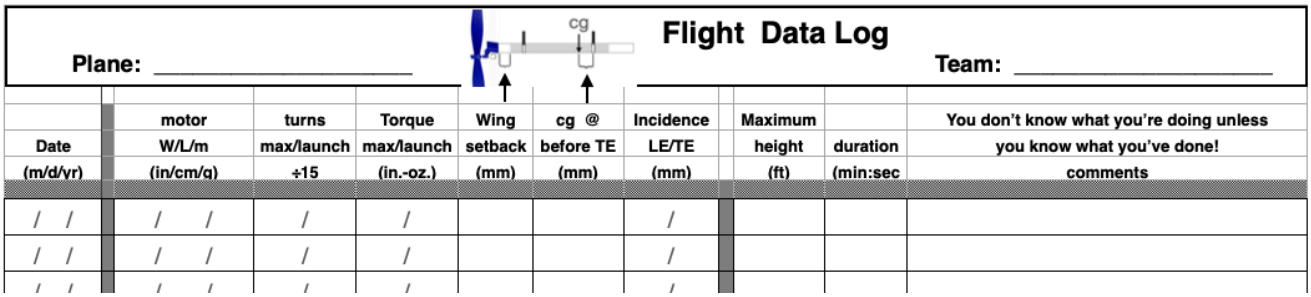
Basic Flight Data Log Template: Why should I keep a log?

Keeping a data log for your flights isn't just something you should do just to add some bonus seconds to your flight times, but is an essential aspect of improving your flights and repeating them consistently when you have things working well. The rules for Flight specify 3 required parameters and also 3 additional parameters that you are able to specify. The following discussion is not intended to be all inclusive of the possibilities, but relates to the Basic Flight Data Log Template shown below. This log is shown in its entirely at the end of this document, and can also be downloaded as .pdf .xlxs The spreadsheet file can be modified to fit your particular needs.



Basic Flight Data Log Template: What use is all of that data?

SO Flight Log required parameters:

1. **Motor size before windup**. There should be enough information about the rubber motor so that you could make another equivalent motor, and use that motor to closely duplicate a particular flight. There are a number of ways to satisfy this parameter requirement. It wouldn't hurt to use all three of the ones below.

   Width (in). If you purchase rubber in a stock width, like 3/32", you can record that, either as 3/32 or the decimal equivalent. If you purchase rubber from one of the kit suppliers, it will be marked, eg. 0.087". We stripped our own, and used to record the width to which our stripper was set. Inches used for this because strippers are typically marked in decimal inches, and rubber is sold marked in fractional inches.

   Length (cm). This would be the length of the loop, measured in some repeatable way of your choosing. I used cm for the units so there is no need to deal in fractions. Decimal inch rulers are hard to find!

Mass (g). Mass in grams of the loop, including o-rings, if you use them. Many experience fliers like to record the linear density of the loop, but if you tie all of your motors very close to the maximum mass allowed, then the loop's length will be very nearly proportional to its linear density.

2. **Turns or Torque (in-oz) at Launch.** If you are using optimal winding technique, you really want both of these. Once again, the goal is to use an equivalent motor to match a previous flight with an equivalent winding method.

   Torque. Torque is typically measured with units of inch-ounces (in-oz), though there are some inexpensive torque meters that have an arbitrary scale, like 1-10. Good to know so you don't exceed a torque that is likely to break the rubber. Also, optimal winding technique will be to wind the rubber to some maximum torque, and then de-wind (back down) to an intended launch torque, hence two spaces for torque in this column.

   Turns. "Turns" means how many times the rubber has been twisted through one 360° rotation. If you count and record how many times you crank the winder handle, this column should be labelled as "Turns÷15", or whatever corresponds to the ratio of the winder you are using. Good to know so you can anticipate how many turns to wind while stretched out, when to start moving in toward the torque meter.

3. **Flight Time (min:sec).** Labelled on the referenced log as duration, a fancy name for time. This one is obvious, though it is maybe not so obvious that the units should be labelled as shown, per the rulebook's requirement that all parameters should include proper units, unless they have none.

Three additional parameters chosen by the team. The ones shown on the referenced flight log are some of the more common ones, but are not intended to be an all-inclusive selection. They are:

Wing setback (mm). If your plane has the wing mounted on a saddle that can be slid fore and aft on the motor stick, this is a useful parameter. Sometimes this position might change as the result of a collision, or is vibrated out of place during transport. Or maybe you store the plane in the measurement box with the wing unmounted so it doesn't get warped out of shape. In any of these cases, having a record of this parameter is useful in adjusting the plane to match its previous configuration.

CG @ before TE (cm). The position of the cg (center of gravity) relates to the plane's stability, and also to the remainder of the trim settings. Current rules planes typically have their cg set before (in front of) the wing's trailing edge, but some airplane designs might set it at or behind the TE. Should be measured with a motor of the intended mass installed, but not wound.

Incidence, LE/TE (mm). The referenced log template relates to a plane with a fixed stabilizer incidence, but there could be a column for both if the stab is mounted on adjustable posts. Incidence is sometimes specified as an angle in degrees, but in the gym you will probably measure the relative heights of the wing's leading and trailing edges with respect to something like the top or bottom edge of the motor stick. Doesn't really matter, as long as you are consistent.

Maximum Height (ft). Particularly useful when you are determining how to wind to just reach the ceiling in a particular venue. Perhaps also useful to have records of this when you are planning to fly in a place with a different ceiling height.

Comments. Miscellaneous things that you observe, maybe things you need to change on subsequent flights, or a reminder that something did or didn't work.

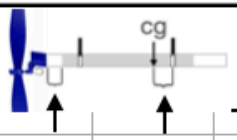
Other parameters. As stated previously, the parameters on this log sheet will easily satisfy the requirements in the SO Flight rules, but are not intended to be an all-inclusive list. But they are the basic information that will serve to raise you flying to a reasonable high level, if you

To see a much more comprehensive log with more advanced parameters, see the Advanced Flight Log Template posted elsewhere on the NFFS SO resources pages. Keeping track of these advanced parameters can take you flying to the next level!

A printable log template is found below. Can also be downloaded as a pdf or modifiable Excel file via the links at the top of the document.

Flight Data Log

Plane: _____



Team: _____

Date (m/d/yr)	motor W/L/m (in/cm/g)	turns max/launch ÷15	Torque max/launch (in.-oz.)	Wing setback (mm)	cg @ before TE (mm)	Incidence LE/TE (mm)	Maximum height (ft)	duration (min:sec	You don't know what you're doing unless you know what you've done! comments
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