

REVIEW



WEBRA RDS4 Telemetry System

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As modelers most of us are interested in new technology and aids to allow the most performance to be extracted from our equipment. The Webra RDS4 is one such aid. The system allows the real time transfer and viewing of data from the model to a ground based receiver.

OVERVIEW

The RDS4 consists of a small lightweight transmitter which gathers data from up to 4 different transducers:

- Motor temperature 0-200⁰C
- Motor speed 100-99,000rpm
- Receiver battery voltage 3-7volts
- Servo travel (one channel) 0-100%



The data gathered is transmitted via a RF (Radio Frequency) link to a convenient hand held ground station which displays the gathered data in real time.

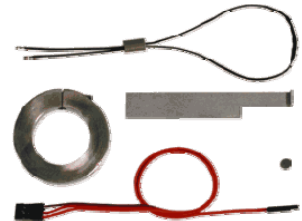
A BIT MORE DETAIL

The transmitter weighs some 17g and is approximately the size of a box of matches. It draws its power (around 50mA) from the 'servo travel' connection which would typically be plugged into the throttle channel of your radio receiver. Of course there is provision for the throttle servo itself to still be operated. This same connection also allows the monitoring of receiver battery voltage under real-life flight loads.



Motor temperature is measured via a thermocouple which easily wraps around the cylinder head and the free wire ends of this device attach to the transmitter.

Motor speed is measured with the supplied hall effect sensor and magnet which must be installed in a convenient location. In a helicopter this would typically be in the bottom of the fan, and on a fixed wing engine perhaps inserted in the back of the spinner backplate. The sensor is mounted on the supplied bracket and then positioned so the magnet passes in close proximity on each revolution.



Many helicopters already have a magnet installed for a governor – in most instances this same magnet can be used with the Webra sensor. We found it possible to create an interface cable to allow our current hall effect sensor to be used with the Webra system

negating the need to mount a second sensor. I am sure this would void any warranty, so I won't elaborate on details here.

The receiver is a small hand held device, best operated by your 'helper' on the flight line. It is powered by a single 9volt battery and weighs some 127g. It has a two line LCD display, which displays up to two parameters simultaneously. It is very simple to scroll through the display to view the remaining parameters.

An audible signal can be activated eg if a set temperature is exceeded. Many of the features here I am yet to explore.

IN USE

The transmitter can be easily mounted almost anywhere on the helicopter by Velcro straps or a few cable ties. The transducers are quickly attached as is the plug to the receiver and throttle servo. After a quick range check, it was time to gather some data.

Parameters I found most interesting in my test helicopter were:

Cylinder head temperature – changes with load and poor collective management – and conformation of a correct mixture setting. I found I could safely run the engine somewhat leaner than I had thought.

Motor rpm – which was easily converted to rotor rpm – this gave interesting information about my governor (or RevLimiter) performance.

Throttle Servo Position – this parameter was fascinating if measured as the position the governor was sending the throttle servo to (rather than actual throttle stick position). I found only occasionally was the governor commanding 100% throttle, and that in fact I could run several percent more top end rotor pitch with no rotor speed decay.

Receiver Battery Voltage – as I run a regulated lithium pack, the telemetry was able to confirm no voltage drop under load. When installed on a helicopter with a standard 4.8volt nicad pack it was surprising to see the voltage 'brown-outs' under high servo load maneuvers.

The RDS4 also allows 'alarms' to be set to notify the user if a particular parameter is exceeded. It is possible, for example, to set the receiver up to alarm if a pre-set temperature is exceeded. This allows the device to be used on ones own if you don't have a helper on the flight line.

SUMMARY

I found the Webra RDS4 telemetry System to be surprisingly handy at the flying field. It can be quickly moved from model to model. In most instances I found a few flights with the telemetry on board (being monitored by my spotter on the flightline) provided enlightening information which allowed the optimization of various model settings. Overall a very handy addition to ones flight kit.