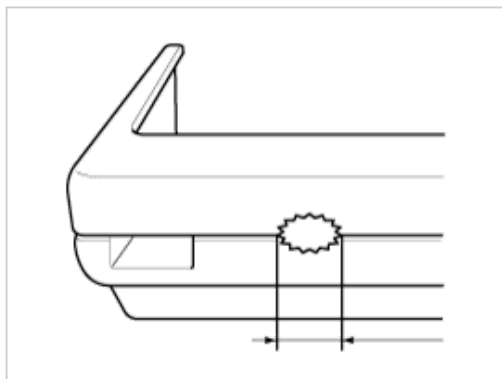




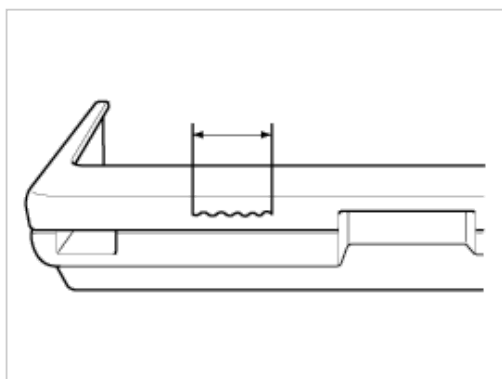
Polypropylene(PP) Bumper Repairability

The three types of damaged bumpers shown below can be repaired. Because of cost and quality considerations, bumpers with more damage may be repaired, but replacing the bumper is encouraged.

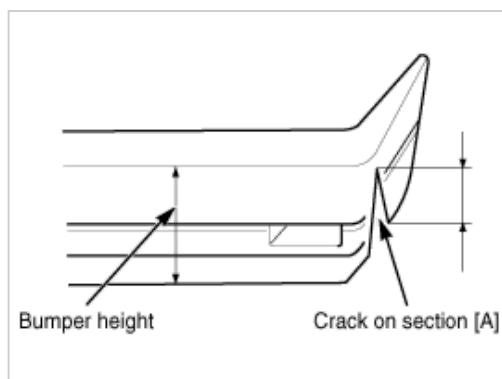
1. If a hole on a bumper is less than 2 in (50mm).



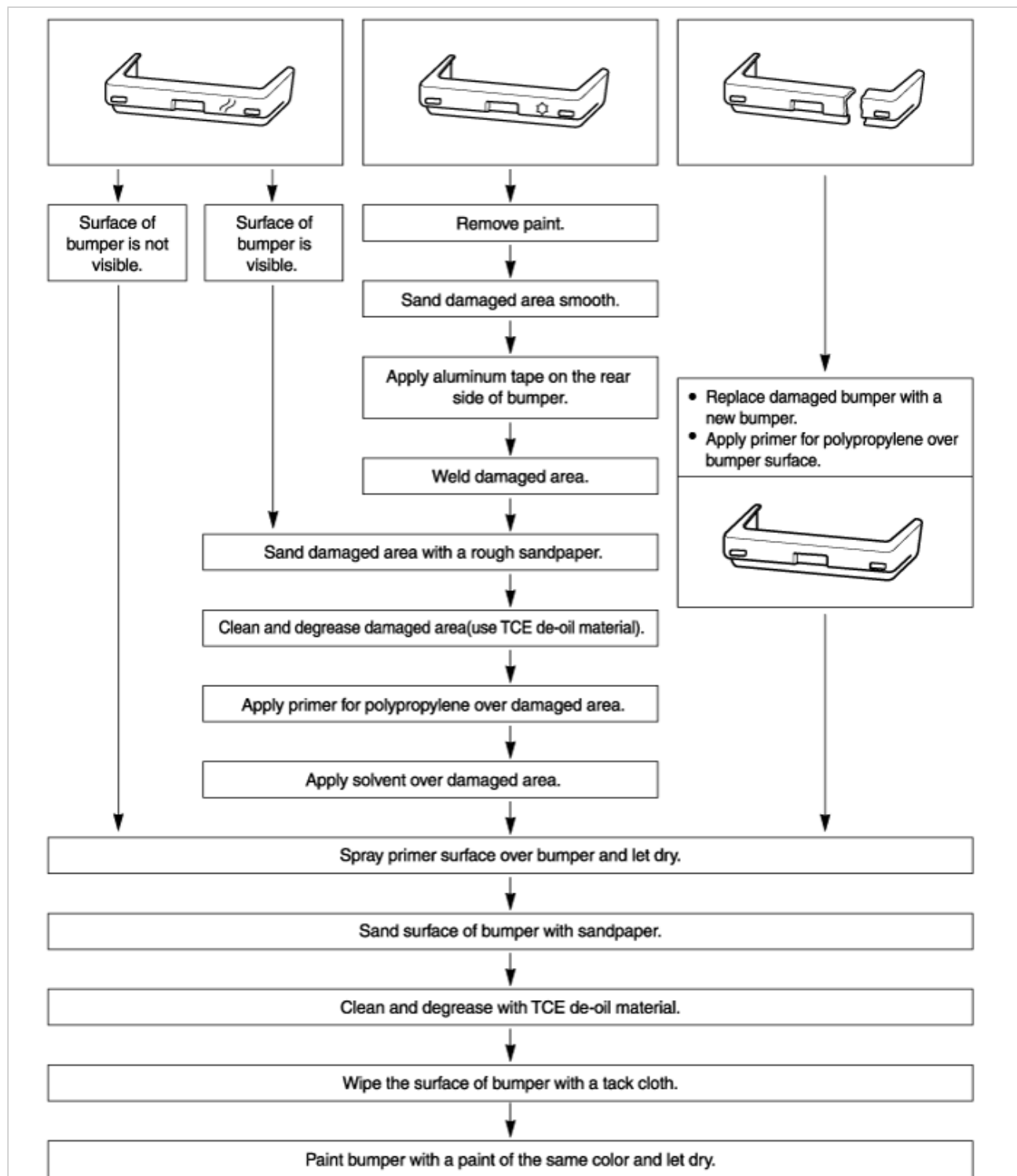
2. If a crack on a bumper is less than 100mm (4 in).



