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SERVICE LETTER NO. 15

Engineering Aspects are FAA Approved

Kit Available for the Pitts S-2B & S-2C Smoke System

**MODELS EFFECTED: S-2B S/N 5000 and up
S-2C S/N 6000 and up**

DATE: 11 July 2008
Revision: IR

ACTIVE PAGES

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LOG OF REVISIONS

| REV | DESCRIPTION | DATE | BY |
|-----|-----------------|---------------|------------|
| IR | Initial Release | July 11, 2008 | A. McMurdo |

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1. EFFECTIVITY

**Effective For: Pitts S-2B S/N 5000 and up
Pitts S-2C S/N 6000 and up**

2. PURPOSE

Pitts modes listed above are eligible for installation of the optional Kit S-2B/S-2C-508 Smoke System.

3. BACKGROUND

Installation of the Smoke System has been approved as optional non-required equipment for the generation of smoke in Pitts models S-2B and S-2C as listed above.

The smoke system consists of a smoke oil tank, electric pump, switch hoses and nozzles to dispense the smoke oil into the exhaust system of the aircraft. This system is separate from the fuel system. The tank is mounted between the forward floorboards. An electric "ON", "OFF" switch is located in the rear instrument panel. When the electric switch is in the "ON" position an electric solenoid is opened and the electric pump is turned on which begins to pump smoke oil to the nozzles in the engine exhaust system. The smoke oil is injected into the exhaust system at a rate of ½ quarts to 2 quarts per minute. The smoke oil is burnt which produces smoke to depart from the aircraft exhaust system.

4. COMPLIANCE

- 1- Record logbook entry in aircraft log book.
- 2- Complete and submit compliance letter.

Read thru Service Letter thoroughly before performing any work. If there are any questions on a procedure please contact Sky International Inc./Aviat Aircraft Inc. Phone 307-885-3151 or email engineering@aviataircraft.com or aviat@aviataircraft.com.

GENERAL NOTES:

● Only government authorized repairmen should perform kit installation.

**NOTE 1:
It is the responsibility of the owner/operator to have government-authorized repairmen perform this work.**

5. INSTALLATION KIT S-2B/S2C-508

Table 1-1- Kit S-2B/S-2C-508 Smoke System Retrofit Kit

| HARDWARE TO INSTALL SMOKE SYSTEM | | |
|----------------------------------|-------------|----------|
| Part | Part Number | Quantity |
| Tee assembly, Vent | 1-0107-031 | 1 |
| Hose, Breather Line | 1-0604-042 | 2 |
| Tank Assembly | 2-1018-001 | 1 |
| Angle, Solenoid support | 2-1018-010 | 1 |
| Hose, Assembly | 2-1018-014 | 1 |
| Wire, Bus to Switch | 2-1018-017 | 1 |
| Wire, Junction to Fus Jt | 2-1018-018 | 1 |
| Wire, Junct to F/W Grd | 2-1018-020 | 1 |
| Pad | 2-1018-021 | 4 |
| Wire, Joint to Sol | 2-1018-026 | 1 |
| Wire, Junct to Sol | 2-1018-027 | 1 |
| Wire, Ground | 2-1018-028 | 1 |
| Flop Tube Assembly | 2-1018-029 | 1 |
| Restrictor fitting | 2-1018-045 | 1 |
| Switch Bracket | 2-1018-048 | 1 |
| Tailpipe Assembly, LH | 2-1018-501 | 1 |
| Tailpipe Assembly, RH | 2-1018-502 | 1 |
| Smoke pump Assembly | 2-1022-001 | 1 |
| Fire sleeve, Hose | 40007 | 29 |
| Hose, Assembly | 40055 | 2 |
| Hose | 40059 | 1 |
| Hose Assembly | 40103 | 1 |
| Hose Assembly | 40107 | 1 |
| Tubing | 40110 | 24" |
| Tubing | 40122 | 9" |
| Tubing | 40126 | 12" |
| Bolt | 50003 | 2 |
| Bolt | 50851 | 2 |
| Bolt | 51075 | 4 |
| Nut, Castle | 54400 | 4 |
| Nut | 55392 | 1 |
| Cotter Pin | 55675 | 4 |
| Screw | 56536 | 2 |
| Screw | 56833 | 2 |
| Screw | 56850 | 1 |
| Nipple | 57615 | 1 |
| Nipple | 57623 | 1 |
| Elbow | 57770 | 1 |
| Elbow | 57800 | 1 |
| Elbow | 57822 | 1 |
| Elbow | 57940 | 2 |
| Tee | 58047 | 1 |
| Bushing, Screw Thread Expander | 58100 | 2 |
| Plug, Square Heap Pipe | 58289 | 1 |
| Nut, Flared Tube Bulkhead | 58400 | 1 |
| Washer, flat | 58740 | 5 |

