



# PTCS™ Commissioned Heat Pump Certificate & NW Heat Pump Startup Form

## Airflow Test

To be completed by certified technician at time of installation.

|  |                              |                             |
|--|------------------------------|-----------------------------|
| Were supply plenum and accessible supply takeoffs sealed in accordance with PTCS™ standards? (check one) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
|--|------------------------------|-----------------------------|

|  |                              |                             |                            |                                  |                                  |                          |                       |
|--|------------------------------|-----------------------------|----------------------------|----------------------------------|----------------------------------|--------------------------|-----------------------|
| Does the Indoor Unit have an ECM blower? (check one) | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Unit Tested In (check one) | Heating <input type="checkbox"/> | Cooling <input type="checkbox"/> | Stage or Capacity Tested | Test Date             |
| <small>33</small>                                    |                              |                             | <small>34</small>          |                                  |                                  | <small>35</small>        | <small>36</small> / / |

## External Static Pressure Test – Check in full capacity unless conditions do not permit. Attach additional sheets as needed if test must be re-run.

|  |                          |   |
|--|--------------------------|---|
| 1. Record expected CFM/Ton based on fan wiring/board settings.     | Heating CFM/Ton Setting  | Cooling CFM/Ton Setting   |
| <small>37</small>  |                          | <small>38</small>   |
| 2. Measure return plenum static pressure.                          | Return Static Pressure   | Units (check one)<br>Inches H <sub>2</sub> O <input type="checkbox"/> Pa <input type="checkbox"/> |
| <small>39</small>  |                          | <small>40</small>   |
| 3. Measure supply plenum pressure.                                 | Supply Static Pressure   | Units (check one)<br>Inches H <sub>2</sub> O <input type="checkbox"/> Pa <input type="checkbox"/> |
| <small>41</small>  |                          | <small>42</small>   |
| 4. Add values together (ignore minus “-” sign on return pressure). | External Static Pressure |   |
| <small>43</small>  |                          |   |

Note: Result of 0.8 Inch H<sub>2</sub>O (200 Pa) or more in Step 4 can result in extreme fan energy use and early fan failure

## TrueFlow Test.

|  |   |   |
|--|---|---|
| 1. Measure Normal Supply Operating Pressure (NSOP) or re-record Supply Static Pressure from above. | NSOP  | Units (check one)<br>Inches H <sub>2</sub> O <input type="checkbox"/> Pa <input type="checkbox"/> |
| <small>44</small>  |   | <small>45</small>   |
| 2. Specify TrueFlow plate # and filter size.   | Plate Size (check one)<br>14 <input type="checkbox"/> 20 <input type="checkbox"/>   | Filter Size (16 x 20, etc.)   |
| <small>46</small>  |   | <small>47</small>   |
| 3. Install TrueFlow plate at filter slot and specify location.                                     | Filter Location (check one)<br>Indoor Unit <input type="checkbox"/> Return Grille <input type="checkbox"/> Other (explain) <input type="checkbox"/> |   |
| <small>48</small>  |   | <small>49</small>   |
| 4. Measure Supply Pressure with plate in (TFSOP)   | TFSOP   | Units (check one)<br>Inches H <sub>2</sub> O <input type="checkbox"/> Pa <input type="checkbox"/> |
| <small>50</small>  |   | <small>51</small>   |
| 5. Determine Correction Factor (as needed)   | Enter Correction Factor (CF) From table or use formula  | $\sqrt{\frac{NSOP [A]}{TFSOP [B]}}$ [C]   |
| <small>52</small>  |   |   |
| 6. Measure pressure across TrueFlow plate (green – red hose channel) and record Raw Flow (in CFM). | Plate Pressure  | Raw Flow (CFM) [D]  |
| <small>53</small>  |   | <small>54</small>   |
| 7. Calculate Corrected Flow = ( Raw Flow × Correction Factor)                                      | Corrected Flow (CFM) = [C] x [D]  | CFM/Ton   |
| <small>55</small>  |   | <small>56</small>   |
|  |   | Is flow target met?<br>Yes <input type="checkbox"/> No <input type="checkbox"/>                   |
|  |   | <small>57</small>   |

## Duct Blaster Matching Method Test

|  |         |
|--|---------|
| 1. If TrueFlow cannot be used, attach a worksheet for Duct Blaster Matching method and enter CFM/Ton result. | CFM/Ton |
| <small>58</small>  |         |

## Notes on Airflow Testing – Attach additional sheets as necessary

SECTION D  
AIRFLOW TEST

## Refrigerant Charge Information/Testing

To be completed by certified technician at time of installation.

|   |  |                          |                                      |                          |                          |                                   |                                |
|---|--|--------------------------|--------------------------------------|--------------------------|--------------------------|-----------------------------------|--------------------------------|
| System Refrigerant (check one)                | <b>R-22</b>                                | <b>R-410a</b>            | Standard Line Set Length (check one) | <b>15 ft</b>             | <b>25 ft</b>             | <b>Other</b>                      | Installed Line Set Length (ft) |
| <small>60</small>                             | <input type="checkbox"/>                   | <input type="checkbox"/> | <small>61</small>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> _____ ft | <small>62</small>              |
| Refrigerant Added (+) or Removed (-) (ounces) | Note any complications in adjusting charge |                          |                                      |                          |                          |                                   |                                |
| <small>63</small>                             | <small>64</small> _____                    |                          |                                      |                          |                          |                                   |                                |

