# Plumbing termination summary

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<td>SS-102-1</td>
<td>SS-100-SET</td>
<td>Denver Valve</td>
<td>(303) 232-8844</td>
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<td>C3X, freefall chute</td>
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<td>SS-200-SET</td>
<td>Denver Valve</td>
<td>(303) 232-8844</td>
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<td>1/4” stainless bulkhead union</td>
<td>C3X</td>
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<td>Swagelok</td>
<td>SS-400-61</td>
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<td>Denver Valve</td>
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<td>3/8” stainless bulkhead union</td>
<td>C3X, LIPF dump plate</td>
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<td>SS-810-P</td>
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<td>SS-810-SET</td>
<td>Denver Valve</td>
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<td>1/4” PFA panel mount elbow union</td>
<td>freefall chute</td>
<td>775</td>
<td>St. Gobain Chemfluor</td>
<td>D1077016</td>
<td>(rod stock)</td>
<td>D1077032</td>
<td>D1077036</td>
<td>Berghof</td>
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<td>St. Gobain Chemfluor</td>
<td>D1077017</td>
<td>(rod stock)</td>
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<td>Ryan Herco</td>
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<td>1” PFA bulkhead union</td>
<td>CIMS pumps</td>
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<td>St. Gobain Grab-seal</td>
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<tr>
<td>KF 50 flange</td>
<td>LTI exhaust/BF venturi</td>
<td>371, LIPF</td>
<td>custom part</td>
<td>custom part</td>
<td>NW50-200-AB</td>
<td>n/a</td>
<td>n/a</td>
<td>LDS Vacuum</td>
<td>website</td>
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</table>
N43RF - exhaust plumbing - 2006
(red arrow points forward)

**B1 cabinet forward bulkhead**
(two ports, behind FD station)

Location: FS 371

- **LTI sample line** - 1/2" SS Swagelok panel mount union, 35" from floor

  (1/2" SS tubing to FS 426, B3 cabinet aft bulkhead)

- **LTI exhaust line** - KF 50 flange, 28.5" from floor

  (2.4” OD Si tubing to LIPF)
N43RF - exhaust plumbing - 2006
(red arrow points forward)

**B1 cabinet forward bulkhead**
(two ports, behind FD station)

Location: FS 371

- **LTI sample line** - 1/2” SS Swagelok panel mount union, 35” from floor

  *(1/2” SS tubing to FS 426, B3 cabinet aft bulkhead)*

- **LTI exhaust line** - KF 50 flange, 28.5” from floor

  *(2.4” OD Si tubing to LIPF)*
B3 cabinet aft bulkhead

Location: FS 426

- **LTI sample line** - 1/2" SS Swagelok panel mount union, 26.5" from floor

(1/2" SS tubing to FS 371, B1 cabinet forward bulkhead)
N43RF - exhaust plumbing - 2006
(red arrow points forward)

B3 cabinet aft bulkhead

Location: FS 426

- **LTI sample line** - 1/2” SS Swagelok panel mount union, 26.5” from floor

(1/2” SS tubing to FS 371, B1 cabinet forward bulkhead)
Station C3X
(4 ports, on MELC forward bulkhead)

Location: FS 514

- \textbf{NO}_y \textbf{ exhaust line} - 3/8” SS Swagelok panel mount union, 24” from floor
- \textbf{CO}_2 \textbf{ exhaust line} - 3/8” SS Swagelok panel mount union, 24” from floor
  (both: 3/8” PFA tubing to LIPF)

- \textbf{Ground zero air line} - 1/4” SS Swagelok panel mount union, 21.5” from floor
  (1/4” PFA tubing to FS 775)

- \textbf{Ground oxygen line} - 1/8” SS Swagelok panel mount union, 21.5” from floor
  (1/8” PFA tubing to FS 775)
**Station C3X**
(4 ports, on MELC forward bulkhead)

Location: FS 514

- **NO\(_y\) exhaust line** - 3/8” SS Swagelok panel mount union, 24” from floor
- **CO\(_2\) exhaust line** - 3/8” SS Swagelok panel mount union, 24” from floor
  
  *(both: 3/8” PFA tubing to LIPF)*

- **Ground zero air line** - 1/4” SS Swagelok panel mount union, 21.5” from floor
  
  *(1/4” PFA tubing to FS 775)*

- **Ground oxygen line** - 1/8” SS Swagelok panel mount union, 21.5” from floor
  
  *(1/8” PFA tubing to FS 775)*
Station C3X (overhead)

Location: FS 430

• **NO cal line** - 1/16” SS Swagelok union, 72” from floor

(1/16” SS tubing, 0.030” ID, to Sta. 5 overhead at FS 725)
Station **C3X** (overhead)

Location: FS 430

- **NO cal line** - 1/16” SS Swagelok union, 72” from floor

*(1/16” SS tubing, 0.030” ID, to Sta. 5 overhead at FS 725)*
Stations 2 and 3
(two ports, forward of Sta. 3)

Location: FS 510

- **Sta. 2 exhaust** - 1/2” PFA Chemfluor panel mount elbow union, 10.5” from floor
  
