HYUNDAI Technical Service Bulletin	GROUP **CAMPAIGN**	NUMBER **22-01-081H**
	DATE **OCTOBER 2022**	MODEL(S) **NEXO (FE)**

SUBJECT: INLET FITTING VALVE REPLACEMENT (CAMPAIGN T9B)

★ IMPORTANT

***** Dealer Stock and Retail Vehicles *****

Dealers must perform this campaign on all affected vehicles prior to customer retail delivery and whenever an affected vehicle is in the shop for any maintenance or repair.

Access the "Vehicle Information" screen (VIS) via WEBDCS to identify open campaigns.

Description: Certain 2019-2021MY NEXO (FE) vehicles may exhibit a micro-leak in the inlet fitting valve area caused by a part that is out of specification. This bulletin outlines the procedure to replace each Inlet Fitting Valve on all three storage tanks.

STUI

This TSB includes STUI pictures as a requirement. Where indicated, please include a copy of the RO or last 6 digits of the VIN and date of repair on a piece of paper. Ensure the VIN and date of repair are clearly visible. Finally, please ensure all captured pictures are completed according to the steps in this TSB and uploaded to STUI. All claims submitted that have illegible, incomplete, missing, or incorrect picture(s) are subject to debit.

Applicable Vehicles: Certain 2019MY ~ 2021MY NEXO (FE) vehicles.

NOTICE

- The TSB repair procedure MUST be performed at an authorized Hyundai NEXO fuel cell vehicle dealer and by a Hyundai Expert (or above level) technician who has successfully completed the Fuel Cell Electric Vehicle Training Instructor Led Training course (SVCHFCEVTRAIN222_1097).
- Refer to OSHA standard 1910.137 - Electrical Protective Equipment for PPE inspection and testing requirements and the NEXO shop manual for PPE usage.

Parts Information:

PART NAME	IMAGE PART NUMBER	REMARKS
INLET FITTING VALVE	  35994-M5001QQH	1KIT One Inlet fitting valve for each storage tank (3 total) Suction nozzle 1EA
Sealant Threebond 1211	 21451-33T02QQH	1 tube can be used for about 30 vehicles
Hydrogen Leak Detector		Part of Dealer Nexo SST Kit
SNOOP RC Leak check fluid	 Snoop RC	In case the Hydrogen Leak Detector does not work.
Suction Tool	 09356-M5100	Supplied Directly

Warranty Information:

