



# ELECTRONIC COMMUNICATION AND MULTIMEDIA EQUIPMENT SERVICING

NTQF Level-II

## Learning Guide-13

**Unit of Competence:** Assemble and Disassemble communication & multimedia Equipment  
**Module Title:** Assembling and Disassembling communication & multimedia Equipment  
**LG Code:** EEL CMS2 M04 LO1- LG- 13 0919  
**TTLM Code:** EEL CMS2 M04 TTLM 0919 v1

**LO4:** Test and inspect assembled products

**TTLM No.13**



## Instruction Sheet

## Learning Guide #13

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Subjecting finished products to final visual inspection and testing
- Documenting & informing work completion to responsible
- Following housekeeping procedures

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, **upon completion of this Learning Guide, you will be able to:**

- Subject finished products to final visual inspection and testing in accordance with quality standards
- Document & inform work completion to responsible person in accordance with established procedures
- Follow housekeeping procedures in accordance with 5S discipline and established procedures

### Learning Instructions:

#### Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 20.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3 and Sheet 4”.
4. Accomplish the information “Sheet 1, Sheet 2, Sheet 3 and Sheet 4”.in page [redacted].
5. Try to answer self-check, you can ask your trainer for correction. If you finished answering the Self-check, take correction or explanation from your trainer if it is not clear.
6. If you scored a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, discuss with your trainer for further instructions or go back to learning **operation sheet1**.
7. Submit your accomplished Self-check. This will form part of your training portfolio.
8. Read the information written in the “Information Sheet 2”. Try to understand what are being discussed. Ask you Instructor for assistance if you have hard time understanding them.
9. Accomplish the “Self-check 2” in page [redacted]. Ask from your teacher for correction (key answers) if any.



10. Read the information written in the “Information **Sheets 3**”. Try to understand what are being discussed and ask your teacher for assistance if you have hard time understanding them.
11. Accomplish the “**Self-check 3**” in page  .
12. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (To get the key answer only after you finished answering the Self-check 3).
13. If you scored a satisfactory evaluation proceed to “Operation Sheet 1” in page  , however, if your rating is unsatisfactory, see your teacher for further instructions or go back to **Learning Activity #1**.
14. Read the “**Operation Sheet 1**” and try to understand the procedures discussed.



## 4.1 Subject finished products to final visual in section and testing

- **Inspection** and **testing** are performed before, during, and after manufacturing to ensure that the quality level of the product is within acceptable design standards. Each item in the sample is inspected or **tested** for certain quality characteristics
- An **inspection** is, most generally, an organized examination or formal evaluation exercise. In engineering activities inspection involves the measurements, tests, and gauges applied to certain characteristics in regard to an object or activity. The results are usually compared to specified requirements and standards for determining whether the item or activity is in line with these targets, often with a Standard Inspection Procedure in place to ensure consistent checking. Inspections are usually non-destructive.
- **Visual inspection** is a common method of quality control, data acquisition, and data analysis. Visual Inspection, used in maintenance of facilities, mean inspection of equipment and structures using either or all of raw human senses such as vision, hearing, touch and smell and/or any non-specialized inspection equipment. Sometimes at higher level visual Inspection requires Ultrasonic, X-Ray equipment, Infra-red.... etc.

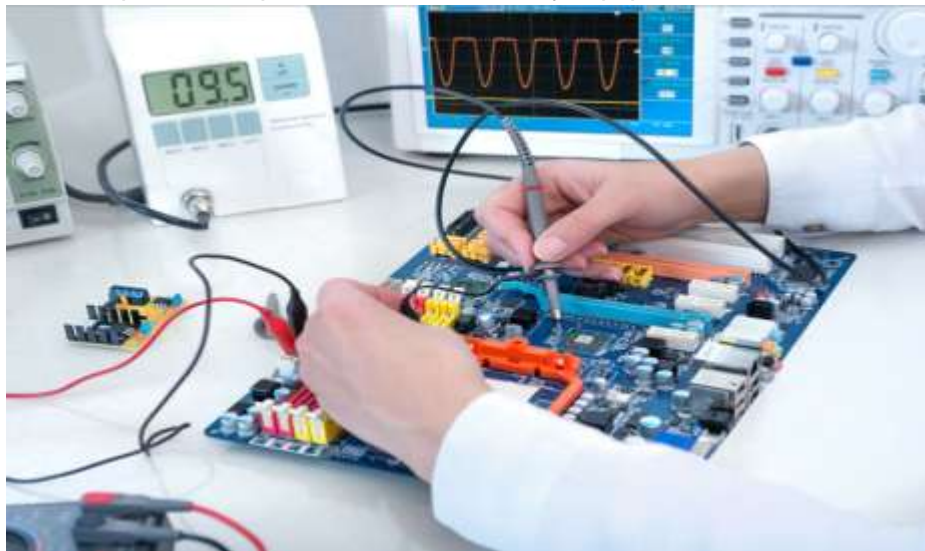


Figure. A) Inspecting



b) recording



c) rating or marking



<b>Self-Check -1</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Choose best answer form give alternatives**

