



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 remote thermostat.
- If an optional remote thermostat is installed.*
- ✓ Select a return port away from the supply port.

Hoses & Ports

- ✓ Select proper port fittings:

CTM	1000 – 2500 W	3/8 inch NPT
CKM	3000 – 6000 W	3/4 inch NPT
CSM	3000 – 12000 W	3/4 inch NPT

- ✓ Select proper hose inner diameter sizes:

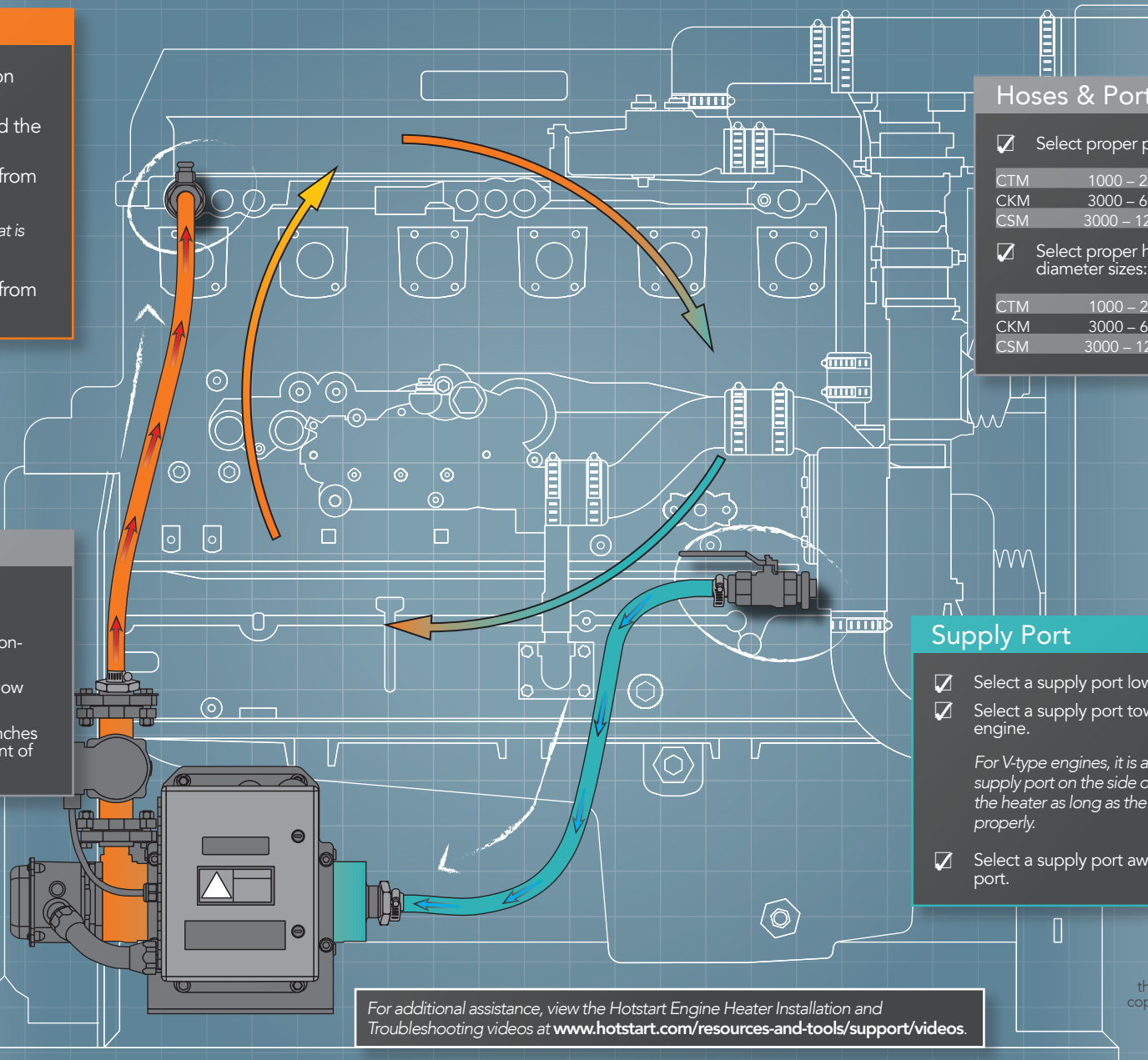
CTM	1000 – 2500 W	5/8 inch
CKM	3000 – 6000 W	1 inch
CSM	3000 – 12000 W	1 inch

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.



