

Getting to Know TimeTrac Pro



Introduction

Welcome to TimeTrac Pro! It has been designed to be an intuitive, cost-effective maintenance tracking program that does not rely on any manual entry of flight times.

Please read this guide as completely as we want to get you up and running as quickly and smoothly as possible. There is a fair amount of work on the front end in collecting and entering all the component data. However, once properly set up and running, we are confident that you will find TimeTrac to be a very useful and time-saving tool.

The system is made up of the following components:

1. **TimeTrac Software.** This is the brains of the system. It serves as the repository for the aircraft information and flight legs. It is both Windows and Mac compatible.
2. **TimeTrac Hardware.** It is installed in the aircraft and receives data from the aircraft GPS to record the flight legs. Flight data is stored here in a “loop” of approximately 2700 records.
3. **TimeTrac Utility Software.** This software is used by the installer to verify the hardware installation. It is both Windows and Mac compatible.
4. **USB to Serial Cable.** This is needed to connect your computer to the aircraft so that someone can download the flight legs data.

Let's Get Started

There are three items that have to be accomplished before the system is fully functional:

- Install the hardware in the aircraft.
- Install the software on your computer(s). See Remote Downloading if more than one computer are to be used.
- Take a snapshot of each aircraft component as they sit at the time of the hardware installation. Go through the aircraft log books and use the document titled “TimeTrac Worksheet” to list all the pertinent information about each component. This will help expedite the data entry into the TimeTrac software.

The Hardware Installation

From a technical standpoint, the installation of the hardware is quite simple, but there are several things to keep in mind before performing the installation:

- The **HARDWARE** should be installed within a weatherproof part of the aircraft.
- The **DATA DOWNLOAD PORT** should be installed in a location that makes downloading convenient. When choosing a location for the download port, it is important that this location will allow someone to sit in the cockpit and be able to:
 - Have a computer on their lap.
 - Easily reach the download port with the download cable.
 - Easily reach the avionics master switch.

TimeTrac Utility: Verifying the Hardware Installation

Once the hardware installation is completed, the installer **MUST** run the software called the TimeTrac Utility. This software is found on a CD shipped with the system or it can be downloaded from the P2 web site, under Technical Support. The software can either be run from the CD or copied.

Depending on the vintage of computer being used, a Serial to Serial or Serial to USB cable adapter is needed to allow communication between the aircraft and the computer. If the Serial RS-232 to USB cable is used, be sure to use one with the FTDI chipset! Presently, we do not recommend one with the Prolific chipset as they are prone to cause problems with our system.

Also remember to install the associated Driver as well.

The TimeTrac Utility is designed to:

- Verify that the hardware has been installed correctly and that it is capable of communicating with the TimeTrac software. Specifically, it checks:
 - The communication capability between the aircraft and the computer.
 - The communication between the GPS and the TimeTrac hardware.
 - Flight leg recording
 - Downloading capability between the computer and the TimeTrac hardware.
- Upon successful completion of the TimeTrac Utility software, a code is issued that verifies that the installation is working properly. This code is then recorded on the Red Card and given to the aircraft owner, which will be used during the aircraft setup in the TimeTrac software.
- A competent installer will follow the Hardware Installation Manual and provide you with a completed Red Card. If the installer does not provide you with one, you will experience some problems synchronizing with the software setup.

What the Hardware Records

The TimeTrac hardware records a series of “events” and stores them until copied (downloaded) into the TimeTrac software. These events are:

- Power-up. The date and time when the aircraft avionics master switch is turned on.

- **Takeoff.** The date, time and LAT/LON where the takeoff criteria is met.
- **Landing.** The date, time and LAT/LON where the flight criteria are no longer met.
- **Power-Down.** The date, time and LAT/LON when the aircraft avionics master switch is turned off.

Flight data is stored in a loop of approximately 2700 records. In other words, once record #2700 is written, the next record is written over record #1, etc. Depending on the number of flights being flown, it is wise to perform downloads reasonably frequently so as to not overwrite any previous data that has not been already downloaded. It is important to note that TimeTrac DOES NOT provide a breadcrumb recording of a flight track over the ground.

What the Software Does

Within the TimeTrac software is where all the computations for flight times are made and applied to each aircraft component. A complex algorithm within the TimeTrac software uses these four points to determine the duration of two types of times:

- **Flight Time.** This is what the pilot wants to log and is also known as the “revenue time” for billing purposes. This is the time from which the aircraft powers-up until it is powered-down. It is the greater duration of each flight leg.
- **Maintenance Time or Time-In-Service.** This is the lesser duration of each flight leg and what the regulations allow you to use when determining the life of aircraft components. This is the time when the aircraft is in flight. It does not count taxi time.

TimeTrac also computes two kinds of cycles:

- **Full Cycle.** As defined by most manufacturers as a startup, takeoff, landing and shutdown.
- **Abbreviated Cycle.** A takeoff and a landing without a startup or a shutdown.

Example #1: A flight in a turboprop from OSH begins with an engine start and the pilot turns on the avionics master switch at 0900. He taxis out and takes off at 0915. He lands at DTW at 1003 and shuts down at the FBO at 1012. TimeTrac will show a flight from OSH-DTW of 0900-1012. The time subtracted from the aircraft components will be .8 hrs (48 min), while the flight time (for the pilot or billing) will amount to 1.2 hrs (72 minutes). There was one full cycle recorded.

