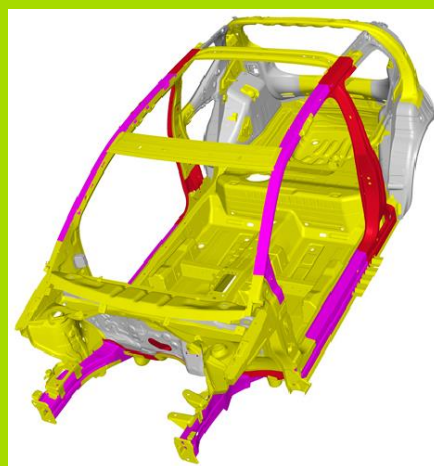


TEST PROJECT DOCUMENT TEMPLATE

WSC2015_TP13_BR_EN



Submitted by: Chief Expert
Name: Kjell Arild Orheim
Member country/region: Norway





CONTENTS

This Test Project consists of the following documentation/files:

1. WSC2015_TP13_BR_EN_Proposal.doc

INTRODUCTION

All Competitors will be tasked to demonstrate a range of skills in Autobody Repair. There should be at least five (5) different project modules to include but not limited to the following: Diagnosis and Correction, Structural Part Replacement, Non-Structural Part Replacement, Panel Repairs, Autobody related repairs such as but not limited to electrical diagnoses, plastic repair, and/or glass replacement.

DESCRIPTION OF PROJECT AND TASKS

Content and marks distribution:

Module A	Diagnosis and Correction	20%
Module B	Structural Part Replacement	35%
Module C	Non-Structural Part Replacement	25%
Module D	Panel Repair	15%
Module E	Autobody related repairs such as but not limited to -electrical diagnoses	5%
TOTAL:		100%

INSTRUCTIONS TO THE COMPETITOR

These competitor instructions must be read in conjunction with the following documents:

1. Current version of Technical Description.
 2. Current version of Competition Rules A and B.
 3. Current version of Health and Safety Document
 4. Volkswagen Up! Body Repair Manual and Volkswagen Tiguan SRS repair manual
-
- Certain tasks need to be marked by experts “while in progress”, these are indicated in your instructions where STOP is shown, proceed with another task while marking takes place.
 - Marks will be forfeited if the competitor overlooks the “in progress marking” by experts.
 - Assistance with the removal and replacement of heavy parts such as doors, bonnet, etc can be given by any expert other than the one from your country. (no help on side panel)



Safety

Competitors could be deducted marks or excluded from the competition (as per competition rules & Health and Safety document) if they are identified working in an unsafe manner or create an unsafe workplace condition.

Examples of unsafe practices include:

- Not wearing the appropriate personal safety equipment, safety glasses, gloves, hearing protection, safety shoes etc.
- Not correctly positioning screens when MIG welding or grinding.
- Not using fume/smoke extractor.
- Realigning without safety cable correctly fitted.
- Poor / unsafe housekeeping.
- Endangering yourself or others.

Reckless or accidental damage caused to equipment or vehicle while performing repairs could result in loss of marks in any or all categories.

Important!

It is crucial to the end result that you carefully review the task before you start work. The order of the tasks is determined. You begin on the task A, and follow the instructions given at the end of each task. The order will then be A1, A2, C1, B1, and so on. You must always complete each task before moving on to the next task, if not otherwise specified.

Task E has its own timetable determined by drawing lots. (30 min for each competitor)



Module A – Diagnosis and Correction

- Observe safe work practices at all times.
- Ensure that all the clamps and bench mountings are correctly fitted and tightened.
- Minimum 50 Nm and maximum 70 Nm on the four bolts screwed in to the Body (B297)
- Bench mountings and clamps must be tight, 160 Nm minimum torque. (B248 and B263)
- Remove front “bolt-on” panels.
- Ensure that the measuring bridge/ ladder is correctly fitted and locked in place.
- Start up the Car-o-liner Vision X3 computer and make a new work order.
- The order must be created and saved with **your first name, surname and your country**
- Select and open data sheet number 21:319, 1 and 2, and 621:270 5
- Set-up and “center” the Car-o-liner measuring system, use measuring point 14R/L, 10R/L and 11 on the left hand side. (setup with 5 centering points)
- Measure and report the extent of misalignment at the following data sheet locations;
- Underbody locations: Left L1, L2, L3, L4, L6, L7, L8, L9
21:319 1 and 2 Right R1, R2, R3, R4, R6, R7, R8, R9
- Upper body locations: Left L1, L2, L3, and L8
621:270 5 Right R1, R3, R4 and R8
- **Save data sheet/damage report on computer and print.**

Sign in to check your clamps, bench mountings, measuring bridge installation and collect your data sheet/damage report.

