The Manufacturers Association

JOB QUALIFICATION STANDARD (JQS)

Occupation: **WELDER**
Work Process: GTAW (TIG)
Practical Hours: 2700 hrs.

DOL Standard: GTAW (TIG): Apply a working knowledge of the Gas Tungsten Arc Welding (GTAW) process in accordance with government safety regulations, manufacturer's recommendations and approved industry standards.

Performance Objective: Demonstrate the ability to weld with the gas tungsten arc welding (GTAW) process by selecting and setting up welding equipment; installing consumables; adjusting welding process parameters; fillet welding; groove welding; cleaning welds and measuring welds so that processes are correctly completed in accordance with manufacturer's instructions and the applicable standard.

Performance Indicator	Qualification Date/Initial
Demonstrate the ability to prepare job layout by reading and interpreting fabrication documents, blue prints and drawings; identifying dimensions, materials, tolerances, notes and symbols; making rough sketches of fabrication job; selecting required stock and transferring dimensions to job layout so that layout is completed in accordance with fabrication documents and with efficient use of materials.	
Demonstrate the ability to select and set up welding equipment by selecting welding machine (power source), welding cable assemblies, welding torch, gas cup, gas screen, purging equipment, personal equipment and tools as required and assembling them so that all the equipment necessary to weld using the GTAW process is available and is correctly set up.	
Demonstrate the ability to install consumables by choosing the shielding gas, purging equipment and the type and size of filler rod, tungsten electrode type and size, shapes tungsten electrode for the welding application and the composition and thickness of the base material so that the correct shielding gas, tungsten and filler rod are installed in accordance with manufacturer's instructions or accepted shop practice.	
Demonstrate the ability to adjust and verify welding process parameters by choosing the equipment configuration which meets the specified requirements for size and quality of weld including shielding gas flow rate; purge flow rate and purge time; testing the settings and adjusting the operation of the equipment so that the correct balance of penetration, fusion, profile and weld size is achieved for the welding application and that it meets the weld inspection requirements of the applicable fabrication standards.	
Demonstrate the ability to fillet welds using the GTAW process on lap, corner and tee joints in all positions using plate, tube or pipe to plate assemblies using single or multiple passes, using any one of mild steel, stainless steel, aluminum or other alloys, in the work environment identified by the employer so that passes are done in the correct sequence and each pass of the weld meets the weld inspection requirements of the applicable fabrication standards.	
Demonstrate the ability to groove welds using the GTAW process on vee or tube/pipe joints with backing in all positions using plate or pipe assemblies by using single or multiple passes so	

that passes are done in the correct sequence, each pass of the weld meets the weld inspection requirements of the applicable fabrication standards.	
Demonstrate the ability to clean welds using wire brush, de-scaler, grinder or other appropriate abrasive process so that welds are free of slag, scale surface irregularities and meet the weld inspection requirements of the applicable fabrication standards.	
Demonstrate the ability to measure welds for completeness using fillet gauges, measuring tape or other devices so that welds meet the requirements specified by the engineering drawings or company procedures and the applicable fabrication standards.	

Apprentice Signature:	**Completed:** MM/DD/YY
Mentor Signature:	**Completed:** MM/DD/YY
Supervisor Signature:	**Completed:** MM/DD/YY
Comments:	