

# Get The Angle?

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**I**F YOU think your airspeed indicator will tell you if you're close to stalling, you are "asking for a pine box!"

Airspeed doesn't necessarily have anything to do with a wing's stall. A wing doesn't stall at a consistent speed . . . a wing **does** stall at a consistent angle!

What you need is an angle-of-attack indicator. Make one yourself according to the accompanying sketch or buy one, but get one for insurance for a long life.

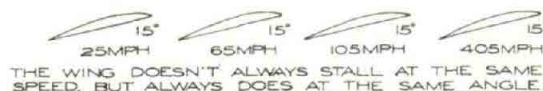
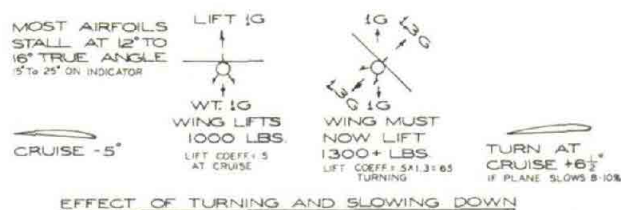
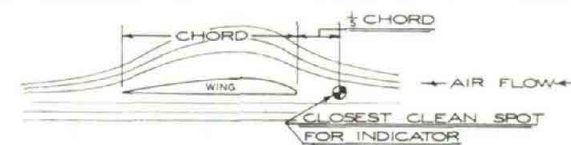
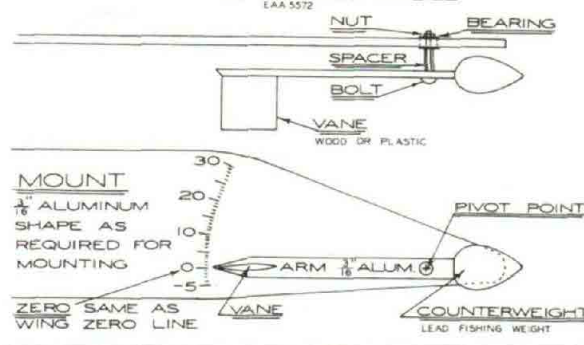
Many military aircraft now have angle-of-attack indicators, as do research and development aircraft. The truth is that you can't tell what your airplane is doing unless you can "see the air." An angle-of-attack indicator lets you see the air. Anyone can make a simple angle-of-attack indicator or have one made.

Mount it on your craft outside of the prop-wash . . . four feet out on a lift strut or N strut is ideal. The leading edge of the wing is also good, and it should be at least 20 percent of the chord ahead of the leading edge. This location will keep it out of the wavy flow near the wing. A commercial and expensive angle-of-attack indicator mounts only a few inches ahead of the wing but, reportedly, it oscillates a lot in flight, and swings through 60 deg. from high speed to stall, while the wing swings through only about 15 deg.

If you put your angle-of-attack indicator out about a foot and one-half, you will get the stall-angle reading somewhere between 15 and 25 deg., and a very steady indication. My indicator is mounted out about four feet

## WHAT'S THE ANGLE?

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from the fuselage on the wing leading edge. I've also put them on biplane N struts about two-thirds of the distance up from the lower wing and this is an ideal location for small biplanes. The mounts are very easy to make, and the airflow at this point is nearly unaffected by the wing wash.

This little instrument will add years to your enjoyment of flying. ▲

## Turbine Engines Available



Turbonique, Incorporated, an Orlando, Fla. firm, has just announced the availability of six new turbine engines. These engines cover a guaranteed power range of from 45 to 360 shaft horsepower. The engines are exceptionally lightweight. The smallest unit weighs only 35 lbs. and the largest 55 lbs. This fantastic hp/weight ratio is unprecedented in the commercial, marine, or industrial engine field. Prices are said to be lower than most marine engines and competitive with automobile engines.

Marine applications range from main propulsion units for drag boats to starting units for large Diesel engines. The low cost and light weight should also make the engines suitable

for numerous specialized power requirements.

The engines have undergone an extensive four-year development program in which they were operated under various air propeller, dynamometer, and vehicle load conditions.

The main turbine shaft operates at speeds up to 92,000 rpm. A multi-stage reduction gear box drops output rpm to a usable speed.

A complete color catalog containing many illustrations and performance curves of all engines is available for \$1.00. Color movies and hi-fi recordings of the turbines in operation can also be furnished prospective users. For further information, write Turbonique, Incorporated, P. O. Box 8641, Orlando, Fla. ▲