MODULE A2 CORRECTION: REPAIR AND REALIGN STRUCTURAL DAMAGE

- 

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- The realignment must not cause additional damage or loss of strength to parts that are not being replaced; due to clamp attachment, EVO-anchoring, and incorrect pulling/pushing.
- Repair and stress relieve the rail members and adjacent panels that are not being replaced.
- Car o liner measuring equipment must be protected from damage that may be caused by incorrect use, welding, grinding sparks or other damage.

A2 STOP

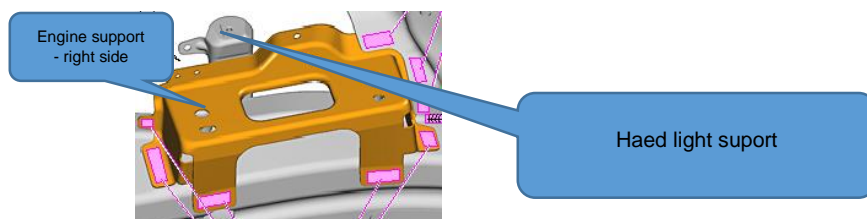
Note: The alignment of the engine compartment, front rail members, damage to parts not being replaced, and measuring equipment (damage) will be checked by experts at the end of the competition.

Continue to C1 immediately.

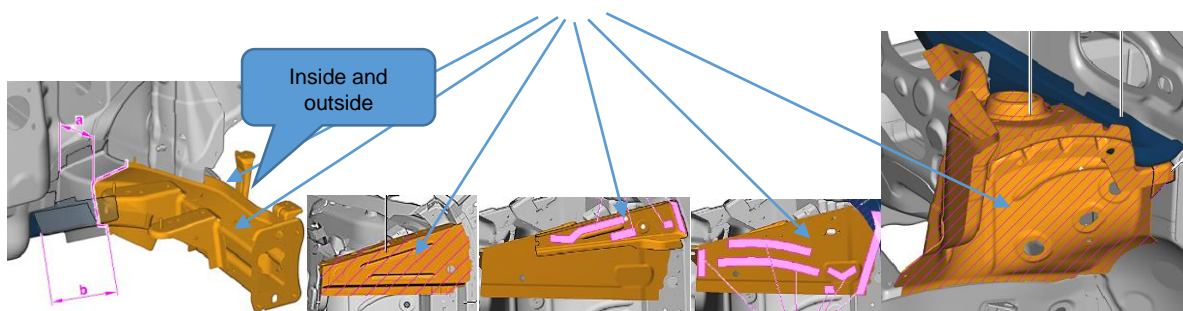
MODULE B1 – Structural Part(s) Replacement

PANEL REMOVAL AND FIT

- Safe work practices must always be adhered to and apply to host country's regulations.
- Remove all necessary bolt-on panels at the front end of the body
- Remove the following damaged part on the right hand side:

