

The following pages are to be used as a guide by operating Crews and Maintenance personnel to determine the proper water level and fill procedure on GE locomotives.

Classification of GE cooling models:

All GE locomotive cooling systems use a water on demand system to provide engine cooling.

- **AC 4400 & AC EVO GEN I, with software controlled WET/WET.**

- **Winter mode:** The cooling water is present in the Rads when the engine is running.

- **Non-winter mode:** The cooling water is only present in the Rads when the locomotive calls for cooling and this can cause the level in the water sight glass to change anytime the locomotive is Running.

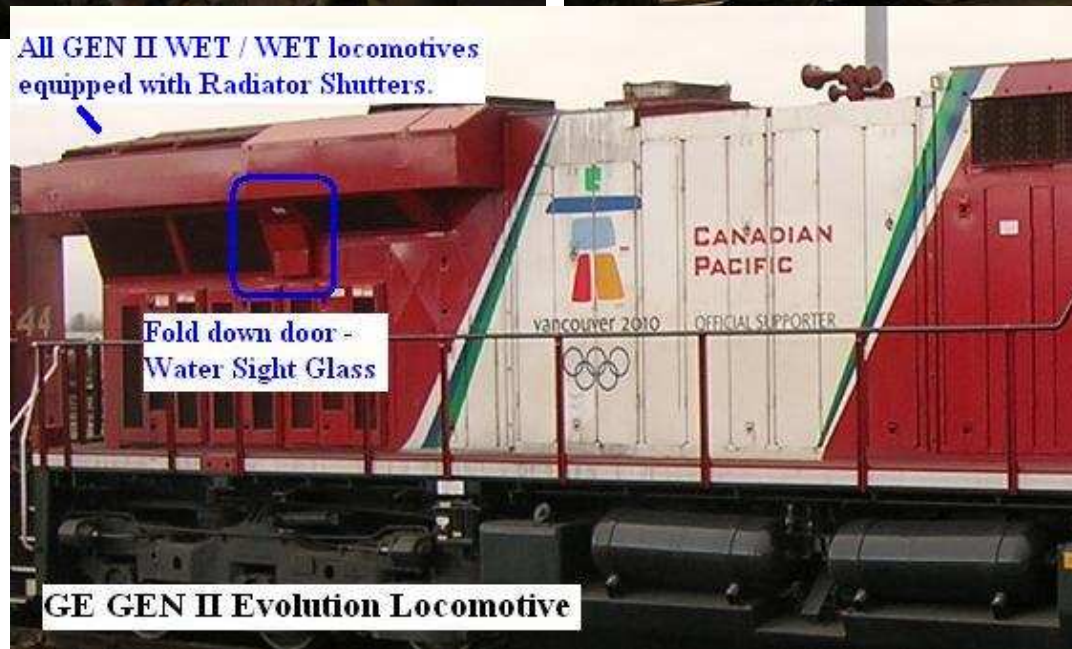
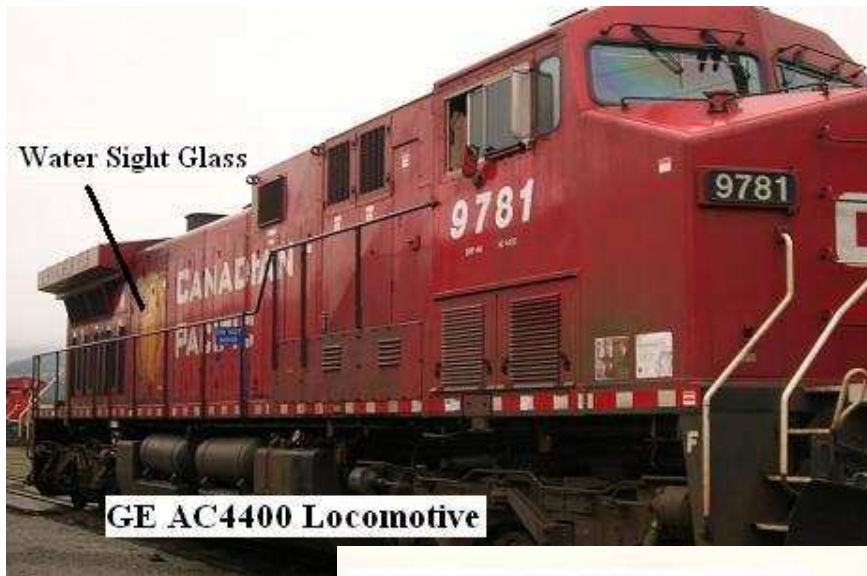
- **AC EVO GEN II, Full time mechanical WET/WET.**

The cooling water is present in the Rads when the engine is running

Before attempting to fill water on any GE locomotives, reference the water filling instruction located on the car-body door by the water sight glass or water expansion tank for details. It is important to determine the correct water level in the given mode before filling water.

