PIABC Level 2 NVQ Certificate in Tooling Technology - Saw Doctoring

Qualification Number: 600/5228/4

Qualification Specification

Updated: 21 March 2018

CONTENTS

EXECUTIVE SUMMARY

The PIABC Level 2 Certificate in Tooling Technology - Saw Doctoring is a nationally recognised qualification which provides learners with skills and knowledge for job roles involving the servicing and repair of cutters, saw blades, bits and knives.

The primary purpose of the qualification is to confirm specialist knowledge and skills competence. The qualification is intended for both newcomers and experienced personnel within the industry and is designed to promote competence in trade specific knowledge appropriate for the day to day activities in a tool room or servicing workshop. By the end of the qualification, the learner should be competent in the appropriate servicing techniques and underpinning knowledge. Knowledge can be acquired by any appropriate method.

To achieve the qualification, learners need to successfully gain 25 credits made up from mandatory and optional units.

Programmes leading to the qualification can be organised and delivered by providers who have gained centre and qualification approval from PIABC. To achieve this they need to complete the PIABC centre and qualification approval procedures available from ***www.piabc.org.uk***. In completing the documentation and the approval visit, centres need to demonstrate their ability to deliver high quality education leading to the qualification. Centres are expected to employ robust quality assurance processes. PIABC will appoint its own moderators to ensure the effective operation of these processes and the maintenance of standards of quality.

There is no necessity for any formal entry requirement to this course beyond the basic literacy and numeracy expected from anyone entering the business world.

The guided learning hours for each unit are shown in the Rules of Combination and against each unit. Learners will also be expected to carry out additional reading and other work to complete each unit and prepare for assessment.

AIM

The primary purpose of the qualification is to confirm specialist knowledge and skills competence. The qualification is intended for both newcomers and experienced personnel within the industry and is designed to promote competence in trade specific knowledge appropriate for the day to day activities in a tool room or servicing workshop. At the same time there is the need to work in a safe manner and observe all relevant health, safety and environmental rules and regulations as specified by the organisation.

By the end of the qualification, the learner should be competent in the appropriate servicing techniques and underpinning knowledge. Knowledge can be acquired by any appropriate method.

The PIABC Level 2 Certificate in Tooling Technology - Saw Doctoring is intended for those wishing to pursue a career in the timber **or related** industries, or for those who are already in the industry and who wish to extend their knowledge and expertise. The qualification can also provide a very useful complementary qualification for apprenticeship programmes, or the preparation to progress to higher levels of study.

OUTCOMES

In setting out a clearly-defined level of achievement, this qualification will:

1. The primary purpose of the qualification is to confirm specialist knowledge and skills competence.
2. Enhance the knowledge and job satisfaction of learners - providing them with a means of progression to higher level job roles and qualifications.
3. Provide employers with an open and transparent basis for judging the suitability of learners for employment and promotion.
4. Facilitate job movement throughout the timber sector and other related areas of the timber industry.

Specific outcomes for the qualification are listed under the individual unit description.

TARGET GROUP

This Level 2 qualification is appropriate for those servicing and repairing cutters, saw blades, bits and knives working in dedicated companies or in tool rooms, wanting to gain recognition for the competencies and understanding in sharpening, repair and refurbishment.

Job role	**Type of company**
Service Engineer Tool Room Engineer	Tool Servicing Timber Processing, Manufacturing Other processing industries

ENTRY REQUIREMENTS

There are no entry qualifications or age limits required for this qualification.

Assessment for this qualification is open to any learner who has the potential to reach the standards laid down for this qualification. An initial assessment of past experience and current skills, knowledge and understanding should be carried out prior to commencement, to determine suitability for this qualification.

Aids or appliances, which are designed to alleviate disability, may be used during assessment, providing they do not compromise the standard required.

PROGRESSION

Success in this qualification prepares learners for progression in the industry. Learners may have the opportunity to progress into Supervisory and Management roles taking suitable qualifications. Learners are encouraged to consider belonging to a professional institute or similar. Centres are encouraged to make learners aware of relevant associations and related professional bodies.

QUALIFICATION STRUCTURE

The qualification is made up of mandatory and optional units. The mandatory units cover those areas which have a common approach, such as safety and the principle learning outcomes for the job role. The optional units offer a choice that can be combined to meet the needs of an individual's specific job role together with the organisations and learners preferences.

Guided Learning Hours (GLH) is the number of hours of teacher supervised or directed study time required in teaching an individual unit or qualification. GLH have been calculated unit by unit - in isolation of each other - such that the unit is a stand alone unit, therefore centres may find that where learners are completing a number of units to achieve the complete qualification actual overall GLH will reduce (i.e. the actual GLH for the entire qualification is unlikely to be a sum total of the individual units taken).

Learning time will clearly be reduced if learners hold QCF credits from prior learning. Learners will also be expected to carry out additional reading, practice and other work to complete each unit and prepare for assessment.

Credit values are determined by the total learning hours (teaching + demonstrations + practice + reflection + assessment - including developing competence in the work environment etc) divided by 10. For example 7 credits reflect a total learning time of 70 hours. Learning time is usually much greater than GLH. Credit values have been calculated unit by unit - in isolation of each other - such that the unit is a standalone unit; therefore centres may find that where learners are completing a number of units to achieve the complete qualification, actual learning time will reduce (i.e. the actual learning time for the entire qualification is unlikely to be a sum total of the credits of the individual units taken).

Rules of Combination are used to define the structure of this qualification and specify the minimum credits which must be achieved through a particular combination of units to gain a full qualification.

RULES OF COMBINATION

To achieve the PIABC Level 2 NVQ Certificate in Tooling Technology – Saw Doctoring, learners must achieve 13 credits in Group A and a minimum of 12 credits in Group B. The total minimum credit value of this qualification is 25 credits.

Group A

PIABC Unit No.	Ofqual Unit No.	Title	Credit	Level	GLH
PI 001	F/503/8136	Make sure your own actions reduce the risks to health and safety within your workplace	6	2	27
PI 002	F/503/5995	Contribute to the effectiveness of work in a commercial setting	5	2	30
AW 001	F/502/3054	Abrasive wheel operations	2	2	15

Group B

PIABC Unit No.	Ofqual Unit No.	Title	Credit	Level	GLH
TT 201	K/503/6588	Servicing router cutters	4	2	15
TT 202	J/503/6548	Servicing knives in tooling technologies	4	2	15
TT 203	L/503/6552	Servicing solid cutters	4	2	15
TT 204	M/503/6589	Servicing narrow band saw blades	6	2	30
TT 205	M/503/6544	Servicing circular saw blades	8	2	35
TT 206	D/503/6555	Servicing wide band saw blades	8	2	35
TT 207	K/503/6560	Servicing polycrystalline diamond tipped tools	8	2	30
TT 208	M/503/6558	Using computer controlled technology in servicing cutters and saw blades	5	2	25

QUALIFICATION LEVEL

PIABC Level 2 NVQ Certificate in Tooling Technology - Saw Doctoring is a Level 2 qualification.

Level 2 Descriptor

Summary

Achievement at Level 2 reflects the ability to select and use relevant knowledge, ideas, skills and procedures to complete well-defined tasks and address straightforward problems. It includes taking responsibility for completing tasks and procedures and exercising autonomy and judgement subject to overall direction or guidance.

Knowledge and Understanding

- Use understanding of facts, procedures and ideas to complete well-defined tasks and address straightforward problems.
- Interpret relevant information and ideas.
- Be aware of the types of information that are relevant to the area of study or work

Application and action

- Complete well-defined, generally routine tasks and address straightforward problems
- Select and use relevant skills and procedures
- Identify, gather and use relevant information to inform actions
- Identify how effective actions have been

Autonomy and accountability

- Take responsibility for completing tasks and procedures
- Exercise autonomy and judgement subject to overall direction or guidance

Source: Regulatory arrangements for the Qualifications and Credit Framework OFQUAL 2008

PROGRAMME ORGANISATION

Programmes leading to the PIABC Level 2 NVQ Certificate in Tooling Technology - Saw Doctoring can be organised and delivered by providers who have gained centre and qualification approval from PIABC. To achieve this they need to complete the PIABC centre and qualification approval procedures available from ***www.piabc.org.uk***. In completing the documentation and the approval visit, centres need to demonstrate their ability to deliver high quality education leading to the qualification. Centres are expected to employ robust quality assurance processes. PIABC will appoint its own moderators to ensure the effective operation of these processes and the maintenance of standards of quality.

