



HPI Tutorial - How to improve the lifetime of your Savage Spur Gear

Related Parts -

76937 - SPUR GEAR 47 TOOTH (1M)

76939 - SPUR GEAR 49 TOOTH (1M)

76942 - SPUR GEAR 52 TOOTH (1M)



Savage spur gears are tough and durable but can get damaged under certain circumstances.

In this tutorial we take a look at the two main types of damage Savage spur gears can suffer from, the causes of these types of damage, and how to prevent them.

Through our testing we have found there are two main types of damage caused to Savage spur gears:-



1.The gear has melted

The plastic of the gears can melt if the temperature gets too hot. There are a two reasons why this can happen:-

1.1 Slipper clutch too loose

If the back of the spur gear has melted like in the picture below the problem is that the slipper clutch is set too loose and slips excessively.

Because of the too loose setting the slipper will get too hot and therefore damage the spur gear.

The back of the spur gear can melt where the slipper clutch plate and the slipper pad makes contact.



This picture shows, where the spur gear melts if the slipper clutch is set too loose. The slipper clutch is only meant to slip under extreme loads and is on the car to save the transmission from serious damage.

Please see our tutorial on how to set up your slipper clutch correctly. (it is demonstrated with a Rush Evo, but the principle is the same for the Savage) You can find the slipper clutch here:-

<http://www.hpieurope.com/walk.php?lang=en&id=9>



1.2. Used in extreme conditions / wrong gear ratio

If you are running your Savage with an inappropriate gear ratio for the surface you are running on the clutch bell can become too hot and cause damage to the spur gear.

A longer gear ratio (bigger clutch bell or smaller spur gear) will give your Savage a higher top speed but less acceleration. This is ok for on road use.

But when running in off road conditions where there is more rolling resistance, such as in long grass, the higher gearing will put more load on the clutch and the clutch will slip more. Therefore you will get less performance. You need a shorter gear ratio for more torque to overcome the higher rolling resistance in off road conditions resulting in better acceleration.

In circumstances where the gear ratio is too long the clutch bell can become very hot due to the clutch shoes rubbing against it at high speeds. When the clutch bell reaches a certain temperature the teeth on the clutch bell will melt the spur gear teeth.



This picture shows the damaged caused by a hot clutch bell. Only a few teeth have melted.

This is also more likely to happen on hot days when the ambient temperatures are high and everything is running a bit hotter.



In this case you need to adjust your gear ratio. You either need a smaller clutch bell or a bigger spur gear. This will give you a shorter gear ratio and more acceleration. The clutch will slip less because it will be able to bite at a lower RPM and therefore stay cooler.

2.The teeth are stripped

The correct gear mesh is very important for the lifetime of the spur gear. If the meshing is too loose the clutch bell teeth can strip the ends of the teeth of the spur gear. This destroys the teeth on the spur gear.



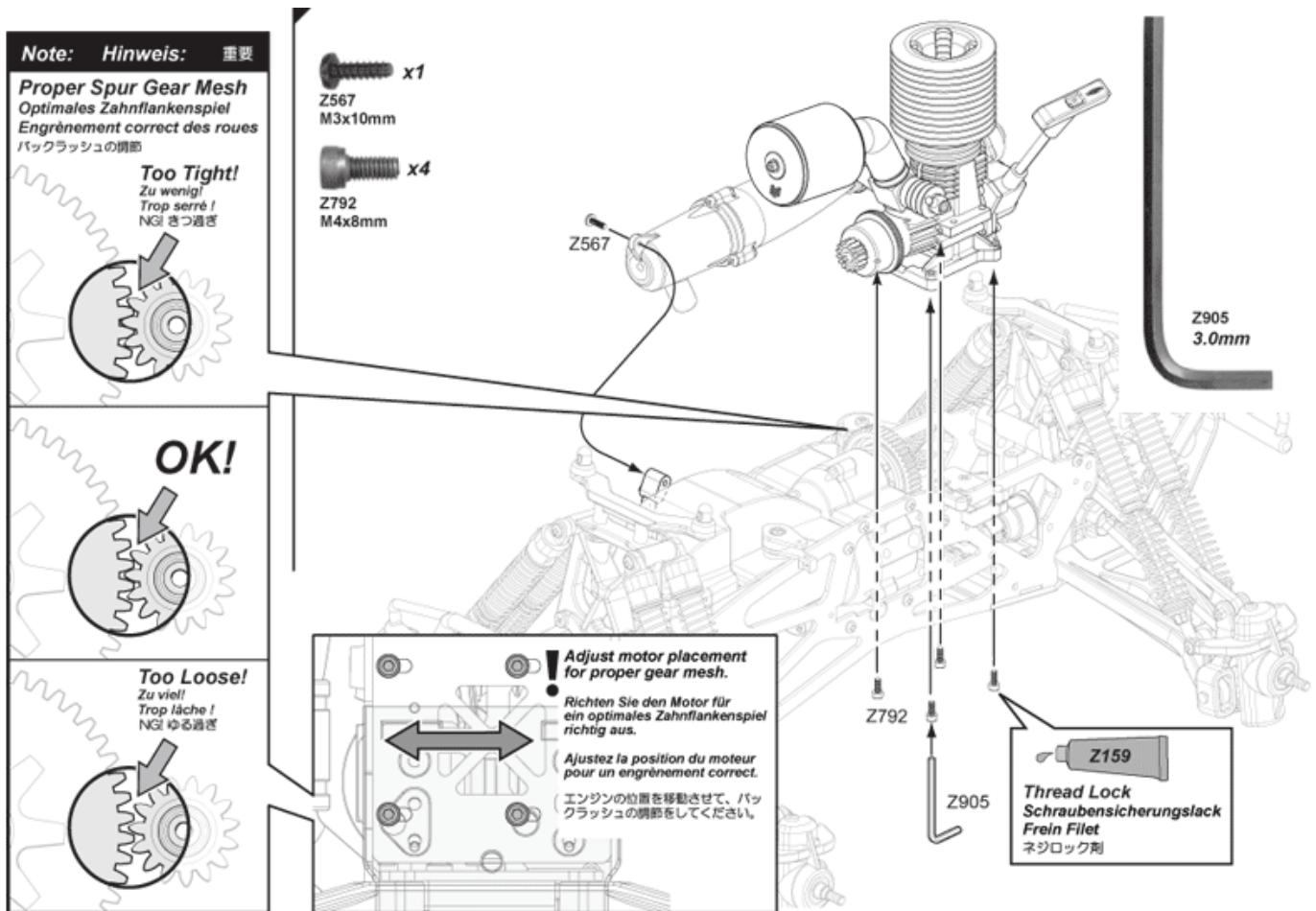
If the clutch bell gear and the spur gear are not meshed correctly then the spur gear can be damaged as shown in the picture above.

There are 2 reasons why the meshing may be wrong.

First the meshing can be set wrong when the engine is put into the truck. Please check as shown below that the gear mesh is set correctly by adjusting the engine position.

Second the engine can come out of mesh if the engine has moved a little while running the car. This can happen due to the engine screws coming loose, from a big crash or after a hard landing from a big jump.

You need to ensure the meshing is set correctly at all times and that the engine mount screws are tight so that the engine doesn't move.



If you keep these principles in mind and maintain your Savage accordingly you will get long lasting spur gear on your Savage!