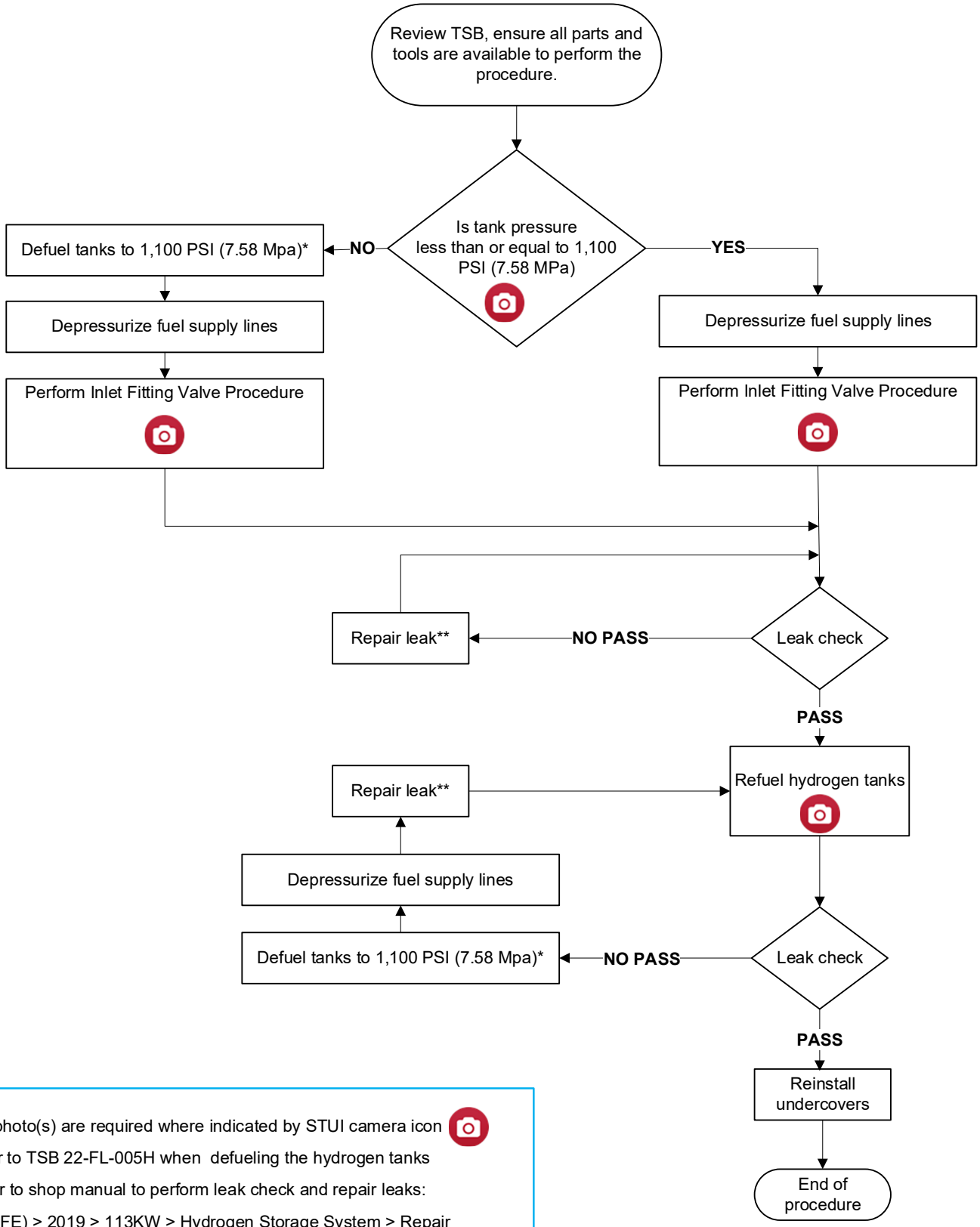
OP CODE	OPERATION	OP TIME	SUBLET	CAUSAL PART	NATURE CODE	CAUSE CODE
20D007R1	If - Hydrogen tank pressure is 1,100 PSI or less and fuel supply lines are depressurized (i.e. already performed via separate repair/TSB/campaign). Then - perform **INLET FITTING VALVE REPLACEMENT (3EA)**	1.1 M/H	$1.10	35994-M5001QQH	B21	ZZ1
20D007R2	If - Hydrogen tank pressure is 1,100 PSI or less (i.e. customer drove in with low fuel) and fuel supply lines need depressurization. Then - depressurize fuel supply lines and perform **INLET FITTING VALVE REPLACEMENT (3EA)**	1.5 M/H	$151.10			
20D007R3	If - Hydrogen tank pressure is 1,101 PSI or more. Then - Defuel (vent) tanks to 1,100 PSI or less and depressurize fuel supply lines and perform: **INLET FITTING VALVE REPLACEMENT (3EA)**	2.3 M/H	$151.10			

NOTE 1: Submit claim on Campaign Claim Entry Screen
NOTE 2: Op Code **20D007R1** accounts for the related defueling (venting), depressurizing fuel supply lines, and refueling of vehicle costs being covered via a separate repair claim outside of this TSB.
NOTE 3: Op Codes **20D007R2** and **20D007R3** include $150.00 for transportation of the vehicle to the fueling station ($50) and fuel to refuel vehicle ($100).
Please **DO NOT** submit a separate claim with duplicate labor or sublet. If defueling/refueling is required for overlapping repairs/campaigns, submit the applicable labor operation for **defueling/refueling on ONLY ONE** of the claims.
NOTE 4: All Op Codes include $1.10 for Threebond Sealant per vehicle.
NOTE 5: If a part that is not covered by this campaign needs replacement while performing this campaign, and the affected part is still under warranty, submit a separate claim using the same repair order. If the part is out of warranty, submit a prior approval request for goodwill consideration prior to the work.
NOTE 6: The incident parts are subject to callback through the normal Warranty Technical Center (WTC) parts return process. **Claim is subject to debit if the part is requested and not returned.**
NOTE 7: Claim must include STUI pictures that are clearly visible along with a piece of paper displaying the last 6 digits of the VIN and date of the procedure. **Claims submitted with illegible, incomplete, missing or incorrect pictures are subject to debit.**

NOTICE

- Be sure to check vehicle for outstanding campaigns requiring defueling and perform all repairs.

