



2020 23rd ANNUAL SKILLS MANITOBA COMPETITION CONTEST DESCRIPTION

CONTEST NAME: Autobody Repair

CONTEST NO: 13

CATEGORY: Secondary and Post-Secondary
Maximum number of competitors Secondary – 10
Maximum number of competitors Post-Secondary - 10

CONTEST LOCATION: Red River College - Notre Dame Campus – Building J

CONTEST START TIME AND DURATION:
6 hours

PURPOSE OF CHALLENGE:
To assess the competitor's skills in performing various auto body repair tasks.

SKILLS AND KNOWLEDGE TO BE TESTED:
The contest is divided into four sections:

- a) Rocker Panel Repair Project – Duration 1 hour 50 minutes
- b) Metal Panel Repair and Measuring – Duration 1 hour 50 minutes
- c) Plastic Repair – Duration 1 hour 50 minutes

NATIONAL COMPETITION ELIGIBILITY:

- A mark of **70% or higher** must be scored by the gold medalist in each contest in order for them to attend the National Skills Competition

EQUIPMENT, TOOLS, MATERIALS TO BE PROVIDED BY COMMITTEE:

- 110 volt power supply
- Compressed air
- MIG welding unit
- Air control equipment
- Work table
- Protective equipment other than individual protective gear

EQUIPMENT, TOOLS, MATERIALS TO BE SUPPLIED BY COMPETITOR:

- All individual safety equipment required to perform work in industry-approved conditions.
- All personal auto body repair technician's tools
- Electric or compressed-air drill and grinder with attachments and supplies

WORKSITE SAFETY RULES / REQUIREMENTS:

- Must meet industry standards

SPECIAL CONDITIONS / ADDITIONAL INFORMATION:

2020 SKILLS CANADA MANITOBA AUTOBODY CONTEST

METAL WORKING

Duration of test: 1 hour 50 minutes (shared with Measuring)

The students involved in this section of the competition will perform two minor repairs on a metal repair panel. This test will determine the skill level of the student performing hammer and dolly work and the mixing, application, sanding and finishing of body filler.

Description of test:

- the larger dent on the right side of the panel is to be straightened with the tools provided.
- the smaller dent on the left side is to be filled with body filler

Material Provided:

- replacement repair panel
- body filler
- metal working tools

Safety:

Students will be provided with the following equipment:

- safety glasses
- safety shield
- ear protection
- respirator
- leather and rubber gloves

Hint: It is advisable for the student to properly mix the body filler and fill the small dent on the left side of the panel. While the body filler dries, the student should concentrate on straightening the larger dent – switching back and forth if necessary.

Part I: The objective of this portion of the test is for the student to straighten the damaged area on the right side of the panel.

Instruction: Using the methods learned at the trade school, the student is expected to straighten the damaged area as close as possible to its original condition. **Note: No fillers are to be used on this dent.**

Part II: The objective of this portion of the test is to fill the dent with body filler and sand the body filler to a smooth finish.

Instruction: The student should properly mix body filler and apply it to the dent. After sufficient drying time, the body filler is to be sanded to a smooth and even finish. Students also have the opportunity to use the 3M DMS gun for the application of filler.

Note: The student should not attempt to straighten this dent before applying the filler.

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Plastic Identification and Repair

This section on plastic repair will have a 1 hour and 50 minutes time limit in which the student will determine and carry out a two-sided TPO bumper repair and TPO bumper repair.

Each student will be provided with a section of a TPO bumper with an approximate 5 inch cut through it. The cut will extend from, through the edge, and towards the center of the test piece. Students must perform a two-sided chemical repair using the product of their choice. The student must then prepare the tear by vee-ing out the area, featheredging, properly cleaning, applying reinforcement tape and applying chemical repair. Once the inside repair is completed, the student will duplicate the repair on the outside of the test piece. When dry, the student will sand the repaired area until satisfied and present to judge for scoring before applying finishing filler.