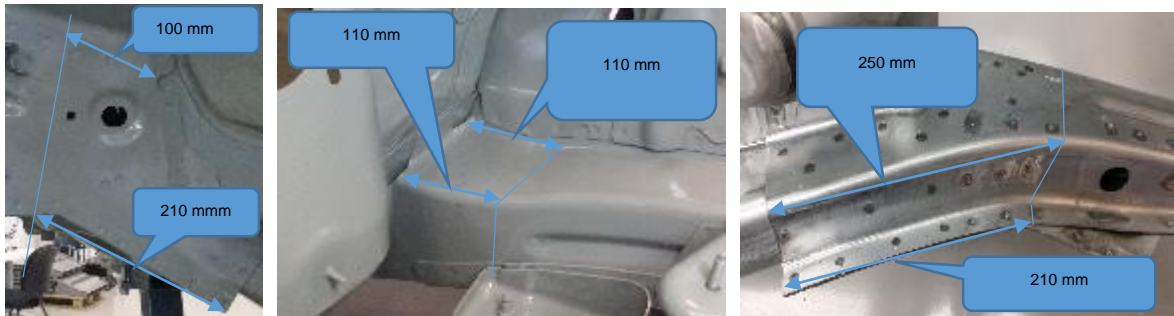


- Remove the following parts on the left hand side





Cut lines for seam welding



- Cut left hand side front frame according to pictures. Remove the reinforcement.
- Straighten (repair) all distorted flanges and remove all spot weld remnants with grinder or sander. Areas around the tear and holes resulting from damage, must also be ground and cleaned, but not repaired by welding.
- Make all holes for plug-welding 8mm
- Remove all paint from areas for welding on flanges and joints, from the new replacement parts and the body shell in preparation for welding. All 4 or 6 sides for plug and spot welding must be bare metal. Minimum 10mm around a hole for plug-welding and minimum 20mm for spot-welding. For seam-welding 10mm or more inside and outside must be bare metal - where possible.
- Any accidental holes or tears to parts not to be replaced must not be welded until inspection by experts. If you do - you will lose all the points in this marking area.
- Assemble and fit the chassis rail and wheel house only on the left side to body shell, hold in correct position with clamps and EVO. EVO 3 must be used in the measuring-point no L3. No welding or tacking yet. Making extra holes for screws is not allowed. No primer yet. All bolts on the Car-o-liner equipment must be tightened with correct torque.
- These measuring-points will be checked before experts start marking B1: L3 and L10
- Tolerance +/- 1mm difference between the measuring points in L/W/H
- The Car-o-Liner X3 must be centred and ready to do the measuring.

Important information!

During B1 marking:

You will be asked to leave your ongoing task to show experts the position of the new parts by using Car-o-liner X3. (+/- 1mm)

Experts will disassemble all parts during marking unless you want to do by yourself.

You will also be asked to leave your job to apply primer.

B1 STOP

Sign in to mark your left side butt joint gaps and fitting of all the other body parts.

Experts will mark your left & right side parts removal and cleaning, and making of plug weld holes to the body and/or spare parts.

- Proceed to any task and complete the task you choose.
- You will be called for to add primer when the experts are done marking B1

PRIMER

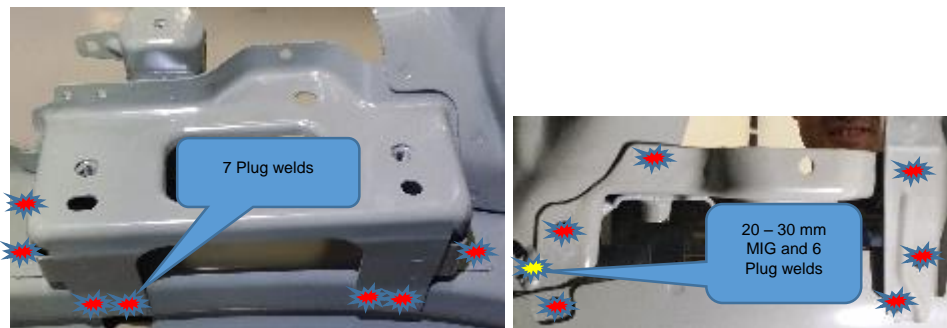
Apply primer on all surfaces which will be enclosed, while experts assess how the work is performed.



