
A blue Subaru STI car is parked on a dirt field. In the background, there is a large pile of dark, volcanic-looking soil. The sky is overcast with grey clouds. The car is a four-door model with a rear spoiler and gold-colored wheels.

Subaru STI Liquid cool project

Designed by Robert Rojas



Purpose is to eliminate heat soak when vehicle is at rest.
To deliver a constant feed of coolant below ambient temp.
To lower Inter-cooler temp for a more dense charge.
To improve the life of the motor by reducing combustion temps.
Improve performance with better AFR .
Build within budget of any intercooler setup on the market.



Model: 2015 Subaru WRX

Horsepower: 305 hp

Curb weight: 3,386 lbs

Engine: 2.5 L 4-cylinder

Tire size: P245/40R18

MPG: 17 city / 23 highway

Wheel size: 18" diameter, 8.5" width

Transmission: 6-speed manual



Main components

Liquid chiller spec DV1910E-P-12V

1-Specification:ModelNameDV1910E-P

DCCompressorModelQX1901VDL

RefrigerantR134a, RatedVoltage12V

VoltageRange9V-16VStartup, Voltage12V

TemperatureRange

-16C~30C/ 3.2* Freezin to
86* F,

MaxCurrent10ACoolingCapacity100W~360WCapillaryTube

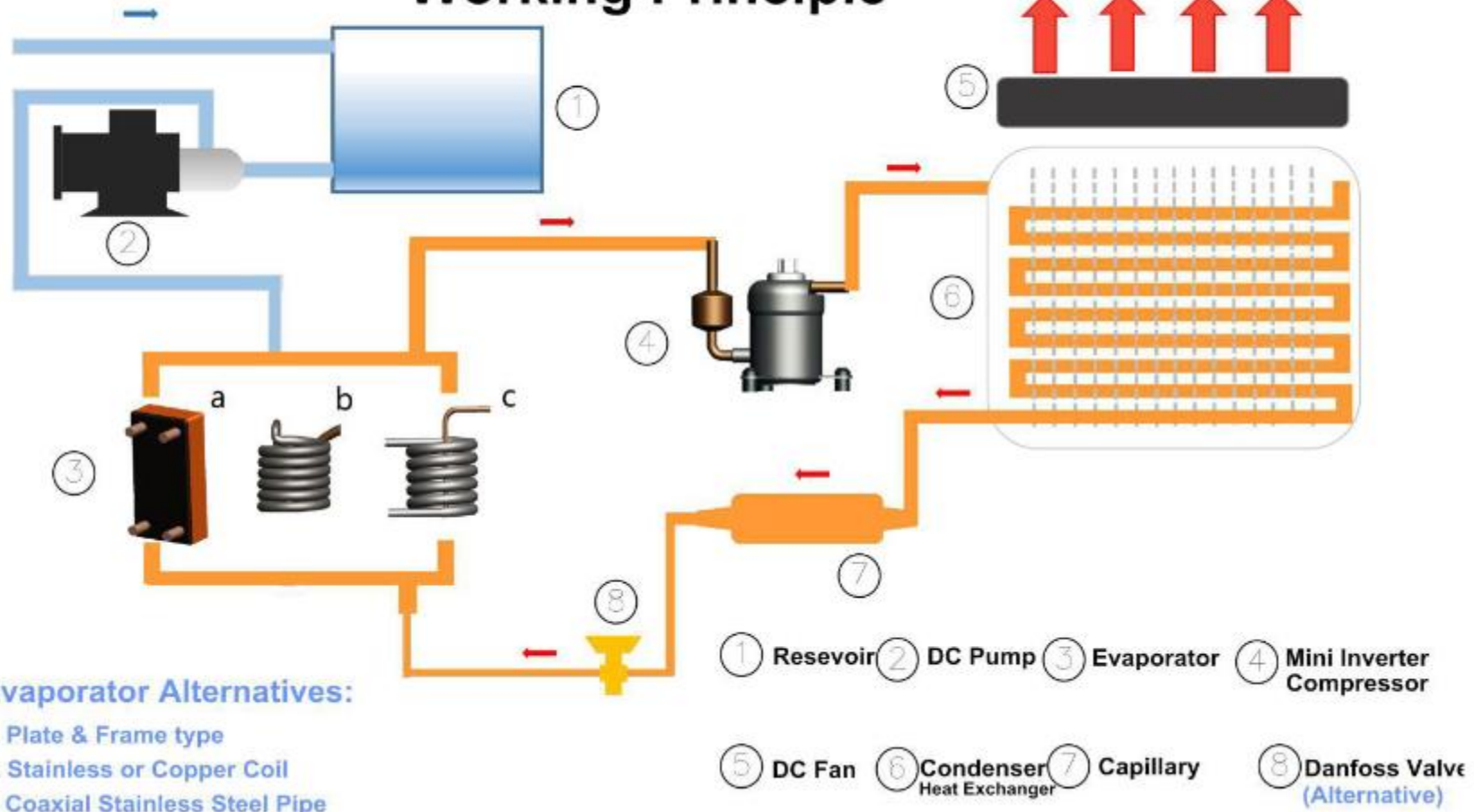
Φ2*0.8mWorkCurrentRange1~8ANoise40↓dB(A)Vibration≤0

.65m/s2N.W6.61lbs/3.0KgsMotorSpeed2000~6000rpmDriver

BoardVariableFrequencyController



Working Principle



Evaporator Alternatives:

- a. Plate & Frame type
- b. Stainless or Copper Coil
- c. Coaxial Stainless Steel Pipe

Coolant tank for Liquide HX



Tank is still a concept, additional inlets and outlets may need to be fabricated for direct fluid or coil application.

Water-Meth solution will kept to close to freezing.

Return from intercooler connections will be additional. Pump will be wired up to accessory witch on/manual switch at driver.

System pressure will be at 45-65 psi to maintain over system temp to inlet –discharge from the intercooler.

Specs on tank

Aluminum Ice Box + Water Pump For Turbo or Supercharger Heat Exchange System

This Listing includes these Following Parts: 2.4 Gallon Ice Box + Water Pump

Ice Box:

Size: 14"x8"x5", 2.4 Gallon.

Water Inlet Outlet are 3/4" OD. Rolled or Beaded Ends to Maximize Sealing.

Big Copper Drain Plug.

3" Opening Stainless Steel Flush Mount Cap for Fast Filling.

Flush Bottom Mounting Brackets for Easy Install.

Water Pump:

Water Inlet Outlet are 3/4" OD.

Volume: 30L/Min (8 Gal/Min)

9500rpm Brushless Motor

Voltage: 12V DC

Intercooler Water to Air

Options

- Overall Size:
16"x11"x4.5"
- Core Size:
11"x9"x4.5"
 - 3" Air Inlet Outlet
 - NPT 1/2 Water Inlet
Outlet
 - 4.5" Thick

- Overall Size:
12"x11"x4.5"
- Core Size: 11"x6"x4.5"
- 3" Air Inlet Outlet
- NPT 1/2 Water Inlet
Outlet
- 4.5" Thick



Supports 1,000HP!

How it Installed




Similar example of
mounting

Trunk mounted hardware



Concepts





Other hardware need for connections and hose will be selected during the build.

This is still a concept but it will work. With a larger radiator, coolant delete mod, the car will run a bit cooler.

Provision to integrate meth inject can be added to the intercooler and using the existing reservoir can be added.