The organisation of the qualification is at the discretion of the centre and will take into account the aims, aspirations and experience of the learners.

Centres are encouraged to choose the most suitable curriculum model for their learners. Whilst the sequential delivery of parts of the unit is a possibility and may provide the most straightforward way of determining completion, it may be that some degree of integration of elements will occur, or that other methods of delivery are more appropriate to meet the needs of learners. It should be noted however that the whole unit and all the learning outcomes will be assessed.

Centres must ensure that adequate arrangements are in place for supporting learners. This could be either through separate tutorial sessions or through the use of time within structured study sessions. Centres using on-line or other forms of open learning must ensure that appropriate tutorial support is provided for learners.

The employer's engagement in learning and assessment opportunities will be paramount in securing timely achievement and a participative role should be encouraged.

In relevant circumstances, centres are recommended to provide career related information and guidance to their learners.

GUIDANCE ON LEARNING AND TEACHING

Learners employed in the industry will come to the qualification with varying levels of existing knowledge and/or practical experience of some parts of the Learning Outcomes. Training needs should be identified and gaps in knowledge and competency should be filled with a planned delivery of an individual learning plan. This should be utilised in preparing for teaching and assessment. The sharing of knowledge which has the potential to lead to a high level of understanding should be encouraged by the use of staff with direct experience in the Tooling Technologies industries. This must, of course, be balanced against a sound understanding of the theoretical understanding.

The relationship between theory and practice is a theme that should be reflected in the assessments for the programme. Therefore in structured learning and individual work, learners should be aware of the requirement to develop a theoretical understanding to their practical work and a practical application to their theoretical understanding.

Those developing learning programmes should expect to achieve all the learning outcomes. It may be useful to have workbooks for use either at home or in the workplace.

QUALIFICATION OVERVIEW

The PIABC Level 2 NVQ Certificate in Tooling Technology - Saw Doctoring follows the QCF principles for designing units and qualifications and contains the features listed as follows:

- Unit QCF reference number, title, level, guided learning hours and credit value.
- Each unit consist of:
    - Learning Outcomes that show what the learners will be able to understand, know or demonstrate.
    - Assessment Criteria that show what the learners can do or produce in order to show that they have met the learning outcome.
    - Some units also indicate the intended scope of the performance criteria
- To successfully complete a unit, learners must meet all the learning outcomes by showing that they have achieved all the assessment criteria with consideration to the intended scope.

UNIT CONTENT - LEARNING OUTCOMES & ASSESSMENT CRITERIA

The PIABC Level 2 NVQ Certificate in Tooling Technology - Saw Doctoring is a nationally recognised qualification which requires the learner to possess or acquire the competencies and knowledge in the servicing of cutters, saw blades, bits and knives.

MAKE SURE YOUR ACTIONS REDUCE RISKS TO HEALTH AND SAFETY WITHIN YOUR WORKPLACE

PIABC Unit No: PI001
Qualification Accreditation No: F/503/8136
Unit Level: 2

Guided Learning Hours: 27
Unit Credits: 6

Assessment Guidance

This unit is for everyone at work (whether paid, unpaid, full or part-time). It is about having an appreciation of significant risks in your workplace, knowing how to identify and deal with them. This unit is about the health and safety responsibilities for everyone in your workplace. It describes the competences required to make sure that:

- your own actions do not create any health and safety hazards
- you do not ignore significant risks in your workplace, and
- you take sensible action to put things right, including: reporting situations which pose a danger to people in the workplace and seeking advice

Fundamental to this unit is an understanding of the terms "hazard", "risk" and “control”.

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
1. Be able to identify the hazards and evaluate the risks in your workplace:	1.1 Identify which workplace instructions are relevant to your job role
	1.2 Identify those working practices in your job role which could harm you or others
	1.3 Identify those aspects of your workplace which could harm you or others
	1.4 Check which of the potentially harmful working practices and aspects of your workplace present the highest risks to you or to others
	1.5 Deal with hazards in accordance with workplace instructions and legal requirements
	1.6 Correctly name and locate the people responsible for health and safety in your workplace
	1.7 Report to the people responsible for health and safety in your workplace those hazards which present the highest risks
2. Know how to identify the hazards and evaluate the risks in your workplace:	2.1 Define what “hazards” and “risks” are
	2.2 State your responsibilities for health and safety as required by the law covering your job role

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	2.3 Describe the hazards which exist in your workplace and the safe working practices which you must follow.
	2.4 Describe the particular health and safety hazards which may be present in your own job role and the precautions you must take
	2.5 Explain the importance of remaining alert to the presence of hazards in the whole workplace
	2.6 Explain the importance of dealing with, or promptly reporting, risks
	2.7 Define the responsibilities for health and safety in your job role/description
	2.8 Describe the safe working practices for your own job role
	2.9 Identify the responsible people you should report health and safety matters to.
	2.10 State where and when to get additional health and safety assistance
3. Be able to reduce the risks to health and safety in your workplace:	3.1 Carry out your work in accordance with your level of competence, workplace instructions, suppliers or manufacturer's instructions and legal requirements
	3.2 Control those health and safety risks within your capability and job responsibilities
	3.3 Pass on suggestions for reducing risks to health and safety to the responsible people
	3.4 Make sure your behaviour does not endanger the health and safety of you or others in your workplace
	3.5 Follow the workplace instructions and suppliers' or manufacturers' instructions for the safe use of equipment, materials and products
	3.6 Report any differences between workplace instructions and suppliers' or manufacturers' instructions
	3.7 Make sure that your personal presentation and behaviour at work: • protects the health and safety of you and others, • meets any legal responsibilities, and • is in accordance with workplace instructions
	3.8 Make sure you follow environmentally-friendly working practices
4. Know how to reduce the risks to health and safety in your workplace:	4.1 Define and describe your scope and responsibility for controlling risks
	4.2 State the workplace instructions for managing risks which you are unable to deal with
	4.3 Identify the suppliers' and manufacturers' instructions for the safe use of equipment, materials and products which

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	you must follow
	4.4 Explain the importance of personal presentation in maintaining health and safety in your workplace
	4.5 Explain the importance of personal behaviour in maintaining the health and safety of you and others
	4.6 Describe the risks to the environment which may be present in your workplace and/or in your own job role

CONTRIBUTE TO THE EFFECTIVENESS OF WORK IN A COMMERCIAL SETTING

PIABC Unit No: PI002 Guided Learning Hours: 30
Qualification Accreditation No: F/503/5995 Unit Credits: 5
Unit Level: 2

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	**Assessment Criterion - The learner can:**
1. Plan and organise own work	1.1 Ensure you have the required authority to complete the required activity
	1.2 Comply with current legislation including working safely
	1.3 Check that you understand the particular work activity and your role within it
	1.4 Check that the area is clean, tidy and free from hazards before starting work
	1.5 Check that required resources and equipment are ready before starting work
	1.6 Check the job documentation prior to starting work
	1.7 Compete the activity as planned without any undue delay
	1.8 Complete all documentation accurately and legibly and pass it on to the next stage
2. Know how to plan and organize their work	2.1 Describe your job roles, responsibilities and levels of authority
	2.2 List the current legislation and describe how it applies to your role
	2.3 Describe the work activity and your role in that activity
	2.4 Explain how you would check that the area is clean, tidy and free from hazards including listing the hazards and possible consequences
	2.5 List the resources required for the activity
	2.6 Describe how to check that the equipment is ready for use
	2.7 Identity the documentation and show how it is used
	2.8 Describe the workplace procedures for monitoring the progress of the activity and keeping others informed
	2.9 Show how the documentation is completed and describe the next stage
3. Work effectively with other team members	3.1 Treat others with respect at all times
	3.2 Communicate with others using the appropriate method
	3.3 Give constructive support and feedback to appropriate personnel
	3.4 Receive support and feedback from personnel
4. Know how the work effectively with others	4.1 Explain how treating others with respect contributes to workplace efficiency

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	4.2 State what methods of communication to use and when to use them
	4.3 Describe how to identify when assistance may be needed and the how this may be given
	4.4 Explain why it is important to receive feedback and support
	4.5 Describe how to give constructive feedback and support
	4.6 Explain why it is important to give constructive feedback and support
5. Contribute to problem solving and improvements	5.1 Respond to any problems that occur during the work activity
	5.2 Report any problems that occur and the actions taken
	5.3 Identify and share opportunities for improving workplace practices and procedures using the appropriate method
6. Know how to contribute to problem solving and improvement	6.1 Describe the most common problems that may occur and how these are solved
	6.2 Describe the reporting procedure for problems
	6.3 Describe how to identify opportunities for improvement
	6.4 Describe how suggestions for improvements should be made and to whom
	6.5 Explain how the identification of improvements can benefit you and the organisation

