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ROTARY WING NEWSLETTER

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SAFETYWIRE

Advanced Preflight After Maintenance

#FlySafe GA Safety Enhancement Topic

(Source: Cleared for Takeoff, September 21, 2020)

Editor's Note: *This article has been updated annually with new content since it was first published. The last update was on Sept. 6, 2023.*

The General Aviation Joint Steering Committee (GAJSC) and the National Transportation Safety Board (NTSB) have determined that a significant number of general aviation fatalities could be avoided if pilots were to conduct more thorough preflight inspections of aircraft that have just been returned to service. In-flight emergencies have been the direct result of maintenance personnel who have serviced or installed systems incorrectly. In many cases, although the maintenance personnel made the initial mistake, the pilot could have prevented the accident by performing a thorough or advanced preflight check.

Did you know *that maintenance-related problems are one of the most deadly causes of accidents in general aviation? Contributing to this is a pilot's failure to identify maintenance discrepancies because of a lack of knowledge and improper techniques used during the preflight of the aircraft.*

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What Can Pilots Do?

Conduct an Advanced Preflight that goes beyond the normal preflight checklist. Advanced preflight is a program that helps you become more aware of all the safety-related data on your aircraft and focuses on a detailed approach to your preflight inspection, based on your aircraft's maintenance history. While this requires some time, consider developing an additional items checklist that can be used in conjunction with the aircraft's preflight checklist for all future preflight inspections. It is a valuable tool whether you own, rent, or borrow an aircraft.

Put Yourself in the Right Mindset — assume that there is something wrong, even if you used the best mechanic. Mechanics typically do an excellent job, but if you assume that all is right, you'll miss catching possible mistakes, worn or improperly rigged items, or whatever else might be wrong. Always look over any part of the aircraft that has maintenance performed on it. You need to pay VERY close attention when preparing to fly for the first time after an annual inspection.

Use Your Senses, and a notepad, to write down anything you sense is not right. LISTEN to the airplane (not just the engine!). Do you SMELL anything abnormal? Fuel? Oil? Does it vibrate more than usual (FEEL)? Do you TASTE (or smell for that matter) any of that acrid smoke that comes with burning electrical items? Step 10 to 15 feet back from the airplane. Does anything LOOK out of place? Be prepared to abort takeoff if something goes wrong or doesn't feel right.

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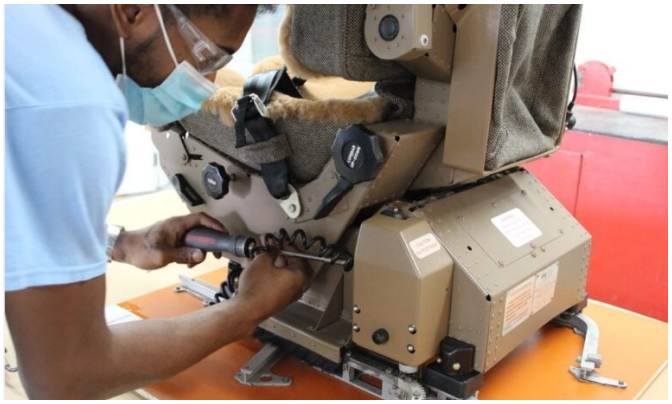
Before Your First Flight After Maintenance:

⇒ ***Learn all you can about the maintenance that was performed.***

Discuss all work that was done with the mechanic and ask what to look out and watch for during the first flight. They should properly document all maintenance and operational checks performed, any maintenance required, and any items that may need to be monitored prior to the next scheduled inspection. But do not just accept that the work was done. Ask the questions: What was touched, repaired, or replaced, and what was accomplished?

