

Check? Check.

BY ALFRED V. COVELLO

AOPA 230388

Aircraft and their various components are subject to certain mandatory operational checks, tests and inspections. The requirement for these tests is usually a function of the passage of time or the nature of the flight operations to be conducted.

FAR 91.165 requires that the *owner or operator* of the aircraft see to the execution of the required inspections and that appropriate entries are made by maintenance personnel in the aircraft's records.

FAR 1.1 defines one who *operates* an aircraft as the user, or one who *pilots* the aircraft. As an aircraft borrower, renter or flying club member, you share an equal responsibility with the owner of the aircraft to see that required operational checks, tests or inspections have been executed and recorded.

It is important to have copies of the regulations governing required checks available when reviewing maintenance records, since maintenance personnel frequently record only the date, the regulation number and the fact that the regulation has been complied with to certify that the required inspection was performed.

Let's consider the required inspections in a form that may make them easier to remember. (See our acronym.) These inspections are not required in all instances. Also, the failure to carry them out when required does not bring about the same results in all cases.

Annual Inspection—FAR 91.169(a): This inspection *is required of all aircraft* (those having less than 12,500 pounds takeoff weight). It must be accomplished within the preceding 12 calendar months. A reference to calendar months means, for example, that if an inspection was performed on the 16th day of a given month, the next inspection must be accomplished by the last day of that same month, one year later. The aircraft may not legally be operated unless this inspection is accomplished within the prescribed period.

As a mechanical matter, the annual inspection is identical to a 100-hour inspection except that it must be accomplished and signed off by someone having Inspection Authorization (an IA). The 100-hour inspection may simply be signed off by an Airframe and Powerplant mechanic (A&P). If

your particular operation—commercial—mandates 100-hour inspections, you can count one of the prescribed 100-hour inspections as the annual inspection, or you may wish to investigate the possibility of putting your airplane on a progressive maintenance schedule.

VOR Accuracy Check—FAR 91.25: This recently amended regulation *is applicable only to operations conducted under instrument flight rules*. The required equipment accuracy check must have been carried out within the preceding 30 days for IFR use (versus 10 hours and 10 days previously).

This accuracy check may legally be accomplished in any one of six ways.

1. By using an FAA operated or approved test signal, or at the airport of

other permanent record, certifying the accuracy of the radial which was transmitted and the date of the transmission. The owner/operator or repair station representative must make a logbook entry stating the result of such checks. The permissible bearing error is plus or minus 4°.

3. By using a designated surface checkpoint located on an airport. These are also listed in the Airport/Facility Directory. The permissible bearing error is plus or minus 4°.

4. By using a designated airborne checkpoint. The location of these is also listed in the Airport/Facility Directory. The permissible bearing error is plus or minus 6°.

5. By using a prominent ground point along the centerline of a VOR

Inspection/Component		Time Frequency	Regulation
A	Annual	12 calendar months	FAR 91.169(a)
V	VOR's	30 days	FAR 91.25
I	100 hour	100 operating hours	FAR 91.169(b)
A	Altimeter	24 calendar months	FAR 91.170(a)
T	Transponder	24 calendar months	FAR 91.177
E	ELT	1 hour of operation or ½ of battery life	FAR 91.52

intended departure's VOR test facility (VOT). The locations and frequencies of VOT's may be found in the Airport/Facility Directory. Look under "VOR Receiver Checkpoints."

When the VOT frequency is tuned, with the course deviation indicator (CDI) centered, the omni bearing selector should read 0° with the to-from indication being "from," or the omni bearing selector should read 180° with the to-from indication reading "to." The permissible bearing error is plus or minus 4°.

2. By using a test signal radiated by a certificated and rated radio repair station. This signal is usually broadcast on 108.0 MHz.

The signal can't be broadcast continuously. The aircraft pilot must make arrangements with the repair facility to have the signal transmitted. The pilot can then verify the radial and whether a "to" or "from" indication is expected. A repair station representative must make an entry in the logbook or

airway. It is preferable that such a point be more than 20 miles from the VOR transmitter and that the aircraft pass over the ground point at a fairly low altitude. Permissible variation between the published radial and the indicated bearing is 6°.

6. When two VOR receivers are installed in an aircraft they can be compared with one another. When tuned to the same VOR transmitter the maximum permissible variation between the two indicators, with the needle of one set centered, is 4°.

The results of a VOR operational check, including the date, place and bearing error, should be recorded and signed by the person performing the check in the aircraft log or other permanent record. A pilot's logbook would be appropriate but not helpful to other users of the aircraft.

100-Hour Inspection—FAR 91.169(b): This inspection, with certain limited exceptions for those using dif-

ferent maintenance procedures, *is only required when an aircraft is: (1) carrying people for hire, or; (2) being used for compensated flight instruction with the instructor supplying the aircraft.* Thus, if a student provides the training aircraft, or if a commercial operation does not involve the carriage of passengers—the 100-hour inspection is not required. The 100-hour period may be exceeded, by not more than 10 hours, in order to reach a place where the inspection may be accomplished. The next 100-hour period, however, must be reduced by the additional hours so used.

Altimeter and Pitot-Static System—FAR 91.170(a): This inspection must be performed every 24 calendar months. Failure to accomplish the prescribed check does not bar all use of the aircraft, however, since the requirement *applies only to altimeters and pitot systems on aircraft being used in controlled airspace under instrument flight rules.*

Transponder—FAR 91.177: Like the altimeter and pitot static system check, this inspection is required every 24 calendar months. Again, the reference to calendar months means that if the previous inspection was performed on, for example, Aug. 24, 1979, the next inspection is due by the last day of the same month in 1981. *Failure to complete this check renders the transponder legally inoperable* but does not otherwise affect the airworthiness of the aircraft in which it is installed.

Emergency Locator Transmitter—FAR 91.52(d): This requirement places a life limit on the batteries which make the ELT's operation independent of the aircraft's electrical system. The regulations require that such batteries must be replaced or recharged when the transmitter has been in use for a total of one hour or when 50% of the batteries' useful shelf life has expired. The latter replacement date must be legibly marked on the outside of the transmitter.

It is important to understand that these FAA maintenance requirements must be met to fly legally and safely. The acronym A-V-I-A-T-E, should make them easier to remember. □