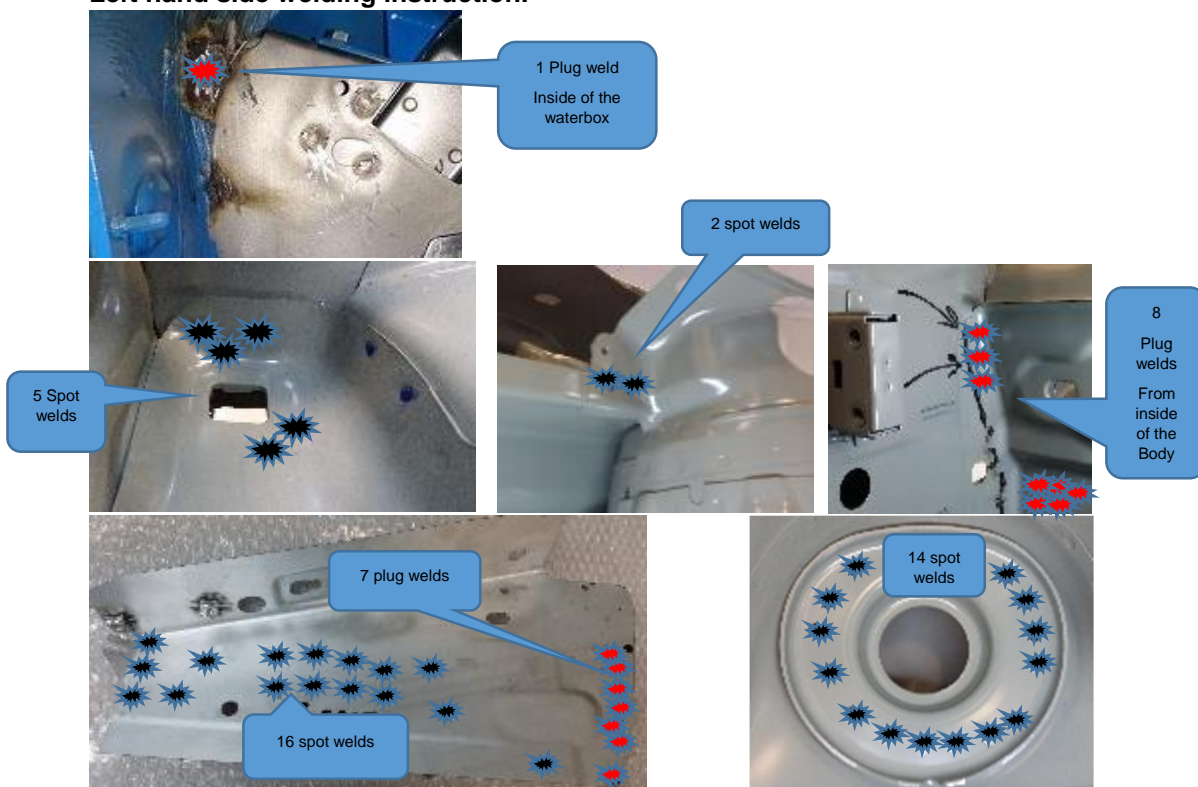
MODULE B2 FIT AND WELD ALL PARTS

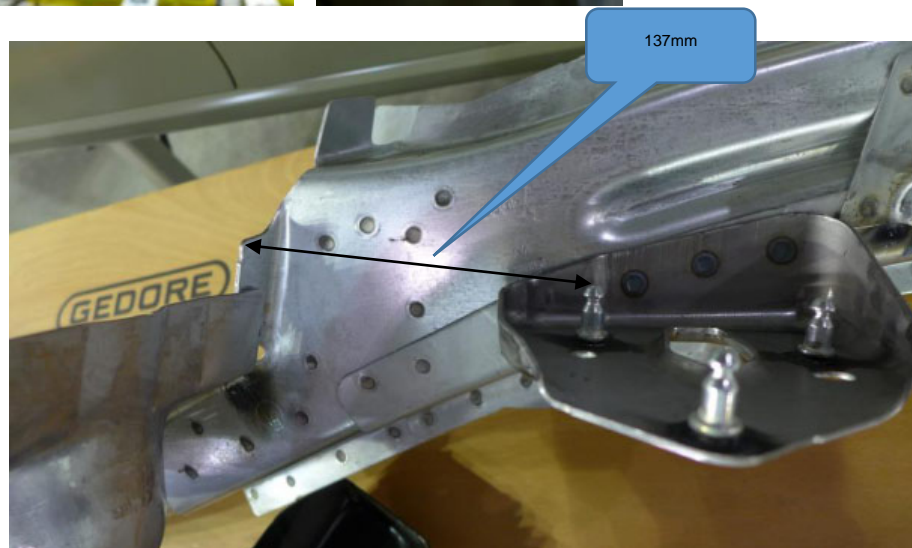
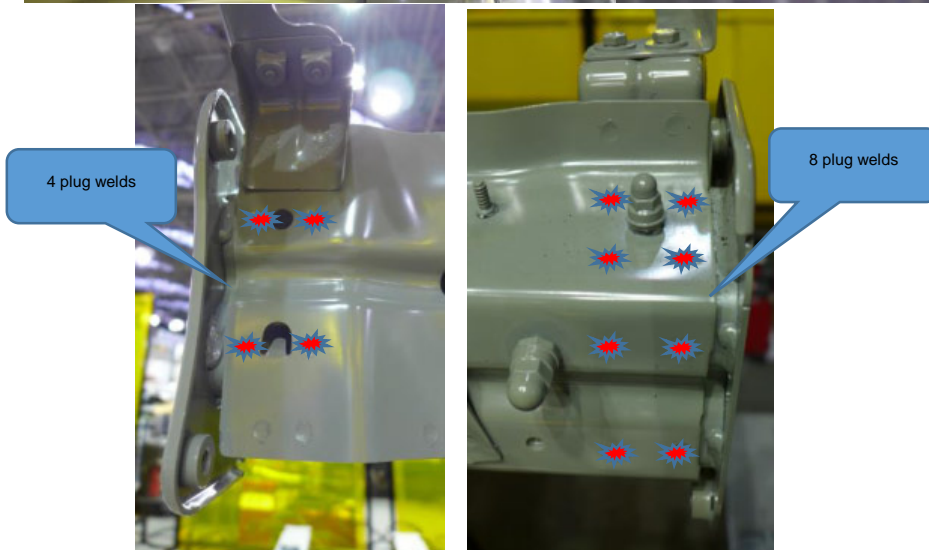
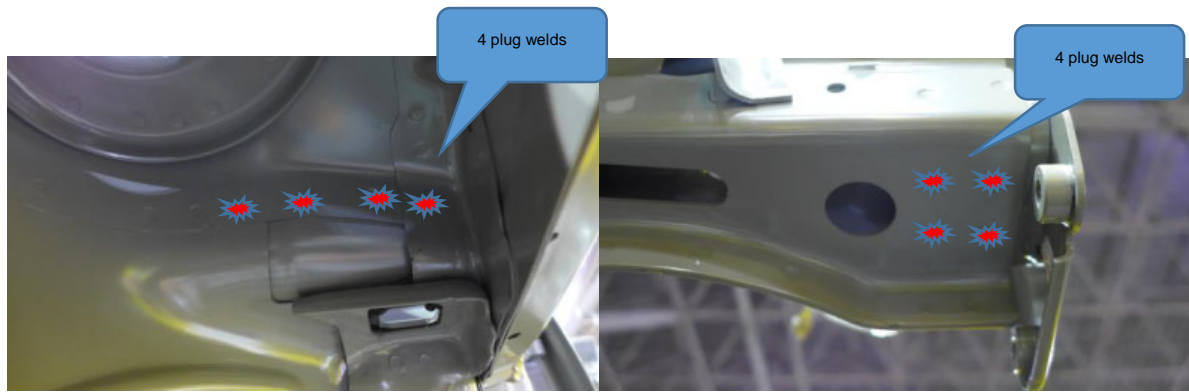
- Safe work practices must always be adhered to and apply to host country's regulations.
- Fit and weld all parts. The lower rail seam-welds must be a continuous weld or a series of continuous welds, longer than 10mm, and all welds must have full penetration.
- The seam-welding can be done with any technique.

