



Australian Government

Department of Education, Employment and Workplace Relations

ICPPR531C Set up for specialised lithographic printing

Revision Number: 1

ICPPR531C Set up for specialised lithographic printing

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to set up for specialised lithographic 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 evaluate set up options and then set up either wide or narrow reel or sheet-fed lithographic printing machines for specialised print jobs. The individual will conduct a proof run and adjust settings to ensure production speeds are attained in minimum time with minimum wastage.
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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. 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 reel system (OR Element 4)	3.1. Unwind and rewind reels set up options are analysed and set up is completed 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, options are analysed and set up is completed 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 and adjusted according to job specifications 3.7. Set off/marketing prevention devices are set up and adjusted according to job specifications
4. Set up sheet system (OR Element 3)	4.1. Feeder and delivery sections are set up, options are analysed and set up is completed and adjusted according to job specifications 4.2. Sheet pick-up, transportation, control and transfer systems are set up, adjusted and evaluated according to job specifications 4.3. Substrate is removed from process according to job specifications 4.4. Set off/marketing prevention devices are set up, adjusted and evaluated according to job specifications
5. Select and prepare inks and additives	5.1. Colour sequence for the job is considered and confirmed 5.2. Inks , dyes or additives are evaluated with reference to specialised requirements

ELEMENT	PERFORMANCE CRITERIA
	5.3. Inks, dyes or additives are selected according to job specifications 5.4. Inks, dyes and additives are prepared according to OHS requirements, and manufacturer's/supplier's instructions with suitable precautions to minimise waste 5.5. Correct colour and weight/volume of ink are mixed and prepared to match the requirements of the printing process and job specifications 5.6. Formulation of the ink, colour match and the approved colour are appropriately recorded 5.7. Inks, dyes and additives are appropriately labelled, handled and stored according to manufacturer's/supplier's instructions to prevent damage and hazards to personnel and prolong shelf life
6. Set up machine for specialised lithographic printing	6.1. Plate cylinder is set up, evaluated and adjusted according to job specifications 6.2. Lithographic plate is selected and prepared for installation 6.3. Plates are correctly mounted according to job specifications and in a safe manner 6.4. Blanket and blanket cylinder are set up, evaluated and adjusted according to job specifications 6.5. Impression cylinder is set up, evaluated and adjusted according to job specifications 6.6. Inking system is set up, evaluated and adjusted according to the lithographic process and job specifications 6.7. Dampening system is set up, evaluated and adjusted according to job specifications 6.8. Drying system is set up, evaluated and adjusted according to job specifications
7. Conduct specialised proof run	7.1. Material to be used for proof is organised correctly 7.2. Machine is operated according to manufacturer's specifications and enterprise procedures to produce a specified proof 7.3. Specialised proof is visually inspected and/or tested or laboratory testing is organised according to enterprise procedures 7.4. Production does not commence without client approval or authority where appropriate 7.5. Results are interpreted and evaluated with

ELEMENT	PERFORMANCE CRITERIA
	adjustments carried out according to product and machine specifications
8. Troubleshoot machinery and material problems	8.1. Corrective or preventive action is recommended and implemented where appropriate 8.2. Changes are communicated to relevant personnel in a logical and easily understood manner 8.3. Changes are monitored to confirm improvement to production efficiency 8.4. 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 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 substrate requirements, plate position and pressures
- 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
- problem that can result from the plate cylinder not being cleaned prior to plate fitting
- effect if the plate is over tensioned during fitting
- faults that could result from a plate being under tensioned
- need for accurate plate bending on a web-fed machine
- considerations that would have to be made when deciding the colour sequence
- visual aid on the plate that identifies the colour of ink to be used
- 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
- determining the position of the bustle wheels
- effect if the web is not spliced correctly
- operation of the particular web viewing device
- OHS factors that need to be considered when setting up the sheet transportation

