

WECOHE

12/2003

Assembly instructions for WECOHE gearbox upgrade Kingtiger and Tiger1 (new version)

(Top Secret!)

„Breaking up is hard to do!“ but that’s exactly what you have to do with your old gearbox, to install this upgrade.

You’ve decided to modify your **Tamiya** gearbox. Therefore it is necessary to do some minor postprocessings and alterations on your own. Not an easy job but worth the effort! This is a step by step instruction, which, as we consider, leaves no questions.

We start with the preparation of the tools we need to do our job, followed by the disassembling process of the original gearbox units. The next chapter is the assembly of the „upgraded“ gearboxes and finally the installation of the completed gearbox units into the hull.

The instruction steps are complemented by illustrations, so read this instruction carefully and have a look at the drawings before you start the assembly!

Note:

Since some of the parts underwent optimization during the production phase, they differ in some minor details from the drawings! This has no influence on their functionality in any way!

Let’s go! ☺

Preparation:

You need to have the following tools at hand:

- Long or flat nose pliers (electronics shop)
- Small slotted screwdriver (-) (approx. 2mm)
- Small Phillips-tip screwdriver (+) (diameter approx. 4 u. 2,5 mm)

- Allen key 2,5mm
- open-end wrench 5,5mm
- Liquid thread lock (the secured items should remain relockable)
- Small file and sanding paper (400/120)

The following rule is also valid as with most other modeling activities:

Wait until weekend, send your kids to the grandparents and keep your wife locked up in the basement, or (if you have a big salary) let her go shopping! ☺

Disassembly :

In this step the original gearbox units have to be disassembled into their single components (of course, they have to be demounted out of the hull first).

*„Disassemble“, in this particular case, means the use of an appropriate range of tools, which does **not** include a hammer!*

You should disassemble one gearbox unit at a time, so that the other one remains assembled for reference purposes!

Start with the right one, because the drawings refer to this side.

Begin with the motor, and work yourself, one shaft after the other, to the final drive shaft. Please be careful, since some of the original parts are needed afterwards!!!

Pay special attention to the washers (securing pins) that secure the shafts on the outside of the gearbox housings → it takes hours to detect them on the carpet! ☺

To ease of the alignment of the original parts, we advise to sort all items/ parts into assembly groups. E.g. all bushings, gearwheels, sleeves and spacers should be placed near or around the belonging axle, where they were located on, in the original gear box.

At the end of this step, you should have two „naked“ aluminum gearbox housings with nothing left except for a few holes. Also you will have two black plastic parts, one motor, a small pile of recessed countersunk flat head screws, some hexagonal spacer sockets, spacers and washers. In addition six piles with an axle and the associated parts.

If it is like mentioned above ... Congratulations! ☒ ☐

Assembling:

