

GLASS TORCH TECHNOLOGIES, INC.
55 N. Main Street, Tioga, Pa. 16946
(570) 835-9777



INSTRUCTIONS FOR DELTA MAG, COBRA, AND VIPER TORCHES

To Attach your Lines to the Torch:

- The **Gas Line** goes on the stud located by the **Red Valve**.
- The **Oxygen Line** goes on the stud located by the **Green Valve**.
- Secure the Lines on the studs with hose clamps. **Never take our brass adapters off.**
- Secure the Torch Base to the table either by clamping or bolting to secure the Burner. Also, try to secure the main lines so the full weight of the lines is not pulling directly on the burner studs, either by taping the lines or using a “C” clamp and taping the lines to the “C” clamp. Keep lines under the table edge so hot glass will not hit them.
- Turn on the Regulators to recommended pressure, then go to the torch and smell and listen for any gas or oxygen leaks. Another way to check is to open the main tank valve, set gauge to recommended pressure, then shut off the main tank valve and watch the needle on the pressure gauge for about 5 minutes to see if there is any drop in pressure.
- Always make it a habit to check for leaks if you ever smell gas or propane while you are running any torch. Shut off the valves on the torch. Then shut off the Main Fuel Tank valve followed by the Main Oxygen Tank valve. Look until you find the source of the leak and immediately correct it.

Tank Pressure Settings:

Regulator Pressure Settings for Fuel: 20 psi

Regulator Pressure Settings for Oxygen: 80 psi

- Torches with independent Center Fire, Second Fire, and Third Outer Fire will have 9 control valves. 3 Red valves for Gas Control, 3 Blue valves for Secondary Oxygen Control, and 3 Green valves for Main Oxygen Control. The 3 smaller valves control the Center Fire. The 3 mid sized valves control the Second fire. The 3 larger valves control the Third Outer Fire.
- **Red Valves** are for Gas control.
- **Green Valves** are for Main Oxygen control. These valves are the most important oxygen control valves on the burner because they help to keep the torch body cool and keep the flame ignition from burning too close to the burner jet orifices. If a Green Valve

is not set right, the burner jet orifices will glow orange. You may also notice orange streaking in the blue flame. If this happens, it means that you are running the flame too low. Turn up the Green Valve(s) a little more until the orifices stop glowing. When running slow, soft or lazy type flames you must pay close attention until you get used to adjusting the torch.

- **Blue Valves** control the Secondary Oxygen Injector. These valves have the most control of the characteristic of the flame. With these valves you can focus the flame, get thrust flames, produce long brushy flames, and imitate pre-mix type flame characteristics. This valve also helps keep a more oxidized flame for certain colors of glass. The torch can be operated with these valves closed. For a softer flame you will need it on a little bit. If you are running a shorter flame with the candle lengths under 3/8th of an inch, you should have some of the blue valve on, so you don't get any carbon build up in the injectors.
- **To Start** using the 3 smaller valve control knobs (the Red, Green and Blue valves that control the Center Fire), start off by slowly opening the small Red Knob until you get the torch lit. Once the torch is lit, get about a 7 inch yellow flame going. Next, open the small Green Valve, slowly adjusting it until you get the long yellow candles cleaned up. Next, slowly open the Blue Valve. You will notice the flame start to tighten up and get narrower. If the flame starts to hiss or crack, this means you've opened the valve too much. If it does hiss or crack, back down the Blue Valve until it quiets down and the flame is not distorted. From this point you can control the gas valve to get a wide range of flames once your 2 oxygens are set. If you want to get a Micro Small Flame, experiment using only the Blue and Red Valves. You can use the Blue and Red Valve combination only with the Center Fire.
- **If you want a soft brushy type of flame**, use the Red and Green Valve controls.
- **To get a big, very hot flame**, use all 3 valves; Red, Green and Blue. To start, adjust Center Fire with Red and Green Valves until flame is as big as you can get it and just starting to get candles in it. Turn on the Blue Valve until either flame distorts or you hear a crackling or excessive hissing noise. Back down the Blue Valve until flame stabilizes or quiets down. At this point start to turn the Red Valve (gas) open more, then open the Blue Valve a little more. NOTE: When running small or low flames watch for burner tip orifices. If you see orange glowing orifices or orange streaks in the blue flame, you need to turn up the oxygen until the orifices stop glowing. With AUR or Didymium Glasses on, you will not be able to see the orange streaking in the flame so you will have to look over your glasses once in a while to check for orange. You will have to be very aware of this when you first run your torch for the first week or two until you get used to adjusting it properly.
- **To Start Outer Fire**, never run Outer Fire with the Center Fire off. The Center Fire must be running while operating the Outer Fire. First turn the Center Fire flame up as big as possible with no candle or excessive hissing. Next, turn on the big Red Valve until you get about an 8 inch long yellow flame. Next, turn on the big Green Valve and learn how to adjust the Outer Fire just with the Red and Green Valves. DO NOT open the Blue Valve until you are familiar with the Red and Green Valves and how they affect the flame characteristics. Before turning on the Blue Valve, turn the Red and Green Valves on until you have the biggest flame you can get without excessive candles or distortion.