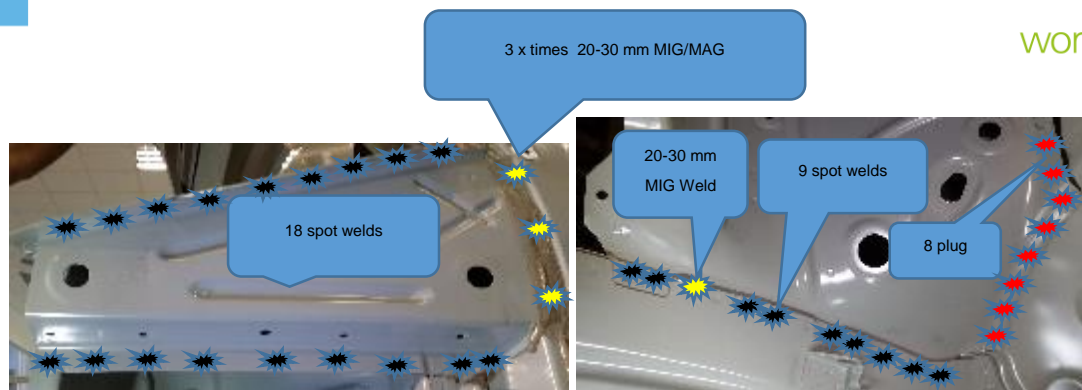
Right hand side welding instruction.



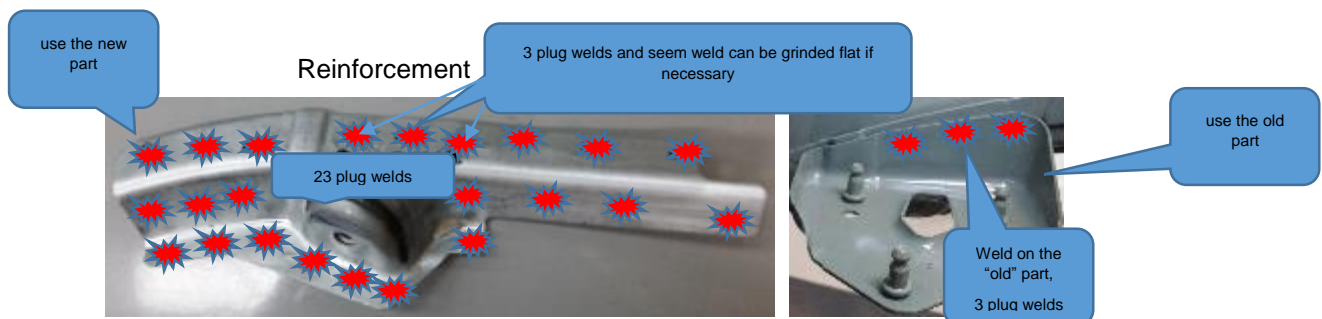
Left hand side welding instruction.