WARNING! Overfilling can result in cooling system failure.

Pictures of GE Locomotives

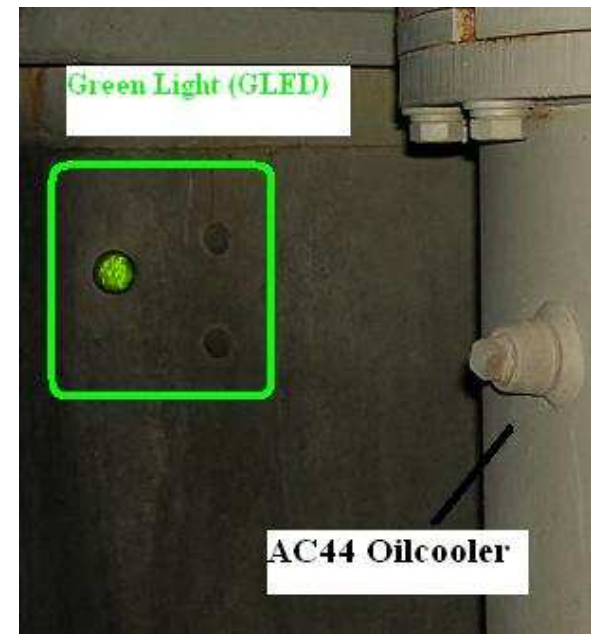


AC4400 Cooling System

To determine proper water level on AC4400 Locomotives

WARNING: Burn Injury Risk, Do not remove radiator cap cover without Authorization.

1. Allow the locomotive to Idle for at least 10 min to allow water to drain from Rads into the tank.
2. Open the carbody doors at the water tank area. (Engineer's side)
3. Pull the Vent valve and hold for ONE minute.
4. Observe the Green light (GLED) under the water tank.
 - **If GLED is "ON"**
 - The cooling system is in the non-winter mode
 - Water is OUT of the rads and in the tank
 - Check the proper water level referencing **"WITH GLED ON"** markings on the sight glass. (**See –Appendix A**)
 - **If GLED is "OFF"**
 - The cooling system is in the winter mode
 - Water remains in the rads.
 - Check the proper water level referencing **"WITH GLED OFF"** markings on the sight glass. (**See – Appendix A**)



To fill AC4400 Cooling System to proper level:

The locomotive can be filled with the engine at idle or dead

WARNING: Burn Injury Risk, Do not use radiator fill adaptor to fill water.

1. At idle or when engine shut down.
2. Open the spring loaded Fill valve to relieve pressure before filling.
3. Attach the water hose to the 2 ears Chicago coupling.
4. Turn on water supply hose.
5. Fill until the water level to:
 - **“FULL AT IDLE WITH GLED ON”** mark, if engine is idling with green light “ON”
 - **“FULL AT IDLE WITH GLED OFF”** mark, if engine is idling with green light “OFF”
(See – Appendix A)
6. Turn off the water supply hose and slowly release the Fill valve (NOTE: Make sure the fill valve is returned to its normal position during engine operation).
7. Verify the sight glass for correct water level.



EVO GEN I Cooling System

To determine proper water level on EVO GEN I Locomotives

WARNING: Burn Injury Risk, Do not remove radiator cap cover without Authorization.

