

STP 9-44B12-SM-TG

**Soldier's Manual
and
Trainer's Guide**

**Metal Worker
MOS 44B
Skill Levels 1 and 2**

August 2006

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SOLDIER'S MANUAL and TRAINER'S GUIDE

MOS 44B

Metal Worker Skill Levels 1 and 2

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***This publication supersedes STP 9-44B12-SM-TG, 22 March 2001.**

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PREFACE

This Soldier Training Publication (STP) is intended for Soldiers holding MOS 44B, Skill Levels (SLs) 1 and 2, their supervisors, trainers, and commanders. It contains an MOS Training Plan providing information needed to plan, conduct, and evaluate unit training, one of the most important jobs of military leaders. It includes standardized training objectives in the form of task summaries that can be used to train and evaluate Soldiers on critical tasks supporting unit missions during wartime.

Soldiers holding MOS 44B should have access to this publication. Trainers and firstline supervisors should actively plan for Soldiers' access, making it available in work areas, unit learning centers, and unit libraries. However, it is not intended for an individual copy to be provided to each MOS holder. The STP is obtainable on line from the Reimer Digital Library (RDL).

Tasks in this manual apply to the Active Army, the Army National Guard/Army National Guard of the United States, and the United States Army Reserve unless otherwise stated.

The proponent of this publication is United States Army Training and Doctrine Command (TRADOC). Submit comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Department of the Army, Training Directorate, Ordnance Training Division, ATTN: ATCL-TDF, 401 First Street, Suite 225, Fort Lee, VA 23801-1511.

CHAPTER 1

Introduction

1-1. General. This Soldier Training Publication (STP) identifies individual MOS training requirements for Soldiers holding MOS 44B. Commanders, trainers, and Soldiers should use it to plan, conduct, and evaluate individual training in units. The STP is the primary MOS reference for supporting self-development, evaluating MOS proficiency, and training of 44B Soldiers. Commanders employ two primary methods to evaluate Soldiers' proficiency:

- Commander's evaluation. Commander's evaluations are local tests or assessments of Soldiers' performance of MOS-specific and common tasks critical to the unit mission. They may be conducted year-round.
- Common task test (CTT). CTTs are hands-on tests used to evaluate proficiency on common tasks. Alternate written tests are provided if equipment is not available for hands-on testing.

This publication is the Soldier's primary reference to prepare for a commander's evaluation of MOS-specific tasks. It contains task summaries for all critical tasks specific to the MOS and skill level (SL). Commanders and trainers will use this Soldier's Manual/Trainer's Guide (SM/TG) to plan and conduct training and commander's evaluations.

Chapter 2, Trainer's Guide, contains information needed to plan training requirements for this MOS. The trainer's guide

- Identifies subject areas in which Soldiers must be trained.
- Identifies critical tasks for each subject area.
- Specifies where Soldiers are initially trained on each task.
- Recommends how often each task should be trained to sustain proficiency.
- Recommends a strategy for cross-training Soldiers.
- Recommends a strategy for training Soldiers to perform higher-level tasks.

Use this STP along with STP 21-1-SMCT (Soldier's Manual of Common Tasks, Skill Level 1), STP 21-24-SMCT (Soldier's Manual of Common Tasks, Skill Levels 2-4), Army training and evaluation programs (ARTEPs), FM 25-4 (How to Conduct Training Exercises), FM 25-5 (Training for Mobilization and War), FM 7-0 (Training the Force), and FM 7-1 (Battle Focused Training) to establish effective training plans and programs that integrate Soldier, leader, and collective tasks.

1-2. Task Summaries. Task summaries outline wartime performance requirements for each critical task in the STP. They provide both Soldier and trainer with the information necessary to prepare, conduct, and evaluate critical task training. As a minimum, task summaries include information Soldiers must know and skills they must perform to standard for each task. Following is the task summary format:

- Task number. The task number is a 10-digit number that identifies the task and skill level. Include the task number and title in any correspondence relating to the task.
- Task title. The task title identifies the action to be performed.
- Conditions. The task conditions statement describes the field or garrison conditions under which the task will be performed and identifies the equipment, tools, references, job aids, and supporting personnel that the Soldier needs to perform the task in wartime.

- **Standards.** The task standards describe how well and to what level of proficiency the Soldier must perform the task under wartime conditions. Standards are typically expressed in terms of accuracy, completeness, duration, sequence, speed, and tolerance.
- **Performance measures.** This section identifies specific actions that the Soldier must accomplish to complete the task successfully. Performance measures appear in a GO/NO-GO rating format for easy evaluation. Some tasks may also include detailed training information in a Training Information Outline and an Evaluation Preparation Section. The Evaluation Preparation Section indicates necessary modifications to task performance in order to train and evaluate a task that can not be trained to the wartime standard under wartime conditions. It may also include special training and evaluation preparation instructions to accommodate these modifications and any instructions that should be given to the Soldier before evaluation.
- **References.** This section identifies references that provide more detailed explanations of task performance requirements than are given in the task summary.
- **Warnings.** Warnings alert users to the possibility of immediate personal injury or equipment damage.
- **Notes.** Notes provide additional supportive explanations or tips relating to task performance.

1-3. **Soldier's Responsibilities.** Each Soldier is responsible for performing individual tasks identified by the first-line supervisor based on the unit's mission-essential task list (METL). Soldiers must perform tasks to the standards included in the task summary. If Soldiers have questions about tasks or which tasks in this manual they must perform, they are responsible for asking their first-line supervisor for clarification. First-line supervisors know how to perform each task or can direct Soldiers to appropriate training materials, including current field manuals, technical manuals, and Army regulations. Soldiers are responsible for using these materials to maintain performance. They are also responsible for maintaining performance of all common tasks listed in the SMCTs at their current skill level and below.

Periodically, Soldiers should ask their supervisor or another soldier to check their performance to ensure that they can perform the tasks.

1-4. **NCO Self-Development and the STP.** Self-development is a key component of leader development. Leaders follow planned, progressive, sequential self-development programs developed by the individual NCO and his or her first-line supervisor to enhance and sustain military competencies. Self-development consists of individual study, research, professional reading, practice, and self-assessment. The self-development concept requires NCOs, as Army professionals, to take responsibility for remaining current in all phases of their MOS. The STP is the NCO's primary source for maintaining MOS proficiency.

Another important resource for self-development is the Army Correspondence Course Program (ACCP). Refer to DA Pamphlet 350-59 (Army Correspondence Course Program Catalog) for detailed eligibility requirements and enrollment information. The catalog is available at local education centers or on line through the Army Institute for Professional Development (AIPD) web site, <http://www.atsc.army.mil/accp/aipd.htm>. The web site offers on-line enrollment.

1-5. **Commander's Responsibilities.** Commanders must ensure that their unit training plans prepare the unit for war by enabling Soldiers to develop and sustain proficiency in their MOS and skill level tasks. Commanders should design unit training programs to provide individual training for all Soldiers assigned to the unit and to evaluate Soldier proficiency routinely as part of the commander's evaluation program. The unit training program should also integrate individual training with crew drills and other collective training. The MOS training plan provides information on which to base integration, cross-train, train-up, and sustainment training programs. Commanders should use the MOS training plan when developing unit training plans.

1-6. Trainer's Responsibilities. Training is the business of all unit leaders. First-line leaders are the principal trainers in the unit because they directly supervise Soldiers and lead crews, squads, sections, and teams.

Trainers can use the MOS training plan to determine the critical tasks each Soldier is responsible for. They should tell each Soldier which tasks he or she must be able to perform. Trainers should evaluate task performance to determine which tasks each Soldier can or cannot perform to standard. Soldiers who cannot perform a task to standard need further training. This STP helps the trainer do what trainers get paid to do; train. Developing effective training is explained in detail in FM 7-0 and FM 7-1.

Every task summary in this STP includes performance measures, which trainers may use year-round to determine if Soldiers can perform critical tasks to the specified standards. The performance measures identify what the trainer needs to observe to score a Soldier's performance. A blank space is provided for the trainer to check either the GO or NO-GO column for each performance measure. Some tasks require the trainer to watch the Soldier perform them (evaluate the process). Other tasks call for the trainer to focus on the results of the Soldier's performance (evaluate the product). Comments should not be written on the task summary.

Trainers can monitor the progress of their Soldiers by recording task GO/NO-GO results. Trainers may use DA Form 5164-R (Hands-On Evaluation) to record the performance measures a Soldier passed or failed. The form, which may be locally reproduced, applies to all tasks in this STP. Trainers may have DA Form 5164-R overprinted with information unique to their training requirements before reproducing it. See Appendix A of this STP for a sample DA Form 5164-R with instructions.

Trainers may use DA Form 5165-R (Field Expedient Squad Book) to record hands-on GO/NO-GO results for a group of Soldiers (for example, a crew, section, or squad) having the same MOS and skill level. This form supports conduct of commander's evaluations, and can be used to record training results gathered in the field during slack time for all MOSs and skill levels. Use of this form is optional. See Appendix B for a sample DA Form 5165-R with instructions. Trainers should work with each Soldier until tasks can be performed to specific task summary standards.

1-7. Training Support. References have been identified for each task to assist in planning and conducting training. A consolidated list of references identified by type, publication number, and title and a comprehensive glossary of acronyms, abbreviations, and definitions are included in this STP.

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CHAPTER 2

Training Guide

2-1. General. The MOS Training Plan identifies the essential components of a unit training plan for individual training. Units have different training needs and requirements based on differences in environment, location, equipment, dispersion, and similar factors. Therefore, the MOS Training Plan should be used as a guide for conducting unit training and not a rigid standard. The MOS Training Plan consists of two parts. Each part is designed to assist the commander in preparing a unit training plan which satisfies integration, cross training, training up, and sustainment training requirements for Soldiers in this MOS.

Part One of the MOS Training Plan shows the relationship of an MOS skill level between duty position and critical tasks. These critical tasks are grouped by task commonality into subject areas.

Section I lists subject area numbers and titles used throughout the MOS Training Plan. These subject areas are used to define the training requirements for each duty position within an MOS.

Section II identifies the total training requirement for each duty position within an MOS and provides a recommendation for cross training and train-up/merger training.

- **Duty Position Column.** This column lists the duty positions of the MOS, by skill level, which have different training requirements.
- **Subject Area Column.** This column lists, by numerical key (see Section I), the subject areas a Soldier must be proficient in to perform in that duty position.
- **Cross-Train Column.** This column lists the recommended duty position for which Soldiers should be cross-trained.
- **Train-Up/Merger Column.** This column lists the corresponding duty position for the next higher skill level or MOSC the Soldier will merge into on promotion.

Part Two lists, by general subject areas, the critical tasks to be trained in an MOS and the type of training required (resident, integration, or sustainment).

- **Subject Area Column.** This column lists the subject area number and title in the same order as Section I, Part One of the MOS Training Plan.
- **Task Number Column.** This column lists the task numbers for all tasks included in the subject area.
- **Title Column.** This column lists the task title for each task in the subject area.
- **Training Location Column.** This column identifies the training location where the task is first trained to Soldier training publications standards. If the task is first trained to standard in the unit, the word "Unit" will be in this column. If the task is first trained to standard in the training base, it will identify, by brevity code (AIT, UNIT, and so on), the resident course where the task was taught. Figure 2-1 contains a list of training locations and their corresponding brevity codes.

AIT	Advanced Individual Training
UNIT	Trained in the Unit

Figure 2-1. Training Locations

- **Sustainment Training Frequency Column.** This column indicates the recommended frequency at which the tasks should be trained to ensure Soldiers maintain task proficiency. Figure 2-2 identifies some of the frequency codes that may be used in this column.

BA	- Biannually
AN	- Annually
SA	- Semiannually
QT	- Quarterly
MO	- Monthly
BW	- Biweekly
WK	- Weekly

Figure 2-2. Sustainment Training Frequency Codes

- **Sustainment Training Skill Level Column.** This column lists the skill levels of the MOS for which Soldiers must receive sustainment training to ensure they maintain proficiency to Soldier's manual standards.

2-2. Subject Area Codes.

Skill Level 1

- 1 GENERAL METAL WORKING SHOP PRACTICES
- 2 SHOP DRAWINGS AND WELDING SYMBOLS
- 3 SHIELDED METAL ARC WELDING (SMAW)
- 4 GAS METAL ARC WELDING (GMAW)
- 5 FLUX CORE ARC WELDING (FCAW)
- 6 GAS TUNGSTEN ARC WELDING (GTAW)
- 7 MANUAL OXY-FUEL GAS CUTTING (OFC) AND WELDING
- 8 PLASMA ARC CUTTING (PAC)
- 9 VISUAL EXAMINATION PRINCIPLES AND PRACTICES
- 10 GLASS REPAIR
- 11 FUEL CONTAINER REPAIR
- 12 RADIATOR REPAIR
- 13 TACTICAL VEHICLE STRUCTURAL REPAIR

Skill Level 2

- 1 GENERAL METAL WORKING SHOP PRACTICES
- 2 SHOP DRAWINGS AND WELDING SYMBOLS
- 3 SHIELDED METAL ARC WELDING (SMAW)
- 4 GAS METAL ARC WELDING (GMAW)
- 5 FLUX CORE ARC WELDING (FCAW)
- 6 GAS TUNGSTEN ARC WELDING (GTAW)
- 7 MANUAL OXY-FUEL GAS CUTTING (OFC) AND WELDING
- 8 PLASMA ARC CUTTING (PAC)

2-3. Duty Position Training Requirements.

