

My approach only, seek professional advice for your approach.

*{Removing Rust and Old Paint from an individual car part}.*

### **Starting Point**

Cannot claim credit for this process as its my understanding of a car magazine article that is now lost to me. **Please read text and follow picture sequence as information only!**

**Picture No1 Parts to be cleaned [Tappet Cover, Pulley & Window Buffer]**

There are many options for removing rust, although thin and complicated shapes need to be treated with great care if damage or incomplete cleaning is to be avoided.

Rusted parts need to be taken back to bare metal with any remaining traces of rust pacified before repair and refinishing. The following has been useful to me where items are smallish or of limited quantities or not justifying commercial expense.

A combined technique of chemical bath and electrolysis has proved useful as a home labour saving [not necessarily time saving] device to:

- Remove surface rust and old [1950's] paint with minimal rubbing and dust
- Prevent damage to thin parts that may distort or mangle with harsher mechanical/manual treatment.
- Get at nooks and crannies of more complicated shapes.

### **Some considerations for this process**

**Follow instructions of product packaging and always follow safe practices including: Eye protection, protective clothing and thick rubber gloves for the hands.**

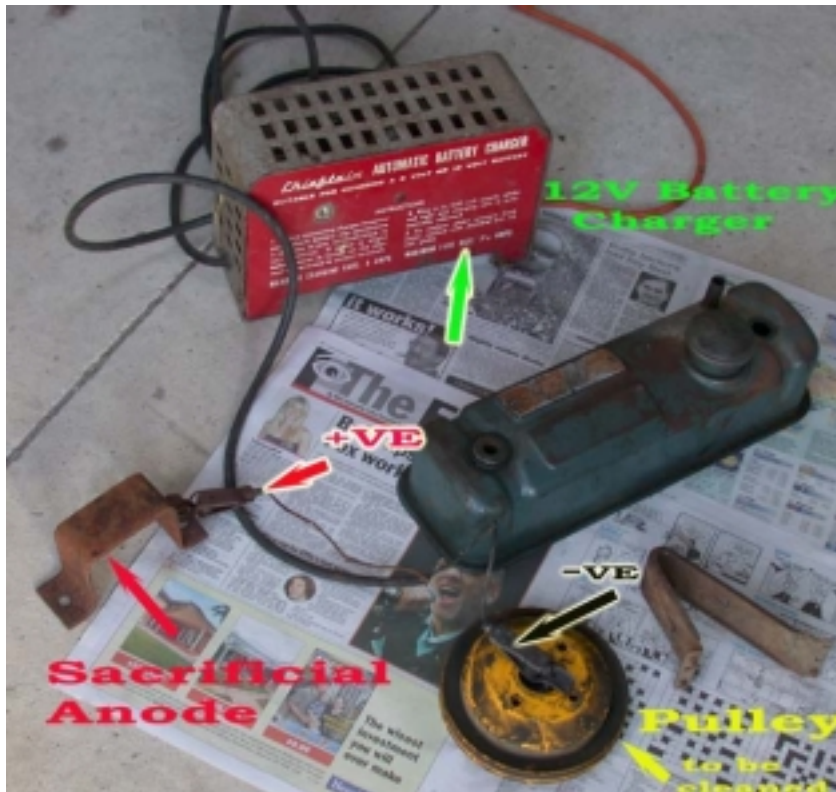
Don't use this process with aluminium or zinc, plus galvanizing will be attacked.

Don't treat springs with this process.

Use paint stripper where paint is in good condition.

Always use in a protected and ventilated area.

In a controlled way always add caustic soda to water and not the other way round.



