

# ***SERVICE MANUAL BULLETIN***

This Service Manual Bulletin is prepared by the Publications Department of New Flyer Industries Canada ULC. Refer to details below.

## **SMB-169**

**ISSUE DATE: May 17 2017**

APPLICABILITY					
VEHICLE LENGTH	<input type="checkbox"/> 30ft.	<input checked="" type="checkbox"/> 35ft.	<input checked="" type="checkbox"/> 40ft.	<input checked="" type="checkbox"/> 60ft.	<input type="checkbox"/> ALL
VEHICLE TYPE	<input checked="" type="checkbox"/> Xcelsior®	<input type="checkbox"/> MiDi®	<input type="checkbox"/> Invero®		<input type="checkbox"/> ALL
	<input type="checkbox"/> Low Floor	<input type="checkbox"/> High Floor			
FUEL TYPE	<input type="checkbox"/> Diesel	<input type="checkbox"/> Diesel/Electric	<input checked="" type="checkbox"/> CNG	<input type="checkbox"/> LNG	<input type="checkbox"/> ALL
	<input type="checkbox"/> Fuel Cell	<input type="checkbox"/> Trolley/Electric	<input type="checkbox"/> Battery/Electric		
SUBJECT	Venting Tank (Solenoid Valve Stuck Closed or Not Operating) Installation of CNG High Pressure Solenoid Valve on Tank				
SECTION TITLE	7 - FUEL SYSTEM				
DETAILS	This bulletin provides a procedure for venting the tanks when the solenoid valve is stuck closed or not operating, and a procedure for the installation of the solenoid valve on the CNG tank of your New Flyer Vehicle.				
	This bulletin supersedes all prior information on this subject already provided in your New Flyer Service Manuals. Make this Service Bulletin available to service personnel to inform them of changed information.				

## 1. PURPOSE

Some New Flyer Service Manuals may not contain the following procedures:

- ❑ venting a CNG tank if the solenoid valve is stuck closed or not operating;
- ❑ installation of the solenoid valve on the tank.

These procedures were not available at the time of publication and are provided in this bulletin.

### 1.1. Venting Tank (Solenoid Valve Stuck Closed or Not Operating)

1. Set the Battery Disconnect switch to the OFF position.
2. Close the fuel tank manual shut-off valve and discharge the gas from Zone 1 and Zone 2.

#### NOTE:

*The manual shut-off must be closed for the valve with the damaged coil, as well as all neighboring valves involved in the system, even if they are functioning properly.*

3. Unscrew the valve's coil nut.
4. Remove the coil nut being careful not to drop the internal O-ring.
5. Remove the coil being careful not to drop the protection gasket.
6. Exchange the faulty coil with a good one from the neighboring valve or the maintenance tooling. After installing the coil onto the faulty valve, proceed to step 9 to defuel the fuel tank.
7. If exchanging the coil does not work to fix the solenoid, the internal components of the solenoid are defective. The internal solenoid components can be bypassed by proceeding as follows:

- a. Ensure that the manual shut-off is fully closed.



**Some residual gas may be trapped inside the solenoid valve.**

- b. Carefully unscrew the solenoid sleeve using a 25 mm wrench
- c. Disassemble the solenoid sleeve.
- d. Take out the solenoid internal parts. See ["Fig. 1: Take out the solenoid internal parts" on page 2.](#)
- e. Reassemble the solenoid sleeve. Torque to 14.8 ft-lb.  $\pm$  1 ft-lb. ( $20 \pm 1$  Nm) without the internal parts.

