

## Kerbal Space Program - Bug #5257

### In symmetrically placed stacks phantom fuel lines sometimes appear

07/22/2015 12:27 PM - Alchemist

<b>Status:</b>	Closed	<b>Start date:</b>	07/22/2015
<b>Severity:</b>	Normal	<b>% Done:</b>	100%
<b>Assignee:</b>			
<b>Category:</b>	Gameplay		
<b>Target version:</b>			
<b>Version:</b>	1.0.4	<b>Language:</b>	English (US)
<b>Platform:</b>	Any	<b>Mod Related:</b>	No
<b>Expansion:</b>			

#### Description

Platform: found on Win7x64, but most likely platform-independent (please test)

Category: Resources/Fuel drain logic (source most likely in the VAB/editor)

Reproduceability: happens only in some (random?) cases, can be neutralized just by reattaching the stacks

Basic description: with multiple symmetrically attached stacks (found on 8x symmetry, but may be on others as well) there's a chance that one of the stacks will behave as if there was a fuel line to it from the root (?) of another stack (another option - fuel line behaviour spontaneously appearing in a random part attached to the symmetrical stacks)

Video demonstration:

<https://youtu.be/HpJe4suWono>

Files (full stock):

*N1-L3 bug report* - full original vehicle (high part count, no need to test. during its development the bug appeared and disappeared several times)

*N1-L3 bug report first stage* - first stage only

*N1-L3 bug report first stage lite* - narrowed down to only the significant parts (test on the pad, it spins in flight)

*N1-L3 bug report first stage lite 1a* - even more narrowed down - lower parts of the stacks replaced (test on the pad, it spins in flight)

Notes:

Replacing bottom parts of the affected stacks doesn't change the bug

If you remove the SAS modules from affected stacks, the glitch seems to disappear... putting them back there may return the bug, but not always. Note: those had been placed on already installed stacks using the symmetry mode

Saving-reloading the craft, detaching-reattaching the affected subassembly, reverting to launch don't fix the bug

Yeah, what's the better bug catcher than the first stage of N1 ;)

#### History

##### #1 - 07/22/2015 02:05 PM - Alchemist

Looks like adding reaction wheels to the side stacks (the two offset groups of stacks, but not those directly on the axis) of first stage of the attached N1-L3 results in this bug with high degree of reproducibility.

##### #2 - 07/24/2015 11:24 PM - Squelch

- Category changed from 35 to 81

- Status changed from New to Need More Info

I am able to confirm this behaviour with the supplied craft, and it has been witnessed elsewhere. However, attempts to replicate from a fresh craft have proved difficult, so we need to find the cause. I do suspect that parts that have been rotated, and are clipped into others are a significant factor. There is also a possibility that these parts are rotating very slightly between the editor and the craft being unpacked. (seen as differences between the .craft file and the same craft in the savefile) This might be a rounding issue, and totally coincidental, but worth mentioning.

I have marked this as needing more information in the hope that we can find some more examples, and work on being able to replicate the issue from a new minimal parts craft.

#3 - 07/26/2015 08:41 PM - Alchemist

- File brokencraft.doc added

I've run some analysis of the craft file and here's the finding (the lines seemingly relevant to the issue)  
It's in the attached word file. The parts with problems are highlighted each in different color:

