



Sample Test Project

District / Zonal Skill Competitions

Skill- Autobody Repair

Category: Transportation & Logistics

Table of Contents

A. Preface.....	3
B. Test Project	4
C. Marking Scheme	6
D. Infrastructure List	10
E. Instructions for candidates	12
F. Health, Safety, and Environment.....	13

Section - A

A. Preface

Skill Explained:

Auto body repairers realign both the structure and the panelling of both light and heavy good vehicles after they have been involved in collisions. This can often be a complex process as each collision will present different degrees and directions of damage. The repaired vehicle must conform to the stringent specifications laid down by the vehicle manufacturer and meet both their tolerances and their safety specifications. An auto body repairer needs to be familiar with mechanical components and their function as well as the specific and complex safety restraint systems (SRS) fitted to modern vehicles. Minor damage that does not require replacement of parts or a panel, will use a variety of repair tools, to remove the damage panel and reinstate the panel's original contours the repairer returns the vehicle in a condition where its ready for refinishing by a car painter.

Eligibility Criteria (for IndiaSkills 2018 and WorldSkills 2019):

Competitors born on or after 01 Jan 1997 are only eligible to attend the Competition.

Total Duration: 2.30 Hrs

Task A	:	45 Minutes
Task B	:	30 Minutes
Task C	:	30 Minutes
Task D	:	30 Minutes

Section - B

B. Test Project

Task A – Repair Damaged Panel

Competitor Instruction Sheet

You have **45 Minutes** to complete this task

Use the body file to identify the extent of the damage pointed out to you. You should remove adequate material to identify the damage.

Use the correct dolly from those supplied and a bumping file or the correct hammer to repair the damage

Task B – Panel Adjustment

Competitor Instruction Sheet

You have **30 Minutes** to complete this task

On the vehicle supplied, adjust the bonnet so that it is the correctly positioned.

Task C – MIG Welding

Competitor Instruction Sheet

You have **30 Minutes** to complete this task.

1. Check and set up the welding equipment for the weld type, including gun tip, nozzle shield, power settings, wire type, speed, gas type and flow.
2. Prepare sheet metal provided.
3. Carry out a test weld and assess for strength and defects.

4. Complete a horizontal butt weld.
5. Carry out a quality check on the finished weld.
6. Shut down welding equipment on completion of task.

Note: You are provided with 6 coupons to complete 2 weld test pieces and 1 set-up/ practice piece. You should select which test piece to submit for marking.

Task D – Spot Welding

Competitor Instruction Sheet

You have **30 Minutes** to complete this task

Check and set up the resistance spot welding equipment and produce two test nuggets for assessment. One coupon should be pulled and one coupon should show the weld but not be pulled

Note: You are provided with 10 samples to complete the weld practice and set up test pieces. You should select which two test piece to submit for marking.

Section – C

C. Marking Scheme

Marking Scheme: The Assessment is done by awarding points by adopting two methods, Measurement and Judgments

- Measurement –One which is measurable
- Judgment-Based on Industry expectations

Aspects are criteria's which are judged for assessment.

Example-Judgment Marking

If maximum marks for Judgement criteria is 1 and if all 3 Experts (Juries) give 3 points to a candidate, the candidate will get 1 mark for that aspect. If 2 Experts give 3 and 1 Expert gives 2 points, then candidate will get $(3+3+2)/9*1 = 0.89$ marks for that aspect out of 1 mark.

In Auto Body Repair Test Project all assessment are done adopting method of **Measurement only**

Marking Scheme

Task A – Repair Damaged Panel				
Aspect ID	Marking Criteria or Description	Requirement	Max Mark	Mark Awarded
1.1	Safe working practices adhered to throughout task		2	
1.2	Appropriate PPE used		2	
1.3	Correct body file is chosen		1	
1.4	Body file is adjusted to appropriate profile		2	
1.5	Body file is used in a 'controlled' manner	Proper control of the tool	1	
1.6	Damage is clearly identified		1	
1.7	A suitable amount of material is removed to identify damage		1	
1.8	Correct repair tool / dolly is chosen	0.5 per tool	1	
1.9	Damage is removed and contour regained		2	
2	Repair area is left in a suitable condition	No deep scratches	2	

2.1	Task completed in time allowed		1	
		Total Marks	16	
Task B – Panel Adjustment				
Aspect ID	Marking Criteria or Description	Requirement	Max Mark	Mark Awarded
1.1.	Safe working practices adhered to throughout task		2	
1.2	Appropriate PPE used		2	
1.3	Misaligned condition is detected and identified		1	
1.4	Bonnet Panel is adjusted in the correct manner		2	
1.5	Appropriate adjustment tools selected		2	
1.6	Wing is adjusted in the correct manner		2	
1.7	Gap between wing and bonnet is correct to within tolerance	+/- .25mm	3	
1.8	Gaps are correct after adjustment around rest of bonnet		3	
1.9	Vehicle is left in a clean condition and panels are undamaged		2	
2	Task is completed within the time		2	
		Total Marks	21	