ABRASIVE WHEEL OPERATIONS

PIABC Unit No: AW001
Qualification Accreditation No: F/502/3054
Unit Level: 2

Guided Learning Hours: 15
Unit Credits: 2

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	**Assessment Criterion - The learner can:**	
1. Know how to carry out a risk assessment.	1.1	Carry out a risk assessment relevant to the operation to identify: • Significant hazards. • Those at risk. • Control measures. • Emergency procedures.
2. Know the health and safety legislation that underpins the operation of abrasive wheels.	2.1	Describe the relevant health and safety legislation in relation to the operation of abrasive wheels.
	2.2	Identify the hazards that may arise from the use of abrasive wheels.
	2.3	Discuss how to avoid the hazards identified.
3. Know how to define abrasive wheels and purpose of abrasive wheels.	3.1	Explain what an abrasive wheel is.
	3.2	Describe how an abrasive wheel works.
4. Know how to interpret the marking system of abrasive wheels.	4.1	Describe the marking systems of different abrasive wheels.
	4.2	Explain the characteristics of different marking systems.
	4.3	Demonstrate how to use the marking system of an abrasive wheel.
5. Understand the relationship between speed and wheel selection.	5.1	Identify the appropriate wheel spin for best efficiency.
	5.2	Explain the relationship between wheel spin and wheel burst.
	5.3	Define: Peripheral speed R/min or rpm The nature of the spindle and its measurement of speed.
6. Know the appropriate Personal Protective Equipment (PPE) for operating an abrasive wheel.	6.1	Select the appropriate PPE for operating an abrasive wheel.
7. Know the health and safety features of the equipment being used.	7.1	Identify the health and safety features of the equipment being used.
	7.2	Identify the procedures for handling; storing and transporting an abrasive wheel
8. Know the key components of an abrasive wheel.	8.1	Identify the key components of an abrasive wheel and describe their functions.
9. Know how to maintain an abrasive wheel.	9.1	Describe the procedures for maintaining an abrasive wheel.

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	9.2 Discuss the faults that may occur with abrasive wheels.
	9.3 Carry out checks and adjustments in accordance with the manufacturer's guidance.
10. Know how to mount an abrasive wheel.	10.1 Mount an abrasive wheel.
11. Know how to adjust work rests.	11.1 Adjust work rests correctly.
12. Know the difference being truing and dressing a wheel.	12.1 Identify the significance of truing and dressing.
	12.2 Identify the significance of wheel balance.
	12.3 Dress a wheel according to instructions.
13. Know how to use abrasive wheels safely and correctly.	13.1 Use an abrasive wheel safely, correctly and in accordance with manufacturer's guidance.

SERVICE ROUTER CUTTERS

PIABC Unit No: TT 201
Qualification Accreditation No: K/503/6588
Unit Level: 2

Guided Learning Hours: 15
Unit Credits: 4

Learning Outcomes and Assessment Criteria

Learning Outcome - The learner will:	Assessment Criterion - The learner can:
1. Prepare to service router cutters	1.1 Ensure you comply with current health and safety **legislation**
	1.2 Use the appropriate Personal Protective Equipment
	1.3 Confirm the **job requirements** for servicing router cutters including assessing the state of the cutter to determine suitability for servicing
	1.4 Assess the **safety** of the operation for self and others
	1.5 Select the required grinding wheels following company procedures
	1.6 Check that the **machinery** is suitable for servicing router cutters
	1.7 Check that the work area is suitable for servicing router cutters
	1.8 Check that the **materials** and **equipment** are ready for use
	1.9 Complete pre-start up checks following company procedures
	1.10 Determine the wear of the blade prior to servicing
	1.11 Set angle, speed of operation and coolant rate following company procedures
2. Know how to prepare for servicing router cutters	2.1 List the current **legislation** and describe how it applies to router cutter servicing
	2.2 List with reasons the types of Personal Protective Equipment being used
	2.3 Describe the procedures for confirming the **job requirements** and checking the state of the cutter
	2.4 Describe the checks that are made to ensure that the work area is suitable for servicing router cutters and safe for self and others
	2.5 Explain the choice of particular grinding wheels
	2.6 State who is authorised to mount and dress the grinding wheel
	2.7 Describe how to mount and secure material to the grinding wheel
	2.8 Summarise the workplace procedures for checking that the **materials** and **equipment** are ready for use
	2.9 Describe workplace pre-start up checks for servicing router cutters

Learning Outcome - The learner will:	Assessment Criterion - The learner can:
	2.10 List the calculations needed for servicing router cutters
	2.11 Explain how to set the angle, speed and coolant rate
	2.12 List the main physical features and factors likely to affect the servicing of router cutters
	2.13 Identify the main types of tools used for servicing router cutters
3. Be able to service router cutters	3.1 Start the servicing operation without undue delay
	3.2 Operate the router cutter servicing **machinery** and **equipment** correctly following company procedures
	3.3 Balance the router cutter
	3.4 Identity factors likely to interrupt the servicing operation
	3.5 Identify and deal with problems correctly within the limits of your responsibility
	3.6 Report potentially harmful features to all appropriate people
	3.7 Ensure that the router cutter servicing operation is carried out to the job specification
4. Know how to service router cutters	4.1 Describe the company procedures for servicing router cutters
	4.2 State the reasons why balancing may be necessary and describe how this is done
	4.3 Summarise the health and safety regulations relating to servicing router cutters
	4.4 Describe the hazards associated with servicing router cutters
	4.5 List the factors likely to interrupt the servicing of router cutters
	4.6 List the most common problems and describe how these are dealt with
	4.7 Describe the procedures for reporting potentially harmful features
5. Be able to conclude servicing router cutters	5.1 Stop the router cutter servicing operation following company procedures
	5.2 Ensure that company procedures are followed when handing over to someone else
	5.3 Leave the **equipment** and work area in an appropriate condition
	5.4 Ensure that router cutter servicing tools are handled and stored following company procedures
	5.5 Ensure that the serviced router cutter is handled and protected following company procedures
	5.6 Complete documentation legibly, accurately and within required time scales
	5.7 Inform appropriate people that the job is complete
	5.8 Dispose of waste material following company

Learning Outcome - The learner will:	Assessment Criterion - The learner can:
	procedures
	5.9 Select and use suitable methods for protecting finished products
	5.10 Handle and transport finished products following company procedures
6. Know how to end servicing of router cutters	6.1 List the steps used to stop the router cutter servicing operation
	6.2 Describe the handover procedures used in the workplace
	6.3 Describe how the **equipment** and workplace should be left and list the steps used to ensure that the **equipment** and work area are left in an appropriate condition
	6.4 Describe how to handle and store router cutter servicing tools
	6.5 Describe how the serviced router cutter is handled and protected
	6.6 Describe how and when documentation needs to be completed
	6.7 Describe the procedures used to inform people that the job is complete
	6.8 Describe how to dispose of waste **materials**
	6.9 List the methods used to protect the finished products
	6.10 Describe how finished products are handled and transported

Range

Legislation

- Current relevant legislation

Safety

- Health and safety legislation
- Company operating procedures and guidance
- Appropriate PPE
- Statutory notices and signs
- Use of tools and equipment with guards and fencing
- Access and egress
- Space

Machinery

- Grinding wheels – mounted and dressed
- Compressed air lines
- Anything with a motor

Materials

- Coolants
- Lubricants
- Crack indicators
- Grit content

Equipment

- Hand tools
- Guide clamps
- Stones
- Guards – condition and position
- Measuring equipment

Job Requirements

- Regrinding only
- Tungsten carbide tips (TCT) replacement
- Stellite tips
- Tolerances

Job Requirements Information

- Specifications
- Sketches
- Engineering Drawings
- Job sheets
- Work cards
- Company procedures for allocating work
- Written instructions
- Verbal inspections
- Re-grinding requirements
- Remedial work on chips

