

# Kerbal Space Program - Bug #5287

## Crash to black screen on collision with launchpad

07/30/2015 07:36 PM - Kasuha

<b>Status:</b>	Closed	<b>Start date:</b>	07/30/2015
<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>	Win32	<b>Mod Related:</b>	No
<b>Expansion:</b>			

### Description

I discovered this accidentally when trying to replicate the bug with Kerbals stuck after collisions in command seats. It may, or may not be related to the problem. A kerbal in the seat is necessary condition, when I keep him in the pod the game does not crash. These reproduction steps work consistently on my PC and ended with black screen in 100% of attempts (I made somewhere between 10 and 20, both in existing and new saves). The scenario however may be sensitive to design of the ship as its previous (higher) version did not crash this way. I assume it may be also sensitive to framerate or other settings.

#### Reproduction steps:

- start a new Sandbox save
- load the attached ship and put the Kerbal into command seat, or load the attached quicksave
- stage to launch

#### Observed behavior:

##### Expected part:

- the SRB with command seat decouples from the pod and speeds towards launchpad
- the SRB collides with launchpad and explodes

##### Anomaly:

- black screen (attached) follows shortly after the explosion happens. No values on altimeter, navball is hidden. Resources display shows EVA propellant only.
- It is possible to revert the flight but the game does not work normally - the whole solar system is gone, both normal and map view are empty

There is a whole lot of unusual messages in output\_log.txt, almost 20,000 lines of them. Here are some examples in chronological order:

Invalid parameter because it was infinity or nan.

(Filename: Line: 251)

dest.radius>=0.0f

(Filename: ..\..\Core\Common\src\CapsuleShape.cpp Line: 133)

Actor::setAngularDamping: The angular damping must be nonnegative!

recalculating orbit for kerbalEVA: Kerbin

rPos: [NaN, NaN, NaN] rVel: [NaN, NaN, NaN] |NaN|

[FLIGHT GLOBALS]: Switching To Vessel Jebediah Kerman -----

setting new dominant body: the Sun

FlightGlobals.mainBody: the Sun

Vessel kerbalEVA velocity resumed. Reference body: Sun vel: [NaN, NaN, NaN]

Look rotation viewing vector is zero

(Filename: Line: 70)

And ending with some exceptions:

NullReferenceException

at (wrapper managed-to-native) UnityEngine.MonoBehaviour:StartCoroutine\_Auto (System.Collections.IEnumerator)

at UnityEngine.MonoBehaviour.StartCoroutine (IEnumerator routine) [0x00000] in <filename unknown>:0

at ProgressTracking.postProgressData (UnityEngine.MonoBehaviour host) [0x00000] in <filename unknown>:0

at ProgressTracking.OnDestroy () [0x00000] in <filename unknown>:0

```
NullReferenceException: Object reference not set to an instance of an object
at ProtoCrewMember.UnregisterExperienceTraits (.Part part) [0x00000] in <filename unknown>:0
at Part.UnregisterCrew () [0x00000] in <filename unknown>:0
at Part.OnDestroy () [0x00000] in <filename unknown>:0
```

```
NullReferenceException
at (wrapper managed-to-native) UnityEngine.Component:InternalGetGameObject ()
at UnityEngine.Component.get_gameObject () [0x00000] in <filename unknown>:0
at MapView.OnDestroy () [0x00000] in <filename unknown>:0
```

```
NullReferenceException
at (wrapper managed-to-native) UnityEngine.MeshFilter:set_sharedMesh (UnityEngine.Mesh)
at SpriteMesh.CreateMesh () [0x00000] in <filename unknown>:0
at SpriteMesh.get_mesh () [0x00000] in <filename unknown>:0
at SpriteRoot.Delete () [0x00000] in <filename unknown>:0
at SpriteBase.Delete () [0x00000] in <filename unknown>:0
at UIListItemContainer.Delete () [0x00000] in <filename unknown>:0
at UIScrollList.RemoveItem (Int32 index, Boolean destroy, Boolean doEasing) [0x00000] in <filename unknown>:0
at UIScrollList.RemoveItem (UIListItem item, Boolean destroy, Boolean doEasing) [0x00000] in <filename unknown>:0
at UIScrollList.RemoveItem (UIListItem item, Boolean destroy) [0x00000] in <filename unknown>:0
at ApplicationLauncher.RemoveApplication (.ApplicationLauncherButton button) [0x00000] in <filename unknown>:0
at ResourceDisplay.OnDestroy () [0x00000] in <filename unknown>:0
```

