



CALDERA 10E

Differential Inspection

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So you're noticing a gear slipping noise when you brake. Sounds like you have a worn out diff, which will continue to worsen, and finally fail. So here's a guide to inspect those differentials. We suspect it is the front diff, as that seems to be where the sound was coming from, but we will also inspect the rear also to check it is OK.

Step 1 – Disconnect top of front shocks



FIGURE 1

Remove the two screws that retain the top of the shocks and pop them out of the shock tower holder, as shown in Figures 1 & 2.



FIGURE 2

Step 2 – Disconnect Fr Bumper Upper and remove shock tower

Disconnect Fr Bumper upper support, and three screws that hold on shock tower as illustrated in Figure 3, 4 & 5. Also disconnect the camber adjustment linkages that attach to the shock towers.



FIGURE 3



FIGURE 4

Step 3 – Remove aluminum upper deck (Figure 5) watch out for the spacers beneath the aluminum deck plate where it screws into the diff cases. Then remove the four upper diff case retaining screws (Figure 6).



FIGURE 5

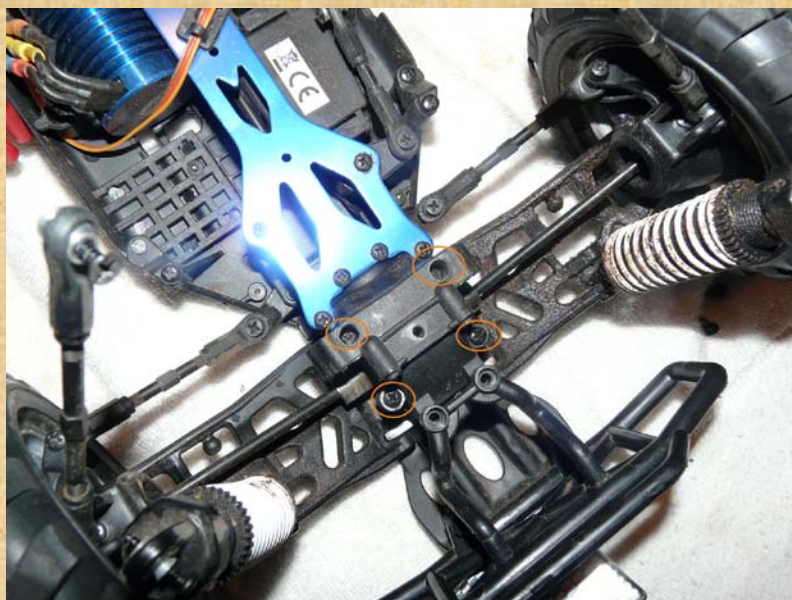


FIGURE 6

Step 4 – Inspection of Diff

So now you can pop off the top of the diff case allowing you to see, access and inspect the diff and gears (Figure 7).

