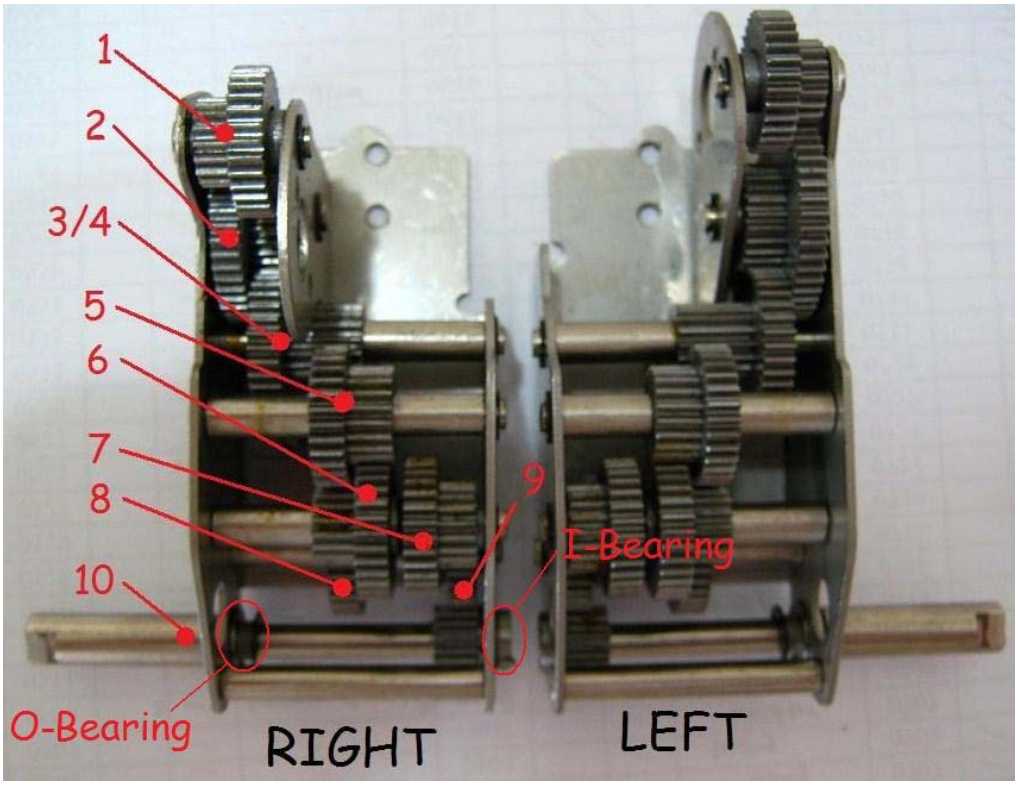
MOTION IN POWER 45000

Read instructions carefully before installation

IMPACT Transmission Unit (TU) offers Tankers the much needed torque for tanks to perform with more realistic movements and the ability to move with more efficiency through rough terrains and climbing slopes with more ease.
It is also structured to be robust so that it will last much longer in the battle fields and lesser worries of breaking down.

GETTING TO KNOW

- GEARS PART NUMBERS



Without DDG, Gear Ratio – 59.77
With DDG, Gear Ratio – 105.47

★Types of TU
TU1 (part number 45001) for Sherman M4, Sherman M51, KV1, KV2
TU2 (part number 45002) for Tiger I, King Tiger
TU3 (part number 45003) for Panther, Jadgpanther, Leopard 1A4, Gepard
TU4 (part number 45004, low-profile) for Panzer IV (**NOTE**: DDG must be removed for PzIV)