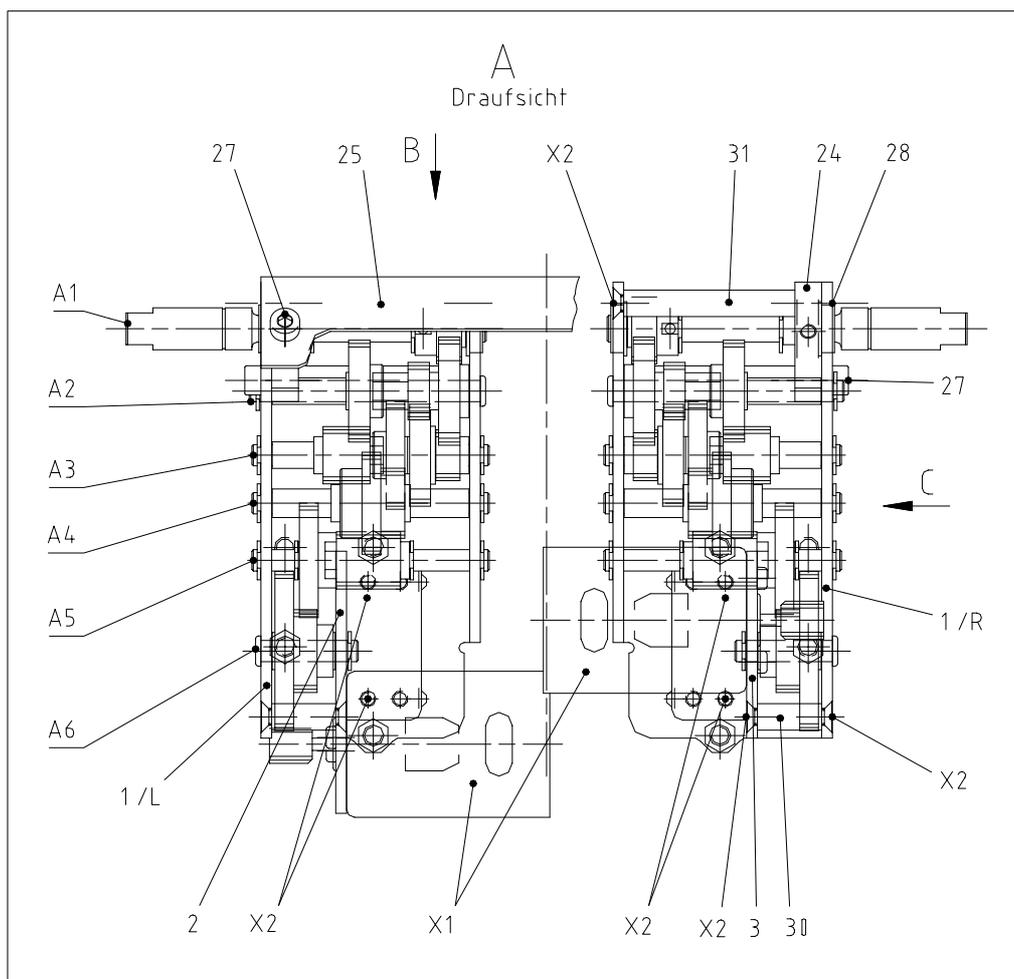
Now, it is getting a bit more complicated:

To reach a coordinated chaos, it is advisable for the assembly, also to sort the parts contained in the conversion kit. It is also convenient to build the groups as follows:

- aluminium and steel parts
- screws, washers and small associated parts
- bushings and ball raced bearings
- axles and spacers
- bearenforcements
- gearwheels

Once again, we would like to advise you „please be absolutely careful while tightening the screws“

Do not strip them!

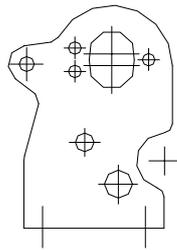


Drawing 1

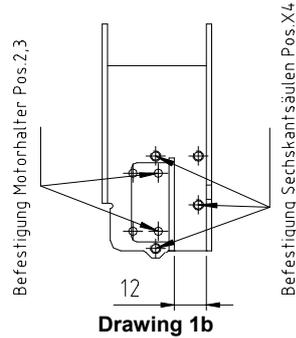
Drawing 1 shows the position of the completed gear box – as installed in the hull – viewed from above. Parts supplied with the conversion kit have only a single number in the drawings and no further identification. The parts, marked with a prefixed X belong to the original gearbox. Positions with a prefixed A mark the different sub-assemblies of the different axles. Arrows “B” and “C” point the direction of view onto gearbox when necessary. We will refer to this later.

1.

First mount the right Motor stay (3) [drawing. 1a] in the right new gearbox housing (1 /R) [compare drawings . 1 and 1b] . Use crosstip counter sunk screws M3x6 (X2) from the original gearbox. Please pay attention to the position of the short blade of the Motorstay and which of the available drillings at the bearing shield and Motor stay you should use. [compare drawing 1b]



Drawing 1a



Drawing 1b

2.

About caries and other curiosities.

Now we will assemble the different axles and their belonging bearings, spacing sleeves, gearwheels and retaining washers.

Please take care of removing all burr from the gearwheels using a file or sandpaper (120 grain size). Especially gearwheels (6) and (13) are affected as these are mechanically reworked and therefore can not be automatically deburred.

