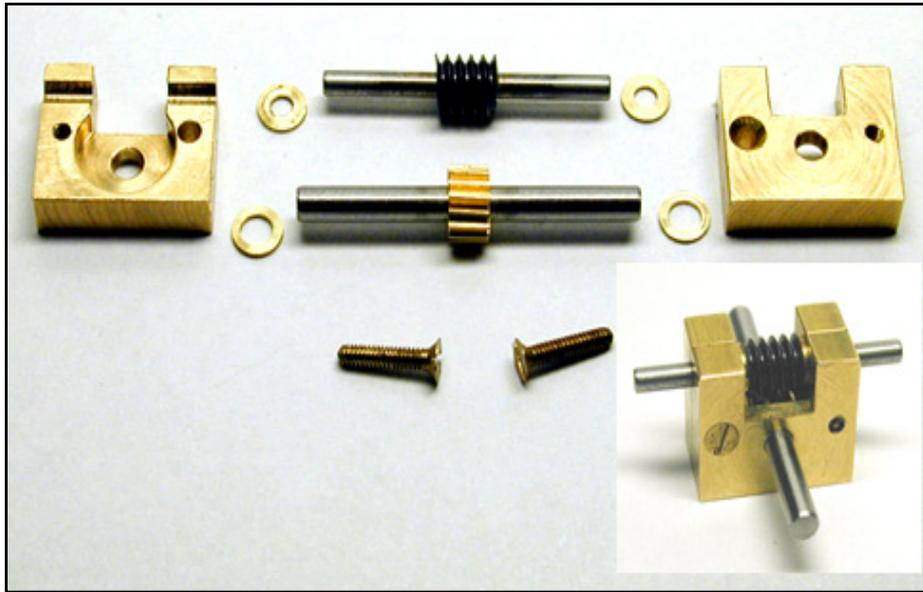


# Ultrascale Data Sheet

Issue: 003-090204

## 15:1 ratio worm and wheel gear box

### Overview



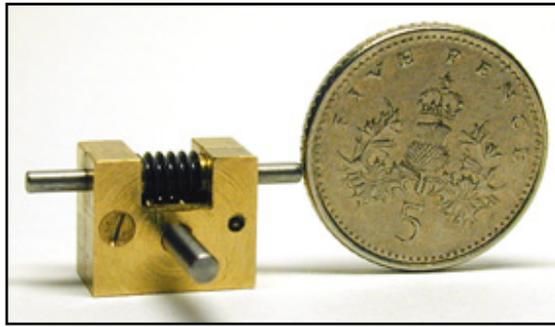
The above gear box is constructed using a 15:1 gear set which has been specially made for the above design and is housed in a brass casing made in two halves and secured together with two 12BA countersunk screws. This method of construction means that there are no bushes to solder and no etch work to fold-up, leaving only the need for a screw driver to put this gear box together. The use of countersunk screws also means that the head of the screw sits flush to the casing when assembled. This method of construction allows the gear box to be assembled and disassembled as required giving the modeller more flexibility when fitting the gear box. This method also allows the axle to be changed more easily if required.

The approximate dimensions of the gear box are:

- Width: 0.250" (6.35mm)
- Length: 0.438" (11.11mm)
- Height: 0.365" (9.27mm)
- Nominal centre distance: 0.140" (3.56mm)

The Input/Output shaft sizes on the above gear box are as follows:

- Input 1.5mm dia. / Output 2.0mm dia.



The partial open frame design of this gear box makes it much easier to produce on a production basis.

An instructions sheet along with a drawing showing the basic dimensions of the gear box and an exploded view of it, are shown in the data sheet below.

The gear boxes will be supplied assembled except for the output shaft/axle, which will need fitting by the modeller before use. The gear box will be available as either a single gear box or double gear box pack.

# 15:1 Gear box Assembly Instructions

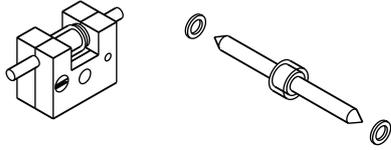


Fig. 1

The gear box is supplied as shown in Fig. 1 leaving only the output shaft/axle and gear assembly to be fitted. This is supplied as either a pin point or plain end axle, depending on what was ordered.

First, remove the two 12 B.A. screws and separate the two halves of the gear box case, leaving the input shaft and worm assembly in one half. Then fit the two thrust washers on to the output shaft/axle and gear assembly placing one thrust washer on each side of the gear. As shown in Fig. 2.