  *(1/2” PFA tubing to LIPF)*

- **Sta. 3 exhaust** - 1/2” PFA Chemfluor panel mount elbow union, 8.5” from floor
  
  *(1/2” PFA tubing to LIPF)*
**Stations 2 and 3**
(two ports, forward of Sta. 3)

Location: FS 510

- **Sta. 2 exhaust** - 1/2” PFA Chemfluor panel mount elbow union, 10.5” from floor

  *(1/2” PFA tubing to LIPF)*

- **Sta. 3 exhaust** - 1/2” PFA Chemfluor panel mount elbow union, 8.5” from floor

  *(1/2” PFA tubing to LIPF)*
Station 4 (forward of Sta. 4)

Location: FS 586

- **Sta. 4 exhaust** - 3/8” PFA Chemfluor panel mount elbow union, 8.5” from floor

(3/8” PFA tubing, to LIPF)
Station 4 (forward of Sta. 4)

Location: FS 586

- **Sta. 4 exhaust** - 3/8” PFA Chemfluor panel mount elbow union, 8.5” from floor

(3/8” PFA tubing, to LIPF)
**Station 5** (overhead)

**Location:** FS 725

- **NO cal line** - 1/16” SS Swagelok union, 72” from floor

(1/16” SS tubing, 0.030” ID, to C3X overhead at FS 430)
**Station 5** (overhead)

Location: FS 725

- **NO cal line** - 1/16” SS Swagelok union, 72” from floor

(1/16” SS tubing, 0.030” ID, to C3X overhead at FS 430)
Station 6
(two ports, forward of Sta. 6)

Location: FS 775

- **Ground zero air line** - 1/4” PFA
  Chemfluor panel mount elbow union, 9” from floor

  *(1/4” PFA tubing to C3X at FS 514)*

- **Ground oxygen line** - 1/8” SS Swagelok
  panel mount union, 8” from floor

  *(1/8” PFA tubing to C3X at FS 514)*
Station 6
(two ports, forward of Sta. 6)

Location: FS 775

- **Ground zero air line** - 1/4” PFA
  Chemfluor panel mount elbow union, 9” from floor

  *(1/4” PFA tubing to C3X at FS 514)*

- **Ground oxygen line** - 1/8” SS Swagelok
  panel mount union, 8” from floor

  *(1/8” PFA tubing to C3X at FS 514)*
Stations 5, 6, 7
(five ports, forward of Sta. 7)

Location: FS 828 to 834

• \textbf{HNO}_3 \textit{flow tube vacuum} - 1” PFA
  Grab-seal elbow union, FS 828, 6” from floor
• \textbf{NH}_3 \textit{flow tube vacuum} - 1” PFA
  Grab-seal elbow union, FS 830, 8” from floor

(both 1” PFA tubing to LIPF)

• \textbf{Sta. 5 exhaust} - 3/8” PFA Chemfluor
  Panel mt. elbow, FS 831, 6.5” from floor
• \textbf{Sta. 6 exhaust} - 3/8” PFA Chemfluor
  panel mt. elbow, FS 832, 7.5” from floor
• \textbf{Sta. 7 exhaust} - 3/8” PFA Chemfluor
  panel mt. elbow, FS 834, 8.5” from floor

(all 3/8” PFA tubing to LIPF)
**Stations 5, 6, 7**
(five ports, forward of Sta. 7)

Location: FS 828 to 834

- **HNO₃ flow tube vacuum** - 1” PFA
  Grab-seal elbow union, FS 828, 6” from floor
- **NH₃ flow tube vacuum** - 1” PFA
  Grab-seal elbow union, FS 830, 8” from floor

(both 1” PFA tubing to LIPF)

- **Sta. 5 exhaust** - 3/8” PFA Chemfluor
  Panel mt. elbow, FS 831, 6.5” from floor
- **Sta. 6 exhaust** - 3/8” PFA Chemfluor
  panel mt. elbow, FS 832, 7.5” from floor
- **Sta. 7 exhaust** - 3/8” PFA Chemfluor
  panel mt. elbow, FS 834, 8.5” from floor

(all 3/8” PFA tubing to LIPF)
N43RF - exhaust plumbing - 2006  
(red arrow points forward)

**Dual Passenger**

Location: FS 787

- **NO$_3$/N$_2$O$_5$ exhaust** - 1/2” PFA Chemfluor panel mount elbow union, 27” from floor

(1/2” PFA tubing to LIPF)
N43RF - exhaust plumbing - 2006
(red arrow points forward)

**Dual Passenger**

Location: FS 787

- **NO$_3$/N$_2$O$_5$ exhaust** - 1/2” PFA
  Chemfluor panel mount elbow union,
  27” from floor

(1/2” PFA tubing to LIPF)
Station 8

Location: FS 880

• **PTRMS exhaust** - 3/8” PFA
  Chemfluor panel mount elbow union,
  20” from floor

  *(3/8” PFA tubing to LIPF)*
**Station 8**

Location: FS 880

- **PTRMS exhaust** - 3/8” PFA
  Chemfluor panel mount elbow union, 20” from floor

(3/8” PFA tubing to LIPF)