

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This certificate and the supporting data which is the basis for approval shall remain in effect until superseded, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.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

S. Frances Cox, Manager
Special Certification Office,
Southwest Region
(116)

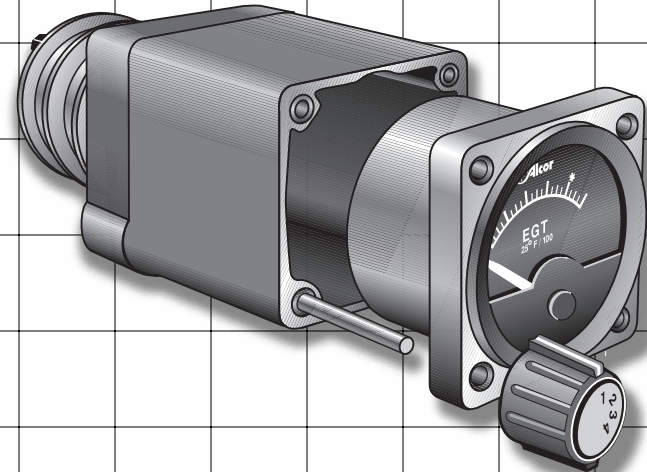


Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.
FAA Form 3110-108 Page 1 of 1 This certificate may be transferred in accordance with FAR 21.47.

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. This is not required for replacement parts. All piston powered aircraft, regardless of make, are covered by this STC.

Universal Cylinder Selector (UCS)

Installation Instructions
FAA/PMA Approved



WARRANTY INFORMATION

Please refer to **Alcor's®** website, call, or e-mail for troubleshooting tips before returning a possibly defective product to **Alcor®**.

Alcor® Inc., warrants all parts in your new **Alcor®** product to be free from defects in material and workmanship under normal use. Our obligation under this warranty is limited to repair or exchange of any defective part of this unit if the part is returned, transportation prepaid, within **THREE YEARS** from the date of manufacture. The replacement parts carry a warranty for the balance of the period of warranty.

Under this warranty, **Alcor®** is not responsible for any service charges, including removal and reinstallation or any other consequential damages.

This warranty is void on any product which has been subjected to misuse, accident, negligent damage, repaired by anyone other than the **Alcor®** Repair Department, or damaged in transit handling. If in the opinion of **Alcor®**, the product's serial number or inspection date label have been altered or defaced, the warranty is void.

This warranty is in lieu of all other warranties expressed or implied and all other obligations of liability on **Alcor®**'s part, and it neither assumes nor authorizes any other person to assume for **Alcor®** any other liability in connection with the sale of **Alcor®** products.

Should the product covered by this warranty fail to operate properly contact **Alcor®** Customer Support at **1/800-FLI-SAFE (1/800-354-7233)** or **support@alcorinc.com**

**Take a Flight
to Our Web Site**
www.alcorinc.com



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GENERAL INFORMATION

NOTE: BE SURE ALL COMPONENTS COLOR CODES MATCH (RED/YELLOW, RED/BROWN, OR BLACK/YELLOW). Test for proper positioning prior to installing wires and mounting indicator and switch assembly in the panel. Switch shaft may be inserted through any meter mounting hole.

SWITCH STOP ADJUSTMENT - This must be done before assembling meter and UCS together. Failure to follow these instructions will cause improper operation. Install one #5-3/16" screw and lockwasher (provided) into stop position No. 8, see **Figure 1 & 2**. Rotate the extension shaft counterclockwise (viewed from the front of indicator) until the stop is reached (you may have to tighten the knob onto the shaft temporarily in order to turn the shaft.) Install the second screw and lockwasher such that the stop screws are installed as follows:

NO. OF CYLINDERS	STOP SCREW POSITIONS
4	4 & 8
5 Turbine Inlet Temp (TIT)	3 & 8
6	2 & 8
7 Turbine Inlet Temp (TIT)	1 & 8

INSTALLATION

SINGLE - P/N 80825 adapts all *Alcor*® 2-1/4" single indicators for up to 7 temperature inputs. Connect lead wires to switch per **Figure 3**.