[Formatted attachment...Formatted attachment...](#)

```
PART
{
  part = fuelTank.long_4293055486

  link = advSasModule_4293143904
  link = liquidEngine2_4289890950

  srfN = srfAttach,Size3LargeTank_4293310858
  attN = top,advSasModule_4293143904
  attN = bottom,liquidEngine2_4289890950
}
PART
{
  part = advSasModule_4293143904

  attN = bottom,fuelTank.long_4293055486
}
PART
{
  part = fuelTank.long_4293052480

  link = advSasModule_4293143872
  link = liquidEngine2_4289890798

  srfN = srfAttach,Size3LargeTank_4293310858
  attN = top,advSasModule_4293143872
  attN = bottom,liquidEngine2_4289890798
}
PART
{
  part = advSasModule_4293143872

  attN = bottom,fuelTank.long_4293052480
}
PART
{
  part = fuelTank.long_4293052264

  link = advSasModule_4293143840
  link = liquidEngine2_4289890646

  srfN = srfAttach,Size3LargeTank_4293310858
  attN = top,advSasModule_4293143840
  attN = bottom,liquidEngine2_4289890646
}
PART
{
  part = advSasModule_4293143840

  attN = bottom,fuelTank.long_4293052264
}
PART
{
  part = fuelTank.long_4293052048

  link = advSasModule_4293143808
  link = liquidEngine2_4289890494

  srfN = srfAttach,Size3LargeTank_4293310858
  attN = top,advSasModule_4293143808
  attN = bottom,liquidEngine2_4289890494
}
PART
{
  part = advSasModule_4293143808
```

```

    attN = bottom,fuelTank.long_4293052048
}
PART
{
    part = fuelTank.long_4293051832

    link = liquidEngine2_4289891660

    srfN = srfAttach,Size3LargeTank_4293310858
    attN = top,advSasModule_4293146244
    attN = bottom,liquidEngine2_4289891660
}
PART
{
    part = fuelTank.long_4293051616

    link = advSasModule_4293146244
    link = advSasModule_4293143744
    link = liquidEngine2_4289890342

    srfN = srfAttach,Size3LargeTank_4293310858
    attN = top,advSasModule_4293143744
    attN = bottom,liquidEngine2_4289890342
}
PART
{
    part = advSasModule_4293146244

    attN = bottom,fuelTank.long_4293051616
}
PART
{
    part = advSasModule_4293143744%

    attN = bottom,fuelTank.long_4293051616
}
PART
{
    part = fuelTank.long_4293051400
    partName = Part

    link = advSasModule_4293143936
    link = liquidEngine2_4289890190

    srfN = srfAttach,Size3LargeTank_4293310858
    attN = top,advSasModule_4293143936
    attN = bottom,liquidEngine2_4289890190
}
PART
{
    part = advSasModule_4293143936

    attN = bottom,fuelTank.long_4293051400
}
PART
{
    part = fuelTank.long_4293051184

    link = advSasModule_4293143776
    link = liquidEngine2_4289890038

    srfN = srfAttach,Size3LargeTank_4293310858
    attN = top,advSasModule_4293143776
    attN = bottom,liquidEngine2_4289890038
}
PART
{
    part = advSasModule_4293143776

    attN = bottom,fuelTank.long_4293051184
}

```

One of the reaction wheels (red) is listed as attached to the top node of one fuel tank (green) but refers another tank (blue) as connected to its bottom node. The link reference for the (red) reaction wheel is also listed with the wrong (blue) tank.

Looks like a subcase of broken symmetry bug (or one of its manifestations). Just this time the affected part has right coordinates, but considers itself linked to wrong part (sometimes, when attaching to symmetrical parts, some of the new parts are also visually appearing in the wrong places, overlapping with other new parts)

Unfortunately, it seems that these symmetry bugs appear mostly at high part counts and are rather unreliable (but these reaction wheels have been removed and reattached several times and the bug surfaced in most if not all of them.

P.S. I've also seen another case of symmetry bug when working on this craft - that time attempt to attach something (that were the nesting motors of the lander) to a pair of symmetrically placed parts resulted in symmetrical attachment to the same part, as if it didn't have symmetry counterpart.

#### #4 - 07/26/2015 09:49 PM - Squelch

Your observations are very interesting, and I did notice that one of the reaction wheels had incorrect node assignments. This can actually be seen in the editor if you are able to pick the correct part up. The node it was attached to will be seen to disappear, and only a save of the craft and a reload will fix it. Doing this and adding the reaction wheels back seemed to fix the problem.

I agree it is likely a subcase of the various symmetry bugs. Unfortunately, they are not always reproducible from scratch. Although we have plenty of examples of craft that show the problems, we still don't know what has triggered them in the first place. However, enough good evidential reports such as this, will always be useful in identifying the cause.

#### #5 - 07/26/2015 10:58 PM - Squelch

Not everyone is able to view a word document, so I have taken the liberty of adding an inline formatted version to the [comment](#)

#### #6 - 07/17/2016 09:30 AM - TriggerAu

- Status changed from *Need More Info* to *Needs Clarification*

#### #7 - 08/14/2016 07:32 AM - TriggerAu

- Status changed from *Needs Clarification* to *Closed*

- % Done changed from 0 to 100

Closing this report out for now. If you find it is still occurring in the latest version of KSP please open a new report (and this one can be linked to it.) For best results, the wiki contains really useful info for when creating a report <http://bugs.kerbalspaceprogram.com/projects/ksp/wiki>.

You can also ask questions about the bug cleanup in the forum here:

<http://forum.kerbalspaceprogram.com/index.php?/topic/143980-time-to-clean-up-the-bug-tracker/> and tag @TriggerAu to get my attention

### Files

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N1bugreport.zip	70.3 KB	07/22/2015	Alchemist
brokencraft.doc	31 KB	07/26/2015	Alchemist