## History

### #1 - 08/02/2015 11:45 PM - Squelch

- Status changed from New to Investigating
- % Done changed from 0 to 20

I believe there are a number of issues here that are caused by a single event.

```
[KerbalSeat]: Boarded by Crasher
```

It looks like there is an incorrect vessel reference (Crasher being the name of the original craft and not the Kerbal). This seems to cause a chain of subsequent log entries that may also be at the root of other Command Seat issues.

An assembly that includes an occupied command seat and that hits the pad ~>65m/s will create the same log entries and dead end condition. This may be as a result of the above observation, so needs further investigation.

### #2 - 08/03/2015 02:09 PM - Kasuha

- File Crasher2.craft added
- File output\_log\_ladder.txt added
- File output\_log\_platform.txt added

I added a small platform to my test rig and the result of my testing is:

When I seat the Kerbal while holding on the ladder, the game crashes

When I seat the Kerbal while standing on the platform, the game produces an exception in log, but does not crash

I produced two output logs. I made effort to use exactly the same steps when starting up the game and setting up the scenario, so making a diff of them is possible. Messages

```
[KerbalSeat]: Being Boarded by Jebediah Kerman
[KerbalSeat]: Boarded by Crasher2
```

appear in both of them. These seem to be ok. The difference really starts with "Invalid parameter because it was infinity or nan." message in case of crash. In case of no crash (seated from platform) there is the following exception instead:

```
NullReferenceException
at (wrapper managed-to-native) UnityEngine.Component:InternalGetTransform ()
at UnityEngine.Component.get_transform () [0x00000] in <filename unknown>:0
at PQSCity_OnSphereReset () [0x00000] in <filename unknown>:0
at PQS.Mod_OnSphereReset () [0x00000] in <filename unknown>:0
at PQS.ResetSphere () [0x00000] in <filename unknown>:0
at PQS.OnDestroy () [0x00000] in <filename unknown>:0
(Filename: Line: -1)
```

### #3 - 08/03/2015 05:26 PM - Kasuha

I made two quicksaves - one after seating the Kerbal from a ladder, another after seating the Kerbal from the platform. Loading either quicksave leads to the crash, regardless how the Kerbal got into the seat. Also there is no significant difference between the contents of the two quicksaves. This means that restoring the game state with a Kerbal in seat is also done the "wrong" way, similar to seating the Kerbal from a ladder.

### #4 - 08/03/2015 05:55 PM - Squelch

Great work, and thanks for looking into this.

Kasuha wrote:

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```
NullReferenceException  
at (wrapper managed-to-native) UnityEngine.Component:InternalGetTransform ()  
at UnityEngine.Component.get_transform () [0x000000] in <filename unknown>:0  
at PQSCity.OnSphereReset () [0x000000] in <filename unknown>:0  
at PQS.Mod_OnSphereReset () [0x000000] in <filename unknown>:0  
at PQS.ResetSphere () [0x000000] in <filename unknown>:0  
at PQS.OnDestroy () [0x000000] in <filename unknown>:0  
(Filename: Line: -1)
```

The "[KerbalSeat]: Boarded by Crasher2" is unusual as it only happens when a Kerbal boards a command seat. Boarding all other pods results in the Kerbal being correctly identified, and not the vessel boarding itself. I also see the NRE, but have another entry that looks suspicious, and has been attributed to other bad behaviour once triggered.