| HARDWARE TO INSTALL SMOKE SYSTEM | | |
|--|--------------------|-----------------|
| Part | Part Number | Quantity |
| Washer, flat | 58760 | 2 |
| Washer, flat | 58815 | 2 |
| Washer, Large Area | 58860 | 2 |
| Cover, Terminal | 60421 | 2 |
| Breaker, Circuit | 60460 | 1 |
| Clamp, Aero seal | 60812 | 16 |
| Nut, Plain Hex | 62327 | 4 |
| U-Bolt | 62340 | 1 |
| Butt Crimp Splice | 63599 | 4 |
| Strap, Self Locking | 65004 | 19 |
| Strap, Self Locking | 65005 | 6 |
| Wire, Safety .032 | 65520 | 6" |
| Placard, ON | 75011 | 1 |
| Placard, OFF | 75012 | 1 |
| Placard, SMOKE | 75097 | 1 |
| Placard, SMOKE OIL (TANK) | 75183 | 1 |
| Placard, SMOKE OIL-INST.PNL. | 75185 | 1 |
| Valve, Solenoid | 82647 | 1 |
| Adhesive, Weather strip/Gasket | 90005 | 1 |
| Instructions For Continued Airworthiness | 70207-001 | 1 |
| Airplane Flight Manual Supplement | 70461-001 | 1 |
| | | |

6. INSTALLATION INSTRUCTIONS

Government authorized mechanic must perform all work.

- 1- Disconnect battery.
- 2- Remove lower cowling. Remove pin from cowl door. Remove screws from front and rear of lower cowling. (See Figure 3.1)
- 3- Remove screws from all four sides of panels. (See Figure 3.1)
- 4- Remove side Panels, left hand and right hand, behind firewall to access tank.
- 5- Remove both fiberglass armrests in front cockpit. Remove 8 screws around perimeter of each armrest. ****CAUTION**** When removing armrests remove cable and rods from bottom slots in armrest.
- 6- Pull control stick back and hold to right or left and install tank thru opening. Centering on bottom tubes.
- 7- Glue rubber on all 4 U-Bolts.
- 8- Install U-Bolts from the bottom up thru holes in bottom of smoke tank this will center the tank.
- 9- Tighten down U-bolts with nuts. Do not over tighten nuts. Then install top nuts to jam. Tighten all 8 nuts.
- 10- Next install and hookup wiring and main breaker in main panel. Install bracket and switch.
- 11- Install fitting in firewall.
- 12- Cut breather tubing on right side to install item number.
- 13- Hookup and run all hoses.
- 14- Tie up all wiring and hoses so there is no rubbing using tie wraps.
- 15- Remove old tailpipes by removing cotter keys from tailpipes, bolts and nuts. (Discard cotter keys) (Keep bolts and nuts to install new tailpipes.)
- 16- Install new tailpipes. Keep in mind that they have to have some play in them. Make sure that you keep both steel plates on the same side.
- 17- Hook up hoses to tailpipes.
- 18- Stop here and check all connections to wiring and hoses.
- 19- Fill smoke tank with 2 gallons of smoke oil from list.
- 20- Place catch cans under each stack.
- 21- Hook up battery.
- 22- Test System for leaks and rate of flow per minute. Flow rate should be ½ gallon to 2 gallons per minute. Proceed to step 26 when no leaks and flow rate is appropriate.
- 23- Reinstall armrests with the 8 screws from each armrest.
- 24- Reinstall side panels.
- 25- Reinstall lower cowling.
- 26- Complete logbook entries.

