



Professional Broadcast Equipment

PAG Li-Ion Upgrade Kit

for AR Series 2 & Quasar Chargers

Models 9670E & 9670QE

Fitting Instructions

Why Upgrade My Charger?

Nickel-Cadmium, Nickel-Metal Hydride and Lithium-Ion batteries all have different charging requirements. This would normally mean the purchase of different chargers. However, this charger upgrade exploits the designed-in forward compatibility of PAG AR Series 2 and Quasar chargers to handle them.

PAG Lithium-Ion batteries contain circuits that enable them to recognise an AR Series 2 or Quasar charger. These intelligent batteries control the charging regime as appropriate, and can therefore be charged directly from the charger. This upgrade will also allow the charging of Sony Lithium-Ion batteries. These batteries do not contain the intelligent circuits, and must therefore be charged via the PAG Intelligent Charge Adaptor Model 9610.

The upgrade will allow the following batteries to be charged:

Nickel-Cadmium batteries 4.8V to 14.4V, 1Ah to 10Ah.

Nickel-Metal Hydride batteries 4.8V to 14.4V, 1Ah to 10Ah.

PAG Lithium-Ion batteries including L95e and L190e.

Sony Lithium-Ion batteries via the PAG Intelligent Charge Adapter Model 9610.

Contents

The following components are included in this kit:

Qty 1 upgrade microcontroller.

Qty 1 microcontroller extraction tool.

Additionally, you will require a Pozidriv™ No. 2 screwdriver.

General

The upgrade procedure entails the replacement of the microcontroller IC. Please read these instructions fully before starting any disassembly of the charger. The procedure is not complex, but it is important for reasons of safety that the charger is reassembled correctly. If you are in any doubt about your ability to complete the upgrade procedure, please consult your PAG Dealer, who will be happy to undertake the work to the original factory standards.

Upgrade Procedure

1. Disconnect the charger from the mains supply, and then unplug the mains input lead from the rear panel of the charger.
2. **IMPORTANT:** parts of the charger PCB assembly retain a high voltage even after the mains supply has been disconnected. Wait for a period of five minutes following disconnection before commencing disassembly.
3. AR Charger Models 9792 & 9794: Unscrew and remove the screws that fix the folding feet onto the charger.

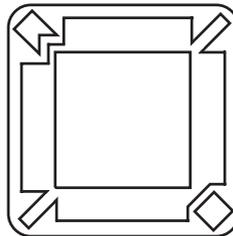
AR Charger Model 9793: Prise the self-adhesive rubber pads out of the circular foot mouldings to reveal the case fixing screws. Unscrew and remove the fixing screws.

Quasar Chargers: Labels on both the front and back panels bridge the two case halves. Before undoing the case screws, remove the front panel labels that surround the switches and sockets, and keep them clean for re-use.

Carefully slit the back panel label along the perforation which corresponds with the case separation line.

4. Remove the lid. With AR chargers, it may be necessary to pry between the lid 'claws' and the front panel with a small screwdriver. Note the loose spacers that are fitted to the lid of AR Models 9792 and 9794.
5. Unplug the front panel ribbon cable from the charger PCB assembly. The microcontroller is situated underneath the ribbon cable.
6. Remove the microcontroller using the extraction tool supplied. Insert the claws of the extraction tool into two opposite slots in the carrier. Carefully squeeze the plastic arms of the tool to extract the microcontroller.
7. **IMPORTANT:** Note the polarisation of the microcontroller and the carrier (Fig. 1). The microcontroller features one chamfered corner which mates with the corresponding feature in the carrier (facing to the front right of the PCB). Do not use the paper label on the processor as a guide to the polarisation. Carefully insert the new microcontroller, observing the polarisation notes above. Plug the front panel ribbon cable firmly in to the mating connector.

Fig.1



**Orientation
of chip
viewed from
front of
charger.**

8. AR Chargers: Ensure that any loose pillars are correctly attached to the lid moulding and fit the lid. Check that the central nibs on both the lid and base mouldings are located to the inside of the front panel.
9. Replace the case fixing screws and tighten securely.
10. Quasar Models: Replace the front panel and back panel labels.
AR Model 9793: Refit the rubber pads into the foot mouldings.
12. Connect the charger to the mains supply, and check that the display functions correctly.

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PAG Ltd.
565 Kingston Road
Raynes Park
London SW20 8SA

T +44 (0)20 8543 3131
F +44 (0)20 8540 4116
E sales@paguk.com
www.paguk.com