BLINES 13:1 & 26:1 'POWER' GEARBOX MK2

These gearboxes are much more closely toleranced than typical 'fold-up' types and care is required in their assembly. Taking a little care and time will result in an exceptionally quiet, smooth and long-lasting gearbox.

Failure to follow this procedure is likely to result in a gearbox that will not run (or not run well) – this is not a warranty issue although we will happily provide replacement frets or other components (at cost) should you run into difficulties.

These gearboxes use the cusps on the fret as a means to control tolerances – DO NOT REMOVE CUSPS FROM ANY OF THE COMPONENTS UNLESS DIRECTED.

The reamers mentioned in the instructions can be obtained inexpensively from discount tool sellers and even from well-known on-line auction sites. They are recommended for the assembly of the gearboxes as they result in the necessary accuracy in the opening of the critical holes as well as being speedy to use.

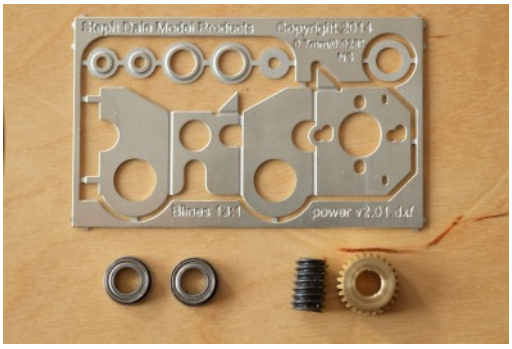
Twisty-tabs. These components use twisty-tabs to position and secure the components before soldering. Twisting the tabs approximately 90° will hold the parts firmly relative to each other in preparation for soldering.

Additional items

Motor of your choice. These gearboxes have fixings for Canon 1833, Mashima 1824, 1830, 1833 motors.

Axle/wheelset of your choice, on a 3/16" diameter axle. These instructions show a Slater's axle in use.

Step 1



First job is to check you have everything:

Fret x 1
FR156zz 3/16" id bearings x 2
Gearset x 1

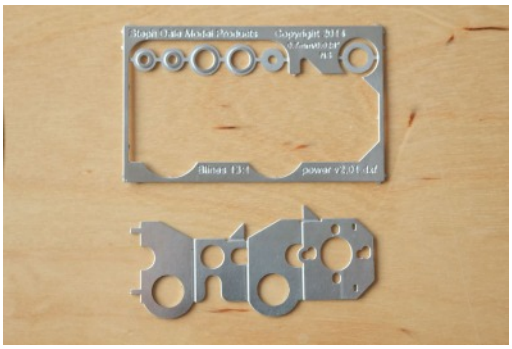
Step 2

The bearing holes are already reamed. Test fit the bearings in the holes as shown. Do not fix at this stage.

Step 3

Test fit the bearings on to the axle. If it's too tight then, polish the axle with emery paper until the axle just fits. Do not fix at this stage.

Step 4



Cut the main part of the gearbox from the fret.

Step 5

Bend up the front to 90 degrees.

Step 6

Bend the second fold to 90°.

Step 7

Bend down the first top ear to 90°.

Step 8

Bend the back to 90°.

Step 9

Bend down the second top ear to 90°. Twist the tabs on the backplate to lock the two ends together. Solder round all the folds and joints.

Step 10

Cut off the tabs at the back of the gearbox. Rub down the back of the gearbox on a flat surface. At this stage the gearbox frame may be blackened. Dry completely before continuing.

Step 11

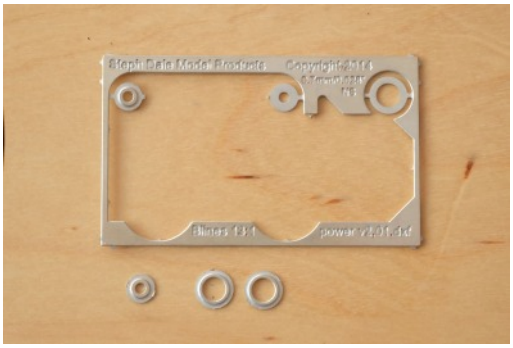
Fix the two bearings with retaining compound. Loctite 603 is recommended.

Take care not to get any of the retainer on the faces or races of the bearings – they will seize solid in no time. If you think this has happened remove them from the frame and if found to be seized, we can supply replacements for a nominal fee.

Step 12

Carefully remove the burrs from the end of the worm.

Step 13



Remove one small shaped washer and two large shaped washers from the fret.

Step 14

Carefully de-burr the back of the washers.

Step 15

Note: The small washer always fits with the worm in this position. The shaped side should always be away from the worm.

Step 16

Assemble the washer and worm on to the motor front shaft.

Step 17

Gently press the worm home on the shaft; you need the motor to turn smoothly but with minimal float on the shaft at this stage.

Step 18

Note: The larger washers always fit with the gear in this position. The shaped sides of the washers should always be away from the gear.

Step 19

Fit the axle, gear and washers into the gearbox. At this stage test that the axle turns over smoothly.

Step 20

Fit the motor and worm to the gearbox.

Note: The axle, washers and gear may need removing depending upon which back plate/motor combination you are using.

Step 21

Loosely fit both motor screws to attach the motor to the gearbox. Gear mesh can be adjusted at this time moving the motor/screws up and down in the slots on the backplate. Test that the motor still turns over smoothly and that the gears mesh smoothly; it may take several goes to get this absolutely perfect.

Note: The axle, washers and gear may need removing depending upon which back plate/motor combination you are using.

Step 22

At this stage I lubricate the gears with a little gear lubricant.

The aim is to get a thin, even coating on both the gear teeth and worm. I use Woodland Scenics Hob-E-Lube 'Gear Lube' (Item WHL655).

The bearings are lifetime lubricated and will need no further lubrication.