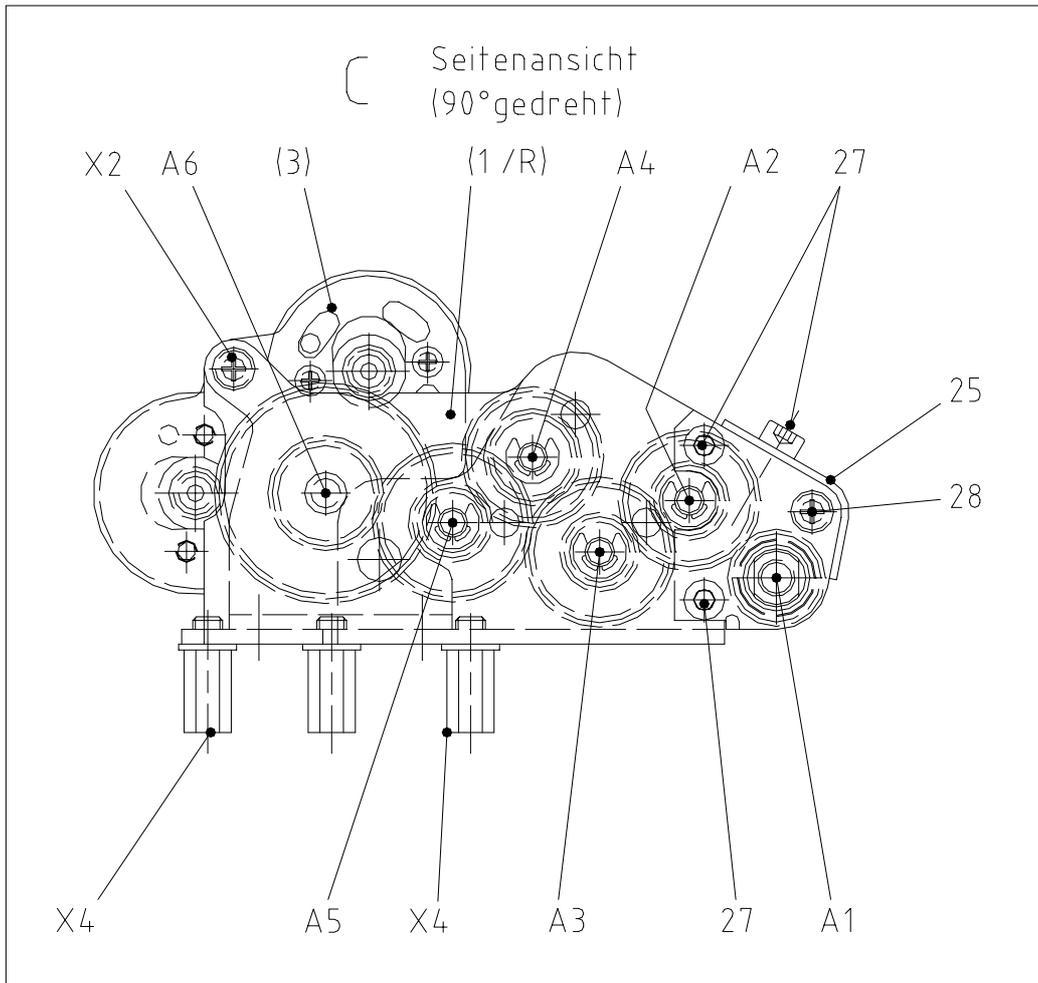
Your understanding of this situation will be very much appreciated, because this is a comparatively small work for each of you and if you will do it on your own, the costs could be kept considerably low.

Note for identification of original parts:

The re-used original gearwheels will only be used on their according axle of the original gear box! (it will – under no circumstance - happen, that, for example: a gearwheel of the original axle 3 will be re-used on new axle 4!)

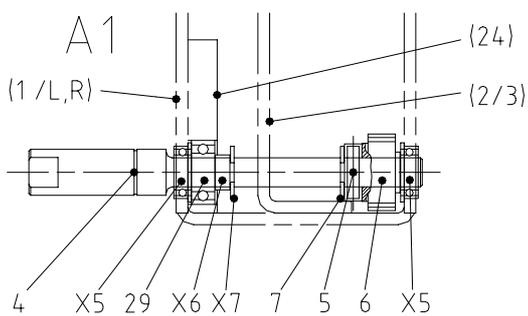
Please refer to drawing number 2 for position of axles.

