ESWATINI GOVERNMENT
NATIONAL TRADE STANDARD
APPROVED BY THE INDUSTRIAL TRAINING BOARD
FOR TADE TESTING IN THE TRADE/OCCUPATION
OF WELDER GAS/ELECTRIC.

(a) Practical Skill Requirements Grade 2

In addition to fulfilling the Grade 3 requirements:
Every applicant must be able to:

1. Work from a dimensioned drawing and correctly interpret welding symbols.
2. Use jigs, clamps and fixtures necessary in welding operations.
3. Carry out repairs to machines parts using correct welding build-up techniques in cast iron and steel castings.
4. Carry out downhand, vertical and overhead welds in electric-arc and oxy-acetylene.
5. Weld low-pressure pipes and other cylindrical objects on site 'in-site' by either oxy-acetylene or electric-arc.
6. Repair cracks in cast aluminium by either welding process.
7. Remove a defective weld using either an oxy-acetylene gouging nozzle or a gouging electrode.
8. Cut a variety of shapes from mild steel using oxy-acetylene.
9. Carry out various welds avoiding cracks and distortions.
10. Operate A.C. and D.C. welding set.
11. Carry out all types of brazing and use spot welding machine efficiently.
12. Build-up a worn machine part using either steel or hard-facing material and bring the part to approximately the original.
13. Join carbon steel using Metal Inert Gas (MIG) welding method.

(b) Tools and Equipment Requirements - Grade 2

Every applicant should have in his possession and/or be able to use tools and equipment supplied as for Grade 3 plus any other tools equipment required to carry out the practical skill recruitment satisfactorily.

c) Related Knowledge Requirements - Grade 2

In addition to fulfilling the Grade 3 requirements;
Every applicant must have sound knowledge of:

1. Engineering drawings and welding symbols.
2. The fixtures, jigs and clamps used in various welding operations and either applications.
3. The procedures and logical sequence of operations to be followed whencarrying out repairs using the build-up process in cast iron and steel castings.

4. Pre-heating and slow cooling when welding certain metals.
5. The cause of arc blow and hot to counteract it.
6. A.C. and D.C. welding sets, either opertation and application to various tasks.
7. Gauge sizes of electrodes and the relationship between gauge sizes, amperage and size of workpiece.
8. The methods to be followed to avoid cracks and distortions, stress-relieving, etc.
9. High and low pressure welding equipment and its application to various tasks.
10. Profile cutting techniques.
11. Malleability, tenacity, ductility, etc.