● PARTS IN TU KIT

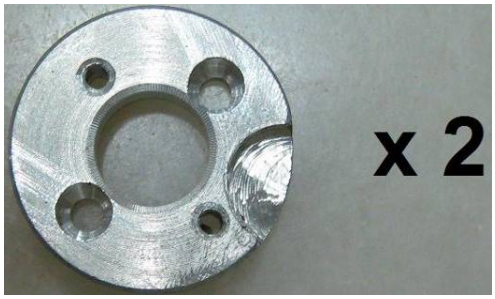
■ RIGHT side TU – 1 set

■ LEFT side TU – 1 set

■ Short studs – 3pcs
Long studs – 3pcs

⚠***USE STOCK TAMIYA STUDS WHEN INSTALLING IMPACT TU. SPARE STUDS ARE FOR HOBBYISTS THAT HAVE OTHER PROJECTS OTHER THAN TAMIYA TANKS***

■ Motor spacers – 2pcs



■ M2.6 screw – 6pcs

★Tools Required
Philips head screw driver
E-clip pliers
Small brush (for brushing oil/grease onto gears)
Lubricating oil or grease
Liquid Thread Lock
Small round file

INSTALLING TU

1 With an E-clip pliers, remove the pin holding Gear #1.

Gear #1 is also called DDG
DDG -- Drop Down Gear

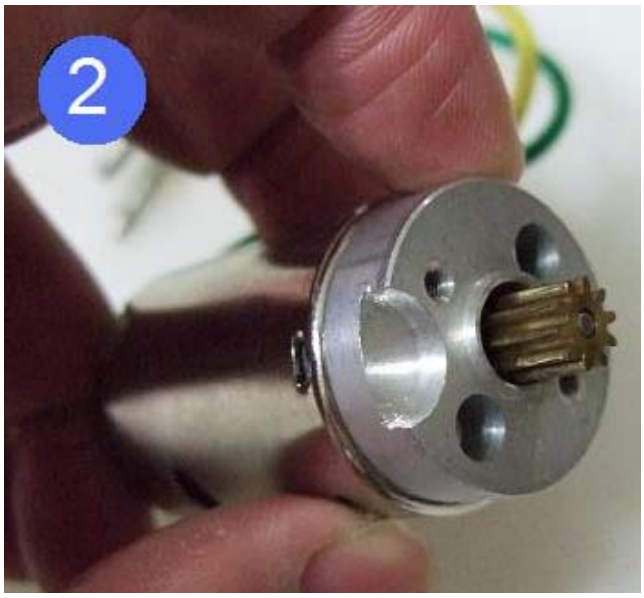
NOTE:
For PzIV installation, this gear must be removed so that the upper hull is able to be closed

2 Screw in the Motor Spacers onto the Motors. At this time, screws need not be tightened yet. This unit is called Motor Assembly.

Motor Assembly will enable pinion gear to engage the DDG, making the TU to run at higher gear ratio.

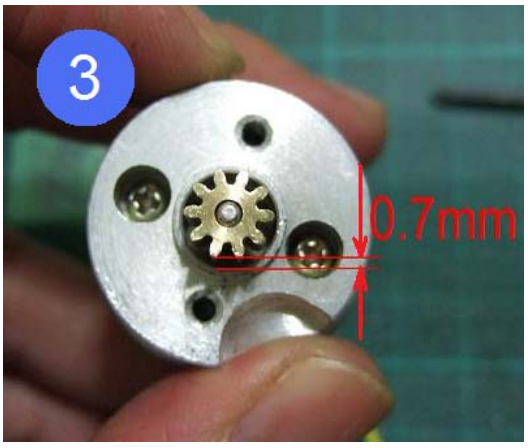
★ If Motor Spacer is not installed and DDG removed, pinion gear will engage Gear#2, making the TU to run at lower gear ratio.

★ It may be better to use the screws provided because the head is smaller than Tamiya's stock, hence will provide more play when adjusting alignment.