- Do the seam welding on the chassis leg, inside and outside.
- Grind the seam weld where necessary to weld on the reinforcement.



- Completed welds must not be dressed, ground, sanded, or cleaned before marking except those tree.
- All welding must be as shown in the pictures above.
- Remove all the jigs (EVO parts) to allow alignment measurement.
- Ensure that the measuring bridge and the measuring slide are correctly fitted.

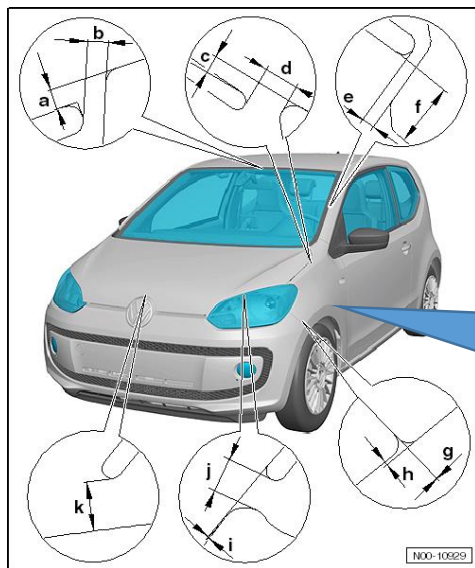
B2 STOP

Sign in to mark your welding.

MODULE B3

GRINDING AND PANEL GAPS

- Safe work practices must always be adhered to and apply to host country's regulations.
- Grind and sand all plug- and seam - welds. Feather out the paint edges (P120 - P240 grit)
- Fit all front-end bolt-on panels.
- Adjust hood, head lights, fenders and doors to specifications.



c - 2.0 mm \pm 0.5 mm
d - 4.0 mm \pm 0.5 mm
i - 0.0 mm \pm 0.5 mm
j - 3.5 mm \pm 0.5 mm

B3 STOP

Sign in TO MARK ALL MOUNTING AND GRINDING AS MENTIONED ABOVE.
Proceed to any task and complete the task you choose.



MODULE C1 – Non-Structural Part(s) Replacement

PANEL REMOVAL

- Replacing rear Left side panel.
- The following new body parts are required.



Rear side panel:

- Remove Left rear door and store in a safe area of your work space.

Following consumables are required:

- Material
 - Quantity
- 1 Adhesive- 3M Panel bonding adhesive 08115



- 3M Spray de zinco (welding Primer)
- Max Rubber silicon remover (Cleaning agent)

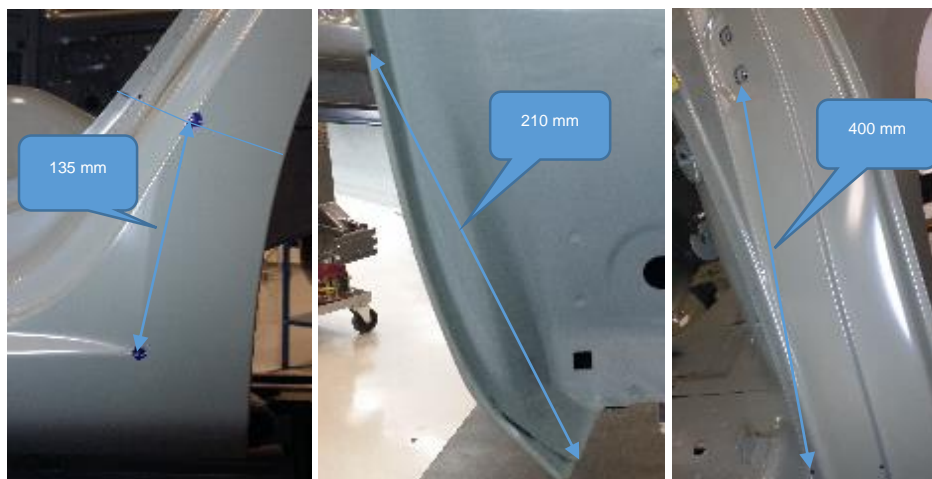


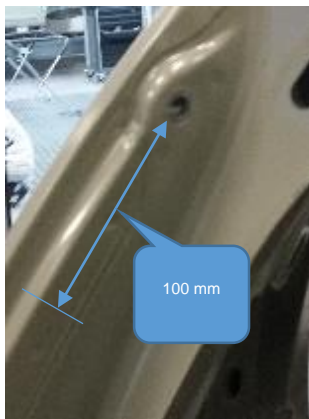
Removing side panel:



- Open welded and seam-adhesive bond connections in all areas. Cut outer panel only.