1. Allow the locomotive to Idle for at least 10 min to allow water to drain from Rads into the tank.
2. Open the carbody doors by the turbo. (Engineer's side)
3. Push the Vent valve and hold for ONE minute.
4. Observe the Green light (GLED) towards the bottom of water fill column.
 - **If GLED is "ON"**
 - The cooling system is in the non-winter mode
 - Water is OUT of the rads and in the tank
 - Check the proper water level referencing **"WITH GLED ON"** markings on the sight glass. **(See – Appendix A)**
 - **If GLED is "OFF"**
 - The cooling system is in the winter mode
 - Water remains in the rads.
 - Check the proper water level referencing **"WITH GLED OFF"** markings on the sight glass. **(See – Appendix A)**



To fill GEN I EVO Cooling System to proper level:

The locomotive can be filled with the engine at idle or dead

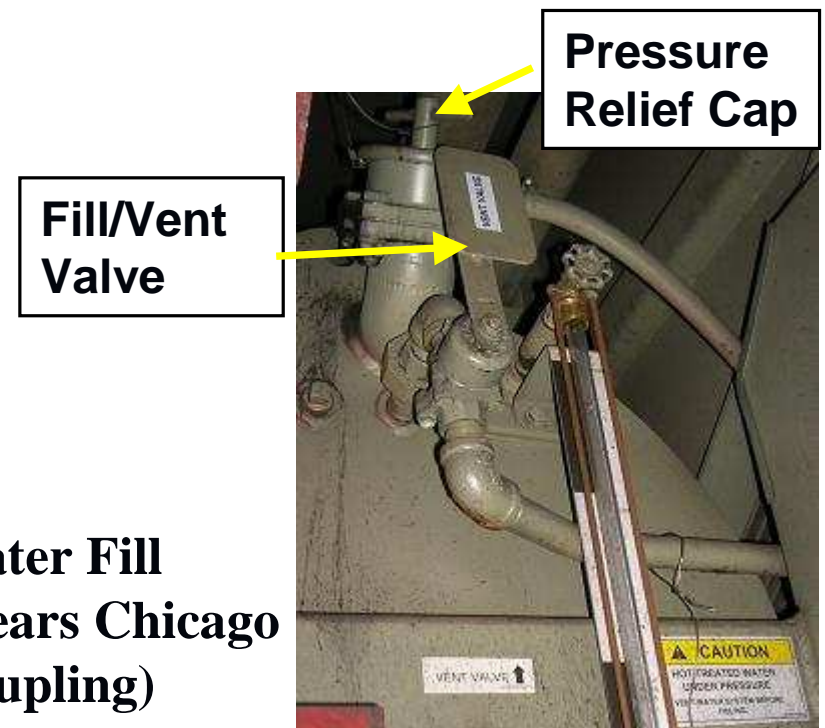
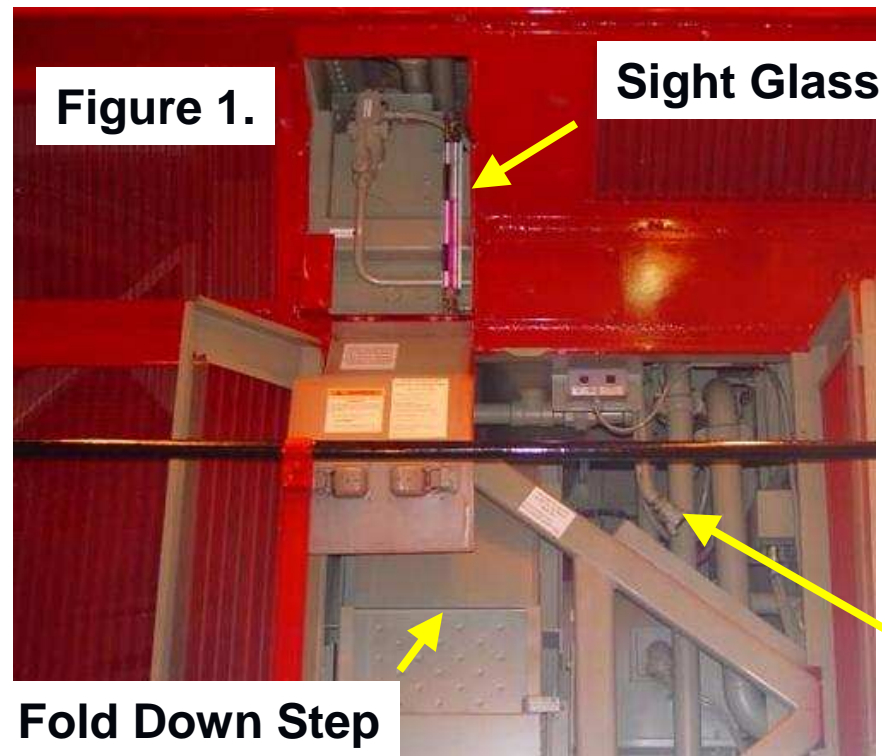
WARNING: Burn Injury Risk, Do not use radiator fill adaptor to fill water.