Personal Levels of Responsibility

- Job description
- Competence
- Training
- Experience
- Appraisal
- Updating

Reporting

- Methods
- Verbal
- Written
- Procedures for reporting faults and poor practice

Hazards

- Spinning wheels
- Flying metal pieces
- Spillages

SERVICING KNIVES IN TOOLING TECHNOLOGIES

PIABC Unit No: TT 202
Qualification Accreditation No: J/503/6548
Unit Level: 2

Guided Learning Hours: 15
Unit Credits: 4

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	**Assessment Criterion - The learner can:**
1. Prepare to service knives	1.1 Ensure you comply with relevant health and **safety legislation**
	1.2 Use the appropriate Personal Protective Equipment
	1.3 Confirm the **job requirements** for servicing knives including assessing the state of the knife to determine suitability for servicing
	1.4 Assess the **safety** of the operation for self and others
	1.5 Check that the **machinery** is suitable for servicing knives
	1.6 Check that the work area is suitable for servicing knives
	1.7 Check that the **materials** and **equipment** are ready for use
	1.8 Complete pre-start up checks in accordance with company procedures
	1.9 Determine the wear of the blade prior to servicing
	1.10 Select the correct grinding wheels
	1.11 Set angle, speed of operation and coolant rate according to company procedures
2. Know how to prepare for servicing knives	2.1 List the current **legislation** and describe how it applies to knife servicing
	2.2 List with reasons the types of Personal Protective Equipment being used
	2.3 Describe the procedures for confirming the **job requirements** and checking the state of the knife
	2.4 Describe the checks that are made to ensure that the work area is suitable for servicing knives and safe for self and others
	2.5 Explain the choice of particular grinding wheels
	2.6 State who is authorized to mount and dress the grinding wheel
	2.7 Describe how to mount and secure material to the grinding wheel
	2.8 Summarise the workplace procedures for checking that the **materials** and **equipment** are ready for use
	2.9 Describe workplace pre-start up checks for servicing knives
	2.10 List the possible calculations needed for servicing knives

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	2.11 Explain how to set the angle, speed and coolant rate
	2.12 List the main physical features and factors likely to affect the servicing of knives
	2.13 Identify the main types of tools used for servicing knives
3. Be able to service knifes	3.1 Start the knife servicing operation following company procedures
	3.2 Operate the knife servicing **machinery** and **equipment** correctly following company procedures
	3.3 Carry out saw doctoring operations to customer requirements
	3.4 Identity factors likely to interrupt the servicing operation
	3.5 Identify and deal with problems correctly within the limits of your responsibility
	3.6 Report potentially harmful features to all appropriate people
	3.7 Ensure that the knife servicing operation is carried out to the correct job specification
4. Know how to service knives	4.1 Stop the knife servicing operation following company procedures
	4.2 Follow the company hand over procedures
	4.3 Leave the **equipment** and work area in an appropriate condition
	4.4 Ensure that knife servicing tools are handled and stored following company procedures
	4.5 Ensure that the serviced knife is handled and protected following company procedures
	4.6 Complete documentation legibly, accurately and within required time scales
	4.7 Inform appropriate people that the job is complete
	4.8 Dispose of waste material in accordance with company procedures
	4.9 Select and use suitable methods for protecting finished products
	4.10 Handle and transport finished products following company procedures

Range

Legislation

- Current relevant legislation

Safety

- Health and safety legislation
- Company operating procedures and guidance
- Appropriate PPE
- Statutory notices and signs
- Use of tools and equipment with guards and fencing
- Access and egress
- Space

Machinery

- Grinding wheels – mounted and dressed
- Compressed air lines
- Anything with a motor

Materials

- Coolants
- Lubricants
- Crack indicators
- Grit content

Equipment

- Hand tools
- Guide clamps
- Stones
- Guards – condition and position
- Measuring equipment

Job Requirements

- Regrinding only
- Tungsten carbide tips (TCT) replacement
- Stellite tips
- Tolerances

Job Requirements Information

- Specifications
- Sketches
- Engineering Drawings
- Job sheets
- Work cards
- Company procedures for allocating work
- Written instructions
- Verbal inspections
- Re-grinding requirements
- Remedial work on chips

Personal Levels of Responsibility

- Job description
- Competence
- Training
- Experience
- Appraisal
- Up dating

Reporting

- Methods
- Verbal
- Written
- Procedures for reporting faults and poor practice

Hazards

- Spinning wheels
- Flying metal pieces
- Spillages

SERVICING SOLID CUTTERS

PIABC Unit No: TT203 Guided Learning Hours: 15
Qualification Accreditation No: L/503/6552 Unit Credits: 4
Unit Level: 2

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	**Assessment Criterion - The learner can:**
1. Prepare to service solid cutters	1.1 Ensure you comply with current health and **safety legislation**
	1.2 Use the appropriate Personal Protective Equipment
	1.3 Confirm the **job requirements** for servicing solid cutters including assessing the state of the cutter to determine suitability for servicing
	1.4 Assess the **safety** of the operation for self and others
	1.5 Select the correct grinding wheels following company procedures
	1.6 Check that the **machinery** is suitable for servicing solid cutters
	1.7 Check that the work area is suitable for servicing solid cutters
	1.8 Check that the **materials** and **equipment** are ready for use
	1.9 Complete pre-start up checks following company procedures
	1.10 Determine the wear of the blade prior to servicing
	1.11 Set angle, speed of operation and coolant rate following company procedures
2. Know how to prepare for servicing solid cutters	2.1 List the current health and **safety legislation** and describe how it applies to solid cutter servicing
	2.2 List with reasons the types of Personal Protective Equipment being used
	2.3 Describe the procedures for confirming the **job requirements** and checking the state of the cutter
	2.4 Describe the checks that are made to ensure that the work area is suitable for servicing solid cutters and safe for self and others
	2.5 Explain the choice of particular grinding wheels
	2.6 State who is authorized to mount and dress the grinding wheel
	2.7 Describe how to mount and secure material to the grinding wheel
	2.8 Summarise the workplace procedures for checking that the **materials** and **equipment** are ready for use
	2.9 Describe workplace pre-start up checks for servicing solid

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	cutters
	2.10 List the possible calculations needed for servicing solid cutters
	2.11 Explain how to set the angle, speed and coolant rate
	2.12 List the main physical features and factors likely to affect the servicing of solid cutters
	2.13 Identify the main types of tools used for servicing solid cutters
3. Be able to service router cutters	3.1 Start the servicing operation following company procedures
	3.2 Operate the solid cutter servicing **machinery** and **equipment** correctly following company procedures
	3.3 Carry out saw doctoring operations to customer requirements
	3.4 Identity factors likely to interrupt the servicing operation
	3.5 Identify and deal with problems correctly within the limits of your responsibility
	3.6 Report potentially harmful features to all appropriate people
	3.7 Ensure that the solid cutter servicing operation is carried out to the correct job specification
4. Know how to service solid cutters	4.1 List the machine sequence for servicing solid cutters
	4.2 Describe the company procedures for servicing solid cutters
	4.3 State the reasons why balancing, hammering and levelling may be necessary and describe how this is done
	4.4 Summarise the health and **safety** regulations relating to servicing solid cutters
	4.5 Describe the hazards associated with servicing solid cutters
	4.6 List the factors likely to interrupt the servicing of solid cutters
	4.7 List the most common problems and describe how these are dealt with
	4.8 Describe the procedures for reporting potentially harmful features
5. Be able to conclude servicing solid cutters	5.1 Stop the solid cutter servicing operation following company procedures
	5.2 Ensure that the correct hand over procedures are followed
	5.3 Leave the **equipment** and work area in an appropriate condition
	5.4 Ensure that solid cutter servicing tools are handled and

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	stored after use following company procedures
	5.5 Ensure that the serviced solid cutter is handled and protected following company procedures
	5.6 Complete documentation legibly, accurately and within required time scales
	5.7 Inform appropriate people that the job is complete
	5.8 Dispose of waste material following company procedures
	5.9 Select and use suitable methods for protecting finished products following company procedures
	5.10 Handle and transport finished products following company procedures
6. Know how to end servicing of solid cutters	6.1 List the steps used to stop the solid cutter servicing operation
	6.2 Describe the handover procedures used in the workplace
	6.3 Describe how the **equipment** and workplace should be left and list the steps used to ensure that the **equipment** and work area are left in an appropriate condition
	6.4 Describe how to handle and store solid cutter servicing tools
	6.5 Describe how the serviced solid cutter is handled and protected
	6.6 Describe how and when documentation needs to be completed
	6.7 Describe the procedures used to inform people that the job is complete
	6.8 Describe how to dispose of waste **materials**
	6.9 List the methods used to protect the finished products
	6.10 Describe how finished products are handled and transported

