



Australian Government

Department of Education, Employment and Workplace Relations

ICPPR521C Set up for specialised gravure printing

Revision Number: 1

ICPPR521C Set up for specialised gravure printing

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to set up for specialised gravure printing that requires a certain amount of problem solving and experimentation with the substrate and press settings.
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Application of the Unit

Application of the unit	This unit requires the individual to set up gravure printing machines for specialised print jobs. The individual will work outside standard job routines to conduct a proof run and adjust settings to ensure production speeds are attained.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Confirm specialised job specifications	1.1. Job requirements are read and interpreted from job documentation or production control system 1.2. Set up is planned and carried out correctly in minimum time with minimum wastage 1.3. Availability of all job related components is checked
2. Plan and carry out specialised set up	2.1. Specialised job specifications are identified and analysed 2.2. Special set up requirements are determined 2.3. Specialised set up is completed in minimum time with minimum wastage
3. Set up reels	3.1. Unwind and rewind reels are set up and adjusted according to job specifications 3.2. Webbing procedures are carried out according to job specifications 3.3. Web-control system is set up, evaluated and adjusted according to job specifications 3.4. Reels are spliced/joined according to job specifications 3.5. Printed web viewing devices are set up, evaluated and adjusted according to job specifications 3.6. The folder and sheeter are set up, evaluated and adjusted according to job specifications 3.7. Set off/marketing prevention devices are set up, evaluated and adjusted according to job specifications
4. Select and prepare inks and additives	4.1. Inks , dyes or additives are evaluated with reference to specialised requirements 4.2. Inks, dyes or additives are selected according to job specifications 4.3. Inks, dyes and additives are prepared according to OHS requirements, and manufacturer's/supplier's instructions with suitable precautions to minimise waste 4.4. Correct colour and weight/volume of ink are mixed and prepared according to job specifications and the printing process 4.5. Formulation of the ink, colour match and the approved colour are appropriately recorded 4.6. Inks, dyes and additives are appropriately labelled, handled and stored according to manufacturer's/

ELEMENT	PERFORMANCE CRITERIA
	supplier's instructions to prevent damage and hazards to personnel and prolong shelf life
5. Set up machine for specialised gravure printing	5.1.Gravure cylinders are selected, installed, set up and adjusted according to job specifications 5.2.Impression roller is set up and adjusted according to job specifications 5.3.Inking system/doctor blade is set up and adjusted according to the gravure process and job specifications 5.4.Drying system is set up and adjusted according to job specifications
6. Conduct specialised proof run	6.1.Material to be used for proof is organised correctly 6.2. Machine is operated according to manufacturer's specifications and enterprise procedures to produce a specified proof 6.3.Proof is visually inspected and/or tested or laboratory testing is organised according to enterprise procedures 6.4.Production does not commence without client approval or authority where appropriate 6.5.Results are interpreted and evaluated with adjustments carried out according to product and machine specifications
7. Troubleshoot machinery and material problems	7.1.Corrective or preventive action is recommended and implemented where appropriate 7.2.Changes are communicated to relevant personnel in a logical and easily understood manner 7.3.Changes are monitored to confirm improvement to production efficiency 7.4.Ongoing problems are reported according to enterprise procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- OHS in relation to operating machinery such as safely switching off machinery before cleaning is started
- communication of ideas and information by interpreting the job brief and providing advice to internal or external clients about options and limitations
- collecting, analysing and organising information by collecting and analysing data about printing process, machine specifications and performance to calculate appropriate adjustments for the job
- planning and organising activities by providing information about time and materials requirements for production scheduling
- teamwork when maintaining the production process in association with others
- mathematical ideas and techniques by calculating cylinder position, pressures and substrate requirements
- problem-solving skills by recognising proofing faults and calculating adjustments necessary to meet job specifications
- use of technology by using monitoring equipment and computerised production records

Required knowledge

- need to ensure that the job specifications are read and properly understood
- production problems that could eventuate by not reading and understanding the job specifications
- responsible person you would discuss any production problems
- OHS precaution that must be observed when installing printing cylinders on the machine
- optimum print sequence
- visual aid on the cylinder that identifies the colour of ink to be used
- precautions that are taken to ensure that the cylinders are not damaged during installation
- OHS precautions that must be observed when webbing up the machine
- determining the position of the reel
- effect if the brake tension is not set correctly
- function of the "Dancer" roller on a web machine
- effect if the web is not spliced correctly
- operation of the particular web viewing device
- principle of ESA roller operation on the gravure printing machine
- type of substrate that should be used on the ESA roller
- OHS precautions that must be observed when setting up the delivery

