

# The Oil Report

April 2005

**“Oil the News That’s Fit to Print!”**

## Confused About Make-Up Oil?

People are often confused by the “make-up oil” section on our oil forms. They often leave it blank or tell us the size of their oil reservoir. We are actually looking for the amount of oil you’ve added in between oil changes.



Most engines will use some oil, requiring you to add oil in between changes. That’s normal. But changes in oil consumption can spell trouble. If you’ve traditionally had to add 1 quart every 30 hours and you suddenly find you’re adding 1 quart every 10 hours, something may be awry. Also, if you’ve had to add a lot of make-up oil recently, when normally you don’t, the extra oil may have diluted the wear metals down, and we will take that into account when doing the analysis.



## Spotlight on... TWITS

By Jim Stark

Aviation is fraught with acronyms, so much so that we need acronyms just to remember the acronyms. Pick up a National Weather Service publication and count them in the first chapter. There are so many acronyms that it’s humorous to think the Government still thinks they are a memory solution, rather than *the* problem

I hate to add one more, but TWITS is one that may cause an unfortunate event in your life to turn out to be a good story instead of a tragedy. It is the word to remember should your (single) aircraft engine quit. You know, when the heat pump stops heating, when the cooling fan stops cooling, and/or when the roar of the engine that has always been your security blanket leaves nothing but silence ringing in your ears. It is a disconcerting experience.

More than twenty years ago I was viewing the remains of an upside-down C-150 in a bean field with a couple guys from the Sheriff’s Department, when a civilian turned up. He was a lanky guy in a black suit with a camera slung across his shoulder. He asked me if I was the party that had left the airplane in this condition, and I admitted that I was the culprit. He said he was not only the newspaper photographer in Paris, Illinois, but the undertaker too, and when he gets a call like the one he got this morning, he didn’t know if he’d be taking pictures or measuring the body. With a grin, he put away his tape measure. “Looks like its only pictures this morning,” he said.

### The Saving Grace of TWITS

I’ve had a long time to think about that and decided your early “engine out” training, as good and thorough as it may have been, could be improved upon with TWITS. Any engine out practice is good because if and when it really happens, you don’t need the tension of suffering the sensation for the first time. Few of us do first-time experiences well. So it is nice when you find yourself gliding around up there, sans engine, to have done it a few times

before.

Everyone knows the first thing to do, which is to trim best glide speed. Don't know the best glide speed? Well, anything in the vicinity is okay. The idea, of course, is to give you the most time aloft for the altitude you are carrying. The reason that is important is that some prayers take far longer than others to complete. And if you happen to be one of those people who feels the need to pray with your eyes closed, well, you don't want to waste all the glide time left with your eyes closed. It is a good idea to take a look at the terrain.

So the first letter to TWITS is for **Trim**, which hopefully gets you somewhere in the neighborhood of best glide. Your airspeed will be about 65–75, depending on the airplane. Our father...

Your flight instructor thought the next important thing to do was find a field to land in. With all due respect, that may not be the best idea. If you can hit a particular field from 5,000 feet, you are a better pilot than I am. You may pick the best field in your range of vision, but actually being able to hit it from altitude takes a lot of practice that we don't generally work on. (Well...maybe the astronauts.)

My experience is, you will pick a field, and then see a better one as you get lower, and then a better one when you get lower than that. What makes it good is your ability to land on it, not its humongous size. It only takes a few hundred feet to land an airplane and you will find most fields are at least that long. It is far more important to be landing *into the wind* so that length of field works. It is also nice to land without hitting anything. It is cheaper to buy a quarter acre of corn from a farmer than have to pay for his custom and recently rebuilt outhouse, which his insurance company will value in the tens of thousands of dollars.

So the second letter of TWITS is **Wind**. The first of the two turns you are going to make is the turn to base. You need to be adjacent to the wind. You probably know the wind direction, at least generally. If it is, for example, south, then turn east or west. If it is west, turn north or south. Which *direction* you turn will depend on which direction has the best fields and the fewest structures. You don't need much of a field, but when it comes to choosing one, the more options you have, the merrier.