Table 2-1- Figure Item Number List

| FIGURE ITEM NUMBER LIST | |
|-------------------------|-----------------------------|
| ITEM NO. | DESCRIPTIONS |
| 1 | SMOKE OIL TANK ASSEMBLY |
| 2 | CAP, FILLER |
| 3 | ELBOW, 90° |
| 4 | HOSE, VENT |
| 5 | ELBOW, 45° |
| 6 | TEE, VENT |
| 7 | CLAMP, WORM DRIVE |
| 8 | HOSE, BREATHER TEE |
| 9 | SMOKE PUMP ASSEMBLY |
| 10 | ELBOW, BLKHD 90° |
| 11 | NIPPLE, BLKHD |
| 12 | BOLT, UNDRILLED |
| 13 | WASHER |
| 14 | VALVE, SOLENOID |
| 15 | NIPPLE, BLKHD |
| 16 | RESTRICTOR FITTING |
| 17 | HOSE ASSEMBLY |
| - | |
| 19 | WIRE - PUMP (-) TO JUNCT |
| 20 | WIRE - PUMP (+) TO JUNCT |
| 21 | WIRE - JUNCT TO SOLENOID |
| 22 | WIRE - JUNCT TO SOLENOID |
| 23 | WIRE - SOL/PUMP GROUND |
| 24 | WIRE - SMOKE TANK GROUND |
| 25 | SCREW, TRUSS HEAD |
| 26 | WASHER |
| 27 | NUT, SELF-LOCKING |
| 28 | TEE, BLKHD |
| 29 | BUSHING |
| 30 | NUT, BLKHD |
| 31 | WASHER |
| 32 | HOSE ASSEMBLY |
| 33 | HOSE ASSEMBLY |
| 34 | HOSE ASSEMBLY |
| 35 | FLOP TUBE ASSEMBLY |
| 36 | ELBOW, 90° |
| 37 | SWITCH BRACKET |
| 38 | SCREW, TRUSS HEAD |
| 39 | WIRE - C/B TO BUS |
| 40 | WIRE - BREAKER SW TO JUNCT. |
| 41 | ANGLE, SOLENOID SUPPORT |
| 42 | BOLT, UNDRILLED SHANK |
| 43 | SCREW |
| 44 | TAILPIPE ASSEMBLY, RH |
| 45 | TAILPIPE ASSEMBLY, LH |
| 46 | PLUG |
| 47 | ¼-20 NUT, PLAIN |
| 48 | ¼ C 20 x 3/8 U-BOLT |
| 49 | PAD |
| 50 | SWITCH, C/B |

| FIGURE ITEM NUMBER LIST | |
|-------------------------|---------------------------|
| ITEM NO. | DESCRIPTIONS |
| 51 | PLACARD, "ON" |
| 52 | PLACARD, "OFF" |
| 53 | PLACARD, "SMOKE" |
| 54 | PLACARD, FUEL CAP |
| 55 | PLACARD, INSTR. PNL. |
| 56 | SAFETY WIRE |
| 57 | STRAP, SELF-LOCKING CABLE |
| 58 | STRAP, SELF-LOCKING CABLE |
| 59 | FIRE SLEEVE |
| 60 | TUBING |
| 61 | TUBING |
| 62 | TUBING |
| 63 | TERMINAL COVER |
| 64 | WASHER, LARGE AREA |
| 65 | BUTT CRIMP SPLICE |
| 66 | BOLT, DRILLED SHANK |
| 67 | NUT, CASTLE |
| 68 | COTTER PIN |
| 69 | BOLT, UNDRILLED SHANK |
| | |