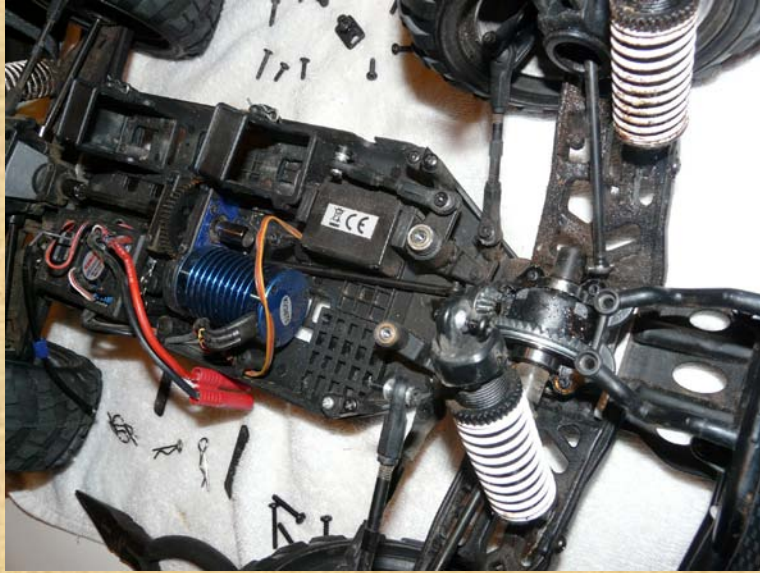


FIGURE 7

This was definitely the front differentials, Figures 8 and especially Figure 9 illustrate many metal shavings and debris due to the diff gears failing. This will happen over time, and once it starts it will only get worse. This diff ring and crown gear are slipping and grinding under braking. If you see debris in there, it's time to change the diff. The ring gear on the diff and the crown gear need to be changed. The diff gears can be purchased separately for \$11.25 in our ebay store. Or you can buy a complete diff unit with case for \$21.99.

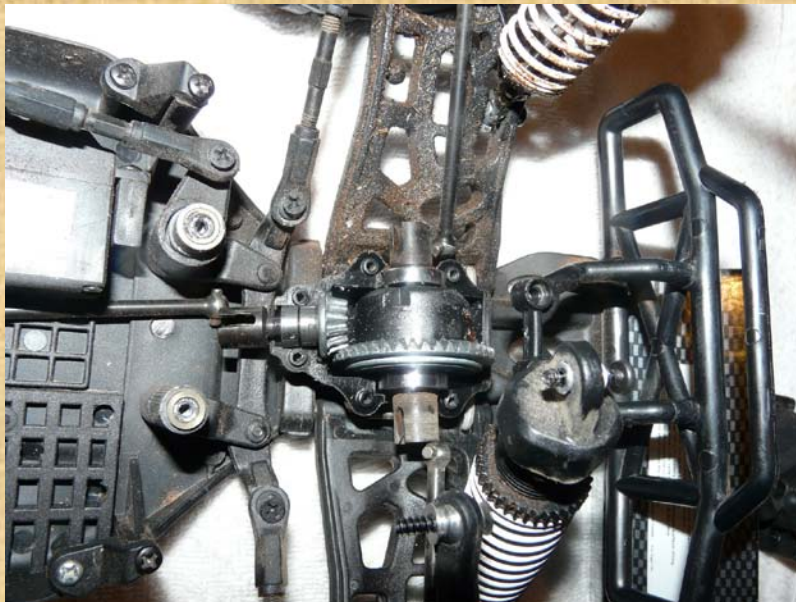


FIGURE 8



FIGURE 9

Replace or repair diff components as deemed necessary.

Step 5 – Other Diff

We also repeated the same disassembly of the bumper and the shock towers to allow access to the rear diff. The rear diff was still good with no metal shavings observed, Figure 10.

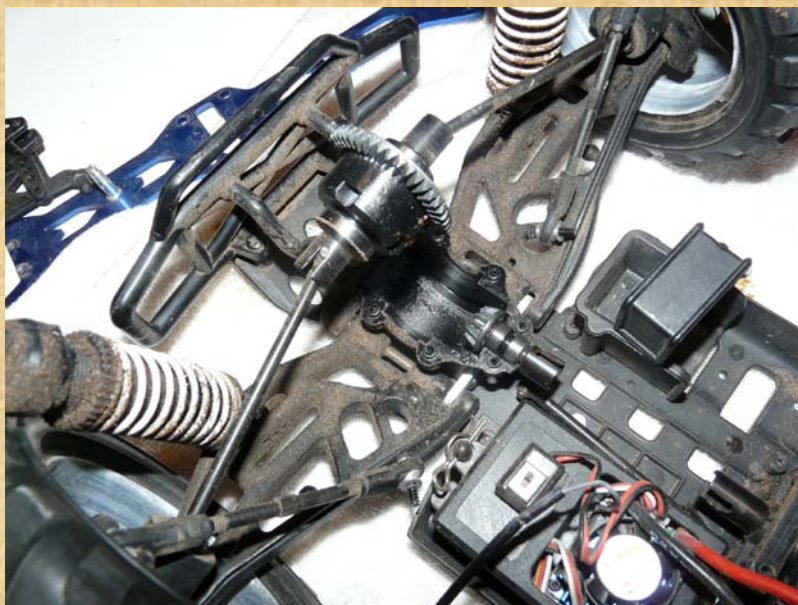


FIGURE 10

Step 6 – Quick Additional Checks

Whilst you have the deck off and the diffs out, check the diff bearings are all still nice and smooth, replace as necessary. Also check the outdrive cups, both the transverse and longitudinal, these wear over time and may need replacing (Figure 11). Getting a bit worn, but still OK.

