

Stop Goosing Cats and Burning Tomatoes ...a modest proposal

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First, a disclosure. I spend a lot of time online and off talking about flying with other pilots and instructors. As one result, I have developed a general prejudice against mnemonics, acronyms and other memory shortcuts. Once we get beyond the few that really add something to our knowledge and safety, CFIs who overuse mnemonics do their students a disservice. When someone posts a message online like, "My CFI taught me the mnemonic 'PAIN CALL'. Does anyone know what it means?" and no one answers, there is a problem.

When we take teach a complex mnemonic, we automatically elevate its importance. "This is *really* important," we are telling our students. "You'd better know this cold!" This is not a bad idea when we teach a shorthand checklist like the before landing "GUMP" for complex aircraft or the Instrument "5 Ts". But when we use them for information that is simply not important to memorize, we raise rote learning above understanding, application and correlation, often to the detriment of those higher levels of learning.

GOOSE A CAT
Gas (Fuel) Gauge
Oil Pressure Gauge
Oil Temperature Gauge
Seatbelts, Shoulder harnesses
ELT
Altimeter
Compass
Airspeed Indicator
Tachometer

One knowledge area where this is a big problem is equipment requirements. There are a number of mnemonics used for teaching the equipment that is required for day VFR flight. TOMATO FLAMES and GOOSE A CAT are the most popular. I've never heard a good reason to memorize FAR 91.205 to begin with, yet the concentration on memorizing one of these acronyms and the short list it represents has somehow become more important

than the process of deciding whether or not to fly with inoperative equipment. Too many pilots think that if the airplane's equipment meets either of these mnemonic standards, they are good to go. In a recent online discussion a student pilot was working his way through creating a personal go/no go checklist. He was trying to decide which instruments were important enough to lead to an automatic "no go" decision if inoperative, whether required or not. He presented his list for comment, and the very first reply to this laudable effort was

TOMATO FLAMES
Tachometer
Oil Pressure Gauge
Magnetic Direction Indicator
Altimeter
Temperature Gauge
Oil Temperature Gauge
Fuel Gauge
Landing Gear Position Indicator
Airspeed Indicator
Manifold Pressure Indicator
ELT
Seat Belts

I was taught to use that acronym GOOSE A CAT for the minimum required equipment for a VFR flight.

Period. I've seen this thought is echoed in many discussions — meet 91.205 and you're done. In forum after forum and thread after thread, the results have been eerily

consistent. Try it. During a pilot safety meeting, ask the question, “may you depart on a flight with an inoperative stall warning device?” and see the results for yourself.

Designated Pilot Examiners (DPE) can be part of the problem. A private pilot applicant was reviewing the aircraft logs in preparation for his checkride. He found an error that many would have missed — an intended “annual” inspection without the final sign-off by an A&P with Inspection Authority. It turned out that it was a simple paperwork error, but *everyone* missed it — except the student pilot. (Fortunately another airplane with the proper paperwork was available.) The DPE was told about the paper adventure and discussed the process with the applicant during the oral. What a great example of real-world knowledge, decision-making and judgment meeting the requirements of the Private Pilot test Standards Area of Operation I, Task B!

The applicant passed the checkride, but when later asked about areas of weakness, the DPE’s only comment was, “Do you realize that he didn’t know TOMATO FLAMES?”

And, as the modern phrase goes, that is wrong on so many levels.

To begin with, even as a rote learning tool, the acronyms are wrong. Look at the way they handle anti-collision lights. Or, more precisely, fail to handle them. Both are silent on the 91.205(b)(11) requirement for anti-collision lights for aircraft manufactured since 1996. Neither memory aid points out that even if the airplane was manufactured before 1996, operable anti-collision lights *are* required for day VFR flight in most training aircraft. Regardless of age, most training aircraft are equipped with anti-collision lights, and FAR 91.209 tells us that if an airplane has them, they must be operable. Worse yet, despite being required for day VFR flight in most GA airplanes, both learning “aids” incorrectly relegate anti-collision lights to the “only worry about at night” side of the ledger. Ask a random student or private pilot who was indoctrinated into the GOOSE A CAT mentality whether the aviation regulations permit her to take the FBO’s venerable Cessna 172N for a day VFR flight with an inoperative beacon, and see the answer you get.