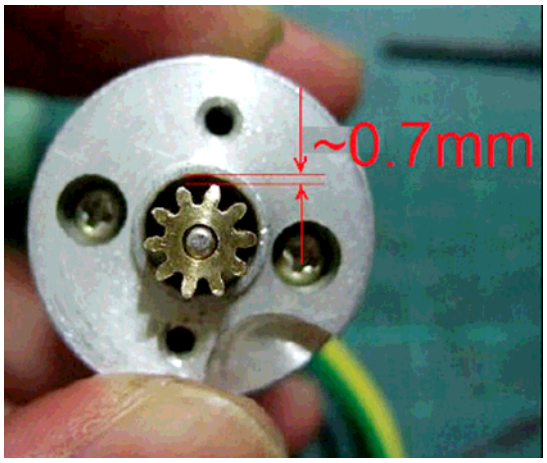


3 Moving the Motor Spacer around, there will be a play of about 0.7mm in all direction.

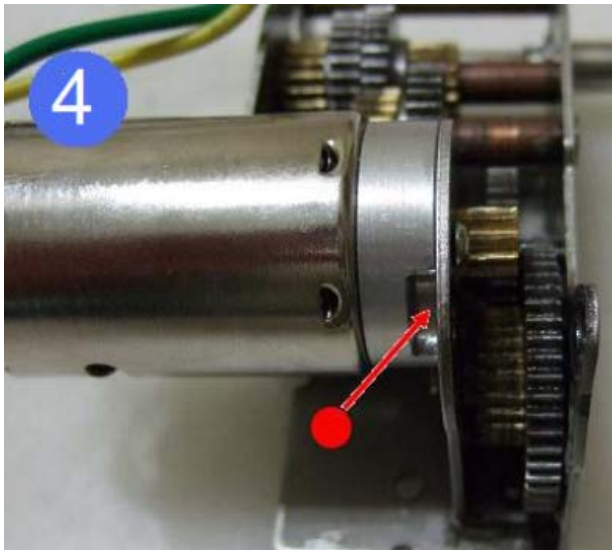
This is necessary for the alignment adjustment between pinion gear and DDG.



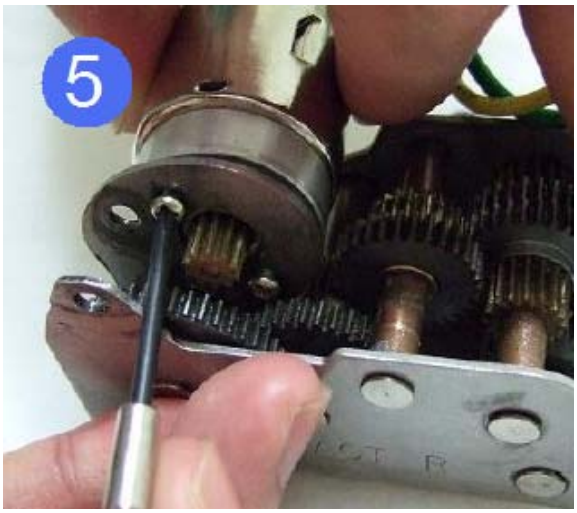
0.7mm in another direction.



