FAA-PMA/STC SA 522 SW: This product is FAA approved for installation on **ALL** piston engine aircraft. After installation of complete system, return aircraft to service via Form 337 referencing STC SA 522 SW (see below). This is not required for replacement parts. All piston powered aircraft, regardless of make, are covered by this STC.

United States Of America
Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate

Number SA522SW

This Certificate issued to Alcor, Inc.
300 Breesport St.
San Antonio, TX 78216

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 23 *of the* Federal Aviation *Regulations.* Parts 3, 4a, 4b of the Civil Air Regulations

Original Product Type Certificate Number: See Limitations and Conditions

Make: See Limitations and Conditions

Model: See Limitations and Conditions

Description of Type Design Change:
Installation of Exhaust Gas Temperature (EGT), Cylinder Head temperature CHT) Components/Systems in accordance with Master Drawing List titled "Alcor Master Drawing List for STC SA522SW dated November 14, 1984," or later FAA approved revisions.

Limitations and Conditions:
All aircraft equipped with reciprocating engines are eligibile for the installation of the Alcor EGT and CHT Component/Systems.

Compatibility of this modification with previously installed equipment must be determined by installer. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: April 15, 1965

Date reissued: 07/05/94; 9/30/02

Date of issuance: May 26, 1965

Date amended: April 30, 1992 Rev. 15

By direction of the Administrator

(Signature)
S. Frances Cox, Manager
Special Certification Office,
Southwest Region

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.

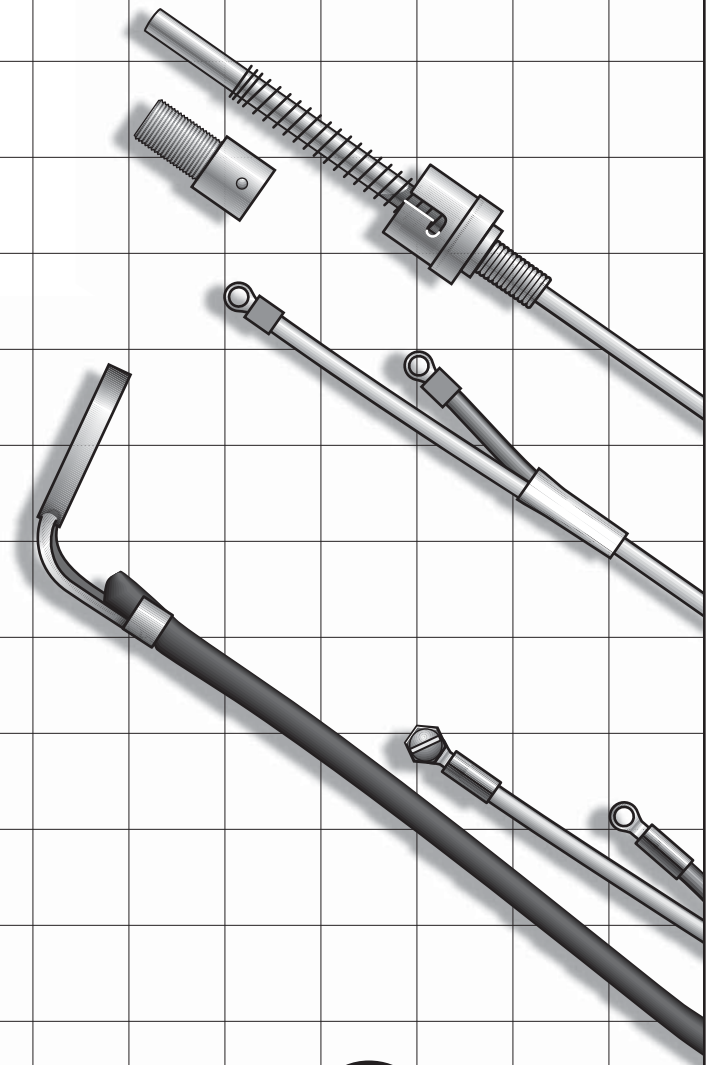
FAA Form 8110-2(10-68) Page 1 of 2 *This certificate may be transferred in accordance with FAR 21.47.*

PN 59188
REV. G, 01/08

CHT Probe

Installation Instructions

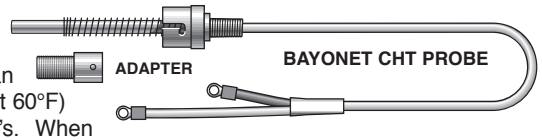
FAA/PMA Approved



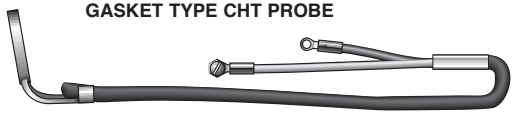
Web site: www.alcorinc.com
E-Mail: support@alcorinc.com