44B CAREER FIELD DUTY POSITIONS			
Duty Position	Subject Area	Cross Train	Train-up/Merger
Skill Level 1			
Welder Metalworker Repairer Radiator Repairer Metal Body Painter Metal Drop Kit Repairer Marine Hull Repairer	1 - 12	NA	44B20/Welder 44B20/Metalworker Repairer 44B20/Marine Hull Repairer
Skill Level 2			
Welder Metalworker Repairer Marine Hull Repairer	1 - 12	NA	44E30/Machinist 44E30/Section Chief 44E30/Machine Operator Supervisor 44E30/Precision Machinist 44E30/Welder Supervisor 44E30/Metalworker Supervisor 44E30/Metalworker Inspector 44E30/Technical Inspector

2-4. Critical Tasks List.

**MOS TRAINING PLAN
44B12**

CRITICAL TASKS

Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
Skill Level 1				
Subject Area 1. GENERAL METAL WORKING SHOP PRACTICES				
091-CLT-1000	Identify Metals Using the Appearance, Fracture, Spark or Torch Test Method	AIT	AN	1/2
091-CLT-1003	Prepare Maintenance Forms	AIT	AN	1/2
091-CLT-1010	Follow Shop Safety Practices and Procedures	AIT	AN	1/2
091-CLT-1001	Sharpen Twist Drills	AIT	AN	1/2
091-CLT-1002	Perform Routine Hand Drilling Operations	AIT	AN	1/2
091-CLT-1006	Perform Hand Threading Operations	AIT	AN	1/2
091-CLT-1007	Perform Removal and Installation of Inserts	AIT	AN	1/2
091-CLT-1008	Remove Broken Bolts and Studs	AIT	AN	1/2
091-CLT-1012	Operate Grinding Equipment	AIT	AN	1/2
091-44B-1001	Perform Preventive Maintenance on Welding Tools and Equipment	AIT	AN	1/2
Subject Area 2. SHOP DRAWINGS AND WELDING SYMBOLS				
091-44B-1002	Interpret Welding Symbol Information	AIT	AN	1/2
091-44B-1003	Interpret Basic Elements of a Drawing or Sketch as it Applies to Metal Working	AIT	AN	1/2
091-44B-1004	Fabricate Simple Parts from a Drawing or Sketch as it Applies to Metal Working	AIT	AN	1/2
Subject Area 3. SHIELDED METAL ARC WELDING (SMAW)				
091-44B-1005	Explain the Theory Behind Shielded Metal Arc Welding (SMAW)	AIT	AN	1/2
091-44B-1006	Perform Safety Inspections of Shielded Metal Arc Welding (SMAW) Equipment and Accessories	AIT	AN	1/2
091-44B-1007	Identify Minor External Repairs to Shielded Metal Arc Welding (SMAW) Equipment and Accessories	AIT	AN	1/2
091-44B-1008	Set Up Shielded Metal Arc Welding (SMAW) Operations and Base Metal Preparation on Carbon Steel	AIT	AN	1/2
091-44B-1009	Operate Shielded Metal Arc Welding (SMAW) Equipment	AIT	AN	1/2
091-44B-1010	Perform Shielded Metal Arc Welding (SMAW) Single Pass Fillet Welds, All Positions, on Carbon Steel and Armor Plate	AIT	AN	1/2
091-44B-1011	Perform Shielded Metal Arc Welding (SMAW) V-Groove Welds, All Positions, on Carbon Steel, Limited Thickness	AIT	AN	1/2
Subject Area 4. GAS METAL ARC WELDING (GMAW)				
091-44B-1012	Explain the Theory Behind Gas Metal Arc Welding (GMAW)	AIT	AN	1/2
091-44B-1013	Perform Safety Inspections of Gas Metal Arc Welding (GMAW) Equipment and Accessories	AIT	AN	1/2

CRITICAL TASKS

Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
091-44B-1014	Identify Minor External Repairs to Gas Metal Arc Welding (GMAW) Equipment and Accessories	AIT	AN	1/2
091-44B-1015	Set Up Gas Metal Arc Welding (GMAW) Operations and Base Metal Preparation on Carbon Steel	AIT	AN	1/2
091-44B-1016	Operate Gas Metal Arc Welding (GMAW) Equipment	AIT	AN	1/2
091-44B-1017	Perform Gas Metal Arc Welding (GMAW) Single Pass Fillet Welds, All Positions, on Ferrous and Non Ferrous Metal, Using Short Circuit Transfer	AIT	AN	1/2
091-44B-1018	Perform Gas Metal Arc Welding (GMAW) V-Groove Welds, All Positions, on Ferrous and Non Ferrous Metal, Using Short Circuit Transfer	AIT	AN	1/2
091-44B-1019	Perform Gas Metal Arc Welding (GMAW) 1F-2F Single Pass Welds on Carbon Steel, Using Spray Transfer	UNIT	AN	1/2
091-44B-1020	Perform Gas Metal Arc Welding (GMAW) 1G Welds on Carbon Steel, Limited Thickness, Using Spray Transfer	UNIT	AN	1/2
Subject Area 5. FLUX CORE ARC WELDING (FCAW)				
091-44B-1021	Explain the Theory Behind Flux Core Arc Welding (FCAW)	AIT	AN	1/2
091-44B-1022	Perform Safety Inspections of Flux Core Arc Welding (FCAW) Equipment and Accessories	AIT	AN	1/2
091-44B-1023	Identify Minor External Repairs to Flux Core Arc Welding (FCAW) Equipment and accessories	AIT	AN	1/2
091-44B-1024	Set Up for Flux Core Arc Welding (FCAW) Operations and Base Metal Preparation on Carbon Steel	AIT	AN	1/2
091-44B-1025	Operate Flux Core Arc Welding (FCAW) Equipment	AIT	AN	1/2
091-44B-1026	Perform Flux Core Arc Welding (FCAW) Single Pass, Fillet Welds, All Positions, on Carbon Steel	AIT	AN	1/2
091-44B-1027	Make Flux Core Arc Welding (FCAW) V-Groove Welds, All Positions, on Carbon Steel	AIT	AN	1/2
091-44B-1028	Operate Flux Core Arc Welding (FCAW) Equipment on the Trailer Mounted Welding Shop	AIT	AN	1/2
Subject Area 6. GAS TUNGSTEN ARC WELDING (GTAW)				
091-44B-1029	Explain the Theory Behind Gas Tungsten Arc Welding (GTAW)	AIT	AN	1/2
091-44B-1030	Perform Safety Inspections of Gas Tungsten Arc Welding (GTAW) Equipment and Accessories	AIT	AN	1/2
091-44B-1031	Identify Minor External Repairs to Gas Tungsten Arc Welding (GTAW) Equipment and accessories	AIT	AN	1/2
091-44B-1032	Operate Gas Tungsten Arc Welding (GTAW) Equipment	AIT	AN	1/2
091-44B-1033	Perform Gas Tungsten Arc Welding (GTAW) Single Pass Fillet Welds, All Positions, on Carbon Steel	AIT	AN	1/2
091-44B-1034	Perform Gas Tungsten Arc Welding (GTAW) Groove Welds on Carbon Steel	AIT	AN	1/2
091-44B-1035	Perform Gas Tungsten Arc Welding (GTAW) 1F-3F Welds on Aluminum	AIT	AN	1/2

CRITICAL TASKS

Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
091-44B-1036	Perform Gas Tungsten Arc Welding (GTAW) 1G-3G Welds on Aluminum	AIT	AN	1/2
091-44B-1037	Perform Gas Tungsten Arc Welding (GTAW) 1F-3F Welds on Stainless Steel	AIT	AN	1/2
091-44B-1038	Perform Gas Tungsten Arc Welding (GTAW) 1G-3G Welds on Stainless Steel	AIT	AN	1/2
Subject Area 7. MANUAL OXY-FUEL GAS CUTTING (OFC) AND WELDING				
091-44B-1039	Explain the Theory Behind Oxy-Fuel Gas Cutting and Welding	AIT	AN	1/2
091-44B-1040	Perform Safety Inspections on Oxy-Fuel Gas Equipment	AIT	AN	1/2
091-44B-1041	Identify Minor External Repairs to Oxy-Fuel Gas Equipment	AIT	AN	1/2
091-44B-1042	Set Up Manual Oxy-Fuel Gas Equipment for Operations on Base Metal Preparation and Carbon Steel	AIT	AN	1/2
091-44B-1043	Operate Manual Oxy-Fuel Gas Equipment	AIT	AN	1/2
091-44B-1044	Perform Cutting Operations on Carbon Steel to Include Straight, Shape, and Bevel Using Oxy-Fuel Gas Cutting (OFC) Equipment	AIT	AN	1/2
091-44B-1045	Remove Weld Metal from Plain Carbon Steel, Using the Scarfing Technique	AIT	AN	1/2
091-44B-1059	Perform Soldering Operations	AIT	AN	1/2
Subject Area 8. PLASMA ARC CUTTING (PAC)				
091-44B-1046	Perform Air Arc Gouging	AIT	AN	1/2
091-44B-1047	Explain the Theory Behind Plasma Arc Cutting (PAC)	AIT	AN	1/2
091-44B-1048	Perform Safety Inspections of Plasma Arc Cutting (PAC) Equipment and Accessories	AIT	AN	1/2
091-44B-1049	Identify Minor External Repairs to Plasma Arc Cutting (PAC) Equipment and Accessories	AIT	AN	1/2
091-44B-1050	Set up Manual Plasma Arc Cutting (PAC) Operations	AIT	AN	1/2
091-44B-1051	Operate Manual Plasma Arc Cutting (PAC) Equipment	AIT	AN	1/2
091-44B-1052	Perform Shape Cutting Operations Using Plasma Arc Cutting (PAC) Equipment	AIT	AN	1/2
Subject Area 9. VISUAL EXAMINATION PRINCIPLES AND PRACTICES				
091-44B-1053	Examine Cut Surfaces and Edges of Prepared Base Metal Parts	AIT	AN	1/2
091-44B-1054	Examine Tack, Intermediate Layers, and Completed Welds	AIT	AN	1/2
Subject Area 10. GLASS REPAIR				
091-44B-1055	Replace Vehicle Windows / Windshields	UNIT	AN	1/2
091-44B-1056	Perform Cutting and Grinding of Laminated Safety Glass	UNIT	AN	1/2
Subject Area 11. FUEL CONTAINER REPAIR				
091-44B-1057	Repair Fuel Tanks/Containers	UNIT	AN	1/2
Subject Area 12. RADIATOR REPAIR				
091-44B-1058	Repair Radiators	UNIT	AN	1/2

CRITICAL TASKS

Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
Subject Area 13. TACTICAL VEHICLE STRUCTURAL REPAIR				
091-44B-1060	Analyze Vehicle Structural Repair Sequence	AIT	AN	1/2
091-44B-1061	Perform Fiberglass Component Repair	AIT	AN	1/2
091-44B-1062	Perform Heat Shrinking Operations	AIT	AN	1/2
091-44B-1063	Fabricate Structural Components	AIT	AN	1/2
091-44B-1064	Replace Structural Components	AIT	AN	1/2
091-44B-1065	Perform Riveting Operations	AIT	AN	1/2
Skill Level 2				
Subject Area 1. GENERAL METAL WORKING SHOP PRACTICES				
091-CLT-2003	Supervise a Shop Safety Program	UNIT	AN	2
091-CLT-2004	Supervise Inventory to Maintain Proper Levels of Spare Materials and Stock as Required			
091-CLT-2002	Review Maintenance Forms	UNIT	AN	2
091-44B-2001	Supervise a Preventive Maintenance Program on Welding Tools and Equipment	UNIT	AN	2
Subject Area 2. SHOP DRAWINGS AND WELDING SYMBOLS				
091-44B-2002	Create a Simple Sketch or Drawing Requiring Welding of Parts	UNIT	AN	2
Subject Area 3. SHIELDED METAL ARC WELDING (SMAW)				
091-44B-2003	Supervise Shielded Metal Arc Welding (SMAW) Operations	UNIT	AN	2
Subject Area 4. GAS METAL ARC WELDING (GMAW)				
091-44B-2004	Supervise Gas Metal Arc Welding (GMAW) Operations	UNIT	AN	2
Subject Area 5. FLUX CORE ARC WELDING (FCAW)				
091-44B-2005	Supervise Flux Core Arc Welding (FCAW) Operations	UNIT	AN	2
Subject Area 6. GAS TUNGSTEN ARC WELDING (GTAW)				
091-44B-2006	Supervise Gas Tungsten Arc Welding (GTAW) Operations	UNIT	AN	2
Subject Area 7. MANUAL OXY-FUEL GAS CUTTING (OFC) AND WELDING				
091-44B-2007	Supervise Oxy-fuel Cutting (OFC) Operations	UNIT	AN	2
Subject Area 8. PLASMA ARC CUTTING (PAC)				
091-44B-2008	Supervise Plasma Arc Cutting (PAC) Operations	UNIT	AN	2

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CHAPTER 3
MOS/Skill Level Tasks

Skill Level 1

Subject Area 1: GENERAL METAL WORKING SHOP PRACTICES

Identify Metals Using the Appearance, Fracture, Spark or Torch Test Method
091-CLT-1000

Conditions: In a field or garrison contemporary operating environment, given carbon steel, cast iron, lead brass, copper, aluminum, stainless steel coupons, oxyacetylene welding set, welder's tool kit, welding apron, sander, grinder, file, safety equipment, applicable technical publications, and supervisor/assistance.