Range

Legislation

- Current relevant legislation

Safety

- Health and safety legislation
- Company operating procedures and guidance
- Appropriate PPE
- Statutory notices and signs
- Use of tools and equipment with guards and fencing
- Access and egress
- Space

Machinery

- Grinding wheels – mounted and dressed
- Compressed air lines
- Anything with a motor

Materials

- Coolants
- Lubricants
- Crack indicators
- Grit content

Equipment

- Hand tools
- Guide clamps
- Stones
- Guards – condition and position
- Measuring equipment

Job Requirements

- Regrinding only
- Tungsten carbide tips (TCT) replacement
- Stellite tips
- Tolerances

Job Requirements Information

- Specifications
- Sketches
- Engineering Drawings
- Job sheets
- Work cards
- Company procedures for allocating work
- Written instructions
- Verbal inspections
- Re-grinding requirements
- Remedial work on chips

Personal Levels of Responsibility

- Job description
- Competence
- Training
- Experience
- Appraisal
- Updating

Reporting

- Methods
- Verbal
- Written
- Procedures for reporting faults and poor practice

Hazards

- Spinning wheels
- Flying metal pieces
- Spillages

SERVICING NARROW BAND SAW BLADES

PIABC Unit No: TT204
Qualification Accreditation No: M/503/6589
Unit Level: 2

Guided Learning Hours: 30
Unit Credits: 6

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	**Assessment Criterion - The learner can:**
1. Prepare to service narrow band saw blades	1.1 Comply with current health and **safety legislation**
	1.2 Use the appropriate Personal Protective Equipment
	1.3 Confirm the **job requirements** for servicing narrow band saw blades including assessing the state of the saw blade and welding faults to determine suitability for servicing
	1.4 Select, examine and set up welding **equipment** following company procedures
	1.5 Assess the **safety** of the operation for self and others
	1.6 Select the required grinding wheels following company procedures
	1.7 Check that the **machinery** is suitable for servicing narrow band saw blades following company procedures
	1.8 Check that the work area is suitable for servicing narrow band saw blades
	1.9 Check that the **materials** and **equipment** are ready for use
	1.10 Complete pre-start up checks following company procedures
	1.11 Determine the wear of the blade prior to servicing
	1.12 Set angle, speed of operation and coolant rate following company procedures
2. Know how to prepare for servicing narrow band saw blades	2.1 List the current **legislation** and describe how it applies to narrow band saw blade servicing
	2.2 List with reasons the types of Personal Protective Equipment being used
	2.3 Describe the procedures for confirming the **job requirements** and checking the state of the narrow band saw blades
	2.4 List the methods for identification of welding faults and the action that needs to be taken
	2.5 Explain the choice of the welding equipment and describe the setting up procedures
	2.6 Describe the checks that are made to ensure that the work area is suitable for servicing narrow band saw blades and safe for self and others
	2.7 Explain the choice of particular grinding wheels

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	2.8 State who is authorized to mount and dress the grinding wheel
	2.9 Describe how to mount and secure material to the grinding wheel
	2.10 Summarise the workplace procedures for checking that the **materials** and **equipment** are ready for use
	2.11 Describe workplace pre-start up checks for servicing narrow band saw blades
	2.12 List the calculations needed for servicing narrow band saw blades
	2.13 Explain how to set the angle, speed and coolant rate
	2.14 List the main physical features and factors likely to affect the servicing of narrow band saw blades
	2.15 Identify the main types of tools used for servicing narrow band saw blades
3. Be able to service narrow band saw blades	3.1 Start the servicing operation following company procedures
	3.2 Operate the narrow band saw blade servicing **machinery** and **equipment** correctly following company procedures
	3.3 Set **machinery** to correct alignment following company procedures
	3.4 Carry out saw doctoring operations to customer requirements
	3.5 Identify factors likely to interrupt the servicing operation
	3.6 Identify and deal with problems correctly within the limits of your responsibility
	3.7 Report potentially harmful features to all appropriate people
	3.8 Ensure that the narrow band saw servicing operation is carried out to the correct job specification
4. Know how to service narrow band saw blades	4.1 List the machine sequence for servicing narrow band saw blades
	4.2 Summarise the adjustment, operation and maintenance of **machinery** and **equipment** used to service narrow band-saw blades
	4.3 Describe the techniques used to achieve correct alignment within tolerance
	4.4 State the reasons why hammering, levelling and tensioning is necessary and describe how this is done
	4.5 Describe the hazards associated with servicing narrow band saw
	4.6 List the factors likely to interrupt the servicing of narrow band saw blades

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	4.7 List the most common problems and describe how these are dealt with
	4.8 Describe the procedures for reporting potentially harmful features
5. Be able to conclude servicing narrow band saw blades	5.1 Stop the narrow band saw blade servicing operation following company procedures
	5.2 Ensure that company hand over procedures are followed
	5.3 Leave the **equipment** and work area in an appropriate condition
	5.4 Ensure that narrow band saw blade servicing tools are handled and stored following company procedures
	5.5 Ensure that the serviced narrow band saw blades are handled and protected following company procedures
	5.6 Complete documentation legibly, accurately and within required time scales
	5.7 Inform appropriate people that the job is complete
	5.8 Dispose of waste material following company procedures
	5.9 Select and use suitable methods for protecting finished products following company procedures
	5.10 Handle and transport finished products following company procedures
6. Know how to end servicing of narrow band saw blades	6.1 List the steps used to stop the narrow band saw servicing operation
	6.2 Describe the handover procedures used in the workplace
	6.3 Describe how the **equipment** and workplace should be left and list the steps used to ensure that the **equipment** and work area are left in an appropriate condition
	6.4 Describe how to handle and store narrow band saw blade servicing tools
	6.5 Describe how the serviced narrow band saw blades are handled and protected
	6.6 Describe how and when documentation needs to be completed
	6.7 Describe the procedures used to check work piece quality and accuracy
	6.8 Describe how to dispose of waste **materials**
	6.9 List the methods used to protect the finished products
	6.10 Describe how finished products are handled and transported

Range

Legislation

- Current relevant legislation

Safety

- Health and safety legislation
- Company operating procedures and guidance
- Appropriate PPE
- Statutory notices and signs
- Use of tools and equipment with guards and fencing
- Access and egress
- Space

Machinery

- Grinding wheels – mounted and dressed
- Compressed air lines
- Anything with a motor

Materials

- Coolants
- Lubricants
- Crack indicators
- Grit content

Equipment

- Hand tools
- Guide clamps
- Stones
- Guards – condition and position
- Measuring equipment

Job Requirements

- Regrinding only
- Tungsten carbide tips (TCT) replacement
- Stellite tips
- Tolerances

Job Requirements Information

- Specifications
- Sketches
- Engineering Drawings
- Job sheets
- Work cards
- Company procedures for allocating work
- Written instructions
- Verbal inspections
- Re-grinding requirements
- Remedial work on chips

Personal Levels of Responsibility

- Job description
- Competence
- Training
- Experience
- Appraisal
- Updating

Reporting

- Methods
- Verbal
- Written
- Procedures for reporting faults and poor practice

Hazards

- Spinning wheels
- Flying metal pieces
- Spillages

SERVICING CIRCULAR SAW BLADES

PIABC Unit No: TT205 Guided Learning Hours: 35
Qualification Accreditation No: M/503/6544 Unit Credits: 8
Unit Level: 2

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	**Assessment Criterion - The learner can:**
1. Prepare to service circular saw blades	1.1 Demonstrate how you comply with current **legislation**
	1.2 Use the appropriate Personal Protective Equipment
	1.3 Confirm the **job requirements** for servicing circular saw blades including assessing the state of the saw blade and any welding faults to determine suitability for servicing
	1.4 Select, examine and set up welding equipment as appropriate following company procedures
	1.5 Identify any fume extraction requirements
	1.6 Assess the **safety** of the operation for self and others
	1.7 Select the correct grinding wheels, grit content and profile according to company procedures
	1.8 Check that the **machinery** is suitable for servicing circular saw blades
	1.9 Check that the work area is suitable for servicing circular saw blades
	1.10 Check that the **materials** and **equipment** are ready for use
	1.11 Complete pre-start up checks in accordance with company procedures
	1.12 Determine the wear of the blade prior to servicing
	1.13 Set angle, speed of operation and coolant rate according to manufacturers instructions and company procedures
2. Know how to prepare for servicing circular saw blades	2.1 List the current **legislation** and describe how it applies to circular saw blade servicing
	2.2 List the types of Personal Protective Equipment being used and the reasons why you use it
	2.3 Describe the procedures for confirming the **job requirements** and checking the state of the circular saw blades
	2.4 Describe the applications of high speed steel, plate and tungsten carbide tipped (TCT) circular saw blades
	2.5 List the methods for identification of welding faults and the action that needs to be taken
	2.6 Explain the choice of the welding equipment and describe the setting up procedures for this equipment