REQUIRED SKILLS AND KNOWLEDGE

- and delivery systems
- cause of more than one sheet to be picked up in the feeder
- need for accurate feeder set up
- determining the position of the sheet prior to being transferred to the printing unit
- determining which front lays to use
- type of substrate that would require additional front lays to be engaged
- need for additional front lays when printing this type of substrate
- OHS precaution that must be observed when setting up the delivery
- controlling the web in the rewind unit
- function of a slitter on a web machine
- cause of the web to jam up in the folder
- need to disengage the folder if sheeting
- problems that could be attributed to a blunt knife when sheeting
- safety feature that is in the delivery system if the web jams up
- fold that are always made with the grain of the web
- type of folder that folds the web in half in the direction of the web grain
- remedial steps that can be taken if there is a possibility of the ink marking in the folder
- main reason for having a silicone applicator on a web machine
- OHS precaution that must be observed when removing sheets from the delivery
- cause of sheets to be delivered incorrectly
- adjustments that would be necessary if changing from lightweight to heavyweight stocks
- sheet release into the delivery
- problems resulting from the excessive use of anti set off spray powder
- cause of printed sheets to set off in the delivery
- reduction of the possibility of set off in the delivery
- fault that may be created if there is excess vacuum on the slow-down wheels
- 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
- use of a spectrophotometer to assess the colour of an ink
- formula for calculating the correct quantity of lithographic ink
- print fault that will occur if excessive driers are mixed into the ink
- 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

REQUIRED SKILLS AND KNOWLEDGE

- checks that should be made on the plate prior to fitting
- required plate packing
- normal printing pressure required between plate and blanket
- determining the correct printing pressure between blanket and stock
- ideal blanket surface condition
- achieving the correct blanket tension when fitting a new blanket
- print faults that can occur if the impression cylinder is not maintained
- order that eccentric or concentric roller adjustments should be made
- width of the contact stripe between two rollers when setting the rollers
- ink duct setting
- ideal ink duct sweep setting
- recommended degrees shore hardness for bare back and conventional dampeners
- conductivity of the fountain solution
- need to constantly check the conductivity of the fountain solution
- changes to the amount of fountain solution across the plate surface
- need to adjust the fountain solution laterally
- reasons for not engage the perfecting unit
- main reason for blistering on a heatset machine
- effect of the oven on the ink
- function of chill rollers on a web machine
- types of ink drying/curing systems
- operation of the true inch function fitted to some machines
- problems that may cause the machine to keep stopping
- checks that are necessary prior to engaging the impression
- checks that are performed when running the machine
- effect the position of certain guards has on the operation of the machine
- communicating the steps involved in operating the machine to other team members
- aids that are available for the testing of the machine proof
- tests that are necessary for this job
- testing location
- function of a polarisation filter in a densitometer
- ideal conditions for inspecting the proof
- need to use visual aids on the printed sheets
- acceptable wet trap value range for lithographic inks
- an indication of optimum solid ink density in the absence of a proof
- result of low solid ink density and excessive dot gain
- methods that are available to check and adjust ink colour and consistency
- adjustments that may have caused mis-register
- adjustments that are made to position the image laterally
- adjustments that are made to position the image circumferentially

REQUIRED SKILLS AND KNOWLEDGE

- adjustments that are made to position the image diagonally
- effect of changing the colour sequence on the wet trap value
- procedure to lengthen the print length on this type of press
- procedure to shorten the print length on this type of press
- difference between mechanical and optical dot gain
- cause of excessive mechanical dot gain
- 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 either wide or narrow reel or sheet-fed lithographic printing machines for specialised print jobs. The individual will conduct a proof run and adjust settings to ensure production speeds are attained in minimum time with minimum wastage
- 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 lithographic printing machine for a specialised job on TWO occasions (if possible using different substrates and sheet sizes if sheet-fed and if possible including at least TWO in-line processes) according to manufacturer's and job 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
- lithographic 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,

EVIDENCE GUIDE

for example:

- ICPPR332C Produce complex lithographic printed product
- ICPPR431C Set up for complex lithographic printing.

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>Substrate types</i> may include:	range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal.
<i>Inks/coatings</i> may include:	wide range of inks commonly used in printing.
<i>Colour matching systems</i> may include:	use of densitometers and/or spectrophotometry.
<i>Machines</i> may include:	range of single sheet, stream-fed or reel-fed printing machines with manual, semi-automated, fully automated or computerised process control. Includes machines with digitally imaged plates.
<i>Design</i> may include:	complex graphics and text. Critical "tight" registration, fit and position, registration for quality print jobs.
<i>Substrate handling</i> may include:	wide and narrow reel, and large and small sheet 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		