



Australian Government

ICPPRN431 Set up for complex 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 options, and then set up either wide or narrow reel or sheet-fed lithographic printing machines for non-routine print jobs. It includes the ability to conduct a proof run and adjust settings to ensure production speeds are attained in minimum time with minimum wastage.

It applies to individuals working as print machinists in the printing and graphic arts industry. They prepare material, set up, monitor and operate equipment and machinery, apply solutions to a defined range of problems associated with the print medium, and analyse and evaluate information from a variety of sources. They may also provide leadership and guidance to others with some limited responsibility for the output of others.

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 complex job specifications	1.1 Job requirements are read and interpreted from job documentation or production control system 1.2 Non-routine 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. Set up delivery systems	2.1 Delivery systems are set up and adjusted according to job specifications

ELEMENT	PERFORMANCE CRITERIA
	2.2 Substrate is added to and removed from process according to job specifications
3. Select and prepare inks and additives	3.1 Colour sequence for job is considered and confirmed 3.2 Inks, dyes or additives are selected according to non-routine job specifications and end-user requirements 3.3 Quality and suitability of inks, dyes or additives are checked and appropriate action is taken 3.4 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 3.5 Correct colour and weight/volume of ink is mixed and prepared to match requirements of the job specification and the non-routine printing process 3.6 Formulation of ink, colour match and approved colour are appropriately recorded 3.7 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
4. Set up machine for complex lithographic printing	4.1 Plate cylinder is set up and adjusted according to job specifications 4.2 Plates are correctly mounted according to machine specification and in a safe manner 4.3 Blanket and blanket cylinder are set up and adjusted according to job specifications 4.4 Impression cylinder is set up and adjusted according to job specifications 4.5 Inking system is set up and adjusted according to the lithographic process and job specifications 4.6 Dampening system is set up and adjusted according to job specifications 4.7 Drying system is set up and adjusted according to job specifications
5. Conduct proof run	5.1 Material to be used for proof is organised correctly 5.2 Machine is operated according to manufacturer's and enterprise procedures to produce a specified proof 5.3 Production does not commence without client approval or authority where appropriate

ELEMENT	PERFORMANCE CRITERIA
	5.4 Results are interpreted and adjustments are carried out according to product and machine specifications

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, 3.2, 3.4, 3.7, 4.1-4.8, 5.4	Recognises and interprets text to establish job requirements from information contained within relevant instructions, procedures and specifications
Writing	5.7, 5.3	Completes forms and labels accurately and according to workplace requirements
Oral Communication	5.3	Participates effectively in spoken interactions using appropriate vocabulary, and employs questioning and listening techniques to gain approvals
Navigate the world of work	3.4, 3.6, 3.7, 4.3, 5.2, 5.3,	Complies with legislative requirements and follows organisational policies and procedures relevant to own role
Interact with others	5.3	Follows accepted communication practices and protocols when seeking approval
Get the work done	1.1-1.3, 2.1, 2.2, 3.1, 3.2-3.5, 3.7, 4.1-4.8, 5.1, 5.2, 5.4	- With assistance, determines priorities and sequences steps involved in clearly defined, familiar tasks and identifies and assembles required resources - Responds to predictable problems and implements standard or logical solutions related to role in immediate work environment - 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 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 and 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
ICPPRN431 Set up for complex lithographic printing	ICPPR431C Set up for complex 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 ICPPRN431 Set up for complex lithographic printing

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Performance Evidence

Evidence of the ability to:

- set up a lithographic printing machine for a complex 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 job and manufacturer's specifications, and enterprise procedures
- set up either wide or narrow reel or sheet-fed lithographic printing machines for non-routine print jobs
- conduct proof run and adjust settings to ensure production speeds are attained in minimum time with minimum wastage

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 to ensure the job specifications are read and properly understood
- describe production problems that can eventuate from not reading and understanding the job specifications
- identify who to discuss any production problems with
- describe problems that can result from the plate cylinder not being cleaned prior to plate fitting
- explain what can happen if the plate is over-tensioned during fitting
- explain faults that can result from a plate being under-tensioned
- describe why accurate plate bending is necessary on a web-fed machine
- outline considerations for deciding the colour sequence
- describe the visual aid on the plate that identifies colour of ink to be used