Standards: Identified each type of metal using visual, spark, file methods and the SAE numbering system methods in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Determined the category of metal (ferrous or nonferrous).	—	—
5. Identified metal by appearance test.	—	—
6. Identified metal by fracture test.	—	—
7. Identified metal by spark test.	—	—
8. Identified metal by torch test.	—	—
9. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References
Required
TC 9-237

Related

**Prepare Maintenance Forms
091-CLT-1003**

Conditions: In a field or garrison contemporary operating environment, given DA Forms required for documentation of maintenance and repairs, applicable technical publications, and supervision/assistance.

Standards: Prepared DA Forms in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Stated the purpose and types of different DA Forms used during PMCS.	_____	_____
a. Purpose of DA Form 5988-E (Equipment Inspection Maintenance Worksheet).		
b. DA Form 2404 (Equipment Inspection and Maintenance Worksheet).		
c. DA Form 2407 (Maintenance Request) and DA Form 2407-1 (Maintenance Request Continuation Sheet).		
d. DA Form 5990-E (Maintenance Request).		
2. Performed maintenance or repair procedure.	_____	_____
3. Annotated actions taken on applicable DA Form.	_____	_____
4. Ensured form(s) were checked by supervisor.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA FORM 2404
- DA FORM 2407
- DA FORM 2407-1
- DA FORM 5988-E
- DA FORM 5990-E
- DA PAM 750-8

Related

**Follow Shop Safety Practices and Procedures
091-CLT-1010**

Conditions: In a field or garrison contemporary operating environment, given a maintenance site/facility, maintenance personnel, and applicable references.

Standards: Followed all safety procedures, so preventable accidents were avoided and if accidents occurred they were properly recorded and reported in accordance with applicable references.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Read all safety references on hand.	—	—
2. Followed requirements for a successful shop safety and accident prevention program.	—	—
3. Corrected safety concerns and violations.	—	—
4. Conducted scheduled and unscheduled safety inspections.	—	—
5. Documented safety violations, reported the violations as required, and conducted follow-up inspections to ensure violations were corrected.	—	—
6. Kept necessary records of safety inspections and accident reports.	—	—
7. Ensured material safety data sheet (MSDS) were prepared and maintained as required in applicable work areas.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- AR 190-13
- AR 220-1
- AR 385-10
- AR 385-40
- AR 385-55
- AR 700-138
- AR 750-1
- DA PAM 750-8
- FM 4-30.3
- TB 43-180
- TC 9-237

Related

**Sharpen Twist Drills
091-CLT-1001**

Conditions: In a field or garrison contemporary operating environment, given a bench utility grinder, machinist's tool kit, twist drills, wheel dresser, drill point gauge, water quench, safety equipment, shop drawing, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Sharpened twist drills in accordance with TC 9-524.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Set up utility grinding machine.	_____	_____
5. Grinded lips to correct point angle.	_____	_____
6. Grinded lips to equal length.	_____	_____
7. Grinded correct relief angle.	_____	_____
8. Grinded correct chisel edge angle.	_____	_____
9. Thinned web if required.	_____	_____
10. Measured the angles and length of both lips.	_____	_____
11. Annotated actions taken on the DA Form 5988-E.	_____	_____
12. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-524

Related

**Perform Routine Hand Drilling Operations
091-CLT-1002**

Conditions: In a field or garrison contemporary operating environment, given an upright drilling machine; machinist's tool kit; portable drill; metal stock; drill gauge; fractional, numbered, and lettered size twist drills; UNC, UNF, and NPT threading set; cutting oil; solvent; hand oiler; layout dye; shop drawing; applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Performed drilling operations in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Set up the drilling machine.	—	—
5. Performed drilling (upright and portable) operations.	—	—
6. Performed hand tapping.	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA FORM 5988-E
- DA PAM 750-8
- TC 9-524

Related

**Perform Hand Threading Operations
091-CLT-1006**

Conditions: In a field or garrison contemporary operating environment, given a machinist's tool kit; work bench; table vise; UNC, UNF, and NPT threading sets; aluminum; steel round stock; steel pipe; metal stock; cutting oil; solvent; hand oiler; shop drawing; additional tools; equipment specified in TMs; repair parts; applicable maintenance forms and technical publications; and supervision/assistance.

Standards: Performed hand threading in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Cut external threads on workpieces using a hand die.	—	—
5. Annotated actions taken on the DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-524
TM 9-243

Related

**Perform Removal and Installation of Inserts
091-CLT-1007**

Conditions: In a field or garrison contemporary environment, given a workpiece, machine shop field maintenance equipment, drill press with attachments, insert kit, cutting oil, safety equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Performed installation/removal of inserts in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Determined thread size to be repaired.	—	—
5. Mounted and secured workpiece.	—	—
6. Redrilled the threaded hole, using cutting oil, as required.	—	—
7. Selected correct oversize tap.	—	—
8. Retaped the hole.	—	—
9. Selected correct size insert.	—	—
10. Wound insert into threaded hole to the correct depth.	—	—
11. Removed tang on bottom of insert with tang breakoff tool.	—	—
12. Selected extracting tool.	—	—
13. Removed the insert.	—	—
14. Inspected the internal thread for damage.	—	—
15. Annotated actions taken on the DA Form 5988-E.	—	—
16. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA FORM 5988-E
- DA PAM 750-8
- TC 9-524
- TM 9-243

Related

**Remove Broken Bolts and Studs
091-CLT-1008**

Conditions: In a shop contemporary operating environment with assistance, given TM 9-243, TC 9-524, heli-coil insert kit, bolt extraction kit, required safety equipment, supplemental training materials.

Standards: Removed broken bolts and studs in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Properly removed broken bolt/stud.	_____	_____
5. Annotated actions taken on the DA Form 5988-E.	_____	_____
6. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

- Required**
- DA FORM 5988-E
- DA PAM 750-8
- TC 9-524
- TM 9-243

Related

**Operate Grinding Equipment
091-CLT-1012**

Conditions: In a field or garrison environment, given a grinding requirement, bench utility grinder, grinding wheels, welder's tool kit, safety equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Operated a bench grinder in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Set up bench utility grinder.	—	—
5. Selected grinding wheel.	—	—
6. Installed grinding wheel.	—	—
7. Performed bench grinder operations.	—	—
8. Visually inspected results.	—	—
9. Annotated actions taken on the DA Form 5988-E.	—	—
10. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
TC 9-524

Related

**Perform Preventive Maintenance on Welding Tools and Equipment
091-44B-1001**

Conditions: In a field or garrison environment, given required tools, measuring devices, safety equipment, additional tools, equipment specified in TMs, repair parts, supplies, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Maintained assigned equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and TMDE.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed preventive maintenance checks and services (PMCS) on assigned welding tools and equipment.	—	—
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA FORM 5988-E
DA PAM 750-8
TM 9-243

Related

TM 9-3431-265-14&P
TM 9-3431-266-14&P-1
TM 9-3431-266-14&P-2
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 2: SHOP DRAWINGS AND WELDING SYMBOLS

Interpret Welding Symbol Information
091-44B-1002

Conditions: In a field or garrison environment, given shop drawings, applicable technical publications, and supervision/assistance.

Standards: Interpreted welding symbols in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable shop drawings.	—	—
3. Identified welding symbols.	—	—
4. Interpreted welding symbols.	—	—
5. Identified welding joint designs.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
 TC 9-237

Related

Interpret Basic Elements of a Drawing or Sketch as it Applies to Metal Working
091-44B-1003

Conditions: In a field or garrison environment, given shop drawings and sketches, ruler, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Interpreted shop drawings and sketches in accordance with applicable technical publications.

Performance Measures

	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable shop drawings and sketches.	—	—
3. Interpreted the shop drawing.	—	—
4. Interpreted the shop sketch.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
FM 5-553

Related

**Fabricate Simple Parts from a Drawing or Sketch as it Applies to Metal Working
091-44B-1004**

Conditions: In a field or garrison environment, given shop drawings and sketches, ruler, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Fabricated a simple part that met dimensions provided in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable shop drawings and sketches.	—	—
3. Identified the basic fabrication components.	—	—
a. Materials.		
b. Dimensions.		
c. Equipment selection.		
4. Interpreted informational material.	—	—
a. Analyzed and applied information contained in warranties, job descriptions, modification work orders, technical descriptions, and other informational sources, including labels, warnings, manuals, directions, applications and forms to complete the tasks.		
b. Read technical manuals or informational sources to locate information.		

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
FM 5-553

Related

Subject Area 3: SHIELDED METAL ARC WELDING (SMAW)

Explain the Theory Behind Shielded Metal Arc Welding (SMAW)

091-44B-1005

Conditions: In a field or garrison contemporary environment, given SMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of the Shielded metal arc welding process in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Explained basic theory of the SMAW.	—	—
a. Definition.		
b. Advantages.		
c. Disadvantages.		
5. Described the Arc Welding process.	—	—
6. Described Welding Parameters properties.	—	—
a. Voltage.		
b. Current.		
c. Travel Speed.		
d. Sizes and Types of Electrodes.		
7. Described the covered electrodes functions.	—	—
8. Described the American Welding Society (AWS) electrodes groups.	—	—
a. Mild steel.		
b. Low alloy.		
9. Described Arc Shielding.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Safety Inspections of Shielded Metal Arc Welding (SMAW) Equipment and Accessories
091-44B-1006**

Conditions: In a field or garrison environment, given SMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of the safety inspections on SMAW equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Practiced shop safety precautions in welding and maintenance discipline.	—	—
3. Ensured inspection of SMAW equipment. <ul style="list-style-type: none"> a. Inspect electrode holder insulation. b. Inspect electrode cable. c. Inspect ground cable. d. Inspect power source. 	—	—
4. Annotated actions taken on the DA Form 5988-E.	—	—
5. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Identify Minor External Repairs to Shielded Metal Arc Welding (SMAW) Equipment and Accessories
091-44B-1007

Conditions: In a field or garrison environment, given required tools, measuring devices, safety equipment, additional tools, equipment specified in TMs, repair parts, supplies, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Maintain assigned equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and TMDE.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed preventive maintenance checks and services (PMCS).	—	—
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Set Up Shielded Metal Arc Welding (SMAW) Operations and Base Metal Preparation
on Carbon Steel
091-44B-1008**

Conditions: In a field or garrison environment, given SMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position SMAW welding, ferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position SMAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler metal. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position SMAW welding equipment. <ul style="list-style-type: none"> a. Select appropriate electrode size and type. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position SMAW welding, ferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Operate Shielded Metal Arc Welding (SMAW) Equipment
091-44B-1009**

Conditions: In a field or garrison environment, given SMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position SMAW welding, ferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Prepared materials for all position SMAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler metal. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	_____	_____
5. Set up all position SMAW welding equipment. <ul style="list-style-type: none"> a. Select appropriate electrode size and type. b. Select type of joint (tee, butt, corner, lap, edge). 	_____	_____
6. Performed all position SMAW welding, ferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	_____	_____
7. Annotated actions taken on the DA Form 5988-E.	_____	_____
8. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Perform Shielded Metal Arc Welding (SMAW) Single Pass Fillet Welds, All Positions, on Carbon Steel and Armor Plate

091-44B-1010

Conditions: In a field or garrison environment, given SMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position SMAW welding, ferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position SMAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler metal. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position SMAW welding equipment. <ul style="list-style-type: none"> a. Select appropriate electrode size and type. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position SMAW welding, ferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
 DA PAM 750-8
 TC 9-237

Related
 TM 9-3431-265-14&P
 TM 9-3431-272-13&P
 TM 9-4940-567-13&P

**Perform Shielded Metal Arc Welding (SMAW) V-Groove Welds, All Positions, on Carbon Steel,
Limited Thickness**

091-44B-1011

Conditions: In a field or garrison environment, given SMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position SMAW welding, ferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position SMAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler metal. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position SMAW welding equipment. <ul style="list-style-type: none"> a. Select appropriate electrode size and type. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position SMAW welding, ferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 4: GAS METAL ARC WELDING (GMAW)

