

Set a Frequency for Safety

The term "avionics" includes all the radios, instruments, flight control equipment (autopilots, for example), and *all* of the components required to make up each individual system. But, while pilots generally are aware of what functions their avionics perform and how they operate, they may not always treat this delicate equipment with the care it requires.

Maximum operating capability and safety are assured *only* when all avionics units are properly manufactured, installed, maintained and operated. So, during your initial checkout, familiarize yourself with *all* the systems in your particular aircraft, including the avionics.

Avionics come in many different shapes and locations, so you must know *your* aircraft. Some typical antenna locations are shown in the illustration.

VOR Accuracy

Checking VORs for IFR flight is required under Federal Aviation Regulations Part 91.25—within the preceding *thirty* days before flight. Permissible indicated bearing error is as follows:

- With a VOT (VOR test facility), read zero degrees "from" or 180 degrees "to"; maximum error allowed is ± 4 degrees.
- Using a VOR check point (see the *Airport Facility Directory* for locations):
 - On the ground, set in and center the appropriate radial. Maximum permissible error is ± 4 degrees.
 - While airborne and over a recognizable landmark, the VOR should read within ± 6 degrees.
- If the aircraft is equipped with dual VOR receivers, each VOR display should read within ± 4 degrees of the other, when set to the same radial.

DME Accuracy

- Suggested tolerances from the *Airman's Information Manual*: 3% or $\frac{1}{2}$ mile, whichever is greater.

VOR and DME Idents

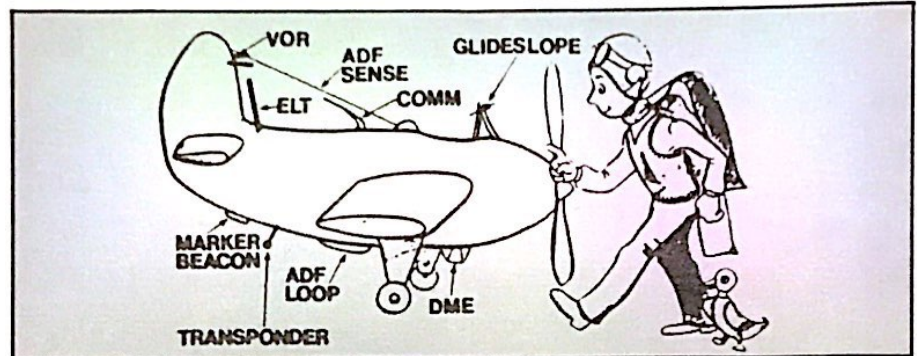
- DME—every 37½ seconds (higher pitch)
- VOR—4 *code* idents, then DME ident or—3 *voice* idents, then DME ident.

VOR Sensitivity

- VOR course sensitivity is about 10 degrees from center to full-scale deflection.
- ILS localizer course-width sensitivity is about 2½ degrees from center to full-scale deflection.

Preflight—Walk-Around

Check the following antennas for physical condition, cracks, oil or dirt, proper mounting, and damage (see illustration): a) Comm or comm nav; b) VOR; c) Transponder; d) Marker bea-



con; e) Glide slope; f) ADF, and g) ELT.

In Aircraft, Have On Board:

1. Airworthiness certificate
2. Registration certificate
3. FCC station license
4. *Pilot's Operating Handbook* or *Flight Manual* (operating limitations)
5. Navigation charts and equipment

Before Starting Engine, Check:

1. Avionics equipment-off
2. Pilot heat
3. Magnetic compass, correction card and fluid level
4. Altimeter—set for field elevation, note error
5. Vertical Speed Indicator—on zero
6. Clock—set time

After Starting Engine, Check:

1. All avionics—on
2. Vacuum (suction)—within limits
3. Gyro instruments for erection, noise, and precession.
4. Heading indicator—set
5. Communication radios: Proper

frequencies—set; audio switches—select either speaker or phone; squelch control—adjust; volume—adjust; transmitter select—on desired transmitter; listen—before transmitting, and microphone—hold close to mouth.

6. VOR radios: Proper frequency—set; flags; identification, and accuracy, when possible.

7. DME: Readout, when possible, and identification.

8. ILS: Frequency—set; flags—localizer and glide slope, and identification.

9. Marker beacon: Lights—test, then set on high or low sensitivity, and

audio—on, then adjust volume, when possible.

10. Transponder: Code—set; switch—set standby, and circuitry—if test switch is provided.

11. ADF: Frequency—set; identification—check, and select ADF mode—then confirm accuracy, when possible.

12. ELT: Set comm radio to 121.5 MHz—listen, check for inadvertent activation.

While Taxiing, Check:

1. Turn coordinator (or turn indicator)
2. heading indicator
3. attitude indicator
4. autopilot

Before Takeoff

Transponder—on, just before takeoff.

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