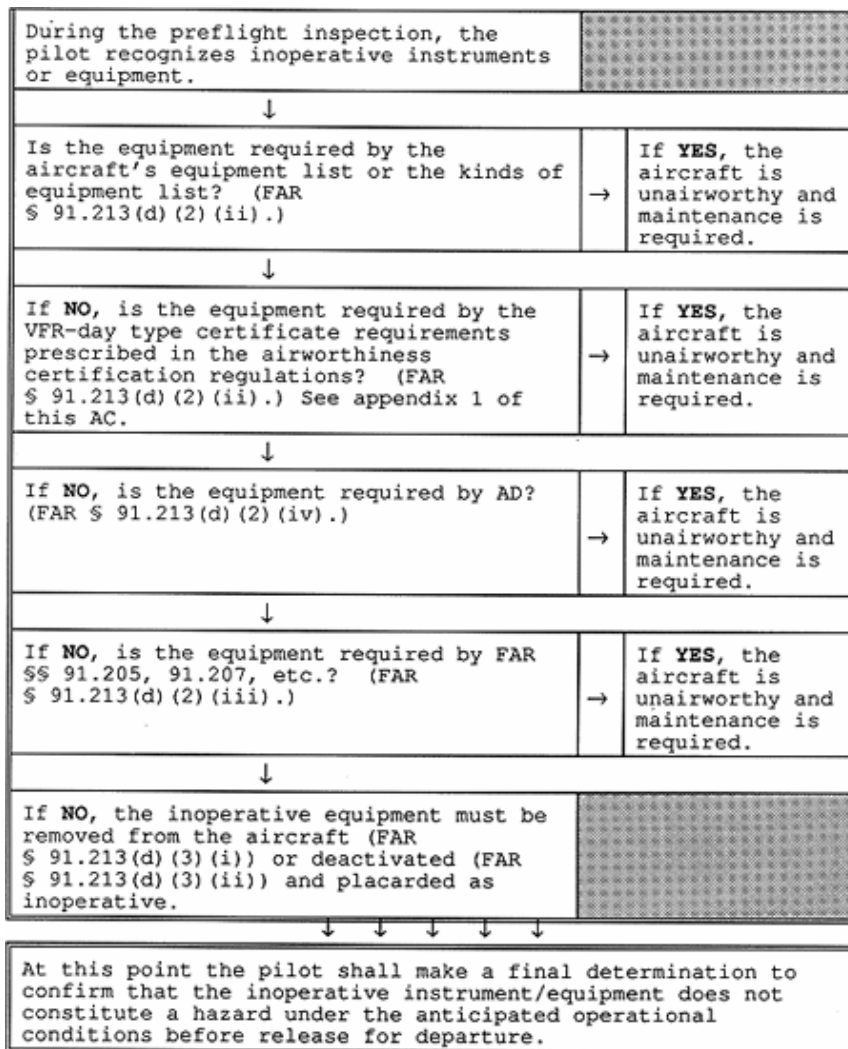
Even if reworked to include everything mentioned by name in Part 91’s equipment rules, GOOSE A CAT and its vegetarian sibling would still be incomplete. Knowing the minimum equipment that needs to be on *any* airplane for day VFR use doesn’t tell us what needs to be on *this* airplane for day VFR day use. From a regulatory point of view, 91.213(d)(2) is a far more worthy starting point than 91.205. Are there any airworthiness directives (AD) that require compliance? Is a piece of equipment required by the certification regulations that were in effect when the aircraft received its type certificate? Whether or not mentioned in any regulation, is the equipment required by the equipment list that appears in the weight and balance section of the modern Pilot Operating Handbook (POH)? Find that random pilot again and ask whether, even if placarded “INOP”, she may take off in that Cessna 172N with an inoperative stall warning horn.

We’re not done yet. Once we are satisfied ourselves that all required equipment is been accounted for, we are still faced with 91.213’s admonition that we can’t fly with *any*

inoperative equipment unless certain requirements are met. Not even that cigarette lighter that no one has used in years. In the case of most piston aircraft not subject to a Minimum Equipment List (MEL) that means removal or deactivation, placarding, and logging as required by 91.213(d)(3). Again, reliance on the goosed cat leads us a stray.

Finally, once we have satisfied all of the *requirements*, we still have not answered the excellent question posed by the student creating his personal go/no go checklist so easily and *incorrectly* answered with GOOSE A CAT. The question wasn't just about regulations; it was also about the more difficult and *important* question of personal safety minimums. No regulations or memorization shortcut can answer that question, but what an opportunity it is to teach, learn and develop that elusive quality we call pilot judgment.

In AC 91-67 - *Minimum Equipment Requirements For General Aviation Operations Under FAR Part 91*, the FAA sets out a template for the decision-making flow that a pilot should make when discovering inoperative equipment.



Although I would argue that the last step of the flow,

Finally, the pilot should decide whether the inoperative number 2 ADF creates a hazard for the anticipated conditions of the flight.

Should really be the first,

First and foremost, the pilot should decide whether the inoperative equipment creates an unacceptable risk for the anticipated conditions of the flight.

at either end, this is the step that requires thought, knowledge of aircraft and personal limitations, and judgment. This is the important step the online student was *really* working on. “Am I willing to fly an airplane with an inoperative attitude and heading indicator?” “Am I willing to fly an airplane without front seat shoulder harnesses even if the airplane doesn’t require them?” “Am I willing to fly in IMC with a fully functional but non-standard panel configuration?” A *personal* no answer to any of these makes all the rest of the process unnecessary.

Let’s analyze the choices presented by a simple example. An inoperative landing light on a day VFR flight. An easy one for regulatory analysis. Not required under Part 91, Subpart C nor Part 23 (where the certification requirements reside). Probably not required by the airplane’s equipment list. It’s equipment that falls into the preventive maintenance that a pilot may perform under FAR 43.3(g), so we can take care of any remove/deactivate/placard/log issues ourselves. There’s not a thing to stop us from taking off.

Or is there?

Are we talking about a morning flight in the local area with not a cloud in sight and 50 NM visibility? Or, are we talking about a cross-country flight with a planned return in the late afternoon with conditions expecting to become more marginal, although still expected to remain VFR. Between those two extremes are a large number of “what if” scenarios to think about. And there is no “right” answer. One pilot’s personal limitations and comfort level will be very different that another’s. Without even considering the possibility of returning after dark, will the very absence of the lights make the pilot rush to return before dark and affect other decisions?

Ultimately, the problem with the focus on TOMATO FLAMES, GOOSE A CAT and similar memory devices is that FAR 91.205 is not even the tip of the required equipment iceberg. It’s only a fairly minor piece in the middle. Understanding it’s place in the airworthiness equation is, of course, necessary. But memorizing its contents is, quite bluntly, not important, and a mnemonic aid for doing so is useless. The important thing is the process. It’s that process the inquiring student was asking about. And it’s that process that gets the short end of the deal when we burn tomatoes and goose cats.