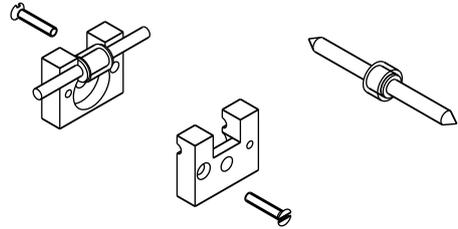


Fig. 2

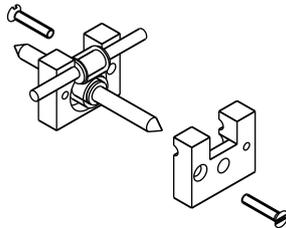


Fig. 3

Then fit the output shaft/axle and gear assembly into the half of the gear box case that has the input shaft and worm assembly fitted. As shown in Fig. 3.

Once this is done, re-assemble the other half of the gear box case and refit the two 12 B.A. screws. However, before you fully tighten the screws place the base of the gear box on a flat surface and then tighten the screws up, making sure that you do not over tighten them.

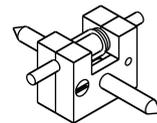
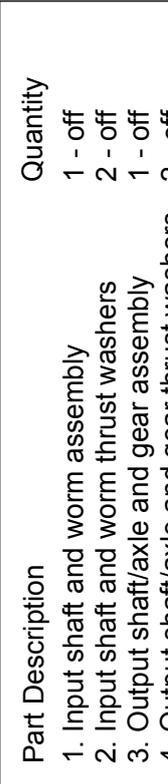
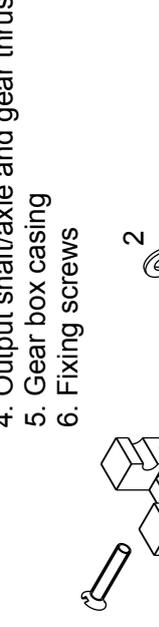
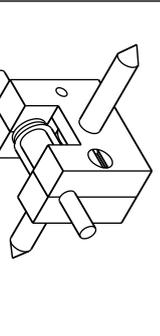


Fig. 4

When this is done check to see that there is some end float in the output shaft/axle by moving it from side to side along it's axis. Then test the free running of the gear box by rotating the input shaft to make sure all is well. If there seems to be any tightness in the gear box this could be due to the two halves of the gear box case being slightly out of

line. Just release the two screws holding the case together, re-align the casing and tighten the screws back up. The gear box is then ready for use as shown in Fig. 4.

Once the gear box is fitted into it's final position a light oil can be used to lubricate the bearings and gear set or you can use a small amount of silicone grease. Please remember NOT to over oil the gear box.

Drawing 1 of 1	Basic Dimensions & Assembly	All dimensions in inches unless otherwise stated																		
	<p><b>Part Description</b></p> <ol style="list-style-type: none"> <li>1. Input shaft and worm assembly</li> <li>2. Input shaft and worm thrust washers</li> <li>3. Output shaft/axle and gear assembly</li> <li>4. Output shaft/axle and gear thrust washers</li> <li>5. Gear box casing</li> <li>6. Fixing screws</li> </ol>	<p><b>Quantity</b></p> <p>1 - off  2 - off  1 - off  2 - off  2 - off  2 - off</p>																		
		<p>Input shaft dia.: 1.5mm  Output shaft/axle dia.: 2.0mm</p> <p>The gear box is supplied with either a pin point axle as shown or a plain end axle, 22mm long.</p>																		
	<table border="1"> <tr> <td data-bbox="558 560 718 784">Title:</td> <td data-bbox="558 784 718 1008">15:1 Gear box</td> <td data-bbox="558 1008 718 1232">Dwg. No.:</td> <td data-bbox="558 1232 718 1456">GSL20418-A</td> <td data-bbox="558 1456 718 1680">Revision:</td> <td data-bbox="558 1680 718 1989">001</td> </tr> <tr> <td data-bbox="718 560 877 784">Date:</td> <td data-bbox="718 784 877 1008">22/12/02</td> <td data-bbox="718 1008 877 1232">Material:</td> <td colspan="3" data-bbox="718 1232 1404 1456"></td> </tr> <tr> <td data-bbox="877 560 1037 784">Drawn by:</td> <td data-bbox="877 784 1037 1008">D. J. Rogers</td> <td data-bbox="877 1008 1037 1232">Scale:</td> <td data-bbox="877 1232 1037 1456">Not To Scale</td> <td data-bbox="877 1456 1037 1680">IF IN DOUBT ASK</td> <td data-bbox="877 1680 1037 1989"></td> </tr> </table> <p style="text-align: center;"><b>Copyright (c) Gear Services Letchworth 2002</b></p>		Title:	15:1 Gear box	Dwg. No.:	GSL20418-A	Revision:	001	Date:	22/12/02	Material:				Drawn by:	D. J. Rogers	Scale:	Not To Scale	IF IN DOUBT ASK	
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