Explain the Theory Behind Gas Metal Arc Welding (GMAW)**091-44B-1012**

Conditions: In a field or garrison environment, given GMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GMAW welding, ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position GMAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler wire. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position GMAW welding equipment. <ul style="list-style-type: none"> a. Adjust amperage and current. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position GMAW welding, ferrous and nonferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA PAM 750-8

TC 9-237

Related

TM 9-3431-265-14&P

TM 9-3431-272-13&P

TM 9-4940-567-13&P

**Perform Safety Inspections of Gas Metal Arc Welding (GMAW) Equipment and Accessories
091-44B-1013**

Conditions: In a field or garrison environment, given GMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of the safety inspections on GMAW equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Practiced shop safety precautions in welding operations and maintenance discipline.	_____	_____
3. Ensured inspection of GMAW torch components. <ul style="list-style-type: none"> a. Inspect current contact tube. b. Inspect nozzle and gun handle. c. Inspect gun switch. d. Inspect electrode guide tube. 	_____	_____
4. Ensured inspection of GMAW voltage control box components. <ul style="list-style-type: none"> a. Inspect hose and cable connections. b. Inspect amperage and current controls. 	_____	_____
5. Ensured inspection of GMAW contactor components for dirt and obstructions.	_____	_____
6. Ensured inspection of GMAW regulators. <ul style="list-style-type: none"> a. Inspect pressure gauge. b. Inspect flowmeter. c. Inspect adjusting screw. 	_____	_____
7. Annotated actions taken on the DA Form 5988-E.	_____	_____
8. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Identify Minor External Repairs to Gas Metal Arc Welding (GMAW) Equipment and Accessories
091-44B-1014**

Conditions: In a field or garrison environment, given required tools, measuring devices, safety equipment, additional tools, equipment specified in TMs, repair parts, supplies, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Maintain assigned equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and TMDE.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed preventive maintenance checks and services (PMCS).	—	—
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Set Up Gas Metal Arc Welding (GMAW) Operations and Base Metal Preparation on Carbon Steel
091-44B-1015**

Conditions: In a field or garrison environment, given GMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Set up GMAW operations in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Set up GMAW operations.	—	—
a. Connect control cable.		
b. Connect wire feeder power cable.		
c. Connect gas hose to regulator/flowmeter.		
d. Connect hose to input side of the gas solenoid valve on wire feeder control box.		
e. Select/install correct liner.		
f. Plug the composite cable into the wire feeder gearbox; tighten retaining screw.		
g. Connect host to output side of the gas solenoid valve on wire feeder control box.		
h. Connect cables to wire feeder adapter plug.		
i. Connect welding cables.		
j. Select/install welding wire.		
k. Select/install feeder rollers.		
5. Prepared base metal.	—	—
a. Lay out workpiece.		
b. Clean metal to be welded.		
6. Annotated actions taken on the DA Form 5988-E.	—	—
7. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Operate Gas Metal Arc Welding (GMAW) Equipment
091-44B-1016

Conditions: In a field or garrison environment, given GMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GMAW welding, ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position GMAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler wire. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position GMAW welding equipment. <ul style="list-style-type: none"> a. Adjust amperage and current. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position GMAW welding, ferrous and nonferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Perform Gas Metal Arc Welding (GMAW) Single Pass Fillet Welds, All Positions, on Ferrous and Non Ferrous Metal, Using Short Circuit Transfer
091-44B-1017

Conditions: In a field or garrison environment, given GMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GMAW welding, ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position GMAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler wire. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position GMAW welding equipment. <ul style="list-style-type: none"> a. Adjust amperage and current. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position GMAW welding, ferrous and nonferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
 DA PAM 750-8
 TC 9-237

Related
 TM 9-3431-265-14&P
 TM 9-3431-272-13&P
 TM 9-4940-567-13&P

**Perform Gas Metal Arc Welding (GMAW) V-Groove Welds, All Positions, on Ferrous and Non
Ferrous Metal, Using Short Circuit Transfer**

091-44B-1018

Conditions: In a field or garrison environment, given GMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GMAW welding, ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position GMAW welding.	—	—
a. Determine and select the size and type of material.		
b. Select filler wire.		
c. Lay out materials, if appropriate.		
d. Clean metal to be welded.		
5. Set up all position GMAW welding equipment.	—	—
a. Adjust amperage and current.		
b. Select type of joint (tee, butt, corner, lap, edge).		
6. Performed all position GMAW welding, ferrous and nonferrous metal.	—	—
a. Align materials.		
b. Tack weld joint.		
c. Weld joint in correct position.		
d. Visually inspect the finished weld.		
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Perform Gas Metal Arc Welding (GMAW) 1F-2F Single Pass Welds on Carbon Steel, Using Spray Transfer
091-44B-1019

Conditions: In a field or garrison environment, given GMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GMAW welding, ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position GMAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler wire. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position GMAW welding equipment. <ul style="list-style-type: none"> a. Adjust amperage and current. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position GMAW welding, ferrous and nonferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
 DA PAM 750-8
 TC 9-237

Related
 TM 9-3431-265-14&P
 TM 9-3431-272-13&P
 TM 9-4940-567-13&P

**Perform Gas Metal Arc Welding (GMAW) 1G Welds on Carbon Steel, Limited Thickness, Using
Spray Transfer
091-44B-1020**

Conditions: In a field or garrison environment, given GMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GMAW welding, ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position GMAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler wire. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position GMAW welding equipment. <ul style="list-style-type: none"> a. Adjust amperage and current. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position GMAW welding, ferrous and nonferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 5: FLUX CORE ARC WELDING (FCAW)

Explain the Theory Behind Flux Core Arc Welding (FCAW)

091-44B-1021

Conditions: In a field or garrison environment, given FCAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position FCAW welding, ferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position FCAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler wire. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position FCAW welding equipment. <ul style="list-style-type: none"> a. Adjust amperage and current. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position FCAW welding, ferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Safety Inspections of Flux Core Arc Welding (FCAW) Equipment and Accessories
091-44B-1022**

Conditions: In a field or garrison environment, given FCAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of the safety inspections on FCAW equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Ensured inspection of FCAW torch. <ul style="list-style-type: none"> a. Inspect current contact tube. b. Inspect nozzle and gun handle. c. Inspect gun switch. d. Inspect electrode guide tube. 	—	—
4. Ensured inspection of FCAW voltage control box components. <ul style="list-style-type: none"> a. Inspect hose and cable connections. b. Inspect amperage and current controls. 	—	—
5. Ensured inspection of FCAW contactor components for dirt and obstructions.	—	—
6. Ensured inspection of FCAW regulator. <ul style="list-style-type: none"> a. Inspect pressure gauge. b. Inspect flowmeter. c. Inspect adjusting screw. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Identify Minor External Repairs to Flux Core Arc Welding (FCAW) Equipment and Accessories
091-44B-1023**

Conditions: In a field or garrison environment, given required tools, measuring devices, safety equipment, additional tools, equipment specified in TMs, repair parts, supplies, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Maintain assigned equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and TMDE.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed preventive maintenance checks and services (PMCS).	—	—
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Set Up for Flux Core Arc Welding (FCAW) Operations and Base Metal Preparation on Carbon Steel
091-44B-1024**

Conditions: In a field or garrison environment, given FCAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Set up FCAW operations in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Set up FCAW operations.	—	—
a. Connect control cable.		
b. Connect wire feeder power cable.		
c. Connect gas hose to regulator/flowmeter.		
d. Connect hose to input side of the gas solenoid valve on wire feeder control box.		
e. Select/install correct liner.		
f. Plug the composite cable into the wire feeder gearbox; tighten retaining screw.		
g. Connect host to output side of the gas solenoid valve on wire feeder control box.		
h. Connect cables to wire feeder adapter plug.		
i. Connect welding cables.		
j. Select/install welding wire.		
k. Select/install feeder rollers.		
5. Prepared base metal.	—	—
a. Lay out workpiece.		
b. Clean metal to be welded.		
6. Annotated actions taken on the DA Form 5988-E.	—	—
7. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Operate Flux Core Arc Welding (FCAW) Equipment
091-44B-1025**

Conditions: In a field or garrison environment, given FCAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position FCAW welding, ferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position FCAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler wire. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position FCAW welding equipment. <ul style="list-style-type: none"> a. Adjust amperage and current. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position FCAW welding, ferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Flux Core Arc Welding (FCAW) Single Pass, Fillet Welds, All Positions, on Carbon Steel
091-44B-1026**

Conditions: In a field or garrison environment, given FCAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position FCAW welding, ferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Prepared materials for all position FCAW welding.	_____	_____
a. Determine and select the size and type of material.		
b. Select filler wire.		
c. Lay out materials, if appropriate.		
d. Clean metal to be welded.		
5. Set up all position FCAW welding equipment.	_____	_____
a. Adjust amperage and current.		
b. Select type of joint (tee, butt, corner, lap, edge).		
6. Performed all position FCAW welding, ferrous metal.	_____	_____
a. Align materials.		
b. Tack weld joint.		
c. Weld joint in correct position.		
d. Visually inspect the finished weld.		
7. Annotated actions taken on the DA Form 5988-E.	_____	_____
8. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Make Flux Core Arc Welding (FCAW) V-Groove Welds, All Positions, on Carbon Steel
091-44B-1027**

Conditions: In a field or garrison environment, given FCAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position FCAW welding, ferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position FCAW welding.	—	—
a. Determine and select the size and type of material.		
b. Select filler wire.		
c. Lay out materials, if appropriate.		
d. Clean metal to be welded.		
5. Set up all position FCAW welding equipment.	—	—
a. Adjust amperage and current.		
b. Select type of joint (tee, butt, corner, lap, edge).		
6. Performed all position FCAW welding, ferrous metal.	—	—
a. Align materials.		
b. Tack weld joint.		
c. Weld joint in correct position.		
d. Visually inspect the finished weld.		
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Operate Flux Core Arc Welding (FCAW) Equipment on the Trailer Mounted Welding Shop
091-44B-1028**

Conditions: In a field or garrison environment, given FCAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position FCAW welding, ferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position FCAW welding. <ul style="list-style-type: none"> a. Determine and select the size and type of material. b. Select filler wire. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position FCAW welding equipment. <ul style="list-style-type: none"> a. Adjust amperage and current. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position FCAW welding, ferrous metal. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 6: GAS TUNGSTEN ARC WELDING (GTAW)

Explain the Theory Behind Gas Tungsten Arc Welding (GTAW)

091-44B-1029

Conditions: In a field or garrison environment, given GTAW equipment, welder's tool kit, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GTAW welding ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed GTAW welding, ferrous and nonferrous metal operations.	—	—
a. Weld ferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, ferrous metal operations.		
(3) Visually inspect the finished weld.		
b. Weld nonferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, nonferrous metal operations.		
(3) Visually inspect the finished weld.		
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Safety Inspections of Gas Tungsten Arc Welding (GTAW) Equipment and Accessories
091-44B-1030**

Conditions: In a field or garrison environment, given GTAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of the safety inspections on GTAW equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Ensured inspection of GTAW torch.	—	—
a. Inspect cap.		
b. Inspect collet.		
c. Inspect gas orifice.		
d. Inspect gas nozzle.		
e. Inspect hose connections for dirt and obstructions.		
5. Ensured inspection of GTAW regulator.	—	—
a. Inspect pressure gauge.		
b. Inspect flowmeter.		
c. Inspect adjusting screw.		
6. Set up all position GTAW welding equipment.	—	—
a. Select appropriate welding tip.		
b. Select type of joint (tee, butt, corner, lap, edge).		
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Identify Minor External Repairs to Gas Tungsten Arc Welding (GTAW) Equipment and Accessories
091-44B-1031**

Conditions: In a field or garrison environment, given required tools, measuring devices, safety equipment, additional tools, equipment specified in TMs, repair parts, supplies, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Maintain assigned equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and TMDE.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed preventive maintenance checks and services (PMCS).	—	—
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Operate Gas Tungsten Arc Welding (GTAW) Equipment
091-44B-1032

Conditions: In a field or garrison environment, given GTAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GTAW welding, ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position GTAW welding.	—	—
a. Determine and select the size and type of material.		
b. Select and install tungsten.		
c. Lay out materials, if appropriate.		
d. Set up GTAW torch set.		
e. Clean metal to be welded.		
5. Set up all position GTAW welding equipment.	—	—
a. Adjust amperage and current.		
b. Select type of joint (tee, butt, corner, lap, edge).		
6. Performed all position GTAW welding, ferrous and nonferrous metal.	—	—
a. Align materials.		
b. Tack weld joint.		
c. Weld joint in correct position.		
d. Visually inspect the finished weld.		
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Perform Gas Tungsten Arc Welding (GTAW) Single Pass Fillet Welds, All Positions, on Carbon Steel

