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RF80-K

CHRISTIE®

Aircraft Battery Charger / Analyzer



Features

- Automatic Operation
- Heavy Duty Design And Performance
- Digital Timing / Display
- Charges And Analyzes Aircraft Batteries (3-75 AH)
- One-hour Main Charge, One-hour Discharge (NiCd)
- Unique ReFLEX® Charging
- Constant Current Charging
- Reconditions NiCd Batteries
- Exclusive DigiFLEX® Analysis
- Cell Voltage Balance Testing
- Full Three (3) Year Warranty

RF80-K Equipment Capabilities

Functional and Versatile

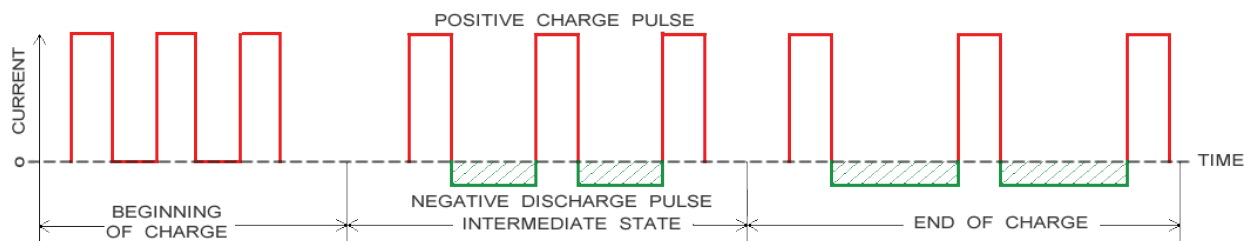
The RF80-K offers a wide selection of charging techniques for servicing and reconditioning NiCd, vented lead-acid, and sealed lead-acid batteries. Christie's exclusive ReFLEX® charging method has the advantage of charging batteries faster without heating and in as little as one hour, while simultaneously reconditioning the batteries. Additionally, the RF80-K employs negative slope sensing as a built-in safety measure to prevent overcharging and possible thermal runaway.

The RF80-K automatically performs a battery analysis with a pre-programmed charge-discharge-recharge cycle that matches the characteristics of each battery type. The charger/analyzer also performs a deep discharge to recondition NiCd batteries or prepare them for storage.

ReFLEX® Charge

The RF80-K will perform the exclusive ReFLEX® charge to fully and safely charge a battery in a little more than 1 hour.

ReFLEX® Charge Cycle

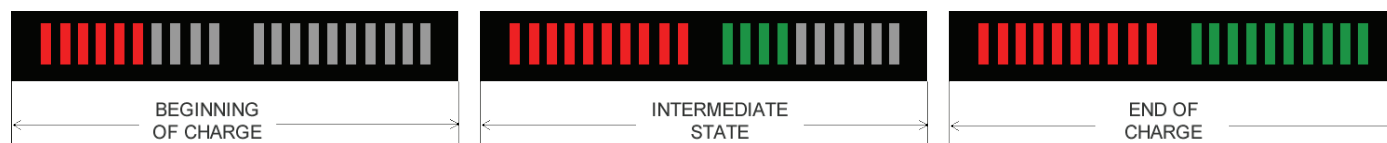


The unique advantage of the ReFLEX® charging method is that the positive charge current pulses alternate with the negative current pulses. When used on nickel cadmium batteries, the battery can be charged at twice the charge rate as a constant current charge. ReFLEX® charging also provides: 1) lower battery end-of-charge temperatures, 2) cell balance restoration, 3) increased battery cycle-life, and 4) elimination of the nickel cadmium “memory” effect. In addition to the ReFLEX® charge, the RF80-K is capable of constant current or constant potential charging as specified by all nickel cadmium and lead acid battery manufacturers.

DigiFLEX® Display

The RF80-K also incorporates a special feature called DigiFLEX®. The DigiFLEX® circuitry provides measurement and display of the battery condition during the ReFLEX® charge cycle. DigiFLEX® uses the display of luminescent bars to portray the rate and duration of negative pulses throughout the charge cycle. The green luminescent bars show the “relative state of charge” of the battery. Green bars will initially appear when the battery has attained approximately 80% capacity. At full charge, the green luminescent bars will extend completely to the right side of the display on the RF80-K.

DigiFLEX® Trend Bar Display



RF80-K Equipment Capabilities

Constant Potential Charge

In constant potential charge mode, the RF80-K will charge all 6, 12, 24 and 28 volt vented or sealed lead-acid batteries.

Constant Current Charge

Nickel cadmium batteries can be constant current charged at up to 24 cells, as well as charging individual cells, or groups of cells. This method is also recommended for some lead-acid batteries. The charging rate and time in the constant current mode are adjustable.

Two-Step Constant Current

As an alternative charge method, the RF80-K can provide a high charge rate for a certain period of time, then drop to a lower charge rate for an equal charge period.

Negative Slope Sensing

When charging causes the temperature of NiCd batteries to rise, the voltage of the batteries diminishes, which can result in further heating. As a safety feature, the RF80-K employs negative slope sensing of the charge curve to detect over-charging, and halt possible thermal runaway of the battery.