1. why inspection is needed at work completion?
  - A) for quality control
  - B) for safety purpose
  - C) for work completion
  - D) All
2. when do we perform inspection ?
  - A) during manufacturing
  - B) after work completion
  - C) during the use of product
  - D) all
3. \_\_\_\_\_ is a common method of quality control & data acquisition
  - A) Safety
  - B) Visual inspection
  - C) Cleaning
  - D) all

<b>Note: Satisfactory rating - 2 points</b>	<b>Unsatisfactory - below 2 points</b>
You can ask you teacher for the copy of the correct answers.	
<b>Answer sheet</b>	Score = _____ Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**

1. \_\_\_\_\_



## Information sheet - 2

## Document and inform work completion to responsible person

### 4.2 Document and inform work completion to responsible person is in accordance with established procedures

- The Work document, sometimes known as the statement of Work or what document will enumerate. For example:-
  - The work to be done.
  - Who is responsible for the work
  - How the work should be performed (techniques used), and
  - What materials will be used
- The document will detail how change orders are handled.
- The work requires time limit, schedule and work quality and the completion also must be in time frame and agreement of your instructor/ trainer. Another important component of work is the document of work and record which fully explain the process of work and current status.
- In Special Conditions document will specify or explain certain conditions and clauses that be relevant to specific portions of the job. For example, if there are specific instructions that apply to only one portion of the job, the Special Conditions section is where this will be described.



908 AW 2014 SAFETY COMPLIANCE CHECKLIST						
Sources for this document include: Air Force Occupational Safety and Health Standards (AFOSH), Air Force Instructions (AFI's), Air Force Technical Orders (TO's), Federal Occupational Safety and Health Act standards (29 CFR), Federal Public Laws (PL), the National Electric Code (NEC), American National Standards Institute, 908 Mishap Prevention Program and the National Fire Protection Agency.				 OPR: 908 AW/SC		
Although the information contained in this publication has been compiled directly from the published sources, it is not intended to be the sole or final source of information pertaining to the subject. It may be necessary to consult the source further for complete information.						
Replaces 908 AW 2003 Safety Compliance Checklist				Current as of 12 Mar 14		
<b>INDEX</b>						
<b>PROGRAM INSPECTION</b>			<b>FACILITY MANAGEMENT</b>			
Item 1, Supervisor Responsibilities Item 2, Safety Bulletin Board Item 3, Emergency Action Plan Item 4, Respirators			Item 24, Abrasive Operations Item 25, Compressed Air/Compressed Gas Cylinders/System Item 26, Flammable and Combustibles * Inside Storage Rooms			
<b>Reference and Title</b>			<b>Publications Date</b>			
1 American National Standards			2012			
2 29 Code of Federal Regulations Title 40 (Occupational Safety & Health Agency - 29 CFR)			N/A			
3 908 Mishap Prevention Program			1 Jun 13			
This is not an all inclusive checklist. Like most checklists, this simply highlights some critical items. Other requirements exist that are not in this checklist. Consult AFI's and AFOSH Standards for a more specific listing.						
Item No.	Compliance Area	Reference	Complies	Complies with	Does Not Comply	N/A
<b>PROGRAM MANAGEMENT</b>						
		Reference	C	CWC	ORC	N/A
<b>Supervisor Responsibilities</b>						
1.1	Does the supervisor accomplish Job Safety and Occupational Health training for each newly assigned worker and on each worker who has not previously received this training?	AFI 90-202, Para. 1.3.3.1				

Fig. inspection and documentation



<b>Self-Check -2</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Part –I: Choose best answer form give alternatives**

**Self check**

- 1.What is work document?
  - A) statement of Work
  - B) procedure of work
  - C) history of job & standard
  - D) all
- 2.What can be listed/written in work document?
  - A) The work to be done.
  - B) Who is responsible for the work
  - C) How the work should be performed
  - D) What materials will be used
  - E) All
- 3.Who can be informed about work completion?
  - A) Contracting person
  - B) Inspector/ quality controller
  - C) Trainer/instructor
  - D) Coach
  - E) All

<b>Note: Satisfactory rating - 2 points</b>	<b>Unsatisfactory - below 2 points</b>
You can ask you teacher for the copy of the correct answers.	
<b>Answer sheet</b>	Score = _____ Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_