For reel systems only

- list work health and safety (WHS) precautions for webbing up the machine
- explain how to determine position of the reel
- describe what can happen if the brake tension is not set correctly
- outline the function of the 'Dancer' roller on a web machine
- demonstrate knowledge of how to determine the position of bustle wheels
- explain what can happen if the web is not spliced correctly
- demonstrate knowledge of how the particular web viewing device works
- explain how to control the web in the rewind unit
- describe the function of a slitter on a web machine
- list possible causes of the web to jam up in the folder
- explain the need to disengage folder if sheeting
- describe problems that can be attributed to a blunt knife when sheeting
- name a safety feature in the delivery system for when the web jams up
- describe which fold is always made with the grain of the web
- identify the type of folder that folds the web in half in the direction of the web grain
- list remedial steps if there is a possibility of the ink marking in the folder
- outline main reasons for having a silicone applicator on a web machine
- list main reasons for blistering on a heat-set machine
- identify substances that evaporate after ink is placed in the oven
- describe the function of chill rollers on a web machine

For sheet systems only

- list WHS factors to consider when setting up sheet transportation and delivery systems
- explain what can cause more than one sheet to be picked up in the feeder
- outline the need for accurate feeder set up
- identify what determines position of the sheet prior to being transferred to the printing unit
- explain how to decide which front lays to use
- describe 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 WHS precautions for setting up the delivery
- list WHS precautions for removing sheets from the delivery
- explain the cause of sheets being delivered incorrectly
- describe necessary adjustments if changing from lightweight to heavyweight stocks
- explain what determines sheet release into the delivery
- outline problems from excessive use of anti-set off spray powder
- list possible causes of printed sheets to set off in the delivery
- explain how to reduce possibility of set off in the delivery
- identify faults that may be created by excess vacuum on the slow-down wheels
- outline the procedure to lengthen print length on this type of press
- outline the procedure to shorten print length on this type of press

- list WHS concerns for preparation of inks and additives
- identify details to check an ink's suitability for the printing process
- outline special end-use requirements that may be necessary
- explain why it may be necessary to mix an additive into the ink
- explain how a spectrophotometer can be used to assess colour of an ink
- describe the formula for calculating correct quantity of lithographic ink
- name a print fault likely if excessive driers are mixed into ink
- describe precautions to minimise waste when preparing ink
- describe how to determine shelf life of most inks
- outline conditions relevant to storage of inks and additives
- list conventions to follow when labelling mixed inks
- list WHS factors to consider when setting up the machine
- describe checks to be made on the plate prior to fitting
- outline how much plate packing is required
- explain normal printing pressure required between plate and blanket
- explain how to determine correct printing pressure between blanket and stock
- outline ideal blanket surface condition
- explain how to achieve correct blanket tension when fitting a new blanket
- identify print faults likely if the impression cylinder is not maintained
- describe the order eccentric or concentric roller adjustments should be made in
- list the contact stripe width required between two rollers when setting the rollers
- demonstrate how to determine ink duct setting
- explain the ideal ink duct sweep setting
- describe recommended degrees of shore hardness for bare back and conventional dampeners
- describe the best conductivity of fountain solution
- explain why it is necessary to constantly check conductivity of fountain solution
- demonstrate knowledge of how to change the amount of fountain solution across the plate surface
- explain why it may be necessary to adjust fountain solution laterally
- explain the effect of engaging the perfecting unit on the run
- list WHS precautions for slitting on the machine
- describe operations performed with in-line units
- demonstrate knowledge of machine position used to engage in-line processing units
- identify precautions for setting up in-line processing units
- list reasons for a printed product to be punched
- outline what to consider when setting hole punching in relation to repeat length
- describe the result of excessive pressure on the slitters
- describe the operation of the true inch function fitted to some machines
- describe problems that may cause the machine to keep stopping
- list necessary checks prior to engaging the impression
- list checks performed when running the machine

- explain the effect the position of certain guards have on machine operation
- outline how steps involved in operating the machine are communicated to other team members
- name various aids available for testing the machine proof
- identify where testing should take place
- explain the function of a polarisation filter in a densitometer
- describe the ideal conditions for inspecting the proof
- outline the need to use visual aids on the printed sheets
- identify the acceptable wet trap value range for lithographic inks
- explain what indicates optimum solid ink density, in the absence of a proof
- describe the result of low solid ink density and excessive dot gain
- list methods to check and adjust ink colour and consistency
- explain adjustments that may cause mis-register
- explain adjustments required to position the image laterally
- list adjustments made to position the image circumferentially
- list adjustments made to position the image diagonally
- describe the effect of changing colour sequence on the wet trap value
- explain the difference between mechanical and optical dot gain
- describe factors that can cause excessive mechanical dot gain
- identify who has responsibility for the final approval of the job
- locate machine manuals, safety and other documentation relevant to this task and outline the 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 special purpose tools, equipment and materials, including a lithographic printing machine with in-line units

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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