INLET FITTING VALVE REPLACEMENT



STUI photo(s) are required where indicated by STUI camera icon

*Refer to TSB 22-FL-005H when defueling the hydrogen tanks

**Refer to shop manual to perform leak check and repair leaks:

Nexo (FE) > 2019 > 113KW > Hydrogen Storage System > Repair Procedures> Hydrogen Gas Leak Test > For Hydrogen Storage System (HSS)

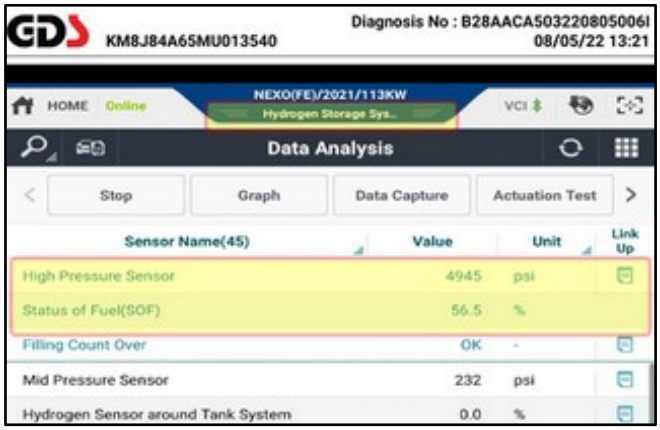
SERVICE PROCEDURE: Depleting Residual Fuel Supply Pressure & Defueling

1. Place the vehicle in **READY** mode using the **START** / **STOP** push button. Photograph the fuel gauge level and a paper showing the last **6 digits** of the VIN or RO #, and the date of defueling. Similar to the photo to the right.

STUI

Using STUI, photograph the fuel gauge. Include in the photos a piece of paper containing the last 6 digits of the VIN or the RO #, and the date of the defueling. Ensure the photo is in focus and captures the fuel gauge display, odometer, and note. Upload the photo to STUI.

2. Connect the GDS-M, select the **HMU,** and then confirm the storage tank pressure.

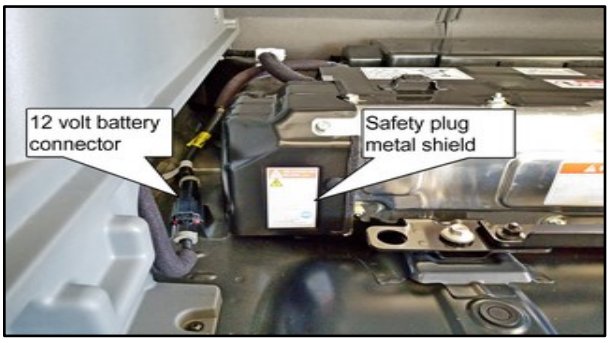


3. If storage tank pressure is **less than 1,100 PSI**, then deplete residual fuel supply pressure by referring to **TSB 22-FL-005H—VENTING NEXO FUEL CELL ELECTRIC VEHICLES** or the latest version.

4. If storage tank pressure is **greater than 1,100 PSI**, then defuel storage tanks to less than 1,100 PSI and deplete residual fuel supply pressure by referring to **TSB 22-FL-005H—VENTING NEXO FUEL CELL ELECTRIC VEHICLES** or the latest version.

12 Volt and High Voltage Circuit Disconnection

1. In the rear cargo area, remove the floorboard and cargo tray to access the 12 volt battery connector and high voltage battery Safety Plug.



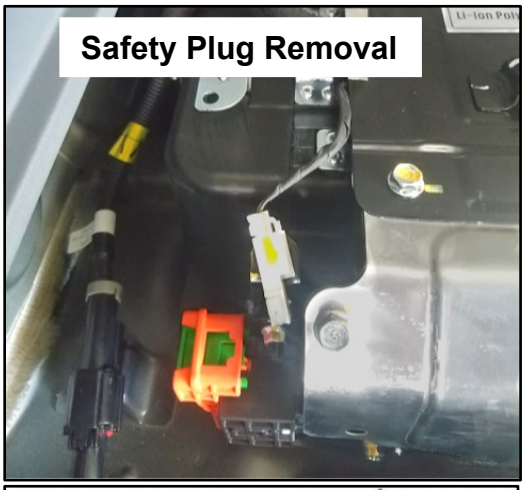
2. Disconnect the 12 volt battery negative (-) connector.

