

Instruction Manual
Battery Back-Up for 12 & 24 Volt Electrical Systems

Plan Your Load

The Battery Back-Up system is doubly protected by a 10 Amp fuse in the plug and a 9 Amp self-healing fuse mounted near the battery. You should plan on no more than **4 Amps** continuous current and **9 Amps PEAK** back-up current. The peak current available is dependent on many variables including the quality of the connector and wiring in your aircraft. Thus, it is important to plan for a reduced load before you are in a situation where you need the Back-Up. The minimum equipment you will likely need includes a gyro, Nav/Com and Transponder for short periods. The following table contains the current drain in Amperes of typical avionics equipment at 13.5 -14.8 or 27-28.6 volts. Note that the voltage you can expect from the back-up battery will initially be about 12.8 or 25.5 volts so initial current drains will be proportionally lower than the numbers in the table and will decrease as the back-up battery is depleted.

Current drain Amps	12 Volt		24 Volt	
	Rcv/Stby	Xmt/Max	Rcv/Stby	Xmt
KX-155	0.4	6.00	0.70	8.50
KT-76C	0.63	1.24	0.36	0.63
KX-155A	N/A	N/A	0.60	6.00
KNS-80	2.00	2.00	2.00	2.00
GNS 530 (full bright)	2.00	7.50	1.80	6.00
GTX 330	3.00	4.00	2.40	3.20
Fan	0.48	0.48	0.96	0.96

Configuration 1	12 Volt		24 Volt	
	Rcv/Stby	Xmt/Max	Rcv/Stby	Xmt
KX-155@ 12V, KX-155A@24V	0.40	6.00	0.60	6.00
KT-76C	1.00	1.24	0.60	0.63
Fan	0.48	0.48	0.96	0.96
Total Amps	1.88	7.72	2.26	7.59

Configuration 2	12 Volt		24 Volt	
	Rcv/Stby	Xmt/Max	Rcv/Stby	Xmt
GNS 530	2.00	7.50	1.80	6.00
GTX 330	3.00	4.00	2.40	3.20
Fan	0.48	0.48	0.96	0.96
Total Amps	5.48	11.98	5.16	10.16

As you can see, only Configuration 1 with a KX-155 at 12 volts and with a KX-155A at 24 volts allows constant use of the transponder. Because we don't transmit often, the average load in **Configuration 1** can be planned at 1.5 Amps for 12 Volts and at 2.5 Amps at 24 volts. This will safely deliver at least one hour of operation on the back-up battery. **Configuration 2** without the transponder can be planned at 3 Amps at 12 Volts and 2.6 Amps at 24 Volts. This will also safely deliver at least one hour of operation on the back-up battery. After you determine your load try it on the ground or in VMC. Although the self-curing fuse is rated at 9 amps, the system is not designed to supply a constant current of more the 4 amps.

Installation

Plug the connector into the cigar/accessory jack and mount the control box nearby using the included hook and loop fastener. Place the battery in a secure location – under a seat is often a good spot. The battery comes with an initial charge so the system is ready to go.

Operation

Upon starting the engine and activating the alternator (Note, depending on your aircraft, the cigar/accessory jack may be connected to the Master Switch or to the Avionics Master Switch.), the red LED may glow indicating the battery is charging. It will dim as the battery charges and the green LED will begin to illuminate. When the back-up battery is fully charged the red LED will be out and the green LED will be fully illuminated. Please note that to aid night flying, the intensity of the green LED will decrease as the ambient light diminishes.

Institute your back-up procedure immediately upon recognition of an alternator failure. This will preserve the ship's battery for use later on for gear, flaps, etc. The QCAvionix *Alternator Status Indicator and Alarm* is a very effective way to learn of an alternator failure in the shortest time thereby saving the maximum energy in the ship's battery.

To activate the Battery Back-Up, unload the electrical bus by turning off the Master Switch and all non-essential lights, radios and other loads per your plan above. If the accessory jack is on the Avionics

Bus, turn off the Avionics Master Switch. Turn on the back-up battery by pulling out the locking switch handle and placing the switch in the ON position. The green light will indicate the state of the back-up battery. Most equipment will operate for a long time after the green light goes out. If your equipment does not function when you activate the back-up, you may have too large a load on the wiring. Check that only the items in your predetermined load are turned on. Too large a load on the battery will cause the self-healing fuse located near the battery to open. If this occurs, turn off the locking switch, lighten the load and try again. Note, the self-healing fuse will open before the 10 Amp fuse in the plug blows.

Charging Depleted Battery

Should the back-up battery become exhausted, the battery should be recharged overnight with only the battery charger supplied.

For 12 volt system first disconnect the leads to the control box from the battery. **Carefully observing the polarity of the charger leads and the battery terminals, connect the red lead/clip to the +/red terminal on the battery and the black lead/clip to the -/black terminal on the battery.** Plug in the charger and leave it on overnight/12 hours.

For **24-volt** systems **each battery must be charged separately** by removing the control box wires and the jumper between the batteries and connecting the Red lead/clip to the +/red connector and the black lead/clip to the black connector on the battery. Charge each battery overnight /12 hours.

Be careful when reconnecting the battery to connect the labeled positive lead to the +/positive/red terminal and the lead labeled -/black to the -/black terminal. For 24 volt systems, restore the jumper between the batteries.

Caution: Only use the supplied charger. To avoid the build-up of dangerous gasses, do not put the battery in a confined space such as an airtight glove box. Dispose battery properly.

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