump Mode, draw for 40 Gallons)
9. Wait for UE Cutout, then switch mode to Heat Pump
10. Wait for Full Cutout
11. Dwell for 30 Minutes