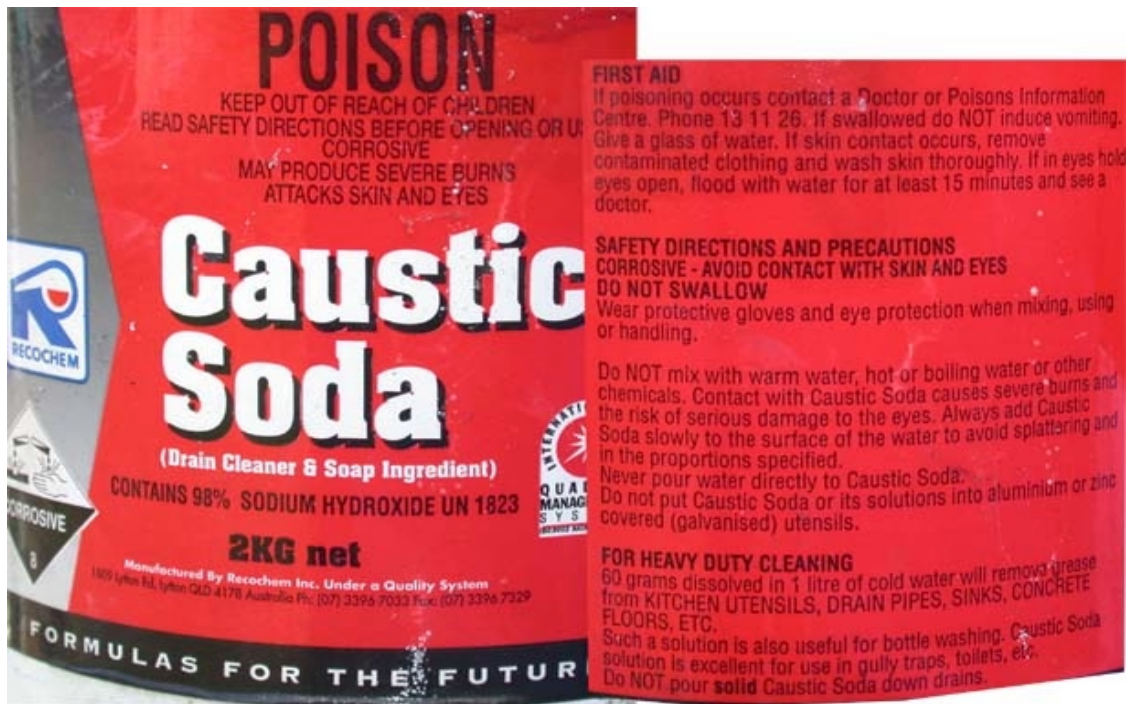
Picture No.2 Placement of -ve and +ve leads. Battery charger not connected to power.

### Requirements

- Chemical proof 'plastic' container large enough to house steel part to be treated
  - Battery charger of basic 12Volt design self limiting to '4 - 6' Ampere maximum  
[Red lead= Positive & Black lead= Negative]
  - Caustic Soda '98% Sodium Hydroxide' {maximum concentration 6gm per litre of water}
  - Sacrificial anode [piece of solid or sheet steel]
- Don't leave caustic soda or prepared solution where children or anyone can be injured.**

### Basic Process {it's a slow process as described- be patient}

- 1Part to be treated is placed in chemical proof 'plastic' container such that it is totally covered with fresh water. {I used 26 Litres of water to submerge tappet cover}
- 2Place sacrificial anode in 'plastic' container ensuring it does not touch part to be treated and is if possible, of a similar size and parallel to longest side of part to be cleaned.
- 3Connect negative lead of battery charger onto part to be treated. Then connect positive lead to sacrificial anode.
- 4Now tip measured quantity of Caustic soda into water of 'plastic' container. Note strength of caustic solution is dependent on quantity of water {initially use 4gm per litre}, surface area of part and state of rust.
- 5Apply power to battery charger and observe bubbles forming on both the part being treated and sacrificial anode. [Solution takes time to activate and a wait of at least 10-20minutes must be allowed before gauging effects]



Picture No3 Caustic Soda – Safety, More Safety and Care in its use.

6If solution is considered too weak repeat step 4 by adding more [another 2gm per litre] caustic soda. A total concentration of 6 gm/litre is recommended. **Exceeding 6 gm per litre should not be necessary.** At this concentration you should be rewarded with a nice density of slow moving bubbles. Repeat step 5 if the additional caustic soda is added.

7After a period that can only be determined by experience, Remove part from caustic solution. If part has progressed then rinse with clean water and rub all over with a scotch brite pad [mildly abrasive pad for cleaning kitchen pots and pans]. Place back in solution if rust or old paint remains. *Alternatively, if part is clean then go to 'Gauging End of Process'*

8Allow part to recommence process for a period based on step7 and repeat step7.