Example #2. A flight in a turboprop from OSH begins with an engine start and the pilot turns on the avionics master switch at 0900. He taxis out and takes off at 0915. He lands at MKE at 0951, but does not shut down to offload cargo. He takes off again at 1012 and lands at DTW at 1112 and shuts down at 1126. The time subtracted from the aircraft components will be 1.6 hrs (1:36 min), while the flight time (for the pilot or billing) will amount to 2.5 hrs (2:30 minutes). There was one full cycle and two abbreviated cycles/landings recorded.

Installing the TimeTrac Pro Software

Currently, the TimeTrac Pro 3.2 Beta software does not have an automatic installer. Never fear, we will lead you through the process for both Windows and Mac platforms. You will need about 50MB of free space in your computer for TimeTrac Pro.

Windows 7 or earlier:

- From the TimeTrac CD that was shipped with your hardware, locate the folder named TimeTrac Pro.
- Either drag it and put it into the Program folder or copy it (Command + C) and paste it (Command + V) into the Program folder. The Program folder is the same place where your other applications reside.
- If desired, create an Alias for your desktop.

Mac OS X, v 10.6 (Snow Leopard) or earlier:

- From the TimeTrac CD that was shipped with your hardware, locate the folder named TimeTrac Pro.
- You can either drag it and put it into the Applications folder or copy it (Command + C) and paste it (Command + V) into the Applications folder. The Applications folder is the same place where your other applications reside.
- If desired, create a TT Icon on your Dock.

Opening the Software for the First Time

To open the software for the first time:

- Go to the Programs folder (Win) or Applications folder (Mac) and open it.
- Double-click on the purple icon named TimeTrac Pro.

Once the TimeTrac application is opened for the first time (and transparent to you) a new folder named P2 will be automatically created within your Documents folder. This is where all of your data is stored.

Register the Software

Now that the software is loaded onto your computer, you need to register the software. You must be connected to the Internet to do this. The registration code is found on the goldenrod colored piece of paper that is found with your software. The eight-digit code looks something like P2TT-XXXX-XXXX-XXXX. This needs to be done in order for two reasons:

- We know who you are and how to contact you when updates are available. Most of them are free!
- The software WILL NOT communicate with the hardware until it is done. You can enter all of your data and save it, but the software will not allow a data download from any aircraft. A reminder box will be seen on the Main Screen before the registration and will disappear once it is completed.

The USB to Serial Adapter

IMPORTANT! In order for the adapter to communicate between devices, you must load the appropriate driver onto your computer.

Your TimeTrac is shipped with one USB 2.0 to RS-232 Serial cable adapter. This is used to connect your computer to the TimeTrac download port on the aircraft. Because it is impossible for us to know what PC platform you are using, you have to use a driver that works with your computer. To get the correct driver:

- Go to the cable adapter manufacturer's web site and download the latest driver that is appropriate for your PC. This is the recommended procedure as you will then have the very latest driver.
- Load the Driver directly from the CD that was shipped to you with the adapter.

Add Aircraft and Components

Once the TimeTrac application is open, you are ready to start entering your data. From the Main Screen, you begin by clicking on the black button labeled AIRCRAFT LIST. From there you then click on the ADD AIRCRAFT button and fill in the blanks.

VERY IMPORTANT! When entering the aircraft serial number, it must match exactly what is entered on the Red Card. If it does not, the flight legs downloaded from the hardware will not be applied to this aircraft.

Click the Save Changes button and you will return to the Main Menu. You can now enter the individual components that you want to track. To accomplish this, simply double-click on the specific plane on the Aircraft List and you will go to the Aircraft Overview screen.

To add a new component, simply click on the Add Item button in the lower right-hand corner. This will take you to the green-bordered Add Component screen. Fill in the blanks and, if the component already has life time on it (most of your items will), be sure to fill in the area shaded in green. If the component is new, disregard this area. When you are satisfied with your entry, click on the SAVE button to return you to the Aircraft Overview Screen. Add more components as required.

Be sure to keep an eye on the P2 web site as we hope to be adding a tutorial videos in the months ahead.

Under the Hood: The TimeTrac Files

We are not going to dive in too deep here, but a basic knowledge of these files helps you to understand the fundamentals of the system. TimeTrac works with two types of files:

- .log files. These are simply the aircraft flight legs. They contain the location, date and time of each power up, takeoff, landing, and power down.

- .dat files. This is where all the aircraft “data” resides. All the aircraft components and associated information is written and stored here.

You will soon see how these files come into play.

The Central Repository

It is critical that one understands that only one computer can be the repository, or central workspace where managing (editing) components is done. Think of it as a register for your checking account. If you are using only one computer to perform the downloads and monitor the aircraft status, the problem is solved.

Ideally, you would only use one laptop for downloading and managing your aircraft. However, in the real world, that is not always the case. A laptop or netbook may be used for downloading data from an aircraft, and a desktop may be used in an office by maintenance personnel to monitor the aircraft status and make any changes to the components.

You can use other computers or netbooks to download flight data from remote locations, but only one central computer must be used to manipulate the data. More on that later.

..... REMAINDER UNDER CONSTRUCTION