Short, Long, and Deep Cycles

During the short cycle, the battery is discharged based on criteria established by the operator. If the battery drops below a minimum acceptable voltage level before the end of the pre-programmed period, the red "Battery Reject" light illuminates.

In the long cycle, the battery voltage is brought to approximately one volt per cell. The exact ampere-hour capacity of the battery can be determined.

Voltage/Current Monitoring

The RF80-K permits the voltage or current of the battery to be monitored at any point in the process, from initial adjustment of the charge, or discharge, current through completion of the charge, discharge, or recharge stages.

Cell-By-Cell Testing

Front panel jacks allow a pair of test probes to be connected to the RF80-K. When the meter switch is in the "cell volts" position, the probes can be used to check the voltages of individual battery cells, or groups of cells.

Optional Wait State

To enhance battery life, the RF80-K can be programmed to introduce a wait state after the discharge portion of the analysis, allowing the battery to cool before automatic recharge takes place.

DataFX®

Battery analysis by individual cell performance and condition is offered when used in conjunction with the DataFX®. Aside from instantaneous cell voltage measurement during the service cycle, the DataFX® monitors cells for error conditions such as cell imbalance, low cell voltage, negative slope, and reversed cell polarity.

The DataFX® has an RS232 port for delivery of data to a PC interface or to a serial printer, further facilitating the automation of data management, often required by the battery manufacturer, the aircraft owner and/or the regulatory authorities.

RF80-K Controls And Indicators

All controls and indicators for the RF80-K Charger/Analyzer are conveniently located on the instrument's front panel. To facilitate use of the RF80-K, the operating controls and displays are located generally in three functional groupings: a) Charger function, b) Analyzer function, c) Metering function. The Mode Switch, between the charge and analyze sections, allows the process to be selected. The charge method is chosen by a switch in the lower part of the Metering sector.



1) **AC Power Switch:** Primary ON-OFF switch.

Charger Section

- 2) **Set Charge Time:** Establishes charge time.
- 3) **Time To Charge:** Displays charge time remaining.
- 4) **Charge Current Adjust:** Allows charging current to be set to desired value.

Analyzer Section

- 5) **Cycle Indicators:** Green = cycle complete.
Red = battery rejected.
Yellow = negative slope sensing.
- 6) **Elapsed Discharge Time:** Displays elapsed time.
- 7) **Mode Switch:** Selects RF80-K process.
- 8) **Cycle Reset:** Resets the automatic cycle to the beginning of the selected mode.
- 9) **Discharge Current Adjust:** Sets discharge current rate.

10) **Set Discharge Time:** Sets total discharge time.

11) **Discharge Cycle:** Switch for Short, Long, or Deep discharge options.

Metering Section

- 12) **Metering Display:** Displays battery voltage, cell voltage, or charge/discharge current.
- 13) **DigiFLEX®:** Trend bar display showing relative state of charge and battery health.
- 14) **Meter Switch:** Selects metering display inputs.
- 15) **Cell Volts:** Jacks for test leads permitting cell-by-cell testing.
- 16) **Charge Method Switch:** Selects type of charging to be performed.
- 17) **Battery Type Switch:** Selects proper ReFLEX® charge for battery under analysis.

RF80-K Aircraft Battery Charger / Analyzer

RF80-K Specifications

Mechanical

18.55 inches (47.12 cm) wide
11 inches (27.94 cm) high
21.5 inches (54.61 cm) deep
Weight: 145 pounds (65.90 kg)
Case material: Steel
Front Panel: Steel w/polyester overlay

Electrical Input

Input voltage: 187 to 265 VAC, single phase
Frequency: 47 to 63 hertz
Current: 25 amps maximum
Power Switch: Opens both sides of line

Electrical Output

Charge, ReFLEX®: 2 - 80 amps
Charge, constant current: 1 - 65 amps
Charge, constant potential: 1 - 65 amps
Discharge, constant current: 1 - 60 amps

Electrical Displays

Current: 99.9 amps full scale +/- 2%
Voltage: 99.9 volts full scale +/- 2%
Individual Cells: 19.9 volts full scale +/- 2%
DigiFLEX®: 10 segment red/green trend bar

Environmental

Non-operating

-40°F - +159.8°F (-40°C - +71°C)
Altitude: 0 - 50,000 feet

Operating

+32°F - +122°F (0°C - 50°C)
Altitude: 0 - 8,000 feet

Warranty

Three years on parts and labor.



RF80-K Standard and Optional Accessories

Standard:

Cell probe Kit	P/N 526020-064
Cable Adapter - Quick Disconnect	P/N 121666-001
Cable Adapter - Universal	P/N 121666-002

Options:

Calibration Shunt	P/N 121666-010
2/11 cell battery module cable assembly*	P/N 121961-001
3/7 cell battery module cable assembly *	P/N 121961-003
DataFX® / ProEase	P/N 121711-004

*Max total cells 24 NiCad, 14 Lead Acid

CHRISTIE®

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