Alcor INCORPORATED

GENERAL INFORMATION



Gasket style **C**ylinder **H**ead **T**emperature thermocouples can read 50°F to100°F (normally about 60°F) more than bayonet style CHT's. When replacing an existing CHT probe (thermocouple) the same cylinder should be used from where the old probe was removed. Some engines do not have thermowells to install bayonet probes so gasket types must be used. In cold climates, thermowells are sometimes used for heater installations. Spring loaded bayonet types are more accurate than simple screw in types because the probe touches the bottom of the thermowell and senses metal rather than air temperature. If installing a new single probe system the original system must be left intact unless a FAA 337 form is completed to approve its removal. Ensure that the probe installed is the same type as the one removed by comparing color of wires. Some competitor's probes use red and white colored wires, which are the same as yellow and black wires. Do not confuse thermocouples with thermistors. Thermocouples produce millivolts, while thermistors change resistance. All work to be done in accordance with FAA, Advisory Circular 43.13-1A.



INSTALLATION, BAYONET TYPE

1. If replacing an existing probe, remove by turning bayonet cap a quarter turn counter-clockwise by hand and carefully pull. If the probe being removed is not a bayonet type, unscrew with an open end wrench.
2. Install Adapter, P/N 28202, if none exists. Fully insert replacement bayonet probe into thermowell, aligning locking pin with cap slot. Push and turn cap clockwise to lock.
3. Slide fiberglass insulation sleeve over lead. Connect instrument lead to probe lead with screws and nuts, ensuring correct stagger/color combinations. Slide sleeve over lead connection and secure with nylon ties.
4. Allow enough slack in probe lead to provide a finger-size loop to minimize strain on wire and secure remainder of lead to engine/airframe away from exhaust pipe.

***Alcor*® P/N**	Type	Color	Resistance	Millivolts @ 212∞F	Weight	Size
86251	J, Iron/Constantan	Yellow/Black	.24 ohms	4.04 mv	1.25oz	15″
86252	K, Chromel/Alumel	Red/Yellow	.66 ohms	3.14 mv	1.25oz	15″
28202	Thermowell Adapter				.3oz	3/8-24(NS.2)

INSTALLATION, GASKET TYPE

1. Remove sparkplug and copper gasket or defective thermocouple if installed. Dispose of old copper gasket. Lubricate sparkplug threads as recommended by manufacturer and slide new gasket thermocouple over sparkplug threads.
2. Replace sparkplug and tighten to manufacturer's specifications after thermocouple leads are routed in the correct direction. See operations #3 and #4 above to complete installation.

***Alcor*® P/N**	Type	Resistance	Millivolts @ 212∞F	Weight	Size
86202	J, Iron/Constantan	.13 ohms	4.04 mv	1.25oz	18mm

FREQUENTLY ASKED QUESTIONS

On a new installation, which cylinder should I install the probe on?
Install the probe in the same location as factory-installed system, or rear cylinder on horizontally opposed engines, or #1 cylinder on radial engines. If unsure, make several similar test flights changing thermocouple locations between flights to select the hottest cylinder. That cylinder should remain the hottest unless airflow is altered because of cooling airflow problems such as air baffling leaks, etc. or cylinder runs excessively lean.

How can I check my probe to see if it's working correctly?
Use an ***Alcor*® *ALCAL*® *2000* EGT/CHT** Tester. Otherwise, place the probe in boiling water and either read the ***Alcor*®** meter temperature (200° at first mark) or measure millivolt output and compare with table value listed on opposite page.

What am I to do if I have replaced the probe/thermocouple and I still do not get an indication on the meter?
Inspect entire system for loose connections, broken wires/connectors, or mismatched color-codes between lead/meter and probe. Disconnect meter from lead and check the loop resistance of the lead and probe and compare with value on meter label. Use cigarette lighter or soldering iron to heat probe and check for reading on meter. Use boiling water for accurate check at first meter mark. If you obtain no indication and lead/probe resistance and type are correct, then you may have a bad calibration potentiometer or damaged meter movement. Call ***Alcor*®** for repair.

WARRANTY INFORMATION

Alcor©, Inc. warrants all parts in all new ***Alcor©, Inc.*** products to be free from defects in material and workmanship under normal use and under the following conditions: ***Alcor©, Inc.'s*** obligation under this warranty is limited to the repair or exchange of any defective part, if the part is returned and return shipping prepaid, within **FIVE YEARS** of the date of manufacture.

Alcor©, Inc. is not responsible for any service charges, including removal and reinstallation costs, or any other consequential damages. This warranty is void as to any product damaged as a result of misuse, accident, negligence, unauthorized repairs or handling in transit. If the ***Alcor©, Inc***. product's serial number or inspection date label has been altered, the warranty is void.

Questions concerning all ***Alcor©, Inc.'s*** products should be directed to Customer Support at **1-800-FLI-SAFE (1-800-354-7233)** or email: **support@alcorinc.com.**