

HEAT GENERATION CALCULATIONS

Net end result is heat generated by a hydraulic system in BTU'S per hour.

System GPM X (times) operating PSI, Divided by 1714 gives you the hydraulic horsepower of the system.

Multiply that by .35 (for inefficiency)

Multiply that by 2545. This number is the horsepower to BTU conversion factor.
(a new constant)

ie: 19 GPM X 2000 PSI Divided by 1714 = 22 HPD H.P.

22 X .35 = 7.70 X 2545 = 19596 BTU's per hour.

For a 45 minute cycle time, multiply this number by .75

For a 30 minute cycle time multiply by .50

Use 16,000 BTU's per hour as a maximum allowable number, in the southern, warmer climate areas.

Use 18,000 BTU's per hour as a maximum allowable number in the northern regions where the climate is cooler.

If your heat generation number is higher than either of these, it is highly recommended to install a cooler.

If highway time between duty cycles can be used for heat dissipation, use 2000 to 3000 BTU's per hour as a good general number for a bare metal tank. If the vehicle is not in motion, do not count on any dissipation from the reservoir, as there is not enough air movement to provide any nominal amount of cooling.