Hotstart
THERMAL MANAGEMENT

INSTALLATION BEST PRACTICES
for Thermosiphon Heaters

Return Port

- ☑ Select a return port high on the engine.
- ☑ Select a return port toward the rear of the engine.
- ☑ Select a return port away from the engine thermostat.
- ☑ Select a return port away from the remote thermostat.

  If an optional remote thermostat is installed.

- ☑ Select a return port away from the supply port.

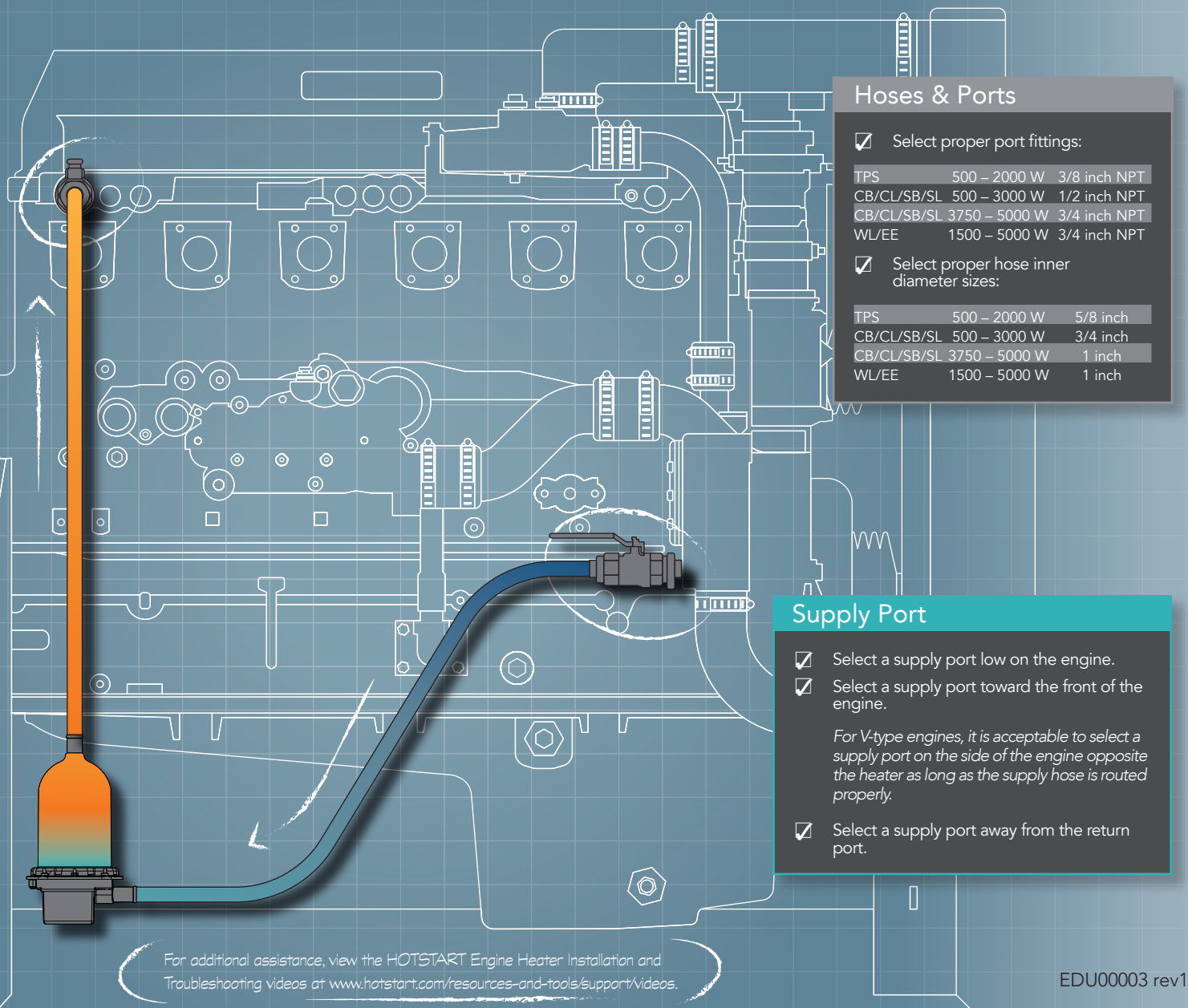
Hoses & Ports

☑ Select proper port fittings:

TPS	500 – 2000 W	3/8 inch NPT
CB/CL/SB/SL	500 – 3000 W	1/2 inch NPT
CB/CL/SB/SL	3750 – 5000 W	3/4 inch NPT
WL/EE	1500 – 5000 W	3/4 inch NPT

☑ Select proper hose inner diameter sizes:

TPS	500 – 2000 W	5/8 inch
CB/CL/SB/SL	500 – 3000 W	3/4 inch
CB/CL/SB/SL	3750 – 5000 W	1 inch
WL/EE	1500 – 5000 W	1 inch



Heater Mounting

- ☑ Mount the heater in the proper orientation.
- ☑ Mount the heater to a vibration-isolated surface.
- ☑ Mount the heater directly below the return port.
- ☑ Mount the heater at least 6 inches (15 cm) below the lowest point of the water jacket.

Supply Port

- ☑ Select a supply port low on the engine.
- ☑ Select a supply port toward the front of the engine.

  For V-type engines, it is acceptable to select a supply port on the side of the engine opposite the heater as long as the supply hose is routed properly.