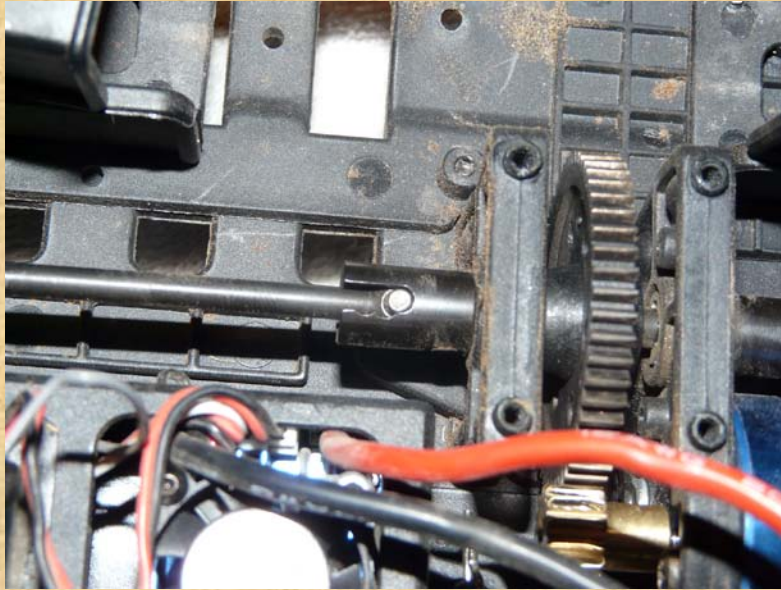


FIGURE 11

Step 7 – Re-assembly

Reconnect shock towers, camber links and shocks, put longitudinal dog bones back (Figure 12).



FIGURE 12

Put Upper Deck back on replacing those spacers (Figures 13 and 14).

