

December 4, 2013 Subject: **SPARK - Fixing Scratches and Repairing the Hull**

No. **2014-7**

Prior to servicing the vehicle, refer to Knowledge Center for the most up to date version of your shop manual.

MODEL YEAR	MODEL	MODEL NUMBERS	SERIAL NUMBERS
2014	SPARK	ALL	ALL

FIXING SCRATCHES

Perform a flame treatment on any body or hull surface.

A flame treatment:

- Is a quick movement over an area or part with a blow torch
- Should never be too intense. The part should never melt to the point that it looks polished
- Will burn any excess plastic around the scratch
- Will burn the oxygen on the surface of the part.

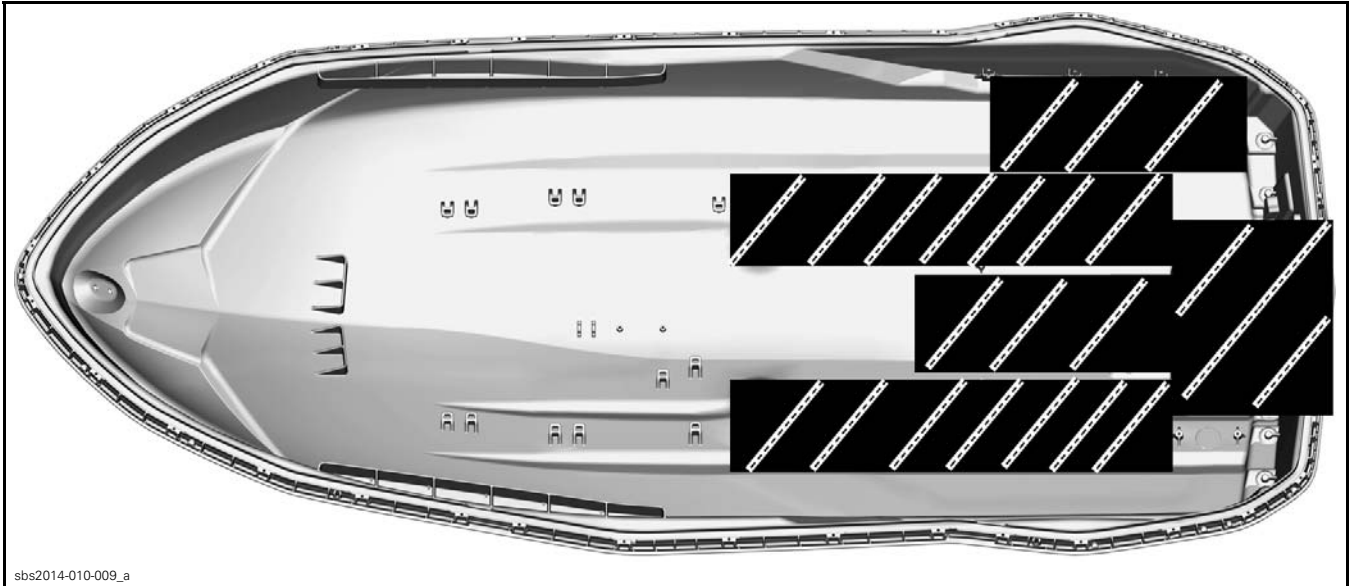
The flame treatment will also restore the original color of the plastic, painting is not necessary.

REPAIRING THE HULL

The shaded areas are:

- Important structural sections of the hull
- Areas where clearance is tight.

The hull is not repairable in these areas.



Required Tools

DESCRIPTION		SIZE
Drill bit		5 mm (13/64 in)
Counter bore		12.5 mm (1/2 in)
Grinding burr		3 mm (1/8 in)

Required Parts

DESCRIPTION	PART NUMBER	QUANTITY
Aluminum foil tape	Available locally	As needed
±150 grit sand paper	Available locally	As needed
M5 X 20 screw	Available locally	2
M5 retaining nut	Available locally	2
Stainless steel rivet	293 150 043	As needed
Stainless steel rivet washer	234 052 600	As needed
Fiber reinforced laminate with (polyester or epoxy) resin	Available locally	As needed
Sealant	LOCTITE 5900 (P/N 293 800 066)	As needed
Black epoxy ¹	Available locally	As needed
Multipurpose black paint (metal-wood-plastic) ²	Available locally	As needed

¹ BRP has tested 3M™ DURAMIX™ SEMI-RIGID PLASTIC REPAIR (P/N 04240) with good results.