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.

Supply Port

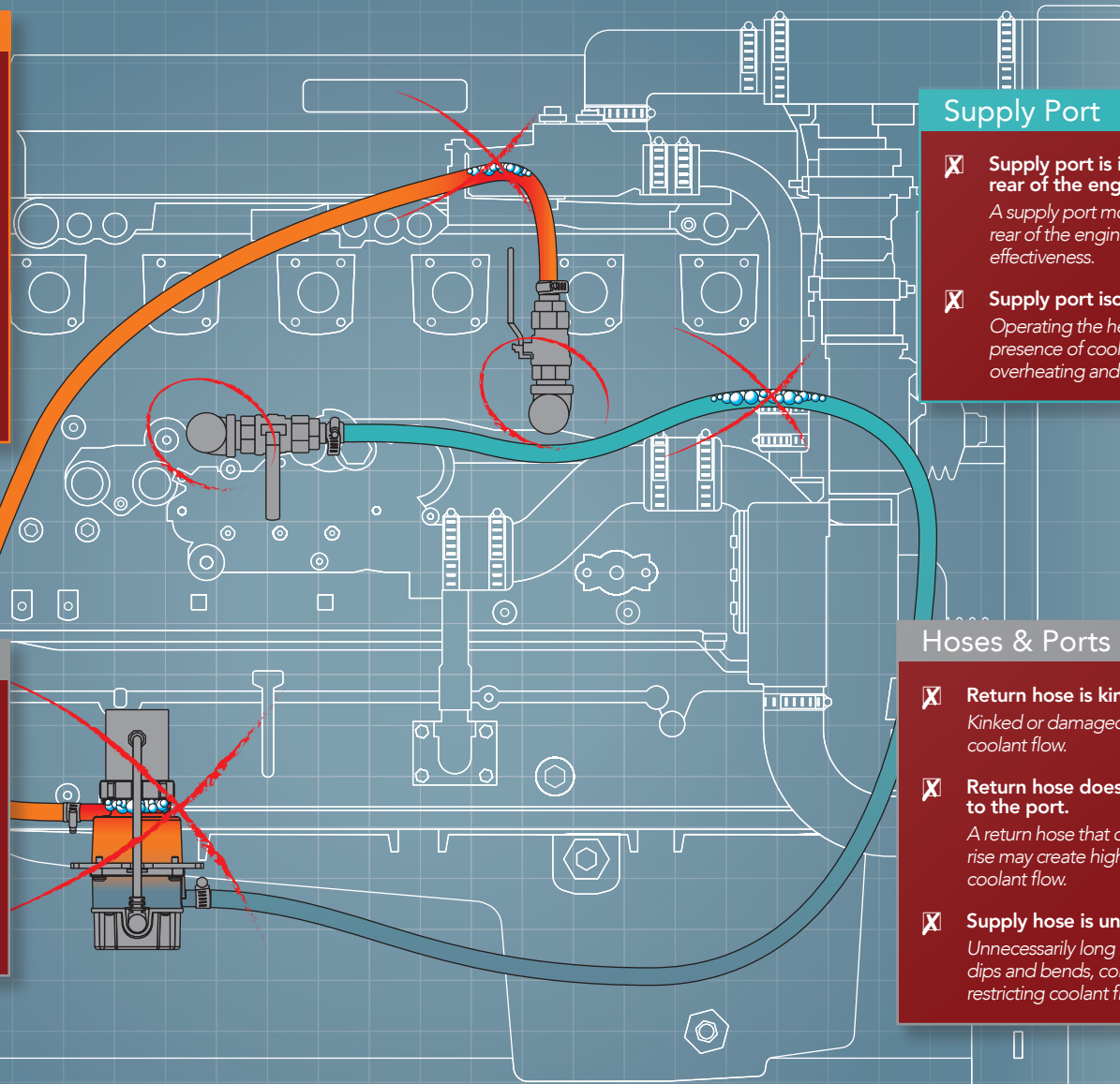
- ❌ **Supply port is installed toward the rear of the engine.**
A supply port mounted too close to the rear of the engine will reduce heating effectiveness.
- ❌ **Supply port isolation valve is closed.**
Operating the heater without the presence of coolant will cause overheating and damage the heater.

Heater Mounting

- ❌ **Heater is upside down.**
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 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 continually 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.



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