3. If a crack on bumper section [A] is less than 100mm (4 in) (less than half of the bumper height).

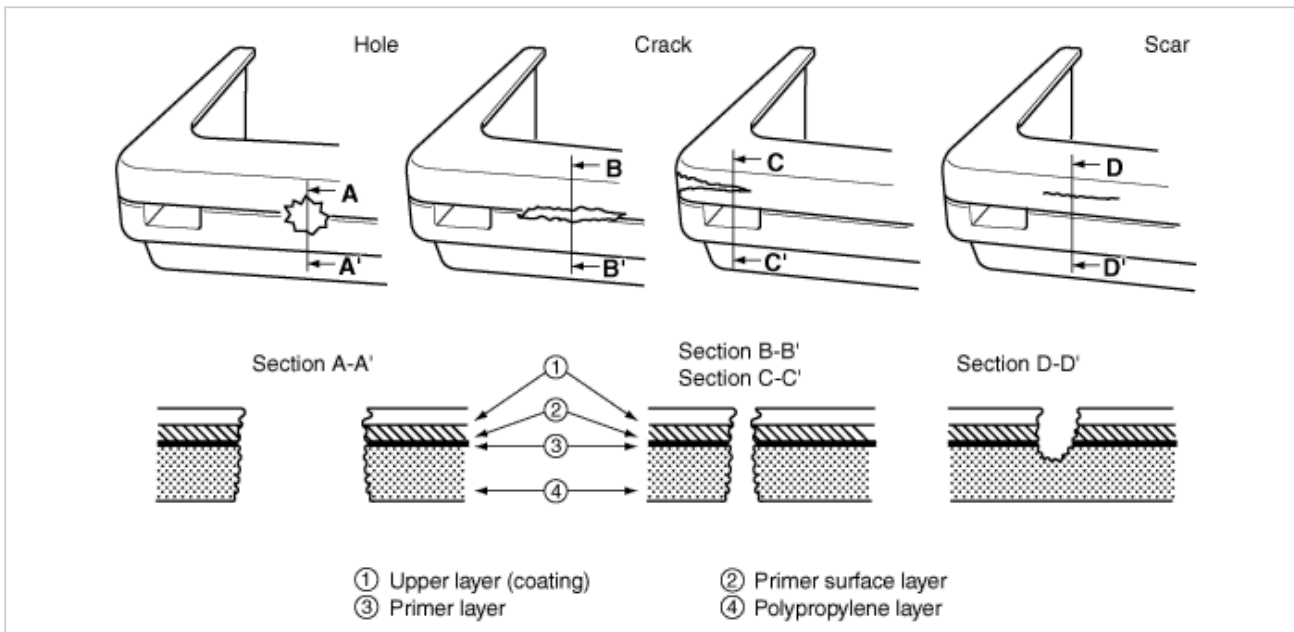


Bumper Repair Procedure

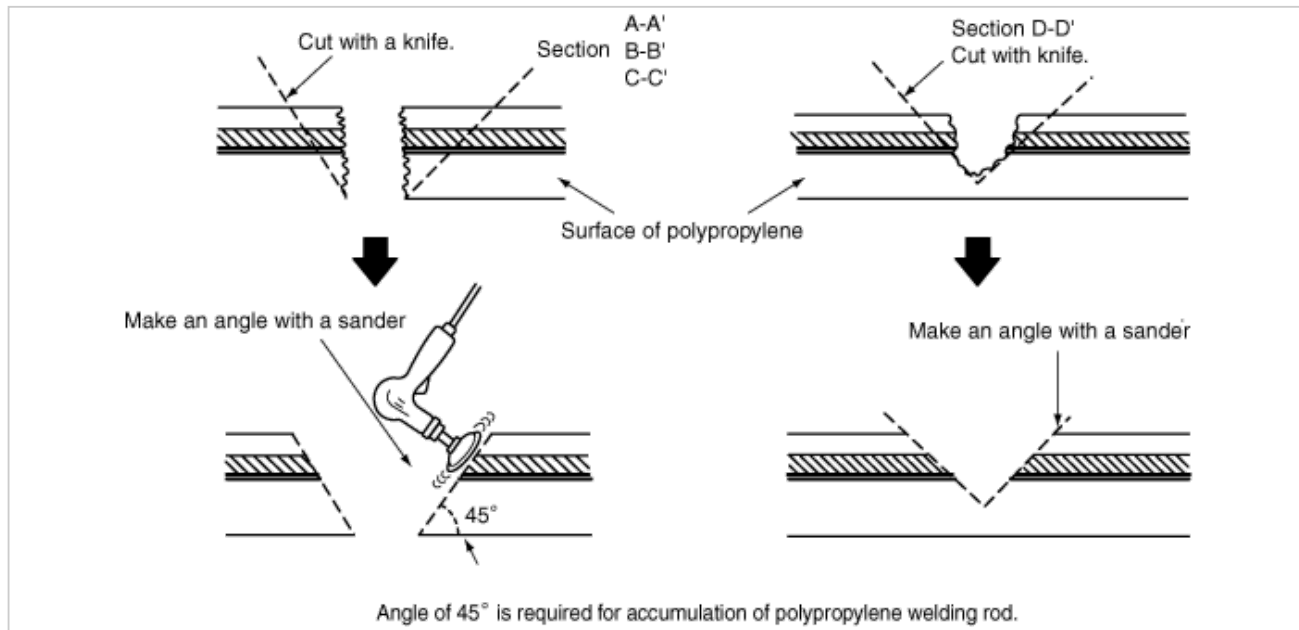


Repair Method for PP Bumper

Damage to the bumper that reaches the surface of the polypropylene cannot be fixed just by painting.
Use the repair methods shown below to repair damage that reaches the surface of the polypropylene.