² BRP has tested CHEM-PAK® PER-FIX BLACK™ POLYPROPYLENE (P/N 7500A) with good results.



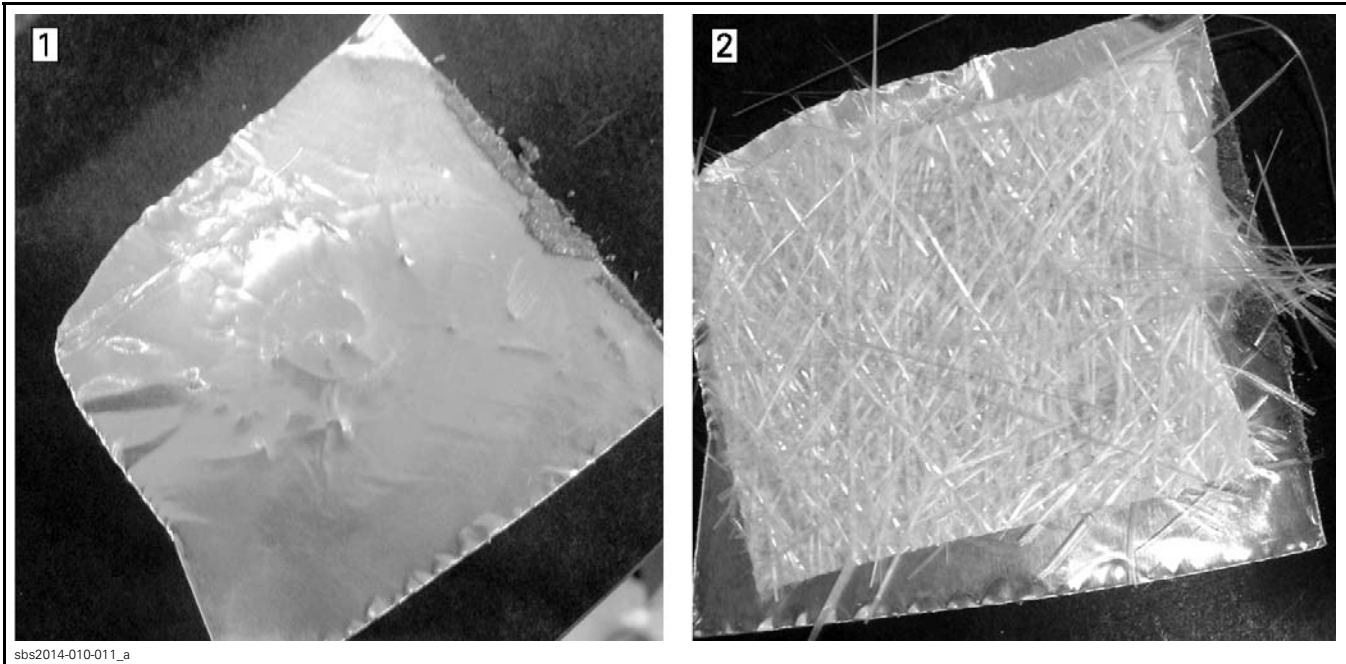
Pop Rivet Procedure with Fiber Reinforced Laminating

NOTICE Cracks longer than 400 mm (15-1/4 in) should not be repaired.

If repairing a hole in the hull, read *05 - REPAIRING A HOLE* in this document.