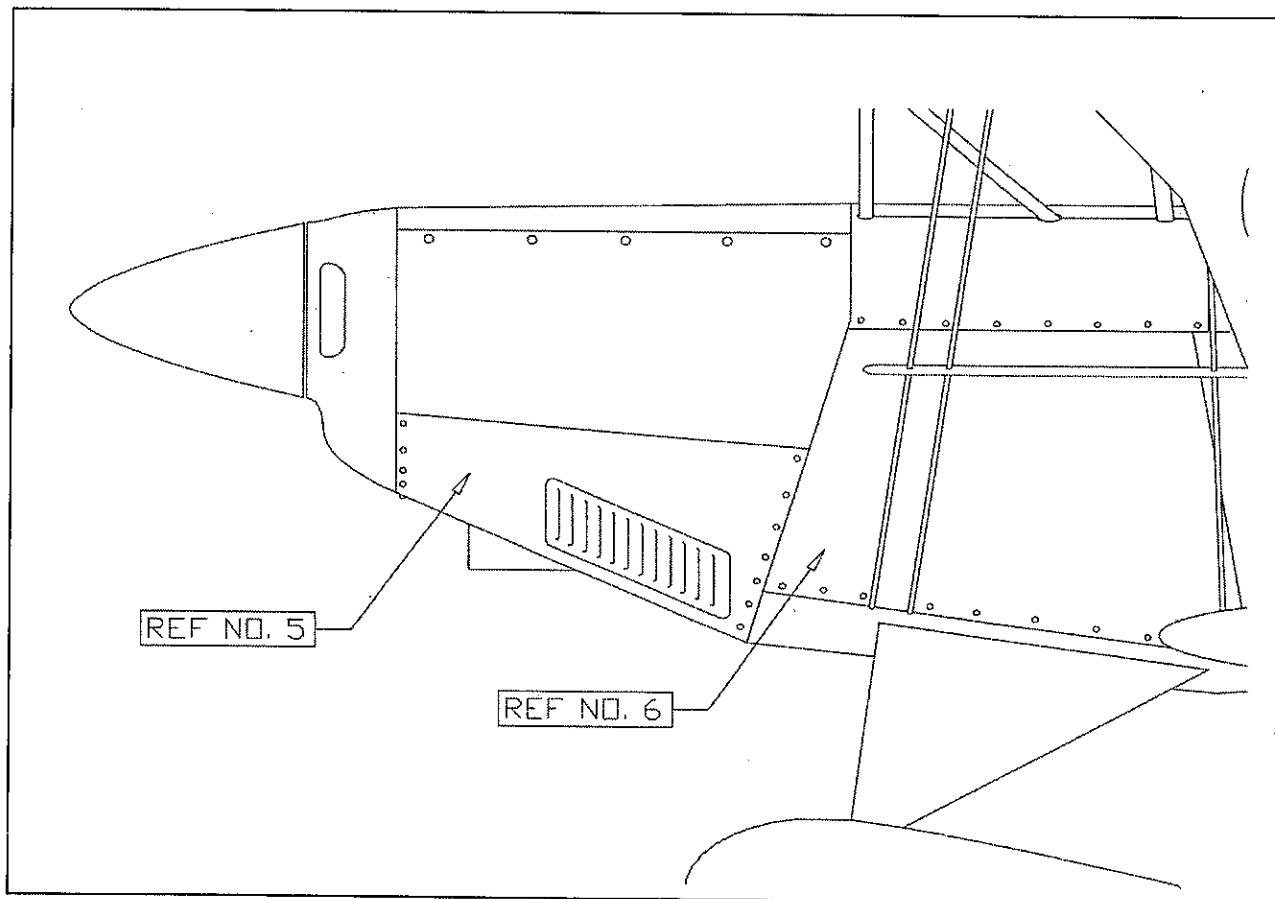


Figure 3-1

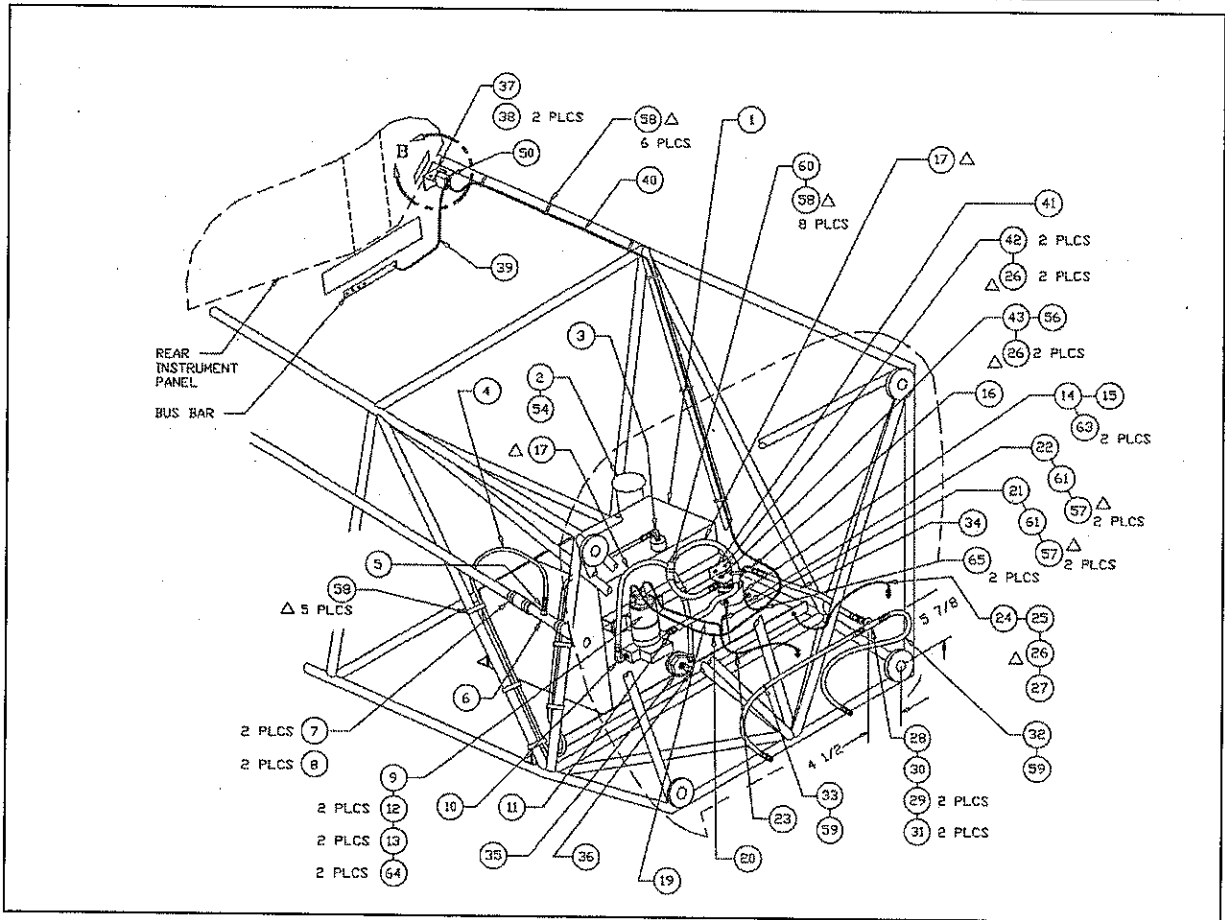


Figure 3-2

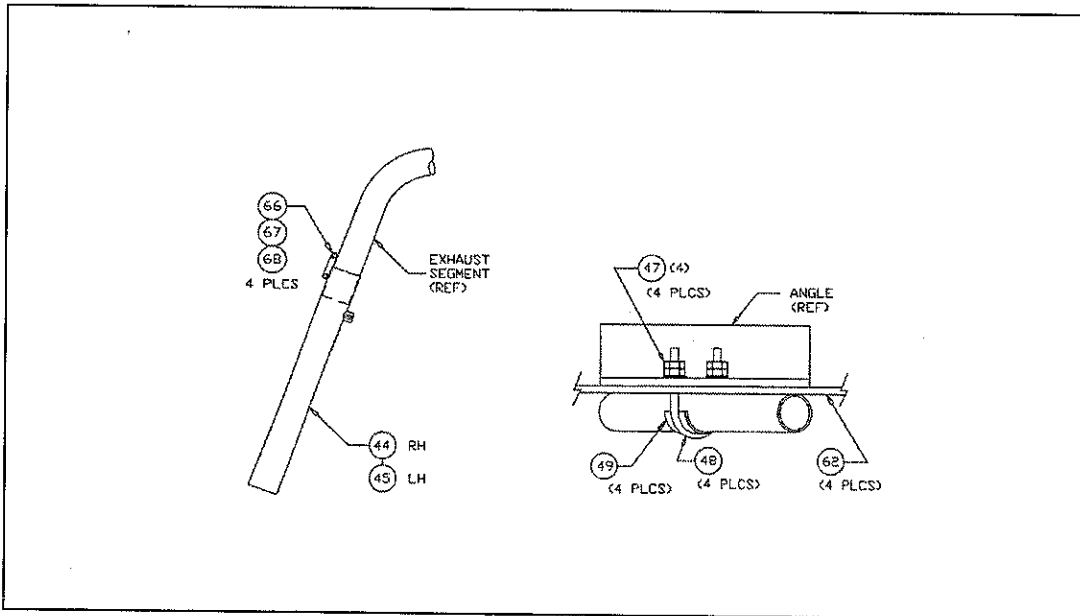


Figure 3-3

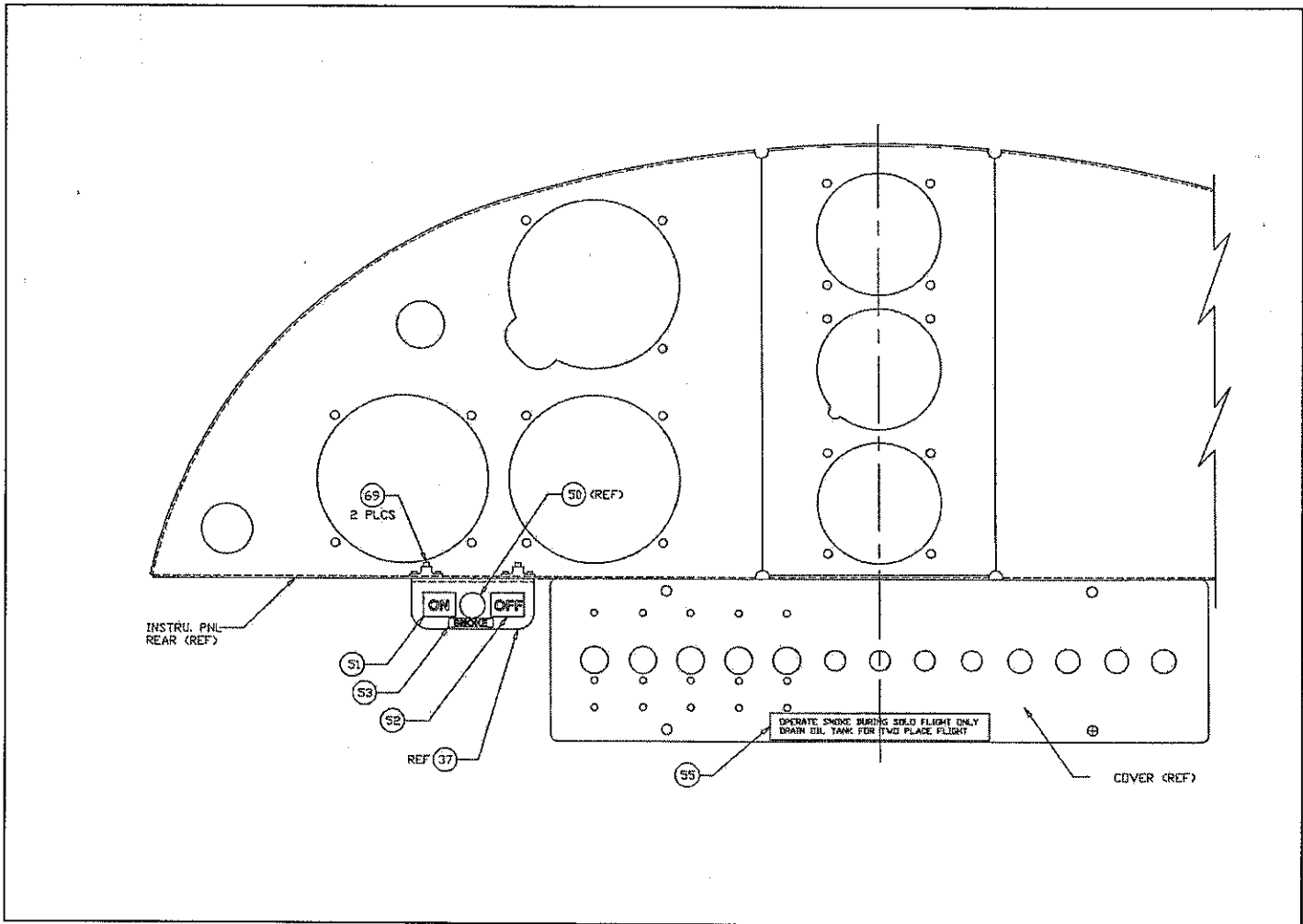


Figure 3-4

Compliance Letter

This is to certify that I have installed the optional applicable Kit # S-2B/S-2C-508

In accordance with Service Letter No. 15 to add optional smoke system.

Aircraft: Pitts S-2B Pitts S-2C (circle one)

Serial Number: _____

Registration Number: _____

Date: _____

Aircraft Hours: _____

Signed: _____

Return completed letter to:

Engineering
Sky International Inc.
P.O. Box 1240
Afton, WY 83110
Fax: 307-885-9674

Send a copy to:
Federal Aircraft Administration
Denver Aircraft Certification Office
Attn: Roger Caldwell
26805 East 68th Avenue, Room 214
Denver, CO 80249-6361
Fax: 303-342-1088