Cut lines:





- Cut outer panel only.
- Detach the side panel.
- Remove all glue and spot-weld remnants.
- Straighten (repair) all deformation.

Note: Any accidental holes or tears to parts not to be replaced must not be welded and repaired.

Important!

- Do not grind/sand new part in area of bonding surfaces.
- Drill all 8mm holes for plug welding
- Install side panel (no adhesive). Fit up only. At this point, the door gap and the tailgate gap will not be measured.
- Adjust new part to fit without excessive tension / stress.
- The C pillar upper and lower sill joint gap must be 0-1mm
- Adjust new part to fit and secure with clamps and only one extra screw in the **top hole for plug welding**.



Important!

- No adhesive at this point.
- Prepare all equipment and all the items you need to do the actual gluing and welding process.

C1 STOP

Sign to mark your side panel removal, drilling, cleaning, gaps and preparation of new parts

Proceed to B1



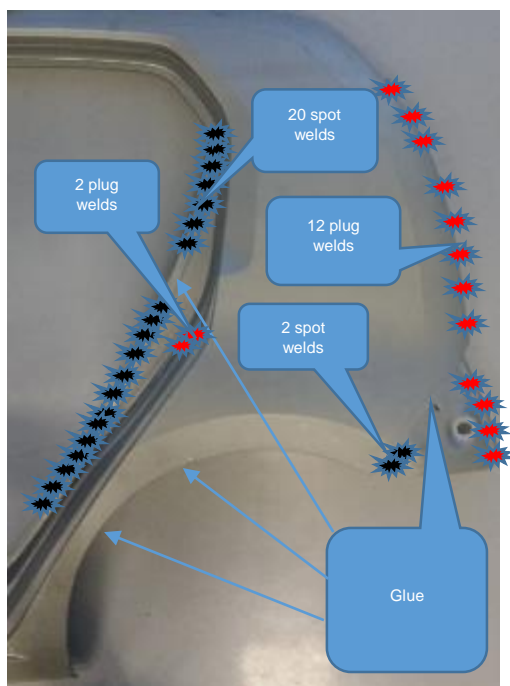
Important!

The assessment of C2 will start based on your completion time of C1 logged on the board. This could happen any time while you are busy with project B1 or B2. During the marking process, you will be asked to apply cleaning agent specified to the prepared areas which will receive the glue. Apply the bonding adhesive (glue) and perform the bonding and clamping process.

MODULE C2

- Clean the wheel arch bonding surface with Cleaning agent
- Apply adhesive and weld true primer according to VW standard.
- Keep Adhesive 25mm away from the joint to be welded
- Install side panel without the help of a partner.
- Start the welding process. (the marking team will now leave you)
- Use hammer and dolly to shape the flange of the wheel-arch.
- Dimension (a) = 4.0 mm. $\pm 0.5\text{mm}$

Welding instruction:





C2 STOP

Sign in to mark your cleaning, bonding, welding of the side panel mounting.

Proceed back and continue your work on B1 or B2 and continue.

