



Australian Government

ICPPRN531 Set up for specialised lithographic printing

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICP Printing and Graphic Arts Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to set up for specialised lithographic printing.

It applies to individuals who can problem-solve and experiment with substrate and press settings for either wide or narrow reel- or sheet-fed lithographic printing machines for specialised print jobs.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Printing

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
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 delivery systems	3.1 Delivery systems are set up and adjusted according to job specifications 3.2 Substrate is added to and removed from process according to

ELEMENT	PERFORMANCE CRITERIA
	job specifications
4. Select and prepare inks and additives	4.1 Colour sequence for the job is considered and confirmed 4.2 Inks, dyes or additives are evaluated with reference to specialised requirements 4.3 Inks, dyes or additives are selected according to job specifications 4.4 Inks, dyes and additives are prepared according to work health and safety (WHS) requirements, and manufacturer's/supplier's instructions with suitable precautions to minimise waste 4.5 Correct colour and weight/volume of ink are mixed and prepared to match requirements of the printing process and job specifications 4.6 Formulation of ink, colour match and approved colour are appropriately recorded 4.7 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 to prolong shelf life
5. Set up machine for specialised lithographic printing	5.1 Plate cylinder is set up, evaluated and adjusted according to job specifications 5.2 Lithographic plate is selected and prepared for installation 5.3 Plates are correctly mounted safely and according to job specifications 5.4 Blanket and blanket cylinder are set up, evaluated and adjusted according to job specifications 5.5 Impression cylinder is set up, evaluated and adjusted according to job specifications 5.6 Inking system is set up, evaluated and adjusted according to the lithographic process and job specifications 5.7 Dampening system is set up, evaluated and adjusted according to job specifications 5.8 Drying system is set up, evaluated 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 Specialised proof is visually inspected and/or tested or laboratory testing is organised according to enterprise procedures

ELEMENT	PERFORMANCE CRITERIA
	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

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1, 2.1, 4.3-4.5, 4.7, 5.1, 5.3-5.8, 6.5,	Recognises and interprets text to establish job requirements from information contained within relevant procedures and specifications
Writing	4.6, 4.7, 6.4, 7.2, 7.4	- Completes workplace recording accurately - Demonstrates sophisticated control of a broad range of text types
Oral Communication	1.1, 2.1, 4.3, 4.5, 5.1, 5.3-5.8, 6.4, 7.2, 7.4	Participates effectively in spoken interactions by using strategies to confirm, clarify or repair understanding
Numeracy	4.5	Interprets and analyses a range of mathematical information used in familiar and routine tasks
Navigate the world of work	1.2, 2.1, 2.3, 4.2-4.7, 5.1, 5.3-5.8, 6.2-6.5, 7.3, 7.4	- Recognises and follows explicit and implicit protocols and meets expectations associated with own role - Complies with WHS, legislative requirements and follows organisational policies and procedures relevant to own role
Interact with	1.1, 2.1, 5.3, 5.5, 6.1, 6.3-6.8, 7.4, 8.2,	Seeks to cooperate with others to achieve results in immediate work context

others	8.4	
Get the work done	1.2, 1.3, 2.1-2.3, 4.1-4.5, 4.7, 5.1, 5.3-5.8, 6.1-6.3, 6.5, 7.3, 7.4	- Plans, evaluates, identifies and assembles resources required to complete tasks - Determines priorities and sequences steps involved in complex tasks with a focus on production efficiency - May use formal analytical and lateral thinking techniques to identify issues, generate and evaluate possible solutions - Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information - Uses familiar digital systems and tools to access, organise, analyse and display information relevant to role - Reads data from electronic monitoring and control systems

Range of Conditions

This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Delivery systems MUST include EITHER:	- reel OR - sheet
Setting up and adjusting MUST include EITHER:	- set-up options for unwind and rewind reels - webbing procedures and web control system - splicing/joining reels - printed web viewing devices - folder and sheeter - set off / marking prevention devices OR - feeder and delivery sections - sheet pick-up, transportation, control and transfer systems - set off / marking prevention devices

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICPPRN531 Set up for specialised lithographic printing	ICPPR531C Set up for specialised lithographic printing	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a74b7a0f-a253-47e3-8be0-5d426e24131d>

Assessment Requirements for ICPPRN531 Set up for specialised lithographic printing

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Performance Evidence

Evidence of the ability to:

- set up either wide or narrow reel or sheet-fed lithographic printing machines for specialised print jobs; conduct a proof run and adjust settings to ensure production speeds are attained in minimum time with minimum wastage
- set up a lithographic printing machine for a specialised job on TWO occasions using different substrates and sheet sizes if sheet-fed and including at least two in-line processes according to manufacturer's and job specifications, enterprise procedures and the performance criteria.
- find and use information relevant to the task from a variety of information sources

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain why it is necessary that job specifications are read and properly understood
- discuss production problems that could eventuate if job specifications are not read and properly understood
- identify who to discuss any production problems with
- outline the problem that can result from the plate cylinder not being cleaned prior to plate fitting
- describe what happens if the plate is over tensioned during fitting
- list faults that can result from a plate being under tensioned