4 Fit in the Motor Assembly so that the recess (●) is in the direction for DDG's shaft

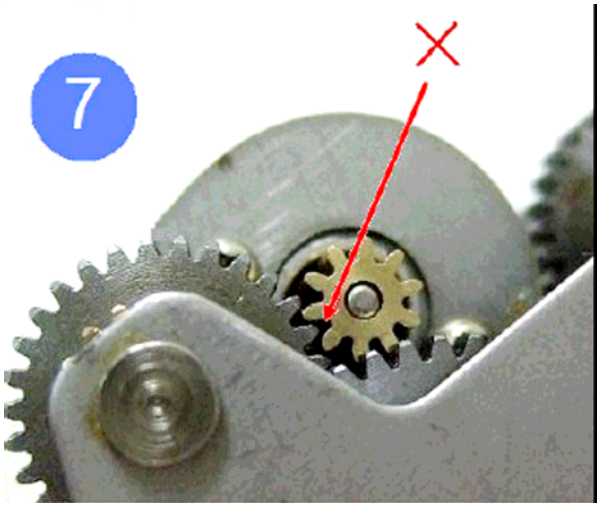


5 Fix in the 2 screws to temporary install the Motor Assembly.

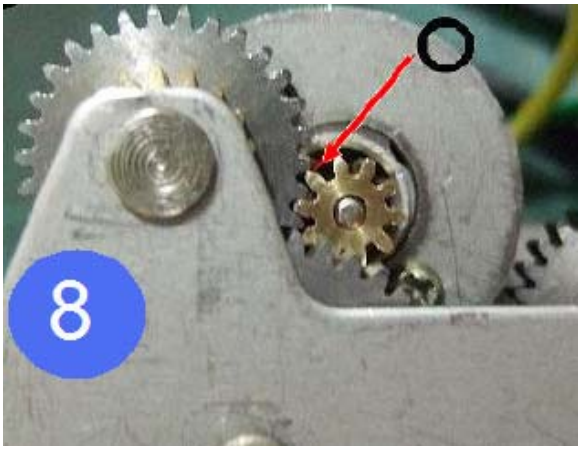


6 Temporary fix in the DDG, without locking in the E-Clip to the shaft yet.

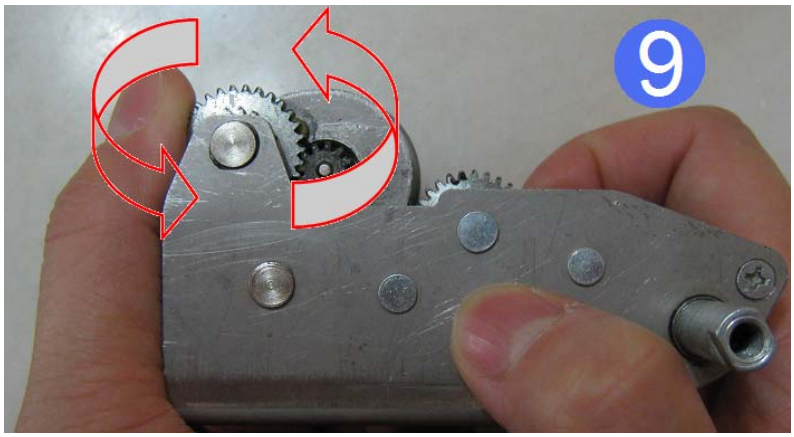
7 Check the meshing of teeth between pinion gear and DDG.
X shows that the meshing is too wide, which is no good.
OR
If you were not able to rotate the DDG freely with your finger, it means the meshing is too tight.
Remove DDG and Motor Assembly.
Loosen the 2 screws locking the Motor Spacers, and repeat STEPS 3 to 6 again to realign for better meshing.



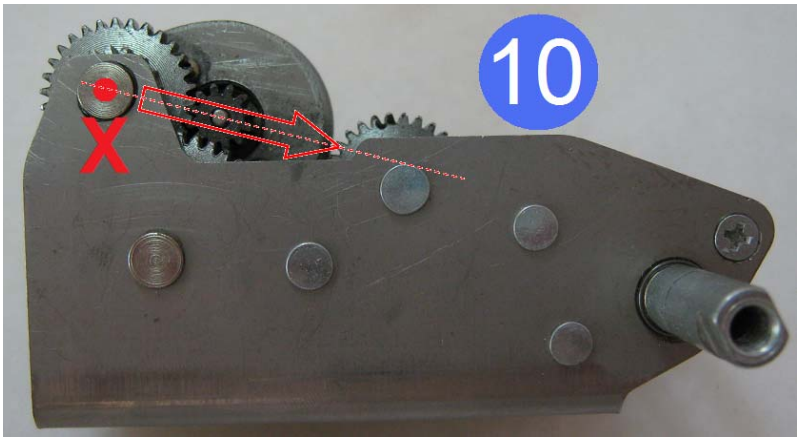
8 When meshing is like O, and you are able to move DDG freely with your finger, the alignment is completed.



