# Purpose:

Gross leak testing is used to detect leaks in the range of 10° to 10ˉ³ ccm/sec due to laser welding defects, projection weld defects, glass sealing defects or other process defects. Typically, gross leak testing is performed directly after a weld operation to help evaluate weld quality, but may be later in the process. Refer to job paperwork for specific location of gross leak test operations.

# Equipment Required:

1. TRIO-TECH 203 Bubble Tester filled with Flourinert FC-40, Galden D02 or an equivalent Fluorocarbon indicator fluid approved by engineering
2. Calibrated timer that is capable of indicating a 60 second test cycle.
   1. The built in timer on the bubble tester may be used as long as it has been properly calibrated.
3. Water source used to liquefy vapors.

# Startup:

1. Turn on the Bubble Tester power and pre-set to the desired temperature (100°C - 125°C).
2. Turn on the water valve for the cooling tubes.
3. Wait approximately 45 minutes for temperature stabilization.
4. Set the calibrated timer to 60 seconds or set the switch on the bubble tester to 60 seconds.

# Testing Procedure:

**NOTE: Follow steps below unless stated differently on the router.**

1. Use a rack to hold the units during testing.
2. Position the units so that bubbles can freely flow upward, from weld joints, hermetic connectors, or other potential sources of leak test failures.
3. Make sure that it will be easy to observe individual bubbles from any unit in the group.
4. Some air pockets may be trapped and bubbles may appear after submerging the units. Relieve the air by shaking the rack used to hold the units; this should free the air bubbles which may become trapped.

NOTE: In order to perform a gross leak check of the connector it is necessary to remove shorting caps.

1. If a unit has a fixture or off ground present, streams of fine bubbles may appear from air trapped in these areas. When fine bubbles appear, verify results with engineering or production supervision.
2. Turn on the high intensity light.
3. Immerse the units to the bottom of the tank.
   1. The top portion of the units should be no less than two inches below the surface of the indicator fluid.
4. Start the countdown timer The minimum observation time is 30 seconds from the instant of immersion.
5. Machine will buzz after 60 seconds.
6. Inspect for bubbles by viewing parts through the attached 1.5X magnifying device.

NOTE: If inspection of unit under test involves only an epoxy joint; only reject if a stream of bubbles are witnessed originating from the epoxy joint.

1. If no bubbles appear during 60 seconds of immersion, the leak test is complete.
   1. Remove the unit(s) from the leak tank and place on the cooling tray.
2. If leaks occur, take note as to where they are leaking on the unit.
   1. Remove the unit(s) from the leak tank and place on the cooling tray.
   2. Mark the unit(s) where the leak occurs.
   3. Document the failure per the TA03 rework process.

# Shutdown:

1. Turn off the high intensity light.
2. Cover leak tester.
3. Turn off the water supply.
4. Turn off the leak tester.