

# FITTING STOP LAMPS TO GRAVES MK IV AND ULTRA-TEC MACHINES

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Faceters who use 'hard stop' machines will know that it is easy to overcut if a slightly raised finger pressure is applied to the stone after the stop block has been contacted. This is especially true on machines which are slightly wanting in rigidity.

In this design the following points are addressed:

1. No drilling or tapping on the machine.
2. Good insulation between the contacts and the machine.
3. Positive electrical contact between the contacts.
4. Accurate adjustment of the contacts.
5. Negligible cost.

You will need:

1. An old 3-pin plug. (The earth pin from a 13 amp plug)
2. A 4mm brass machine screw or stud bar with a nut soldered on.
3. Some wire.
4. A double AAA battery holder and batteries.
5. A super bright white LED light complete with holder.
6. A small jack plug and socket.
7. A small box.
8. Rapid Epoxy glue.

The electrical components can be obtained from Maplin Electronics.

## Method:

Start by sawing the earth terminal connection off the earth pin of your old plug. (Keep the pin as this will also be used)

Put a 4mm tap through the wire hole.

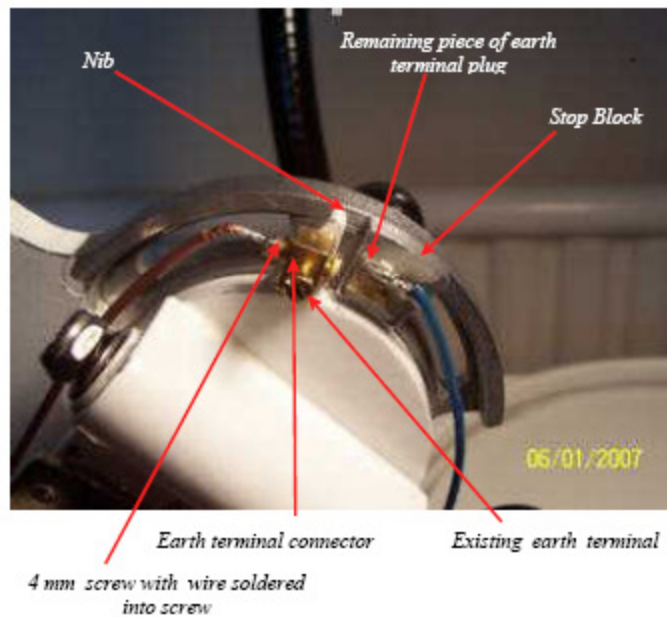
Carefully drill a 1.5mm hole down the centre of the 4mm machine screw to make a socket into which you solder a length of wire. (A well placed centre pop (an engineering term for a small conical indentation made with a centre punch to facilitate an accurate start to a drilled hole) will get you off to a good start). This forms the adjustable contact.

### Be careful not to get solder onto the thread.

The adjustment is locked with the screw that comes with the plug. You will need to file the head of the screw down to about 1mm thick and possibly reduce it's diameter. Using Araldite Rapid Epoxy, stick the contact onto the nib which bears against the stop block. Keep the contact about 2mm back from the face of the nib. The enamel paint on the nib, coupled with the Araldite will ensure insulation between the contact and the nib.

Now make the other contact. Use the remaining, piece of brass from the 3-pin plug. You will need to reduce the thickness of the brass to about 1.5mm

Photo No. 1: The contacts assembled and glued onto the machine



so that it clears the faceting head body when it is moved up to the parking position.

Solder a length of wire to the top part of this contact, again this is to ensure clearance. The stop block is not enameled or painted so it is best to insert a thin piece of card between the contact and stop block when sticking the contact to the stop block. Keep the contact about 1.5 to 2mm back from the face of the stop block.

You can now complete the electrics.

Cut the wires to length and solder on the jack plug. Glue the battery holder into your box, drill holes for the LED holder and jack plug socket. Fit the jack plug socket and LED and connect them up. Be careful to get the polarity right on the LED (the



Photo 2: Inside the light box.