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	2.7 Describe the fume extraction equipment, setting up and checking procedures
	2.8 Describe the checks that are made to ensure that the work area is suitable and safe for servicing circular saw blades
	2.9 Explain the choice of particular grinding wheels, grit content and profiles
	2.10 State who is authorized to mount and dress the grinding wheel
	2.11 Describe how to mount and secure material to the grinding wheel
	2.12 Summarise the workplace procedures for checking that the **materials** and **equipment** are ready for use
	2.13 Describe workplace pre-start up checks for servicing circular saw blades
	2.14 List the calculations needed for servicing circular saw blades
	2.15 Explain how to set the angle, speed and coolant rate according to manufacturers instructions and company procedures
	2.16 List the main physical features and factors likely to affect the servicing of circular saw blades
	2.17 List the main types of tools used for servicing circular saw blades
3. Be able to service circular saw blades	3.1 Start the circular saw blade servicing operation following company procedures
	3.2 Operate the circular saw blade servicing **machinery** and **equipment** following company procedures
	3.3 Set **machinery** to the required alignment
	3.4 Carry out saw doctoring operations to customer requirements
	3.5 Complete welding following company procedures including fume extraction
	3.6 Identity factors likely to interrupt the servicing operation
	3.7 Identify and deal with problems correctly within the limits of your responsibility
	3.8 Report potentially harmful features to all appropriate people
	3.9 Ensure that the circular saw servicing operation is carried out to the correct job specification

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
4. Know how to service circular saw blades	4.1 List the machine sequence for servicing circular saw blades
	4.2 Summarise the adjustment, operation and maintenance of **machinery** and **equipment** used to service circular saw blades
	4.3 Describe the techniques used to achieve correct alignment within tolerance
	4.4 State the reasons why hammering, levelling and tensioning may be necessary and describe how this is done
	4.5 Describe the procedures for welding and fume extraction
	4.6 Summarise the health and **safety** regulations relating to servicing circular saw blades
	4.7 Describe the hazards associated with servicing circular saw blades
	4.8 List the factors likely to interrupt the servicing of circular saw blades
	4.9 List the most common problems and describe how these are dealt with
	4.10 Describe the procedures for reporting potentially harmful features
5. Be able to conclude servicing circular saw blades	5.1 Stop the circular saw blade servicing operation in accordance with company procedures
	5.2 Ensure that the correct procedures are followed when handing over to someone else
	5.3 Leave the **equipment** and work area in an appropriate condition
	5.4 Ensure that circular saw blade servicing tools are handled and stored correctly after use
	5.5 Ensure that the serviced circular saw blades are handled and protected correctly
	5.6 Complete documentation legibly, accurately and within required time scales
	5.7 Use company procedures to support productivity measures
	5.8 Inform appropriate people that the job is complete
	5.9 Dispose of waste material in accordance with company procedures
	5.10 Select and use suitable methods for protecting finished products
	5.11 Handle and transport finished products following company procedures

6. Know how to end servicing of circular saw blades	6.1 List the steps used to stop the circular saw blade servicing operation
	6.2 Describe the handover procedures used in the workplace
	6.3 Describe how the **equipment** and workplace should be left and list the steps used to ensure that the **equipment** and work area are left in an appropriate condition
	6.4 Describe how to handle and store circular saw blade servicing tools
	6.5 Describe how the serviced circular saw blades are handled and protected
	6.6 Describe how and when documentation needs to be completed
	6.7 Describe the procedures used to check quality and accuracy
	6.8 Describe the productivity indicators used to assess performance
	6.9 Describe the procedures used to inform people that the job is complete
	6.10 Describe how to dispose of waste **materials**
	6.11 List the methods used to protect the finished products
	6.12 Describe how finished products are handled and transported

Range

Legislation

- Current relevant legislation

Safety

- Health and safety legislation
- Company operating procedures and guidance
- Appropriate PPE
- Statutory notices and signs
- Use of tools and equipment with guards and fencing
- Access and egress
- Space

Machinery

- Grinding wheels – mounted and dressed
- Compressed air lines
- Anything with a motor

Materials

- Coolants
- Lubricants
- Crack indicators
- Grit content

Equipment

- Hand tools
- Guide clamps
- Stones
- Guards – condition and position
- Measuring equipment

Job Requirements

- Regrinding only
- Tungsten carbide tips (TCT) replacement
- Stellite tips
- Tolerances

Job Requirements Information

- Specifications
- Sketches
- Engineering Drawings
- Job sheets
- Work cards
- Company procedures for allocating work
- Written instructions
- Verbal inspections
- Re-grinding requirements
- Remedial work on chips

Personal Levels of Responsibility

- Job description
- Competence
- Training
- Experience
- Appraisal
- Updating

Reporting

- Methods
- Verbal
- Written
- Procedures for reporting faults and poor practice

Hazards

- Spinning wheels
- Flying metal pieces
- Spillages

SERVICING WIDE BAND SAW BLADES

PIABC Unit No: TT206 Guided Learning Hours: 35
Qualification Accreditation No: D/503/6555 Unit Credits: 8
Unit Level: 2

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	**Assessment Criterion - The learner can:**
1. Prepare to service wide band saw blades	1.1 Ensure you comply with current health and **safety legislation**
	1.2 Use the appropriate Personal Protective Equipment
	1.3 Confirm the **job requirements** for servicing wide band saw blades including assessing the state of the saw and any welding faults to determine suitability for servicing
	1.4 Select, examine and set up welding equipment following company procedures
	1.5 Identify fume extraction requirements following company procedures
	1.6 Assess the **safety** of the operation for self and others
	1.7 Select the grinding wheels, grit content and profile following company procedures
	1.8 Check that the **machinery** is suitable for servicing wide band saw blades
	1.9 check that the work area is suitable for servicing wide band saw blades
	1.10 Check that the **materials** and **equipment** are ready for use
	1.11 Complete pre-start up checks following company procedures
	1.12 Determine the wear of the blade prior to servicing
	1.13 Set angle, speed of operation and coolant rate
2. Know how to prepare for servicing wide band saw blades	2.1 List the current **legislation** and describe how it applies to wide band saw blade servicing
	2.2 List with reasons the types of Personal Protective Equipment being used
	2.3 Describe the procedures for confirming the **job requirements** and checking the state of the wide band saw blades
	2.4 List the methods for identification of welding faults and the action that needs to be taken
	2.5 Describe the fume extraction equipment, setting up and checking procedures
	2.6 Explain the choice of the welding equipment and describe the setting up procedures

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	2.7 Describe the checks that are made to ensure that the work area is suitable for servicing wide band saw blades and safe for self and others
	2.8 Explain the choice of particular grinding wheels, grit content and profiles
	2.9 State who is authorized to mount and dress the grinding wheel
	2.10 Describe how to mount and secure material to the grinding wheel
	2.11 Summarise the workplace procedures for checking that the **materials** and **equipment** are ready for use
	2.12 Describe workplace pre-start up checks for servicing wide band saw blades
	2.13 List the calculations needed for servicing wide band saw blades
	2.14 Explain how to set the angle, speed and coolant rate
	2.15 List the main physical features and factors likely to affect the servicing of wide band saw blades
	2.16 Identify the main types of tools used for servicing wide band saw blades
3. Be able to service wide band saw blades	3.1 Start the wide band saw blade servicing operation without undue delay
	3.2 Operate the wide band saw blade servicing **machinery** and **equipment** following company procedures
	3.3 Set **machinery** alignment following company procedures
	3.4 Carry out saw doctoring operations to customer requirements
	3.5 Complete welding including fume extraction
	3.6 Identity factors likely to interrupt the servicing operation
	3.7 Identify and deal with problems within the limits of your responsibility
	3.8 Report potentially harmful features to all appropriate people
	3.9 Ensure that the wide band saw blade servicing operation is carried out to the job specification
4. Know how to service wide band saw blades	4.1 List the machine sequence for servicing wide band saw blades
	4.2 Summarise the adjustment, operation and maintenance of **machinery** and **equipment** used to service wide band saw blades
	4.3 Describe the techniques used to achieve the required alignment within tolerance