If you are headed for a town or city, use some of that glide time to make a 180. A long walk out is better than hitting an unmovable object. Hopefully this is going to be the longest base leg you have ever flown. It will give you time to check your drift and verify the wind direction and speed. You might even stumble across a landing strip, if your GPS hasn't already found one for you. If the wind is left, you are on a left base. If the wind is right, you are on a right base. Your GPS may also tell you the wind direction and speed.

### Getting Down Safely

You don't pick your field until you see one that fits your sight picture for turning final. Few of us could hit a field from 5,000 feet, but all of us can hit the runway when turning final (well, almost all



of us). If you are on left base, you are looking for a field on your left. If you are on right base, you are looking right. When the sight picture is what you are used to seeing, make your turn to **Initiate** the landing, which is the third letter to TWITS. It is time to get your flaps and wheels down if the wheels are retracted. (Shame on you if you did either of these things on that long base leg glide you were on.)

No second guessing at this point. It is time to congratulate yourself on getting from way up there to way down here without having done anything foolish, and you can already hear yourself telling a story about your successful off-field landing. Now that you are kicked back and gliding to final, it is a good time to call ATC, FSS, or perhaps your Maker, and let them know where they may find you, while you still have a little altitude left. You may have already done this earlier when you tuned your transponder to the emergency code, but it wouldn't hurt to call in again, just to prove you can still talk without stuttering. I can speak here from experience — the last thing on your mind when your engine quits will be the radio. That's why TWITS' fourth letter is **Talk**. You may be comfortable enough, or have enough presence of mind, to actually talk with someone other than yourself, once you have the field made.

The last letter is **Secure**. Before you actually touch down it wouldn't hurt anything to turn off the gas and the master switch. This is going to be the sweetest landing you have ever made, and I'm sure you will land upright. But just in case, unlatch the door. It beats trying to kick one open that has been jammed by a bent fuselage.

Next time your engine gives up the ghost and you have already run through all the nasty words you can think of, try yelling **TWITS** to yourself. It may help you get down to terra firma safely.

**Disclaimer:** The opinion expressed here is solely that of the author and not that of Blackstone Laboratories. There are too many variables regarding off-field landings to cover fully with any number of acronyms. The point is to think about the situation ahead of time, lest you be caught off guard with an unexpected landing.



## Report of the Month

What's wrong with this Lycoming TIO-540-AA1AD engine? See the caption below for an explanation. Don't look right away -- take a good look at the report first.

(To learn where the various elements might be coming from, [click here](#).)

Elements in Parts Per Million	MI/HR ON OIL	57	UNIT/ LOCATION AVERAGES					UNIVERSAL AVERAGES
	MI/HR ON UNIT	1573						
	SAMPLE DATE	4/4/05						
	ALUMINUM	24	6					6
	CHROMIUM	21	4					4
	IRON	146	29					27
	COPPER	7	4					3
	LEAD	5720	4083					3942
	TIN	2	1					1
	MOLYBDENUM	1	0					0
	NICKEL	21	6					5
	POTASSIUM	0	0					0
	BORON	0	0					0
	SILICON	6	4					4
	SODIUM	0	1					1
	CALCIUM	1	3					3
	MAGNESIUM	6	2					2
	PHOSPHORUS	23	766					662
	ZINC	2	3					2
	BARIUM	0	0					0

Properties	TEST	cST VISCOSITY @ 40 C	SUS VISCOSITY@ 100 C	cST VISCOSITY@ 100 C	SUS VISCOSITY @ 210 F	FLASHPOINT IN F	FUEL %	ANTI- FREEZE %	WATER %	INSOLUBLES %
	VALUES SHOULD BE				86-105	>460	<1.0	-	0.0	<0.6
	TESTED VALUES WERE				94.5	495	>0.5	-	0.0	0.7

**One cylinder on this engine had low compression -- really low, like in the low 20s. When they finally opened the engine and took a look at the cylinders, they found that all three on the right bank were cracked, and the low one had big, visible cracks in the cylinder wall (a sure way for the pilot to practice his or her “engine out” training)!**

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