1. At idle or when engine shut down.
2. Vent the system for 60 Seconds to get an accurate sight glass water level reading.
3. Attach the water hose to the 2 ears Chicago coupling.
4. Turn the 3-Way valve handle to vertical position **(See – Appendix B)**
5. Turn on water supply hose.
6. Open the Vent valve and fill until the water level is at:
 - **“FULL AT IDLE WITH GLED ON”** mark, if engine is idling with green light “ON”
 - **“FULL AT IDLE WITH GLED OFF”** mark, if engine is idling with green light “OFF”
 - **“FULL AT ENGINE SHUT DOWN”** mark, if engine is shut down.**(See–Appendix A)**
7. Turn off the water supply hose and slowly release the Vent valve (NOTE: Make sure the Vent handle is fully closed).
8. Turn the 3-Way valve handle to horizontal position **((See – Appendix B)**
9. Vent the system for 60 Seconds and re-verify the correct sight glass level.

EVO GEN II: Full time mechanical WET/WET

To determine proper water level on EVO GEN II Locomotives :

1. Open the fold down side panel forward of the radiator cab. (engineer's side)
2. Pull the Fill/Vent valve and hold for ONE minute (**NOTE: Steam will vent out of the Chicago fitting while venting system.**)
3. The water level can then be observed in the sight glass. (See – Appendix A)



To fill GEN II EVO Cooling System to proper level:

The locomotive can be filled with the engine at idle or dead

WARNING: Burn Injury Risk, Do not use radiator fill adaptor to fill water.

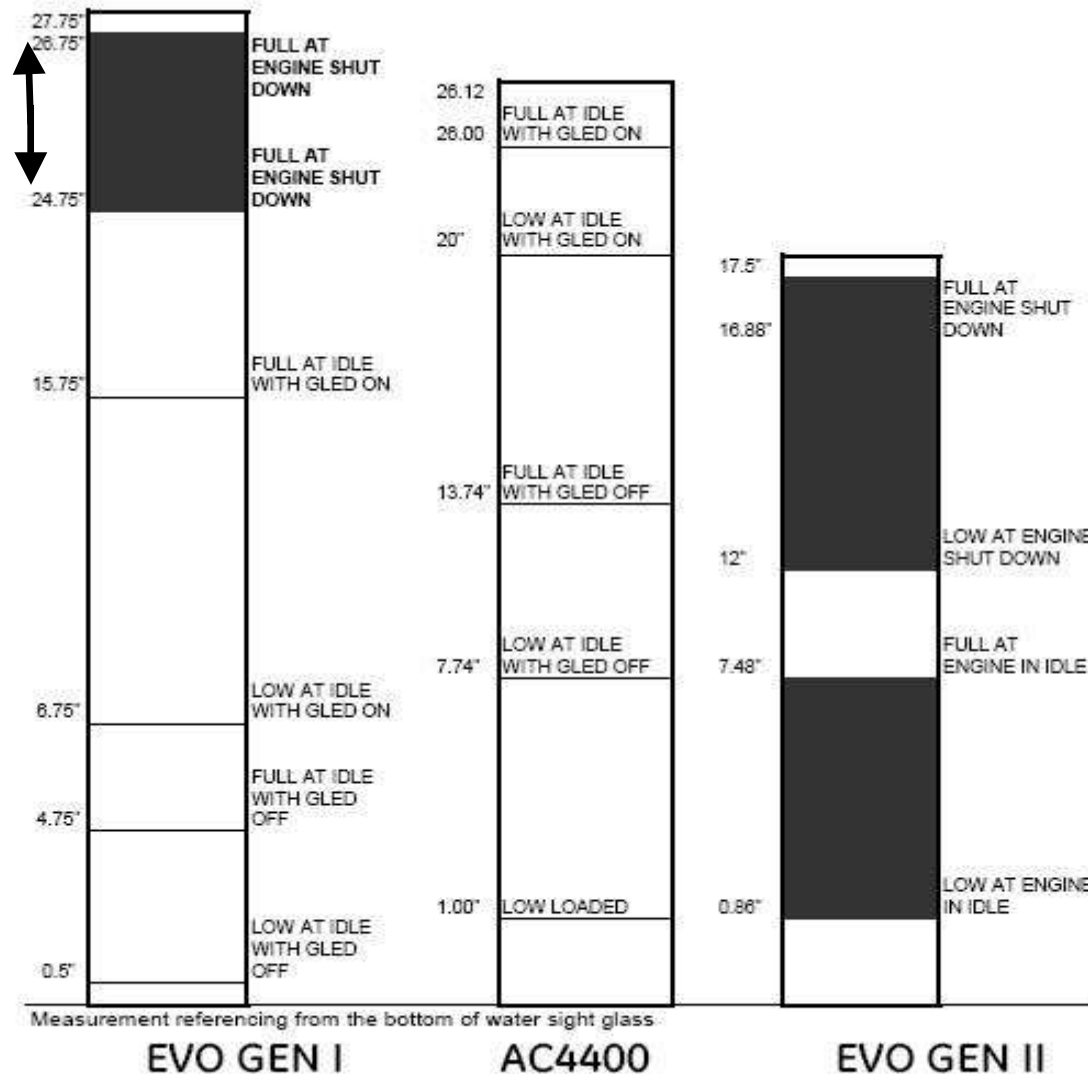
1. At idle or when engine OFF.
2. Vent the system for 60 Seconds to get an accurate sight glass water level reading.
3. Attach the water hose to the 2 ears Chicago coupling.
4. Turn on water supply hose.
5. Open the Fill/Vent valve and fill until the water level is at:
 - **“FULL AT ENGINE IDLE”** MARK, if engine is idling
 - **“FULL AT ENGINE OFF”** if engine is shut down.
(See – Appendix A)
6. Turn off the water supply hose and slowly release the Fill valve.
7. Remove the water fill hose.
8. Vent the system for 60 Seconds and re-verify the correct sight glass level.