The student will be graded on the following:

- Determining the proper repair procedure and preparation of test piece
- Vee-ing of tear
- Proper featheredging

- Cleaning of test piece
- Application of reinforcement tape
- Application and preparation of chemical repair (inside and outside)
- Application of finishing filler

Safety: Students must wear safety shoes and neat clothes (no cuffs) and the following safety equipment:

Safety glasses must be worn when:

- Blowing off bumper
- Grinding of bumper
- Featheredging, applying chemical repair and applying finishing filler

Gloves must be worn:

- During cleaning procedures
- Applying chemical repair and applying finishing filler
- During clean-up procedures

Respirators must be worn:

- When preparing bumper
- During featheredging bumper
- During grinding
- While applying chemical repair and finishing filler (Repair will be inspected before application of finishing filler).

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Vehicle Structural Alignment and Assessment

This section will determine the student's knowledge of vehicle alignment and assessment. The student will have to determine the type of damage conditions to a vehicle clamped in the frame machine. Students will be provided with frame measuring equipment such as:

1. Tape measure
2. Tram gauge
3. Frame spec sheet
4. Safety equipment
5. Clipboard, assessment sheet and pencil

Note: The frame gauges will be pre-hung on the vehicle for the competition, students must describe the condition.

Example:

- Sideway (front/rear)
- Sag (front/rear)
- Mash (front/rear)
- Twist

- Diamond
- Knee Back (set back)
- Strut Tower Width

The vehicle mounted on the frame rack has what type of damage

- Direct damage
- Indirect damage
- Both

Safety:

Students will be provided with the following equipment:

- Safety glasses
- Hard hat

Note: Students must have their own protective foot wear.

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Required Tool and Safety List for Competitors

- All personal safety equipment
- Random orbital sander
- Pistol grip grinder
- Die grinder and bits/cut-off wheel
- Air/electrical drill
- Assortment of twist drills
- Assortment of vice grips
- Tape measure
- Straight edge
- Tri-square
- Welding helmet
- Hacksaw/blades
- Spot-welder cutter
- Felt marker/pencil
- Body hammer
- Pick hammer
- Metal file
- Dollies
- Blowgun
- Block sander
- Cheese grater
- Board sander
- Squeegee metal/plastic
- Mixing board

- Centre punch
- Utility knife/razor blade
- Cold chisel

Safety:

- Dust masks
- Safety glasses
- Respirator charcoal – use whenever mixing
- Coveralls
- Welding mask
- Hearing protection
- Leather gloves
- Disposable gloves
- Safety footwear
- Face shield

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Equipment Supplied by Organizers

- Air compressor
- Air regulators and cleaners
- Air hose and connections
- Work benches with vices
- Panel stands
- Air extractors
- Infra-red lamps
- Brooms and dust pans
- Garbage cans
- Tables (5) and chairs (20)
- Tram gauges
- Clipboard
- Blowgun