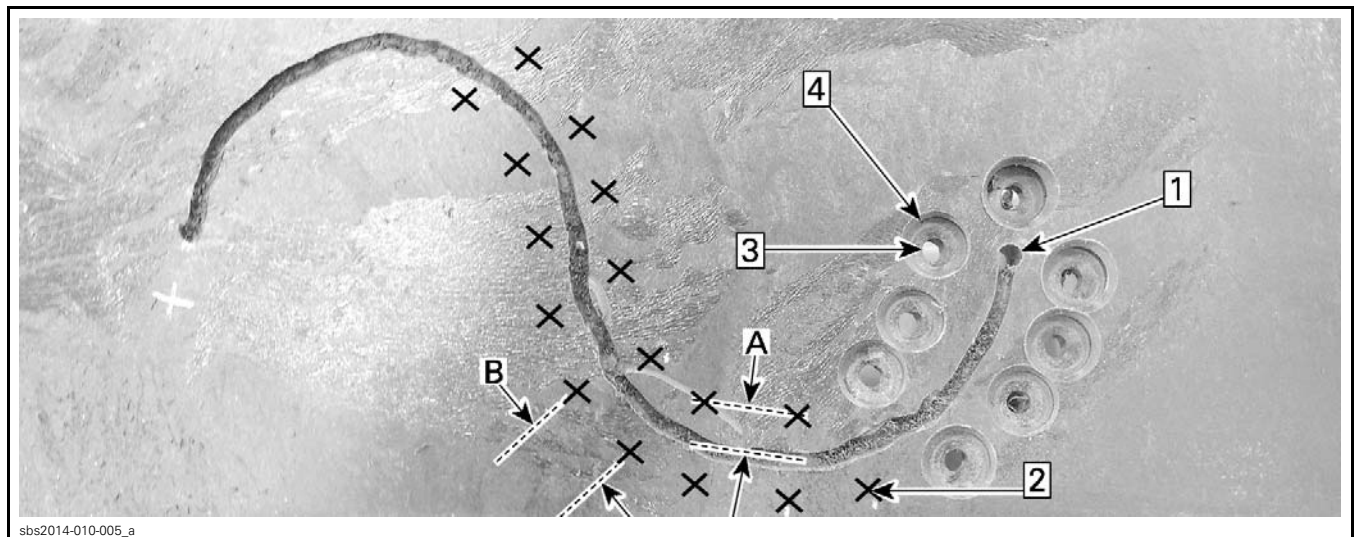
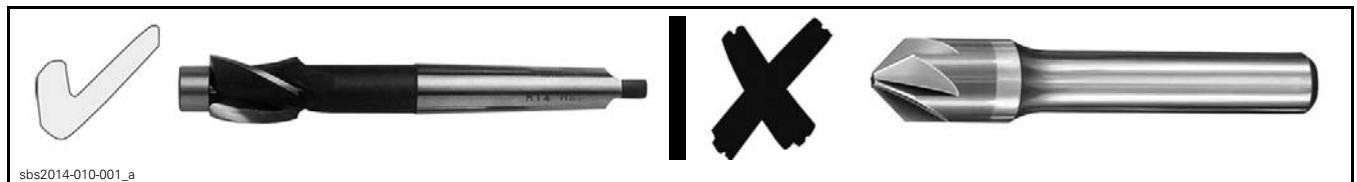
01 - Mould a Fiber Reinforced Backing Skin

1. Lay down the aluminum foil tape over the area to be repaired. Extend the aluminum foil tape 150 mm (6 in) beyond the crack.
2. Prepare the fiber reinforced backing skin using 3 skins of laminate.
 - 2.1 Apply the mat, the resin and the catalyst over the aluminum foil tape.
 - 2.2 Allow to dry.
3. Remove the newly moulded backing skin and trim to 50 mm (2 in) beyond the crack.
4. Remove the aluminum foil tape.