⇒ ***Know what systems or structures were repaired or replaced during maintenance. Don't assume the part(s) replaced are the only parts removed. Often disassembly needs to be done to get to the inoperative part.***

Ask what was removed and/or disconnected to facilitate the work performed. In many cases, seemingly unrelated external parts, or more importantly, internal parts, must be disassembled to perform inspections, repairs, or replacements. For example:



◊ Upholstery / seats, tracks, floors / emergency exits

◊ Interior and exterior access panels especially in hard-to-see places of the aircraft

◊ Yokes / control cables, linkages, and surfaces

◊ Equipment and appliances / wires and connectors

◊ Hydraulic / vacuum / brake / pitot and static / fuel lines

⇒ ***Pay particular attention to trim positions. If work was done directly on the trim system, check for unimpeded flight control surface deflections and make sure the deflections go in the proper direction!***

Fully understand which way the trim tab needs to travel when trim input is given to the control. Pilots have discovered (right after the aircraft lifted off) that one of the trims was left in a position they weren't expecting.

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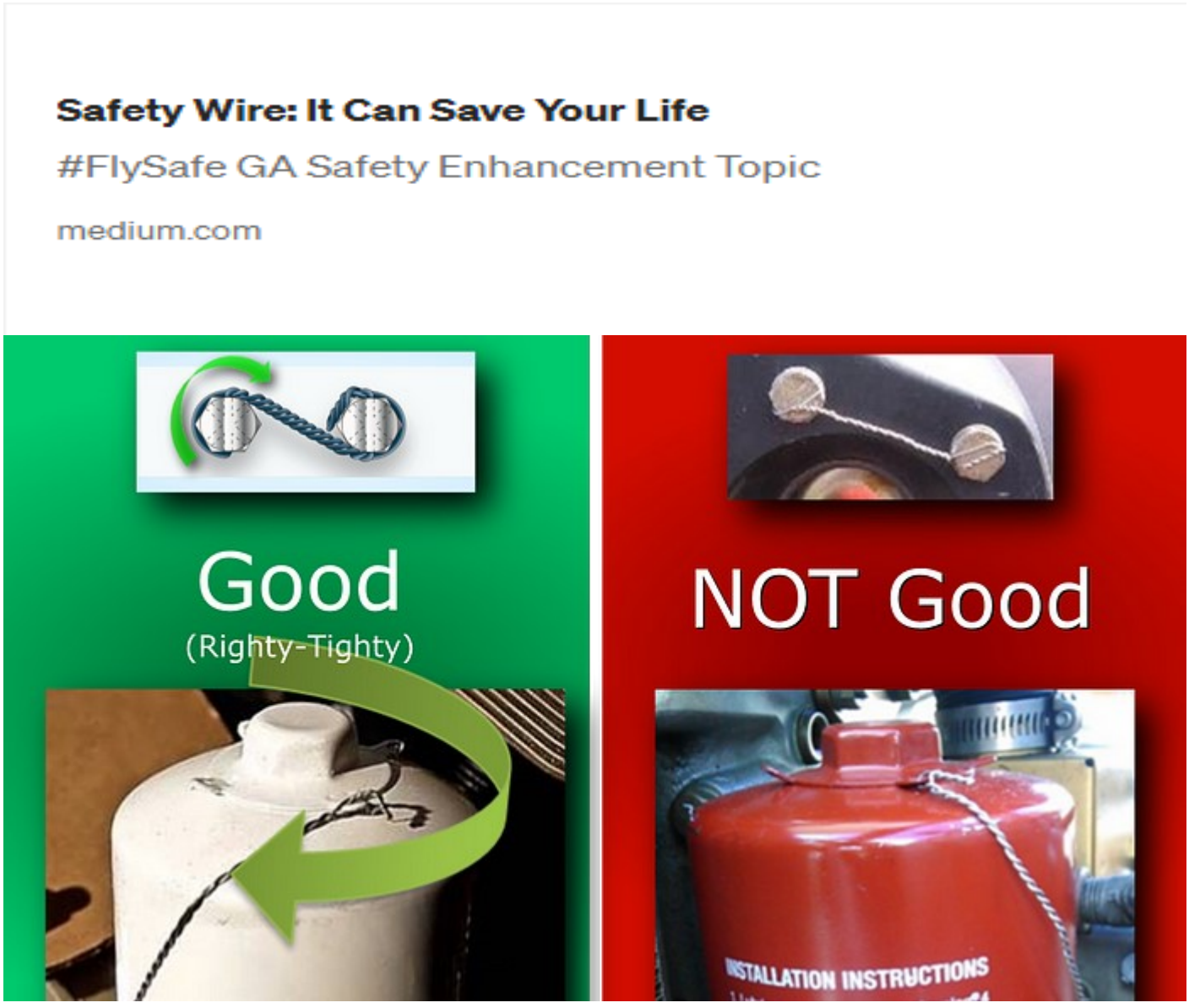
⇒ ***Make sure all inspection panels are secure and their fasteners are tight.***