Skills Canada Manitoba Autobody Contest

Rocker Panel Sectioning Project

Time Limit 1 hour 50 minutes

Body Repair Manual BRM

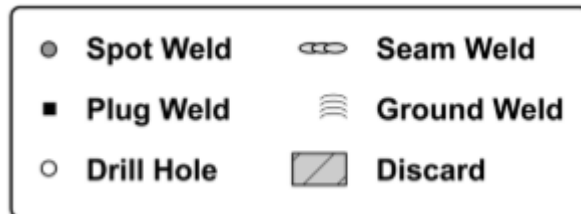
Frame Rail Sectioning

Front outer lower rail sectioning

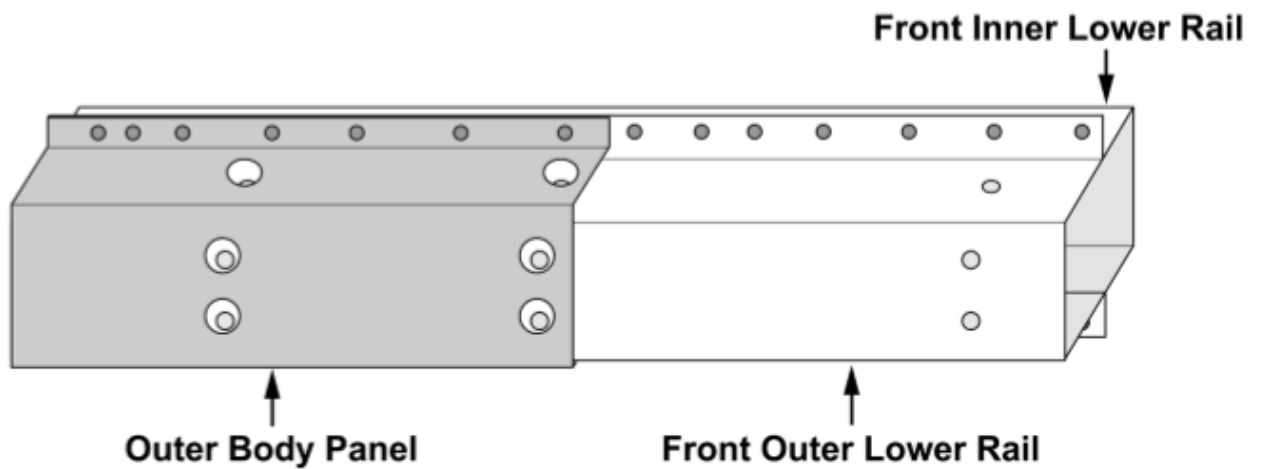
Familiarize yourself with the rail, service parts and part orientation prior to repair – Read in full.

The Front Lower Rail sectioning procedure should be used when a section of the rail is not damaged behind the sectioning joint. If the damages are behind the sectioning joint, rail replacement will be required. **NOTE!** Rail thickness is 16G, outer body panel thickness is 22G. Section of the 16G will be replaced.