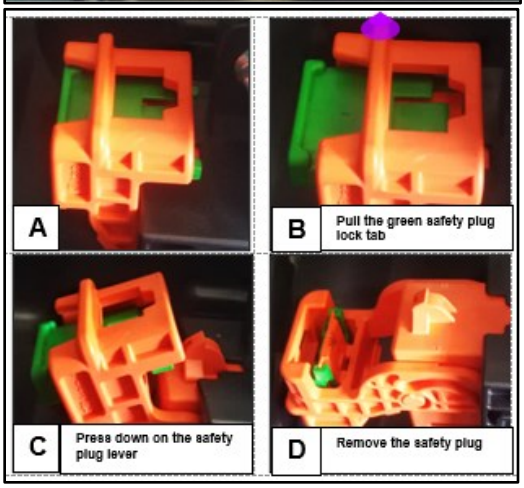
⚠WARNING

- **Electrocution hazard - Refer to the shop manual - Battery Control System > High Voltage Battery Handling Guide and follow the High Voltage Shut-off Procedure.**
- **Before performing the service procedure, ensure proper Personal Protection Equipment (PPE) is worn to prevent injury. Verify PPE is not expired and in proper working condition.**

3. Remove the metal shield to access the High Voltage Safety Plug.

4. Follow A-D below to remove the orange high voltage safety plug.
   Store the removed safety plug in a secure location outside and away from the vehicle.

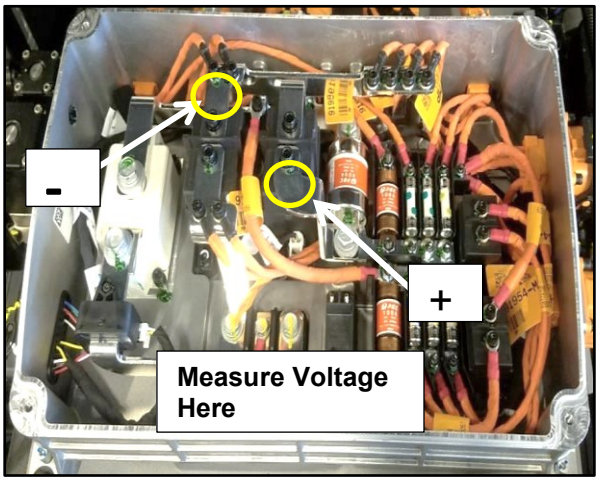




5. Wait 5+ minutes to allow the high voltage system capacitor to discharge.

6. Open the hood. Remove the junction box trim and cover.
   High voltage junction box cover: Assembly bolt torque: 9.8 -~11.8 N.m
   (1.0 ~ 1.2 kgf.m, 7.2 ~ 8.7 lb-ft

7. Using a Digital Volt Ohm Meter (DVOM), measure the voltage across the inverter positive and negative bus bar terminals to inspect for capacitor discharge. If the measured voltage is below 30V, the High Voltage Circuit is properly shut down.



⚠ DANGER

- The High Voltage Junction Box (HVJB) may be electrically energized up to 450 volts.

Service Procedure:

1. Raise the vehicle a lift according to the Service Manual.

2. Remove the floor undercover (A) after removing the fastening bolts.

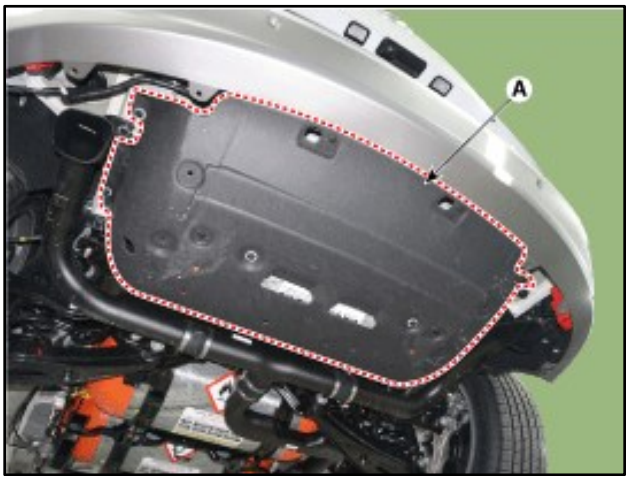
Tightening Torque:

5.8~8.7 lb-ft. (0.8 ~1.2 kgf.m, 7.8 ~ 11.8 N.m)

3. Remove the rear hydrogen tank undercover (A) after removing the fastening bolts.

   Tightening Torque:

   7.4 ~ 9.9 N.m. (0.75 ~ 1.01 kgf.m, 5.4 ~ 7.3 lb.f-ft)



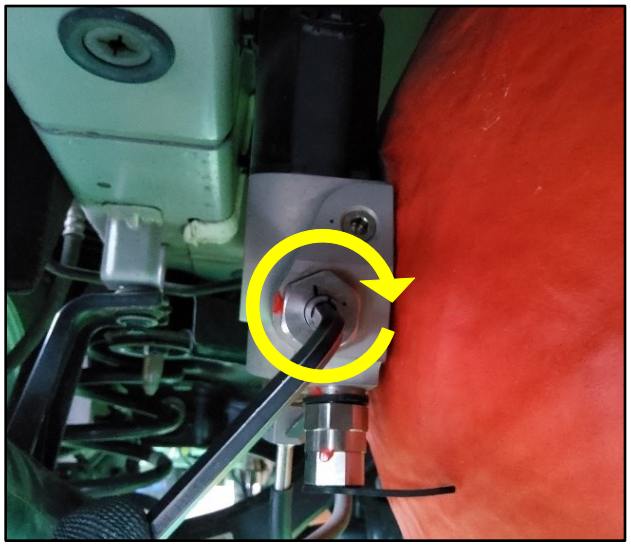
4. Close the manual valves on all **3** hydrogen tanks.