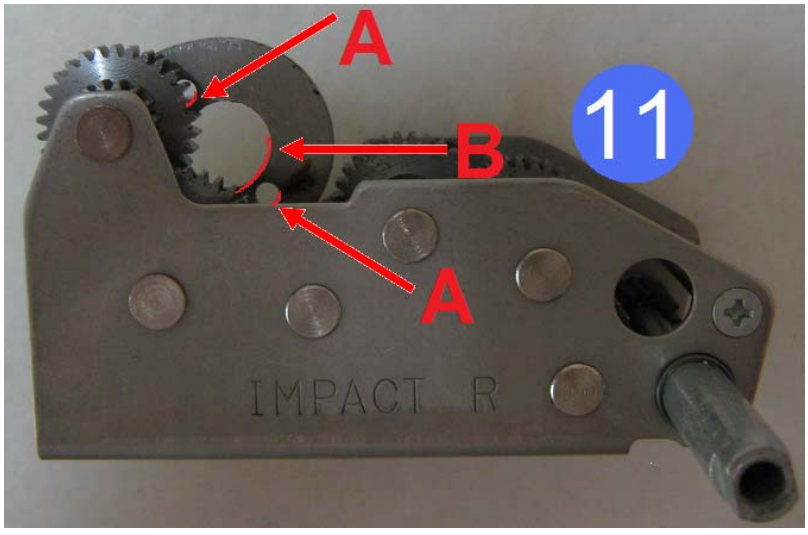
9 With one hand handing the TU, and the other hand's thumb, rotate the motor pinion gear.
The pinion gear must be able to rotate freely and smoothly.
If rotating was fine, all screws can now be tightened. It will be good to apply some liquid thread lock to the screws, as it will ensure the Motors and Motor Assemblies will stay firmly in place.



10 If the pinion gear is not rotation smoothly, the motor position will need to be moved away from its adjacent gear.
As shown, direction of motor's position will need to away from **X**.
This is a usual case if the pinion gear is not a 10teeth type.

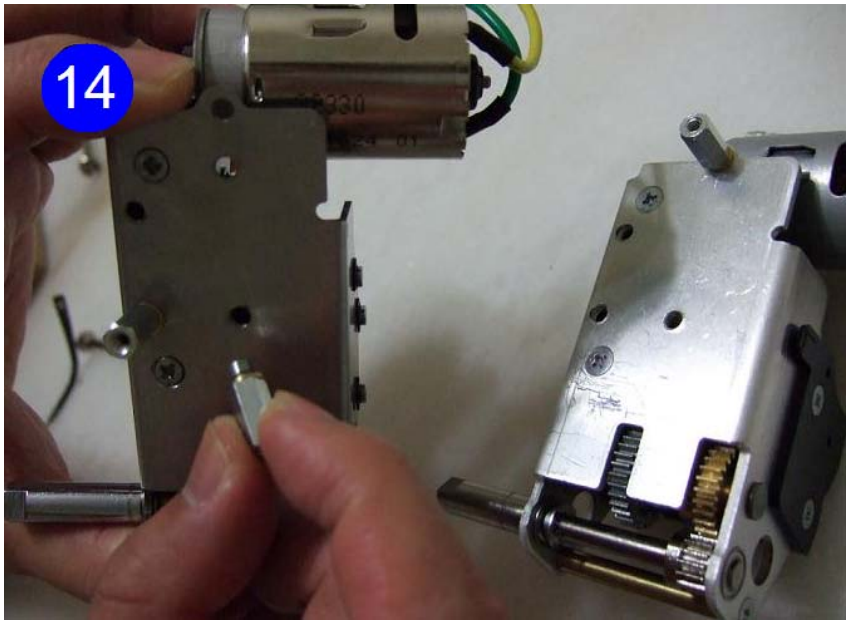


11 After determining the motor direction, with a round file, slowly file away the areas at **A** and **B**.
Installed back the motor and do STEP 9 again.
If motor pinion gear still not smooth, file more at **A** and **B**.
Be very careful and do it slowly and not file too much.
Do STEP 9 again, if the motor pinion gear was able to rotate smoothly, all screws can now be tightened. It will be good to apply some liquid thread lock to the screws, as it will ensure the Motors and Motor Assemblies will stay firmly in place.