091-44B-1033

Conditions: In a field or garrison environment, given GTAW equipment, welder's tool kit, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GTAW welding ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed GTAW welding, ferrous and nonferrous metal operations.	—	—
a. Weld ferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, ferrous metal operations.		
(3) Visually inspect the finished weld.		
b. Weld nonferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, nonferrous metal operations.		
(3) Visually inspect the finished weld.		
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Gas Tungsten Arc Welding (GTAW) Groove Welds on Carbon Steel
091-44B-1034**

Conditions: In a field or garrison environment, given GTAW equipment, welder's tool kit, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GTAW welding ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Performed GTAW welding, ferrous and nonferrous metal operations.	_____	_____
a. Weld ferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, ferrous metal operations.		
(3) Visually inspect the finished weld.		
b. Weld nonferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, nonferrous metal operations.		
(3) Visually inspect the finished weld.		
5. Annotated actions taken on DA Form 5988-E.	_____	_____
6. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Gas Tungsten Arc Welding (GTAW) 1F-3F Welds on Aluminum
091-44B-1035**

Conditions: In a field or garrison environment, given GTAW equipment, welder's tool kit, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GTAW welding ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Performed GTAW welding, ferrous and nonferrous metal operations.	_____	_____
a. Weld ferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, ferrous metal operations.		
(3) Visually inspect the finished weld.		
b. Weld nonferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, nonferrous metal operations.		
(3) Visually inspect the finished weld.		
5. Annotated actions taken on DA Form 5988-E.	_____	_____
6. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Gas Tungsten Arc Welding (GTAW) 1G-3G Welds on Aluminum
091-44B-1036**

Conditions: In a field or garrison environment, given GTAW equipment, welder's tool kit, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GTAW welding ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Performed GTAW welding, ferrous and nonferrous metal operations.	_____	_____
a. Weld ferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, ferrous metal operations.		
(3) Visually inspect the finished weld.		
b. Weld nonferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, nonferrous metal operations.		
(3) Visually inspect the finished weld.		
5. Annotated actions taken on DA Form 5988-E.	_____	_____
6. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Gas Tungsten Arc Welding (GTAW) 1F-3F Welds on Stainless Steel
091-44B-1037**

Conditions: In a field or garrison environment, given GTAW equipment, welder's tool kit, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GTAW welding ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed GTAW welding, ferrous and nonferrous metal operations.	—	—
a. Weld ferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, ferrous metal operations.		
(3) Visually inspect the finished weld.		
b. Weld nonferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, nonferrous metal operations.		
(3) Visually inspect the finished weld.		
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Gas Tungsten Arc Welding (GTAW) 1G-3G Welds on Stainless Steel
091-44B-1038**

Conditions: In a field or garrison environment, given GTAW equipment, welder's tool kit, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position GTAW welding ferrous and nonferrous metal in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Performed GTAW welding, ferrous and nonferrous metal operations.	_____	_____
a. Weld ferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, ferrous metal operations.		
(3) Visually inspect the finished weld.		
b. Weld nonferrous metal using GTAW welding equipment.		
(1) Set up GTAW welding equipment for ferrous metal welding operations.		
(2) Perform GTAW welding, nonferrous metal operations.		
(3) Visually inspect the finished weld.		
5. Annotated actions taken on DA Form 5988-E.	_____	_____
6. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 7: MANUAL OXY-FUEL GAS CUTTING (OFC) AND WELDING

Explain the Theory Behind Oxy-Fuel Gas Cutting and Welding

091-44B-1039

Conditions: In a field or garrison environment, given Oxy-Fuel gas cutting and welding equipment, welder's tool kit, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of the Oxy-Fuel gas cutting and welding process in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for Oxy-Fuel gas cutting (OFC). <ul style="list-style-type: none"> a. Determine the size and type of material. b. Select cutting attachment. c. Select appropriate cutting tip. d. Lay out materials, if appropriate. e. Adjust oxygen and acetylene working pressure. f. Visually inspect the finished cut. 	—	—
5. Prepared materials for Oxy-Fuel gas welding. <ul style="list-style-type: none"> a. Determine the size and type of material. b. Select filler metal. c. Lay out materials, if appropriate. d. Adjust oxygen and acetylene working pressure. e. Clean metal to be welded. 	—	—
6. Set up all position Oxy-Fuel gas welding (OFW) equipment. <ul style="list-style-type: none"> a. Select appropriate welding tip. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
7. Performed all position Oxy-Fuel gas welding (OFW). <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
8. Annotated actions taken on DA Form 5988-E.	—	—
9. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Perform Safety Inspections on Oxy-Fuel Gas Equipment
091-44B-1040

Conditions: In a field or garrison environment, given Oxy-Fuel gas cutting and welding equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of the safety inspections on Oxy-Fuel gas cutting and welding equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Practiced shop safety precautions in welding operations and maintenance discipline.	_____	_____
3. Ensured inspection of Oxy-Fuel gas cylinders. <ul style="list-style-type: none"> a. Inspect removable metal cap. b. Inspect steel valve (Acetylene), tobins bronze valve (Oxygen). c. Inspect for proper markings/colors. d. Store cylinder properly. 	_____	_____
4. Ensured inspection of Oxy-Fuel gas regulators. <ul style="list-style-type: none"> a. Inspect pressure gauges. b. Inspect adjusting screw. c. Inspect threaded fittings. 	_____	_____
5. Ensured inspection of Oxy-Fuel gas hoses. <ul style="list-style-type: none"> a. Inspect hoses for burns, nicks, and bad fittings. b. Inspect for proper hose identification. 	_____	_____
6. Ensured inspection of Oxy-Fuel gas torch. <ul style="list-style-type: none"> a. Inspect torch body and valves for dirt and obstructions. b. Inspect for leaks at all connections. 	_____	_____
7. Annotated actions taken on the DA Form 5988-E.	_____	_____
8. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Identify Minor External Repairs to Oxy-Fuel Gas Equipment
091-44B-1041**

Conditions: In a field or garrison environment, given required tools, measuring devices, safety equipment, additional tools, equipment specified in TMs, repair parts, supplies, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Maintain assigned equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and TMDE.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed preventive maintenance checks and services (PMCS).	—	—
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Set Up Manual Oxy-Fuel Gas Equipment for Operations on Base Metal Preparation
and Carbon Steel
091-44B-1042**

Conditions: In a field or garrison environment, given Oxy-Fuel gas equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Set up Oxy-Fuel gas operations in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Set up Oxy-Fuel gas operations.	_____	_____
a. Secure oxygen and acetylene cylinders.		
b. Remove valve protecting caps.		
c. Slightly open (crack) cylinder valves.		
d. Wipe off connection with clean cloth.		
e. Connect regulators to cylinder valves.		
f. Connect hoses to regulators.		
g. Release regulator screws.		
h. Connect hoses to torch body.		
i. Select and install welding tip/cutting attachment.		
j. Adjust working pressures.		
k. Check connections for leaks.		
5. Prepared base metal.	_____	_____
a. Lay out workpiece.		
b. Clean metal to be welded.		
6. Annotated actions taken on the DA Form 5988-E.	_____	_____
7. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Operate Manual Oxy-Fuel Gas Equipment
091-44B-1043

Conditions: In a field or garrison environment, given Oxy-Fuel gas equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position Oxy-Fuel gas welding (OFW) in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all position Oxy-Fuel gas welding. <ul style="list-style-type: none"> a. Determine the size and type of material. b. Select filler rod. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	—	—
5. Set up all position Oxy-Fuel gas welding equipment. <ul style="list-style-type: none"> a. Select appropriate welding tip. b. Select type of joint (tee, butt, corner, lap, edge). 	—	—
6. Performed all position Oxy-Fuel gas welding. <ul style="list-style-type: none"> a. Align materials. b. Tack weld joint. c. Weld joint in correct position. d. Visually inspect the finished weld. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Perform Cutting Operations on Carbon Steel to Include Straight, Shape, and Bevel Using Oxy-Fuel Gas Cutting (OFC) Equipment
091-44B-1044

Conditions: In a field or garrison environment, given Oxy-Fuel gas cutting (OFC) equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all position Oxy-Fuel gas cutting (OFC) in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Prepared materials for all position Oxy-Fuel gas cutting. <ul style="list-style-type: none"> a. Determine the size and type of material. b. Set up oxyacetylene welding set. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	_____	_____
5. Set up all position Oxy-Fuel gas cutting equipment. <ul style="list-style-type: none"> a. Select appropriate cutting tip. b. Adjust oxygen and acetylene working pressure. 	_____	_____
6. Performed all position Oxy-Fuel gas cutting. <ul style="list-style-type: none"> a. Align materials. b. Visually inspect the finished weld. 	_____	_____
7. Annotated actions taken on the DA Form 5988-E.	_____	_____
8. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
 TC 9-237

Related

TM 9-3431-265-14&P
 TM 9-3431-272-13&P
 TM 9-4940-567-13&P

**Remove Weld Metal from Plain Carbon Steel, Using the Scarfing Technique
091-44B-1045**

Conditions: In a field or garrison environment, given Oxy-Fuel gas cutting (OFC) equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform scarfing technique using Oxy-Fuel gas cutting (OFC) equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Prepared materials for all position Oxy-Fuel gas cutting. <ul style="list-style-type: none"> a. Determine the size and type of material. b. Set up oxyacetylene welding set. c. Lay out materials, if appropriate. d. Clean metal to be welded. 	_____	_____
5. Set up all position Oxy-Fuel gas cutting equipment. <ul style="list-style-type: none"> a. Select appropriate cutting tip. b. Adjust oxygen and acetylene working pressure. 	_____	_____
6. Removed weld metal utilizing the scarfing technique. <ul style="list-style-type: none"> a. Align materials. b. Heated to the ignition temperature. c. Applied jet of oxygen. d. Advanced as the surface is cut away. e. Visually inspected finished cut. 	_____	_____
7. Annotated actions taken on the DA Form 5988-E.	_____	_____
8. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Soldering Operations
091-44B-1059**

Conditions: In a field or garrison environment, given a radiator, radiator plug set, probing tool, rubber apron, oxy-fuel welding set, solder/soldering flux, welder's tool kit, 1/16 inch copper coupons, safety equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Repair radiators in accordance with applicable technical publications. When task is completed, radiator must be fully mission capable.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Inspected radiator and determined serviceability.	—	—
5. Determined fault(s).	—	—
6. Cleaned area to be soldered.	—	—
7. Cut patch as required.	—	—
8. Repaired tin area as required.	—	—
9. Soldered damaged area.	—	—
10. Tested radiator for leaks using compressed air.	—	—
11. Annotated corrective actions taken on the DA Form 5988-E.	—	—
12. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237
TM 750-254

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 8: PLASMA ARC CUTTING (PAC)

Perform Air Arc Gouging**091-44B-1046**

Conditions: In a field or garrison environment, given Air Arc Gouging equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform Air Arc Gouging in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for air arc cutting/gouging. <ul style="list-style-type: none"> a. Determine the size and type of material. b. Lay out materials, if appropriate. c. Clean metal to be cut. 	—	—
5. Set up air arc cutting/gouging equipment. <ul style="list-style-type: none"> a. Select proper electrode tip. b. Adjust amperage and current. c. Adjust gas selection. 	—	—
6. Performed air arc cutting/gouging. <ul style="list-style-type: none"> a. Establish cutting arc. b. Cut metal to size. c. Visually inspect the finished cut. d. Measure workpiece for accuracy. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA PAM 750-8
TB 9-3439-203/1
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Explain the Theory Behind Plasma Arc Cutting (PAC)

091-44B-1047

Conditions: In a field or garrison environment, given PAC equipment, welder's tool kit, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of the PAC process in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Selected and used applicable tools and equipment.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Prepared materials for plasma arc cutting (PAC). <ul style="list-style-type: none"> a. Select metal to be cut. b. Lay out materials, if appropriate. 	_____	_____
5. Set up all position plasma arc cutting (PAC) equipment. <ul style="list-style-type: none"> a. Set up plasma arc cutting equipment. b. Adjust voltage. c. Adjust air supply. 	_____	_____
6. Performed all position plasma arc cutting (PAC). <ul style="list-style-type: none"> a. Align materials. b. Establish cutting arc. c. Cut metal to size. d. Visually inspect the finished cut. 	_____	_____
7. Annotated actions taken on DA Form 5988-E.	_____	_____
8. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Safety Inspections of Plasma Arc Cutting (PAC) Equipment and Accessories
091-44B-1048**