Inspect all control fasteners for missing cotter pins. A missing cotter pin can cause the nut to loosen and fall off, causing the control surface or trim tab to move or flutter on its own. Inspect locknuts, making sure the bolt or stud extends at least the full round or chamfer through the nut. Flat end bolts, studs, or screws should extend at least 1⁄32 inch (or 1 and ½ threads) through the nut. Check all visible bolts. If there is a hole in the bolt head, it may require safety wire in it. FAA Advisory Circular 43.13–1B outlines the various locking methods and the proper safety wiring procedures. You can also see our Safety Wire #FlySafe topic here:



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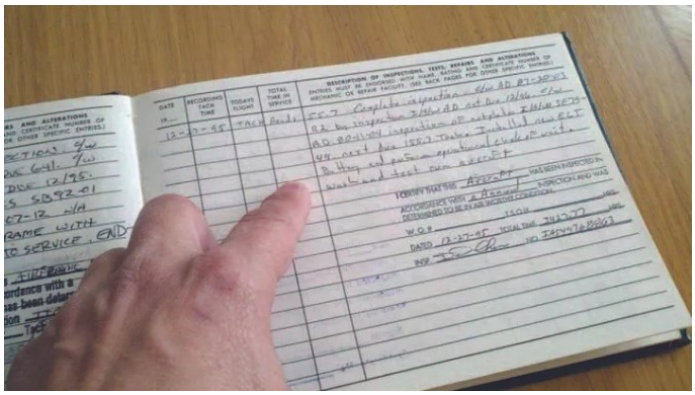
⇒ ***Check fuel tank for water, sediment, and proper fuel grade.***

Use a sampler cup to drain a small quantity of fuel from the fuel tank sump quick drain valve placing the cup in front of a white background (blue sky or background makes it more difficult to see what's in the fuel). Pull out the strainer drain knob for about four seconds to clear the fuel strainer of possible water and sediment.

⇒ ***After an oil change, always check the engine oil level to ensure it has the proper amount of oil.***

Remember that most oil filters will take up to a quart of oil to fill it. Even though the maintenance facility may have added eight quarts of oil, the dipstick will only indicate a little over seven in the sump after the run up. Remember that oil serves two main purposes: lubrication and cooling the engine.

⇒ ***Always check your logbook and paper-work prior to flight to ensure the correct records have been entered.***



Look over the records to determine what areas of the aircraft had maintenance performed on it. Remember to check for proper log entries for the work performed and the return to service. If this isn't done, the aircraft isn't legal to fly. Always ensure you have the correct documents (e.g., airworthiness certificate and registration) onboard.

⇒ ***If you see a warning tag or sign on the aircraft sign out clipboard, status board, or on the aircraft itself, DO NOT FLY THE AIRCRAFT!***

Check with the maintenance facility prior to taking the aircraft. It's possible the work was not completed when expected.

