

## Bogey animation

Trainz GamePack switches off the Time Slider - IMO it's easier to work without it.

For animating continuously-rotating parts like wheels, keyframes are fiddly and unnecessary, use a Float Expression Controller instead, which is much smoother, takes only a few seconds to do, AND you can copy/clone the dummy and the controller will be copied with it (not sure if this applies to keyframes, I've not copied/cloned a keyed animation).

I'll try and give a brief summary, this applies to a 3-axle loco bogie but the principle still holds for other objects. If you follow these steps *exactly* you will wonder why you did it any other way 😊

Preparation :-

a) Select the Move button on the main toolbar and, using the LH viewport, click on each axle in turn and note the Y coordinate of the axle centres. It is important to have a standard, and the only really useful datum is to place the axle centres at  $Z = 0$  (move it all down if not). This makes the ride height independant of wheel diameter for any given bogie.

b) Click on the Time Configuration button at lower right of screen and set the animation frame-count to 30 (which gives frames from 0 to 29). Make sure 'real time' is ticked and the speed is set to 1.0 and Ok it.

Implementation :-

1) Click in the top viewport, create a dummy (helper), name it b.r.main and locate it at 0,0,0 - don't make it huge, it only needs to exist, not take over the screen 😊  
Now create b.r.wheel0 and move it to the front axle position, ensuring  $X = 0$  and  $Y =$  the measurement you just took. Height is  $Z = 0$  of course. You should now have the first wheel dummy located precisely at the centre of the front axle. Now click the Rotation button on the main toolbar.

2) Select the LH viewport and maximise it, then select the wheel dummy b.r.wheel0. Go to the Motion tab on the flyout panel, and click the + sign next to 'Assign Controller' to expand the parameter dialog, you should now be looking at a small pane with the default controllers listed there.

3) Click on *Rotation : TCB Rotation* to select it. You should now see the little button above that pane with the green triangle light up. Click on it to open the 'Assign Rotation Controller' window and select Euler XYZ and Ok it. You should now see that the Euler controller has replaced the TCB one.

4) Click the + sign next to Euler XYZ to expand the axis list, then click on *X Rotation : Bezier Float* and once again use the little button with the green triangle to assign the next controller. From the list, select 'Float Expression' and Ok it.

5) You should now be looking at a new window titled 'Expression Controller : b.r.wheel0 \ X rotation'. Click in the text area under the label 'Expression' and delete the zero that's there. Now type in the following expression (you can copy-paste this)

### 360\*sin(NT)

then press 'Evaluate' then 'Close'.

( As an aside, you can play around with the angular component to change the speed and direction of rotation, e.g. 720 will give 2x speed, while -360 will give reverse rotation at 1x speed, etc. but don't do this on a wheel, it would look VERY odd 🤖)

6) If you've got it right, you should see b.r.wheel0 smoothly turning in a forwards direction when you play the animation. Ok, we're cooking on gas! Stop the anim and reset to frame 0.

With this dummy still selected, go to the Edit menu and select 'Clone' . Change the name to b.r.wheel1 and make sure it is set to 'copy' NOT 'instance', then Ok it. Now move this new dummy to the previously-noted Y dimension of the next axle centre. Repeat for the third dummy (if it's a triple-axle setup), naming it b.r.wheel2. You can now play the anim again and ensure all 3 dummies are rotating smoothly around their respective axle centres. ALWAYS reset the animation to frame 0 after running it, or you will likely as not see some odd things happen in-game.

7) Link each axle to its respective dummy, then link each dummy back to b.r.main. Deselect all and export as usual. Remember the animation for a bogie MUST be called 'anim.kin' in order for it to work correctly in Trainz.