12 Lock E-clip onto DDG shaft.

13 At this stage, it will be good if both Transmission Units can be dry run with a battery.
This will be able to test out if the unit is running smoothly.
If there is any binding or lose gears engagement, it can be remedied easily.
Else, if problem arises after the untested Unit was installed onto the tank, it would be more time spent.

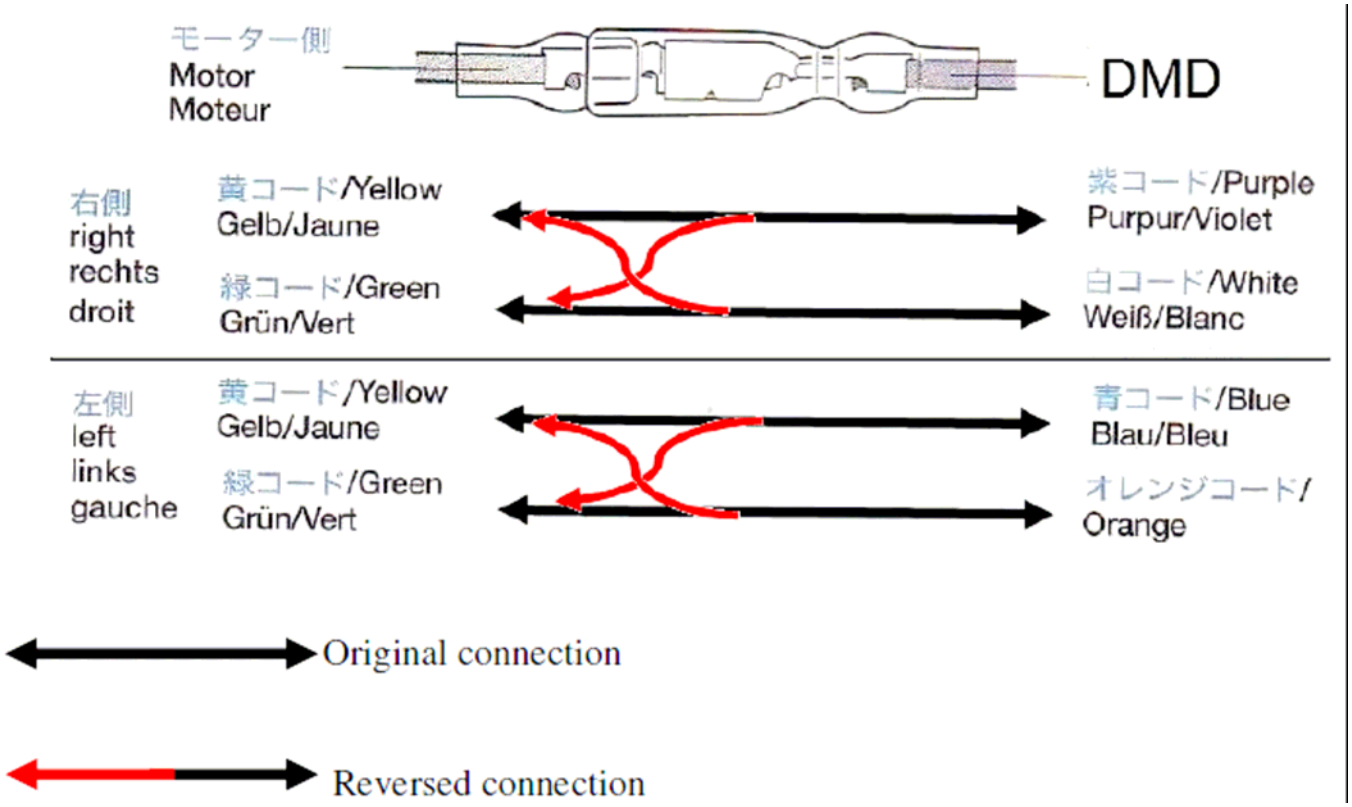


14 Use original Tamiya gearboxes' studs (and spacers) to install onto IMPACT TUs.
This will ensure that the TUs stand at a correct height in the tank.
You may need to enlarge some of the screw holes at tank's lower hull to match the studs.
Be careful not to enlarge too much, make it just enough to put in the screws, this will ensure more stability
TU installation is completed and ready to be installed into the tank.

WIRE CONNECTIONS FOR MOTORS

★ If TU is configured to run without DDG, the motors' wirings will follow exactly as stated in Tamiya manual

★ If TU is configured to run with DDG, the additional gears will reverse the rotation of TU's final shaft. Therefore, motors' wirings will have to be interchanged for normal running.



PREPARING TU FOR RUNNING

1 Use a small painting brush, dip with lubricating grease/oil, and brush sufficient amount onto the gears and shafts. For correct selection of lubricants, consult your nearest hobby store.

2 Run the TU, without the tracks, at low speed in one direction, for about 15minutes.

3 Then run the TU in reverse direction for about another 15minutes.

