

Machining and hand sewing of vehicle trim components

Overview

This standard identifies the competences needed to carry out machining and hand sewing of vehicle trim components, in accordance with approved procedures. You will be required to select the appropriate materials to use, and to maintain and use hand and machine sewing equipment to produce vehicle trim components, using a variety of assembly methods and techniques. You will also be expected to use a range of sewing and specialised equipment associated with the manufacturing process, and to check that the sewn assembly has been completed to the level of accuracy and quality required by the specification.

Your responsibilities will require you to comply with organisational policy and procedures for the assembly activities undertaken, and to report any problems with the sewing activities, or with the tools and equipment used that you cannot resolve, or that are outside your permitted authority, to the relevant people. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to applying procedures appropriate to the sewing of vehicle trim components. You will understand the manufacturing methods and techniques used, and their application. You will also know about the sewing and ancillary equipment, and the properties and workability of trim materials and consumables, in adequate depth to provide a sound basis for carrying out the activities to the required specification.

You will understand the safety precautions required when carrying out the sewing activities. You will be required to demonstrate safe working practices throughout, and will understand the responsibility you owe to yourself and others in the workplace.

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Performance criteria

You must be able to:

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. follow the relevant instructions, assembly drawings and any other specifications
3. ensure that the specified components are available and that they are in a usable condition
4. assemble the components in their correct positions using appropriate methods and techniques
5. sew the trim components using the specified connectors and securing devices
6. check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
7. deal promptly and effectively with problems within your control and report those that cannot be solved
8. ensure that work records are completed, stored securely and available to others as per organisational requirements
9. leave the work area in a safe condition on completion of the activities, as per organisational and legal requirements

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Knowledge and understanding

You need to know and understand:

1. the specific safety precautions to be taken whilst carrying out the activities (including any specific legislation, regulations or codes of practice relating to the activities, equipment or materials)
2. the health and safety requirements of the work and activities, and the responsibility these requirements place on you
3. the personal protective equipment and clothing to be worn (PPE) during the activities
4. the specific safety requirements relating to the use of sewing machines
5. the hazards associated with the activities and how to minimise them and reduce any risks
6. the procedures for obtaining the various types of drawing, job instructions and specifications that are used during the machine and hand sewing of vehicle trim components, and how to interpret them correctly
7. how to identify the materials to be used; material identification systems (codes and material orientation indicators)
8. the assembly methods, procedures and techniques governing needle, pressure foot, tension, stitch length and thread selection on sewing machines for different materials, and the importance of adhering to them
9. how the components are to be aligned and positioned prior to assembling, and the tools and equipment that are used
10. the procedure to be adopted for the safe disposal of waste materials of all kinds
11. the company coding procedure for component variants to meet customer requirements
12. how to identify faults in the materials that could affect finish and quality, and the procedure to be adopted to overcome them
13. the identification of stitch strength and application (stitch length, herringbone and frenching in hand sewing)
14. the consumables, tools and equipment that are used for the machine and hand sewing of vehicle trim components
15. the quality control procedures to be followed during the machine and hand sewing of vehicle trim components
16. how to conduct any necessary checks to ensure the accuracy and quality of the assembly produced
17. how to recognise defects (incorrect assembly, ineffective sewing, damaged materials or components)
18. the routine maintenance procedures for sewing machines
19. the methods and equipment used to transport, lift and handle the components into position, and how to check that the equipment is

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- within its current certification dates
- 20. preparations to be undertaken prior to assembly, and the importance of ensuring that sewing surfaces are free from dirt, defects or foreign bodies
- 21. how to check that the tools and equipment to be used are correctly calibrated and are in a safe, tested and serviceable condition
- 22. the importance of ensuring that all tools are used correctly and within their permitted operating range
- 23. the problems that could occur with the trim assembly operations and how they can be avoided
- 24. the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve
- 25. how to access, use and maintain information to comply with organisational requirements and legislation

Scope/range related to performance criteria

1. Carry out all of the following during the sewing activities:
 1. obtain and use the appropriate documentation (such as job instructions, trim assembly drawings, quality control documentation)
 2. adhere to procedures or systems in place for risk assessment, hazardous substances, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work
 3. check that all cables, extension leads or air supply hoses are in a tested and serviceable condition
 4. check that all tools and equipment to be used are within current calibration/certification dates
 5. ensure that trim materials and components used are free from damage, foreign objects, dirt or other contamination before assembling them
 6. use safe and approved sewing techniques to assemble the trim components
 7. return all tools and equipment to the correct location on completion of the sewing activities
 8. leave the work area in a safe and appropriate condition on completion of the activities
2. Select material, and hand/machine sew vehicle trim components, to include all of the following:
 1. straight seams
 2. curved seams
 3. pattern matching
3. Use a variety of manufacturing methods and techniques, to include three of the following:
 1. single needle technique
 2. adhesives
 3. stretch/elasticised fabrics
 4. double needle technique
 5. fitting pipings
 6. fixed edge width assemblies
 7. multi-needle technique
 8. welding plastics
4. Select and prepare material to be sewn, to include two of the

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following:

1. leather
 2. wool
 3. velour
 4. nylon
 5. cotton
 6. linz
 7. moquette
 8. PVC
 9. foams/composites
5. Sew the trim components, selecting and using the appropriate equipment, to include four of the following:
1. sewing machine
 2. over lockers
 3. needles
 4. plastic welding device
 5. spools
 6. bobbins
 7. threads
 8. alignment devices
 9. cutting devices
 10. sewing feet
6. Sew the vehicle trim components, to include two of the following:
1. door pad covers
 2. rear cushion covers
 3. floor console covers
 4. front seat covers
 5. roof linings
 6. arm rest covers
 7. rear squab covers
 8. visor covers
7. Check that trim assemblies comply with all of the following quality and accuracy standards:
1. the sewn assembly of trim components is complete
 2. where appropriate, pattern matches are achieved
 3. the assembly is free from damage, needle marks and cuts
 4. surplus material has been removed and components are clean
 5. all quality control checks have been carried out and the appropriate quality levels achieved

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