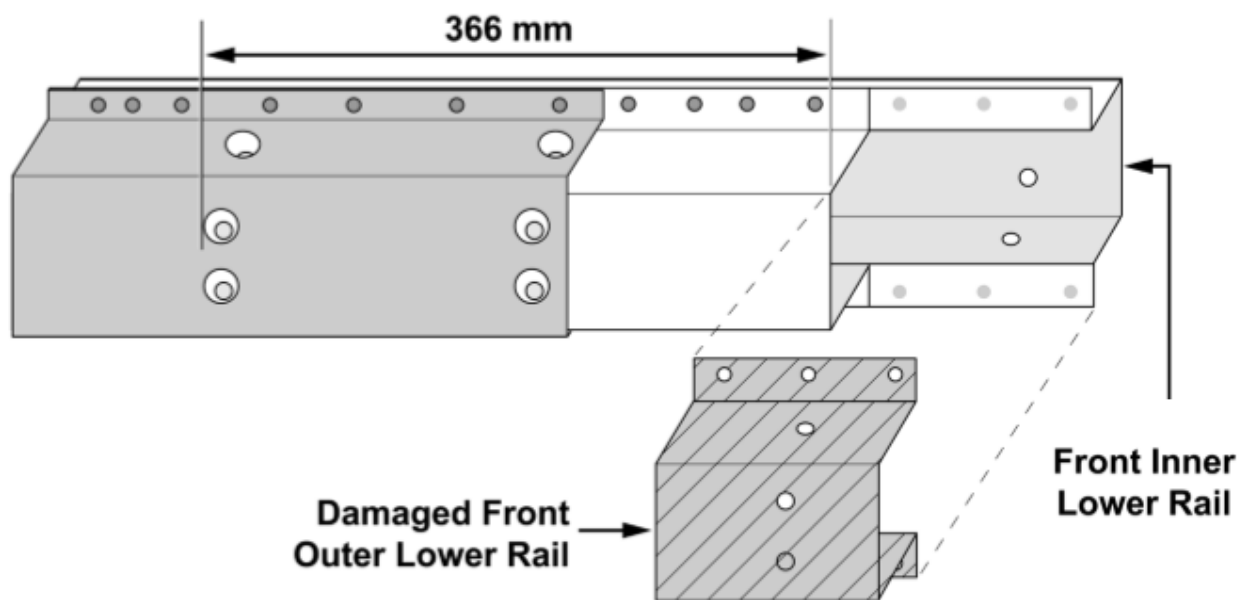
Illustration Legend



Rail



Body Repair Manual BRM
Frame Rail Sectioning



1. Mark appropriate cut locations.
NOTE! Be aware of where the measurements are taken from.

2. Drill out the 3 spot welds on the upper pinch weld as well as the 3 on the lower pinch weld.
NOTE! Be aware not to damage the inner rail section while drilling.

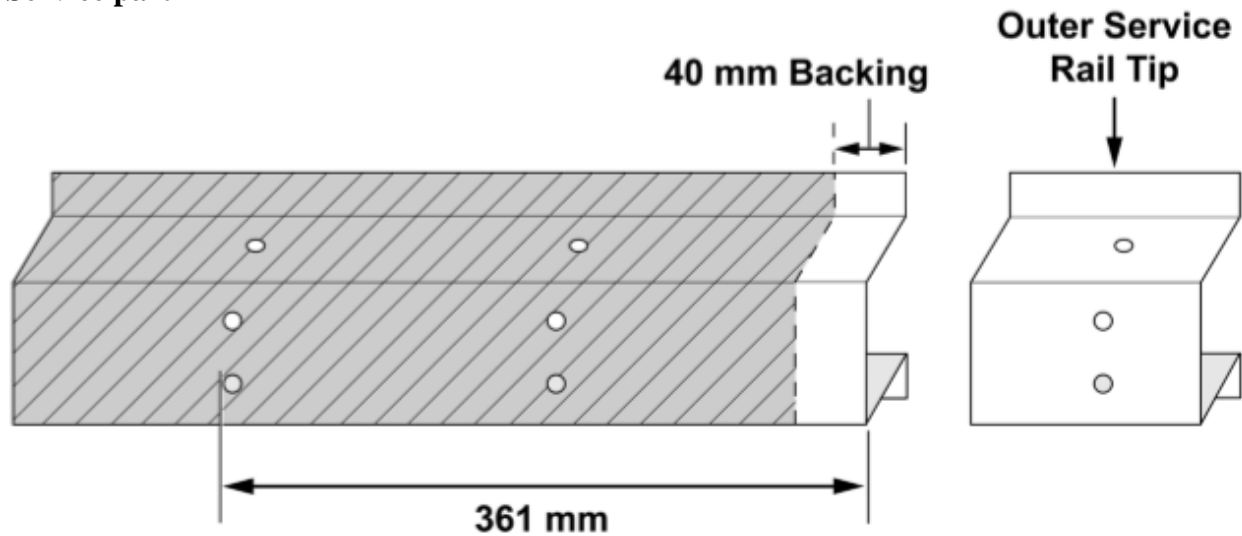
3. Cut at the marked location and remove damaged section.
NOTE! Be sure not to cut the inner rail section while cutting.