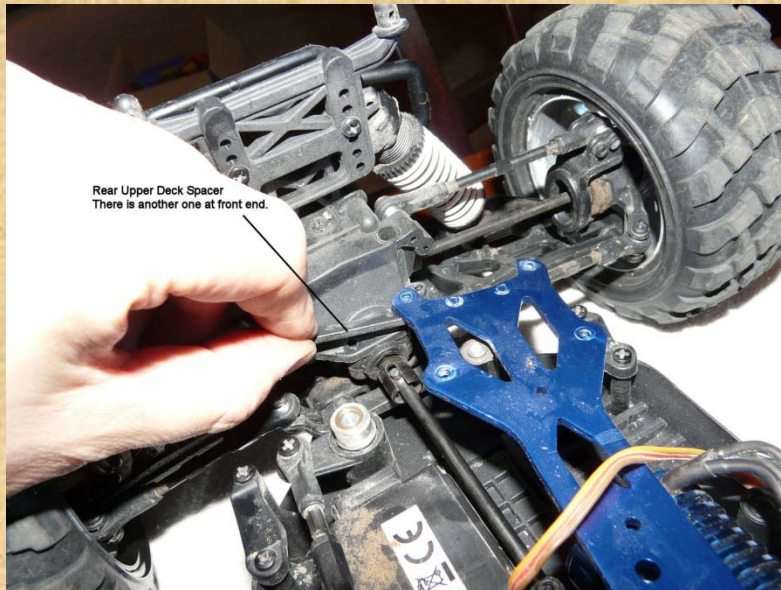


FIGURE 13

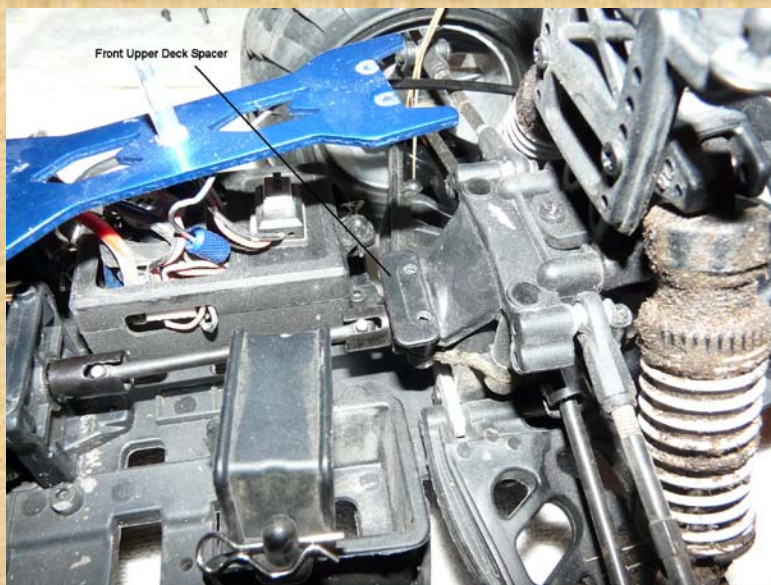


FIGURE 14

Once rear deck is in place (Figure 15) then you're almost done. Though we recommend you check the pinion spur gear mesh.



FIGURE 15

Step 8 – Set Gear Mesh

Now go ahead and reset the gear mesh between spur and pinion. Slack off the small adjustment screw (Figure 16) and adjust the mesh. Use the paper method if you want. Basically you want just a tick of play. I have a neat right angle screwdriver to help with access to the screw, or you may need to remove the shock to get better access to the adjustment screw with a regular screwdriver. It's important to get the gear mesh right, and to have the adjustment screw tight and thread locked, because if it comes loose, you may strip a spur gear!

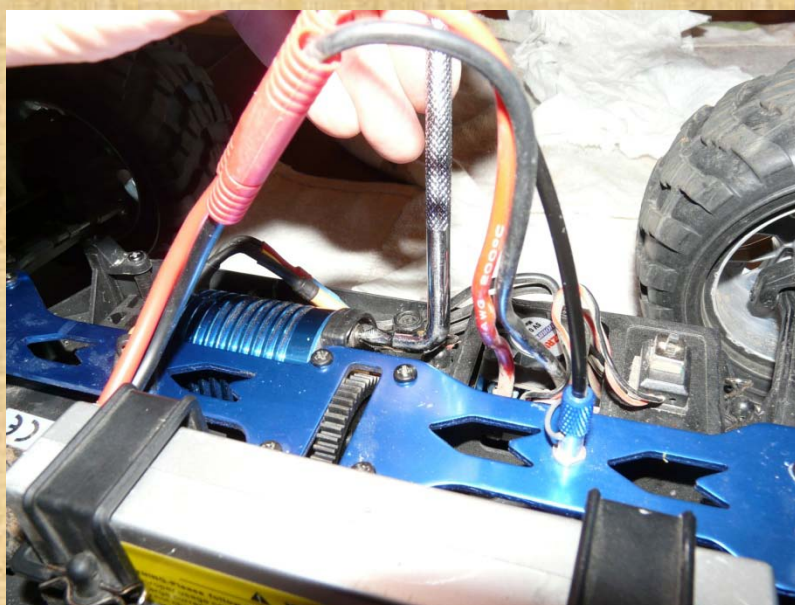


FIGURE 16

And that is it, you're done. That is a pretty easy inspection of the differentials on a 4WD truck, you really don't get any easier, should take you around 40min, perhaps less once you've done it a couple of times. The ease of maintenance on the Caldera 10E truck is a big plus, and why we recommend it as the best 1/10th scale truck in the line up.

Enjoy your newly serviced Caldera 10E.

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