### Gauging End Of Process.

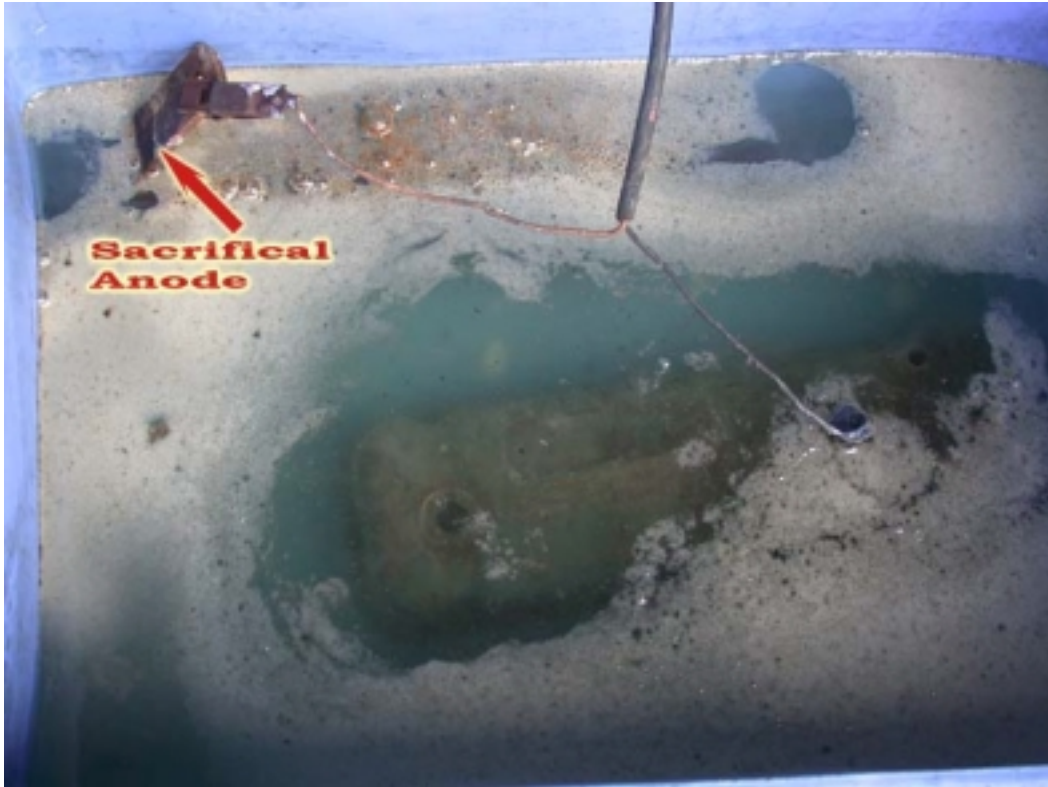
All rust has converted to black and removed with scotch brite leaving typically black coloured pit marks. Old paint, now removed, should show as a clean metal coloured surface; stubborn old paint not removed at this point is best removed with paint stripper. Note. - *Caustic solution is gradually weakened with use. If judged too weak then clean everything and recommence at step 1. Also- Parts cleaned this way have a soapy feel.*



Picture No4. Cover items in tap water [With 12v battery charger turned off]



Picture No5. Cleaning action begins [Submersible or duck diving?]



Picture 6. Cleaning in process [slow progress as bubbles drift lazily to the surface]



Picture 7a. Just out of the bath [beauty doesn't come pain free]



Picture 7b. after first shower [Will I always be an ugly duckling?]



**Picture 8. After first rub down [courtesy of Messrs Scotch Brite and Clean Water]**



**Picture 9. Final stage – All parts cleaned in caustic bath [Don't look we're exposed!]  
NB- Tappet cover needed two dips and small amount of paint stripper to look this good.**



Picture 10. Look at us we're pretty again  
[No ugly duckling now. Great new enamel coat with designer labels]



Sketch shows general setup for cleaning rusty parts {the looks say it all}

*Conclusion-This article is for information only as I cannot advise or be responsible for equipment, concentrations, processes, techniques and understanding anyone else may employ. The minimum amount of caustic soda is always used. For me the outcomes have been effective with less mess. Again, always work safely in a protected and ventilated area.*

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