SERVICE LETTER SL-00010

Date Released: February 1, 2022 (Rev 2, added clarification about which general purpose pins to configure)
June 24, 2020 (Rev 1, corrected pins to sockets)
May 5, 2020 (Initial Release)

Date Effective: May 5, 2020

Subject: Optional Aithre Shield EX 3.0 Carbon Monoxide Detector

Affected Models: RV-12iS and RV-12 with Dynon SkyView or Garmin G3X avionics

Affected Serial Numbers: All RV-12iS and RV-12 model aircraft

Required Action: Optional

Time of Compliance: Optional

Supersedes Notice: N/A

Labor Required / SLSA Warranty Allowance: N/A

Level of Certification: LSA Repairman Maintenance
A&P (not applicable to E-LSA)

Synopsis:
Optional Aithre carbon monoxide detector is now available for installation on all RV-12iS aircraft. Electronic sensor mounted behind instrument panel integrates with Dynon/Garmin avionics to present on-screen graphical indication of carbon monoxide level in cockpit.

When used with the Aithre Illyrian headset oximeter can also monitor pilot blood oxygen saturation (SpO2). When used with the Aithre Altus portable oxygen tank smart monitor can also monitor oxygen tank pressure. Note that these items are not sold by Van's Aircraft but can be purchased from Aithre or their distributors.

Materials Required:
The following materials are required to achieve compliance with this Service Letter.

a. Purchase from Van's Aircraft one 12IS CO DETECTOR KIT if your RV-12iS common harness was shipped <u>after</u> January 6th, 2020.

b. If your RV-12iS common harness was shipped <u>prior</u> to January 6th, 2020 or if your aircraft is an original model RV-12 (regardless of ship date), purchase from Van's Aircraft one 12/12IS CO DETECTOR RETRO KIT

c. Phillips head screwdriver

d. 11/32 Wrench/Socket

e. #19 Drill Bit

f. Wire Crimper/Stripper

g. Indent crimping tool that can accommodate 22 gauge wire and ES SA-1017 sockets and ES SA-1018 pins (see Section 5.21 Electrical - "Crimping D-Sub Pins" and "Terminal Installation Table").

h. Not required but recommended: a d-sub pin insertion/extraction tool (TOOL ICM INSRT/EXTRCT available from Van's, or equivalent).

Method of Compliance:

For <u>RV-12iS</u> 912iS customers using the SV-EMS-221 or GEA 24 with common harnesses shipped <u>after</u> January 6th, 2020**:**

1. Crimp ES SA-1017 sockets onto the Aithre module wiring in accordance with Section 5.21.

2. Insert the pins into the 9-pin d-sub as shown on the common harness wiring schematic appropriate to your avionics (WH-00133, WH-00134, or WH-00136).

3. Remove the left side PFD screen. Optionally, remove the F-01240-1 Upper Forward Fuselage Skin. Refer to Section 29iS/U as required.

4. Connect the Aithre module d-sub to the 9-pin "CO Detector" d-sub on the common wiring harness. This may require cutting and then replacing wire lacing tape/cord to access the common harness d-sub.

5. Determine a suitable location for mounting the Aithre Shield EX 3.0 on the F-01202B-1 Panel Base near the ES CPU FAN. See Figure 1. As shown, approximately 1 inch [25.4 mm] between the module and the ES CPU FAN works well.

FIGURE 1: SUGGESTED AITHRE MODULE MOUNTING LOCATION
(EX 2.0 and Garmin shown, similar for EX 3.0 and/or Dynon)

6. Using the Aithre module as a reference, match-drill #19 two mounting holes in the F-01202B-1 Panel Base. Take care not to drill through the brake lines below the F-01202B-1.

7. Attach the Aithre module to the F-01202B-1 Panel Base using the screws/washer/nuts included in the kit. Insert the screw from the bottom side of the panel. For Garmin installations, ground the ring terminal to the F-01202B-1 Panel Base at one of the Aithre module attach points. Ensure that there is good metal to metal contact between the ring terminal and the panel base.

8. Complete any remaining steps as indicated in the Aithre installation instructions provided in the kit (this includes setting up your avionics to recognize the Aithre module).

   NOTE: For installations using the SV-EMS-221, the CO detector must be configured to general purpose pin 12 (GP12). For installations using the GEA 24, the CO detector must be configured to general purpose pin 3 (GP3).

9. Reinstall the F-01240-1 Upper Forward Fuselage Skin.

10. Make a logbook entry indicating compliance with SL-00010 per the requirements of the controlling authority.

11. Place a copy of this service letter in the back of the Maintenance Manual for your aircraft. Note the addition of this service letter to the bottom of the Maintenance Manual table of contents.

For <u>RV-12iS</u> 912iS customers using the SV-EMS-221 or GEA 24 with common harnesses shipped <u>prior to</u> January 6th, 2020:

1. Use the above RV-12iS 912iS instructions for harnesses shipped after January 6th, 2020, but with the following adjustments.

2. Connecting the Aithre module will involve stripping a number of wires, crimping d-sub sockets/pins onto those wires, and inserting those sockets/pins into one or more d-subs on the EMS. Use only ES-SA-1017 sockets and ES-SA-1018 pins and an indent crimping tool. See Section 5.21 Electrical - "Crimping D-Sub Pins" and "Terminal Installation Table".

3. Use the wires and butt connectors/splices included with the kit to connect the Aithre module wiring to the engine monitoring system (Dynon SV-EMS-221 or Garmin GEA 24). Refer to the common harness wiring schematic appropriate to your avionics.

For <u>RV-12iS</u> ULS customers using the SV-EMS-220:

1. Use the above RV-12iS 912iS instructions for harnesses shipped after January 6th, 2020, but with the following adjustments.

2. We suggest you connect the Aithre wires to the following pins on the SV-EMS-220 37-pin connector: 17 (GND), 18 (5V), 21 (GP10), and 30 (GND). There is only one unfilled general-purpose input (GP10) pin available on the SV-EMS-220. Only connect the carbon monoxide signal wire to the EMS. Use the WH-00133 RV-12iS Dynon Common Harness wiring schematic as a rough guide.

For RV-12 customers using the AV-50000A Control Module with either a Dynon SkyView or a Garmin G3X:

1. Use the above RV-12iS 912iS instructions for harnesses shipped after January 6th, 2020, but with the following adjustments.

2. For those using the Dynon SV-EMS-220, we suggest you connect the Aithre wires to the following pins on the 37-pin connector: 3 (GND), 5 (GND), 10 (GP6), 18 (5V), and 21 (GP10). Unfortunately, there are only two unfilled general-purpose input pins available on the SV-EMS-220. Connect the carbon monoxide signal wire to the EMS. You will have to decide which of the remaining two Aithre signal wires to also connect (SpO2 or O2). Use the WH-00133 RV-12iS Dynon Common Harness wiring schematic as a rough guide.

3. For those using the Garmin GEA 24, make your connections as shown on the WH-00134 RV-12iS Garmin Common Harness wiring schematic.

Make a logbook entry indicating compliance with this service document per the requirements of the controlling authority/agency.

Place a copy of this service letter in the back of the Maintenance Manual for your aircraft. Note the addition of this service letter to the bottom of the Maintenance Manual table of contents.

If you are no longer in possession of this aircraft, please forward this information to the present owner/operator and immediately notify Van's Aircraft, Inc. via email at registrations@vansaircraft.com.

Information regarding establishing/transferring aircraft ownership, registration and licensing is available at: https://www.vansaircraft.com/qr/transfer-of-ownership/