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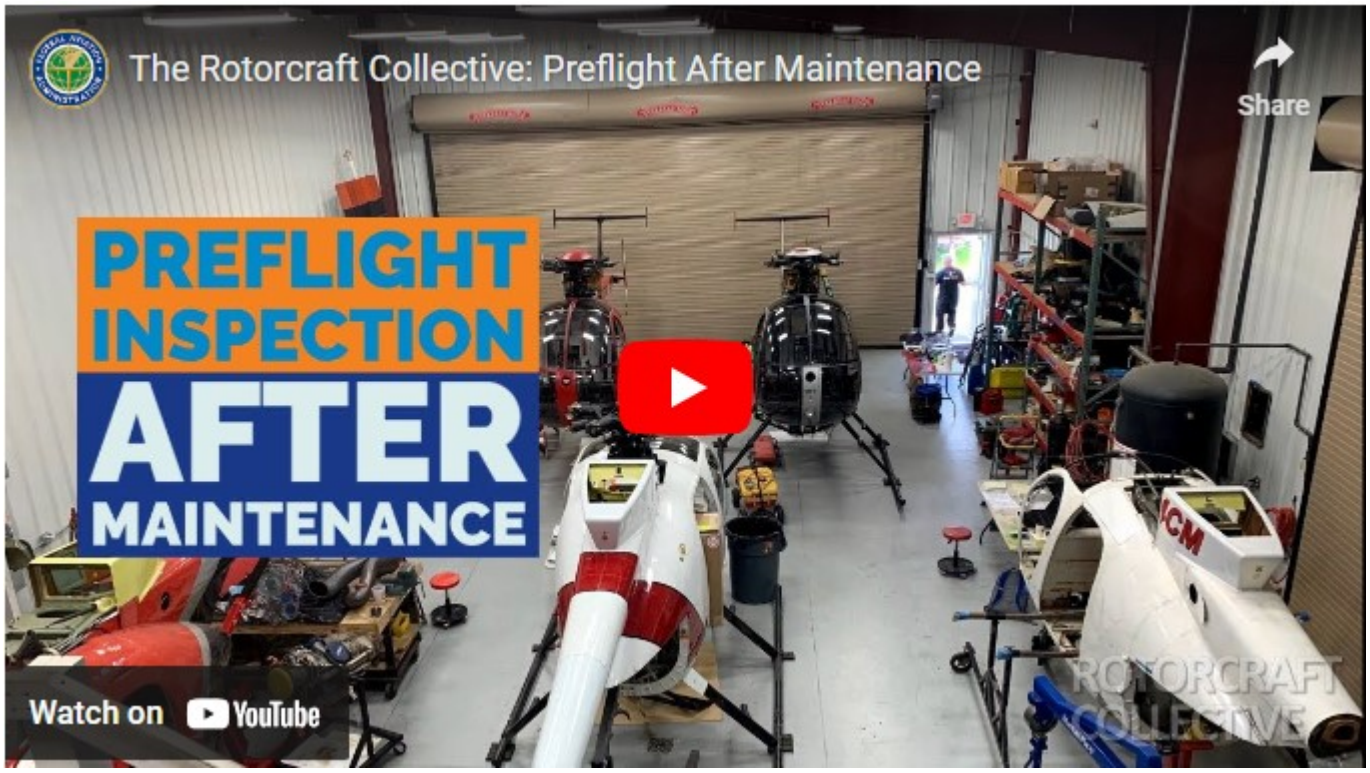
Resources

- *NTSB Safety Alert — Advanced Preflight After Maintenance*
- *FAA's Advanced Preflight Pamphlet (PDF download)*
- *"Advanced Preflight," FAA Safety Briefing, Mar/Apr 2012 (PDF download)*
- *"Preflight After Maintenance," FAA Safety Briefing, Mar/Apr 2022*



Federal Aviation Administration

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FAA Stresses Legal Protection of Voluntary Reporting Programs

Issues reported under safety programs exempt from enforcement actions

(Source: By Gordon Gilbert, Contributor—Accidents and Regulations, AIN Network)

To encourage increased participation by aircraft maintenance providers and commercial operators, especially Part 135 and 91K certificate holders, in providing the FAA information on apparent regulatory violations under the agency's several voluntary safety programs, the agency has issued Notice 8900.61 to clarify how it determines if enforcement action will be taken.