Next, turn on the Blue Valve until flame starts to distort. At this point, turn down the Blue Valve until flame is stable, then adjust the Red Valve up and down without changing the oxygen valve settings. **DO NOT run the Third fire without the First and Second fires running.**

- **If you want a big thrusted Outer flame**, using the Red and Green Valves, adjust flame to biggest blue flame possible without distortion or excessive candles. Next, open Blue Valve until flame just begins to distort. Next, turn open the Red Valve until you see yellow candles, then open Blue Valve a little more. You will have to experiment with these settings until you become familiar with it.
- **If you want a soft brushy flame**, use less of the Blue Valve or shut the Blue Valve off completely. Do not run a short low soft flame. You can run a long soft brushy flame safely. You can run the Outer Fire with Red and Green Valves only. **NEVER** run Outer Fire with Blue and Red Valve controls only. The Green Valve must always be on when using Outer Fire.

Start off by learning how to adjust torch and understand how it operates before working glass in front of it.

There is a learning curve involved with Triple Mix torches, but the gain and expanded range you will get out of this Triple Mix torch far outweigh the little time it takes to get familiar with Triple Mix torches.

WARNINGS

VENTILATION!!!

MUST HAVE GOOD EXHAUST VENTILATION IN WORK AREA!

WHEN FIRST USING TORCH: CHECK THAT THERE IS ENOUGH VENTILATION BY USING TORCH FOR SHORT PERIODS OF TIME AT FIRST. MAKE SURE THERE IS NO BUILD UP OF HEAT AND FUMES. BE SURE THAT YOUR EXHAUST SYSTEM IS CAPABLE OF HANDLING THE HEAT AND EXHAUST FUMES OF THE TORCH. CHECK THE SYSTEM PERIODICALLY TO BE SURE IT IS NOT OVERHEATING.

CLOTHING!!!

BE SURE TO WEAR FLAME RETARDANT CLOTHING AND ARM GUARDS. USE A REFLECTIVE SUIT ESPECIALLY WHEN WORKING LARGER PIECES AND USING THE LARGEST OUTER FIRE. BE SURE TO USE A GOLD REFLECTIVE FACESHIELD AND GLASSWORKING EYEWEAR.

WORK AREA!!!

DO NOT RUN IN A HOUSE, BASEMENT, OR A GARAGE ATTACHED TO A HOUSE. USE ONLY IN A SHOP OR STUDIO DEDICATED FOR GLASS WORKING WITH CEMENT FLOORS, HIGH CEILINGS (HOT SHOP), OR LARGE EXHAUST HOODS WITH METAL TABLES (GLASS WORKING STUDIO).

