⚠ Important Safety Notice

Subject: Explosion hazard caused by the hydrogen gas that can accumulate when using a plasma cutter to cut aluminum on a water table.

Models Affected: Torchmate X Series and Torchmate Dual Chamber Water Tables

Action Required: Have each of your operators who is using the affected models review this Notice. Also, attach a copy of the Notice to the instruction manuals for each affected model.

When a plasma cutter is used to cut aluminum on a water table, a chemical reaction between the aluminum dust and the water generates significantly more hydrogen gas than occurs with other metals. If the gas is free to dissipate, the hydrogen does not accumulate and create a hazardous situation. Our manuals remind users of this hazard—for example, in the following warning:

> Hydrogen gas may be formed and trapped under aluminum work pieces when they are cut underwater or while using a water table. DO NOT cut aluminum alloys underwater or on a water table unless the hydrogen gas can be eliminated or dissipated. Trapped hydrogen gas that is ignited will cause an explosion.

Additional information on procedures for cutting aluminum can be found in industry publications and on the internet. Because hydrogen is a highly flammable gas, a build-up of hydrogen that is not properly dissipated can cause a hydrogen explosion, which can result in serious bodily injury and significant damage to the cutting table. Such incidents have been reported in the industry. *This Notice emphasizes the importance of proper set-up and process when cutting aluminum on a water table and informs users of some ways to minimize the hydrogen hazard.*

1. Pan-type water tables (Non-Dual Chamber)

If there is space between the aluminum sheet being cut and the water surface, hydrogen generated during the cutting process can be trapped in the space between the top of the water and the bottom of the aluminum sheet. That space can be greater if the sheet is warped so that a larger pocket of gas can accumulate under it. To reduce the potential hazard of an explosion caused by an accumulation of hydrogen gas, use the following safety precautions when cutting aluminum on a pan-type water table:

- Only cut aluminum in a well ventilated area.
- Allow adequate ventilation of the water table during the time between cutting sheets. (Recommended minimum time is five minutes.)
- If the sheet will be above the water level when being cut (so the sheet is not in complete contact with the water), provide ventilation under the sheet to prevent hydrogen build-up. This can be done with air bubblers or other aeration systems installed in the water.

2. Dual-chamber water tables

As with the pan-type water table, hydrogen can be trapped in the space between the top of the water and the bottom of the aluminum sheet. In addition, aluminum debris entering the lower chamber can generate hydrogen that will be trapped there and must be regularly released. To reduce the potential hazard of an explosion caused by an accumulation of hydrogen gas, use the following safety precautions when cutting aluminum on a dual-chamber water table:

For the upper pan on any dual-chamber water table:

- Follow the preceding instructions for pan-type water tables.

For the lower chamber, generally:

- Cycle the water table at least once after each aluminum sheet-cutting operation by adding compressed air to the lower chamber to move the water to the upper pan and then immediately release the air in the lower chamber. Depending on the geometry of the water table, the compressed air should dilute the hydrogen and carry it out of the chamber when it is vented. It is critical to vent the lower chamber quickly, before the hydrogen and air separate. *Make sure that no ignition source is nearby when venting and that the area is well ventilated.*

Specific instructions for the lower chamber on a Torchmate X water table:

- Cycle the water table at least once after each aluminum sheet-cutting operation, using the following procedure:

    1. Make sure that no ignition source is nearby and that the area is well ventilated.
    2. Close the exhaust valve.
    3. Open the fill valve, allowing air to enter the lower chamber.
    4. Fill the upper pan completely with the water from the lower chamber.
    5. Immediately close the fill valve.
    6. Immediately open the exhaust valve completely.
    7. Allow the water to drain completely from the upper pan.
    8. Close the exhaust valve.
    9. Open the fill valve and fill to desired height.
    10. *Never vent, or change the water level, while an aluminum cutting operation is underway.*

Some shops leave the fill and exhaust valves open for a few minutes each hour to vent the hydrogen, but unless carefully monitored, water may spill from the table, causing a risk of electric shock or a slip hazard. Venting the lower chamber after each cutting operation is a safer and more thorough procedure

If you have questions or to obtain a manual for your Torchmate product, please e-mail Support@torchmate.com or call 775-673-2200.