All of the above is brought to you courtesy of JoshEH who first showed us how to do it in another post which I couldn't find 🤔

Wulf

I used your method and love it. How simple it is! It works great in gmax but I have a TRS problem. The bogey doesn't show in TRS. It does appear in TO with textures so I think I might have a config problem. Here is my config. Can anyone see what the problem is?

```
kuid
kind bogey
animdist 2.63
mesh-table {
default {
mesh "Brill_77E.im"
auto-create 1
}
}
obsolete-table {
}
name Brill 77E Bogey
description
trainz-build 2.4
category-class ZB
category-region-0 CA
category-region-1 US
category-era-0 1960s
asset-filename Brill_77E
username Brill 77E Streetcar Bogey
author Earl White
```

organisation none  
contact-email [apogeeew@bellsouth.net](mailto:apogeeew@bellsouth.net)

Thanks  
Apogee10

Apogee,

I'd agree with Chester, check your linking hierarchy. I would advise you to group all the parts that are not part of the animation, i.e. all except the wheel/axle sets and dummies, then link that group to b.r.main. It should look something like this :-

code:

---

```
b.r.main
|_____ [main bogie]
|_____ b.r.wheel0
|           |_____ wheelset0
|_____ b.r.wheel1
|           |_____ wheelset1
|_____ b.r.wheel2
|           |_____ wheelset2
```

---

This ensures that everything is anchored to your fixed reference, i.e. b.r.main

HTH 😊

If you don't see the wheels, they aren't there. Don't look at the height of the body. In TRS it doesn't fall down, where there're no any bogey 😊

Below, what else can be checked...

1. How have you linked the wheels (with axles) to their dummies? To have the animated subobject visible in TRS, single elements should be linked to the dummies, not grouped objects. So if you grouped wheels with axle into "Group", these parts will not show. It's a common error, as usually we link not only plain wheels (and they can consist of many parts, too), but also axles or any other parts.

2. Before you make the linkage, all objects should be aligned to the world axis (affect pivot only -> align to world). I dunno what happens if you don't do that, but as a rule it

should be obeyed :-|

3. Check out your textures, if they are proper size (but even so, the wheels should be showed all white).

4. All dummies should be created in top view to assure the proper axis alignment. Second sentence, as in (2).

Finally, you can always delete all dummies and create them again, with proper alignment and linkage. Usually it's the best solution.

From your response I realize what my problem is, but I need help to fix it. I generated my wheels from 3 parts- wheel, flange, and axle- using Phil C's tutorial for wheels. The tutorial had the three items "attached" in gmax which must be similar to "group". That explains why the bogey shows in TRS when not animated and doesn't show when animated.

What I need is help to "unattach". If there is no way to unattach I will have to recreate the wheels.

Phil C. If you read this, can you help? Or anyone else for that matter.

Apogee10

Aha!! You got grouped animated parts, that's why. Try this :-

1) Select one wheelset (just rims, flanges etc and the axle, but NOT the dummies) and save to another file using 'Save Selected'. Repeat for all the axle sets, making sure to save each one to a separate gmax file.

2) Open each one and ungroup the parts, then **attach** each wheel to the axle, flange to rim, etc so you end up with one object in the scene. Convert it to editable mesh if not done already.

3) Go back to the main bogie file and select ALL the parts you saved (wheels, axles, etc but NOT dummies) and delete them.

4) Now merge the axle sets one at a time and re-link to its appropriate dummy. Test play the anim to ensure all is correct, if so, deselect all and export the whole thing again.

HTH 😊

Hello All

Apogee10

If you want to detach something from an existing mesh then you need to use one of the sub-objects such as Vertex, Polygon, Face or object to select the part of the mesh you want separate and then in the Edit Geometry right next to Attach is Detach click on it and you will get a message box asking if you want to detach as object, element or clone.

Depending on what you are doing will decide which one to use.

You can "link" as many objects as you want to the same dummy and it should still animate correctly.

If you like you can send the mesh to me and I will have a look at it for you.

andi06

You must use asset-filename with locos and rolling stock or trainz will not find the running numbers and icons. I have never had TRS exit to desktop when the asset-filename is wrong.

Regards

Phil