Enhanced Flight
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Installation Instructions

Model BM-AIK2 Airframe Interface Kit for BatteryMINDer®

Background Information – Read Before Beginning Installation

Aviation-specific BatteryMINDer models through fall of 2013 were supplied with automotive-grade battery connection harness and a battery-mounted temperature sensor that are not eligible for installation on FAA certified aircraft, under Federal Aviation Regulations 14 CFR §21.9. They are suitable for temporary connection or bench charging, but cannot be legally installed on the aircraft. These cables are no longer included in current BatteryMINDer configurations, which are supplied with a battery clip harness for temporary connections.

This kit provides standard aircraft parts acceptable under 14 CFR §21.9 for a FAA certificated mechanic to fabricate and install a fused, 2-wire harness to access a certified aircraft's lead acid storage battery, for the purpose of connecting an aviation-specific BatteryMINDer brand of low-current, continuous-duty, maintenance-type battery charger. The finished harness typically has ring terminals at the battery relay & ground, connecting to an Anderson SB50 polarized plug at the opposite end by MIL-spec unshielded 16-gauge aircraft wire, with a 10-amp in-line fuse. An insulating dust cover protects the plug when not connected to the charger.

This kit can be installed as a minor alteration under 14 CFR §1.1 and §21.93(a) as it has "no appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness" of the aircraft. No Form 337 submittal or FSDO field approval is required per FAA Order 8900.1 Figure 4-67. A §43.9 airframe maintenance logbook entry is required and sufficient for return to service.

These instructions are advisory only. Individual aircraft models and configurations vary greatly, so an airworthy installation depends on the judgment of a competent mechanic to determine the best option among many. This kit provides common terminals for connection. Other airframe configurations may require different terminations that are not supplied. Similarly, a length of protective fiberglass MIL-spec sleeving is provided to protect the harness from airframe chaffing, as needed in the judgment of the installing mechanic. Other protective and security measures not included in this kit may be required and employed at the discretion of the installing mechanic.

This kit also includes a short harness to adapt the charger's SAE (trailer plug) output connector to a mating Anderson SB50 plug. This harness is connected to, and remains with the charger; it is not installed on the aircraft.

Finally, temperature sensing for aviation BatteryMINDer's is accomplished by use of VDC's Ambient Temperature Sensor (ATS-1), a small plug connected to the short pigtail on the charger.

Parts List

Part Number	Description	Qty	Weight
802-695	Battery Harness:	1	Negligible
904-358	Anderson SB50 polarized plug	1	
716-367	Insulating dust cover	1	
852-2225	MIL-W-22759/16 16-gauge unshielded wire, red	6’	
852-0005	MIL-W-22759/16 16-gauge unshielded wire, black	6’	
882-014	MIL-I-3190E silicone coated fiberglass sleeving	3’	Negligible
802-703	10-amp in-line fuse	1	Negligible
910-102	14-16 AWG 5/16” ID ring terminal (battery terminal)	2	Negligible
910-103	14-16 AWG #8 ID ring terminal (battery relay)	2	Negligible
910-035	14-16 AWG crimp butt splice	2	Negligible
802-694	SAE to SB50 adapter harness (connects to charger, not aircraft)	1	not installed

Installation Procedures

1) Determine best electrical access to the aircraft battery. Since batteries are regularly removed for inspection, maintenance and replacement, we recommend attaching the positive ring terminal to the battery relay post or stud that is connected to the positive battery cable and the negative to a convenient airframe ground. Plastic or composite airframes that do not have battery busses may require connecting directly to the battery terminals. The best place to access the battery will vary from one aircraft type to another and must be determined by the installing mechanic.
2) Determine a safe location to secure the red SB50 plug where it can be readily accessed for connecting the charger. Keep the distance from the plug to the battery as short as possible.
3) Route and secure the 2-wire harness and cut to length. Use the provided protective sleeving as necessary to prevent possible chaffing against airframe or other components.
4) Position the provided 10A inline fuse holder as close to the battery or battery relay as possible.
5) Crimp the appropriate terminals to harness leads and attach to the battery relay terminals, red wire to the positive terminal and black to negative or ground. If required, use alternate approved terminal hardware. *NOTE: Concorde battery terminal bolts are too short for more than one ring terminal. In all cases, verify that there remains adequate battery terminal thread engagement when adding a ring terminal to the connection stack. Concorde will supply correct length battery bolts at no charge upon request.*
6) Label the SB50 plug to identify its function.
7) Use a DC voltmeter to verify continuity and proper polarity to battery.
8) Connect the SAE-to-SB50 adapter harness to the BatteryMINDer’s output cable.
9) Connect the BatteryMINDer SB50 output to the airframe SB50 and test for proper operation.
10) Make appropriate entry in airframe maintenance logbook to document installation and return aircraft to service. Sample text below, edit as required for specific installation:

    "Fabricated & installed 2-wire battery charger connection harness using MIL-W-22759/16 wire with 10A inline circuit protection fuse. Attached to aircraft battery (or battery relay and airframe ground) with ring terminals. Terminated opposite end with Anderson SB50 plug and secured in forward baggage compartment. All work IAW AC43.13/1B. Verified continuity, polarity, tested with charger and for proper aircraft electrical system operation. No defects noted at this time."