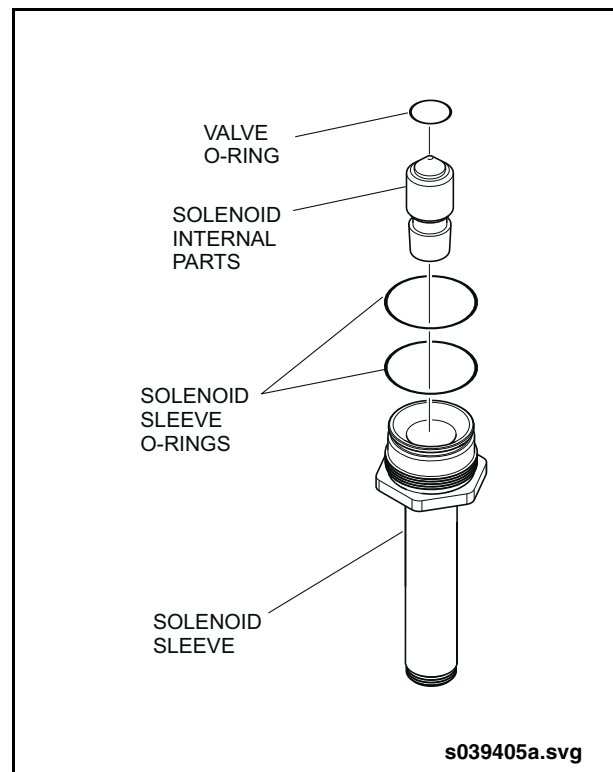


Fig. 1: Take out the solenoid internal parts

8. It is now possible to discharge the gas from the fuel tank by carefully opening the manual shut-off valve.



**All tank solenoid valves must be CLOSED during this procedure and remain CLOSED.**

9. Ensure the main (emergency) shut-off valve is open.
10. Connect a line from the recovery system to the purge line shut-off valve.
11. Record the actual system pressure.
12. Slowly rotate the purge line shut-off valve to the fully open (vertical) position.
13. Allow the gas in Zone Two to completely depressurize as indicated by a "zero" reading on the pressure gauge and no further flow through the vent line.
14. Rotate the purge line shut-off valve to the closed (horizontal) position.

15. Open the solenoid valve manual shut-off on the tank to be vented by rotating the valve knob.



**DO NOT fully open the purge line shut-off valve in the following step.**

16. Slowly rotate the purge line shut-off valve to the fully open (vertical) position.
17. Allow the gas in Zone Three to completely depressurize as indicated by a "zero" reading on the pressure gauge and no further flow through the vent line.
18. Rotate the purge line shut-off valve to the closed (horizontal) position.
19. Remove the tank solenoid valve, if required, and perform the necessary maintenance of Zone Three components. [Refer to 1.2. "Installation of CNG High Pressure Solenoid Valve on Tank" on page 4](#) in this bulletin for procedure.
20. Refer to Section 7 in your New Flyer Service Manual pressure equalizing procedure if the tank will not be repressurized immediately.

### 1.2. Installation of CNG High Pressure Solenoid Valve on Tank

For proper installation the valve must be correctly installed by properly trained maintenance personnel.

Installation tools required include a torque wrench, ESA special mounting tools and Parker Super O-Lube or suitable substitute for the O-ring. Proceed as follows:

1. Apply silicone grease lubricant to the O-ring sparingly.
2. Carefully engage the valve body threads to the CNG tank 1 1/8" - 12 UNF port fitting.
3. Manually thread the valve onto the tank.
4. Torque the valve to 83 ± 13 ft-lb.
5. Apply a light coating of silicone grease on the O-rings and install the male adapter and plug into the 9/16" - 18 threaded ports of the solenoid valve. Torque the fittings 20 to 30 ft-lb. (27 to 47 Nm).
6. Rotate the tank as required to align plumbing ports.
7. Install PRD vent and fill/engine feed lines onto the standard connectors and tighten Swagelok® fitting. Refer to Section 7 of your New Flyer Service Manual for Swagelok fitting installation instructions.
8. Attach the electrical leads.
9. Fill the fuel tanks from the storage facility.
10. Check the solenoid valve for leaks using combustible gas detector such as the Snap-On ACT 8800®. This particular unit can detect localized gas leaks from 50 to 1000 PM.

#### **NOTE:**

*Liquid solutions such as SNOOP® can also be used. DO NOT use make-shift soapy water solutions.*

11. Make sure the quarter-turn shut-off valve is in the ON position. The handle is in the on position when it is aligned (parallel) with the fuel line.

#### **NOTE:**

*Make sure the fill box door is firmly closed before attempting to start the engine. The fill box contains a proximity sensor to prevent the engine from starting when the door is open. The engine ignition is disabled and the high-pressure solenoid valves are shut off to prevent fuel flow to the gas mixer when the proximity sensor is open.*

12. Turn the Master Run switch to DAY or NIGHT operating position. Turn the ignition on to activate the starter. As the starter spins the engine up to 400 RPM, the solenoid valves will energize and allow fuel to flow through the filtering and regulating system to the fuel mixer, starting the engine.

#### **NOTE:**

*If the engine does not start, make sure the fill box is firmly closed and that the solenoid valve wires are connected.*

13. Run the engine up for a minute or so to allow the fuel delivery system to stabilize, then shut the engine down.



**DO NOT perform any corrective action or other maintenance on a pressurized system. Perform component servicing or maintenance only after the affected zone has been isolated and depressurized. Refer to 1.1. "Venting Tank (Solenoid Valve Stuck Closed or Not Operating)" on page 2 in this bulletin for depressurizing procedure.**

14. Recheck the solenoid valve and the run/fill loop connections with the Snap-On ACT 8800® combustible gas detector. Tighten any fittings as required. Use a backup wrench to prevent overtightening.
15. Open the fill box door and check the high and low pressure gauges for pressure readings. The high pressure gauge should show 200 to 3,600 psi (1,375 to 24,800 kPa), the low pressure gauge should show 94 to 120 psi (648 to 827 kPa).