

SPECIFYING SYSTEMS FOR FUEL, OIL, & WATER

(SUPERSEDES PAGE 4 OF DATA BROCHURE)

Fuel and oil probes are constructed of 0.188" diameter brass tubing. Water probes are 0.221" 304 stainless steel. The internal elements are stainless steel and Teflon.

Probes can be ordered in any length from 1.5 to 60 inches in 0.1 inch increments.

The ACTIVE LENGTH, "A", is the distance from the bottom of the probe to the vent hole.

The HANDLE LENGTH, "B", is the distance from the vent hole to the top or cable end of the probe.

The distances "A" and "B" are specified with the following considerations in mind:

The VENT HOLE vents the probe (not the tank) and must be inside the engine or tank. The probes are sealed internally above the vent hole and fuel and oil probes can be installed upside down or at any angle other than horizontal.

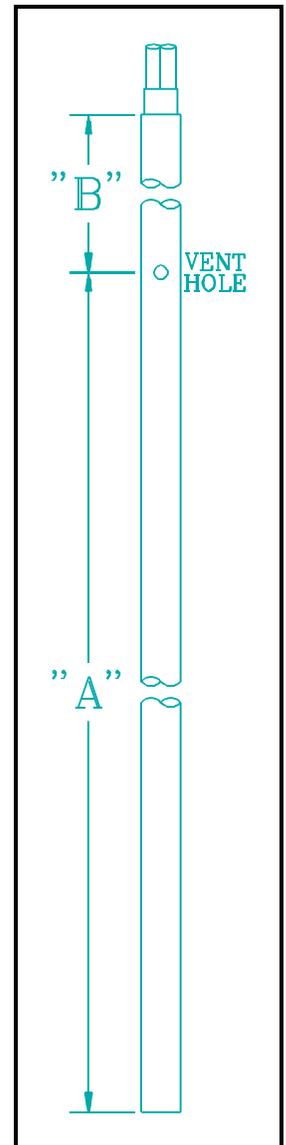
Water probes cannot be installed upside down and near horizontal angles should be avoided.

The probe ACTIVE LENGTH, "A", and the range of fluid level displayed can be different. The RANGE screwdriver adjustment on the indicator can be set for a displayed range of 30% to 100% of the ACTIVE LENGTH. The ZERO adjustment will position the displayed range anywhere along the ACTIVE LENGTH. An "A" length slightly greater than the needed measurement range is recommended.

The HANDLE LENGTH, "B", should be specified to accommodate the fitting involved. In the case of a fuel tank or a water tank, this might be on the order of 1 inch. In the case of an oil dip-stick replacement for a Lycoming O-360 aircraft engine, "B" is 15 inches.

The best way to get the probe spec right is to mock it up using 3/16" wooden dowel (any hardware store). Engine dip-stick probes should reach to within 1/4" of the pan bottom. Original dip-sticks typically penetrate only a fraction of the pan oil and they should not be used to determine probe length.

Measuring the exterior dimensions of a tank can result in an "A" length too long to fit inside the tank.



CABLE LENGTH

The probe cable is a pair of Teflon RG-178 coaxes tied together at 1 foot intervals with Teflon ties. This cable is impervious to solvents, has outstanding abrasion resistance, and can contact hot exhaust manifolds without damage.

Probe cables are provided in two versions. The version 1 cable is terminated in a 3 pin connector that connects directly to the 500A Indicator. Version 2 is intended for long runs and is recommended for multi-engine aircraft and large boats. The probe cable is terminated in RCA style

audio connectors. A mating cable is provided that connects to the indicator. Additional RCA audio connectors are provided to make up an extension cable out of any type of coax.

The standard 6 foot version 1 cable is suitable for most single engine aircraft.

Version 2 cables of 2 feet are suitable for most installations.

OVER

CONTINENTAL ENGINES

Continental engines are a mixed bag. Engines with flexible dip-sticks located between cylinders 4 and 6 cannot be easily fitted through the dip-stick tube. Some Continentals have been fitted by drilling the pan bottom and tapping for a pipe-thread fitting and installing the probes upside down.

Continental engines with rigid dip-sticks located just forward of the lower left engine mount can be easily fitted using the CONTINENTAL SIDE-STICK HEAD supplied by AIRBORNE.

LYCOMING ENGINES

Conveniently, Lycoming dip-stick shafts are the same diameter as the SKINNY-DIPPER probe and installation takes only minutes. A 1/16 inch pin secures the shaft to the cap and can be driven out easily using a small pin punch. The pin is obvious on the screw-in caps. On the lever type caps, the pin can be seen by removing the lever handle. After removing the shaft, open up the hole in the cap with a 3/16" (0.188) drill bit. Secure the probe using the COLLARS AND O-RINGS KIT.

MULTIPLE PROBES

A single indicator can be used with multiple identical probes. This can be done using a single pole switch as only one of the two coaxes need be switched. In the case of two probes, we can provide the single pole-double throw switch.

Caution - engines in light twins are canted due to wing dihedral. The left and right dipsticks in our Cessna 310 are different (Continental side sticks). Lycomings may be all right, but, if in doubt, use two indicators so you will have two zero adjustments and two range adjustments.

THE DIHEDRAL PROBLEM

Wing tanks present a problem to conventional fuel quantity senders. The highest point of the tank is outboard and the lowest is inboard. The SKINNY-DIPPER is ideal for wing tanks with the "dihedral problem". Installing a probe diagonally from the highest point (outboard) to the lowest point (inboard) provides a very accurate reading from completely full to dead empty.

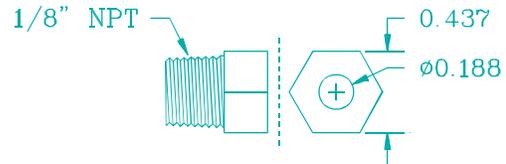
This can be done with one long probe or several shorter probes connected in parallel to accommodate compartmentalized tanks. The SKINNY-DIPPER uses the age old capacitance technique with a new twist. It employs a 3 terminal technique that allows the electronics to be arbitrarily distant from the passive probe. Cable capacitance has no effect and probes can be paralleled to totalize multiple tanks.

PROBE INSTALLATION FITTINGS

SET-SCREW COLLARS and O RINGS
for LYCOMING DIPSTICKS OR TANKS



PIPE THREAD FITTING
for PAN BOTTOMS or TANKS



CONTINENTAL SIDE STICK HEAD
with O RING AND HANDLE



AIRBORNE ELECTRONICS
2655 N FITCH MTN RD
HEALDSBURG CA 95448
1 707 542 6053
RITK@SONIC.NET