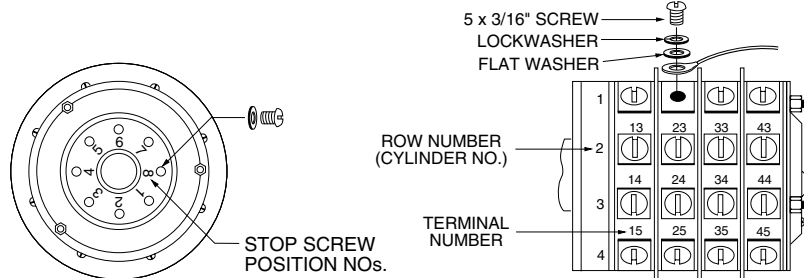


FIGURE 1.
Rear View of Switch

FIGURE 2.
Side View of Switch

TWIN - P/N 80827 adapts all *Alcor*® 2-1/4" dual indicators for up to 7 temperature inputs (a total of 14). Connect lead wires to switch per **Figure 4**. Can also be used to monitor Single Engine EGT/CHT.

UCS AND INDICATOR ASSEMBLY - Having selected a location for the indicator, determine the best corner for the knob location and slide the indicator and UCS together in that orientation. This location for the knob should provide visibility of the indicator while operating the knob. Note: the cage type mounting nuts normally supplied with the indicators should be removed and discarded.

OPTIONAL WIRING - When UCS model 80827 is used with *Alcor*® EGT/CHT indicators, additional jumper wires (1 yellow and 1 black) are provided so that the CHT pointer can be made to show a cylinder temperature again when monitoring TIT. If the airplane has a designated cylinder for monitoring CHT, that cylinder position should be chosen. If not, the hottest cylinder should be selected. If this step is not completed then the CHT will be inoperative when TIT is selected.

MODEL 80827 - The yellow wire should be connected to switch terminal No. 26 in Row 5 (4 cylinder engine) or No. 28 in Row 7 (6 cylinder engine) and the black wire should be connected to switch terminal No. 36 in Row 5 (4 cylinder) or No. 38 in Row 7 (6 cylinder). The other end to

LEAD TO UCS CONNECTIONS		
EGT CHT	- RED YEL	+ YEL BLK
Cylinder	Switch Terminal No.	
1	12	22
2	13	23
3	14	24
4	15	25
5/TIT	16	26
6	17	27
7/TIT	18	28

FIGURE 3.

be connected in the appropriate row as follows: (ie: If #1 is hottest CHT then it can be selected in #1 or TIT knob position.)

Designated Cylinder or Hottest Cylinder	Yellow	Black
1	22	32
2	23	33
3	24	34
4	25	35
5	26	36
6	27	37

MOUNTING - Position the Indicator and UCS assembly in the instrument panel (2-1/4" hole) and secure with mounting screws (#6 - 32 x 3/4" black). The nuts are already secured in the UCS housing.

KNOB ASSEMBLY - Turn the extension shaft counterclockwise until the stop is reached (attach knob to shaft temporarily). Attach the knob to the extension shaft with the white stripe straight up. (This ensures that the switch is in the cylinder one position.) Tighten knob securely to shaft by turning nut (in end of knob) clockwise while holding knob to prevent torque being applied to shaft. Install the knob cap into the end of the knob. Note that there is one wide notch on the knob cap that lines up with the white stripe. Choose one of the four placards appropriate for the total number of probe positions. Carefully remove the plastic placard from the card and position in the recessed center of the knob cap so that the "1" lines up with the white stripe. Press firmly. Optional: If desired remove the plastic 1/8" dot and press firmly into position on the indicator bezel immediately above the white stripe (above cylinder #1 position.) **FUNCTIONAL CHECK** - Run aircraft engine at normal run-up R.P.M. and lean engine until you observe pointer movement.

INITIAL IN-FLIGHT CALIBRATION - After a functional check, the EGT system can then be calibrated (fine tuned) to the engine/aircraft on the initial flight (and any subsequent flights). If TIT is used recalibrate so that asterisk * represents redline (1650°F approx.) See In-Flight System Calibration Section Indicator Instructions, P/N 59185 or call *Alcor*® 800-354-7233.

CHECK SWITCH - Check for proper switch orientation and operation. If switch does not have correct number of stops or meter does not work refer to Switch Stop Adjustment section.

LEAD TO UCS CONNECTIONS

EGT/EGT CHT/EGT! CHT/CHT	LEFT*		RIGHT*	
	- RED YEL	+ YEL BLK	- RED YEL	+ YEL BLK
Cylinder	Switch Terminal No.			
1	12	22	32	42
2	13	23	33	43
3	14	24	34	44
4	15	25	35	45
5/TIT	16	26	36	46
6	17	27	37	47
7/TIT	18	28	38	48

*Refers to pointer as viewed by pilot ! Single engine only

FIGURE 4.