4. Remove any burrs on frame rail and pinch weld flange, and prepare for replacement section.

Body Repair Manual BRM

Frame Rail Sectioning

Service part

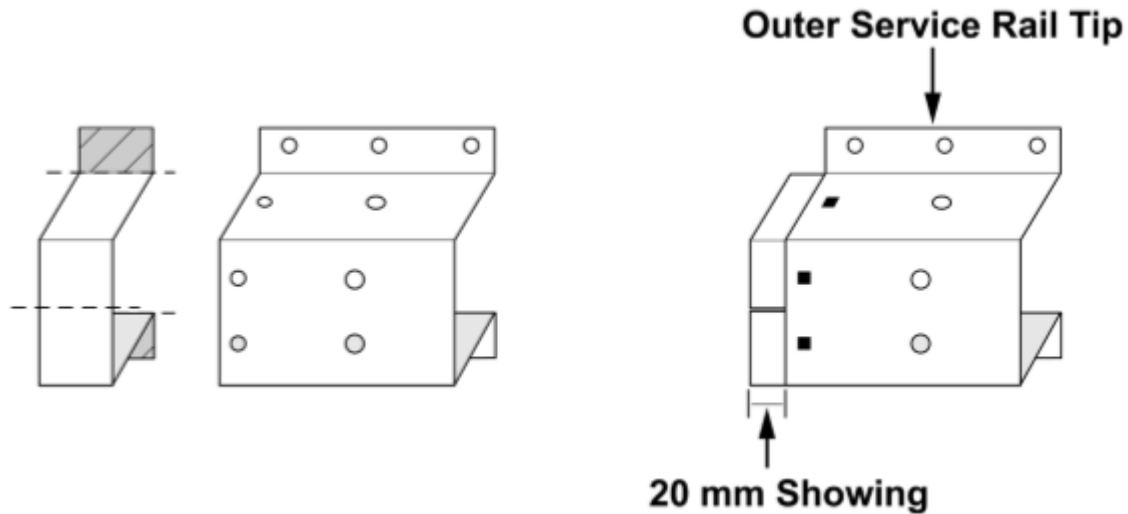


5. Mark appropriate cut locations on the service rail section.
NOTE! Be aware of where measurements are taken from.
6. Cut the service rail tip at the marked location and remove from remainder of rail.
7. Remove any burrs and trim to size.
NOTE! Be aware of butt joint with backing root gap. Weld must penetrate backing. (2-3 thickness of the 16G is recommended)
8. Mark the appropriate cut locations for the backer and remove from remainder of rail.
9. Remove burrs and trim to size.

Body Repair Manual BRM

Frame Rail Sectioning

Service part tip



10. Cut the backer as shown so it can sleeve into the rail tip.
11. Drill one 8mm plug weld hole, 10 mm from the edge on the top in order to attach to the rail tip.
12. Drill two 8mm plug weld holes, 10 mm from the edge on the side in order to attach to the rail tip.
13. Drill one 8 mm plug weld hole, 10 mm from the edge on the bottom in order to attach the rail tip.
14. Drill 3 holes on each pinch weld flange in the same location as the old spot welds on the rail.
15. Attach backer to rail replacement with plug welds.

NOTE! Be aware of butt joint with backing root gap. Weld must penetrate backing. (2-3 thicknesses of the 16G is recommended)

NOTE! Be sure to practice your welds first.

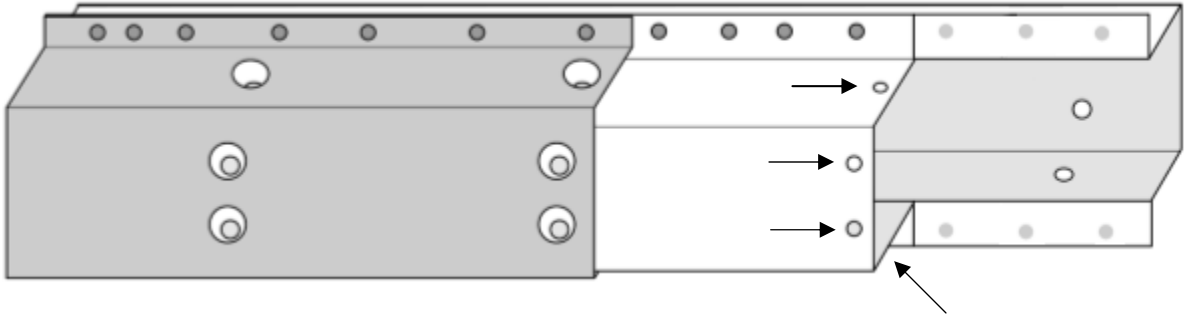
NOTE! The use of weld through primer is not required.