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	4.4 State the reasons why hammering, levelling and tensioning may be necessary and describe how this is done
	4.5 Describe the procedures for welding and fume extraction
	4.6 Summarise the health and **safety** regulations relating to servicing wide band saw blades
	4.7 Describe the hazards associated with servicing wide band saw blades
	4.8 List the factors likely to interrupt the servicing of wide band saw blades
	4.9 List the most common problems and describe how these are dealt with
	4.10 Describe the procedures for reporting potentially harmful features
5. Be able to conclude servicing wide band saw blades	5.1 Stop the wide band saw blade servicing operation following company procedures
	5.2 Ensure that company procedures are followed when handing over to someone else
	5.3 Leave the **equipment** and work area in an appropriate condition
	5.4 Ensure that wide band saw blade servicing tools are handled and stored following company procedures
	5.5 Ensure that the serviced wide band saw blades are handled and protected following company procedures
	5.6 Complete documentation legibly, accurately and within required time scales
	5.7 Inform appropriate people that the job is complete
	5.8 Dispose of waste material in accordance with company procedures
	5.9 Select and use suitable methods for protecting finished products
	5.10 Handle and transport finished products following company procedures
6. Know how to end servicing of wide band saw blades	6.1 List the steps used to stop the wide band saw blade servicing operation
	6.2 Describe the handover procedures used in the workplace
	6.3 Describe how the **equipment** and workplace should be left and list the steps used to ensure that the **equipment** and work area are left in an appropriate condition
	6.4 Describe how to handle and store wide band saw blade servicing tools
	6.5 Describe how the serviced wide band saw blades are handled and protected

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	6.6 Describe how and when documentation needs to be completed
	6.7 Describe the procedures used to check work piece quality and accuracy
	6.8 Describe the procedures used to inform people that the job is complete
	6.9 Describe how to dispose of waste **materials** following company procedures
	6.10 List the methods used to protect the finished products
	6.11 Describe how finished products are handled and transported

Range

Legislation

- Current relevant legislation

Safety

- Health and safety legislation
- Company operating procedures and guidance
- Appropriate PPE
- Statutory notices and signs
- Use of tools and equipment with guards and fencing
- Access and egress
- Space

Machinery

- Grinding wheels – mounted and dressed
- Compressed air lines
- Anything with a motor

Materials

- Coolants
- Lubricants
- Crack indicators
- Grit content

Equipment

- Hand tools
- Guide clamps
- Stones
- Guards – condition and position
- Measuring equipment

Job Requirements

- Regrinding only
- Tungsten carbide tips (TCT) replacement
- Stellite tips
- Tolerances

Job Requirements Information

- Specifications
- Sketches
- Engineering Drawings
- Job sheets
- Work cards
- Company procedures for allocating work
- Written instructions
- Verbal inspections
- Re-grinding requirements
- Remedial work on chips

Personal Levels of Responsibility

- Job description
- Competence
- Training
- Experience
- Appraisal
- Updating

Reporting

- Methods
- Verbal
- Written
- Procedures for reporting faults and poor practice

Hazards

- Spinning wheels
- Flying metal pieces
- Spillages

SERVICING POLYCRYSTALLINE DIAMOND TIPPED TOOLS

PIABC Unit No: TT207
Qualification Accreditation No: K/503/6560
Unit Level: 2

Guided Learning Hours: 30
Unit Credits: 8

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	**Assessment Criterion - The learner can:**
1. Prepare to service Polycrystalline Diamond (PCD) tipped tools	1.1 Ensure you comply with current health and **safety legislation**
	1.2 Use the appropriate Personal Protective Equipment
	1.3 Confirm the **job requirements** for servicing Polycrystalline Diamond (PCD) tipped tools including assessing the state of the tools to determine suitability for servicing
	1.4 Assess the **safety** of the operation for self and others
	1.5 Select the required grinding wheels following company procedures
	1.6 Check that the **machinery** is suitable for servicing Polycrystalline Diamond (PCD) tipped tools
	1.7 Check that the work area is suitable for servicing Polycrystalline Diamond (PCD) tipped tools
	1.8 Check that the **materials** and **equipment** are ready for use
	1.9 Complete pre-start up checks following company procedures
	1.10 Determine the wear of the blade prior to servicing
	1.11 Set angle, speed of operation and coolant rate following company procedures
2. Know how to prepare for servicing Polycrystalline Diamond (PCD) tipped tools	2.1 List the current relevant health and **safety legislation** and describe how it applies to Polycrystalline Diamond (PCD) tipped tools servicing
	2.2 List with reasons the types of Personal Protective Equipment being used
	2.3 Describe the procedures for confirming the **job requirements** and checking the state of the Polycrystalline Diamond (PCD) tipped tools
	2.4 Describe the checks that are made to ensure that the work area is suitable for servicing Polycrystalline Diamond (PCD) tipped tools and safe for self and others
	2.5 Explain the choice of particular grinding wheels
	2.6 State who is authorized to mount and dress the grinding wheel

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	2.7 Describe how to mount and secure material to the grinding wheel
	2.8 Summarise the workplace procedures for checking that the **materials** and **equipment** are ready for use
	2.9 Describe workplace pre-start up checks for servicing Polycrystalline Diamond (PCD) tipped tools
	2.10 Explain how to set the angle, speed and coolant rate
	2.11 List the calculations needed for servicing Polycrystalline Diamond (PCD) tipped tools
	2.12 List the main physical features and factors likely to affect the servicing of Polycrystalline Diamond (PCD) tipped tools
	2.13 Identify the main types of tools used for servicing Polycrystalline Diamond (PCD) tipped tools
3. Be able to service Polycrystalline Diamond (PCD) tipped tools	3.1 Start the Polycrystalline Diamond (PCD) tipped tools servicing operation without undue delay
	3.2 Operate the Polycrystalline Diamond (PCD) tipped tools servicing **machinery** and **equipment** following company procedures
	3.3 Erode and renovate the tips of Polycrystalline Diamond (PCD) tipped tools
	3.4 Identity factors likely to interrupt the servicing operation
	3.5 Identify and deal with problems correctly within the limits of your responsibility
	3.6 Report potentially harmful features to all appropriate people
	3.7 Ensure that the Polycrystalline Diamond (PCD) tipped tools servicing operation is carried out to the job specification
4. Know how to service Polycrystalline Diamond (PCD) tipped tools	4.1 List the machine sequence for servicing Polycrystalline Diamond (PCD) tipped tools
	4.2 Describe the company procedures for servicing Polycrystalline Diamond (PCD) tipped tools
	4.3 State the reasons why eroding and renovating the tips may be necessary and describe how this is done
	4.4 Summarise the health and **safety** regulations relating to servicing Polycrystalline Diamond (PCD) tipped tools
	4.5 Describe the hazards associated with servicing Polycrystalline Diamond (PCD) tipped tools
	4.6 List the factors likely to interrupt the servicing of Polycrystalline Diamond (PCD) tipped tools
	4.7 List the most common problems and describe how these are dealt with

Learning Outcome – The learner will:	Assessment Criterion - The learner can:
	4.8 Describe the procedures for reporting potentially harmful features
5. Be able to conclude servicing Polycrystalline Diamond (PCD) tipped tools	5.1 Stop the Polycrystalline Diamond (PCD) tipped tools servicing operation following company procedures
	5.2 Ensure procedures are followed when handing over to someone else
	5.3 Leave the **equipment** and work area in an appropriate condition
	5.4 Ensure that Polycrystalline Diamond (PCD) tipped tools servicing tools are handled and stored following company procedures
	5.5 Ensure that the serviced Polycrystalline Diamond (PCD) tipped tools are handled and protected following company procedures
	5.6 Complete documentation legibly, accurately and within required time scales
	5.7 Inform appropriate people that the job is complete
	5.8 Dispose of waste material following company procedures
	5.9 Select and use suitable methods for protecting finished products
	5.10 Handle and transport finished products following company procedures
6. Know how to end servicing of Polycrystalline Diamond (PCD) tipped tools	6.1 List the steps used to stop the Polycrystalline Diamond (PCD) tipped tools servicing operation
	6.2 Describe the handover procedures used in the workplace
	6.3 Describe how the **equipment** and workplace should be left and list the steps used to ensure that the **equipment** and work area are left in an appropriate condition
	6.4 Describe how to handle and store Polycrystalline Diamond (PCD) tipped tools servicing tools
	6.5 Describe how the serviced Polycrystalline Diamond (PCD) tipped tools are handled and protected
	6.6 Describe how and when documentation needs to be completed
	6.7 Describe the procedures used to inform people that the job is complete
	6.8 Describe how to dispose of waste **materials**
	6.9 List the methods used to protect the finished products
	6.10 Describe how finished products are handled and transported