MIG Welding				
Aspect ID	Marking Criteria or Description	Requirement	Max Mark	Mark Awarded
1.1	Safe working practices adhered to throughout task		2	
1.2	Appropriate PPE used		2	
Horizontal Butt weld set up				
1.3	Gas pressure is turned on and adjusted		2	

1.4	Gas pressure is set correctly to allow for change in position, to allow for drop off in gas	Max 20l/min	2	
1.5	Test weld is completed to establish machine settings		3	
1.6	Amperage is set/reset according to results of test weld.	Decrease in amperage	2	
Horizontal Butt weld –test piece				
1.7	Weld joint is cleaned before welding		2	
1.8	Suitable gap is left to aid grab through	½ to 1 X metal thickness	2	
1.9	Weld joint is tacked prior to welding (at least FOUR, evenly spaced tacks and lightly sanded)	Grab through visible at each tack. 1 mark each	4	
1.1	Samples are set up in the correct orientation	Horizontal/Butt	2	
1.11	Finished weld is continuous. Competitor is allowed a max of 3 start and stops.	No gaps when held up to light	2	
1.12	Weld bead cap height not more than 3 x metal thickness.		2	
1.13	Grab through to root. 2 marks if present for at least 75%% of weld (continuous) 1 mark for 50%	See judges guidance	3	
1.14	Weld remains together when a DT cup test is carried out.	See judges guidance	3	
1.15	Complete task in time allocated		2	
		Total Marks	35	
Spot Welding				
Aspect ID	Marking Criteria or Description	Requirement	Max Mark	Mark Awarded
1.1	Safe working practices adhered to throughout task		2	
1.2	Appropriate PPE used		2	
	Weld set up			
1.3	Checks welding tips for condition	Visual check	2	

1.4	Makes any necessary adjustments to tips		2	
1.5	Sets up machine to produce first weld coupon		3	
1.6	Removes paint from samples before welding		2	
1.7	Applies weld through primer to test coupons prior to welding		2	
	Weld –test piece			
1.8	Pulls first coupon and makes any adjustments to machine based upon the results	Further two tests are allowed	3	
1.9	Produces single spot weld coupon not pulled		3	
1.1	Produces single weld pulled		3	
1.11	Closes down equipment and leaves it in a clean condition		2	
1.12	Complete task in time allocated		2	
		Total Marks	28	

Section - D

D. Infrastructure List

Repair Damaged Panel

Item Description	Number per competitor
Panel –with damaged area introduced	1
Panel stand	1
Clamps or cable ties	1
Body File	1
Selection of dollies to include one suitable for contour of panel	selection
Planishing & Pick Hammer	1
Engineers Hammer (distractor)	1
Engineers file (distractor)	1
Adjustable file (distractor)	1
PPE	

Panel Adjustment

Item Description	Number per competitor
Vehicle with adjustable wing and bonnet fixings	1
Appropriate tools to carry out adjustments	1
Gap gauges (or suitable measuring device)	1

MIG Welding

Item Description	Number per competitor
MIG welder and accessories (Gas, wire, etc.)	1
Welding screens	2
Fume Extraction	1
Welding bench c/w vice	1
Uncoated mild steel sheets 200mm X 75mm X 1mm	6
Finishing sander	1
Horizontal set up jig/welding frame	1
General hand tools	selection

Spot Welding

Item Description	Number per competitor
Spot welder and accessories	1
Welding screens	2
Fume Extraction	1
Welding bench c/w vice	1
Primed mild steel coupons	10
Sander or suitable abrasives to clean off primer coat	1
Set up jig/welding frame	1
General hand tools	selection

Section – E

E. Instructions for candidates

1. Supplied equipment and materials should be checked by the competitor to ensure is Satisfactory, prior to starting the task
2. Competitors will lose marks for any damage caused to equipment or components where it is a result of competitor error
3. Competitors will lose marks for non-compliance with health and safety rules and regulations and may be stopped from proceeding if they put themselves or others at risk of injury or risk damage to vehicles, tools or equipment.
4. Competitors are also assessed on efficient use of materials and will lose marks for excessive wastage

Section – F

F. Health, Safety, and Environment

1. All accredited participants, and supporting volunteers will abide by rules and regulations with regards to Health, Safety, and Environment of the Competition venue.
2. All participants, technicians and supporting staff will wear the required protective Personnel clothing.
3. All participants will assume liability for all risks of injury and damage to property, loss of property, which might be associated with or result from participation in the event. The organizers will not be liable for any damage, however in case of Injury the competitor will immediately inform the immediate organizer for medical attention.
4. Competitors can lose marks or excluded from the competition (as per Competition Rules & Health and Safety documents) if they are identified working in an unsafe manner or create an unsafe workplace condition.
5. Examples of unsafe practices include:
 - Not wearing the appropriate personal safety equipment, safety glasses, gloves, hearing protection, 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.
6. Reckless or accidental damage caused to equipment or vehicle while performing repairs could result in loss of marks in any or all categories.