4 Repeat STEPS 2 and 3 at high speed.

5 Since TU is made of 100% stainless steel, it will generate more noise than stock Tamiya gearboxes. But after breaking in (STEPS 1 ~ 4), the noise will reduce tremendously, but it can never be as quiet as Tamiya's.

6 Always maintain TU area in the tank as particle free as possible. Hard particles (sand, pebbles) that entered and landed onto the gears is never good for its performance.

⚠ **NEVER run TU in dry condition**

⚠ **Maintain TU with periodic cleaning and application of new lubricant**

HOP UP SETS FOR TU

To extend and increase the realism of tank movement, HOP UP SETS are available

- 12 Teeth Pinion Gear Set, p/n 45032
- 11 Teeth Pinion Gear Set, p/n 45031
- 8 Teeth Pinion Gear Set, p/n 45033

- HOP UP SET #1, p/n 45021

- HOP UP SET #2, p/n 45022

- HOP UP SET #3, p/n 45023

Also available are files related to IMPACT Gear Information, including various Gear Ratio Configurations with HOP UP SET, which can be found at IMPACT Yahoo Group.
Contact your Regional IMPACT Dealer for more information or email us at impact.upgrades@yahoo.com

Pinion Gear Installation

1 The original 10T Pinion Gear ***must*** be removed by using a pinion puller.

⚠

- All pulled out press-fit stock pinion gears are not to be re-used again.

2 The pulled out 10T Pinion Gear ***cannot*** be re-used again.

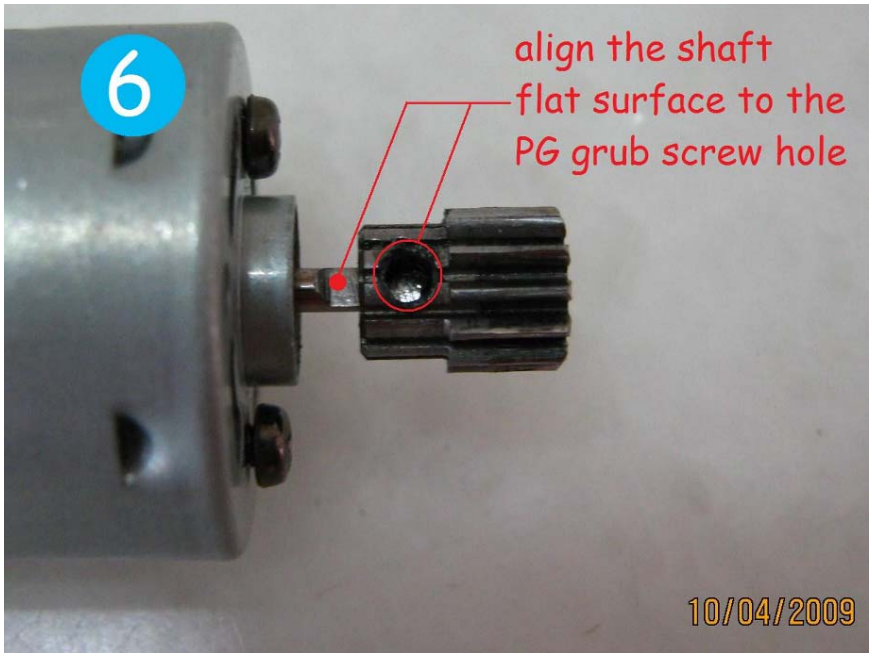
3 IMPACT 12T is designed to have a press-fit into the standard Mabuchi's RS380SH shaft. Mabuchi specification is 2.30mm