   Using a **6mm** Allen wrench turn the manual valve clockwise until it stops.

   Exceeding closing torque specification, may damage the manual valve.

   Closing Torque:

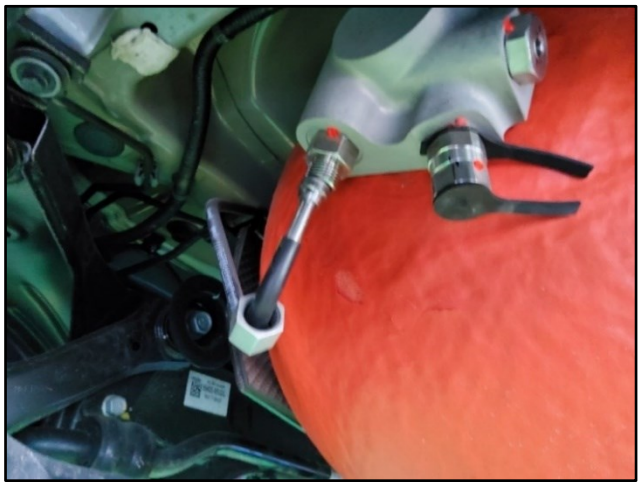
   3.6 ~ 7.2 lb-ft (4.9 ~ 9.8 Nm)

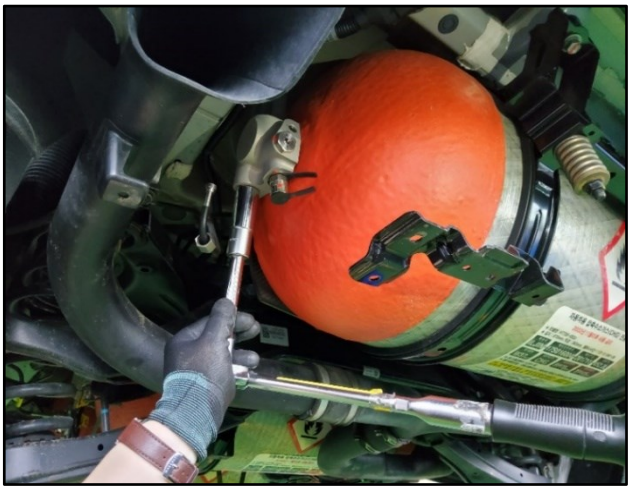


NOTICE

- Some components of the manual valve may be damaged if over-torqued.

5. Loosen the fuel supply pipe and remove the inlet fitting valve using a socket wrench.





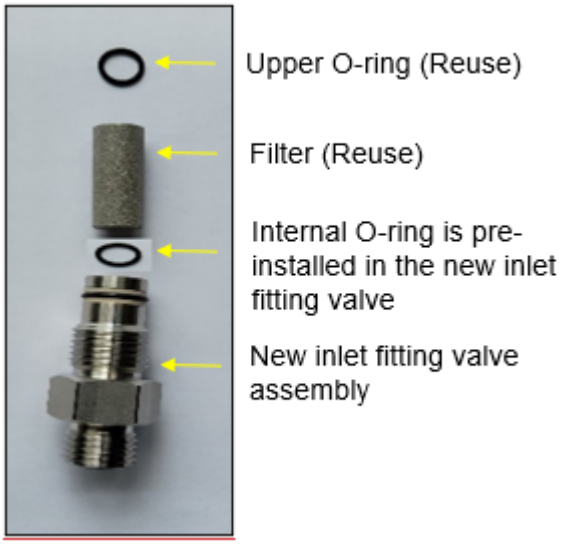
Tightening Torque: Fuel supply pipe
32.4~38.3 N.m. (3.3~3.9 kgf.m, 23.9~28.2 lb.f-ft)

Tightening Torque: Inlet fitting valve
98.1 N.m. (10 kgf.m, 72.4 lb.f-ft)