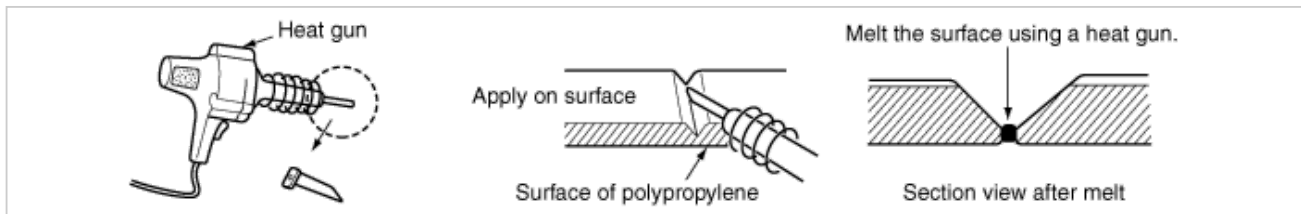


1. Rough cut the damaged area 45° using a knife and then sand the angle smooth.

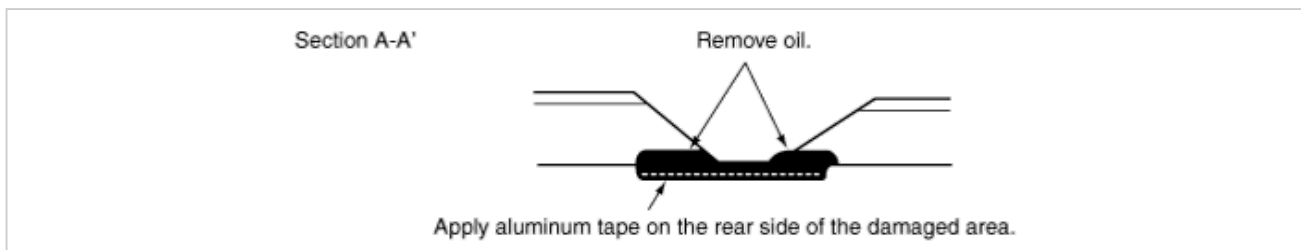


2. Welding damaged area

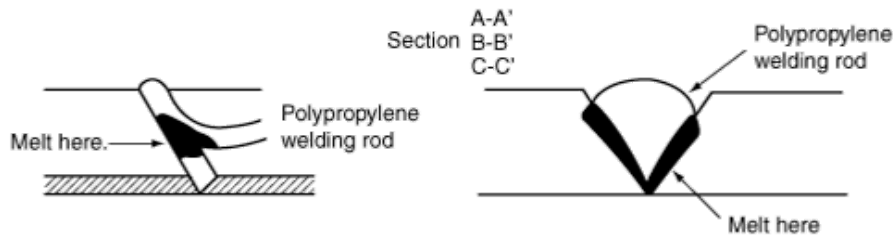
a. To repair cracked area, melt the area using a heat gun and attachment.



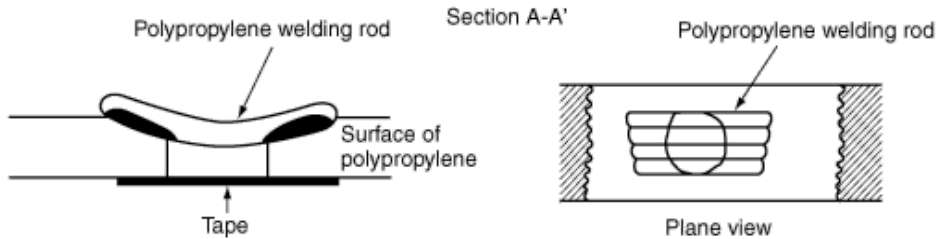
b. To repair a hole, remove oil from the damaged area and apply aluminum tape to the rear side of the damaged area.



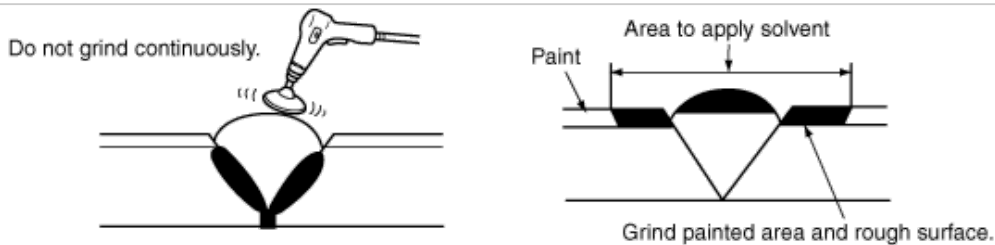
3. Melt polypropylene welding rod using a heat gun and fill in the cracked area.

**NOTICE**

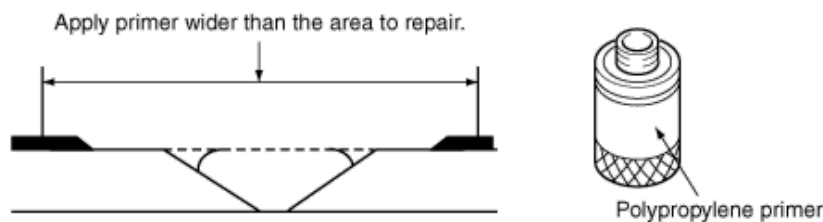
- Heat and melt the area indicated.