#### 4.3 Follow Housekeeping procedures in accordance with 5S discipline and established procedures

- Workshop Housekeeping is operational procedures to ensure
  - ✓ Cleanliness
  - ✓ Safety
  - ✓ sanitation and maintenance for a work area
  - ✓ safety of stored equipment
  - ✓ Safety of store or warehouse.
- Workshop should be kept neat and tidy. Good housekeeping can significantly reduce the risk of an accident and injury, failure to maintain a clean and tidy Workshop can result in accident and injury. Work areas and equipment are to be thoroughly cleaned after use.
- Benches are to be kept clean and free from chemicals and apparatus that are not being used. Aisles and exits are to be kept free from obstructions. All walkways, work stations, access to emergency equipment and exits shall be free from obstruction at all times. Liquid spills shall be cleaned up immediately. Heaps or stacks of equipment shall be stable and shall not obstruct lines of view necessary for supervision of shop users. Wood and metal dusts shall be collected at the end of each operation. Dry sweeping is not recommended and the use of air hoses is not permitted. Flammable and combustible materials shall not be allowed to accumulate in open areas of the workshop. Principle of 5s must be applied to the workplace all time to reduce hazard, to keep work area free and clean, to increase produce quality and to reduce waste.



Figure. Housekeeping materials





## THE 5S PRINCIPLES

5S	JAPANESE WORD	ENGLISH TERM	ACTION	EFFECTS
1S	SEIRI	SORT	Identify and eliminate all unnecessary items.	ACTIONS
2S	SEITON	SYSTEMATIZE	Arrange necessary items in good order and easy access.	
3S	SEISO	SWEEP	Clean your workplace thoroughly.	
4S	SEIKETSU	STANDARDIZE	Maintain high standards of housekeeping and workplace organization at all times.	CULTURE
5S	SHITSUKE	SUSTAIN/SELF DISCIPLINE	Create a culture wherein all members practice the above 4S as a way of life.	HABIT

### Hand Tools

Ensure electric tools are of the double insulation type and are inspected regularly. Use a soft-face hammer or other safe tool where there is a danger of sparks igniting flammable substances.

Ensure that cutting tools, such as drills and chisels, are kept sharp. Keep tools which are not in use in stores, or stowed so that they cannot be tripped over or be knocked from benches. When working with tools at height makes sure they cannot fall. The use of securing line is highly recommended. Do not leave power tools switched on when disconnected from their power as unexpected starting will occur when power is re-connected.

### Lighting and Air Conditioning

Position lights so that they cannot light flammable material on. Illuminate gangways and work areas so that possible floor hazards can be seen. Ensure that power cables to lights, air hoses and portable tools do not constitute a hazard. Keep lights and cables away from flammable goods. Illuminate dark corners so that flammable rubbish cannot accumulate without being seen. Make sure that gas cylinder are kept in upright position and are secured from falling at all times.

A housekeeping Standard Operating Procedure (SOP) is a documented, step-by-step process on how to effectively perform housekeeping procedures, such as daily cleaning and maintenance tasks.

### Power Sources

Ensure that cables, power lines, pipes and hoses are not allowed to trail across gangways or work areas. Check insulation, switches and fuse boxes for possible hazards. Ensure warning signs are clear and easily seen. Ensure that correct type of firefighting equipment, shutdown, and alarm systems are fully operational and accessible in areas containing power supplies not suitable for use in potentially hazardous atmosphere.



*Fig. Cleaning process*



Self-Check -3	Written Test
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Part –I: Choose best answer form give alternatives**

1. Housekeeping is necessary for reducing\_\_\_\_\_.
  - A) Accident and injury
  - B) failure to maintain a clean and tidy
  - C) failure of equipment
  - D) all
2. Which of the following is not a component of 5s?
  - A) Seiri
  - B) Seiketsu
  - C) Seiso
  - D) None
3. Who is the beneficiary from applied 5s at workplace?
  - A) Trainees
  - B) Instructor/Trainer
  - C) Institution/Companies
  - D) Country
  - E) All

**PART-II: - write the answer for the following question.**

1. Write types of fire extinguisher and class of fire

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<b>Note: Satisfactory rating - 3 points</b>	<b>Unsatisfactory - below 3 points</b>
You can ask you teacher for the copy of the correct answers.	
<b>Answer sheet</b>	Score = _____ Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Short Answer Questions

1. \_\_\_\_\_

### Self-check 3 answer

1. D    2. D    3. E



## Reference

1. <https://encyclopedia2.thefreedictionary.com/Inspection+and+testing>
2. [https://en.wikipedia.org/wiki/Visual\\_inspection](https://en.wikipedia.org/wiki/Visual_inspection)
3. <https://www.thebalancesmb.com/contract-documents-for-every-construction-project-844919>
- 4.