All corresponding drawings refer to right view.

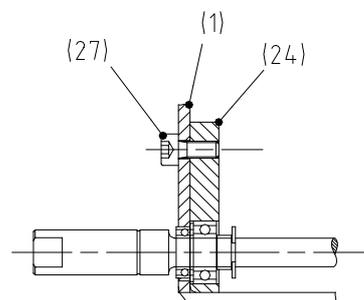


Drawing 2

2.1



Drawing 2a



Drawing 2b

Start with axle A1 and mount it into the new gearbox housing

Therefore fix the ball raced bear (**X5**) of the original gearbox into new gearbox housing. The bearing's sleeve has to be located on the inner face of the new gearbox housing. Make use of some liquid thread lock to fix it!

Carefully use liquid thread lock to ensure that the bearings remain removable for maintenance!

Before mounting final drive shaft **(4)**, polish it with fine sanding paper until the new ball race could be put on with **smooth** pressure.

Thereafter, install the final drive shaft from the outside into the first ball race of the GB-housing (refer to drawing 1).

While pushing the final drive shaft further, align the new ball race **(29)**, the spacer sleeve 6x2,5 **(X6)** and the bearing block **(24)** on it.

The brass pin **(5)** has to be inserted into the shaft and the gearwheel Z20/ **(6)** has to be pushed on to fit with it's reception onto the brass pin. Please work the pin to fit!

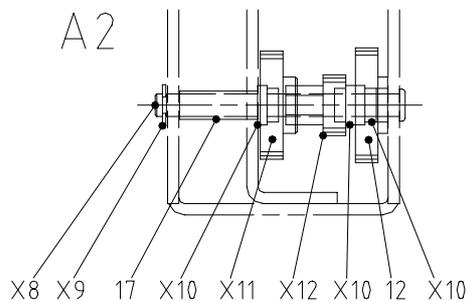
Now insert the final drive shaft into the second ball race **(X5)** and complete insertion. Secure final drive Shaft using securing pin **(X7)**.

Finally fix bearing block using screws M3x6 **(27)**.

So far, so good!

2.2

Axle Number 2 is next...



Drawing 2c

Principally, it's done the same way as the previous one:

This time, use shaft **(X8)** of the original Tamiya gearbox and insert it from the **inside** into GB-housing.

Take care of proper positioning the shaft (Refer to Drawing 2)!

For ease of handling, the belonging gears (drawing 2c) should obtain their 3 bronze bearings **(X10)** prior to installation.

Again, make **careful** use of some liquid thread lock to fix the bearings to the gearwheels.

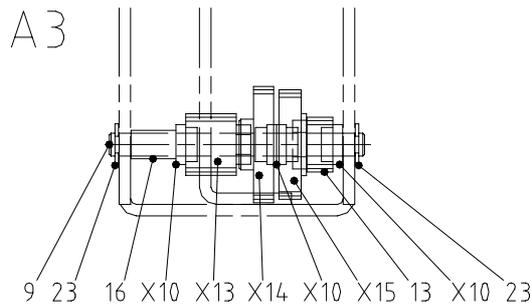
Please take care of removing all burr from the gearwheels and note position of gearwheel **(12)** !!!

After inserting gear Z32 / **(12)** of upgrade kit and Z16 / **(X12)** and Z30 / **(X11)** from Tamiya GB, the spacer sleeve 5x13,8 **(17)** has to be added.

Secure shaft with secure pin **(X9)**.

2.3

Here we go with **A3** :

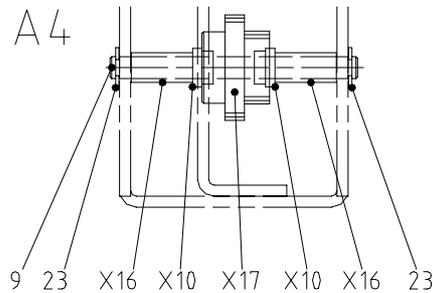


Drawing 2d

Shaft (9) obtains one securing pin (23) first. Gear Z14 / (13), Z30 / (X15), Z32 / (X14) and Z16 / (X13) should receive their bronze bearings (X10) prior to installation, then push them on shaft and secure them. A spacing sleeve 5x7,8 (16) must follow and again securing pin (23) is last.