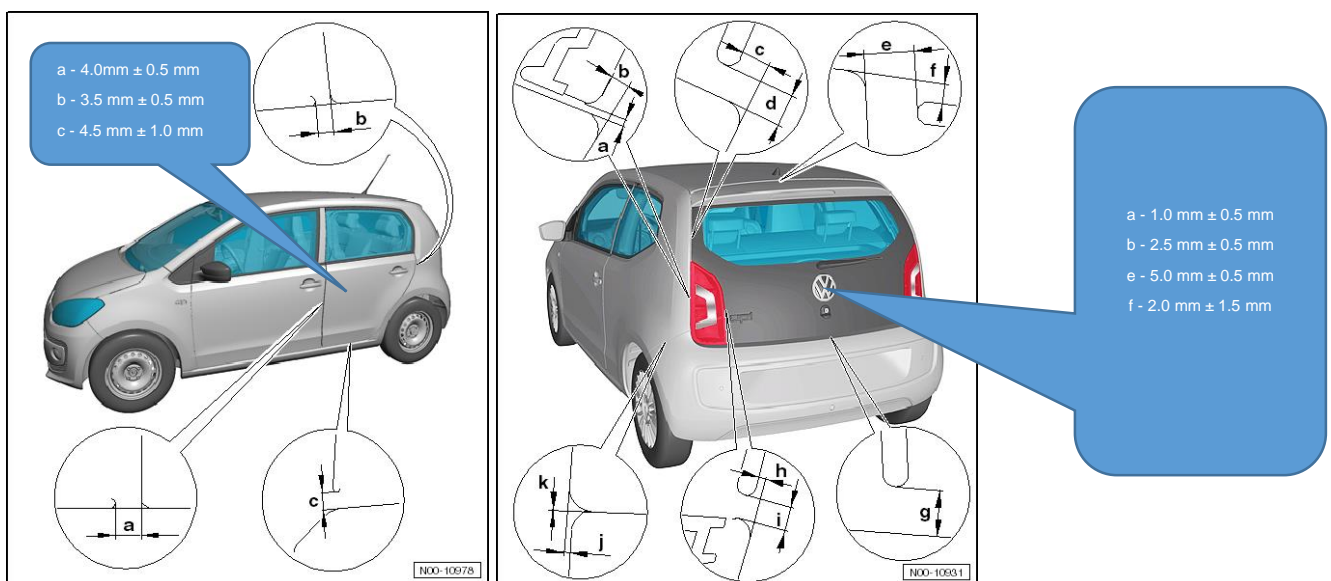
MODULE C3

GRINDING

- Grind all your seam- and plug - welds,
- Sand the E coat edges at P120 or finer

PANEL GAPS

- Reinstall all parts removed for repair operations with the specifications pictures below.



C3 STOP

- Sign in to mark shaping of wheel-arch, grinding and sanding, mounting and panel-gaps.

Proceed to any task and complete the task you choose.



MODULE D

Panel Repair 1

- Repair the "big dent" damage in the roof using the metal finishing process.
- Safe work practices must always be adhered to and apply to host country's regulations.
- The repair must have the original contour and shape.
- Panel shrinking must be done with electrical equipment or cold shrinking as needed.
- Repair surface defects, sand to P80g or finer, featheredge broken surrounding surfaces to P120g or finer, but not finer than P240g.
- Repair must not have deep file or grinder marks/gouges).
- The panel repair area must not be over thinned due to excessive filing or sanding.

Proceed to any task and complete the task you choose.

Marking of the Panel will be done at the end of the competition

Panel Repair 2

- Repair several of small dents on the hood by metal finishing.
- Safe work practices must always be adhered to and apply to host country's regulations.
- The repair must have the original contour and shape.
- Panel shrinking must be done with electrical equipment or cold shrinking as needed.
- Repair surface defects, sand to P80g or finer, featheredge broken surrounding surfaces to P120g or finer, but not finer than P240g (Repair must not have deep file or grinder marks/gouges).
- The panel repair area must not be over thinned due to excessive filing or sanding.

Proceed to any task and complete the task you choose.

Marking will be done at the end of the competition.

- At the end of competition, both sides of tail lamp must be on the body.



MODULE E - SRS.

Note - Safe work practices must always be adhered to and apply to host country's regulations.

Time allowed: 30 minutes.

Part E's project is to determine and perform necessary repairs to the SRS Airbag from information obtained using the ODIS / VAS6150 tester.

The vehicle to be used is a 2015 VW Tiguan.

Procedure:

- Take all necessary precautions to protect yourself and the vehicle from damage during repairs.
- Make sure that car is securely parked.
- Apply all car protection covers.
- Connect the VAS 6150 to the vehicle
- Turn the engine ignition switch on.
- Check the manual to follow the test plan.
- Read out the control unit and faults
- Identify the following fault: 00589 - Front passenger side air bag
- Return to the initial screen. Check the manual to follow the test plan (Step 20)
- Disconnect and isolate the negative terminal from the battery on the vehicle and wait for a minimum of 10 seconds before proceeding.
- Remove the control unit J234 and replace with new part. Check the manual to follow procedures.
- Connect and tighten the negative terminal to the battery
- Turn the engine ignition switch on. **ATTENTION:** The ignition may only be switched on (start / stop button) from the driver's seat with the seat set in the rear most position. No persons may be in the interior when the battery is reconnected.
- Read out the control unit and faults
- Delete the fault memory
- Check that all the Trouble Codes have been cleared.
- Finish the test plan
- Return to the initial screen. Check the manual to follow the test plan (Step 20)
- Check if the SRS Indicator Lamp is off.
- Turn ignition off
- Remove all car protection covers.
- Return any tools and equipment used to table.



EQUIPMENT, MACHINERY, INSTALLATIONS AND MATERIALS REQUIRED

ITEM	QUANTITY	MATERIAL	DESCRIPTION	NOTES
None				