Range

Legislation

- Current relevant legislation

Safety

- Health and safety legislation
- Company operating procedures and guidance
- Appropriate PPE
- Statutory notices and signs
- Use of tools and equipment with guards and fencing
- Access and egress
- Space

Machinery

- Grinding wheels – mounted and dressed
- Compressed air lines
- Anything with a motor

Materials

- Coolants
- Lubricants
- Crack indicators
- Grit content

Equipment

- Hand tools
- Guide clamps
- Stones
- Guards – condition and position
- Measuring equipment

Job Requirements

- Regrinding only
- Tungsten carbide tips (TCT) replacement
- Stellite tips
- Tolerances

Job Requirements Information

- Specifications
- Sketches
- Engineering Drawings
- Job sheets
- Work cards
- Company procedures for allocating work
- Written instructions
- Verbal inspections
- Re-grinding requirements
- Remedial work on chips

Personal Levels of Responsibility

- Job description
- Competence
- Training
- Experience
- Appraisal
- Updating

Reporting

- Methods
- Verbal
- Written
- Procedures for reporting faults and poor practice

Hazards

- Spinning wheels
- Flying metal pieces
- Spillages

USING COMPUTER CONTROLLED TECHNOLOGY IN SERVICING CUTTERS AND SAW BLADES

PIABC Unit No: TT208
Qualification Accreditation No: M/503/6558
Unit Level: 2

Guided Learning Hours: 25
Unit Credits: 5

Learning Outcomes and Assessment Criteria

Learning Outcome – The learner will:	**Assessment Criterion - The learner can:**
1. Prepare to use computer controlled technology in servicing cutters and saw blades	1.1 Ensure you comply with current health and **safety** legislation
	1.2 Use the appropriate Personal Protective Equipment
	1.3 Confirm the **job requirements** for servicing including assessing the state of the cutters and/or saw blades to determine suitability for servicing
	1.4 Assess the **safety** of the operation for self and others
	1.5 Select the required computer programme and settings for the servicing job following company procedures
	1.6 Check that the servicing **machinery** is suitable for use with the computer controlled technology
	1.7 Check that the work area is suitable for the servicing operation
	1.8 Check that the **materials** and **equipment** are ready for use
	1.9 Complete pre-start up checks following company procedures
	1.10 Determine the wear of the blade prior to servicing
2. Know how to use computer controlled technology in servicing cutters and saw blades	2.1 List the current relevant health and **safety legislation** and describe how it applies to the use of computer controlled technology
	2.2 List with reasons the types of Personal Protective Equipment being used
	2.3 Describe the procedures for confirming the **job requirements** and checking the state of the cutters and/or saw blades
	2.4 Describe the checks that are made to ensure that the work area is suitable for servicing cutters and/or and safe for self and others
	2.5 Explain the choice of computer progamme and relate this to the servicing requirement
	2.6 State how Computer Aided Design (CAD) is used in servicing cutters and/or saw blades
	2.7 Summarise the company procedures for checking that the **materials** and **equipment** are ready for use

Learning Outcome – The learner will:	Assessment Criterion - The learner can:	
	2.8	Describe company pre-start up checks for using computer controlled technology to service cutters and/or saw blades
	2.9	List the calculations and adjustments needed for using computer controlled technology to service cutters and/or saw blades
	2.10	List the main physical features and factors likely to affect the use of computer controlled technology for servicing cutters and/or saw blades
	2.11	Identify the main types of tools serviced using computer controlled technology
3. Be able to use computer controlled technology in servicing cutters and saw blades	3.1	Start the computer controlled servicing operation without undue delay
	3.2	Operate the computer controlled servicing **machinery** and equipment following company procedures
	3.3	Use **equipment** and carry out operations that are appropriate for personal levels of competence and responsibility
	3.4	Identify factors likely to interrupt the computer controlled servicing operation
	3.5	Identify and deal with problems correctly within the limits of your responsibility
	3.6	Report potentially harmful features to all appropriate people
	3.7	Ensure that the computer controlled servicing operation is carried out to the job specification
4. Know how to use computer controlled technology in servicing cutters and saw blades	4.1	List the computer/machine sequence for servicing cutters and or saw blades
	4.2	Describe the company procedures for using computer controlled technology for servicing cutters and/or saw blades
	4.3	Summarise the health and **safety** regulations relating using computer controlled technology for servicing cutters and/or saw blades
	4.4	Describe the hazards associated with using computer controlled technology for servicing cutters and/or saw blades
	4.5	List the factors likely to interrupt using computer controlled technology for servicing cutters and/or saw blades
	4.6	List the most common problems and describe how these are dealt with
	4.7	Describe the procedures for reporting potentially harmful features
5. Be able to conclude using computer controlled technology	5.1	Stop the computer controlled servicing operation following company procedures

Learning Outcome – The learner will:	Assessment Criterion - The learner can:	
in servicing cutters and saw blades	5.2	Ensure that procedures are followed when handing over to someone else
	5.3	Leave the **equipment** and work area in an appropriate condition
	5.4	Ensure that the serviced cutters and/or saw blades handled and protected correctly
	5.5	Complete documentation legibly, accurately and within required time scales
	5.6	Inform appropriate people that the job is complete
	5.7	Dispose of waste material in accordance with company procedures
	5.8	Select and use suitable methods for protecting finished products
	5.9	Handle and transport finished products following company procedures
6. Know how to end using computer controlled technology in servicing cutters and saw blades	6.1	List the steps used to stop the computer controlled technology servicing operation
	6.2	Describe the handover procedures used in the workplace
	6.3	Describe how the **equipment** and workplace should be left and list the steps used to ensure that the **equipment** and work area are left in an appropriate condition
	6.4	Describe how the serviced cutter and/or saw is handled and protected
	6.5	Describe how and when documentation needs to be completed
	6.6	Describe the procedures used to inform people that the job is complete
	6.7	Describe how to dispose of waste **materials**
	6.8	List the methods used to protect the finished products
	6.9	Describe how finished products are handled and transported

Range

Legislation

- Current relevant legislation

Safety

- Health and safety legislation
- Company operating procedures and guidance
- Appropriate PPE

Machinery

- Grinding wheels – mounted and dressed
- Compressed air lines
- Anything with a motor
- Computer

Materials

- Coolants
- Lubricants
- Crack indicators
- Grit content

Equipment

- Hand tools
- Guide clamps
- Stones
- Guards – condition and position
- Computer programmes

Job Requirements

- Regrinding only
- Tungsten carbide tips (TCT) replacement
- Stellite tips

Job Requirements Information

- Specifications
- Job sheets
- Work cards
- Company procedures for allocating work
- Written instructions
- Verbal inspections
- Re-grinding requirements
- Remedial work on chips

Personal levels of Responsibility

- Job description
- Competence
- Training
- Specific computer company training
- Experience
- Appraisal
- Updating

Reporting

- Methods
- Verbal
- Written
- Procedures for reporting faults and poor practice

Hazards

- Spinning wheels
- Flying metal pieces
- Spillages

ASSESSMENT

Assessment principles should follow recognised good practice. The qualification is made up of units from different standard setting bodies and their Assessment Strategies should be used.

All learning outcomes and assessment criteria should be met.

Simulation is not permitted.

QUALIFICATION CERTIFICATION

All learning outcomes and assessment criteria are to be achieved. Whilst there is no grading to this qualification (pass, credit, etc.), the training delivery and feedback should promote the notion of continued improvement and craftsmanship.

GLOSSARY

Term	**Definition**
Learning Outcome	This describes what a learner needs to know, understand or do as a result of the process of learning.
Assessment Criteria	These are the requirements learners are expected to meet to demonstrate that a learning outcome has been achieved.
Centre	The organisation that is approved by PIABC for the purposes of preparing learners for assessment.

SUGGESTED SOURCE MATERIAL

A comprehensive list of source materials and references that may be used to support learning for qualification is available from the PIABC web site (www.piabc.org.uk).