Conditions: In a field or garrison environment, given Plasma Arc Cutting (PAC) and equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of the safety inspections on Plasma Arc Cutting (PAC) and equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	_____	_____
2. Practiced shop safety precautions in welding operations and maintenance discipline.	_____	_____
3. Ensured inspection PAC torch. <ul style="list-style-type: none"> a. Inspect torch body for dirt and obstructions. b. Inspect electrode holder. 	_____	_____
4. Ensured inspection of PAC control unit. <ul style="list-style-type: none"> a. Inspect control unit valves. b. Inspect flowmeters. 	_____	_____
5. Ensured inspection of PAC power supply. <ul style="list-style-type: none"> a. Inspect proper set up of power supply. b. Inspect power supply controls. 	_____	_____
6. Ensured inspection of cutting gas cylinders. <ul style="list-style-type: none"> a. Inspect for proper markings/colors. b. Store cylinder properly. 	_____	_____
7. Annotated actions taken on the DA Form 5988-E.	_____	_____
8. Maintained tools and equipment.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Identify Minor External Repairs to Plasma Arc Cutting (PAC) Equipment and Accessories
091-44B-1049**

Conditions: In a field or garrison environment, given required tools, measuring devices, safety equipment, additional tools, equipment specified in TMs, repair parts, supplies, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Maintain assigned equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and TMDE.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed preventive maintenance checks and services (PMCS).	—	—
5. Annotated actions taken on DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Set Up Manual Plasma Arc Cutting (PAC) Operations
091-44B-1050**

Conditions: In a field or garrison environment, given Plasma Arc Cutting (PAC) equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Set up PAC operations in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Set up PAC operations.	—	—
a. Select electrode tip.		
b. Adjust amperage and current.		
c. Adjust gas selection.		
d. Establish cutting arc.		
5. Annotated actions taken on the DA Form 5988-E.	—	—
6. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Operate Manual Plasma Arc Cutting (PAC) Equipment
091-44B-1051**

Conditions: In a field or garrison environment, given Plasma Arc Cutting (PAC) equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Operate all PAC equipment in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all PAC.	—	—
a. Determine and select the size and type of material.		
b. Lay out materials, if appropriate.		
c. Clean metal to be cut.		
5. Set up all PAC equipment.	—	—
a. Select electrode tip.		
b. Adjust amperage and current.		
c. Adjust gas selection.		
6. Operated PAC equipment.	—	—
a. Establish cutting arc.		
b. Cut metal.		
c. Visually inspect the finished cut.		
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-237

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Shape Cutting Operations Using Plasma Arc Cutting (PAC) Equipment
091-44B-1052**

Conditions: In a field or garrison environment, given Plasma Arc Cutting (PAC) equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform all PAC operations in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for all PAC.	—	—
a. Determine and select the size and type of material.		
b. Lay out materials, if appropriate.		
c. Clean metal to be cut.		
5. Set up all PAC equipment.	—	—
a. Select electrode tip.		
b. Adjust amperage and current.		
c. Adjust gas selection.		
6. Performed PAC operations.	—	—
a. Establish cutting arc.		
b. Cut desired shape.		
c. Visually inspect the finished cut.		
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 9: VISUAL EXAMINATION PRINCIPLES AND PRACTICES

**Examine Cut Surfaces and Edges of Prepared Base Metal Parts
091-44B-1053**

Conditions: In a field or garrison environment, given all gas cutting and welding equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Examine all gas cutting and welding in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Practiced shop safety precautions in welding operations and maintenance discipline.	—	—
3. Demonstrated visual examination of surfaces and edges. <ul style="list-style-type: none"> a. Examined for serious notches. b. Examined for grooves. c. Examined for gouges. 	—	—
4. Annotated actions taken on the DA Form 5988-E.	—	—
5. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8

TC 9-237

Related

TM 9-3431-265-14&P

TM 9-3431-272-13&P

TM 9-4940-567-13&P

Examine Tack, Intermediate Layers, and Completed Welds
091-44B-1054

Conditions: In a field or garrison environment, given all gas cutting and welding equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Examine all gas cutting and welding in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Practiced shop safety precautions in welding operations and maintenance discipline.	—	—
3. Demonstrated visual examination of tack, intermediate layers and completed welds.	—	—
a. Examined for undercut.		
b. Examined for slag inclusion.		
c. Examined for overlap.		
d. Examined for penetration.		
4. Annotated actions taken on the DA Form 5988-E.	—	—
5. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 10: GLASS REPAIR

Replace Vehicle Windows / Windshields
091-44B-1055

Conditions: In a field or garrison environment, given laminated safety glass, combat vehicle windshield/window frame, rubber weather stripping, glass cutting tools, rubber apron, belt edger, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Replace vehicle windows/windshields in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Determined the size and type of glass required for windshield/window.	—	—
5. Selected glass.	—	—
6. Prepared glass for installation.	—	—
7. Installed glass.	—	—
8. Checked for proper fit and leaks.	—	—
9. Annotated corrective actions taken on the DA Form 5988-E.	—	—
10. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
 DA PAM 750-8
 TC 9-510

Related
 TM 9-3431-265-14&P
 TM 9-3431-272-13&P
 TM 9-4940-567-13&P

**Perform Cutting and Grinding of Laminated Safety Glass
091-44B-1056**

Conditions: In a field or garrison environment, given light machine oil, laminated safety glass, methanol alcohol, combat vehicle windshield frame, rubber weather stripping, liquid soap, belt edger, cutting board, abrasive belts, glass cutting tool kit, water, safety equipment, additional tools, equipment specified in TMs, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Cut/grind laminated safety glass in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Cut laminated glass.	—	—
a. Lay out pattern of glass to be cut.		
b. Cut both sides of glass.		
c. Cut plastic between sheets.		
5. Grinded laminated glass.	—	—
a. Select/install abrasive belt.		
b. Turn on water supply.		
c. Turn on belt edger.		
d. Adjust water flow.		
e. Grind edge of glass.		
f. Bevel edge of glass.		
g. Check dimension of glass.		
6. Annotated actions taken on the DA Form 5988-E.	—	—
7. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-510

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 11: FUEL CONTAINER REPAIR

Repair Fuel Tanks/Containers

091-44B-1057

Conditions: In a field or garrison environment, given a fuel tank/container, oxy-fuel welding set, explosive meter, welder's tool kit, air compressor, rubber plug set, non-electric soldering copper, 18-gauge galvanized steel, tin snips, soft solder, soldering flux, fire extinguisher, solvent, clean rags, flexible exhaust hose, water hose, steam cleaner, radiator test tank, safety equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Repair fuel tanks/containers in accordance with applicable technical publications. When task is completed, fuel tanks/containers must be fully mission capable.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Inspected fuel tank/container for damage.	—	—
5. Repaired fuel tank/container.	—	—
6. Inspected fuel tank/container repairs.	—	—
7. Annotated actions taken on DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
 DA PAM 750-8
 TC 9-237
 TC 9-510

Related
 TM 9-3431-265-14&P
 TM 9-3431-272-13&P
 TM 9-4940-567-13&P

Subject Area 12: RADIATOR REPAIR

Repair Radiators
091-44B-1058

Conditions: In a field or garrison environment, given a radiator, radiator plug set, probing tool, rubber apron, oxy-fuel welding set, solder/soldering flux, welder's tool kit, 1/16 inch copper coupons, safety equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Repair radiators in accordance with applicable technical publications. When task is completed, radiator must be fully mission capable.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Inspected radiator and determined serviceability.	—	—
5. Determined fault(s).	—	—
6. Cleaned area to be soldered.	—	—
7. Cut patch as required.	—	—
8. Repaired tin area as required.	—	—
9. Soldered damaged area.	—	—
10. Tested radiator for leaks using compressed air.	—	—
11. Annotated corrective actions taken on the DA Form 5988-E.	—	—
12. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237
TM 750-254

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 13: TACTICAL VEHICLE STRUCTURAL REPAIR

Analyze Vehicle Structural Repair Sequence
091-44B-1060

Conditions: In a field or garrison environment, given a damaged vehicle, necessary and additional tools, equipment specified in TMs, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Analyze repair sequence in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Ensured task is within shop capability/authorization.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Inspected the damage.	—	—
5. Determined sequence of damage.	—	—
6. Listed repair sequence.	—	—
7. Annotated actions taken on DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
 DA PAM 750-8
 TC 9-510

Related
 TM 9-3431-265-14&P
 TM 9-3431-272-13&P
 TM 9-4940-567-13&P

**Perform Fiberglass Component Repair
091-44B-1061**

Conditions: In a field or garrison environment, given a vehicle component, fiberglass repair kit, electric disk sander, mixing tray, sanding disks, sandpaper, respirator, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform fiberglass component repair in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared fiberglass resin.	—	—
5. Applied polyester resin to area requiring repair.	—	—
6. Repaired damaged area.	—	—
7. Visually inspected finished repairs.	—	—
8. Annotated actions taken on the DA Form 5988-E.	—	—
9. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-510

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Heat Shrinking Operations
091-44B-1062**

Conditions: In a field or garrison environment, given a body and fender repair kit, metal body repair tools (electric, pneumatic, and hydraulic tools), damaged vehicle, safety equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Control expansion/contraction of metals in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed metal expansion procedures.	—	—
5. Performed hammering operations.	—	—
6. Performed hot shrinking of metal.	—	—
7. Performed cold shrinking of metal.	—	—
8. Ensured supervisor inspects results.	—	—
9. Annotated actions taken on the DA Form 5988-E.	—	—
10. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TC 9-510

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Fabricate Structural Components
091-44B-1063**

Conditions: In a field or garrison environment, given a body and fender repair kit, metal body repair tools (electric, pneumatic, and hydraulic tools), damaged vehicle, safety equipment, additional tools, equipment specified in TMs, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Fabricate structural components in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Performed hammering operations.	—	—
5. Performed hydraulic jack operations.	—	—
6. Performed filling procedures.	—	—
7. Performed filing procedures.	—	—
8. Performed sanding procedures.	—	—
9. Mixed body plastics.	—	—
10. Applied body plastics.	—	—
11. Annotated actions taken on the DA Form 5988-E.	—	—
12. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TB 9-2300-247-40
TC 9-510

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Replace Structural Components
091-44B-1064

Conditions: In a field or garrison environment, given a body and fender repair kit, metal body repair tools (electric, pneumatic, and hydraulic tools), damaged vehicle, safety equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Replace structural components in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Identified structural components for replacement.	—	—
5. Replaced structural components.	—	—
6. Annotated actions taken on the DA Form 5988-E.	—	—
7. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA PAM 750-8
TB 9-2300-247-40
TC 9-510

Related

TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

**Perform Riveting Operations
091-44B-1065**

Conditions: In a field or garrison environment, given installation and additional tools, rivets, safety equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform riveting operations in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Determined size and selected rivets.	—	—
5. Installed rivets.	—	—
6. Visually inspected finished work.	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-510

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Skill Level 2

Subject Area 1: GENERAL METAL WORKING SHOP PRACTICES

**Supervise a Shop Safety Program
091-CLT-2003**

Conditions: In a contemporary operating environment given a maintenance site/facility, maintenance personnel, and applicable references.

Standards: Ensured that personnel followed all safety procedures and preventable accidents were avoided. If accidents occurred, they were properly recorded and reported in accordance with applicable references. Identified and listed safety requirements and checkpoints for your area and activity. This program will ensure safe working conditions by conducting routine safety inspections.

Evaluation Preparation: Read TC 9-237 and TC 9-510 on Safety Precautions in Welding Operations. Instructor/supervisor is to be thoroughly familiar with accident prevention procedures, the individual's and supervisor's responsibility for safety, and the purpose of the shop safety program.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Ensured all safety references were on hand.	—	—
2. Established and documented requirements for a shop safety and accident prevention program.	—	—
3. Prepared a list of shop activities to be inspected.	—	—
4. Conducted initial safety inspections.	—	—
5. Ensured that inspection was scheduled so that normal operations were disrupted as little as possible.	—	—
6. Conducted scheduled and unscheduled safety inspections.	—	—
7. Ensured that any and all potential hazards were corrected.	—	—
8. Documented safety violations, reported the violations as required, and conducted follow-up inspections.	—	—
9. Kept records of safety inspections and accident reports.	—	—
10. Ensured material safety data sheets (MSDS) were prepared and maintained.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- AR 190-13
- AR 220-1
- AR 700-138
- AR 750-1
- DA PAM 750-8
- FM 4-30.3
- TB 43-180

Related

- AR 385-10
- AR 385-40
- AR 385-55
- TC 9-237
- TC 9-510

**Supervise Inventory to Maintain Proper Levels of Spare Materials and Stock as Required
091-CLT-2004**

Conditions: In a contemporary operating environment, perform this task given a current copy of the shop stock list, AR 710-2, DA Pamphlet 710-2-2, and a copy of Federal Logistics (FEDLOG) discs. This task can be performed in a field or garrison environment.