For Aviation Safety Action Program (ASAP) submissions accepted before Oct. 1, 2015, and/or Voluntary Disclosure Reporting Program (VDRP) submissions currently open (corrective action and/or follow-up surveillance not completed), FAA inspectors have the "discretion to determine the most appropriate action, either administrative action or corrective action [i.e. enforcement]," the notice says. "It should be noted that administrative action is no longer an option within the web-based VDRP system."

Decisions on accepting a submission are intended to be made according to specific criteria, including inadvertence of the apparent violation and satisfactory taking of immediate action followed by the development of a comprehensive fix. Repeated violations will be subject to additional reviews on a case-by-case basis, which could lead to enforcement action.

As of Oct. 1, 2015, automatic upload of disclosure data from the web-based VDRP system to the FAA's enforcement information system (EIS) was terminated. Files that were open in the EIS on October 1, 2015, have been purged from the EIS. "However, the option will remain for the FAA to take administrative action utilizing the legacy paper-based system, as desired."

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“The FAA’s policy of forgoing civil penalty actions when one of these entities detects violations, discloses the violations to the FAA, and takes prompt corrective action to ensure that the same or similar violations do not recur is designed to encourage compliance with FAA regulations, foster safe operating practices, and promote the development of effective internal evaluation programs,” the notice further states.

For example, the FAA reports that ASAP has more than 900 active memorandums of understanding across the nation “with activity and participation increasing almost daily. With more than 100,000 reports annually, it is a tremendous source of safety information and data. Participation is expanding across the entire spectrum of the National Airspace System with even small operators able to participate through the use of the services of third-party facilitators such as the Air Charter Safety Foundation.”

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SAFETY MANAGER'S CORNER

Safety Report Searching

Somethings that don't seem critical and are not obvious may cause serious difficulties when applied to future situations. Safety data fall exactly into that trap. Identifying and addressing hazards in a timely fashion will always remain a cornerstone of safety management. This type of activity is reactive because it relies upon initial identification, typically related to some type of event. For example, a safety report describing deer observed on a runway during a night landing heightens awareness of the possibility of a deer strike at that airport. Even though the deer strike did not occur any corrective actions associated with the event would be considered reactive.

Building data for years from safety reports creates information power, but only if it can be harnessed effectively. The value of data is immense, but only when important questions can be answered. For all its usefulness, data is also dumb. It doesn't know anything and can only effectively answer questions humans have previously anticipated. Enter the intelligent safety manager. If your safety reports forms don't contain the right searchable fields then "dumb data" can't provide the right answers.

Let's look at a potential real-world scenario. Your flight operation's safety management system has been collecting safety reports for the previous 33 months, and the data library now contains 117 reports describing flight hazards and events. The chief pilot participates in a safety roundtable conference, discussing hazards and concerns with many other like-in-kind business aviation operations. After returning from the conference you (safety manager) and the chief pilot meet to discuss the meeting's details and share information. The chief pilot describes how many of the conference's operators noticed an upward trend in the quantity of FMF entry errors over the last 18 months and is wondering if your flight operation similarly indicates the same. A quick search of the safety report data shows…nothing. Why? Because the report form used for the last 33 months doesn't contain a searchable data filed for "FMF entry errors" so now you're forced to do a combination keyword search and manual report review to derive a somewhat accurate counting. Ouch! If the safety report contained a simple checkbox for FMS entry errors then a search for that field would quickly and accurately yield the answer.

Certainly not every data call is predictable, but many definitely are. When constructing safety report forms, anticipate what types of question might be asked a year from now. "Will we need to know how many times XYZ occurred?" If the answer is yes, then make sure there is a searchable field so data can answer questions.