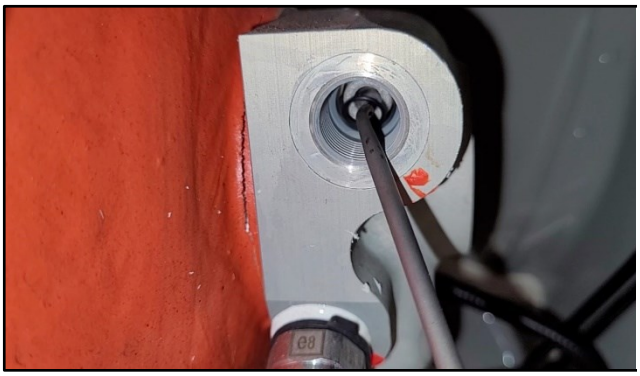
NOTICE

- The filter and the O-ring above the inlet fitting valve may fall out of the tank valve assembly while removing the inlet fitting valve. If separated, keep the parts clean until they are reinstalled.
- If any foreign substance enters the filter or the O-ring, it may disturb the seal of the valve.

* Assembly order:
Tank valve – O-ring – Filter – O-ring – Inlet fitting valve.



6. Check the top of the original Inlet Fitting Valve to be sure the internal O-ring is in place. If it is not, check inside the Inlet Fitting Valve threaded opening for the O-ring, if it is present, gently remove it from the filter with a pick.

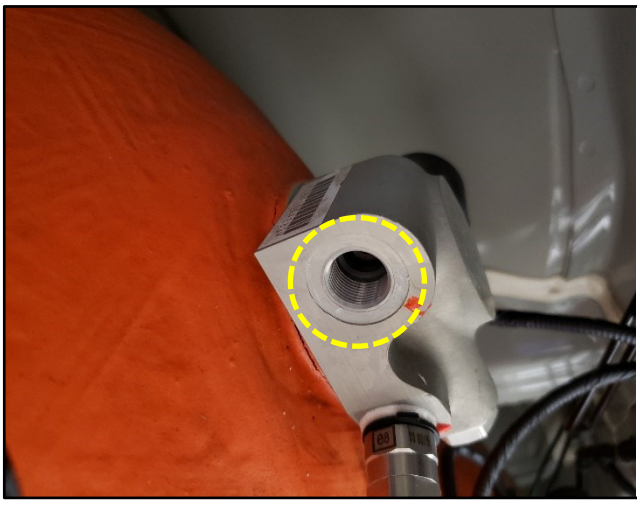


NOTICE

- If the old internal O-ring is left on the filter in the threaded opening when installing the new Inlet Fitting Valve, a leak can occur.

7. After removing each fuel supply line, cover the open end with a clean rag to prevent debris from entering the line.

8. After removing the valve, clean the sealant from the threads in the area shown using an appropriate tool such as a pick or razor blade.

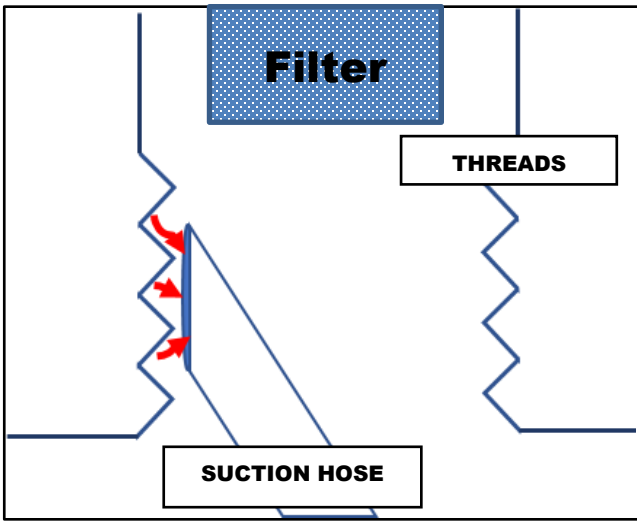


9. Attach an air hose to the suction tool. Check the tool has good suction at the end of the hose and the suction works properly while turning on and off. Use the tool to suction any foreign substance from the threads.

10. Remove any foreign material from the screw threads. Insert the suction hose only about 1cm into the thread opening. (Suction should be performed around 30 seconds.)

NOTICE

- Use care not to dislodge the filter and upper O-ring. The separated filter and O-ring may be contaminated or lost.
- See page 11, step 5 for illustration.