REQUIRED SKILLS AND KNOWLEDGE

- control of the web in the rewind unit
- result of incorrect rewind tension
- remedial steps that can be taken if there is a possibility of the ink marking in the rewind
- problems that could be attributed to a blunt knife when sheeting
- use of air blast play in the delivery of sheets
- OHS precautions that must be observed when preparing inks and additives
- details that are necessary to check an ink's suitability for the printing process
- special end-use requirements that may be necessary
- additives and their use in gravure inks
- range in seconds for Zahn cup measurements
- effect foaming has in a Zahn cup when measuring the ink viscosity
- reason pigmented ink is brought to operating temperature before correcting the viscosity
- reason for these essential checks
- advantage of using automatic viscosity controllers
- precautions that you observe to minimise waste when preparing the ink
- shelf life of most inks
- conditions that are relevant to the storage of inks and additives
- conventions that should be adhered to when labelling mixed inks
- OHS factors that need to be considered when setting up the machine
- the function of chill rollers on a machine
- main advantage of gauging up and dry register prior to printing a job
- result of excess printing pressure
- determining the pressure to be applied to the doctor blade
- print faults that could be caused by excessive overspill of air from the inter-colour drier
- recommended air ratio for efficient inter-colour drying
- advantages of using high velocity air in the drying system
- the cause of the doctor blade wearing on a gravure printing unit
- options for reducing the wear of the doctor blade
- determining the optimum make ready speed for the job
- communicating the steps involved in make ready to other team members
- need to grade the drying speeds of each progressive colour, so that first-down colours dry faster the subsequent colours
- cause of a decrease in web tension
- result of increasing rewind tension after the roll has been partially rewound
- major cause of a telescopic roll
- test methods of metallised film to find out which is the correct side on which to print
- measuring the metallised surface for coating thickness

REQUIRED SKILLS AND KNOWLEDGE

- effect of annealing on aluminium foil
- purpose of using thermal imaging face stocks
- metallising substrates
- client requirements for bar codes
- print characteristics that are related to excessive printing pressure
- causes of picking when printing multicoloured work
- print faults that result from using an over-reduced ink
- causes of moire patterns when printing by the gravure process
- instrument used to identify retained solvent trapped in the print
- purpose of taking Dyne readings
- purpose of the crinkle test when testing an ink
- print faults that would result from a worn doctor blade
- effect of using the ink returning from the ink fountain when checking the viscosity for ink whilst using ink pumps
- problems that result from the excessive use of slow solvents
- reason why laminating inks once printed appear dull and easy to scratch
- result of excessive print area tension
- problems which the printer may associate with cold seals
- responsibility for the final say in the "OK" of the job
- machine manuals, safety and other documentation that are relevant to this task and where they are kept and information that is included in these documents

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the ability to:

- set up gravure printing machines for specialised print jobs. The individual will conduct a proof run and adjust settings to ensure production speeds are attained
- demonstrate use of computerised control, monitoring and data entry systems if available and appropriate
- demonstrate an ability to find and use information relevant to the task from a variety of information sources
- set up a gravure printing machine for a specialised job on TWO occasions (if possible using different substrates) according to manufacturer's specifications, enterprise procedures and the Performance Criteria
- evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity.

Context of and specific resources for assessment

Assessment must ensure:

- assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment
- gravure printing machine.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICPPR322C Produce complex gravure printed

EVIDENCE GUIDE

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| | <p>product</p> <ul style="list-style-type: none">• ICPPR421C Set up for complex gravure printing. |
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Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
<i>Specialised</i> may include:	specialised within this context relates to the set up and production of print runs that involve new products, or a new mix of substrates and inks that requires a certain amount of problem solving and experimentation with the substrate and press settings. The set up of equipment and production involves the development of new set up and production approaches based on solving technical problems arising from new product or equipment combinations.
<i>Inks/coatings</i> may include:	range of inks commonly used in 3 or more colour printing, including standard and special colours.
<i>Colour matching systems</i> may include:	use of viscosity controls, densitometers and spectrophotometry.
<i>Machines</i> may include:	range of stack, in-line and central impression printing machines with manual, semi-automated, fully automated or computerised process control.
<i>Design</i> may include:	3 or more colours, complex graphics and text. Critical "tight" registration, fit and position, registration should be at least that required for four-colour process work.
<i>Substrate types</i> may include:	range of substrates within the major categories of paper, board, plastics and related films, or metal.
<i>Substrate handling</i> may include:	wide and narrow reel handling systems.

Unit Sector(s)

Unit sector	
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Competency field

Competency field	Printing
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Co-requisite units

Co-requisite units		