

03.115 N2 Ballast Tank Replacement

(03. ECLSS)

OBJECTIVE:

To replace the N2 ballast tank if pressure is low.

EQUIPMENT:

N2 ballast tank (will be gathered during the procedure)

Flashlight

Shop vacuum

Phillips screwdriver or RYOBI drill with Philips drill bit

PPE safety glasses

PPE Kobalt work gloves

PPE nitrile gloves

Static wrist tether

Orange caution cone 1x

ECLSS KIT: 11/16" Combo wrench

9/16" Combo wrench

QTY 1 Spare N2 gasket

QTY 1 RTV tube

QTY 1 Pack of cotton swabs

WARNING

N2 Ballast Tank Alarm is located on the O2 tank assembly and will sound if the N2 Ballast Tank drops to critically low pressure.

DO NOT stand in the subfloor.

DO NOT unplug any electrical or network wires.

L1A Subf

1. DEACTIVATE LOW PRESSURE ALARM

1.1 Don PPE safety glasses.

1.2 Don PPE Kobalt gloves.

1.3 Don static wrist tether and attach to any unpainted metallic surface.

1.4 Remove floor panel 1A and temp stow.

1.5 Remove Floor Assembly 1A and then temp stow (see Figure 1)

1.5 Place orange caution cone next to open work area L1A subfloor to warn other crewmembers.

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1.6 Remove floor assembly 1A and temp stow (see Figure 1).



Figure 1: L1A Subfloor Removed

1.7 Switch N2 Ballast Tank Alarm to SAFE position (see Figure 2).



Figure 2: N2 Ballast Tank Alarm Switch

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L1A Subf 2. REMOVE SPENT N2 BALLAST TANK

2.1 Close N2 Ballast Tank Line Valve by rotating clockwise (see Figure 3).



Figure 3: N2 Ballast Tank Line Valve

NOTE

11/16" nut stays attached to the N2 Ballast Tank

2.2 Disconnect N2 Ballast Tank Line from N2 Ballast Tank using wrenches (see Figure 4) leaving the 11/16" nut attached to the N2 Ballast Tank.



Figure 4: Removing N2 Ballast Tank Line

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- 2.3 Using Philips screwdriver or electric RYOBI drill with Phillips drill bit, loosen screws on both N2 Ballast Tank Brackets (see Figure 5).



Figure 5: Removing Ballast Tank Brackets

- 2.4 Remove damaged N2 Ballast Tank by sliding it to the left and temp stow.
- 2.5 Loosen screws from both N2 Ballast Tank Brackets and temp stow brackets and screws.
- 2.6 Remove screws from brackets.
- 2.7 Doff static wrist tether.
- 2.8 Stow spent N2 Ballast Tank in ALC L01 and retrieve replacement N2 Ballast Tank.
- 2.9 Temp stow N2 Ballast Tank by L1A subfloor.

L1A Subf 3. INSPECT N2 BALLAST TANK ASSEMBLY COMPONENTS

- 3.1 Inspect left and right removable N2 Ballast Tank bracket gaskets for damage.
- 3.2 If damaged:
- 3.2.1 Doff Kobalt work gloves and don nitrile gloves.
 - 3.2.2 Remove and replace any damaged N2 Ballast Tank Bracket Gaskets by adding a dime-sized drop of RTV glue and spreading it with a cotton swab. Add rubber gasket and let RTV set for 20 minutes.
 - 3.2.3 Dispose of damaged gaskets, used cotton swabs, and nitrile gloves.

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- 3.3 Don Kobalt work gloves.
- 3.4 Inspect N2 Ballast Tank Line for signs of damage.
- 3.5 Vacuum subfloor for debris with shop vacuum.
- 3.6 Inspect replacement N2 Ballast Tank for damage.

L1A Subf 4. INSTALL REPLACEMENT N2 BALLAST TANK

- 4.1 Don static wrist tether and attach to any unpainted metallic surface.
- 4.2 Loosely attach both of the N2 Ballast Tank brackets.
- 4.3 Slide the N2 Ballast Tank with tank valve on left into loosely attached N2 Ballast Tank brackets.
- 4.4 Tighten the screws on both N2 Ballast Tank brackets.
- 4.5 Connect N2 Ballast Tank Line to N2 Ballast Tank.
 - 4.5.1 First, hand-tighten N2 Ballast Tank Line.
 - 4.5.2 Second, tighten N2 Ballast Tank Line ¼ turn by using 11/16" wrench to brace the tank and using the 9/16" wrench to turn.
- 4.6 Open N2 Ballast Tank Line valve by rotating counterclockwise until it stops.

L1A Subf 5. ARM LOW PRESSURE ALARM

- 5.1 Switch N2 Ballast Tank Alarm to "ARM" position (see Figure 2).

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5.2 Replace floor assembly 1A and floor panel 1A (see Figure 6).



Figure 6: Final Floor Configuration

5.3 Doff PPE gloves, safety glasses, and static wrist tether.

5.4 Stow all equipment including orange caution cone.