FULL AT
ENGINE OFF
(Shut Down).

FULL AT
ENGINE IDLE.

Appendix A: Sample of Water Sight Glass Decals



4 easy steps to determine water level on GE locomotives

- Green Light (GLED) “ON” or “OFF”
- Engine “IDLE” OR “SHUT DOWN”
- Vent the cooling system for 60 sec
- Observe sight glass level

If you have any questions please contact the NMC or a GE Site.

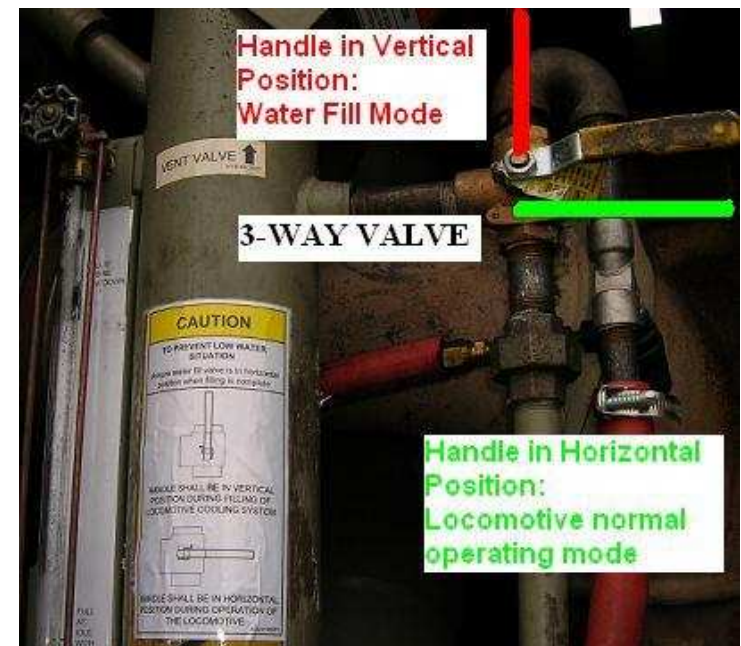
Appendix B: Water Overfill Protection System.

EVO GEN I locomotives are equipped with Water Overfill Protection.

3-way valve controls filling and draining of excess water (Handle positioning):

Vertical: Water Fill Mode

Horizontal: Locomotive Operating Mode



DESCRIPTION:

Locomotive cooling system is being overfilled. While locomotive is in Mode 3 cooling, overfill drain valve opens draining all excess water into the engine sump.