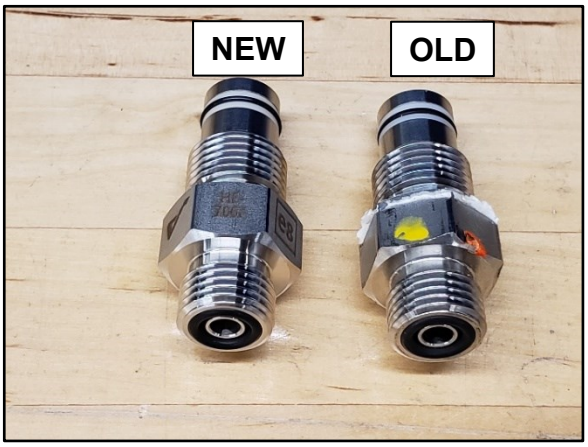


11. Remove an inlet fitting valve from its vacuum package. Each valve is packaged separately.

NOTICE

- Do not touch the O-ring installed on the inlet fitting valve with your hand. Be careful not to contaminate the inlet fitting valve when you take it out of the vacuum package.

12. Be sure to use the new Inlet Fitting Valve and do not confuse it with the old Inlet Fitting Valve. The new valve has stamped markings along the wrench flange area and the old valve does not. See image for comparison.



13. The correct assembly of the reused parts and the new parts are shown.

NOTICE

- The filter and the O-ring above the inlet fitting valve may fall out of the tank valve assembly while removing the inlet fitting valve. If separated, keep the parts clean until they are reinstalled.
- If any foreign substance enters the filter or the O-ring, it may disturb the seal of the valve.

14. Install a new inlet fitting valve.

    Hand-tighten the fuel supply pipe nut onto the inlet fitting valve and then torque the pipe nut to specification.

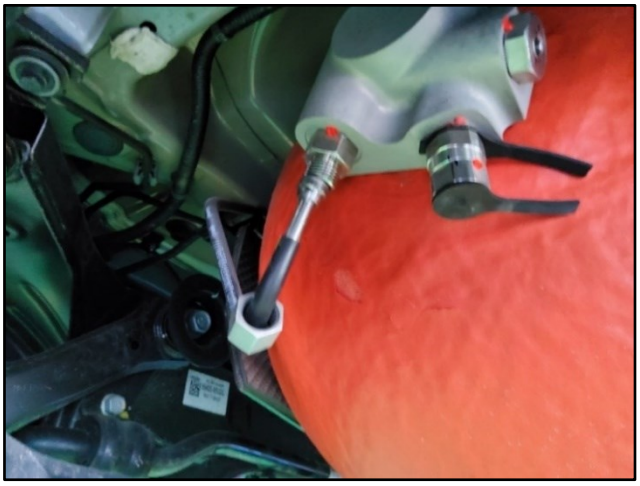
Tightening Torque: Inlet fitting valve
98.1 N.m. (10 kgf.m, 72.4 lb.f-ft)

Tightening Torque: Fuel supply pipe
32.4~38.3 N.m. (3.3~3.9 kgf.m, 23.9~28.2 lb.f-ft)

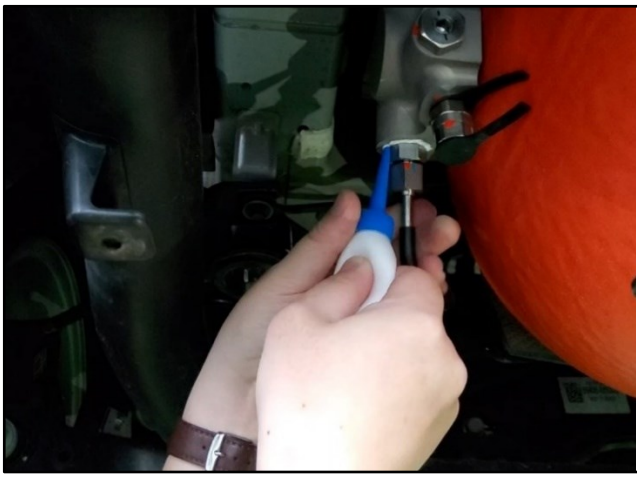
NOTICE

- Ensure the filter is in place before assembling the new Inlet Fitting Valve to the Tank Valve assembly.
- Verify the mating surfaces of the fuel tube and inlet fitting valve are clean before assembling them together. If any foreign substance enters the seal, it may disturb the seal of the valve.

*** Assembly order:**
Tank valve – O-ring – Filter – O-ring – Inlet fitting valve.



15. After replacing the valve, apply sealant at the location shown. Close the cap after applying sealant to prevent clogging.



NOTICE

- Apply the sealant by using the nozzle included in the box.
- Wait 24 hours before washing the car to allow sealant to cure.

NOTICE

- Use gas detector or Snoop liquid leak detector to test if there is any gas leakage.
- -Do not apply Snoop liquid on the part where the sealant is applied.
- -If there is any leakage on the part where the sealant is applied, the sealant may inflate.