## Performance Check

|   |                              |                                |                               |
|---|------------------------------|--------------------------------|-------------------------------|
| <i>Run unit for at least 15 minutes in compressor-only mode before taking readings.</i> | <b>First Test (required)</b> | <b>Second Test (if needed)</b> | <b>Third Test (if needed)</b> |
| • Air temperature entering outdoor unit (°F)  | <small>65</small>            |                                |                               |
| • Stage/capacity test (if multiple stages of compression)                               | <small>66</small>            |                                |                               |
| • Tested in Heating or Cooling mode? (check one)  | <small>67</small>            | <small>67</small>              | <small>67</small>             |
| • Measured Discharge Pressure (psig)  | <small>68</small>            |                                |                               |
| • Manufacturer Discharge Pressure (psig)*   | <small>69</small>            |                                |                               |
| • Measure Suction Pressure (psig)   | <small>70</small>            |                                |                               |
| • Manufacturer Suction Pressure (psig)  | <small>71</small>            |                                |                               |
| • Entering Drybulb/Wetbulb Temperature (°F)**   | <small>72, 73</small>        | <small>72, 73</small>          | <small>72, 73</small>         |
| • Supply Temperature (°F) <i>Optional</i>   | <small>74</small>            |                                |                               |
| • Return Temperature (°F) <i>Optional</i>   | <small>75</small>            |                                |                               |
| • Temperature Split (°F) <i>Optional</i>  | <small>76</small>            |                                |                               |

SECTION E  
REFRIGERANT CHARGE INFORMATION/TESTING

\*From manufacturer information. \*\*If needed for pressure check; check either drybulb or wetbulb measured.

## Controls Setup

To be completed by certified technician at time of installation.

### Low Ambient Lockout

For All Systems (single and multi-stage compressors): Is compressor low-ambient lockout control (LAL) set no higher than 0°F? (check one)

|                          |                          |                          |
|--------------------------|--------------------------|--------------------------|
| <b>Yes</b>               | <b>LAL Not Installed</b> | <b>LAL Disabled</b>      |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

### Control of Auxiliary (Strip) Heat – All Systems

|  |  |
|--|--|
| Make/Model of Indoor Thermostat                                  | Make/Model of Zoning Control (if applicable)                   |
| <small>78</small>  | <small>79</small>  |
| System has how many stages of compression? (check one)           | Do resistance heat elements operate in <b>Stage 1</b> Heating? |
| <b>Single Compressor Stage</b>                                   | <b>Yes</b>   |
| <input type="checkbox"/>   | <input type="checkbox"/>                                       |
| <b>Multiple Compressor Stages</b>                                | <b>No</b>  |
| <input type="checkbox"/>   | <input type="checkbox"/>                                       |
| How is auxiliary (strip) heat controlled? (check all that apply) | <small>81</small>  |
| <b>Discharge Air Sensor</b>                                      | <b>Other (explain)</b>   |
| <input type="checkbox"/>   | <input type="checkbox"/>                                       |
| <b>Indoor Unit Board Zoning Control</b>                          | _____  |
| <input type="checkbox"/>   | <small>85, 86</small>  |
| <b>Outdoor Thermostat</b>  |  |
| <input type="checkbox"/>   |  |

SECTION F  
CONTROLS SETUP

## Controls Setup Continued

### Outdoor Temperature Sensor Test (if used)

|   |  |   |
|---|--|---|
| Outdoor Temperature During Test (°F)<br><small>87</small> | Expected Output of Outdoor Sensor<br><small>88</small> | Measured Output of Outdoor Sensor*<br><small>89</small> |
|---|--|---|

*\*Measured value shall be within 5% of expected value. If not, replace sensor.*

### Single Capacity Compressor Systems

|   |  |  |  |
|---|--|--|--|
| Confirm discharge air temperature sensor is either not installed or is disabled?<br><small>90</small> | <b>Confirmed</b><br><input type="checkbox"/> | Confirm auxiliary (strip) heat cannot operate at temperatures above 35°F (or lowest temperature setting allowed by thermostat).<br><small>91</small> | <b>Confirmed</b><br><input type="checkbox"/> |
|---|--|--|--|

Specify how checkout was performed in the space below

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### Multiple Capacity Compressor Systems (if applicable) – Choose **only one** of the following

|   |           |   |
|---|-----------|---|
| <input type="checkbox"/> If the discharge air sensor control is used to control auxiliary heat, confirm it is set no higher than 85°F.<br><small>93</small> | <b>OR</b> | <input type="checkbox"/> If staging temperature is set warmer than 85°F confirm resistance heat cannot operate at temperatures above 35°F.<br><small>94</small> |
|---|-----------|---|

Specify how checkout was performed in the space below

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### Notes on Controls Setup – Attach additional sheets as necessary

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SECTION F  
CONTROLS SETUP CONTINUED