



## EXPLANATORY NOTE

### HIGHWAY TANK EQUIPPED WITH CROSSOVER PIPING OR EQUALIZATION LINES

#### ISSUE

Transport Canada (TC) has become aware that some multi-compartment highway tanks were manufactured with a crossover pipe (also called an equalization line) without an isolation valve. The metal identification plate for these highway tanks identify them as having two or more compartments.

We consider such highway tanks as having a single compartment because there is no isolation valve in the crossover piping that connects two compartments separated by a bulkhead. When the metal identification plate indicates multiple compartments, these highway tanks are non-compliant with CSA standards B620 and B621 since they have no means of isolating one compartment from another. This makes it impossible to pressure test each compartment individually. However, highway tanks with crossover piping are deemed to be compliant when the metal identification plate indicates only one compartment. This is contingent on the highway tank passing all necessary periodic inspection and test requirements.

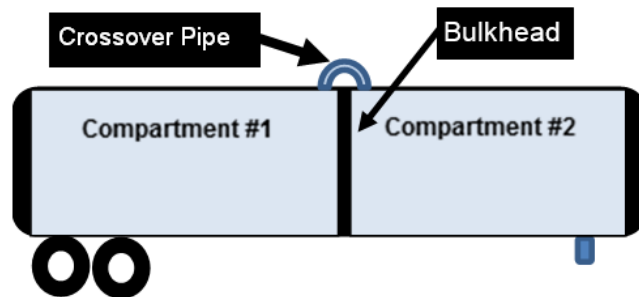


Image #1

#### BACKGROUND

While these types of highway tanks typically carry crude oil, carriers might use them to transport more than one type of dangerous good simultaneously without realising the compartments are interconnected. Why? Because tanks with crossover piping may have metal identification plates showing that they have more than one compartment but not that they are interconnected.

Although **technically** there are two compartments; **in practice**, there is no way to isolate them. This means that:

- Different dangerous goods could become unintentionally mixed through the crossover pipe.
- Crossover piping makes the highway tank a single compartment highway tank that does not comply with the Transportation of Dangerous Goods (TDG) Regulations and CSA standards B620 and B621.

These tanks do not comply with:

- Clause 7.2(a) of CSA standard B621 (referenced by the TDG Regulations), which requires that the person loading the tank ensure that the highway tank was inspected, tested, retested, and marked before loading it with dangerous goods, as set out Clause 5.4 of CSA B621.
- Clause 5.4 of CSA B621, then refers to Clause 7 of CSA B620 for inspection and testing requirements. Clause 7.2.7.2 of CSA B620 states that each compartment (i.e. each tank of a multi-tank vehicle) must be individually pressure tested.

Since there is no way of isolating each compartment from one another, highway tanks with crossover piping without an isolation valve are not able to meet these requirements.

## CORRECTIVE ACTIONS

Below are separate corrective actions for test facilities, manufactures and owners of highway tanks equipped with crossover piping.

### TEST FACILITIES

Facilities performing periodic pressure and/or leak tests on multi compartment highway tanks with crossover piping without an isolation valve must **fail the tanks** and **inform the owner**:

- The highway tank is not compliant with the TDG Regulations and cannot be used in dangerous goods service.
- The highway tank cannot return to dangerous goods service until modified and properly pressure tested in accordance with Clause 7 of CSA B620.

**IMPORTANT:** This only applies to highway tanks that are identified as having two or more compartments on the metal identification plate.

Highway tanks with crossover piping **are deemed to be compliant** when the metal identification plate indicates only one compartment. This is contingent on the highway tank passing all necessary periodic inspection and test requirements.

### MANUFACTURERS

Anyone who has manufactured multi compartment highway tanks with crossover piping but without an isolation valve, must notify all affected highway tank owners that:

- The owner **must remove** the highway tank from dangerous goods service until it is modified to comply with the current requirements or recertify it as a new tank in accordance with CSA B620.
- The periodic test pressure marking “P” displayed on their highway tank with crossover piping is **invalid**.

This mark indicates it passed a valid pressure test that meets requirements of Clause 7.4 of CSA B620. This is not true, since the highway tank was not properly pressure tested as per Clause 7.2.7.2 of CSA B620, which states each compartment must be individually pressure tested.

## OWNERS

- 1) Owners of non-compliant multi compartment highway tanks equipped with crossover piping without an isolation valve **must** empty, clean and purge their highway tanks and remove them from dangerous goods service.
- 2) Before returning a highway tank to dangerous goods service, owners must:
  - Contact the original manufacturer to discuss corrective actions required to modify, repair and recertify the highway tank for dangerous good service ; **or**
  - Modify it according to Clause 7.6 of CSA B620 so that it complies with the applicable requirements under CSA B620 and B621.

## POTENTIAL REMEDIES FOR HIGHWAY TANKS EQUIPPED WITH CROSSOVER PIPING

It is possible to modify most highway tanks equipped with crossover piping to comply with CSA B620. Such modifications include, but are not limited to:

- 1) Modifying the tank **into a single compartment** highway tank as per CSA B620. In this case, the metal identification plate must clearly list only one compartment. Compliance may be achieved by:
  - a) Retaining the crossover piping, or
  - b) Modifying the highway tank per B620 by converting the bulkhead into a baffle, if the crossover piping is removed.
- 2) Modifying the tank **into a multi compartment** highway tank as per CSA B620. In this case, the metal identification plate must clearly list all compartments. The owner may either:
  - a) Remove the crossover piping, or
  - b) Install an isolation valve in the crossover pipe.

**NOTE:** Existing internal bulkheads may not meet the requirements of B620. A B620 Design Engineer **must** verify the tank design and document the verification to ensure compliance with the standard. Any modifications to the bulkheads or tank must be done in compliance with the most recent edition of B620.

### IMPORTANT:

1. Modifications must meet the requirements in Clause 7.6 of CSA B620.
2. Only a facility registered under CSA B620 is authorized to perform the modification.
3. DOT specification tanks:
  - May be modified by a facility in the United States if it is registered with the US DOT and authorized to perform the modification in accordance with 49 CFR.
  - May be modified by a facility in Canada registered with Transport Canada, with the appropriate functions listed in their Certificate of Registration.

**Important:** The US DOT will not recognize modifications done by a Canadian facility that is not registered with them. This will make the tank ineligible for dangerous goods service in the United States, **unless** the facility is also registered under 49 CFR to perform modifications of that tank type.

## ADDITIONAL INFORMATION FOR POTENTIAL MODIFICATIONS

An owner who has the highway tanks modified and returned to dangerous goods service, **must** attach a modification plate **to the tank**, which:

- Lists the design changes (e.g. two compartments were converted to one, bulkhead was converted to a baffle, etc.); and
- Is marked and attached as set out in Clauses 5.1.6.4 and 7.6.8 of CSA standard B620.

## QUESTIONS

If you have technical questions about CSA B620 or B621, please send them to [tdgcontainers-tmdcontenants@tc.gc.ca](mailto:tdgcontainers-tmdcontenants@tc.gc.ca)

Please include ***"Highway Tanks – Crossover piping"*** in the subject line.