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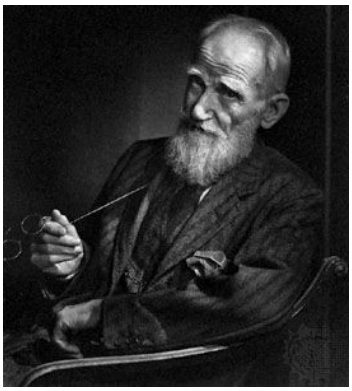
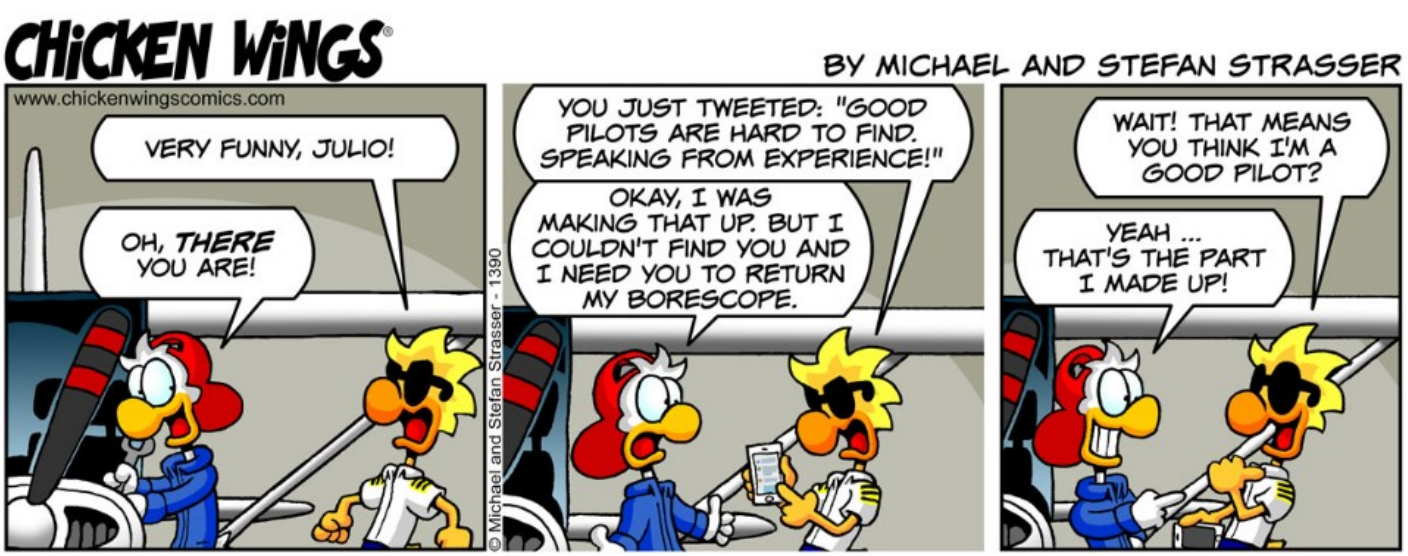
Quote of the Month

“The single biggest problem in communication is the illusion that it has taken place”

– George Bernard Shaw



Communication is too important to let yourself be fooled into thinking it’s all good. It’s not just about talking. In fact there are four types of communication: interpersonal, non-verbal, written, and oral. All of those paths of transmission make it seem like nothing can be missed, that miscommunication is impossible. Well we all know better than that. Communication really isn’t the problem at all, it’s the assumptions surrounding it that create the biggest problems. “I thought that’s what you told me,” and “You didn’t say anything so I thought it was OK” are often preceded by some really undesirable occurrence. Of course it’s soothing to figure out what was miscommunicated but it doesn’t turn back the clock and undo the event. A much better approach: proactively ensure accurate and effective communication.



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