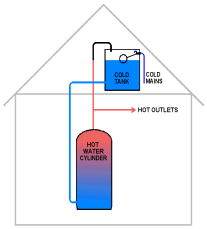
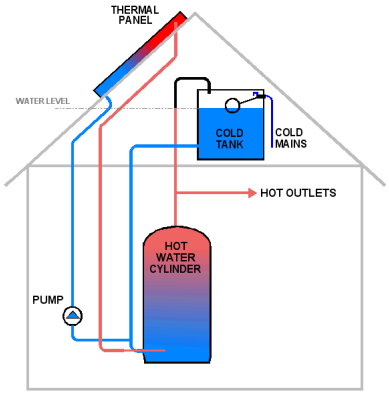
D.P.S. SOLAR CONVERSION SYSTEMS

TANK-FED HOT WATER SYSTEMS.

The following are ways of converting a standard tank fed cylinder installation to solar.

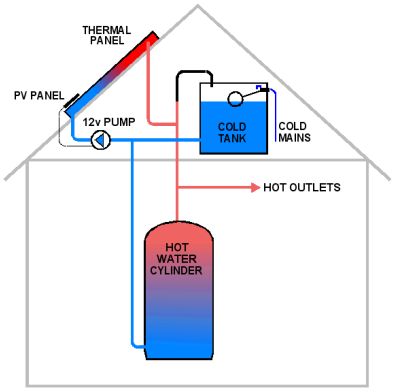




TANK-FED with DIRECTLY PUMPED PANEL

The simplest form of converting a vented system to solar. The cold feed is broken into and the water is pumped up into the panel using a bronze solar pump.

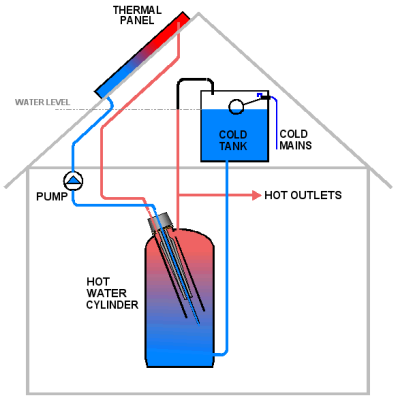
See Note #1.



TANK-FED with DIRECTLY PUMPED PANEL, LOW VELOCITY D.C. SOLAR PANEL DRIVEN PUMP *"Solar-Twin"*

The Solar-Twin method of converting a vented system to solar. The cold feed and vent are broken into and the water is pumped up into the panel using a d.c. solar pump that is powered by a separate PV solar panel. Hot water is fed into the top of the store.

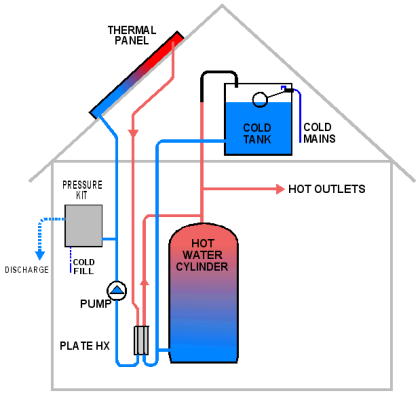
The Solar-Twin panel is flexible and immune to freezing or overheat.



TANK-FED with DIRECTLY PUMPED PANEL via CONVERTED IMMERSION HEATER ASSEMBLY

A replacement immersion heater, developed by DPS, that converts a top entry immersion heater to also provide a flow and return from the base of the store to the solar panel. A bronze pump is used to fill and circulate water through the panels.

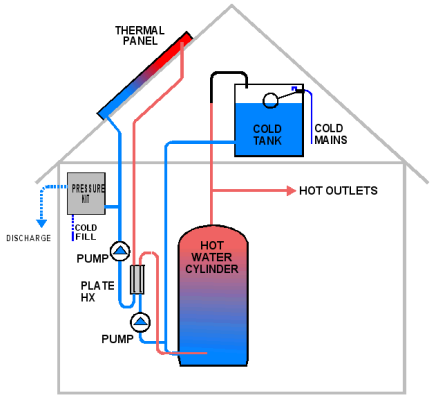
See Note #1.



TANK-FED with PRESSURISED PANEL via PLATE HEAT EXCHANGER (Thermo-Syphon)

A sealed & pressurised solar system, connecting to the cylinder via a plate heat exchanger. Heat moves from the heat exchanger to the top of the store by gravity circulation.

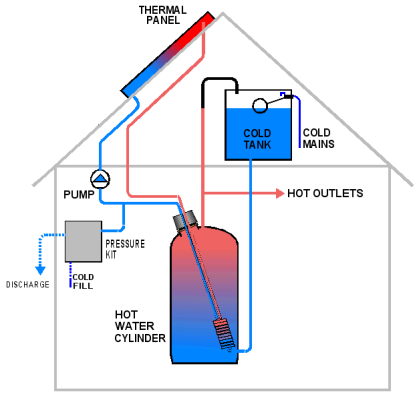
See Note #2.



TANK-FED with PRESSURISED PANEL via PLATE HEAT EXCHANGER (Pumped)

A sealed & pressurised solar system, connecting to the cylinder via a plate heat exchanger. The cold feed is broken into to provide a flow and return to the heat exchanger on pumped circulation using a bronze pump.

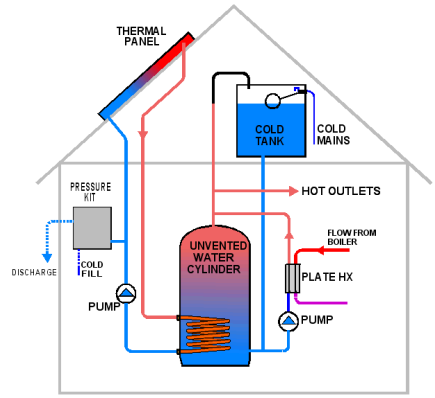
See Note #2.



TANK-FED with PRESSURISED PANEL via IMMERSION HEATER COIL

A sealed & pressurised solar system, connecting to the cylinder via a flexible stainless steel coil that is inserted through an immersion heater boss.

See Note #2.



TANK-FED with PRESSURISED PANEL via PRIMARY HEATING COIL with PLATE RECOVERY

A sealed & pressurised solar system, connecting to the cylinder via the existing primary coil. To replace the coil a plate heat exchanger and bronze pump are added that will use the full boiler output to recovery the store from the top down.

This is the only form on converting that will allow a smaller volume of water to be heater by the primary heat source, hence leaving a solar reserve. The addition of rapid recovery makes up for the loss of storage.

See Note #2.

Note #1. The panel can be drained if necessary to protect from freezing or overheat, but panels must be suitable for potable water, as well as operating empty.

Drain down facility is added by the addition of a valve between the cold tank (above the water level) and the return from the solar panel. Under normal operation the valve is shut, and water is held in panel under negative head when pump is off. Under drain conditions, the valve opens allowing air to clear into the panel and the water to drop out.

Note #2. The panel will typically contain anti-freeze to protect from freezing, and additional requirements may be needed for overheat protection.

Sealed solar systems require the following pressurisation components: expansion vessel, filling loop (with connection to mains) and pressure relief valve (3 bar) with pressure gauge. A discharge is required, that can be taken to drain, or to a drum.