16. **STUI**

Using STUI, take THREE pictures; one picture for each of the three Inlet Fitting Valves replaced. (Similar to the photo to the right)
Include in the photo a piece of paper containing the last 6 digits of the VIN or the RO #, the date of the installation of the new Inlet Fitting Valve. Ensure the image is in focus and includes the Inlet Fitting Valve, the note, and the lettering on the tank valve. Upload the photo to STUI.

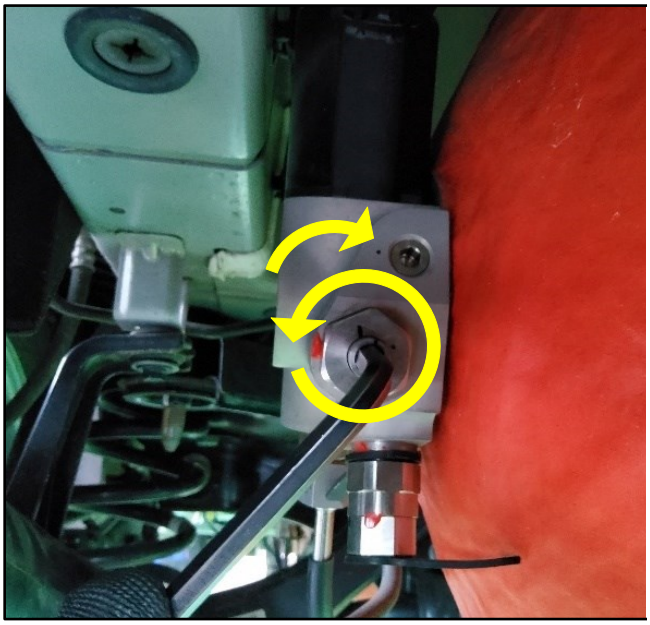
17. Open the manual valves on all **3** hydrogen tanks.

    Using a **6mm** Allen wrench turn the manual valve counter-clockwise until it stops then rotate manual valve one half turn clockwise.

    Exceeding opening torque specification, may damage the manual valve.

    Opening Torque:

    3.6 ~ 7.2 lb-ft (4.9 ~ 9.8 Nm)



NOTICE

- Some components of the manual valve may be damaged if over-torqued.

18. Reconnect the 12-volt and High-voltage batteries. Refer to page 6.

19. With the vehicle in ready mode, perform a leak check of lines, fittings and components removed and/or replaced, using a Hydrogen leak detector.

    Refer to the shop manual:

    Nexo (FE) > 2019-2021 > 113KW > Hydrogen Storage System > Repair Procedures> Hydrogen Gas Leak Test > For Hydrogen Storage System (HSS)

    If no leak is found, then proceed to the next step. Do not reinstall the under covers until final leak check is performed.

    If a leak is found. Refer to TSB 22-FL-005H—VENTING NEXO FUEL CELL ELECTRIC VEHICLES to perfom “Preparation for Replacement of Hydrogen Components” and “Depleting Residual Fuel Supply Pressure”. Repair the leak(s), then perform this step again until no leak is found.

20. Refuel hydrogen storage tanks to full at a local hydrogen station.

    Refer to the station websites below to confirm station availability before driving or towing vehicle to the station:

    - https://cafcp.org/stationmap
    - https://h2-ca.com/

21. After refueling the vehicle, with the key in the ON positon, photograph the fuel gauge level and a paper showing the last six digits of the VIN or RO #, and the date of refueling. Similar to the photo to the right.

STUI

Using STUI, photograph the fuel gauge. Include in the photo a piece of paper containing the last 6 digits of the VIN or the RO #, the date of the refueling. Ensure the fuel gauge display, odometer, and note are captured and in focus. Upload the photo to STUI.

22. After the Hydrogen tanks have been refueled. Put the vehicle on a lift and place the vehicle into READY mode using the PBSS. Perform a leak check of hydrogen fuel components that were replaced, using a Hydrogen leak detector.

    Refer to the shop manual:

    Nexo (FE) > 2019-2021 > 113KW > Hydrogen Storage System > Repair Procedures> Hydrogen Gas Leak Test > For Hydrogen Storage System (HSS)

23. If a leak is found. Refer to TSB 22-FL-005H—VENTING NEXO FUEL CELL ELECTRIC VEHICLES and defuel tanks to 1,100 PSI or less. “Preparation for Replacement of Hydrogen Components” and “Depleting Residual Fuel Supply Pressure”. Repair the leak(s), then perform steps 19-22 on pages 17 and 18 again until no leak is found.

24. If no leak is found, then replace the undercovers.

25. The procedure is now complete