**Sentinel Y3 G3-13.5mm by Peter F. Davis (257)**

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**This is a scaled up version, G1-10mm to G3-13.5 scale, Sentinel. Printing with an Elegoo Neptune 3 pro, .4mm nozzle, and PLA+ filament. Four AA batteries power the N-20 motor. Delrin sprockets and chain then deliver power to the axles. A DC motor control resides in the tender. On top the water tank is the forward/reverse switch, with the water filling tube utilized as the speed control knob.**

**I printed some of the parts rotated 45 degrees, so the top layer does not run diagonally. Such as buffer beam, water tank and side frames. I think this improves the finish.**

**I used Permatex low strength thread lock(purple) to hold the bearings in place. Otherwise, no glue, only screws hold it all together..**

**Almost zero time was spent preping for photo. Only Tamiya Red gloss brushed for beams Paint and handrails will finish this project**

**Purchased parts:**

**Screws:**

**25 M2 x 8mm long Cap screws**

**8 M2 x 2mm long Set screws**

**Ground Rod: .125 Ground steel rod. For axles and Jack shaft.**

**2 .125 dia x 88.35mm long Axle**

**1 .125 dia x 42mm long Jack shaft**

**K&S Brass tube:**

**4 1/8 ID x 5/32 OD x 5mm Long for axle bearings**

**1 1/8 ID x 5/32 OD x 15.5mm Long for Jack shaft bearings**

**1 3mm ID\* x 4mm OD x 8.5mm Long for motor to sprocket bushing .**

**\*I turned the OD down to fit the .125” sprocket bore in a small lathe with a 3mm piece of ground steel rod in the bore. As the bushing wall is only .003”, this keeps bore to size.**

**Manufacturer and Suppliers for Delrin Chain and sprockets:**

**USA, Serv-O-Link,** [**https://www.servolink.com/sprocks.htm**](https://www.servolink.com/sprocks.htm)

**USA, MicroMark,** [**https://www.micromark.com/**](https://www.micromark.com/)

**UK, try searching for delrin chain & sprockets or serv-o-link suppliers**.

**Chain: 15”**

**Sprocket:**

**1 9t 1/8 bore**

**1 10t 1/8 bore**

**2 12t 1/8 bore**

**2 20t 1/8 bore**

**The manufacturer recommends press fit for these sprockets. I found this was not enough and added set screws to assist holding them in place. STL for drill jig and tap guide included.**

**Motor: N-20 300 RPM 6V**

**Switch: Mini rocker switch DPDT**

**Speed controller: “Wayintop” low voltage speed controller (There are other brands that look to be the same and may very well work as well.)**

**Battery case: AA 4 aside**

**Window glazing: .5mm clear plastic.**

**You can print and assemble the model without the motor, sprockets and controls, adding them later if you like. You willl need 58 mm long axles sleeves and the water tank top with filler. I will include these STLs.**

**Peter F Davis**

**Febuary 2024**

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