NOTE! Do not grind any welds.

Body Repair Manual BRM

Frame Rail Sectioning

Rail

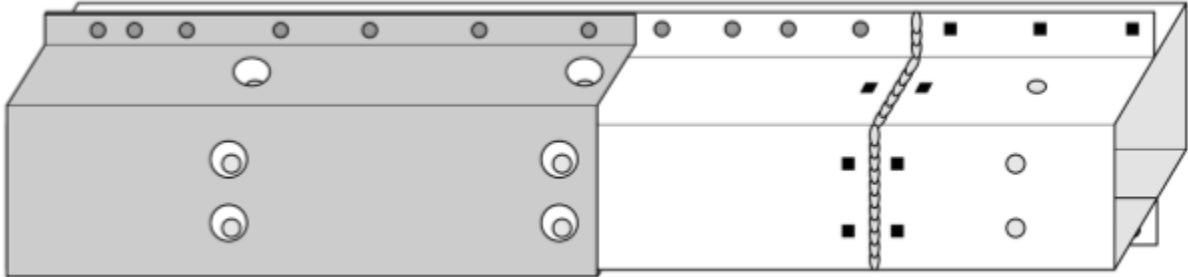


16. Drill one 8mm plug weld hole, 10 mm from the edge on the top in order to attach to the rail.
17. Drill two 8mm plug weld holes, 10 mm from the edge on the side in order to attach to the rail.
18. Drill one 8 mm plug weld hole, 10 mm from the edge on the bottom in order to attach the rail.

Body Repair Manual BRM

Frame Rail Sectioning

Rail



19. Position and clamp the service part to the rail end.

NOTE! Be aware of butt joint with backing root gap. Weld must penetrate backing. (2-3 thickness of the 16G is recommended)

20. Verify dimensions.

21. Complete all plug welds

NOTE! Be sure to practice welds first.

22. Completely weld butt joint with backing joint seam. Stich welding can be utilized for heat control.

NOTE! Be sure to practice welds first.

NOTE! The use of weld through primer is not required.

NOTE! Do not grind any welds.

Frame Rail Sectioning Project

1 hour 50 min

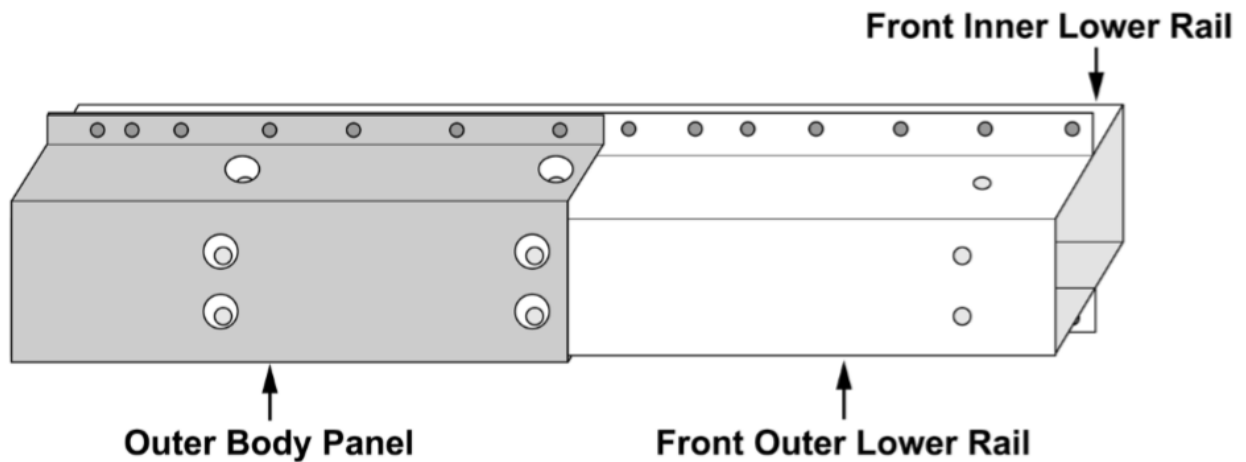
This project is designed to test a student’s ability to understand and comprehend an OE Body Repair Manual (BRM) as well execute the repair including the use of MAG welding equipment.

