

# Application Note #101

## Operating Times For TM2100, TM2100-357, TM3000 and TM3000-357 CROSSTECH® PROFESSIONAL TORCHES

All CROSSTECH® PROFESSIONAL TORCHES use a diaphragm construction pressure regulator. The purpose of the pressure regulator is to provide a constant pressure of fuel to the torch tips. If the tip pressure goes below a minimum, the flame size will get smaller and smaller as the tip pressure drops. The tank pressure will change based upon either the ambient temperature surrounding the tank or the amount of fuel that is converted from liquid to gas in the tank. The evaporation conversion of liquid to gas is a cooling process. When both the TM2100 and TM3000 torches are used on one pound gas cylinders, their high rate of fuel draw from the tank has a net effect of driving down the vapor pressure of the tank. In the case of MAPP® fuel being used, when the tank ices up, the fuel pressure for the torch tip is near the minimal useful limit and the flame size is significantly reduced. When this happens, General Regulator, Inc. recommends that the plumber replace the fuel tank with one that is at room temperature. The plumber will immediately notice that the flame size is very robust and providing full power to the heating process. **THERE IS ABSOLUTELY NOTHING WRONG WITH THE TORCH. THE ONE-POUND GAS CYLINDERS HAVE A THERMODYNAMIC LIMIT AS TO HOW MUCH FUEL CAN BE DRAWN FROM IT.**

The useful operating times for the TM2100, TM2100-357, TM3000, and TM3000-357 CROSSTECH® PROFESSIONAL TORCHES are as follows:

Torch Model	Time W/Propane	Time W/MAPP®	These times were verified by operating production torches into the air with no heating of a work piece. <b>It should be noted that when a work piece is actually being heated, there is a great deal of heat being reflected back from the work piece and this causes the ambient air around the fuel tank to heat up the fuel and prevent the pressure from rapidly dropping. The user will see longer operating times when heating a work piece with reflected heat, especially with the TM3000 torches.</b>
TM2100	Continuous Use	20 Min.	
TM2100-357	Continuous Use	20 Min.	
TM3000	20 Min.	10 Min.	
TM3000-357	20 Min.	10 Min.	



TM3000 TORCH TIP:

Optimum Tip Pressure: Propane: 28-32 PSI

MAPP®: 45-50 PSI

PRESSURE REGULATOR

Vapor Pressure (PSI) vs Temperature (°F)

Fuel	32°F	70°F	100°F
Propane	54	112	172
MAPP®	45*	95	155

\* When you see ice on the tank, the tip pressure is at minimum.

**GENERAL REGULATOR, INC.**

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