- Melt the welding rod carefully so that it does not over-melt. If the welding rod over-melts like jelly, the welding strength will deteriorate.
- Use the heat gun 10–20mm (0.4–0.8 in) away from the repair area to be welded. Welding rod should not move until the welded area is cooled.



4. Grind polypropylene surface carefully. It melts easily due to the heat generated by friction.
If melted, remove that area. Also, grind the area where solvent is to be applied.



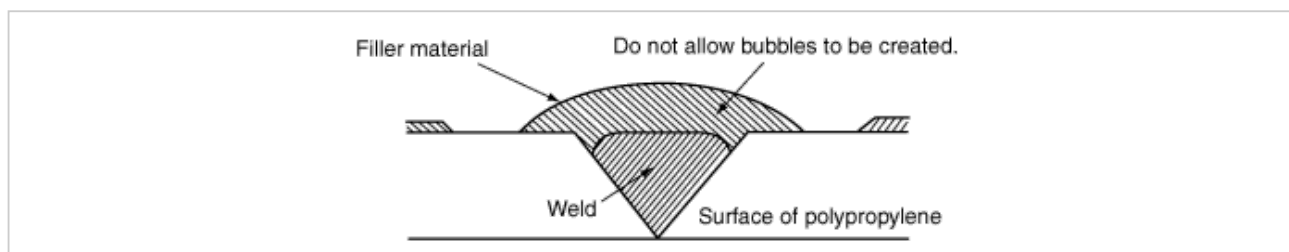
5. Apply polypropylene primer evenly with a brush over an area wider than the area to be repaired.
Dry it at 20° C (68° F) for more than 10 minutes.