02 - Drill Holes for Rivets

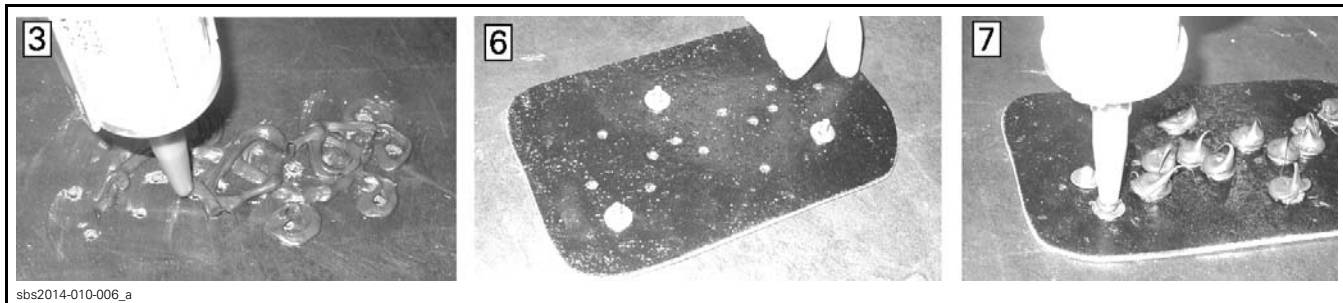
1. With the drill bit, drill a hole at each end of the crack to prevent it from growing longer.
2. Measure and mark drilling locations on the exterior of hull around crack.
3. Drill the hull at marked locations.
4. Install the backing skin over the area to be repaired from the interior.
5. Drill one hole in the backing skin using the hull as a template.
6. Install screw and retaining nut to prevent the backing skin from moving.
7. Repeat steps 5 and 6.
8. Drill all remaining holes.
9. Remove backing skin.
10. Counter bore all the drilled holes 3.5 mm (9/64 in) into the hull from the exterior.



1. Hole at end of crack
 2. Mark drilling locations
 3. Drill hull
 4. Counter bore
- A. 15 mm (19/32 in) from centerline of crack
B. 30 mm (1-13/64 in) from next hole

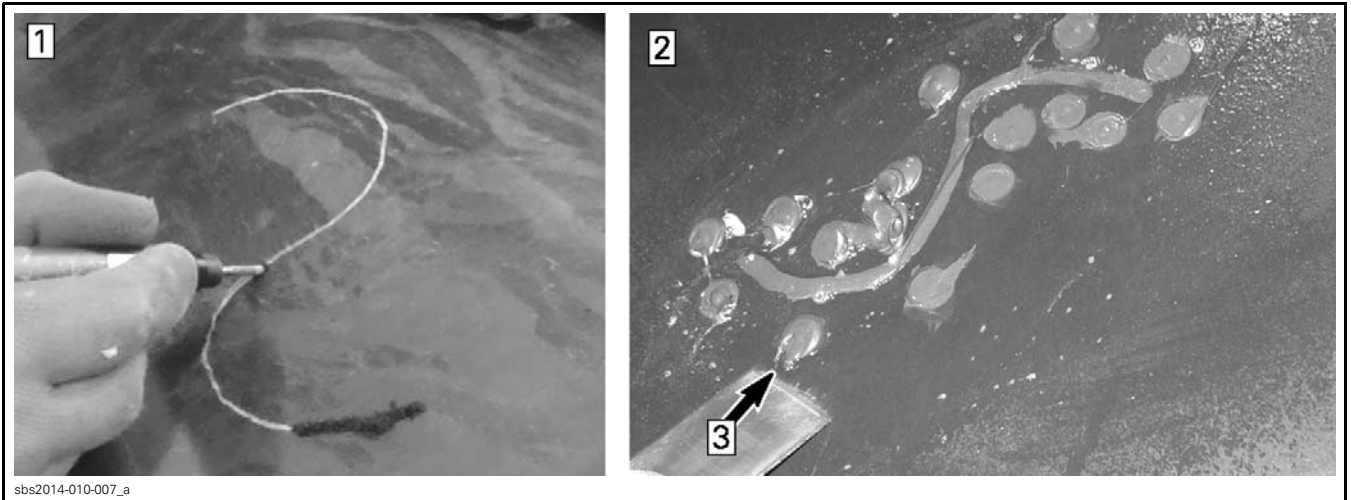
03 - Seal the Backing Skin on Hull

1. Sand hull (inside only) to roughen surface.
2. Clean the area to be repaired with isopropyl alcohol.
3. Apply LOCTITE 5900 (P/N 293 800 066) on the inside hull around the drilled holes and the crack.
4. Align the backing skin over holes from interior. Push it against the sealant.
5. Use the screws and retaining nuts to hold the backing skin in place.
6. Install rivets from the exterior and washers from the interior.
7. Remove retaining nuts and screws.
8. Install remaining rivets with washers.
9. Apply LOCTITE 5900 (P/N 293 800 066) from the interior over the washers.