TORCH OPERATION!!!

NEVER RUN OUTER FIRE RING WITHOUT RUNNING THE CENTER FIRE AND INNER SECOND FIRE RING (PHANTOM, MIRAGE, OR DELTA ELITE).

NEVER RUN SHORT SOFT FLAMES WITH CANDLES UNDER 3/8TH OF AN INCH. ALWAYS HAVE SOME BLUE VALVE ON (2ND OXYGEN). ANY SIGN OF CARBON ON THE FACE OF THE TORCH IS A WARNING SIGN OF AN IMPROPER FLAME. BE SURE TO AVOID THIS TYPE OF FLAME TO AVOID CLOGGING THE TORCH. CLEAN THE TORCH FACE PERIODICALLY WITH THE INCLUDED CLEANING KIT. CLEANING WIRES SHOULD BE INSERTED IN THE CENTER OXYGEN PORTS ONLY. THE WIRE SHOULD TRAVEL JUST OVER TWO (2) INCHES INTO THE TORCH. DO NOT INSERT ANY OTHER OBJECTS IN THE FACE OF THE TORCH OTHER THAN THE INCLUDED CLEANING TOOLS. OTHER OBJECTS OR TOOLS MAY BECOME STUCK OR BROKEN IF INSERTED IN THE FACE OF THE TORCH, POSSIBLY RESULTING IN PERMANENT DAMAGE. IF THE TORCH SHOULD BECOME CLOGGED OR GLASS IS STUCK TO THE FACE OF THE TORCH, CALL US FOR FURTHER INSTRUCTIONS.

NEVER ATTEMPT TO DISASSEMBLE THE TORCH FOR ANY REASON.

**FAILURE TO OBSERVE SAFETY
PRECAUTIONS COULD RESULT IN INJURY
OR DEATH. ONLY EXPERIENCED
GLASSWORKERS WITH ADVANCED SKILLS
SHOULD OPERATE THIS TORCH.**

CLEANING WIRES:

BRUSH:

WARNINGS

Never leave the area with the torch running.

Never leave the main tank valves turned on if you leave the area, be sure to relieve pressure off torch.

Always make sure torch base and lines are anchored and secure.

Always be alert for gas and oxygen leaks. Fix them right away no matter how insignificant they may seem.

Have good exhaust ventilation in work area.

Keep flammable objects and lighters away from work table area.

Have non-flammable tabletop and back wall.

Secure gas and oxygen tanks with strap or chain them to wall; never let tanks free standing.

Always have a small container of water by your work area to put hot glass scraps in.

Always use Phillips Safety Eyewear or Didymium Glasses to protect your eyes from glare and flying pieces of glass.

Always keep a fire extinguisher close by in the work area.

Never get any oil or grease on the lines or connections.

Never touch the torch on the barrel or nozzle end while it is running, or for 15 minutes or more after running.

Use hose clamps or other approved connectors on the hose adaptors. Always check for and beware of any leaks and correct them immediately.

Never remove adaptors or any component with filter screens present. Removing filter screens may allow foreign material into the torch potentially damaging valve seats and clog internal components.

Do not strike torch with glass or other hard object. Dents or damage may occur.

Do not subject the torch to excessive heat, flame, kilns, ovens or hand torches.

Do not install premix torches in the same supply hose with any other torch. Flashback can occur and damage the other torches. If a premix torch is installed it **MUST** have flashback arrestors installed on the premix torch hoses *before* the connection to the main supply hose. Flashback arrestors placed at the tank will only protect the tank and regulators, not other torches in the system.

DO NOT REMOVE ANY FACTORY INSTALLED COMPONENTS. FAILURE TO FOLLOW DIRECTIONS AND WARNINGS WILL VOID FACTORY WARRANTY.

**FAILURE TO OBSERVE SAFETY RULES COULD
RESULT IN INJURY OR DEATH.**