

Overview

This standard identifies the competences you need to produce and assemble substrates required in the manufacture of veneered hard trim vehicle components, in accordance with approved procedures. You will be required to select materials and to manufacture substrate components using a variety of machines. You will also be expected to assemble and finish substrate components by using a variety of assembly methods and techniques, and to check that they have 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 process 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 manufacture and assembly of substrates for veneering. You will understand the manufacturing methods and techniques used, and their application. You will also know about the ancillary equipment, and the properties and workability of 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 substrate assembly 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.

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 use the appropriate methods and techniques to assemble the components in their correct positions
4. secure the components using the specified connectors and securing devices
5. check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification
6. deal promptly and effectively with problems within your control and report those that cannot be solved
7. ensure that work that work records are completed, stored securely and available to others as per organisational requirements
8. leave the work area in a safe condition on completion of the activities, as per organisational and legal requirements

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 used)
2. the health and safety requirements of the work area and activities and the responsibility they place on you
3. the hazards associated with the activities, and how to minimise them and reduce any risks
4. the personal protective equipment and clothing (PPE) to be worn during the activities
5. the procedures for obtaining the various types of drawing, job instructions and specifications that are used during the machine and hand production of substrates, and how to interpret them correctly
6. how to identify the materials to be used; material identification systems (codes and material orientation indicators)
7. the application of sealants and adhesives within the assembly activities, and the precautions that must be taken when working with them
8. the assembly methods, procedures and techniques governing adhesives, and the pressure and time requirements to make a correct bond, and the importance of complying with 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 such faults
13. the preparation and procedures to be adopted when using computer numerical controlled (CNC) machines in the production of substrate components
14. the consumables, tools and equipment that are used for the machine and hand production of substrates
15. dealing with components or fastening devices that are incorrectly assembled, damaged or have other faults
16. the quality control procedures to be followed during the machine and hand production of substrates
17. how to conduct any necessary checks to ensure the accuracy and quality of the assembly produced

18. how to recognise defects (such as incorrect assembly, ineffective fasteners, foreign object damage)
19. the routine maintenance procedures for woodworking machines
20. the methods and equipment used to transport, handle and lift the components into position, and how to check that the equipment is within its current certification dates
21. preparations to be undertaken on the components prior to assembling, and the importance of ensuring that surfaces are free from dirt, defects or foreign bodies
22. how to check that the tools and equipment to be used are correctly calibrated and are in a safe, tested and serviceable condition
23. the importance of ensuring that all tools are used correctly and within their permitted operating range
24. the problems that can occur with manufacturing substrate components and how they can be overcome
25. the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve
26. 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 substrate production and assembly activities:
 1. obtain and use the appropriate documentation (such as job instructions, 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 safe, tested and serviceable condition
 4. check that all tools and equipment to be used are within current calibration/certification dates
 5. ensure that materials and components used are free from damage, foreign objects, dirt or other contamination before assembling them
 6. use safe and approved techniques to produce and assemble the components
 7. return all tools and equipment to the correct location on completion of the assembly activities
 8. leave the work area in a safe and appropriate condition on completion of the activities
2. Produce substrates ready for veneering, to include two of the following:
 1. CNC profiled
 2. pressed construction
 3. routed/sawn construction
3. Produce and assemble two of the following :
 1. flat substrates
 2. formed substrates
 3. ply sandwiches
4. Select and prepare materials to manufacture the substrate, to include two of the following:
 1. softwoods
 2. composites
 3. hardwoods
 4. plywoods

5. Assemble and finish the substrate, using four of the following:

1. adhesives
2. power sanders
3. jigs and fixtures
4. band saw
5. clamps
6. flat bed finishers
7. hot glues
8. routers
9. hand finishing, using appropriate grades of finishing papers

6. Produce substrates for two of the following hard trim components:

1. door finishers
2. component covers/doors
3. consoles
4. fascias
5. dash panels
6. arm rests
7. seat tables/frames
8. waist rails
9. component surrounds

7. Check substrate assemblies comply with all of the following quality and accuracy standards:

1. the substrate is complete
2. the assembly is free from damage, cuts and indentations
3. surplus material has been removed and components are clean
4. all quality control checks have been carried out and the required standards achieved

Developed by	Enginuity
Version Number	2
Date Approved	30 Mar 2020
Indicative Review Date	31 Mar 2023
Validity	Current
Status	Original
Originating Organisation	Semta
Original URN	SEMAUT3020
Relevant Occupations	Engineering, Engineering and Manufacturing Technologies, Science and Engineering Technicians, Vehicle Trades
Suite	Automotive Engineering Suite 3
Keywords	engineering; automotive; manufacturing; assembling; substrates; wood; composite; door; fascia