



VT-0053

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07-17

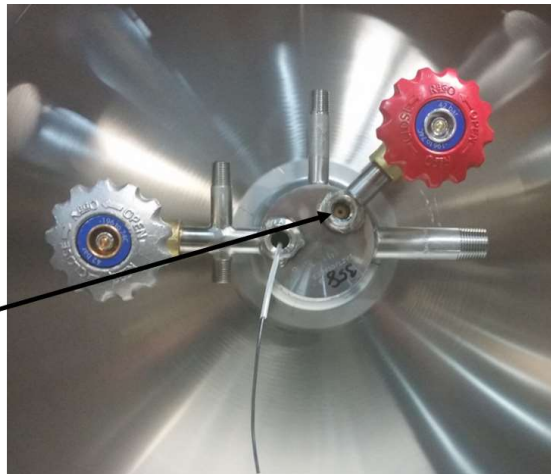
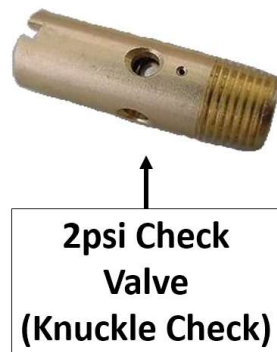
CWH/BBK

**Chart LNG
2psi Check Valve Removal/Replacement
(Knuckle Check)**

OVERVIEW

This document outlines the process for removing and replacing a Chart 2psi knuckle check valve (PN: 10524262 replaced by 21335176), is also known as a knuckle check. Its purpose is to aid the economizer in lowering tank pressure during use and maintaining a proper vapor pressure in the tank. Low engine supply pressure or constant high tank pressures may be indicative of a 2psi check valve issue. Refer to VT-0049 Chart LNG Tank General Troubleshooting.

2psi Check Valve Replacement (Knuckle Check)



TOOLS REQUIRED

Knuckle Check Removal Tool – PN: 21492661

Nickel-impregnated tape - PN: 11811511

Flaretite Seals –PN: 11751555

Leak Detector

½” box end wrench

½” shallow socket

In.-lb. torque wrench

Assorted Wrenches

SAFETY

Proper PPE – gloves, safety goggles, long sleeves, long pants, closed toe shoes, etc.

This procedure is intended for use by trained technicians with experience on systems using LNG. Review all applicable safety documents before beginning this procedure.



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WARNING: LNG and LNG vapor is near or below -200°F/-129°C. Care must be taken as liquid, vapor, piping, components, and tools can reach cryogenic temperatures and burn exposed skin on contact

REMOVAL/REPLACEMENT

NOTE: Attempting to remove the knuckle check valve (KCV) while the tank knuckle is frozen will be difficult and may damage the knuckle check. To ease removal of the knuckle check it is recommended to allow the knuckle to warm to above freezing prior to removal.

Before removing/replacing the knuckle check valve (KCV) it is required to defuel and depressurize the LNG tank prior to attempting repairs. Follow VT-0017 Manually Defueling a Chart LNG Tank. Once the tank has been defueled and depressurized use two wrenches to stabilize and remove the economizer J-tube and the J-tube elbow closest to the red handled valve.



Locate the knuckle check in the port where the elbow was just removed. Note the positioning of the tabs in the knuckle check face. Align the tabs on the removal tool to match the knuckle check and insure they are fully engaged before trying to loosen.

To remove the knuckle check valve, use a 1/2" box end wrench on the tools wrench flats while pushing inward on the end of the tool with your other hand. Pushing inward will ensure the tool cannot slip out of the slots in the knuckle check. Turn the removal tool counterclockwise to loosen the check valve.

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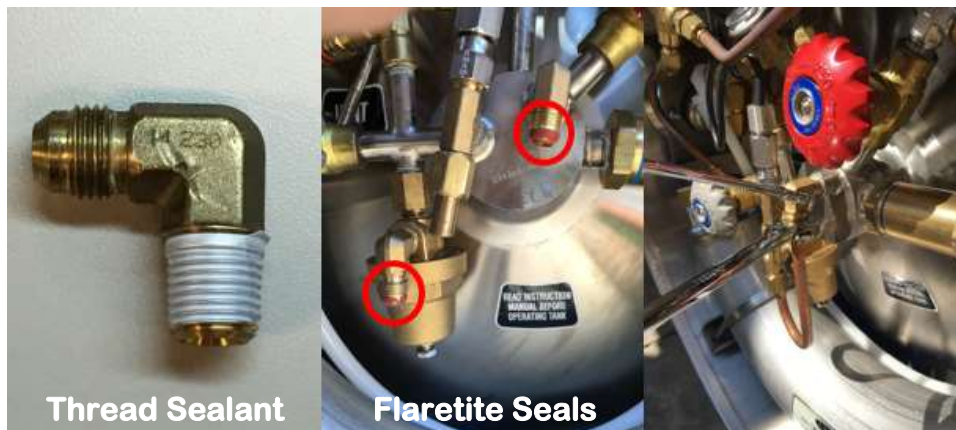
Note: Chart is no longer advocating the use of any kind of Loctite or thread sealant on the knuckle check valve threads.

INSTALLATION

Use an internal wire brush to clean the threads inside the knuckle to ensure no debris or thread sealant/Loctite is present. Do not use any Loctite or thread sealant on the on the threads. Install the knuckle check onto the tool. Install the knuckle check into the knuckle and hand tighten.

NOTE: The knuckle check will only turn a couple of threads into the knuckle.

Use an **inch pound** torque wrench to finish tightening the knuckle check to 34 in./lbs. **DO NOT OVERTIGHTEN!** Clean/replace fittings, tape pipe threads per VT-0030, install new Flaretite seals on flared fittings, and reinstall plumbing. Refuel the tank and check all connections for leaks before returning the unit to service.



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