- ☑ Select a supply port away from the return port.

For additional assistance, view the HOTSTART Engine Heater Installation and Troubleshooting videos at www.hotstart.com/resources-and-tools/support/videos.

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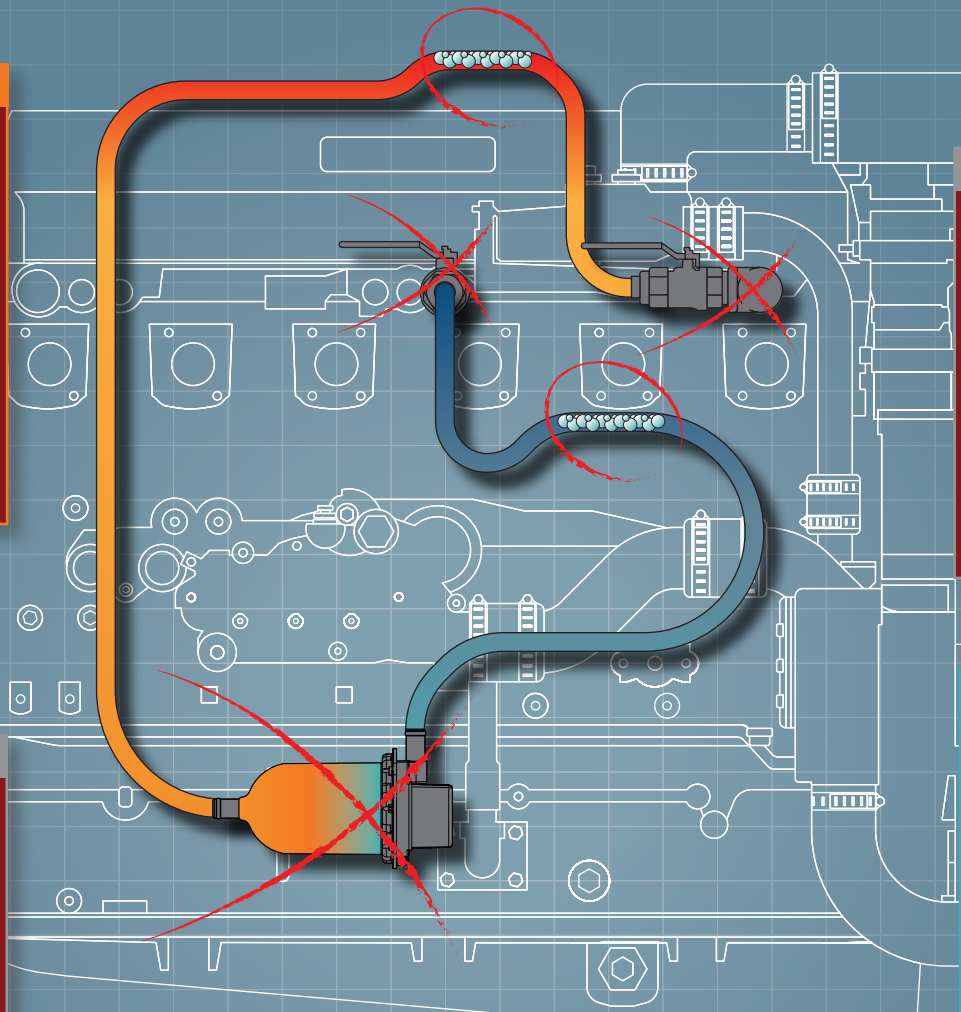
Hotstart
THERMAL MANAGEMENT

INSTALLATION PROBLEMS & HAZARDS
for Thermosiphon Heaters



Return Port

- ☒ **Return port is installed toward the front of the engine.**
  A return port too close to the front of the engine will reduce heating effectiveness.
- ☒ **Return port is too close to the engine thermostat.**
  A return port installed too close to the engine thermostat can cause heated coolant to flow to the radiator, reducing heating effectiveness.
- ☒ **Return port is too close to the supply port.**
  A return port too close to the supply port will cause heated coolant to only flow through a small portion of the engine.

Heater Mounting

- ☒ **Heater is mounted sideways.**
  An incorrectly oriented heater will reduce coolant flow and heating effectiveness.
- ☒ **Heater is mounted directly to the engine.**
  Engine vibration will damage the heater.
- ☒ **Heater is not mounted directly below the return port.**
  An incorrectly positioned heater will not allow the return hose to continuously rise to the engine.
- ☒ **Heater is not mounted at least 6 inches (15 cm) below the water jacket.**
  A heater mounted too high will restrict coolant flow and reduce heating effectiveness.

Hoses & Ports

- ☒ **Return hose is kinked or damaged.**
  Kinked or damaged hoses will reduce coolant flow.
- ☒ **Return hose does not continually rise to the port.**
  A return hose that does not continuously rise may create high points, restricting coolant flow.
- ☒ **Supply hose is unnecessarily long.**
  Unnecessarily long hoses may create dips and bends, collecting bubbles and restricting coolant flow.

Supply Port

- ☒ **Supply port is too high on the engine.**
  A supply port mounted too high will reduce heating efficiency.
- ☒ **Supply port is installed toward the rear of the engine.**
  A supply port mounted too close to the rear of the engine will reduce heating effectiveness.
- ☒ **Supply port isolation valve is closed.**
  Operating the heater without the presence of coolant will cause overheating and damage the heater.

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