

Taken from TVMGOC April 2016 Newsletter

For some time, it looked as though lead loading was a dying art. Concerns over health and safety combined with a great leap forwards in plastic filler technology seemed to banish lead from mainstream bodyshops and confine its use to a few classic workshops who were keen to recreate the original production methods on their projects. But recently it has been enjoying something of a revival in the wider trade as its virtues have been rediscovered. Those virtues include its suitability



for deeper fills, its greater durability and the fact that it remains malleable. This last point means it is ideal for finishing joints such as at the tops of rear quarter panels on today's thin metalwork, the extra time spent in the application paying dividends in the long run with a repair that won't sink, crack or absorb moisture.

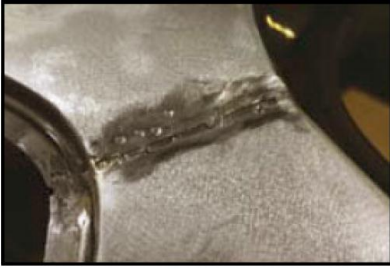
It has to be said, however, that as well as being laborious to apply, lead loading is a skill that takes practice to master. For one thing, you are applying lots of heat and this can cause more damage through distortion if you get it wrong. And that brings us on to the subject of the tools you will need. You may have access to an oxy-acetylene torch, but this is very fierce and the heat is very localised. It can be done if you keep the torch moving and this can be a quick way of lead loading, but it takes a lot of practice to master. A plumber's blowtorch is better, not least because it gives a wider flame and this is what most people will use. Alternatively, if you have access to a powerful hot air gun this will be slow, but it is a great way of learning the craft. And if you are new to the leading game, then there is a sound argument that it is better to spend two hours putting on the lead and filing it flat than to spend 15 minutes applying the lead followed by three hours coping with panel distortion. The picture sequence below shows the main steps to take when lead loading, in this case on a repair to a C-pillar. But there is no substitute for simply trying it out on a test piece and learning by your mistakes, especially if you will be starting off with a difficult vertical repair such as the one pictured. That way you will get a feel for how far to heat the solder flux – not hot enough and you'll wipe all the solder back off with the rag. And you will know you've done this when you try to apply the lead, as it will have no grip at all on the bare metal and simply roll up and get blown about by the heat. Heat the lead too far and it will simply run to the floor. If you want to give lead loading a try, then Frost (www.frost.co.uk) sell a basic kit for £38.40, and a more comprehensive standard one for £78.13. That's hardly an expensive way of testing the waters, and we can recommend them.



1. As ever, the first step is to clean the paint off a large area on either side of the repair to be filled. The lead will only stick if the area it is being used on is totally clean. You will chemically clean the area with flux, but this will not remove contaminants such as grease, paint, rust and general grime. (you can use Restore Pre-Clean Degreaser, POR15 Cleaner Degreaser, Frost Heavy Duty Citrus Degreaser, Frost Panel Cleaner or Frost Chassis Cleaner to degrease your panel).



2. The DA sander soon strips the flat panels back to bare metal, but there are still traces of surface rust within the seam that have formed since the repair was made. Having to get the repair area spotlessly clean is not unique to lead loading of course, and applies equally to plastic fillers and paint.



3. A quick scrub with a wire wheel in the angle grinder gets the crevices clean – as well as being pushed firmly into crevices like this, capillary action from the heat also helps to pull lead into the seam in much the same way as braze will creep into a joint. This helps give it so much strength.



4. The C-post repair is tricky in that it is a vertical panel and it is easy to end up with a large gob of lead on the floor and very little on the panel. Therefore, first practice on a horizontal piece of scrap metal to get a feel for how the torch (or in this case a plastic welder hot air gun) imparts its heat.



5. The gentle heat of the hot air gun means the process is slow, but also very controllable. With the panel tinned and loaded with lead (see steps 6-9), you can see when the metal is starting to go pasty and catch it easily with a wooden paddle to spread around the work area before it goes liquid.



6. Moving on to the repair, the first step is to brush on a layer of solder paste (flux) over the whole area. This both chemically cleans the metal and lays down a thin layer of lead. You can use a pure flux followed by a very thin layer of lead for this step, but getting the lead on thinly enough is very difficult.



7. Next step is to heat up the solder paste until it melts across the surface of the panel, then wipe the area with a clean cloth. This removes the paste but leaves the very thin layer of lead that is necessary for subsequent applications to grip to. Wash and dry the area to clean off all acid residue.



8. You are now ready to apply the lead. Most of the heat is focused on the end of the lead stick, but you also need to keep the heat moving over the panel to keep that warm. When the stick starts to melt, push it hard onto the work piece and twist slightly to break the end, leaving a series of blobs across the panel.



9. These blobs are then heated on the panel and pushed into the crevice with a wooden paddle dipped in tallow to keep it lubricated. The outer surface can be built up with more applications of the lead stick if needed, or the lead deposits moved around by heating them and pushing with the paddle.



10. Never use power tools to sand back lead as they will spread the dust everywhere and represent a real health hazard. It files back easily enough with a body file, but sliding this sideways can cut grooves in the solder that will need re-filling and too much pressure can also gouge the steel panel.



11. It will probably take a few applications and sandings to get the finish this smooth, but the lead blends in perfectly with the metal to give an invisible join. Any lead shaved off can be collected and re-used – a strip of aluminium tape folded and stuck below the repair will catch the bits as they drop.



12. Hand-shape the lead using a file and coarse paper where it has pushed around the edges of the panel. Wash the area with soapy water to remove traces of flux which will remain active and promote corrosion, and use a solvent cleaner before painting to remove any tallow

For Lead Loading, you need to get the right tools.

You'll be needing :

Lead bar (Solder / Lead Sticks)

Solder paste (flux)

Wooden flat and half round paddles

Heat Gun

Wire Wheel

Stripping Discs

Solder Paint Brushes

Tallow Lubricant

Flexible File Holder

Flexible Body File Adjustable Holder for Body Solder

Sanding Paper

Plumber's blowtorch

The Frost Standard Body Solder Kit contains everything you need to start work on your restoration project (except the blow torch) or you can start up with our Frost Basic Body Solder Kit.