4 Once you removed the 10T PG, filed down the motor shaft for a flatness of about 1.8mm ~ 2.0mm. That will ensure a definite grip between the PG and the shaft.

⚠ Without this flat surface for the grub screw, the PG will lose grip very easily

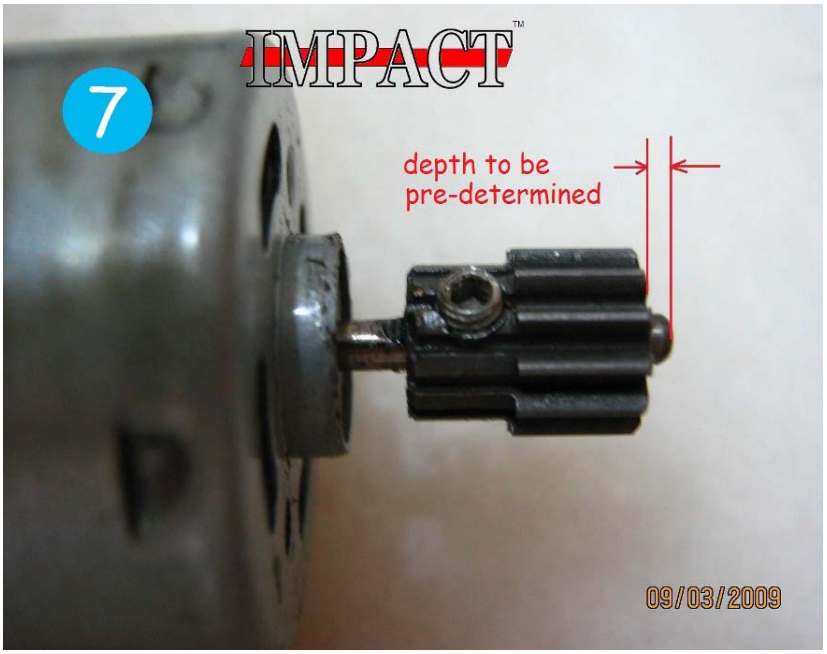
5 After, try to hand press the 12T PG into the motor shaft. If the fit is too tight, then file down the shaft diameter a little (about 0.05mm will do). Ensure that even after filing down the diameter, the fit still provides some tightness.

6 When you are satisfied with the fit, carefully insert the PG and align the shaft flat surface to the PG grub screw hole.
This will ensure that the grub screw can grip the flat surface.



7 Once you are satisfied with the fit, pre-determine the depth of the PG you wish to insert. Since the configuration of the TU/Gearboxes can be different, carefully insert into the depth you desired.
If the insertion is showing some resistance, use a hobby hammer to carefully tap it in.
Before locking the grub screw, drop in a very small amount of Liquid Thread Lock into the screw hole. The purpose is more of holding the PG and the motor shaft together. Also to hold the grub screw.

⚠ Without applying the thread lock, the grub screw will loss grip very easily



The motor is now ready to be installed into the TU/Gearboxes for a test run.