```
[LOG 16:02:02.360] [KerbalSeat]: Being Boarded by Jebediah Kerman  
[WRN 16:02:02.361] [PartJoint]: None of the provided nodes was valid!  
[LOG 16:02:02.363] [FLIGHT GLOBALS]: Switching To Vessel Untitled Space Craft -----
```

Are you able to confirm this?

The vessel is nothing more than a Mk1 pod with a command seat on the side.

### #5 - 08/03/2015 10:09 PM - Kasuha

The "[KerbalSeat]: Boarded by Crasher2" is unusual as it only happens when a Kerbal boards a command seat. Boarding all other pods results in the Kerbal being correctly identified, and not the vessel boarding itself.

Pods and command seats are very different.

When boarding a command pod, the Kerbal becomes part of the pod's inventory. No physical force can get a Kerbal out of the pod, it either survives or dies in explosion. It does not even affect mass of the pod (or at least never did).

When boarding a command seat, the Kerbal becomes a new part of the ship, kind of like if it docked with it - a separate part with a joint between the Kerbal and the seat and this joint can be broken by physical forces.

The two processes are very different.

The sequence

```
[KerbalSeat]: Being Boarded by Jebediah Kerman  
[PartJoint]: None of the provided nodes was valid!  
[FLIGHT GLOBALS]: Switching To Vessel Crasher2 -----  
Camera Mode: AUTO  
stage manager resuming...  
[KerbalSeat]: Boarded by Crasher2
```

appears in both my two logs from my update 2 and the result (black screen crash when boarded from ladder, exception and normal continuing when boarded from platform) does not seem to depend on its presence.

### #6 - 08/07/2015 06:46 PM - Squelch

Kasuha wrote:

The "[KerbalSeat]: Boarded by Crasher2" is unusual as it only happens when a Kerbal boards a command seat. Boarding all other pods results in the Kerbal being correctly identified, and not the vessel boarding itself.

Pods and command seats are very different.

When boarding a command pod, the Kerbal becomes part of the pod's inventory. No physical force can get a Kerbal out of the pod, it either survives or dies in explosion. It does not even affect mass of the pod (or at least never did).

When boarding a command seat, the Kerbal becomes a new part of the ship, kind of like if it docked with it - a separate part with a joint between the Kerbal and the seat and this joint can be broken by physical forces.

The two processes are very different.

The sequence

```
[KerbalSeat]: Being Boarded by Jebediah Kerman
[PartJoint]: None of the provided nodes was valid!
[FLIGHT GLOBALS]: Switching To Vessel Crasher2 -----
Camera Mode: AUTO
stage manager resuming...
[KerbalSeat]: Boarded by Crasher2
```

appears in both my two logs from my update 2 and the result (black screen crash when boarded from ladder, exception and normal continuing when boarded from platform) does not seem to depend on its presence.

You are of course correct in your observation of the Kerbal becoming a part of the vessel via the kerbalEVA placeholder part. However, I was exploring the possibility of an incorrect root part being the cause of the later black screen lockup caused by NaNs. It may well be that the vessel boarding the vessel is just an artefact of the reporting text system that is coincidental to the problem. The invalid nodes are also unique to the seat, and I can't help speculate that these both play a factor during the rapid series of events during the explosion. By using different impact velocities in my tests, the black screen occurs around the time that the seat and the Kerbal would be destroyed. I have managed to destroy the whole craft - including seat - to be left with the Kerbal alone and no lock up ( I think this needs exploring further)

This does look like there may be a race condition during the explosion that is leaving the vessel state, and therefore its orbital state indeterminate which are causing the NaNs. From observation of the behaviour in previous reports that included NaN (not a number) events, the subsequent behaviour of the game and it requiring a restart, follows the same pattern. This is of course not desirable, even in edge cases like this.

I've made a note to use this as a test case for the upcoming testing. It's certainly noteworthy.

#### #7 - 07/17/2016 09:38 AM - TriggerAu

- Status changed from Investigating to Needs Clarification

- % Done changed from 20 to 0

#### #8 - 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

Crasher.craft	17.2 KB	07/30/2015	Kasuha
quicksave.sfs	40.2 KB	07/30/2015	Kasuha
screenshot79.png	55 KB	07/30/2015	Kasuha
screenshot78.png	446 KB	07/30/2015	Kasuha
output_log.txt	908 KB	07/30/2015	Kasuha
settings.cfg	24.6 KB	07/30/2015	Kasuha
Crasher2.craft	17.8 KB	08/03/2015	Kasuha
output_log_ladder.txt	824 KB	08/03/2015	Kasuha
output_log_platform.txt	467 KB	08/03/2015	Kasuha