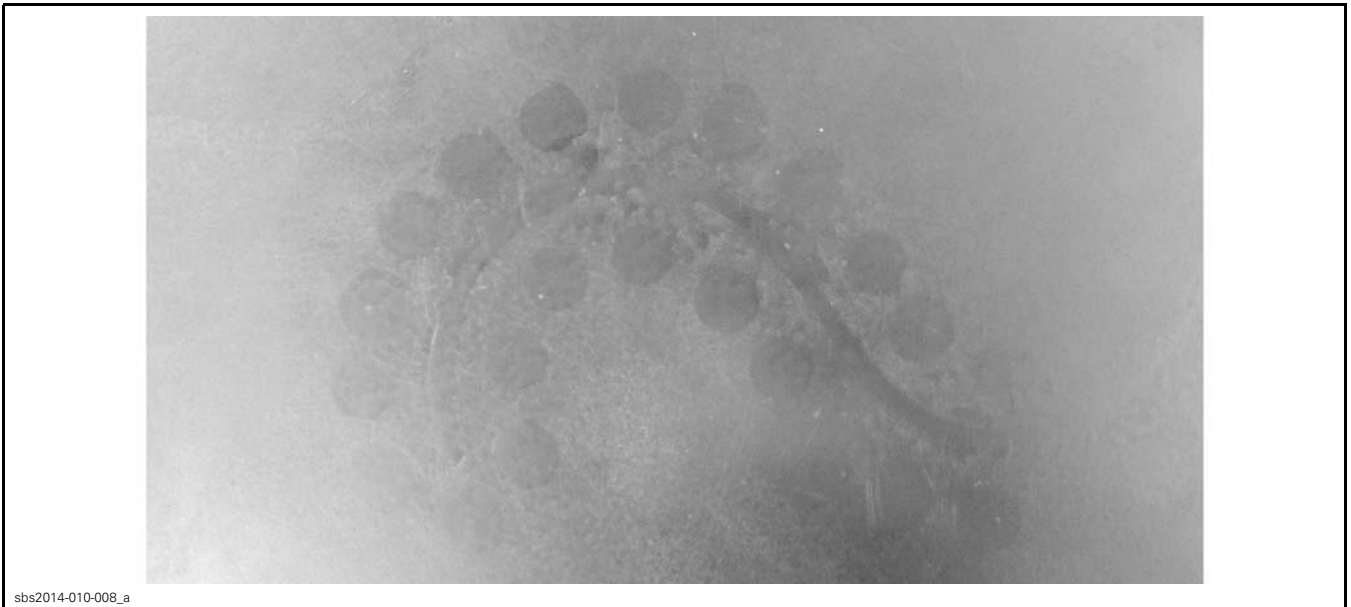


04 - Exterior Aesthetics

1. Grind a 5 mm (5/32 in) wide by 3.5 mm (9/64 in) deep groove in the crack from the exterior.
2. Fill the groove and the counter bored holes with epoxy.
3. Remove the excess epoxy before it cures.



4. Apply a thin layer of paint or perform a flame treatment.



05 - Repairing a Hole

NOTICE Holes larger than 150 mm (6 in) in diameter should not be repaired.

If the broken piece is in your possession, ensure a good fit in its original location. If needed, rework some portions of the piece to make it fit perfectly.

NOTE: If the broken piece is not in your possession, it is recommended to replace the hull.

1. Grind a chamfer of 3 mm (1/8 in) wide by 3 mm (1/8 in) deep around the exterior perimeter of the broken piece.
2. Repeat step 1 to the hole in the hull.
3. Tape the broken piece to the exterior of the hull so that it fits flush with the inside.
4. Continue with *01 - MOULD A FIBER REINFORCED BACKING SKIN* in this document.