2.4

Doing what comes naturally - Shaft (Axle) A4



Drawing 2e

Shaft (9) obtains one securing pin (23) first and has then to be inserted into GB-housing.

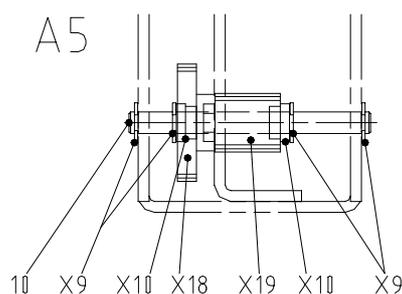
This time, add a spacing sleeve 5,4x11 (X16) first, then push on dual gearwheel Z30-20 / (X17), after it has received it's bronze bearings (X10).

Take care of proper position (Refer to Drawing 2)!

Finally, push on the second spacing sleeve (X16), fully insert shaft and again securing pin (23) is last.

2.5

Last not least – Axle (shaft) A5 :



Drawing 2f

This time, shaft **(10)** – which bears 4 locations for securing pins – has to be inserted.
(With one pin **(X9)**, taken from the original Tamiya stuff, clicked in at one of two ends).

As usually, push on gearwheel Z34 / **(X18)** and Z16 / **(X19)**, after they have received their bronze bearings **(X10)**.

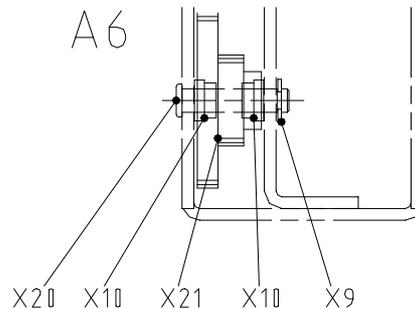
Fully insert shaft and secure from dropping down via clicking on a second securing pin **(X9)** to it's outside location.

Secure gearwheels via clicking on another two pins **(X9)**.

(refer to drawing 2f)

2.6

On the target line – Axle (shaft) **A6**



Zeichn. 2g

The last shaft is the least complicated!

It remains the same as in the original Tamiya gearbox and is simply installed in the new GB-housing!
The only difference to the previous axles is that the fully inserted shaft is located in a hole of the motor stay. (refer to drawing 2g)

Business as usual: Push shaft **(X20)** into the GB-housing, fit dual gearwheel Z48-24 / **(X21)** after it has received it's bronze bearings **(X10)** to shaft, fully insert shaft and secure with **(X9)**.

3.

Mount the short (L = 12mm) of the two spacer pillars (brass) **(30)** between the GB-housing and the motor stay (refer to drawing 1), where the countersunks are located using two countersunk screws M3x6 **(X2)** of the original Tamiya gearbox.

Mount the long (L = 32mm) of the two spacer pillars (brass) **(31)** between the GB-housing and the bearing block **(24)** slightly above final drive shaft (refer to drawing 1), use a countersunk screw M3x6 **(X2)** to fix it from the inner half of gearbox and a countersunk screw M3x10 **(28)** from the outer half.

Screw the hexagonal spacer sockets and the belonging washers **(X4)** to the gearboxes (refer to drawing 2).

Take care of proper position! (refer to drawing 1b)

Mount the motors **(X1)** (refer to drawing 2) and lubricate the gears.

Finished !!!

And now, Gentleman, the same procedure for the left gearbox!

Please note that the drawings have to be reflected, to be valid for the assembly of left gearbox!

Installation:

The completed gearboxes have to be installed like the original ones. The screws should only be tightened loose, they need to be lined up via traverse **(25)**. Fix traverse with screw M3x6 **(27)**.
Line up the gearboxes!

Tighten' all screws!

Gearbox upgraded!

Congratulations!

Final note:

Please be careful with the gas pedal during the first test trials. The improved torque is enormous!

If everything runs properly open the basement...! (Up to you...☺)

Happy tanking

The WECOHE – Team