Standards: Maintained accurate shop inventory to ensure adequate supplies and materials were available in the shop stock according to AR 710-2 and DA Pamphlet 710-2-2.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Ensured consumables listed on the shop stock met the criteria listed in AR 710-2 and DA Pamphlet 710-2-2.	—	—
2. Ensured each item was demand supported.	—	—
3. Ensured stockage levels were developed in accordance with DA Pamphlet 710-2-2.	—	—
4. Ensured excess stocks were turned in within 10 days of review.	—	—
5. Ensured replenishment of stock was based on the reorder point (ROP).	—	—
6. Ensured the shop stock was inventoried during the scheduled review period.	—	—
7. Ensured the shop stock list was signed by the unit commander and submitted to the supply support activity (SSA).	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

AR 710-2
DA Pamphlet 710-2-2
FEDLOG

Related

**Review Maintenance Forms
091-CLT-2002**

Conditions: In a field or garrison environment, given DA Forms required for documentation of maintenance and repairs, applicable technical publications, and supervision/assistance.

Standards: Prepared DA Forms in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected applicable form(s).	—	—
2. Selected applicable technical publications.	—	—
3. Performed maintenance or repair procedure.	—	—
4. Annotated actions taken on applicable DA Form.	—	—
5. Ensured form(s) were checked by supervisor.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8

Related

**Supervise a Preventive Maintenance Program on Welding Tools and Equipment
091-44B-2001**

Conditions: In a contemporary environment, day or night, under possibly adverse weather conditions, personnel, and appropriate references.

Standards: Made sure personnel understood procedures for performing PMCS on welding equipment. The equipment must be inspected, tested, operated, adjusted, and components replaced in accordance with 10- and 20-series TMs, lubrication orders, and local SOPs, and particular equipment commercial manuals.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Checked operator preparation for inspection and made sure operator had all applicable forms and manuals including applicable DA Forms.	—	—
2. Ensured personnel are licensed for the equipment.	—	—
3. Ensured equipment has proper BII.	—	—
4. Ensured applicable publications, lubrication orders, and forms were available.	—	—
5. Ensured tools and TMDE were available and serviceable for performing PMCS.	—	—
6. Assigned personnel to perform task.	—	—
7. Ensured safety precautions were followed.	—	—
8. Monitored operator performing before operation checks.	—	—
9. Checked to make sure operator followed PMCS chart or commercial manual equivalent.	—	—
10. Ensured PMCS are performed to standard.	—	—
11. Ensured TAMMS forms were annotated at the completion of the task.	—	—
12. Ensured tools and equipment were maintained and stored at the completion of task.	—	—
13. Critiqued personnel on performance of task.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA FORM 5988-E
DA PAM 750-8

Related

Subject Area 2: SHOP DRAWINGS AND WELDING SYMBOLS

**Create a Simple Sketch or Drawing Requiring Welding of Parts
091-44B-2002**

Conditions: In a field or garrison environment, given DA Forms required for documentation of maintenance and repairs, applicable technical publications, and supervision/assistance.

Standards: Demonstrated the marking out of project applying appropriate tools, techniques and safety practices in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected applicable technical publications.	—	—
2. Sketched the application of the following joints in metal fabrication. <ul style="list-style-type: none"> a. Square butt. b. Single vee. c. Double vee. d. Single U. e. Open corner. 	—	—
3. Marked out the following projects in welding; applying appropriate tools, techniques, and safety practice. <ul style="list-style-type: none"> a. Rectangular container. b. Cylindrical shaped objects. c. Solid corner joints. d. Butt joint. 	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
FM 5-553

Related
DA PAM 750-8

Subject Area 3: SHIELDED METAL ARC WELDING (SMAW)

**Supervise Shielded Metal Arc Welding (SMAW) Operations
091-44B-2003**

Conditions: In a field or garrison contemporary environment, given SMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of supervising the Shielded Metal Arc Welding process in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Reviewed work requests or equipment inspection worksheets.	—	—
2. Ensured task was within shop capability/authorization.	—	—
3. Ensured applicable technical publications were available.	—	—
4. Ensured proper tools and equipment were available to perform and inspect all position SMAW, ferrous metal.	—	—
5. Ensured that initial inspections were performed.	—	—
6. Ensured all safety precautions and procedures were followed.	—	—
7. Provided assistance when necessary.	—	—
8. Ensured all position SMAW, ferrous metal were performed in accordance with appropriate technical manuals and references. <ul style="list-style-type: none"> a. Set up SMAW equipment for operations (ferrous metals). b. Performed all position SMAW. c. Inspected completed work. 	—	—
9. Conducted an in-process inspection.	—	—
10. Performed a final inspection to ensure all position SMAW, ferrous metal were performed in accordance with appropriate technical manuals and references.	—	—
11. Critiqued personnel on their job performance.	—	—
12. Ensured maintenance forms were completed as required.	—	—
13. Ensured tools and equipment were properly maintained.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 4: GAS METAL ARC WELDING (GMAW)

**Supervise Gas Metal Arc Welding (GMAW) Operations
091-44B-2004**

Conditions: In a field or garrison contemporary environment, given GMAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of supervising the Gas Metal Arc Welding process in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Reviewed work requests or equipment inspection worksheets.	—	—
2. Ensured task was within shop capability/authorization.	—	—
3. Ensured applicable technical publications were available.	—	—
4. Ensured proper tools and equipment were available to perform and inspect all position GMAW, ferrous and nonferrous metal.	—	—
5. Ensured that initial inspections were performed.	—	—
6. Ensured all safety precautions and procedures were followed.	—	—
7. Provided assistance when necessary.	—	—
8. Ensured all position GMAW, ferrous and nonferrous metal were performed in accordance with appropriate technical manuals and references. <ul style="list-style-type: none"> a. Set up GMAW equipment for operations. b. Performed all position GMAW. c. Inspected completed work. 	—	—
9. Conducted an in-process inspection.	—	—
10. Performed a final inspection to ensure all position GMAW metal were performed in accordance with appropriate technical manuals and references.	—	—
11. Critiqued personnel on their job performance.	—	—
12. Ensured maintenance forms were completed as required.	—	—
13. Ensured tools and equipment were properly maintained.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 5: FLUX CORE ARC WELDING (FCAW)

**Supervise Flux Core Arc Welding (FCAW) Operations
091-44B-2005**

Conditions: In a field or garrison contemporary environment, given FCAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of supervising the Flux Core Arc Welding process in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Reviewed work requests or equipment inspection worksheets.	_____	_____
2. Ensured task was within shop capability/authorization.	_____	_____
3. Ensured applicable technical publications were available.	_____	_____
4. Ensured proper tools and equipment were available to perform and inspect all position FCAW, ferrous and nonferrous metal.	_____	_____
5. Ensured that initial inspections were performed.	_____	_____
6. Ensured all safety precautions and procedures were followed.	_____	_____
7. Provided assistance when necessary.	_____	_____
8. Ensured all position FCAW, ferrous and nonferrous metal were performed in accordance with appropriate technical manuals and references. <ul style="list-style-type: none"> a. Set up FCAW equipment for operations. b. Performed all position FCAW. c. Inspected completed work. 	_____	_____
9. Conducted an in-process inspection.	_____	_____
10. Performed a final inspection to ensure all position FCAW metal were performed in accordance with appropriate technical manuals and references.	_____	_____
11. Critiqued personnel on their job performance.	_____	_____
12. Ensured maintenance forms were completed as required.	_____	_____
13. Ensured tools and equipment were properly maintained.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 6: GAS TUNGSTEN ARC WELDING (GTAW)

**Supervise Gas Tungsten Arc Welding (GTAW) Operations
091-44B-2006**

Conditions: In a field or garrison contemporary environment, given GTAW equipment, welder's tool kit, protective clothing and equipment, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Demonstrate knowledge of supervising the Gas Tungsten Arc Welding process in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Reviewed work requests or equipment inspection worksheets.	_____	_____
2. Ensured task was within shop capability/authorization.	_____	_____
3. Ensured applicable technical publications were available.	_____	_____
4. Ensured proper tools and equipment were available to perform and inspect all position GTAW, ferrous and nonferrous metal.	_____	_____
5. Ensured that initial inspections were performed.	_____	_____
6. Ensured all safety precautions and procedures were followed.	_____	_____
7. Provided assistance when necessary.	_____	_____
8. Ensured all position GTAW, ferrous and nonferrous metal were performed in accordance with appropriate technical manuals and references. <ul style="list-style-type: none"> a. Set up GTAW equipment for operations. b. Performed all position GTAW. c. Inspected completed work. 	_____	_____
9. Conducted an in-process inspection.	_____	_____
10. Performed a final inspection to ensure all position GTAW metal were performed in accordance with appropriate technical manuals and references.	_____	_____
11. Critiqued personnel on their job performance.	_____	_____
12. Ensured maintenance forms were completed as required.	_____	_____
13. Ensured tools and equipment were properly maintained.	_____	_____

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

Subject Area 7: MANUAL OXY-FUEL GAS CUTTING (OFC) AND WELDING

Supervise Oxy-Fuel Cutting (OFC) Operations
091-44B-2007

Conditions: In a field or garrison environment, given a welder's tool kit, Oxy-fuel welding equipment, low carbon steel coupons, 1/8 inch mild steel welding rod, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform Oxy-fuel cutting operations in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Prepared materials for Oxy-fuel cutting operations.	—	—
a. Determine the size and type of material.		
b. Lay out materials, if appropriate.		
5. Set up oxyacetylene welding set with cutting attachment.	—	—
a. Select appropriate cutting tip.		
b. Adjust oxygen and acetylene working pressure.		
6. Performed Oxy-fuel cutting.	—	—
7. Visually inspected the finished cut.	—	—
8. Annotated actions taken on the DA Form 5988-E.	—	—
9. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
 DA PAM 750-8
 TC 9-237

Related
 TM 9-3431-265-14&P
 TM 9-3431-272-13&P
 TM 9-4940-567-13&P

Subject Area 8: PLASMA ARC CUTTING (PAC)

**Supervise Plasma Arc Cutting (PAC) Operations
091-44B-2008**

Conditions: In a field or garrison environment, given a trailer mounted welding shop, additional tools, equipment specified in TMs, repair parts, applicable maintenance forms and technical publications, and supervision/assistance.

Standards: Perform air arc cutting/gouging in accordance with applicable technical publications.

Performance Measures	<u>GO</u>	<u>NO-GO</u>
1. Selected and used applicable technical publications.	—	—
2. Selected and used applicable tools and equipment.	—	—
3. Practiced shop safety and maintenance discipline.	—	—
4. Laid out materials, if appropriate.	—	—
5. Set up air arc cutting/gouging equipment. <ul style="list-style-type: none"> a. Select electrode tip. b. Adjust amperage and current. c. Adjust gas selection. d. Establish cutting arc. 	—	—
6. Performed air arc cutting and gouging operations. <ul style="list-style-type: none"> a. Establish arc and air stream. b. Cut metal. c. Visually inspect the finished cut. d. Measure workpiece for accuracy. 	—	—
7. Annotated actions taken on the DA Form 5988-E.	—	—
8. Maintained tools and equipment.	—	—

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required
DA PAM 750-8
TC 9-237

Related
TM 9-3431-265-14&P
TM 9-3431-272-13&P
TM 9-4940-567-13&P

CHAPTER 4

Duty Position Tasks

44B-METAL WORKER, CMF 63.

a. Major Duties. The metal worker supervises, inspects, installs, modifies, and performs maintenance on metal body components, radiators, fuel tanks, hulls, and accessories of Army watercraft and amphibians. Duties for MOS 44B at each skill level are:

(1) *MOSC 44B10*. Welds ferrous and nonferrous metals using oxyacetylene, electric arc, and inert gas welding equipment and repairs, repaints, and installs metal body components, radiators, fuel tanks, modifies other related items, and repairs hulls and accessories of Army watercraft.

(2) *MOSC 44BB20*. Performs duties in preceding skill level, supervises lower grade soldiers and provides technical guidance to the soldiers in the accomplishment of their duties. Performs direct support and general support (DS/GS) maintenance metal worker tasks.

b. Physical Demands Rating and Qualifications for Initial Award of MOS. The metal worker must possess the following qualifications:

- (1) A physical demands rating of very heavy.
- (2) A physical profile of 222222.
- (3) Normal color vision.
- (4) A knowledge of joint design, welding criterion, and controlling expansion and contraction.
- (5) Near and distance visual acuity of at least 20/30 in each eye regardless of whether or not corrective lenses are worn.
- (6) No more than one error on Titmus Stereo Circles at 16 inches or no errors on eight positions of Verhoeff Stereoptor at 16 inches.
- (7) A Minimum score of 90 in aptitude area GM.
- (8) Formal training (completion of MOS 44B course conducted under the auspices of the USA Ordnance Center and School [USAOC&S]) mandatory or meet the civilian acquired skills criteria listed in AR 601-210.

c. Additional Skill Identifiers.

- (1) P5—Master Fitness Trainer.
- (2) 4A—Reclassification Training.

d. Physical Requirements and Standards of Grade. Physical requirements and SG relating to each skill level are listed in the following tables:

- (1) Table 10-44B-1. Physical Requirements.
- (2) Table 10-44B-2. Standards of Grade TOE/MTOE.
- (3) Table 10-44B-3. Standards of Grade TDA.