6. Mix main filler material and hardener at a ratio depending on paint specifications.
Mix filler material and apply over the damaged area.

NOTICE

- Mix main filler material and hardener so that no bubbles are made.
- Work immediately after mixing filler material because the filler material hardens quickly (in about 5 minutes).
- Dry it at 200° C (680° F) for about 30 minutes before sanding.
- Filler material consists of two types of epoxy.
When the filler material hardens, you will have a desirable finish with flexibility like polypropylene.
- Use only filler material designed for use on polypropylene bumpers.

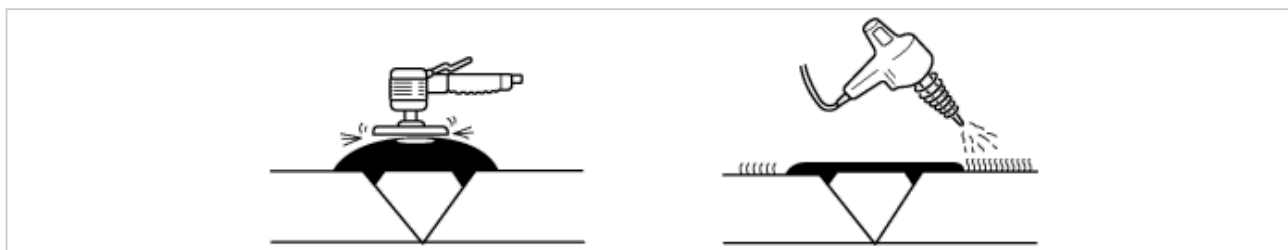


7. Sand the damaged area with sandpaper using #180~#240 grit paper.

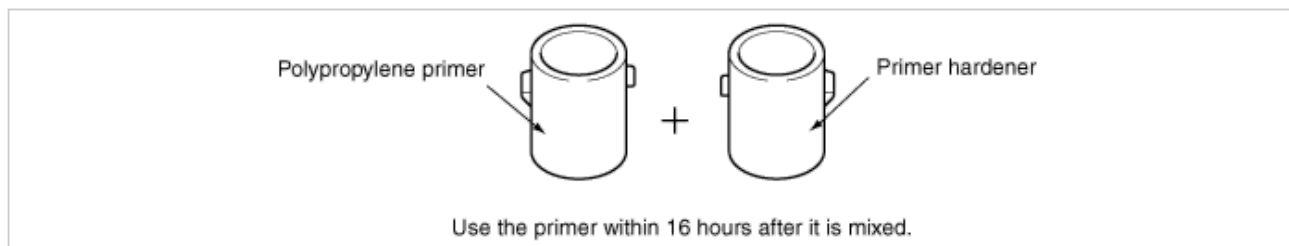
NOTICE

- The surface will not be even if excessive force is applied during sanding.
- If there is fuzz in the damaged area, heat it a little bit with a heater gun and melt it.

8. Degrease the painted surface.



9. Mix polypropylene primer and hardener at a ratio depending on paint specifications.
Spray polypropylene primer on the surface of the damaged area and the bumper.



10. Apply polypropylene primer.

NOTICE

Use only water to clean after applying polypropylene primer. Solvent, if used, will melt the primer.

11. Lightly sand the sprayed area using a primer a sandpaper (#400~#600). The polypropylene surface should not be exposed. (Either wet sanding or dry sanding is all right.)

12. Use agent (TCE(Tri Chloro Ethane) degreasing material) to remove any grease or oil, and wipe the finished surface of the bumper quickly with a clean cloth.

NOTICE

- The painting method for the polypropylene bumper is the same used to paint the urethane bumper.
- Therefore, use urethane primer only on urethane bumpers and polypropylene primer on polypropylene bumpers.

13. Air dry at 20° C (68° F) for about 8 hours, or dry in 60° C (140° F) for about 2 hours.

(Since drying time varies according to the type of paint used, follow paint manufacturers directions for drying times.)

NOTICE

Air dry if possible. Forced drying may create air bubbles on the top layer.