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CAR BUMPER REPAIR - HOT AIR PLASTIC WELDING METHOD



Information and Techniques - How to Repair Car Bumpers

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CAR BUMPER REPAIR - PLASTIC WELDING

A high percentage of vehicle body components are manufactured from plastic.

Plastic, because of its elastic properties, offers a similar strength to that of steel and is easier to repair, thus saving time and expense. When plastic is repaired correctly – using the correct equipment, not only is the component as strong as before, but expert paint finishing should show no trace of the repair, and last the vehicle life.

When welding car bumpers the plastic you use must be compatible. You can only weld similar materials; therefore it is essential to identify the material to be welded, in order to choose the correct welding rod / filler rod.

Identification: This is normally obtained by referring to the vehicle workshop manual, however, lately component manufacturers are marking the plastic with the identification codes. Alternatively, automotive paint manufacturers are able to supply chemical test kits to help identify unmarked plastics.

PLASTIC IDENTITY CODES :

PLASTIC IDENTIFICATION CODES	
Code	Plastic
ABS	Acrylonitrile Butadiene Styrene
ABS/PC	Polymer alloy of above
PA	Polyamide (Nylon)
PBT	Polybutylene Terephthalate (POCAN)
PC	Polycarbonate
PE	Polyethylene
PP	Polypropylene
PP/EPDM	Polypropylene/Ethylenediene Rubber
PUR	Polyurethane (Not all PUR is weld-able)
PVC	Polyvinyl Chloride

Car Bumper Repair – Preparation for Plastic Welding

- 1. Remove any trim from the damaged area to access the repair site without hindrance.**

If trims are attached with adhesives, these can be softened by heat treatment from the hot air welding tool, which is used without the nozzle. Temperatures should be around 300° C (refer to the chart for the correct temp settings).

The tool should be constantly moved over the trim in order to soften the adhesive and also to prevent local heat build-up.

When the adhesive is softened, the trim will easily pull away and thus be in good condition for re-use.

- 2. After all trim removal, drill the end of any crack in order to prevent further crack lengthening. Maximum drill size 3mm.**
- 3. Remove all paint from the damaged area approximately 10-20mm either side of the area to be welded and align the crack, either by leverage, or if impacted, by applying gentle heat around 150-200° C.**
- 4. When the crack is aligned it must be V grooved at 90° in order to accept the welding rod. The groove should be approximately 2/3 to 3/4 of the material depth and preferably no more than 5mm wide at the surface.**

The best tool for grooving is a burring bit, for use in an electric drill. The burring bit should be of the type which has the cutting edge on its circumference and end face. The drill is most effective when used at high, rather than slow speeds.

N.B. During this type of work ensure that safety goggles are worn and if required, a face mask. Plastic dust is an irritant.

The groove should be started 8-15mm before the crack. Slowly increase the depth until full depth (2/3 – 3/4 of material depth) is reached. This should be by the start of the actual crack.

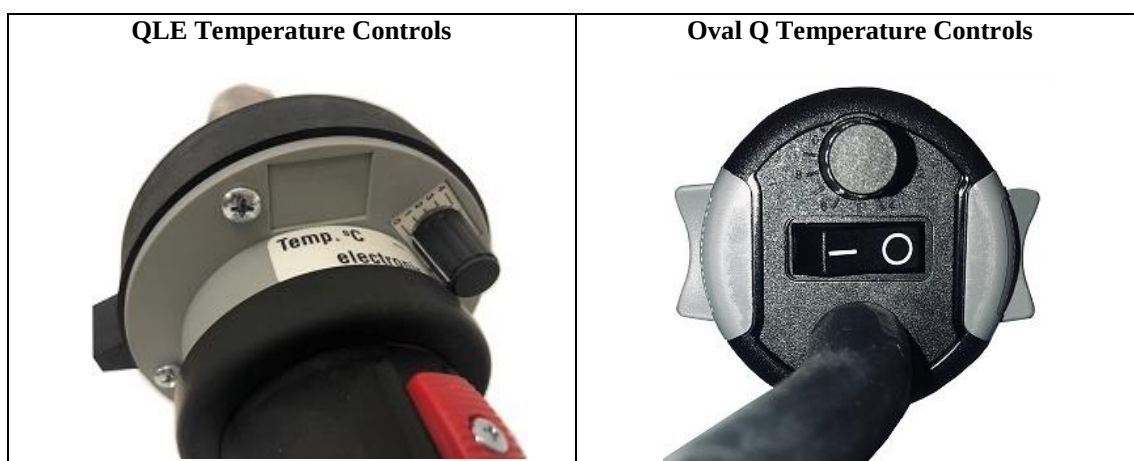
Car Bumper Repair – Plastic Welding Rod

5. When the damaged area has been prepared and the groove finished the welding rod should be mated to it, so that it protrudes up to 2mm above the groove shoulder. This will allow plenty of welding material in place for correct dressing and finishing of the area.

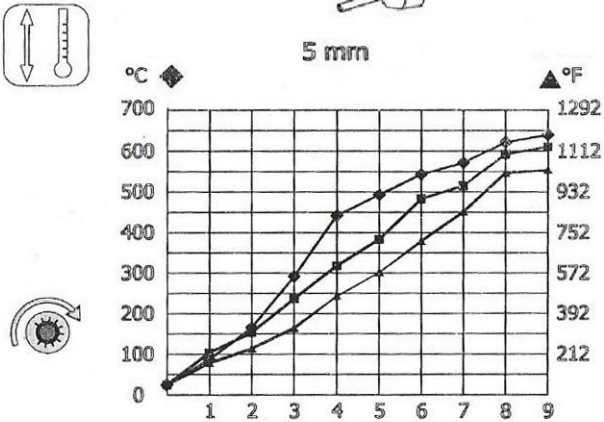
Should small diameter welding rod only be available, the same effect can be obtained by running more than one weld over the damaged area.

Prepare the welding rod by cutting it as you would a pencil, so that when welding is started, the rod beds into the groove without unsightly protrusion.

www.plasticweldingrods.co.uk



TEMPERATURE SETTINGS – FORSTHOFF QLE & Oval Q Hot Air Plastic Welding Tool

QLE - Position No.		 5 mm	
1	200° C		
2	300° C		
3 - 4	350° C		
4 - 5	450° C		
6	550° C		
7 - 10	600 - 680° C		
The above settings are only approximate and will vary according to ambient temperature of room, and with each individual tool. The operator can adjust setting to their own individual requirements.			