APPENDIX A
HANDS-ON EVALUATION

HANDS-ON EVALUATION (DA FORM 5164-R)
INSTRUCTIONS

DA Form 5164-R (Hands-On Evaluation) allows the trainer to keep a record of the performance measures a soldier passes or fails on each task. Figure A-1 shows a sample of a completed DA Form 5164-R.

Before evaluation:

1. Obtain a blank copy of [DA Form 5164-R](#), which you may locally reproduce on 8 ½ x 11 paper.
2. Enter the task title and 10-digit number from the STP task summary.
3. In Column a, enter the performance measure numbers from the task summary.
4. In Column b, enter the performance measure corresponding to the number in Column a (you may abbreviate this information, if necessary).
5. Locally reproduce the partially completed form when evaluating more than one soldier on the task or when evaluating the same soldier more than once.

During evaluation:

1. Enter the date just before evaluating the soldier's task performance.
2. Enter the evaluator's name, the soldier's name, and the unit.
3. For each performance measure in Column b, enter a check in Column c (PASS) or Column d (FAIL), as appropriate.
4. Compare the number of performance measures the soldier passes (and, if applicable, which ones) against the task standards specified in the task summary. If the standards are met or exceeded, check the GO block under STATUS; otherwise, check the NO-GO block.

HANDS-ON EVALUATION For use of this form, see STP 11-25S14-SM-TG; the proponent agency is TRADOC		DATE 1 November 2004	
TASK TITLE Set up Manual Plasma Arc Cutting (PAC) Operations		TASK NUMBER 091-44B-1050	
ITEM a	PERFORMANCE STEP TITLE b	SCORE (Check One)	
		PASS c	FAIL d
1.	Selected and used applicable technical publications.	<input checked="" type="checkbox"/> P	<input type="checkbox"/> F
2.	Selected and used applicable tools and equipment.	<input type="checkbox"/> P	<input checked="" type="checkbox"/> F
3.	Practiced shop safety and maintenance discipline.	<input checked="" type="checkbox"/> P	<input type="checkbox"/> F
4.	Set up PAC operations.	<input checked="" type="checkbox"/> P	<input type="checkbox"/> F
5.	Annotated actions taken on the DA Form 5988-E.	<input type="checkbox"/> P	<input type="checkbox"/> F
6.	Maintained tools and equipment.	<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
		<input type="checkbox"/> P	<input type="checkbox"/> F
EVALUATOR'S NAME SSG Powell		UNIT E Co., 29th Ord Co.	
SOLDIER'S NAME PV2 Howard		STATUS <input type="checkbox"/> GO <input checked="" type="checkbox"/> NO GO	

Figure A-1. Sample of a Completed DA Form 5164-R

APPENDIX B**FIELD EXPEDIENT SQUAD BOOK****FIELD EXPEDIENT SQUAD BOOK (DA FORM 5165-R)
INSTRUCTIONS**

DA Form 5165-R (Field Expedient Squad Book) allows the trainer to keep a record of task proficiency for a group of soldiers. Figure B-1 shows a sample of a completed DA Form 5165-R.

Before evaluation:

1. Obtain a blank copy of [DA Form 5165-R](#), which you may locally reproduce on 8 ½ x 11 paper.
2. Locally reproduce the partially completed form if you are evaluating more than nine soldiers.

During evaluation:

1. Enter the names of the soldiers you are evaluating, one name per column, at the top of the form.
2. Under STATUS, record (in pencil) the date in the GO block if the soldier demonstrated task proficiency to soldier's manual standards. Keep this information current by always recording the most recent date on which the soldier demonstrated task proficiency. Record the date in the NO-GO block if the soldier failed to demonstrate task proficiency to soldier's manual standards. Soldiers who failed to perform the task should be retrained and reevaluated until they can meet the standards. When the standards are met, enter the date in the appropriate GO block and erase the previous entry from the NO-GO block.

After evaluation:

1. Read down each column (GO/NO-GO) to determine the training status of an individual. This will give you a quick indication of which tasks a soldier needs training on.
2. Read across the rows for each task to determine the training status of all soldiers. You can readily see which tasks to focus training on.
3. Line through the STATUS column of any soldier who leaves the unit.

FIELD EXPEDIENT SQUAD BOOK		SHEET 1 OF 3	
For use of this form, see STP 10-92A10-SM-TG; the proponent agency is TRADOC.		SOLDIER'S NAME	
USER APPLICATION	TASK NUMBER AND TITLE	GO	NO-GO
STP 21-1-SMCT Soldiers Manual of Common Tasks	071-326-0512 Estimate Range	3-17-04	4-17-04
	071-329-1001 Identify Terrain	4-2-04	4-2-04
	071-311-2004 Battlesight Zero	4-8-04	4-15-04
	878-920-1001 Armored Vehicles	5-8-04	
	071-329-1002 Grid Coordinates		
	071-329-1003 Magnetic Azimuth		
	071-311-2001 M16A1 Rifle		
	071-503-1001 MAINT M17-SERIES		
	081-503-1007 Dream Machine		
	081-503-1009 MOPP Gear		
081-831-1031 Buddy-Aid			
081-831-1005 Prevent Shock			
081-831-1009 Frostbite			
071-326-0511 React to Flares			
071-325-4407 Employ Hand Grenades			
081-503-1023 Exchange MOPP Gear			
081-831-1005 Prevent Shock			

Figure B-1. Sample of a Completed DA Form 5165-R

GLOSSARY

ACCP	Army Correspondence Course Program
AEL	Army Electronic Library
AIPD	Army Institute for Professional Development
AIT	advanced individual training
AN	annually
ANCOC	advanced noncommissioned officer course
APD	Army Publishing Directorate
AR	Army regulation
ARTEP	Army Training and Evaluation Program
AWS	American Welding Society
BA	biannually
BNCOG	Basic Non-Commissioned Officer Course (BNCOG)
BW	biweekly
CLT	common logistic task
CTT	common task test
DA	Department of the Army
FCAW	Flux Core Arc Welding
FEDLOG	Federal Logistics
FM	Field Manual
GMAW	Gas Metal Arc Welding
GTAW	Gas Tungsten Arc Welding
HQ	headquarters
IETM	Interactive Electronic Technical Manual
METL	mission-essential task list
MO	monthly
MOS	Military Occupational Specialty
MOSC	military occupational specialty code

MSDS	Material Safety Data Sheet
MTOE	modified table(s) of organization and equipment
NA	not applicable
NCO	noncommissioned officer
OFC	Oxy-Fuel Gas Cutting
OFW	Oxy-Fuel Gas Welding
PAC	Plasma Arc Cutting
PAM	pamphlet
PMCS	preventive maintenance checks and services
QT	quarterly
RDL	Reimer Digital Library
ROP	reorder point
SA	semiannually
SL	skill level
SM/TG	Soldier's Manual/Trainer's Guide
SMAW	Shielded Metal Arc Welding
SMCT	Soldier's Manual of Common Tasks
SSA	supply support activity
STP	Soldier Training Publication
TAMMS	The Army Maintenance Management System
TB	technical bulletin
TDA	table(s) of daily allowances
TM	technical manual
TMDE	test, measurement, and diagnostic equipment
TOE	table(s) of organization and equipment
TRADOC	Training and Doctrine Command
USAOC&S	United States Army Ordinance Center and School
WK	weekly

REFERENCES

Required Publications

Required publications are sources that users must read in order to understand or to comply with this publication.

Army Regulations

AR 190-13	The Army Physical Security Program 30 September 1993
AR 220-1	Unit Status Reporting 16 March 2006
AR 385-10	The Army Safety Program 29 February 2000
AR 385-40	Accident Reporting and Records 1 November 1994
AR 385-55	Prevention of Motor Vehicle Accidents 12 March 1987
AR 601-210	Regular Army and Army Reserve Enlistment Program 16 May 2005
AR 700-138	Army Logistics Readiness and Sustainability 26 February 2004
AR 710-2	Supply Policy Below the National Level 8 July 2005
AR 750-1	Army Materiel Maintenance Policy 23 January 2006

Department of the Army Forms

DA Forms are available on the Army Electronic Library (AEL) and the APD web site, www.apd.army.mil.

DA FORM 2404	Equipment Inspection and Maintenance Worksheet
DA FORM 2407	Maintenance Request
DA FORM 2407-1	Maintenance Request Continuation Sheet
DA FORM 5988-E	Equipment Inspection Maintenance Worksheet (EGA)
DA FORM 5990-E	Maintenance Request (EGA)

Department of Army Pamphlets

DA PAM 350-59	Army Correspondence Course Program Catalog 1 October 2002
DA PAM 710-2-2	Supply Support Activity Supply System: Manual Procedures 30 September 1998
DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual 22 August 2005

Field Manuals

FM 4-30.3	Maintenance Operations and Procedures 28 July 2004
FM 5-553	General Drafting 6 January 1984
FM 7-0	Training the Force 22 October 2002
FM 7-1	Battle Focused Training 15 September 2003
FM 25-4	How to Conduct Training Exercises 10 September 1984
FM 25-5	Training for Mobilization and War 25 January 1985

Miscellaneous Publications

FEDLOG	Federal Logistics
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Soldier Training Publications

STP 21-1-SMCT	Soldier's Manual of Common Tasks Skill Level 1	11 October 2005
STP 21-24-SMCT	Soldier's Manual of Common Tasks (SMCT) Skill Levels 2-4	31 August 2003

Technical Bulletins

TB 43-180	Interactive Electronic Technical Manual (IETM) for Calibration and Repair Requirements for the Maintenance of Army Materiel	29 July 2005
TB 9-2300-247-40	Tactical Wheel Vehicles: Repair of Frames (This Item is Included on EM 0178)	4 December 1990
TB 9-3439-203/1	Conversion of Welding Electrode Holder (FSN 3439-238-1638) (3439-238-1638) for Supplemental Air-Arc Metal Cutting	18 May 1967

Technical Manuals

TM 750-254	Cooling Systems, Tactical Vehicles (This Item is Included on EM 0178)	29 March 1972
TM 9-243	Use and Care of Hand Tools and Measuring Tools (M6290-AJ-MAN-010; TO 32-1-101; TM-10209-10/1)	12 December 1983

Training Circulars

TC 9-237	Operator's Circular Welding Theory and Application	7 May 1993
TC 9-510	Metal Body Repair and Related Operations	30 September 1993
TC 9-524	Fundamentals of Machine Tools	29 October 1996

Related Publications

Related publications are sources of additional information. They are not required in order to understand this publication.

Army Regulations

AR 385-10	The Army Safety Program	29 February 2000
AR 385-40	Accident Reporting and Records	1 November 1994
AR 385-55	Prevention of Motor Vehicle Accidents	12 March 1987

Department of the Army Forms

DA Forms are available on the Army Electronic Library (AEL) and the APD web site, www.apd.army.mil.

DA FORM 2028	Recommended Changes to Publications and Blank Forms
DA FORM 5164-R	Hands-On Evaluation
DA FORM 5165-R	Field Expedient Squad Book

Department of Army Pamphlets

DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual	22 August 2005
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Technical Manuals

TM 9-3431-265-14&P	Operator's, Organizational, Direct Support and General Support Maintenance Manual Including Repair Parts List for Welding Machines (Hobart Brothers Co., Models RCC-610, 27,H4 and GA-600) (NSN 3431-00-935-7913) 8 February 1988
TM 9-3431-266-14&P-1	Operator's, Organizational, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools List for Welding Machine Model DCC-353-P (NSN 3431-01-079-8439) (This Item is Included on EM 0072) 5 August 1988
TM 9-3431-266-14&P-2	Operator's Organizational, Direct Support and General Support Maintenance Manual Including Repair Parts and Special Tools List for Welding Machine Model DCC-353-P (NSN 3431-01-079-8439) (This item is included on EM 0072) 5 August 1988
TM 9-3431-272-13&P	Operator's, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Welding Shop, Trailer Mounted Model 11838792 (NSN 3431-01-341-6232) (This Item is Included on EM 0072) 26 October 1994
TM 9-4940-567-13&P	Operator's, Unit, and Direct Support Maintenance Manual Including Repair parts and Special Tools List for Trailer Mounted Welding Shop Set (TMWSS) Contact (SEW) (NSN 4940-01-454-9877) (This item is Included on EM 0072) 1 October 2003

Training Circulars

TC 9-237	Operator's Circular Welding Theory and Application 7 May 1993
TC 9-510	Metal Body Repair and Related Operations 30 September 1993

Army Correspondence Course Program Subcourses

ACCP OD 1650	Welding Theory
ACCP OD 1651	Welding Operations I
ACCP OD 1654	Welding Operations II
OD 0425	Welding
OD 1650	Welding Theory
OD 1651	Welding Operations, I
OD 1654	Welding Operations, II

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STP 9-44B12-SM-TG
24 August 2006

By Order of the Secretary of the Army:

Official:



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