For reel systems only

- describe the need for accurate plate bending on a web-fed machine
- explain how to determine position of the reel

- describe the effect if brake tension is not set correctly
- discuss the function of the 'dancer' roller on a web machine
- outline how to determine position of the bustle wheels
- explain what happens if the web is not spliced correctly
- describe the operation of the particular web viewing device
- explain how the web is controlled in the rewind unit
- outline the function of a slitter on a web machine
- discuss what causes the web to jam up in the folder
- explain the need to disengage the folder if sheeting
- list problems that attributable to a blunt knife when sheeting
- outline the safety feature in the delivery system for when the web jams up
- describe which fold is always made with the grain of the web
- explain the type of folder that folds the web in half in the direction of the web grain
- outline remedial steps to take if there is a possibility of ink marking in the folder
- describe the main reason for having a silicone applicator on a web machine
- explain the main reason for blistering on a heat set machine
- explain what the oven evaporates from the ink
- discuss the function of chill rollers on a web machine

For sheet systems only

- describe work health and safety (WHS) factors to consider when setting up the sheet transportation and delivery systems
- explain what causes more than one sheet to be picked up in the feeder
- discuss the need for accurate feeder set up
- describe how to determine position of the sheet prior to transfer to the printing unit
- discuss how to determine which front lays to use
- explain the type of substrate that requires additional front lays to be engaged
- explain the need for additional front lays when printing this type of substrate
- list the WHS precaution to observe when setting up the delivery
- list WHS precautions for removing sheets from the delivery
- explain what causes incorrect sheets delivery
- outline necessary adjustments when changing from lightweight to heavyweight stocks
- explain what determines sheet release into the delivery
- list problems caused by excessive use of anti-set off spray powder
- describe what might cause printed sheets to set off in the delivery
- discuss how the possibility of set off in the delivery might be reduced
- explain what can happen if there is excess vacuum on the slow-down wheels
- list WHS precautions that must be observed when preparing inks and additives
- describe the procedure used to lengthen print length on this type of press
- discuss the procedure used to shorten print length on this type of press
- outline considerations of deciding colour sequence

- point out the visual aid on the plate that identifies ink colour to be used
- discuss all WHS precautions for webbing up the machine
- outline details to check to determine an ink's suitability for the printing process
- describe what special end-use requirements might be necessary
- explain the reason for mixing additives in the ink
- explain how a spectrophotometer can help assess ink colour
- describe the formula for calculating correct quantity of lithographic ink
- discuss the print fault that occurs if excessive driers are mixed into the ink
- outline precautions to minimise waste when preparing ink
- explain shelf life of most inks
- discuss conditions relevant to storage of inks and additives
- explain conventions for labelling mixed inks
- list WHS factors for setting up the machine
- describe checks made on the plate prior to fitting
- explain how much plate packing is required
- describe normal printing pressure required between plate and blanket
- explain how to determine correct printing pressure between blanket and stock
- explain the ideal blanket surface condition
- describe how to achieve correct blanket tension when fitting a new blanket
- describe print faults likely if the impression cylinder is not maintained
- explain the order eccentric or concentric roller adjustments should be made in
- explain what the width of the contact stripe between two rollers should be when setting the rollers
- describe how to determine the ink duct setting
- explain the ideal ink duct sweep setting
- discuss recommended degrees shore hardness for bare back and conventional dampeners
- describe what conductivity of the fountain solution should be
- explain why it is important to constantly check conductivity of the fountain solution
- explain how to change the amount of fountain solution across the plate surface
- outline the need to adjust the fountain solution laterally
- list reasons it might be difficult to engage the perfecting unit
- list types of ink drying/curing systems
- describe what the true inch function feature fitted to some machines does
- list what may cause the machine to keep stopping
- outline necessary checks prior to engaging the impression
- describe checks performed when running the machine
- describe the effect position of certain guards has on operation of the machine
- explain how steps involved in operating the machine should be communicated to other team members
- describe aids available for the testing of the machine proof
- discuss where testing should take place
- explain the function of a polarisation filter in a densitometer

- describe ideal conditions for inspecting the proof
- discuss why it is necessary to use visual aids on the printed sheets
- describe the acceptable wet trap value range for lithographic inks
- outline an indication of optimum solid ink density in the absence of a proof
- explain the result of low solid ink density and excessive dot gain
- describe available methods to check and adjust ink colour and consistency
- list adjustments that may cause mis-register
- list adjustments made to position the image laterally
- list adjustments made to position the image circumferentially
- list adjustments made to position the image diagonally
- discuss the effect of changing colour sequence on the wet trap value
- explain the difference between mechanical and optical dot gain
- outline the cause of excessive mechanical dot gain
- explain who has responsibility for the final say in the OK of the job
- identify machine manuals, safety and other documentation relevant to this task, where they are kept, and discuss information included in these documents.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the printing field of work and include access to a lithographic printing machine.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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