A complete frame rail will be provided as well as replacement parts (SPS05 ICAR rail). During work being completed on the rail section, it is to remain in the vise in an upright position at all times. It can be removed from the vise to use the vise for other clamping needs, however when returning to work on the rail, it must be reinstalled into the vise in an upright position. Repair operations will be performed on the 16 gauge component of the rail.

Students will be graded on their ability to understand and follow directions that are set out in the BRM, as well as ability to execute proper measuring, cutting, drilling, MAG welding techniques and safety. Fitment of “Jig” into completed rail section will also be scored post repair. Welds will be scored using the ICAR welding gauge #00310-WGAUG1-E, available from ICAR.

Competitors will be required to bring ALL of their own personal protective equipment (PPE) in order to compete.

*All required tools will be provided to perform the repair. Tools will be accounted for prior to marks being awarded.



1.1	Butt Joint With Backing Open Butt Joint Fillet Weld	Minimum Length 25 mm	3 mm	3 mm
1.1	Butt Joint With Backing Fillet Weld on 1.6 mm	1.1 Length Minimum 25 mm	3 mm	3 mm
1.2	Open Butt Joint on 1.6 mm	1.2 Length Maximum 38 mm	3 mm	3 mm
1.3	Butt Joint With Backing Fillet Weld on 0.75 mm	1.3 Width Minimum 5 mm	3 mm	3 mm
1.3	Butt Joint With Backing Open Butt Joint Fillet Weld on 0.75 mm	1.4 Width Maximum 8 mm	3 mm	3 mm
1.3	Plug Weld	1.5 Width Maximum 10 mm	3 mm	3 mm
1.4	3.2 Diameter Minimum 8 mm hole	1.5 Max. Through Width Maximum	3 mm	3 mm
1.5	3.3 Diameter Minimum 10 mm	2.1 Width Minimum 3 mm	3 mm	3 mm
4.1	3.4 Diameter Maximum 13 mm	2.1 Width Maximum 10 mm	3 mm	3 mm
4.2	3.3 Diameter Maximum 10 mm	2.1 Width Through Width Maximum	3 mm	3 mm
4.2	3.2 Diameter Maximum 8 mm hole	2.1 Width Through Width Maximum	3 mm	3 mm
4.2	3.1 Tearout Hole 5 mm	2.1 Width Through Width Maximum	3 mm	3 mm
4.2	All Welds	2.1 Width Through Width Maximum	3 mm	3 mm
4.2	2.1 Defects No defects allowed on plug welds	2.1 Width Through Width Maximum	3 mm	3 mm
4.2	4.1 Face Height 3 mm	2.1 Width Through Width Maximum	3 mm	3 mm
4.2	4.2 Root Height 0-1.5 mm	2.1 Width Through Width Maximum	3 mm	3 mm

THE IMPORTANCE OF ESSENTIAL SKILLS FOR CAREERS IN THE SKILLED TRADES;

Essential skills are used in nearly every job and at different levels of complexity. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change. Good Essential Skills means you will understand and remember concepts introduced in technical training. The level of Essential Skills required for most trades is as high as or higher than it is for many office jobs.

The following 9 skills have been identified and validated as key essential skills for the workplace:

Numeracy, Oral Communication, Working with Others, Continuous Learning, Reading Text, Writing, Thinking, Document Use, Digital.

Top Essential Skills for Autobody Repair ; Document Use, Thinking : Decision Making, Job Task Planning and Organizing

FOR MORE INFORMATION PLEASE CONTACT TECHNICAL COMMITTEE MEMBER:

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